



Final Environmental Assessment

Houston District

FM 521 Roadway Improvements

Beltway 8 to FM 2234 (McHard Road)

CSJs: 0111-01-067, 0111-03-031, and 2105-01-048

Fort Bend and Harris Counties, Texas

March 2017

42 U.S.C. §§4321 et seq. and 23 U.S.C. §138

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

AADT	Average Annual Daily Traffic	HEI	Health Effects Institute
ACS	American Community Survey	H-GAC	Houston-Galveston Area Council
ADT	Average Daily Traffic	IH	Interstate Highway
AOI	Area of Influence	IP	Individual Permit
APE	Area of Potential Effect	IRIS	Integrated Risk Information System
ASTM	American Society for Testing and Materials	ISA	Initial Site Assessment
BMPs	Best Management Practices	LEP	Limited English Proficiency
CAA	Clean Air Act	Leq	Equivalent Sound Level
CMAQ	Congestion Mitigation and Air Quality	MBTA	Migratory Bird Treaty Act
CMP	Congestion Management Process	MOA	Memorandum of Agreement
CO	Carbon Monoxide	MOE	Margin of Error
CRBA	Coastal Barrier Resources Act	MOU	Memorandum of Understanding
CWA	Clean Water Act	MSAT	Mobile Source Air Toxic
dB	Decibels	MS4	Municipal Separate Storm Sewer System
dba	A-weighted Decibels	MSL	Mean Sea Level
DHHS	Department of Human Health Services	MTFP	Major Thoroughfare and Freeway Plan
EA	Environmental Assessment	NAAQS	National Ambient Air Quality Standards
EDR	Environmental Data Resource	NAC	Noise Abatement Criteria
EJ	Environmental Justice	NATA	National Air Toxics Assessment
EMST	Ecological Mapping Systems of Texas	NDD	Natural Diversity Database
EPA	Environmental Protection Agency	NEPA	National Environmental Policy Act
ETJ	Extra-Territorial Jurisdiction	NHPA	National Historic Preservation Act
FEMA	Federal Emergency Management Agency	NOI	Notice of Intent
FHWA	Federal Highway Association	NRCS	Natural Resources Conservation Service
FIRM	Flood Insurance Rate Map	NRHP	National Register of Historic Places
FM	Farm-to-Market Road	NWI	National Wetland Institute
FONSI	Finding of No Significant Impact	NWP	Nationwide Permit
FPPA	Farmland Protection Policy Act	PCN	Pre-Construction Notification
FTA	Federal Transit Administration	PM	Particulate Matter
GIS	Geographical Information System	ROW	Right-of-Way

RRC	Railroad Commission of Texas	TERP	Texas Emissions Reduction Plan
RSA	Resource Study Area	TFRLCP	Texas Farm and Ranch Lands Conservation Program
RTHL	Recorded Texas Historic Landmarks	THC	Texas Historical Commission
RTLs	Registered Texas Landmarks	TIP	Transportation Improvement Program
RTP	Regional Transportation Plan	TPDES	Texas Pollutant Discharge Elimination System
SAL	State Antiquities Landmarks	TPWD	Texas Parks and Wildlife Department
SGCN	Species of Greatest Conservation Need	TxDOT	Texas Department of Transportation
SH	State Highway	ULI	Urban Land Institute
SHPO	State Historic Preservation Officer	USACE	U.S. Army Corps of Engineers
SIP	State Implementation Plan	USC	United States Code
SOV	Single Occupancy Vehicle	USDOT	U.S. Department of Transportation
SW3P	Storm Water Pollution Prevention Plan	USFWS	U.S. Fish and Wildlife Service
TAQA	Traffic Air Quality Analysis	USGS	U.S. Geological Survey
TAZs	Traffic Analysis Zones	VMT	Vehicle-Miles Travelled
TCEQ	Texas Council on Environmental Quality	vpd	Vehicles Per Day

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CHAPTER 1: PURPOSE AND NEED FOR THE PROJECT

1.1 INTRODUCTION

This Environmental Assessment (EA) presents the potential social, economic, and environmental effects of a project proposed by the Texas Department of Transportation (TxDOT) – Houston District to improve 1.1 miles of Farm-to-Market Road (FM) 521 in Harris and Fort Bend Counties (see **Exhibit 1**). This EA presents the need for and purpose of the proposed project, a description of the proposed project, and an interdisciplinary evaluation of the potential effects to the human and natural environment.

This project was initially evaluated with a State Environmental Assessment, and a Finding of No Significant Impact (FONSI) was issued on June 24, 2015. Federal funding was added to the proposed project, therefore this EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) Regulations (40 CFR §1502.13), Federal Highway Administration (FHWA) Technical Advisory T6640.8A, and the TxDOT Environmental Manual. As discussed in Section 1.5 of this document, the public has been afforded the opportunity to comment on this project.

1.2 PURPOSE OF THE PROPOSED PROJECT

The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from north of Riley Road, tying in to previously reconstructed section of FM 521 extending up to Beltway 8, to South of FM 2234 (McHard Road). The project also includes improvements on FM 2234 from west of FM 521 to east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. The logical termini of the project are Riley Road and FM 2234. The proposed project is located in Harris and Fort Bend Counties and passes along the western city limits of Pearland. A map depicting the project location is shown in **Exhibit 1**. The project is located on the U.S. Geological Survey (USGS) 7.5 Minute Quadrangle Map of Almeda, Texas, as shown in **Exhibit 2**. Representative photographs are provided in **Appendix A**.

Note that the project name on the cover of this EA, which has been used to describe this project for many years, describes the project as starting at Beltway 8. This is because the short (approx. 2000') part of FM 521 that extends southward from Beltway 8 to near Riley Road has already been reconstructed as part of a previous project, and this project picks up where that previous project left off, and therefore continues the reconstruction of FM 521 that was previously completed between Beltway 8 and Riley Road. Additionally, naming the project by referencing Beltway 8 helps orient the public regarding the general location of this project, as Beltway 8 is a major highway in the area. Also note that in the interest of brevity the name on the cover does not describe the grade separations.

The purpose of this proposed action is to expand capacity to enhance mobility, improve safety, improve railroad/local traffic crossings, and accommodate population and economic growth, while minimizing impacts to the natural and social environment.

The proposed FM 521 roadway improvement project consists of an independent utility project as the roadway construction between the logical termini consists of a usable roadway improvement to the traveling public and a reasonable expenditure of funds even if no additional transportation improvements are made in the general project area. The urban/suburban development and associated vehicular congestion warrants the proposed roadway improvements within the project limits.

1.3 NEED FOR THE PROJECT

1.3.1 Description of Existing Facility

From Beltway 8 to Riley Road, FM 521 is a four-lane roadway (two 12-foot lanes in each direction) with 12-foot outside shoulders and a 16-foot center left- and right-turn lane. The existing right-of-way (ROW) along this section of the project varies dependent on clearway distances along both sides of the road. From Riley Road to 0.3 miles south of FM 2234, FM 521 is a two-lane roadway (one 12-foot lane in each direction) with a 14-foot center left- and right-turn lane, and 3-foot outside shoulders. The existing ROW along this section of the project is approximately 100 feet. An existing bridge is located at Clear Creek and also at a Diversion Canal just east of the creek.

