Draft
Environmental Assessment
Loop 9
I-35E to I-45
Dallas and Ellis Counties, Texas

CSJ: 2964-10-005

June 2017

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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List of Acronyms

ACS	American Community Survey
AOI	area of influence
APE	area of potential effect
ASTM	American Society for Testing Materials
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe Railway
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMP	Congestion Management Process
CWA	Clean Water Act
dB(A)	A-weighted decibels
DOT	Department of Transportation
DFW	Dallas-Fort Worth
EB	eastbound
EJ	Environmental Justice
ESA	Endangered Species Act
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Farm-to-Market Road
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
I-35E	Interstate Highway 35E
IIPOD	International Inland Port of Dallas
LEP	Limited English Proficiency
LOS	level of service
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MSAT	Mobile Source Air Toxics
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NB	northbound
NCTCOG	North Central Texas Council of Governments
NDD	Natural Diversity Database
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NWI	National Wetland Inventory
OHWM	ordinary high-water mark
PA	Programmatic Agreement
PA-TU	First Amended Programmatic Agreement among the FHWA, TxDOT, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation, regarding the Implementation of Transportation Undertakings
PEM	palustrine emergent
PGBT	President George Bush Turnpike
PUB	palustrine unconsolidated bottom
ROW	right-of-way
RSA	Resource Study Area
SB	southbound
SGCN	Species of Greatest Conservation Need
SH	State Highway
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
STIP	Statewide Transportation Improvement Program
TAC	Texas Administrative Code
TARL	Texas Archeological Research Laboratory
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TNM	traffic noise modeling software
TPWD	Texas Parks and Wildlife Department
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
US	U.S. Highway
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
WB	westbound
WOUS	waters of the U.S.
%	percent

Executive Summary

The Texas Department of Transportation (TxDOT) - Dallas District, proposes the construction of Loop 9 as a six-lane new location frontage road system between Interstate Highway I-35 East (I-35E) to I-45 through Dallas and Ellis counties, Texas (**Figures 1 through 3 in Appendix A**). The approximate 10-mile new location frontage road system would begin at I-35E, near Red Oak, Texas, continuing in an easterly direction through the city of Lancaster to end at I-45, near Ferris, Texas. The proposed ROW would include a median that would accommodate the future construction of an ultimate access-controlled mainline facility. Construction of the ultimate access-controlled mainlane facility would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

Project Description

The proposed Loop 9 facility begins at I-35E near Red Oak and continues to the east generally parallel to Tater Brown Road for approximately 1.0 mile. As Loop 9 crosses Houston School Road, it shifts to the northeast through portions of Lancaster and crosses W. Reindeer Road after a distance of approximately 0.75 mile. It then travels along W. Reindeer Road where it crosses Bear Creek before crossing the Burlington Northern Santa Fe (BNSF) Railway and SH 342 (South Dallas Avenue/North Central Boulevard) after a distance of approximately 1.0 mile. Loop 9 continues traveling to the east for approximately 2.0 miles until it reaches E. Reindeer Road and then turns southeast for approximately 1.5 miles crossing into Ellis County and intersecting Nokomis Road. Loop 9 then veers to the northeast and crosses back into Dallas County parallel to Stainback Road for 1.5 miles, then crosses Ferris Road and Tenmile Creek and turns slightly northeast, just north of the Skyline Landfill and the Oncor transmission line corridor, and then crosses Business I-45 (North Central Street) and ends at I-45 near Ferris for a distance of 2.0 miles. The total project length is approximately 10 miles (**Figures 1 through 3 in Appendix A**).

The proposed project would be constructed as two three-lane frontage roads with a median (200 to 364 feet wide) reserved for the future ultimate access-controlled facility. The typical ROW for the project would vary from approximately 384 to 548 feet in width. The proposed project would consist of three 12-foot lanes with 8-foot inside shoulders and 8-foot outside shoulders. The width between the frontage roads and the ROW would be 40 foot at a minimum to allow room for drainage ditches. The median would remain unutilized until construction of the future ultimate facility at a later date. Refer to **Appendix B** for proposed typical sections and **Appendix C** for the Schematic Design.

The total area needed for the proposed new location project (existing ROW plus proposed ROW plus easements) is 727.02 acres. The total proposed ROW is 541.23 acres. Because the project crosses numerous other transportation facilities, it would utilize 182.44 acres of existing ROW. Temporary construction easements would not be required. Permanent drainage easements, totaling 3.35 acres, would be required in several locations.

The proposed new location frontage roads would include intersections at major cross roads along the proposed route to include I-35E, Houston School Road, State Highway (SH) 342 (South Dallas Avenue/North Central Boulevard), existing and future Reindeer Road, existing and future Nokomis Road, Ferris Road, Business I-45 (North Central Street), and I-45. Interchange connections to existing I-35E and I-45 would include ramping and frontage road modifications. The proposed project would also include the construction of grade separations at I-35E and the BNSF Railway.

The proposed project would likely be constructed in three phases based on traffic needs and project funding. A logical sequence for staging the various elements for construction of the new location frontage road system could be as follows:

- **Phase 1** would construct a single two-lane, two-way frontage road, and would also acquire the proposed ROW to accommodate the frontage roads and the future ultimate access-controlled mainlane facility.
- As traffic warrants and funding becomes available, **Phase 2** would involve the construction of the second two-lane frontage road and the conversion of the two-way frontage road built in Phase 1 to a one-way operation.
- As traffic warrants and funding becomes available, **Phase 3** would involve the construction of a third frontage road lane in each direction and include the construction of grade separations at specific high-volume intersections.

Phase 4 would involve the construction of the ultimate access-controlled mainlane facility in both directions. Construction of the ultimate access-controlled mainlane facility would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

The proposed Loop 9 new location frontage road is identified as rural and would provide an 8-foot outside shoulder width along the frontage roads for bicycle accommodations. Frontage roads located in the urbanized area of I-35E would consist of one 14-foot-wide outside shared-use lane (for bicycle accommodation) and a 6-foot sidewalk for pedestrian accommodation.

Both the Mobility 2040 Metropolitan Transportation Plan (MTP) and the 2017-2020 Transportation Improvement Program (TIP) were initially found to conform to the Texas Commission on Environmental Quality State Implementation Plan (SIP) by the Federal Highway Administration (FHWA) and Federal Transit Administration on September 7, 2016, and December 19, 2016, respectively; however, the proposed project is not consistent with this conformity determination, because it was not approved in the 2017-2020 TIP. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming MTP and TIP. Copies of the TIP and MTP pages are included in **Appendix D**.

Need and Purpose

The need for the Loop 9 project is to address population growth, transportation demand, system linkages, and connectivity among the existing roadway facilities. It would provide a direct link from I-35E to I-45 and would serve the residents and businesses in the area.

Loop 9 is an element of the regional long-range transportation plan that would aid in addressing the transportation needs identified in the region. The purpose of Loop 9 would be to:

- Provide a facility that would accommodate expanding transportation demands resulting from population growth and economic development in the region.
- Increase mobility and accessibility in the region.
- Provide an east-west transportation facility to serve the communities in the project area.

Alternatives

Alternative alignments for the proposed project were identified and evaluated as a part of the Loop 9 Southeast Corridor/Feasibility Study approved in March 2014 (TxDOT, 2014b). The report is available at http://www.loop9.org/study.html. The primary purpose of this study was to develop a corridor vision and a program of projects for development as transportation funding allows. To accomplish this, TxDOT followed a collaborative and integrated approach to transportation decision-making that considered environmental, community, and economic goals early in the transportation planning process. Based on discussions with local governments and major stakeholders within the study area, the construction of frontage roads from I-35E to I-45 was determined to be one of the first segments that should be advanced through project development because of the anticipated growth in these areas.

Since March 2014, the alignment and proposed ROW for this section of Loop 9 has been modified and adjusted to address public and local government concerns/comments, changing engineering requirements, and to accommodate the proposed high speed rail project near Ferris, Texas. These modifications have contributed to a locally preferred Build Alternative that avoids and minimizes impacts to the communities and the natural environment and is supported by local governments.

The No-Build Alternative consists of taking no action to improve area transportation facilities other than projects listed in the 2017–2020 TIP and Mobility 2040, which are planned and programmed. The No-Build Alternative was carried forward to provide a baseline for comparison for the Build Alternative.

Affected Environment and Environmental Consequences

The following detailed environmental technical reports have been prepared in support of this Environmental Assessment.

- Loop 9 Community Impacts Assessment Technical Report (TxDOT, 2017a)
- Loop 9 Water Resources Technical Report (TxDOT, 2017b)

- Loop 9 Biological Resources Technical Report (TxDOT, 2017c)
- Loop 9 Air Quality Technical Report (TxDOT, 2017d)
- Loop 9 Hazardous Materials Initial Site Assessment (TxDOT, 2017e)
- Loop 9 Traffic Noise Impact Assessment (TxDOT, 2017f)
- Loop 9 Indirect and Cumulative Impact Analysis (TxDOT, 2017g)

Each technical report is on file at the TxDOT Dallas District office and can be reviewed upon request. Based on the technical studies, potential adverse impacts of the Build Alternative could include the following:

- **ROW/Displacements** — There is the potential for 25 residences (seven mobile homes and 18 houses), seven commercial structures, and 68 other structures (includes five barns, two canopies, 11 carports, four detached garages, two gazebos, a group of propane tanks [three], 41 storage sheds/buildings, and two swimming pools) to be displaced and/or relocated as a result of the proposed project.
- **Changes in Access** — Implementation of the proposed project would result in changes of access to/from I-35E and I-45 within the proposed project limits and to various local streets traversed by the proposed alignment. Access to some existing businesses and residences by the proposed project, could also be altered.
- **Waters of the U.S.** — Permanent fill amounts in waters of the U.S. would exceed 0.5 acres. The proposed project would also impact greater than 1,500 linear feet of stream at two creek crossings.
- **Vegetation** — The proposed project would result in the direct conversion of approximately 550.37 acres of vegetation within existing and proposed transportation and other ROW.
- **Protected Species** — The proposed ROW contains confirmed and potential habitat for one State Species of Greatest Conservation Need (SGCN) - Hall's prairie clover. Potential habitat for another 19 SGCN's was also identified in the proposed ROW: Southern crawfish frog, Henslow's Sparrow, Sprague's Pipit, Western Burrowing Owl, Wood Stork, Louisiana Pigtoe, Sandbank Pocketbook, Texas Heelsplitter, Texas Pigtoe, Glen Rose Yucca, Osage Plains False Foxglove, Plateau Milkvine, Texas Milk Vetch, Tree Dodder, Warnock's coral-root, Alligator Snapping Turtle, Texas Horned Lizard, Texas Garter Snake, and Timber Rattlesnake. Potential habitat for the federally listed endangered Interior Least Tern was also observed within the proposed ROW; however, this species was not observed during site visits in 2014 and 2015.
- **Hazardous Materials** — One closed and abandoned landfill site is potentially located within the proposed ROW. Additional investigations are currently being conducted to determine the exact location and contents of the site prior to construction.

- **Traffic noise** — The proposed project would result in noise impacts at three of the 20 receivers. However, traffic noise barriers were found to not be feasible and reasonable based on the TxDOT *Guidelines for Analysis and Abatement of Roadway Traffic Noise*.
- **Indirect Impacts** — The proposed project could result in potential encroachment alteration impacts including changes to vegetation/habitat; disruption of natural process and ecosystem functioning; water quality; and socioeconomic impacts including alterations to neighborhood cohesion, and changes in travel patterns. Induced growth is anticipated in areas around the International Inland Port of Dallas facilities and the intersections for Loop 9 (I-35E, SH 342 [South Dallas Avenue], Houston School Road, Ferris Road and I-45).
- **Construction Phase Impacts** — Construction of the Build Alternative could result in impacts to the community, vegetation, wildlife, waters of the U.S., water quality, noise, air quality, hazardous materials and archeological resources; however, these impacts would be temporary.

Benefits of the Build Alternative could include:

- Decreased congestion when compared to the No-Build Alternative.
- Improved local mobility by providing an east-west transportation facility to serve communities in the project area.
- Improved local access by improving access to the neighborhoods, businesses and community facilities in the project area.
- Improved emergency response, access to services, employers, major freight and trucking yards, transit services, and other community facilities.
- Improved regional mobility by accommodating expanding transportation demands from population growth and economic development.
- Addition of bicycle and pedestrian facilities that would improve nonmotorized access in the project area and create a link between residential neighborhoods, commercial businesses, community facilities, as well as other bicycle and pedestrian facilities outside of the project area.

Public Involvement

The proposed project is open to comments by any person, and all views on the scope of the improvements proposed on Loop 9 from I-35E to I-45, alternative projects, environmental impacts and any other related matter have been and would continue to be welcome. In addition to the local community, public involvement is ongoing with governmental agencies, officials, organizations, and individuals. The project website, www.loop9.org, has been maintained and updated throughout project development. A separate project email address, comments@loop9.org, was also maintained and allowed the public to submit comments to the project team via email.

The Loop 9 Southeast Regional Task Force held meetings in Red Oak on September 15, 2014, and in Lancaster on October 28, 2015. At these meetings, the project team provided an update on the study progress, summarized results from the October 2014 public meeting, and discussed any alignment changes that had occurred during project development. Summaries of these meetings are on file at TxDOT and are available for review.

A public meeting for the proposed project was held on October 28, 2014, from 4:30 PM to 7:00 PM at the Lancaster Elementary School (cafeteria) located at 1109 West Main Street, Lancaster, Texas. A total of 210 individuals from the public signed the registration sheets. Each attendee was provided a project fact sheet and a comment form. Fifteen written comments were submitted during the open house. One comment form, one letter, and five emails were submitted during the official comment period, which ended on November 7, 2014. A total of 22 comments were received at the public meeting and during the 10-day comment period.

The public hearing is anticipated in June of 2017 for the proposed project.

Environmental Permits, Issues, and Commitments

All permits and commitments made by TxDOT and any additional agency coordination requirements would be included in the Environmental Permits, Issues and Commitments sheet as part of the final construction plans. The following is a summary of these permits and commitments.

- ROW Acquisition and Relocation Assistance would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Public Law 91 6), as amended, and relocation resources are available to all displaced residences and businesses without discrimination.
- Due to denial of right-of-entry to conduct the archeological survey, clearance has been obtained from the THC for TxDOT to proceed with environmental approval and ROW acquisition (**Appendix J**). However, no construction or ground-disturbing activities can begin in the undertakings APE until all Section 106/Antiquities Code of Texas consultation has been completed.
- U.S. Army Corps of Engineers (USACE) Section 404 Individual Permit
- Compliance with the State of Texas Water Quality Certification Program – Tier 2 certification
- Texas Pollutant Discharge Elimination System *General Permit for Construction Storm Water Discharges*
- Storm water pollution prevention plan and Notice of Intent
- Construction best management practices (BMPs) for temporary storm water controls
- Permanent water pollution control measures

- Avoid and minimize disturbance of vegetation and soils during construction in accordance with *Executive Order 133112 on Invasive Species, the Executive Memorandum on Beneficial Landscaping*, and the 1999 FHWA Guidance on Invasive Species.
- The contractor would remove all old migratory bird nests between September 1 and January 31 from any structure where work would be done. In addition, the contractor would prevent the establishment of active nests during the nesting season on TxDOT-owned and operated facilities and structures proposed for replacement or repair; ensure no disturbance, destruction or removal of active nests, including ground nesting birds, during the nesting season (February 15 to October 1); avoid the removal of unoccupied, inactive nests where practicable; and would not collect, capture, relocate, or transport of birds, eggs, young or active nests without a permit.
- TxDOT would implement BMPs to minimize impacts to plant and animal species or groups of species as specified under the Programmatic Agreement with the Texas Parks and Wildlife Department (TPWD) and summarized in the Biological Resources Technical Report prepared for the project (TxDOT, 2017c). The BMPs would be updated as necessary upon completion of coordination with the TPWD.
- If the Interior Least Tern is present during construction, no construction activities would occur within a 300-foot buffer of suitable habitat for the species from April 1 to September 1.
  - Presence/absence survey guidelines for the Interior Least Tern, provided by the USWFS to permitted staff, would be followed when a survey is conducted during the nesting season prior to the start of construction. Documentation can be provided upon request.
  - Only permitted individual(s) would conduct the presence/absence survey during the nesting season from May through late July immediately prior to the start of construction.
- Although there are no species specific BMPs for the observed Hall's prairie clover, TxDOT proposes to evaluate potential conservation measures such as collection of seeds and/or transfer of complete specimens (if possible) during the flowering season before construction is slated to begin. (Note: Even with implementation of the voluntary conservation measures, it is still a trigger for coordination.)
- The contractor would be required to utilize fugitive dust control measures during construction.
- The contractor would make reasonable efforts to minimize construction noise through abatement measures.
- Any unanticipated contaminated media (petroleum residual contaminated material or hazardous materials) or regulated solid waste encountered during construction would be managed in accordance with applicable federal, state, and local regulations. Hazardous materials requiring special handling would be removed only by certified abatement contractors having documentation of prior acceptable abatement work.

- Universal precautions would be taken during construction and the contractor must take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area.
- Asbestos and lead-based paint investigations studies would be conducted where buildings or structures would be acquired and demolished. Asbestos inspections, specification, notification, license, accreditation, abatement and disposal, as applicable, would comply with federal and state regulations.

Conclusion

The Build Alternative would address the specified project needs by providing a facility that would accommodate expanding transportation demands resulting from population growth and economic development in the region, increase mobility and accessibility in the region, and provide an east-west transportation facility to serve the communities in the project area.

Impacts to the environment as a result of the proposed project would not be considered significant; as such, the Build Alternative is recommended as the preferred alternative and a Finding of No Significant Impact (known as a FONSI) is anticipated.

1. Introduction

The Texas Department of Transportation (TxDOT) – Dallas District, proposes the construction of a six-lane new location frontage road system between Interstate Highway I-35 East (I-35E) to I-45 through Dallas and Ellis counties, Texas (**Figures 1 through 3 in Appendix A**). The approximate 10-mile new location frontage road system would begin at I-35E, near Red Oak, Texas, continuing in an easterly direction through the city of Lancaster to end at I-45, near Ferris, Texas. The proposed ROW would include a median that would accommodate the future construction of an ultimate access-controlled mainline facility. Construction of the ultimate access-controlled mainlane facility would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

1.1 Project Background

The proposed project was identified and evaluated as a part of the Loop 9 Southeast Corridor/Feasibility Study approved in March 2014 (TxDOT, 2014b). The primary purpose of this study was to develop a corridor vision and a program of projects for development as transportation funding allows. This study, which followed the Planning and Environmental Linkages process, recommended an ultimate access-controlled facility consisting of six-lane divided mainlanes with three-lane frontage roads in each direction, extending approximately 35 miles within the limits from U.S. Highway (US) 67 to I-20, through Dallas, Ellis, and Kaufman counties, Texas. The report is available at http://www.loop9.org/study.html. The study identified the need to advance the construction of frontage roads and include the ultimate ROW needed for the section of Loop 9 from I-35E to I-45, based on projected growth in the region. It is expected that the ultimate mainlane improvements would not occur until after 2040 and would ultimately be driven by timing and pace of future development and traffic growth in the area. As such, construction of the ultimate mainlane facility would require additional environmental investigation and analyses when construction is determined necessary.

1.2 Logical Termini and Independent Utility

Based on discussions with local governments and major stakeholders during the Corridor/ Feasibility Study, considerations of logical termini (project endpoints such as major thoroughfares) and independent utility (the ability of a transportation project to function without recurring additional transportation improvements) were decided. Logical termini were determined with consideration of adjacent projects that were also under development or planned for development. Feasible geometric tie-in points where each project would connect to the other in the ultimate condition were decided upon. The logical termini for this Loop 9 project are I-35E near Red Oak and I-45 near Ferris. A project must have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made. The proposed action has independent utility as it can stand on its own without the implementation of other transportation improvements. The proposed improvements would provide

a functioning roadway with the ability to provide effective transportation without further construction at either roadway terminus.

2. Project Description

2.1 Proposed Facility

The proposed Loop 9 facility begins at I-35E near Red Oak and continues to the east generally parallel to Tater Brown Road for approximately 1.0 mile. As Loop 9 crosses Houston School Road, it shifts to the northeast through portions of Lancaster and crosses W. Reindeer Road after a distance of approximately 0.75 mile. It then travels along W. Reindeer Road where it crosses Bear Creek before crossing the BNSF Railway and SH 342 (South Dallas Avenue/North Central Boulevard) after a distance of approximately 1.0 mile. Loop 9 continues traveling to the east for approximately 2.0 miles until it reaches E. Reindeer Road and then turns southeast for approximately 1.5 miles crossing into Ellis County and intersecting Nokomis Road. Loop 9 then veers to the northeast and crosses back into Dallas County parallel to Stainback Road for 1.5 miles, then crosses Ferris Road and Tenmile Creek and turns slightly northeast, just north of the Skyline Landfill and the Oncor transmission line corridor, and then crosses Business I-45 (North Central Street) and ends at I-45 near Ferris for a distance of 2.0 miles. The total project length is approximately 10 miles (**Figures 1 through 3 in Appendix A**).

The proposed project would be constructed as two three-lane frontage roads with a median (200 to 364 foot wide) reserved for the future ultimate access-controlled facility. The typical ROW for the project would vary from approximately 384 to 548 feet in width. The proposed project would consist of three 12-foot lanes with 8-foot inside shoulders and 8-foot outside shoulders. The width between the frontage roads and the ROW would be 40 foot at a minimum to allow room for drainage ditches. The median would remain unutilized until construction of the future ultimate facility at a later date. Refer to **Appendix B** for proposed typical sections and **Appendix C** for the Schematic Design.

The total area needed for the proposed new location project (existing ROW plus proposed ROW plus easements) is 727.02 acres. The total proposed ROW is 541.23 acres. Because the project crosses numerous other transportation facilities, it would utilize 182.44 acres of existing ROW. Temporary construction easements would not be required. Permanent drainage easements, totaling 3.35 acres, would be required in several locations.

The proposed new location frontage roads would include intersections at major cross roads along the proposed route to include I-35E, Houston School Road, State Highway (SH) 342 (South Dallas Avenue/North Central Boulevard), existing and future Reindeer Road, existing and future Nokomis Road, Ferris Road, Business I-45 (North Central Street), and I-45. Interchange connections to existing I-35E and I-45 would include ramping and frontage road modifications. The proposed project would also include the construction of grade separations at I-35E and the BNSF Railway.

2.1.1 Construction Phasing

The proposed project would likely be constructed in three phases based on traffic needs and project funding. A logical sequence for staging the various elements for construction of the new location frontage road system could be as follows:

- **Phase 1** would construct a single two-lane, two-way frontage road, and would also acquire the proposed ROW to accommodate the frontage roads and the future ultimate access-controlled mainlane facility.
- As traffic warrants and funding becomes available, **Phase 2** would involve the construction of the second two-lane frontage road and the conversion of the two-way frontage road built in Phase 1 to a one-way operation.
- As traffic warrants and funding becomes available, **Phase 3** would involve the construction of a third frontage road lane in each direction and include the construction of grade separations at specific high-volume intersections.

Phase 4 would involve the construction of the ultimate access-controlled mainlane facility in both directions. Construction of the ultimate access-controlled mainlane facility would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

The proposed Loop 9 new location frontage road is identified as rural and would provide an 8-foot outside shoulder width along the frontage roads for bicycle accommodations. Frontage roads located in the urbanized area of I-35E would consist of one 14-foot-wide outside shared-use lane (for bicycle accommodation) and a 6-foot sidewalk for pedestrian accommodation.

2.2 Funding

According to the Fiscal Year 2017-2020 Statewide Transportation Improvement Program (STIP), the estimated total project cost for CSJ 2964-10-005 is $116,425,805.

Both the Mobility 2040 MTP and the 2017-2020 TIP were initially found to conform to the Texas Commission on Environmental Quality SIP by FHWA and Federal Transit Administration on September 7, 2016, and December 19, 2016, respectively; however, the proposed project is not consistent with this conformity determination, because it was not approved in the 2017-2020 TIP. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming MTP and TIP. Copies of the TIP and MTP pages are included in **Appendix D**.

3. Purpose and Need

3.1 Need

For people living and driving in southern Dallas County or northern Ellis County, traveling through the area can be a challenge. I-20, the closest east-west freeway, lies miles to the north. Arterial streets like Bear Creek Road and Belt Line Road have grown more congested as the area adds residential, commercial, and industrial development. More people living, shopping, and working in the area over time has added more vehicles on the roads. Heavy truck traffic from the International Inland Port of Dallas (IIPOD) near I-45 coupled with ongoing regional, national, and international freight movement would likely put more pressure on the local transportation system.

The need for the Loop 9 project is to address population growth, transportation demand, system linkages, and connectivity among the existing roadway facilities. It would provide a direct link from I-35E to I-45 and would serve the residents and businesses in the area. The need for these improvements is based on:

- Population Growth – Within the communities in the study area, the population is forecasted to increase nearly 89 percent (%) between 2000 to 2040.
- Transportation Demand – Increasing development of industrial and commercial facilities has positively affected economic growth for communities within the study, which has in-turn, increased transportation demand. All roadways in the study area would experience deterioration in level of service (LOS) between 2012 and 2035. The existing transportation infrastructure serving these communities is insufficient to effectively meet the access and mobility needs associated with growth.
- System Linkages – Within the study area, the existing roadway system provides sufficient north-south radial access but lacks continuous east-west transportation facilities to serve these growing communities.
- Connectivity Among Existing Roadway Facilities – The current transportation infrastructure does not adequately provide connectivity between the communities in the study area thereby inhibiting emergency response, access to services, employers, major freight and trucking yards, transit services, and other community facilities.

3.2 Supporting Facts and/or Data

3.2.1 Population Growth

Historically speaking, Texas has been one of the 10 fastest growing states in the nation. According to the U.S. Census Bureau (USCB), Texas grew by 4.3 million persons between 2000 and 2010, a 20.6% increase in population. The U.S. grew by 27.3 million persons between 2000 and 2010. For comparison purposes, the growth rate for the U.S. for the same 10-year period was 9.7%. Texas accounted for over 15% of the population growth in America between 2000 and 2010.

As a result of these high growth rates, the demand for efficient transportation in the Dallas-Fort Worth (DFW) metropolitan area has also increased dramatically. The DFW metroplex has sustained a long period of economic growth because of three primary factors: a favorable business climate, attractive tax policies, and an abundance of available land.

The North Central Texas Council of Governments (NCTCOG) forecasts future growth rates in the region. The forecast provides long-range, small area population, household and employment projections for use in intra-regional infrastructure planning and resource allocations in the region. In 2010, the north central Texas regional population grew to 6,371,773 persons, a 25.7% increase since the 2000 Census. **Table 1** shows the NCTCOG regional projections for population and employment through 2040 for the DFW urbanized area. The 12-county-urbanized area includes Wise, Denton, Collin, Hunt, Dallas, Denton, Rockwall, Tarrant, Ellis, Johnson, Kaufman, and Parker counties.

Table 1: North Central Texas Regional Demographics

Year	Population	% Change	Employment	% Change
1990 Census	3,920,094		2,033,973	
2000 Census	5,067,400	29.3	3,158,200	55.3
2010 Census	6,371,773	25.7	3,306,935	4.7
2017 NCTCOG	7,235,508	13.6	4,584,235	38.6
2040 NCTCOG	10,676,844	47.6	6,691,449	46.0

Source: NCTCOG (2013); USCB (2010).

Table 2 indicates historical growth in population and the number of households in the vicinity of the study area. Southern Dallas County, northern Ellis County, and the municipalities within the study area have experienced considerable population growth over the last 40 years. In Dallas and Ellis counties, the 2010 Census recorded 2,571,749 residents, an 8.0% increase since 2000. According to NCTCOG Research and Information Service Department, the population of Dallas and Ellis counties are projected to grow by 41.8% and 89.8%, respectively, between 2010 and 2040. According to the Texas Water Development Board (TWDB), the cities of Lancaster and Red Oak are also anticipated to grow by 91.7% and 76.4%, respectively.

Table 2: County and Municipal Population Growth

Jurisdiction	Population					Forecasted 2040 Population
	1970	1980	1990	2000	2010	
Dallas County	1,327,695	1,556,419	1,852,810	2,218,899	2,368,139	3,357,469
Ellis County	46,638	59,743	85,167	111,360	149,610	283,898
Total of Counties	1,374,333	1,616,162	1,937,977	2,330,259	2,517,749	3,641,367
% Increase		17.6	19.9	20.2	8.0	44.6
Lancaster	10,522	14,807	22,117	25,894	36,361	69,717
Red Oak	767	1,822	3,124	4,301	10,769	19,000
Total for Cities	11,289	16,629	25,241	30,195	47,130	88,717
% Increase		47.3	51.8	19.6	56.1	88.2

Source: USCB (2010), NCTCOG (2016a), TWDB (2016).

As population increases, employment levels are expected to grow. Table 3 illustrates the forecasted employment for the counties within or adjacent to the study area from 2010 to 2040. Much of this growth is attributed to the region being a leader in the creation of new jobs, corporate relocations, and growth in the technology and service-based industries.

Table 3: 2010 and 2040 Employment

Area	Employment		% Employment Increase 2010–2040
	2010	Forecasted 2040	
Dallas County	1,114,379	3,197,475	186.9
Ellis County	70,555	95,872	35.9
County Total	1,184,934	3,293,347	177.9

Source: USCB (2011), NCTCOG (2016a).

As the DFW metroplex continues to attract new industry and businesses, the associated increases in population and employment would create a strain on existing transportation systems. Resulting trends brought about by growth in population and employment can include increased automobile ownership, potentially more single-occupant travel, increased suburbanization, and increased vehicle miles traveled in the region. Given the availability of undeveloped land and a discontinuous east-west roadway network in the study area, mobility impacts are likely and the need for transportation improvement to these newly developed and developing areas of the county are likely necessary.

3.2.2 Transportation Demand

Mobility improvements for the DFW metropolitan area have traditionally focused on improving travel time and reducing traffic congestion along the major roadway corridors. Historically, the majority of industrial and commercial developments have been located in urban centers within the major loop

facilities such as I-635. Most of the peak hour travel demand originated from commuters in suburban communities traveling to and from their respective places of employment. Industrial and commercial developments have now expanded beyond the major loop freeways/tollways into the suburban communities, causing a change in travel patterns. Increasing development of industrial and commercial facilities has positively affected economic growth for these communities, which has in-turn increased population growth and transportation demand.

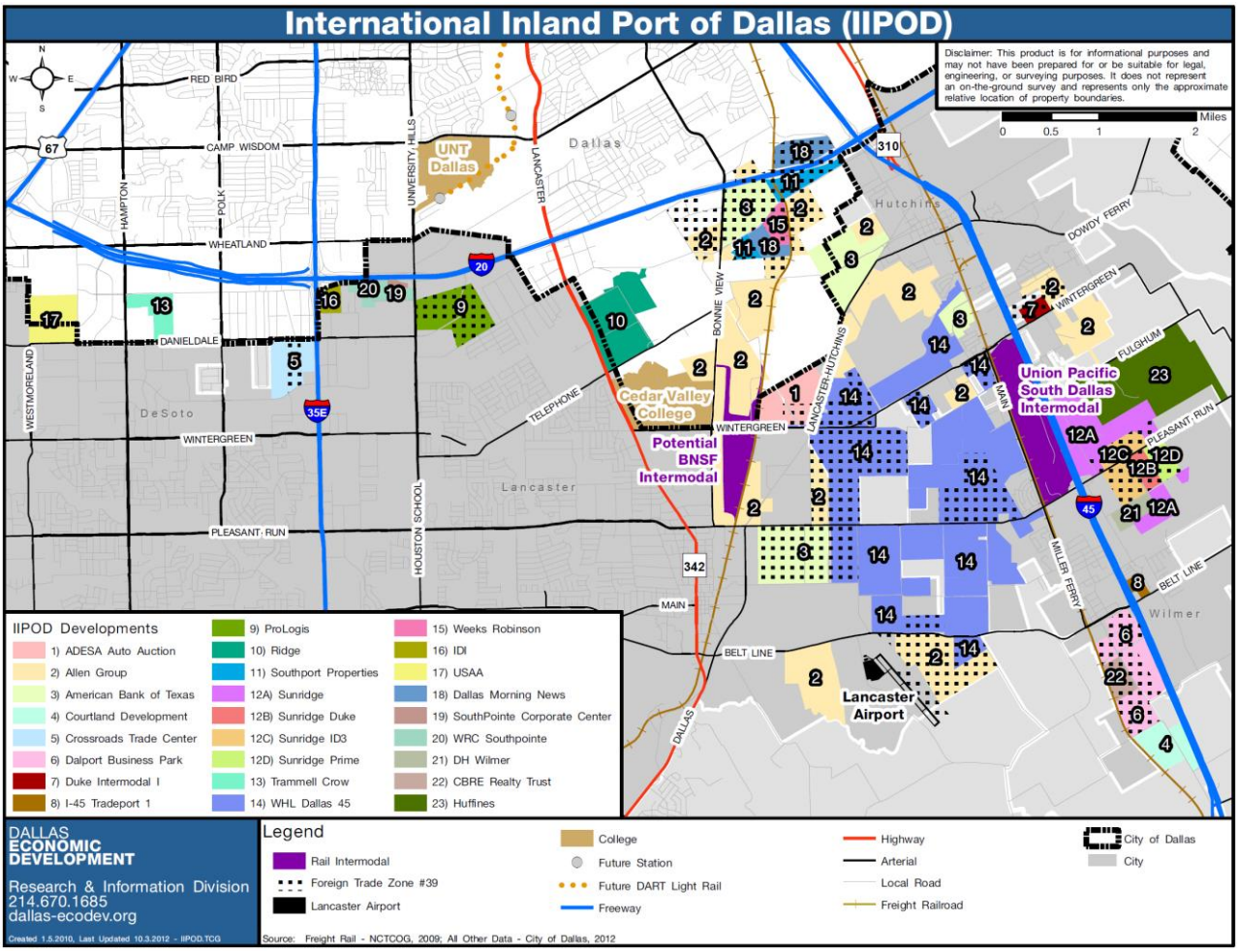
Not only have population and travel increased, but the nature of travel has changed in ways that contribute to greater traffic congestion. The travel patterns of many people have altered with changes in land use. The changes in land use associated with suburbanization have an effect on the characteristics of travel, causing more widely scattered inter- and intra-suburban travel as opposed to the more suburb-to-central city commute of the past.

The study area for the proposed Loop 9 facility is primarily rural and has historically been characterized as a relatively low-density, rural suburban area of Dallas and Ellis counties. A major development north of the study area is the IIPOD, a regional intermodal development focused on logistics and freight distribution (IIPOD, 2013). The IIPOD is a public-private partnership that serves as a third phase of regional intermodal development (building off successes at DFW Airport and Alliance Texas). It is a coordinated effort partnering communities and developers and a key driver in making Dallas one of the nation's premier logistics and distribution center. The IIPOD is a catalyst for investment, job growth, and development of sustainable communities.

The IIPOD is considered a major influence within the Loop 9 study area due to the anticipated industrial/commercial growth and heavy freight traffic within and adjacent to the development. It is also a key factor is transportation demand within the study area. Projected growth and traffic generation from this area has been incorporated into the Loop 9 traffic forecast analysis.

The IIPOD development area encompasses more than 7,000 acres and six municipalities, including Dallas County. More than 12 million square feet of warehouse space has been built or is currently under construction. As of 2013, approximately 10.5 million square feet of this space has been leased. The project is located at the confluence of I-35E, I-45, I-20, and two Class I railroads (Union Pacific Railroad and BNSF). Sixteen national and regional developers are currently located in the IIPOD development area and more than 20 tenants. The total project is estimated to take 30 plus years to complete.

The main IIPOD influence area is encompassed by Loop 12 to the north, the Dallas-Ellis County line to the south, the Trinity River to the east, and I-35E to the west. Refer to **Exhibit 1** for the locations of IIPOD developments located immediately north of the proposed Loop 9 project.



Source: IIPOD (2013).

Exhibit 1: IIPOD

Since the inception of the IIPOD, there have been a variety of studies and regional reports supporting its development and the logistics industry in the Dallas area. These include the 2006 Urban Land Institute Advisory Services Panel Report, titled "Southern Dallas County, Texas," the North Texas Commission report titled "Dallas/Fort Worth Metroplex: America's Global Logistics Center," and the "IIPOD Competitive Assessment and Opportunities Study" by TranSystems in 2009. All of these studies are available on the IIPOD website (http://www.iipod-texas.org/reports/).

In 2012, NCTCOG conducted the Southern Dallas County Infrastructure Analysis. This report was prepared to help provide a development framework and implementation program to support the growth of a high-quality, well-integrated IIPOD and spur additional high-quality and orderly commercial, industrial, and residential development. The analysis focused on infrastructure related to transportation, potable water, sanitary sewer, storm water/drainage, and private/franchise utilities. This study is available on the NCTCOG website (http://www.nctcog.org/trans/sustdev/landuse/funding/plan/sdcia/index.asp).

As part of the Loop 9 Corridor/Feasibility Study, NCTCOG developed baseline traffic volumes, projected traffic volumes, and other data based on Mobility 2035. Modeled projected traffic volumes for the study area were averaged across the roadway sections and an LOS was determined. The performance measure used to evaluate the existing (2012) and future (2035) mobility/level of congestion conditions within the study area was vehicle miles traveled/LOS. The network used for this evaluation included all planned projects in Mobility 2035, except the Loop 9 project. Between 2012 and 2035, the study projected a daily increase in vehicle miles traveled (77% increase) and vehicle hours of travel (89%) within the study area. The increased travel would result in an increase in vehicle hours of congestion delay (125% increase). In addition, the percentage of lane miles operating at LOS E is forecasted to increase from 5.6 to 12.6% (126.4% increase), and the percentage operating at LOS F is forecasted to increase from 4.2 to 18.7% (349.5% increase). Based on this analysis, all functional roadway classifications in the study area would experience deterioration in LOS between 2012 and 2035, thereby inhibiting overall mobility.

3.2.3 System Linkages

An outer loop around the DFW metroplex has been in various phases of development for 50 years. Several other roadways in the region have been planned and constructed that would help create an outer loop. These include the section from I-35E to SH 78 (known as the President George Bush Turnpike or PGBT]) which was completed and opened to traffic in 2002 and the eastern extension of PGBT (from SH 78 to I-30) opened to traffic in December 2011. A currently proposed roadway, known as SH 190, from I-30 to I-20 is currently under study and would provide access to adjacent and connecting roadways. The proposed overall Loop 9 project (I-20 to US 67) would link to this facility and contribute to the completion of an outer loop (circumferential) roadway system and help increase mobility and accessibility in Dallas, Ellis, and Kaufman counties.

Existing east-west facilities within the study area include FM 664 (Ovilla Road) and W. Belt Line Road. FM 664 is located approximately 1.5 miles to the south of the proposed Loop 9 facility and is proposed to be widened to a six-lane divided, urban roadway for 3.3 miles from Westmoreland Rd. in Ovilla to I-35E in Red Oak. A public hearing for this project was held in October 2014. The remaining portion of FM 664 would remain as a two-lane, undivided, rural roadway until there are future plans to widen it.

W. Belt Line Road is located approximately 3.0 miles to the north of the proposed Loop 9 facility. Belt Line Road is the outer complete loop which encircles Dallas, in contrast with I-635 which forms an inner loop. Belt Line Road is not designated as a Texas State Loop, but as a local street in each jurisdiction through which it passes. No portion of Belt Line Road is a controlled access freeway.

Loop 9 is currently being designed to function as a six-lane new location frontage road system. The proposed ROW would include a median that would accommodate the future construction of an ultimate access-controlled mainline facility which would serve as a different roadway type than FM 664 and Belt Line Road. The proposed project may better serve the needs of area motorists

resulting in the alleviation of traffic on parallel roadways. The project may allow area residents, who might work outside of the communities in which they reside, an easier commute.

Loop 9 has been a substantial and long-standing component of the regional long-range transportation plan and has been included in each of the 11 regional transportation plans developed since 1974. The inclusion of Loop 9 in *Mobility 2040* indicates continuing regional support.

3.2.4 Connectivity Among Existing Roadway Facilities

The current transportation infrastructure does not adequately provide connectivity between the communities in the study area thereby inhibiting emergency response, access to services, employers, major freight and trucking yards, transit services, and other community facilities. The project corridor is primarily located in rural portions of the cities of Lancaster and Red Oak, and unincorporated portions of Dallas and Ellis counties. Additional cities within the study area include Ferris, Wilmer, Oak Leaf, and Glenn Heights. Development in the western portion of the study area is primarily residential with some commercial/retail and community facilities. Development in the eastern portion of the study area is primarily industrial with some single-family residences and community facilities.

Figure 4 identifies the community facilities and destinations located within the study area, including parks, cemeteries, places of worship, and educational facilities. Major employers within the study area were also identified using the NCTCOG Development Monitoring Employers Report and Employers geographic information system dataset. Due to the rural nature of the study area; there are a limited number of major employers.

Public transportation services within the study area include Community Transit Services which provides scheduled transportation services in Ellis and Navarro counties. Community Transit Services operators are trained to assist people with disabilities and their buses are equipped with wheelchair lifts and ramps. Dallas Area Rapid Transit provides paratransit services in select cities one of which is Glenn Heights. This public transportation service is for people with disabilities who are unable to use Dallas Area Rapid Transit fixed route buses or trains. Dallas Area Rapid Transit fixed bus routes within the study area are Express Bus Routes 206 and 278. Dallas Area Rapid Transit's Glenn Heights Park and Ride is located on these routes. There are no rail services currently located within the study area. Loop 9 would provide a reliable route for transit, school buses, and potential future transit service within the project area.

No emergency facilities are located in close proximity to the study area. The closest major hospitals are located along I-20 near DeSoto and Duncanville. The distance to I-20 from the Loop 9 project area varies from 3 miles in Red Oak to approximately 18 miles in Ferris. The Baylor Scott & White Medical Center is Waxahachie is located approximately 8 miles from Loop 9 and I-35E in Red Oak. Smaller urgent care facilities are also located along I-20 and near I-35E in Lancaster. Loop 9 would provide a reliable route for emergency response within the study area.

The proposed project would cross several existing roadways which include Houston School Road, Reindeer Road (west of SH 342), SH 342, Reindeer Road (east of SH 342), Reindeer Road, Nokomis Road, Ferris Road, Miller Ferry Road, and Central Street. Portions of Reindeer Road (west of SH 342) and Reindeer Road (east of SH 342) would be closed. All other roads would remain open. The proposed project would bridge over SH 342 and Ferris Road, providing uninterrupted travel on these existing roadways. Traffic signals would be introduced at the remaining intersections. Ramps between Loop 9 and SH 342 and Ferris Road would be constructed as part of the proposed project. Loop 9 would provide for easier transitions and connectivity to the local roadway network to serve the communities in the area.

3.3 Purpose of the Proposed Project

Loop 9 is an element of the regional long-range transportation plan that would aid in addressing the transportation needs identified in the region. The purpose of Loop 9 would be to:

- Provide a facility that would accommodate expanding transportation demands resulting from population growth and economic development in the region.
- Increase mobility and accessibility in the region.
- Provide an east-west transportation facility to serve the communities in the project area.

3.3.1 Regional Goals

Regionally, transportation goals for mobility, quality of life, system sustainability, and implementation are defined in Mobility 2040. The Loop 9 improvements would support many of these goals by improving the availability of transportation options for people and goods, supporting travel efficiency measures and system enhancements targeted at congestion reduction and management, improving air quality, and enhancing transportation safety and reliability. Additionally, the proposed improvements support numerous policies and programs included in Mobility 2040 such as:

- Additional and improved interchanges, frontage roads, and auxiliary lanes should be considered and implemented as appropriate on all freeway/tollway facilities in order to accommodate a balance between mobility, access, operational, and safety needs (Policy FT3-007).
- Encourage the early preservation of ROW in recommended roadway corridors (Policy FT3-008).
- Encourage the preservation of ROW in all freeway/tollway corridors to accommodate potential future transportation needs (Policy FT3-009).
- Evaluate and implement all reasonable options to maximize corridor capacity, functionality, accessibility, and enhancement potential utilizing existing infrastructure assets and ROW (Policy FT3-014).

- Utilize project staging and phasing of MTP recommendations to maximize funding availability and cash flow (Policy F3-004).
- Support the Congestion Management Process, which includes explicit consideration and appropriate implementation of Travel Demand Management, Transportation System Management, and Intelligent Transportation Systems strategies during all stages of corridor development and operations (Policy TDM3-001).
- Foster regional economic activity through safe, efficient, reliable freight movement while educating elected officials and the public regarding freight's role in the DFW region's economy (Policy FP3-001).
- Incorporate freight analysis and involve the freight community in the planning process of all transportation projects (Policy FP3-009).
- Corridor and environmental studies should be conducted with consideration for the region's air quality and financial constraints (Policy FT3-012).

4. Alternatives

As mentioned in Section 1.1, this proposed project is part of a recommendation from the Loop 9 Corridor/Feasibility Study that was completed in March 2014. The study recommended dividing Loop 9 into three major subcorridors. Based on this study of alignments and environmental effects, the subcorridor between I-35E and I-45 is the first to be advanced to engineering and environmental studies based on projected traffic data partially due to the IIPOD developments, anticipated local development, and funding.

4.1 No-Build Alternative

The No-Build Alternative consists of taking no action to improve area transportation facilities other than projects listed in the 2017–2020 TIP and Mobility 2040, which are planned and programmed. A review of the TIP and MTP was conducted to identify projects within the project area that are funded and therefore considered "committed;" however, no projects were identified.

Because the No-Build Alternative includes no change within the Loop 9 study area, the increasing traffic demand on the adjacent and connecting roadways would decrease mobility within the proposed project area. Vehicle emissions also would increase due to increased congestion. As such, the No-Build Alternative would not meet the stated needs of the project or purposes of the improvements. However, pursuant to 40 United States Code of Federal Regulations (CFR) Section 1502.16, the No-Build Alternative was carried forward to provide a baseline for comparison for the Build Alternative.

4.2 Build Alternative

Since the conclusion of the Loop 9 Corridor/Feasibility Study, the alignment and proposed ROW for this section of Loop 9 has been modified and adjusted to address public and local government concerns/comments, changing engineering requirements, and to accommodate the proposed high speed rail project near Ferris, Texas. These modifications have contributed to a locally preferred Build Alternative that avoids and minimizes impacts to the communities and the natural environment and is supported by local governments.

The Corridor/Feasibility Study identified two alternative alignments, W-1 and W-2, between I-35E and Reindeer Road and E-1 and E-2, between the future Reindeer Road (a local arterial project) and Ferris Road. Through coordination with the cities of Lancaster and Red Oak, the alignments were shifted to reduce impacts to residential properties.

A public meeting was held on October 28, 2014. Refer to **Figure 5 in Appendix A** for the environmental constraints map shown at the meeting. W-2 and E-2 were regarded as the preferred alternatives. Once the alignment was established, minor shifts were incorporated from I-35E through Green Acres Lane to accommodate many of the comments provided by the public. The shifts included:

- Shifting the alignment to the north between Houston School Road and Reindeer Road to avoid a historic-age bridge and move the facility further away from some residences (**Exhibit 2**).
- Shifting the alignment to the north between I-35E and Houston School Road to avoid displacing multiple residences along Tater Brown Road (**Exhibit 3**).
- Reducing the ROW at SH 342 by converting loop ramps to jug handle ramps (**Exhibit 4**).
- Shifting the alignment to the south between Reindeer Road and SH 342 and to the north between SH 342 and Green Acres Lane to avoid displacing additional properties.

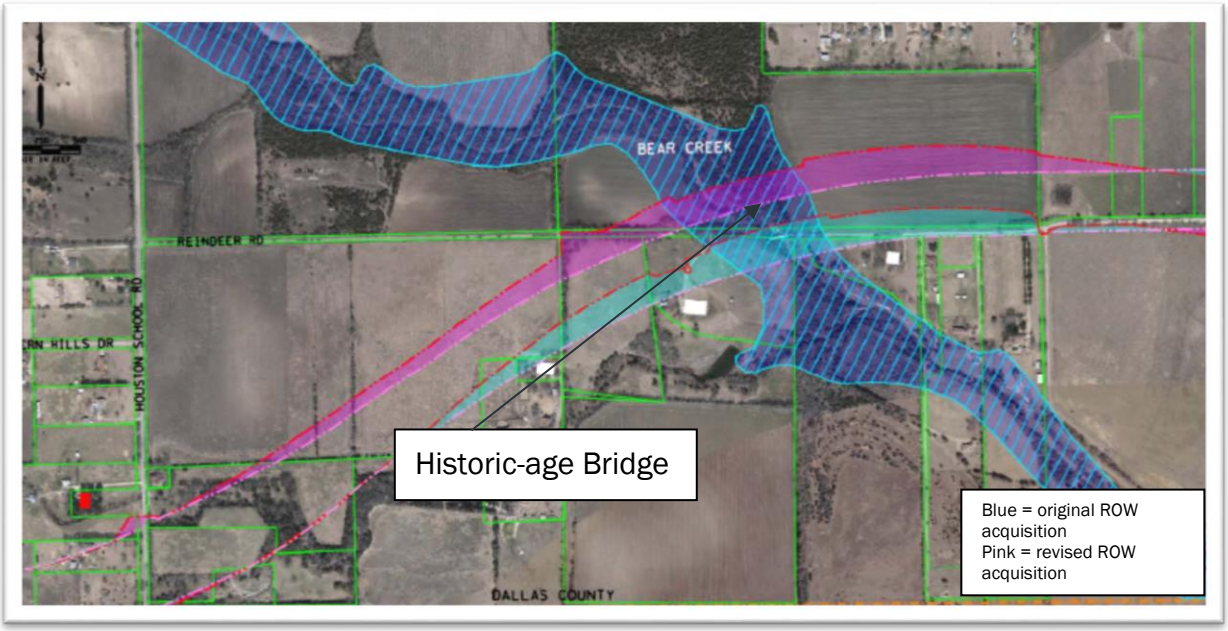


Exhibit 2: Loop 9 shift near Bear Creek to avoid historic-age bridge

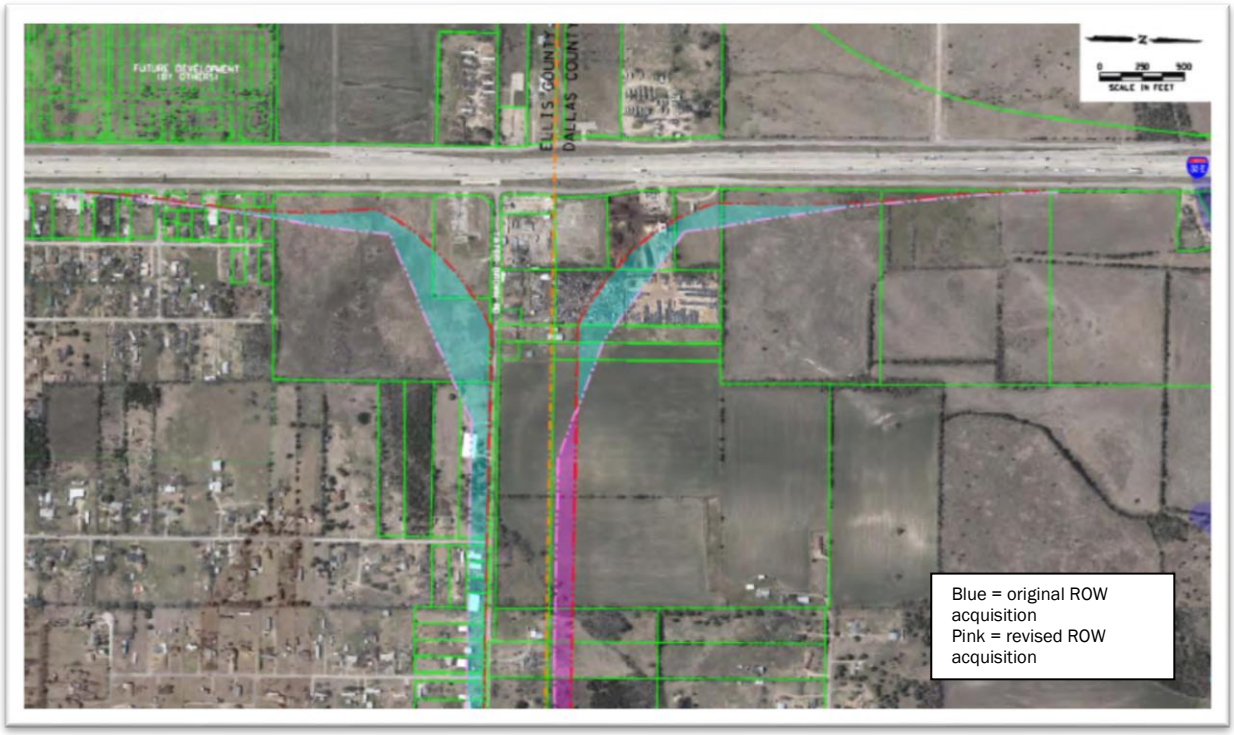


Exhibit 3: Loop 9 shift between I-35E and Houston School Road to avoid residences along Tater Brown Road



Exhibit 4: Loop 9 shift at SH 342 by converting loop ramps to jug handles

A TxDOT design workshop was held on March 19, 2015. Alternatives for connectivity to I-35E southbound for Phases 1 and 2 were discussed to avoid impacts to the I-35E mainlanes. Alternatives were also developed for I-45, and the design was revised to accommodate the connectivity.

A Value Engineering Study was held from September 29 through October 1, 2015. During the three-day study a multidiscipline team of persons not involved in the project review the design of the project to help improve the value and quality of the project. After various coordination efforts, the following modifications were made:

- Some driveways were combined to reduce the number of driveway conflicts along Tater Brown Road.
- Added a continuous left-turn lane for Tater Brown Road from the I-35E northbound frontage road to Houston School Road.
- The Bear Creek Bridge height was reduced.
- The frontage road fill was reduced at Houston School Road.

A coordination meeting was held with project engineers to discuss the future location of a high speed rail to be located within the Loop 9 corridor on December 2, 2015. It was determined that the Loop 9 mainlane and frontage road profiles were in conflict with the high speed rail profile. After various alternatives were considered and discussed, mainlane and frontage road overpasses were designed in order to avoid the conflict and jug handle ramps were proposed to provide connectivity to Ferris Road (**Exhibit 5**).



Exhibit 5: Loop 9 ROW adjustment to accommodate future high speed rail

4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration

The Loop 9 Corridor/Feasibility Study studied various alternatives and shifts that occurred throughout project development. These can be reviewed in detail in the Corridor/Feasibility Study, pages 56–67 (http://loop9.org/study.html).

5. Affected Environment and Environmental Consequences

The following detailed environmental technical reports have been prepared in support of this Environmental Assessment.

- Loop 9 Community Impacts Assessment Technical Report (TxDOT, 2017a)
- Loop 9 Water Resources Technical Report (TxDOT, 2017b)
- Loop 9 Biological Resources Technical Report (TxDOT, 2017c)
- Loop 9 Air Quality Technical Report (TxDOT, 2017d)
- Loop 9 Hazardous Materials Initial Site Assessment (TxDOT, 2017e)
- Loop 9 Traffic Noise Impact Analysis (TxDOT, 2017f)
- Loop 9 Indirect and Cumulative Impact Analysis (TxDOT, 2017g)

Each technical report is on file at TxDOT Dallas District and can be reviewed upon request.

5.1 Right-of-Way/Displacements

5.1.1 No-Build Alternative

The No-Build Alternative would not require any new ROW; therefore, no relocations and/or displacements would be necessary.

5.1.2 Build Alternative

The total area needed for the proposed new location project (existing ROW plus proposed ROW plus easements) is 727.02 acres. The total proposed ROW is 541.23 acres. Because the project crosses numerous other transportation facilities, it would utilize 182.44 acres of existing ROW. Temporary construction easements would not be required. Permanent drainage easements, totaling 3.35 acres, would be required in several locations.

There is the potential for 25 residences (seven mobile homes and 18 houses), seven commercial structures, and 68 other structures (includes five barns, two canopies, 11 carports, four detached garages, two gazebos, a group of propane tanks [three], 41 storage sheds/buildings, and two swimming pools) to be displaced and/or relocated as a result of the proposed project. Table 4 includes a summary of the potential displacements from the proposed project.

Table 4: Potential Displacements by Type

Type of Structure		Number
Residential	Mobile Home	7
	House	16
	Uninhabitable House	2
Total		***25***
Commercial	Barber & Beauty Salon and Community Income Tax	1
	Goddard Contractors/Management	2
	County Line Classics & Auto	2
	Living Earth Technology Co.,	2
Total		***7***
Other	Barns	5
	Canopies	2
	Carports	11
	Detached Garages	4
	Gazebos	2
	Propane Tanks	1
	Storage Sheds	41
	Swimming Pools	2
Total		***68***
TOTAL		**100**

Twenty-three of the 25 potential residential displacements are located in an Environmental Justice (EJ; minority) Census block. Of the 23 residences located within an EJ Census block, two are vacant and seven are mobile homes that could be relocated elsewhere. No places of worship or public facilities would be displaced as a result of the Build Alternative.

Table 5 identifies the properties with displaced structures. Refer to **Figure 6** in **Appendix A** for the location of these structures. A detailed description of these potential displacements is provided in the Community Impacts Assessment Technical Report prepared for the project (TxDOT, 2017a). Refer to **Appendix E** for project area photographs.

Table 5: Properties with Potential Displaced Structures

Property Number	Address	Type	Improve-ment Value ($)[1]	Land Value ($)	Year Built	Field Observations and Appraisal District Data
1	642 N I-35E, Red Oak	01-C01: Commercial – Rays Barber & Beauty Salon and Community Income Tax	19,840	126,500	1984	Unlikely the businesses are traffic dependent. No. of employees: Ray's Barber & Beauty Shop – 2** Community Income Tax – 1 Total business market value – $6,760
2	710 N I-35E, Red Oak	02-C02 and 02-C03: Commercial – Goddard Contractors/ Management	170,960	30,030	1986	Unlikely the business is traffic dependent. No. of employees: 1 to 4 ** Business market value – $116,530
3	512 Ellis Avenue, Red Oak	03-001: Gazebo 03-002: Shed	35,120	10,000	Unknown	Potential to relocate structure(s) within remaining portion of parcel. Structures appear to be in poor but usable condition. Residential structure (tenant occupied) located on the property but not within the proposed ROW and not a potential displacement.
4	902 N I-35E, Red Oak	04-C04 and 04-C05: Commercial – County Line Classics & Auto (closed)	9,140	31,360	1970	Site visit confirmed property listed as "for sale."
5	3150 S I-35E, Lancaster	05-C06 and 05-C07: Commercial – Living Earth Technology Co.: Lancaster	28,130	182,390	1986	Unlikely the business is traffic dependent. No. of employees: 10–19* Business value - $1,018,550
6	2008/ 3100 S I-35E, Lancaster	06-003: Huffhines Gas propane tanks	0	130,240	N/A	Three propane tanks observed during site visit. Business value - $135,460
7	1214 Tater Brown Road, Red Oak	07-004: Canopy 07-005: Shed 07-006: Carport 07-R01: House 07-R02: House 07-R03: Mobile home	62,060 15,270	31,000 N/A	1959 to 1980 1997	Occupancy type: owner Located in an EJ (minority) Census block. Potential for mobile home to be relocated.

Property Number	Address	Type	Improve-ment Value ($)[1]	Land Value ($)	Year Built	Field Observations and Appraisal District Data
8	1212 Tater Brown Road, Red Oak	08-007: Shed 08-008: Garage 08-009: Carport 08-010: Shed 08-011: Detached garage 08-R04: Mobile home	8,400 3,410	24,000 N/A	1980 to 2013 1980	Occupancy type: owner Located in an EJ (minority) Census block. Property owner runs auto repair business, Tops Automotive, from the property. Market value is $6,110.
9	1208 Tater Brown Road, Red Oak	09-R05: House	43,530	5,000	1950	Occupancy type: tenant Located in an EJ (minority) Census block.
10	1206 Tater Brown Road, Red Oak	10-012: Carport 10-013: Carport 10-014: Shed 10-015: Shed 10-016: Barn 10-017: Barn 10-R06: House	37,050	14,000	1930 to 1965	Occupancy type: owner Located in an EJ (minority) Census block.
11	1204 Tater Brown Road, Red Oak	11-018: Barn	400	5,000	1965	None
12	804 Tater Brown Road, Red Oak	12-019: Shed 12-020: Carport 12-021: Carport	3,020	22,000	1965 to 2012	None
13	802 Tater Brown Road, Red Oak	13-022: Shed 13-023: Shed 13-024: Shed 13-025: Shed 13-R07: Mobile home	800 18,500	22,000 N/A	1951 2005	Occupancy type: owner Located in an EJ (minority) Census block. Potential for mobile home to be relocated.
14	618 Tater Brown Road, Red Oak	14-026: Detached garage 14-027: Shed 14-R08: House	84,070	47,250	1984	Occupancy type: owner Located in an EJ (minority) Census block.
15	604 Tater Brown	15-028: Detached carport	50,620	22,000	1982 to 1985	Occupancy type: owner

Property Number	Address	Type	Improve-ment Value ($)[1]	Land Value ($)	Year Built	Field Observations and Appraisal District Data
	Road, Red Oak	15-029: Shed 15-030: Shed 15-031: Detached carport 15-R09: House				Located in an EJ (minority) Census block.
16	600 Tater Brown Road, Red Oak	16-032: Detached carport 16-033: Shed 16-034: Shed 16-R10: House	55,830	22,000	1982	Occupancy type: owner Located in an EJ (minority) Census block.
17	506 Tater Brown Road, Red Oak	17-035: Detached garage 17-R11: House	58,390	20,000	1980 1950	Occupancy type: owner Located in an EJ (minority) Census block.
18	504 Tater Brown Road, Red Oak	18-036: Canopy 18-037: Shed 18-038: Shed 18-039: Shed 18-R12: Mobile home 18-R13: Mobile home	6,590 8,160 9,040	20,000	2007 1995 1995	Occupancy type: owner Located in an EJ (minority) Census block. Potential for mobile homes to be relocated.
19	502 Tater Brown Road, Red Oak	19-040: Shed	35,990	18,000	1960	Residential structure (owner occupied) located on the property, but not within the proposed ROW and not a potential displacement. Potential to relocate structure within remaining portion of parcel.
20	605 Houston School Road, Red Oak	20-041: Shed 20-042: Barn 20-R14: House	48,990	22,000	1951 to 2010	Occupancy type: owner Located in an EJ (minority) Census block.
21	3227 S. Houston School Road, Lancaster	21-043: Storage building 21-R15: House	118,000	52,050	1981	Occupancy type: owner Located in an EJ (minority) Census block.
22	3211 S. Houston School Road, Lancaster	22-044: Shed 22-045: Shed 22-046: Storage building 22-047: Storage building 22-048: Shed 22-R16: House	150,970	45,750	1963	Occupancy type: owner Located in an EJ (minority) Census block. Parcel has 2 acres of qualified open space land. Ag Use Value: $164

Property Number	Address	Type	Improve-ment Value ($)[1]	Land Value ($)	Year Built	Field Observations and Appraisal District Data
23	308 Reindeer Road, Lancaster	23-049: Storage building 23-050: Swimming pool 23-051: Detached carport 23-R17: House	100,540	38,500	1980	Occupancy type: unknown Not located in an EJ Census block.
24	635 Reindeer Road, Lancaster	24-052: Shed 24-053: Shed 24-054: Shed	0	646,670	Unknown	Parcel is 154 acres of qualified open space land. Ag Use Value: $18,476
25	903 Reindeer Road, Lancaster	25-055: Barn 25-056: Gazebo 25-057: Shed	3,600	57,270	1970	Parcel is 8 acres of qualified open space land. Ag Use Value: $654
26	903 Reindeer Road, Lancaster	26-R18: House	223,150	27,490	2002	Occupancy type: owner Located in an EJ (minority) Census block.
27	909 E. Reindeer Road, Lancaster	27-058: Shed 27-R19: House	95,230	7,770	1984	Occupancy type: owner Located in an EJ (minority) Census block.
28	935 E. Reindeer Road, Lancaster	28-059: Shed	240,990	10,000	2005	Potential to relocate structure within remaining portion of parcel. Residential structure (owner occupied) located on the property, but not within the proposed ROW and not a potential displacement. Ag Use Value: $1,058
29	3348 Nokomis Road, Ferris	29-060: Shed	28,980	4,700	1993	Potential to relocate structure within remaining portion of parcel. Residential structure (tenant occupied) located on the property, but not within the proposed ROW and not a potential displacement.
30	3350 Nokomis Road, Ferris	30-061: Shed 30-062: Carport 30-063: Shed 30-R20: Mobile home	1,390 8,300	23,500	2000 1995	Occupancy type: tenant Located in an EJ (minority) Census block. Potential for mobile home to be relocated.
31	3360 Nokomis Road, Ferris	31-064: Swimming pool 31-065: Shed 31-066: Shed 31-R21: House	235,210	54,500	2006 to 2012	Occupancy type: owner Located in an EJ (minority) Census block.
32	3205 Stainback Road, Lancaster	32-067: Storage building	128,040	5,870	N/A	Potential to relocate structure within remaining portion of parcel. Residential structure (owner occupied) located on the property,

Property Number	Address	Type	Improve-ment Value ($)[1]	Land Value ($)	Year Built	Field Observations and Appraisal District Data
						but not within the proposed ROW and not a potential displacement. Ag Use Value: $480
33	3201 Stainback Road, Lancaster	33-068: Shed 33-R22: House	181,090	73,750	1986	Occupancy type: owner Not located in an EJ Census block. Parcel has 12 acres of qualified open space land. Ag Use Value: $1,440
34	2926 Miller Ferry Road, Ferris	34-R23: House	370	3,430	1921	Occupancy type: vacant. Located in an EJ (minority) Census block. Structure appears to be dilapidated/uninhabitable
35	2937 US 75, Ferris	35-R24: Mobile home	0	1,720	Unknown	Occupancy type: tenant. Located in an EJ (minority) Census block.
36	2915 US 75, Ferris	36-R25: House	7,770	1,720	1921	Occupancy type: vacant. Located in an EJ (minority) Census block. Structure appears to be dilapidated/uninhabitable

N/A – not available

1 – Value of improvement(s) which include a building, structure, fixture, or fence erected on or affixed to land; or A transportable structure that is designed to be occupied for residential or business purposes, whether or not it is affixed to land, if the owner of the structure owns the land on which it is located, unless the structure is unoccupied and held for sale or normally is located at a particular place only temporarily (http://www.dallascad.org/FaqEstVal.aspx).

* - Socrates.cdr.state.tx.us (accessed October 2015)

** - Manta.com (accessed October 2015)

Note: Number of and type of structures and values determined based on observation made during September 24 and 30, 2015 site visits; data obtained from the Ellis Appraisal District and Dallas Central Appraisal District (both accessed October 2015) ; and aerial imagery.

Based on data collected from Dallas County Appraisal District and Ellis Appraisal District, three of these residences appear to be rental properties and 19 are owner occupied. It is unknown if the remaining property is a rental property or owner occupied. The occupied houses range in size from 425 to 3,516 square feet. Mobile homes range in size from 928 to 2,416 square feet. According to Dallas County Appraisal District and Ellis Appraisal District data, improvement values for properties with houses (vacant and occupied) range from $370 to $223,870. Mobile homes values range from $3,410 to $18,500. A search of several real estate sites was conducted to determine the availability of properties with houses and mobile homes for sale within the project area cities (Red Oak, Lancaster, Ferris, Glenn Heights, and Wilmer). Based on the results, a comparable number of homes are available in the $50,000 to $100,000 and the $100,000 to $150,000 price ranges. All five sites searched presented the same two homes available for sale below $50,000.

Three rental properties could be displaced by the proposed project. Information on the monthly rent charged, number of bedrooms/bathrooms, and associated amenities is not readily available. The square footage of the rental properties ranges from 928 to 1,420 square feet. The structure values according to Dallas County Appraisal District and Ellis Appraisal District range from $8,300 to

$43,530. A search of several real estate sites was conducted to determine the availability of houses and mobile homes for rent within the project area cities. Results of the searches indicate a number of rental properties are currently available within the cities of Glenn Heights, Lancaster, and Red Oak. Searches for rental properties in the cities of Ferris and Wilmer did not show any available rental properties at the time of the search. However, this was not an exhaustive list of rental properties available within the cities. Due to the rural location and small size of some of the cities, information on rental properties may be more readily available and easily acquired at a local level. Additionally, the current owners of the properties that may be displaced may have additional unlisted rental properties elsewhere.

Should the current residents not seek out another house or mobile home to rent, multifamily housing and apartment communities are located within the project area cities. The TxDOT Dallas District ROW office searches housing within 50 miles of a displaced property and offers additional help if no adequate housing can be found. Within the proposed project area, relocation of mobile homes may be necessary. Several mobile home parks identified within and adjacent to the Community Impacts Assessment study area include:

- Village Square Mobile Home and RV Park, 897 N I-35E, Red Oak, Texas 75154
- Cowboy Acres Mobile Home Park, 2155 S. Beckley Road, Glenn Heights, Texas 75154
- Glenn Heights Mobile Home Park, 511 E. Bear Creek Road, Glenn Heights, Texas 75154
- Dynamic of DeSoto Mobile Home Park, 1335 Dynamic Drive/1129 E. Parkerville Road, DeSoto, Texas 75115
- Parkerville East Mobile Home Park, 3130 Parkerville Road, Lancaster, Texas 75146
- Skylark Mobile Home Park, 1610 Meadow Lark Lane, Lancaster, Texas 75146
- Stillmeadow Acres, 1840 Meadow Lark Lane, Lancaster, Texas 75146
- Cottonwood Creek Mobile Home Park, 412 Greene Road, Lancaster, Texas 75146
- Knollridge Mobile Home Park, 300 N I-45, Wilmer, Texas 75172
- River Oaks Manufactured Home Community, 1601 Millers Ferry Road, Wilmer, Texas 75172

There is the potential for the displaced mobile home to relocate to one of the previously listed mobile home parks. TxDOT would be obligated to provide decent, safe, and sanitary housing within the relocatee's financial means. In addition, measures would be taken to further reduce the number and extent of residential relocations during final design activities.

A review of several real estate websites indicate that within the cities containing the displaced commercial properties (Red Oak and Lancaster), there are approximately 107 commercial properties available for sale and 29 commercial properties available for lease. These properties range from vacant land to proposed pad sites and existing structures. Existing structures include office buildings, retail plazas/strip centers, commercial buildings, former religious facilities,

apartment complex, manufacturing facility, flex space, former nursing home, and medical offices. The sale price of properties range from $9,000 to $11,000,000, and the lease price of properties range from $3 square feet/year to $25 square feet/year. Based on this information, existing structures are for sale that could adequately serve as a new location for the three potentially displaced commercial properties and their associated businesses. Exact impacts to businesses would be determined during the detailed design phase of the proposed project.

Additionally, one commercial property could be impacted by the proposed ROW acquisition. While no displacements would occur at this property, potential business impacts could occur at the possible storage space for Living Earth Technology Co. and a wrecking/salvage yard (2006 S I-35E/ 3300 Tater Brown Road). The parcel is 7.35 acres. Approximately 1.7 acres of the parcel could be acquired for the proposed project. The impacted portion is located in what appears to be a wrecking/salvage yard. The wrecking/salvage yard would likely be able to continue to function in its current capacity after ROW acquisition, and no permanent impacts to their employees or clients would occur.

Potential displacements from the proposed Loop 9 facility were minimized during the planning process by avoiding impacts to structures, where possible, and by using available vacant or open land where practicable for the preliminary alignments. Constraints were mapped and used in the planning process to avoid important resources such as cemeteries, places of worship, public facilities, and other various resources.

The TxDOT ROW Acquisition and Relocation Assistance process would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Public Law 91 6), as amended, and relocation resources are available to all displaced residences and businesses without discrimination.

Consistent with the U.S. Department of Transportation policy as mandated by the Surface Transportation and Uniform Relocation Assistance Act of 1987, TxDOT would provide relocation resources to all displaced persons without discrimination. All property owners from whom property is needed would be entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property.

TxDOT would also provide payment and services to aid in movement to a new location. Relocation assistance would be available to all individuals, families, businesses, farmers, and nonprofit organizations displaced as a result of a state highway or other transportation projects. This assistance applies to tenants as well as owners occupying the real property needed for the Build Alternative.

5.2 Land Use

5.2.1 No-Build Alternative

The No-Build Alternative would not affect land use.

5.2.2 Build Alternative

The project area is located approximately 15 miles south of downtown Dallas in southern Dallas and northern Ellis counties (**Figure 1 in Appendix A**). Historical land use throughout the project area was largely dominated by agricultural and ranching activities with a handful of tracts left in an undeveloped or forested state. Currently, the dominant land use remains the same with scattered suburban housing and rural residential developments in the project area increasing in numbers in the last 20 to 30 years (**Figure 7 in Appendix A**).

The U.S. Geological Survey 2011 National Land Cover Dataset was used as a baseline of land use conditions. As shown in **Table 6**, grassland/herbaceous was at 34.97% of the total acres in the project area and is the largest land use type. Cultivated crops at 21.68% and developed-medium intensity at 11.93% are the other top land use types in the project area. Refer to **Appendix E** for project area photographs.

Table 6: Land Use within Study Area

Land Use	acres	Share (%)
Grassland/Herbaceous	254.27	34.97
Cultivated Crops	157.64	21.68
Developed, Medium Intensity	86.71	11.93
Deciduous Forest	50.02	6.88
Hay/Pasture	45.28	6.23
Developed, Open Space	41.79	5.75
Developed, Low Intensity	47.49	6.53
Developed, High Intensity	34.48	4.74
Evergreen Forest	4.67	0.64
Woody Wetlands	4.67	0.64
Total	727.02	100.00

Source: U.S. Geological Survey (2011)

Existing zoning, future land use plans and comprehensive plans show potential for expansion in the cities within the study area. Loop 9 has been in the planning stages for a significant amount of time for the cities of Ferris, Lancaster and Red Oak and they have made alternative land use plans for either the Build or No-Build Alternative.

The Ferris comprehensive plan has designated the area around the future Loop 9 for industrial land uses; Loop 9 would be consistent with the comprehensive plan. Ferris anticipates that east-west demand within the core of Ferris may be positively impacted by this roadway.

The city of Lancaster also identifies future land use within its comprehensive plan. Specifically, it outlines the types and intensity of land use locations as well as the different types of roadway and thoroughfare facilities that would support the land use patterns. Loop 9 was included in their planning initiatives.

The 2010 Red Oak comprehensive plan considers Loop 9 and its anticipated growth. A key objectives within the plan is to ensure a connection between land use and transportation planning ideals, particularly regarding growth. Loop 9 would be consistent with these objectives.

Finally, Mobility 2040 addresses regional transportation needs that are identified through forecasting current and future travel demand, developing and evaluating system alternatives and selecting those options that best meet the mobility needs of the region. TxDOT is currently working to ensure the project is consistent with a currently conforming MTP and TIP.

5.3 Farmlands

5.3.1 No-Build Alternative

The No-Build Alternative would not affect soils or farmlands.

5.3.2 Build Alternative

The Farmland Protection Policy Act (FPPA), as detailed in Subtitle I of Title XV of the Agricultural and Food Act of 1981, provides protection to prime and unique farmlands, as well as farmlands of statewide or local importance. Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, feed, forage, and oilseed crops. Such soils have properties that are favorable for the production of sustained high yields. Prime farmland can include cropland, pastureland, rangeland or forestland, but does not include land converted to urban, industrial, transportation or water uses.

Small portions of the eastern and western termini of the proposed project ROW fall within the USCB 2010 Urbanized Area for DFW-Arlington and are therefore exempt from the protections of the FPPA. Approximately 486.70 acres of prime farmland, across six distinct soil units, occur within the proposed project ROW (**Table 7**).

Table 7: Prime Farmland Soils in the Project Area

Soil Type	acres
Heiden clay, 2 to 5% slopes, eroded	32.02
Houston Black clay, 0 to 1% slopes	77.32
Houston Black clay, 1 to 3% slopes	240.89
Lewisville silty clay, 1 to 3% slopes	1.94
Austin silty clay, 1 to 3% slopes	85.02
Austin silty clay, 1 to 3% slopes	49.51
Total	486.70

Source: U.S. Department of Agriculture (2009).

In March 2015, four preliminary alternatives were scored using Form CPA-106: Farmland Conversion Impact Rating (Corridor Projects). The proposed alternatives scored in a range from 84 to 85 points under *Part VI. Corridor or Site Assessment Criteria*. The form was submitted to the Natural Resources Conservation Service (NRCS) for their evaluation on value of land to be converted under *Part V, Land Evaluation Information Criterion Relative value of Farmland to be Serviced or Converted* and the project scored from 58 to 61. A March 20, 2015 response from NRCS indicated the total points scored ranged from 142 to 146. An updated Farmland Conversion Impact Rating form for the current proposed roadway alignment was submitted to NRCS on January 19, 2017. A response from NCRS on January 25, 2017 states that the combined ratings for the Dallas and Ellis County sites are 128 and 152, respectively. The FPPA law states that sites with a rating less than 160 will need no further consideration for protection and no additional evaluation is necessary. Copies of all correspondence with NCRS is included in **Appendix J**.

5.4 Utilities/Emergency Services

5.4.1 No-Build Alternative

The No-Build Alternative would not affect utilities and emergency services.

5.4.2 Build Alternative

Construction activities may impact existing utilities (water, sewer, electric, natural gas, communication) that are located within or across construction zones. Subsurface utility engineering investigations would be completed during final design; therefore, the types of utilities present within the corridor, their exact locations, and possible conflicts are currently unknown.

The Build Alternative would require utility adjustments in the form of overhead and underground utilities that are located within or adjacent to the existing or proposed ROW. Utility adjustments required within the proposed ROW would be the responsibility of each utility company and reimbursed by TxDOT based on actual cost. Utility adjustments and relocations would be required prior to and during construction of the proposed project. The appropriate local owner/operators

would locate all utility lines within the construction areas and coordinate a work schedule that would avoid and minimize any disruption of the utility service(s) during the construction of the facility.

No emergency services (fire or police stations) are located within the project area. Loop 9 would provide another facility within the study area to help improve access and service for emergency services and provide connectivity among existing roadway facilities.

5.5 Bicycle and Pedestrian Facilities

5.5.1 No-Build Alternative

The No-Build Alternative would not affect bicycle and pedestrian facilities.

5.5.2 Build Alternative

The proposed project would address bicycle and pedestrian accommodations in accordance with current FHWA and TxDOT guidance. The proposed project is identified as a rural area and would provide an 8-foot outside shoulder width along the frontage roads for bicycle accommodations. Frontage roads located in the urbanized area of I-35E would consist of one 14-foot-wide outside shared-use lane (for bicycle accommodation) and a 6-foot sidewalk for pedestrian accommodation. Refer to **Appendix B** for proposed typical sections and **Appendix C** for the Schematic Design.

5.6 Community Impacts

A Community Impacts Assessment Technical Report was prepared for the proposed project (TxDOT, 2017a). The analysis assessed impacts of the proposed project on the community and demographics, Limited English Proficiency (LEP), and EJ populations within the study area, as well as community cohesion and access changes.

The Community Impact Assessment study area, covering 38,930 acres, is comprised of the seven Census block groups (block groups) encompassing the proposed project from I-35E to I-45; along I-35E from Ovilla Road to Bear Creek Road; and along I-45 from north of the City of Ferris to Belt Line Road. The seven project area Census block groups were deemed an appropriate study area because they encompass undeveloped areas within the proposed project area that may benefit from new access via the Build Alternative. **Figure 6** in **Appendix A** shows the location and boundaries of the census tracts, block groups, and blocks.

The community impact assessment study area spans Ellis and Dallas counties and is located in the municipalities of Red Oak, Glenn Heights, Ferris, Lancaster, and Wilmer. The community impact assessment study area is mostly undeveloped. Development in the western portion of the study area is primarily residential with some commercial/retail and community facilities. Development in the eastern portion of the study area is primarily industrial with some single-family residences and community facilities. Site visits of the community impact assessment study area were conducted on

September 24 and 29, 2015. The 2010–2014 American Community Survey (ACS) data were used to determine household income, LEP, and disabled population. Census data were used to evaluate race/ethnicity and median age.

5.6.1 Environmental Justice

No-Build Alternative

The No-Build Alternative would not affect environmental justice.

Build Alternative

An EJ analysis was completed as part of the community impact assessment. EO 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, mandates that federal agencies "identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs on minority and low-income populations" (59 *Federal Register* 7629–7633, February 16, 1994). As defined by the Council on Environmental Quality (CEQ) report, Environmental Justice Guidance Under the National Environmental Policy Act, a minority population should be identified where either (a) the minority population of the affected area exceeds, by FHWA guidance, 50% of the block, or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

According to the Census 2010 data, 134 blocks, 5 block groups, and 3 census tracts reported populations greater than 50% for minority populations. Additionally, the percent minority for the community impact assessment study area blocks was compared to that of their associated block groups. Eight of the blocks had a minority population percentage that was "meaningfully greater" than their associated block group. The total population of these blocks ranges from one to seven people. Seven blocks are associated with block group 1 of census tract 601.01 and one block is associated with block group 3 of census tract 602.06. The average population of the blocks within each block group is 47 people and 66 people, respectively. The population of the eight blocks are not representative of the Census blocks population within each block group. **Figure 6** in **Appendix A** shows the 2010 Census Geography Map for the blocks, block groups, and census tracts that encompass the proposed project. The total population of each of the 134 primarily minority blocks ranges from one person to 386 persons. Thirty-five Census blocks have a minority population of 100%. The total population of these blocks ranges from one to 84 people.

None of the block groups or census tracts in the community impact assessment study area had a median household income below $24,300. Based on the previous analysis, minority populations exist within the community impact assessment study area. Therefore, the community impact assessment study area contains EJ residents.

As concluded in the technical report, disproportionately high and adverse impacts on minority and/or low-income populations resulting from the implementation of the proposed project are not

anticipated. The displacements resulting from the proposed project have been minimized and do not occur in the low-income portion of the neighborhoods. Also, there are local, safe, and adequate replacement housing for the housing units that would be displaced. Therefore, the proposed project is consistent with Executive Order (EO) 12898 regarding EJ and would not have disproportionate, high, and adverse effects on minority populations.

5.6.2 Limited English Proficiency

No-Build Alternative

The No-Build Alternative would not affect limited English proficiency.

Build Alternative

EO 13166, "Improving Access to Services for Persons with Limited English Proficiency," requires federal agencies to examine the services they provide, identify any need for services to those with LEP, and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. The EO requires federal agencies to work to ensure that recipients of federal financial assistance provide meaningful access to their LEP applicants and beneficiaries. Failure to ensure that LEP persons can effectively participate in or benefit from federally assisted programs and activities may violate the prohibition under Title VI of the Civil Rights Restoration Act of 1987 and Title VI regulations against national origin discrimination.

Similar to the "income" data, "language" data were not obtained in the 2010 Census. Therefore, "language" data were obtained from the ACS, which provides a five-year average of spoken language information for the investigated geographies. The smallest geographical unit available for "language" from the ACS is at the block group level. **Table 8** displays the LEP percentages for persons in the community impact assessment study area age five years and older that speak English less than "very well."

Table 8: Percent of the Proposed Project Area Population That Speak English Less Than "Very Well"

Census Tract	Block Group	Total Population	LEP Population	Languages Spoken by LEP Populations			
				Spanish	Other Indo-European Languages	Asian and Pacific Island Languages	Other Languages
166.22	--	3,849	187 4.9%	177 4.6%	0 0.0%	10 0.3%	0 0.0%
--	1	2,645	72 2.7%	62 2.3%	0 0.0%	10 0.4%	0 0.0%
168.02	--	3,174	248 7.8%	248 7.8%	0 0.0%	0 0.0%	0 0.0%
--	2	1,562	135 8.6%	135 8.6%	0 0.0%	0 0.0%	0 0.0%
169.03	--	4,238	933 22.0%	933 22.0%	0 0.0%	0 0.0%	0 0.0%
--	5	713	58 8.1%	58 8.1%	0 0.0%	0 0.0%	0 0.0%
601.01	--	6,925	846 12.2%	846 12.2%	0 0.0%	0 0.0%	0 0.0%
--	1	2,450	215 8.8%	215 8.8%	0 0.0%	0 0.0%	0 0.0%
--	2	1,312	264 20.1%	264 20.1%	0 0.0%	0 0.0%	0 0.0%
602.04	--	8,738	555 6.4%	538 6.2%	0 0.0%	9 0.1%	8 0.1%
--	2	2,269	126 5.6%	126 5.6%	0 0.0%	0 0.0%	0 0.0%
602.06	--	5,902	706 11.9%	692 11.7%	14 0.2%	0 0.0%	0 0.0%
--	3	2,328	615 26.4%	615 26.4%	0 0.0%	0 0.0%	0 0.0%

Source: USCB (2016).

As shown in **Table 8**, the LEP populations in the individual block groups within the community impact assessment study area range from 2.7 to 26.4%. Of the 13,279 people age five years and older within the block groups, 11.2% (1,485 people) of the population speak English less than "very well," which is comprised of 11.1% who speak Spanish and 0.1% who speak Asian and Pacific Island languages. Persons who speak English less than "very well" that speak Other Indo-European languages and Other languages were not identified within the community impact assessment study area block groups. A windshield survey during a field visit, conducted September 24, 2015, indicated signage within the community impact assessment study area is primarily presented in English with some signage in Spanish observed at two places of worship.

Reasonable steps have been and would continue to be taken to ensure LEP persons have meaningful access to the programs, services, and information TxDOT provides. Any public involvement information and/or materials have been made in and would continue to be made available in English and Spanish and a translator has been and would continue to be provided upon request. Therefore, the requirements of EO 13166 pertaining to LEP appear to be satisfied.

5.6.3 Community Cohesion

No-Build Alternative

The No-Build Alternative would not change community cohesion from what currently exists. However, as the region grows and traffic demands increase, the No-Build Alternative may result in greater congestion and more instances of traffic incidents. The effects could impact community cohesion by making it more difficult to travel within and throughout the project area. The No-Build Alternative would be inconsistent with area plans and would not address the projected increases in vehicular traffic.

Build Alternative

Community cohesion is a term that refers to an aggregate quality of a residential area. Cohesion is a social attribute that indicates a sense of community, common responsibility, and social interaction within a limited geographic area. It is the degree to which residents have a sense of belonging to their neighborhood or community or a strong attachment to neighbors, groups, and institutions as a continual association over time.

Transportation projects may result in impacts to community cohesion that may be beneficial or detrimental. Examples of impacts to community cohesion include bisecting neighborhoods, isolating portions of neighborhoods or communities, generating new development, causing property values to increase or decrease, and separating residents from community facilities.

The acquisition of ROW totaling approximately 541.23 acres would result in the potential displacement of 100 structures (25 residential, seven commercial, and 68 other). Where access currently exists, temporary access driveways would be provided to abutting property owners during construction and permanent access would be provided after construction is completed.

The proposed improvements would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. The project corridor is primarily located in rural portions of the cities of Lancaster and Red Oak, and unincorporated portions of Dallas and Ellis counties. Residences are scattered along the proposed project corridor, but they lack any sort of indicative feature that might group them into a dense neighborhood such a defined boundary or shared entrance to a residential community. Therefore, upon completion of the proposed project, it is unlikely that those that reside on one side of the project corridor would experience a sense of division or separation from those on the other side. The proposed project would introduce a more continuous route through the proposed project area on which motorists would essentially travel at

the same speed as they do on the existing, non-continuous roadways. It would initially function much like Belt Line Road and Farm-to-Market Road (FM) 664/Ovilla Road, other east-west corridors that parallel the proposed project.

The proposed facility would border or serve as a boundary to the Southern Hills, Cedar Ridge Park, and Western Hills neighborhoods. All three neighborhoods are located along Tater Brown Road between I-35E and Houston School Road. Southern Hills and Cedar Ridge Park are located on the south side of Tater Brown Road and Western Hills on the north. Ten residential structures within nine properties (parcels) along the southern boundary of Western Hills would potentially be displaced/relocated due to ROW acquisition. No residential neighborhood would be separated or divided by Loop 9. Positive impacts to residential communities would include improved mobility and accessibility throughout the community impact assessment study area and to surrounding communities.

The proposed project would not negatively impact public or community facilities in the community impact assessment study area. The proposed project would not restrict access to any existing public or community services. However, the proposed project would alter access to these facilities. Project area changes in access are discussed in Table 9 in Section 5.6.4. Additional alterations would come in the form of traffic signals. Traffic signals would be introduced at the intersection of Loop 9 and the following existing roadways: Houston School Road, Reindeer Road (east of SH 342), and Nokomis Road. SH 342 and Ferris Road would be bridged by the proposed project. Ramps to/from Loop 9 and SH 342 and Ferris Road would be constructed as part of the proposed project. In the long term, the entire community would benefit from the proposed project with improved mobility and connectivity to surrounding areas.

Negative impacts to residential communities associated with the proposed project could be attributed to traffic noise impacts, changes in access, changes in aesthetics, and/or temporary construction impacts. Residents of communities not located directly adjacent to Loop 9 may experience negative impacts associated with changes in access and temporary construction impacts. Reasonable measures would be done to minimize the inconvenience to motorists in the proposed project area during the construction phase.

TxDOT has and continues to facilitate communication with the general public; adjacent property owners; business owners; residents; the cities of Red Oak, Lancaster, and Ferris; and other private and public agencies with interests in the proposed project. Four public meetings were held in 2013 for the Loop 9 Corridor/Feasibility Study, and a public meeting was conducted for the proposed project in October 2014. No concerns regarding community cohesion were documented through the public involvement efforts associated with Loop 9. A public hearing is anticipated to be held in June of 2017.

5.6.4 Access and Travel Patterns

No-Build Alternative

The No-Build Alternative would not affect access and travel patterns.

Build Alternative

By providing additional capacity in the form of a new location roadway, the proposed project would be expected to change access and alter travel patterns in the community impact assessment study area and region. The proposed project would provide access to currently undeveloped land within the project corridor, potentially influencing the introduction of new development within the proposed project area.

Implementation of the proposed project would result in changes of access to/from I-35E and I-45 within the proposed project limits and to various local streets traversed by the proposed alignment. Access to some existing businesses and residences, not displaced/relocated by the proposed project, could also be altered. **Table 9** lists these changes in access. TxDOT procedures require that access to properties be maintained through at least one access point to the nearest roadway. Local access would be maintained across Loop 9 at every existing roadway.

Table 9: Changes in Access and Travel Patterns

Location	Type	Description
NB I-35E Frontage Road	Roadway closure	The existing northbound (NB) I-35E frontage road, from approximately 700 feet north of Augusta Street to approximately 1,900 feet south of Bear Creek Road, would be realigned to provide connection to the proposed Loop 9 corridor. The majority of properties that currently have access to the existing frontage road would be provided access to the new frontage road except for the property location at (710 N I-35E, Red Oak). This property would not be provided access to the new frontage road but would continue to be accessible via Ellis Avenue.
NB I-35E	Ramp closure/ relocation	The NB exit ramp from the I-35E mainlanes to the I-35E frontage road, north of Tater Brown Road, would be relocated directly north of its current location.
SB I-35E Frontage Road	Roadway closure	The existing southbound (SB) I-35E frontage road, from approximately 175 feet south of Parkview Trail to approximately 700 feet north of Augusta Street, would be realigned to provide connection to the proposed Loop 9 corridor. Properties that currently have access to the existing I-35E frontage road would be provided access to the new I-35E frontage road.
SB I-35E	Ramp closure/ relocation	The SB exit ramp from the I-35E mainlanes to the I-35E frontage road, south of Tater Brown Road, would be relocated approximately 1,000 feet south of its current location.
Tater Brown Road	Roadway closure	Tater Brown Road, from the NB I-35E frontage road to approximately 330 feet east of Cedar Tone Lane, would be reconstructed as the eastbound frontage road of Loop 9. Therefore, it would no longer provide a direct route between the frontage road and Houston School Road. Properties along the south side of Tater Brown Road, from the frontage road to Cedar Tone Lane, would be directly accessible via

Location	Type	Description
		the proposed Loop 9 eastbound (EB) frontage road. The property on the southwest corner of the Tater Brown Road/Cedar Tone Lane intersection is currently accessible via both roadways. This property would not be provided access to the proposed Loop 9 EB frontage road, but would retain its access to Cedar Tone Lane. Remaining properties on Tater Brown Road, east of Cedar Tone Lane would be accessed via Houston School Road, which intersects the proposed Loop 9 frontage road lanes. The proposed Loop 9 frontage roads would allow for access between the I-35E frontage roads and Houston School Road. Residents along Lee Street, Oak Dell Lane, Cedar Tone Lane, Maple Leaf Street, Cedar View Drive, and Cedar Ridge Drive would no longer be able to access the NB I-35E frontage road via Tater Brown Road. They would instead have to access the frontage road via Travis Street or Augusta Street, or by taking Houston School Road to westbound (WB) Loop 9.
Mink Road	Roadway closure	Mink Road would be closed, no longer providing access to the property at the end of the road. This property would be accessible via a driveway off of the proposed Loop 9 EB frontage road.
Reindeer Road (from Mink Road to SH 342)	Roadway closure	Portions of Reindeer Road would be closed. Therefore, it would no longer provide a direct route between Houston School Road and SH 342. The proposed project would allow for access between Houston School Road and SH 342. Homes along this portion of Reindeer Road would be accessible via a direct driveway (two properties) or a connector providing access to the remaining segment of Reindeer Road.
Reindeer Road (from SH 342 to Green Acre Lane)	Roadway closure	Reindeer Road, from SH 342 to north of Green Acre Lane, would be closed. Therefore, it would no longer provide a route between SH 342 and Nokomis Road. The proposed project would allow for access between SH 342 and Nokomis Road, as well as an intersection at Reindeer Road approximately 2,400 feet east of Prancer Street.
Reindeer Road	Roadway closure	A segment of Reindeer Road, which is known as McBride Road, would be closed. The property at the end of McBride Road would be accessible via a driveway off of the proposed Loop 9 frontage roads.
3201 Stainback Road	Driveway closure	The proposed Loop 9 frontage roads would cross the driveway which provides access to a property off Stainback Road. This property will be accessible via a driveway off the proposed Loop 9 frontage roads.
SB I-45	Ramp closure/relocation	The SB exit ramp from the I-45 mainlanes to the I-45 frontage road, at Patrick Pike Road, would be relocated approximately 1,400 feet north of its current location.
SB I-45 Frontage Road	Frontage road extension	The SB I-45 frontage road currently ends at Malloy Bridge Road and does not begin again until the next SB I-45 exit ramp, which is located approximately 0.75 miles south of Malloy Bridge Road. The proposed project would extend the SB I-45 frontage road and remove this gap.
SB I-45 Frontage Road intersection with Malloy Bridge Road and I-45 Business	Intersection reconstruction	There is an existing at-grade intersection of the SB I-45 frontage road with Malloy Bridge Road and I-45 Business. As part of the proposed project, the new SB I-45 frontage road would bridge over this intersection. To access Malloy Bridge Road from SB I-45, vehicles would have to exit to I-45 Business where a new at-grade crossing with Malloy Bridge Road would be constructed.

Location	Type	Description
SB I-45 Frontage Road and I-45 Business	Proposed connector road	There is an existing connection between the SB I-45 frontage road and I-45 Business approximately 0.75 miles south of Malloy Bridge Road. The proposed project would create an additional connection approximately 1,000 feet south of Malloy Bridge Road.

The proposed project could also alter travel patterns within the community impact assessment study area and surrounding region. Loop 9 would provide an additional east-west route between I-35E and I-45. Additional east-west roadways in the area include Ovilla Road/FM 664, Belt Line Road, Pleasant Run Road, and I-20. The proposed project may better serve the needs of area motorists resulting in the alleviation of traffic on parallel roadways. The project may allow area residents, who might work outside of the communities in which they reside, an easier commute. Overall the current travel patterns of some motorists may change as they utilize the proposed new location roadway as part of their route in lieu of the existing parallel roadways. These changes may result in improved traffic conditions on Ovilla Road/FM 664, Belt Line Road, Pleasant Run Road, and I-20, because traffic volumes may decrease.

The Build Alternative would cross several existing roadways which include Houston School Road, Reindeer Road (west of SH 342), SH 342, Reindeer Road (east of SH 342), Reindeer Road, Nokomis Road, Ferris Road, Miller Ferry Road, and Central Street. Portions of Reindeer Road (west of SH 342) and Reindeer Road (east of SH 342) would be closed. All other roads would remain open. The proposed project would bridge over SH 342 and Ferris Road, providing uninterrupted travel on these existing roadways. Traffic signals would be introduced at the remaining intersections. Ramps between Loop 9 and SH 342 and Ferris Road would be constructed as part of the proposed project. Travel patterns of motorists that travel north-south through the proposed project area would likely remain the same.