The intersection at FM 521 and FM 2234 is at-grade and controlled by traffic lights. FM 2234 is a four-lane roadway with two 12-foot lanes in each direction, a 16-foot center left-turn lane, and 12-foot outside shoulders. The existing ROW along this section of FM 2234 is approximately 170 feet. From FM 521 east to the Clear Creek Bridge, FM 2234 is a four-lane roadway with two 12-foot lanes in each direction, a 16-foot raised median, and 12-foot outside shoulders. The existing ROW along this section of FM 2234 is approximately 160 feet.

The railroad crossings in the project vicinity are the main rail line for the Union Pacific Railroad. The existing at-grade railroad tracks run parallel to FM 521 to the east and crosses FM 521 approximately 915 feet north of the intersection with FM 2234. The railroad tracks continue south running parallel to FM 521 to the west and crosses FM 2234 just to the west of the intersection with FM 521. Currently, traffic on both northbound and southbound streets must stop for trains using the railroad for travel and switching movements. Approximately four trains cross FM 521 and FM 2234 per day resulting in vehicular delays. The average train speed is approximately 10 miles per hour (mph). En route emergency vehicles may also experience delays in the vicinity due to train traffic.

1.3.2 Traffic

The following conditions demonstrate the need for the proposed project:

- Current and future traffic demands exceeds capacity;
- Increased congestion due to population and economic growth; and
- Vehicular delays at the Union Pacific Railroad crossing.

Factors contributing to increased traffic congestion and deficiencies along the project corridor are provided in the following sections.

Growth Trends: Examining the projected growth (population, employment, trips) within the project vicinity shows that growth is expected over a 10-year period from 2010-2020 to increase 23 percent in Fort Bend County and more than 13 percent in Harris County (see **Table 1**). The City of Pearland population growth is projected to increase nearly 19 percent for the same time period after more than doubling its population in the last two decades. This new growth affects travel patterns within the study area and further contributes to the increasing congestion levels observed on FM 521.

Table 1: Population Trends

Area	Population					
	1980 Census	1990 Census	2000 Census	2010 Census	2020 Projection	2030 Projection
City of Pearland	13,219	18,697	37,640	91,252	108,518	129,166
Harris County	2,409,547	2,818,199	3,400,578	4,092,459	4,629,335	5,180,439
Fort Bend County	130,846	225,421	354,452	585,375	719,737	893,875
	Percent Change					
	1980-1990	1990-2000	2000-2010	2010-2020	2020-2030	
City of Pearland	41.4	101.3	142.4	18.9	19.0	
Harris County	17.0	20.7	20.3	13.1	11.9	
Fort Bend County	72.3	57.2	65.1	23.0	24.2	

Source: U.S. Census Bureau, Census 2010 (1980, 1990, 2000, and 2010 data) and Texas Water Development Board (2020, and 2030 data).

Traffic Projections: In the project vicinity, the annual average daily traffic (ADT) on FM 521 from Beltway 8 to FM 2234 is estimated to increase from approximately 17,000 vehicles per day (vpd) in 2013 to approximately 33,100 vpd in 2035. **Table 2** presents the current and predicted range of traffic volumes for the ADT.

Table 2: Range of Current and Predicted Traffic Volumes

Description	Number of Vehicles	
	Current Year (2013)	Design Year (2035)
ADT	17,000	33,100
Peak Hour	1,700	3,310

Source: TxDOT, 2014.

Level of Service: The current level of service (LOS) for the signalized intersection of FM 521 at FM 2234 and the at-grade UPRR crossings during the A.M. peak is level D; while the LOS for the P.M. peak is currently level F (RTG Traffic Study, 2008).

Without the proposed construction of the FM 521 roadway improvements, congestion is expected to get worse, further decreasing the level of service, and increasing emergency response times.

Under the proposed build alternative, the projected level of service for the FM 521 at FM 2234 intersection and the UPRR grade separations during both A.M. and P.M. peaks would improve to a level C (RTG Traffic Study, 2008).

1.4 OBJECTIVES OF THE PROJECT

The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from north of Riley Road to South of FM 2234 (McHard Road), tying in to previously reconstructed section of FM 521 extending up to Beltway 8. The project also consists of two proposed grade separations; one at FM 521 and the Union Pacific Railroad and one at FM 2234 and the Union Pacific Railroad. The logical termini of the project are Riley Road and FM 2234.

The project widens FM 521 to a four-lane divided curb and gutter section with a 16-foot raised median from Riley Road to FM 2234 and ties to the existing seven-lane section north of Riley Road. Project improvements to the intersection at FM 521 and FM 2234 provide for a “jughandle” that creates two offset “T” intersections (one along FM 521 and one along FM 2234).

1.5 PUBLIC INVOLVEMENT

Public involvement is a vital component of the NEPA process. TxDOT adopted a Public Involvement Program that offers opportunities for the public to participate in the process. Public involvement is a continuous process and the participation of agencies, businesses, public representatives, and concerned citizens is always encouraged. Future public involvement techniques could include meetings with affected property owners, presentations to community groups, and solicitation of written comments.

On April 16, 2009, an open house meeting was held to discuss the proposed expansion of FM 521 from Beltway 8 to FM 2234. The meeting took place at Laura Ingalls Wilder Elementary in Pearland, Texas. TxDOT received nine comments from the public meeting regarding design alternatives for FM 521 from Beltway 8 to FM 2234. The meeting format was an open house session between 6:30 p.m. and 8:30 p.m. to allow the public to view reference materials and maps, and the opportunity to visit with project team members. The public was encouraged to visit information stations for design, environmental constraints, and right-of-way acquisition procedures. Several engineers, environmental professionals, and right-of-way experts were available at each station to provide information and answer any questions. Throughout the meeting, attendees had the chance to submit written comments. Comment tables and comment drop boxes were set up in the open house area.

On June 10, 2014 a public meeting was held at Laura Ingalls Wilder Elementary School to present the proposed project and design for FM 521 at FM 2234 and to present the results of the environmental studies for improvements. An open house session began at 5:30 p.m. during which project team members were available to interact with the public and answer questions. The open house session was followed by a technical presentation beginning at 6:30 p.m. The

technical presentation included an overview of the project need and purpose, the project description and geometric design, and the findings of the environmental studies. A review of the public involvement process and anticipated schedules were also discussed. The public meeting concluded with a public comment session. A total of 21 people attended the meeting and TxDOT received nine comments.

Both of the public meetings were announced and advertised through a variety of methods. Thirty days prior to the meetings, TxDOT engaged in an extensive effort to announce the meetings through mailings and published advertisements. Notices announcing the public meeting time, location, and purpose were mailed to a list of landowners with property adjacent to the existing right-of-way. An informational letter also announcing the public meeting time, location, and purpose was sent to several public officials. Advertisements were published in newspapers with local and city-wide circulation, including the Houston Chronicle, Pearland Journal and La Subasta, a Spanish language paper.

The comments received were generally in regards to project design or direct impacts associated with the design. Additionally, comments were received stating concerns regarding various environmental impacts including displacements, bicycle and pedestrian pathways, funding, and construction schedule and timing. Each comment, whether written or emailed, was responded to by the Project Study Team. All public comments and the responses can be found in the stand alone Public Meeting Summary Reports that are available and can be obtained from the TxDOT-Houston District. As a result of the 2009 meeting and comment period, a preferred alternative was selected. Comments regarding the impacts to access due to the proposed design received during the 2014 meeting and comment period related to industrial facility driveways outside of the project limits. No significant design modifications were made as a result of either public meeting.

A public hearing was held on May 7, 2015, to discuss the proposed improvements to FM 521. The purpose of the public hearing was to discuss the proposed improvements and provide information about the proposed ROW from the Almeda Road Nature Preserve in accordance with Chapter 26 requirements.

Seven notices in four newspapers, including two Spanish publications, were published from April 13 – April 27, 2015. Of the seven notices, three notices were published for three consecutive weeks following Chapter 26 public hearing publication requirements. Notification was also provided to adjacent property owners and local, state, and federal elected and non-elected officials, including the Harris County Superintendent of Parks who has jurisdiction over the Preserve.

One elected official, one member of the media, and four members of the public attended the public hearing. Four comments were received during the comment period from May 7 - 21, 2015, and all dealt with concerns about ROW being taken from businesses. Detailed information pertaining to the public hearing is contained in the Public Hearing Summary Report, which includes notices, hearing materials, public comments, and responses to comments.

In response to the comment regarding the raised median in front of the Exxon Food Mart, the raised median in front of the business was pulled back to maintain access in both eastbound and westbound directions on FM 521.

When federal funds were added to the project, a Notice Affording the Opportunity for a Public Hearing (NAOPH) was advertised on February 22 and 23, 2016 in; The Houston Chronicle, La Sabusta South and South Central, and the Pearland Journal. One request for a hearing was received.

Subsequently, a public hearing was held on August 25, 2016, to discuss the proposed improvements to FM 521 and the addition of federal funds to the project.

Seven notices in four newspapers, including two Spanish publications, were published from July 25 through August 15, 2016.

Two elected official and 16 members of the public attended the public hearing. Five comments were received during the comment period from August 25 to September 5, 2016. Detailed information pertaining to the public hearing is contained in the Public Hearing Summary Report, which includes notices, hearing materials, public comments, and responses to comments.

The same comment was received regarding access to the Exxon Food Mart located at the corner of FM 521 and FM 2234. This issue was previously resolved after the May 7th 2015 Public Hearing by pulling back the raised median to maintain access from both directions of FM 521.

1.6 CONSISTENCY WITH LOCAL TRANSPORTATION PLAN

This project is included in both the Houston-Galveston Area Council's 2040 Regional Transportation Plan (RTP), and in the Statewide Transportation Improvement Program (STIP) (see Appendix C.) The total estimated construction cost for all three Control Section Job (CSJ) Numbers is \$53,674,000. The expected let date is September 2017 and it is anticipated to be open to traffic in 2020.

Table 3: Total Estimated Project Costs

CSJ	FM 521 Widening Improvements			Total ⁽¹⁾
	0111-03-031	0111-01-067	2105-01-048	
Proposed Project	\$4,132,000	\$29,500,000	\$20,042,000	\$53,674,000

¹Source: H-GAC – 2017-2020 STIP

CHAPTER 2: ALTERNATIVES

This chapter describes the alternatives considered for meeting the purpose and need of the proposed project. During the course of project development, a range of preliminary alternatives was considered. Three preliminary designs were shown at the public meeting held in April 2009. Design A included the proposed widening on FM 521 and one grade separation on FM 2234 over the UPRR, while maintaining the at-grade UPRR crossing on FM 521. Design B included the

proposed widening on FM 521, the FM 521 grade separation over the UPRR, and the FM 2234 grade separation over the UPRR. Design C included widening on FM 521, the FM 521 grade separation over the UPRR and the FM 2234 grade separation over the UPRR. However, both grade separations in Design C spanned a much greater distance. Design A was eliminated because it did not meet the need and purpose, as it would still result in vehicle delay at the at-grade UPRR crossing on FM 521. Design C was eliminated because the longer grade separation on FM 521 would cause additional impacts to access for businesses along the roadway. When compared to Design A and C, Design B satisfied the need and purpose of the proposed project while minimizing community impacts in the project area. During the 2009 Public Meeting, five of the nine votes received were in favor of Design B. Therefore, Design B was selected as the preferred design alternative, and is described below as the Build Alternative. The Build Alternative would meet the purpose of the project by increasing the roadway capacity to accommodate future traffic demands, enhance mobility, improve safety, and improve railroad/local traffic crossings.

2.1 NO BUILD ALTERNATIVE

The No Build Alternative would leave the existing facility as is, with no improvements. The No Build Alternative would remain a two- to four-lane roadway with an existing at-grade railroad crossing and at-grade intersection with FM 2234. Under this alternative, the existing facility would operate as it currently does with the existing at-grade railroad crossing with Union Pacific Railroad and the at-grade intersection with FM 2234.

Normal routine maintenance would continue and all other pending, previously authorized actions would proceed as long as they do not require additional travel lanes. The current roadway design does not satisfy future traffic volume demands or improve roadway conditions and mobility. Although the No Build Alternative does not meet the need for and purpose of the project, it is retained throughout this EA as a basis for comparison with the Build Alternative.

2.2 BUILD ALTERNATIVE

The Build Alternative widens FM 521 to a “typical” four-lane divided curb and gutter section with a 16-foot raised median from Riley Road to FM 2234 and ties to the existing seven-lane section north of Riley Road (see **Exhibit 3a: Typical Sections and Exhibit 3b: Project Schematics**), a distance of roughly 0.9 miles. Build Alternative improvements to the intersection at FM 521 and FM 2234 provide for a “jug-handle” option that creates two offset “T” intersections (one along FM 521 and one along FM 2234). This alternative eliminates both at-grade railroad crossings with railroad overpasses on FM 521 and FM 2234 and eliminates the four legged intersection at FM 521 and FM 2234. The distance of the improvements on FM 2234, including the grade separation, extend approximately 0.8 miles. Access roads on FM 521 will maintain current access. Proposed improvements would also include a mix of 15 foot outside lanes, 6 foot shoulders, and 5-6 foot sidewalks to accommodate bicyclists and pedestrians.

Two drainage ponds are proposed to be used as detention for stormwater. The largest pond would be located within the “jughandle” area and average water depth in the pond is estimated to be 4 feet, with the average area available within the “jughandle” estimated to be 4.6 acres. The second pond is located between the proposed FM 521 northbound exist ramp and FM 521 southbound access road (under the FM 521 bridge). The average water depth in this pond is estimated at 2 feet, with an average area available estimated to be 1.5 acres.

CHAPTER 3: AFFECTED ENVIRONMENT

3.1 LAND USE

The study area is located within unincorporated Harris and Fort Bend Counties and the City of Pearland, at FM 521 from Beltway 8 to FM 2234. According to the Ecological Mapping Systems of Texas (EMST) by the Texas Parks and Wildlife Department (TPWD), the project study area is located within the West Gulf Coastal Plain Region. Land use in the project study area is predominantly marked by industrial development, with a limited amount of older, small residential properties and a few commercial types scattered throughout. The project area runs parallel and crosses the Union Pacific Railroad as well as Clear Creek.