5.7 Visual/Aesthetics Impacts

5.7.1 No-Build Alternative

The No-Build Alternative would not affect visual/aesthetics impacts.

5.7.2 Build Alternative

The visual quality assessment is used to determine if the proposed project would be compatible with the visual character of the setting into which it would be introduced. The impact assessment also takes into consideration that existing transportation uses traverse the proposed ROW. Visual impacts are discussed in terms of the effect that the new physical elements associated with the proposed project would have on landform quality (i.e., the existing natural or man-made landform) and visual resources (i.e., the physical resources, including native vegetation, introduced landscaping, and the built environment that make up the character of the area).

Federal and state regulations require that visual impacts be addressed for historic sites and parks [Sections 106 and 4(f) properties]. There are no specific federal or state visual regulatory requirements that apply to properties that are not designated historic, and/or eligible for listing in the National Register of Historic Places (NRHP) or parkland.

Generally, the visual and aesthetic qualities of the project area include the existing roadway facilities (including bridge structures and vegetated medians) as well as commercial/office/retail buildings, used car lots, hotels, and residential properties as well as landscape plantings.

Characteristics of the Build Alternative that could have a visual or aesthetic impact on the surrounding environment include elevated structures/bridges and other vertical elements such as signs and light standards. The project area exhibits both urban and rural settings. The urban settings are located at I-35E near Red Oak and Lancaster and at I-45, north of Ferris.

Within the urban setting, the roadway corridors of I-35E and I-45 are the dominant visual elements in the project area. The Build Alternative would have minimal effect on the overall aesthetic quality along the corridor. Visual impacts resulting from the Build Alternative would vary by location but would be greatest at the interchange connections to existing I-35E and I-45, which would include ramp and frontage road modifications. The proposed project would also include the construction of grade separations at I-35E at Loop 9 and the BNSF at Loop 9. Because this is a change from the existing condition at these locations, the viewsheds would be directly impacted. However, these impacts would not be considered as being detrimental to business operations.

Within the rural setting, potential views of the proposed facility would be limited due to the relatively flat nature of the project area. The impact on the overall viewshed for existing residential communities would primarily occur at major roadway crossings (Houston School Road, SH 342, Reindeer Road, Nokomis Road, Ferris Road, N. Central Street) where the proposed facility would be visible. East of Ferris Road and within the 100-year floodplain, Loop 9 would be elevated and minimized to avoid additional impacts to the floodplain. The elevated facility in this location is north of the Skyline Landfill and adjacent to Oncor transmission lines with no adjacent residential or commercial properties. These impacts would not be considered as being detrimental.

The frontage roads may incorporate safety lighting, which could be considered as a negative effect for visual and aesthetic qualities, especially where residential areas are located adjacent to the facility. During final design, the design of light fixtures would be completed. Standards are being updated regularly in an effort to minimize the effects of the lighting beyond the roadway surface it is intended to illuminate. Local, state, and federal requirements would be reviewed during design and designation of additional lighting required for this project. The roadway lighting system could consist of low impact, downward directional lighting to minimize impacts to residential properties.

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

5.8 Cultural Resources

Because the proposed project involves federal-aid funding, it is considered an undertaking subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended, and the implementing regulations, 36 CFR 800. The NHPA requires federal agencies to "take into account" the "effect" that an undertaking would have on "historic properties." Additionally, because the proposed project occurs on non-federal public land and involves a state agency, it is subject to the Antiquities Code of Texas. Compliance obligations under Section 106 and the Antiquities Code of Texas are conducted in accordance with the First Amended Programmatic Agreement (PA) among the FHWA, TxDOT, the Texas State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation, Regarding Implementation of Transportation Undertakings (PA-TU) and the Memorandum of Understanding (MOU) that exist between TxDOT and the Texas Historical Commission (THC).

5.8.1 Archeology

No-Build Alternative

The No-Build Alternative would not affect archeological resources.

Build Alternative

A site file and records review was conducted utilizing the records at the Texas Archeological Research Laboratory and the THC. The files at TARL were used to identify previously recorded archeological sites within the study area. The archeological area of potential effect (APE) is defined as the physical area of ground disturbance, which is within the proposed ROW. The files at the THC were used to identify sites listed in the NRHP and/or sites designated as State Antiquities Landmarks. The THC State Marker Program files also were examined to identify the number and location of Texas Historical Markers within the APE.

The TARL files revealed that small portions of the proposed new ROW of Loop 9 have been previously surveyed for cultural resources, and that five known archeological sites and one cemetery are within 0.6 miles within the project area. None of these cultural resources extends into the APE itself (THC Archeological Sites Atlas, 2015).

The TxDOT Dallas Potential Archeological Liability Maps indicates that there are several areas along the APE with a high potential for intact, buried cultural resources. Specifically, these high potential areas are at the Bear Creek and Tenmile Creek crossings. Based upon the review of available records, soils information, and underlying geology, the background study recommended

an intensive archeological survey of the relatively undisturbed APE, the majority of which has not been surveyed previously.

Right-of-entry along the proposed ROW was attempted several times during 2013 and 2014. Due to denial of right-of-entry to conduct the archeological survey, clearance has been obtained from the THC for TxDOT to proceed with environmental approval and ROW acquisition (**Appendix J**). However, no construction or ground-disturbing activities can begin in the undertakings APE until all Section 106/Antiquities Code of Texas consultation has been completed.

5.8.2 Historic Properties

No-Build Alternative

The No-Build Alternative would not affect historic properties.

Build Alternative

A Historic Resources Research Design was developed according to the TxDOT Documentation Standard Historic Resources Research Design and approved by TxDOT historians to guide the historic resources reconnaissance-level survey that was conducted to identify historic-age resources (buildings, structures, objects, districts, etc.) within the APE of the proposed Loop 9 ROW. The APE for nonarcheological resources extended 300 feet from the proposed ROW.

During the records review, a TxDOT precertified historian consulted the Texas Historic Sites Atlas, THC Survey Files, the NRHP, the list of State Antiquities Landmarks and the list of Recorded Texas Historic Landmarks to identify previously recorded historic properties within the APE and within a larger study area extending 1,300 feet of the APE. The records review revealed that there are no State Antiquities Landmarks, Official Texas Historical Markers, or Recorded Texas Historic Landmarks located within the APE. The Warren pony truss bridge on Reindeer Road spanning Bear Creek (TxDOT Structure ID 180570M00903001) is currently closed to vehicular and pedestrian traffic. The bridge was evaluated and determined not eligible in 1996 during the Texas Metal Truss Bridge Inventory. It was reevaluated in 2014 under Criterion C as part of the revisions to the Multiple Property Survey "Historic Road Infrastructure of Texas, 1866-1965." During that reevaluation the bridge's not eligible determination was confirmed due to extensive alterations. After the 2014 reevaluation the Texas SHPO, the Executive Director of the THC, issued a policy decision that all metal trusses constructed before 1946 are significant at the local level as embodying distinctive characteristics of a type.

Upon approval of the research design and methodology, the historic resources reconnaissance field survey was conducted in December 2015 (Mead and Hunt, Inc., 2016). During the survey, all identified historic-age resources were documented in accordance with TxDOT's Documentation Standards for a Reconnaissance Survey Report and National Park Service standards for identification and evaluation of historic resources. For the purposes of this survey, historic-age resources within the defined APE were those that were built in or appear to have been built in or

prior to 1972 to accommodate an anticipated letting date of 2017 (with an added five-year buffer to accommodate construction delays). Historians surveyed 161 individual resources on 62 properties. A total of 154 resources on 59 properties were identified as historic-age resources within the APE.

One resource within the APE (Reindeer Road bridge spanning Bear Creek) was previously evaluated for listing in the NRHP. Under Criterion A, the bridge does not reflect an important historical pattern, theme, or event within the historic context of the survey area. Though Reindeer Road was a primary east-west road when the bridge was constructed, the road itself was in place by 1900. This bridge is not the earliest example of a bridge crossing Bear Creek, and though it was a primary route, it was only a local service road. Additionally, the bridge is not related to the agricultural history of the area and did not contribute to the change in agriculture that began in the 1930s. Therefore, the Reindeer Road truss bridge is not eligible under Criterion A of the NRHP. The bridge has been determined significant as a Warren pony truss under Criterion C. The Warren pony is a common truss type in Texas, becoming the preferred type for short spans (usually 30 to 90 feet) in the 1910s.

In applying the seven aspects of integrity to the Reindeer Road Bridge, it currently retains its integrity of location, materials, and setting. The bridge remains in its original 1930 location. The bridge retains its integrity of materials as it remains a metal truss bridge. The bridge currently retains its integrity of setting as the rural, agricultural surroundings are similar to when it was constructed.

However, the truss exhibits extensive and noticeable reinforcement of its character-defining features, which impacts its integrity of design, workmanship, feeling, and association. Reinforcing plates have been welded to the top chord and to the diagonals. The bottom chord has also been reinforced with welded plates. Due to the extensive alterations to this structure, it no longer retains integrity of design and workmanship, and has diminished integrity of feeling and association as a functioning shop-riveted and field-bolted Warren pony truss. Integrity of design and workmanship (as well as materials) are the most important to convey *Criterion C* significance.

However, based on TxDOT ENV HIST interpretation of the SHPO policy decision regarding metal truss bridges, this bridge is considered eligible for the purposes of this project regardless of its alterations that may affect its integrity.

Based on February 2017 construction plans, the existing Reindeer Road at Bear Creek bridge would remain in place and would not be removed or directly affected by the proposed SL 9 construction. As previously noted, the bridge is currently closed to vehicular and pedestrian traffic. Adjacent portions of Reindeer Road are also barricaded and closed to vehicles. There are no current plans for the future of the bridge.

The construction of new Loop 9 bridges and roadway embankments would introduce visual and noise changes at the existing Reindeer Road bridge. These changes would most particularly impact the bridge's setting and feeling but would have no impact to its location, association, design, materials, and workmanship, beyond the physical alterations already present at the bridge. As noted above, for purposes of this project, the Reindeer Road bridge is treated as eligible for the NRHP under Criterion C based on its engineering significance as an extant Warren pony truss bridge. The introduction of visual intrusions and additional roadway noise would not change the character of the features that contribute to the bridge's significance – its physical design, materials, and workmanship. Therefore, the proposed project would have no adverse effect to the NRHP-eligible Reindeer Road at Bear Creek bridge.

Therefore, pursuant to Stipulation IX, Appendix 6 "Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)" of the Section 106 PA and the MOU, TxDOT historians determined that there are no adverse effects to historic, non-archeological properties in the APE. Individual project coordination with SHPO is not required.

5.9 DOT Act Section 4(f), Land and Water Conservation Fund Act Section 6(f), and Parks and Wildlife Code Chapter 26 (Parks, Wildlife/Waterfowl Refuge, and Historic Properties)

5.9.1 No-Build Alternative

The No-Build Alternative would not affect any public parks, recreational areas, wildlife and waterfowl refuge lands, or historic sites.

5.9.2 Build Alternative

Section 4(f) of the U.S. Department of Transportation Act of 1966 (Title 49 U.S. Code 1653(f) as amended and codified in 49 U.S. Code 303 in 1983) states the Secretary of Transportation may approve a transportation program or project requiring use of publicly owned land of a public park, recreation area, wildlife/waterfowl refuge, or land of a historic site of national, state, or local significance (as determined by the officials having jurisdiction over the park, recreation area, refuge, or site) only if there is no prudent and feasible alternative to such use and the project includes all planning to minimize harm.

Section 6(f) of the Land and Water Conservation Fund Act of 1965 requires that any outdoor recreational facilities acquired with U.S. Department of the Interior financial assistance under the Land and Water Conservation Fund Act, as allocated by the TPWD, may not be converted unless approval is granted by the Director of the National Park Service. If no practical alternative exists, replacement property of reasonably equivalent usefulness and location must be provided.

TPWD, Title 3, Chapter 26 contains similar language concerning the taking of park and recreational lands. TPWD restricts the use or taking of any public land designated and used as a park

(recreation area, scientific area, wildlife refuge, or historic site) unless the agency, political subdivision, county, or municipality determines there is no feasible and prudent alternative and that the project/program includes all reasonable planning to minimize harm to the land.

One potential Section 4(f) property, the Reindeer Road Bridge over Bear Creek, is located approximately 60 ft from the proposed ROW for Loop 9. Based on February 2017 construction plans, the existing Reindeer Road bridge would remain in place and would not be removed or directly affected by the proposed Loop 9 construction. The proposed project would have no adverse effect to the NRHP-eligible Reindeer Road at Bear Creek bridge.

No Section 6(f) or Chapter 26 properties are present within the project area and none would be impacted by the proposed project.

5.10 Water Resources

5.10.1 Clean Water Act Section 404 (Waters of the US)

No-Build Alternative

The No-Build Alternative would not affect waters of the U.S.

Build Alternative

Under the authority of Section 404 of the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) and the USACE share regulatory authority over waters of the U.S. (WOUS). The USACE regulates the discharge of dredged and fill material into all WOUS, including wetlands.

For purposes of Section 404 of the CWA, WOUS are defined at 33 CFR Section 328.3, and further refined in the USACE/EPA CWA Jurisdiction Memorandum dated December 2, 2008, to include:

- Traditional navigable waters, which includes all waters described in 33 CFR 328.3(a)(1) and 40 CFR 230.3.
- Wetlands adjacent to traditional navigable waters, including adjacent wetlands that do not have a continuous surface connection to traditional navigable waters.
- Non-navigable tributaries of traditional navigable waters that are relatively permanent waters where the tributaries typically flow year-round or have continuous flow at least seasonally (typically three months).
- Wetlands that exhibit a continuous surface connection to relatively permanent waters as described above (e.g., they are not separated from the relatively permanent water by uplands, a berm, dike, or similar feature).

In addition, the EPA and USACE will jointly decide jurisdiction over the following waters based on a fact-specific analysis to determine the presence/absence of a significant nexus with a traditional

navigable waters based on flow characteristics and functions of the tributary and/or wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of the nearest downstream traditional navigable waters:

- Non-navigable tributaries that are not relatively permanent waters.
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent waters.
- Wetlands adjacent to but not directly abutting a non-navigable relatively permanent water tributary.

The EPA and USACE recently published a final rule on May 27, 2015 (EPA Docket No. EPA-HQ-OW-2011-0880), defining the scope of waters protected under the CWA. The final rule became effective on August 28, 2015; however, since publication of the rule in the Federal Register, numerous lawsuits have been filed challenging the regulation. On October 9, 2015, the U.S. Court of Appeals for the Sixth Circuit moved for a stay of the Clean Water Rule nationwide pending further action of the court. Staff with the USACE Fort Worth District are awaiting clarification and direction from Headquarters in D.C. on how best to interpret the new rule and are not to issue official opinions until the rule goes into effect.

Impact assessments to potential jurisdictional areas (including wetlands), as defined by 33 CFR 328, were conducted along the proposed project corridor. Aerial photography, National Wetland Inventory (NWI) maps, and Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps were reviewed by ecologists prior to field investigations. As required by existing regulations or regional general permits, potential wetlands, as defined by the Corps of Engineers *Wetlands Delineation Manual* (1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: Atlantic and Gulf Coastal Plain Region (Version 2.0) (Regional Supplement) (Environmental Laboratory, 1987; USACE, 2010), were evaluated based on the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. This evaluation included assessments of ephemeral, intermittent, and perennial streams; navigable and non-navigable waterways; wetlands; and other special aquatic sites (i.e., sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes [Environmental Laboratory, 1987]).

Five palustrine unconsolidated bottom (PUB) ponds, 11 ephemeral streams, one intermittent stream, and two perennial streams were identified within the proposed project area. More detailed studies are included in the Loop 9 Water Resources Technical Report (TxDOT, 2017b.) Refer to **Figure 8** for the mapped WOUS within the project area.

Ponds/Wetlands

Five PUB ponds were identified within the proposed project area, four of which were identified as potentially jurisdictional (**Table 10, Figure 8**). These ponds are classified as palustrine open-water systems that were either excavated for the purpose of holding well water or created by the construction of berms or dams to capture surface sheet flow or flow from a surface tributary. POND

02 and POND 03, created through dam construction within an unnamed tributary to Tenmile Creek, appear to still contribute a chemical, biological, and physical nexus to Tenmile Creek and would potentially be subject to USACE jurisdiction under Section 404 of the CWA. POND D01 and POND D02 are located within the 100-year floodplain of Tenmile Creek and would potentially be subject to USACE jurisdiction under Section 404 of the CWA. POND 01 was located outside of the 100-year floodplain and did not exhibit a significant nexus with a WOUS; therefore, POND 01 would not be subject to USACE jurisdiction under Section 404 of the CWA. A total of 1.38 acres of jurisdictional ponds would be impacted by the proposed project and would require permitting under Section 404 of the CWA.

Table 10: Ponds/Wetlands Identified Within Project Area

FIELD ID	Classification[1]	Estimated Area of Permanent Impact (acres)[2]	Within 100-Year Floodplain	Potentially Jurisdictional	Proposed Method of Crossing[3]
POND 01	PUB	0.00	No	No	Fill
POND 02	PUB	0.13	No	Yes	Fill
POND 03	PUB	0.20	No	Yes	Fill
POND D01[4]	PUB	0.00	Yes	Yes	Span
POND D02[4]	PUB	1.05	Yes	Yes	Fill
TOTALS	PUB (5)	**1.38**			

[1]Atkins field classifications are based upon Cowardin et al. (1979): PUB = Palustrine unconsolidated bottom
[2]Acreage of impacted feature within proposed ROW
[3]As currently proposed by TxDOT, waterbodies will either be filled or spanned during construction of this project
[4]Features were aerially interpreted due to access limitations or bank instability

Streams

Eleven potentially jurisdictional ephemeral streams were identified within the proposed project area (**Table 11, Figure 8**). Ephemeral streams are waterbodies that flow only during and for a short duration after precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round and groundwater is not a source of water for the stream. These streams meet the definition of tributary in that they have a bed and banks and ordinary high-water mark (OHWM) and would be considered a WOUS potentially subject to USACE jurisdiction under Section 404 of the CWA.

One intermittent stream was identified as potentially jurisdictional within the proposed project area. Intermittent streams are waterbodies that have flowing water during certain times of the year when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. These streams may exhibit an OHWM and would be considered a WOUS potentially subject to USACE jurisdiction under Section 404 of the CWA.

Table 11: Streams Identified Within Project Area

Field ID	Stream Name	Class	Length within Proposed ROW (feet)	Estimated Area of Permanent Impact (acres)	Proposed Method of Crossing[1]	Receiving Stream
CRK 01	Unnamed Tributary to Bear Creek (1st Crossing)	Ephemeral	765.42	0.07	Fill	Bear Creek
CRK 02	Unnamed Tributary to Bear Creek (2nd Crossing)	Ephemeral	1,740.57	0.16	Fill	Bear Creek
CRK 03	Unnamed	Ephemeral	317.08	0.03	Fill	Unnamed Tributary to Bear Creek
CRK 04	Bear Creek	Perennial	641.25	0.00	Span	Red Oak Creek
CRK 05	Unnamed Tributary to Bear Creek	Ephemeral	390.83	0.00	Span	Bear Creek
CRK 07	Unnamed	Intermittent	593.40	0.11	Fill	Tenmile Creek
CRK D01[2]	Unnamed Tributary to Long Branch	Ephemeral	681.08	0.09	Fill	Long Branch
CRK D02[2]	Tenmile Creek (1st Crossing)	Perennial	852.41	0.00	Span	Trinity River
CRK 09	Unnamed Tributary to Tenmile Creek (1st Crossing)	Ephemeral	565.55	0.00	Span	Tenmile Creek
CRK 10	Unnamed Tributary to Tenmile Creek (2nd Crossing)	Ephemeral	193.80	0.00	Span	Tenmile Creek
CRK D04[2]	Unnamed	Ephemeral	260.71	0.00	Span	Unnamed Tributary to Tenmile Creek
CRK 11	Unnamed Tributary to Tenmile Creek	Ephemeral	3,051.39	0.00	Span	Tenmile Creek
CRK 12	Unnamed	Ephemeral	411.70	0.00	Span	Unnamed Tributary to Tenmile Creek
CRK 13	Unnamed	Ephemeral	316.81	0.00	Span	Unnamed Tributary to Tenmile Creek
CRK D05[2]	Tenmile Creek (2nd Crossing)	Perennial	406.82	0.00	Span	Trinity River
CRK 14	Unnamed	Ephemeral	329.26	0.00	Span	Unnamed Tributary to Tenmile Creek
CRK D06[2]	Unnamed Tributary to Tenmile Creek	Ephemeral	295.31	0.00	Span	Tenmile Creek
TOTALS	**Ephemeral (11) Intermittent (1) Perennial (2)**		**11,813.39**	**0.46**		

[1]As currently proposed by TxDOT, waterbodies will either be filled or spanned during construction of this project.
[2]Features were aerially interpreted due to access limitations or stream bank instability.

Two perennial streams were identified as potentially jurisdictional within the proposed project area. These streams exhibited an OHWM and would be considered a potential WOUS subject to USACE jurisdiction under Section 404 of the CWA.

A total of 11 jurisdictional ephemeral streams, one intermittent stream and two perennial streams would be impacted by the proposed project and would require permitting under Section 404 of the CWA. Depending on the final method of construction, it is estimated that approximately 11,813 feet of streams and approximately 0.46 acres within the proposed ROW would be impacted.

Appropriate measures would be taken to maintain normal downstream flows and minimize flooding. Temporary fills would consist of materials and be placed in a manner that would not be eroded by expected high flows. Temporary fills would be removed in their entirety, and the affected area returned to pre-construction elevations and revegetated as appropriate. If the project involves stream modification, stream channel modifications, including bank stabilization, would be limited to the minimum necessary to construct or protect the structure and the immediate vicinity of the project.

5.10.2 Clean Water Act Section 401 (Water Quality Certification Program)

No-Build Alternative

The No-Build Alternative would not affect water quality.

Build Alternative

A USACE Section 404 permit would be required for the proposed project, and construction activities would require compliance with the State of Texas Water Quality Certification Program. Permanent fill amounts would exceed 0.5 acres and would require authorization under a Section 404 Individual Permit. The proposed project would also impact greater than 1,500 linear feet of stream at the crossings of Creeks 2 and 11 and would qualify as a Tier 2 certification project. Compliance with Section 401 of the CWA requires the use of BMPs to manage water quality on sites affecting jurisdictional waters. These BMPs would address each of the following categories: (1) erosion control, (2) post-construction total suspended solids control, and (3) sedimentation control. Water quality BMPs that would be implemented include the following:

- Approved temporary vegetation
- Blankets/matting or mulch filter berms
- Vegetated filter strips
- Silt fence, sand bag and/or compost filter berms and socks

5.10.3 EO 11990 Wetlands

No-Build Alternative

The No-Build Alternative would not affect wetlands.

Build Alternative

In accordance with EO 11990 – Protection of Wetlands, coordination with the USACE, the NRCS, FEMA, and the local floodplain coordinator would occur during the permitting process. Wetlands

within the 100-year floodplain have been avoided and minimized to the maximum extent possible during the alternatives analysis. Approximately 1.38 acres of wetlands are anticipated to be impacted as a result of the proposed project.

EO 11990 requires federal agencies to provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands. Depending on the amount and type of construction impacts, wetland mitigation may be required for the proposed project. Impacts to non-regulated wetlands, open water features, and drainages would be minimized through design specifications and implementation of BMPs and Storm Water Pollution Prevention Plans.

5.10.4 Rivers and Harbors Act

No-Build Alternative

The No-Build Alternative would not affect navigable waterways.

Build Alternative

Section 9 of the Rivers and Harbors Act of 1899 prohibits the construction of any bridge or causeway over or in navigable waterways of the U.S. without Congressional consent and approval through the Secretary of Transportation. Under Section 10 of the Rivers and Harbors Act, the building of any wharfs, piers, jetties and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires USACE approval. The typical permitting process for bridges and causeways, however, was modified by the General Bridge Act of 1946, which granted the consent of Congress for any construction, maintenance and operation of bridges and approaches over navigable waters of the U.S. that are approved by the U.S. Coast Guard. This project would not involve work in or over a navigable WOUS; therefore, Sections 9 and 10 of the Rivers and Harbors Act and the General Bridge Act of 1946 do not apply.

5.10.5 Clean Water Act Section 303(d) (Impaired Waters)

No-Build Alternative

The No-Build Alternative would not affect impaired waterbodies.

Build Alternative

The State of Texas is required, under Sections 305(b) and 303(d) of the federal CWA, has to prepare biennial statewide water quality assessments that identify the status of use attainment for waterbodies, and to identify waterbodies for which effluent limitations are not stringent enough to implement water quality standards. Based on the assessments, there are 17 unique crossings in the proposed project ROW composed of 14 separate streams. These waterbodies are not listed as impaired on the 2014 Texas 303(d) List.

A Storm Water Pollution Prevention Plan would be prepared prior to construction and followed throughout all construction activities to minimize the discharge of sediment-laden storm water within the project area. The project Storm Water Pollution Prevention Plan will be prepared pursuant to the TxDOT manual *Storm Water Management Guidelines for Construction Activities* (TxDOT, 2002). Also prior to construction, opportunities to reduce the width of the ROW would be considered during final design. A reduction of the proposed ROW would reduce the amount of cleared vegetation and therefore the potential for erosion.

Mitigation for unavoidable impacts could incorporate the following BMPs at appropriate stages during construction:

- Erosion control: Sod would be utilized and remain in place until the area has been stabilized.
- Sedimentation: A combination of silt fencing and hay bale dikes would be utilized and would remain in place until project completion and the existing ditches would be used for retention storage during construction.
- Post-construction BMPs: A combination of retention and vegetative filter strips would be utilized to control total suspended solids after construction. Vegetation within the existing ditches (playas), as well as in the newly designed drainage ditch, would be replanted after construction and would act as vegetative filter strips. Other areas of the ROW would be seeded with native species of grasses, shrubs or trees as needed. At the completion of construction, the TxDOT specification "Seeding for Erosion Control" would be followed to restore and reseed all disturbed areas.

5.10.6 Clean Water Act Section 402 (National Pollutant Discharge Elimination System)

No-Build Alternative

The No-Build Alternative would not affect water quality.

Build Alternative

The proposed project would impact more than 5 acres of earth disturbance. TxDOT would comply with the Texas Commission on Environmental Quality (TCEQ) Texas Pollutant Discharge Elimination System Construction General Permit. An Storm Water Pollution Prevention Plan would be implemented, and a construction site notice would be posted at the construction site. A Notice of Intent (NOI) would be required.

5.10.7 Floodplains

No-Build Alternative

The No-Build Alternative would not affect floodplains.

Build Alternative

EO 11988 “Floodplain Management” requires federal agencies to avoid actions, to the extent practicable, which would result in development within floodplains and/or affect floodplain values. The project is located within FEMA-designated map panels 48139C0075F, 48113C0640K, 48113C0645D, 48113C0665K, 4811C0670K, and 4811C0660K, effective June 3, 2013, July 7, 2014, July 7, 2014, July 7, 2014, July 7, 2014, and July 7, 2014, respectively. A majority of the project is located outside the 100-year floodplain. The remaining areas of the project are located within the Special Flood Hazard Area with defined floodplain elevations along Tenmile and Bear Creeks (FEMA, 2015). The project area occurs within the limits of the base floodplain. The hydraulic design for this project would be in accordance with current FHWA and TxDOT design policies. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances.

5.10.8 Aquifers

No-Build Alternative

The No-Build Alternative would not affect aquifers.

Build Alternative

The proposed project is located within the Trinity Aquifer subcrop (TWDB, 2013a). The Trinity Aquifer is a major aquifer that extends across much of the central and the northeastern part of Texas. It is composed of limestones, sands, gravels, clay, and conglomerates. Recharge to the Trinity Aquifer is very slow and primarily from infiltration of precipitation on the surface and as seepage from streams and ponds where the head gradient is downward (Ryder, 2006). The aquifer’s primary use is for municipalities, but it is also used for irrigation, livestock, and other domestic purposes (TWDB, 2013a).

The EPA defines a sole or principal source aquifer as one that supplies at least 50% of the drinking water consumed in the area overlying the aquifer. According to data published by the EPA for Region 6, where the project area is located, the northern segment of the Trinity Aquifer is not a sole-source aquifer. No impacts are anticipated as a result of the proposed project.

5.10.9 Drinking Water Systems

No-Build Alternative

The No-Build Alternative would not affect drinking water systems.

Build Alternative

A search was made for water wells in and adjacent to the proposed project area. A review of the TCEQ and TWDB records did not reveal any water wells adjacent to or within the proposed ROW (TWDB, 2013b). Five public and four private water wells were identified within an approximately

one-mile radius of the project area. Of these nine wells, five were marked as currently unused by the TWDB. No impacts to water wells are anticipated as a result of the proposed project.

5.11 Biological Resources

5.11.1 Vegetation

No-Build Alternative

The No-Build Alternative would include disturbance from continued maintenance of the existing ROW by mowing. The effects of mowing on grassland ecosystem productivity and biodiversity will depend on the frequency at which mowing occurs, with either positive or negative impacts possible (Connell, 1978). In general, roadside mowing has been observed to decrease plant species richness and promote exotics (Forman and Alexander, 1998). Mowing also would maintain the ROW as grassland and prevent shrub encroachment and development into brushland. Disturbance from mowing and maintenance also may facilitate invasion by exotic plant species.

Build Alternative

The proposed project area is situated in the northern portion of the Blackland Prairie Ecoregion of Texas that is transitional between the East Central Texas Plains and the Cross Timbers ecoregions. The Blackland Prairie Ecoregion covers approximately 11.5 million acres, including the San Antonio and Fayette Prairies. This region is classified as a true prairie and is characterized by gently rolling to nearly level grasslands underlain by dark, fertile soil with rapid surface drainage (Correll and Johnston, 1979). Various species of hardwood trees are characteristic of the riparian corridors that traverse this region. The area has been converted from historical tall grass prairies to mostly farmlands and urban development.

General characteristics of vegetative resources were observed during field surveys of the project area in October 2014, January 2015, and September 2015. A final site visit, in March 2017, confirmed vegetative communities in specific areas. Detailed descriptions of the vegetation communities occurring within the project area are provided in the Biological Resources Technical Report prepared for the project (TxDOT, 2017c).

Impacts to vegetation were based on review of available data characterizing existing vegetative and wildlife resources and in accordance with the requirements of the TxDOT-TPWD MOU dated 2013. Additionally, the general characteristics of vegetative resources were observed during field surveys of the project area. Potential impacts to vegetation were analyzed in GIS based on the proposed ROW and photo-interpreted vegetative community boundaries digitized using the most recently available high-resolution aerial imagery and referencing community types identified during the field survey. Community-type classifications corresponded to those defined by the Ecological Mapping Systems of Texas in the *Texas Vegetation Classification Project: Interpretive Booklet for Phase 6* (TPWD, 2010).

Under the Build Alternative, the proposed project would result in the direct conversion of approximately 550.37 acres of vegetation to transportation ROW (**Table 12**).

Table 12: Summary of Vegetation Impacts

Ecological Mapping Systems of Texas Vegetation Community	MOU Vegetation Type[1]	Actual Vegetation Within the ROW (acres)	Vegetation Impacted by the Proposed Project (acres)[2]
Row Crops	Agriculture	229.00	225.28
Azonal Barren	Agriculture	1.10	1.10
	Agricultural Total	**230.10**	**226.38**
Blackland Prairie: Disturbance or Tame Grassland	Disturbed Prairie	179.15	173.34
Native Invasive: Deciduous Woodland	Disturbed Prairie	24.68	22.93
Native Invasive: Juniper Shrubland	Disturbed Prairie	0.08	0.08
	Disturbed Prairie Total	**203.91**	**196.35**
Urban High Intensity	Urban	59.13	0.04
Urban Low Intensity	Urban	153.69	51.94
	Urban Total	**212.82**	**51.98**
Central Texas: Floodplain Hardwood Forest	Floodplain	19.70	19.37
Central Texas: Floodplain Herbaceous Vegetation	Floodplain	16.97	15.82
	Floodplain Total	**36.67**	**35.19**
Central Texas: Riparian Deciduous Shrubland	Riparian	0.01	0.01
Central Texas: Riparian Hardwood / Evergreen Forest	Riparian	30.59	27.74
Central Texas: Riparian Hardwood Forest	Riparian	4.21	4.07
Central Texas: Riparian Herbaceous Vegetation	Riparian	3.55	3.49
Open Water	Riparian	0.96	0.96
	Riparian Total	**39.32**	**36.27**
Edwards Plateau: Deciduous Oak / Evergreen Motte and Woodland	Edwards Plateau Savannah, Woodland, and Shrubland	4.16	4.16
Edwards Plateau: Savanna Grassland	Edwards Plateau Savannah, Woodland, and Shrubland	0.04	0.04
	Edwards Plateau Savannah, Woodland, and Shrubland Total	**4.20**	**4.20**
	Total Acreage	**727.02**	**550.37[3]**

[1]MOU vegetation types are identified for each vegetation community in accordance with the Threshold Table Programmatic Agreement.
[2]Total vegetation impacted includes proposed project ROW minus existing ROW (existing roadways and previously improved medians) utilizing TxDOT's Roadway Vegetation for Geographic Information Systems (TxDOT, 2014).
[3]The difference in acreage between the proposed project ROW (541.23 acres) and vegetation impacted by the proposed project (550.37 acres), is due to the fact that some of the impacted vegetation communities are located in existing TxDOT and non-TxDOT ROWs.

The Build Alternative would have direct impacts on vegetation. Where permanent structures or pavement are placed; impacts to vegetation would be long term. Other areas will be revegetated following BMPs, which may include restorative practices such as plowing, seeding, and/or sodding of disturbed sites. Revegetated areas previously in a grassland community type that are returned to native vegetation could potentially be restored to preconstruction conditions and could even receive beneficial impacts if it was previously vegetated by non-native or weedy grass species. The duration of impact would extend from site preparation to restoration. Revegetated areas previously in wooded community types would be permanently converted to grassland.

At the landscape scale, existing vegetative communities within the proposed Build Alternative would be fragmented to some degree. Given past land use and urban development, the landscape of the project area is generally fragmented at present. The effects of fragmentation from proposed activities would vary depending on the site conditions. Fragmentation from the proposed activities would have less of an impact on areas already fragmented than on areas that are currently unfragmented.

In accordance with EO 13112, native plant species of grasses, shrubs, and/or trees would be used in the landscaping and in the seed mixes where practicable. No invasive or noxious species would be used to revegetate the ROW, and soil disturbance would be minimized to ensure that invasive species do not establish in the ROW. Implementation of BMPs and the Storm Water Pollution Prevention Plan would minimize indirect impacts to adjacent vegetative communities from erosion and other potential negative effects. Mitigation for impacts to vegetative resources is not anticipated to be required for the Build Alternative; however, TxDOT may elect voluntary conservation measures.

Final guidance to the April 1994 *Executive Memorandum on Environmentally and Economically Beneficial Landscaping* was issued in the *Federal Register* on August 10, 2015, as guidance designed to further minimize the adverse effects of landscaping. The practices described in this memorandum apply to federal facilities and federally funded projects and include implementation, where affordable and practicable, of the following:

- Use regionally native plants for landscaping;
- Design, use or promote construction practices that minimize adverse effects on the natural habitat;
- Seek to prevent pollution by reducing fertilizer and pesticide use, using integrated pest management techniques, recycling green waste, and minimizing runoff;
- Implement water-efficient practices, such as the use of mulches, efficient irrigation systems and the selecting and siting of plants in a manner that conserves water and controls soil erosion; and

- Create outdoor demonstrations incorporating native plants, as well as pollution prevention and water conservation techniques, to promote awareness of the environmental and economic benefits of implementing this directive.

The above practices would be implemented as practical. Additionally, upon completion of earthwork operations, disturbed areas would be restored and reseeded in accordance with TxDOT Vegetation Management Guidelines and in compliance with the intent of the *Executive Memorandum on Environmentally and Economically Beneficial Landscape Practices*.

5.11.2 Wildlife

No-Build Alternative

The impacts to aquatic wildlife resources under the No-Build Alternative would likely be minor. Potential negative effects to aquatic resources would include degradation of water quality and sedimentation from traffic-related nonpoint source runoff or point source toxic spills, as well as potential introduction of invasive and/or exotic aquatic species. Sedimentation and erosion caused by operation and maintenance of the existing ROW could have further impacts on aquatic resources through filling in aquatic features, such as altering flood regimes or covering invertebrates.

The impacts to terrestrial wildlife resources under the No-Build Alternative would generally be minor and include disturbance from continued operation and maintenance of the existing roadways in the project area. Maintenance activities would primarily include mowing of the ROW. The effects of mowing on wildlife resources could be either negative or positive and would be related to effects on vegetation resources. Short-term displacement or direct injury or mortality to wildlife, such as small mammals or ground nesting birds, may result from mowing operations. Displacement into adjacent habitats could result in increased competition for resources and reduced fitness of individuals. Conversely, mowing and approaches such as mowing in stages could benefit some wildlife species (e.g., small mammals and edge/ecotonal species) by creating habitat diversity (e.g., Adams and Geis, 1983; Adams, 1984). Should mowing facilitate the spread of exotic, invasive and/or weedy plant or animal species, these activities could negatively affect wildlife habitats or species interactions such as breeding, feeding, or sheltering.

Build Alternative

County records of occurrence and species' range maps were reviewed to develop representative lists of species with the potential to occur in within the project area. Additionally, observed wildlife species and habitat assemblages were noted during field surveys of the project area during October 2014, January 2015, and September 2015. Targeted observations from public ROW were also conducted in March 2017 to verify vegetative communities. Common species know to occur within Ellis and Dallas counties include doves, ducks, geese, javelinas, quail, rabbits and hares, squirrel, turkey, deer, and woodcock.

The assessment of potential impacts to wildlife was based on the proposed ROW, the vegetative community boundaries and types within and adjacent to the proposed ROW, and wildlife likely to utilize such habitats for feeding, breeding or sheltering. Removal and conversion of existing vegetation would be the primary potential impact to wildlife resulting from construction within the proposed ROW. The majority of the vegetation impacts would occur in the agricultural vegetation type. Refer to Table 12 for a summary of vegetation communities identified within the proposed ROW.

Habitat fragmentation that results from the Build Alternative may further impact terrestrial wildlife resources by affecting animal movement patterns. Roads create barriers to movement by some species and have the potential to isolate populations, which:

- impacts reproductive success and effects population genetics;
- reduces the home range of blocked species; and
- limits resource availability and increases competition for limiting resources.

Changes in species assemblage facilitated by habitat fragmentation and modification from construction and operation could result in the introduction of pests or predators, which would negatively impact existing wildlife resources. For instance, higher predatory bird nests have been observed in fragmented edge habitats, such as in proximity to roads.

Post-construction and continued operation of the Build Alternative would have long-term impacts on wildlife resources. Traffic on roadways could result in direct injury or mortality of wildlife species through vehicular collision. Most susceptible are animals attempting to cross roadways or those attracted to features within the ROW, such as plants, spilled grain, roadkill or other attractants. The frequency and species of roadkill has been shown to vary with road width and vehicle travel levels and speed, with mortality observed to increase generally with volume and mortality by species to vary by speed of animal. Although wildlife is often killed by vehicular collision on roadways, roadkill has not been shown to have a substantial effect on most wildlife populations at the landscape scale, although roadkill rates have been shown to be substantial for populations of a few sensitive federally listed species.

Perhaps the greatest long-term negative effect from roadways on wildlife resources is behavioral avoidance of habitat within the road-effect zone—the area over which ecological effects extend outward from a road. The extent of influence is often the width of the road but the boundaries are influenced by the characteristics of adjacent ecological communities and abiotic factors (e.g., slope and wind) and may extend for several hundred meters to over a kilometer from the roadway. Traffic and associated road noise and lighting have been shown to result in the avoidance of habitat surrounding roadways. Such avoidance effectively equates to the functional loss of this habitat for those species. Lower densities and species richness of birds have been observed near roadways, with the effect distance greater for grasslands.

The impacts to wildlife from road noise would be greater for the Build Alternative than the No-Build Alternative due to construction of a new location roadway. The project area has been historically fragmented through public road installation and urban and commercial development near I-35E and I-45. As a consequence, the existing fragmented environment, estimation of the additional effects on wildlife species caused by habitat fragmentation and road noise is uncertain under the Build Alternative. Although the proposed Build Alternative should have greater long-term adverse impacts on wildlife resources than the No-Build Alternative, these impacts should be minor to moderate given the existing condition of the proposed ROW and within the context of the project area.

TxDOT BMPs designed to limit water quality degradation from construction activities would be included in the mitigation plan. These practices would minimize fill washing into creeks within the proposed ROW and adjacent waterbodies, adjacent swales, and wildlife habitats; provide adequate erosion and siltation control; and ensure adherence to proper cleanup procedures. Stream crossing BMPs include, among others, use of spanning bridges rather than culverts, where possible; use of bottomless culverts; avoiding placing riprap across stream channels; incorporation of bat-friendly design into bridges and culverts; allowing adequate vertical and horizontal clearances under the roadway to allow for terrestrial wildlife to safely pass under the road; and allowing riparian buffer zones to remain undisturbed, where possible.

Additionally, the implementation of sedimentation controls (a Storm Water Pollution Prevention Plan would be in place) during construction will help to minimize erosion and sedimentation into aquatic features.

In the event that migratory birds are encountered on site during project construction, every effort would be made to avoid harm to migratory birds, their eggs, nests, and young, in compliance with the Migratory Bird Treaty Act. The removal of unoccupied, inactive migratory bird nests would be avoided. For upcoming construction, preventative measures would be taken to prevent birds from building new nests in the proposed construction area. No disturbance, destruction, or removal of active nests, including ground nesting birds, would occur during the nesting season (February 15 to October 1). Collection, capture, relocation, or transportation of birds, eggs, young or active nests without a permit would be prohibited.

5.11.3 Threatened and Endangered Species

No-Build Alternative

The No-Build Alternative would not affect threatened and endangered species.

Build Alternative

A detailed description of the state and federal endangered, threatened and/or proposed endangered or candidate plant and animal species with the potential to occur in the project area is provided in the Biological Resources Technical Report prepared for the project (TxDOT, 2017c). For

each species, their life history was reviewed using the most up-to-date scientific literature to characterize the species. Specific emphasis was placed on each species' habitat preference and range of suitability. Habitat availability within the project area was identified through field surveys and compared to suitable habitats for endangered or threatened plant and animal species to determine the potential for occurrence within the ROW, as appropriate.

Ecologists reviewed the TPWD Texas Natural Diversity Database (NDD) on November 9, 2016 to identify previously recorded occurrences of both state- and/or federal-threatened/endangered species within the vicinity of the project area as defined within a 1.5-mile and 10-mile radius of the proposed project ROW. The U.S. Fish and Wildlife Service (USFWS) and TPWD threatened and endangered species county lists also were reviewed to determine the potential of occurrence within the project area (USFWS, 2017; TPWD, 2016b).

Biologists traversed the proposed ROW during field surveys conducted in October 2014, January 2015, and September 2015 to document the existing conditions present and to assess the suitability of potential habitats that may be present for utilization by protected species. A site visit to specific areas was conducted in March 2017 to confirm vegetative communities.

Impacts to threatened and endangered species was based on review of available data characterizing existing resources within the affected environment and respective assessment of impacts to these resources with reference to the proposed activities.

Based on desktop analysis and field investigations in October 2014, January 2015, and September 2015, potential suitable habitat exists within the proposed project ROW for multiple federal- and/or state-listed threatened or endangered species, and SGCN.

The following federally protected species have the potential to occur within the proposed project area: Black-capped Vireo (*Vireo atricapilla*), Golden-cheeked Warbler (*Dendroica chrysoparia*), Interior Least Tern (*Sterna antillarum*), Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), and Whooping Crane (*Grus americana*). However, suitable habitat for the Black-capped Vireo, Golden-cheeked Warbler, Piping Plover, Red Knot, and Whooping Crane was not observed within the proposed action area as verified by a qualified biologist in October 2014, January 2015, and September 2015. Additional photographs were taken at specific locations within the proposed project area in March 2017 to further support a lack of suitable habitat for the Black-capped Vireo and the Golden-cheeked Warbler.

Suitable habitat for Interior Least Tern is present along a small portion of Tenmile Creek. The habitat quality is low due to the narrow and incised channel, frequent inundation during the nesting season, and low visibility around the sandbar. Site visits performed in 2014 and 2015 indicate absence. Therefore, based upon environmental commitments prior and during construction and the habitat quality, TxDOT has determined no effect to Interior Least Tern.

The proposed project ROW is within range of and exhibits suitable habitat for nine state listed threatened and endangered species: Interior Least Tern (SE), Wood Stork (*Mycteria americana*) (state-threatened [ST]), Louisiana pigtoe (*Pleurobema riddellii*) (ST), sandbank pocketbook (*Lampsilis satura*) (ST),Texas heelsplitter (*Potamilus amphichaenus*) (ST), Texas pigtoe (*Fusconaia askwei*) (ST), alligator snapping turtle (*Macrochelys temminckii*) (ST), Texas horned lizard (*Phrynosoma cornutum*) (ST), and timber rattlesnake (*Crotalus horridus*) (ST). The proposed project may impact the Wood Stork, the four mollusks, alligator snapping turtle, Texas horned lizard, and Timber Rattlesnake.

Both Tenmile Creek and Bear Creek offer a mixture of mud, sand, and gravel substrates preferred by the Louisiana and Texas pigtoe mussels. As these species are historically and currently known to occur in the Trinity River drainage basin, their presence within the proposed project ROW cannot be ruled out without species-specific aquatic surveys. Potential habitat for all four of the mollusk species was observed by a qualified biologist in October 2014, January 2015, and September 2015 within the portions of Bear and Tenmile Creeks located within and adjacent to the proposed project area.

The proposed project ROW is also within range and contains potential habitat for thirteen SGCNs: southern crawfish frog (*Lithobates areolatus areolatus*), Henslow's Sparrow (*Ammodramus henslowii*), Sprague's Pipit (*Anthus spragueii*), Western Burrowing Owl (*Athene cunicularia hypugaea*), plains spotted skunk (*Spilogale putorius interrupta*), Glen rose yucca (*Yucca necopina*), Hall's prairie clover (*Dalea hallii*), plateau milkvine (*Matelea edwardsensis*), Osage Plains false foxglove (*Agalinis densiflora*), Texas milk vetch (*Astragalus reflexus*), tree dodder (*Cuscuta exaltata*), Warnock's Coral-root (*Hexalectris warnockii*), and Texas garter snake (*Thamnophis sirtalis annectens*). Potential habitat was observed for the Southern crawfish frog, Henslow's Sparrow, Sprague's Pipit, Western Burrowing Owl, Glen Rose yucca, Hall's Prairie clover, Osage Plains false foxglove, plateau milkvine, tree dodder, Warnock's Coral-root, and Texas garter snake were observed. No impact to the plains spotted skunk is anticipated as the species is highly adaptable and capable of moving to adjacent habitat near the project area. The proposed project may affect the other species.

Suitable habitat for Hall's prairie clover was observed by a qualified biologist within the proposed project area in September 2015. The NDD for this observation has been submitted to TPWD. Hall's prairie clover is typically found in grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; a common combination of vegetation and substrate within and adjacent to the proposed project ROW.

The NDD maintains a record of observations of tracked rare, threatened or endangered species, SGCN, and assemblages throughout the state. These observances are called Element of Occurrence Records (EOR) and are defined as an area of land and/or water where a species or ecological community is or was present that has practical conservation value (NatureServe,

2015). Considered collectively, the NDD results and the TPWD and USFWS county lists identify several species that have historically occurred in Ellis and Dallas counties. It should be noted that information from the NDD cannot be used for presence/absence determinations. The NDD was searched for Element of Occurrence Records by TPWD on November 9, 2016, to determine whether any reports of species have occurred within a 10-mile mile radius of the proposed project ROW (TPWD, 2016a).

This database search indicated that the Hall's Prairie Clover, a SGCN, is the only EOR in the database search to directly overlay the proposed project ROW or occur within the 1.5 miles of the proposed project. The database search indicated two federal-listed endangered species, Black-capped Vireo and Interior Least Tern; one state-listed threatened species, Louisiana pigtoe; and four state-listed SGCN, Hall's prairie clover, Warnock's coral-root, Glass Mountains coral-root, and plateau milkvine have been documented at greater than 1.5 miles but within 10 miles of the proposed project ROW. In addition to multiple species-specific EORs, the database search also returned 12 special habitat and vegetation community EORs: three remnant native vertisol blackland prairie vegetation communities, one cedar elm-sugarberry forest vegetation community, one Ashe juniper-oak woodland community, two little bluestem-Indiangrass grassland communities, and five colonial wading bird colonies. No special habitat or vegetation community EORs were located within the proposed project ROW or within a 1.5-mile radius of the proposed project ROW.

Critical Habitat

The USFWS, in Section 3(5)(A) of the Endangered Species Act (ESA), defines critical habitat as (i) the specific areas within the geographical area occupied by the species, at the time that it is listed in accordance with the ESA, on which are found those physical or biological features that are (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination by the Secretary of the Interior that such areas are essential for the conservation of the species.

No critical habitat has been designated in the project area for any endangered or threatened species.

Mitigation for Special-Status Species

As detailed in Section 2.206 of the 2013 MOU, coordination with the TPWD is required for projects that trigger one or more of the following:

1) The project is within range of a state threatened or endangered species or SGCN as identified by the TPWD County list of Rare and Protected Species, and there is suitable habitat, unless BMPs as defined in this MOU are implemented as part of a programmatic agreement.

2) The project may adversely impact important remnant vegetation based on the judgment of a qualified biologist or as mapped in the NDD.
3) The project requires an Individual Permit issued by the USACE.
4) The project includes in the TxDOT ROW or conservation, construction or drainage easement more than 200 lf of stream channel for each single and complete crossing of one or more of the following that is not already channelized or otherwise maintained:
    a) Channel realignment; or
    b) Stream bed or stream bank excavation, scraping, clearing or other permanent disturbance.
5) The project contains known isolated wetlands outside existing TxDOT ROW that would be directly impacted by the project.
6) The project may impact 0.10 acres of riparian vegetation based on the judgment of a qualified biologist or as mapped in the Ecological Mapping Systems of Texas.
7) The project disturbs habitat in an area equal to or greater than the area of disturbance indicated in the Threshold Table Programmatic Agreement.

The proposed project ROW contains confirmed and potential habitat for one SGCN, Hall's prairie clover, as identified by the TPWD County List of Rare and Protected Species. As no species specific BMPs exist for Hall's prairie clover, TxDOT BMPs for native vegetation will be implemented during construction to avoid and/or minimize potential impacts to the Hall's prairie clover.

Potential habitat for the endangered Interior Least Tern along Tenmile Creek was observed within the proposed project ROW. As part of the proposed project, construction will be limited at suitable habitat locations within the ROW for the federally protected interior least tern from April 1 to September 1 to minimize potential effects to this species. Presence/absence survey guidelines for the Interior Least Tern, provided by the USWFS to permitted staff, would be followed for a survey during the nesting season prior to the start of construction. The resulting documentation can be provided upon request. Only permitted individual(s) would conduct the presence/absence survey during the nesting season from May through late July immediately prior to the start of construction.

Due to these conditions and the potential habitat of nine state threatened or endangered or thirteen SGCN, coordination with TPWD would be required.

No special habitat or vegetation community EORs were located within the proposed project area or within a 1.5-mile radius of the proposed project area. However, the proposed project could impact the following important remnant vegetation: Hall's prairie clover, Glen Rose yucca, Osage Plains false foxglove, Texas milk vetch, plateau milkvine, Warnock's coral root, and tree dodder. Therefore, coordination with TPWD would be required.

Detailed drainage design for the proposed project has not been completed at this time, though it is anticipated that the proposed project would be authorized under a USACE Individual Permit. Construction of the proposed project may impact a special aquatic site, such as a riffle and pool complex, along Bear Creek, but no other special aquatic sites, including wetlands, would be impacted by construction of the proposed project. Therefore, coordination with TPWD would be required.

The proposed project would likely result in channel realignment or stream bed or stream bank excavation on some or all of the 14 identified streams within the proposed project ROW. The project would include more than 200 linear feet of stream channel for all but one single and complete stream crossing as detailed in the Water Resources Technical Report. Therefore, the linear extent of impacts to waters of the U.S. would require coordination with TPWD would be required.

According to field observations by a qualified biologist, the proposed project would impact approximately 39.31 acres of riparian vegetation, which is greater than the 0.10-acre PA threshold. Therefore, coordination with TPWD would be required.

The Threshold Table Programmatic Agreement groups vegetation types into broader MOU types and sets a disturbance threshold for each type by ecoregion that, if met or exceeded, triggers coordination with the TPWD. For projects that have vegetation impacts in multiple ecoregions and the thresholds differ between these regions for a single MOU type, the average of the thresholds for that MOU type is used to determine coordination requirements with the TPWD. A review of the Threshold Table Programmatic Agreement determined that vegetation within the proposed project area falls into six MOU types: Agriculture; Disturbed Prairie; Urban; Floodplain; Riparian; and Edwards Plateau Savannah, Woodland, and Shrubland. The Threshold Table Programmatic Agreement sets a disturbance threshold of 10 acres for Agriculture, three acres for Disturbed Prairie, 0.5 acres for Floodplain, 0.1 acres for Riparian, and one acre for Edwards Plateau Savannah, Woodland, and Shrubland. Vegetation impacts quantified in **Table 12** show that the proposed project would exceed the threshold for the following MOU types: Agricultural; Disturbed Prairie; Floodplain; Riparian; and Edwards Plateau Savannah, Woodland, and Shrubland. Therefore, coordination with TPWD would be required.

The following commitments would be required for the proposed project:

- Impacts to vegetation would be avoided or minimized by limiting disturbance to only that which is necessary to construct the proposed project. The removal of native vegetation, particularly mature native trees and shrubs, would be avoided to the greatest extent practicable. An approved seed mix would be used in the landscaping and revegetation of disturbed areas.
- As part of the project description, if the Interior Least Tern is present during construction, no construction activities would occur within a 300-foot buffer of suitable habitat for the species from April 1 to September 1.

- Presence/absence survey guidelines for the Interior Least Tern, provided by the USWFS to permitted staff, would be followed the nesting season prior to the start of construction and can be provided upon request.
- Only permitted individual(s) would conduct the presence/absence survey during the nesting season from May through late July immediately prior to the start of construction.

- Although there are no species specific BMPs for the observed Hall's prairie clover, TxDOT proposes to evaluate potential conservation measures such as collection of seeds and/or transfer of complete specimens (if possible) during the flowering season before construction is slated to begin. (Note: Even with implementation of the voluntary conservation measures, it is still a trigger for coordination.)
- Although BMPs have not been approved for the southern crawfish frog, TxDOT proposes to implement the following conservation measure: contractors would be advised of the potential presence of the southern crawfish frog within the proposed project area, to avoid harming the species if encountered, and to avoid unnecessary impacts to small burrows.
- Appropriate measures would be taken to avoid adverse impacts on migratory birds and would include the following:
  - No disturbance, destruction or removal of active nests, including ground nesting birds, during the nesting season (February 15 to October 1);
  - Avoid the removal of unoccupied, inactive nests where practicable;
  - Prevent the establishment of active nests during the nesting season on TxDOT-owned and -operated facilities and structures proposed for replacement or repair; and
  - No collection, capture, relocation, or transportation of birds, eggs, young or active nests without a permit.
- The following freshwater mussel BMPs would apply to the Louisiana pigtoe, Texas heelsplitter, Texas pigtoe, and sandbank pocketbook:
  - When work is in the water, survey project footprints for state listed species where appropriate habitat exists;
  - When work is in the water and mussels are discovered during surveys, relocate state listed mussels under TPWD permit and implement Water Quality BMPs; and
  - When work is adjacent to the water, Water Quality BMPs implemented as part of the SWPPP for a construction permit or any conditions of the 401 water quality certification for the project would be implemented (this BMP applies to the project).
- The following BMPs would apply to the alligator snapping turtle:
  - Minimize impacts to wetland and riverine habitats, and
  - Contractors would be advised of potential occurrence in the proposed project area, and to avoid harming the species if encountered.
- The following BMP would apply to both the Texas garter snake and timber rattlesnake:

- Contractors would be advised of potential occurrence in the proposed project area, and to avoid harming the species, if encountered.

- The following BMP would apply to the plains spotted skunk:
  - Contractors would be advised of the potential occurrence in the proposed project area, and to avoid harming the species if encountered, and to avoid unnecessary to impacts to dens.

- The following BMP would apply to the Texas horned lizard:
  - Contractors would be advised of potential occurrence in the proposed project area, and to avoid harming the species, if encountered, and to avoid harvester ant mounds where feasible.

- Upon completion of earthwork operations, disturbed areas would be restored and reseeded, where feasible, in accordance with TxDOT's Vegetation Management Guidelines and in compliance with the intent of Executive Order 13112 on Invasive Species and the FHWA Executive Memorandum on Environmentally and Economically Beneficial Landscaping Practices.

5.12 Air Quality

5.12.1 No-Build Alternative

The No-Build Alternative would lead to increased traffic congestion and decreased mobility, resulting in decreased vehicular speed and level of service. The No-Build Alternative is inconsistent with Mobility 2040, which contains specific projects, programs, and policies intended to improve mobility, access, and air quality in the region. Regardless, the trend of declining emissions of both ozone precursors as well as mobile source air toxics (MSAT) are expected to continue into the future due to the EPA's vehicle and fuel regulations, coupled with fleet turnover.

5.12.2 Build Alternative

The EPA sets the National Ambient Air Quality Standards (NAAQS) for six common air pollutants, called criteria air pollutants, which were identified from provisions of the Clean Air Act of 1970. The NAAQS were set to protect public health, including that of sensitive individuals. If the air quality in a region, such as a Consolidated Metropolitan Statistical Area, exceeds the NAAQS for any criteria pollutant, it is designated as a "nonattainment" area for that specific pollutant until compliance is achieved. An SIP is prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain NAAQS. The Clean Air Act Amendments of 1990 require transportation plans, programs, and projects in nonattainment areas, which are funded or approved by the FHWA or Federal Transit Administration, to conform to the SIP. This ensures that transportation plans, programs, and projects do not produce new air quality violations or worsen existing violations.

Transportation conformity is an analytical methodology that establishes the connection between projected on-road emissions from the regional or metropolitan transportation plan (known as Mobility 2040 for the DFW metropolitan area) and the known reductions in the motor vehicle emission budget from the SIP. Through the process of transportation conformity, Mobility 2040 uses the SIP on-road mobile strategies and air quality targets to demonstrate if the regional transportation plan complies with the federal air quality requirements. Vehicle emissions resulting from the implementation of transportation projects in the 2040 regional transportation plan cannot exceed emission budgets established by the SIP.

An air quality technical report was completed for the proposed project (TxDOT, 2017d). This project is located within an area that has been designated by the EPA as a moderate nonattainment area for the 2008 ozone NAAQS; therefore, transportation conformity rules apply. The proposed project is included in the MTP (Mobility 2040), approved on March 10, 2016, and will be included in the 2017–2020 TIP. Both the Mobility 2040 MTP and the 2017-2020 TIP were initially found to conform to the Texas Commission on Environmental Quality SIP by the FHWA and Federal Transit Administration on September 7, 2016, and December 19, 2016, respectively; however, the proposed project is not consistent with this conformity determination, because it was not approved in the 2017-2020 TIP. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming MTP and TIP. Copies of the TIP and MTP pages are included in **Appendix D**.

Traffic data for design year 2040 is 13,400 vehicles per day. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that the carbon monoxide standard would ever be exceeded as a result of any project with an average annual daily traffic below 140,000. The average annual daily traffic projections for the project do not exceed 140,000 vehicles per day; therefore, a Traffic Air Quality Analysis was not required.

In the air quality technical report, a qualitative MSAT assessment has been provided relative to the various alternatives of MSAT emissions and has acknowledged that the Build Alternative may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain and, because of this uncertainty, the health effects from these emissions cannot be estimated. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

The Congestion Management Process (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 operational CMP, which meets all requirements of 23 CFR 450.320 and 500.109, as applicable. The CMP was adopted by NCTCOG

in July 2013. The CMP for the Dallas-Fort Worth region can be found at http://www.nctcog.org/trans/cmp/.

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 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 facility implementation and project-specific elements. Committed congestion reduction strategies and operational improvements within the proposed project limits consist of the individual projects listed in **Table 13**.

Table 13: Congestion Management Process Strategies and Operational Improvements in the Travel Corridor

Location	Type	Implementation Date
Farm-to-Market Road 664 from U.S. Highway 287 in Waxahachie to I-45 in Ferris (Project Code 83223)	Addition of Lanes: Feasibility study to widen two-lane rural to four-lane divided.	2035
I-45 from I-20 to Dallas & Ellis County Line (Project Code 20126)	Intelligent Transportation System: Installation of wireless incident detection and response system.	2011

Source: NCTCOG Transportation Improvement Program Information System, Accessed March 1, 2016.

In July 2013, the Regional Transportation Council also adopted a policy that requires the review and application of congestion mitigation strategies to correct corridor deficiencies identified in the CMP when performing corridor and environmental studies and report findings back to NCTCOG. Therefore, NCTCOG has developed a project level CMP analysis. The analysis requires completion of the Project Implementation Form, and, if warranted, the Roadway Corridor Deficiency Form and Corridor Analysis Fact Sheet. The results of these analysis are included in the Air Quality Technical Report (TxDOT, 2017d) and are on file at the TxDOT Dallas District office.

In an effort to reduce congestion and the need for single occupancy vehicle lanes in the region, TxDOT and NCTCOG will continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality Improvement program, the CMP, and the MTP. The congestion reduction strategies considered for this project would help alleviate congestion in the single occupancy vehicle study boundary but would not eliminate it. Based on the regional and project specific CMP analysis, the proposed project is justified. The CMP analysis, both regional and project specific, for added single occupancy vehicle capacity projects in the Transportation Management Area is on file and available for review at the NCTCOG.

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

The potential impacts of PM emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan 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 Texas Emissions Reduction Plan program can be found at: http://www.tceq.state.tx.us/implementation/air/terp/.

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of Texas Emissions Reduction Plan, 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.

5.13 Hazardous Materials

5.13.1 No-Build Alternative

Under the No-Build Alternative, no hazardous materials associated with the project would be created. However, the generation, storage, use, transportation and disposal of hazardous materials would continue to increase with urbanization. Selection of the No-Build Alternative would not lessen the likelihood of hazardous materials, because it would result in the continued transportation of these substances on congested routes.

The No-Build Alternative would not result in the displacement of any structures or construction, and therefore there would be no potential impacts from asbestos containing materials, lead-based paints or affected soils or groundwater encountered during construction.

5.13.2 Build Alternative

An initial site assessment including a visual survey of the project limits and surrounding area, research of existing and previous land use, and limited review of federal and state regulatory databases/lists was performed to identify possible hazardous materials within the project limits. A Hazardous Materials Initial Site Assessment was prepared for the proposed project (TxDOT, 2017e). Refer to the Hazardous Materials Initial Site Assessment for a full assessment of hazardous materials sites identified from the records review as having the potential to impact construction of the proposed project.

A review of environmental regulatory databases was performed on November 3, 2015, to identify sites or facilities that might pose a potential for hazardous materials impacts to the proposed

project. The purpose of the database review was to determine whether sites located within the proposed project area are listed as having a past or present record of actual or potential environmental impact or are under investigation for noncompliance with a hazardous materials regulation. The database searches were conducted to comply with the American Society for Testing Materials (ASTM) Standard 1527-13 and the EPA All Appropriate Inquiries Standard but are not considered a full Phase I Environmental Site Assessment. A TxDOT initial site assessment was prepared as the product of the database review.

The state and federal database search identified 30 locatable records at a total of 13 sites within the designated ASTM search radii from the project area (GeoSearch, 2015). Additionally, 16 unlocatable records were identified in the database search. The potential for interactions or impacts associated with the proposed project was assessed for each of the database search records based on the type of site-specific hazardous materials issues and site locations with respect to the ROW and planned improvements, with each site-specific issue being classified as requiring further study or not requiring further study with regards to impacts associated with project work:

- Finding requires further study: Additional investigation, including regulatory file review would be required to confirm if contamination would be encountered during construction. If contamination were confirmed, then TxDOT would develop appropriate plans/contingencies to avoid or minimize impact to project activities. These sites are within or adjacent to the ROW and were previously contaminated requiring clean up based on the TCEQ records or have the potential to become contaminated during the project.
- Does not require further study: No additional investigation warranted. Site is not within or adjacent to the project ROW and was not previously contaminated or previous contamination has been cleaned up in accordance with regulatory standards as reviewed within the TCEQ Records.

This assessment found that 45 of the 46 hazardous materials issues identified in the database searches are expected to require no further study. Sites considered to be of concern (requiring further study) for impacting, or being impacted by, the proposed project are summarized in **Table 14** and additional information is provided in **Appendix G**.

Table 14: Potential Hazardous Materials Sites in the Project Area Requiring Further Study

Map ID # *	Site Name	Site Address	Type	Status of Site
2	Lancaster	Steinback Road	Closed and Abandoned Landfill	Per TCEQ the landfill was inspected in 1967 by the U.S. Department of Health, Education, and Welfare and noted as closed in a 1972 EPA inspection. The landfill is listed to have accepted industrial wastes to include construction demolition debris, tires, and brush wastes. The site is listed as posing a probable hazard. Further TCEQ file research should be conducted to determine project related impacts.

Sources: GeoSearch Radius Report (2015) Loop 9 from I-35E to I-45 and field observations.

The Closed and Abandoned Landfill site (Site #2, Lancaster) listed in **Table 14** is located within the proposed project area and is considered to require further study to determine project-related impacts. A review of TCEQ Historical Information about Municipal Solid Waste Facilities unnumbered sites list provided a latitude and longitude for the historic Lancaster landfill. Based on this location information, the landfill was determined to have been formerly situated northeast of the intersection of Stainback Road and Ferris Road. This area is within the proposed ROW. Refer to **Appendix G** for the GeoSearch site map and site photos.

The TCEQ central registry reports the site was identified in a 1968 U.S. Department of Health, Education, and Welfare Survey (#18); inspection data from the survey include a note describing no burning being observed at the landfill. Additionally the TCEQ central registry reports closure of the landfill was confirmed in a 1972 EPA inspection. Contents of the landfill are indicated as being industrial with construction demolition materials, brush, and legal materials being present. The landfill contents are listed as being a probable hazard. Boundaries of the landfill should be identified to evaluate whether construction impacts could disturb final cover over the closed landfill or if wastes may be encountered during construction. Based on the former landfill location being potentially within the proposed ROW, this facility is considered a high environmental risk. Additional investigations are currently being conducted to determine the exact location and contents of the site prior to construction.

Based on the site reconnaissance activities, solid waste disposal, including drums and buckets, may be encountered during construction activity. Several auto salvage yards are also located within and adjacent to the project ROW. The locations of these sites are shown in the site photographs in **Appendix G**. Although dumping at these locations appear to be minor, any solid waste, hazardous materials, and/or petroleum contamination encountered during construction would be handled according to applicable federal and state regulations per TxDOT Standard Specifications.

Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal and state regulations per TxDOT Standard Specifications. Section 6.10 of the "General Provisions of the Standard Specifications for

Construction and Maintenance of Highways, Streets and Bridges," which applies to all highway projects, includes guidelines addressing the contractor's responsibilities regarding the discovery of hazardous materials.

The proposed project would require modifications to bridges and demolition of structures. As required by the Texas Asbestos Health Protection Rules (25 Texas Administrative Code [TAC] 295.61), a survey for asbestos containing materials and a 10-working day, predemolition notification would be required prior to the renovation and demolition of any public structures, including span bridges. If asbestos is confirmed, then asbestos-related activities and renovation would need to be performed in accordance with the Texas Asbestos Health Protection Act and the National Emissions Standards for Hazardous Air Pollutants.

Modifications to bridges could include the removal of beams that could have the potential to contain lead-based paint. Prior to project letting, the coatings on the bridges to be modified would be analyzed for the presence or absence of lead-based paint. If lead-based paint is discovered, contingencies would be developed to address worker safety, material recycling and proper management of any paint related wastes, as necessary.

5.14 Traffic Noise

5.14.1 No-Build Alternative

The No-Build Alternative would not change existing conditions. Highway traffic is the dominant source of noise in the proposed project area. The predicted increase in future traffic volumes on the major cross streets within the project area would likely increase future ambient noise levels under the No-Build Alternative.

5.14.2 Build Alternative

A traffic noise impact analysis (TxDOT, 2017f) was conducted for the proposed project in accordance with TxDOT (FHWA-approved) *Guidelines for Analysis and Abatement of Highway Traffic Noise* (TxDOT, 2011). The FHWA traffic noise modeling software (TNM 2.5) was used to calculate existing and predicted traffic noise levels at receiver locations that represent land uses adjacent to the proposed project that might be impacted by traffic noise and could possibly require noise abatement.

Based on TxDOT *Guidelines for Analysis and Abatement of Roadway Traffic Noise* (TxDOT, 2011), a traffic noise abatement measure is considered feasible and reasonable if:

- It is able to reduce the traffic noise level by at least five dB(A) (A-weighted decibels) at greater than 50% of impacted first-row receivers.
- It does not exceed the cost-effectiveness criterion of $25,000 for each receiver that would benefit by a reduction of at least five dB(A).

- It is able to reduce the traffic noise level at (a minimum) of one impacted, first row receiver by at least seven dB(A).

The existing traffic noise levels were calculated at 20 residential receiver locations. The proposed project was modeled and was found to result in impacts at three (R6, R14, and R18) of the 20 receivers. Refer to **Appendix H** for a copy of the Traffic Noise Impact Assessment report.

Traffic noise barriers were evaluated for each of the impacted receiver locations. It was determined that traffic noise barriers would not be feasible and reasonable for three of the impacted receivers and therefore are not proposed for incorporation into the project. Traffic noise barriers are not proposed at the impacted receivers because they do not meet the traffic noise level reduction by at least five dB(A), and they exceed the cost-effectiveness criterion of $25,000 per receiver.

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, no new activities are planned or constructed along or within the predicted (2040) noise impact contours. NAC Categories B and C (66 dB(A)) impacts would occur at the edge of the proposed ROW while NAC Category E (71 dB(A)) impacts would occur within the proposed ROW.

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

5.15 Indirect Impacts

An indirect and cumulative impact analysis was performed to evaluate potential impacts from the proposed project (TxDOT, 2017g). The methodology for the indirect impact assessment was conducted in accordance with the CEQ, FHWA, and TxDOT regulations and guidance documents. The assessment relied heavily on planning judgment, local stakeholder input, and trend analysis. A qualitative/quantitative indirect assessment was conducted as appropriate for the project scope in accordance with TxDOT July 2016 *Guidance: Indirect Impact Analysis,* the July 2016 *Cumulative Impacts Analysis Guidelines* and the March 2014 *Environmental Handbook: Indirect and Cumulative Impacts*. (TxDOT, 2014c, 2016h, 2016i). The TxDOT six-step method used is outlined in **Table 15**.

Table 15: Six-Step Approach to Estimate Indirect Impacts

Step	Description
Step 1	Methodology: The basic approach, effort required.
Step 2	Define the Area of Influence (AOI): Geographical boundaries of the project area are determined and also the study timeframe.
Step 3	Induced Growth Identification: Identify areas subject to induced growth in the AOI.
Step 4	Determination of Induced Growth: Determine if growth is likely to occur in the induced growth areas.
Step 5	Identify Resources Subject to Induced Growth Impacts: If it is determined that induced growth might occur, this step identifies the resources that could be impacted by the possible growth.
Step 6	Identify Potentially Mitigation: Develop mitigation options and evaluates those options for practicality.

Source: TxDOT (2014c).

The Indirect and Cumulative Impact Analysis can be found in **Appendix I**. The following is a brief summary of the indirect impact analysis.

5.15.1 *Step 1: Methodology*

Numerous project characteristics influence the methods and level of effort and used. Characteristics such as project type, scale, scope, stage of the study, project setting, design features, the project purpose, and data available influence the methodology used to assess potential indirect impacts. **Table 16** summarizes the level of effort determined for the indirect impacts analysis used for the proposed project through the scoping process.

Table 16: Level of Effort Required for Indirect Impact Analysis

Project Characteristics		Assessment Methodology
Project Type	New location frontage road system	Quantitative
Project Scale	Medium, based on corridor length	Quantitative
Stage of Study	Design Alternatives	Quantitative
Project Setting	Suburban and Rural	Qualitative
Design Features	New location frontage road system	Qualitative/Quantitative
Project Purpose	Provide an east-west transportation facility to serve the communities in the project area.	Qualitative
Data Available	Area maps, interview questionnaires, planning documents, demographic, and site reconnaissance	Qualitative/Quantitative

Source: TxDOT (2010b).

5.15.2 *Step 2: Define the Area of Influence and Study Timeframe*

The geographic boundaries of the AOI for indirect impacts encompasses approximately 50,609 acres or approximately 79 square miles of land and includes induced development identified by local officials and planners. The AOI was also selected to include areas identified in questionnaires

sent to planners in Dallas and Ellis counties as most likely to see growth associated with the Build Alternative. The AOI boundary for the proposed project is located within the planning boundaries of the NCTCOG and encompasses parts of Dallas and Ellis counties, the cities of Hutchins, Lancaster, Wilmer, Ferris and Red Oak. To the northeast, the AOI boundary encompasses the parcels and facilities of the IIPOD. Because the Build Alternative would facilitate the movement of freight, it was necessary for the AOI to include the IIPOD facilities, which handle millions of pounds of goods annually. Also, Loop 9 would have economic impact to the IIPOD. In order to include the city of Red Oak, the southwest boundary of the AOI is Uhl Road. The city of Red Oak anticipates that Loop 9 would be a key transportation connector for the city. To the northwest the boundary is Old Hickory Trail, this was selected because it includes the furthest northwest IIPOD-owned property. To the south the boundary is US 77 and Shawnie Road to encompass the city of Red Oak.

The proposed project is included in the Mobility 2040. Indirect impacts were analyzed for the time period from construction of the proposed project until 2040, which is the planning year for the MTP. The temporal boundary for the analysis of indirect impacts extends to 2040, which is consistent with planning horizon year of Mobility 2040.

5.15.3 *Step 3: Identify Areas Subject to Induced Growth in the AOI*

The AOI encompasses 50,609 acres (**Appendix I, Figure 3**). In 2005, there were 14,464 acres of developed land in the AOI and 36,145 acres of available land. As of 2013, there were 19,100 acres of developed land, which is a change of 4,636 acres. As of 2013, there were 31,509 acres of available land for development.

Areas that could be subject to induced growth include areas close to the IIPOD and areas along the roadway for the proposed project. The potential of induced growth to areas in the AOI can be limited, low, or high depending on factors such as available land, available utility services and proximity to Loop 9 (**Appendix I, Figure 6**). Areas with the potential for high induced growth include the IIPOD facilities found throughout the AOI and intersections for the proposed project (I-35E, South Dallas Avenue, Houston School Road, Ferris Road and I-45). All of the areas with the potential for high-induced growth have available land, available water and sewer services (or planned in the case of Loop 9) and are not located in 100-year floodplains, which make them more attractive for future development.

Areas with the potential for low induced growth include the cities of Red Oak and Ferris. They have some available lands; however, as stated by numerous interview respondents, utilities (sewer and water connections) are limited in that area. According to the Draft South Dallas County Infrastructure Analysis, Phase 1 of future water utility improvements will occur west of I-45 between I-20 and the city of Ferris in the AOI. Future wastewater improvements would be necessary to the Ten Mile Wastewater Treatment Plant to handle capacity for projected growth independent of the proposed project. Additionally the cities of Red Oak and Ferris have some residential and commercial development, which would tie in at the project termini of I-35E and I-45. Development

and associated land use changes have been fairly dynamic within the AOI for the past several decades.

5.15.4 *Step 4: Determine if Growth is Likely to Occur in Induced Growth Areas*

Interviews with local planning offices confirmed that growth is anticipated in the AOI with or without the proposed project. The planning initiatives being undertaken by the local municipalities focuses on continued development in this area.

Existing zoning, future land use plans and comprehensive plans show potential for expansion in the cities within the AOI. Loop 9 has been in the planning stages for a significant amount of time for the cities of Ferris, Lancaster and Red Oak and they have made alternative land use plans for either the Build or No-Build Alternative.

The current trend of increasing growth will continue within the AOI throughout the next two and half decades. Additionally, the comprehensive plans for the incorporated cities within the AOI anticipate increased growth to continue. The planning documents also anticipate that Loop 9 would have an impact on their transportation network. It is likely that induced growth would happen as a result of the completion of Loop 9. This growth would likely occur in areas that have been identified in Step 3 as areas for high potential for induced growth. IIPOD facilities found throughout the AOI have the capacity to handle and process the increased movement of goods that would result from the completion of Loop 9. Frontage road intersections for the proposed project (I-35E, South Dallas Avenue, Houston School Road, Ferris Road and I-45) would be where induced growth would likely occur. All of these areas have available land, available water and sewer services (or planned) and are not located in 100-year floodplains, which make them more likely for induced growth to occur. The cities of Red Oak and Ferris would be less likely to experience induced growth in other areas not located on the Loop 9 frontage roads as they would require increased water and sewer service to support new development.

5.15.5 *Step 5: Identify Resources Subject to Induced Growth Impacts*

A review of the Biological Resources Technical Report indicates that biological resources could be subject to substantial induced growth impacts. However, those induced growth impacts would be minimized by local regulatory protections and policies.

There is the potential for threatened and endangered species to occur within the project area. Similar opportunities exist within the AOI. Site visits indicate that one federally listed endangered species, the Interior Least Tern, has limited potential to occur within the project area. An additional nine stated listed threatened species have potential habitat within the proposed project ROW.

Site visits confirmed the presence of one state SGCN, Hall's prairie clover (*Dalea hallii),* within the proposed project ROW. Potential Hall's prairie clover and suitable habitat was observed in an area with high potential for induced growth area. The area is managed grasslands, cultivated crops and

low intensity development. The potential effect to Hall's prairie clover could be substantial, but climate conditions, especially drought, may affect actual abundance. Twelve other SGCNs have potential habitat within the proposed project ROW.

Approximately 487 acres of farmland would impacted by the proposed project. This is not considered a significant impact as it represents less than 0.10% of total farmland within Dallas and Ellis counties. Additionally, impacts to farmland from induced growth are not considered substantial as farmland impacted would be less than 0.50% of AOI land.

5.15.6 *Step 6: Identification of Mitigation*

BMPs would have to be employed to mitigate for any impacts to biological resources stated in Step 5. Potential habitat for the Interior Least Tern could occur within the AOI (TxDOT, 2017e). Project actions which are associated with induced growth impacts shall comply with the Endangered Species Act and TPWD Rules.

TxDOT also proposes to implement BMPs to reduce effects on the four mollusks, alligator snapping turtle (ST), Texas garter snake, timber rattle snake, plains spotted skunk, and Texas horned lizard. Upon completion of earthwork operations, disturbed areas shall be restored and reseeded, where feasible, in accordance with TxDOT's Vegetation Management Guidelines, Executive Order 13112, and Texas Pollutant Discharge Elimination System requirements regarding percent cover. Coordination with TPWD on biological resources and resulting BMPs will further reduce induced growth effects.

The proposed project ROW contains confirmed and potential habitat for one SGCN, Hall's prairie clover. As no species specific BMPs exist for Hall's prairie clover, TxDOT BMPs for native species will be implemented during construction to avoid and/or minimize potential impacts to the Hall's prairie clover. TxDOT may also elect to implement other BMPs.

Potential habitat for the endangered Interior Least Tern along Tenmile Creek was observed within the proposed project ROW. Presence/absence survey guidelines for the Interior Least Tern, provided by the USWFS to permitted staff, would be followed for a survey during the nesting season prior to the start of construction. As part of the proposed project, construction will be limited at suitable habitat locations within the ROW for the Interior Least Tern from April 1 to September 1 to minimize potential effects to this species. Only USFWS permitted individual(s) shall conduct the presence/absence survey during the nesting season from May through late July immediately prior to the start of construction.

Any potential for impacts to wildlife or its habitat would be minimized through BMPs to control erosion and pollutant discharge, and Executive Order 13112 requirements would ensure no invasive species would be used to establish vegetation within the ROW. Vegetation clearing would occur in compliance with Migratory Bird Treaty Act.

5.15.7 *Encroachment-Alteration Indirect Impacts*

This step summarizes the methods used to identify encroachment alteration impacts and presents the framework for determining which impacts merit further analysis or conversely, which impacts require no further analysis. The methods used to identify impacts are both qualitative and quantitative depending on the resource. This technique focused on the elements or indicators that characterize the AOI using ecological and social data from the baseline investigations.

With the construction of the Build Alternative, approximately 31,509 acres (62.3% of the AOI) could be potentially open for development. This area was calculated based on land available for development outside the 100-year floodplain (7,159 acres). The limited availability of utility service to the project area could be another major restriction to future development in the area. The areas with utilities are the connection points for the Build Alternative with existing roadways. These properties/areas along the roads have potential for development.

The general types of activities that could cause an encroachment-alteration indirect impacts and a description as to how they relate to the project are outlined in **Table 17**.

Table 17: Potential Encroachment-Alteration Impact-Causing Activities

Type of Activity	Project Specific Activity	Relevant Details
Modification of Regime Effects	Modification of habitat	Approximately 541 acres of additional ROW would be acquired to construct Loop 9.
	Alteration of groundcover	Clearing of maintained vegetation (grasses, shrubs and trees) would occur within existing and proposed ROW. Approximately 550 acres of vegetation will be impacted by the proposed project of which approximately 52 acres are urban high or low intensity. As a result, up to approximately 498 acres of vegetation types may be removed and the resulting groundcover would become impervious.
	River control and flow modification	Impacts would vary by area. Placements of culverts, stream channelization and/or realignment, bridge footings, and pilings within stream channels. Several creek channels would be realigned based on the proximity of the channel in relation to the drainage area. All realignments would preserve the capacity and natural characteristics of the streams.
Land Transformation and Construction	New or expanded transportation facility	Construction of new location frontage road system; approximately 727 acres would be impacted.
	Cut and fill	Cuts would be made where subgrading would be prepared to facilitate new pavement. Fill would occur in areas where grading is necessary and in locations where overpasses are constructed/ widened and culverts are added/extended.
Resource Extraction	Surface excavation	Proposed excavation for the roadway would be minimal in areas where grading cuts would be made in conjunction with changes in vertical alignment of the roadway.

Type of Activity	Project Specific Activity	Relevant Details
Land Alteration	Erosion control	In areas where construction is proposed, water quality BMPs would be utilized to minimize sediment events and may include sand bags, silt fence and sediment traps.
Processing	Storage of construction materials	If the contractor chooses to use undeveloped land or another site for the storage of materials, impacts to natural resources may increase.
Waste Emplacement and Treatment	Landfill	Property belonging to a closed and abandoned landfill is located within the proposed ROW. The Skyline Landfill near Ferris is also located adjacent to the proposed ROW. No impact or displacement of waste material is anticipated from this site.
Chemical Treatment	Chemical usage	No use of fertilizer is anticipated during revegetation. Periodic use of herbicide may occur during routine maintenance for the Build Alternative, as necessary
Resource Renewal Activities	Revegetation	In areas where vegetation is cleared during construction and there is no new pavement, efforts would be made to revegetate/reseed these areas with native plants and seed stock.
Changes in Traffic	Traffic patterns/ Environmental Justice	A Build Alternative would increase capacity and improve mobility throughout the project area. With these improvements, travel time on the local roadway network would also improve. In addition, the roadway would provide motorists with new commute options as well as provide for changes in access on the existing roadway and freight network. As such, some traffic patterns for vehicles and freight would change in the project area. These changes would not disproportionately impact Environmental Justice communities.
Access Alteration	Travel	The Build Alternative would improve travel between I-45 and I-35E in southern Dallas and Ellis counties. Access throughout the area would be improved with the Build Alternative as there is currently no major east-west transportation facility in the area. System connectivity would also be improved.

5.16 Cumulative Impacts

This section summarizes the cumulative impacts of the proposed project based on the findings of the Indirect and Cumulative Impact technical report (**Appendix I**).

5.16.1 Introduction and Approach

The cumulative assessment was conducted in accordance with the CEQ and FHWA guidance and TxDOT July 2016 *Cumulative Impact Analysis Guidance*.

Cumulative impacts include a direct and indirect impacts caused by a project, as well as other actions not caused by the project, but when combined with the project, add to the overall impact, whether adverse or beneficial, on the environment. The objective of the analysis is to focus on key resources impacted by the proposed action, which are currently in poor or declining health, even if the impacts resulting from the proposed action are relatively small. Additionally, for those resources that are not in poor or declining health, the cumulative impact analysis should focus on those resources that could be substantially impacted by the proposed action.

The analysis of potential cumulative impacts followed the five-step approach recommended in the TxDOT 2014 *Cumulative Impact Analyses Guidelines* for evaluating cumulative impacts. These steps are outlined in **Table 18**.

Table 18: Five-Step Approach to Evaluate Cumulative Impacts

Step	Description
Step 1	Identify the resources to consider in the analysis, study area conditions and trends
Step 2	Direct and indirect effects on each resource from the proposed project
Step 3	Other actions – past, present, and reasonably foreseeable – and their effect on each resource
Step 4	The overall effects of the proposed project combined with other actions
Step 5	Mitigation of cumulative effects

Source: TxDOT (2014c)

5.16.2 Steps 1 and 2

TxDOT guidelines state that a cumulative impact analysis is necessary if there are substantial direct or indirect impacts or if there is any impact on a resource of poor or declining health (TxDOT, 2014c). **Table 19** summaries the direct and indirect impacts associated with the Build Alternative. With the exception of water resources and land use the proposed project would not have substantial direct and/or indirect impacts to resources nor would it impact resources in poor or declining health. Therefore, water and land use resource cumulative impact analyses are necessary.

Table 19: Resources Considered for Cumulative Impact Analysis

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
Land	Available land is being developed.	Project would acquire land 541 acres and result in a change to transportation.	Although land changes would occur as a result of the Build Alternative, community planning initiatives would oversee and regulate the impacts to ensure that the changes are not adverse.	**There are no significant direct or indirect impacts; however, there are substantial impacts to land use. Further evaluation is needed.**
Community Cohesion/ Neighborhood	Becoming more urbanized.	There would be 100 potential structural displacements associated with the Build Alternative, which include 25 residential structures, seven commercial structures, and 68 other structures (i.e., sheds, barns, detached garages, carports, swimming pools, and gazebos). No places of worship or public/community facilities would be displaced as a result of the Build Alternative.	The area does have available property for all of the businesses to relocate and adequate safe, sanitary and affordable replacement housing. Even with the displacements the impacts would not be significant, as the Uniform Relocation Act would provide relocation assistance to any displaced individuals. It is not anticipated that the induced growth resulting from the implementation of the Build Alternative would have an adverse indirect effect on overall community cohesion or neighborhoods as the planning initiatives would oversee and regulate changes to ensure that the community does not suffer adverse effects.	There are no significant or substantial direct or indirect impacts. Further evaluation is not needed.
Economic Conditions	Economy of the area is growing.	This project would enable development and expansion of the IIPOD; however, currently there are no plans.	Although tax revenues would increase, the increase in the rate of development within the AOI would also increase the demand for consumer services, including, but not limited to retail, banking, medical and recreational. However, economic impacts are seen as a net gain/benefit to the AOI.	There are no significant direct or indirect impacts. However, there would be positive substantial economic impacts as a result of the proposed project. Further evaluation of is not needed.

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
Non-Archeological Historic-Age Resources	New development continues to comply with historic resources protection.	Impacts are possible and they are further discussed, along with mitigation and avoidance procedures, in the Historic Resources Technical Memo.	There is a possibility for impacts to non-archeological historic-age resources in the AOI as land is converted to residential and commercial uses. However, BMP and TxDOT guidelines would lessen the potential for impact.	There are no significant or substantial direct or indirect impacts. Further evaluation is not needed.
Archeological Resources	New development continues to comply with required archeological resources protection.	Direct impacts are unknown at this time. Due to lack of right-of-entry to the majority of the proposed ROW, the archeological survey will be completed once all parcels have been acquired. The findings and appropriate mitigation and avoidance procedures will be discussed in the Cultural Resources Technical Memo.	There is a possibility for indirect impacts to archeological resources in the AOI as land is converted to residential and commercial uses. Development in the floodplain would be minimized, thereby protecting the areas with some of the greatest potential for archeological resources.	There are no significant direct or indirect impacts. No substantial impacts to archeological resources are anticipated. Further evaluation is not needed.
Water	The Trinity Aquifer continues to be the main water resource in the AOI.	The impact to waters of the U.S. within the proposed new ROW are 1.38 acres for ponds and 0.46 acres for streams. It is anticipated that the proposed project would impact jurisdictional waters of the U.S., and would require a Section 404 Individual permit. Water in the study area is not expected to be detrimentally affected due to the BMPs and regulatory oversight. TxDOT would comply with the TCEQ Texas Pollutant Discharge Elimination System Construction General Permit. A Storm Water Pollution Prevention Plan would be implemented, and a construction site notice would be posted at the construction site. A Notice of Intent would be required.	There is a possibility for impacts to water resources in the study area. However, water in the study area is not expected to be detrimentally affected due to regulatory oversight. TxDOT would comply with the TCEQ Texas Pollutant Discharge Elimination System Construction General Permit. An Storm Water Pollution Prevention Plan would be implemented, and a construction site notice would be posted at the construction site. A Notice of Intent would be required.	**Water quality in the RSA is not expected to be detrimentally affected due to regulatory oversight. However, there may be substantial cumulative impacts to water resources. Further evaluation is needed.**

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
Wetlands	Changes in the regulatory process over the past 30 years have yielded substantial changes in the abundance of wetlands. Wetlands within the AOI continue to be protected by federal, state and local regulations.	There would be 1.38 acres of wetlands impacted. Current federal mandates require there be a "no net loss" to wetlands on projects. It is anticipated that this project will be permitted under a Section 404 Individual Permit. Significant impacts are not anticipated.	There is a possibility for indirect impacts to wetlands as development occurs in the AOI. Permitting by appropriate agencies would protect wetlands from further impacts.	Substantial impacts to wetlands are not anticipated as result of this projects. Further evaluation is not needed.
Vegetation and Wildlife	Critical habitat and vegetation continues to be protected by federal, state and local regulations. AOI continue to be protected by federal, state and local regulations. Threatened and endangered species occurrences remain unchanged in the area.	Approximately 550 acres of vegetation will be altered during construction. Some of this is located in existing TxDOT and associated non-TxDOT ROW. The proposed ROW contains confirmed and potential habitat for one SGCN, Hall's prairie clover. Potential limited habitat for the federally listed endangered Interior Least Tern was also observed within the proposed ROW; however, this species were not observed during prior site visits. These prior observations and planned conservation measures are anticipated to support a no effect finding. Potential habitat for protected species will also be affected by construction; however, BMPs will avoid/minimize adverse effects.	There is a possibility for indirect impacts to vegetation and wildlife as development occurs in the AOI. There are no significant direct or substantial indirect impacts.	There are no significant direct or indirect impacts. Further evaluation is not needed.
Farmland	There is increasing urbanization in Dallas and Ellis counties.	The project could affect up to 541 acres of land, of which 487 acres is farmland. Which would not be a significant impact as it represents less than 0.10% of current farmland in Dallas and Ellis counties.	There is a possibility for indirect impacts to farmlands as development occurs in the AOI. Any potential impact to farmland is not anticipated to be substantial.	There are no significant direct or indirect impacts. Further evaluation is not needed.

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
Air Quality	Air quality has been steadily improving in the DFW region.	Temporary construction impacts would occur. Dust suppression practices and compliance with applicable construction permitting and regulatory requirements are actions that would help mitigate or reduce these construction emissions.	While localized traffic increases may be observed, criteria pollutants and MSAT emissions will likely decrease over time because of the implementation of U.S. EPA regulations to improve vehicle technology and fuel economy.	There are no significant direct or indirect impacts. Further evaluation is not needed.

Source: TxDOT (2017a, 2017b, 2017c, 2017d, 2017e, 2017f)

The resource study area (RSA) for water resources is comprised of the Trinity River watersheds intersecting the Build Alternative which includes the headwaters of Red Oak Creek, Deep Branch-Tenmile Creek and Middle Red Oak Creek. The RSA for land use is the same as the RSA for the watersheds minus land in floodplains that is unavailable for development. A summary of the RSA is presented in Table 20.

Table 20: Loop 9 RSA

	Type	acres	square miles
Total Area		78,621	122.8
Land Use 2005*	Developed	18,409	25.2
	Available	47,219	72.9
Land Use 2013*	Developed	29,999	42.9
	Available	36,665	55.9
Watershed	Middle Red Oak Creek	34,271	53.5
	Headwaters Red Oak Creek	23,911	37.3
	Deep Branch-Tenmile Creek	20,439	31.9
100 Year Floodplain	Zone A	8,521	13.3
Wetlands**	Type	acres	square foot
	L	53.6	2,337,759
	PAB	1.0	45,027
	PEM	45.4	1,980,576
	PFO	190.7	8,307,573
	PUB	244.1	10,633,631

*Excludes land in the 100-year floodplain
**Source: USFWS NWI

5.16.3 *Step 3: Past, Present and Reasonably Foreseeable Actions*

Data collected from interviews with city officials and stakeholder owners were considered, along with population trends, growth forecasts and mapping data. Questionnaires were sent to staff of the following entities; North Texas Tollway Authority, Dallas and Ellis Counties, the cities of Ferris, Red Oak and Wilmer. The questionnaire used to gather information from the above stakeholders focused on development trends, future development, utilities and comprehensive plans.

Water Resources

Urbanization of the Trinity River Basin has contributed to past and present water pollution problems. Over time, the primary sources of water pollution have changed. Historically, industrial and municipal discharges were considered the main sources of water quality impairment in the Trinity River and its tributaries. However, stormwater runoff carrying pollutants from impervious surfaces, lawns, developed sites and farmland are currently responsible for a substantial portion of the area's water pollution problems. Runoff containing pesticides, herbicides and other contaminants, particularly in the DFW area, has combined to cause serious deterioration of water quality.

Table 19 shows future development from interviews with local officials and planners along with available development data for the RSA revealed present and reasonably foreseeable actions within the RSA. According to the NCTCOG development data, there are nine developments that are announced or under construction within the RSA. These developments are generally commercial/retail development with some residential use identified.

The development projects presented in Table 20 would lead to great urbanization and increased impervious cover and have the potential to substantially impact water resources in the RSA.

Land Use

The general conversion of rural land to urban developed lands have led to the irreversible conversion of farmland to non-agricultural use. In 2005 developed land made up approximately 25.7% of land in the RSA. That number increased to 43.4% by 2013.

The proposed project would directly impact 487 acres of farmland and convert them to non-agricultural use. Indirectly the proposed project has 17.14 square miles of land that has a high potential for induced growth. This corresponds to 17.6% of the 98.9 square miles in the RSA. Table 21 shows future development and foreseeable actions with the RSA that would lead to reduction of undeveloped and agricultural land of 433 acres.

Table 21: Foreseeable Future Developments

Name	Location	Type	Status
Adesa Dallas	3501 Lancaster-Hutchins Road, Hutchins	Single Tenant – 5 acres	Under Construction
Building 2	340 E Belt Line Road, Wilmer	Warehouse – 11 acres	Conceptual
Building 3	1000 Miller Ferry Road, Wilmer	Warehouse – 8 acres	Conceptual
Southpointe 20/35	2935 Danieldale Road, Lancaster	Warehouse – 23 acres	Announced
Southport Logistics Park	I-45 And Fulgham Road, Wilmer	Warehouse – 200 acres	Under Construction
Woodland Estates	Sec Belt Line & Blue Grove, Lancaster	Subdivision -273 Dwelling Units	Vacant
Park 20 Distribution Center	351 Interstate 20 Frontage Road, Lancaster	Distribution – 11 acres	Under Construction
Harmony Subdivision	302 Village Drive, Red Oak	Subdivision – 650 Dwelling Units	Announced
Red Oak Industrial Park	NW corner of Austin Blvd & E Ovilla Road, Red Oak	Warehouse – 175 acres	Announced

Source: NCTCOG (2016b).
Conceptual – reported by a developer or city in which plans are indefinite or resources are not yet secured
Announced – declaration of impending construction has been made
Under construction – foundation work has begun

5.16.4 *Step 4: Cumulative Effects*

Water Resources

Construction of Loop 9 would contribute to cumulative impacts to waters of the U.S. within the RSA. Development of Loop 9 and subsequent land induced conversion would cause, respectively, direct and indirect impacts to streams and wetlands. Land conversion from vacant, undeveloped land to urbanized areas increases the amount of impervious surfaces, which contributes to water resource impacts. Channelization, displacement, and segmentation of hydric features could result in increased runoff velocities, and channel erosion may occur as a result of reduced flood storage capacity, further degrading streams and wetlands. There would be 1.38 acres of wetlands impact. There are a further 541 acres of wetlands in the RSA. Current federal mandates require there be a "no net loss" to wetlands on projects. It is anticipated that this project would be permitted under a Section 404 Individual Permit.

There are direct impacts to the 0.46 acres of surface water. There is the potential for impacts to water quality associated with land conversion, primarily through increased runoff from urban areas and associated impervious surfaces. Anticipated impacts to water quality could include the increase in pollutant loading into the existing receiving waters. This increase is associated with additional runoff from the impervious surfaces that transport pollutants generated by vehicles using

Loop 9, potential sedimentation transport to waterbodies from construction activities in the RSA, and potential pollutant transport to waterbodies from constructed impervious surfaces in the RSA. As previously stated, BMPs would be employed during Loop 9 construction as well as most other RSA construction activity to minimize the adverse impacts of erosion and sedimentation on surface water quality. Once Loop 9 would be completed, rainfall runoff rates would increase slightly due to the increase in impervious cover. This runoff from the completed facility and other development could contain pollutants, which have long-term effects on the quality of surface water.

The estimated cumulative impact would occur over time as conversion of land contributes to impacts to water resources in the RSA. It is likely that the potential indirect and cumulative impacts to streams are an overestimate, as the quantifications are based on a total impact of the resources within the RSA. However, existing regulations (e.g., Section 404 of the Clean Water Act) govern impacts to streams, which would require avoidance and minimization of potential impacts. The potential cumulative impact is not anticipated to affect the resource trend. This impact is not considered to be substantial.

Land Use

Based on the cumulative impacts analysis, Loop 9 could indirectly cause an additional land use impact of 17 square miles of high potential induced growth land out of an RSA of 98.9 square miles. The development projects listed in the NCTCOG database total 0.7 mi^2 that added to direct and potential indirect land uses equals 17.7 square miles of cumulative, direct and potential indirect impacts. For all of that to happen each of the projects would have to occur, and each parcel of land in areas with high potential for induced growth would have to be developed.

5.16.5 *Step 5: Mitigation of Cumulative Effects*

Water Resources

Water in the study area is not expected to be detrimentally affected due to the BMPs and regulatory oversight. TxDOT would comply with the TCEQ Texas Pollutant Discharge Elimination System Construction General Permit. An Storm Water Pollution Prevention Plan would be implemented, and a construction site notice would be posted at the construction site. A NOI would be required. NCTCOG also has regional water quality monitoring responsibilities and has been working with local governments to coordinate a regional storm water monitoring program. Both regional entities conduct their water quality activities primarily at the watershed level.

Land Use

Although land changes would occur as a result of the Build Alternative, community planning initiatives would oversee and regulate the impacts to ensure that the changes are not adverse. Loop 9 has been in the planning stages for a significant amount of time in the NCTCOG region. Current zoning, land use and comprehensive plans in Ferris, Lancaster and Red Oak, have made alternative land use plans for Loop 9 and the growth associated with the roadway.

In fact, the Ferris comprehensive plan has designated the area around the future Loop 9 for industrial land uses; Loop 9 would be consistent with the comprehensive plan. Ferris anticipates that east-west demand within the core of Ferris may be positively impacted by this roadway.

The city of Lancaster also identifies future land use within its comprehensive plan. Specifically, it outlines the types and intensity of land use locations as well as the different types of roadway and thoroughfare facilities that would support the land use patterns. Loop 9 was included in their planning initiatives.

The 2010 Red Oak comprehensive plan considers Loop 9 and its anticipated growth. A key objectives within the plan is to ensure a connection between land use and transportation planning ideals, particularly regarding growth. Loop 9 would be consistent with these objectives.

Finally, NCTCOG's Mobility 2040 addresses regional transportation needs that are identified through forecasting current and future travel demand, developing and evaluating system alternatives and selecting those options that best meet the mobility needs of the region.

The policies set forth by the officials in the RSA would lessen the cumulative effects on land use resources to less than substantial.

5.16.6 *Indirect and Cumulative Impact Summary*

The proposed project would alter land use of the surrounding area when compared to the existing condition, and is anticipated to induce growth in a few areas in the AOI. Areas with the potential for high induced growth include the IIPOD facilities found throughout the AOI and the intersections for Loop 9 (I-35E, South Dallas Ave, Houston School Road, Ferris Road and I-45). All of the areas with the potential for high-induced growth have available land, available water and sewer services (or planned in the case of Loop 9) and are not located in 100-year floodplains, which make them more attractive for future development. However, the induce growth would be minimized by planning, zoning and land use policies of the cities within the AOI. Policies have planned for future IIPOD expansion and future transportation links to Loop 9. Areas with the potential for low induced growth include the cities of Red Oak and Ferris. They have some available lands; however, future growth will be dependent on upgrades to the current water and sewer service. Without future upgrades induced growth may not occur or would occur at a slower pace. The proposed project would result in changes in travel patterns; however, the changes would be beneficial and not significantly impact users of the facility or any notable features in the AOI.

Regional resource management and policies detailed in NCTCOG Mobility 2040 addresses issues related to land use, waters and waters of the U.S., wetlands, vegetation and wildlife provides ways to mitigate for any potential impacts that could occur. Land use impacts would be managed by the municipalities that have direct control over land use. These municipalities would work with NCTCOG to address regional infrastructure changes in their comprehensive plans. Other state and federal

agencies that have direct control over the natural resources and would be responsible for mitigation from direct impacts to these resources by the proposed project. All of these policies and BMPs would ensure that the proposed project would not have significant or substantial direct, indirect or cumulative impacts.

6. Agency Coordination

The following agency coordination has occurred to date regarding the proposed project. Refer to **Appendix J** for copies of all correspondence.

6.1 NRCS

Prime and unique farmlands are provided protection under the FPPA, Subtitle I of Title XV of the Agricultural and Food Act of 1981. In March 2015, four preliminary alternatives were scored using Form CPA-106: Farmland Conversion Impact Rating (Corridor Projects). The proposed alternatives scored in a range from 84 to 85 points under *Part VI. Corridor or Site Assessment Criteria*. The form was submitted to the NRCS for their evaluation on value of land to be converted under *Part V, Land Evaluation Information Criterion Relative value of Farmland to be Serviced or Converted* and the project scored from 58 to 61. A March 20, 2015 response from NRCS indicated the total points scored ranged from 142 to 146. An updated Farmland Conversion Impact Rating form for the current proposed roadway alignment was submitted to NRCS on January 19, 2017. A response from NCRS on January 25, 2017 states that the combined ratings for the Dallas and Ellis County sites are 128 and 152, respectively. The FPPA law states that sites with a rating less than 160 will need no further consideration for protection and no additional evaluation is necessary. Copies of all correspondence with NCRS is included in **Appendix J**.

6.2 TPWD

TxDOT will initiate coordination with TPWD regarding potential effects to natural resources in April 2017.

6.3 THC

On October 9, 2015, TxDOT sent letters to Federally-recognized tribes with interest in the project area. Two responses have been received to date from the Comanche Nation and the Kiowa Tribe of Oklahoma. Neither tribe indicated concerns within the project area.

TxDOT completed internal coordination regarding historic resources with on February 13, 2017. Archeological resources review related to the project was completed on October 9, 2015.

Following the PA and MOU, TxDOT conducted an internal review of the proposed project. TxDOT recommends that an archeological investigation be conducted to confirm the absence of potentially significant archeological deposits that could be adversely impacted by the undertaking. Right-of-entry for an intensive archeological survey has been denied in 322 acres of the APE by multiple landowners. As provided under Stipulation IX.B.3 of the PA, this undertaking may proceed with further project development, including completion of the environmental process and ROW acquisition without the concurrence of SHPO. After obtaining access to the proposed ROW, TxDOT shall oversee the completion of the inventory on unsurveyed properties and oversee any additional work that may be required under the terms of the PA and MOU.

6.4 TCEQ

TxDOT concluded coordination with TCEQ regarding water and air quality on April 18, 2017 (**Appendix J**). The project-level conformity determination will be initiated in August of 2017 pending FHWA approval of the STIP August 2017 cycle revisions.

7. Public Involvement

The proposed project is open to comments by any person, and all views on the scope of the improvements proposed on Loop 9 from I-35E to I-45, alternative projects, environmental impacts and any other related matter have been and will continue to be welcome. In addition to the local community, public involvement is ongoing with governmental agencies, officials, organizations, and individuals.

Extensive efforts were made as part of the Corridor/Feasibility Study to inform the public, local officials, agencies, and major stakeholders of the ongoing Loop 9 Southeast project activities as well as provide the opportunity for comments on the project. All input received during this effort was documented in the final Corridor/Feasibility Study. This study is available on the Loop 9 project website.

7.1 Project Website

The project website, www.loop9.org, was maintained and updated throughout the Corridor/ Feasibility Study process and continues to be updated. The website included the following:

- A discussion of the Corridor/Feasibility Study efforts
- Final report documenting the Corridor/Feasibility Study
- Map of the study area
- Goals of the Corridor/Feasibility Study
- A discussion of the project history
- Project information and corridor maps
- A request form to receive information through the project mailing list
- A public involvement summary, including information presented at the May 2013 and September 2013 public meetings
- Contact information via mail, phone, and email
- A list of other resources for information
- Contact information for Spanish-speaking individuals

A separate project email address, comments@loop9.org, was also maintained and allowed the public to submit comments to the project team via email.

7.2 Task Force Meetings

The Loop 9 Southeast Regional Task Force was developed in early 2012 during development of the Corridor/Feasibility Study and consists of staff members from TxDOT, NCTCOG, and local officials of

cities and counties within the Loop 9 Southeast study area. Seven meetings occurred from 2012 to 2013. During the development of this section of Loop 9 from I-35E to I-45, two additional task force meetings have been held. These meetings were held in Red Oak on September 15, 2014, and in Lancaster on October 28, 2015. At these meetings, the project team provided an update on the study progress, summarized results from the October 2014 public meeting, and discussed any alignment changes that had occurred during project development. Summaries of these meetings are on file at TxDOT and are available for review.

7.3 Public Meeting

A public meeting for the proposed project was held on October 28, 2014, from 4:30 PM to 7:00 PM at the Lancaster Elementary School (cafeteria) located at 1109 West Main Street, Lancaster, Texas.

Notices were published in the following newspapers:

- The *Ellis County Press* on September 25, 2014
- The *Suburbia News* on September 25, 2014
- The *Dallas Morning News* on September 28, 2014
- *Focus Daily News* on September 28, 2014
- *Al Día* on September 28, 2014 (Spanish)

In addition to newspaper notices, the project team distributed over 1,600 postcards advertising the public meeting to nearby landowners, elected officials, and other stakeholders within the project database. Two email announcements regarding the public meeting were distributed to over 450 email addresses within the stakeholder database. The first email announcement was sent on October 9, 2014. The second was sent on October 24, 2014, to remind recipients of the upcoming meeting. Information announcing the meeting date, location, and time was posted on the project website.

The meeting was conducted in an open house format with project exhibits on display, and the project team (TxDOT staff and consultants) was available to provide information and answer questions. The open house was held to inform the public of the proposed improvements and to collect public comment and feedback.

A total of 210 individuals from the public signed the registration sheets. Each attendee was provided a project fact sheet and a comment form. Fifteen written comments were submitted during the open house. One comment form, one letter, and five emails were submitted during the official comment period, which ended on November 7, 2014. A total of 22 comments were received at the public meeting and during the 10-day comment period.

Two comments stated support for the proposed project. Eight comments opposed the project and/or questioned the need for Loop 9. The remaining 12 comments expressed neither support nor opposition, but instead provided specific comments regarding some aspect of the project or the project process. A Public Meeting Summary Report including responses to the comments received, copies of handouts and exhibits, and the outreach approach was prepared and posted to the project website (TxDOT, 2014b).

7.4 Public Hearing

The public hearing is anticipated in June of 2017 for the proposed project.

8. Environmental Permits, Issues, and Commitments

All permits and commitments made by TxDOT and any additional agency coordination requirements would be included in the Environmental Permits, Issues and Commitments sheet as part of the final construction plans. A summary of these permits and commitments is provided in the following sections.

8.1 ROW Acquisition and Relocation Assistance

The TxDOT ROW Acquisition and Relocation Assistance process would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Public Law 91 6), as amended, and relocation resources are available to all displaced residences and businesses without discrimination.

Consistent with the U.S. Department of Transportation (DOT) policy as mandated by the Surface Transportation and Uniform Relocation Assistance Act of 1987, TxDOT would provide relocation resources to all displaced persons without discrimination. All property owners from whom property is needed would be entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property.

TxDOT would also provide payment and services to aid in movement to a new location. Relocation assistance would be available to all individuals, families, businesses, farmers, and nonprofit organizations displaced as a result of a state highway or other transportation projects. This assistance applies to tenants as well as owners occupying the real property needed for the Build Alternative.

The construction of the Build Alternative would proceed only when all displaced families and businesses have been provided the opportunity to be relocated to adequate replacement sites. The available structures also must be open to persons regardless of race, color, religion, or nationality, and be within the financial means of those individuals affected.

8.2 Archeology

Right-of-entry along the proposed ROW was attempted several times during 2013 and 2014. Due to denial of right-of-entry to conduct the archeological survey, clearance has been obtained from the THC for TxDOT to proceed with environmental approval and ROW acquisition (**Appendix J**). However, no construction or ground-disturbing activities can begin in the undertakings APE until all Section 106/Antiquities Code of Texas consultation has been completed.

8.3 Waters of the U.S.

A USACE Section 404 permit will be required for the proposed project, and construction activities would require compliance with the State of Texas Water Quality Certification Program. Permanent fill amounts would exceed 0.5 acres and would require authorization under a Section 404

Individual Permit. The proposed project would also impact greater than 1,500 linear feet of stream at the crossings of Creeks 2 and 11 and would qualify as a Tier 2 certification project.

The proposed project would disturb more than five acres of land; therefore, TxDOT is required to comply with the Texas Pollutant Discharge Elimination System *General Permit for Construction Storm Water Discharges*. A Storm Water Pollution Prevention Plan would be in place prior to the start of construction and would be maintained until the site is stabilized. An NOI stating that a Storm Water Pollution Prevention Plan has been developed would be filed with the TCEQ prior to starting construction.

Measures would be taken to prevent and correct erosion that may develop during construction. Temporary erosion controls would be in compliance with TxDOT Standard Specifications and would be in place, according to the construction plans, prior to commencement of construction. They would be inspected on a regular basis to ensure maximum effectiveness.

8.3.1 Temporary Water Pollution Control Measures

Water quality impacts would be minimized during construction of the proposed project through the implementation of a Storm Water Pollution Prevention Plan. These plans would include structural controls and practices that would be followed throughout the construction of the project to minimize water impacts. Guidance documents, such as the TxDOT *Storm Water Management Guidelines for Construction Activities*, provide a detailed discussion of construction BMPs and additional information on implementation of temporary storm water controls. The controls would include the following:

- Minimize the extent and the duration of disturbed areas. Plan the phases of construction to minimize exposure and use vegetation to stabilize disturbed areas as practicable.
- Apply erosion control practices to minimize the loss of sediment and keep the soil covered and in place as much as possible using temporary or permanent vegetation, erosion control blankets, or various mulch materials. Other practices include diversion structures to channel surface runoff from exposed soils and the use of slope drains where grades may be prone to erosion.
- Apply perimeter controls to minimize the discharge of sediment laden storm water. This objective relates to using practices that effectively remove sediment from the runoff water and prevent its transport from the site. These controls include silt fences, diversion structures, swales, dikes, sediment traps, rock berms, and vegetative filters.
- Stabilize disturbed areas as quickly as possible after final grade has been attained. Permanent structures, temporary or permanent vegetation, mulch, stabilizing emulsions, or a combination of these measures should be employed as quickly as possible after the land is disturbed.

8.3.2 Permanent Water Pollution Control Measures

Examples of storm water pollution mitigation measures include detention ponds, wet ponds, sand filters, vegetative filter strips, and grassed swales. The primary mechanisms making these measures effective in removing pollutants from storm water are detention and filtration. The selection, design, and effectiveness of these measures are highly site dependent, but all have been shown to be effective in treating highway runoff. The type and location of appropriate permanent water pollution control measures would be determined during the final design of the proposed project. These measures would be designed for site-specific conditions.

8.4 Vegetation

Efforts would be taken to avoid and minimize disturbance of vegetation and soils during construction. All disturbed areas would be revegetated, according to TxDOT specifications, after construction is complete. In accordance with *EO 133112 on Invasive Species, the Executive Memorandum on Beneficial Landscaping*, and the 1999 FHWA Guidance on Invasive Species, only noninvasive species would be planted within the ROW.

8.5 Migratory Birds

In the event that migratory birds are encountered during project construction, every effort would be made to avoid harm of protected birds, active nests, eggs, and/or young. The contractor would remove all old migratory bird nests between September 1 and January 31 from any structure where work would be done. In addition, the contractor would be prepared to prevent migratory birds from building nests between February 1 and August 31. All methods would be approved by a TxDOT biologist in advance of planned use.

8.6 TPWD Commitments

TxDOT will implement the BMPs as specified under the BMP Programmatic Agreement with the TPWD and summarized in the Biological Resources Technical Report prepared for the project (TxDOT, 2017c). The BMPs will be updated as necessary upon completion of coordination with the TPWD. TxDOT may consider additional, other voluntary conservation measures.

8.7 Air Quality—Construction Emissions

During construction, potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate. Because the primary MSAT construction-related emissions are particulate matter from site preparation and diesel particulate matter from diesel-powered construction equipment and vehicles, TxDOT will encourage construction contractors to utilize the Texas Emissions Reduction Plan to minimize diesel emissions.

8.8 Noise

For noise associated with the construction of the project, TxDOT will include provisions in the plans and specifications requiring the contractor to make reasonable efforts to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

8.9 Hazardous Materials

Sites that were identified in the Hazardous Materials Initial Site Assessment Report (TxDOT, 2017e) were assessed based upon their potential to encounter hazardous materials, and were categorized as sites requiring additional investigation to determine impact to the proposed project and sites not requiring additional investigation. Prior to construction, additional investigations, including regulatory file reviews and/or additional testing/environmental assessments would be conducted as appropriate for sites with identified concerns based on project design and ROW requirements. Each assessment would be site-specific based on the risk identified and the type of work occurring at the site, including the excavation depth. Based upon the results of each site assessment, clean up would occur including the proper handling and disposal of any regulated wastes, if necessary. Additionally, TxDOT will adhere to the following:

- Any unanticipated contaminated media (petroleum residual contaminated material or hazardous materials) or regulated solid waste encountered during construction would be managed in accordance with applicable federal, state, and local regulations. Hazardous materials requiring special handling would be removed only by certified abatement contractors having documentation of prior acceptable abatement work.
- Universal precautions would be taken during construction and the contractor must take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area.
- Asbestos and lead-based paint investigations studies would be conducted where buildings or structures would be acquired and demolished. Asbestos inspections, specification, notification, license, accreditation, abatement and disposal, as applicable, would comply with federal and state regulations.

9. Conclusion

The No-Build Alternative is always considered in the process of environmental documentation to provide a basis for comparing the effects of the Build Alternative. As discussed, the No-Build Alternative would not address the needs identified for the proposed project based on regional population and employment projections as well as long distance trips through the corridor. Under the No-Build Alternative, traffic congestion within the project corridor would continue to increase if mobility and operational improvements are not made.

The engineering, social, economic, and environmental investigations conducted for the proposed project indicate that some beneficial as well as minor adverse effects would result from implementation of the Build Alternative.

9.1 Adverse Impacts

Potential adverse impacts of the Build Alternative could include the following:

- **ROW/Displacements** — There is the potential for 25 residences (seven mobile homes and 18 houses), seven commercial structures, and 68 other structures (includes five barns, two canopies, 11 carports, four detached garages, two gazebos, a group of propane tanks [three], 41 storage sheds/buildings, and two swimming pools) to be displaced and/or relocated as a result of the proposed project.
- **Changes in Access** — Implementation of the proposed project would result in changes of access to/from I-35E and I-45 within the proposed project limits and to various local streets traversed by the proposed alignment. Access to some existing businesses and residences by the proposed project, could also be altered.
- **Waters of the U.S.** — Permanent fill amounts in waters of the U.S. would exceed 0.5 acres. The proposed project would also impact greater than 1,500 linear feet of stream at two creek crossings.
- **Vegetation** — The proposed project would result in the direct conversion of approximately 550.37 acres of vegetation to transportation ROW or other ROW to transportation use.
- **Protected Species** — The proposed ROW contains confirmed and potential habitat for one SGCN, Hall's prairie clover. Potential habitat for the federally listed endangered Interior Least Tern was also observed within the proposed ROW; however, the species was not observed during prior site visits. Planned absence/presence surveys in the nesting season immediately before construction, and other BMPs are anticipated to avoid effects on the Interior Least Tern. Impacts to other state protected species and SGCNs will be minimized by the implementation of BMPs.
- **Hazardous Materials** — One closed and abandoned landfill site is potentially located within the proposed ROW. Additional investigations are currently being conducted to determine the exact location and contents of the site prior to construction.

- **Traffic noise —** The proposed project would result in noise impacts at three of the 20 receivers. However, traffic noise barriers were found to not be feasible and reasonable based on the TxDOT *Guidelines for Analysis and Abatement of Roadway Traffic Noise*.
- **Indirect Impacts —** The proposed project could result in potential encroachment alteration impacts including changes to vegetation/habitat; disruption of natural process and ecosystem functioning; water quality; and socioeconomic impacts including alterations to neighborhood cohesion, and changes in travel patterns. Induced growth is anticipated in areas around the International Inland Port of Dallas facilities and the intersections for Loop 9 (I-35E, SH 342 [South Dallas Avenue], Houston School Road, Ferris Road and I-45).
- **Construction Phase Impacts —** Construction of the Build Alternative could result in impacts to the community, vegetation, wildlife, waters of the U.S., water quality, noise, air quality, hazardous materials and archeological resources; however, these impacts would be temporary.

9.2 Benefits of the Build Alternative

Benefits of the Build Alternative could include:

- Decreased congestion when compared to the No-Build Alternative.
- Improved local mobility by providing an east-west transportation facility to serve communities in the project area.
- Improved local access by improving access to the neighborhoods, businesses and community facilities in the project area.
- Improved emergency response, access to services, employers, major freight and trucking yards, transit services, and other community facilities.
- Improved regional mobility by accommodating expanding transportation demands from population growth and economic development.
- Addition of bicycle and pedestrian facilities that would improve nonmotorized access in the project area and create a link between residential neighborhoods, commercial businesses, community facilities, as well as other bicycle and pedestrian facilities outside of the project area.

The Build Alternative would address the specified project needs by providing a facility that would accommodate expanding transportation demands resulting from population growth and economic development in the region, increase mobility and accessibility in the region, and provide an east-west transportation facility to serve the communities in the project area.

Impacts to the environment as a result of the proposed project would not be considered significant; as such, the Build Alternative is recommended as the preferred alternative and a Finding of No Significant Impact (FONSI) is anticipated.

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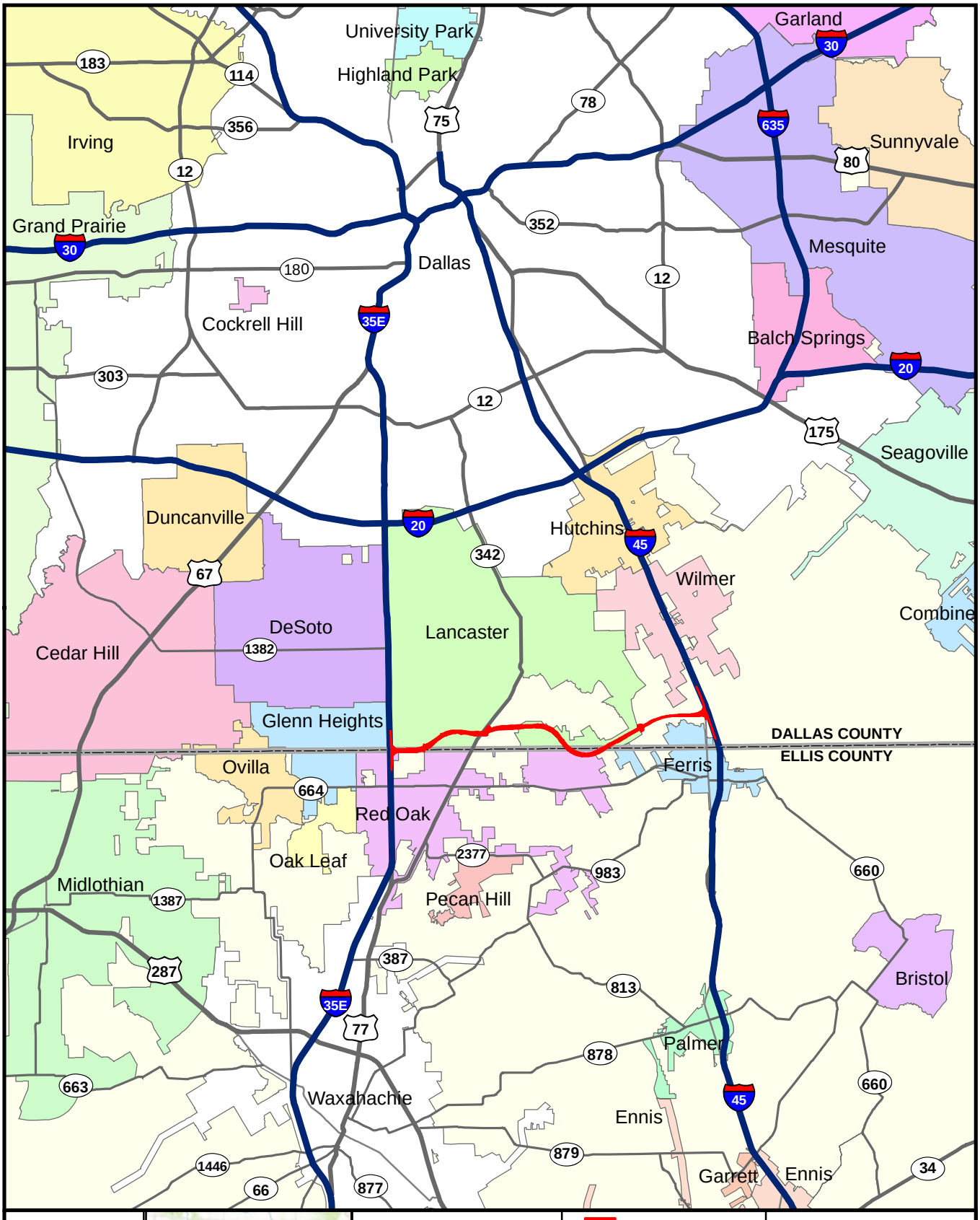
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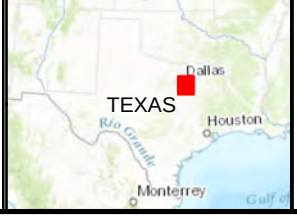
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Appendix A

Figures





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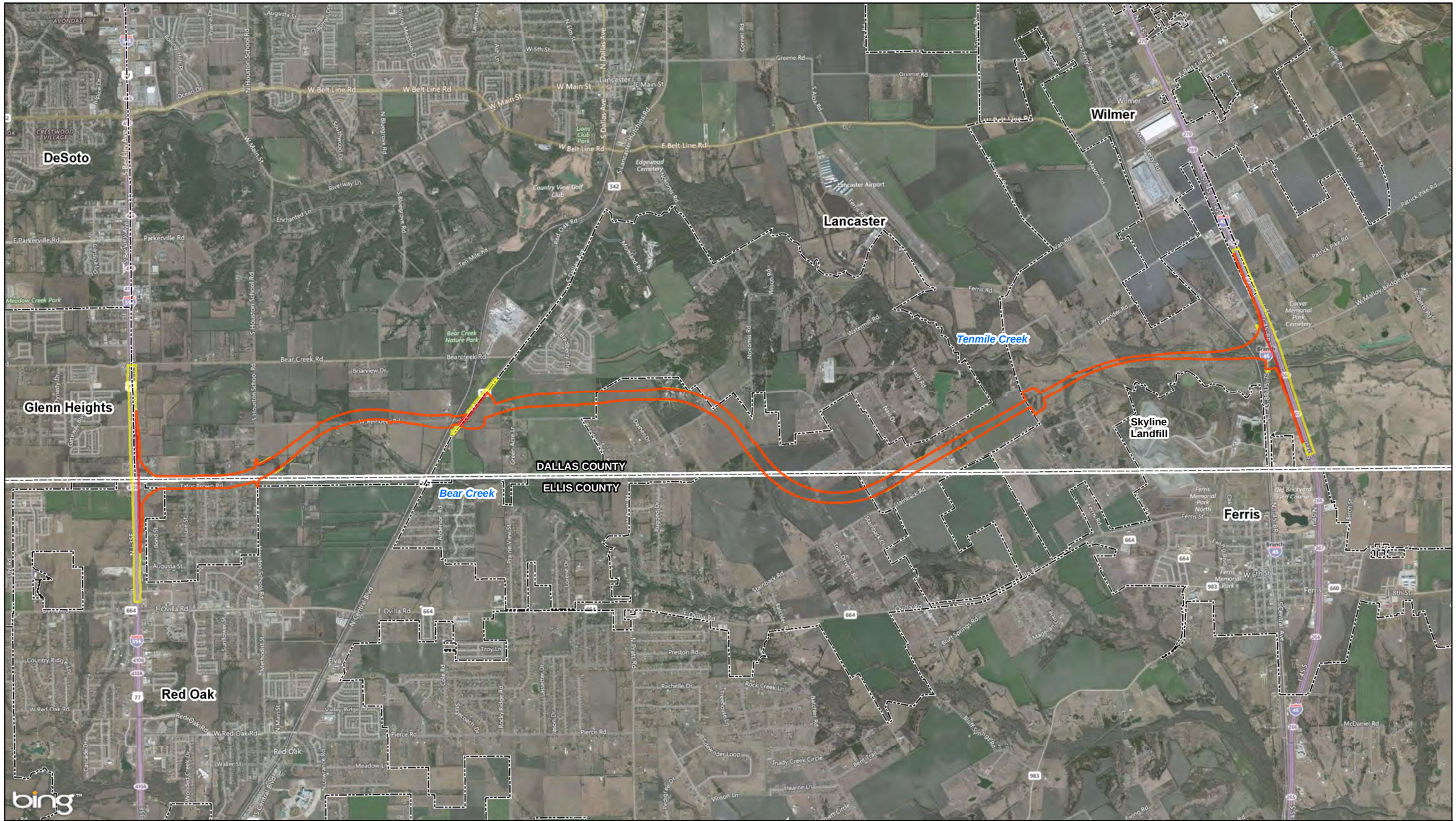
- Project Location
- Interstate Highway
- US Highway
- State Highway
- Farm to Market Road
- Other Road
- County Boundary

Figure 1
Project Vicinity Map

Loop 9: I-35E to I-45
Dallas & Ellis Counties, Texas
CSJ: 2964-10-005

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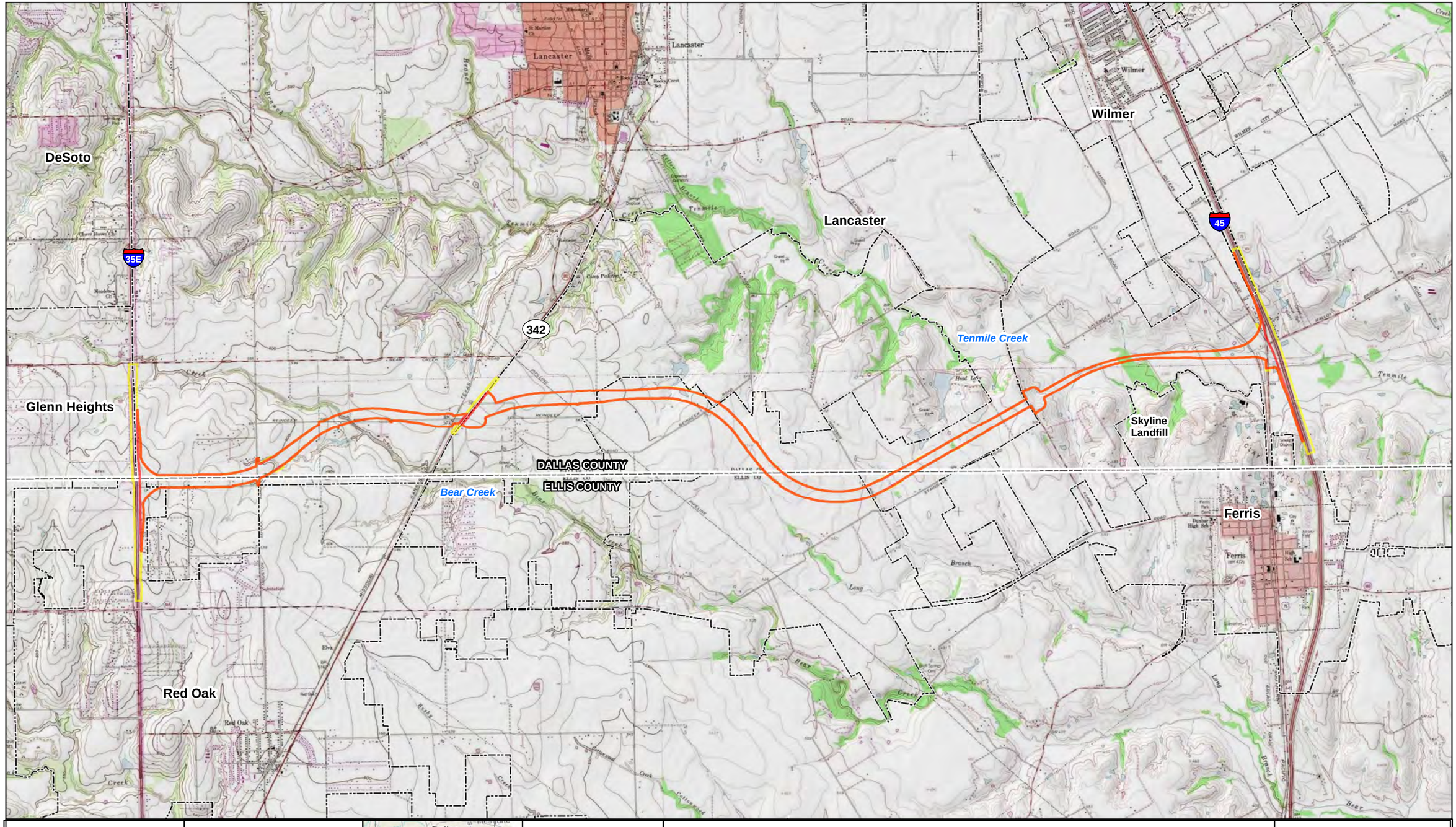
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Loop 9 SOUTHEAST	**Dallas and Ellis Counties**		0 2,000 4,000 Feet 0 0.25 0.5 Miles	Proposed Right of Way Construction Limits County Boundary City Limit	**Figure 2** **Location Map** **Loop 9: From I-35E to I-45** **Dallas and Ellis Counties, Texas** **CSJ: 2964-10-005**

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Loop 9 SOUTHEAST

Dallas and Ellis Counties



0 2,000 4,000
Feet

0 0.25 0.5
Miles

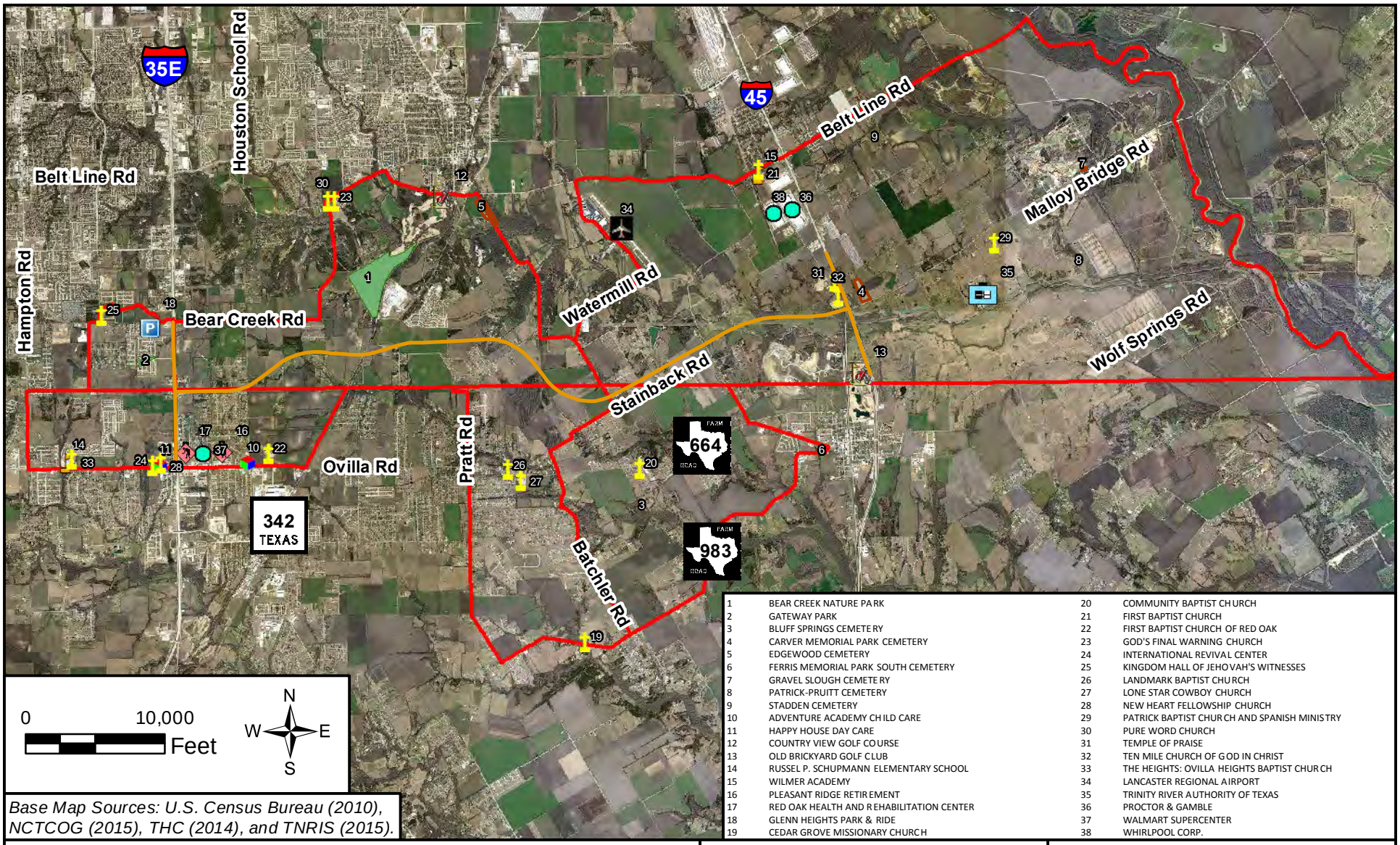
- Proposed Right of Way
- Construction Limits
- County Boundary
- City Limit

Figure 3
Topographic Map

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

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Date: 11/14/2016



1	BEAR CREEK NATURE PARK	20	COMMUNITY BAPTIST CHURCH
2	GATEWAY PARK	21	FIRST BAPTIST CHURCH
3	BLUFF SPRINGS CEMETERY	22	FIRST BAPTIST CHURCH OF RED OAK
4	CARVER MEMORIAL PARK CEMETERY	23	GOD'S FINAL WARNING CHURCH
5	EDGEWOOD CEMETERY	24	INTERNATIONAL REVIVAL CENTER
6	FERRIS MEMORIAL PARK SOUTH CEMETERY	25	KINGDOM HALL OF JEHOVAH'S WITNESSES
7	GRAVEL SLOUGH CEMETERY	26	LANDMARK BAPTIST CHURCH
8	PATRICK-PRUITT CEMETERY	27	LONE STAR COWBOY CHURCH
9	STADDEN CEMETERY	28	NEW HEART FELLOWSHIP CHURCH
10	ADVENTURE ACADEMY CHILD CARE	29	PATRICK BAPTIST CHURCH AND SPANISH MINISTRY
11	HAPPY HOUSE DAY CARE	30	PURE WORD CHURCH
12	COUNTRY VIEW GOLF COURSE	31	TEMPLE OF PRAISE
13	OLD BRICKYARD GOLF CLUB	32	TEN MILE CHURCH OF GOD IN CHRIST
14	RUSSEL P. SCHUPMANN ELEMENTARY SCHOOL	33	THE HEIGHTS: OVILLA HEIGHTS BAPTIST CHURCH
15	WILMER ACADEMY	34	LANCASTER REGIONAL AIRPORT
16	PLEASANT RIDGE RETIREMENT	35	TRINITY RIVER AUTHORITY OF TEXAS
17	RED OAK HEALTH AND REHABILITATION CENTER	36	PROCTOR & GAMBLE
18	GLENN HEIGHTS PARK & RIDE	37	WALMART SUPERCENTER
19	CEDAR GROVE MISSIONARY CHURCH	38	WHIRLPOOL CORP.

Base Map Sources: U.S. Census Bureau (2010), NCTCOG (2015), THC (2014), and TNRIS (2015).

Legend

- Project Location
- CIA Study Area (Block Groups)
- Cemetery
- Park
- Major Employer
- Child Care Facility
- Airport
- Golf Course
- Educational Facility
- Senior Living Facility
- Transit Center
- Wastewater System
- Place of Worship

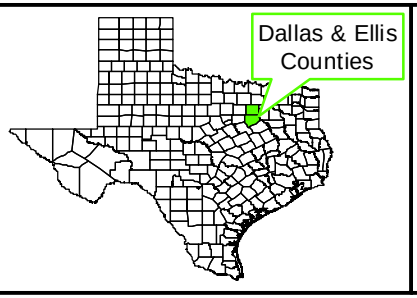
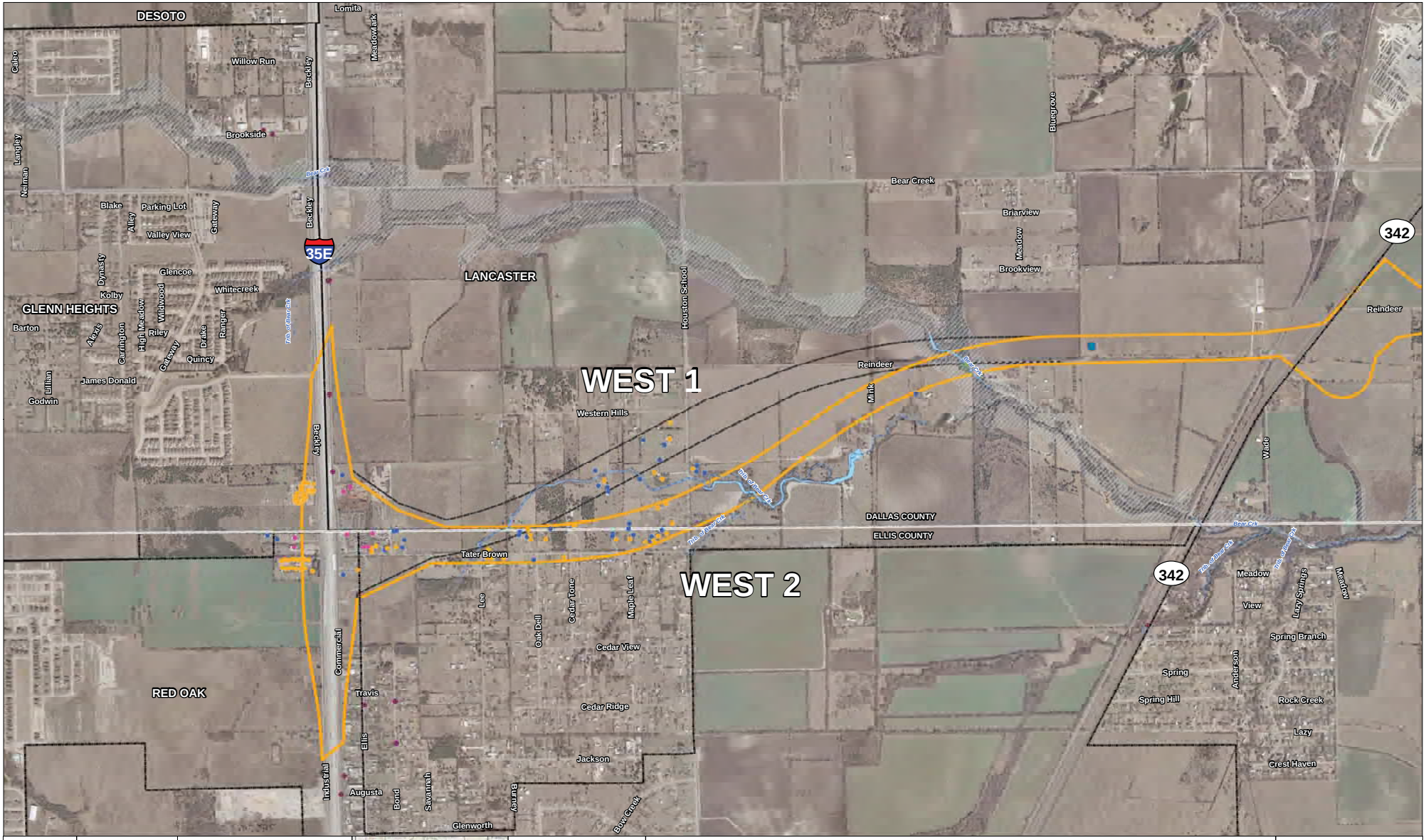


FIGURE 4

COMMUNITY FACILITIES MAP

LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005



Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties

0 250 500 1,000
Feet
0 0.1 0.2
Miles

ALTERNATIVES
- Preferred Alternative
- Proposed Alternative

CONSTRAINTS
- Potential Hazardous Materials Site
- Stream
- Pond/Open Water
- Potential Wetland
- 100-year Floodplain

STRUCTURES
- Commercial
- Residential
- Secondary
- Church
- Bridge [Potential Section 4(f)]

City Limit
County Boundary

PUBLIC FACILITIES
- Amusement Park
- Cemetery
- Correctional Facility
- Education
- Fire / Emergency Station
- Golf Course
- Hospital
- Park
- Place of Worship
- Historical Marker

Environmental Constraints Map

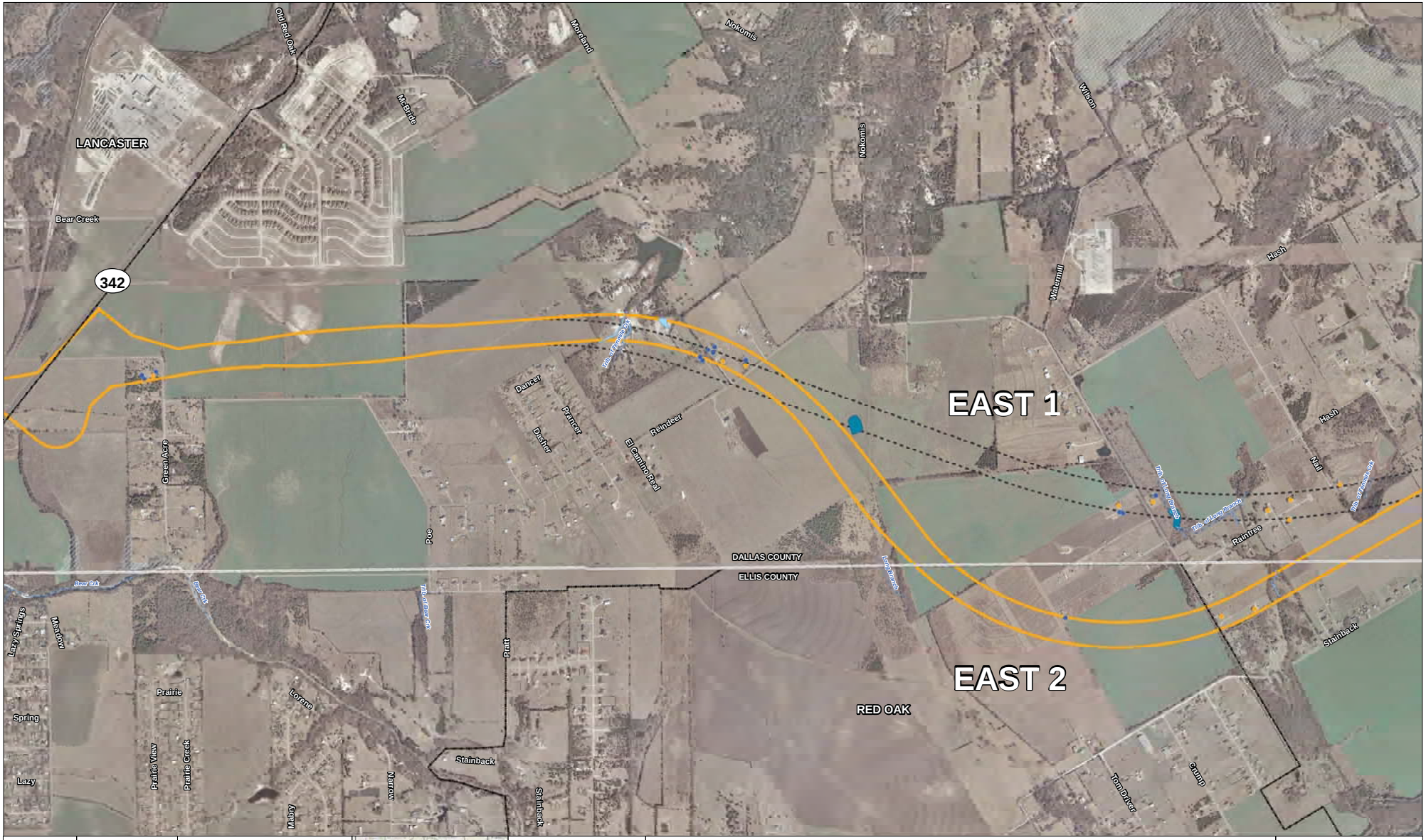
Loop 9 Southeast From IH 35E to IH 45

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ALTERNATIVE ALIGNMENTS FROM OCTOBER 2014 PUBLIC MEETING

Date: 10/23/2014

FIGURE 5



Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties

0 250 500 1,000
Feet
0 0.1 0.2
Miles

ALTERNATIVES
- Preferred Alternative
- Proposed Alternative

CONSTRAINTS
- Potential Hazardous Materials Site
- Stream
- Pond/Open Water
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- Fire / Emergency Station
- Golf Course
- Hospital
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Environmental Constraints Map

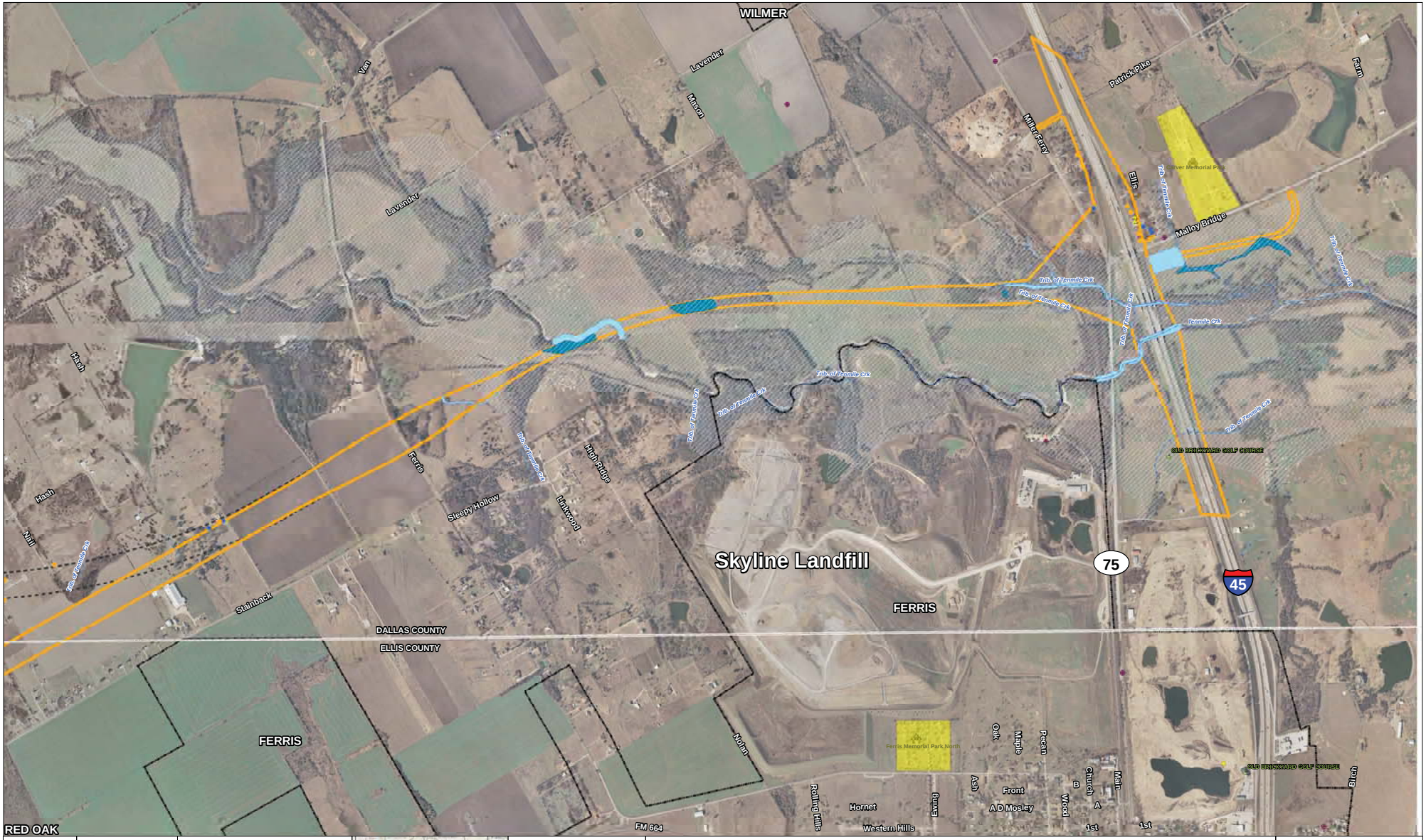
Loop 9 Southeast From IH 35E to IH 45

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Date: 10/23/2014

ALTERNATIVE ALIGNMENTS FROM OCTOBER 2014 PUBLIC MEETING

FIGURE 5



Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties

0 250 500 1,000
Feet
0 0.1 0.2
Miles

ALTERNATIVES
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- Proposed Alternative

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Environmental Constraints Map

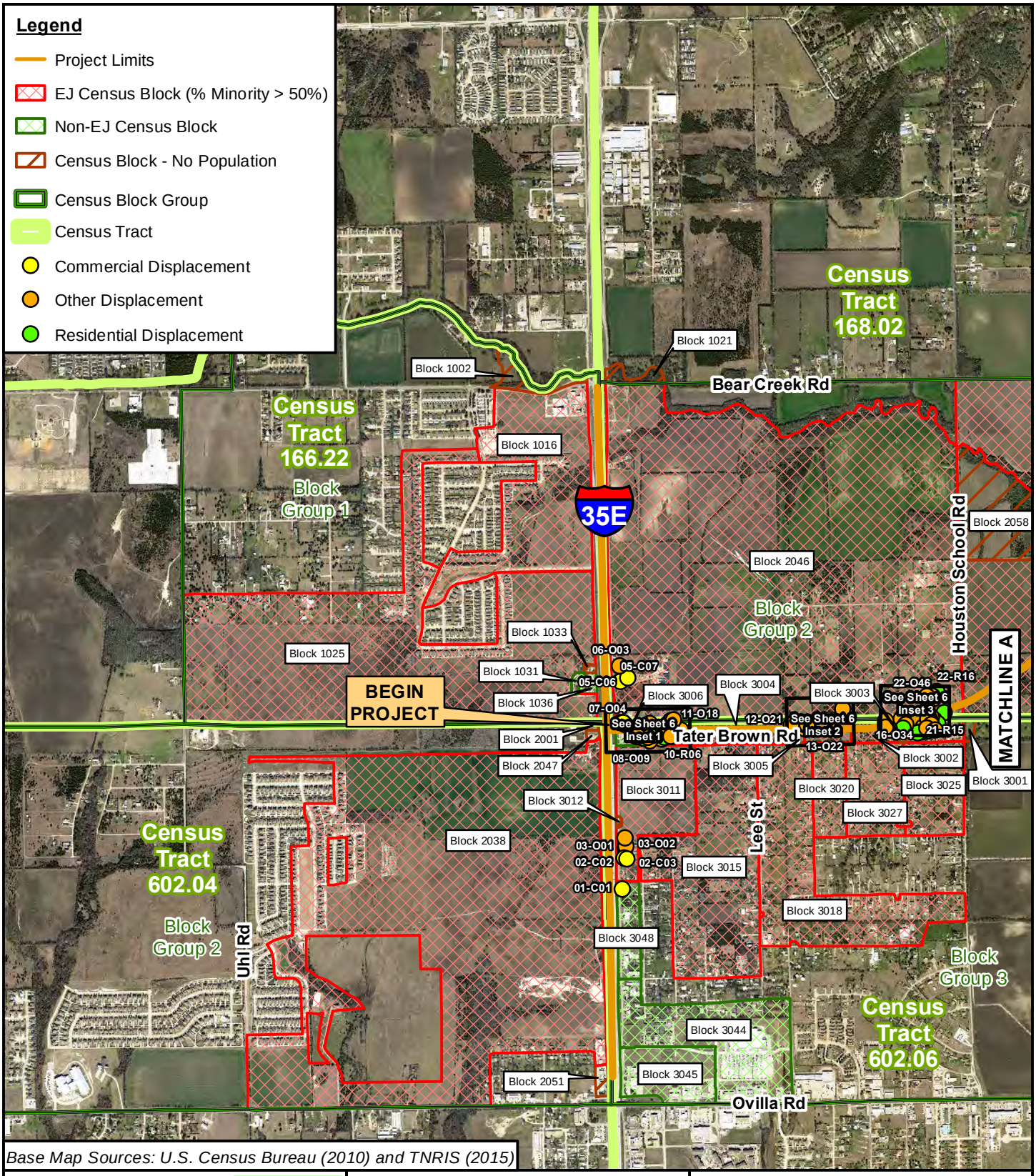
Loop 9 Southeast From IH 35E to IH 45

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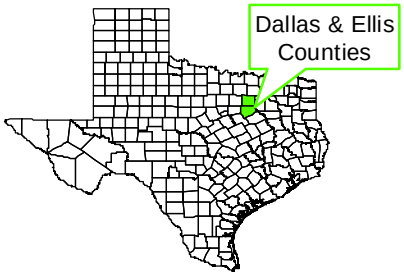
ALTERNATIVE ALIGNMENTS FROM OCTOBER 2014 PUBLIC MEETING

Date: 10/23/2014

FIGURE 5



Base Map Sources: U.S. Census Bureau (2010) and TNRIS (2015)



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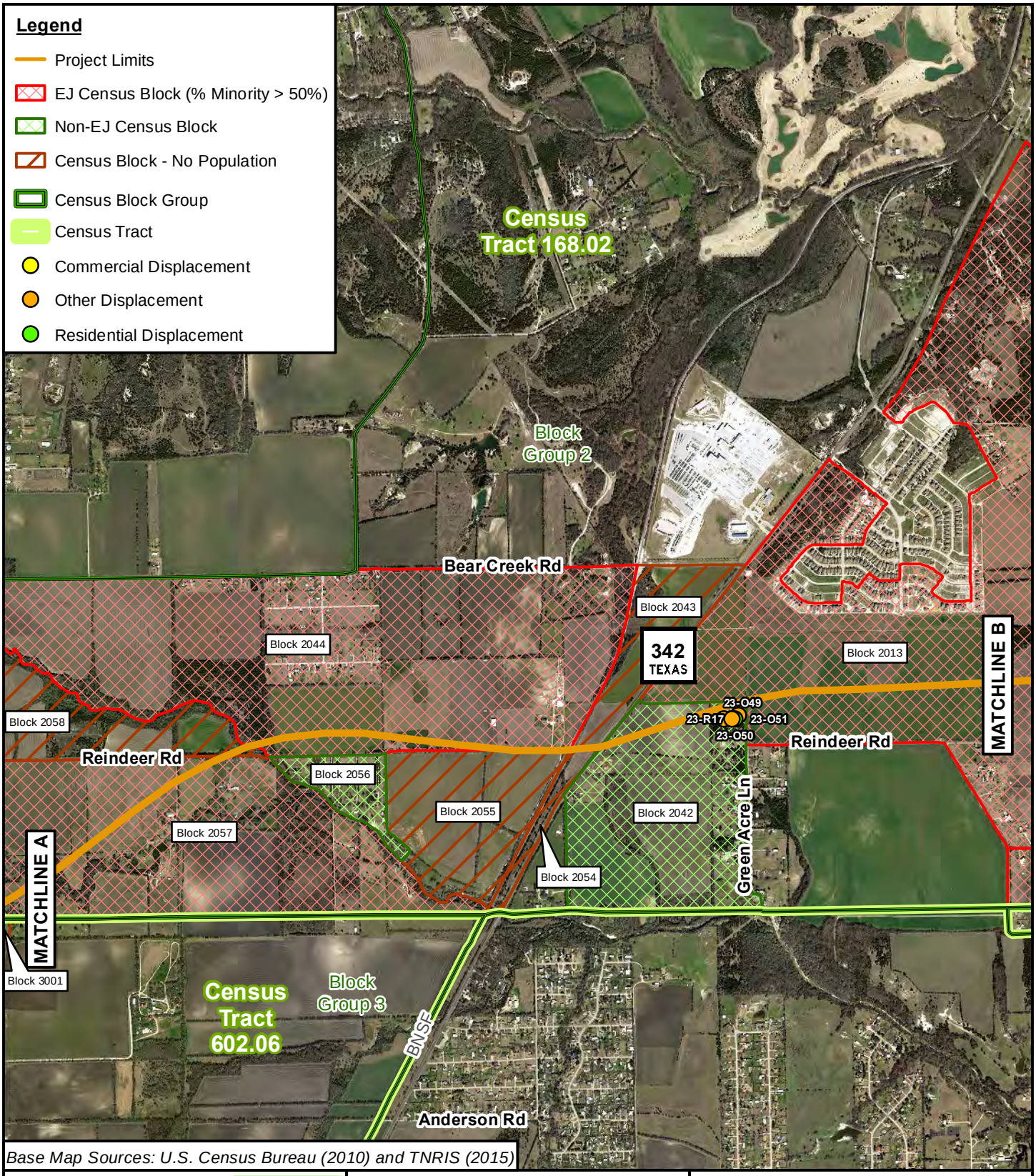
0 2,000 Feet

FIGURE 6
CENSUS GEOGRPHY MAP

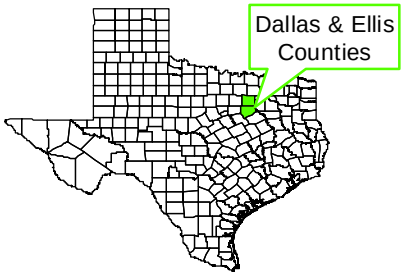
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 1 OF 6



Base Map Sources: U.S. Census Bureau (2010) and TNRIS (2015)



N
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S

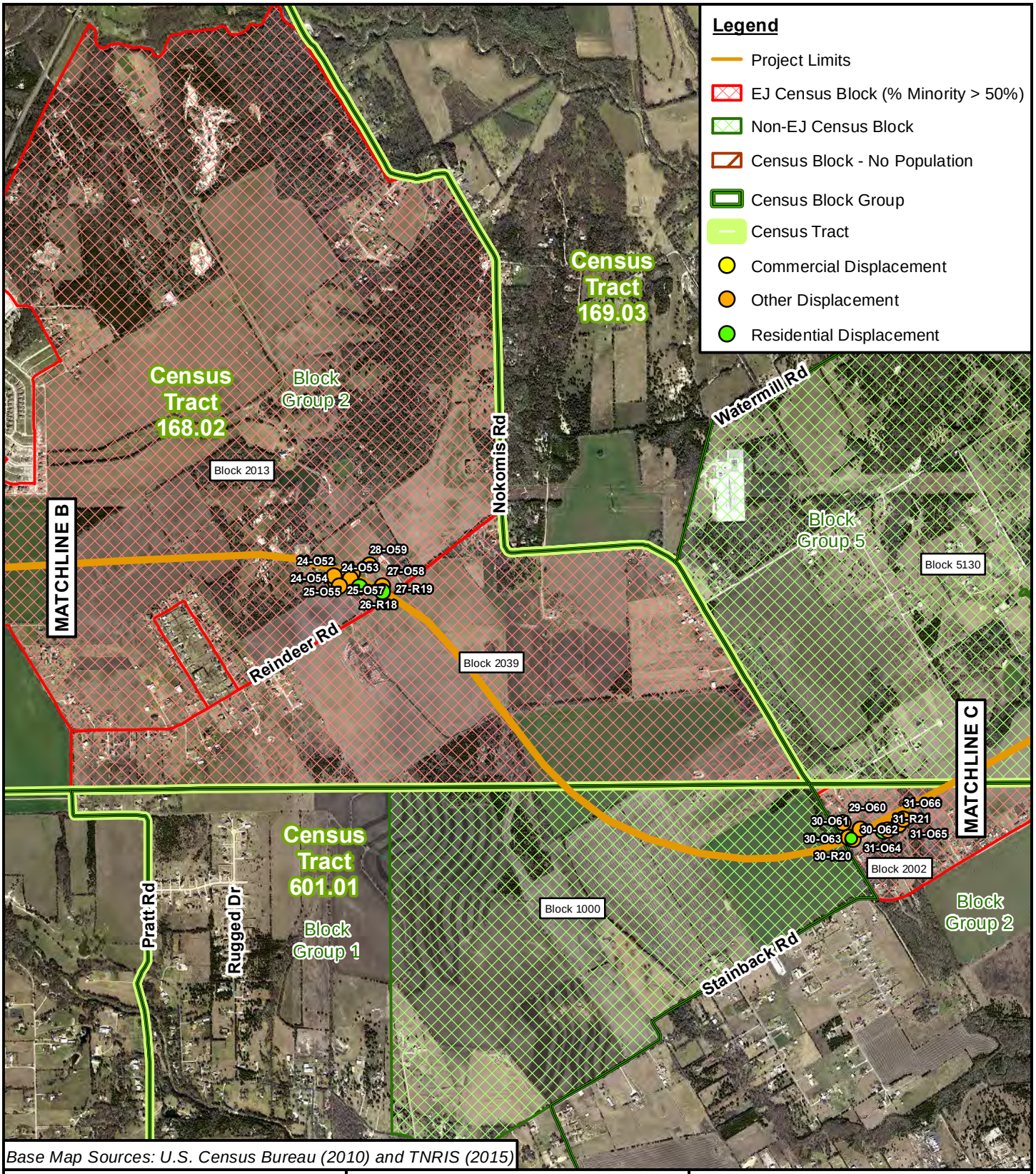
0 2,000 Feet

FIGURE 6
CENSUS GEOGRAPHY MAP

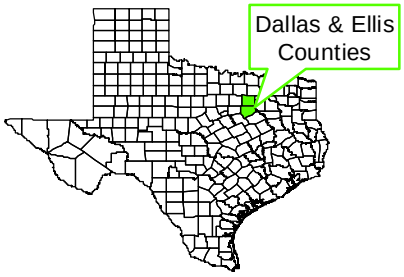
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 2 OF 6



Base Map Sources: U.S. Census Bureau (2010) and TNRIS (2015)



N
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S

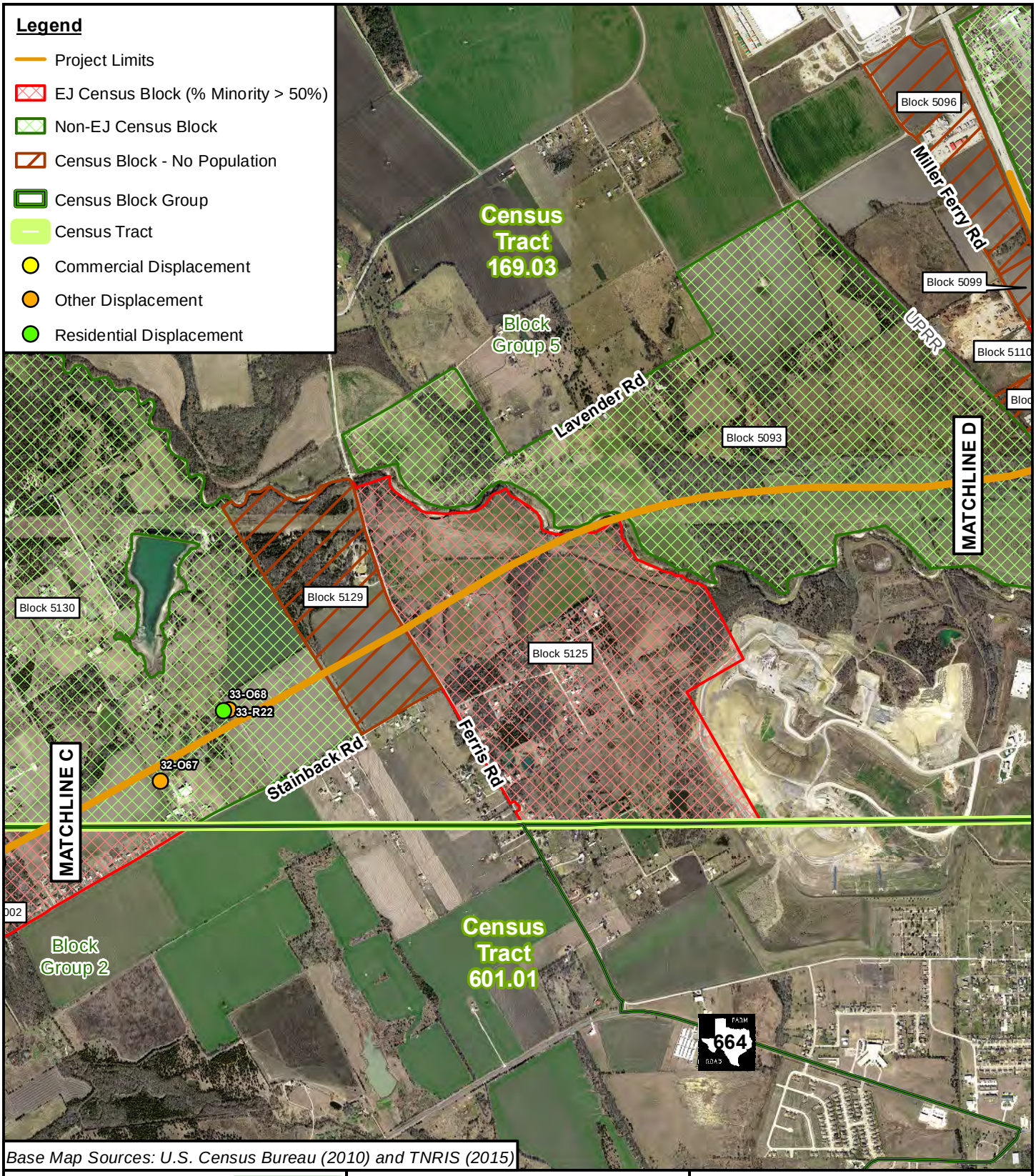
0 2,000 Feet

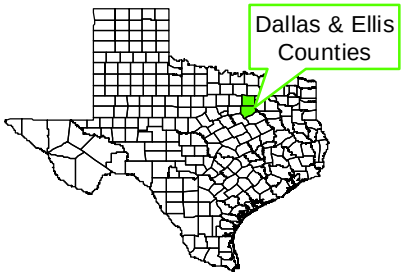
FIGURE 6
CENSUS GEOGRAPHY MAP

LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 3 OF 6





N
W E
S

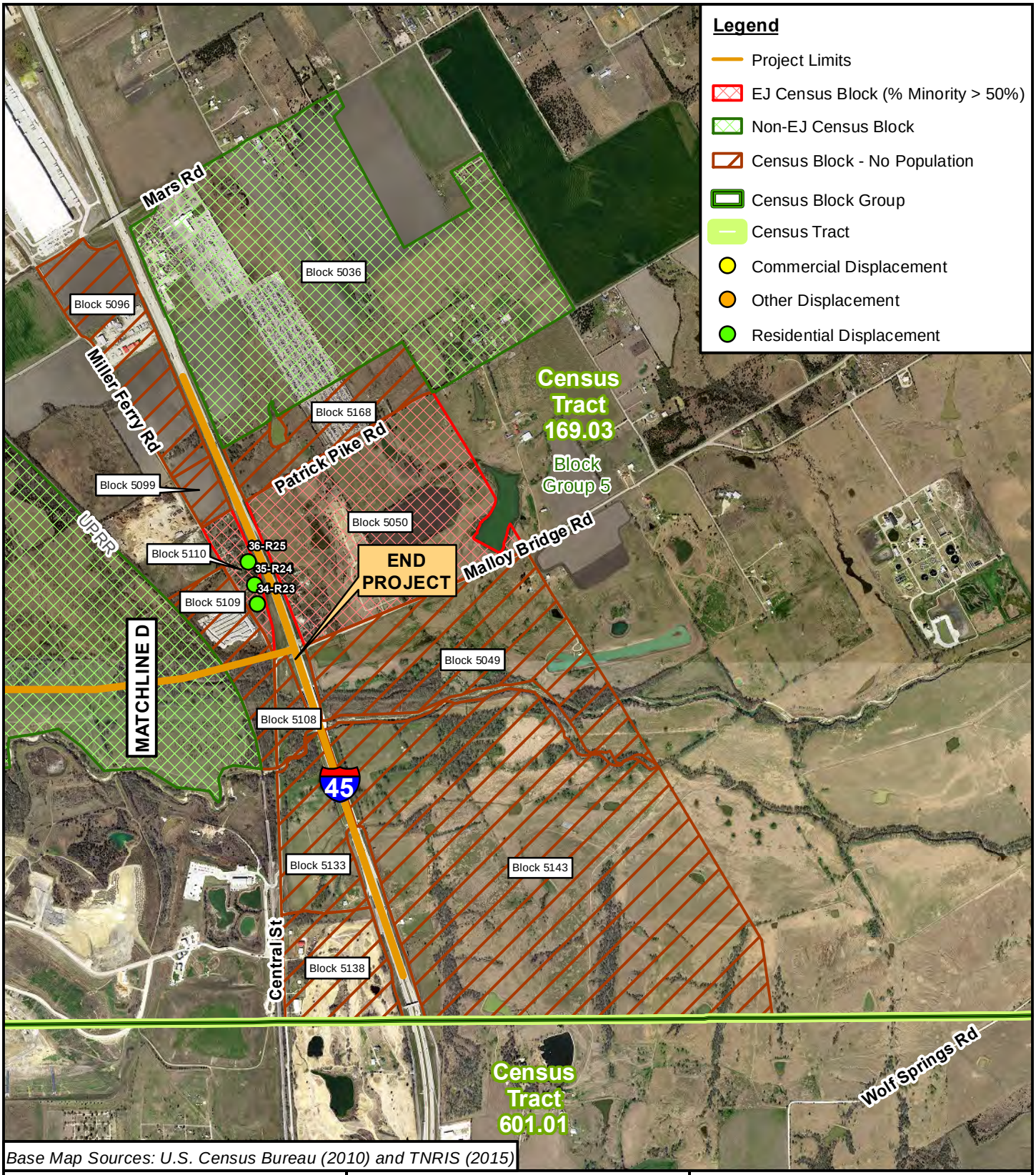
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FIGURE 6
CENSUS GEOGRAPHY MAP

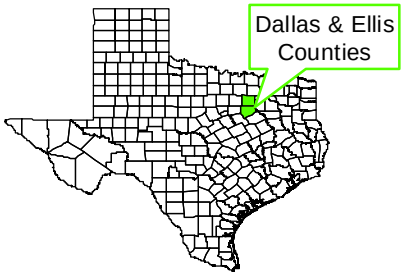
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 4 OF 6



Base Map Sources: U.S. Census Bureau (2010) and TNRIS (2015)



N
W E
S

0 2,000 Feet

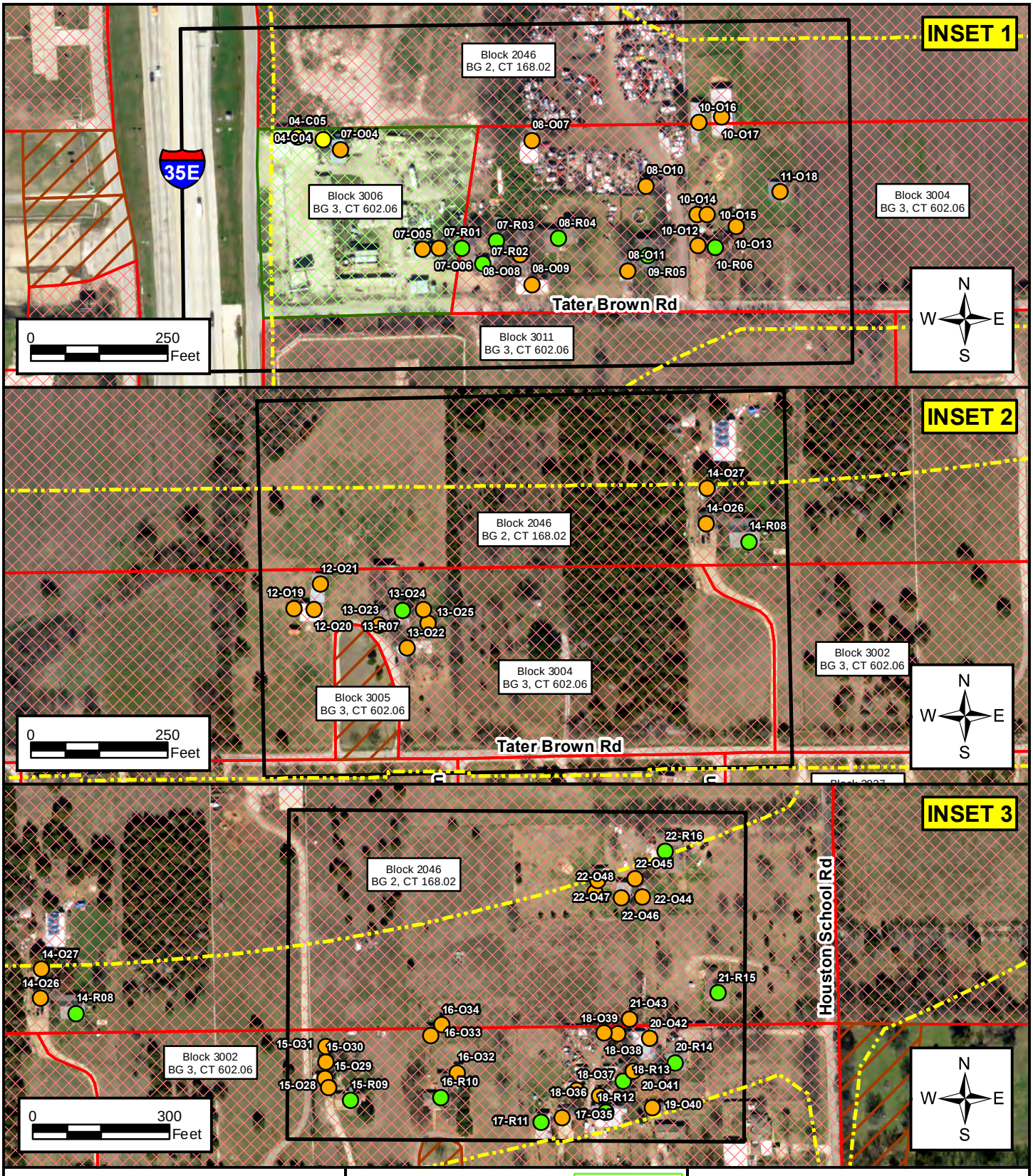
FIGURE 6

CENSUS GEOGRAPHY MAP

LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 5 OF 6



Legend

- Existing Right-of-Way
- Proposed Right-of-Way
- EJ Census Block (% Minority > 50%)
- Non-EJ Census Block
- Census Block: No Recorded Population

Potential Displacement Type

- Commercial
- Other
- Residential

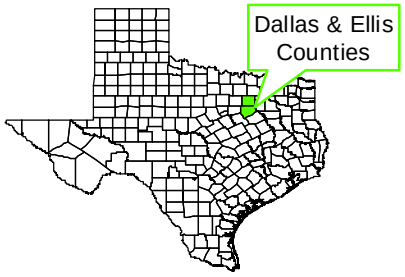


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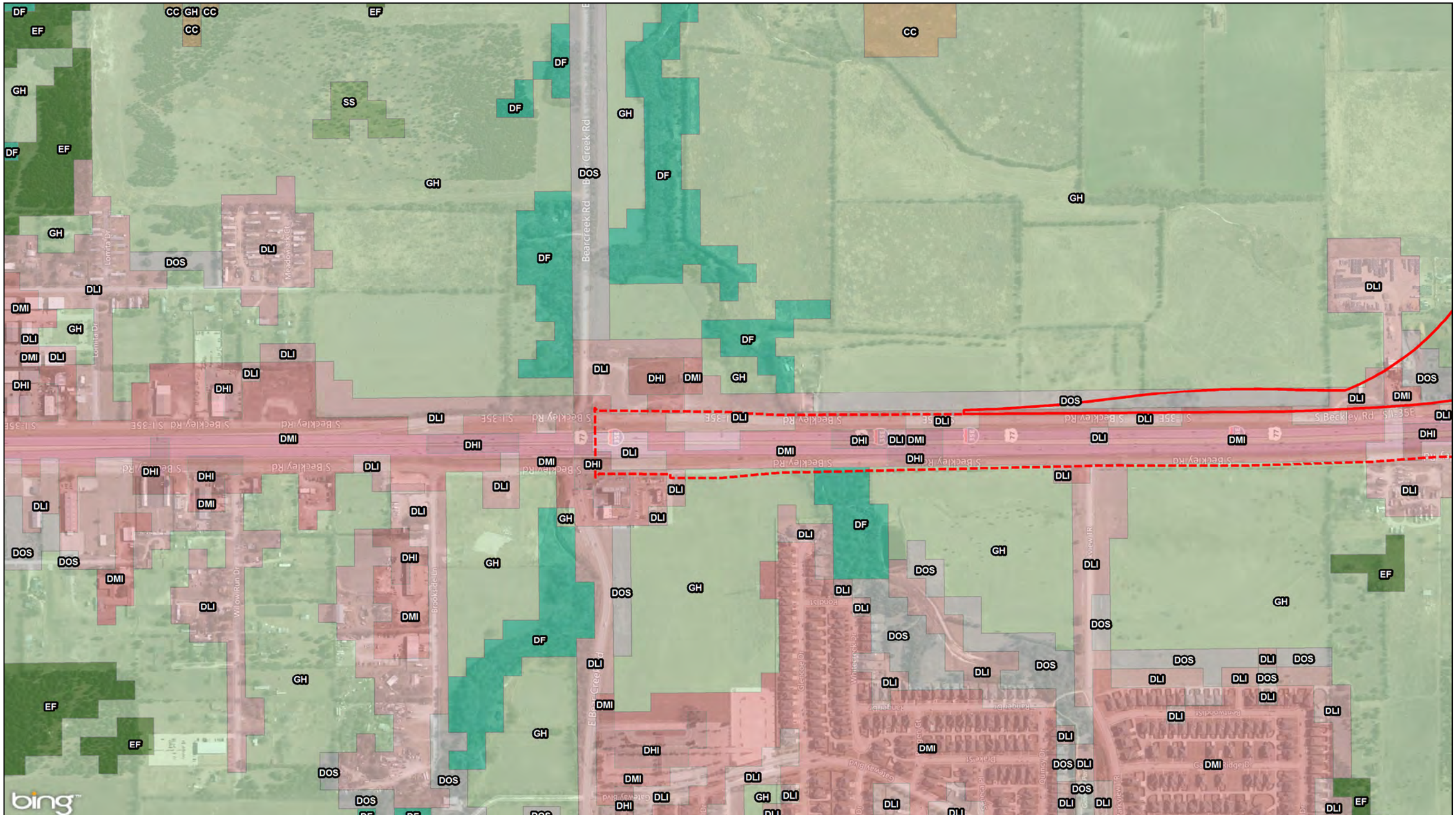
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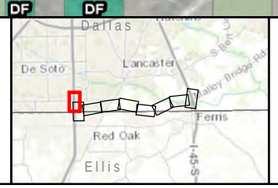
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 6 OF 6

Base Map Sources: U.S. Census Bureau (2010) and TNRIS (2015)





0 0.05 0.1
Miles

0 250 500
Feet

- Proposed Drainage Easement
- Proposed ROW
- Construction Limits

Land Cover

- Cultivated Crops (CC)
- Hay/Pasture (HP)
- Grassland/Herbaceous (GH)
- Shrub/Scrub (SS)
- Deciduous Forest (DF)
- Mixed Forest (MF)
- Evergreen Forest (EF)
- Woody Wetlands (WW)
- Emergent Herbaceous Wetlands (EHW)
- Open Water (OW)
- Barren Land (BL)
- Developed, Open Space (DOS)
- Developed, Low Intensity (DLI)
- Developed, Medium Intensity (DMI)
- Developed, High Intensity (DHI)

Land Use Source: USGS, National Land Cover Dataset, 2011.