As a primary north/south roadway facility, the proposed project runs perpendicular to a major east/west roadway, Beltway 8, and is intersected by FM 2234. The remainder of the area consists of local and county roads. Major public infrastructure and utilities are found throughout the project study area, including roadways, railroads, overhead utility lines, and pipelines. There are also several driveways to commercial and industrial developments within the study area.

The trend in the area, as indicated by local plans, is rural land being converted to urban use. An area of 13.16 acres of additional ROW will be acquired for the proposed project. Out of the 13.16 acres needed, 8.29 acres is considered vacant developable (includes farmland). This area is primarily needed for the drainage pond (4.6 acres) located in the “jughandle” area.

It is not anticipated that the proposed project would substantially change the land use as it now exists or as planned for future development. Local and regional economic growth would be the determining factors in the future development of the area. The proposed project is consistent with local planning efforts.

On-going and planned development is expected to occur independent of the proposed project. Therefore, under the No Build Alternative, land along FM 521 is likely to be developed or redeveloped for uses consistent with local planning.

3.2 SOILS

According to the Web Soil Survey of Harris County, Texas (Natural Resources Conservation Service [NRCS] Spatial Data Version 1, Nov. 5, 2004 with Tabular Data Version 8, Sep. 20, 2012), and the Fort Bend County, Texas (NRCS Web Soil Survey Spatial Data Version 1, Oct. 26, 2004 with Tabular Data Version 8, Sep. 20, 2012), the mapped soil units in the immediate

study area are predominantly Lake Charles clay (0 to 1% slopes), Bernard-Edna complex, Bernard clay loam, and Gessner loam. Lake Charles clay is a moderately well drained soil up to 60 inches deep, with slopes from 0 to 1 percent. Bernard-Edna complex includes Bernard (55%) and Edna (30%), both being somewhat poorly drained soils up to 60 inches with slopes from 0 to 2 percent. Bernard clay loam is a somewhat poorly drained loam up to 60 inches deep with 0 to 1 percent slopes. The Gessner loam is a poorly drained component up to 60 inches deep, with slopes of 0 to 1 percent. Gessner is listed as hydric soil. Lake Charles clay, Bernard-Edna complex, and Bernard clay loam are listed as prime farmland. Gessner loam is listed as prime farmland if drained. Soils in the project area are summarized in **Table 4**.

Table 4: Project Soil Types and Descriptions

Soil Name	Soil Description
Lake Charles clay	Lake Charles clay maintains slopes from 0 to 1 percent, and is a moderately well drained soil, up to 60 inches deep.
Bernard-Edna complex	Bernard-Edna complex is made up of Bernard (55%) and Edna (30%) with the remainder 15% unnamed soils. Both Bernard and Edna slopes are 0 to 2 percent, and somewhat poorly drained, up to 60 inches deep.
Bernard clay loam	Bernard clay loam is a somewhat poorly drained soil up to 60 inches deep, with slopes from 0 to 1 percent.
Gessner loam	Gessner loam is a poorly drained soil up to 60 inches deep, slopes of 0 to 1 percent, and is listed as a hydric soil.

Source: NRCS, 2013.

3.2.1 Prime, Unique and Special Farmlands

Undeveloped land comprises nearly 33 percent of the land use within the proposed ROW. The Farmland Protection Policy Act (FPPA) requires that federal agencies identify and take into account the adverse effects of their programs on the preservation of farmlands; consider alternative actions, as appropriate, that could lessen adverse effects; and ensure that the project is compatible with state and local programs and policies to protect farmlands (7 CFR Part 658). Coordination with the NRCS was conducted to meet these requirements.

As indicated in **Table 5**, the project study area is underlain by four different soil mapping units, all of which are considered to be prime farmland soils by the NRCS. Out of the approximate 13.16 acres of additional ROW to be acquired for the proposed project, 7.9 acres occur over prime farmland soils (See Table 5) and would be converted directly. This area is primarily needed for the drainage pond located in the “jughandle” area.

Table 5: Prime Farmland, Hydric, and Statewide Important Soils in the Project Study Area

Soils	Prime Farmland	Hydric	Statewide Important
Lake Charles clay	Yes	No	No
Bernard-Edna complex	Yes	No	No
Bernard clay loam	Yes	No	No
Gessner loam	Yes (if drained)	Yes	No

Source: NRCS, 2013.

The proposed ROW has been scored using Form CPA-106. The NRCS evaluated the proposed site as required by the FPPA and determined the proposed project does contain soils classified as Important Farmland Soils. However, the total score is less than 160 and no further consideration for protection is required and no additional sites need to be evaluated. NRCS coordination and the completed NRCS-CPS-106 form are included in **Appendix B**.

3.3 SOCIOECONOMICS

3.3.1 Community Impacts

Community cohesion is a term that refers to an aggregate quality of social, economic, and physical attributes that give definition to a geographic area often designated as a neighborhood or community. The FHWA defines cohesion as “those behavior or perceptual relationships that are shared among residents of a community that cause the community to be identifiable as a discrete, distinctive geographic entity.” As such, a cohesive community enables residents to have a sense of belonging to their neighborhood or community and/or a strong attachment to neighbors, groups and institutions as a continual association over time.

Access for side streets and businesses as well as driveways to developed properties that currently use FM 521 would not be permanently affected by the proposed project. Access to intersecting roadways during construction would be maintained to the best reasonable effort of the contractor, avoiding the use of detours wherever possible. Access to the Exxon Food Mart on the southeast corner of the FM 521/FM 2234 intersection from FM 2234 would be slightly modified due to the proposed grade separation over the Union Pacific Railroad. Access would still be available through the use of the proposed “jughandle.”

FHWA has defined community as “a distinctive, homogeneous, stable, self-contained unit of a larger spatial area defined by geographical boundaries, ethnic, or cultural characteristics of the inhabitants; a psychological unity among the residents; and the concentrated use of the area’s facilities.” FHWA further defines cohesion as “those behavior or perceptual relationships that are shared among residents of a community that cause the community to be identifiable as a discrete, distinctive geographic entity within the urban pattern.”

Possible sensitive social and community facilities (i.e., schools, places of worship, and cemeteries) and parks and recreation areas were identified through a compilation of existing mapping sources including USGS topographic maps, aerial photography, field reconnaissance surveys, and information from local government agencies. There were no social or community facilities identified within or immediately adjacent to the proposed project; therefore, no adverse effects to public facilities are anticipated.

Neither the No Build nor Build Alternative would affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. No relocations of residences would occur as a result of this project. One business, Lady J’s Sports Bar, has been relocated as discussed in **Section 3.3.2** of this document.

Under the No Build conditions, existing travel patterns would become more difficult as congestion increases. The Build Alternative would not alter the overall travel patterns but would improve overall accessibility compared to future No Build conditions by reducing congestion and improving mobility along the project corridor.

3.3.2 ROW / Displacements

The existing ROW width along FM 521 is typically 100 to 160 feet wide. Currently, land use in the project study area consists primarily of mixed commercial and industrial uses. The commercial and industrial buildings located along the existing ROW have a variety of functions and uses. Several utilities are present within the existing ROW, including telephone cables, fiber optic cables, electric, water lines, and gas lines.

The proposed project would require an expansion of the existing ROW. An area of 13.16 acres of additional ROW would be acquired for the proposed project. No residences, churches, or municipal facilities would be affected by the proposed project. Under the Build Alternative, 12 parcels (see **Table 6** and **Exhibit 4**) would be affected by the proposed project.

TxDOT Right-of-Way division has begun the acquisition process using state funds based on the previously approved State Environmental Assessment and Finding of No Significant Impact issued on June 24, 2015. The advance acquisition did not influence the environmental review or selection of alternatives. All ROW acquisition was completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

TxDOT Right-of-Way Division executed the Local Public Agencies agreement in December 2014. Right-of-Way maps received final revisions in May 2015 and received full authorization to proceed on September 11, 2015 using the State Environmental Assessment and FONSI from June 2015 as their Due Diligence Report.

As shown in **Table 6 and Exhibit 4**, properties A-1 through A-4 and A-7 through A-11 have been acquired. Properties A-5 and A-6 are owned by The Harris County ROW Department which is designated as Almeda Road Nature Preserve. A total of 1.67 acres of this land would need to be acquired for the proposed project. Compliance with the requirements of Chapter 26 of the Texas Parks and Wildlife Code and section 4(f) of the Department of Transportation Act of 1966 would be required and is further discussed in **Chapter 4**. Advanced acquisition was not undertaken for these two parcels.

One commercial structure, the Lady J's Sports Bar, located on the southwest corner of Bluebonnet and FM 521 (15002 Almeda Road) has been displaced and relocated. This relocation occurred in 2016 using state funds and the approved State Environmental Assessment Dated June 2015, and was completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended, 49 CFR (Code of Federal Regulations) Part 24, and Title VI of the Civil Rights Act (42 U.S.C. §2000(d) et seq.).

In Harris County, commercial property is available for sale or lease in the project vicinity in sufficient quantity and in potentially desirable locations to accommodate the business affected by the project. As of May 2013, the HAR Commercial Gateway website lists 14 commercial properties/land for sale or for lease within the 77053 zip code (HAR 2013). These properties range in price from \$118,000 to \$2.3 million or up to \$21 per square foot for leased properties. It should be noted that these are only the properties listed by the HAR online and it is likely that there are additional office/retail and industrial properties available for sale or for lease.

Table 6: Potential ROW Property Acquisition

Exhibit ID	Owner	Parcel Number	Parcel Acres Required	Acres of Remnant Parcel	Structure Impacted
A-1	Jeremy and Tawana Herron	5300-00-007-0100-907	0.02	0.25	No
A-2	Akzo Nobel Industrial	121350010001	0.97	101.88	No
A-3	Akzo Nobel Industrial	0279-00-000-0104-907	5.88	12.70	No
A-4	Akzo Nobel Industrial	0620-00-000-0104-907	2.31	12.70	No
A-5	Harris County ROW Department	0431860000021	1.55	0.90	No
A-6	Harris County ROW Department	0430280000004	0.12	41.56	No
A-7	Southbelt Industrial	0650560010075	1.01	0.00	No
A-8	Southbelt Industrial	0280660000027	0.16	21.31	No
A-9	Nighat P. Iftikhar	0650560010078	0.69	0.76	No
A-10	Delma C. Galeas (Lady J'z Sports Bar)	0650560010001	0.30	0.28	Yes
A-11	Southbelt Industrial Park	0280660000087	0.14	6.80	No
A-12	Erasmio Medina	0650560020001	0.01	0.39	No
Total Parcel Acres Required:			13.16	-	-

Source: Project Team, 2014.

During construction of the proposed project, FM 521 would remain open to the extent possible to traffic and access to social and community facilities will remain open. The adjustment or relocation of several utilities (including water lines, telephone cables, electrical lines, and other subterranean and aerial utilities) may be necessary and would be handled so that no substantial interruptions in service would occur. The appropriate utility company would provide adjustments or relocations.

3.4 ENVIRONMENTAL JUSTICE (EJ) AND LIMITED ENGLISH PROFICIENCY (LEP) POPULATIONS

The proposed project area is located southwest of Houston, within both Harris and Fort Bend Counties. The population according to the U.S. Census Bureau 2010 Summary File 1, Table P1 “Total Population”, was 4,092,459 for Harris County and 585,375 for Fort Bend County. Harris

County's 2010 reported population is an increase of 20.3 percent from the U.S. Census Bureau 2000 Summary File 1, Table P001 "Total Population".

Fort Bend County's 2010 reported population is an increase of 65.1 percent from the U.S. Census Bureau 2000 Summary File 1, Table P001 "Total Population". The following subsections discuss potential impacts associated with minority and low-income populations (Environmental Justice or EJ) and Limited English Proficiency (LEP) populations.

3.4.1 Environmental Justice (EJ)

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994), requires each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." The FHWA has identified three fundamental principles of EJ:

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

The race and ethnicity of the populations within the project area were analyzed. According to FHWA Order 6640.23 (1998), FHWA Actions to Address Environmental Justice in Minority and Low-Income Populations, population groups defined as minorities include the following:

- Black (having origins in any of the black racial groups of Africa);
- Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture of origin, regardless of race);
- Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands);
- American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition); or
- Other non-white persons, including those persons of two or more races.

FHWA defines disproportionately high and adverse human health or environmental effects as adverse effects that:

1. Are predominantly borne by a minority population and/or a low-income population; or

2. Will be suffered by the minority population and/or low-income population and are appreciably more severe or greater in magnitude than the adverse effects that will be suffered by the non-minority population and/or non-low-income population.

In compliance with Executive Order 12898 regarding Environmental Justice, this project was assessed to determine whether or not the proposed activities would have a disproportionately high and adverse effect on low-income or minority populations.

3.4.1.1 Minority Populations

The racial and ethnic composition of the population within the project area was examined in order to identify the presence or absence of minority populations in the vicinity of the proposed project. The proposed project encompasses 73 Census Blocks adjacent to or within 2,000 feet of the proposed project. The 73 Census Blocks are located within 6 Census Block Groups, nested within 5 Census Tracts. **Exhibit 5a** shows the 73 Census Blocks located in the 6 Census Block Groups in the project area and the distribution of the minority individuals within those Census Blocks. The demographic data presented in Table 7 represent the racial/ethnic composition of each Census Block within the corresponding Census Block Group and Census Tract for the project area identified. According to the 2010 Census summary data, 84.2 percent of the 73 Census Block population is considered to be minority. For comparison, minority persons comprise 90.5 percent of the six Census Block Groups. Approximately 51.6 percent of the population in the project area Census Blocks and 35.9 percent in the Census Block Groups identify themselves as of Hispanic or Latino origin.