Dallas and Ellis Counties

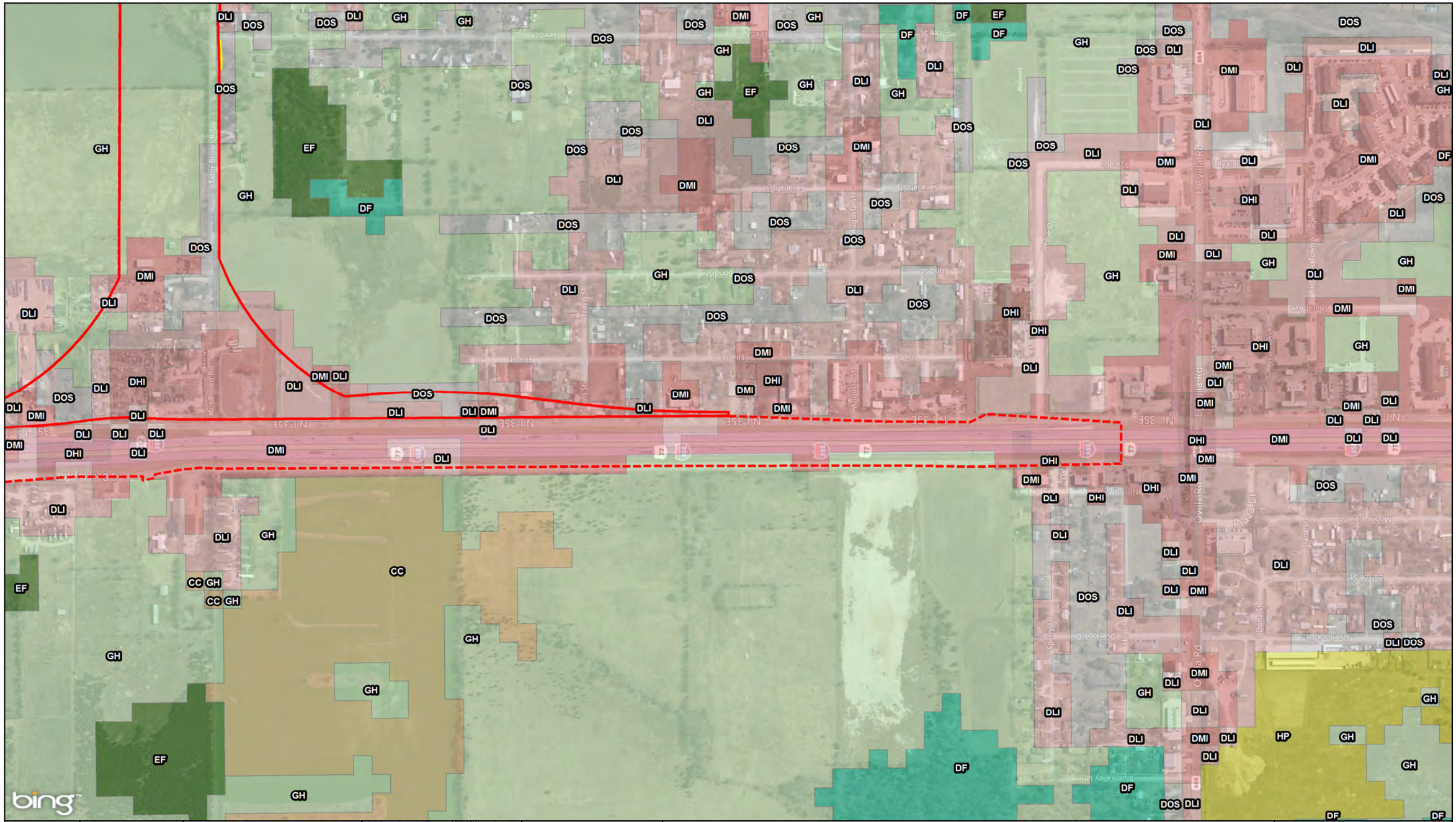
Figure 7
Land Use in the Study Area

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 1 of 10

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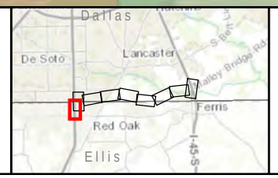
Date: 11/23/2016



Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties



0 0.05 0.1
Miles

0 250 500
Feet

Proposed Drainage Easement
Proposed ROW
Construction Limits

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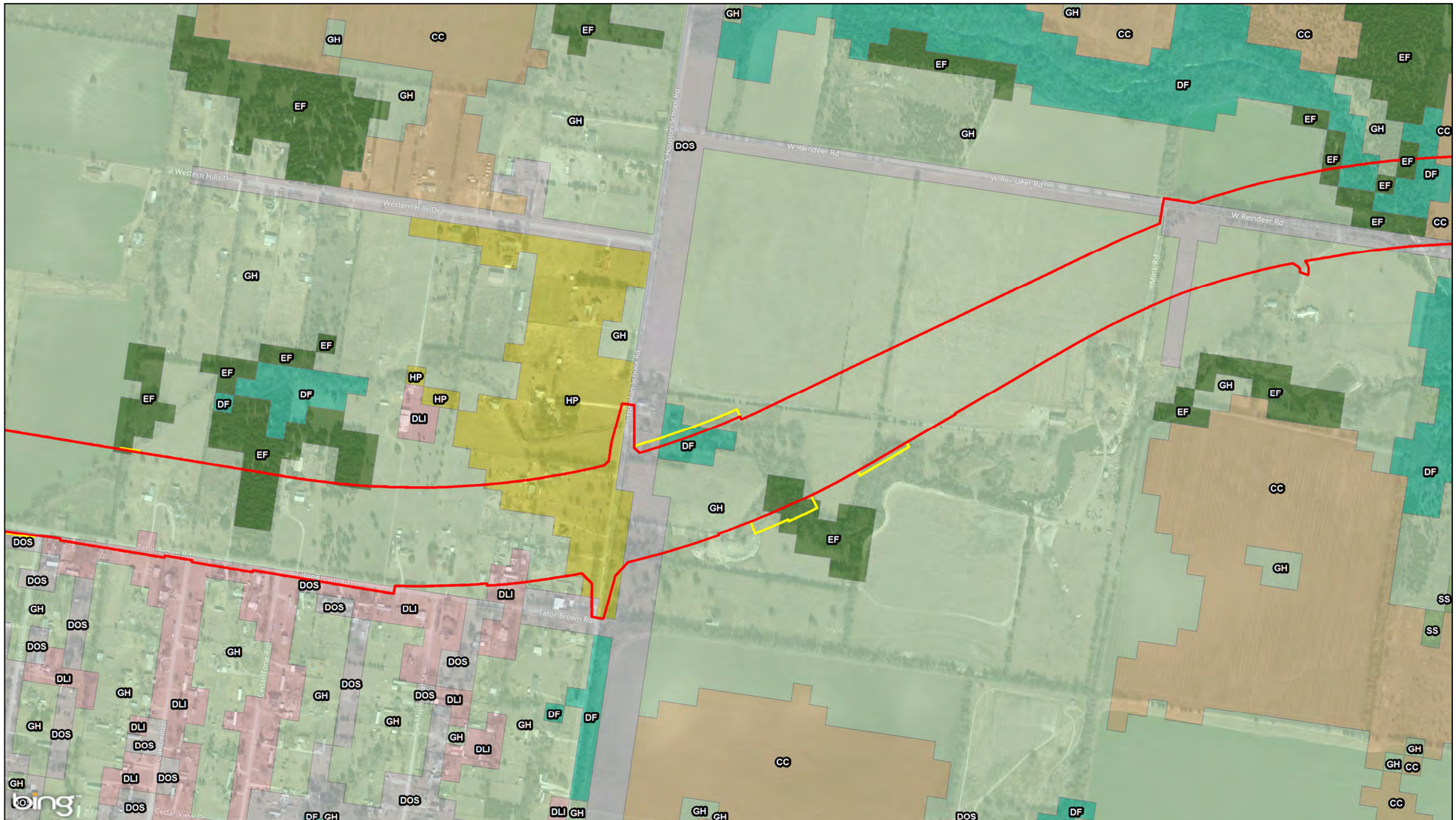
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Land Use in the Study Area

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

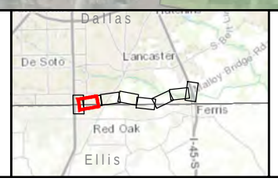
Sheet 2 of 10

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Date: 11/23/2016



Dallas and Ellis Counties



0 0.05 0.1
Miles

0 250 500
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Proposed Drainage Easement
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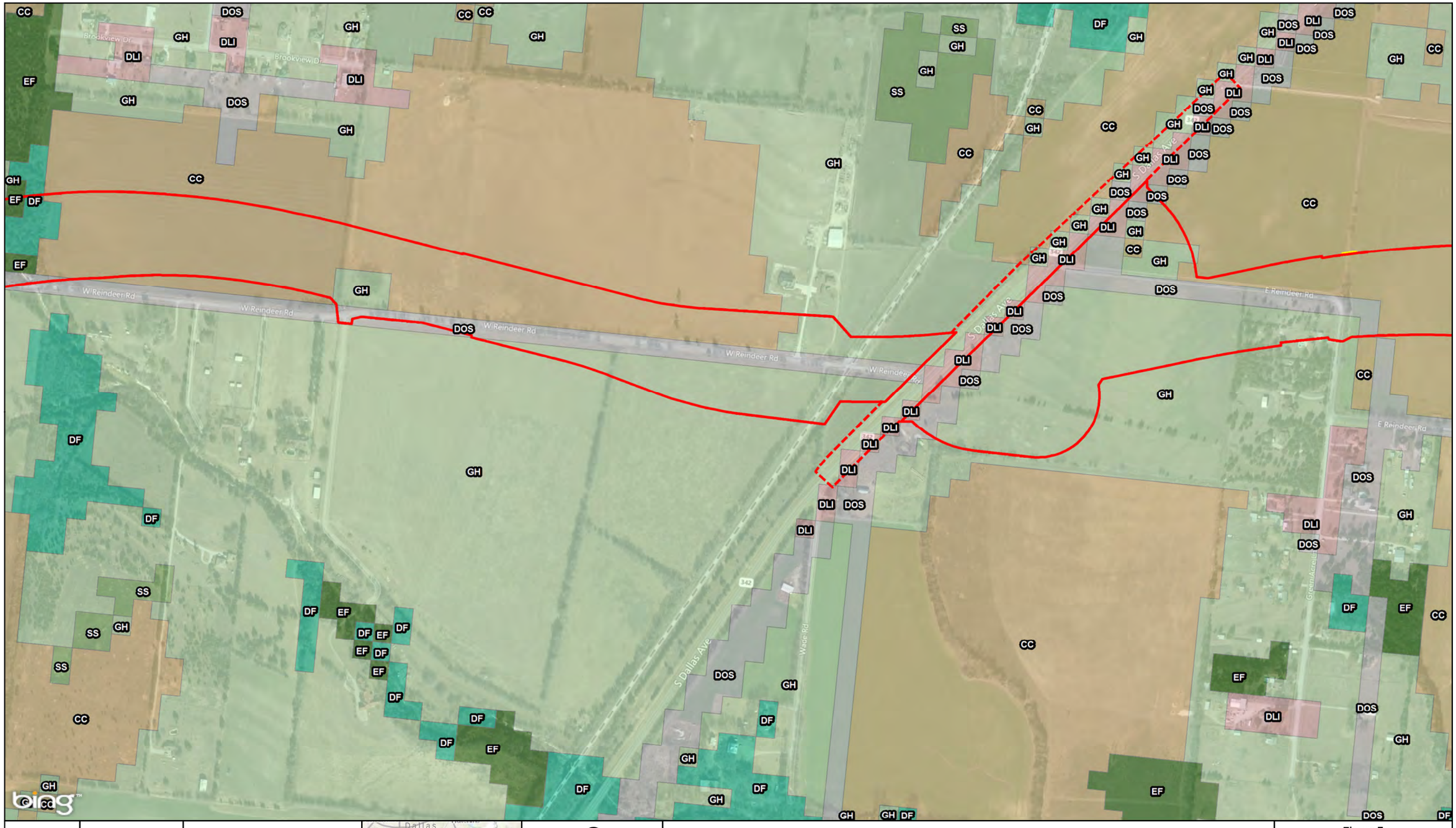
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Land Use in the Study Area

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 3 of 10

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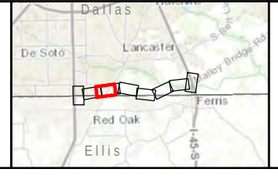
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Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties



0 0.05 0.1
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0 250 500
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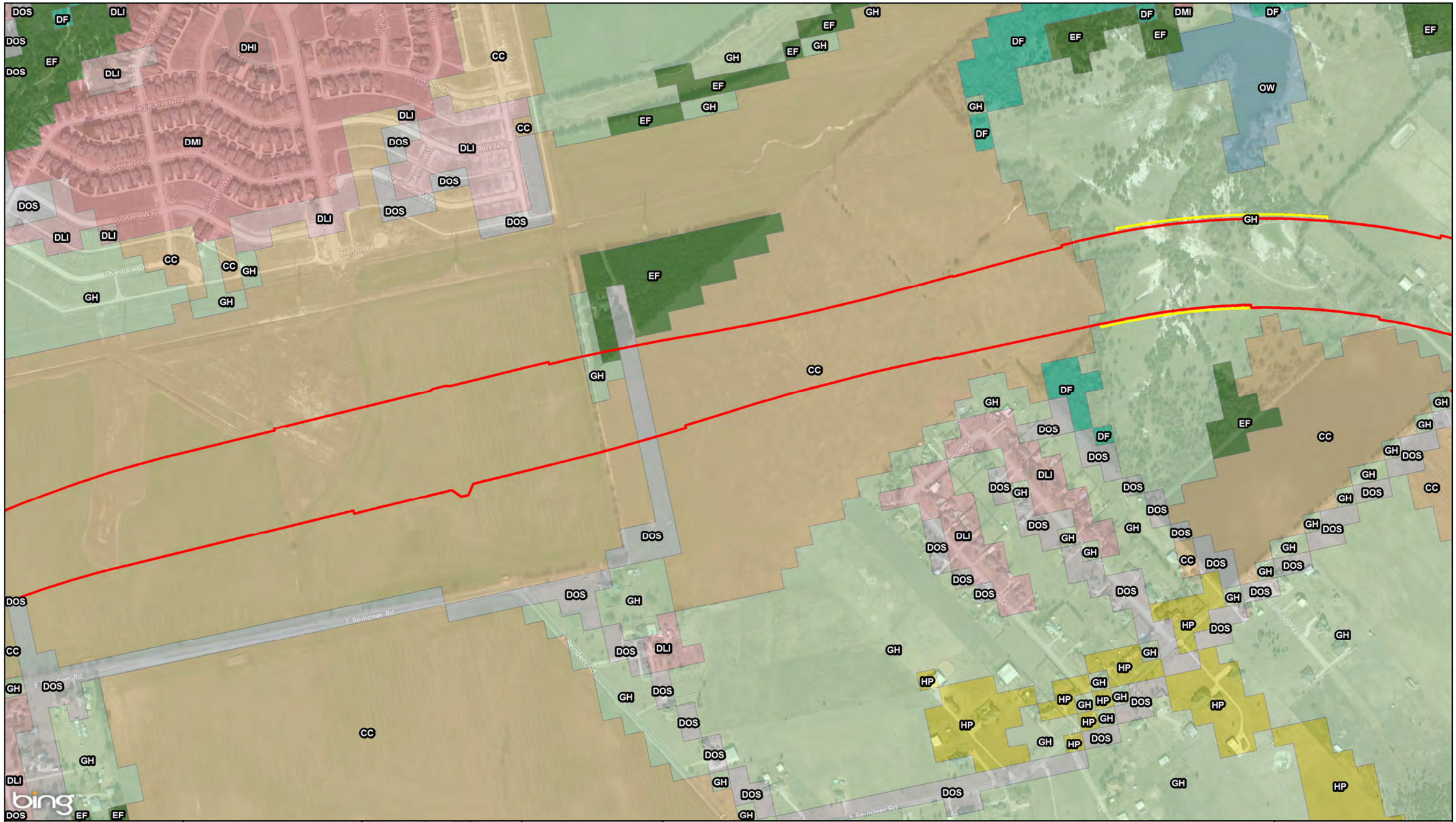
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Land Use in the Study Area

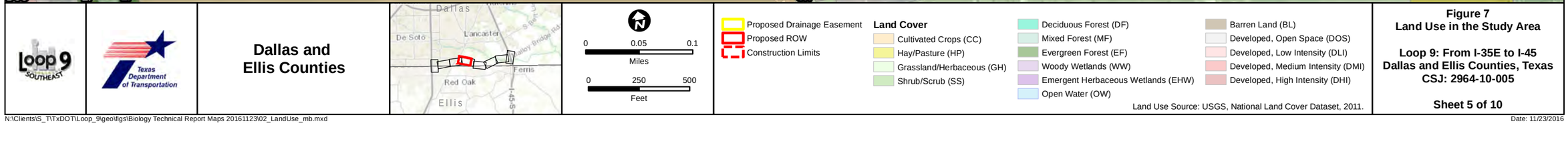
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 4 of 10

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Date: 11/23/2016





0 0.05 0.1
Miles

0 250 500
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Proposed Drainage Easement
Proposed ROW
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Dallas and Ellis Counties

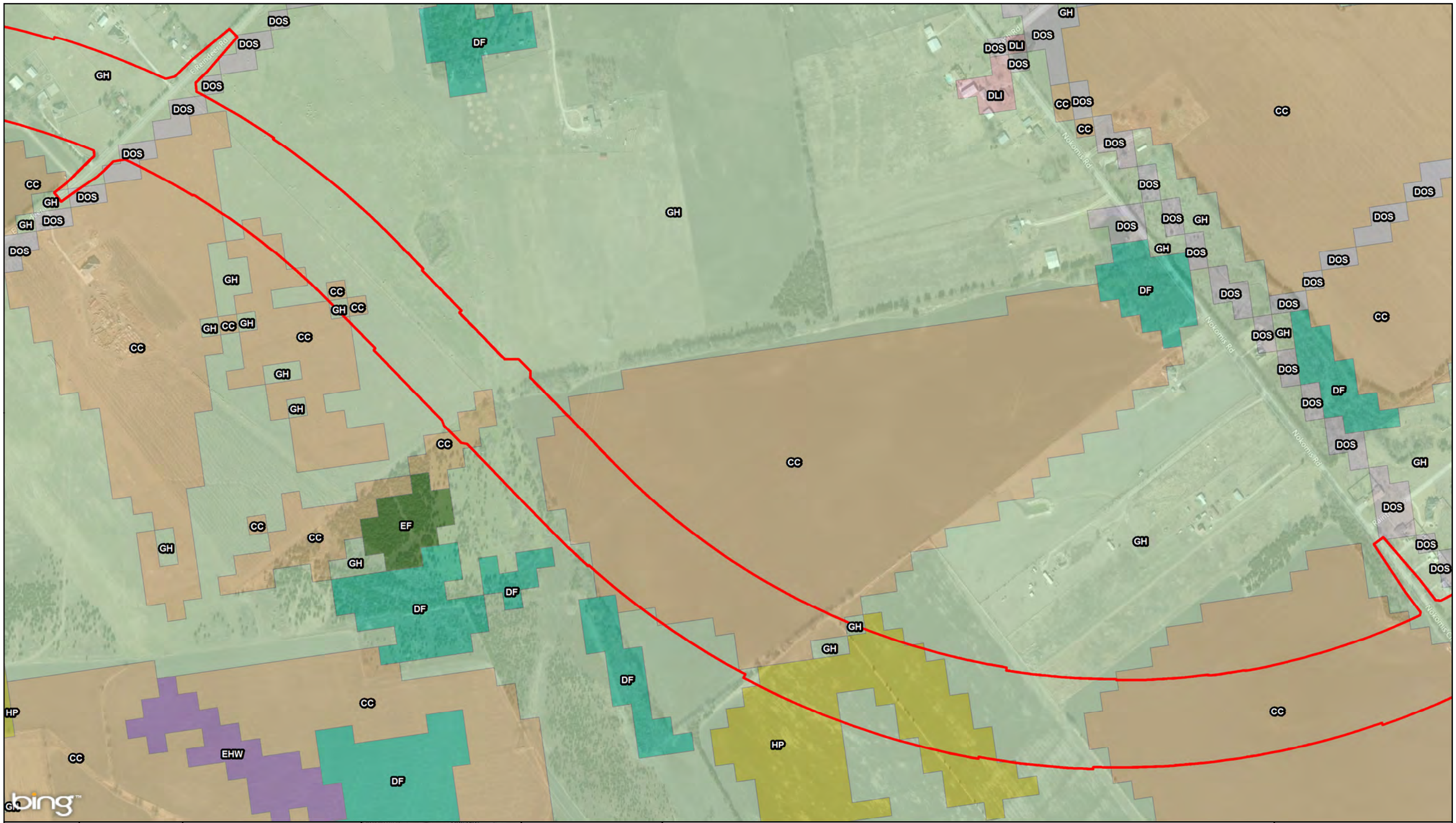
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Land Use in the Study Area

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 5 of 10

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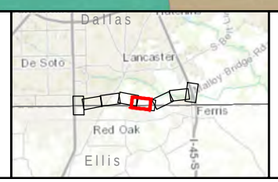
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Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties



0 0.05 0.1
Miles

0 250 500
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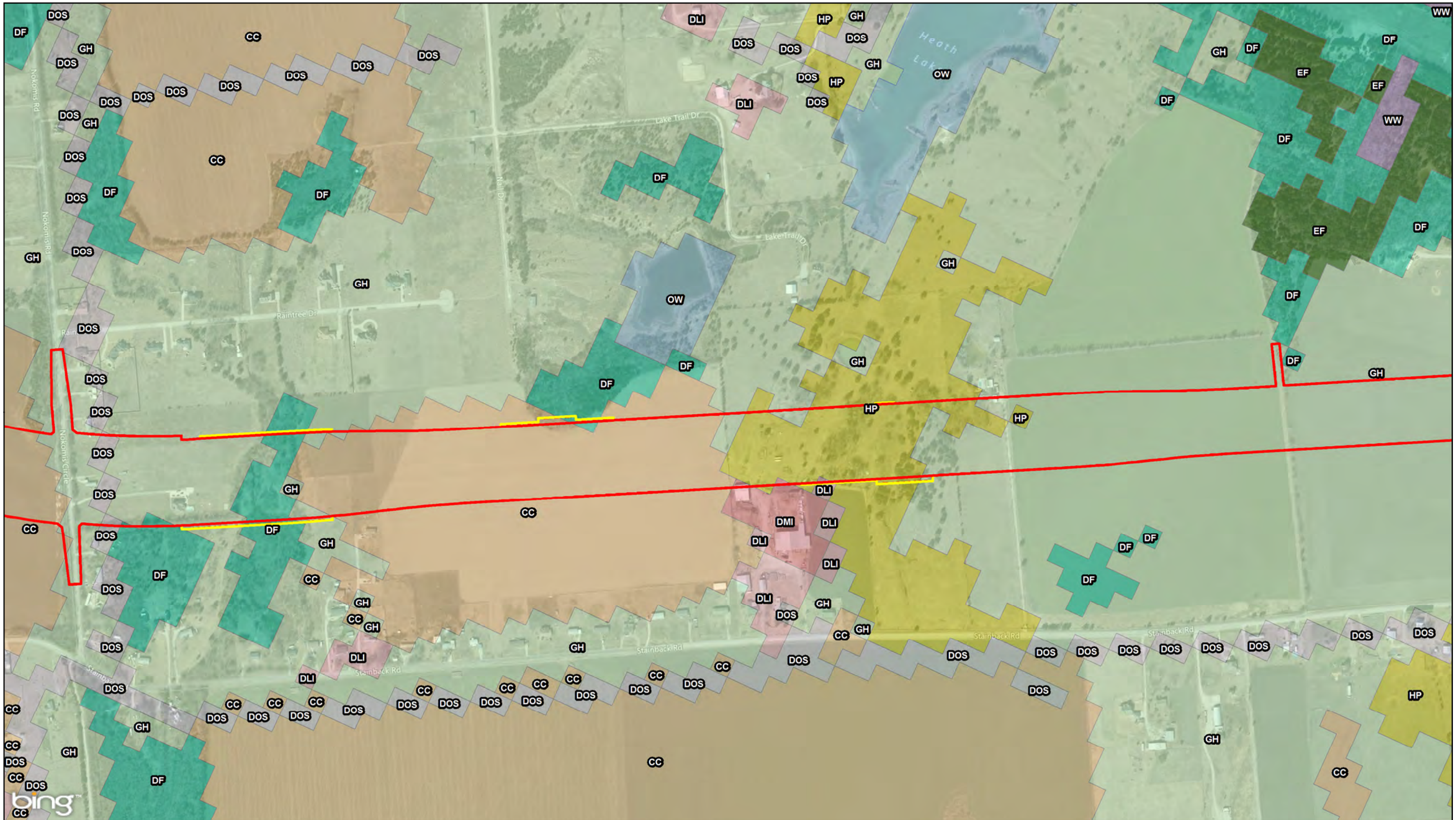
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Land Use in the Study Area

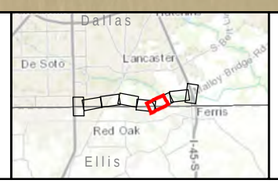
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 6 of 10

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Date: 11/23/2016





0 0.05 0.1
Miles

0 250 500
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Proposed Drainage Easement
Proposed ROW
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Dallas and Ellis Counties

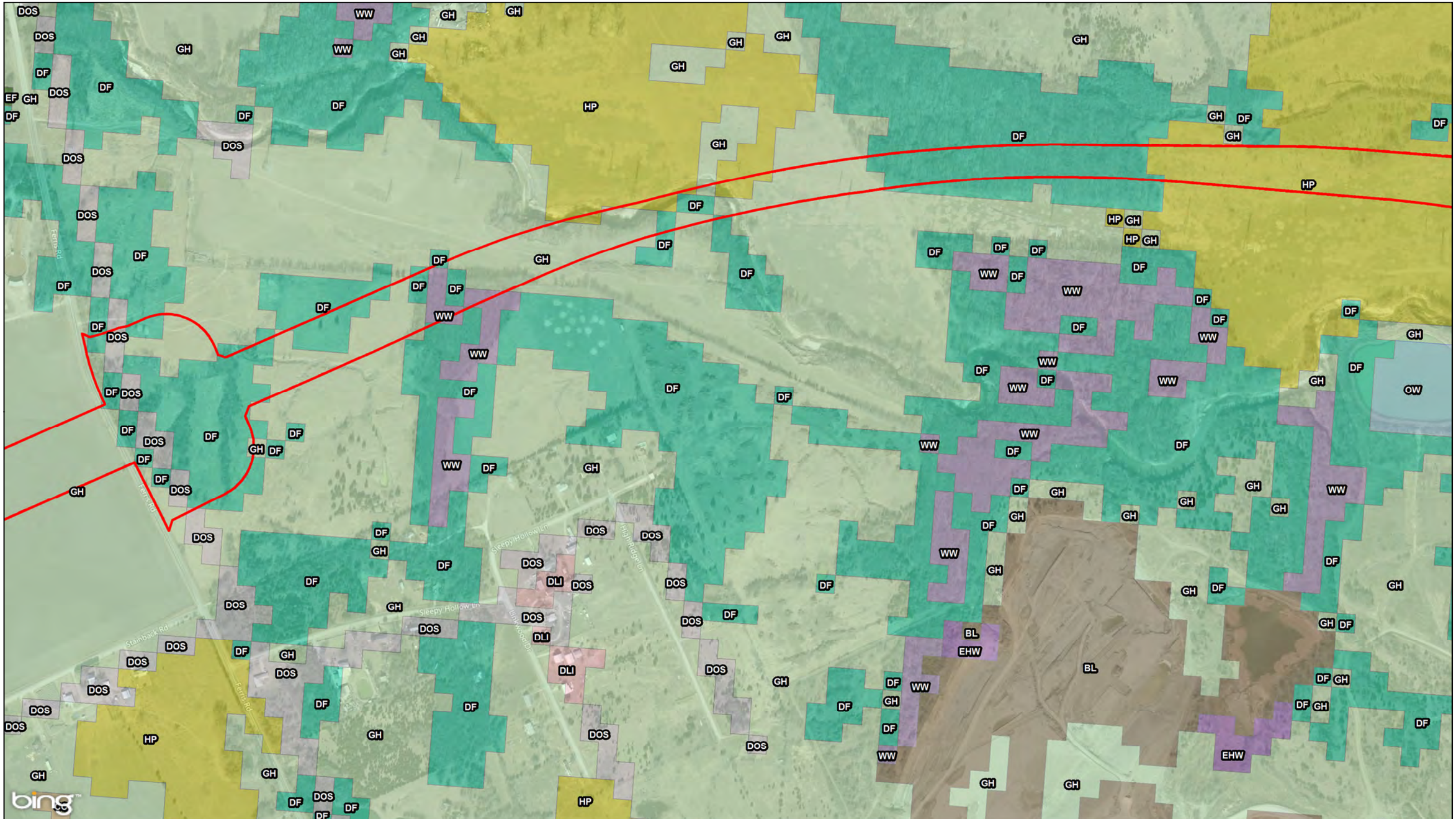
Figure 7
Land Use in the Study Area

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 7 of 10

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Date: 11/23/2016



Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties

Proposed Drainage Easement
Proposed ROW
Construction Limits

Land Cover

- Cultivated Crops (CC)
- Hay/Pasture (HP)
- Grassland/Herbaceous (GH)
- Shrub/Scrub (SS)
- Deciduous Forest (DF)
- Mixed Forest (MF)
- Evergreen Forest (EF)
- Woody Wetlands (WW)
- Emergent Herbaceous Wetlands (EHW)
- Open Water (OW)
- Barren Land (BL)
- Developed, Open Space (DOS)
- Developed, Low Intensity (DLI)
- Developed, Medium Intensity (DMI)
- Developed, High Intensity (DHI)

Land Use Source: USGS, National Land Cover Dataset, 2011.

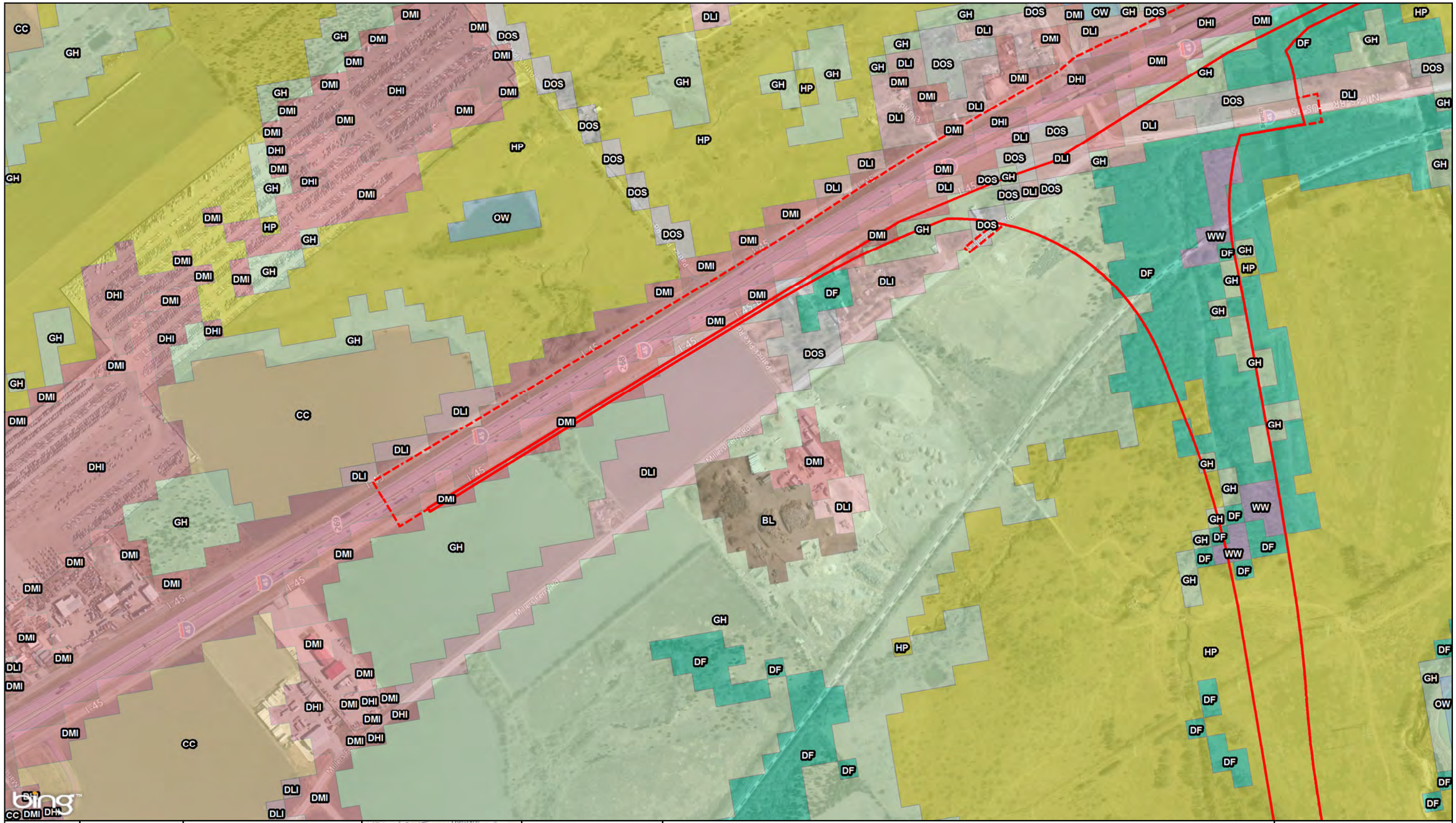
Figure 7
Land Use in the Study Area

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 8 of 10

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Date: 11/23/2016



Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties

Figure 7
Land Use in the Study Area

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 9 of 10

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Date: 11/23/2016

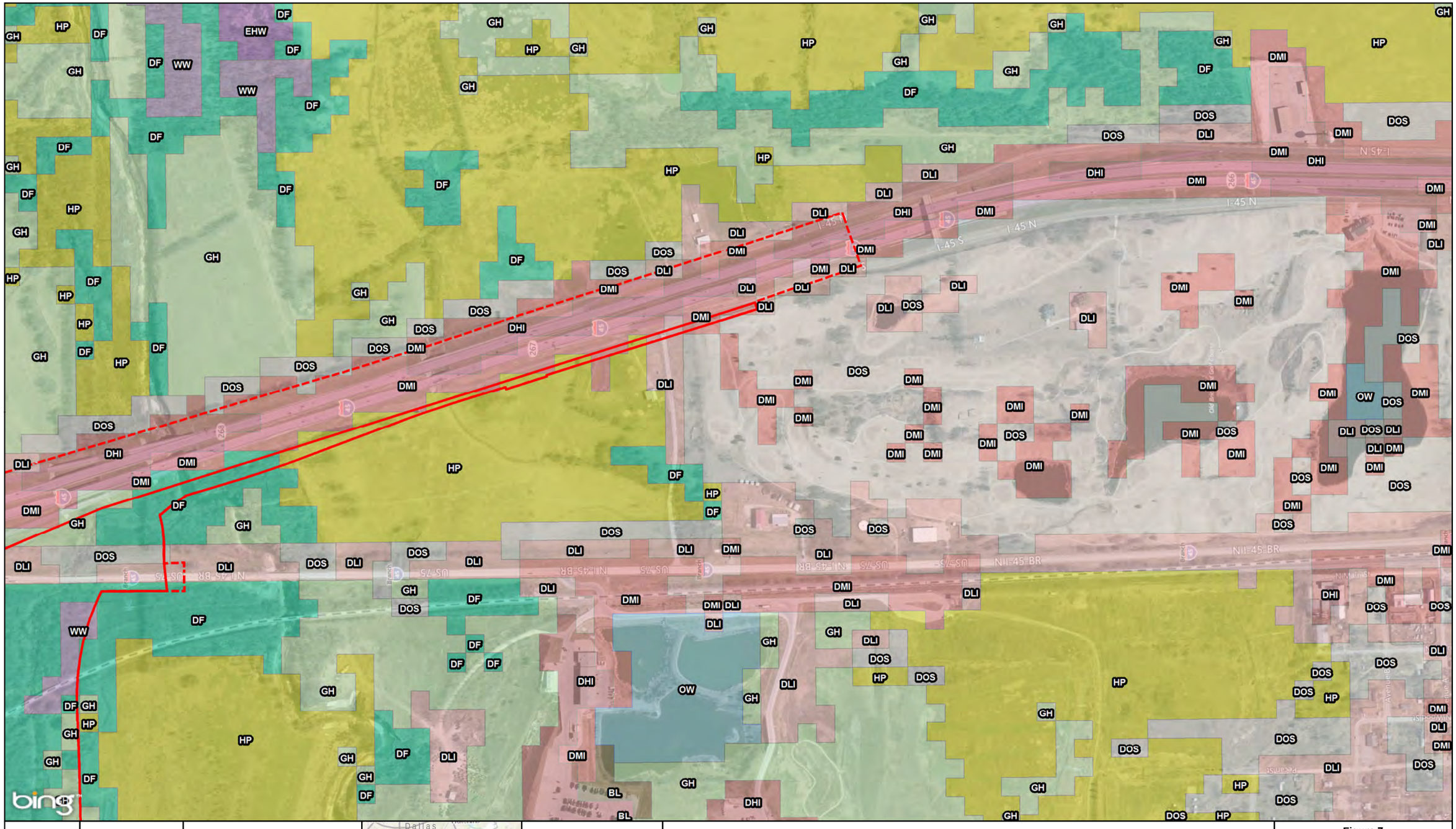


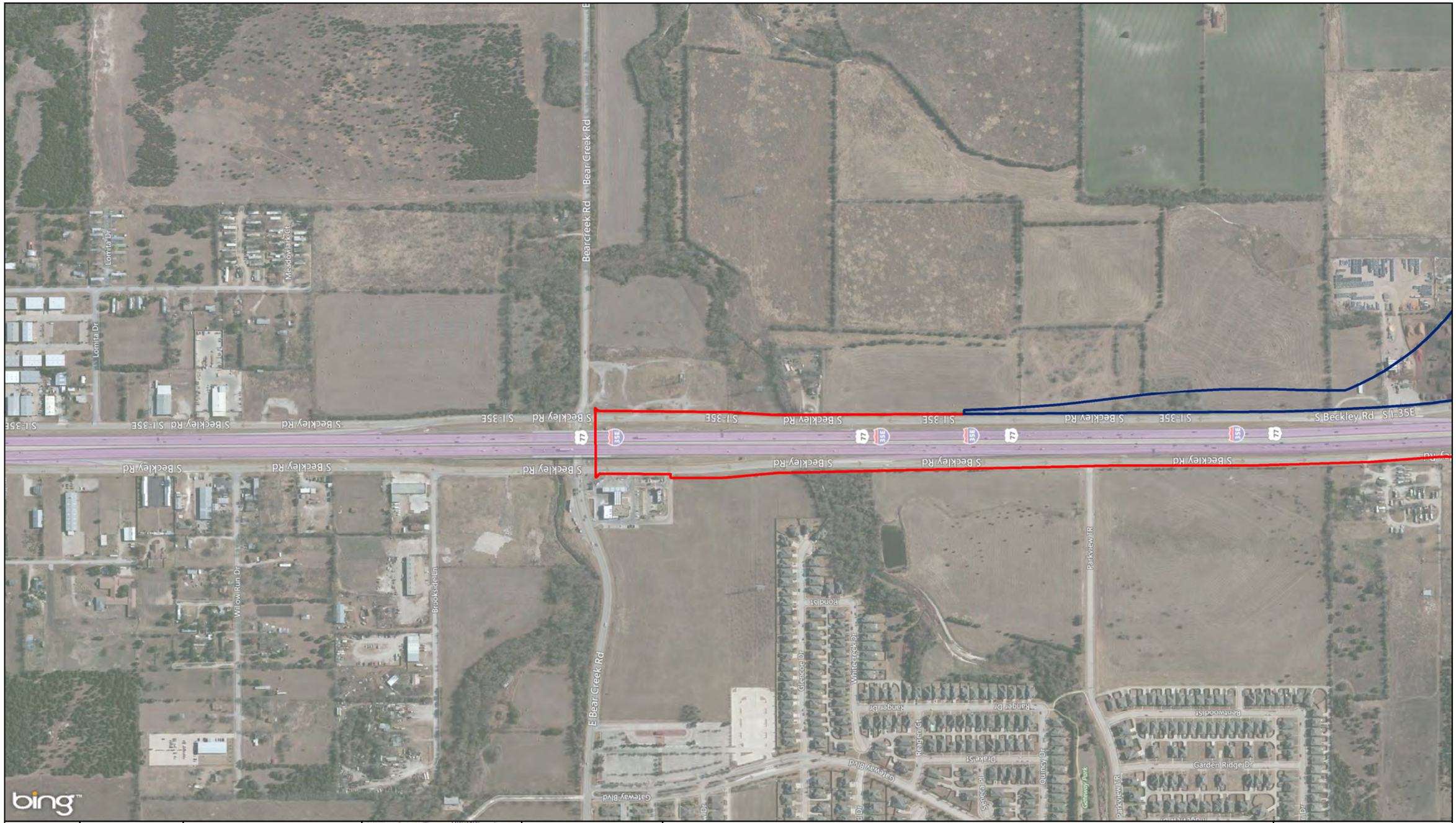
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Land Use in the Study Area

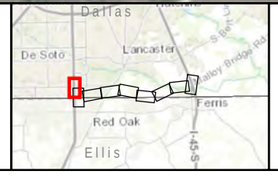
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 10 of 10

N:\Clients\S_T\TxDOT\Loop_9\geo\figs\Biology Technical Report Maps 20161123\02_LandUse_mb.mxd

Date: 11/23/2016





0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
- Proposed ROW
- Construction Limits
- Data Point
- Stream
- Pond

Dallas and Ellis Counties

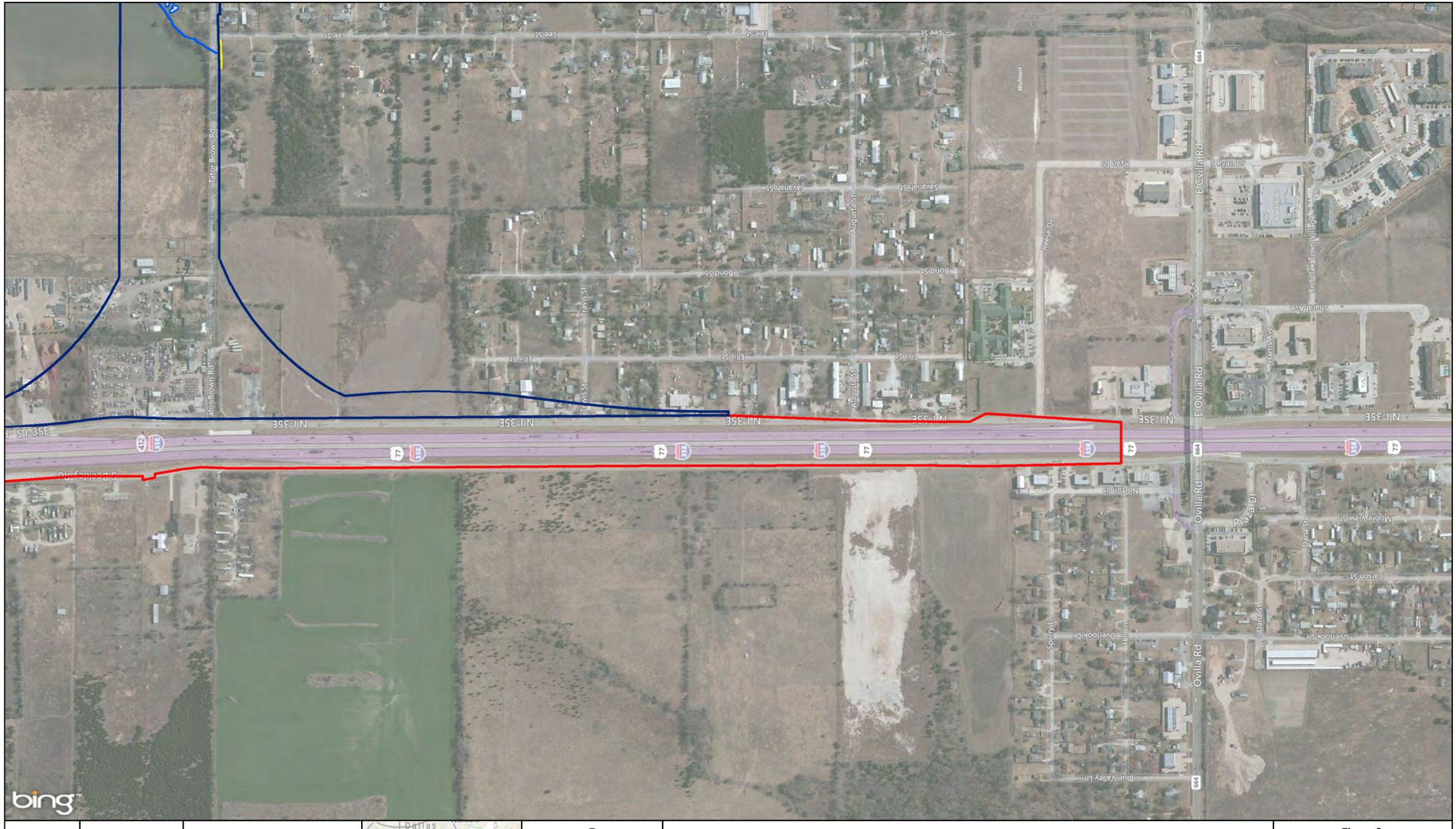
Figure 8
Waters of the U.S.

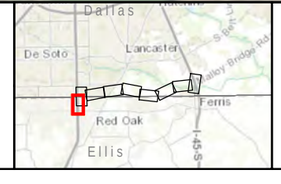
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Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 1 of 10

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Date: 12/5/2016





Dallas and Ellis Counties

0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
- Proposed ROW
- Construction Limits
- Data Point
- Stream
- Pond

Figure 8
Waters of the U.S.

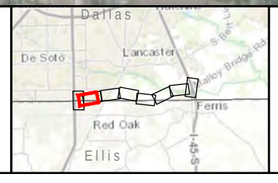
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 2 of 10

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Date: 12/5/2016





Dallas and Ellis Counties

0 0.05 0.1
Miles

0 250 500
Feet

Permanent Drainage Easement
Proposed ROW
Construction Limits
Data Point
Stream
Pond

Figure 8
Waters of the U.S.

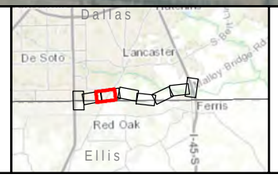
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 3 of 10

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Date: 12/5/2016





Dallas and Ellis Counties

0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
- Proposed ROW
- Construction Limits
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- Stream
- Pond

Figure 8
Waters of the U.S.

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

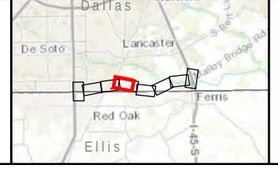
Sheet 4 of 10

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Date: 12/5/2016



Dallas and Ellis Counties



0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
- Proposed ROW
- Construction Limits
- Data Point
- Stream
- Pond

Figure 8
Waters of the U.S.

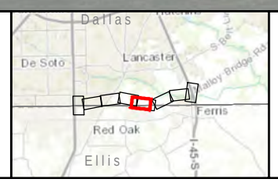
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 5 of 10

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Date: 12/5/2016





0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
- Proposed ROW
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- Pond

Dallas and Ellis Counties

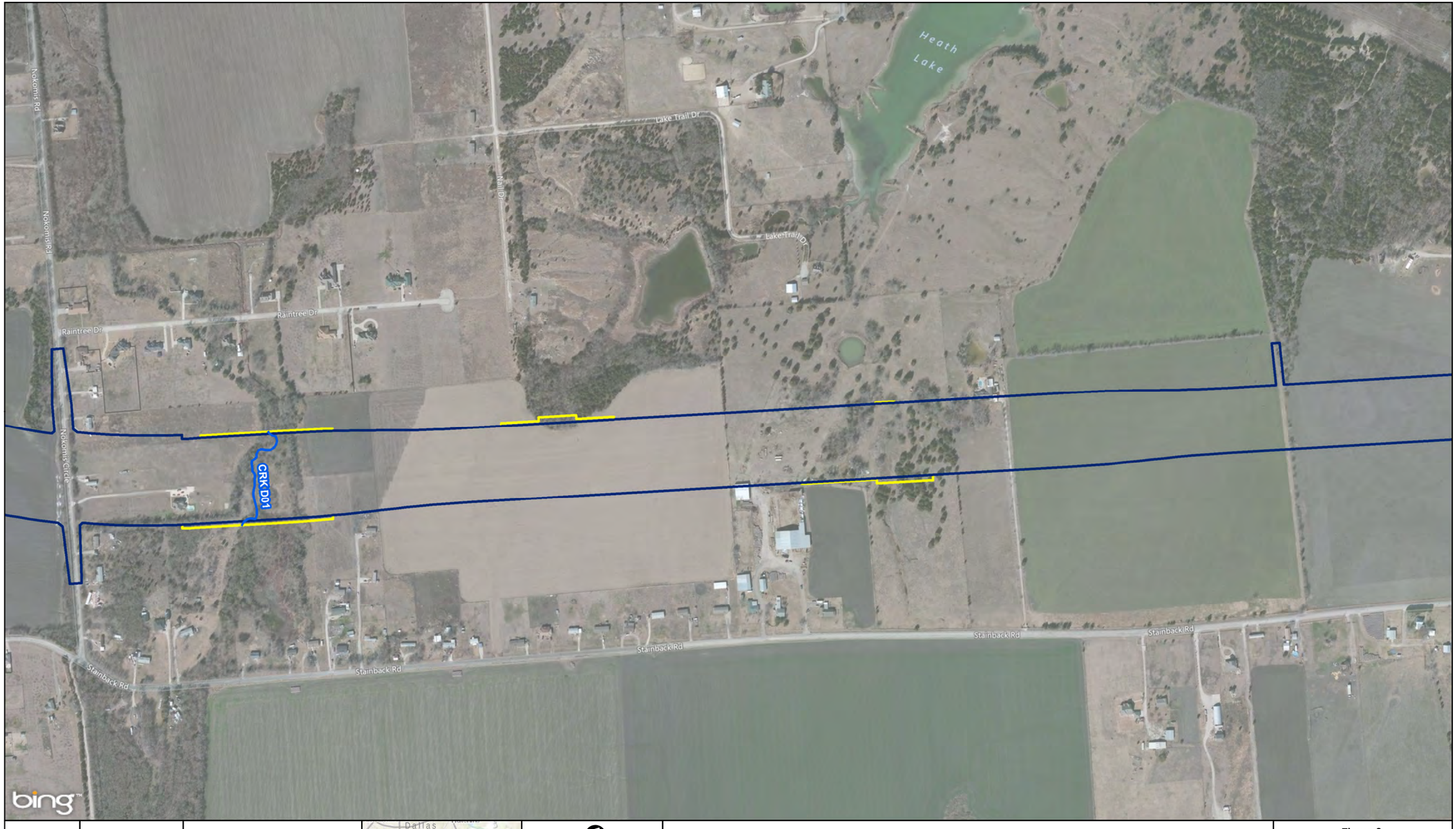
Figure 8
Waters of the U.S.

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 6 of 10

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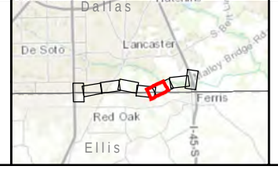
Date: 12/5/2016



Loop 9 SOUTHEAST

Texas Department of Transportation

Dallas and Ellis Counties



0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
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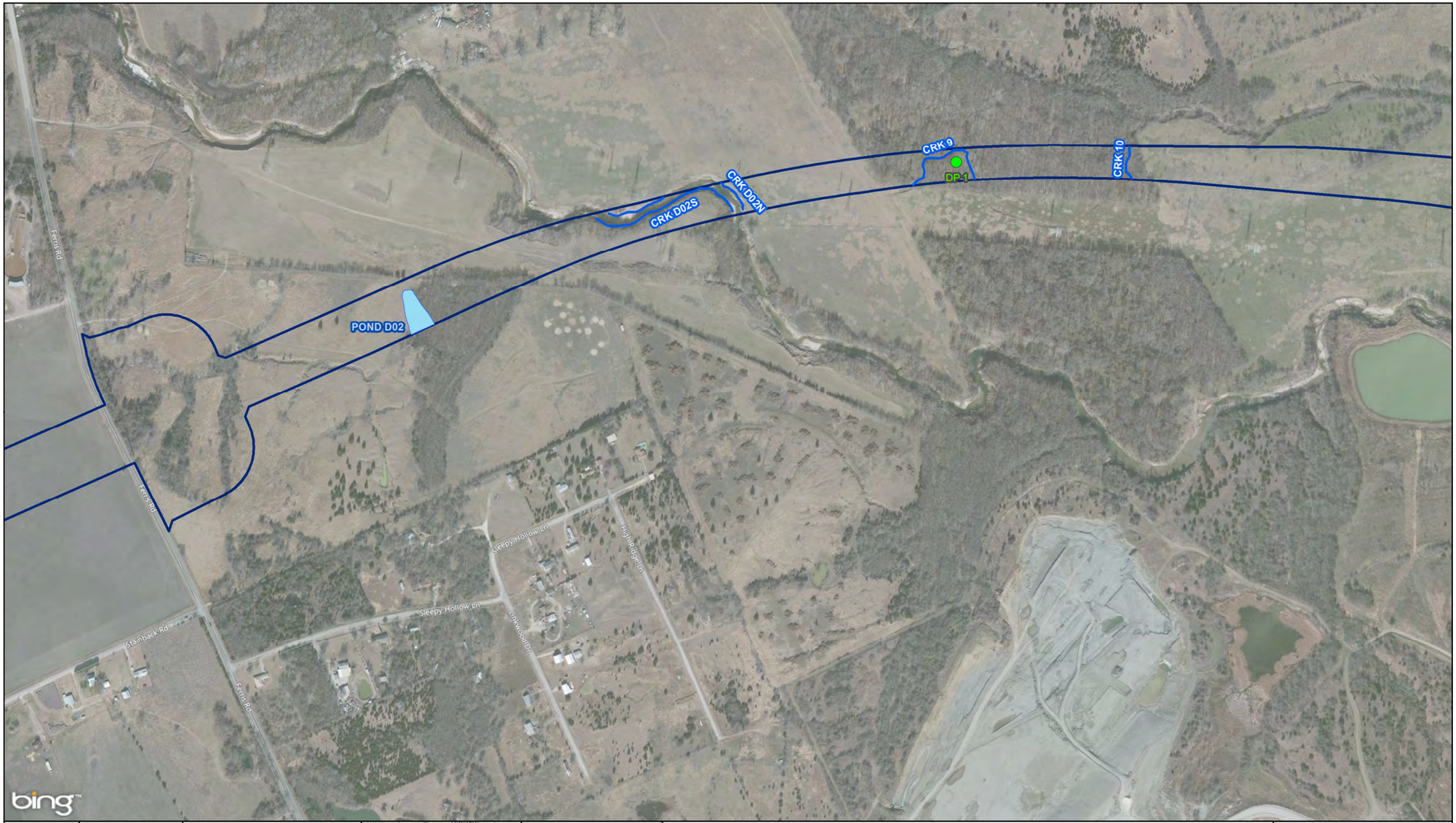
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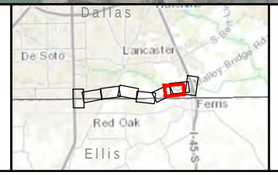
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 7 of 10

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Date: 12/5/2016





Dallas and Ellis Counties

0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
- Proposed ROW
- Construction Limits
- Data Point
- Stream
- Pond

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Waters of the U.S.

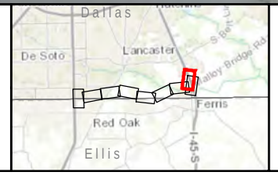
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

Sheet 8 of 10

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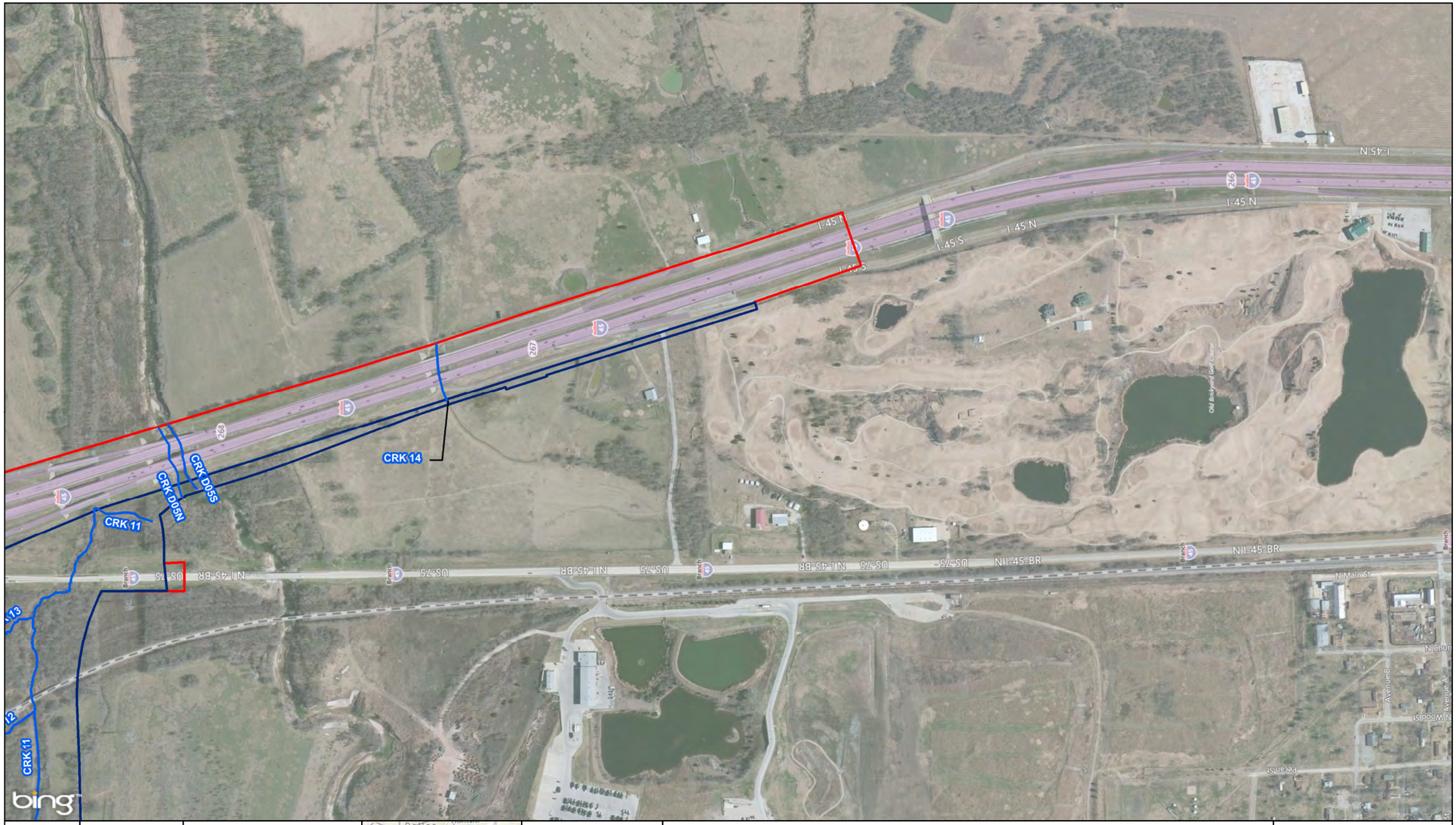
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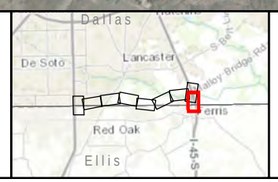


Loop 9 SOUTHEAST	Texas Department of Transportation	**Dallas and Ellis Counties**		0 0.05 0.1 Miles 0 250 500 Feet	Permanent Drainage Easement Proposed ROW Construction Limits Data Point Stream Pond	**Figure 8** **Waters of the U.S.** **Loop 9: From I-35E to I-45** **Dallas and Ellis Counties, Texas** **CSJ: 2964-10-005** **Sheet 9 of 10**

N:\Clients\S_T\TxDOT\Loop_9\geo\figs\Wetlands Maps 20161129\Wetlands_20161129.mxd

Date: 12/5/2016





0 0.05 0.1
Miles

0 250 500
Feet

- Permanent Drainage Easement
- Proposed ROW
- Construction Limits
- Data Point
- Stream
- Pond

Dallas and Ellis Counties

Figure 8
Waters of the U.S.

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

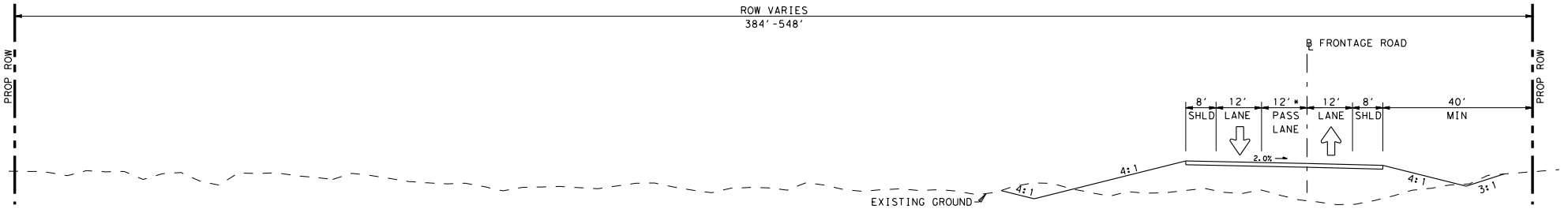
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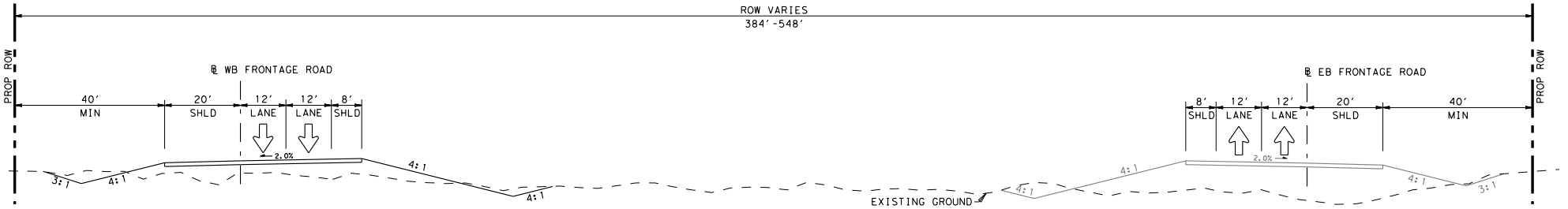
Appendix B

Proposed Typical Sections

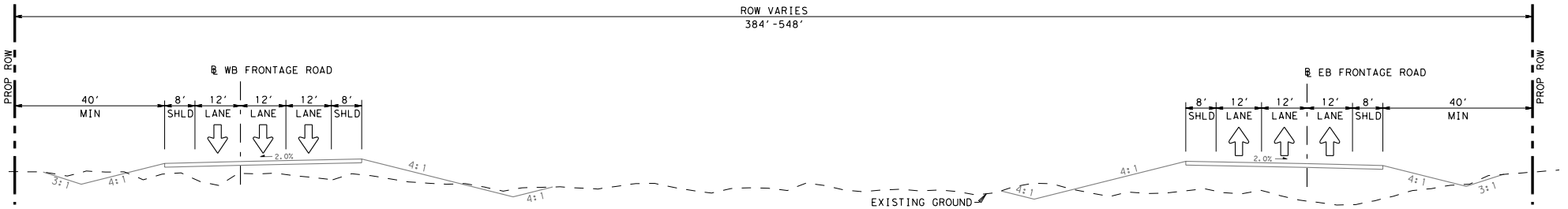


PROPOSED SECTION LOOP 9 PHASE 1
(WEST OF TENMILE CREEK FLOODPLAIN)

*PASS LANE SWITCHES BETWEEN EB AND WB THROUGHOUT PROJECT



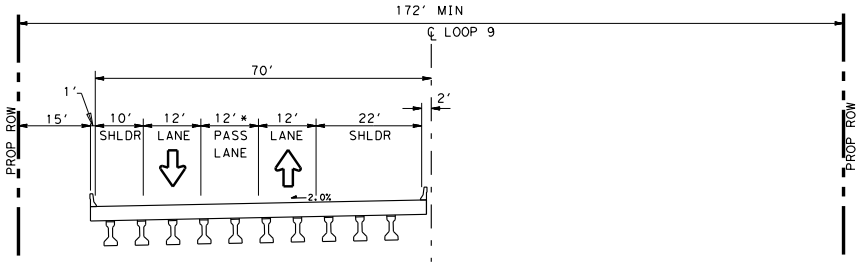
PROPOSED SECTION LOOP 9 PHASE 2
(WEST OF TENMILE CREEK FLOODPLAIN)



PROPOSED SECTION LOOP 9 PHASE 3
(WEST OF TENMILE CREEK FLOODPLAIN)

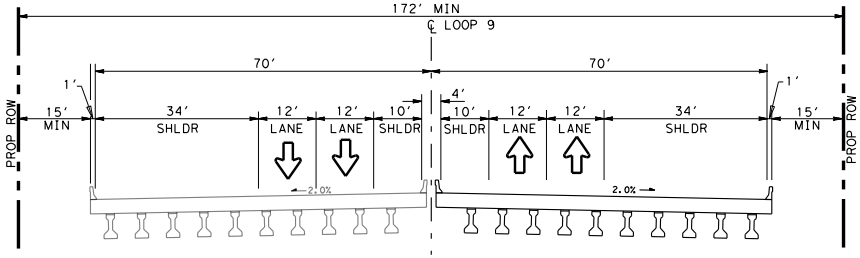
PROPOSED TYPICAL SECTIONS

LOOP 9: I-35E TO I-45
DALLAS AND ELLIS COUNTIES, TX
CSJ: 2964-10-005
SHEET 1 OF 4

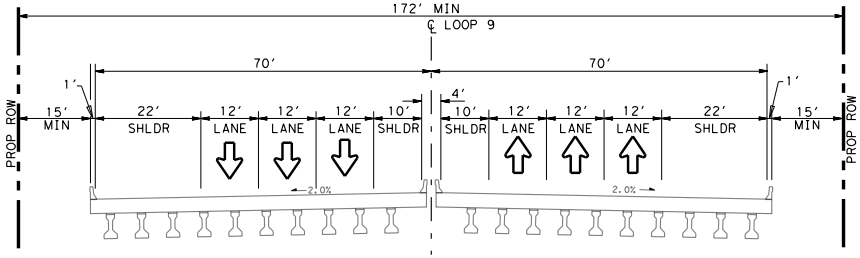


PROPOSED SECTION LOOP 9 PHASE 1
(THROUGH TENMILE CREEK FLOODPLAIN)

*PASS LANE SWITCHES BETWEEN EB AND WB THROUGHOUT PROJECT



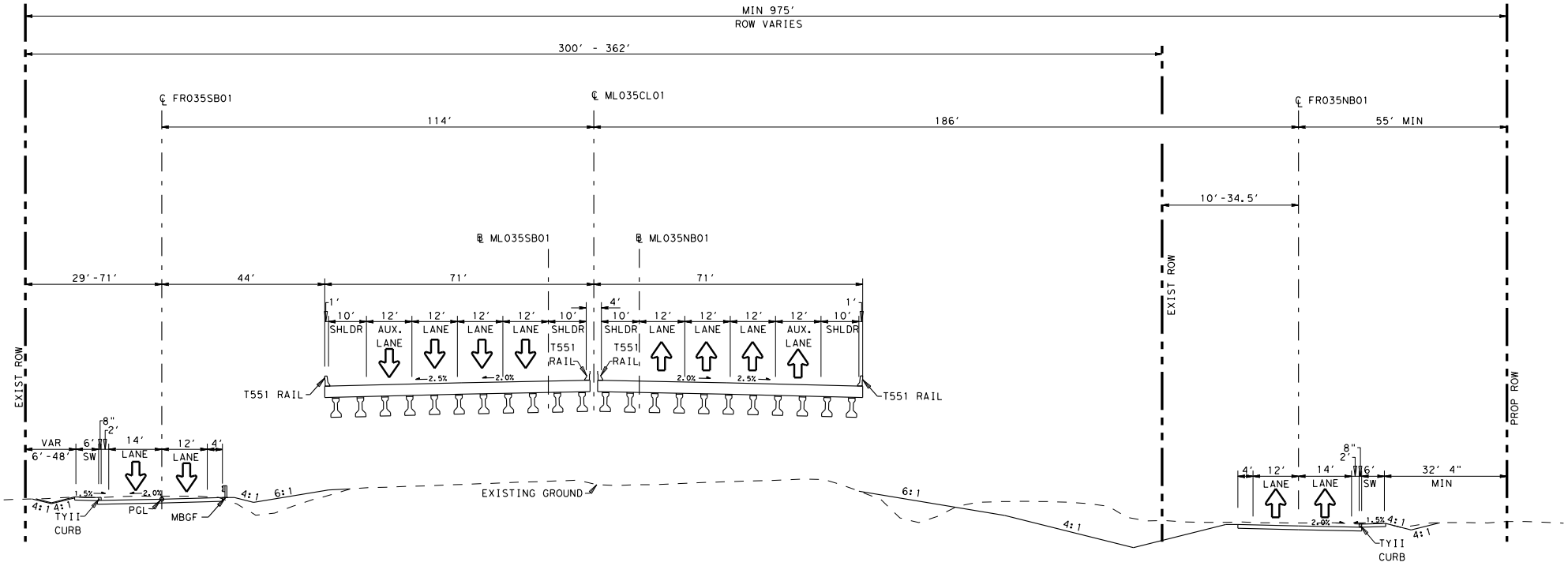
PROPOSED SECTION LOOP 9 PHASE 2
(THROUGH TENMILE CREEK FLOODPLAIN)



PROPOSED SECTION LOOP 9 PHASE 3
(THROUGH TENMILE CREEK FLOODPLAIN)

PROPOSED TYPICAL SECTIONS

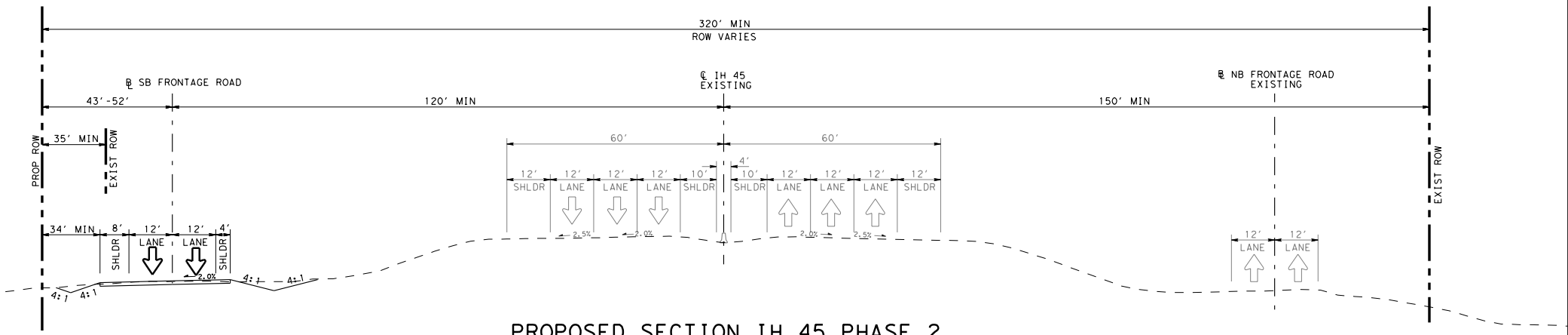
LOOP 9: I-35E TO I-45
DALLAS AND ELLIS COUNTIES, TX
CSJ: 2964-10-005
SHEET 2 OF 4



PROPOSED SECTION IH 35E PHASE 1
(NO FURTHER CHANGES PROPOSED FOR PHASE 2 OR ULTIMATE PHASE)

PROPOSED TYPICAL SECTIONS

LOOP 9: I-35E TO I-45
DALLAS AND ELLIS COUNTIES, TX
CSJ: 2964-10-005
SHEET 3 OF 4



PROPOSED SECTION IH 45 PHASE 2
(NO CHANGES PROPOSED IN PHASE 1)

PROPOSED TYPICAL SECTIONS

LOOP 9: I-35E TO I-45
DALLAS AND ELLIS COUNTIES, TX
CSJ: 2964-10-005
SHEET 4 OF 4

Appendix C

Schematic Design

(Schematic not included in this document)

Appendix D

Plan and Program Excerpts

Administrative Revisions

Interchanges Recommendation Summary - TxDOT Dallas District

August 30, 2016

MTP ID	Facility	Connection	Staging	Description	Year Operational Between *
IN1- 21.120.1	Dallas North Tollway	President George Bush Turnpike		Improvements	2017
IN1- 21.2.1	Dallas North Tollway	US 380		New Interchange	2018-2027
IN1- 6.30.1	East Branch *(SH 190)*	IH 20		New Interchange	2018-2027
IN1- 28.121.1	East Branch *(SH 190)*	President George Bush Turnpike *(SH 190)*	Phase II *(Full Interchange)*	Reconstruct	2018-2027
IN1- 18.32.1	East Branch *(SH 190)*	US 80		New Interchange	2018-2027
IN1- 17.12.1	Golden Triangle *(~~Loop~~SL 12)*	SH 114	Phase II	Improvements	2028-2037
IN1- 17.22.1	Golden Triangle *(SH 183)*	State Loop 12	Phase II *(Full Interchange)*	Reconstruct	2038-2040
IN1- 30.547.1	IH 20	Falcon's Lair		New Interchange	2018-2027
IN1- 30.38.1	IH 20	US 67		Reconstruct	2028-2037
IN1- 28.550.2	IH 30	Dalrock Road		Reconstruct	2018-2027
IN1- 28.550.1	IH 30	Erby Campbell Blvd.		Grade Separation	2017
IN1- 28.548.1	IH 30	FM 3549 *(FM 549)*		Reconstruct	2018-2027
IN1- 28.549.1	IH 30	FM 551		Reconstruct	2017
IN1- 7.576.1	IH 35E	Dickerson Pkwy.		New Interchange	2018-2027
IN1- 7.552.1	IH 35E	FM 407		Reconstruct	2017
IN1- 7.30.1	IH 35E	IH 20		Reconstruct	~~2037~~2038-2040
IN1- 7.28.1	IH 35E	IH 30		Reconstruct	2017
IN1- 3.5.1	IH 35E	IH 35W		Reconstruct	2018-2027
IN1- 7.17.1	IH 35E	State Loop 12		Reconstruct	2028-2037
IN1- 3.100.1	IH 35E	State Loop 288		Reconstruct	2018-2027
IN1- 7.11.1	IH 35E	SH 121		Reconstruct	2018-2027
IN1- 7.38.1	IH 35E	US 67		Reconstruct	2018-2027
IN1- 27.29.1	IH 45	S.M. Wright		Partial Reconstruct	2018-2027
IN1- 21.130.1	IH 635	Dallas North Tollway		Reconstruct	2018-2027
IN1- 7.130.1	IH 635	IH 35E	Phase II *(Full Interchange)*	Reconstruct	2028-2037
IN1- 28.131.1	IH 635	IH 30		Reconstruct	2018-2027
IN1- 131.577.1	IH 635	Skillman Street		Reconstruct	2018-2027
~~IN1- 23.130.1~~	~~IH 635~~	~~US 75~~	-	~~Improvements~~	~~2017~~
IN1- 32.131.1	IH 635	US 80		Improvements	2017
IN1- 6.30.1	State Loop 9	IH 20		Frontage Connections	2018-2027
IN1- 7.6.1	State Loop 9	IH 35E	-Phase I	Frontage Connections	2018-2027
IN1- 27.6.1	State Loop 9	IH 45		Frontage Connections	2018-2027
IN1- 6.36.1	State Loop 9	US 175		Frontage Connections	2018-2027

Administrative Revisions

Regionally Significant Arterial Recommendations Summary

Revised November 2, 2016

County	MTP ID	Facility	From Street	To Street	2017 Lanes	2027 Lanes	2037 Lanes	2040 Lanes	YOE Cost*
Dallas	RSA1- 2.515.405	Elm Street	Harwood Street	Cesar Chavez Blvd	4/5	5/5	5/5	5/5	$ 0.65
Dallas	RSA1- 1.515.525	FM 1382	Clark Road	Straus Road	4	6	6	6	$ 3.66
Dallas	RSA1- 1.515.550	FM 1382	Straus Road	US 67	6	6	6	6	$ 2.89
Dallas	RSA1- 2.665.250	FM 1382 Belt Line Road	0.4 Miles East of Clark Road	Joe Wilson Road	3/2	6	6	6	$ ~~3.30~~8.26
Dallas	RSA1- 2.665.275	FM 1382 Belt Line Road	Joe Wilson Road	Hampton Road	4	4	6	6	$ 28.50
Dallas	RSA1- 2.370.375	Forest Lane	Marion Drive	Garland Ave	3/3	4/3	4/3	4/3	$ 1.15
Dallas	RSA1- 1.575.425	Hampton Road	FM 1382 Belt Line Road	Parkerville Road	4	6	6	6	$ 7.11
Dallas	RSA1- 1.575.440	Hampton Road	Parkerville Road	Bear Creek Road	2	6	6	6	$ 14.22
Dallas	RSA1- 1.565.440	Haskell Avenue	Peak Street	Ross Avenue	0	3/3	3/3	3/3	$ ~~2.26~~4.52
Dallas	RSA1- 1.587.275	Houston Street	Elm Street	Reunion Blvd	5	4	4	4	$ 0.90
Dallas	RSA1- 1.505.300	Lake Ridge Parkway	0.25 Miles West of Lake Ridge Parkway	Lake Ridge Parkway	2	4	6	6	$ 3.45
Dallas	RSA1- 1.565.260	Lemmon Avenue	Bluffview Blvd	University Blvd	6	8	8	8	$ 3.52
Dallas	RSA1- 1.565.275	Lemmon Avenue	Bluffview Blvd	0.1 Mile North of Airdrome Drive	6	8	8	8	$ 1.42
Dallas	RSA1- 1.565.300	Lemmon Avenue	0.1 Mile North of Airdrome Drive	Airdrome Drive	3/3	4/3	4/4	4/4	$ 0.~~36~~72
Dallas	RSA1- 2.700.200	~~LP~~Loop 9 Frontage	Tar Road	IH 35E	0	2	2/2	3/3	$ ~~88.42~~176.84
Dallas	RSA1- 2.700.225	~~LP~~Loop 9 Frontage	IH 35E	IH 45	0	2	2/2	3/3	$ ~~106.30~~212.60
Dallas	RSA1- 2.700.275	~~LP~~Loop 9 Frontage	IH 45	US 175	0	2	2/2	3/3	$ ~~118.69~~237.37
Dallas	RSA1- 2.700.300	~~LP~~Loop 9 Frontage	US 175	South of IH 20	0	2	2/2	3/3	$ ~~42.97~~85.94
Dallas	RSA1- 2.700.350	~~LP~~Loop 9 Frontage	South of IH 20	IH 20	0	1/1	2/2	3/3	$ ~~3.34~~6.68
Dallas	RSA1- 1.550.300	Luna Road	Royal Lane	SP 348	2	4	6	6	$ 24.41
Dallas	RSA1- 1.525.425	MacArthur Blvd	Shady Grove Road	Hunter Ferrell Road	4	6	6	6	$ 8.90
Dallas	RSA1- 1.525.450	MacArthur Blvd	Hunter Ferrell Road	0.5 Miles South of Hunter Ferrell Road	4	4	6	6	$ 3.45
Dallas	RSA1- 1.525.475	MacArthur Blvd	0.5 Miles South of Hunter Ferrell Road	IH 30	4	4	6	6	$ ~~6.68~~13.78
Dallas	RSA1- 1.525.500	MacArthur Blvd	IH 30	SH 180 Main Street	4	6	6	6	$ 5.96
Dallas	RSA1- 2.330.425	Main Street	US 75	Sherman Street	4	6	6	6	$ 0.50
Dallas	RSA1- 2.670.225	Mansfield Road	Lake Ridge Parkway	Belt Line Road	2	4	6	6	$ 17.50
Dallas	RSA1- 2.342.300	Merritt Road	Chiesa Road	President George Bush ~~TOLLWAY~~Turnpike	0	4	4	4	$ 9.05

Administrative Revisions

Freeway, Tollway, Express/HOV/Tolled Managed Lanes Recommendation Summary

Revised November 2, 2016

Corridor ID	Corridor	MTP ID	Facility	From	To	2017 *	2027 *	2037 *	2040 *	Description	YOE Corridor Cost
22	LBJ *(West)*	7.40.1	IH 35E	IH 635	State Loop 12	10 (Frwy) + 4 (ML/T-C), 4/6 (Frtg-D)	10 (Frwy) + 4 (ML/T-C), 4/6 (Frtg-D)	10 (Frwy) + 4 (ML/T-C), 4/6 (Frtg-D)	10 (Frwy) + 4 (ML/T-C), 4/6 (Frtg-D)	Interchange improvements	$1,070,572,901
	LBJ *(West)*	7.50.1	IH 35E	State Loop 12	Spur 482/Storey Lane	6 (Frwy), 2 (ML/T-C), 4 (Frtg-D)	6 (Frwy), 2 (ML/T-C) 4 (Frtg-D)	~~10~~8 (Frwy) + 2 (ML/T-C), 4/8 (Frtg-D)	~~10~~8 (Frwy) + 2 (ML/T-C), 4/8 (Frtg-D)	Widen ~~& additional~~6 to 8 lanes & extend concurrent Managed Lanes	
	LBJ *(West)*	7.50.2	IH 35E	Spur 482/Storey Lane	SH 183	6 (Frwy), 4/6 (Frtg-D)	6 (Frwy), 4/6 (Frtg-D)	8 (Frwy), 4/6 (Frtg-D)	8 (Frwy), 4/6 (Frtg-D)	Widen 6 to 8 lanes	
	LBJ *(West)*	~~130.20.1~~ 130.20.2	IH 635 *(West)*	Luna Rd	IH 35E	10 (Frwy), 4 (Frtg-C)	10 (Frwy) 4 (Frtg-C)	10 (Frwy) + 4 (ML/T-C), 4/6 (Frtg-C)	10 (Frwy) + 4 (ML/T-C), 4/6 (Frtg-C)	Widen & additional concurrent Managed Lanes	
23	State Loop 12	17.10.1	State Loop 12	IH 35E	SH 183	6 (Frwy), 4/6 (Frtg-D)	6 (Frwy), + 2 (ML/T-C), 4/6 (Frtg -D)	6 (Frwy) + 2 (ML/T-C), 4/6 (Frtg-D)	8 (Frwy) + 2 (ML/T-R), 4/6 (Frtg-C)	Widen 6 to 8 lanes & construct 2 reversible Managed Lanes	$900,000,000
	State Loop 12	17.20.1	State Loop 12	SH 183	SH 356	6 (Frwy), 4 (Frtg-D)	6 (Frwy), 4 (Frtg -D)	6 (Frwy), 4 (Frtg -D)	8 (Frwy) + 2 (ML/T-R), 4/6 (Frtg-C)	Widen 6 to 8 lanes & construct 2 reversible Managed Lanes	
	State Loop 12	17.20.2	State Loop 12	SH 356	IH 30	8 (Frwy), 4 (Frtg-D)	8 (Frwy), 4 (Frtg -D)	8 (Frwy), 4 (Frtg -D)	8 (Frwy) + 2 (ML/T-R), 4/6 (Frtg-C)	Construct 2 reversible Managed Lanes	
	State Loop 12	17.30.1	State Loop 12	IH 30	Spur 408	8 (Frwy), 4 (Frtg-D)	8 (Frwy), 4 (Frtg-D)	8 (Frwy), 4 (Frtg-D)	8 (Frwy) + 2 (ML/T-R), 4/6 (Frtg-C)	Construct 2 reversible Managed Lanes	
	State Loop 12/Spur 408	19.10.1	Spur 408	State Loop 12	IH 20	6 (Frwy)	6 (Frwy)	6 (Frwy)	6 (Frwy)	Cap/Main bottleneck & safety Improvements by 2027	$41,900,000
24	State Loop 9	6.20.1	State Loop 9	US 67	IH 35E	0	2 (Frtg-C)	4 (Frtg-C)	6 (Frtg-C)	Construct 6-lane frontage (ultimate frwy)	$698,609,004
	State Loop 9	6.30.1	State Loop 9	IH 35 E	IH 45	0	2 (Frtg-C)	4 (Frtg-C)	6 (Frtg-C)	Construct 6-lane frontage (ultimate frwy)	
	State Loop 9	6.40.1 6.50.1	State Loop 9	IH 45	IH 20	0	2 (Frtg-C)	4 (Frtg-C)	6 (Frtg-C)	Construct 6-lane frontage (ultimate frwy)	
25	Midtown Express SH 183	22.10.1	SH 183	SH 121	SH 360	6 (Frwy), 2/~~8~~6 (Frtg-D)	6 (Frwy) + 2/3 (ML/T-C), 2/~~8~~6 (Frtg-D)	6 (Frwy) + 2/3 (ML/T-C), 2/~~8~~6 (Frtg-D)	6 (Frwy) + 6 (ML/T-C), ~~2/8~~4/6 (Frtg-C)	Reconstruct 6 lanes & construct 6 concurrent Managed Lanes	$2,354,000,000

STIP Portal

Logged in as Tim Wood | Log Out

Project Management | Reports | Support

Project Management > Area List > STIPs (M-DALLAS-FORT WORTH) > Revisions () > TIP Instances (Unassigned) > Highway Projects (Unassigned) > Project Details

Color Key: - Business rule violation - Value changed in current session - Different from DCIS or latest approved copy

Data

Statewide: ☐ TIP Revision: None

District: DALLAS County: DALLAS

MPO: DALLAS-FORT WOR Highway: SL 9

CSJ: 2964 - 10 - 005 TIP FY: 2020

Phase: ☐ Construction ☐ Engineering ☐ Environmental ☐ Engineering ☐ Right-of-Way ☐ Acquisition ☐ Utilities ☐ Transfer

Revision Date: 07/2016

Project Sponsor: TXDOT-DALLAS

MPO Proj Number: 54119

MTP Reference: FT1-6.30.1, F3-004

City: VARIOUS

Limits From: SL 9 (SOUTHEAST CORRIDOR) FROM IH 35E

Limits To: IH 45

Project Description: CONSTRUCT 0 TO 6 LANE FRONTAGE ROADS

P7 Remarks: RTR121-DA2

Project History:

NOX (Lbs /D): 0.5800

VOC (Lbs /D): 0.2400

PM10 (Kg /D): 0.0000

PM2.5 (Kg /D): 0.0000

CO (Lbs /D):

Total Project Cost Information

Prelim Engineering	$5,000,000
ROW Purchase	$45,000,000
Construction Cost	$49,940,000
Const Engineering	$6,793,982
Contingencies	$1,733,159
Indirect Costs	$7,958,664
Bond Financing	$0
Potential Chg Ord	$0
Total Project Cost	$116,425,805
YOE Cost	

Toll: ☐ TCM: ☐

Authorized Funding by Category/Share

Category	Federal	State	Regional	Local	Local Contributions	Total
2M	$16,800,000	$4,200,000	$0	$0	$0	$21,000,000
3RTR121	$0	$0	$18,940,000	$0	$0	$18,940,000
5	$8,000,000	$2,000,000	$0	$0	$0	$10,000,000
None	$0	$0	$0	$0	$0	$0.00
Total	$24,800,000	$6,200,000	$18,940,000	$0.00	$0.00	$49,940,000

DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST
DALLAS	DALLAS-FORT WORTH	DALLAS	2964-10-005	SL 9	C	VARIOUS	$ 49,940,000

LIMITS FROM: SL 9 (SOUTHEAST CORRIDOR) FROM IH 35E
LIMITS TO: IH 45
PROJECT DESCR: CONSTRUCT 0 TO 6 LANE FRONTAGE ROADS
PROJECT SPONSOR: TXDOT-DALLAS
REVISION DATE: 07/2016
MPO PROJ NUM: 54119
FUNDING CAT(S):
REMARKS P7: RTR121-DA2
PROJECT HISTORY:

TOTAL PROJECT COST INFORMATION

PRELIM ENG:	$ 5,000,000
ROW PURCH:	$ 45,000,000
CONST COST:	$ 49,940,000
CONST ENG:	$ 6,793,982
CONTING:	$ 1,733,159
INDIRECT:	$ 7,958,664
BOND FIN:	$ 0
POT CHG ORD:	$ 0
TOTAL COST:	$ 116,425,805

COST OF APPROVED PHASES $ 49,940,000

AUTHORIZED FUNDING BY CATEGORY/SHARE

CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
5	$ 8,000,000	$ 2,000,000	$ 0	$ 0	$ 0	$ 10,000,000
3RTR121	$ 0	$ 0	$ 18,940,000	$ 0	$ 0	$ 18,940,000
2M	$ 16,800,000	$ 4,200,000	$ 0	$ 0	$ 0	$ 21,000,000
TOTAL	$ 24,800,000	$ 6,200,000	$ 18,940,000	$ 0	$ 0	$ 49,940,000

TIP History

2017-2020 STIP — **07/2016 Revision: Not Approved 12/19/2016**

DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST
DALLAS	DALLAS-FORT WORTH	DALLAS	2964-10-005	SL 9	C	VARIOUS	$ 49,940,000

LIMITS FROM: SL 9 (SOUTHEAST CORRIDOR) FROM IH 35E
LIMITS TO: IH 45
PROJECT DESCR: CONSTRUCT 0 TO 6 LANE FRONTAGE ROADS
PROJECT SPONSOR: TXDOT-DALLAS
REVISION DATE: 07/2016
MPO PROJ NUM: 54119
FUNDING CAT(S):
REMARKS P7: RTR121-DA2
PROJECT HISTORY:

TOTAL PROJECT COST INFORMATION

PRELIM ENG:	$ 5,000,000
ROW PURCH:	$ 45,000,000
CONST COST:	$ 49,940,000
CONST ENG:	$ 6,793,982
CONTING:	$ 1,733,159
INDIRECT:	$ 7,958,664
BOND FIN:	$ 0
POT CHG ORD:	$ 0
TOTAL COST:	$ 116,425,805

COST OF APPROVED PHASES
$ 49,940,000

AUTHORIZED FUNDING BY CATEGORY/SHARE

CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
2M	$ 16,800,000	$ 4,200,000	$ 0	$ 0	$ 0	$ 21,000,000
3RTR121	$ 0	$ 0	$ 18,940,000	$ 0	$ 0	$ 18,940,000
5	$ 8,000,000	$ 2,000,000	$ 0	$ 0	$ 0	$ 10,000,000
TOTAL	$ 24,800,000	$ 6,200,000	$ 18,940,000	$ 0	$ 0	$ 49,940,000

Comment History

Time	User	Comment	Related Approval
2016/10/03 17:29:34	**Barbara Maley**	Not approved. Project description is inconsistent with funding eligibility.	**07/2016: Not Approved**

Appendix E

Project Photographs



Photograph 1: View looking northeast at potential displacement 01-C01, located at 642 N. I-35E, Red Oak, TX.



Photograph 2: View looking northeast at potential displacement 02-C02, located at 710 N. I-35E, Red Oak, TX. Potential displacement 02-C03 is not visible, located between the structure in the foreground and structure in the background.

APPENDIX E
Project Area Photographs
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES
CSJ: 2964-10-005



Photograph3: View looking east at potential displacements 03-O01 and 03-O02, located at 512 Ellis Ave., Red Oak, TX.



Photograph 4: View looking northeast at potential displacements 04-C04 and 04-C05, located at 902 N I-35E, Red Oak, TX, and 07-O04 located at 1214 Tater Brown Rd., Red Oak, TX.

APPENDIX E
Project Area Photographs
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES
CSJ: 2964-10-005



Photograph 6: View looking east at potential displacements 05-C06 (left) and 05-C07 (right), located at 3150 S. I-35E, Lancaster, TX.



Photograph 7: View looking northeast at potential displacement 06-O03, located at 2008/3100 S. I-35E, Lancaster, TX.

APPENDIX E
Project Area Photographs
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES
CSJ: 2964-10-005



Photograph 8: View looking north at potential displacements 07-O05 (left), 07-O06 (center), and 07-R01 (right), located at 1214 Tater Brown Rd., Red Oak, TX



Photograph 9: View looking northeast at potential displacements 07-R02 (left) and 07-R03 (right), located at 1214 Tater Brown Rd., Red Oak, TX.



Photograph 10: View looking north at potential displacements 08-O08, 08-O09, and 08-R04, located at 1212 Tater Brown Rd., Red Oak, TX.



Photograph 11: View looking northwest at potential displacements 08-O11 (left), located at 1208 Tater Brown Rd, Red Oak, TX, and 09-R05 (right), located at 1208 Tater Brown Rd., Red Oak, TX.



Photograph 12: View looking north at potential displacements 10-O12 (left), 10-R06 (center), and 10-O13 (right), located at 1206 Tater Brown Rd., Red Oak, TX.



Photograph 13: View looking north at potential displacement 11-O18, located at 1204 Tater Brown Rd., Red Oak, TX.



Photograph 14: View looking north at potential displacements 12-O19 (left) and 12-O20 (right), located at 804 Tater Brown Rd., Red Oak, TX. Potential displacement 12-O21 is located behind 12-O20.



Photograph 15: View looking northeast at potential displacements 13-O23 (left), 13-R07 (center), and 13-O22 (right), located at 802 Tater Brown Rd., Red Oak, TX.



Photograph 66: View looking north at potential displacements 14-O26 (left) and 14-R08 (right), located at 618 Tater Brown Rd, Red Oak, TX.



Photograph 17: View looking north at potential displacements 15-O29 (left back), 15-O28 (left front), and 15-R09 (right), located at 604 Tater Brown Rd., Red Oak, TX.



Photograph 18: View looking north at potential displacement 16-R10, located at 600 Tater Brown Rd., Red Oak, TX.



Photograph 19: View looking north at potential displacements 17-R11 (left) and 17-O35 (right), located at 506 Tater Brown Rd., Red Oak, TX.



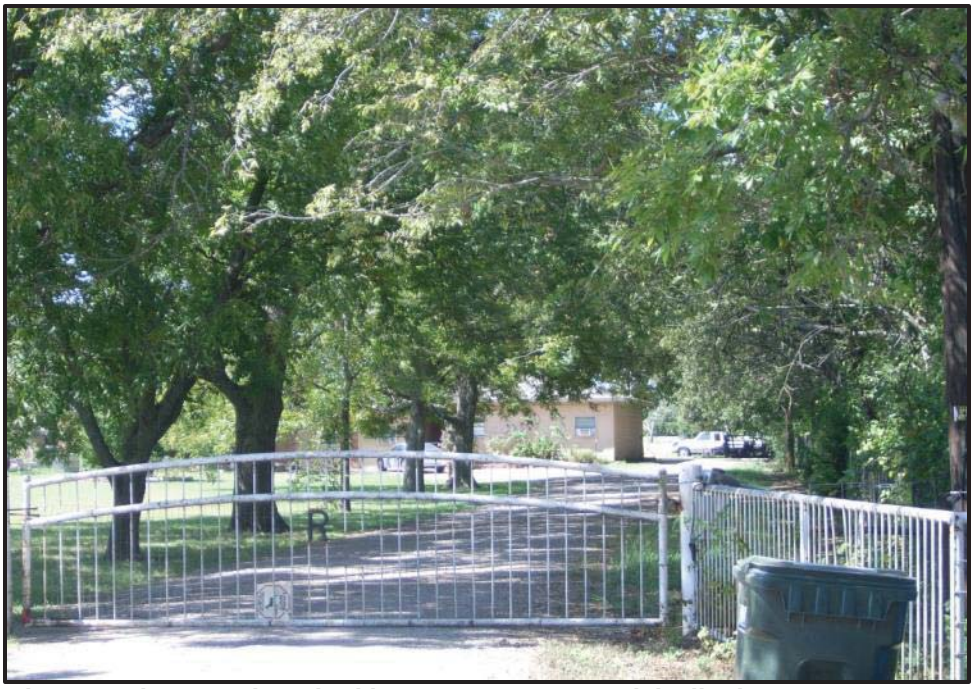
Photograph 20: View looking north at potential displacement 18-R12, located at 504 Tater Brown Rd., Red Oak, TX.



Photograph 21: View looking west at potential displacement 20-R14, located 605 Houston School Rd., Red Oak, TX.



Photograph 22: View looking west at potential displacement 21-R15, located at 3227 S. Houston School Rd., Lancaster, TX.



Photograph 23: View looking west at potential displacement 22-R16, located 3211 S. Houston School Rd., Lancaster, TX.



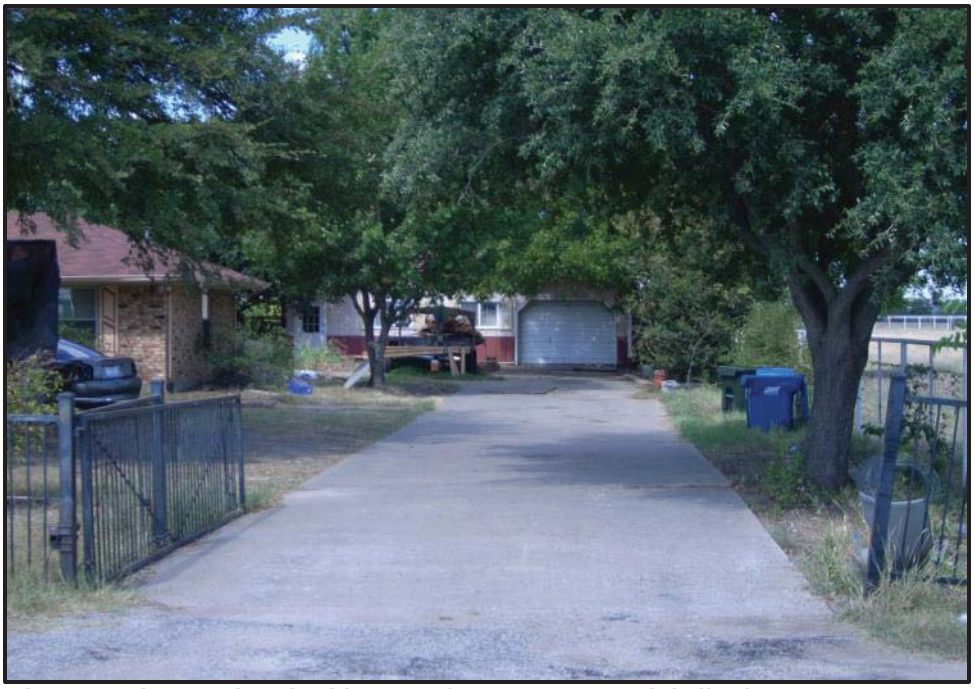
Photograph 24: View looking southwest at potential displacements 23-R17 (background) and 23-O51 (foreground), located at 308 Reindeer Rd., Lancaster, TX.



Photograph 25: View looking northwest at potential displacements 25-O55 (left), 25-O56 (center), and 25-R18 (right), located at 903 Reindeer Rd., Lancaster, TX.



Photograph 26: View looking northwest at potential displacement 27-R19, located at 909 E. Reindeer Rd., Lancaster, TX.



Photograph 27: View looking northwest at potential displacement 27-O58, located at 909 E. Reindeer Rd., Lancaster, TX.



Photograph 28: View looking east at potential displacements 30-O62 (left), 30-R20 (center), and 30-O63 (right), located at 3350 Nokomis Rd., Ferris, TX.



Photograph 29: View looking east at potential displacement 31-R21, located at 3360 Nokomis Rd., Ferris, TX.



Photograph 30: View looking west at potential displacement 34-R23, located at 2926 Miller Ferry Rd., Ferris, TX.



Photograph 31: View looking west at potential displacement 35-R24, located at 2937 US Hwy. 75, Ferris, TX.



Photograph 32: View looking west at potential displacement 36-R25, located at 2915 US Hwy. 75, Ferris, TX.



Photograph 33: View looking east at Spanish language sign at the Patrick Baptist Church and Spanish Ministry, located at 2006 Parkinson Rd., Ferris, TX.



Photograph 34: View looking northeast Spanish language sign at the Kingdom Hall of Jehovah's Witnesses, located at 1636 S. Uhl Rd., Glenn Heights, TX.



Photograph 35: View looking south at a wheelchair accessible house, located on the south side of Tater Brown Road.

APPENDIX E
Project Area Photographs
LOOP 9
FROM I-35E
TO I-45
DALLAS AND ELLIS COUNTIES
CSJ: 2964-10-005

Appendix F

Biological Resources Technical Report

Biological Resources Technical Report
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas

CSJ: 2964-10-005

April 2017

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014 and executed by FHWA and TxDOT.

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List of Acronyms

BCVI	Black-capped Vireo
BE	Biological Evaluation
BMPs	Best Management Practices
GCWA	Golden-cheeked Warbler
EMST	Ecological Mapping Systems of Texas
EORs	Element of Occurrence Records
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act
I-35E	Interstate Highway 35 East
I-45	Interstate Highway 45
ILT	Interior Least Tern
IP	Individual Permit
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
NWP	Nationwide Permit
PCN	Preconstruction Notification
PEM	palustrine emergent
ROW	right-of-way
SGCN	species of greatest conservation need
TPWD	Texas Parks and Wildlife
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
UA	Urbanized Area
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1. Project Overview

1.1 Introduction

The Texas Department of Transportation (TxDOT) - Dallas District, proposes the construction of a new location frontage road system between Interstate Highway I-35 East (I-35E) to I-45 through Dallas and Ellis counties, Texas (**Figure 1, Appendix A**). The approximate 10-mile new location frontage road system would begin at I-35E, near Red Oak, Texas, continuing in an easterly direction through the city of Lancaster to end at I-45, near Ferris, Texas. The proposed project would also include the preservation of right-of-way (ROW) for an ultimate access-controlled mainlane facility. Construction of the future mainlanes would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

1.2 Project Background

The proposed project was identified and evaluated as a part of the Loop 9 Southeast Corridor/Feasibility Study approved in March 2014 (TxDOT 2014a). The primary purpose of this study was to develop a corridor vision and a program of projects for development as transportation funding allows. This study, which followed the Planning and Environmental Linkages process, recommended an ultimate access-controlled facility consisting of six-lane divided mainlanes with three-lane frontage roads in each direction, extending approximately 35 miles within the limits from U.S. Highway (US) 67 to I-20, through Dallas, Ellis, and Kaufman counties, Texas. The report is available at http://www.loop9.org/study.html. The study identified the need to advance the construction of frontage roads and preserve the ultimate ROW needed for the section of Loop 9 from I-35E to I-45, based on projected growth in the region. It is expected that the ultimate mainlane improvements would not occur until after 2040 and would ultimately be driven by timing and pace of future development and traffic growth in the area. As such, construction of the ultimate mainlane facility would require additional environmental investigation and analyses when construction is determined necessary.

1.3 Proposed Facility

The proposed Loop 9 facility begins at I-35E near Red Oak and continues to the east generally parallel to Tater Brown Road for approximately 1.0 mile. As the proposed Loop 9 crosses Houston School Road, it shifts to the northeast through portions of Lancaster and crosses W. Reindeer Road after a distance of approximately 0.75 mile. It then travels along W. Reindeer Road where it crosses Bear Creek before crossing the Burlington Northern Santa Fe (BNSF) railroad and State Highway (SH) 342 (South Dallas Avenue/North Central Boulevard) after a distance of approximately 1.0 mile. The proposed Loop 9 continues traveling to the east for approximately 2.0 miles until it reaches E. Reindeer Road and then turns southeast for approximately 1.5 miles crossing into Ellis County and intersecting Nokomis Road. The proposed Loop 9 then veers to the northeast and crosses back into Dallas County parallel to Stainback Road for 1.5 miles, then crosses Ferris Road and Tenmile Creek

and turns slightly northeast, just north of the Skyline Landfill and the Oncor transmission line corridor, and then crosses Business I-45 (North Central Street) and ends at I-45 near Ferris for a distance of 2.0 miles. The total project length is approximately 10 miles (**Figures 1 through 3 in Appendix A**).

The proposed project would be constructed as a two three-lane frontage roads with a median (200 to 364 ft wide) reserved for the future ultimate access-controlled facility. The typical ROW for the project would vary from approximately 384 to 548 feet (ft) in width. The proposed project would consist of three 12-ft lanes with 8-ft inside shoulders and 8 ft outside shoulders. The width between the frontage roads and the ROW would be 40 ft at a minimum to allow room for drainage ditches. The median would remain unutilized until construction of the future ultimate facility at a later date. Refer to Appendix B for proposed typical sections and Appendix C for the schematic design.

The total area needed for the proposed new location project (existing ROW plus proposed ROW plus easements) is 727.02 acres[1]. The total proposed ROW is 541.23 acres. Because the project crosses numerous other transportation facilities, it would utilize 182.44 acres of existing ROW. Temporary construction easements would not be required. Permanent drainage easements, totalling 3.35 acres, would be required in several locations.

The proposed new location frontage roads would include intersections at major cross roads along the proposed route to include I-35E, Houston School Road, SH 342 (South Dallas Avenue/North Central Boulevard), existing and future Reindeer Road, existing and future Nokomis Road, Ferris Road, Business I-45 (North Central Street), and I-45. Interchange connections to existing I-35E and I-45 would include ramping and frontage road modifications. The proposed project would also include the construction of a grade separation at I-35E and the BNSF Railroad.

The proposed project would likely be constructed in phases based on traffic needs and project funding. A logical sequence for staging the various elements for construction of the new location frontage road system could be as follows:

- Phase 1 would construct a single two-way frontage road, and would also acquire the proposed ROW to accommodate the frontage roads and future ultimate access-controlled (mainlane) facility.
- As traffic warrants and funding becomes available, Phase 2 would involve the construction of the second frontage road and the conversion of the two-way frontage road built in Phase 1 to a one-way operation.

The proposed Loop 9 new location frontage road is identified as rural and would provide an 8-ft outside shoulder width along the frontage roads for bicycle accommodations. Frontage roads located

[1] The March 10, 2017 schematic was rectified against January 2017 appraisal district maps, current utility ROWs for Oncor, existing transportation ROWs, and proposed permanent drainage easements.

in the urbanized area of I-35E would consist of one 14-ft-wide outside shared-use lane (for bicycle accommodation) and a 6-ft sidewalk for pedestrian accommodation.

2. Surrounding Area

2.1 Land Use

The project area is located approximately 15 miles south of downtown Dallas in southern Dallas and northern Ellis counties (**Figure 1, Appendix A**). Historical land use throughout the project area was largely dominated by agricultural and ranching activities with a handful of tracts left in an undeveloped or forested state. Currently, the dominant land use (**Figure 4, Appendix A**) remains the same with scattered suburban housing and rural residential developments in the project area increasing in numbers in the last 20 to 30 years.

2.2 Natural Setting

The proposed project area is situated in the northern portion of the Blackland Prairie Ecoregion of Texas that is transitional between the East Central Texas Plains and the Cross Timbers ecoregions (**Figure 5, Appendix A**). The Blackland Prairie Ecoregion covers approximately 11.5 million acres, including the San Antonio and Fayette Prairies. This region is classified as a true prairie and is characterized by gently rolling to nearly level grasslands underlain by dark, fertile soil with rapid surface drainage (Correll and Johnston 1979). Various species of hardwood trees are characteristic of the riparian corridors that traverse this region. The area has been converted from historical tall grass prairies to mostly farmlands and urban development.