Table 7: Minority Populations

Geographic Area	Total Pop.	Not Hispanic or Latino							Hispanic or Latino	Total Minority Pop.
		White Alone	Black / African American Alone	AIAN ¹ Alone	Asian Alone	NHPI ¹ Alone	Some Other Race Alone	Two or More Races		
Block Area ²										
Blocks within Block Group 1, Census Tract 3307										
Block 1000	591	52	81	1	16	0	1	4	436	539
Block 1002	61	3	0	0	0	0	0	2	56	58
Block 1004	63	1	7	1	0	0	0	0	54	62
Block 1005	0	0	0	0	0	0	0	0	0	0
Block 1007	37	3	0	0	3	0	0	0	31	34
Block 1008	65	7	0	0	2	0	0	0	56	58
Block 1009	0	0	0	0	0	0	0	0	0	0
Block 1010	0	0	0	0	0	0	0	0	0	0
Block 1029	0	0	0	0	0	0	0	0	0	0
Block 1030	0	0	0	0	0	0	0	0	0	0
Block 1031	0	0	0	0	0	0	0	0	0	0
Block 1032	0	0	0	0	0	0	0	0	0	0
Block 1033	0	0	0	0	0	0	0	0	0	0

Geographic Area	Total Pop.	Not Hispanic or Latino							Hispanic or Latino	Total Minority Pop.
		White Alone	Black / African American Alone	AIAN ¹ Alone	Asian Alone	NHPI ¹ Alone	Some Other Race Alone	Two or More Races		
Block 1041	18	13	2	0	0	0	0	0	3	5
Block 1042	0	0	0	0	0	0	0	0	0	0
Block 1043	0	0	0	0	0	0	0	0	0	0
Block 1044	0	0	0	0	0	0	0	0	0	0
Block 1045	0	0	0	0	0	0	0	0	0	0
Block 1055	0	0	0	0	0	0	0	0	0	0
Block 1059	11	5	0	0	3	0	0	0	3	6
Block 1060	0	0	0	0	0	0	0	0	0	0
Block 1061	0	0	0	0	0	0	0	0	0	0
Block Total:	846	84	90	2	24	0	1	6	639	762
Block Total %:	100.0%	9.9%	10.6%	0.2%	2.8%	0.0%	0.1%	0.7%	75.5%	90.1%
Block Group Total:	2,823	148	807	3	54	2	2	16	1,791	2675
Block Group Total %:	100.0%	5.2%	28.6%	0.1%	1.9%	0.1%	0.1%	0.6%	63.4%	94.8%
Blocks within Block Group 2, Census Tract 3308										
Block 2060	6	6	0	0	0	0	0	0	0	0
Block 2061	0	0	0	0	0	0	0	0	0	0
Block 2062	0	0	0	0	0	0	0	0	0	0
Block 2063	0	0	0	0	0	0	0	0	0	0
Block 2064	0	0	0	0	0	0	0	0	0	0
Block 2065	0	0	0	0	0	0	0	0	0	0
Block 2130	0	0	0	0	0	0	0	0	0	0
Block 2131	0	0	0	0	0	0	0	0	0	0
Block 2137	8	2	2	0	0	0	0	0	4	6
Block 2138	0	0	0	0	0	0	0	0	0	0
Block 2139	2	2	0	0	0	0	0	0	0	0
Block 2155	0	0	0	0	0	0	0	0	0	0
Block 2156	0	0	0	0	0	0	0	0	0	0
Block 2158	0	0	0	0	0	0	0	0	0	0
Block 2160	14	0	10	0	0	0	0	0	4	14
Block 2172	0	0	0	0	0	0	0	0	0	0
Block 2173	0	0	0	0	0	0	0	0	0	0
Block 2174	0	0	0	0	0	0	0	0	0	0
Block 2182	0	0	0	0	0	0	0	0	0	0
Block Total:	30	10	12	0	0	0	0	0	8	20
Block Total %:	100.0%	33.3%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	26.7%	66.7%
Block Group Total:	4,267	458	2,836	3	154	5	13	44	754	3809
Block Group Total %:	100.0%	10.7%	66.5%	0.1%	3.6%	0.1%	0.3%	1.0%	17.7%	89.3%
Blocks within Block Group 3, Census Tract 3309										
Block 3030	0	0	0	0	0	0	0	0	0	0
Block 3031	0	0	0	0	0	0	0	0	0	0
Block 3033	2	0	0	0	0	0	0	0	2	2

Geographic Area	Total Pop.	Not Hispanic or Latino							Hispanic or Latino	Total Minority Pop.
		White Alone	Black / African American Alone	AIAN ¹ Alone	Asian Alone	NHPI ¹ Alone	Some Other Race Alone	Two or More Races		
Block Total:	2	0	0	0	0	0	0	0	2	2
Block Total %:	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Block Group Total:	871	97	124	0	0	0	2	2	646	774
Block Group Total %:	100.0%	11.1%	14.2%	0.0%	0.0%	0.0%	0.2%	0.2%	74.2%	88.9%
Blocks within Block Group 3, Census Tract 6701.01										
Block 3020	18	8	7	0	0	0	0	0	3	10
Block 3021	0	0	0	0	0	0	0	0	0	0
Block 3022	0	0	0	0	0	0	0	0	0	0
Block 3023	0	0	0	0	0	0	0	0	0	0
Block Total:	18	8	7	0	0	0	0	0	3	10
Block Total %:	100.0%	44.4%	38.9%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	55.6%
Block Group Total:	1,674	44	946	3	10	0	4	7	660	1630
Block Group Total %:	100.0%	2.6%	56.5%	0.2%	0.6%	0.0%	0.2%	0.4%	39.4%	97.4%
Blocks within Block Group 1, Census Tract 6707										
Block 1000	0	0	0	0	0	0	0	0	0	0
Block 1001	0	0	0	0	0	0	0	0	0	0
Block 1003	2	0	0	0	0	0	0	0	2	2
Block 1004	0	0	0	0	0	0	0	0	0	0
Block 1005	0	0	0	0	0	0	0	0	0	0
Block 1009	0	0	0	0	0	0	0	0	0	0
Block 1010	0	0	0	0	0	0	0	0	0	0
Block 1011	0	0	0	0	0	0	0	0	0	0
Block 1013	0	0	0	0	0	0	0	0	0	0
Block 1059	0	0	0	0	0	0	0	0	0	0
Block Total:	2	0	0	0	0	0	0	0	2	2
Block Total %:	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Block Group Total:	1,502	141	1,129	3	34	0	1	12	182	1361
Block Group Total %:	100.0%	9.4%	75.2%	0.2%	2.3%	0.0%	0.1%	0.8%	12.1%	90.6%
Blocks within Block Group 2, Census Tract 6707										
Block 2000	0	0	0	0	0	0	0	0	0	0
Block 2001	0	0	0	0	0	0	0	0	0	0
Block 2002	422	104	115	0	134	0	1	16	52	318
Block 2004	13	0	0	0	7	0	0	2	4	13
Block 2005	0	0	0	0	0	0	0	0	0	0
Block 2006	18	6	2	0	3	0	0	1	6	12
Block 2007	24	3	12	0	7	0	0	0	2	21
Block 2010	0	0	0	0	0	0	0	0	0	0
Block 2011	0	0	0	0	0	0	0	0	0	0
Block 2013	0	0	0	0	0	0	0	0	0	0
Block 2014	33	3	8	0	11	0	0	0	11	30
Block 2015	0	0	0	0	0	0	0	0	0	0