The proposed project area lies within the Trinity River drainage basin. The Trinity River's headwaters arise in four distinct forks spread throughout North Texas: the West Fork, the Clear Fork, the Elm Fork, and the East Fork. From west to east, these forks begin in Archer, Parker, Cooke, and Collin counties respectively. From the headwaters of the West Fork to its final destination in Trinity Bay, the Trinity River flows roughly south-southeast for approximately 710 miles. Fourteen potentially jurisdictional streams (eleven ephemeral, one intermittent, and two perennial) were identified within the project area and are entirely within the Trinity River drainage basin. A detailed description of the water resources located within the proposed project ROW can be found in the Water Resources Technical Report (TxDOT 2017). Topography of the proposed project area is gently rolling to flat, with elevations ranging from approximately 500 to 700 feet above mean sea level (U.S. Geological Survey [USGS] 1968 and 1980).

3. Specific Areas of Environmental Concern

3.1 Vegetation

3.1.1 Description of Vegetation in the Project Area

According to requirements of the September 1, 2013, TxDOT-Texas Parks and Wildlife (TPWD) Memorandum of Understanding (MOU), the Ecological Mapping Systems of Texas (EMST) was utilized to calculate vegetation in the proposed project area (TxDOT 2014b). As stated above, TxDOT proposes a new location roadway that would extend 10.0 miles from I-35E, near Red Oak, to I-45 near Ferris, through Dallas and Ellis counties. Of the 727.02 acres of vegetation within the proposed project area, approximately 550.37 acres would be impacted by construction of the proposed project. Qualified biologists assessed the difference between EMST and actual vegetation types during field efforts in October 2014, January 2015, and September 2015 via the assessment of geographic location, plant communities, soil types, and hydrologic conditions and/or regimes.

The Agriculture MOU type would receive the greatest impact, by acreage, upon implementation of the proposed project (**Table 1**). Other communities present within the proposed project area include Blackland Prairie: Disturbance or Tame Grassland, Urban High Intensity, Urban Low Intensity, Central Texas: Floodplain Hardwood Forest, Central Texas: Floodplain Herbaceous Vegetation, Central Texas: Riparian Deciduous Shrubland, Central Texas: Riparian Hardwood/Evergreen Forest, Central Texas: Riparian Hardwood Forest, Central Texas: Riparian Herbaceous Vegetation, Native Invasive: Deciduous Woodland, Edwards Plateau: Deciduous Oak / Evergreen Motte and Woodland, Edwards Plateau: Oak / Hardwood Motte and Woodland, Edwards Plateau: Savanna Grassland, Native Invasive: Juniper Shrubland, Azonal Barren, and Open Water.

The general EMST descriptions of these communities are provided below. Project area photographs are provided in Appendix D and show some of the discrepancies between actual and EMST mapped habitats. At the time of the field work (October 2014, January 2015, and September 2015), TxDOT biologists were not granted access to all of the properties within the proposed project area, so the representative photos illustrate some of the discrepancies between actual and EMST mapped habitats within the proposed project area (Appendix D, Photographs 1 to 13). In March 2017, additional photographs were taken to confirm the vegetative communities at a handful of locations within the proposed project area.

Table 1. Actual Vegetation Within the Proposed Project Area and Impacted by the Proposed Project

EMST Vegetation Community	MOU Vegetation Type[1]	Actual Vegetation Within the Proposed Project Area (acres)[2]	Vegetation Impacted by the Proposed Project (acres)[3]
Row Crops	Agriculture	229.00	225.28
Azonal Barren	Agriculture	1.10	1.10
	Agricultural Total	**230.10**	**226.38**
Blackland Prairie: Disturbance or Tame Grassland	Disturbed Prairie	179.15	173.34
Native Invasive: Deciduous Woodland	Disturbed Prairie	24.68	22.93
Native Invasive: Juniper Shrubland	Disturbed Prairie	0.08	0.08
	Disturbed Prairie Total	**203.91**	**196.35**
Urban High Intensity	Urban	59.13	0.04
Urban Low Intensity	Urban	153.69	51.94
	Urban Total	**212.82**	**51.98**
Central Texas: Floodplain Hardwood Forest	Floodplain	19.70	19.37
Central Texas: Floodplain Herbaceous Vegetation	Floodplain	16.97	15.82
	Floodplain Total	**36.67**	**35.19**
Central Texas: Riparian Deciduous Shrubland	Riparian	0.01	0.01
Central Texas: Riparian Hardwood / Evergreen Forest	Riparian	30.59	27.74
Central Texas: Riparian Hardwood Forest	Riparian	4.21	4.07
Central Texas: Riparian Herbaceous Vegetation	Riparian	3.55	3.49
Open Water	Riparian	0.96	0.96
	Riparian Total	**39.32**	**36.27**
Edwards Plateau: Deciduous Oak / Evergreen Motte and Woodland	Edwards Plateau Savannah, Woodland, and Shrubland	4.16	4.16
Edwards Plateau: Savanna Grassland	Edwards Plateau Savannah, Woodland, and Shrubland	0.04	0.04
	Edwards Plateau Savannah, Woodland, and Shrubland Total	**4.20**	**4.20**
	Total Acreage	**727.02[4]**	**550.37[5]**

[1]MOU vegetation types are identified for each vegetation community in accordance with the Threshold Table Programmatic Agreement. See Section 3.0 for further discussion.

[2]As stated above, the total project area includes the existing ROW and proposed ROW which totals approximately 727.02 acres

[3]Total vegetation impacted includes proposed project ROW minus existing ROW (existing roadways and previously improved medians) utilizing TxDOT's Roadway Vegetation for Geographic Information Systems (TxDOT 2014b). It includes all impacted vegetation.

[4]Per the March 10, 2017 schematic, an additional 8.42 ac of the Urban Low Intensity vegetation type has been added to the total project acreage. This additional acreage will not be impacted by the construction of the proposed project.

[5]The difference in acreage between the proposed project ROW (541.23 acres) and vegetation impacted by the proposed project (550.37 acres), is due to the fact that some of the impacted vegetation communities are located in existing TxDOT and non-TxDOT ROWs.

Row Crops

This vegetation type includes all cropland where fields are fallow for some portion of the year. Some fields may rotate into and out of cultivation frequently, and year-round cover crops are generally mapped as grassland. Row crops identified during field surveys included ryegrass (*Lolium* spp.), soybean (*Glycine max*), cotton (*Gossypium hirsutum*), sorghum (*Sorghum bicolor*), and corn (*Zea mays*). Approximately 229.00 acres of this vegetation community occurs within the proposed project area, and 225.28 acres would be impacted by the proposed project.

Azonal Barren

The azonal barren vegetation type includes areas where little or no vegetative cover existed at the time of image data collection. This would include large areas cleared for development; rural roads, buildings, and clearings; stream beds with exposed gravel or bedrock; rock outcrops; quarries; or mines. Within the proposed project area, this vegetation type consisted of an erosional feature which had been utilized as a storage area for fill material (soil, gravel, cobble, and boulders) likely excavated nearby. Approximately 1.10 acres of this vegetation community occurs within the proposed project area, and 1.10 acres would be impacted by the proposed project.

Blackland Prairie: Disturbance or Tame Grassland

Very little of this vegetation community remains intact within the Blackland Prairie Ecoregion, so grasslands that are mapped in the region are assumed to primarily consist of disturbance or tame grasslands. Non-native grasses such as bermudagrass (*Cynodon dactylon*), kleingrass (*Panicum coloratum*), King Ranch bluestem (*Bothriochloa ischaemum* var. *songarica*), and Johnsongrass (*Sorghum halepense*) are frequently encountered within this vegetation community. Weedy forbs such as western ragweed (*Ambrosia psilostachya*) and common broomweed (*Amphiachyris dracunculoides*) are often present. Important native grasses may include little bluestem (*Schizachyrium scoparium*), silver bluestem (*Bothriochloa laguroides ssp. torreyana*), Indiangrass (*Sorghastrum nutans*), Texas wintergrass (*Nassella leucotricha*), hairy grama (*Bouteloua hirsuta*), and threeawn (*Aristida* spp.) (TPWD 2014). Approximately 179.15 acres of this dominant vegetation community type occurs within the proposed project area, and 173.34 acres would be impacted by the proposed project.

Native Invasive: Deciduous Woodland

Common dominant species of this vegetation community include sugarberry (*Celtis laevigata*), water oak (*Quercus nigra*), cedar elm (*Ulmus crassifolia*), sweetgum (*Liquidambar styraciflua*), winged elm (*Ulmus alata*), yaupon holly (*Ilex vomitoria*), huisache (*Acacia farnesiana*), ashes (*Fraxinus* spp.), and honey mesquite (*Prosopis glandulosa*). To the south and west, species such as granjeno (*Celtis ehrenbergiana*), colima (*Zanthoxylum fagara*), and Texas persimmon (*Diospyros texana*) are more common. Post oak (*Quercus stellata*), coastal live oak (*Quercus agrifolia*), plateau live oak (*Quercus fusiformis*), eastern redcedar (*Juniperus virginiana*), and loblolly pine (*Pinus taeda*) may also be

present (TPWD 2014). Approximately 24.68 acres of this vegetation community occurs within the proposed project area, and 22.93 acres would be impacted by the proposed project.

Native Invasive: Juniper Shrubland

Various species of juniper (*Juniperus spp*.) dominate these shrublands, with eastern redcedar being the dominant species in the Blackland Prairie, Post Oak Savannah, and Crosstimbers ecoregions. A mixture of deciduous shrub and tree species may also be present, depending on the ecoregion, such as yaupon holly, cedar elm, winged elm, sugarberry, sweetgum, water oak, and honey mesquite. Approximately 0.08 acre of this vegetation community occurs within the proposed project area, and 0.08 acre would be impacted by the proposed project.

Urban High Intensity

The urban high intensity vegetation type consists of built-up areas and wide transportation corridors that are dominated by impervious cover. Dominant vegetation generally includes Japanese brome (*Bromus japonicus*), Johnsongrass, western ragweed, Bermudagrass, silverleaf nightshade (*Solanum elaeagnifolium*), King Ranch bluestem, and sideoats grama (*Bouteloua curtipendula*). Approximately 59.13 acres of this vegetation community occurs within the proposed project area, and 0.04 acre would be impacted by the proposed project.

Urban Low Intensity

The urban low intensity vegetation type includes areas that are built-up but not entirely covered by impervious cover and includes most of the nonindustrial areas within cities and towns. Similar vegetation was noted within this community as was presented above in the Urban High Intensity community. Approximately 153.69 acres of this vegetation community occurs within the proposed project area, and 51.94 acres would be impacted by the proposed project.

Central Texas: Floodplain Hardwood Forest

This vegetation community often contains sugarberry, cedar elm, American sycamore (*Platanus occidentalis*), oaks (*Quercus* spp.), black willow (*Salix nigra*), ashes, and pecan (*Carya illinoinensis*) in the tree canopy. This community was located primarily adjacent to the Tenmile and Bear Creek drainages. Observed dominant species included cedar elm, sugarberry, pecan, winged elm, poison ivy (*Toxicodendron radicans*), possumhaw (*Ilex decidua*), southern dewberry (*Rubus trivialis*), mustang grape (*Vitis mustangensis*), and Johnsongrass. Approximately 19.70 acres of this vegetation community occurs within the proposed project area, and 19.37 acres would be impacted by the proposed project.

Central Texas: Floodplain Herbaceous Vegetation

This vegetation community is characterized by floodplain vegetation that lacks a significant over story or shrub canopy while retaining cover in the herbaceous layer. Dominant grass species include

non-natives such as Bermudagrass, King Ranch bluestem, and Johnsongrass. Lowland prairies dominated by eastern gamagrass (*Tripsacum dactyloides*) and switchgrass (*Panicum vergatum*) are often mapped as this vegetation type. Approximately 16.97 acres of this vegetation community occurs within the proposed project area, and 15.82 acres would be impacted by the proposed project.

Central Texas: Riparian Deciduous Shrubland

This vegetation community is defined as shrublands in riparian areas dominated by deciduous shrubs such as possumhaw, honey mesquite, black willow, roughleaf dogwood (*Cornus drummondii*), swamp privet (*Forestiera acuminate*), and common buttonbush (*Cephalanthus occidentalis*). This mapped type may also represent sparse woodlands with little over story coverage. Approximately 0.01 acre of this vegetation community occurs within the proposed project area, and 0.01 acre would be impacted by the proposed project.

Central Texas: Riparian Hardwood / Evergreen Forest

This vegetation community is defined as mixed hardwood evergreen woodlands or forests occurring along the buffer zones of headwater streams upland from the bottomland vegetation types. Dominant hardwood species of this community type include sugarberry, cedar elm, American sycamore, eastern cottonwood (*Populus deltoids*), ashes, white oaks, and red oaks, while evergreen species may include eastern redcedar, plateau live oak, and coastal live oak. Within the proposed project area, this vegetation type was primarily associated with the larger drainages of Tenmile and Bear creeks. Approximately 30.59 acres of this vegetation community occurs within the proposed project area, and 27.74 acres would be impacted by the proposed project.

Central Texas: Riparian Hardwood Forest

This vegetation community is defined as hardwood woodlands or forests occurring along the buffer zones of headwater streams upland from the bottomland vegetation types. Typical hardwood species of this community type include sugarberry, cedar elm, American sycamore, eastern cottonwood, ashes, white oaks, and red oaks. Approximately 4.21 acres of this vegetation community occurs within the proposed project area, and 4.07 acres would be impacted by the proposed project.

Central Texas: Riparian Herbaceous Vegetation

This vegetation community is characterized by riparian vegetation that lacks a significant over story or shrub canopy while retaining cover in the herbaceous layer. Dominant native species of this community type include little bluestem and Indiangrass and often interspersed by non-native grass species such as King Ranch bluestem, Bermudagrass, and giant reed (*Arundo donax*). Approximately 3.55 acres of this vegetation community occurs within the proposed project area, and 3.49 acres would be impacted by the proposed project.

Open Water

According to TPWD (2014), areas mapped as open water may be large lakes, rivers, marine waters, and ephemeral ponds. Additionally, some mapped areas may support pioneering vegetation, such as black willow, eastern cottonwood, Chinese tallow (*Triadica sebifera*), rushes (*Juncus* spp), sedges (*Cyperaceae* spp.), cattails (*Typha* spp.), and spikerushes (*Eleocharis* spp.). Approximately 0.96 acre of open water occurs within the proposed project area, and 0.96 acre would be impacted by the proposed project.

Edwards Plateau: Deciduous Oak / Evergreen Motte and Woodland

This vegetation community is found primarily on limestone plateaus and gentle slopes between communities dominated by evergreen species, such as Ashe juniper *(*Juniperus ashei*)* and plateau live oak, and deciduous species, such as Texas oak (*Quercus buckleyi*), white shin oak (*Quercus sinuata* var. *breviloba*), and Lacey oak (*Quercus laceyi*). Other species present may include cedar elm, sugarberry, Texas persimmon, agarito, Texas mountain-laurel (*Sophora secundiflora*), honey mesquite, prickly pear (*Opuntia engelmannii*), King Ranch bluestem, little bluestem, and silver bluestem. Approximately 4.16 acres of this vegetation community occurs within the proposed project area, and 4.16 acres would be impacted by the proposed project.

Edwards Plateau: Oak / Hardwood Motte and Woodland

This vegetation community is found primarily on limestone plateaus and gentle slopes dominated by Texas oak, hackberries (*Celtis* spp.), and cedar elm. Other associated species include white shin oak, sugarberry, honey mesquite, post oak, plateau live oak, and Ashe juniper. Areas of this vegetation type are more generally characterized by mixed deciduous and evergreen canopies with dominant deciduous canopies being rarer. Field investigations confirmed that none of this vegetation type is present within the proposed project area; therefore, no acreage would be impacted by the proposed project.

Edwards Plateau: Savanna Grassland

This vegetation community is found primarily on gentle slopes underlain by limestone and is more appropriately classified as components of a savannah mosaic than a true prairie due to their transitional nature. Woody cover generally constitutes less than a quarter of the canopy cover and consists typically of honey mesquite, Ashe juniper, agarito, white shin oak, plateau live oak, Texas persimmon, Texas mountain-laurel, and lotebush (Ziziphus obtusifolia*)*. Dominant grass and herbaceous species can vary depending on transitional state and topography, but generally consist of little bluestem, Texas wintergrass, purple threeawn (*Arisitida purpurea*), sideoats grama, King Ranch bluestem, Bermudagrass, silver bluestem, Indiangrass, Texas grama (*Bouteloua rigidiseta*), hairy grama, seep muhly (*Muhlenbergia reverchonii*), buffalograss (*Bouteloua dactyloides*), curly mesquite (*Hilaria belangeri*), and fluffgrass (*Erioneuron pilosum*). Approximately 0.04 acre of this

vegetation community occurs within the proposed project area, and 0.04 acres would be impacted by the proposed project.

3.1.2 Unusual Vegetation and Special Habitat Features

In accordance with the 2013 TxDOT-TPWD MOU, unusual vegetation features or special habitat features occurring within the proposed project area were identified and described during field investigations in October 2014, January 2015, and September 2015. Unusual vegetation features are described in the MOU as including:

- Unmaintained vegetation;
- Trees or shrubs along a fenceline adjacent to a field (fencerow vegetation);
- Riparian vegetation (particularly where fields/cropland extend up to or about the vegetation associated with the riparian corridor);
- Trees that are considered historically significant, ecologically significant, or locally important (such as champion trees located on the Texas A&M Forest Service Big Tree Registry (Texas A&M 2017); and
- Unusual stands or islands (isolated) of vegetation.

Unusual vegetation features identified within the proposed project area included riparian vegetation adjacent to the fourteen potentially jurisdictional streams; four potentially jurisdictional ponds; and one non-jurisdictional pond within the proposed project area. Riparian vegetation is associated with the Central Texas: Riparian Deciduous Shrubland, Central Texas: Riparian Hardwood / Evergreen Forest, Central Texas: Riparian Hardwood Forest, Central Texas: Riparian Herbaceous Vegetation, and Open Water vegetation communities described above. Additionally, multiple fencerow vegetation communities were present along property boundaries and roads within the proposed project area.

Special habitat features are described in the 2013 TXDOT-TPWD MOU as including:

- Bottomland hardwoods;
- Caves;
- Cliffs and bluffs;
- Native prairies (particularly those with climax species of native grasses and forbs);
- Ponds (temporary and permanent, natural and man-made);
- Seeps or springs;
- Snags (dead trees) or groups of snags;
- Waterbodies (creeks, streams, rivers, lakes, etc.);
- Existing bridges with known or easily observed bird or bat colonies;
- Rookeries; and

- Prairie dog towns.

Special habitat features observed during field investigations include fourteen potentially jurisdictional streams (eleven ephemeral, one intermittent, and two perennial), four potentially jurisdictional ponds, multiple snags in Tenmile and Bear creeks, and small migratory bird colonies associated with multiple overpasses/bridges on I-35E and I-45 within the proposed project area.

3.2 Wildlife

County records of occurrence and species' range maps were reviewed to develop representative lists of species with the potential to occur within the proposed project area. Additionally, wildlife species and habitat assemblages observed were noted during field surveys of the project area. Common species know to occur within Ellis and Dallas counties include doves, ducks, geese, feral hogs, quail, rabbits and hares, squirrel, turkey, deer, and woodcock. The final site visit, in March 2017, was to confirm vegetative communities in specific areas.

TxDOT consulted databases of sensitive species maintained by the U.S. Fish and Wildlife Service (USFWS) and TPWD (TPWD 2016a, 2016b; USFWS 2016a, USFWS 2017a). This information identified federally- and state-listed threatened, endangered, proposed endangered or candidate species that may occur or have historically occurred in the project area and Dallas and Ellis counties, respectively (Table 2). TPWD and USFWS lists differ due to different regulatory mechanisms (USFWS 2016a). Table 2 presents federally- and state-listed threatened and endangered species that could occur within Dallas and Ellis Counties. Table 2 also lists species with no regulatory status that are considered Species of Greatest Conservation Need (SGCN) or rare in Texas that could occur within Dallas and Ellis counties. The SGCN species are listed due to limited distributions and/or declining populations or face the threat of extirpation or extinction but lack legal protection. In addition, Table 2 lists the current status and habitat requirements for each species, whether potential habitat occurs within the proposed project area, and a determination as to whether the proposed project could potentially impact or have an effect on any species.

Table 2. Candidate, Threatened, or Endangered Species within Dallas and Ellis Counties

Species	State Status	Federal Status	Potential Habitat Present within the Project Area	Species Effect/ Impact[1]	Justification
Amphibians					
Southern Crawfish Frog *(Lithobates areolatus)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., multiple moist meadows, pasturelands, and river floodplains) present within or adjacent to the proposed project area.
Birds					
American Peregrine Falcon *(Falco peregrinus anatum)*	ST	DL	No	No Impact	No suitable habitat (i.e., high cliffs or tall buildings) present within or adjacent to the proposed project area.
Arctic Peregrine Falcon *(Falco peregrinus tundrius)*	SGCN	DL	No	No Impact	No suitable habitat (i.e., high cliffs, tall buildings, coastlines, mountains, or open areas near water) present within or adjacent to the proposed project area.
Bald Eagle *(Haliaeetus leucocephalus)*	ST	DL	No	No Impact	No suitable habitat (i.e., wooded areas with tall trees near large bodies of water) present within or adjacent to the proposed project area.
Black-capped Vireo *(Vireo atricapilla)*	SE	FE	No	No Effect/No Impact	No suitable habitat present within or adjacent to the proposed project area. The small shrubland areas located in the proposed ROW to the northwest of E. Reindeer Drive are extremely fragmented and unsuitable for Black-capped Vireo (BCVI). Only one juniper species was identified during field surveys, eastern redcedar (*Juniperus virginiana*). Therefore, the oak-juniper assemblages recorded within proposed project area would not be suitable woodland habitat for the BCVI due to a lack of Ashe juniper.

[1]Species that are both federal and state-listed have a species effect (federal) and a species impact (state) determination listed in this column (separated by a slash).

Acronyms: DL = Delisted Taxon, FT = Federal threatened, FE = Federal endangered, FC = Federal Candidate species SE = State endangered, SGCN = species of greatest conservation need, ST = State threatened, SC = State Candidate Species and -- = No regulatory status

Species	State Status	Federal Status	Potential Habitat Present within the Project Area	Species Effect/ Impact[1]	Justification
Golden-cheeked Warbler *(Dendroica chrysoparia)*	SE	FE	No	No Effect/No Impact	No suitable habitat present within or adjacent to the proposed project area. Only one juniper species was identified during field surveys, eastern redcedar. Therefore, the oak-juniper assemblages recorded within proposed project area would not be suitable habitat for the Golden-cheeked Warbler (GCWA) due to a lack of Ashe juniper.
Henslow's Sparrow *(Ammodramus henslowii)*	SGCN	--	Yes	May Impact	Wintering habitat (i.e., weedy fields, cut-over areas with extensive bunch-grass, vine, and bramble coverage, and the occasional bare ground) potentially present within or adjacent to the proposed project area.
Interior Least Tern *Sterna (antillarum athalassos)*	SE	FE	Yes	No Effect/No Impact	Suitable habitat for Interior Least Tern (ILT) is present along a small portion of Tenmile Creek (refer to **Figure 8b, Appendix A, and Photographs 16 and 17, Appendix D**). The habitat quality is low due to the narrow and incised channel, frequent inundation during the nesting season, and low visibility around the sandbar. The species was not observed during site visits in 2014 and 2015. Because of the prior surveys, a commitment for an additional survey during the nesting season prior to construction, and the habitat quality, TxDOT has determined no effect to ILT.
Peregrine Falcon *(Falco peregrinus)*	ST	DL	No	No Impact	No suitable habitat (i.e., tall trees, cliffs, coasts near large bodies of water) present within or adjacent to the proposed project area.
Piping Plover *(Charadrius melodus)*	ST	FT	No	No Effect/No Impact	No suitable habitat (i.e., sandy beaches or rocky shores) present within or adjacent to the proposed project area. Species more closely associated with Gulf Coast beaches, mud flats, and salt flats. Furthermore, impacts to these species are more likely with wind energy projects.

[1]Species that are both federal and state-listed have a species effect (federal) and a species impact (state) determination listed in this column (separated by a slash).

Acronyms: DL = Delisted Taxon, FT = Federal threatened, FE = Federal endangered, FC = Federal Candidate species SE = State endangered, SGCN = species of greatest conservation need, ST = State threatened, SC = State Candidate Species and -- = No regulatory status

Species	State Status	Federal Status	Potential Habitat Present within the Project Area	Species Effect/ Impact[1]	Justification
Red Knot *(Calidris canutus rufa)*	--	FT	No	No Effect/No Impact	No suitable habitat (i.e., coastal shorelines, large tidal mudflats, or herbaceous wetlands) present within or adjacent to the proposed project area. Furthermore, impacts to these species are more likely with wind energy projects.
Sprague's Pipit *(Anthus spragueii)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., patchy native upland prairie) present within or adjacent to the proposed project area, but species is rarely found west of preferred coastal prairie habitat. Only found in this region during migration and over-wintering.
Western Burrowing Owl *Athene (cunicularia hypugaea)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., multiple open grasslands associated with prairie, plains, and savanna) present within or adjacent to the proposed project area. No abandoned burrows, old prairie dog towns, or active burrows were noted during project surveys. Generally, the species is not seen as far east as the proposed project area.
White-faced Ibis *(Plegadis chihi)*	ST	--	No	No Impact	No suitable habitat (i.e., freshwater marshes, sloughs, irrigated rice fields, or brackish marshes) present within or adjacent to the proposed project area.
Whooping Crane *(Grus Americana)*	SE	FE	No	No Effect/No Impact	No suitable habitat (i.e., multiple, savanna grasslands and cropland pastures) present within or adjacent to the proposed project area. Mostly a migrant through proposed project area to preferred over-wintering grounds along Texas coast.
Wood Stork *(Mycteria americana)*	ST	--	Yes	May Impact	Potential habitat (i.e., prairie ponds, flooded pastures and fields, ditches, and shallow standing water) seasonally present within or adjacent to the proposed project area. May utilize drying ponds for hunting fish, but unlikely to be more than migrant through the proposed project area.

[1]Species that are both federal and state-listed have a species effect (federal) and a species impact (state) determination listed in this column (separated by a slash).

Acronyms: DL = Delisted Taxon, FT = Federal threatened, FE = Federal endangered, FC = Federal Candidate species SE = State endangered, SGCN = species of greatest conservation need, ST = State threatened, SC = State Candidate Species and -- = No regulatory status

Species	State Status	Federal Status	Potential Habitat Present within the Project Area	Species Effect/ Impact[1]	Justification
Insects					
Black Lordithon Rove Beetle *(Lordithon niger)*	SCGN	--	No	No Impact	No suitable habitat (i.e., generally old-growth mixed hardwood/conifer forests below 2,500 feet of elevation) present within or adjacent to the proposed project area. Species now considered historic throughout much of its former range, including Texas.
Mammals					
Cave Myotis Bat *(Myotis velifer)*	SGCN	--	No	No Impact	No suitable habitat (i.e., caves, rock crevices, abandoned buildings, or large bridges) present within or adjacent to the proposed project area. The Edwards Plateau and Texas Panhandle are generally the extent of the species' preferred habitat.
Plains Spotted Skunk *(Spilogale putorius interrupta)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., prefers early successional vegetative communities, such as open fields, prairies, croplands, fence rows, farmyards, forest edges, woodlands, and tallgrass prairies) present within or adjacent to the proposed project area. Species is highly adaptable and capable of moving out of the project area.
Mollusks					
Lousiana Pigtoe *(Pleurobema riddellii)*	ST	--	Yes	May Impact	Potential habitat (i.e., streams or rivers with mixed mud, sand, and gravel substrates) present within or adjacent to the proposed project area, specifically Tenmile Creek and/or Bear Creek. Known to occur in the Trinity River drainage basin. Suitable habitat, as determined by qualified biologists, can be found on **Figure 9, Appendix A.**
Sandbank Pocketbook *(Lampsilis satura)*	ST	--	Yes	May Impact	Potential habitat (i.e., streams or rivers with mixed mud, sand, and gravel substrates) present within or adjacent to the proposed project area, specifically Tenmile Creek and/or Bear Creek. Known to occur in the Trinity River drainage basin. Suitable habitat, as determined by qualified biologists, can be found on **Figure 9**.

[1]Species that are both federal and state-listed have a species effect (federal) and a species impact (state) determination listed in this column (separated by a slash).

Acronyms: DL = Delisted Taxon, FT = Federal threatened, FE = Federal endangered, FC = Federal Candidate species SE = State endangered, SGCN = species of greatest conservation need, ST = State threatened, SC = State Candidate Species and -- = No regulatory status

Species	State Status	Federal Status	Potential Habitat Present within the Project Area	Species Effect/ Impact[1]	Justification
Texas Heelsplitter *(Potamilus amphichaenus)*	ST	--	Yes	May Impact	Potential habitat (i.e., streams or rivers with mixed mud, sand, and gravel substrates) present within or adjacent to the proposed project area, specifically Tenmile Creek and/or Bear Creek. Known to occur in the Trinity River drainage basin. Suitable habitat, as determined by qualified biologists, can be found on **Figure 9, Appendix A.**
Texas Pigtoe *(Fusconaia askewi)*	ST	--	Yes	May Impact	Potential habitat (i.e., streams or rivers with mixed mud, sand, and gravel substrates) present within or adjacent to the proposed project area, specifically Tenmile Creek and/or Bear Creek. Known to occur in the Trinity River drainage basin. Suitable habitat, as determined by qualified biologists, can be found on **Figure 9, Appendix A**.
Plants					
Glass Mountains Coral-root *(Hexalectris nitida)*	SGCN	--	No	No Impact	No suitable habitat (i.e., Ashe juniper woodlands over limestone soils on the Edwards Plateau or Lampasas Cutplain) present within or adjacent to the proposed project area.
Glen Rose Yucca *(Yucca necopina)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., grasslands on sandy soils and limestone outcrops) present within or adjacent to the proposed project area.
Hall's Prairie Clover *(Dalea hallii)*	SGCN	--	Yes	May Impact	Suitable habitat present (i.e., grasslands on eroded limestone or chalk) within and adjacent to the proposed project area. Photographs of the Hall's prairie clover observed within the proposed project area are provided in Appendix B, Photographs 18, 19, and 20. At the direction of TxDOT, coordinates, photographs, and other information pertaining the observed Hall's prairie clover specimens were submitted to TPWD's Texas Natural Diversity Database (TXNDD) via email on March 1, 2017. TxDOT has also initiated discussion regarding specimen protection, seed collection, specimen

[1]Species that are both federal and state-listed have a species effect (federal) and a species impact (state) determination listed in this column (separated by a slash).

Acronyms: DL = Delisted Taxon, FT = Federal threatened, FE = Federal endangered, FC = Federal Candidate species SE = State endangered, SGCN = species of greatest conservation need, ST = State threatened, SC = State Candidate Species and -- = No regulatory status

Species	State Status	Federal Status	Potential Habitat Present within the Project Area	Species Effect/ Impact[1]	Justification
					transplantation, and other conservation measures with qualified botanists.
Osage Plains False Foxglove *(Agalinis densiflora)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., grasslands on shallow, gravelly, well drained, calcareous soils and prairies on dry limestone soils) present within or adjacent to the proposed project area.
Plateau Milkvine *(Matelea edwardsensis)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., various evergreen and mixed evergreen/deciduous woodlands and low forests on shallow stony clays and clay loams over limestone) present within or adjacent to the proposed project area.
Texas Milk Vetch *(Astragalus reflexus)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., grasslands, prairies, and roadsides on calcareous and clay substrates) present within or adjacent to the proposed project area.
Tree Dodder *(Cuscuta exaltata)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., various native woody tree and herbaceous species in riverside thickets and woodlands, usually on limestone soils) present within or adjacent to the proposed project area.
Warnock's Coral-root *(Hexalectris warnockii)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., oak-juniper woodlands on shaded limestone slopes) present within or adjacent to the proposed project area.
Reptiles					
Alligator Snapping Turtle *(Macrochelys temminckii)*	ST	--	Yes	May Impact	Potential habitat (i.e., deep waters in perennial water bodies with mud bottoms and abundant aquatic vegetation) present within or adjacent to the proposed project area.
Texas Horned Lizard *(Phrynosoma cornutum)*	ST	--	Yes	May Impact	Potential habitat (i.e., some open, semi-arid areas with sparse vegetation and sandy or rocky soils) present within or adjacent to the proposed project area. No harvester ants were observed during field surveys within the proposed project area.

[1]Species that are both federal and state-listed have a species effect (federal) and a species impact (state) determination listed in this column (separated by a slash).

Acronyms: DL = Delisted Taxon, FT = Federal threatened, FE = Federal endangered, FC = Federal Candidate species SE = State endangered, SGCN = species of greatest conservation need, ST = State threatened, SC = State Candidate Species and -- = No regulatory status

Species	State Status	Federal Status	Potential Habitat Present within the Project Area	Species Effect/ Impact[1]	Justification
Texas Garter Snake *(Thamnophis sirtalis annectens)*	SGCN	--	Yes	May Impact	Potential habitat (i.e., wet or moist microhabitat associated with the riparian areas with saturated soils) present within or adjacent to the proposed area.
Timber Rattlesnake *(Crotalus horridus)*	ST	_	Yes	May Impact	Potential habitat (i.e., floodplains, deciduous woodlands, riparian areas, abandoned farmland, limestone bluffs, sandy soils, and dense ground cover) present within or adjacent to the proposed project area.

Sources: Campbell 1982; Grzybowski and Pease 1994; Kroll 1980; NatureServe 2015; Smith 2011; TPWD 2016a and 2016b; USFWS 2013; USFWS 2016b; USFWS 2017a, 2017b, 2017c; Wilkins et al 2006.

[1]Species that are both federal and state-listed have a species effect (federal) and a species impact (state) determination listed in this column (separated by a slash).

Acronyms: DL = Delisted Taxon, FT = Federal threatened, FE = Federal endangered, FC = Federal Candidate species SE = State endangered, SGCN = species of greatest conservation need, ST = State threatened, SC = State Candidate Species and -- = No regulatory status

Note: The Red Wolf (*Canis rufus*) is extirpated from the Texas.

3.2.1 Potential Impacts to Federally-Listed or Candidate Species

As listed in the USFWS IPaC and Official Species List (and summarized in **Table 2**), the following six federally protected species have the potential to occur within the proposed project area: BCVI, GCWA, ILT, Piping Plover, Red Knot, and Whooping Crane. No critical habitat lies within the project area (USFWS 2017a).

Suitable habitat for the BCVI was not observed within the proposed action area as verified by a qualified biologist. BCVI relies upon shrubland and oak-juniper woodlands, including Ashe juniper, for breeding. It is very sensitive to predation resulting from habitat fragmentation and, within woodlands, typically requires 30 to 60 percent canopy cover including 36 to 55 percent juniper. Close proximity of shrublands to Ashe juniper may also increase fledgling survival. Density and height of vegetation are important factors in successful nesting. Within level terrain on woodlands, the species prefers smaller trees between eight and ten feet in height.

The small shrubland areas located in the proposed ROW to the northwest of E. Reindeer Drive are extremely fragmented and unsuitable for BCVI. Only one juniper species was identified during field surveys, eastern redcedar. Therefore, the oak-juniper assemblages recorded within proposed project area would not be a suitable woodland habitat for the BCVI due to a lack of Ashe juniper.

Suitable habitat for the GCWA was not observed within the proposed action area as verified by a qualified biologist. The GCWA is obligatively dependent on Ashe juniper for nesting material and song perches. The GCWA requires Ashe juniper 15 feet in height with a minimum trunk diameter of 5 inches. The species will occupy stands consisting of a mixture of Ashe juniper, *Quercus* species (Live Oak, Black Jack, Post Oak, Shin Oak, Lacey Oak, and Texas Oak), and other hardwood species (Cedar Elm, Hackberry, and Texas Madrone). Ashe juniper is typically the dominant species comprising 10%

to 90% of total canopy cover, and total canopy cover is typically 50 to 100% throughout with an overall canopy height of 20 feet.

Only one juniper species was identified during field surveys, eastern redcedar. Therefore, the oak-juniper assemblages recorded within proposed project area would not be suitable habitat for the GCWA due to a lack of Ashe juniper.

Suitable habitat for the Piping Plover, Red Knot, and Whooping Crane was not observed within the proposed action area as verified by a qualified biologist.

Suitable habitat for ILTs is present along a small portion of Tenmile Creek (**Figure 8b, Appendix A**). The habitat quality is low due to the narrow and incised channel, frequent inundation during the nesting season, and low visibility around the sandbar. The species was not observed during site visits in 2014 and 2015. Because of that, in addition to the habitat quality and planned commitments (Section 5), TxDOT has determined no effect to ILT.

3.2.2 Potential Impacts to State-Listed Species

The proposed project ROW is within range of and exhibits suitable habitat for nine state listed threatened and endangered species: ILT [SE], Wood Stork [ST], Louisiana pigtoe [ST], Texas heelsplitter [ST], Texas pigtoe [ST], sandbank pocketbook [ST], alligator snapping turtle [ST], Texas horned lizard [ST], and timber rattlesnake [ST].

Potential habitat for the four mollusk species was observed by a qualified biologist within the portions of Bear and Tenmile Creeks located within and adjacent to the proposed project area. Both Tenmile Creek and Bear Creek offer a mixture of mud, sand, and gravel substrates preferred by the Louisiana pigtoe, Texas heelsplitter, Texas pigtoe, and sandbank pocketbook mussels. As these species are historically and currently known to occur in the Trinity River drainage basin, their presence within the proposed project area cannot be ruled out without species-specific aquatic surveys. A detailed description of the two perennial streams, Tenmile Creek and Bear Creek, which cross the proposed project area is provided in the Water Resources Technical Report. Photographs of these streams are also provided in Appendix B to the Water Resources Technical Report.

The alligator snapping turtle prefers deep, perennial waterbodies such as rivers, canals, lakes, oxbows, bayous, swamps, marshes, and ponds with extensive aquatic vegetation coverage and mud bottoms. Within the proposed project area, Pond D02 and both crossings of Tenmile Creek exhibit the species' preferred habitat characteristics (e.g. deep water, extensive vegetative cover, and muddy bottom) and may serve as potential habitat (**Figure 9, Appendix A**).

The Texas horned lizard prefers open, arid to semi-arid habitats with sparse vegetation such as brush, cactus, or native grasses. The species generally prefers sandy or loamy soil but can utilize rocky soil as well. The species is almost always found in association with harvester/red ant colonies, as they are the species' preferred prey. While no harvester/red ant colonies were noted during field surveys, potential habitat may exist within proposed project area where the Edwards Plateau: Savanna

Grassland (SG) and the Native Invasive: Mesquite Shrubland (MS) vegetation types are located (**Figure 7, Appendix A**).

The timber rattlesnake prefers moist lowland forests and hilly woodlands or thickets near permanent water sources where dense ground cover, tree stumps, logs and/or branches provide refuge. The species may also utilize abandoned farmland, limestone bluffs, palmetto stands, swamps, or upland pine. Within the proposed project area, potential habitat for the species may exist within the riparian corridors and floodplains of Bear Creek and Tenmile Creek (**Figure 9, Appendix A**). Additional habitat may be located adjacent to Creeks 05, 07, 09, 10, 11, 12, 13, and D04 during wetter seasons and years.

The Wood Stork utilizes prairie ponds, flooded pastures and fields, ditches, forested wetlands, lagoons, tidal creeks, and shallow standing water while foraging but prefers to roost in tall trees or snags near large bodies of water (i.e., established rookeries and heronries). While potential nesting habitat for the Wood Stork may be found along the Trinity River and its associated forested wetlands, no suitable nesting habitat for the Wood Stork exists within the proposed project area. Within the proposed project area, all mapped ponds (Ponds 01, 02, 03, D01, and D02) in addition to ponded segments of Creek 07 (an intermittent stream) and shallow segments of Tenmile and Bear Creek may serve as potential foraging habitat for the species (**Figure 9, Appendix A**). Additionally, the low-lying pasture and disturbed prairie adjacent to these waterbodies may serve as further foraging habitat during wetter seasons and years when flooding and ponding is more likely to occur.

3.2.3 Potential Impacts to Species of Greatest Conservation Need

The proposed project ROW is also within range and suitable habitat for thirteen SGCNs: southern crawfish frog, Henslow's Sparrow, Sprague's Pipit, Western Burrowing Owl, plains spotted skunk, Glen rose yucca, Osage Plains false foxglove, Texas milk vetch, Warnock's Coral-root, Hall's prairie clover, plateau milkvine, tree dodder, and Texas garter snake.

Suitable habitat for the Hall's prairie clover was observed by a qualified biologist within the proposed project area as shown on **Figure 8a, Appendix A**. The presence of Hall's prairie clover within the proposed project area was confirmed during field surveys in September 2015. Photographs of the Hall's prairie clover within the proposed project area are provided in Photographs 18, 19, and 20, **Appendix D**. At the direction of TxDOT, coordinates, photographs, and other information pertaining the observed Hall's prairie clover specimens were submitted to TPWD's TXNDD via email on March 1, 2017.

The southern crawfish frog is reliant on the use of abandoned crawfish holes and other small animal burrows for shelter when inactive. In terms of habitat, the species is generally limited to prairie, wet pasture, grasslands, low-laying hay fields, and occasionally woodland stream watersheds and river floodplains when not breeding. During the breeding season (late winter to early spring), the species is known to utilize shallow seasonal waterbodies such as wet pastures, prairie wetlands, ditches,

farm ponds/stock tanks, small lakes, or flooded back channels in small streams where aquatic vegetation is present and predatory fish are absent. Within the proposed project area, all mapped ponds in addition to ponded segments of Creek 07 (an intermittent stream) may serve as potential breeding habitat for the southern crawfish frog. Additionally, the low-lying pasture and disturbed prairie adjacent to these waterbodies may serve as potential burrowing habitat for the frog.

Texas Natural Diversity Database

The TPWD's TXNDD maintains a record of observations of tracked rare, threatened or endangered species, SGCN, and assemblages throughout the state. These observances are called Element of Occurrence Records (EORs) and are defined as an area of land and/or water where a species or ecological community is or was present that has practical conservation value (NatureServe 2015). Considered collectively, the TXNDD results and the TPWD and USFWS county lists identify several species that have historically occurred in Ellis and Dallas counties. It should be noted that information from the TXNDD cannot be used for presence/absence determinations. The TXNDD was searched for EORs by TPWD on November 9, 2016, to determine whether any reports of species have occurred within a ten-mile radius of the proposed project area (**Table 3**).

Table 3. Texas Parks and Wildlife Department Natural Diversity Database Search Results

EOID*	Scientific Name	Common Name	Status	Buffer
11074	*Dalea hallii*	Hall's Prairie Clover	SGCN	1.5 miles
3327	*Vireo atricapilla*	Black-capped Vireo	FE	10 miles
3734	*Vireo atricapilla*	Black-capped Vireo	FE	10 miles
3522	*Vireo atricapilla*	Black-capped Vireo	FE	10 miles
7284	*Sterna antillarum athalassos*	Interior Least Tern	FE	10 miles
2874	*Sterna antillarum athalassos*	Interior Least Tern	FE	10 miles
12360	*Pleurobema riddellii*	Louisiana Pigtoe	ST	10 miles
10990	*Dalea hallii*	Hall's Prairie Clover	SGCN	10 miles
5234	*Hexalectris warnockii*	Warnock's Coral-root	SGCN	10 miles
4082	*Hexalectris nitida*	Glass Mountains Coral-root	SGCN	10 miles
10140	*Matelea edwardsensis*	Plateau Milkvine	SGCN	10 miles
11920	*NA*	Vertisol Blackland Prairie	NA	10 miles
11919	*NA*	Vertisol Blackland Prairie	NA	10 miles
11918	*NA*	Vertisol Blackland Prairie	NA	10 miles
843	*NA*	Cedar Elm-Sugarberry Forest	NA	10 miles

EOID*	Scientific Name	Common Name	Status	Buffer
4433	*NA*	Ashe Juniper-Oak Woodland	NA	10 miles
3061	*NA*	Little Bluestem-Indiangrass Grassland	NA	10 miles
588	*NA*	Little Bluestem-Indiangrass Grassland	NA	10 miles
6868	*NA*	Colonial Wading Bird Colony	NA	10 miles
7930	*NA*	Colonial Wading Bird Colony	NA	10 miles
561	*NA*	Colonial Wading Bird Colony	NA	10 miles
1439	*NA*	Colonial Wading Bird Colony	NA	10 miles
5782	*NA*	Colonial Wading Bird Colony	NA	10 miles

Source: TPWD 2016.
EOID = Element of Occurrence Identification

As noted in **Table 3**, this database search indicated that two federal-listed endangered species, BCVI and ILT; one state-listed threatened species, Lousiana pigtoe; and four state-listed SGCN, Hall's prairie clover, Warnock's coral-root, Glass Mountains coral-root, and plateau milkvine have been documented within 10 miles of the proposed project area. The Hall's prairie clover represents the only EOR in the database search to directly overlay the proposed project area and the only EOR to occur within a 1.5 mile buffer of the proposed project area.

In addition to multiple species-specific EORs, the database search also returned twelve special habitat and vegetation community EORs: three remnant native vertisol blackland prairie vegetation communities, one cedar elm-sugarberry forest vegetation community, one Ashe juniper-oak woodland community, two little bluestem-Indiangrass grassland communities, and five colonial wading bird colonies. No special habitat or vegetation community EORs were located within the proposed project area or within a 1.5 mile buffer of the proposed project area.

3.2.4 Endangered Species Act of 1973

The Endangered Species Act (ESA) of 1973 was signed on December 28, 1973, and provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA replaced the Endangered Species Conservation Act of 1969. The ESA directs all Federal agencies to participate in conserving these species. Specifically, section 7 (a)(1) of the ESA charges Federal agencies to aid in the conservation of listed species, and section 7 (a)(2) requires the agencies, through consultation with the USFWS, to ensure that their activities are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitats.

Consultation with USFWS occurred between 2003 and 2010 for the previous Loop 9 Southeast Preliminary Draft Environmental Impact Statement. During that timeframe, TxDOT proposed to

construct 42 miles of Loop 9 from US 287 to I-20 in Dallas, Kaufman, and Ellis counties. The new location roadway was within a proposed ROW of approximately 600 feet. At the request of USFWS, presence-absence surveys were conducted along the proposed ROW for both the GCWA and ILT in 2004. The habitat areas were deemed inappropriate for GCWAs based on vegetation composition, size of the habitats, and human uses. No GCWAs were observed on any of the subject tracts during the surveys. For those reasons, no negative effects to GCWAs were indicated (Arnold 2004). Potential ILTs habitat along the proposed ROW (essentially mined areas near the Trinity River) was also surveyed. The habitats were determined to not provide viable nesting habitat for ILTs due to the roughness of the ground, coupled with the advanced successional stage of the vegetation. For those reasons, no negative effects to ILTs were indicated (Kasner 2004). Furthermore, in a letter dated, October 6, 2010, the USFWS concurred with the Biological Evaluation (BE) for the proposed Loop 9 Southeast project "that the proposed project would have no effect on the endangered GCWA, BCVI, ILT, and the threatened piping plover." The USFWS also concurred with the BE's conclusion "that the project "may affect, but is not likely to adversely affect" the endangered whooping crane. This is based on the Service's belief that the potential for impact would be so small that it could not be meaningfully detected or measured and/or the probability that a whooping crane would be encountered in the project area would be insignificant."

Since 2010, the Loop 9 project has changed in many ways. The project was placed on hold and restarted in 2013 as a Corridor/Feasibility Study. The results of the Loop 9 Southeast Corridor/Feasibility Study proposed developing the project in three major corridors for up to six separate and independent projects utilizing a phased construction approach. The proposed ROW was also reduced from 600 feet to approximately 350 feet.

The proposed project would be developed in phases, with Phase 1 developing only the two-way frontage road while purchasing the entire proposed ROW for the future ultimate facility. Phase 2 would involve the construction of the paired frontage roads. Phase 3 is the construction of isolated grade separation at specific high-volume intersections. Phase 4 is the construction of continuous tolled mainlanes in both directions. Based on projected traffic data, Phase 1 (a two-lane frontage road) is warranted by 2025 for the section from US 67 to I-35E (Corridor A) and the section from I-35E to I-45 (Corridor B). The section from I-45 to I-20 (Corridor C) is warranted by 2030. All remaining section are warranted beyond 2035, including construction of the ultimate toll facility, and are considered long-term projects to be reevaluated again at a later date as the need arises. TxDOT has chosen to advance the section of Loop 9 Southeast from I-35E to I-45 (Corridor B) first.

3.2.5 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) states that it is unlawful to kill, capture, collect, possess, buy, sell, trade or transport any migratory bird, nest, young, feather or egg in part or in whole, without a federal permit issued in accordance with the MBTA's policies and regulations. Migratory birds observed during field investigations within or adjacent to the proposed project area included: Great-tailed Grackle (*Quiscalus mexicanus*), Northern Mockingbird (*Mimus polyglottos*), House Finch

(*Haemorhous mexicanus*), Mississippi Kite (*Ictinia mississippiensis*), Killdeer (*Charadrius vociferous*), Chimney Swift (*Chaetura pelagica*), Great Crested Flycatcher (*Myiarchus crinitus*), Barn Swallow (*Hirundo rustica*), Cliff Swallow (*Petrochelidon pyrrhonota*), Summer Tanager (*Piranga rubra*), Indigo Bunting (*Passerina cyanea*), Dickcissel (*Spiza americana*), Red-shouldered Hawk (*Buteo lineatus*), Red-tailed Hawk (*Buteo jamaicensis*), Mourning Dove (*Zenaida macroura*), Eastern Screech Owl (*Megascops asio*), Great Horned Owl (*Bubo virginianus*), Red-bellied Woodpecker (*Melanerpes carolinus*), Downy Woodpecker (*Picoides pubescens*), Loggerhead Shrike (*Lanius ludovicianus*), Blue Jay (*Cyanocitta cristata*), American Crow (*Corvus brachyrhynchos*), Tufted Titmouse (*Baeolophus bicolor*), Carolina Wren (*Thryothorus ludovicianus*), American Robin (*Turdus migratorius*), Northern Cardinal (*Cardinalis cardinalis*), White-eyed Vireo (*Vireo griseus*), and Brown-headed Cowbird (*Molothrus ater*). These species, in addition to neotropical migrants, may find suitable breeding habitat within woody vegetation in the proposed project area.

Species not protected under the MBTA, e.g., European Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*), and Rock Pigeon (*Columba livia*), comprised a large portion of avian abundance observed during field surveys in October 2014, January 2015, and September 2015. Appropriate measures would be taken to avoid adverse impacts on migratory birds and would include the following:

- No disturbance, destruction, or removal of active nests, including ground nesting birds, during the nesting season (February 15 to October 1);
- Avoid the removal of unoccupied, inactive nests;
- Prevent the establishment of active nests during the nesting season on TxDOT-owned and -operated facilities and structures proposed for replacement or repair; and
- No collection, capture, relocation, or transportation of birds, eggs, young or active nests without a permit would be prohibited.

3.2.6 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA), as amended in 1964, was enacted to protect fish and wildlife when federal actions result in the control or modification of a natural stream or body of water. The statute requires federal agencies to take into consideration the effect that water-related projects would have on fish and wildlife resources, take action to prevent loss or damage to these resources, and provide for the development and improvement of these resources. Though detailed drainage design for the proposed project has not been completed at this time, it is anticipated that the proposed project would involve temporary and permanent impacts to a number of potentially jurisdictional waterbodies as authorized under a U.S. Army Corps of Engineers (USACE) Section 404 Individual Permit (IP); therefore, coordination under the FWCA would be required.

3.2.7 Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA), as detailed in Subtitle I of Title XV of the Agricultural and Food Act of 1981, provides protection to prime and unique farmlands, as well as farmlands of statewide or local importance. Prime farmland soils, as defined by the U.S. Department of Agriculture (USDA), are soils that are best suited to producing food, feed, forage, and oilseed crops. Such soils have properties that are favorable for the production of sustained high yields. Prime farmland can include cropland, pastureland, rangeland or forestland, but does not include land converted to urban, industrial, transportation or water uses. Small portions of the eastern and western termini of the proposed project area fall within the U.S. Census Bureau 2010 Urbanized Area (UA) for Dallas-Fort Worth-Arlington, TX and are therefore exempt from the protections of the FPPA. Approximately 486.70 acres of prime farmland, across six distinct soil units, occur within the proposed project area.

Prime and unique farmlands are provided protection under the FPPA, Subtitle I of Title XV of the Agricultural and Food Act of 1981. In March 2015, four preliminary alternatives were scored using Form CPA-106: Farmland Conversion Impact Rating (Corridor Projects). The proposed alternatives scored in a range from 84 to 85 points under Part VI. Corridor or Site Assessment Criteria. The form was submitted to the Natural Resources Conservation Service (NRCS) for their evaluation on value of land to be converted under Part V, Land Evaluation Information Criterion Relative value of Farmland to be Serviced or Converted and the project scored from 58 to 61. The total points scored ranged from 142 to 146. A response from NRCS dated March 20, 2015 is included in Appendix E. An updated Farmland Conversion Impact Rating form for the current proposed roadway alignment was submitted to NRCS on January 19, 2017 and is included in Appendix J.

3.2.8 Executive Order 13112 on Invasive Species

Upon completion of earthwork operations, disturbed areas would be restored and reseeded, where feasible, in accordance with TxDOT's Vegetation Management Guidelines and in compliance with the intent of Executive Order 13112 on Invasive Species. A mix of TxDOT-approved seed mixes containing native species would be used to revegetate the proposed project area, as available.

3.2.9 Federal Highway Administration Memorandum on Environmentally and Economically Beneficial Landscaping

The Federal Highway Administration (FHWA) Memorandum on Environmentally and Economically Beneficial Landscaping was implemented in April 1995 as guidance designed to minimize the adverse effects of landscaping. The practices described in this memorandum apply to federal facilities and federally funded projects and include implementation, where affordable and practicable, of the following:

- Use of regionally native plants for landscaping;
- Design, use, or promote construction practices that minimize adverse effects on the natural habitat;

- Seek to prevent pollution by, among other things, reducing fertilizer and pesticide use, using integrated pest management techniques, recycling green waste, and minimizing runoff;
- Implement water-efficient practices, such as the use of mulches, efficient irrigation systems, audits to determine exact landscaping water-use needs, and recycled or reclaimed water and the selecting and siting of plants in a manner that conserves water and controls soil erosion; and
- Create outdoor demonstrations incorporating native plants, as well as pollution prevention and water conservation techniques, to promote awareness of the environmental and economic benefits of implementing this directive.

Upon completion of earthwork operations, disturbed areas would be restored and reseeded, where feasible, in accordance with TxDOT's Vegetation Management Guidelines and in compliance with the intent of the FHWA Executive Memorandum on Environmentally and Economically Beneficial Landscaping Practices.

4. Texas Parks and Wildlife Department Coordination

As detailed in § 2.206 of the 2013 MOU, coordination with the TPWD is required for projects that trigger one or more of the following:

1) The project is within range of a state threatened or endangered species or SGCN as identified by the TPWD County list of Rare and Protected Species, and there is suitable habitat, unless Best Management Practices (BMPs) as defined in this MOU are implemented as part of a programmatic agreement.
2) The project may adversely impact important remnant vegetation based on the judgment of a qualified biologist or as mapped in the TXNDD.
3) The project requires an IP issued by the USACE.
4) The project includes in the TxDOT ROW or conservation, construction or drainage easement 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:
    a) Channel realignment; or
    b) Stream bed or stream bank excavation, scraping, clearing or other permanent disturbance.
5) The project contains known isolated wetlands outside existing TxDOT ROW that would be directly impacted by the project.
6) The project may impact 0.10 acre of riparian vegetation based on the judgment of a qualified biologist or as mapped in the EMST.
7) The project disturbs habitat in an area equal to or greater than the area of disturbance indicated in the Threshold Table Programmatic Agreement.

The triggers that would require coordination with TPWD for the proposed project are summarized below.

The proposed project area contains suitable habitat for the Hall's prairie clover, a SGCN, as observed by a qualified biologist in September 2015. Additionally, the southern crawfish frog, Glen Rose yucca, Osage Plains false foxglove, Texas milk vetch, plateau milkvine, Warnock's coral root, and tree dodder have the potential to occur within the proposed project area. There are no species specific BMPs for the observed Hall's prairie clover or the other plant SGCN with the potential to occur in the proposed project area. Therefore, coordination with TPWD would be required.

Although BMPs have not been approved for the southern crawfish frog, TxDOT proposes to implement the following conservation measure: contractors would be advised of the potential presence of the southern crawfish frog within the proposed project area, to avoid harming the species if encountered, and to avoid unnecessary impacts to small burrows (Note: Even with implementation of the voluntary conservation measure, it is still a trigger for coordination).

No special habitat or vegetation community EORs were located within the proposed project area or within a 1.5-mile radius of the proposed project area. However, the proposed project could impact the following important remnant vegetation: Hall's prairie clover, Glen Rose yucca, Osage Plains false foxglove, Texas milk vetch, plateau milkvine, Warnock's coral root, and tree dodder. Therefore, coordination with TPWD would be required.

Though detailed drainage design for the proposed Loop 9 project has not been completed at this time, it is anticipated that the proposed project would involve temporary and permanent impacts to a number of potentially jurisdictional waterbodies and would be authorized under a USACE Section 404 IP. Therefore, coordination with TPWD would be required.

Fourteen streams (11 ephemeral streams, one intermittent stream, and two perennial streams) were identified within the proposed project area. Fourteen potentially jurisdictional streams (eleven ephemeral, one intermittent, and two perennial), were identified during field surveys within the project area. Based on the assessments, there are 17 unique crossings in the proposed project ROW composed of 14 separate streams. Some of the streams are crossed twice but in different locations along the same feature. Waters of the U.S. (i.e., streams and ponds) would be impacted by the proposed project through direct disturbance by heavy machinery (e.g., compaction and scarification), the placement of fill and construction materials, and the disruption of hydrological and nutrient cycling. Most of these impacts would occur during the construction phase of the project. Post-construction, the impacts to aquatic environments would relate to stormwater runoff (e.g., pollutants) and impacts related to spills, etc. The project would include more than 200 linear feet of stream channel for all but one single and complete stream crossing as detailed in the Water Resources Technical Report. Therefore, the linear extent of impacts to waters of the U.S. would require coordination with TPWD would be required.

According to field observations by a qualified biologist, the proposed project would impact approximately 39.32 acres of riparian vegetation, which is greater than the 0.10-acre Programmatic Agreement threshold. Therefore, coordination with TPWD would be required.

The primary impact to vegetation resulting from site preparation and construction of the proposed project would be the removal of existing vegetation from the project area. **Table 1** presents the impacts to each vegetation type by the proposed project. The Threshold Table Programmatic Agreement groups vegetation types into broader MOU types and sets a disturbance threshold for each type by ecoregion that, if met or exceeded, triggers coordination with the TPWD. For projects that have vegetation impacts in multiple ecoregions and the thresholds differ between these regions for a single MOU type, the average of the thresholds for that MOU type is used to determine coordination requirements with the TPWD. A review of the Threshold Table Programmatic Agreement determined that vegetation within the proposed project area falls into six MOU types: Agriculture; Disturbed Prairie; Urban; Floodplain; Riparian; and Edwards Plateau Savannah, Woodland, and Shrubland. The Threshold Table Programmatic Agreement sets a disturbance threshold of 10 acres for Agriculture, 3 acres for Disturbed Prairie, 0.5 acre for Floodplain, 0.1 acre for Riparian, and 1 acre for Edwards Plateau Savannah, Woodland, and Shrubland. Vegetation impacts quantified in **Table 1** show that the proposed project would exceed the threshold for the following MOU types: Agricultural (230.10 acres); Disturbed Prairie (203.91 acres); Floodplain (36.67 acres); Riparian (39.32 acres); and Edwards Plateau Savannah, Woodland, and Shrubland (4.20 acres). Therefore, coordination with TPWD would be required.

5. Permits and Commitments

The following permits and commitments would be required for the proposed project:

- Impacts to vegetation would be avoided or minimized by limiting disturbance to only that which is necessary to construct the proposed project. The removal of native vegetation, particularly mature native trees and shrubs, would be avoided to the greatest extent practicable. An approved seed mix would be used in the landscaping and revegetation of disturbed areas.
- As part of the project description, if the ILT is present during construction, no construction activities would occur within a 300-foot buffer of suitable habitat for the species from April 1 to September 1, and consultation with the USFWS would be initiated (see **Figure 8b, Appendix A**).
  - Presence/absence survey guidelines for the ILT, provided by the USFWS to permitted staff, would be followed the nesting season prior to the start of construction and can be provided upon request
  - Only permitted individual(s) would conduct the presence/absence survey during the nesting season from May through late July immediately prior to the start of construction.
- Although BMPs have not been approved for the southern crawfish frog, TxDOT proposes to implement the following conservation measure: contractors would be advised of the potential

presence of the southern crawfish frog within the proposed project area, to avoid harming the species if encountered, and to avoid unnecessary impacts to small burrows.

- Appropriate measures would be taken to avoid adverse impacts on migratory birds and would include the following:
  - No disturbance, destruction or removal of active nests, including ground nesting birds, during the nesting season (February 15 to October 1);
  - Avoid the removal of unoccupied, inactive nests where practicable;
  - Prevent the establishment of active nests during the nesting season on TxDOT-owned and -operated facilities and structures proposed for replacement or repair; and
  - No collection, capture, relocation, or transportation of birds, eggs, young or active nests without a permit.
- The following freshwater mussel BMPs would apply to the Louisiana pigtoe, Texas heelsplitter, Texas pigtoe, and sandbank pocketbook:
  - When work is in the water, survey project footprints for state listed species where appropriate habitat exists;
  - When work is in the water and mussels are discovered during surveys, relocate state listed mussels under TPWD permit and implement Water Quality BMPs; and
  - When work is adjacent to the water, Water Quality BMPs implemented as part of the Stormwater Pollution Prevention Plan for a construction permit or any conditions of the 401 water quality certification for the project would be implemented (this BMP applies to the project).
- The following BMPs would apply to the alligator snapping turtle:
  - Minimize impacts to wetland and riverine habitats, and
  - Contractors would be advised of potential occurrence in the proposed project area, and to avoid harming the species if encountered.
- The following BMP would apply to both the Texas garter snake and timber rattlesnake:
  - Contractors would be advised of potential occurrence in the proposed project area, and to avoid harming the species, if encountered.
- The following BMP would apply to the plains spotted skunk:
  - Contractors would be advised of the potential occurrence in the proposed project area, and to avoid harming the species if encountered, and to avoid unnecessary to impacts to dens.
- The following BMP would apply to the Texas horned lizard:

- Contractors would be advised of potential occurrence in the proposed project area, and to avoid harming the species, if encountered, and to avoid harvester ant mounds where feasible.

- Although there are no species specific BMPs for the observed Hall's prairie clover, TxDOT proposes to evaluate potential conservation measures such as collection of seeds and/or transfer of complete specimens (if possible) during the flowering season before construction is slated to begin. (Note: Even with implementation of the voluntary conservation measures, it is still a trigger for coordination.)
- Upon completion of earthwork operations, disturbed areas would be restored and reseeded, where feasible, in accordance with TxDOT's Vegetation Management Guidelines and in compliance with the intent of Executive Order 13112 on Invasive Species and the FHWA Executive Memorandum on Environmentally and Economically Beneficial Landscaping Practices.

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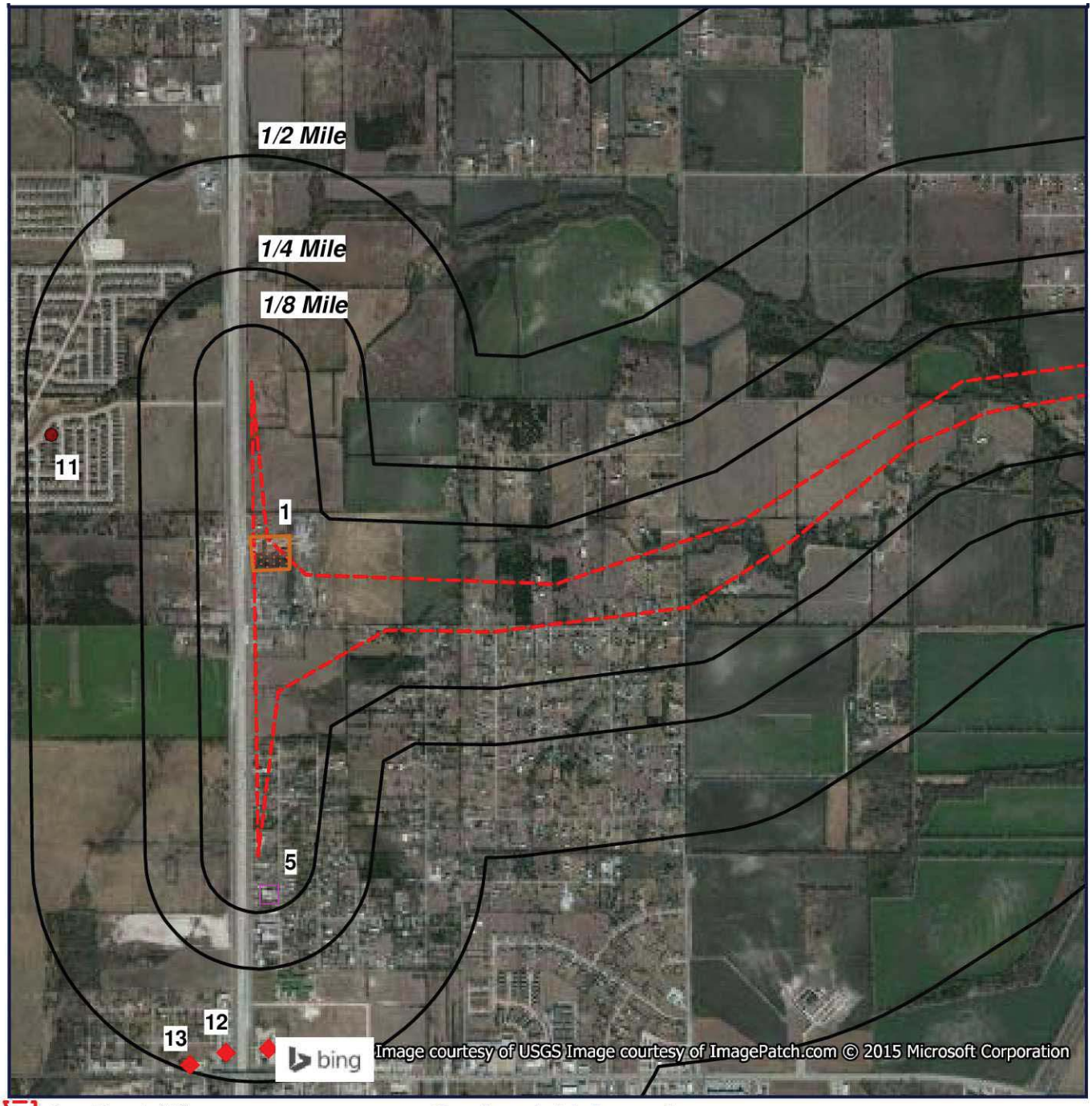
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Appendices and Exhibits are available on file at the TxDOT Dallas District Office.

Appendix G

Hazardous Materials Information

Ortho Map



Target Property (TP)
FRSTX
CALF
MSWLF
PST
RCRANGR06
IHW
MSWLF
PST
CERCLIS
NFRAP
RCRASUBC
LPST
BF

Quadrangle(s): Lancaster, Ferris
Loop 9: From I-35 E to I-45
County, Texas

N
W E
S

0' 900' 1800' 2700'
SCALE: 1" = 1800'

[Click here to access Satellite view]

Ortho (A) Map



Target Property (TP)
FRSTX
CALF
MSWLF
PST
RCRANGR06
IHW
MSWLF
PST

CERCLIS
NFRAP
RCRASUBC
LPST
BF

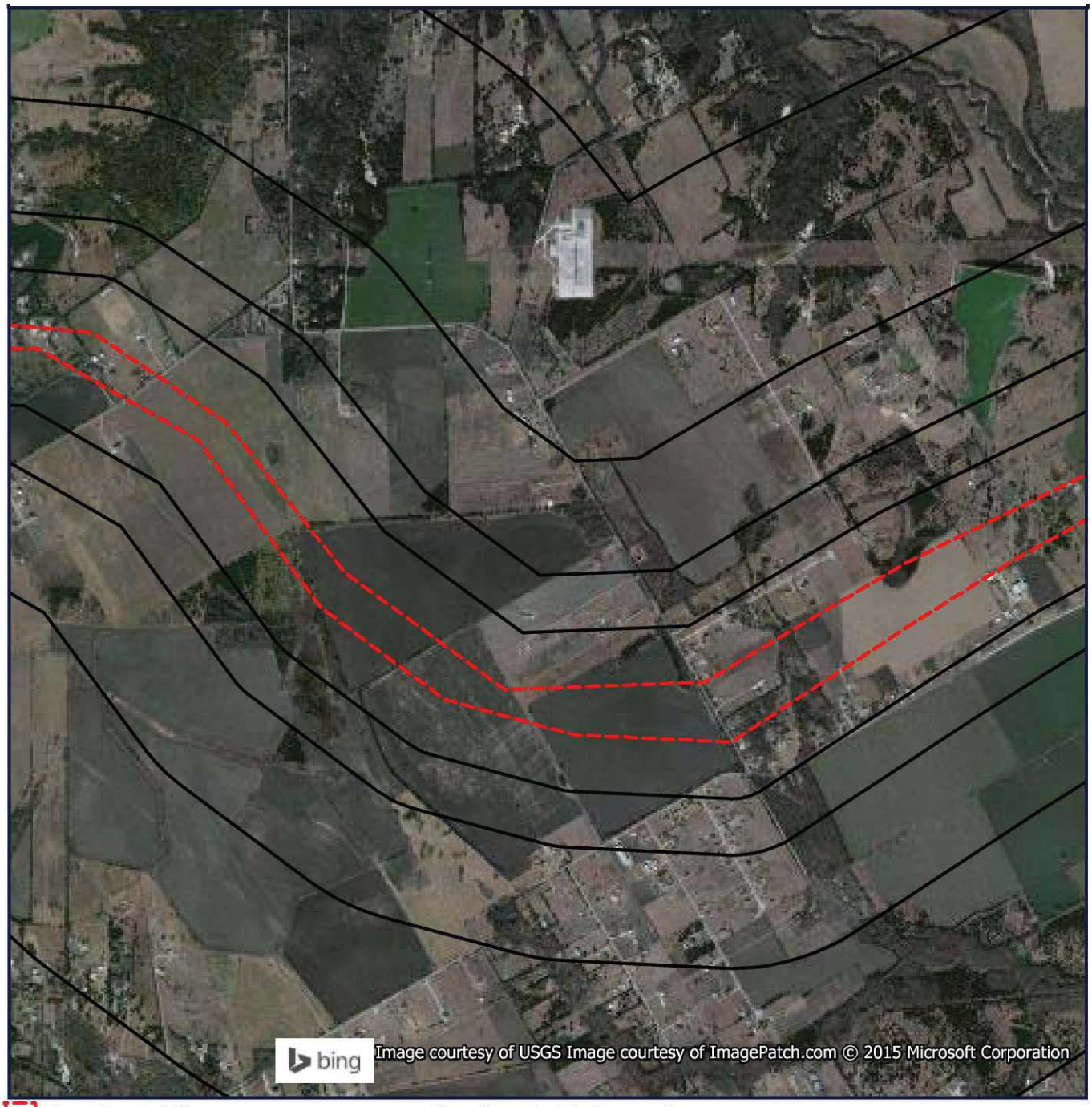
Quadrangle(s): Lancaster, Ferris
Loop 9: From I-35 E to I-45
County, Texas

N
W E
S

0' 900' 1800' 2700'
SCALE: 1" = 1800'

[Click here to access Satellite view]

Ortho (B) Map



Target Property (TP)
FRSTX
CALF
MSWLF
PST
RCRANGR06
IHW
MSWLF
PST
CERCLIS
NFRAP
RCRASUBC
LPST
BF

Quadrangle(s): Lancaster, Ferris
Loop 9: From I-35 E to I-45
County, Texas

N
W E
S

0' 900' 1800' 2700'
SCALE: 1" = 1800'

[Click here to access Satellite view]

Ortho (C) Map



Target Property (TP)
FRSTX
CALF
MSWLF
PST
RCRANGR06
IHW
MSWLF
PST
CERCLIS
NFRAP
RCRASUBC
LPST
BF

Quadrangle(s): Lancaster, Ferris
Loop 9: From I-35 E to I-45
County, Texas

N
W E
S

0' 900' 1800' 2700'
SCALE: 1" = 1800'

[Click here to access Satellite view]

Ortho (D) Map



Target Property (TP)
FRSTX
CALF
MSWLF
PST
RCRANGR06
IHW
MSWLF
PST
CERCLIS
NFRAP
RCRASUBC
LPST
BF

Quadrangle(s): Lancaster, Ferris
Loop 9: From I-35 E to I-45
County, Texas

N
W E
S

0' 900' 1800' 2700'
SCALE: 1" = 1800'

[Click here to access Satellite view]

Photo 1 - View north along the I-35E northbound frontage road of Body Shop/Auto Salvage Yard.

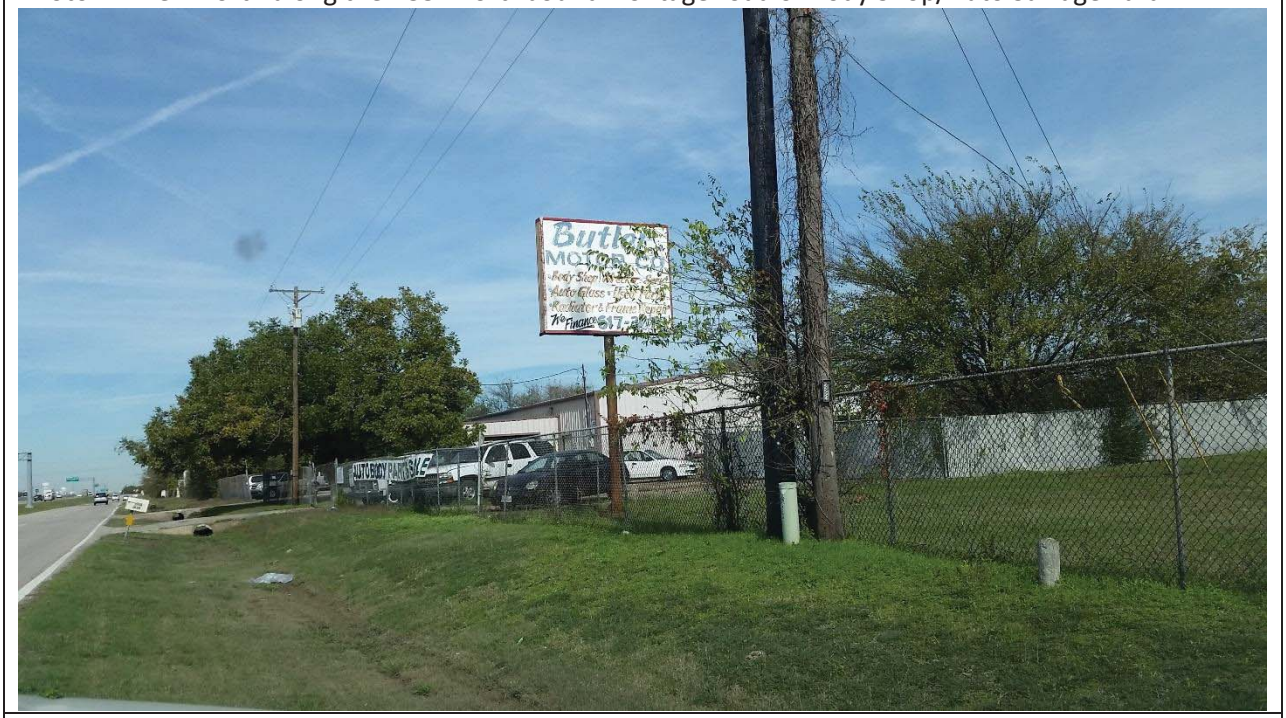


Photo 2 - Three Propane ASTs located at I-35E and I-45, along the I-35E northbound frontage road.

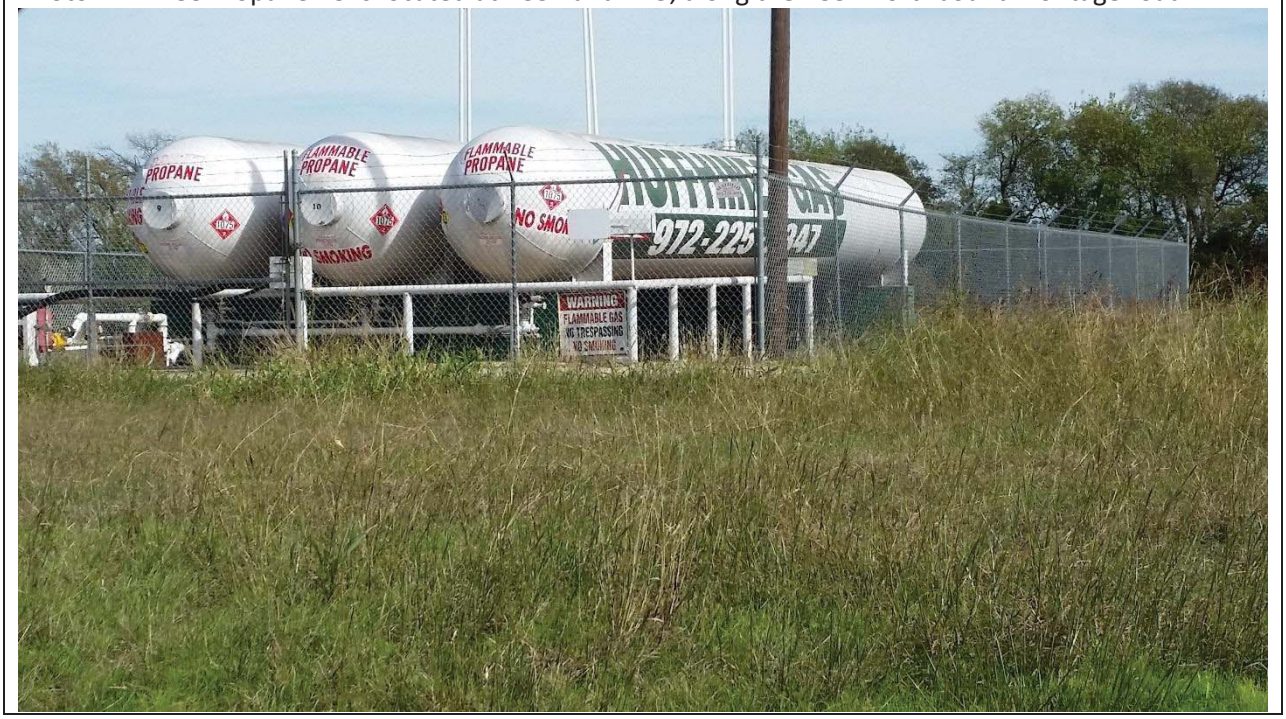


Photo 3 - View of Auto Salvage located along Tater Brown Road, just east of I-35E.



Photo 4 - View of dumping, miscellaneous waste, refrigerator, etc. on the north side of road at the intersection of Oak Dell and Tater Brown Road.



Photo 5 - View of dumping on property located on the south side of Reindeer Road, just west of SH 342.

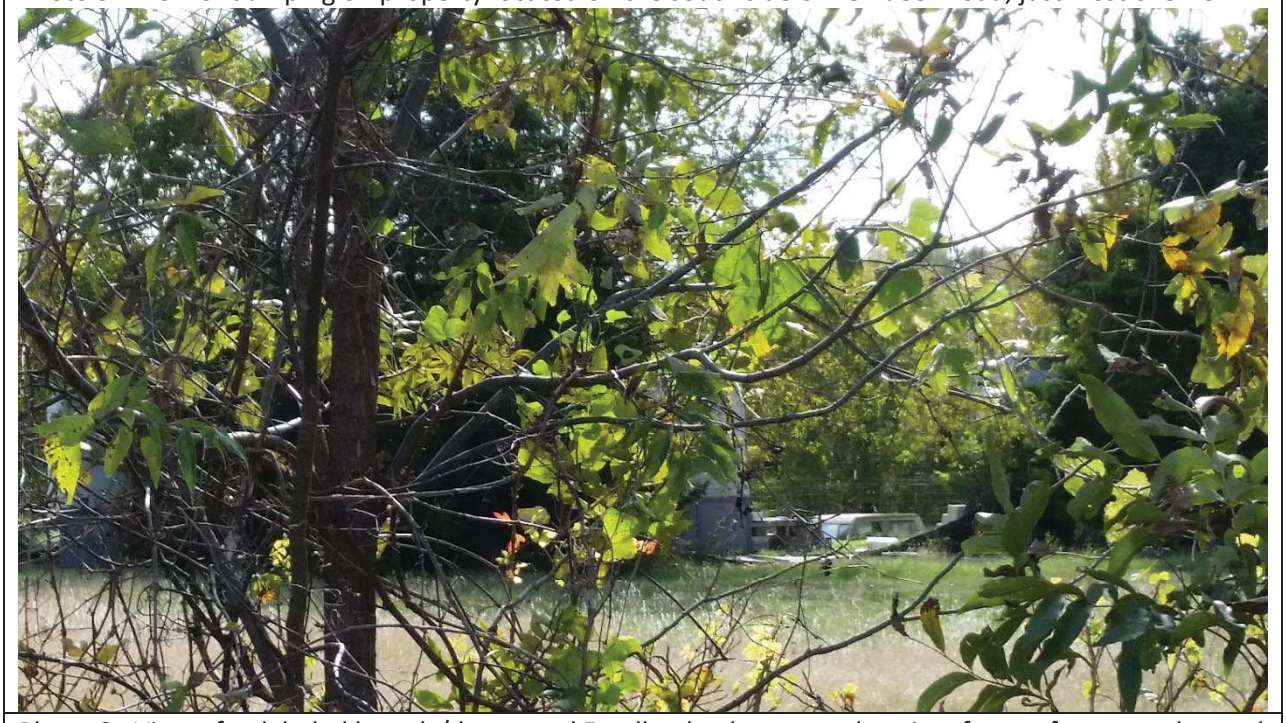


Photo 6 - View of unlabeled barrels/drums and 5-gallon buckets stored against fence of property located along Reindeer Road, just west of SH 342.



Photo 7 - View of potential dumping on property, abandoned vehicle, and AST located just east of SH 342.

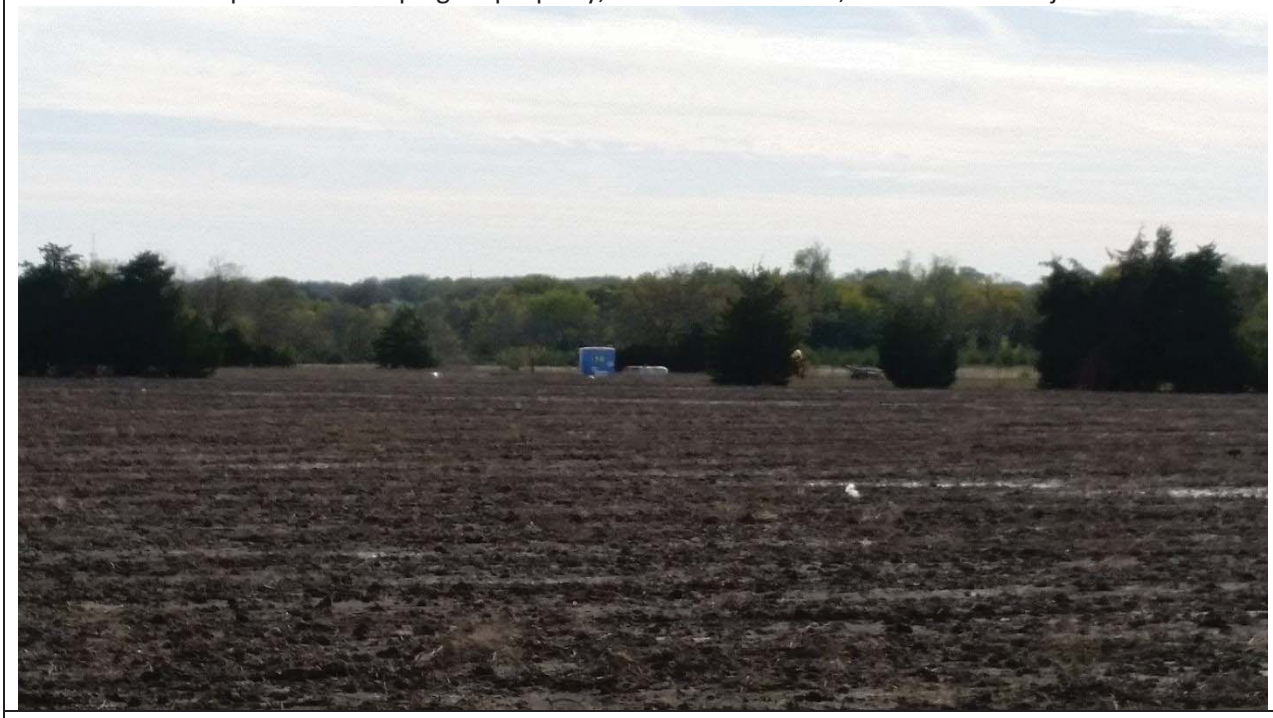


Photo 8 - View looking north at Map ID #2, Lancaster landfill. This site is listed as a CALF site and, based on latitude and longitude provided in the TCEQ information, is potentially situated within the proposed ROW.



Photo 9 - View looking north at Map ID #2, Lancaster landfill. This site is listed as a CALF site and, based on latitude and longitude provided in the TCEQ information, is potentially situated within the proposed ROW.



Appendix H

Traffic Noise Impact Assessment

Traffic Noise Impact Assessment

Loop 9

From Interstate Highway 35E (I-35E)
To I-45

CSJ: 2964-10-005
Dallas and Ellis Counties, Texas
Dallas District

Date: May 2017

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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Appendix B Ambient Background Noise Measurements (12 Pages)

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Figure 1 Project Vicinity Map
Figure 2 Location Map
Figure 3 Noise Receiver Location Map (11 Pages)

LIST OF ACRONYMS

dB	decibels
dB(A)	A-weighted decibels
FHWA	Federal Highway Administration
Ft	feet
I-	Interstate Highway
Leq	Single value is used to represent the average or equivalent sound level
NAC	Noise Abatement Criteria
ROW	right-of-way
SH	State Highway
TNM	Traffic Noise Model
TPP	Texas Department of Transportation Planning and Programming Division
TxDOT	Texas Department of Transportation

1. INTRODUCTION

The Texas Department of Transportation (TxDOT) - Dallas District, proposes the construction of a new location frontage road system between Interstate Highway I-35 East (I-35E) to I-45 through Dallas and Ellis counties, Texas (**Figures 1** and **2** in **Appendix A**). The approximate 10-mile new location frontage road system would begin at I-35E, near Red Oak, Texas, continuing in an easterly direction through the city of Lancaster to end at I-45, near Ferris, Texas. The proposed project would also include the preservation of right-of-way (ROW) for an ultimate access-controlled mainlane facility. Construction of the future mainlanes would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

The proposed Loop 9 facility begins at I-35E near Red Oak and continues to the east generally parallel to Tater Brown Road for approximately 1.0 mile. As Loop 9 crosses Houston School Road, it shifts to the northeast through portions of Lancaster and crosses W. Reindeer Road after a distance of approximately 0.75 mile. It then travels along W. Reindeer Road where it crosses Bear Creek before crossing the BNSF railroad and SH 342 (South Dallas Avenue/North Central Boulevard) after a distance of approximately 1.0 mile. Loop 9 continues traveling to the east for approximately 2.0 miles until it reaches E. Reindeer Road and then turns southeast for approximately 1.5 miles crossing into Ellis County and intersecting Nokomis Road. Loop 9 then veers to the northeast and crosses back into Dallas County parallel to Stainback Road for 1.5 miles, then crosses Ferris Road and Tenmile Creek and turns slightly northeast, just north of the Skyline Landfill and the Oncor transmission line corridor, and then crosses Business I-45 (North Central Street) and ends at I-45 near Ferris for a distance of 2.0 miles. The total project length is approximately 10 miles (**Figures 1** and **2** in **Appendix A**).

The proposed project would be constructed as a two three-lane frontage roads with a median (200 to 364 feet (ft) wide) reserved for the future ultimate access-controlled facility. The typical ROW for the project would vary from approximately 384 to 548 ft in width. The proposed project would consist of three 12-ft lanes with 8-ft inside shoulders and 8 ft outside shoulders. The width between the frontage roads and the ROW would be 40 ft at a minimum to allow room for drainage ditches. The median would remain unutilized until construction of the future ultimate facility at a later date.

The total area needed for the proposed new location project (existing ROW plus proposed ROW plus easements) is 727.02 acres. The total proposed ROW is 541.23 acres. Because the project crosses numerous other transportation facilities, it would utilize 182.44 acres of existing ROW. Temporary construction easements would not be required. Permanent drainage easements, totaling 3.35 acres, would be required in several locations.

The proposed new location frontage roads would include intersections at major cross roads along the proposed route to include I-35E, Houston School Road, State Highway (SH) 342 (South Dallas Avenue/North Central Boulevard), existing and future Reindeer Road, existing and future Nokomis Road, Ferris Road, Business I-45 (North Central Street), and I-45. Interchange connections to existing I-35E and I-45 would include ramping and frontage road modifications. The proposed project would also include the construction of a grade separation at I-35E and the BNSF Railroad.

The proposed project would likely be constructed in phases based on traffic needs and project funding. A logical sequence for staging the various elements for construction of the new location frontage road system could be as follows:

- Phase 1 would construct a single two-way frontage road, and would also acquire the proposed ROW to accommodate the frontage roads and future ultimate access-controlled (mainlane) facility.
- As traffic warrants and funding becomes available, Phase 2 would involve the construction of the second frontage road and the conversion of the two-way frontage road built in Phase 1 to a one-way operation.

The proposed Loop 9 new location frontage road is identified as rural and would provide an 8-ft outside shoulder width along the frontage roads for bicycle accommodations. Frontage roads located in the urbanized area of I-35E would consist of one 14-ft-wide outside shared-use lane (for bicycle accommodation) and a 6-ft sidewalk for pedestrian accommodation.

2. PROJECTED TRAFFIC

TxDOT – Transportation Planning and Programming Division (TPP) approved traffic data was used to determine design year traffic noise impacts and feasible and reasonable noise abatement. The data in **Table 1** below was utilized for Loop 9 and the Traffic Noise Model (TNM version 2.5).

Table 1: TPP Approved Traffic

Location	Average Daily Traffic		K-Factor	% Light Duty Vehicles	% Medium Duty Vehicles	% Heavy Duty Vehicles
	2020	2040				
From I-35E to I-45, Dallas and Ellis Counties	6,300	13,400	9.9	94.8	2.6	2.6

Source: *TPP Approved - Traffic Data Memo (February 26, 2016)*

3. NOISE ANALYSIS

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 Noise Abatement Criteria (NAC) in **Table 2** for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur.

Table 2: FHWA Noise Abatement Criteria (NAC)

Activity Category	dB(A) Leq	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of 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

Table 2: FHWA Noise Abatement Criteria (NAC)		
Activity Category	**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.

Because the proposed project is on a new location, existing noise levels were measured using an ANSI S1.4 type 2 Extech (model 407780) Integrating Sound Level Datalogger (sound level meter) at representative receivers along the corridor. The FHWA traffic noise modeling software was used to calculate 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.

Predicted traffic noise levels were modeled at receiver locations (**Table 3** and **Figure 3**) 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. See **Appendix B** for the ambient background noise measurements.

Table 3: Traffic Noise Levels dB(A) Leq						
Representative Receiver	NAC Category	NAC Level	Existing (2016)[1]	Predicted 2040	Change (+/-)[2]	Noise Impact
R1 - Residential	B	67	53	58	+5	No
R2 - Residential	B	67	54	60	+6	No
R3 - Residential	B	67	49	57	+8	No
R4 - Residential	B	67	57	62	+5	No
R5 - Residential	B	67	50	52	+2	No
R6 - Residential	B	67	41	52	+11	Yes
R7 - Residential	B	67	41	51	+10	No
R8 - Residential	B	67	41	50	+9	No
R9 - Residential	B	67	67	52	-15	No
R10 - Residential	B	67	67	51	-16	No
R11 - Residential	B	67	59	50	-9	No
R12 - Residential	B	67	43	52	+9	No
R13 - Residential	B	67	43	52	+9	No
R14 - Residential	B	67	43	54	+11	Yes
R15 - Residential	B	67	43	47	+4	No
R16 - Residential	B	67	50	60	+10	No
R17 - Residential	B	67	50	59	+9	No
R18 - Residential	B	67	40	59	+19	Yes
R19 - Residential	B	67	40	47	+7	No
R20 - Residential	B	67	53	48	-5	No

[1] – Existing ambient background measurements were collected on September 29, 2015 and September 30, 2015.
[2] – Irregular changes (negative and >10 dB(A)) are due to comparing background noise measurements to a TNM noise model on a new location roadway.

As indicated in **Table 3**, the proposed project would result in a traffic noise impact and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers.

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

Traffic management - Control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dB(A) per five 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 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.

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

> **R6, R14, and R18** - These receivers are separate, individual residences. Traffic noise barriers that would achieve the minimum feasible reduction of five dB(A) while achieving a seven dB(A) noise reduction design goal at each of these receivers would exceed the reasonable, cost-effectiveness criterion of $25,000.

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

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, no new activities are planned or constructed along or within the following predicted (2040) noise impact contours.

Land Use	Impact Contour	Distance from ROW
NAC category B & C	66 dB(A)	At ROW
NAC category E	71 dB(A)	Within ROW

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

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

4. REFERENCES

TxDOT. March 2011. "Guidelines for Analysis and Abatement of Roadway Traffic Noise".

_____.Project Description (CSJ: 2964-10-005), Purposed and Need, and Alternatives Analysis Loop 9: From I-35E to I-45 Dallas and Ellis Counties, Texas. 2016.

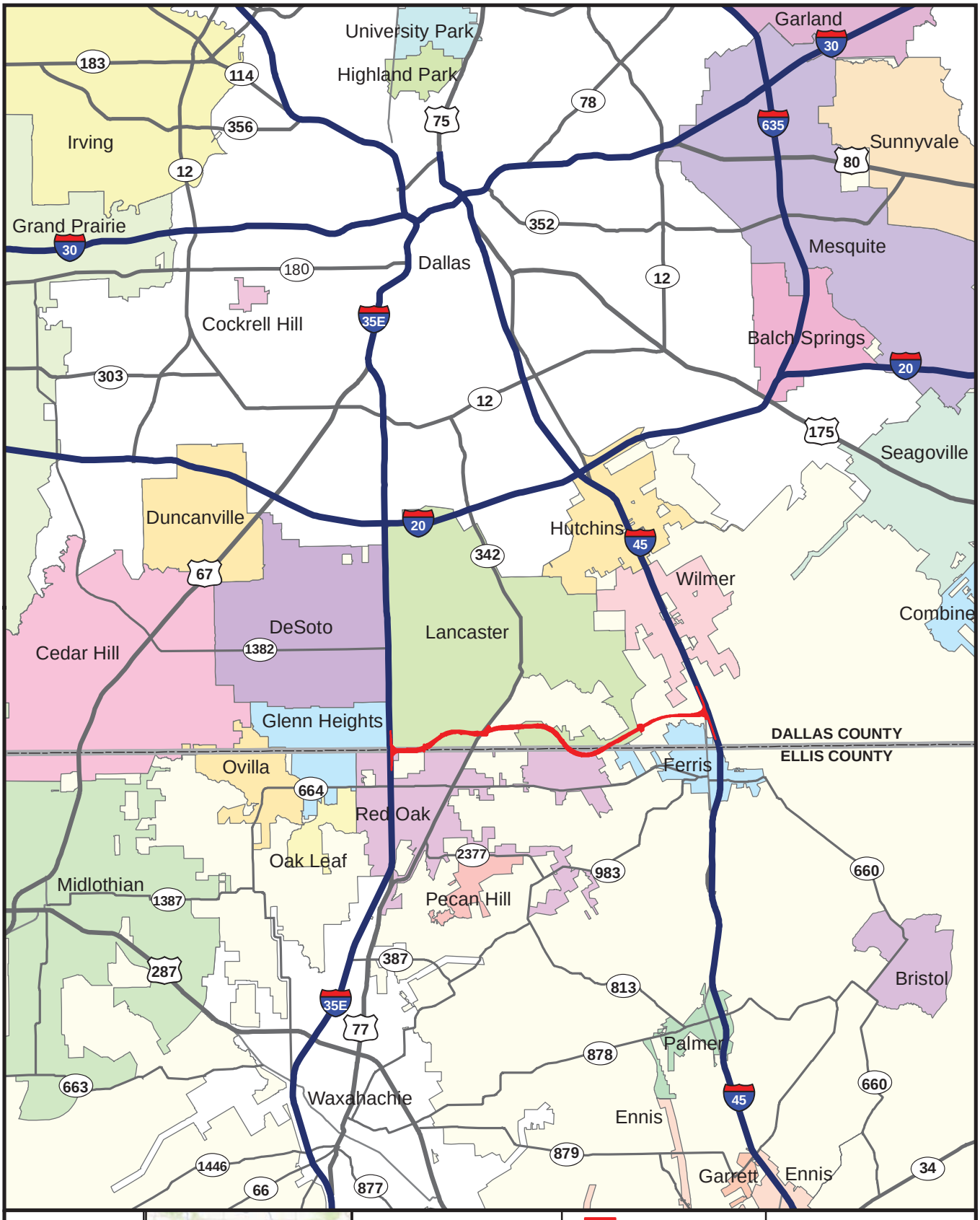
_____.Traffic Data (CSJ: 2964-01-005) Traffic Methodology and Projection. February 26, 2016.

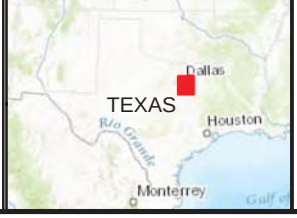
Appendix A: Figures

Loop 9 Traffic Noise Impact Assessment

Dallas and Ellis Counties, Texas

CSJ: 2964-10-005





0 2 4

Miles

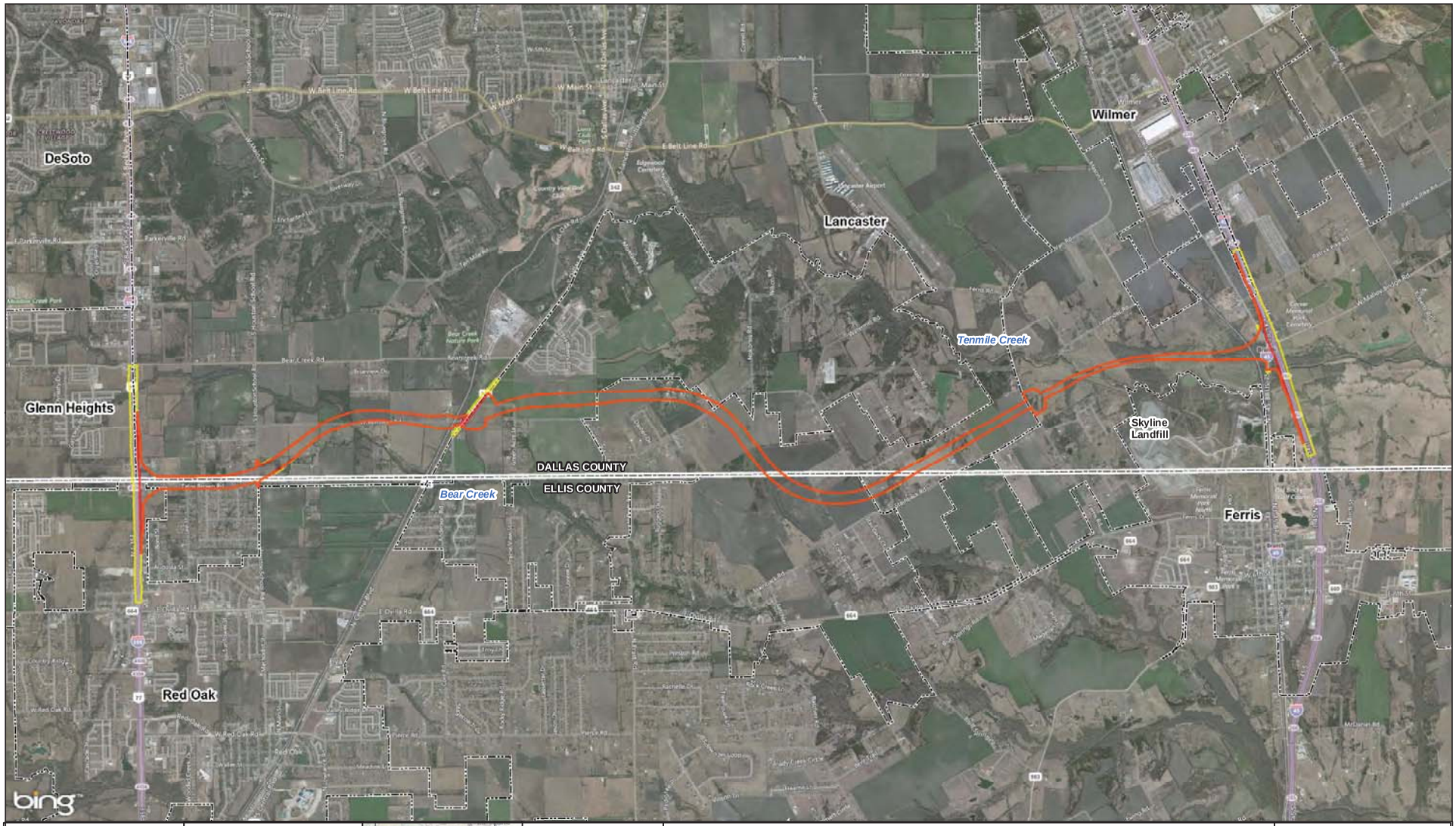
- Project Location
- Interstate Highway
- US Highway
- State Highway
- Farm to Market Road
- Other Road
- County Boundary

Figure 1
Project VicinityMap

Loop 9: I-35E to I-45
Dallas & Ellis Counties, Texas
CSJ: 2964-10-005

N:\Clients\S_T\TxDOT\Loop_9\geo\figs\Tech Report Maps 20160509\01_Vicinity.mxd

Date: 5/12/2016



Loop 9 SOUTHEAST

Dallas and Ellis Counties



0 2,000 4,000
Feet
0 0.25 0.5
Miles

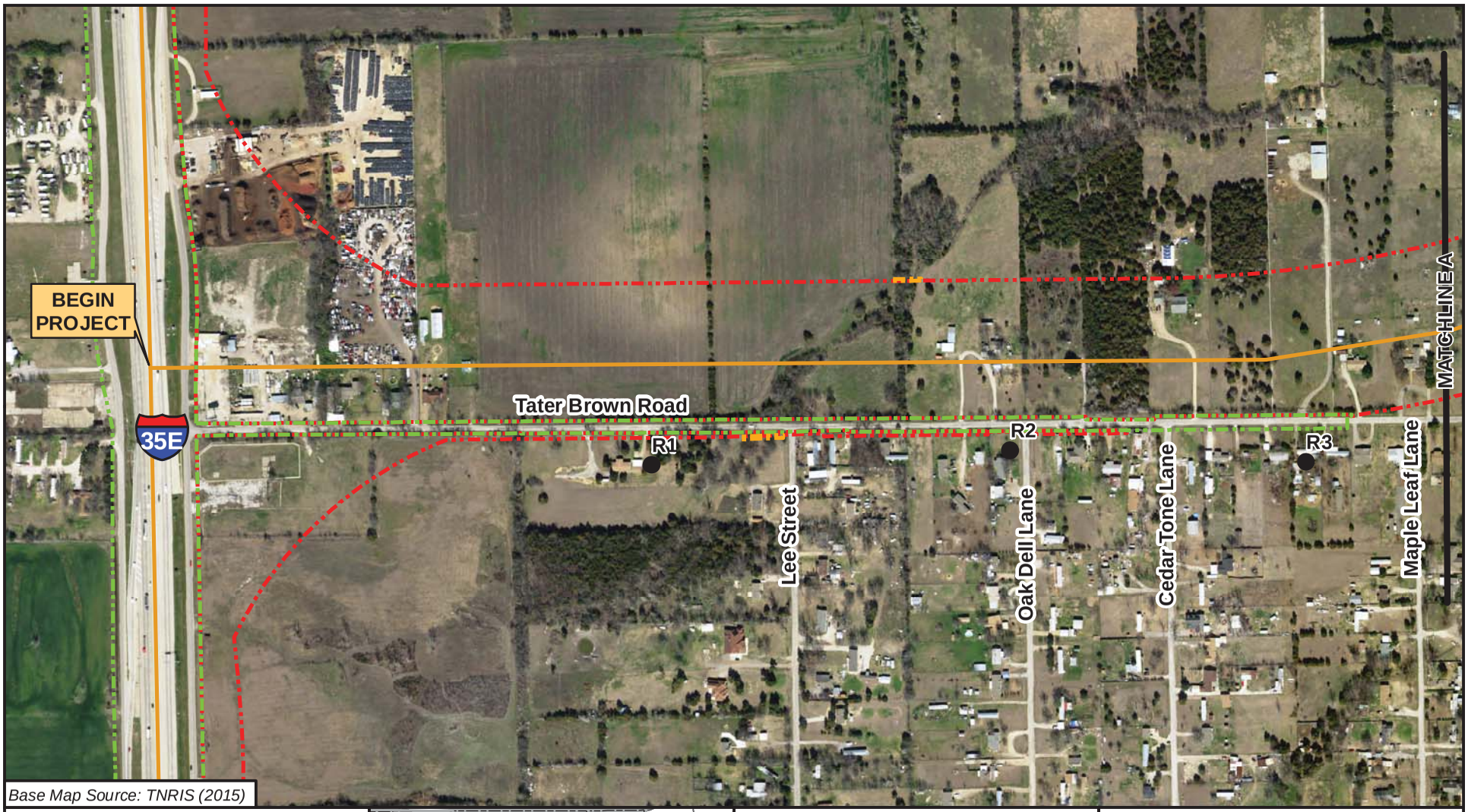
- Proposed Right of Way
- Construction Limits
- County Boundary
- City Limit

Figure 2
Location Map

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

N:\Clients\S_T\TxDOT\Loop_9\geo\figs\Tech Report Maps 20160509\02_Location.mxd

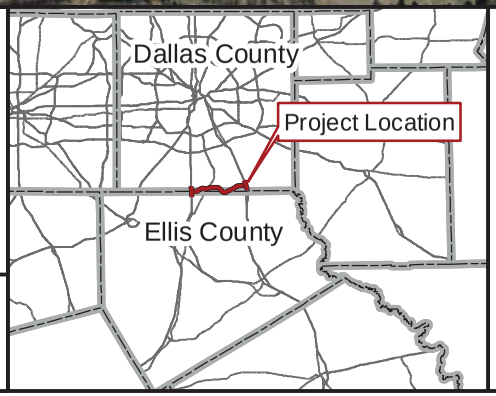
Date: 5/13/2016



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



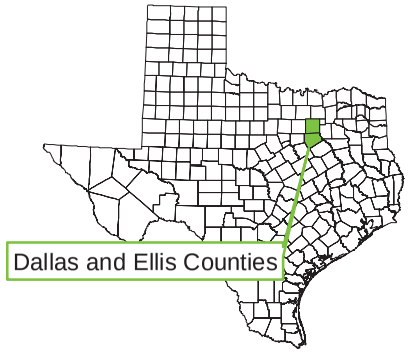


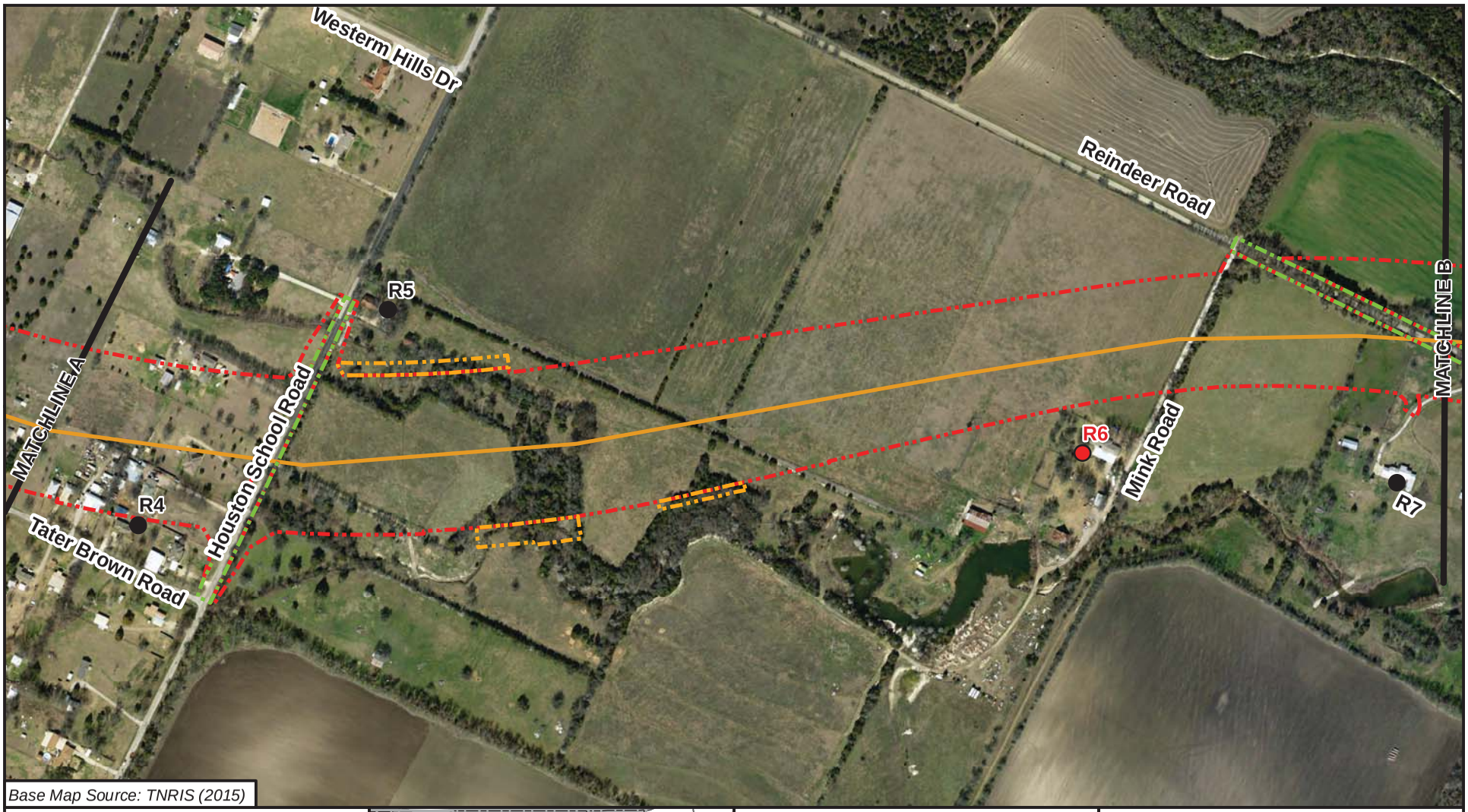
FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

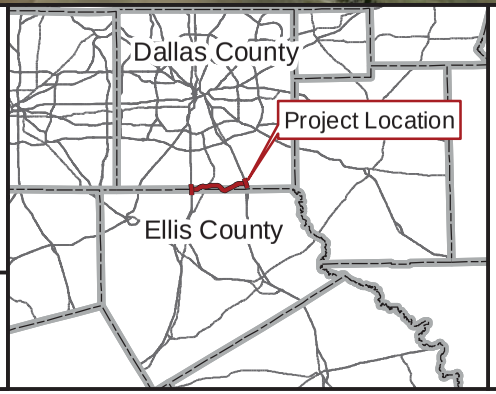
SHEET 1 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



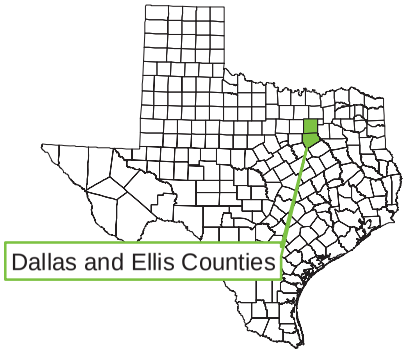


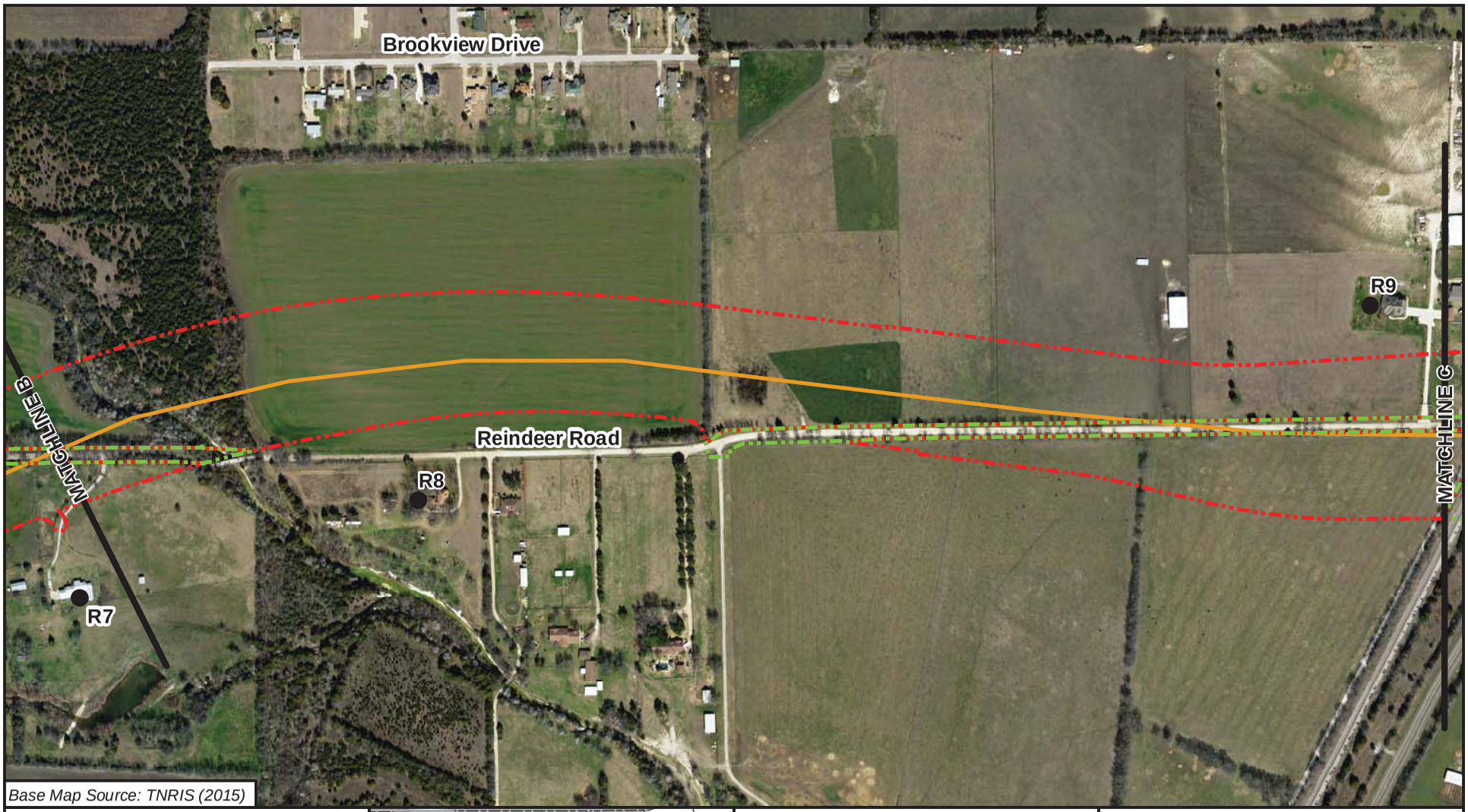
FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

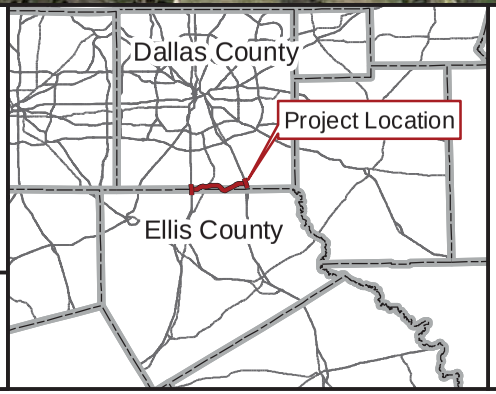
SHEET 2 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



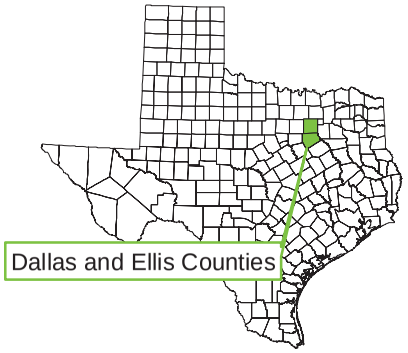


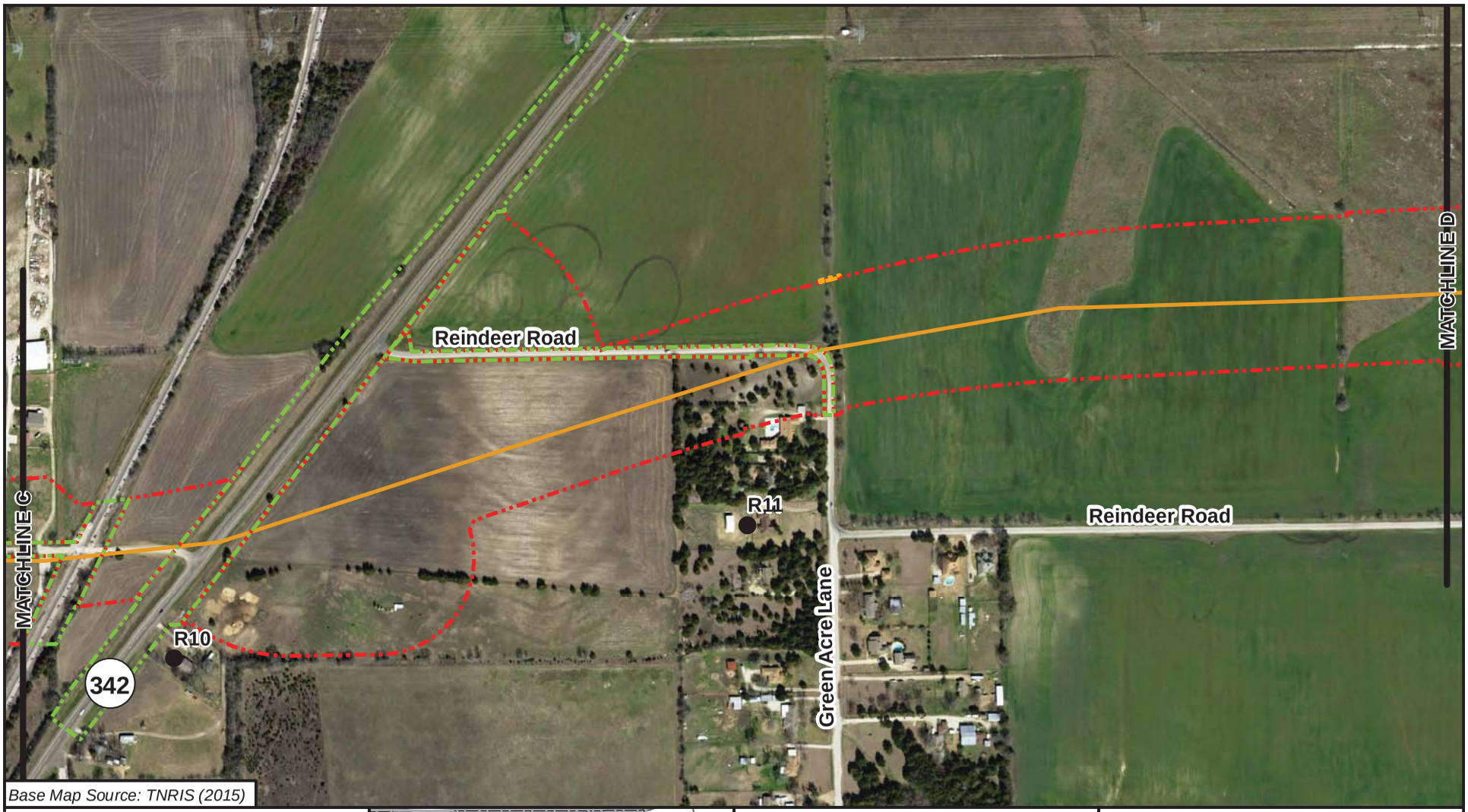
FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

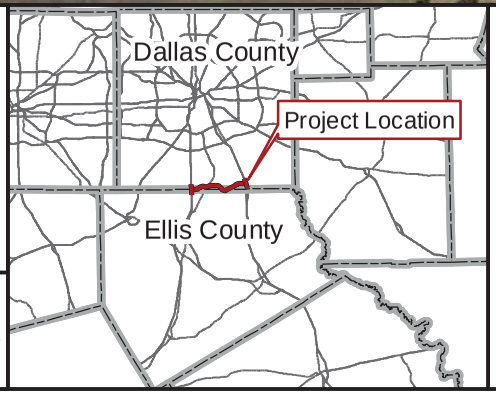
SHEET 3 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



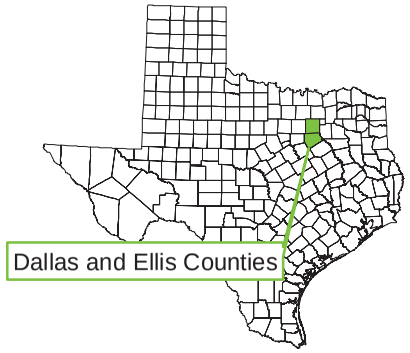


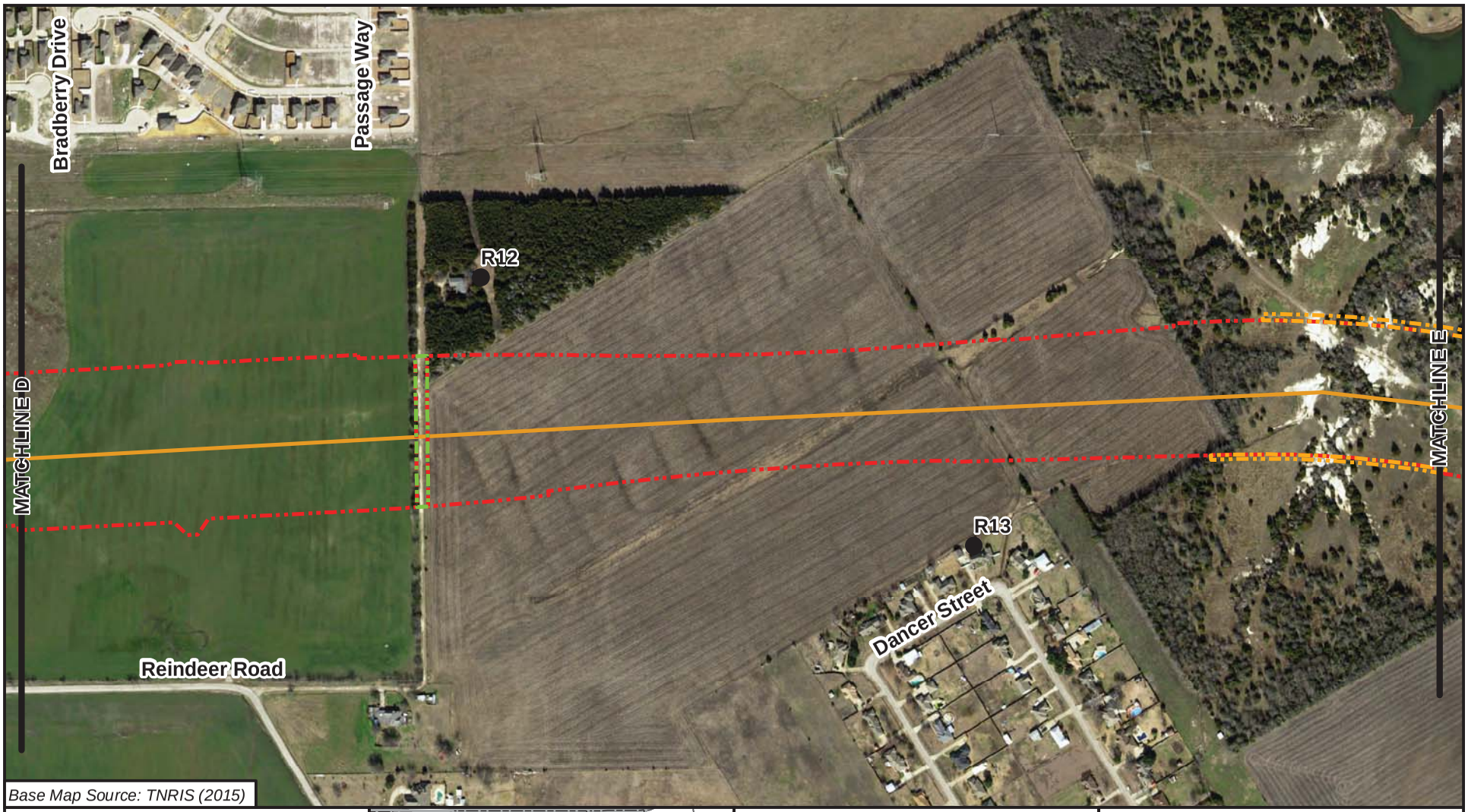
FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

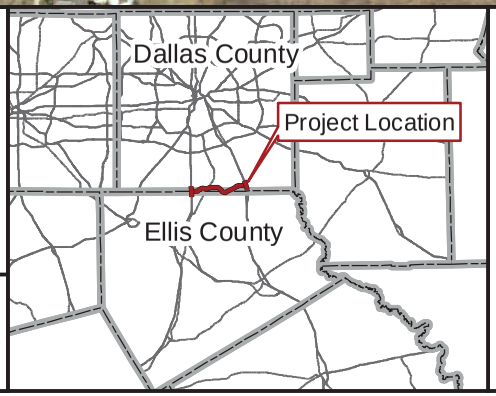
SHEET 4 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



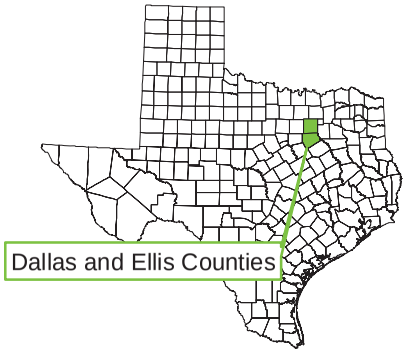


FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

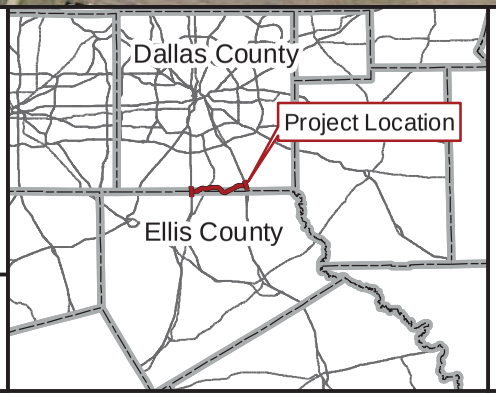
SHEET 5 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



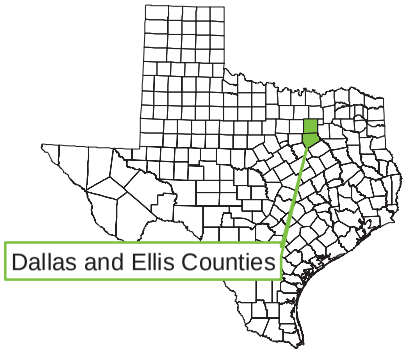


FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

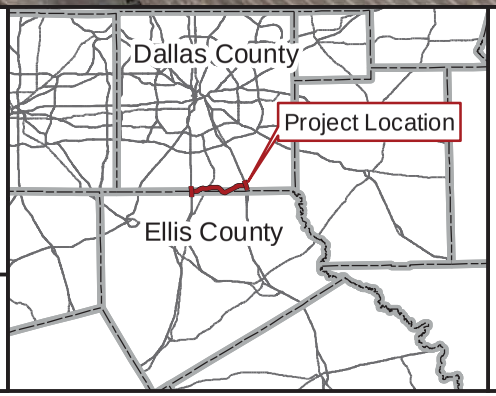
SHEET 6 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



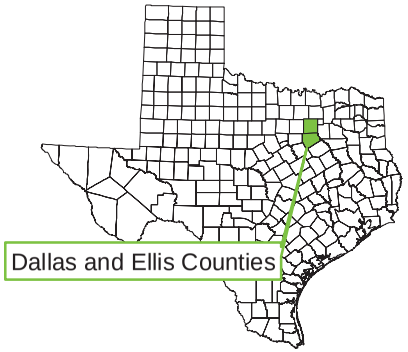


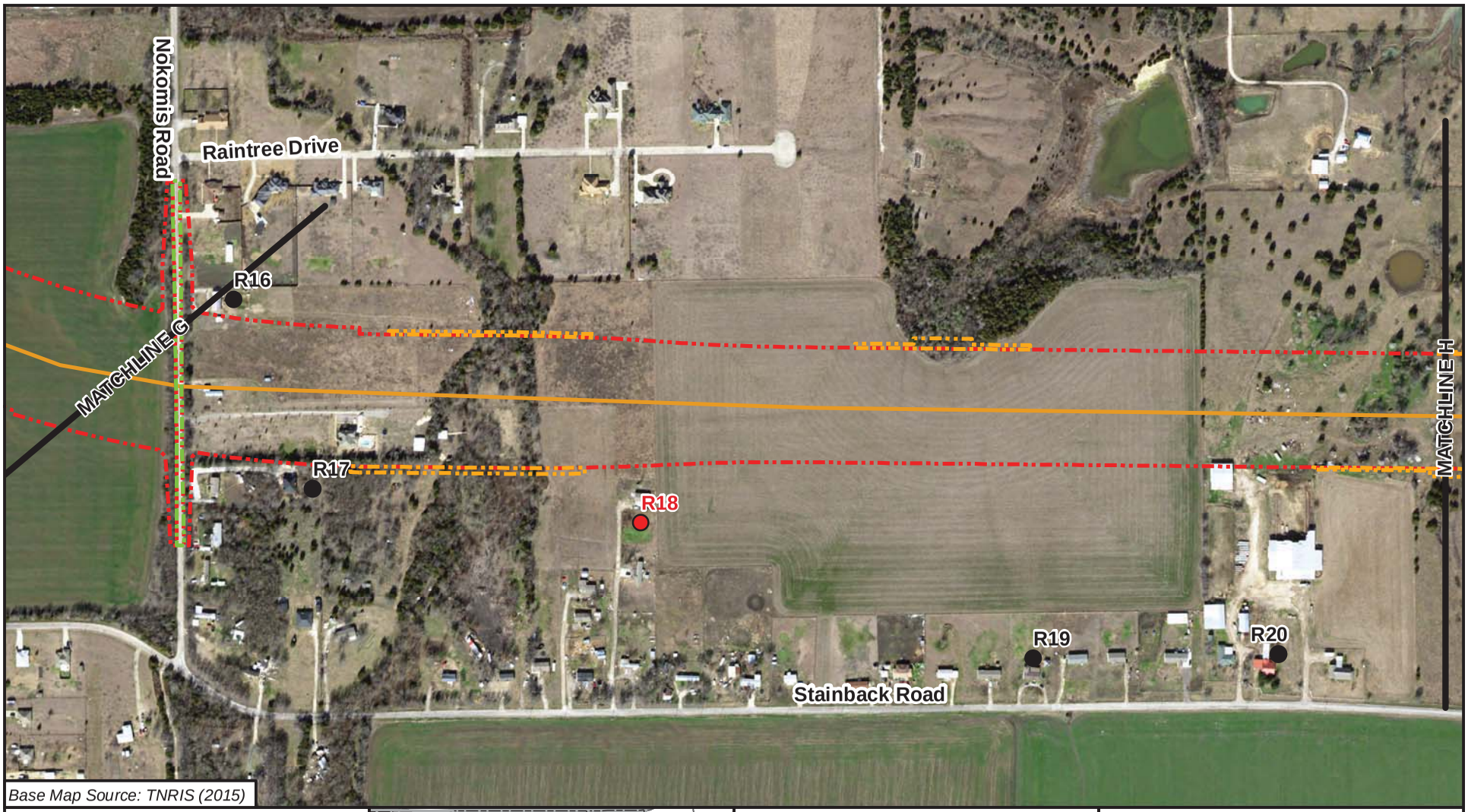
FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

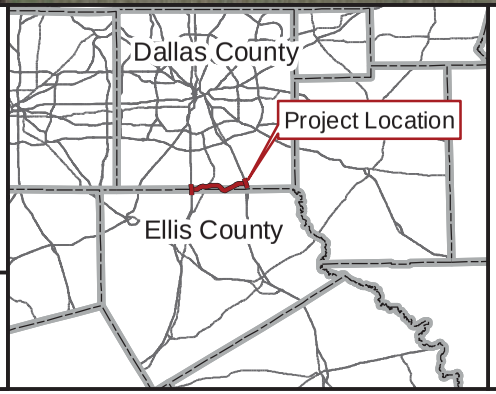
SHEET 7 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



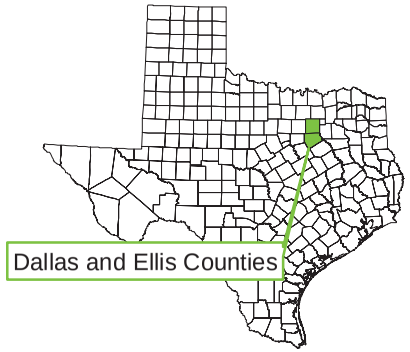


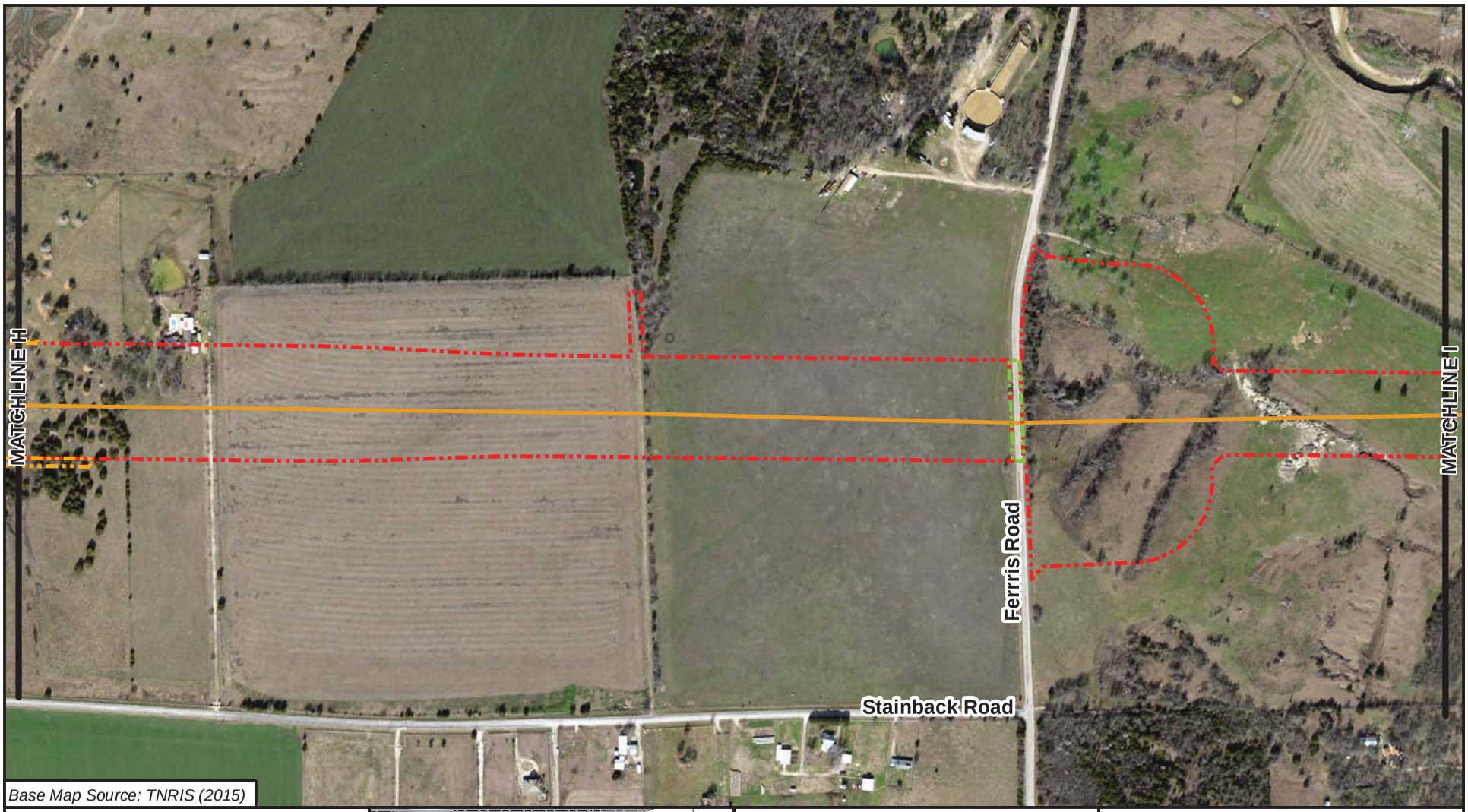
FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 8 OF 11

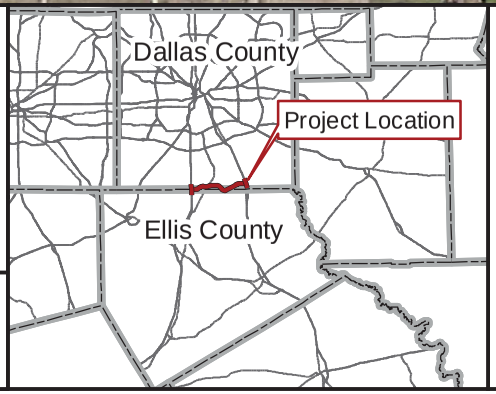


Base Map Source: TNRIS (2015)

Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



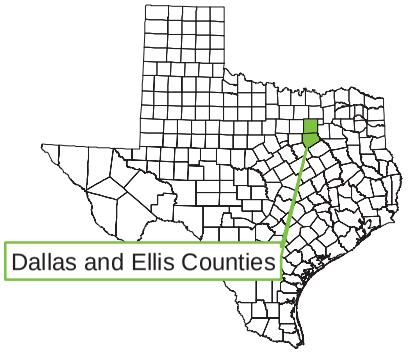


FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 9 OF 11

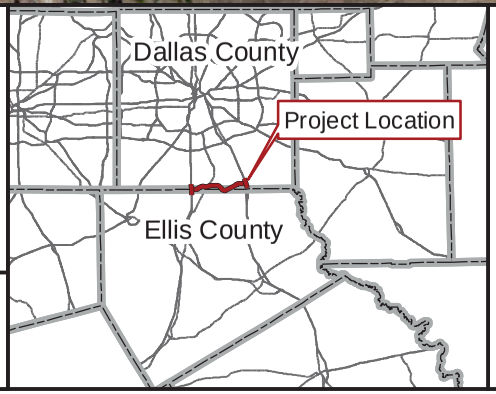


Base Map Source: TNRIS (2015)

Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



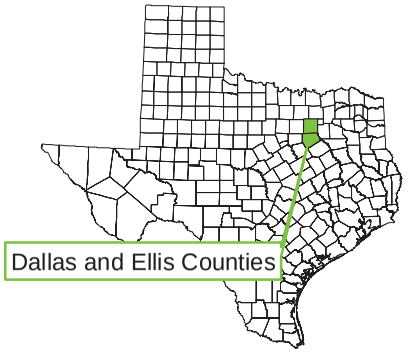


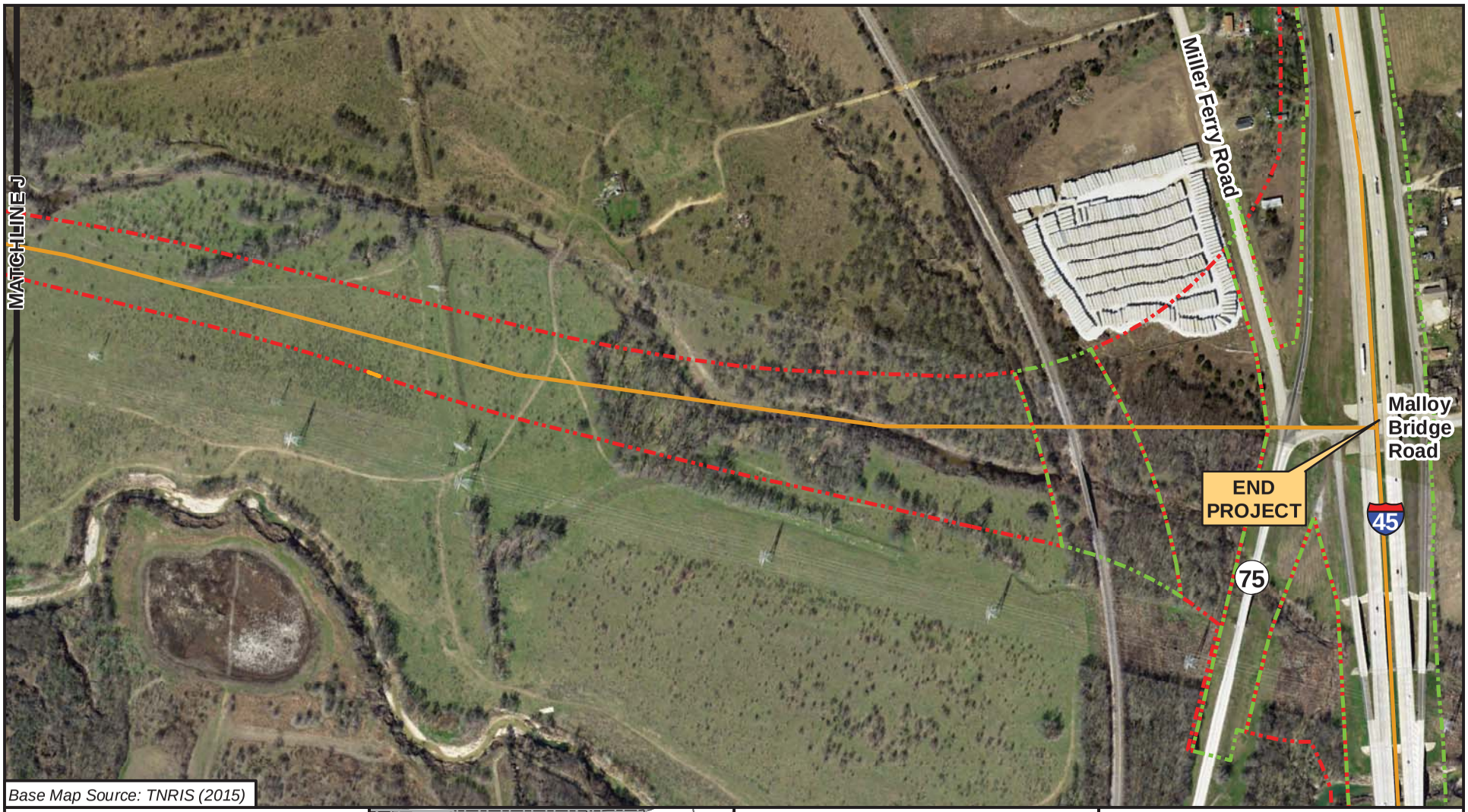
FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

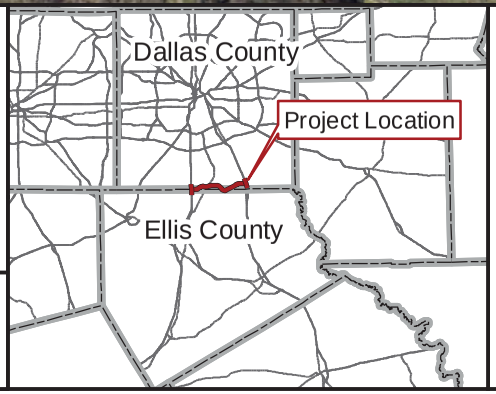
SHEET 10 OF 11



Legend

- Project Limits
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Easements
- Non-Impacted Noise Receiver
- Impacted Noise Receiver

Feet
0 250 500



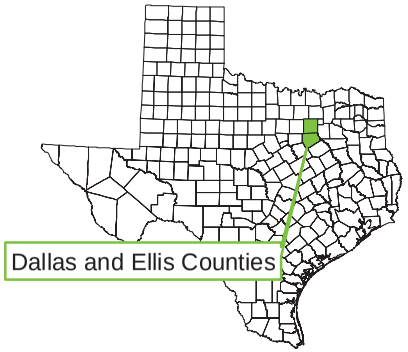


FIGURE 3
NOISE RECEIVER LOCATION MAP

LOOP 9
FROM I-35E TO I-45

DALLAS AND ELLIS COUNTIES

CSJ: 2964-10-005

SHEET 11 OF 11

Appendix B: Ambient Background Noise Measurements

Loop 9 Traffic Noise Impact Assessment

Dallas and Ellis Counties, Texas

CSJ: 2964-10-005

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N22 Description / Locatior Single Family Residential
Date: 9/30/2015 Weather: Clear and sunny with light winds.

Time: Start: 1:45:00 PM End: 2:00:00 PM
Duration: 15 minute
Leq (dBA): 53.9 Lmin (dBA): 39.8 L_{max} (dBA): 79.2
Lmax (dBA): 79.2 L_{min} (dBA): 39.8
Main Sources of Nois ☐ Planes ☒ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	Lee Street		
Autos	5		
Medium Trucks	0		
Heavy Trucks	0		

Site Sketch:



Notes:
Represents R1.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N21 Description / Locatior Single Family Residential
Date: 9/30/2015 Weather: Clear and sunny with light winds.

Time: Start: 1:20:00 PM End: 1:35:00 PM
Duration: 15 minute
Leq (dBA): 54.4 Lmin (dBA): 38.1 L_{max} (dBA): 79.0
Lmax (dBA): 79.0 L_{min} (dBA): 38.1
Main Sources of Nois ☐ Planes ☒ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	Tater Brown Road	Cedar Tone Lane	
Autos	8	0	
Medium Trucks	0	0	
Heavy Trucks	0	0	

Site Sketch:



Notes:

Dogs barking in background . Neighbor argument/dispute. Represents R2.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N20 Description / Locatior Single Family Residential
Date: 9/30/2015 Weather: Clear and sunny with light winds.

Time: Start: 12:59:00 PM End: 1:14:00 PM
Duration: 15 minute
Leq (dBA): 49.0 Lmin (dBA): -- L_{max} (dBA): --
Lmax (dBA): -- L_{min} (dBA): --
Main Sources of Nois [ ] Planes [X] Autos [ ] Trucks [ ] Construction
[ ] Other

Traffic Data			
Road Name	Tater Brown Road	Maple Leaf Lane	
Autos	1	0	
Medium Trucks	0	0	
Heavy Trucks	0	0	

Site Sketch:



Notes:
Represents R3.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N19 Description / Locatior Single Family Residential
Date: 9/30/2015 Weather: Clear and sunny.

Time: Start: 11:07:00 AM End: 11:22:00 AM
Duration: 15 minute
Leq (dBA): 57.1 Lmin (dBA): 38.6 L_{max} (dBA): 77.3
Lmax (dBA): 77.3 L_{min} (dBA): 38.6
Main Sources of Nois ☐ Planes ☐ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	Tater Brown Road		
Autos	4		
Medium Trucks	5		
Heavy Trucks	0		

Site Sketch:



Notes:
Dog Barking in background. Represents R4.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N18 Description / Locatior Single Family Residential
Date: 9/30/2015 Weather: Clear and sunny

Time: Start: 10:45:00 AM End: 11:00:00 AM
Duration: 15 minute
Leq (dBA): 50.9 Lmin (dBA): 37.5 L_{max} (dBA): 76.9
Lmax (dBA): 76.9 L_{min} (dBA): 37.5
Main Sources of Nois ☐ Planes ☒ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	Western Hills Dr.		
Autos	0		
Medium Trucks	1		
Heavy Trucks	0		

Site Sketch:



Notes:
Represents R5.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N17 Description / Locatior Single Family Residential
Date: 9/30/2015 Weather: Clear and sunny.

Time: Start: 10:14:00 AM End: 10:29:00 AM
Duration: 15 minute
Leq (dBA): 41.4 Lmin (dBA): 33.8 L_{max} (dBA): 62.0
Lmax (dBA): 62.0 L_{min} (dBA): 33.8
Main Sources of Nois ☐ Planes ☐ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	Reindeer Road		
Autos	0		
Medium Trucks	0		
Heavy Trucks	0		

Site Sketch:



Notes:
Represents R6, R7, and R8.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N13 Description / Locatior Single Family Residential
Date: 9/29/2015 Weather: Partly cloudy warm, and windy.

Time: Start: 4:10:00 PM End: 4:25:00 PM
Duration: 15 minute
Leq (dBA): 67.6 Lmin (dBA): 42.5 L_{max} (dBA): 93.5
Lmax (dBA): 93.5 L_{min} (dBA): 42.5
Main Sources of Nois ☐ Planes ☒ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	SH 342		
Autos	137		
Medium Trucks	1		
Heavy Trucks	3		

Site Sketch:



Notes:
Dogs barking in background.
Represents R9 and R10.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N12 Description / Locatior Single Family Residential
Date: 9/29/2015 Weather: Partly cloudy warm, and windy.

Time: Start: 3:49:00 PM End: 4:04:00 PM
Duration: 15 minute
Leq (dBA): 59.9 Lmin (dBA): 39.6 L_{max} (dBA): 84.2
Lmax (dBA): 84.2 L_{min} (dBA): 39.6
Main Sources of Nois [ ] Planes [X] Autos [ ] Trucks [ ] Construction
[ ] Other

Traffic Data			
Road Name	Reindeer Road		
Autos	19		
Medium Trucks	1		
Heavy Trucks	1		

Site Sketch:



Notes:

Background noise from SH 342 and a train horn. Represents R11.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistar RWP & JL

Site #: N09 Description / Locatior Single Family Residential
Date: 9/29/2015 Weather: Clear, warm and windy.

Time: Start: 2:40:00 PM End: 2:55:00 PM
Duration: 15 minute
Leq (dBA): 43.9 Lmin (dBA): 36.3 L_{max} (dBA): 62.7
Lmax (dBA): 62.7 L_{min} (dBA): 36.3
Main Sources of Nois ☐ Planes ☐ Autos ☐ Trucks ☐ Construction
☒ Other Railroad horn

Traffic Data			
Road Name	Dancer Street		
Autos	0		
Medium Trucks	0		
Heavy Trucks	0		

Site Sketch:



Notes:

Light breeze. Represents R12, R13, R14, and R15.

NOISE MEASUREMENT DATA SHEET

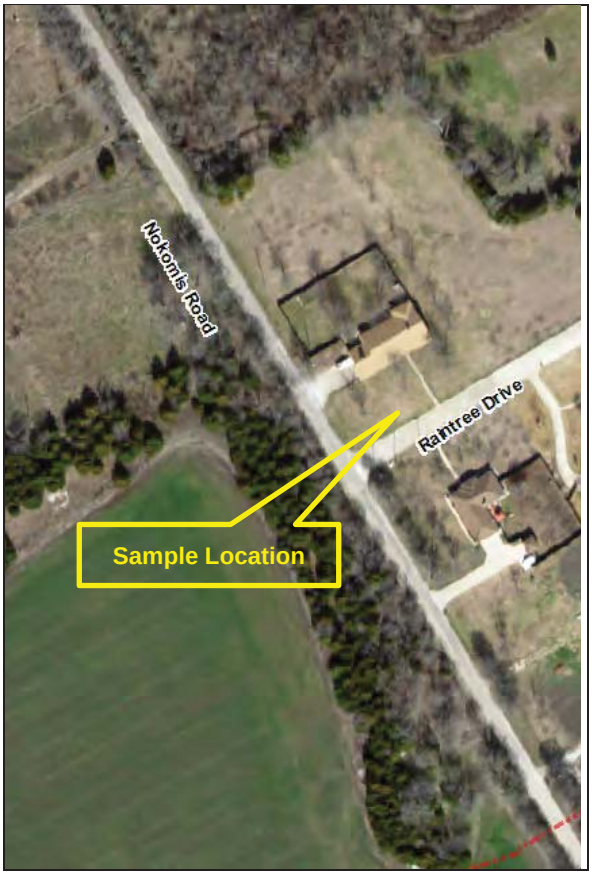
PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N06 Description / Locatior Single Family Residential
Date: 9/29/2015 Weather: Clear and warm with a light breeze.

Time: Start: 12:21:00 PM End: 12:36:00 PM
Duration: 15 minute
Leq (dBA): 50.0 Lmin (dBA): 34.2 L_{max} (dBA): 82.2
Lmax (dBA): 82.2 L_{min} (dBA): 34.2
Main Sources of Nois ☐ Planes ☒ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	Nakomis Road	Raintree Drive	
Autos	11	11	
Medium Trucks	0	0	
Heavy Trucks	0	0	

Site Sketch:



Notes:
Represents R16 and R17.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N05 Description / Locatior Single Family Residential
Date: 9/29/2015 Weather: Clear and warm with a light breeze.

Time: Start: 12:01:00 PM End: 12:16:00 PM
Duration: 15 minute
Leq (dBA): 39.8 Lmin (dBA): 34.1 L_{max} (dBA): 61.2
Lmax (dBA): 61.2 L_{min} (dBA): 34.1
Main Sources of Nois ☐ Planes ☐ Autos ☐ Trucks ☐ Construction
☐ Other

Traffic Data			
Road Name	Raintree Drive		
Autos	0		
Medium Trucks	0		
Heavy Trucks	0		

Site Sketch:



Notes:

No cars. Represents R18 and R19.

NOISE MEASUREMENT DATA SHEET

PROJECT Loop 9 CSJ / CAI # 2964-10-005
Meter Operator / Assistai RWP & JL

Site #: N04 Description / Locatior Open and grassy
Date: 9/29/2015 Weather: Clear and cool with a light breeze.

Time: Start: 11:38:00 AM End: 11:53:00 AM
Duration: 15 minute
Leq (dBA): 53.4 Lmin (dBA): 34.7 L_{max} (dBA): 74.4
Lmax (dBA): 74.4 L_{min} (dBA): 34.7
Main Sources of Nois [ ] Planes [X] Autos [ ] Trucks [ ] Construction
[X] Other Dogs Barking

Traffic Data			
Road Name	Steinbeck Road	Ferris Road	
Autos	5	0	
Medium Trucks	0	0	
Heavy Trucks	0	0	

Site Sketch:



Notes:
Represents R20.

Appendix I

Indirect and Cumulative Impacts Technical Report

Indirect and Cumulative Impacts Technical Report
Loop 9
From I-35E to I-45
Dallas and Ellis Counties, Texas

CSJ: 2964-10-005

March 2017

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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List of Acronyms

ac	acre(s)
AOI	Area of Influence
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CRA	Clean River Act
CRP	Clean Rivers Program
DFW	Dallas-Fort Worth Area
FHWA	Federal Highway Administration
I-35	Interstate 35
IIPOD	International Inland Port of Dallas
mi^2	square miles
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NCTCOG	North Central Texas Council of Governments
ROW	right-of-way
RSA	Resource Study Area
SGCN	Species of Greatest Conservation Need
SWPPP	Storm Water Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TxDOT	Texas Department of Transportation

1. Project Overview

The Texas Department of Transportation (TxDOT) - Dallas District, proposes the construction of a new location frontage road system between Interstate Highway I-35 East (I-35E) to I-45 through Dallas and Ellis counties, Texas (**Figures 1** and **2** in **Appendix A**). The approximate 10-mile new location frontage road system would begin at I-35E, near Red Oak, Texas, continuing in an easterly direction through the city of Lancaster to end at I-45, near Ferris, Texas. The proposed project would also include the preservation of right-of-way (ROW) for an ultimate access-controlled mainlane facility. Construction of the future mainlanes would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

The proposed Loop 9 facility begins at I-35E near Red Oak and continues to the east generally parallel to Tater Brown Road for approximately 1.0 mile. As Loop 9 crosses Houston School Road, it shifts to the northeast through portions of Lancaster and crosses W. Reindeer Road after a distance of approximately 0.75 mile. It then travels along W. Reindeer Road where it crosses Bear Creek before crossing the Burlington Northern Santa Fe (BNSF) Railway and SH 342 (South Dallas Avenue/North Central Boulevard) after a distance of approximately 1.0 mile. Loop 9 continues traveling to the east for approximately 2.0 miles until it reaches E. Reindeer Road and then turns southeast for approximately 1.5 miles crossing into Ellis County and intersecting Nokomis Road. Loop 9 then veers to the northeast and crosses back into Dallas County parallel to Stainback Road for 1.5 miles, then crosses Ferris Road and Tenmile Creek and turns slightly northeast, just north of the Skyline Landfill and the Oncor transmission line corridor, and then crosses Business I-45 (North Central Street) and ends at I-45 near Ferris for a distance of 2.0 miles. The total project length is approximately 10 miles (**Figures 1** and **2** in **Appendix A**).

The proposed project would be constructed as two three-lane frontage roads with a median (200 to 364 feet wide) reserved for the future ultimate access-controlled facility. The typical ROW for the project would vary from approximately 384 to 548 feet in width. The proposed project would consist of three 12-foot lanes with 8-foot inside shoulders and 8-foot outside shoulders. The width between the frontage roads and the ROW would be 40 foot at a minimum to allow room for drainage ditches. The median would remain unutilized until construction of the future ultimate facility at a later date.

The total area needed for the proposed new location project (existing ROW plus proposed ROW plus easements) is 727.02 acres. The total proposed ROW is 541.23 acres. Because the project crosses numerous other transportation facilities, it would utilize 182.44 acres of existing ROW. Temporary construction easements would not be required. Permanent drainage easements, totaling 3.35 acres, would be required in several locations.

The proposed new location frontage roads would include intersections at major cross roads along the proposed route to include I-35E, Houston School Road, State Highway (SH) 342 (South Dallas Avenue/North Central Boulevard), existing and future Reindeer Road, existing and future Nokomis Road, Ferris Road, Business I-45 (North Central Street), and I-45. Interchange connections to existing I-35E and I-45 would include ramping and frontage road modifications. The proposed project would also include the construction of grade separations at I-35E and the BNSF Railway.

The proposed project would likely be constructed in phases based on traffic needs and project funding. A logical sequence for staging the various elements for construction of the new location frontage road system could be as follows:

- **Phase 1** would construct a single two-way frontage road, and would also acquire the proposed ROW to accommodate the frontage roads and future ultimate access-controlled (mainlane) facility.
- As traffic warrants and funding becomes available, **Phase 2** would involve the construction of the second frontage road and the conversion of the two-way frontage road built in Phase 1 to a one-way operation.

The proposed Loop 9 new location frontage road is identified as rural and would provide an 8-foot outside shoulder width along the frontage roads for bicycle accommodations. Frontage roads located in the urbanized area of I-35E would consist of one 14-foot-wide outside shared-use lane (for bicycle accommodation) and a 6-foot sidewalk for pedestrian accommodation.

2. Indirect Effects

The assessment was conducted in accordance with the Council on Environmental Quality (CEQ), Federal Highway Administration (FHWA) and TxDOT regulations and guidance documents. The CEQ (40 CFR 1508.8) defines indirect impacts as:

> *"…effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects 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."*

Methodologies to be utilized for this assessment relied heavily on planning judgment, stakeholder input and trend analysis. A qualitative/quantitative indirect assessment was conducted as appropriate for the project scope in accordance with TxDOT's July 2016 *Guidance: Indirect Impact Analysis,* the July 2016 *Cumulative Impacts Analysis Guidelines* and the March 2014 *Environmental Handbook: Indirect and Cumulative Impacts*. The TxDOT indirect impacts analysis process focuses on the project's likelihood to induce growth and

the effects of that growth. The indirect process begins with an induced growth impact analysis and if necessary would include an encroachment alteration impacts analysis. The method for induced growth impacts is outlined in **Table 1**.

Table 1: Six-Step Approach to Induced Growth Impacts Analysis

Step	Description
Step 1	**Methodology:** The basic approach, effort required.
Step 2	**Define the Area of Influence (AOI)**: Geographical boundaries of the project area are determined and also the study timeframe.
Step 3	**Induced Growth Identification:** Identify areas subject to induced growth in the AOI.
Step 4	**Determination of Induced Growth:** Determine if growth is likely to occur in the induced growth areas.
Step 5	**Identify Resources Subject to Induced Growth Impacts:** If it is determined that induced growth might occur, this step identifies the resources that could be impacted by the possible growth.
Step 6	**Identify Potentially Mitigation:** Develop mitigation options and evaluates those options for practicality.

Source: TxDOT (2016a).

2.1 Step 1: Methodology

The proposed project is located in Dallas and Ellis counties and includes the municipalities of Lancaster and Red Oak. The City of Ferris located directly adjacent to the proposed project. The Build Alternative consists of constructing a new location, divided highway route. The Build Alternative length is 10 miles and encompasses approximately 541.23 acres (ac) of proposed ROW.

It was determined that the planning judgment method of induced growth impacts analysis would be appropriate for the proposed project. Data collected from interviews with city officials and stakeholder owners were considered, along with population trends, growth forecasts and mapping data. Questionnaires were sent to staff of the following entities; North Texas Tollway Authority, Dallas and Ellis Counties, the cities of Ferris, Red Oak and Wilmer. The questionnaire used to gather information from the above stakeholders focused on development trends, future development, utilities and comprehensive plans. The complete questionnaire and the list of stakeholders is presented in **Appendix B**. Other factors considered when selecting the methodology included project attributes presented in the following section.

2.1.1 Project Attributes and Context

The proposed project is located southern Dallas and northern Ellis counties (**Figures 1** and **2** in **Appendix A**). A total of 10 miles from I-35 near Red Oak to I-45 near Ferris.

The proposed project would be constructed as two three-lane frontage roads with a median (200 to 364 feet wide) reserved for the future ultimate access-controlled facility. The typical ROW for the project would vary from approximately 384 to 548 feet in width. The proposed project would consist of three 12-foot lanes with 8-foot inside shoulders and 8-foot outside shoulders. The width between the frontage roads and the ROW would be 40 foot at a minimum to allow room for drainage ditches. The median would remain unutilized until construction of the future ultimate facility at a later date.

The purpose of the proposed project is to:

- Provide a facility that would accommodate expanding transportation demands resulting from population growth and economic development in the region.
- Improve mobility and safety.
- Provide an east-west transportation facility to serve the communities in the project area.

The proposed improvements are intended to satisfy the following needs identified within the proposed project corridor:

- Population Growth – Within the communities in the study area, the population is forecasted to increase nearly 89 percent (%) between 2000 to 2040.
- Transportation Demand – Increasing development of industrial and commercial facilities has positively affected economic growth for communities within the study, which has in-turn, increased transportation demand. All roadways in the study area would experience deterioration in level of service (LOS) between 2012 and 2035. The existing transportation infrastructure serving these communities is insufficient to effectively meet the access and mobility needs associated with growth.
- System Linkages – Within the study area, the existing roadway system provides sufficient north-south radial access but lacks continuous east-west transportation facilities to serve these growing communities.
- Connectivity Among Existing Roadway Facilities – The current transportation infrastructure does not adequately provide connectivity between the communities in the study area thereby inhibiting emergency response, access to services, employers, major freight and trucking yards, transit services, and other community facilities.

Numerous project characteristics influence the methods and level of effort used: characteristics, such as project type, scale, scope, stage of the study, project setting, design

features, the project purpose and data available. Table 2 introduces the level of effort determined for the indirect impacts analysis through the scoping process.

Table 2: Level of Effort Required for Indirect Impact Analysis

Project Variables		Assessment Methodology
Project Type	New location frontage road system	Quantitative
Project Scale	Medium, based on corridor length	Quantitative
Stage of Study	Design Alternatives	Quantitative
Project Setting	Suburban and Rural	Qualitative
Design Features	New location frontage road system	Qualitative/Quantitative
Project Purpose	Provide an east-west transportation facility to serve the communities in the project area.	Qualitative
Data Available	Area maps, interview questionnaires, planning documents, demographic, and site reconnaissance	Qualitative/Quantitative

Source: TxDOT (2010).

2.2 Step 2: Define the Area of Influence and Study Timeframe

Local city officials and planners were asked to consider where future development would be expected to occur within their jurisdictions for the Build Alternative and No-Build Alternative through 2040. The year 2040 was used for the future temporal boundary for both the indirect and cumulative effects because it is the planning year for the 2040 Metropolitan Transportation Plan (MTP) and the project. Development would continue past 2040; therefore, these scenarios do not represent the ultimate development for these jurisdictions. After the local planners and city officials identified those anticipated developments, they placed them into two categories:

- Development dependent on the Build Alternative
- Development independent of the Build Alternative (No-Build Alternative)

The results of the conversations with local planners and city officials were translated into GIS to assist in the development of the potential Area of Influence (AOI). The AOI defines the extent of where indirect impacts are likely to occur for the proposed project, as all indirect impacts would occur outside of the proposed ROW.

The AOI encompasses approximately 50,609 ac or approximately 79 square miles (mi^2) of land and includes induced development identified by the local officials and planners. The AOI was also selected to include areas identified in questionnaires sent to planners in Dallas and Ellis counties as most likely to see growth associated with the Build Alternative (see

Appendix B). The AOI boundary for the proposed project is located within the planning boundaries of the North Central Texas Council of Governments (NCTCOG) and encompasses parts of Dallas and Ellis counties, the cities of Hutchins, Lancaster, Wilmer, Ferris and Red Oak (**Figure 3**). To the northeast, the AOI boundary encompasses the parcels and facilities of the International Inland Port of Dallas (IIPOD). Because the Build Alternative would facilitate the movement of freight, it was necessary for the AOI to include the IIPOD facilities, which handle millions of pounds of goods annually. Also, Loop 9 would have economic impact to the IIPOD. In order to include the city of Red Oak, the southwest boundary of the AOI is Uhl Road. The city of Red Oak anticipates that Loop 9 would be a key transportation connector for the city. To the northwest the boundary is Old Hickory Trail, this was selected because it includes the furthest northwest IIPOD-owned property. To the south the boundary is US 77 and Shawnie Road in order to encompass the city of Red Oak.

2.2.1 Time Frame for Assessing Indirect Impacts

The NCTCOG is a voluntary association of, by and for local governments and was established to assist local governments in planning and coordinating regional development. It functions as the Metropolitan Planning Organization (MPO) responsible for comprehensive transportation planning in the region. The NCTCOG encompasses 16 counties (including Dallas and Ellis counties) and incorporated cities, municipalities, towns and villages within north Texas.

The proposed project is included in the NCTCOG Mobility 2040. Indirect impacts were analyzed for the time period from construction of the proposed project until 2040, which is the planning year for the MTP. The temporal boundary for the analysis of indirect impacts extends to 2040, which is consistent with NCTCOG's planning horizon year of Mobility 2040.

2.3 Step 3: Identify Areas Subject to Induced Growth in the AOI

Excluding land in the floodplain the AOI encompasses 50,609 acres. In 2005, there were 14,464 acres of developed land in the AOI and 36,145 acres of available land (**Figure 4**). As of 2013, there were 19,100 acres of developed land, which is a change of 4,636 acres. As of 2013, there were 31,509 acres of available land for development (**Figure 5**). The proposed project occurs in a relatively rural area but close to the urban area of the cities of Ferris, Lancaster and Red Oak. Based on a review of aerial photography, the historic land use trends in the AOI have been changing from rural open space and agricultural purposes, to residential, industrial or transportation land uses.

Areas that could be subject to induced growth include areas close to the IIPOD (**Figure 6**) and areas along the roadway for the proposed project. The potential of induced growth to areas in the AOI can be limited, low, or high depending on factors such as available land, available utility services and proximity to Loop 9. Areas with the potential for high induced growth include the IIPOD facilities found throughout the AOI and intersections for the

proposed project (I-35E, South Dallas Avenue, Houston School Road, Ferris Road and I-45). All of the areas with the potential for high-induced growth have available land, available water and sewer services (or planned in the case of Loop 9) and are not located in 100-year floodplains, which make them more attractive for future development.

Areas with the potential for low induced growth include the cities of Red Oak and Ferris. They have some available lands; however, as stated by numerous interview respondents (**Appendix B**), utilities (sewer and water connections) are limited in that area. According to the Draft South Dallas County Infrastructure Analysis, Phase 1 of future water utility improvements will occur west of I-45 between I-20 and the city of Ferris in the AOI. Future wastewater improvements would be necessary to the Ten Mile Wastewater Treatment Plant to handle capacity for projected growth independent of the proposed project. Additionally the cities of Red Oak and Ferris have some residential and commercial development, which would tie in at the project termini of I-35E and I-45. Development and associated land use changes have been fairly dynamic within the AOI for the past several decades.

The remainder of the AOI would have limited to no potential for development (when compared to other areas in the AOI listed above) as these areas do not have available lands (southwest Red Oak), are not in areas with planned improvements to utility services, and are not located in close proximity to Loop 9. **Table 3** and **Figure 6** presents a summary of areas that would be affected by induced growth.

Table 3: Summary of Induced Growth Areas

Year	Area (ac)	Area (mi²)	% of AOI
High Induced Growth	10,972	17.1	21.7
Low Induced Growth	2,997	4.7	5.9
No Induced Growth	36,640	57.3	72.4
Total AOI	50,609	79.1	100

2.4 Step 4: Determine if Growth is Likely to Occur in Induced Growth Areas

Interviews with local planning offices confirmed that growth is anticipated in the AOI with or without the proposed project. The data presented in this section provide evidence for the growth trend and also indicate that Loop 9 would be consistent with the current and projected increasing development trend. The planning initiatives being undertaken by the local municipalities focuses on continued development in this area.

2.4.1 Regional and Local Goals

Existing zoning, future land use plans and comprehensive plans show potential for expansion in the cities within the AOI. Loop 9 has been in the planning stages for a

significant amount of time the cities, Ferris, Lancaster and Red Oak, in the AOI have made alternative land use plans for either the Build or No-Build Alternative.

City of Ferris Comprehensive Plan

In 2013, the city of Ferris adopted a comprehensive plan. The plan has a section that considers future development. Loop 9 would be consistent with the comprehensive plan. The plan identifies the future Loop 9 as a roadway that may affect future development patterns in Ferris. East-west demand within the core of Ferris may be positively impacted by this roadway.

City of Lancaster Comprehensive Plan

The current comprehensive plan for the city of Lancaster follows the ideology that it is the guiding document for the city's growth process. The plan also includes the thoroughfare and future land use objectives for the growth and development of the city.

The thoroughfare plan for the city of Lancaster was last updated in 2002 and provides guidance for the roadway network. It "…is intended to provide urban design criteria and pedestrian mobility concepts in addition to recommendations for improving existing multimodal traffic needs and accommodating traffic that will result from future growth and development in the City." The plan addresses the existing network, including its deficiencies and thus offers recommendations as well. Finally, it offers policies for adherence to the vision and goals of the city of Lancaster.

The city of Lancaster also identifies future land use within its comprehensive plan. Specifically, it outlines the types and intensity of land use locations as well as the different types of roadway and thoroughfare facilities that would support the land use patterns. Loop 9 was included in their planning initiatives.

City of Red Oak Comprehensive Plan

One of the key transportation objectives in the 2010 Red Oak comprehensive plan is to consider the Loop 9 project and provide a connection with the existing infrastructure. Other key objectives are to ensure connectivity within the city, to promote better circulation patterns, ease congestion and require a minimum number of connections between neighborhood developments during plat approval. These objectives are to ensure a connection between land use and transportation planning ideals, particularly regarding growth. Loop 9 would be consistent with these objectives.

NCTCOG Mobility 2040

NCTCOG's Mobility 2040 defines transportation network and services in the area containing the boundaries of the AOI. The MTP addresses regional transportation needs that are identified through forecasting current and future travel demand, developing and evaluating

system alternatives and selecting those options that best meet the mobility needs of the region. The proposed facility is included in the Mobility 2040 plan.

2.4.2 Demographic Trends

The Dallas-Fort Worth (DFW) region has seen a steady increase in population and employment according to NCTCOG. **Table 4** shows the current demographic forecast to the NCTCOG 10-county urban area. Changes in employment and population in the municipalities within the AOI are anticipated to be higher in comparison to the NCTCOG 10-county urban area. In 2010, the north central Texas regional population grew to 6,371,773 persons, a 25.7 percent increase since the 2000 Census. **Table 4** indicates the NCTCOG regional projections for population and employment from 2000 through 2040 for the DFW urbanized area.

Table 4: Summary of North Central Texas Regional Demographics

Year	Population	% Change	Employment	% Change
1990 Census	3,920,094	n/a	2,033,973	n/a
2000 Census	5,067,400	29.3	3,158,200	55.3
2010 Census	6,371,773	25.7	3,306,935	4.7
2017 Census	7,235,508	13.6	4,584,235	38.6
2040 Census	10,676,844	47.6	6,691,449	46.0

Source: U.S. Census Bureau (1990, 2000, and 2010 Census), NCTCOG (2016).

Table 5 indicates historical growth in population and the number of households in the vicinity of the AOI. Southern Dallas County, northern Ellis County and the municipalities within the study area have experienced considerable population growth over the last 25 years. In Dallas and Ellis counties, the 2010 Census recorded 2,571,749 residents, an 8 percent increase since 2000. According to the NCTCOG Research and Information Service Department, Dallas and Ellis counties are projected to grow by 41.8 percent and 89.8 percent, respectively, between 2010 and 2040, which equates to a growth rate of almost 1.4 percent and 3 percent a year.

Table 5: County and Municipal Population Growth

	Population			Forecasted Population	Households	
Area	2000	2000	2010	2040	2000	2010
Dallas County	1,852,810	2,218,899	2,368,139	3,357,469	807,621	855,960
Ellis County	85,167	111,360	149,610	283,898	37,020	50,503
Total of Counties	1,937,977	2,330,259	2,517,749	3,641,367	844,641	906,463
Percent Change	n/a	20.2	8.0	44.6	n/a	7.3
Ferris	2,212	2,175	2,436	4,174	688	785
Lancaster	22,117	25,894	36,361	69,717	9,182	12,520
Red Oak	3,124	4,301	10,769	19,000	1,570	3,659
Total	27,453	32,370	49,566	92,891	11,440	16,964
Percent Change	n/a	17.9	53.1	87.4	n/a	48.3

Source: U.S. Census Bureau (1990, 2000, and 2010 Census 2010), NCTCOG (2016), Texas Water Development Board (2016).

Employment is projected to increase similarly to population in the AOI. **Table 6** shows the forecasted employment for the counties within or adjacent to the study area from 2010 to 2040.

Table 6: Summary of North Central Texas Regional Demographics

Area	Employment 2010	Employment 2040	% Change 2010-2040
Dallas County	1,114,379	3,197,475	186.9
Ellis County	70,555	95,872	35.9
County Total	1,184,934	3,293,347	177.9

Source: U.S. Census Bureau (2011), NCTCOG (2016).

According to the above demographic data, the current trend of increasing growth will continue within the AOI throughout the next two and half decades. Additionally, the comprehensive plans for the incorporated cities within the AOI anticipate increased growth to continue. The planning documents also anticipate that Loop 9 would have an impact on their transportation network. It is likely that induced growth would happen as a result of the completion of Loop 9. This growth would likely occur in areas that have been identified in Step 3 as areas for high potential for induced growth. IIPOD facilities found throughout the AOI (see **Figure 7**) have the capacity to handle and process the increased movement of

goods that would result from the completion of Loop 9. Frontage road intersections for the proposed project (I-35E, South Dallas Avenue, Houston School Road, Ferris Road and I-45) would be where induced growth would likely occur. All of these areas have available land, available water and sewer services (or planned) and are not located in 100-year floodplains, which make them more likely for induced growth to occur. The cities of Red Oak and Ferris would be less likely to experience induced growth in other areas not located on the Loop 9 frontage roads as they would require increased water and sewer service to support new development.

2.5 Step 5: Identify Resources Subject to Induced Growth Impacts

Utilizing the project understanding, local community input, stakeholder interviews, other studies and potential direct impacts, an indirect impact evaluation was conducted that presents the framework for determining that impacts merit further analysis, or conversely, which impacts require no further analysis. Studies used in the analysis include the Biological Resources Technical Report (Atkins, 2016b), the Community Impact Technical Report (Atkins, 2016c) and the Water Resources Technical Report (Atkins, 2016d).

Local communities within the AOI and NCTCOG have planned for the development of Loop 9 for many years. As a result, the potential for unplanned induced growth impacts is low and not significant. However, there will be substantial planned growth as a result of Loop 9. It should be said that induced growth associated with Loop 9 would be consistent with the policies, goals and objectives of the communities and the NCTCOG. Areas with potential for high induced growth in the AOI are the areas near the IIPOD and intersections for the proposed project (I-35E, South Dallas Avenue, Houston School Road, Ferris Road and I-45). Areas with the potential for low induced growth include the cities of Red Oak and Ferris. A review of the Biological Resources Technical Report indicates that biological resources could be subject to substantial induced growth impacts. However, those induced growth impacts would be minimized by regulatory protections and policies.

A review of the Biological Resources Technical Report indicates that biological resources could be subject to substantial induced growth impacts. However, those induced growth impacts would be minimized by local regulatory protections and policies.

There is the potential for threatened and endangered species to occur within the project area. Similar opportunities exist within the AOI. Site visits indicate that one federally listed endangered species, the Interior Least Tern, has limited potential to occur within the project area. An additional nine stated listed threatened species have potential habitat within the proposed project ROW.

Site visits confirmed the presence of one state SGCN, Hall's prairie clover (*Dalea hallii),* within the proposed project ROW. Potential Hall's prairie clover and suitable habitat was observed in an area with high potential for induced growth area. The area is managed

grasslands, cultivated crops and low intensity development. The potential effect to Hall's prairie clover could be substantial, but climate conditions, especially drought, may affect actual abundance. Twelve other SGCNs have potential habitat within the proposed project ROW.

Approximately 487 ac of farmland would impacted by the proposed project. This is not considered a significant impact as it represents less than 0.10 percent of total farmland within Dallas and Ellis counties. Additionally, impacts to farmland from induced growth are not considered substantial as farmland impacted would be less than 0.50 percent of AOI land.

2.6 Step 6: Identification of Mitigation

BMPs would have to be employed to mitigate for any impacts to biological resources stated in Step 5. Potential habitat for the Interior Least Tern could occur within the AOI (TxDOT, 2017e). Project actions which are associated with induced growth impacts shall comply with the Endangered Species Act and TPWD Rules.

TxDOT also proposes to implement BMPs to reduce effects on the four mollusks, alligator snapping turtle (ST), Texas garter snake, timber rattle snake, plains spotted skunk, and Texas horned lizard. Upon completion of earthwork operations, disturbed areas shall be restored and reseeded, where feasible, in accordance with TxDOT's Vegetation Management Guidelines, Executive Order 13112, and Texas Pollutant Discharge Elimination System requirements regarding percent cover. Coordination with TPWD on biological resources and resulting BMPs will further reduce induced growth effects.

The proposed project ROW contains confirmed and potential habitat for one SGCN, Hall's prairie clover. As no species specific BMPs exist for Hall's prairie clover, TxDOT BMPs for native species will be implemented during construction to avoid and/or minimize potential impacts to the Hall's prairie clover. TxDOT may also elect to implement other BMPs.

Potential habitat for the endangered Interior Least Tern along Tenmile Creek was observed within the proposed project ROW. Presence/absence survey guidelines for the Interior Least Tern, provided by the USWFS to permitted staff, would be followed for a survey during the nesting season prior to the start of construction. As part of the proposed project, construction will be limited at suitable habitat locations within the ROW for the Interior Least Tern from April 1 to September 1 to minimize potential effects to this species. Only USFWS permitted individual(s) shall conduct the presence/absence survey during the nesting season from May through late July immediately prior to the start of construction.

Any potential for impacts to wildlife or its habitat would be minimized through BMPs to control erosion and pollutant discharge, and Executive Order 13112 requirements would

ensure no invasive species would be used to establish vegetation within the ROW. Vegetation clearing would occur in compliance with Migratory Bird Treaty Act.

2.7 Step 7: Encroachment Alteration Impacts Analysis

Encroachment alteration impacts are more closely related to direct impacts than induced growth impacts. These effects may result from changes in ecosystems, natural processes, or socioeconomic conditions that are caused by the proposed action but occur later in time or farther removed in distance. One example of this type of effect would be a change in habitat or flow regime downstream resulting from installation of a new culvert.

This step summarizes the methods used to identify encroachment alteration impacts and presents the framework for determining which impacts merit further analysis or conversely, which impacts require no further analysis. The methods used to identify impacts are both qualitative and quantitative depending on the resource. This technique focused on the elements or indicators that characterize the AOI using ecological and social data from the baseline investigations.

2.7.1 Encroachment-Alteration Impacts

With the construction of the Build Alternative, approximately 31,509 acres (62.3 percent of the AOI) would be potentially open for development. This area was calculated based on land available for development outside the 100-year floodplain (7,159 acres). The limited availability of utility service to the project area would be another major restriction to future development in the area. Areas in the AOI with utilities and intersect with the Build Alternative with existing roadways have a high potential for development.

The general types of impact-causing activities and a description as to how they relate to the project are outlined in **Table 7**.

Table 7: Impact-Causing Activities

Type of Activity	Project Specific Activity	Relevant Details
Modification of Regime Effects	Modification of habitat	Approximately 541 ac of additional ROW would be required to construct Loop 9.
	Alteration of groundcover	Clearing of maintained vegetation (grasses, shrubs and trees) would occur within existing and proposed ROW. Approximately 550 acres of vegetation will be impacted by the proposed project of which approximately 52 acres are urban high or low intensity. As a result, up to approximately 498 acres of vegetation types may be removed and the resulting groundcover would become impervious.
	River control and flow modification	Impacts would vary by section. Placements of culverts, stream channelization and/or

Type of Activity	Project Specific Activity	Relevant Details
		realignment, bridge footings, and pilings within stream channels. Several creek channels would be realigned based on the proximity of the channel in relation to the drainage area. All realignments would preserve the capacity and natural characteristics of the streams.
Land Transformation and Construction	New or expanded transportation facility	Construction of new location frontage road system; approximately 727 ac would be impacted.
	Cut and fill	Cuts would be made where subgrading would be prepared to facilitate new pavement. Fill would occur in areas where grading is necessary and in locations where overpasses are constructed/ widened and culverts are added/extended.
Resource Extraction	Surface excavation	Proposed excavation would be minimal in areas where grading cuts would be made in conjunction with vertical shifts in alignment.
Land Alteration	Erosion control	In areas where construction is proposed, BMPs would be utilized to minimize sediment events and may include sand bags, silt fence and sediment traps.
Processing	Storage of construction materials	If the contractor chooses to use undeveloped land or another site for the storage of materials, impacts to natural resources may increase.
Waste Emplacement and Treatment	Landfill	Property belonging to a closed and abandoned landfill is located within the proposed ROW. The Skyline Landfill near Ferris is also located adjacent to the proposed ROW. No impact or displacement of waste material is anticipated from this site.
Chemical Treatment	Chemical usage	No use of fertilizer is anticipated during revegetation. Periodic use of herbicide may occur during routine maintenance for the Build Alternative, as necessary
Resource Renewal Activities	Revegetation	In areas where vegetation is cleared during construction and there is no new pavement, efforts would be made to revegetate/reseed these areas with native plants and seed stock.
Changes in Traffic	Traffic patterns/ Environmental Justice	A Build Alternative would increase capacity and improve mobility throughout the project area. With these improvements, travel time on the local roadway network would also improve. In addition, the roadway would provide motorists with new commute options as well as provide for changes in access on the existing roadway and freight network. As such, some traffic patterns for vehicles and freight would change in the project area.

Type of Activity	Project Specific Activity	Relevant Details
		These changes would not disproportionately impact Environmental Justice communities.
Access Alteration	Travel	The Build Alternative would improve travel between I-45 and I-35E in southern Dallas and Ellis counties. Access throughout the area would be improved with the Build Alternative as there is currently no major east-west transportation facility in the area. System connectivity would also be improved.

2.7.2 Encroachment Alteration Impacts

Vegetation, Habitat and Disruption of Natural Process and Ecosystem Functioning

Based on the activities presented in Table 7, potential encroachment-alteration impacts could include ecological impacts specifically related to further fragmentation and degradation of habitat, disruption of natural processes, pollution effect on species and species mortality.

The proposed project would impact native vegetation and further fragment the existing habitat. According to the TxDOT Biological Evaluation Form and the Water Resources and Wetland Delineation Technical Reports, there would not be significant impacts to ecological resources. Also, there were no findings of impacts to endangered species or essential fish habitat. Therefore, encroachment effects such as barrier or edge effects are not anticipated to be significant.

Since the Build Alternative would be new location roadway, potential wildlife collision with vehicles could be a possibility. Appropriate design and safety measures would be employed to reduce the potential of collisions. Additionally, all BMPs will be employed to ensure potential impacts do not occur to wildlife, habitats, ecosystem functioning, waters and wetlands.

Water Effects

The potential also exists in the AOI for impacts to occur to water quality as a result of contaminated highway and other development runoff. As direct impacts to vegetation, waters of the U.S. and water quality were minimized during the planning and feasibility phase for the project, the overall project should not greatly reduce diversity within the existing ecosystem.

Additionally, a Storm Water Pollution Prevention Plan (SWPPP) would be implemented during construction. The construction of the Build Alternative would produce changes in the quantity and quality of the runoff from the paved area. However, since the proposed ROW is

only a small fraction of the watershed, no impacts to receiving waters are expected, and all changes in runoff patterns are expected to be localized to the project area. In summary, water quality in the study area is not expected to be detrimentally affected by construction and highway usage. As a result, no substantial encroachment-alteration effects to water resources are anticipated to occur.

Socioeconomic Effects

Alterations to existing neighborhoods, neighborhood cohesion and neighborhood stability could occur because of the proposed project, but they are not anticipated to be substantial. There are 36 properties with 100 potential structural displacements associated with the Build Alternative, which include 25 residential structures, 7 commercial structures and 68 "other" structures (sheds, barns, storage buildings, detached garages, carports, swimming pools and gazebos). The area does have available property for all of the businesses to relocate and adequate safe, sanitary and affordable replacement housing is available in the area. Even with the displacements, the impacts would not be significant as the Uniform Relocation Act would provide relocation assistance to any displaced individuals. Overall, there would not be any impact on the function of the existing neighborhood.

Socioeconomic impacts related to the changes in travel patterns and access could occur; however, they are not anticipated to be substantial. The Build Alternative would construct a new location frontage road system that would improve safety and mobility. As a result, this proposed project is not anticipated to cause indirect effects on land use, community cohesion, or community stability. The Build Alternative is anticipated to have beneficial effects on the local economy, changes in travel patterns and access within the communities. Further analysis of encroachment impacts to socioeconomic resources will not be necessary.

Environmental Justice Communities

There is a large minority population in the AOI. The proposed project would occur in a new location corridor; however, ROW acquisition and displacements would not occur on community facilities, nor would the proposed project result in substantial access changes for the minority residential neighborhoods adjacent to the study area. As a result, any potential impacts would not be predominantly borne by minority populations. Impacts associated with environmental justice communities will not be further evaluated.

3. Cumulative Impacts

This section assesses the cumulative impacts of the proposed project. The assessment was conducted in accordance with the CEQ and FHWA guidance and TxDOT's July 2016 *Cumulative Impact Analysis Guidance*. The CEQ regulations (40 CFR 1508.7) define cumulative impacts as:

> *…the impact on the environment that results 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.*

Cumulative impacts include a project's direct and indirect impacts, as well as other actions not caused by the project, but when combined with the project, add to the overall impact, whether adverse or beneficial, on the environment. The objective of the analysis is to focus on key resources impacted by the proposed action, which are currently in poor or declining health, even if the impacts resulting from the proposed action are relatively small. Additionally, for those resources that are not in poor or declining health, the cumulative impact analysis should focus on those resources that could be substantially impacted by the proposed action.

3.1 Introduction and Methodology, Steps 1 and 2

The analysis of potential cumulative impacts followed the five-step approach recommended in the TxDOT 2014 Cumulative Impact Analyses Guidelines for evaluating cumulative impacts. These steps are outlined in **Table 8**.

Table 8: Five-Step Approach to Estimate Cumulative Impacts

Step	Description
Step 1	Identify the resources to consider in the analysis, study area conditions and trends
Step 2	Direct and indirect effects on each resource from the proposed project
Step 3	Other actions – past, present and reasonably foreseeable – and their effect on each resource
Step 4	The overall effects of the proposed project combined with other actions
Step 5	Mitigation of cumulative effects

Source: TxDOT (2016b).

With the exception of water and land use resources the proposed project's direct and indirect impacts would not substantially impact area resources nor would it impact resources in poor or declining health. TxDOT guidelines state that a cumulative impact analysis is necessary if there are substantial direct or indirect impacts or if there is any impact on a resource of poor or declining health (TxDOT, 2014).

Based on the information summarized in **Table 9**, water and land use resource cumulative impact analysis is necessary.

Table 9: Resources Considered for Cumulative Impact Analysis

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
Land	Available land is being developed.	Project would acquire land 541 acres and result in a change to transportation.	Although land changes would occur as a result of the Build Alternative, community planning initiatives would oversee and regulate the impacts to ensure that the changes are not adverse.	**There are no significant direct or indirect impacts; however, there are substantial impacts to land use. Further evaluation is needed.**
Community Cohesion/ Neighborhood	Becoming more urbanized.	There would be 100 potential structural displacements associated with the Build Alternative, which include 25 residential structures, seven commercial structures, and 68 other structures (i.e., sheds, barns, detached garages, carports, swimming pools, and gazebos). No places of worship or public/community facilities would be displaced as a result of the Build Alternative.	The area does have available property for all of the businesses to relocate and adequate safe, sanitary and affordable replacement housing. Even with the displacements the impacts would not be significant, as the Uniform Relocation Act would provide relocation assistance to any displaced individuals. It is not anticipated that the induced growth resulting from the implementation of the Build Alternative would have an adverse indirect effect on overall community cohesion or neighborhoods as the planning initiatives would oversee and regulate changes to ensure that the community does not suffer adverse effects.	There are no significant or substantial direct or indirect impacts. Further evaluation is not needed.

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
Economic Conditions	Economy of the area is growing.	This project would enable development and expansion of the IIPOD; however, currently there are no plans.	Although tax revenues would increase, the increase in the rate of development within the AOI would also increase the demand for consumer services, including, but not limited to retail, banking, medical and recreational. However, economic impacts are seen as a net gain/benefit to the AOI.	There are no significant direct or indirect impacts. However, there would be positive substantial economic impacts as a result of the proposed project. Further evaluation of is not needed.
Non-Archeological Historic-Age Resources	New development continues to comply with historic resources protection.	Impacts are possible and they are further discussed, along with mitigation and avoidance procedures, in the Historic Resources Technical Memo.	There is a possibility for impacts to non-archeological historic-age resources in the AOI as land is converted to residential and commercial uses. However, BMP and TxDOT guidelines would lessen the potential for impact.	There are no significant or substantial direct or indirect impacts. Further evaluation is not needed.
Archeological Resources	New development continues to comply with required archeological resources protection.	Direct impacts are unknown at this time. Due to lack of right-of-entry to the majority of the proposed ROW, the archeological survey will be completed once all parcels have been acquired. The findings and appropriate mitigation and avoidance procedures will be discussed in the Cultural Resources Technical Memo.	There is a possibility for indirect impacts to archeological resources in the AOI as land is converted to residential and commercial uses. Development in the floodplain would be minimized, thereby protecting the areas with some of the greatest potential for archeological resources.	There are no significant direct or indirect impacts. No substantial impacts to archeological resources are anticipated. Further evaluation is not needed.
Water	The Trinity Aquifer continues to be the main water resource in the AOI.	The impact to waters of the U.S. within the proposed new ROW are 1.38 acres for ponds and 0.46 acres for streams. It is anticipated that the proposed project would impact jurisdictional waters of the U.S., and would require a Section 404 Individual permit. Water in the study area is not expected to be	There is a possibility for impacts to water resources in the study area. However, water in the study area is not expected to be detrimentally affected due to regulatory oversight. TxDOT would comply with the TCEQ Texas Pollutant Discharge Elimination	**Water quality in the RSA is not expected to be detrimentally affected due to regulatory oversight. However, there may be substantial cumulative impacts to water resources. Further evaluation is necessary.**

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
		detrimentally affected due to the BMPs and regulatory oversight. TxDOT would comply with the TCEQ Texas Pollutant Discharge Elimination System Construction General Permit. A Storm Water Pollution Prevention Plan would be implemented, and a construction site notice would be posted at the construction site. A Notice of Intent would be required.	System Construction General Permit. An Storm Water Pollution Prevention Plan would be implemented, and a construction site notice would be posted at the construction site. A Notice of Intent would be required.	
Wetlands	Changes in the regulatory process over the past 30 years have yielded substantial changes in the abundance of wetlands. Wetlands within the AOI continue to be protected by federal, state and local regulations.	There would be 1.38 acres of wetlands impacted. Current federal mandates require there be a "no net loss" to wetlands on projects. It is anticipated that this project will be permitted under a Section 404 Individual Permit. Significant impacts are not anticipated.	There is a possibility for indirect impacts to wetlands as development occurs in the AOI. Permitting by appropriate agencies would protect wetlands from further impacts.	Substantial impacts to wetlands are not anticipated as result of this projects. Further evaluation is not needed.
Vegetation and Wildlife	Critical habitat and vegetation continues to be protected by federal, state and local regulations. AOI continue to be protected by federal, state and local regulations. Threatened and endangered species occurrences remain unchanged in the area.	Approximately 550 acres of vegetation will be altered during construction. Some of this is located in existing TxDOT and associated non-TxDOT ROW. The proposed ROW contains confirmed and potential habitat for one SGCN, Hall's prairie clover. Potential limited habitat for the federally listed endangered Interior Least Tern was also observed within the proposed ROW; however, this species were not observed during prior site visits. These prior observations and planned conservation measures are anticipated to support a no effect finding. Potential habitat for protected species will also be affected by construction; however, BMPs will avoid/minimize adverse effects.	There is a possibility for indirect impacts to vegetation and wildlife as development occurs in the AOI. There are no significant direct or substantial indirect impacts.	There are no significant direct or indirect impacts. Further evaluation is not needed.