Geographic Area	Total Pop.	Not Hispanic or Latino							Hispanic or Latino	Total Minority Pop.
		White Alone	Black / African American Alone	AIAN ¹ Alone	Asian Alone	NHPI ¹ Alone	Some Other Race Alone	Two or More Races		
Block 2016	12	6	2	0	1	0	0	0	3	6
Block 2017	0	0	0	0	0	0	0	0	0	0
Block 2018	0	0	0	0	0	0	0	0	0	0
Block Total:	522	122	139	0	163	0	1	19	78	400
Block Total %:	100.0%	23.4%	26.6%	0.0%	31.2%	0.0%	0.2%	3.6%	14.9%	76.6%
Block Group Total:	924	258	174	0	179	0	1	21	291	666
Block Group Total %:	100.0%	27.9%	18.8%	0.0%	19.4%	0.0%	0.1%	2.3%	31.5%	72.1%

Source: U.S. Census Bureau, Census 2010: Summary Tape File 1, Table P11

¹ AIAN - American Indian or Alaska Native, NHPI - Native Hawaiian and Other Pacific Islander

² Block area was determined to be part or all of a six-Census Block Group area that encompasses all of the 73 Census Blocks adjacent to or within 2,000 feet of the proposed project.

3.4.1.2 Low-Income Populations

The American Community Survey (ACS) 5-year estimate is calculated from a sampled data range from January 1, 2007 to December 31, 2011. The yielded estimate over the 5-year period is reported with a Margin of Error (MOE) calculated by the ACS, which is the difference between an estimate and its lower or upper confidence bound. All ACS published MOE's are based on a 90 percent confidence level calculated using a standard of error formula.

The previously identified Census Block Groups and Census Blocks represent the demographic area evaluated for low-income populations. The median household income and persons of poverty status were examined in order to identify the presence or absence of low-income populations in the vicinity of the project. **Exhibit 5b** shows the median household income for each Census Block Group within the project demographic area.

According to the 2011 American Community Survey, 16.7 percent of the households within the project Census Block Groups are below the 2017 Department of Human Health Services (DHHS) poverty guideline of \$24,600 (for family unit size of four persons). For comparison, low-income households comprise 27.1 percent of the Census Tracts intersected by the proposed project. The data in this table also indicate that the median household incomes for the project area Census Block Groups ranges from \$38,644 to \$122,125.

Table 8 shows the median household income and the number of households below the poverty level for each Census Block Group located within the project demographic area.

According to the 2011 American Community Survey, 16.7 percent of the households within the project Census Block Groups are below the 2014 Department of Human Health Services (DHHS) poverty guideline of \$23,850 (for family unit size of four persons). For comparison, low-income households comprise 27.1 percent of the Census Tracts intersected by the proposed project. The data in this table also indicate that the median household incomes for the project area Census Block Groups ranges from \$38,644 to \$122,125.

Table 8: Median Household Incomes and Poverty Status (2010)

Geographic Area	Total Households 2010 ¹	Median Household Income	Households Below Poverty Level ²	
			Total	Percent*
Block Group Area³				
Census Tract 3307				
Block Group 1 Total	1,083	\$38,051	260	24.0%
Census Tract 3308				
Block Group 2 Total	1,727	\$66,216	133	7.7%
Census Tract 6606.02				
Block Group 2 Total	4,325	\$107,920	145	3.4%
Census Tract 6701.01				
Block Group 3 Total	539	\$46,979	161	29.9%
Census Tract 6707				
Block Group 1 Total	709	\$49,856	110	15.5%
Block Group 2 Total	190	\$46,111	68	35.8%
6 Block Group Area				
Block Group Total	8,573	\$59,189	877	10.2%
5 Census Tract Area				
Census Tract Total	13,961	\$56,945	1713	12.3%

Source: American Community Survey 2007-2011 5-year Estimate Summary File, Tables B19001 and B19013

Note: Geographic Area was determined to be a five Census Tract area that encompasses all block groups (six) adjacent to or within 2,000 feet of the proposed project.

¹ Total Households within Block Group.

² Households below the poverty level were determined based on the 2011 Census, and 2014 DHHS poverty threshold of \$23,850.

³ Includes all Census Block Groups (six) adjacent to or within 2,000 feet of the proposed project.

⁴ Income data is based on a range (ex. 20,000 – 25,000).

In order to determine if the proposed project would result in “disproportionately high and adverse effects” on a minority or low-income population, or be denied benefits of the Build Alternative, several additional factors, in addition to the demographic profile of the study area, are also considered.

- **Community Cohesion:** Based on the preliminary design plans for the proposed project, the Build Alternative would not result in major divisions or isolation of close-knit neighborhoods or cohesive communities within the study area. Neighborhoods located within the study area would benefit from improved accessibility and reduced congestion resulting from the proposed project.
- **Displacements:** No displacements or relocations of residences would be required because of this project. One business, Lady J’s Sports Bar, has been displaced and relocated as discussed in **Section 3.3.2** of this document. The business is identified in **Table 6** and is located along FM 521 on the southwest corner of Bluebonnet and FM 521 (see **Exhibit 4**). As described in section **3.3.2**, this business has been relocated.

- **Transportation Needs:** In addition to establishing locations of minority and low-income residents, transportation needs of these populations must also be considered. Minority and low-income populations are not expected to experience any reductions or delays of any benefits associated with increased access, nor are they expected to experience disproportionate adverse effects due to increased capacity.

Although the demographic area contains a high number of minority populations, this project would not have any disproportional impacts since there would be no displacements of residences and only one business displacement (see **Section 3.3.2**). While circulation/mobility would change as a result of the project, access to adjacent businesses would not be impacted by the proposed project.

Overall, the proposed project is expected to reduce congestion during peak hours within the project limits and improve accessibility, thereby decreasing commute times for local residents. The proposed project would not discourage or provide disincentives to commercial development and redevelopment. Reduced congestion and improved accessibility along FM 521 would also be an incentive to future development or redevelopment along the project corridor. Any increase in capacity and accessibility from the proposed project improvements is anticipated to enhance the area's attractiveness to future business development. Over the long-term, the entire community would benefit from the proposed project as a result of improved capacity and accessibility and reduced traffic congestion. Additionally, access would not be restricted to any existing public or community service, commercial area, business, or employment center. Any inconveniences of the roadway being used for access to residences or businesses would be minimized during project construction.

Similarly, the project is not expected to result in disproportionately high and adverse impacts to the visual environment within the neighborhoods located through the study area, as compared to the visual impacts that would be experienced throughout the project corridor. There may be short-term, localized effects to air quality (i.e. increase in dust) and noise levels (i.e. generated by construction equipment) in the immediate area adjacent to the project during construction. These effects would be temporary and would not be selectively limited to minority or low-income communities, but would potentially affect residential and business communities located in the immediate area adjacent to the proposed project.

The No Build Alternative would leave the existing facility as-is; therefore, like all residents, low-income residents would not benefit from the improvements to traffic congestion and mobility along this section of FM 521.

Based on the above discussion, the proposed project would not cause disproportionately high and adverse effects on any minority or low-income populations as discussed in the Executive Order 12898 regarding environmental justice. The requirements of Executive Order 12898 are satisfied for the proposed project.