Resource	Current Trend	Direct Impacts	Indirect Impacts	Further Evaluation
Farmland	There is increasing urbanization in Dallas and Ellis counties.	The project could affect up to 541 acres of land, of which 487 acres is farmland. Which would not be a significant impact as it represents less than 0.10% of current farmland in Dallas and Ellis counties.	There is a possibility for indirect impacts to farmlands as development occurs in the AOI. Any potential impact to farmland is not anticipated to be substantial.	There are no significant direct or indirect impacts. Further evaluation is not needed.
Air Quality	Air quality has been steadily improving in the DFW region.	Temporary construction impacts would occur. BMP practices will lessen these temporary impacts.	While localized traffic increases may be observed, MSAT emissions will likely decrease over time because of the resulting increase in the capacity of the transportation network with the proposed project in place as well as the implementation of U.S. EPA regulations to improve vehicle technology and fuel economy.	There are no significant direct or indirect impacts. Further evaluation is not needed.

Source: TxDOT (2017a, 2017b, 2017c, 2017d, 2017e, 2017f)

The resource study area chosen for the water resources and land uses includes the headwaters Red Oak Creek, Deep Branch-Tenmile Creek and Middle Red Oak Creek. A watershed represents a bounded hydrologic system where natural resources such as surface water and wildlife are interconnected and integrated. At smaller scales, the watershed habitat types and associated wildlife populations are fairly homogeneous; therefore, inferences about wildlife occurrence may be drawn from examination of habitats within the watershed. Loop 9 occurs in the Trinity River Basin. The Trinity River is one of the state's major river basins, draining approximately 18,000 mi^2 from just south of the Oklahoma border in north central Texas to Galveston Bay on the Gulf of Mexico. The basin includes the large metropolitan areas of DFW and Houston.

As with watersheds, natural regions are relatively homogeneous with respect to vegetation and wildlife, especially at smaller scales. Loop 9 occurs within the Blackland Prairie natural region of Texas, which covers approximately 18,480 mi^2. Its potential natural vegetation is that of a true prairie, in which little bluestem is the dominant vegetative species. Blackland Prairie is generally located in a nearly level to gently rolling landscape. Watersheds and riparian zones of the Trinity River basin bisecting the Blackland Prairie natural region provide habitat for a variety of wildlife species common to these areas. These form a natural

ecological area for examination of project cumulative impacts to waters of the U.S. including wetlands, surface water quality, and for vegetation. As a result, the Resource Study Area (RSA) for water resources is comprised of the Trinity River watersheds intersecting the build Alternative: headwaters of Red Oak Creek, Deep Branch-Tenmile Creek and Middle Red Oak Creek (**Figure 8**). The RSA for land use is the same as the RSA for the watersheds minus land in floodplains that is unavailable for development. **Table 10** presents facts and values for the RSA.

Table 10: Loop 9 RSA

	Type	acres	square miles
Total Area		78,621	122.8
Land Use 2005*	Developed	18,409	25.2
	Available	47,219	72.9
Land Use 2013*	Developed	29,999	42.9
	Available	36,665	55.9
Watershed	Middle Red Oak Creek	34,271	53.5
	Headwaters Red Oak Creek	23,911	37.3
	Deep Branch-Tenmile Creek	20,439	31.9
100 Year Floodplain	Zone A	8,521	13.3
Wetlands**	Type	acres	square foot
	L	53.6	2,337,759
	PAB	1.0	45,027
	PEM	45.4	1,980,576
	PFO	190.7	8,307,573
	PUB	244.1	10,633,631

*Excludes land in the 100 year floodplain.
**Source: US Fish & Wildlife Service, National Wetland Inventory

3.2 Step 3: Past, Present and Reasonably Foreseeable Actions

3.2.1 Water Resources

Urbanization of the Trinity River Basin has contributed to past and present water pollution problems. Over time, the primary sources of water pollution have changed. Historically, industrial and municipal discharges were considered the main sources of water quality impairment in the Trinity River and its tributaries. However, stormwater runoff carrying pollutants from impervious surfaces, lawns, developed sites and farmland are currently responsible for a substantial portion of the area's water pollution problems. Runoff containing pesticides, herbicides and other contaminants, particularly in the DFW area, has combined to cause serious deterioration of water quality. **Figures 9 and 10** show the increased urbanization trend in the RSA from 2005 to 2013.

Field reconnaissance of streams near the Loop 9 indicates sediment is the most common pollutant affecting surface water resources. The primary sediment sources appear to be agricultural and construction site runoff as well as stream channel erosion. Because of the difficulty in establishing reliable numeric criteria that define levels of use, support or impairment related to sediment impacts, Texas, like most states, has not established numeric water quality criteria for sediment parameters. Texas water quality criteria pertaining to sediment generally prohibit levels of suspended sediment, turbidity or settled sediment accumulations that have adverse effects on aquatic biota or aesthetic values.

Table 11 shows future development from interviews with local officials and planners along with available development data for the RSA revealed present and reasonably foreseeable actions within the RSA. According to the NCTCOG development data, there are nearly nine developments that are announced or under construction within the RSA. These developments are generally commercial/retail development with some residential use identified.

The development projects presented in **Table 11** would lead to great urbanization and increased impervious cover and have the potential to substantially impact water resources in the RSA.

3.2.2 Land Use

The general conversion of rural land to urban developed lands have led to the irreversible conversion of farmland to non-agricultural use. In 2005 developed land made up approximately 25.7 percent of land in the RSA. That number increased to 43.4 percent by 2013.

The proposed project would directly impact 487 acres of farmland and convert them to non-agricultural use. Indirectly the proposed project has 10,972 acres of land that has a high

potential for induced growth. This corresponds to 17.3 percent of the 63,296 acres in the RSA. **Table 11** shows future development and foreseeable actions with the RSA that would lead to reduction of undeveloped and agricultural land of 433 ac or 0.7 mi^2.

Table 11: Foreseeable Future Developments

Name	Location	Type	Status
Adesa Dallas	3501 Lancaster-Hutchins Road, Hutchins	Single Tenant 5 ac	Under Construction
Building 2	340 E Belt Line Road, Wilmer	Warehouse 11 ac	Conceptual
Building 3	1000 Miller Ferry Road, Wilmer	Warehouse 8 ac	Conceptual
Southpointe 20/35	2935 Danieldale Road, Lancaster	Warehouse 23 ac	Announced
Southport Logistics Park	I-45 And Fulgham Road, Wilmer	Warehouse 200 ac	Under Construction
Woodland Estates	Sec Belt Line & Blue Grove, Lancaster	Subdivision 273 Dwelling Units	Vacant
Park 20 Distribution Center	351 Interstate 20 Frontage Road, Lancaster	Distribution 11 ac	Under Construction
Harmony Subdivision	302 Village Drive, Red Oak	Subdivision 650 Dwelling Units	Announced
Red Oak Industrial Park	NW corner of Austin Blvd & E Ovilla Road, Red Oak	Warehouse 175 ac	Announced

Source: NCTCOG (2016b).
Conceptual - reported by a developer or city in which plans are indefinite or resources are not yet secured
Announced - declaration of impending construction has been made
Under construction - foundation work has begun

3.3 Step 4: Cumulative Effects

3.3.1 Water Resources

Construction of Loop 9 would contribute to cumulative impacts to waters of the U.S. within the RSA. Development of Loop 9 and subsequent land induced conversion would cause, respectively, direct and indirect impacts to streams and wetlands. Land conversion from vacant, undeveloped land to urbanized areas increases the amount of impervious surfaces, which contributes to water resource impacts. Channelization, displacement, and segmentation of hydric features could result in increased runoff velocities, and channel erosion may occur as a result of reduced flood storage capacity, further degrading streams and wetlands. There would be 1.38 ac of wetlands impact. There are a further 541 ac of

wetlands in the RSA. Current federal mandates require there be a “no net loss” to wetlands on projects. It is anticipated that this project will be permitted under a Section 404 Individual Permit.

There are direct impacts to the 0.46 ac of surface water. There is the potential for impacts to water quality associated with land conversion, primarily through increased runoff from urban areas and associated impervious surfaces. Anticipated impacts to water quality could include the increase in pollutant loading into the existing receiving waters. This increase is associated with additional runoff from the impervious surfaces that transport pollutants generated by vehicles using Loop 9, potential sedimentation transport to waterbodies from construction activities in the RSA, and potential pollutant transport to waterbodies from constructed impervious surfaces in the RSA. As previously stated, BMPs would be employed during Loop 9 construction as well as most other RSA construction activity to minimize the adverse impacts of erosion and sedimentation on surface water quality. Once Loop 9 would be completed, rainfall runoff rates would increase slightly due to the increase in impervious cover. This runoff from the completed facility and other development could contain pollutants, which have long-term effects on the quality of surface water.

The estimated cumulative impact would occur over time as conversion of land contributes to impacts to water resources in the RSA. It is likely that the potential indirect and cumulative impacts to streams are an overestimate, as the quantifications are based on a total impact of the resources within the RSA. However, existing regulations (e.g., Section 404 of the Clean Water Act) govern impacts to streams, which would require avoidance and minimization of potential impacts. The potential cumulative impact is not anticipated to affect the resource trend. This impact is not considered to be substantial.

3.3.2 Land Use

Based on the cumulative impacts analysis, Loop 9 could indirectly cause an additional land use impact of 17 mi^2 of high potential induced growth land out of an RSA of 98.9 mi^2. The development projects listed in the NCTCOG database total 0.7 mi^2 that added to direct and potential indirect land uses equals 17.7 mi^2 of cumulative, direct and potential indirect impacts. For all of that to happen each of the projects would have to occur, and each parcel of land in areas with high potential for induced growth would have to be developed.

3.4 Step 5: Mitigation of Cumulative Effects

3.4.1 Water Resources

Water in the study area is not expected to be detrimentally affected due to the BMPs and regulatory oversight. Current federal mandates require there be a “no net loss” to wetlands on projects. It is anticipated that this project will be permitted under a Section 404 Individual Permit. Significant impacts are not anticipated. TxDOT would comply with the

Texas Commission on Environmental Quality (TCEQ) Texas Pollutant Discharge Elimination System Construction General Permit. An SWPPP would be implemented, and a construction site notice would be posted at the construction site. A Notice of Intent would be required.

In addition to project-specific mitigation measures, there are existing programs that would help to reduce the potential cumulative impacts of the Loop 9 Southeast project and other future projects on water quality in the watersheds. For instance, the Texas Clean Rivers Act, ensures the performance of regional assessments of water quality on a watershed basis through the Clean Rivers Program (CRP). The CRP is a statewide program to collect and assess water quality data throughout the river basins. The CRP program addresses both basin and state monitoring objectives through collaboration and coordination with the TCEQ.

NCTCOG also has regional water quality monitoring responsibilities and has been working with local governments to coordinate a regional stormwater monitoring program. Both regional entities conduct their water quality activities primarily at the watershed level. The objectives of the CRP are to use the watershed management approach to identify and evaluate water quality issues, to establish priorities for corrective action, and to implement those actions.

3.4.2 Land Use

Although land changes would occur as a result of the Build Alternative, community planning initiatives would oversee and regulate the impacts to ensure that the changes are not adverse. Loop 9 has been in the planning stages for a significant amount of time in the NCTCOG region. Current zoning, land use and comprehensive plans in Ferris, Lancaster and Red Oak, have made alternative land use plans for Loop 9 and the growth associated with the roadway.

In fact, the Ferris comprehensive plan has designated the area around the future Loop 9 for industrial land uses; Loop 9 would be consistent with the comprehensive plan. Ferris anticipates that east-west demand within the core of Ferris may be positively impacted by this roadway.

The city of Lancaster also identifies future land use within its comprehensive plan. Specifically, it outlines the types and intensity of land use locations as well as the different types of roadway and thoroughfare facilities that would support the land use patterns. Loop 9 was included in their planning initiatives.

The 2010 Red Oak comprehensive plan considers Loop 9 and its anticipated growth. A key objectives within the plan is to ensure a connection between land use and transportation planning ideals, particularly regarding growth. Loop 9 would be consistent with these objectives.

Finally, NCTCOG's Mobility 2040 addresses regional transportation needs that are identified through forecasting current and future travel demand, developing and evaluating system alternatives and selecting those options that best meet the mobility needs of the region. The proposed facility is included in the Mobility 2040 plan.

The policies set forth by the officials in the RSA would lessen the cumulative effects on land use resources to less than substantial.

4. Summary

The proposed project would alter land use of the surrounding area when compared to the existing condition, and is anticipated to induce growth in a few areas in the AOI. Areas with the potential for high induced growth include the IIPOD facilities found throughout the AOI and the intersections for Loop 9 (I-35E, South Dallas Ave, Houston School Road, Ferris Road and I-45). All of the areas with the potential for high-induced growth have available land, available water and sewer services (or planned in the case of Loop 9) and are not located in 100-year floodplains, which make them more attractive for future development. However, the induce growth would be minimized by planning, zoning and land use policies of the cities within the AOI. Policies have planned for future IIPOD expansion and future transportation links to Loop 9. Areas with the potential for low induced growth include the cities of Red Oak and Ferris. They have some available lands; however, future growth will be dependent on upgrades to the current water and sewer service. Without future upgrades induced growth may not occur or would occur at a slower pace. The proposed project would result in changes in travel patterns; however, the changes would be beneficial and not significantly impact users of the facility or any notable features in the AOI.

Regional resource management and policies detailed in NCTCOG Mobility 2040 addresses issues related to land use, waters and waters of the U.S., wetlands, vegetation and wildlife provides ways to mitigate for any potential impacts that could occur. Land use impacts would be managed by the municipalities that have direct control over land use. These municipalities would work with NCTCOG to address regional infrastructure changes in their comprehensive plans. Other state and federal agencies that have direct control over the natural resources and would be responsible for mitigation from direct impacts to these resources by the proposed project. All of these policies and BMPs would ensure that the proposed project would not have significant or substantial direct, indirect or cumulative impacts.

5. References

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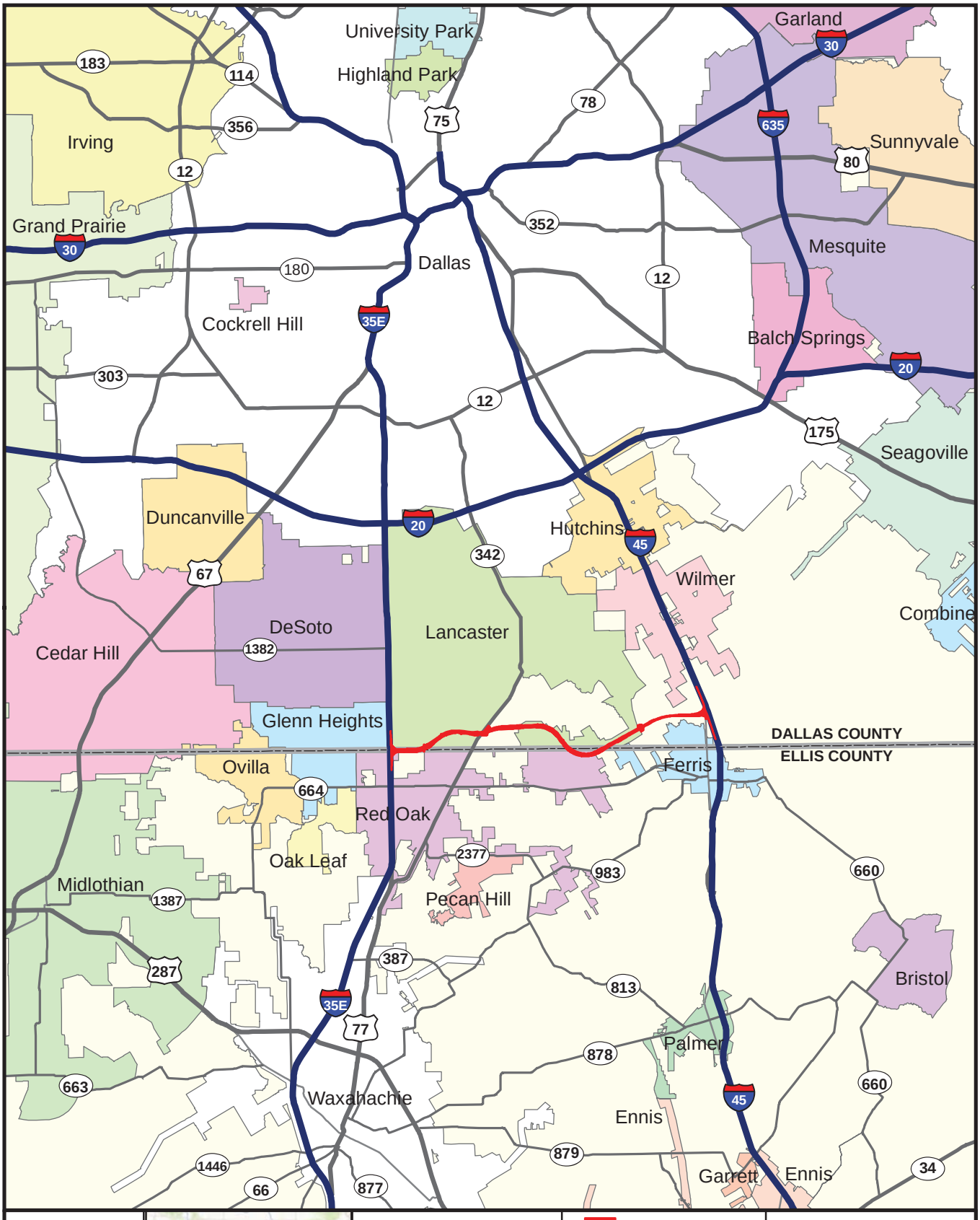
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Appendix A

Figures





0 2 4

Miles

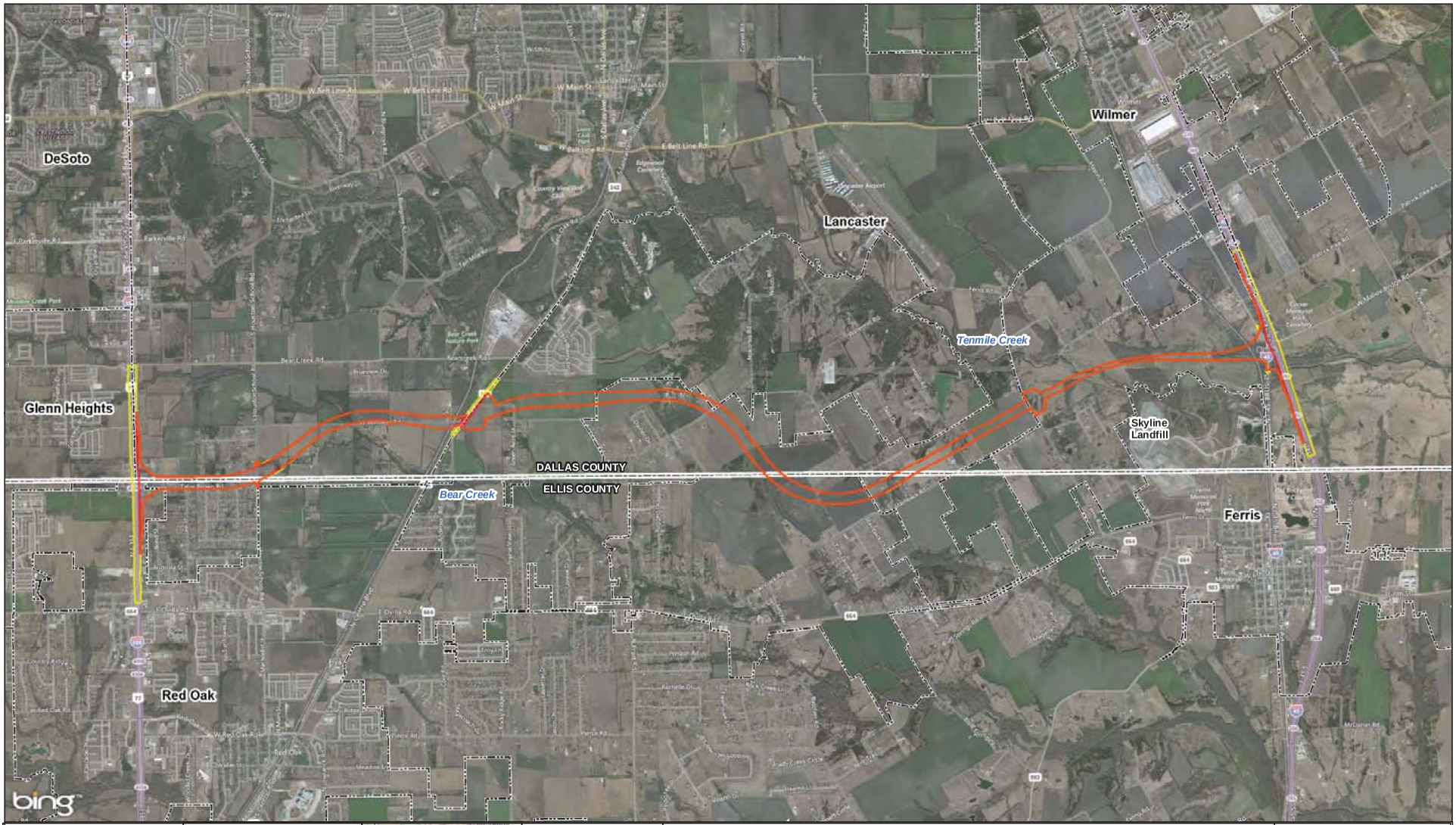
- Project Location
- Interstate Highway
- US Highway
- State Highway
- Farm to Market Road
- Other Road
- County Boundary

Figure 1
Project Vicinity Map

Loop 9: I-35E to I-45
Dallas & Ellis Counties, Texas
CSJ: 2964-10-005

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Date: 3/27/2017



Loop 9 SOUTHEAST

Dallas and Ellis Counties



0 2,000 4,000
Feet
0 0.25 0.5
Miles

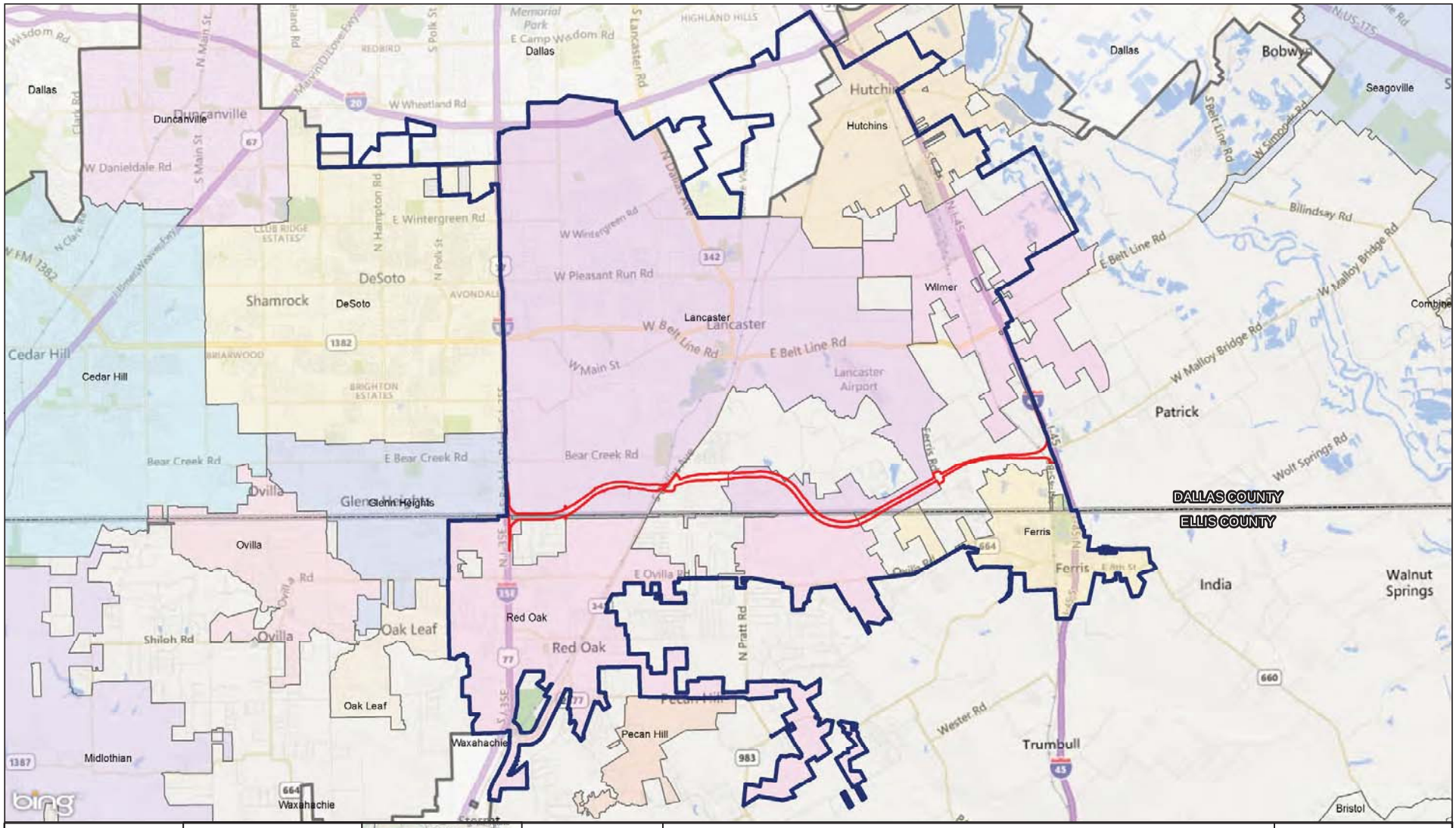
- Proposed Right of Way
- Construction Limits
- County Boundary
- City Limit

Figure 2
Location Map

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

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Date: 5/13/2016



Loop 9 SOUTHEAST

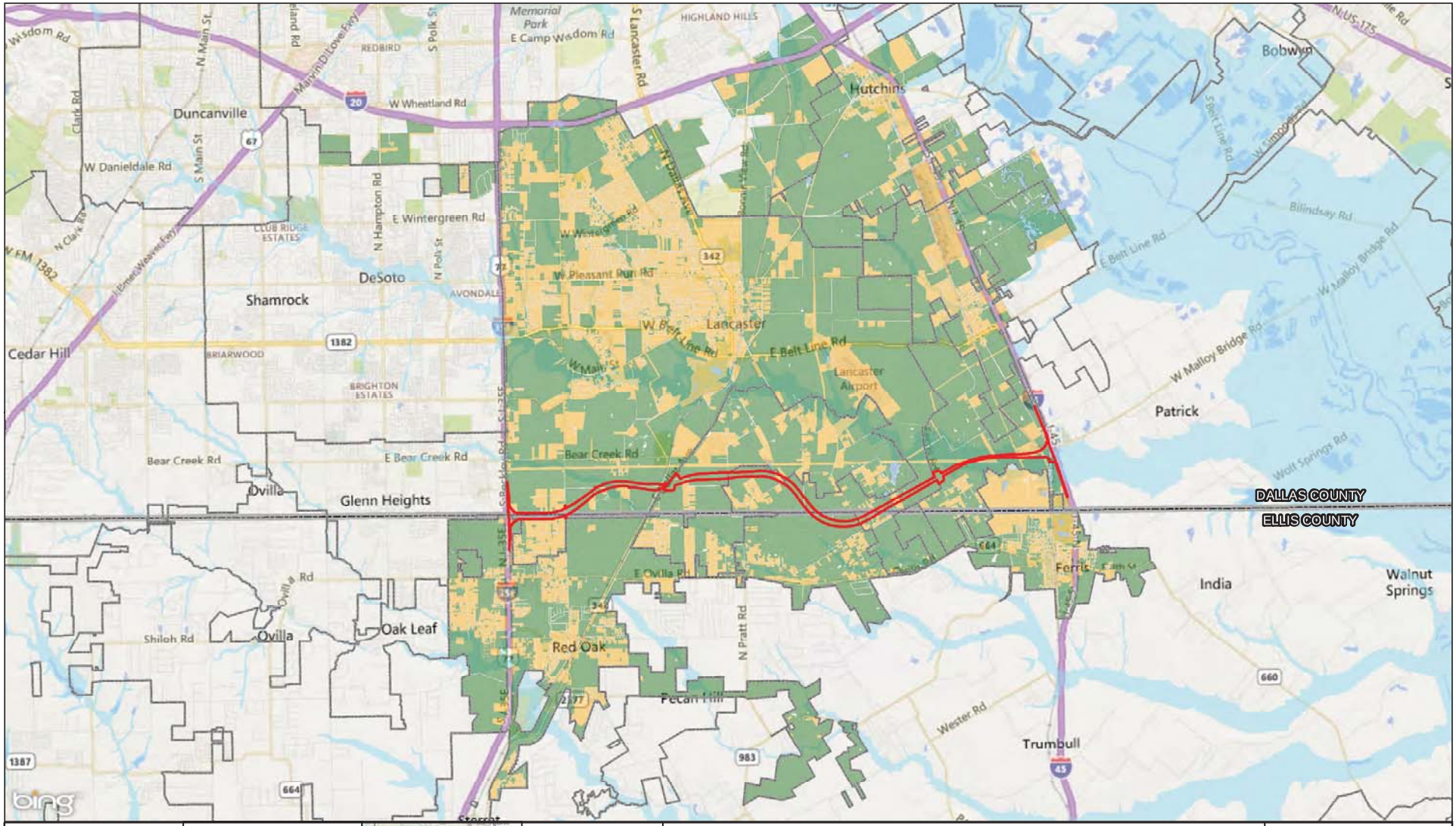
Dallas and Ellis Counties

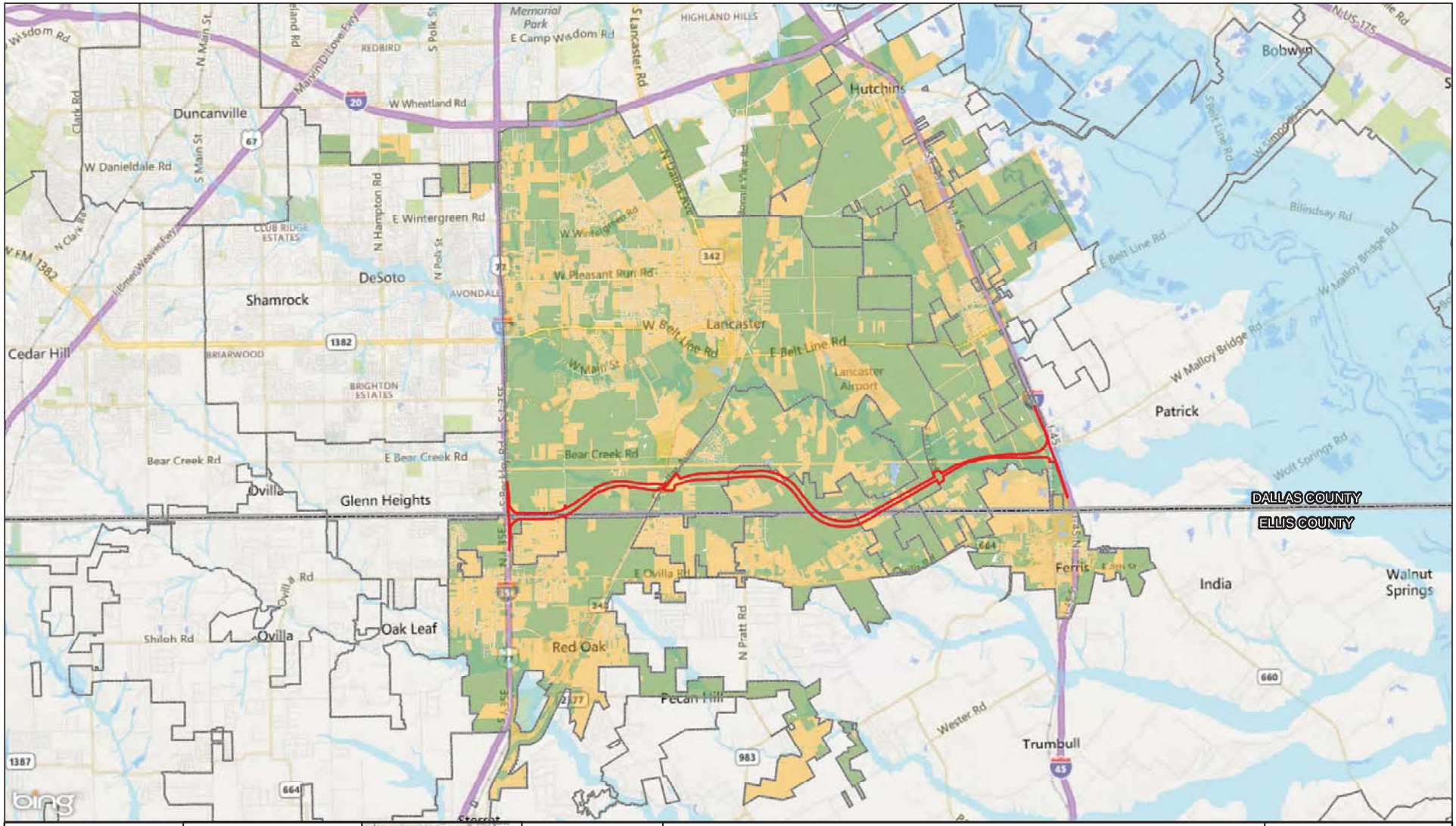
FIGURE 3
Indirect Impacts
Area of Influence

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

N:\Clients\S_T\TxDOT\Loop_9\geo\figs\ICI Maps 20161128\01_AOI.mxd

Date: 11/28/2016


Duncanville
DeSoto
Shamrock
Cedar Hill
Glenn Heights
Ovilla
Oak Leaf
Red Oak
Pecan Hill
Lancaster
Hutchins
Bobwyn
Patrick
Ferris
India
Walnut Springs
Trumbull
DALLAS COUNTY
ELLIS COUNTY
W Wheatland Rd
E Wintergreen Rd
W Pleasant Run Rd
W Belt Line Rd
E Belt Line Rd
Bear Creek Rd
E Bear Creek Rd
E Ovilla Rd
Shiloh Rd
N Pratt Rd
Wester Rd
W Malloy Bridge Rd
Lancaster Airport
Loop 9 SOUTHEAST
Dallas and Ellis Counties
Developed Land
Available Land for Development
Floodplain
Proposed Loop 9 ROW
City Limit
County Boundary
0 0.5 1
Miles
Sources: Land Use: NCTCOG, 2005; Floodplain: FEMA, 2013
FIGURE 4
Indirect & Cumulative Impacts
Area of Influence
Developed Land & Floodplains, 2005
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005
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Date: 11/28/2016



Dallas and Ellis Counties

0 0.5 1 Miles

- Developed Land
- Available Land for Development
- Floodplain
- Proposed Loop 9 ROW
- City Limit
- County Boundary

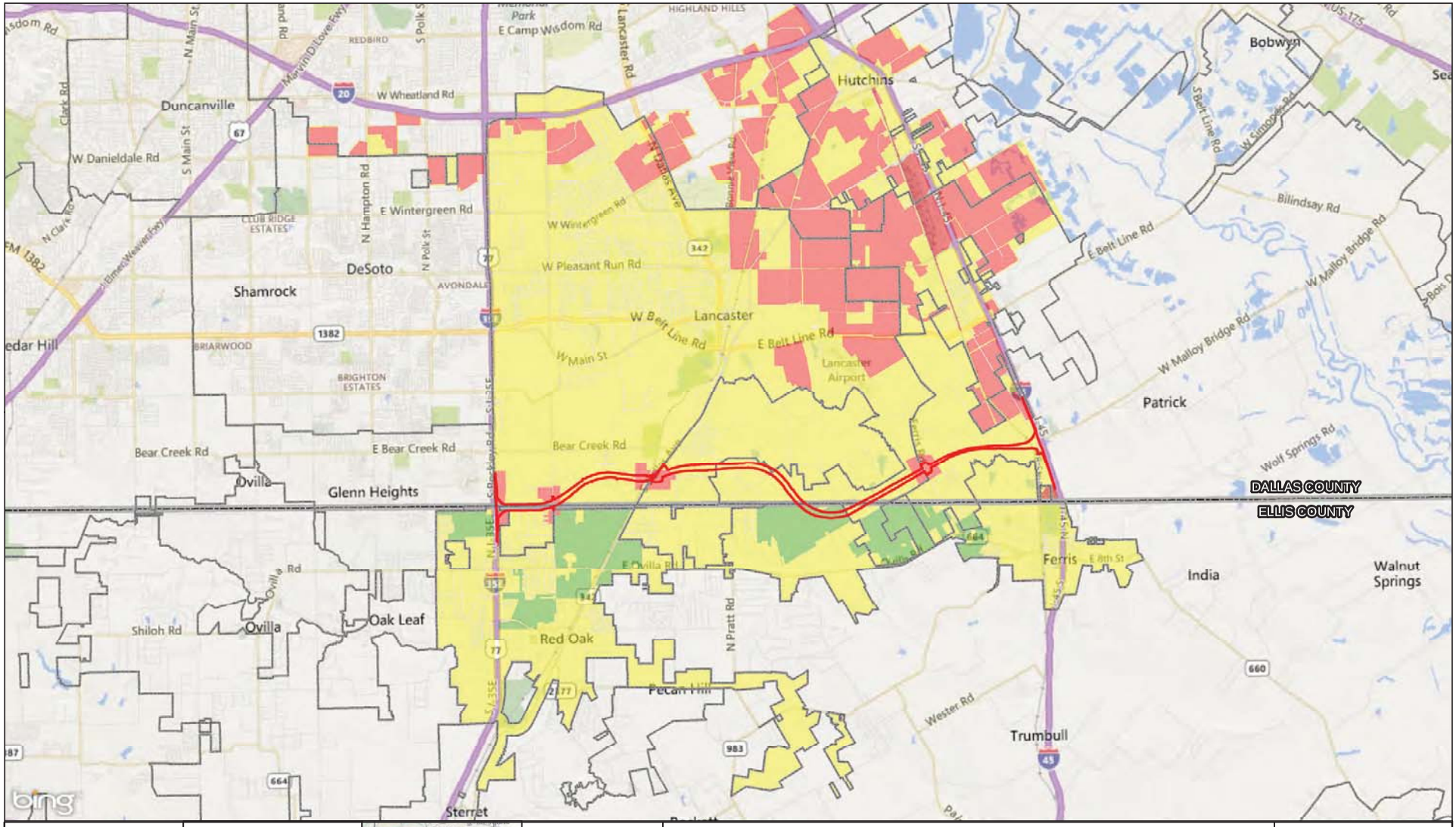
Sources: Land Use: NCTCOG, 2013; Floodplain: FEMA, 2013

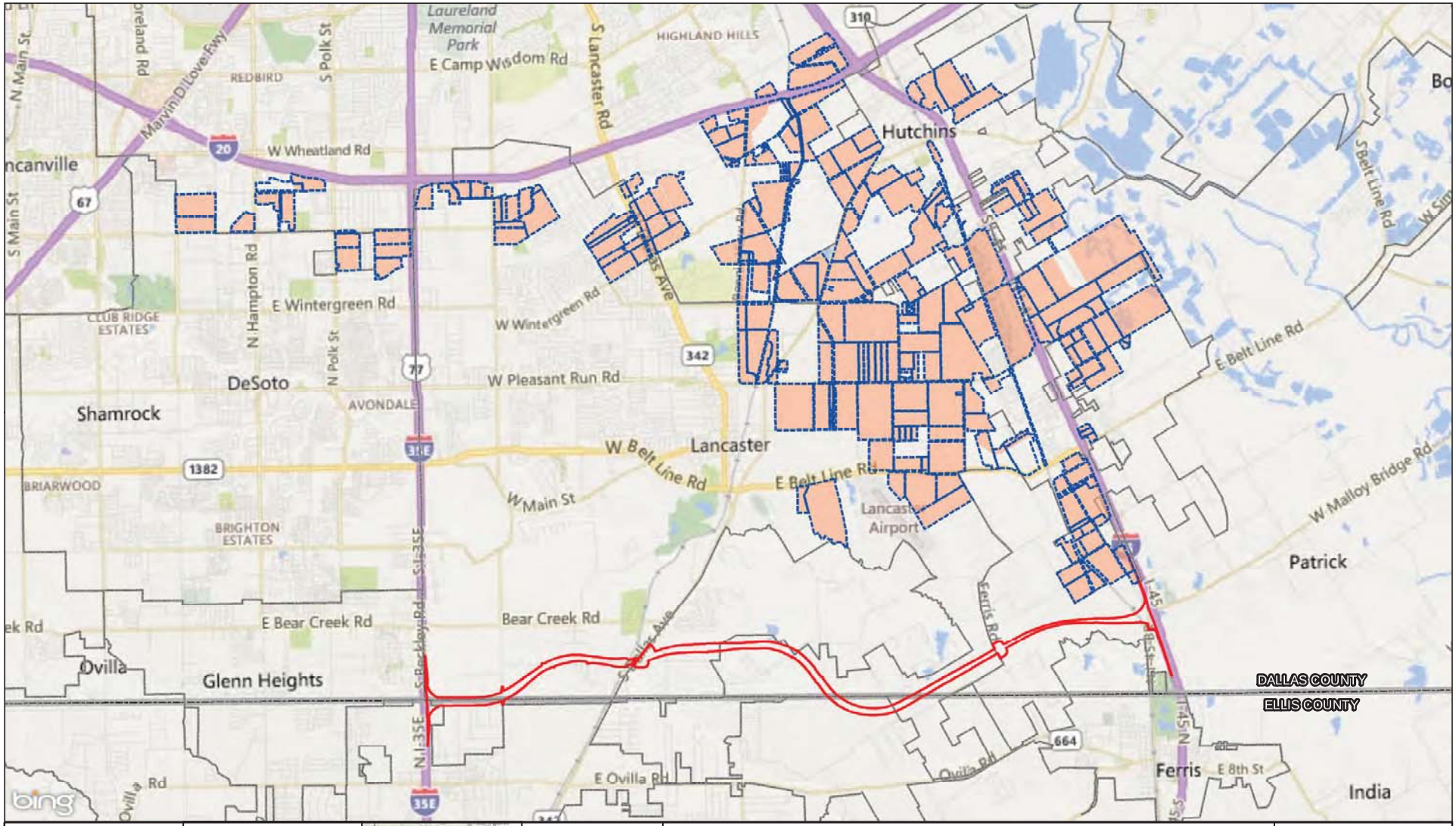
FIGURE 5
Indirect & Cumulative Impacts
Area of Influence
Developed Land & Floodplains, 2013

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

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Date: 11/28/2016


Duncanville
W Danieldale Rd
W Wheatland Rd
Hutchins
Bobwyn
DeSoto
Shamrock
W Wintergreen Rd
E Wintergreen Rd
W Pleasant Run Rd
Lancaster
W Belt Line Rd
E Belt Line Rd
W Main St
Lancaster Airport
Bilindsay Rd
W Malloy Bridge Rd
Patrick
Wolf Springs Rd
DALLAS COUNTY
ELLIS COUNTY
Bear Creek Rd
E Bear Creek Rd
Ovilla
Glenn Heights
Ferris
India
Walnut Springs
Shiloh Rd
Oak Leaf
Red Oak
Pecan Hill
Wester Rd
Trumbull
Sterrett
Loop 9 SOUTHEAST
Dallas and Ellis Counties
Proposed Loop 9 ROW
City Limit
County Boundary
High Potential for Induced Growth
Limited Potential for Induced Growth
Low Potential for Induced Growth
0 2,000 4,000
Feet
0 0.25 0.5
Miles
Sources: Parcels: Dallas Central Appraisal District, 2011, 2015.
FIGURE 6
Indirect & Cumulative Impacts
Potential for Induced Growth
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005
N:\Clients\S_T\TxDOT\Loop_9\geo\figs\ICI Maps 20161128\04_InducedGrowth.mxd
Date: 11/29/2016



Loop 9 SOUTHEAST

Dallas and Ellis Counties



0 2,000 4,000
Feet
0 0.25 0.5
Miles

IIPOD Parcel (2011)
IIPOD Parcel (2015)
Proposed Loop 9 ROW
City Limit
County Boundary

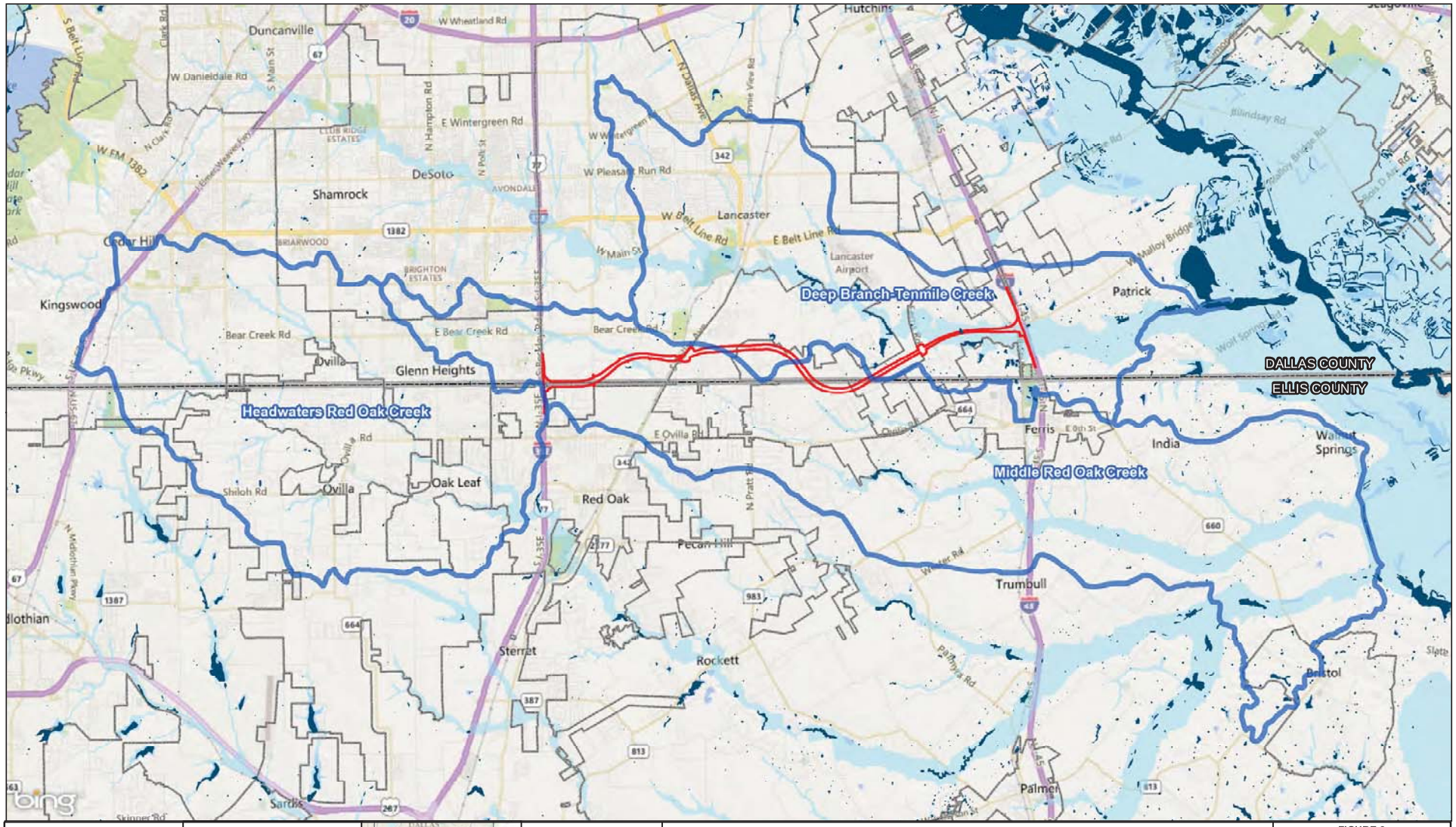
Sources: Parcels: Dallas Central Appraisal District, 2011, 2015.

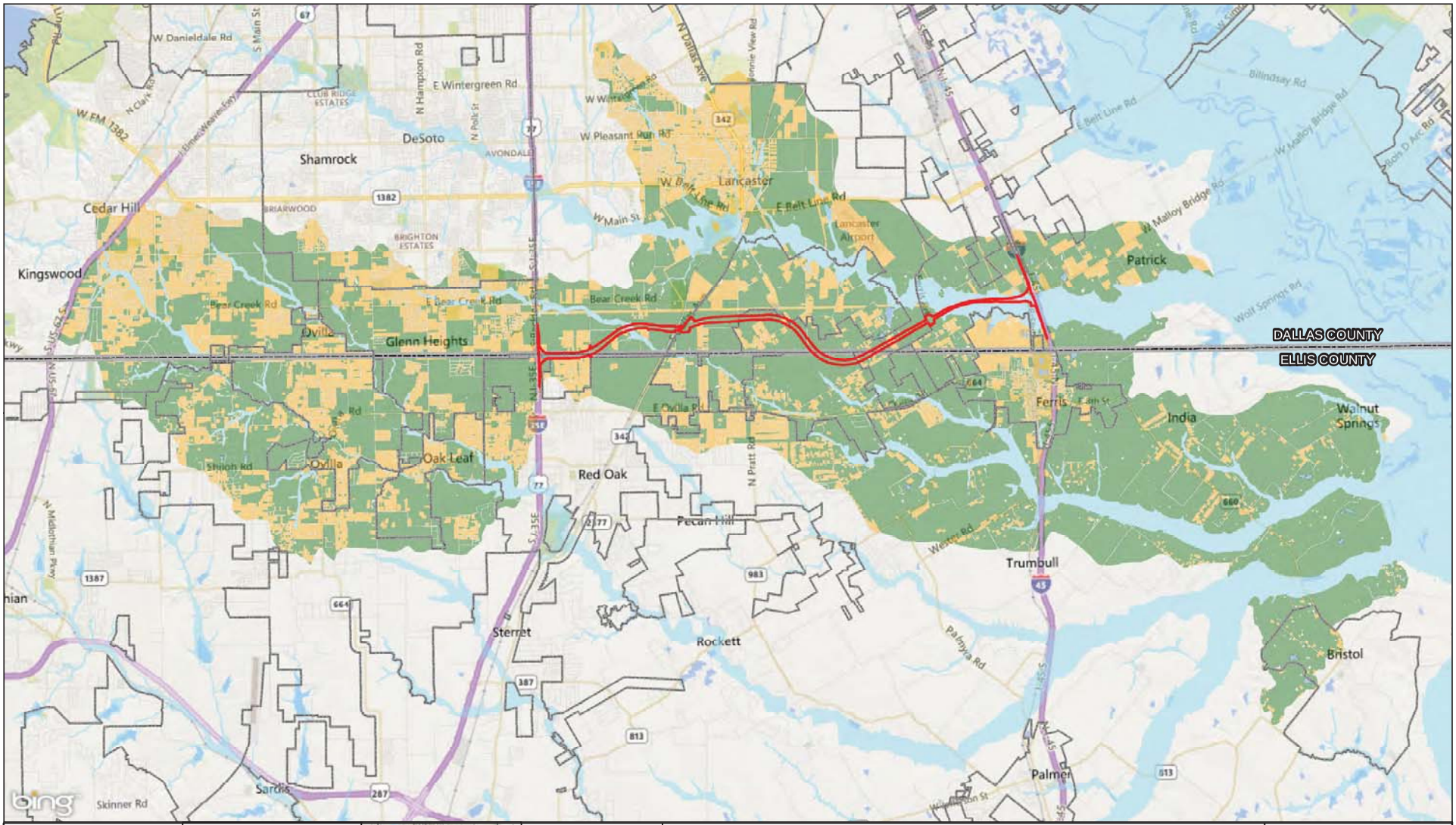
FIGURE 7
Indirect & Cumulative Impacts
International Inland Port of Dallas
Parcel Locations

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

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Date: 11/29/2016


Deep Branch-Tenmile Creek
Headwaters Red Oak Creek
Middle Red Oak Creek
DALLAS COUNTY
ELLIS COUNTY
Duncanville
DeSoto
Shamrock
Cedar Hill
Kingswood
Glenn Heights
Ovilla
Oak Leaf
Red Oak
Lancaster
Patrick
Ferris
India
Trumbull
Pecan Hill
Sterrett
Rockett
Palmer
Bristol
Walnut Springs
Hutchins
W Wheatland Rd
W Danieldale Rd
E Wintergreen Rd
W Pleasant Run Rd
W Belt Line Rd
E Belt Line Rd
Bear Creek Rd
E Bear Creek Rd
E Ovilla Rd
Shiloh Rd
Lancaster Airport
Malloy Bridge Rd
Lindsay Rd
Pennys Rd
Sardis
Skinner Rd
Midlothian Pkwy
S Belt Line Rd
N Clark Rd
W FM 1382
S Main St
N Hampton Rd
N Polk St
N Prairie Creek Rd
Annie View Rd
N Pratt St
E 8th St
W Water Rd
Briarwood
Brighton Estates
Club Ridge Estates
Avondale
Loop 9 SOUTHEAST
Dallas and Ellis Counties
Cedar Hill
Ellis
Waxahachie
Dallas
Duncanville
Hutchins
Lancaster
DeSoto
Ovilla
Red Oak
Ferris
Trumbull
Palmer
Rockett
Sterrett
Midlothian
Waxahachie
0 0.5 1
Miles
Floodplain
Wetland
Watershed Boundary
Proposed Loop 9 ROW
City Limit
County Boundary
Sources: Floodplain: FEMA, 2013; Watersheds: USGS, 2014; Wetlands: USFWS, 2010.
FIGURE 8
Indirect & Cumulative Impacts
Resource Study Area
Floodplain, Watershed & Wetlands
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005
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Date: 11/29/2016



Loop 9 SOUTHEAST

Dallas and Ellis Counties

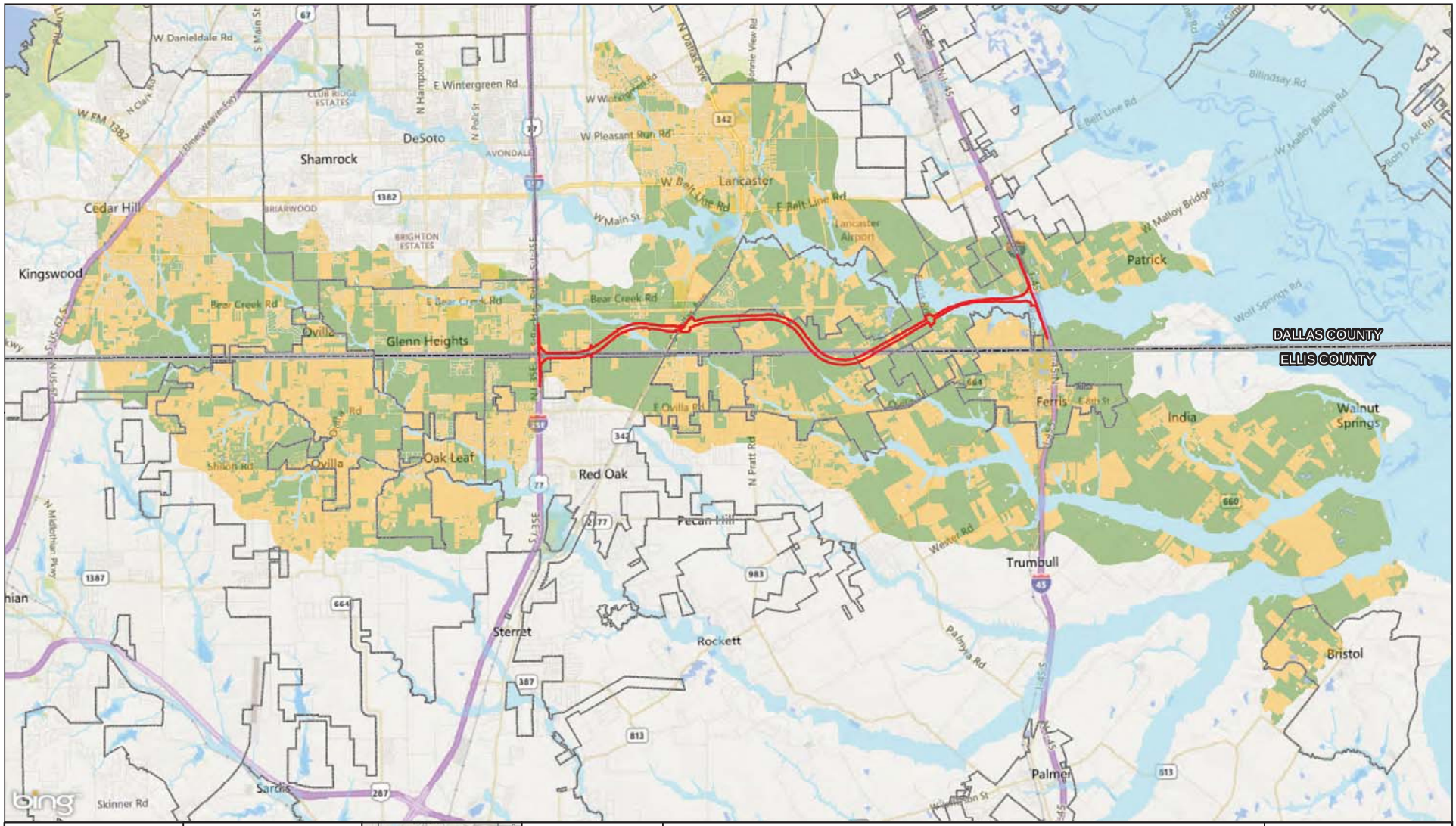
Sources: Land Use: NCTCOG, 2005; Floodplain: FEMA, 2013

FIGURE 9
Indirect & Cumulative Impacts
Resource Study Area
Developed Land & Floodplains, 2005

Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005

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Date: 11/29/2016


DALLAS COUNTY
ELLIS COUNTY
Shamrock
DeSoto
Cedar Hill
Kingswood
Glenn Heights
Ovilla
Oak Leaf
Red Oak
Lancaster
Patrick
Ferris
India
Walnut Springs
Trumbull
Pecan Hill
Sterrett
Rockett
Bristol
Palmer
Sardis
Skinner Rd
W Danieldale Rd
E Wintergreen Rd
W Pleasant Run Rd
W Belt Line Rd
E Belt Line Rd
W Main St
Bear Creek Rd
E Bear Creek Rd
E Ovilla Rd
N Polk St
N Hampton Rd
S Main St
N Dallas Ave
W Malloy Bridge Rd
Bilindsay Rd
Wolf Springs Rd
Weiler Rd
Palmyra Rd
N Pratt Rd
Lancaster Airport
CLUB RIDGE ESTATES
BRIARWOOD
BRIGHTON ESTATES
AVONDALE
Loop 9 SOUTHEAST
Dallas and Ellis Counties
Ellis
Warshachie
0 0.5 1
Miles
Developed Land
Available Land for Development
Floodplain
Proposed Loop 9 ROW
City Limit
County Boundary
Sources: Land Use: NCTCOG, 2013; Floodplain: FEMA, 2013
FIGURE 10
Indirect & Cumulative Impacts
Resource Study Area
Developed Land & Floodplains, 2013
Loop 9: From I-35E to I-45
Dallas and Ellis Counties, Texas
CSJ: 2964-10-005
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Date: 11/29/2016

Appendix B

Questionnaire Responses

Table B1: Stakeholders that Provided Input into the ICI

First Name	Last Name	Organization
Antoinette	Bacchus	Dallas County
Alan	Hugley	City of Red Oak
Bill	Dodson	Ellis County
Carl	Sherman	City of Ferris
Casey	Burgess	City of Wilmer
Chuck	Dart	City of Ferris
Cindy	Polley	Ellis County
Clay	Jenkins	Dallas County
Carol	Bush	Ellis County
Caryn	Stevens	City of Red Oak
Darryl	Martin	Dallas County
Darwin	Myers	TxDOT Ellis/Navarro County
Dennis	Robinson	Ellis County
Douglas	Jistel	City of Wilmer
Grady	Smithey	City of Duncanville
Hamid	Baha	Dallas County
Joseph A.	White	Ellis County
John Wiley	Price	Dallas County
Jonathan	Toffer	Dallas County
Judy	Armstrong	Ellis County
Kyle	Butler	Ellis County
Lane	Grayson	Ellis County
Lauren	Mish	Dallas County
Lee	Auvenshine	Ellis County
Lisa	Yates	Ellis County
Lori	Shelton	NTTA
Micah	Baker	Dallas County
Michael	Driggars	City of Ferris
Marcus E.	Knight	City of Lancaster

Jim	Brewer	City of Lancaster
Opal	Robertson	City of Lancaster
Paul	Perry	Ellis County
Rick	Loessberg	Dallas County
Rona	Stringfellow	City of Lancaster
Ruby	Blum	Dallas County
Sheila	Martin	City of Wilmer
Shwetha	Pandurangi	City of Lancaster
Todd	Fuller	City of Red Oak

#1

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, February 09, 2016 3:43:09 PM
Last Modified: Tuesday, February 09, 2016 4:21:06 PM
Time Spent: 00:37:57
IP Address: 68.90.16.2

PAGE 4: INDIRECT IMPACTS

Q1: Where do you think future development would occur between now and 2040 if Loop 9 is not developed?

Future development would continue in the current areas of southeast Dallas County (south of I20) around the cities of Wilmer, Hutchins, Dallas and Lancaster. In time congestion on the current roadways would negatively impact development.

Q2: What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?

Both Residential & commercial

Q3: What is the basis for this projection?

I am aware of several new developments because the county seeks and receives regular planning and development information from the cities in the area

PAGE 5: INDIRECT IMPACTS

Q4: Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?

Loop 9 would relieve some of the IH20 traffic and also support development in both Dallas and Ellis counties.

Q5: What type of development could be anticipated (e.g. residential, commercial, etc.)?

both residential and commercial

Q6: What is the basis for this projection?

Development is occurring right now along the IH45 corridor south of IH20 into Ellis County. Dallas County is involved in development permit applications, reviews and coordination with the cities

PAGE 6: INDIRECT IMPACTS

Q7: Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?

Dallas County is involved in studying the utility deficiencies in the area & is developing a phased plan to deliver utilities as funding becomes available.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

Cities in the area have development regulations. Dallas County is encouraging the cities to annex land as development occurs in their ETJ

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

Yes. The Southern Dallas Comprehensive Infrastructure Analysis and (unpublished - still in progress) and additional study commissioned be Dallas County to review individual projects from the SDCIA

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

In general the area is attracting warehouses and distribution centers. There are also some residential areas in the cities

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

N/A

Q12: Please provide all property taxes including city, county, school, and special utility districts.

N/A

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

Yes

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Both public and private

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?

Will send as attachment if we get a request. We have map and almost current development figures.

Q16: How advanced are the development plans?

All authorized and funded

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

transportation facilities, access and transit

#2

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, February 12, 2016 2:24:44 PM
Last Modified: Friday, February 12, 2016 2:38:10 PM
Time Spent: 00:13:25
IP Address: 38.108.58.194

PAGE 4: INDIRECT IMPACTS

Q1: **Where do you think future development would occur between now and 2040 if Loop 9 is not developed?**

Along the I- 35, I-45, US 67, and US 287 corridors.

Q2: **What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?**

In the proposed loop 9 ROW, if not constructed, the majority of development would be residential.

Q3: **What is the basis for this projection?**

Current trends and existing infrastructure.

PAGE 5: INDIRECT IMPACTS

Q4: **Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?**

Along the Loop 9 corridor especially at major interchanges.

Q5: **What type of development could be anticipated (e.g. residential, commercial, etc.)?**

Retail and commercial.

Q6: **What is the basis for this projection?**

Higher traffic counts will justify business and retail uses along the loop 9 corridor where those uses could not have been justified based on population alone.

PAGE 6: INDIRECT IMPACTS

Q7: **Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?**

Water is not necessarily on-site, but is reasonably available. Develop-able land is available.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

Residential and industrial.

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

Yes.

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

Inland port and manufacturing. Housing boom.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

0.687134

Q12: Please provide all property taxes including city, county, school, and special utility districts.

ELLIS COUNTY 0.380091
FERRIS ISD 1.355000
CITY OF FERRIS 0.687134
EC ESD #5 (FERRIS) 0.030000
ELLIS COUNTY LATERAL ROAD 0.033508

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

Yes

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

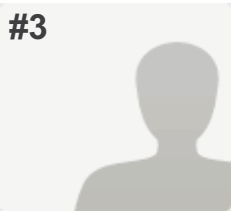
Not in proposed ROW

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?	*Respondent skipped this question*
Q16: How advanced are the development plans?	*Respondent skipped this question*

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

Flood Plains



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, February 16, 2016 5:16:11 PM
Last Modified: Tuesday, February 16, 2016 5:27:50 PM
Time Spent: 00:11:39
IP Address: 208.87.232.180

PAGE 4: INDIRECT IMPACTS

Q1: **Where do you think future development would occur between now and 2040 if Loop 9 is not developed?**

In the exact same location that the proposed Loop 9 is shown, between I-45 and I-35.

Q2: **What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?**

There is a mix of developments currently including some residential and commercial but primarily Industrial.

Q3: **What is the basis for this projection?**

Current zoning maps and an updated future land use plan.

PAGE 5: INDIRECT IMPACTS

Q4: **Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?**

Within the corridor of I-35 and I-45. I believe that it would accelerate the development.

Q5: **What type of development could be anticipated (e.g. residential, commercial, etc.)?**

Commercial and Industrial.

Q6: **What is the basis for this projection?**

Zoning and future land use plan

PAGE 6: INDIRECT IMPACTS

Q7: **Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?**

There are plans for the utilities to be extended.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

Zoning and subdivision regulations as well as Master planned industrial development

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

There is the South Dallas County Infrastructure Analysis which is a regional infrastructure plan.

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

Industrial development within the Southern Dallas County area. There is a thriving economy amongst BSW cities and cities south of the Trinity River.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

.86/100 of accessed value

Q12: Please provide all property taxes including city, county, school, and special utility districts.

City .8675

School 1.54

County and School Equalization .2531

College .12365

Hospital .286

Tax Rate per $100

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

No

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Yes

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?

They are all primarily industrial and located in the City of Wilmer

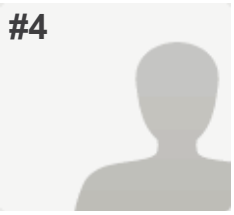
Q16: How advanced are the development plans?

Construction stage in Wilmer

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

The area where the proposed alignment is still undeveloped



INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, February 19, 2016 2:08:17 PM
Last Modified: Friday, February 19, 2016 2:22:32 PM
Time Spent: 00:14:14
IP Address: 107.197.244.182

PAGE 4: INDIRECT IMPACTS

Q1: **Where do you think future development would occur between now and 2040 if Loop 9 is not developed?**

North Tarrant County / Alliance

Q2: **What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?**

some residential

Q3: **What is the basis for this projection?**

Loop 9 will encourage the area to expand the south Dallas distribution area. Create jobs and more residential. Without, some smaller residential will occur as site are made available.

PAGE 5: INDIRECT IMPACTS

Q4: **Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?**

Along I 45 frontage and Wilmer

Q5: **What type of development could be anticipated (e.g. residential, commercial, etc.)?**

Commercial, Warehousing

Q6: **What is the basis for this projection?**

UP Intermodal activities and strong labor force.

PAGE 6: INDIRECT IMPACTS

Q7: **Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?**

They are planned. Funding is an issue for the smaller towns like Wilmer.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

ETJ Wilmer which has a detailed development code.

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

Yes, We have 2.5 million square feet of distribution buildings planned between Mars and Loop 9

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

Distribution expansion in South Dallas.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

$.51 I believe. We are to be annexed into Wilmer. Currently in the county.

Q12: Please provide all property taxes including city, county, school, and special utility districts.

Dallas County, DISD and Ferris ISD

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

Yes, we have 2.5 million square feet of distribution planned for the area.

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Yes, our industrial park.

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?

five buildings ranging from 203,000 to 750,000. Totaling 2.5 million square feet of distribution.

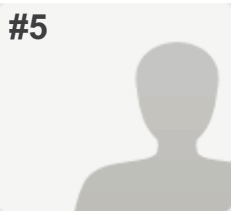
Q16: How advanced are the development plans?

The first building is 100% designed and ready for permitting. We are negotiating a development agreement and annexation into the city of Wilmer.

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

ephemeral stream by whatever definition the Corp or EPA has today.



#5

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, February 22, 2016 4:54:24 PM
Last Modified: Monday, February 22, 2016 6:05:20 PM
Time Spent: 01:10:56
IP Address: 99.88.170.124

PAGE 4: INDIRECT IMPACTS

Q1: Where do you think future development would occur between now and 2040 if Loop 9 is not developed?

Not developing Loop 9 will slow southern Dallas County and northern Ellis County residential and commercial development considerably. The fact that plans for Loop 9 started in 1991 and was stymied by an unreasonably long federal environmental clearance process of its 37 miles of black land prairie which contains no endangered species. The USA created the atomic bomb and won WWII in less time than it took to clear this process. To a great degree this unreasonable delay accelerated the tremendous growth of the north side of the Dallas area, Collin and Denton Counties. In that area there are a number of east west toll, free and combination toll and free roadways. In Southern Dallas County there is one--I-20--built in 1974 and not expanded since. Parts of I-35 in Tarrant County have been expanded--not so in Dallas County.

Q2: What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?

Much slower growth. More free range chickens and other livestock in partially developed lots Colonias type development in Ellis County already exists east and west of I-35. SUDs and MUDs have already encouraged substandard development in Ellis County. That haphazard growth pattern will be encouraged by the delay of the development of Loop 9.

Q3: What is the basis for this projection?

I have spent 70 of my 73 years in southern Dallas County, 65 of them in Duncanville and have observed the growth of our area all this time. I represented the BestSouthwest cities on the Regional Transportation Council at NCTCOG for 13 of the 22 years I served on the Duncanville City Council. I fought many battles for adequate funding for projects in our area losing most of them to the entrenched northern Dallas and southern Collin County interests. All those years of experience are the bases of my projections. In 1991 I talked then County Judge Lee Jackson into reviving the Loop 9 project and the affected cities into providing 50% of the funding for the right of way feasibility study. I had no idea it would take 25 years to get to this point in its development.

PAGE 5: INDIRECT IMPACTS

Q4: Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?

It will fill up the developable portions of southern Dallas and northern Ellis Counties.

Q5: What type of development could be anticipated (e.g. residential, commercial, etc.)?

Both.

Q6: What is the basis for this projection?

There is very little affordable land left in reasonable commuting distance on the north side of the Metroplex. If you don't believe me tour the area and look at the new developments.

PAGE 6: INDIRECT IMPACTS

Q7: **Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?**

Such planning is the purpose of the NCTCOG. Much of it is already developed because of the cities, NMUs and SUDs. Did you ask this question when growth went elliptically north in the last 35 years? I think not.

PAGE 7: INDIRECT IMPACTS

Q8: **What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?**

Not being a Council member or a city engineer in that area I cannot answer that question with the kind of specificity you desire.

PAGE 8: INDIRECT IMPACTS

Q9: **Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?**

There is a regional transportation plan formulated by the RTC at NCTCOG where the 2040 plan is currently being formulated. NCTCOG also produces water and air quality plans.

PAGE 9: INDIRECT IMPACTS

Q10: **Identify recent trends in development and industry within the regional economy.**

Retail, light manufacturing hotel and motel development, expansion of health care facilities and hospital expansions are a number of new development in the Loop 9 area. All these development trends are caused by a boom in new home construction in the area. Because of available land at affordable prices you can buy or build much more home for the money in the Loop 9 area than in most other areas of the Metroplex.

PAGE 10: INDIRECT IMPACTS

Q11: **What is the tax assessment rate (e.g. millage) for property within your city?**

City-74 cents in Duncanville. Cedar Hill, Desoto and Lancaster are comparable. Midlothian is considerably less due to its higher % nonresidential tax base. This is a question you should be able to answer for yourselves from available information.

Q12: **Please provide all property taxes including city, county, school, and special utility districts.**

Ibid! See my response to Q.II

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

This info is available from the cities which Loop 9 will traverse.

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Ibid! Check with cities in the Loop 9 corridor.

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?

Ibid!

Q16: How advanced are the development plans?

Ibid.

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

The major impediment is the Trinity River bottom. The slowness of the development of Loop 9 to date has already delayed development and will continue to do so if not expedited.

#6

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, February 24, 2016 12:08:35 AM
Last Modified: Wednesday, February 24, 2016 12:34:08 AM
Time Spent: 00:25:33
IP Address: 70.196.1.230

PAGE 4: INDIRECT IMPACTS

Q1: **Where do you think future development would occur between now and 2040 if Loop 9 is not developed?**

Along Belt Line and Mars roads.

Q2: **What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?**

None in the corridor area. The area is currently landlocked without road access.

Q3: **What is the basis for this projection?**

Past experience.

PAGE 5: INDIRECT IMPACTS

Q4: **Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?**

I think you will see a lot of development between I-45 and Lancaster Airport.

Q5: **What type of development could be anticipated (e.g. residential, commercial, etc.)?**

Manufacturing, logistics, and office.

Q6: **What is the basis for this projection?**

Developer interest.

PAGE 6: INDIRECT IMPACTS

Q7: **Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?**

Water and sewer are not adequate in this part of Wilmer, but we are working to extend service to the area this year.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

Wilmer platting regulations and Wilmer zoning regulations in portions of the area currently in the city limits.

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

The Wilmer 2030 plan.

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

Logistics, Multifamily, and retail.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

$0.4766

Q12: Please provide all property taxes including city, county, school, and special utility districts.

City: $0.4766
DISD: $1.282085
Dallas County: $.2531
DCCCD: $0.12365
Parkland: $0.286

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

Procter & Gamble

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Cactus Environmental, Liberty Crossing, DFW Inland Port, Texas Central Railroad

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?

Cactus will be located at Millers Ferry just north of Malloy Bridge. This is a small, eight acre development.

Liberty Crossing is a 100+ acre mixed use development at Mars and 45. It is planned to have over 300 dwelling units with retail and office.

DFW Inland Port will be located at Millers Ferry and Patrick Pike. It is a logistics development and may contain 1 million square feet of development.

Texas Central is a high speed rail project that will traverse the area.

Q16: How advanced are the development plans?

They are in the initial stages of planning and development.

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

Floodplain

#7

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, February 25, 2016 8:47:10 AM
Last Modified: Thursday, February 25, 2016 9:07:19 AM
Time Spent: 00:20:09
IP Address: 198.210.1.3

PAGE 4: INDIRECT IMPACTS

Q1: **Where do you think future development would occur between now and 2040 if Loop 9 is not developed?**

Further improving I-35E South of Downtown Dallas

Q2: **What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?**

Commercial shipping facilities, data centers etc...

Q3: **What is the basis for this projection?**

Lack of available space in the DFW region and a push by the city of Dallas to further expand business south of downtown.

PAGE 5: INDIRECT IMPACTS

Q4: **Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?**

In Ferris.

Q5: **What type of development could be anticipated (e.g. residential, commercial, etc.)?**

Commercial expansion or new industrial buildings and facilities.

Q6: **What is the basis for this projection?**

Amount of available land at reasonable prices.

PAGE 6: INDIRECT IMPACTS

Q7: **Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?**

I am not aware of planned utility expansion in this area.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

I do not have any knowledge of these land development regulations.

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

Not to my knowledge.

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

Further business expansion.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?	*Respondent skipped this question*
Q12: Please provide all property taxes including city, county, school, and special utility districts.	*Respondent skipped this question*

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

No

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Not to my knowledge

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?	*Respondent skipped this question*
Q16: How advanced are the development plans?	*Respondent skipped this question*

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?	*Respondent skipped this question*

#8

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, February 25, 2016 3:33:45 PM
Last Modified: Thursday, February 25, 2016 5:36:53 PM
Time Spent: 02:03:07
IP Address: 68.90.16.2

PAGE 4: INDIRECT IMPACTS

Q1: **Where do you think future development would occur between now and 2040 if Loop 9 is not developed?**

If Loop 9 is not built I believe development will first fill in at the I-20 Corridor and then likely move south along the I-45 Corridor since much of I-35 is already developed. In Inland Port area has already begun to experience growth in the form of many Warehouses along the I-45 Corridor. This area will likely expereince the most growth between now and year 2040 if there is continued focus on improving the arterials in this area.

Q2: **What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?**

There are currently many commercial warehouses going up in the area and this number should continue to increase. With a large number of jobs being created as a result, there will likely be a large number of residential housing needed by year 2040.

Q3: **What is the basis for this projection?**

The basis has been the increased growth that the area is already experiencing along with the interest in providing access so that more warehouses and businesses can locate in this area.

PAGE 5: INDIRECT IMPACTS

Q4: **Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?**

Loop 9 will really serve to alieviate much of the 1-20 corridor, allowing for development to be more evenly dispersed in the throughout the I-20, I-45, Loop 9, and I-35 area.

Q5: **What type of development could be anticipated (e.g. residential, commercial, etc.)?**

I believe the type of development will be the same in either senerio, but that the warehouses and business will be grouped mostly in the I-20 and 1-45 interchage area with much of the residential development occuring southwest of there.

Q6: **What is the basis for this projection?**

The shipping companies are more likely to locate their warehouse facilities near a major highway for improved access, making the I-45 corrodor the area with the most potential for development since much of its surroundings south of 1-20 are undeveloped. this would leave much of the area to the southwest to be developed into resedential.

PAGE 6: INDIRECT IMPACTS

Q7: Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?

Respondent skipped this question

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

Respondent skipped this question

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

Not that I am aware of

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

Respondent skipped this question

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

Respondent skipped this question

Q12: Please provide all property taxes including city, county, school, and special utility districts.

Respondent skipped this question

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

Respondent skipped this question

PAGE 12: CUMULATIVE IMPACTS

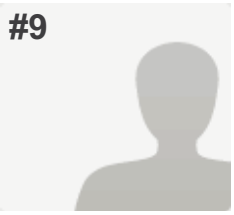
Q14: Are there any planned public or private land development projects in this area?

Respondent skipped this question

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?	*Respondent skipped this question*
Q16: How advanced are the development plans?	*Respondent skipped this question*

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?	*Respondent skipped this question*



INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, February 26, 2016 2:36:41 PM
Last Modified: Friday, February 26, 2016 3:12:00 PM
Time Spent: 00:35:19
IP Address: 68.90.16.2

PAGE 4: INDIRECT IMPACTS

Q1: Where do you think future development would occur between now and 2040 if Loop 9 is not developed?

Along I-45 due to proximity of the Union Pacific Dallas Intermodal and along I-20 also I-35E near I-20

Q2: What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?

Commercial and industrial

Q3: What is the basis for this projection?

The 2012 Southern Dallas County Infrastructure Analysis (SDCIA) funded by the Cities of Dallas, Hutchins, L

PAGE 5: INDIRECT IMPACTS

Q4: Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?	*Respondent skipped this question*
Q5: What type of development could be anticipated (e.g. residential, commercial, etc.)?	*Respondent skipped this question*
Q6: What is the basis for this projection?	*Respondent skipped this question*

PAGE 6: INDIRECT IMPACTS

Q7: Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?	*Respondent skipped this question*

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?	*Respondent skipped this question*

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?	*Respondent skipped this question*

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.	*Respondent skipped this question*

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?	*Respondent skipped this question*
Q12: Please provide all property taxes including city, county, school, and special utility districts.	*Respondent skipped this question*

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?	*Respondent skipped this question*

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?	*Respondent skipped this question*
Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?	*Respondent skipped this question*
Q16: How advanced are the development plans?	*Respondent skipped this question*

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?	*Respondent skipped this question*

#10

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, February 26, 2016 2:42:33 PM
Last Modified: Friday, February 26, 2016 4:03:45 PM
Time Spent: 01:21:12
IP Address: 68.90.16.2

PAGE 4: INDIRECT IMPACTS

Q1: **Where do you think future development would occur between now and 2040 if Loop 9 is not developed?**

If Loop 9 is not built I believe development will first fill in at the I-20 Corridor and then likely move south along the I-45 Corridor since much of I-35 is already developed. The Inland Port area has already begun to experience growth in the form of many Warehouses along the I-45 Corridor. This area will likely experience the most growth between now and year 2040 if there is continued focus on improving the arterials in this area.

Q2: **What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?**

There are currently many commercial warehouses going up in the area and this number should continue to increase. With a large number of jobs being created as a result, there will likely be a large number of residential housing needed by year 2040.

Q3: **What is the basis for this projection?**

The basis has been the increased growth that the area is already experiencing along with a shown interest by local entities in providing access so that more warehouses and businesses can locate in this area.

PAGE 5: INDIRECT IMPACTS

Q4: **Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?**

Loop 9 will really serve to alleviate much of the 1-20 corridor, allowing for development to be more evenly dispersed in and throughout the I-20, I-45, Loop 9, and I-35 area.

Q5: **What type of development could be anticipated (e.g. residential, commercial, etc.)?**

I believe the type of development will be the same in either scenario, but that the warehouses and business will be grouped mostly in the I-20 and 1-45 interchange area with much of the residential development occuring southwest of there.

Q6: **What is the basis for this projection?**

The shipping companies are more likely to locate their warehouse facilities near a major highway for improved access, making the I-45 corrodor the area with the most potential for development since much of its surroundings south of 1-20 are undeveloped. This would leave much of the area to the southwest to be developed into residential.

PAGE 6: INDIRECT IMPACTS

Q7: Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?

See follow up email from Dallas County Public Works for Infrastructure improvements and the 2012 Southern Dallas County Infrastructure Analysis (SDCIA) report projected through year 2060.

http://www.nctcog.org/trans/sustdev/landuse/funding/plan/sdcia/index.asp

Click link for documents to find report and other documentation

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

In the unincorporated areas property owners are required to dedicate necessary ROW for thoroughfares specified in the County Thoroughfare Plan.

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

The SDCIA plan is helping to provide a comprehensive view to facilitate economic growth

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

The regional economy of Dallas/Fort Worth has been growing faster than most of the nation.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

Please refer to the Dallas County Appraisal District's website

Q12: Please provide all property taxes including city, county, school, and special utility districts.

Please refer to the Dallas County Appraisal District's website

PAGE 11: CUMULATIVE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

Please see map in follow up email from Dallas County Public Works

PAGE 12: CUMULATIVE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Yes there are some planned developments within the ETJ of cities near Loop 9. There are two nearby sizable developments for which we have some information. The nearby Cities should be able to provide further details on these developments as well as additional development occurring within their city limits.

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, square feet of commercial space, public buildings, etc.)?

The general location of the Southport Logistics Park is south of Fulghum Road, east of I-45 and north of Pleasant Run Road. DFW Inland Port is a planned development generally located south of Mars Road between I-45 and the Union Pacific railroad with initial phase located between Millers Ferry Road and I-45.

Q16: How advanced are the development plans?

The Southport Logistics Park already has two buildings under construction with six more warehouses planned.The DFW Inland Port planned development is pending necessary upgrades to sewer line capacity currently being studied by the City of Wilmer.

Please see attachments in follow up email from Dallas County Public Works labeled Southport Logistics Park and DFW Inland Port

PAGE 13: CUMULATIVE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

Floodplain
Infrastrcture inadequacies

#1

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, March 02, 2016 5:10:05 PM
Last Modified: Wednesday, March 02, 2016 7:05:15 PM
Time Spent: 01:55:09
IP Address: 38.108.58.194

PAGE 4: INDIRECT IMPACTS

Q1: Where do you think future development would occur between now and 2040 if Loop 9 is not developed?

The current trend of development is located along the corridor's of I-35, I-45 and Hwy 67 and I believe that the abandonment of plans to construct loop 9 would augment this current development. I believe the less congested areas would see more growth along state highways like Belt-line Road and 664.

Q2: What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?

I believe more commercial development would be stimulated along the loop 9 corridor. Moreover, I believe the Lancaster airport would also see expansion of capacity.

Q3: What is the basis for this projection?

My observation of current market trends and growth potential.

PAGE 5: INDIRECT IMPACTS

Q4: Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?	*Respondent skipped this question*
Q5: What type of development could be anticipated (e.g. residential, commercial, etc.)?	*Respondent skipped this question*
Q6: What is the basis for this projection?	*Respondent skipped this question*

PAGE 6: INDIRECT IMPACTS

Q7: Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?

Currently, there are infrastructure deficiencies related to water and sewer along the planned route for loop 9, however Dallas County has a comprehensive capital plan to provide water to this planned area in the future.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

I am not aware of the regulations currently in place in the planned area of development now.

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

Yes, Dallas County's MCIP with Wilmer.

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

The International Inter-modal development has attracted multi-billion dollar corporate interest in the region. These corporate interest have selected site locations based on transportation dynamics represented uniquely in this area because of the convergence of major thoroughfares and rail in the region.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

.687134

Q12: Please provide all property taxes including city, county, school, and special utility districts.

approximately 2.50

PAGE 11: CVMVLATlqE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

No.

PAGE 12: CVMVLATlqE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Yes.

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, sUuare feet of commercial space, public buildings, etc.)?

The proposed development is a proposed 4 story hotel and restaurant.

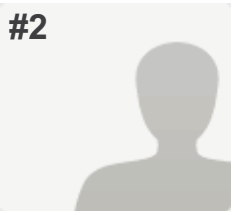
Q16: How advanced are the development plans?

Site location has been identified. The EDC has approved the grant participation.

PAGE 13: CVMVLATIqE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

Infrastructure deficiency - need for a 12 inch water line.



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, March 03, 2016 1:38:00 PM
Last Modified: Thursday, March 03, 2016 1:52:01 PM
Time Spent: 00:14:01
IP Address: 68.90.16.2

PAGE 4: INDIRECT IMPACTS

Q1: Where do you think future development would occur between now and 2040 if Loop 9 is not developed?

There would be greater growth south of IH30. This project is about connecting IH35E and IH45 near the inland port, creating better accessibility and greater economic development. Additional development may go to North Fort Worth near Alliance Airport, which would have more difficulty handling additional development.

Q2: What type of development could be anticipated (e.g. residential, commercial, etc.) if Loop 9 is not developed?

Rural undeveloped or homogeneous residential development would most likely occur. This project is aimed at higher paying blue collar jobs, creating an opportunity for an industrial based mixed-use development.

Q3: What is the basis for this projection?

Southern Dallas County has 40% of the population but only 15% of the taxable value. As the Dallas County Judge, I have hundreds of meetings about the need to develop the southern part of Dallas County. Loop 9 provides a unique opportunity to improve transportation while taking advantage of the nexus point of three interstate highways and two national rail lines.

PAGE 5: INDIRECT IMPACTS

Q4: Where do you think future development that can be attributed to the new access provided by Loop 9 would occur between now and 2040?

1) Along the corridor; 2) North of the corridor in the intermodal complex; 3) Development between IH35 and IH45 south of IH20

Q5: What type of development could be anticipated (e.g. residential, commercial, etc.)?

It is critical that the area is not overwhelmed with 100% warehousing. Manufacturing, retail, office, and residential for all income levels is critical. The area is attempting to create a work, live, and play atmosphere.

Q6: What is the basis for this projection?

Experience as County Judge working with local elected officials from cities and developers interested in this location is the basis for my position.

PAGE 6: INDIRECT IMPACTS

Q7: Are utilities (water, sewer, electric, etc.) available and is there sufficient capacity to support new land development in areas with improved operation and/or new access? If utilities are not currently available, are they planned to be extended to this area by 2040?

NCTCOG did a comprehensive study that identifies mobility, water, sanitary sewer and storm water needs. Additional utilities are needed for some of the area, but the region has identified time and time again that utilities are not a constraint to economic development. Agreements are already being developed for the areas in this general vicinity. There are partnerships between Dallas Water Utilities, City of Lancaster and other smaller communities.

PAGE 7: INDIRECT IMPACTS

Q8: What local land development regulations (zoning, subdivision regulations, etc.) are currently in place in areas with improved operation and/or new access?

Cities will have all necessary “rules” for economic development. Unincorporated areas will only have the capabilities that the State has granted to the counties and are permitted under state law.

PAGE 8: INDIRECT IMPACTS

Q9: Are there any local or regional comprehensive plans, policies or programs that would influence future land development in areas with improved operation and/or new access?

No. The NCTCOG has brought together local governments and private developers to expedite economic development. Transportation investments have recently and will continue to be funded in this area of the region. A portion of this project is already funded for approximately $100 Million.

PAGE 9: INDIRECT IMPACTS

Q10: Identify recent trends in development and industry within the regional economy.

NCTCOG regularly publishes that the region grows by 100,000 persons per year. The region stands at 7 million persons. It is projected to be 10.7 million persons by 2040. The region has added 1 million persons per decade since 1960.

PAGE 10: INDIRECT IMPACTS

Q11: What is the tax assessment rate (e.g. millage) for property within your city?

I would request the Loop 9 team confirm tax assessment rate details with the Dallas Central Appraisal District.

Q12: Please provide all property taxes including city, county, school, and special utility districts.

I would request the Loop 9 team confirm tax assessment rate details with the Dallas Central Appraisal District.

PAGE 11: CVMVLATIqE IMPACTS

Q13: Are you aware of any recently completed land development projects in the vicinity of the proposed project?

Dallas County's Public Works Department sent a follow up map with this information.

PAGE 12: CVMVLATIqE IMPACTS

Q14: Are there any planned public or private land development projects in this area?

Yes there are some planned developments within the ETJ of cities near Loop 9. There are two nearby sizable developments for which we have some information. The nearby Cities should be able to provide further details on these developments as well as additional development occurring within their city limits.

Q15: If so, where are they located and what is the proposed level of development (e.g., number of dwelling units, sUuare feet of commercial space, public buildings, etc.)?

The general location of the Southport Logistics Park is south of Fulghum Road, east of I-45 and north of Pleasant Run Road.
DFW Inland Port is a planned development generally located south of Mars Road between I-45 and the Union Pacific railroad with initial phase located between Millers Ferry Road and I-45.

Q16: How advanced are the development plans?

The Southport Logistics Park already has two buildings under construction with six more warehouses planned.
The DFW Inland Port planned development is pending necessary upgrades to sewer line capacity currently being studied by the City of Wilmer.

PAGE 13: CVMVLATIqE IMPACTS

Q17: In areas with improved operation and/or new access, what physical conditions (floodplains, access, current land uses, transportation facilities, etc.) could limit new development?

The Trinity River flood plan is well documented and would remain as a major component for flood control.

Appendix J

Agency Coordination Letters

USDA
United States Department of Agriculture

Natural Resources
Conservation Service

State Office

101 S. Main Street
Temple, TX 76501
Voice 254.742.9800
Fax 254.742.9819

March 20, 2015

Atkins
6504 Bridge Point Parkway
Austin, Texas 78730

Attention: Aaron Petty

Subject: LNU-Farmland Protection
Proposed Loop 9
Ellis and Dallas Counties, Texas

We have reviewed the information provided in your correspondence dated February 25, 2015 concerning the highway construction in Ellis and Dallas Counties, Texas. This review is part of the National Environmental Policy Act (NEPA) evaluation for Federal Highway Administration (FHWA). We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The proposed project does contain soils classified as Important Farmland Soils. We have completed Parts II, IV, and V of the Farmland Conversion Impact Rating for Corridor Type Projects (CPA-106). The relative value of farmland in Part V should be used in your calculation for Part VII.

To meet reporting requirements of section 1546 of the Act, 7 U.S.C 4207, and for data collection purposes, after your agency has made a final decision on a project in which one or more of the alternative sites contain farmland subject to the FPPA, NRCS is requesting a return copy of the Form CPA-106, which indicates the final decision. We urge you to use accepted erosion control methods during all phases of construction.

If you have any questions, please contact me at (254) 742-9826, Fax (254) 742-9859 or by email at micki.yoder@tx.usda.gov.

Sincerely,

Drew Kinney

for Micki Yoder
NRCS Soil Conservationist

Attachment

An Equal Opportunity Provider and Employer

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 1/26/14	4. Sheet 1 of 1
1. Name of Project Loop 9	5. Federal Agency Involved Federal Highway Administration	
2. Type of Project New location highway	6. County and State Dallas, Ellis, TEXAS	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 2/25/15	2. Person Completing Form Drew Kinney
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 ☑ NO ☐	4. Acres Irrigated 1,416	Average Farm Size 100
5. Major Crop(s) Cotton	6. Farmable Land in Government Jurisdiction Acres: 220,183 39%	7. Amount of Farmland As Defined in FPPA Acres: 218,213 39%
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS 3-20-2015

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	West 1 - East 1	West 2 - East 1	West 1 - East 2	West 2 - East 2
A. Total Acres To Be Converted Directly	543.56	563.42	555.92	575.22
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0	0	0	0
C. Total Acres In Corridor	543.56	563.42	555.92	575.22
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	408	439	418	448
B. Total Acres Statewide And Local Important Farmland	—	—	—	—
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.1870	0.2012	0.1916	0.2053
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	70	52	52	52
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)*	58	60	59	61

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points	West 1 - East 1	West 2 - East 1	West 1 - East 2	West 2 - East 2
1. Area in Nonurban Use	15	11	11	11	11
2. Perimeter in Nonurban Use	10	9	9	9	9
3. Percent Of Corridor Being Farmed	20	6	7	6	7
4. Protection Provided By State And Local Government	20	0	0	0	0
5. Size of Present Farm Unit Compared To Average	10	2	2	2	2
6. Creation Of Nonfarmable Farmland	25	25	25	25	25
7. Availability Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	10	10	10	10
9. Effects Of Conversion On Farm Support Services	25	10	10	10	10
10. Compatibility With Existing Agricultural Use	10	6	6	6	6
TOTAL CORRIDOR ASSESSMENT POINTS	160	84	85	84	85
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	58	60	59	61
Total Corridor Assessment (From Part VI above or a local site assessment)	160	84	85	84	85
TOTAL POINTS *(Total of above 2 lines)*	260	142	145	143	146

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 ☑ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: | DATE

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

ATKINS

Atkins North America, Inc.
6504 Bridge Point Parkway, Suite 200
Austin, Texas 78730

Telephone: +1.512.327.6840
Fax: +1.512.327.2453

www.atkinsglobal.com/northamerica

January 30, 2015

Ms. Micki Yoder
United States Department of Agriculture
Natural Resources Conservation Service
101 South Main Street
Temple, TX 765018

Subject: Loop 9 FPPA
Dallas, Ellis Counties, Texas

Dear Ms. Yoder:

The Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT) are proposing the construction of a new highway in both Dallas and Ellis Counties. The proposed highway will extend from I-35E to I-45, an approximate length of 9.26 linear miles, although the alternatives differ in length. A map of the proposed project location is attached. As part of the National Environmental Policy Act of 1969, a, Environmental Assessment (EA) is being prepared which evaluates multiple Build Alternatives and a No-Build Alternative.

The Farmland Impact Conversion Rating form (CPA-106) has been prepared for the Build Alternatives for your review and input to help assess the impact to farmlands as a result of the Loop 9 routes. The alternative routes are divided into two East and two West options for a total of 4 alternative route combinations (i.e. East 1 – West 2).

Please note that a more comprehensive regional Loop 9 project was proposed and underwent the FPPA process in 2011. I have attached your former correspondence for reference.

If you have any questions regarding this project, please contact me at 512.342.3486 or aaron.petty@atkinsglobal.com

Sincerely,

Aaron Petty
Ecologist

Enclosures:
FPPA form, Loop 9 route map, 2011 NRCS correspondence letter

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

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 ☐ NO ☐		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 _____			
	West 1 - East 1	West 2 - East 1	West 1 - East 2	West 2 - East 2
A. Total Acres To Be Converted Directly	543.56	563.42	555.92	575.22
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0	0	0	0
C. Total Acres In Corridor	543.56	563.42	555.92	575.22
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	West 1 - East 1	West 2 - East 1	West 1 - East 2	West 2 - East 2
1. Area in Nonurban Use	15	11	11	11	11
2. Perimeter in Nonurban Use	10	9	9		9
3. Percent Of Corridor Being Farmed	20	6	7	6	7
4. Protection Provided By State And Local Government	20	0	0	0	0
5. Size of Present Farm Unit Compared To Average	10	2	2	2	2
6. Creation Of Nonfarmable Farmland	25	25	25	25	25
7. Availablility Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	10	10	10	10
9. Effects Of Conversion On Farm Support Services	25	10	10	10	10
10. Compatibility With Existing Agricultural Use	10	6	6	6	6
TOTAL CORRIDOR ASSESSMENT POINTS	160	84	85	84	85
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 ☑ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: | DATE

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

United States Department of Agriculture
NRCS
Natural Resources Conservation Service

101 S. Main Street
Temple, TX 76501-6624
Phone: 254-742-9826
FAX: 254-742-9859

May 4, 2011

PBS&J
6504 Bridge Point Parkway, Suite 200
Austin, Texas 78730

Attention: Tracy Hill, Project Manager

Subject: LNU-Farmland Protection
Proposed Loop 9 Southeast
Dallas, Ellis, Kaufman Counties, Texas

We have reviewed the information provided concerning the proposed Loop 9 Southeast in Dallas, Ellis, and Kaufman Counties, Texas, as outlined in your letter dated January 18, 20011. This review is part of the National Environmental Policy Act (NEPA) evaluation for FHWA/TxDot. We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

Segments A, D, E, F, and G are exempt from the FPPA because they were prior converted to urban uses. Segment B is exempt because this site received a total score of 141, which is less than 160 and need not be given further consideration for protection.

There are Important Farmland Soils in both alternatives of Segment C. We have developed a rating for the soils for this preferred corridor and completed the NRCS-CPA-106 you submitted. The total points in Part VII of the NRCS-CPA-106 for alternative 1 were 174 and alternative 2 were 170. The FPPA law states that sites receiving scores totaling 160 or more be given increasingly higher levels of consideration for protection. When making decisions on proposed actions for sites receiving scores totaling 160 or more, agency personnel consider:
Use of land that is not farmland or use of existing structures;
Alternative sites, locations and designs that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a lower relative value.
To meet reporting requirements of section 1546 of the Act, 7 U.S.C. 4207, and for data collection purposes, after the agency has made a final decision on a project in which one or more of the alternative sites contain farmland subject to the FPPA, the agency is requested to return a copy of the Form AD–1006, which indicates the final decision of the agency, to the NRCS State Office.

Thank you for the resource materials you provided. If you have any questions, please contact me at (254) 742-9826; email: micki.yoder@tx.usda.gov; Fax (254) 742-9859.

Sincerely,

Micki Yoder

Micki Yoder/NRCS
State Resources Inventory Coordinator
Temple, Texas

Enclosure

Patterson, Susan K

From: Patterson, Susan K
Sent: Thursday, January 19, 2017 4:32 PM
To: micki.yoder@tx.usda.gov
Cc: Mash, Lisa R
Subject: TxDOT Loop 9: I-35E to I-45, Dallas and Ellis Counties, Tx
Attachments: Loop9_NRCS Coordination_03 20 15.pdf; Loop9_UpdatedPrimeFarmland_01 19 17.pdf; Loop9_PrimeFarmland_01 19 17.pdf; Loop9_PrimeFarmlandacres_01 19 17.xlsx

Hi Micki – You provided an evaluation for the Loop 9 project in 2015 (see attached). At that time, TxDOT was evaluating four different alignment alternatives. A final decision has been made on the alignment and it is currently being evaluated in the Environmental Assessment. The alignment has shifted some since the evaluation in 2015 so we have provided an updated map and evaluation form for your use. Please let me know if you any questions or need additional information.

Thank you -

Susan Patterson
Sr. Transportation Planner

ATKINS

17220 Katy Freeway, Building 1, Suite 200, Houston, TX 77094 | Tel: 281.529.4285 | Mobile: 936.933.5793
Email: susan.patterson@atkinsglobal.com | Web: www.atkinsglobal.com | Careers: www.atkinsglobal.com/careers

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request		
Name of Project	Federal Agency Involved		
Proposed Land Use	County and State		
PART II *(To be completed by NRCS)*	Date Request Received By NRCS	Person Completing Form:	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)* YES ☐ NO ☐	Acres Irrigated	Average Farm Size	
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount of Farmland As Defined in FPPA Acres: %	
Name of Land Evaluation System Used	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	486.70			
B. Total Acres To Be Converted Indirectly	0			
C. Total Acres In Site	718.60			
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide Important or 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 Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)				

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)	11			
2. Perimeter In Non-urban Use	(10)	9			
3. Percent Of Site Being Farmed	(20)	6			
4. Protection Provided By State and Local Government	(20)	0			
5. Distance From Urban Built-up Area	(15)	2			
6. Distance To Urban Support Services	(15)	2			
7. Size Of Present Farm Unit Compared To Average	(10)	2			
8. Creation Of Non-farmable Farmland	(10)	5			
9. Availability Of Farm Support Services	(5)	5			
10. On-Farm Investments	(20)	10			
11. Effects Of Conversion On Farm Support Services	(10)	10			
12. Compatibility With Existing Agricultural Use	(10)	6			
TOTAL SITE ASSESSMENT POINTS	160	68	0	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	68	0	0	0
TOTAL POINTS ***(Total of above 2 lines)***	260	68	0	0	0

Site Selected: Attached Figure	Date Of Selection 2016	Was A Local Site Assessment Used? YES ☐ NO ☑

Reason For Selection:

Final alignment minimized impacts to residential and commercial displacements, wildlife habitat, wetlands and floodplains.

Name of Federal agency representative completing this form: Susan Patterson, Atkins	Date: 1/19/17

(See Instructions on reverse side)

Form AD-1006 (03-02)

United States Department of Agriculture

Natural Resources
Conservation Service

State Office

101 S. Main Street
Temple, TX 76501
Voice 254.742.9800
Fax 254.742.9819

January 25, 2017

ATKINS
17220 Katy Freeway, Building 1, Suite 100
Houston, Texas 77094

Attention: Susan Patterson, Sr. Transportation Planner

Subject: TxDOT Loop 9: I-35E to I-45, Dallas and Ellis Counties, TX Project NEPA/FPPA Evaluation

We have reviewed the information provided in your correspondence dated January 19, 2017 concerning the proposed highway construction located Dallas and Ellis Counties, Texas. This review is part of the National Environmental Policy Act (NEPA) evaluation for the Federal Highway Administration (FHA). We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The urban areas intersecting the proposed project boundary are considered "land committed to urban development" due to its location within the city limits of Red Oak and Lancaster, Texas. For these reasons, these areas are exempt from provisions of FPPA and were not evaluated in the site assessment [(Part VI) of the Farmland Conversion Impact Rating for Corridor Type Projects form (CPA-106)].

The remaining proposed corridor contains soils classified as Prime Farmland and we have completed the CPA-106 for the proposed sites in Dallas and Ellis County, separately. The combined ratings for the Dallas and Ellis County sites are **128** and **152**, respectively. The FPPA law states that sites with a rating less than 160 will need no further consideration for protection and no additional evaluation is necessary. We encourage the use of accepted erosion control methods during the construction of this project.

If you have any questions, please contact me at 254.742.9836 or by email at carlos.villarreal@tx.usda.gov.

Sincerely,

Carlos J. Villarreal
NRCS Soil Scientist

Attachment: Form CPA-106 – Dallas County, Texas
Form CPA-106 – Ellis County, Texas

An Equal Opportunity Provider and Employer

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 1/20/17	4. Sheet 1 of 2
1. Name of Project Loop 9 Project	5. Federal Agency Involved Federal Highway Administration	
2. Type of Project New location highway	6. County and State Dallas County, Texas	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 1/20/17	2. Person Completing Form Carlos J. Villarreal
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 ☐ NO ☐	4. Acres Irrigated 3262	Average Farm Size 100
5. Major Crop(s) cotton, corn, small grains	6. Farmable Land in Government Jurisdiction Acres: 83754 % 14	7. Amount of Farmland As Defined in FPPA Acres: 120506 % 21
8. Name Of Land Evaluation System Used NCCPI	9. Name of Local Site Assessment System None	10. Date Land Evaluation Returned by NRCS 1/24/17

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment Dallas County			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	405			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	405			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	157			
B. Total Acres Statewide And Local Important Farmland	12			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.003			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	45			
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)*	50			
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	9			
2. Perimeter in Nonurban Use — 10	9			
3. Percent Of Corridor Being Farmed — 20	15			
4. Protection Provided By State And Local Government — 20	20			
5. Size of Present Farm Unit Compared To Average — 10	10			
6. Creation Of Nonfarmable Farmland — 25	10			
7. Availablility Of Farm Support Services — 5	5			
8. On-Farm Investments — 20	0			
9. Effects Of Conversion On Farm Support Services — 25	0			
10. Compatibility With Existing Agricultural Use — 10	0			
TOTAL CORRIDOR ASSESSMENT POINTS — 160	78	0	0	0
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	50	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	78	0	0	0
TOTAL POINTS *(Total of above 2 lines)* — 260	128	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Corr A	405 ac	JAN 2017	YES ☐ NO ☑

5. Reason For Selection: Dallas Co.

Susan Patterson, Atkins
Signature of Person Completing this Part:

DATE 1-24-17

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

Clear Form

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 1/20/17	4. Sheet 2 of 2
1. Name of Project: Loop 9 Project	5. Federal Agency Involved: Federal Highway Administration	
2. Type of Project: New location highway	6. County and State: Ellis County, Texas	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 1/20/17	2. Person Completing Form: Carlos J. Villarreal
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 ☐ NO ☐		4. Acres Irrigated: 2175 / Average Farm Size: 209
5. Major Crop(s): cotton, corn, small grains	6. Farmable Land in Government Jurisdiction: Acres: 473860 % 78	7. Amount of Farmland As Defined in FPPA: Acres: 279792 % 46
8. Name Of Land Evaluation System Used: NCCPI	9. Name of Local Site Assessment System: None	10. Date Land Evaluation Returned by NRCS: 1/25/17 Ellis

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment Dallas County: Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	59			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	59			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	59			
B. Total Acres Statewide And Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0002			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	25			
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)*	76			
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	9			
2. Perimeter in Nonurban Use — 10	7			
3. Percent Of Corridor Being Farmed — 20	15			
4. Protection Provided By State And Local Government — 20	20			
5. Size of Present Farm Unit Compared To Average — 10	0			
6. Creation Of Nonfarmable Farmland — 25	10			
7. Availablility Of Farm Support Services — 5	5			
8. On-Farm Investments — 20	0			
9. Effects Of Conversion On Farm Support Services — 25	0			
10. Compatibility With Existing Agricultural Use — 10	0			
TOTAL CORRIDOR ASSESSMENT POINTS — 160	66	0	0	0
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	76	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	66	0	0	0
TOTAL POINTS *(Total of above 2 lines)* — 260	152	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Corr A	59 ac Ellis Co.	Jan 2017	YES ☐ NO ☑

5. Reason For Selection:

Susan Patterson, Atkins

Signature of Person Completing this Part: DATE 1-24-17

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

Clear Form

Scott Pletka

From: Scott Pletka
Sent: Friday, October 09, 2015 1:03 PM
To: 'Amie R. Tah-Bone (atahbone@kiowatribe.org)'; 'Gary McAdams (Gary.McAdams@wichitatribe.com)'; 'Holly Houghten (holly@mathpo.org)'; 'Jason Ross (jross@delawarenation.com)'; 'Jimmy Arterberry (jimmya@comanchenation.com)'; 'Miranda Myer (mallen@tonkawatribe.com)'; 'Nekole Alligood (NAlligood@delawarenation.com)'; 'Terri Parton (Terri.Parton@wichitatribe.com)'
Subject: Section 106 Consultation, Texas Department of Transportation; CSJ 296410005
Attachments: 296410005_Consultation_Request_10-09-15.pdf

Good afternoon,

We kindly request your comments regarding a proposed undertaking. Please see the attached letter for project details and information.

Thank you in advance for your consideration.

Regards,

Scott Pletka
Supervisor, Archeological Studies Branch
Texas Department of Transportation

Texas Department of Transportation
125 EAST 11TH STREET | AUSTIN, TEXAS 78701-2483 | (512) 463-8588 | WWW.TXDOT.GOV

October 9, 2015

RE: CSJ: 2964-10-005; Loop 9 from IH 35E to IH 45, New Road on New Location, Section 106 Consultation; Dallas and Ellis Counties, Dallas District

To: Representatives of Federally-recognized Tribes with Interest in this Project Area

The above referenced transportation project is being considered for construction by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT). Environmental studies are in the process of being conducted for this project. The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

The purpose of this letter is to contact you in order to consult with your Tribe pursuant to stipulations of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU). The project is located in an area that is of interest to your Tribe.

Undertaking Description

TxDOT's Dallas District is proposing to construct a 10.35-mile tolled roadway on mostly new location (please see Exhibit A: Project Location Illustrated on the Dallas/Ellis County Map and Exhibit B: Project Location Illustrated on the Lancaster and Ferris 7.5" USGS Topographic Quadrangle Maps. The proposed roadway would consist of multiple travel lanes with double lane frontage roads. Elevated ramps are proposed at intersections. The facility would also include cross drainage structure installations, storm water drainage features, possible bicycle lanes, and sidewalks. Approximately, 523 acres of proposed new right of way (ROW) and 10 acres of easements would be required.

Area of Potential Effects

The undertaking's area of potential effects is defined as the proposed 170 to 1,860 foot wide Loop 9 ROW beginning as IH 35E and extending 10.5 miles east to IH 45. According to typical roadway design the depth of impacts is estimated to be up to fifty feet below the current ground surface for bridge/overpass supports, twelve feet for storm sewer features, and up to three feet for the remainder of the project. The APE is comprised of approximately 543 acres. For the purposes of this cultural resources review, the APE also includes an additional 50-foot area around the previously-described horizontal dimensions to account for potential alterations to the proposed APE included in the final project design. Consultation would be continued if potential impacts extend beyond this additional area, based on the final design.

According to the Lancaster (3296-321) and the Ferris (3269-321) USGS topographic quadrangles of the Texas Archeological Sites Atlas, there are five archeological sites (41DL229, 41DL274, 41DL359, 41DL360, and 41DL361 located within 1 kilometer (0.625 miles) of the APE. However, none of these sites overlap onto the APE and will therefore, not be impacted.

According to 1979 Dallas Sheet of the Geologic Atlas of Texas, the underlying geology of the APE is comprised of Upper Cretaceous aged Austin Chalk (Kau), Upper Cretaceous aged Ozan Formation (Lower Taylor Marl) (Ko), and Holocene aged Alluvium (Qal). Kau and Ko possess formation periods predating the generally accepted arrival time of human beings into Dallas and Ellis Counties (12,000 years ago). Therefore, these geologic types possess minimal potential for the presence of buried intact archeological deposits. Qal formed relatively recently (within the last 12,000 years). Therefore, this geologic type possesses potential for the presence of buried intact archeological deposits.

Identification Efforts

For this project, TxDOT has conducted a desktop-based study of available background information, which indicates that further field investigation is warranted. The decision is based upon the APE possessing approximately 543 acres that have not been subject to previous archeological investigation coupled with portions of the APE being located on recent alluvial settings that potentially could harbor buried intact archeological deposits.

Findings and Recommendations

Based on the above, TxDOT proposes that an intensive archeological survey be conducted within the APE. A zone of 50 feet beyond the horizontal project limits should be considered as part of the cultural resources evaluation; and if any future changes to the project APE extend beyond the additional 50-foot zone or if prehistoric or protohistoric archeological deposits are discovered, your Tribe would then be contacted for further consultation.

According to our procedures and agreements currently in place regarding consultation under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic properties of cultural or religious significance to your Tribe that may be affected by the proposed project APE and the area within the above defined buffer. Any comments you may have on the TxDOT findings and recommendations should also be provided. Please provide your comments within 30 days of receipt of this letter. Any comments provided after that time will be addressed to the fullest extent possible. If you do not object that the proposed findings and recommendations are appropriate, please sign below to indicate your concurrence. In the event that further work discloses the presence of archeological deposits, we will contact your Tribe to continue consultation.

Thank you for your attention to this matter. If you have questions, please contact Jon Budd (TxDOT Archeologist) at 512/416-2640 (email: jon.budd@txdot.gov) or me at 512/416-2631 (email: Scott.Pletka@txdot.gov). When replying to this correspondence by US Mail, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Project
CSJ: 2964-10-005; Loop 9 From IH 35E to IH 45, Construct New Roadway on New Location,
Dallas and Ellis Counties

Sincerely,

Scott Pletka, Supervisor
Archeological Studies Branch
Environmental Affairs Division

Concurrence by: _____ Date: _____

Attachments
cc w/attachments: ENV-ARCH ECOS

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Project
CSJ: 2964-10-005; Loop 9 From IH 35E to IH 45, Construct New Roadway on New Location,
Dallas and Ellis Counties

Exhibit A: Project Location Illustrated on the Dallas/Ellis County Map

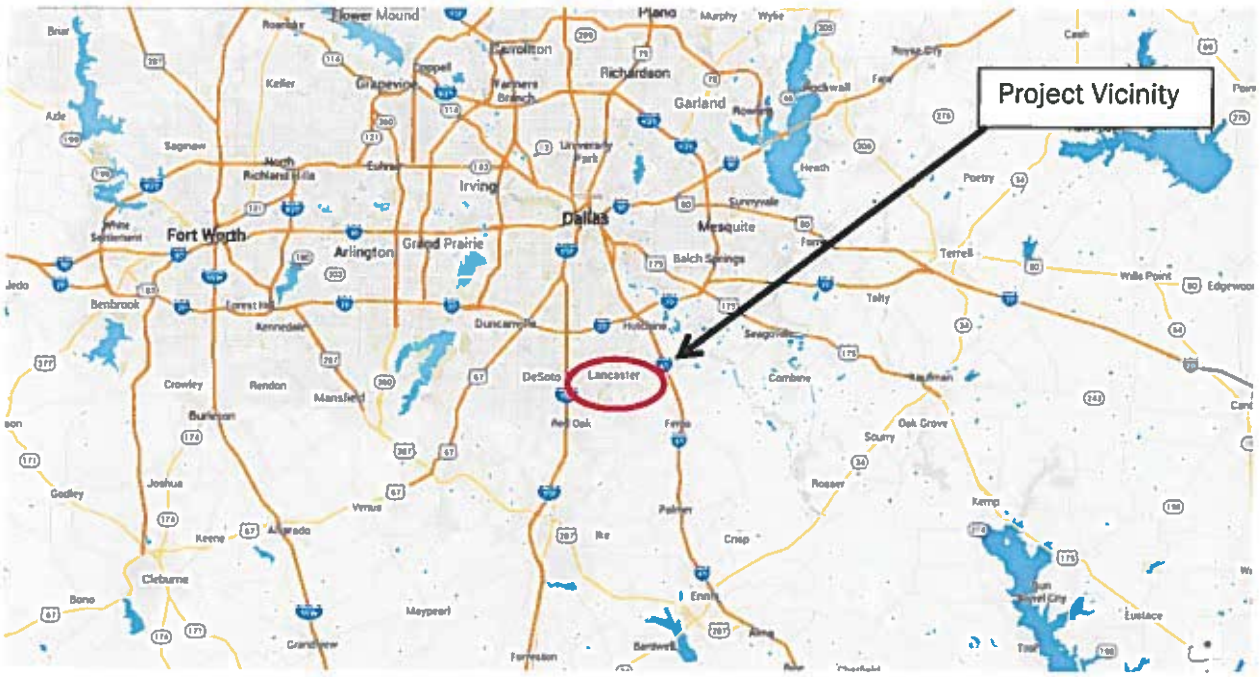
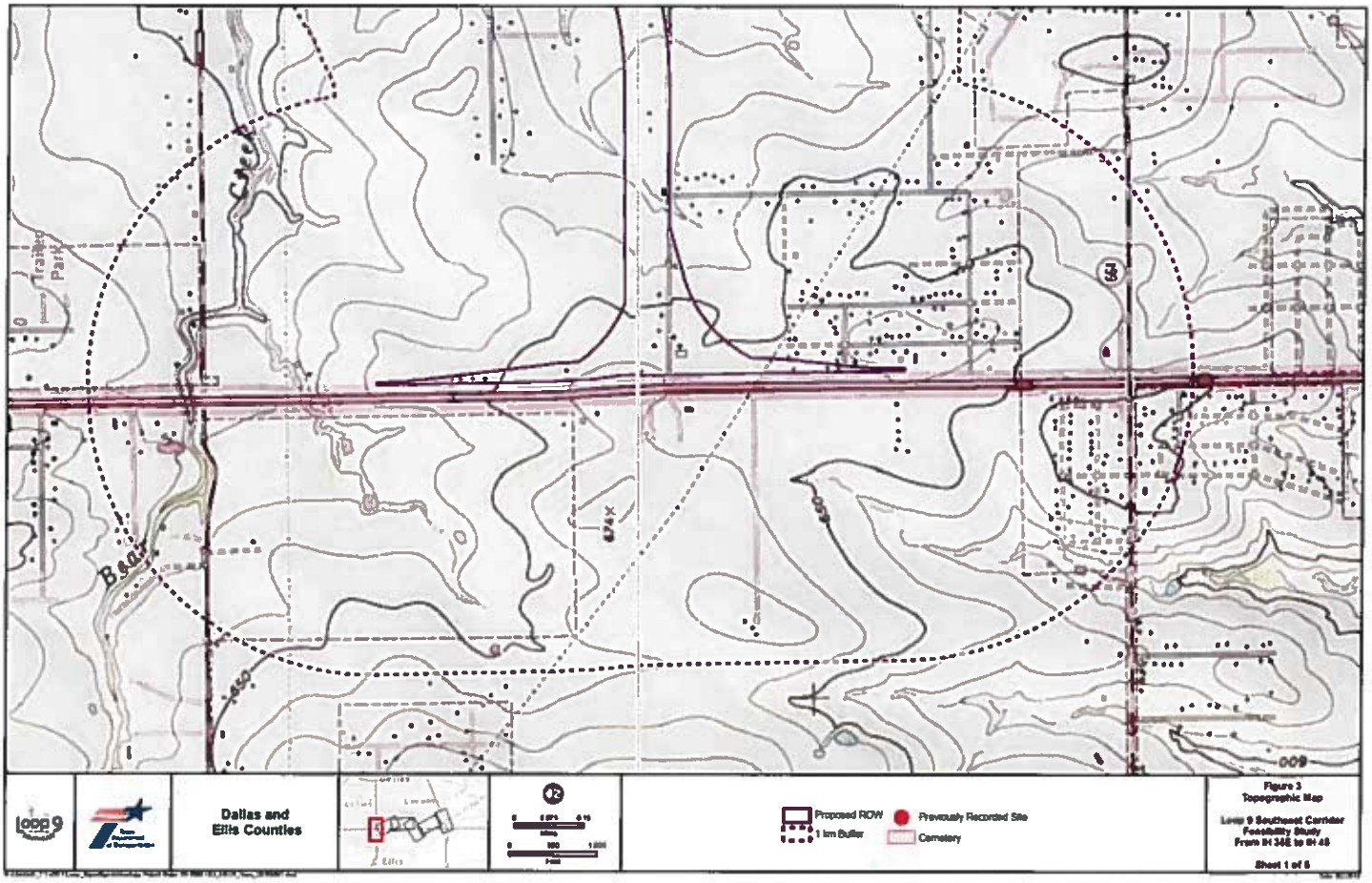
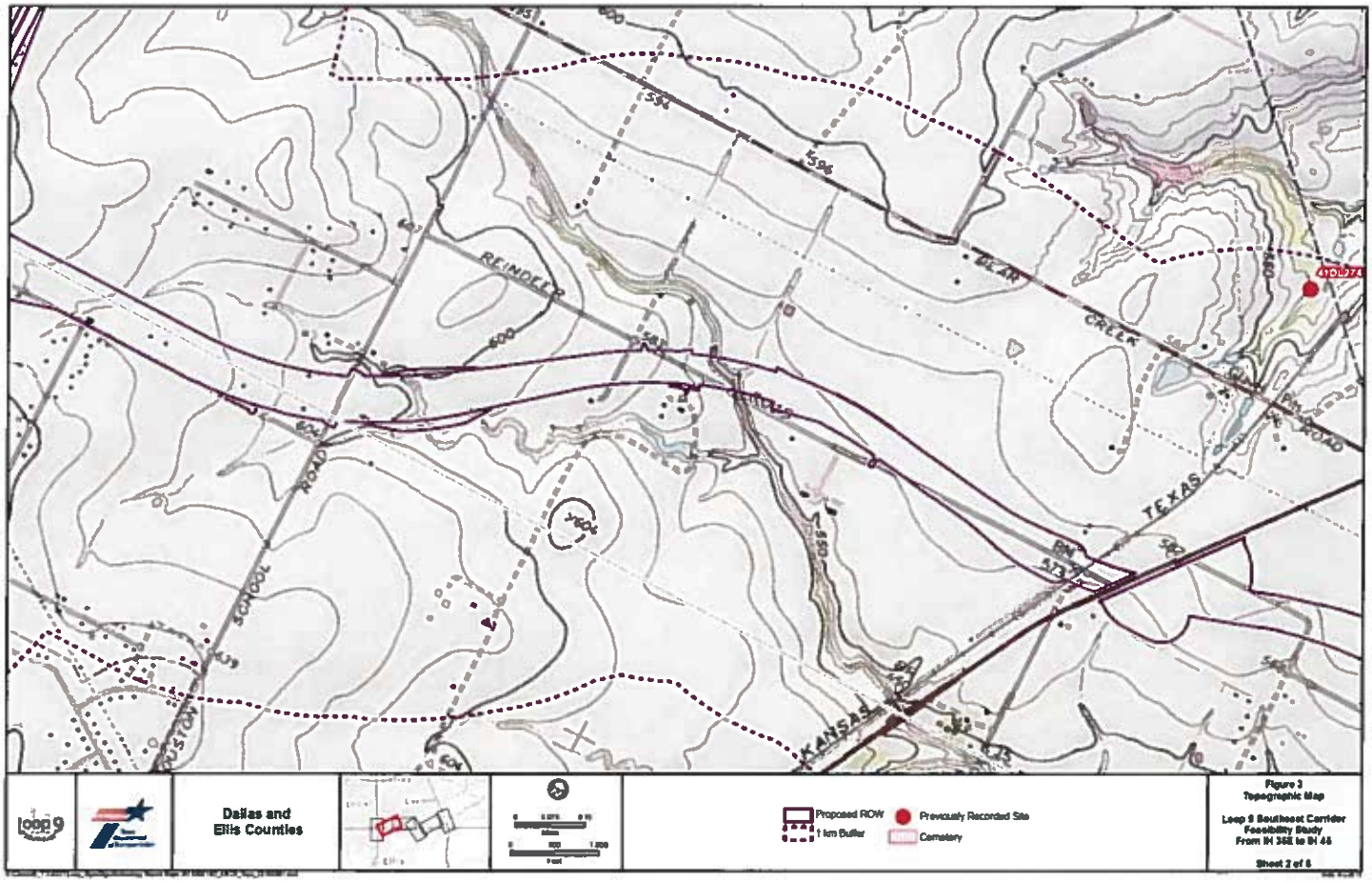
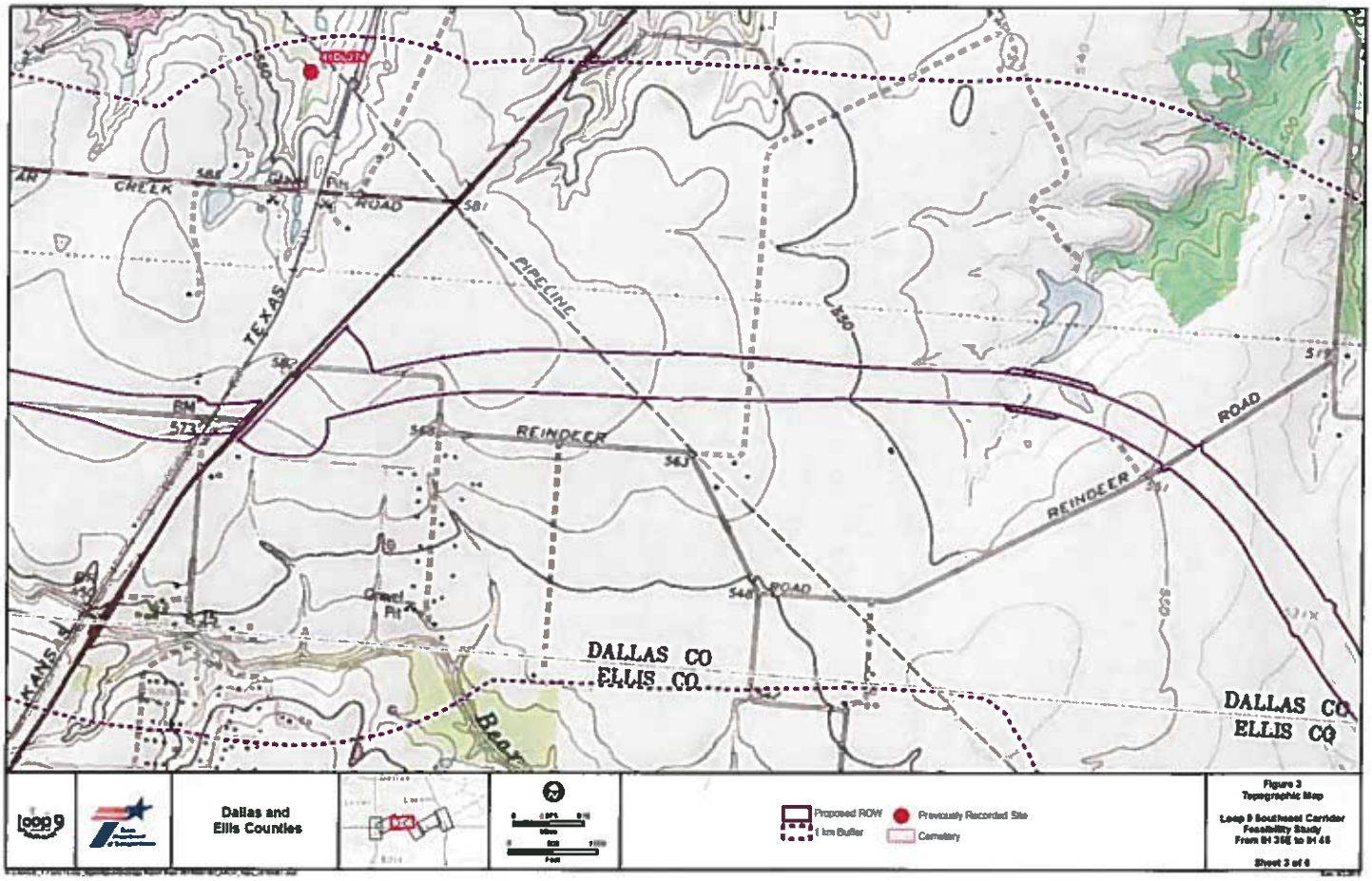
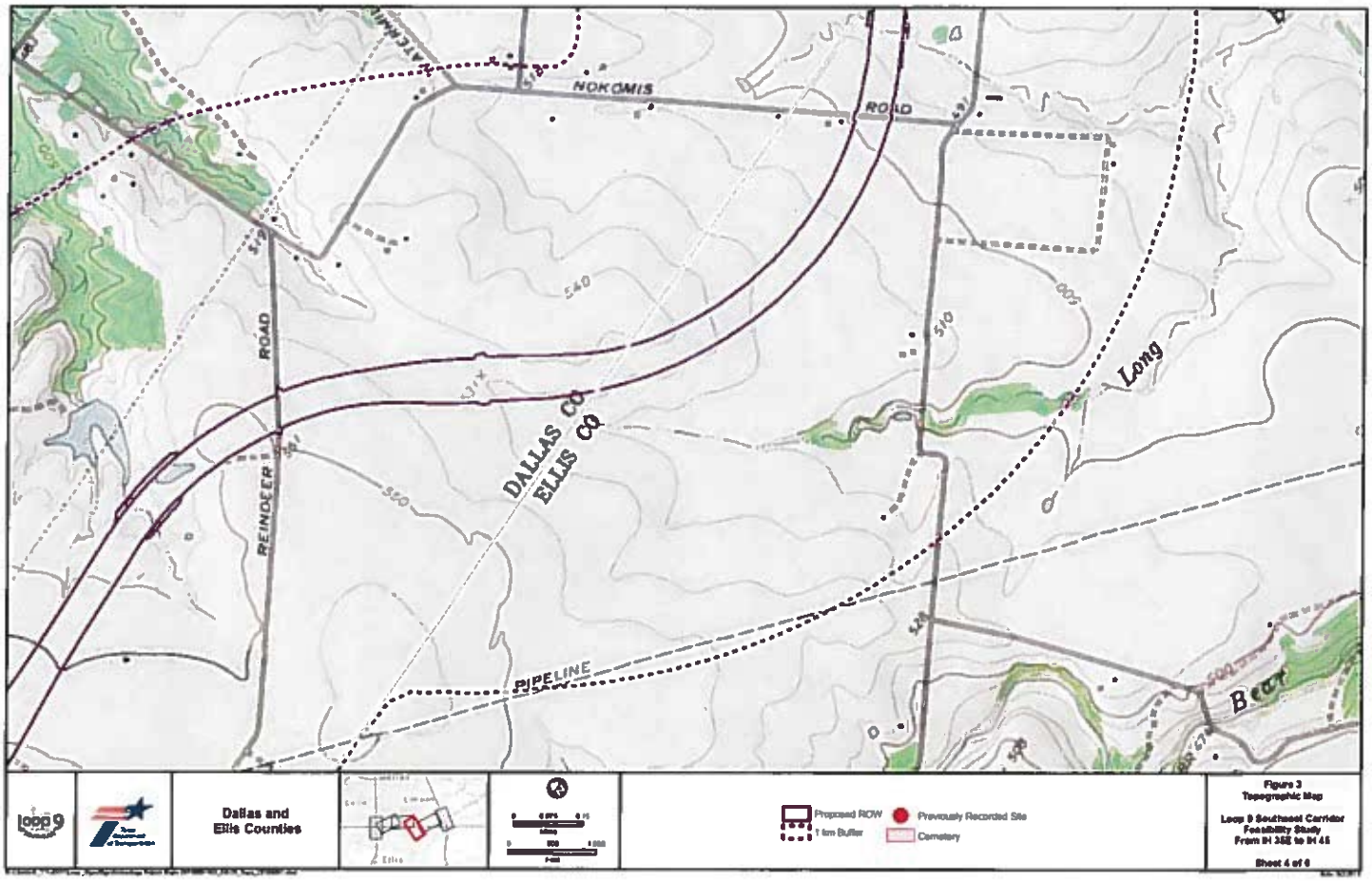


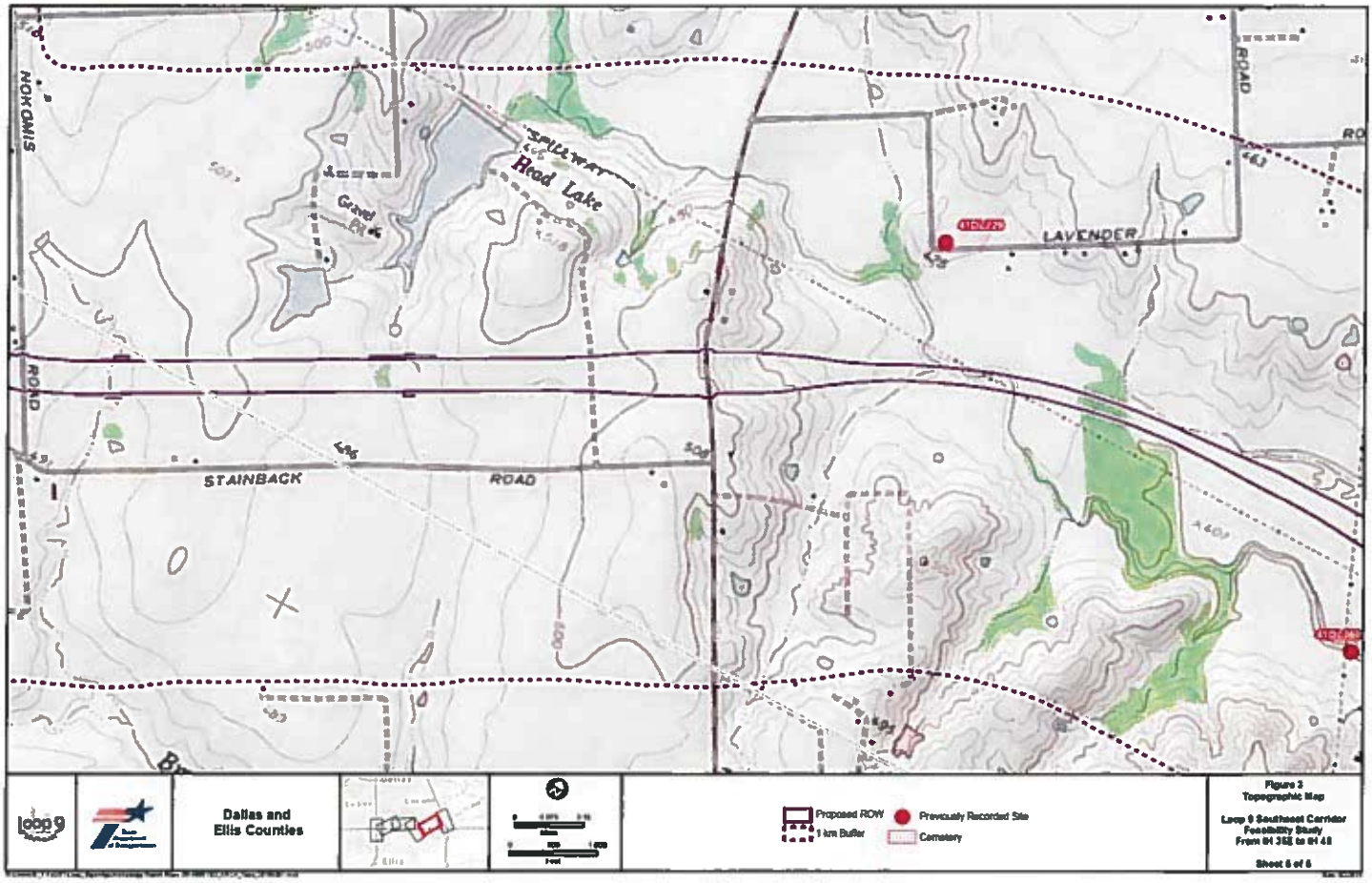
Exhibit B: Map Exhibit B: Project Location Illustrated on the Lancaster and Ferris 7.5" USGS Topographic Quadrangle Maps

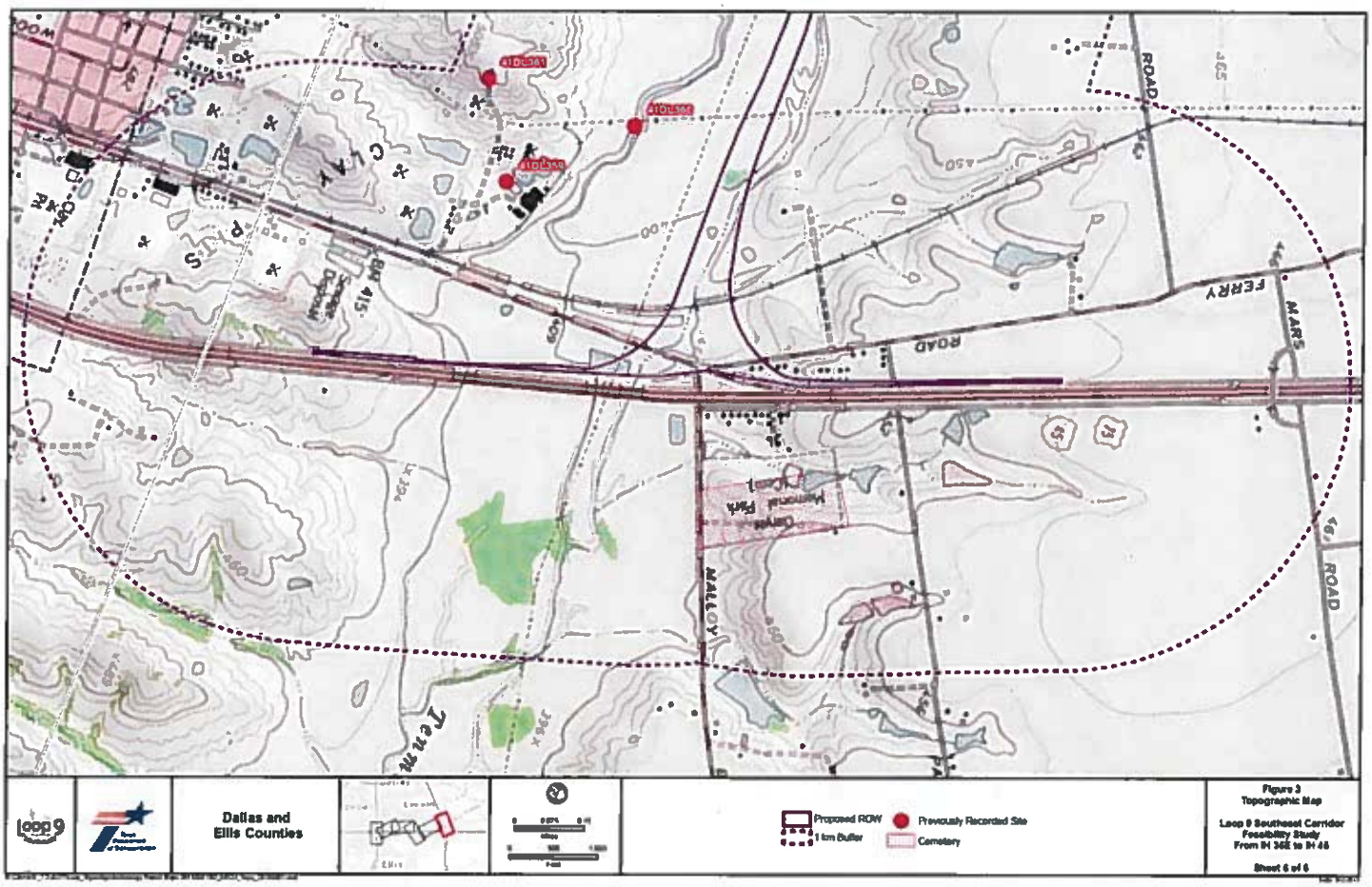

Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 1 of 5


REINDEER
BEAR
CREEK
TEXAS
KANSAS
SCHOOL
ROAD
41DL274
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 2 of 6


CREEK
ROAD
TEXAS
PIPELINE
REINDEER
ROAD
REINDEER
ROAD
DALLAS CO
ELLIS CO
DALLAS CO
ELLIS CO
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 3 of 6


NOKOMIS
ROAD
ROAD
REINDER
DALLAS CO
ELLIS CO
Long
PIPELINE
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 4 of 6


NOKOMIS
ROAD
Gravel Pit
Reed Lake
LAVENDER
ROAD
STAINBACK
ROAD
Loop 9
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 5 of 5


41DL391
41DL390
41DL389
ROAD
FERRY
MARS
MALLOY
ROAD
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 6 of 6

Scott Pletka

From: Jimmy Arterberry <jimmya@comanchenation.com>
Sent: Tuesday, October 13, 2015 9:54 AM
To: Scott Pletka
Subject: RE: Texas Department of Transportation; CSJ 296410005

We *concur* with TxDOT's *findings and recommendations*.

Jimmy W. Arterberry, THPO
Comanche Nation
#6 SW 'D' Avenue, Suite C
Lawton, Oklahoma 73502
(580) 595-9960 or 9618
(580) 595-9733 FAX

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From: Scott Pletka [Scott.Pletka@txdot.gov]
Sent: Friday, October 09, 2015 1:02 PM
To: Amie R. Tah-Bone (atahbone@kiowatribe.org); Gary McAdams (Gary.McAdams@wichitatribe.com); Holly Houghten (holly@mathpo.org); Jason Ross (jross@delawarenation.com); Jimmy Arterberry; Miranda Myer (mallen@tonkawatribe.com); Nekole Alligood (NAlligood@delawarenation.com); Terri Parton (Terri.Parton@wichitatribe.com)
Subject: Section 106 Consultation, Texas Department of Transportation; CSJ 296410005

Good afternoon,

We kindly request your comments regarding a proposed undertaking. Please see the attached letter for project details and information.

Thank you in advance for your consideration.

Regards,

Scott Pletka
Supervisor, Archeological Studies Branch
Texas Department of Transportation



Scott Pletka

From: atahbone@kiowatribe.org
Sent: Tuesday, October 27, 2015 11:56 AM
To: Scott Pletka
Subject: Re: Section 106 Consultation, Texas Department of Transportation; CSJ 296410005

Dear Mr. Pletka,

Thank you for informing the Kiowa Tribe of Oklahoma about the above referenced project. By initiating Section 106 consultation, we are allowed an opportunity to determine the potential effects that a project may have on cultural resources that are important to our tribe.

We made the conclusion of "no historic properties affected." If, however, any additional information becomes available our assessment may be revised. In the event that any archaeological or historical objects/materials are discovered during this project, the Kiowa Tribe requests that all work ceases, the area is secured, and that the Tribe is immediately notified.

Thank you for initiating the Section 106 consultation process. Any questions or comments regarding our determination of "no historic properties affected" can be forwarded to atahbone@kiowatribe.org.

Sincerely,

Amie Tah-Bone
Museum Director/NAGPRA Representative
Kiowa Tribe of Oklahoma
P.O. Box 369
Carnegie, OK. 73015
580-654-2300 ext. 370

From: Scott Pletka
Sent: Friday, October 09, 2015 1:02 PM
To: mailto:atahbone@kiowatribe.org ; mailto:Gary.McAdams@wichitatribe.com ; mailto:holly@mathpo.org ; mailto:jross@delawarenation.com ; mailto:jimmya@comanchenation.com ; mailto:mallen@tonkawatribe.com ; mailto:NAlligood@delawarenation.com ; mailto:Terri.Parton@wichitatribe.com
Subject: Section 106 Consultation, Texas Department of Transportation; CSJ 296410005

Good afternoon,

We kindly request your comments regarding a proposed undertaking. Please see the attached letter for project details and information.

Thank you in advance for your consideration.

Regards,

Scott Pletka
Supervisor, Archeological Studies Branch
Texas Department of Transportation
Talk. Text. Crash.

MEMORANDUM

Texas Department of Transportation

TO: 850 File, Loop 9 Roadway Construction; From IH 35 East to IH 45, CSJ: 2964-10-005, Dallas and Ellis Counties, Dallas District

re: Denial of Right of Entry

FROM: Jon Budd – TxDOT Staff Archeologist **DATE:** October 9, 2015

SUBJECT: Internal review under the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU), as well as the Memorandum of Understanding (MOU) between the Texas Historical Commission and TxDOT.

The above referenced proposed project would use federal funds to construct a 10.35-mile tolled roadway on mostly new location. The proposed roadway would consist of multiple travel lanes with double lane frontage roads. Elevated ramps are proposed at intersections. The facility would also include cross drainage structure installations, storm water drainage features, bicycle lanes, and sidewalks. Approximately, 523 acres of proposed new right of way (ROW) and 10 acres of easements would be required.

The undertaking's area of potential effects is defined as the proposed 170 to 1,860 foot wide Loop 9 ROW beginning as IH 35 and extending 10.5 miles east to IH 45 (please see attached aerials with the proposed ROW for more details). According to typical roadway design the depth of impacts is estimated to be up to fifty feet below the current ground surface for bridge/overpass supports, twelve feet for storm sewer features, and up to three feet for the remainder of the project. The APE is comprised of approximately 543 acres

According to the Lancaster (3296-321) and the Ferris (3269-321) USGS topographic quadrangles of the Texas Archeological Sites Atlas, there are five archeological sites (41DL229, 41DL274, 41DL359, 41DL360, and 41DL361 located within 1 kilometer (0.625 miles) of the APE. However, none of these sites overlap onto the APE and will therefore, not be impacted.

According to 1979 Dallas Sheet of the Geologic Atlas of Texas, the underlying geology of the APE is comprised of Upper Cretaceous aged Austin Chalk (Kau), Upper Cretaceous aged Ozan Formation (Lower Taylor Marl) (Ko), and Holocene aged Alluvium (Qal). Kau and Ko possess formation periods predating the generally accepted arrival time of human beings into Dallas and Ellis Counties (12,000 years ago). Therefore, these geologic types possess minimal potential for the presence of buried intact archeological deposits. Qal formed relatively recently (within the last 12,000 years). Therefore, this geologic type possesses potential for the presence of buried intact archeological deposits.

TxDOT recommends that an archeological investigation be conducted to confirm the absence of potentially significant archeological deposits that could be adversely impacted by the undertaking. Right of entry for an intensive archeological survey has been obtained for

approximately 221 acres of the APE. TxDOT is currently preparing to conduct the prescribed survey in the areas of existing ROW and in areas of the proposed new ROW where right of entry has been obtained.

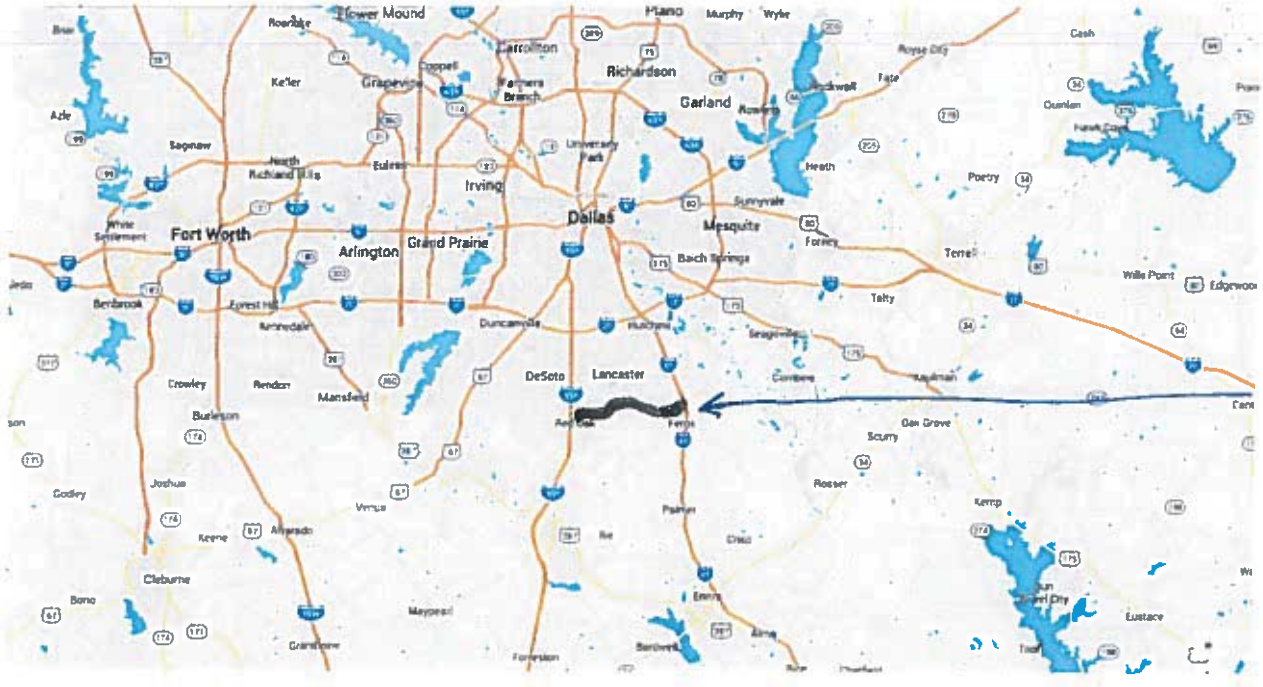
Permission to conduct archeological investigations has been denied in the 322 acres of the APE by at multiple landowners. Areas of the APE where right of entry has been denied are delineated on the attached aerial photograph. Thus, as provided under Stipulation IX.B.3 of the PA, this undertaking may proceed with further project development, including completion of the environmental process and right of way acquisition without the concurrence of the SHPO. After obtaining access to the proposed right of way, TxDOT shall oversee the completion of the inventory on unsurveyed properties and oversee any additional work that may be required under the terms of the PA and MOU.

Approved by _____ for TxDOT 10/9/15
Scott Pletka, Ph.D. Date

Attachments

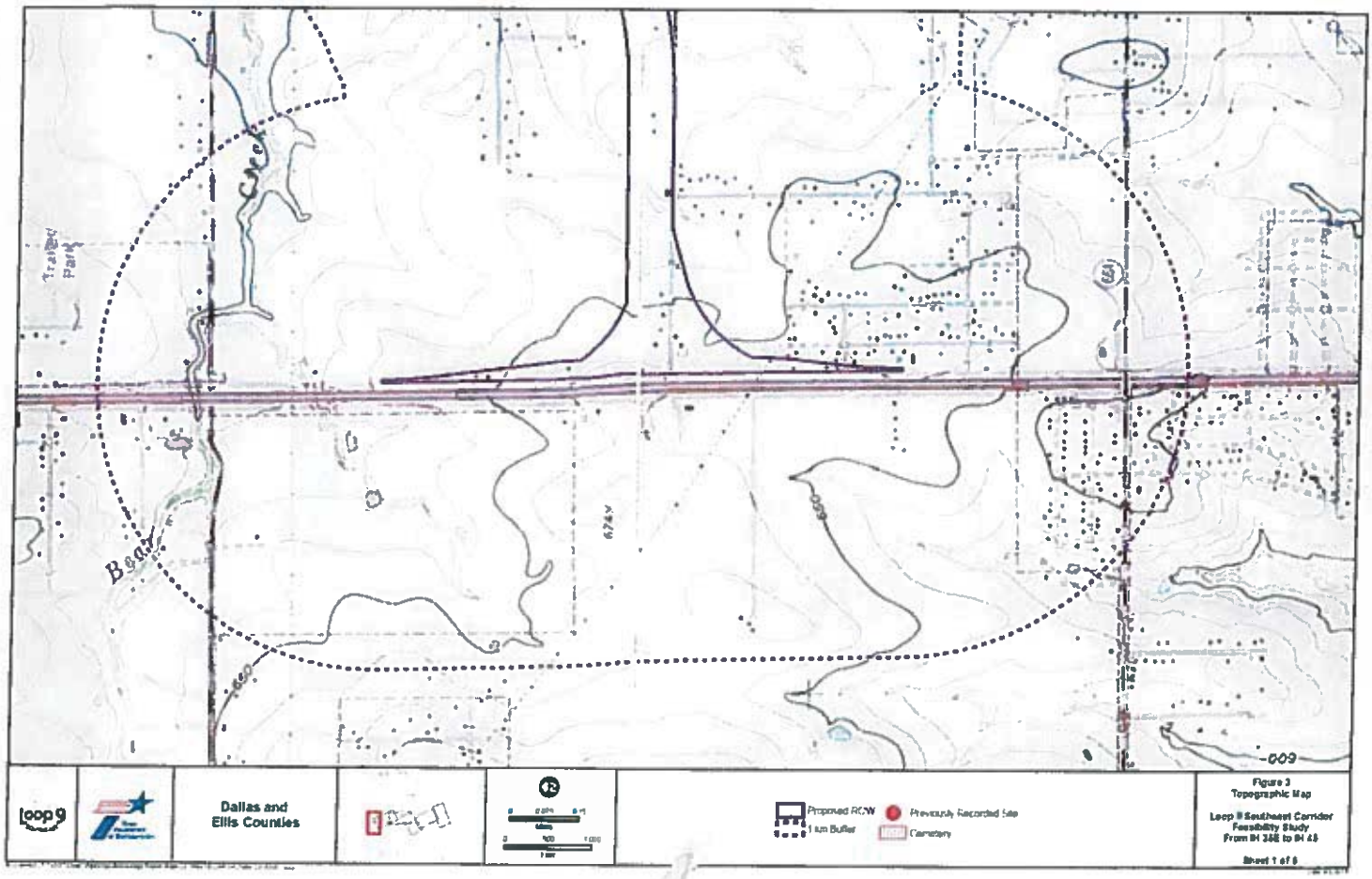
Dallas District: Dallas and Ellis Counties: Loop 9: 2964-10-005
From IH 35E to IH 45
Jon Budd – TxDOT Staff Archeologist 9/29/2015

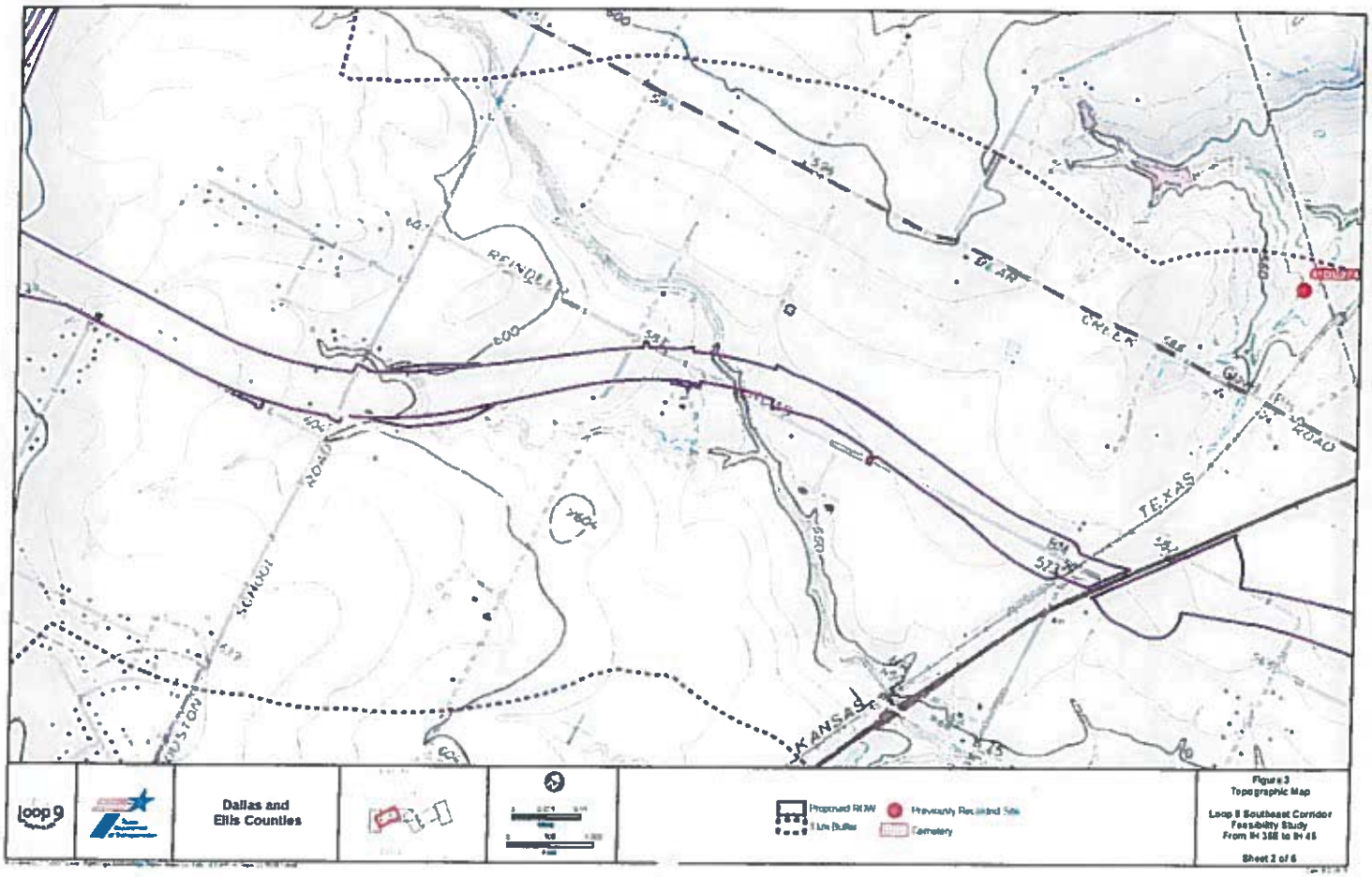
Dallas and Ellis Counties - Project Location Map

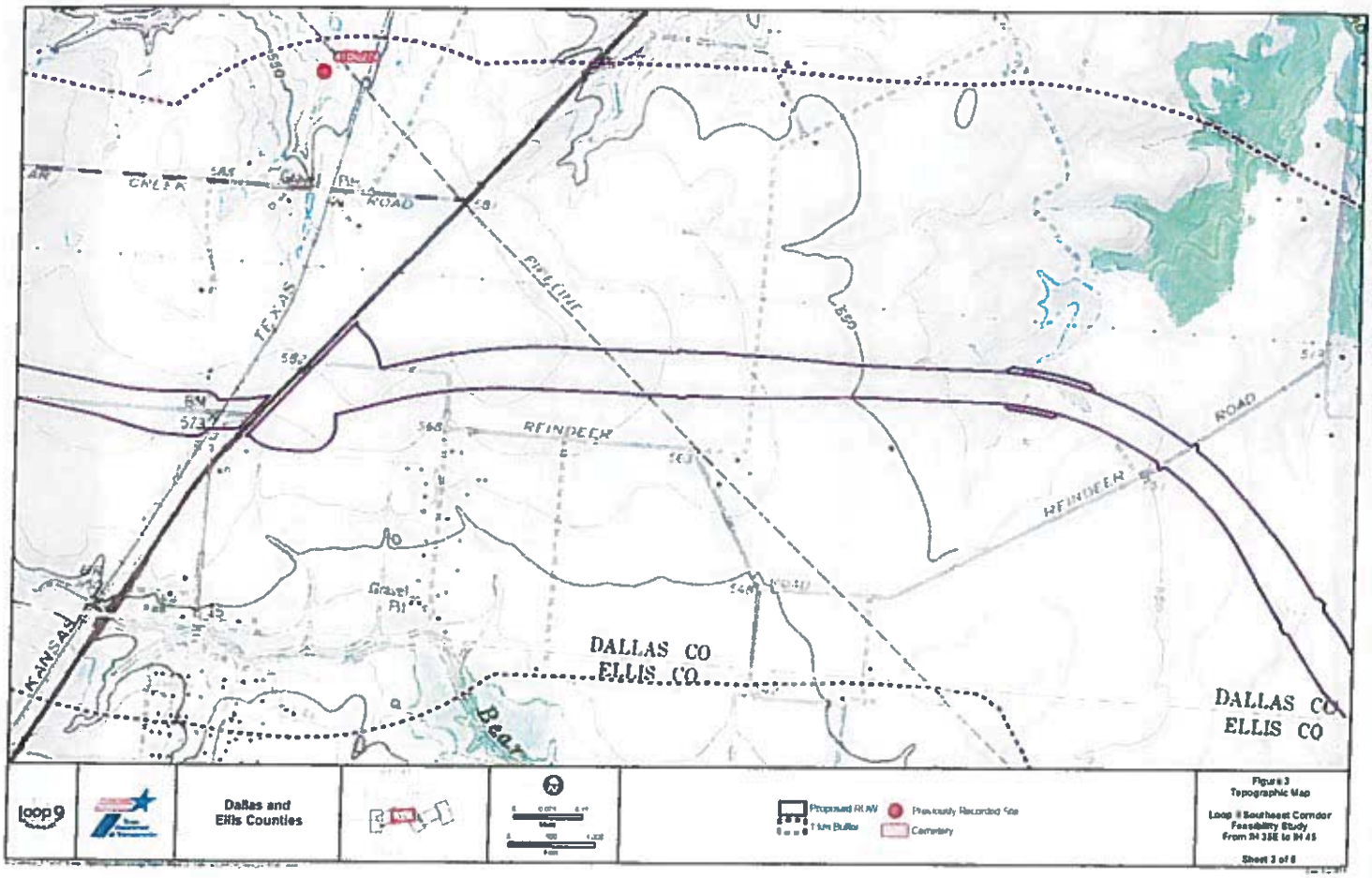


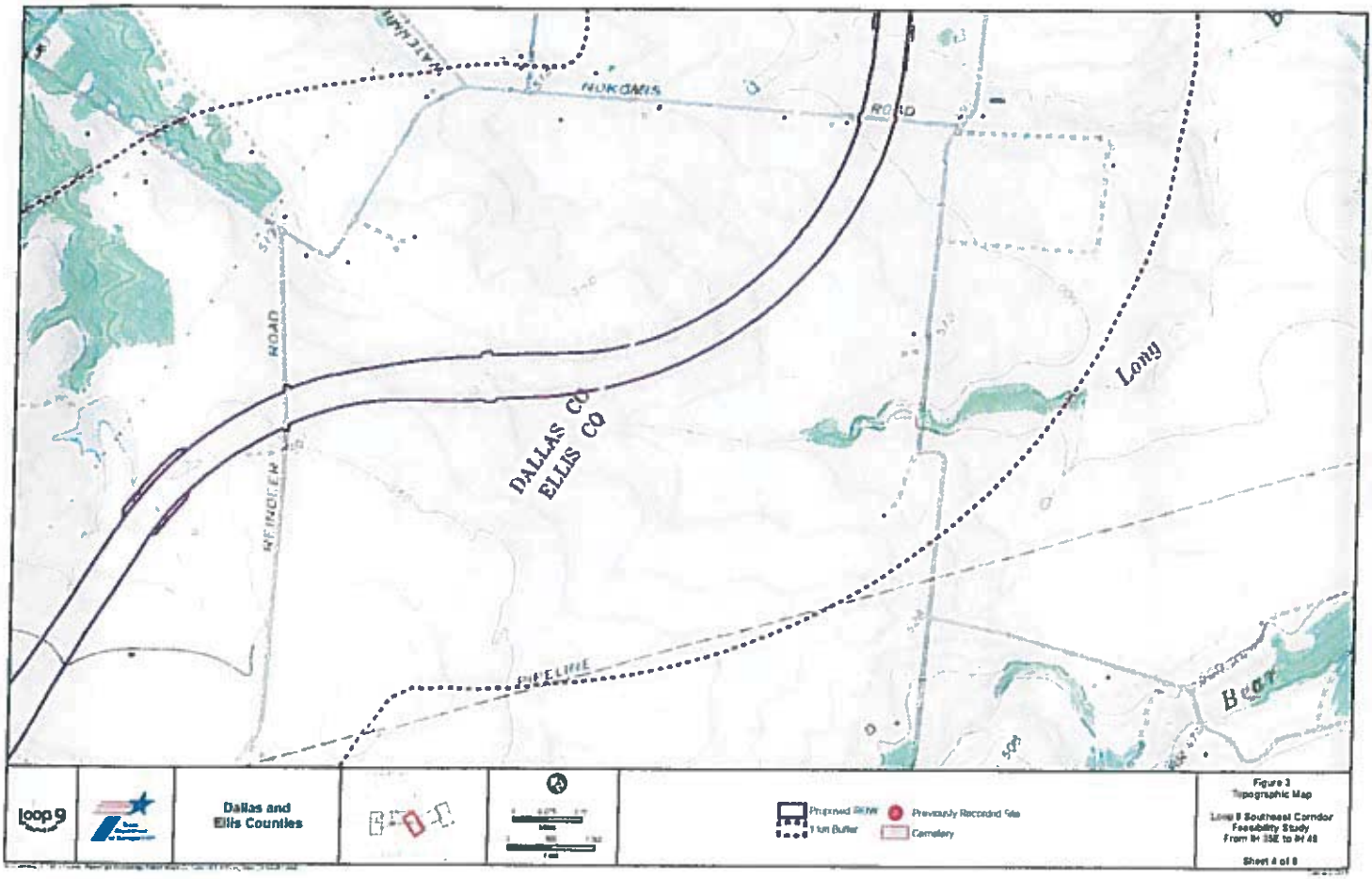
Google Earth View of the Project Area

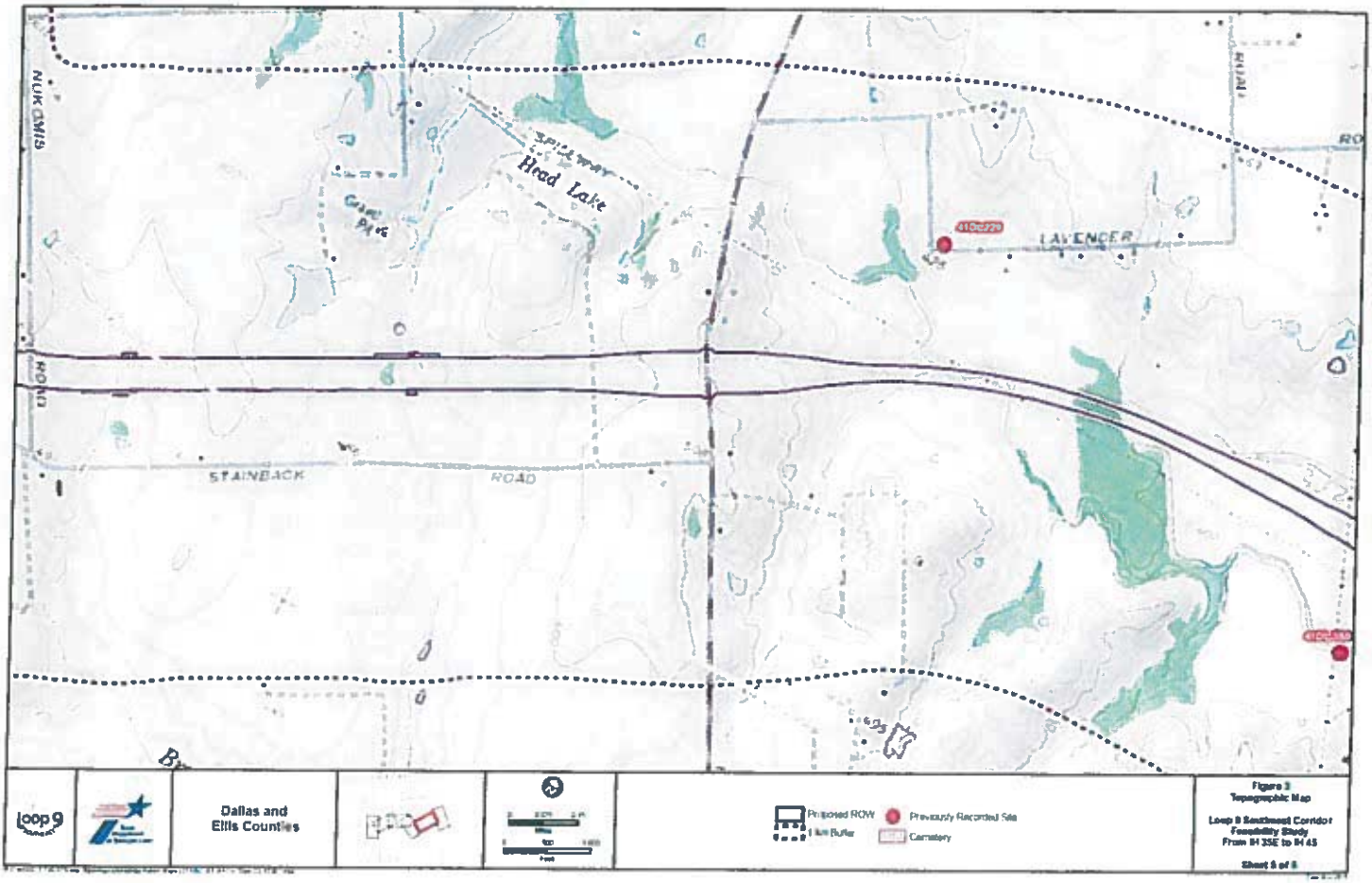


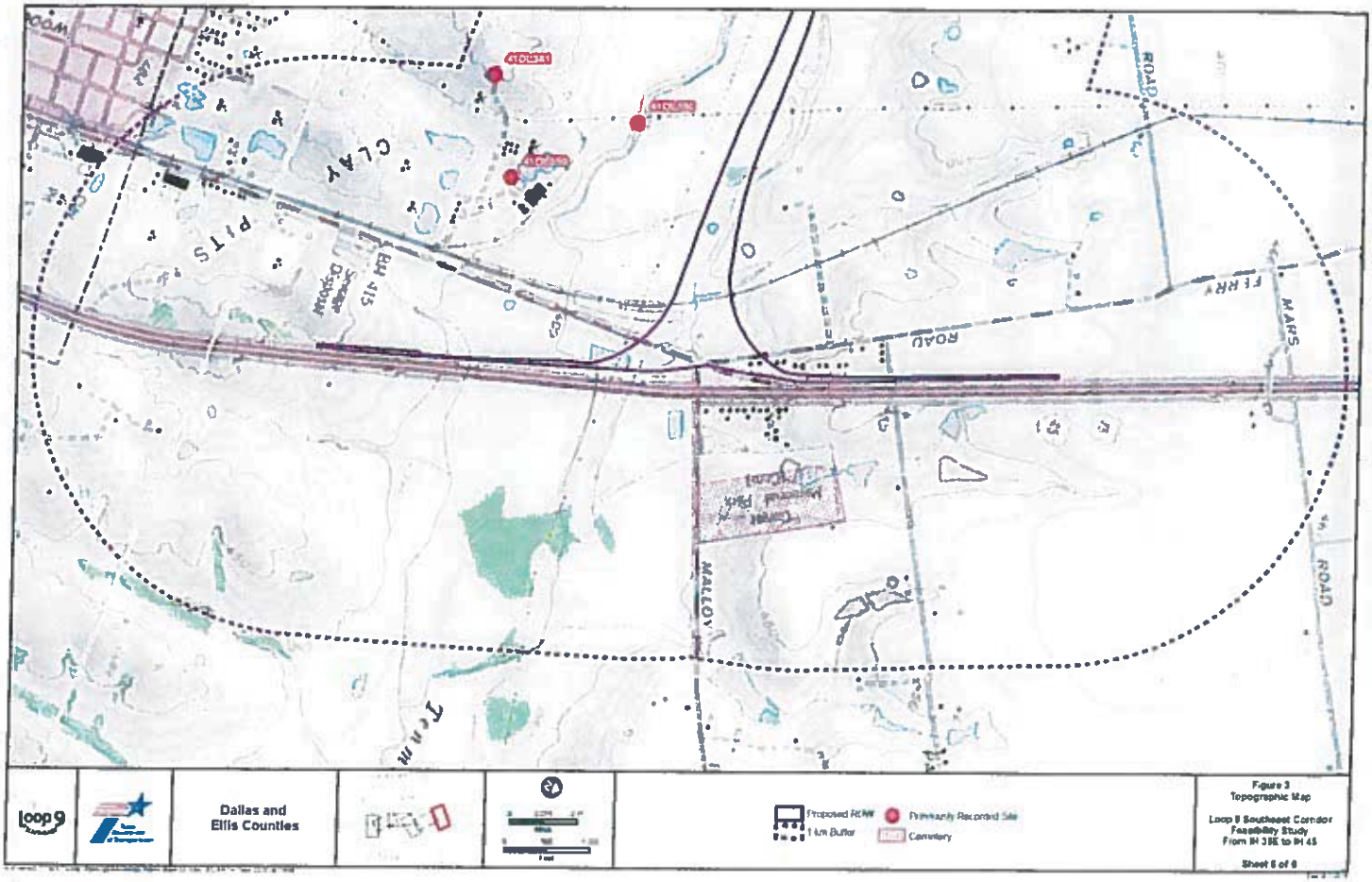

Trailer Park
Cree
Bear
674V
660
1400
-009
loop 9
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 1 of 8


BEAR
CREEK
TEXAS
KANSAS
Dallas and
Ellis Counties
Proposed ROW
1 Lm Buffer
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 2 of 6


CALLA
ROAD
TEXAS
PIPELINE
RFINDEER
ROAD
RFINDEER
Gravel Pit
KANSAS
DALLAS CO
ELLIS CO
DALLAS CO
ELLIS CO
Bear
Dallas and Ellis Counties
Proposed ROW
Previously Recorded Site
1 km Buffer
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 3 of 8


HUKARIS
ROAD
DALLAS CO
ELLIS CO
Long
Beer
PIPELINE
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 4 of 8

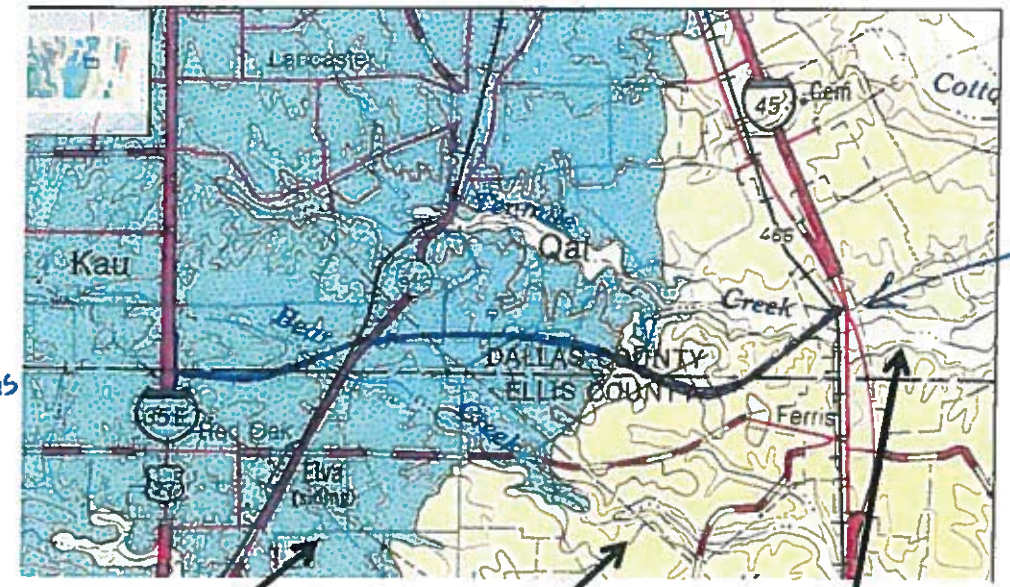

NUKOMIS
ROAD
Spillway
Head Lake
LAVENDER
STAINBACK
ROAD
Loop 9
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45


CLAY
PITS
ROAD
FERRY
MARS
MALLOY
TRINITY
Dallas and
Ellis Counties
Proposed ROW
1 km Buffer
Previously Recorded Site
Cemetery
Figure 3
Topographic Map
Loop 9 Southeast Corridor
Feasibility Study
From IH 35E to IH 45
Sheet 6 of 6

Dallas District: Dallas and Ellis Counties: Loop 9: 2964-10-005
From IH 35E to IH 45
Jon Budd – TxDOT Staff Archeologist 9/29/2015

Dallas Sheet of the Geologic Atlas of Texas
http://www.twdb.texas.gov/groundwater/aquifer/GAT/dallas.htm

Dallas Sheet

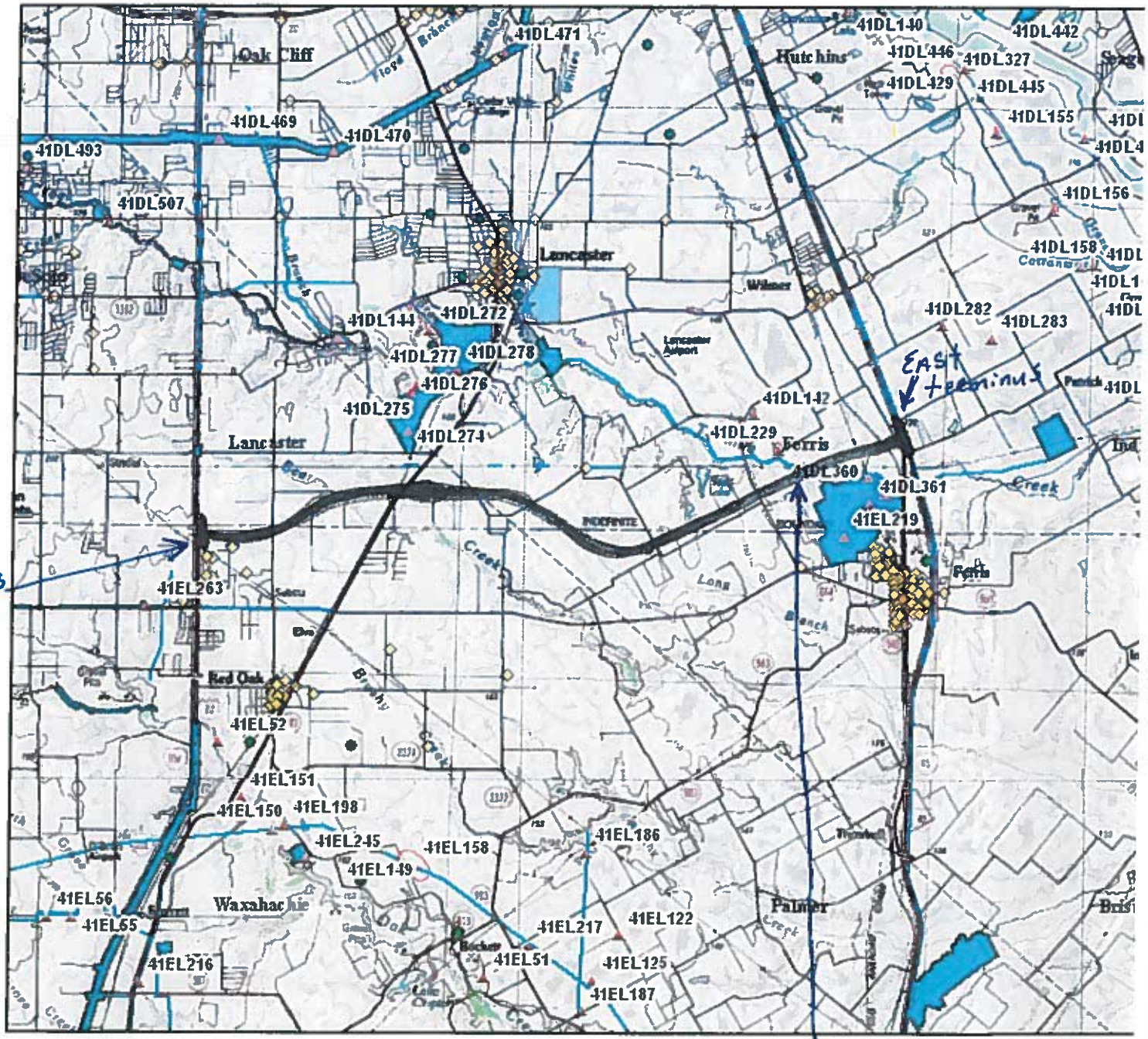


Kau: Upper Cretaceous aged Austin Chalk
Ko: Upper Cretaceous aged Ozan Formation (Lower Taylor Marl)
Qal: Holocene aged Alluvium

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Qal formed relatively recently (within the last 12,000 years). Therefore, this geologic type possesses potential for the presence of buried intact archeological deposits.

Texas Archeological Sites Atlas



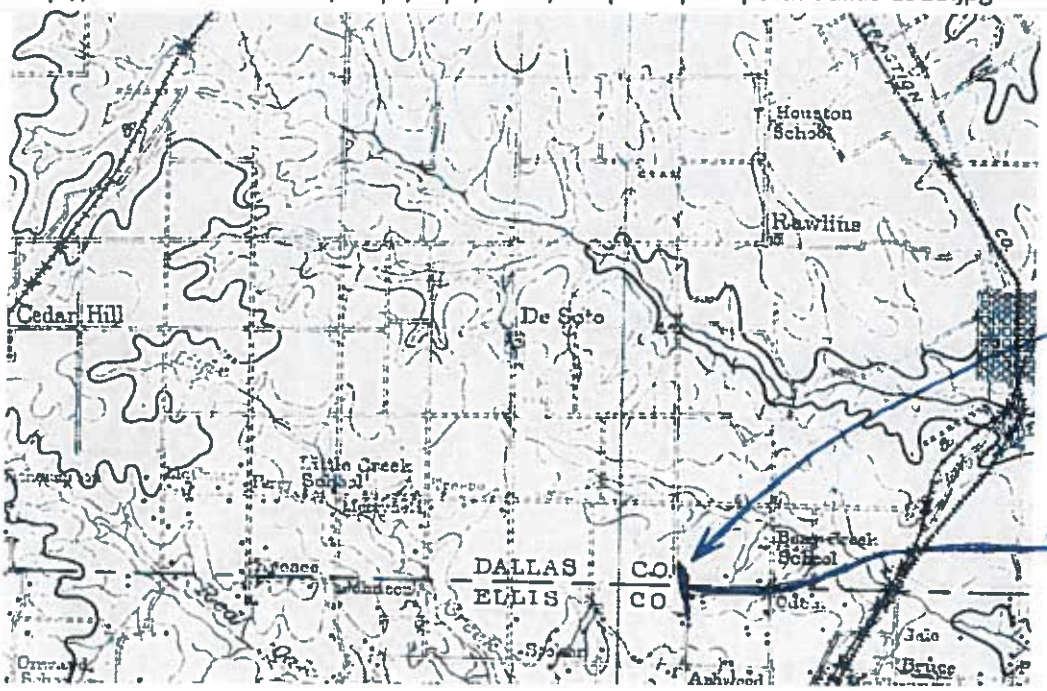
Lancaster 3296-321

Ferris 3296-312

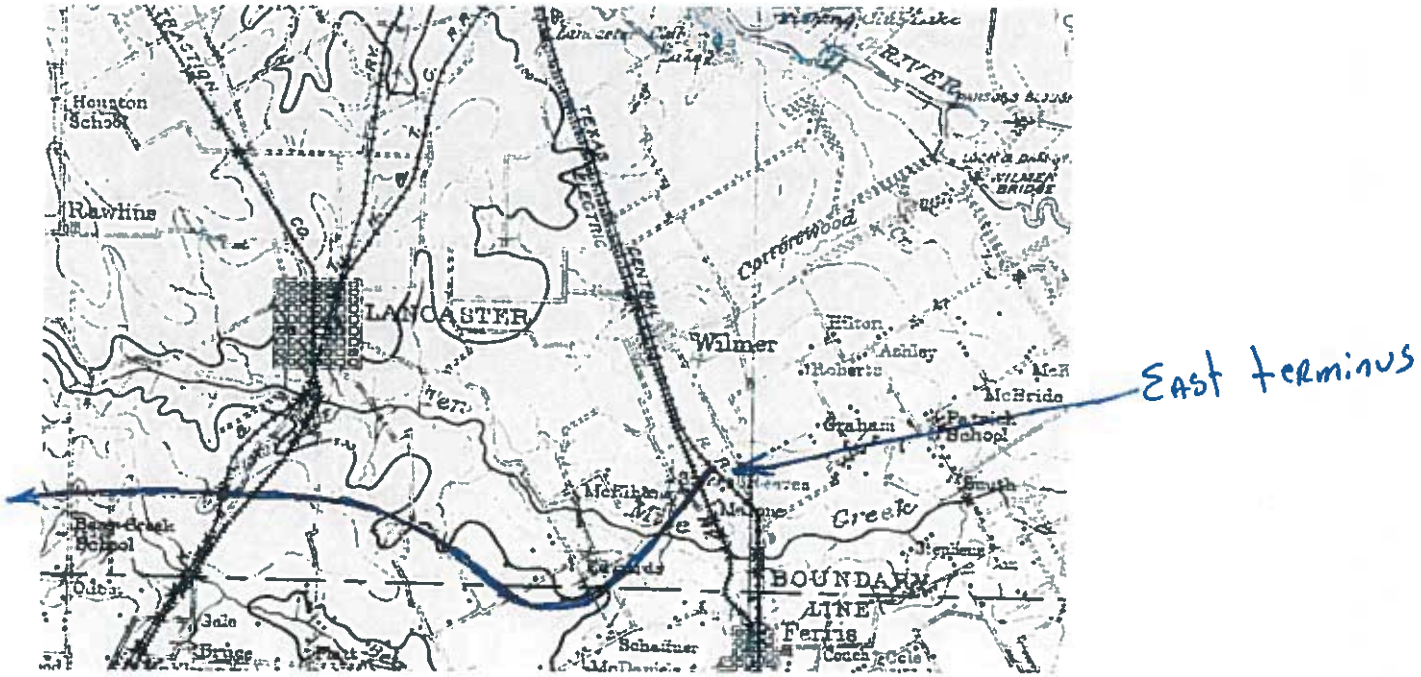
5/1982
EPA / Tdwr
Survey

Dallas District: Dallas and Ellis Counties: Loop 9: 2964-10-005
From IH 35E to IH 45
Jon Budd – TxDOT Staff Archeologist 9/29/2015

1918 Dallas 15" USGS Topographic Quadrangle Corps of Engineers U.S. Army Progressive Military
http://www.lib.utexas.edu/maps/topo/texas/txu-pclmaps-topo-tx-dallas-1918.jpg



1918 Dallas 15" USGS Topographic Quadrangle Corps of Engineers U.S. Army Progressive Military
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Dallas District: Dallas and Ellis Counties: Loop 9: 2964-10-005
From IH 35E to IH 45
Jon Budd – TxDOT Staff Archeologist 9/29/2015

1936 Texas State Highway Department Map of Dallas County
https://www.tsl.texas.gov/arc/maps/images/map4838.jpg



1936 Texas State Highway Department Map of Dallas County
https://www.tsl.texas.gov/arc/maps/images/map4852.jpg



Texas Department of Transportation

MEMO

February 9, 2017

TO: Administrative File
From: Chantal McKenzie

District: Dallas
County: Dallas, Ellis
CSJ#: 2964-10-005
Highway: Loop 9
Let Date: August 2018

Project Limits: IH 35E to IH 45

Project Description: **Stipulation IX, Appendix 6. New alignment. 537.96 acres of new ROW. No adverse effects to historic, non-archeological properties.**

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

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Existing Conditions:
Located along the Dallas and Ellis county line, much of the area consists of agricultural land and medium-to-large rural residences (ranchettes). Suburban development increases around IH 35, IH 45, and State Highway (SH) 342.

Proposed Project:
The proposed project includes the construction of a new, limited-access highway between IH 35E and IH 45. This project constitutes a small segment of a larger Loop 9 corridor from US 67 to IH 20. A feasibility study identified the need to initiate acquisition of right-of-way (ROW) for this phase due to projected growth in the region.

The following describes the two different typical sections of the proposed 10.35-mile project (see project schematics):

From IH35E to Nokomis Road, the mainlanes consist of three 12-ft lanes with 4-ft inside shoulders and 8-ft outside shoulders, with a typical proposed ROW width of 368- to 548-ft. The width between frontage roads and the ROW edge is 22-ft, as well as a 10-ft outside buffer along each ROW edge.

From Nokomis Road to IH 45, the roadway becomes narrower and elevated to avoid impacts to the Tenmile Creek 100-year floodplain and the Skyline landfill. The proposed roadway consists of an elevated, six-lane divided freeway, with a typical proposed ROW width of 172- to 220-ft. The mainlanes, separated by a 4-ft median, consist of three 12-ft lanes with 10-ft inside shoulders and outside shoulders that range from 10- to 22-ft. A 15-ft outside buffer is located along the ROW edge.

The project requires 528.96 acres of new right-of-way (ROW), as well as 1.03 acres of permanent easements and 7.96 acres of temporary easements. Through consultation with the State Historic Preservation Officer (SHPO), the APE for the proposed project is defined as 300-ft beyond proposed ROW and easements.

Determination of Eligibility:
A review of the National Register of Historic Places (NRHP), the list of State Antiquities Landmarks (SAL), the list of Recorded Texas Historic Landmarks (RTHL), and TxDOT files identified one historically significant resource previously documented within the area of potential effects (APE):

- **The Reindeer Road at Bear Creek Bridge** (Resource ID 32, NBI 180570M00903001), determined eligible for inclusion in the NRHP following the THC's 2014 policy decision that all metal trusses constructed before 1946 are significant under Criterion C.

In accordance with provisions of 36 CFR 800, TxDOT conducted a cultural resources survey in early 2016 to identify additional properties listed and potentially eligible for listing in the NRHP. The survey identified 59 historic-age properties with 154 resources. TxDOT determined none of these eligible for listing on the NRHP (see HRSR, pages16-20). Since this survey, TxDOT refined the design which resulted in slight changes to ROW. Given the project's original 300-ft APE, these changes do not impact any additional historic-age properties or resources[1].

Consultation with Other Parties:
In November of 2016, TxDOT contacted the Dallas County Historical Commission, and the Ellis County Historical Commission. Sylvia Smith, chairwoman of the Ellis County Historical Commission, replied in January and shared her own personal family connection to Resource 30. Ms. Smith identified this property as her grandmother's house and the place in which Ms. Smith was born. Ms. Smith also expressed concern about the loss of Tator Brown Road along with its association with the Brown family who once resided in the area. Lastly, Ms. Smith inquired about future impacts to the Carver Memorial Cemetery, identified within the project's APE. TxDOT responded that the cemetery was identified early in planning and designs developed to avoid the cemetery (see email correspondence). TxDOT also noted Ms. Smith's feedback regarding memorializing Tator Brown Road and requested any additional information she might undercover in her personal research into the Brown family.

[1] Please reference the updated ROW map included in attachments, separate from the March 2016 final HRSR.

Determination of Effects:
TxDOT determined that the project poses **no adverse effect** to these historic properties, based on the following analysis.

Direct effects: no new ROW or easements needed, therefore no direct effects to the Reindeer Road Bridge.

Indirect effects: the proposed SL 9 ROW would be located approximately 60 ft from the existing Reindeer Road Bridge at its closest point (see HRSR page 364, schematics roll 2 of 7). At Bear Creek, separate pre-stressed concrete beam bridges would be constructed to carry the SL 9 mainlanes, as well as eastbound and westbound frontage roads. The eastbound frontage road bridge falls closest to the Reindeer Road Bridge, approximately 75-ft north to northwest. The highest vertical clearance required for these bridges is approximately 33 ft above the service grade at the Bear Creek channel banks. Although the construction of the new SL 9 bridges do introduce visual and noise changes to the existing Reindeer Road Bridge, these primarily impact setting and feeling. The new construction does not impact location, association, materials, workmanship, or design. Of these, materials, workmanship, and design are the aspects that most heavily contribute to this bridge's significance under Criterion C. Therefore, TxDOT determined no adverse indirect effects to the NRHP-listed Reindeer Road Bridge.

Cumulative effects: There are **no reasonably foreseeable cumulative effects** now or in the future because there are no direct and minor indirect visual effects.

Therefore, pursuant to Stipulation IX, Appendix 6 "Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)" of the Section 106 PA and the MOU, TxDOT historians determined that there are no adverse effects to historic, non-archeological properties in the APE. Individual project coordination with SHPO is not required.

Lead Reviewer RMDobrasko for TxDOT 2/10/2017
Rebekah Dobrasko Date

Approved by _____ for TxDOT 2-13-17
Bruce Jensen Date

April 18, 2017

Re: Response to Request for TCEQ Environmental Review

The Texas Commission on Environmental Quality (TCEQ) received a request from the Texas Department of Transportation (TxDOT) regarding the following project: EA Review - Loop 9 (CSJ: 2964-10-005)

In accordance with the Memorandum of Understanding between TxDOT and TCEQ addressing environmental reviews, which is codified in Chapter 43, Subchapter I of the Texas Administrative Code (TAC) and 30 TAC § 7.119, TCEQ is responding to your request for review by providing the below comments:

This project is in an area of Texas classified by the United States Environmental Protection Agency as moderate nonattainment for the 2008 ozone National Ambient Air Quality Standard. Air Quality staff has reviewed the document in accordance with transportation and general conformity regulations codified in 40 Code of Federal Regulations Part 93 Subparts A and B. We concur with TxDOT's assessment.

The Office of Water does not anticipate significant long term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state, and federal environmental permits, statutes, and regulations. We recommend that the applicant take necessary steps to ensure that best management practices are used to control runoff from construction sites to prevent detrimental impact to surface and ground water.

TxDOT will still need to follow all other applicable laws related to this project, including applying for applicable permits.

If you have any questions, please feel free to contact the NEPA Coordinator at (512) 239-3500 or NEPA@tceq.texas.gov.

Chikaodi Agumadu
NEPA Coordinator
TCEQ, MC-119
NEPA@tceq.texas.gov
512-239-3500