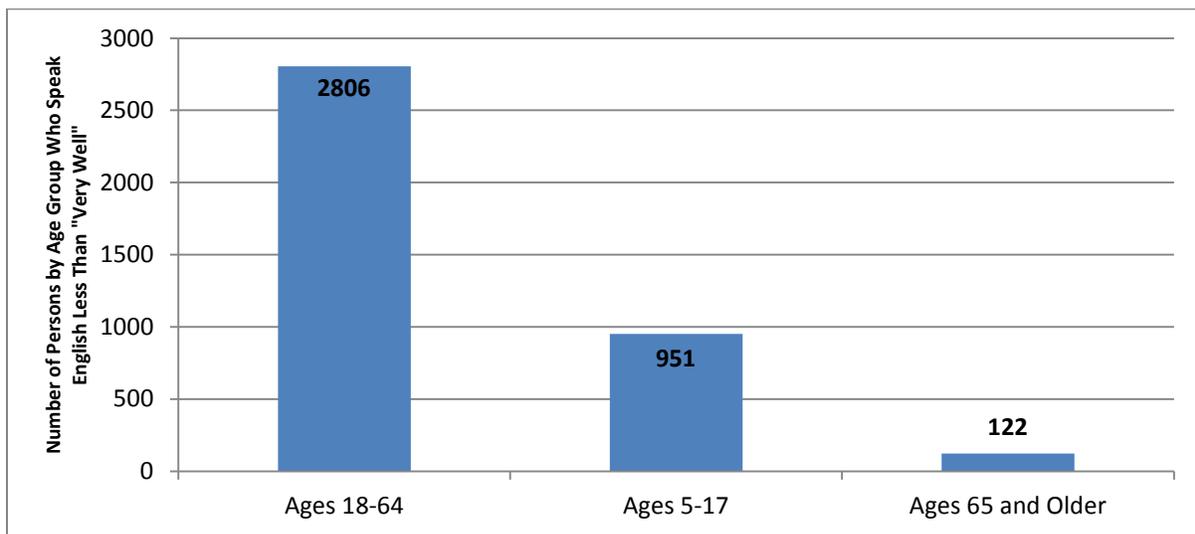
3.4.2 Limited English Proficiency (LEP)

Executive Order 13166 entitled, "Improving Access to Services for Persons with Limited English Proficiency," mandates that federal agencies examine the services they provide and develop and implement a system by which LEP persons can meaningfully access those services consistent with, and without unduly burdening, the fundamental mission of the agency. Each agency shall also work to ensure that recipients of federal financial assistance (recipients) provide meaningful access to their LEP applicants and beneficiaries (65 Federal Register 50123, August 16, 2000).

The Census Bureau defines a linguistically isolated household as one in which no one 14 years old and over speaks only English or speaks a non-English language and speaks English "very well." In other words, all members of the household 14 years old and over have at least some difficulty with English.

According to the 2007 – 2011 ACS 5-Year Estimates Summary File, within the 6 Census Block Group area identified, there is a total of 15,648 people age five to age 65 and over. Of the 6,448 people (41.2 percent) that spoke a language other than English, 3,879 people (24.8 percent) speak English less than "very well" (have difficulty with English and thus is considered a person of LEP). Approximately 22.6 percent of the population aged 18 to 64 speaks English less than "very well," which is slightly higher than individuals aged 5 to 17 who speak English less than "very well," which is slightly higher than individuals aged 65 and over who speak English less than "very well" (18.9 percent) (**Figure 1**). The proportion of individuals who speak English less than "very well" is highest in the portion of the population aged 18 to 64 with 26 percent of individuals speaking English less than "very well."

Figure 1: Population by Age Group Who Speak English Less Than "Very Well"



Source: American Community Survey 2007-2011 5-Year Estimate Summary File

TxDOT has ensured that opportunities for community input regarding the proposed project have been and will continue to be provided. Two public meetings and two public hearings have been held as part of this project, as discussed in the **Section 1.5** of this EA. Notices of the meetings and hearings were announced in local newspapers and were provided through a mailing list,

which included adjacent property owners and the area's elected officials. The public has been afforded the opportunity to comment on this project.

In order to comply with Executive Order 13166, newspaper announcements in both English and Spanish newspapers provided opportunities for citizens to request language interpreters. Additionally, TxDOT maintains a mailing list of public meeting attendees and other interested parties to be contacted for announcements and for future public meetings. TxDOT has attempted to address all issues of concern expressed at the public meetings and public hearings in the development of this document. Furthermore, persons who own property directly adjacent to the proposed project also received the meeting and hearing notices in both English and Spanish. Therefore, the requirements of Executive Order 13166 have been met.

3.5 AIR QUALITY

3.5.1 Conformity

This project is located within Fort Bend and Harris Counties, which are part of the Houston-Galveston-Brazoria area that has been designated by the U.S. Environmental Protection Agency (EPA) as a moderate nonattainment area for the 2008 ozone National Ambient Air Quality Standards (NAAQS); therefore, transportation conformity rules apply.

The proposed action is consistent with the area's financially constrained 2040 RTP Update and the 2017-2020 TIP, which were initially found to conform to the TCEQ SIP by FHWA and FTA on April 22, 2016 and December 19, 2016, respectively. Copies of the RTP and TIP pages are included in **Appendix C**. All projects in the 2017-2020 TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR. Energy, environment, air quality, cost, and mobility considerations are addressed in the programming of the TIP. A project level conformity determination was made by FHWA on January 6, 2017

3.5.2 CO TAQA

Traffic Data for the design year 2035 is 33,100 vehicles per day. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that a carbon monoxide (CO) standard would ever be exceeded as a result of any project with an average annual daily traffic (AADT) below 140,000. The AADT projections for the project do not exceed 140,000 vehicles per day; therefore a Traffic Air Quality Analysis (TAQA) was not required.

3.5.3 Congestion Management Process (CMP)

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 Houston-Galveston Area Council's (H-GAC) operational CMP, which meets all requirements of CFR §500.109. The CMP was adopted by H-GAC on September 11, 2015 and incorporated into the 2040 RTP and 2017-2020 TIP.

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 H-GAC; they are included in the financially constrained 2040 RTP, 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) detailing 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 (SOV) facility implementation and project specific elements. Committed congestion reductions strategies and operational improvements within the study boundary consist of various improvements. Individual projects are listed in **Table 9**.

Table 9: Congestion Management Process Strategies

Location	Type	Implementation Date
FM 2234; from Fort Bend Parkway Toll Road to FM 521	Widen 2 lanes to 4-lane divided rural section	1/1/2025
FM 521; @ Union Pacific Railroad	Construct grade separation (DOT# 447 969Y)	1/1/2017

Source: H-GAC - 2040 RTP Update, 2016.

In an effort to reduce congestion and the need for SOV lanes in the region, TxDOT and H-GAC will continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality (CMAQ) program, the CMP, and the 2035 RTP. The congestion reduction strategies considered for this project would help alleviate congestion in the SOV study boundary, but would not eliminate it. Therefore, the proposed project is justified. The CMP analysis for added SOV capacity projects is on file and available for review at H-GAC.

3.5.4 Hot-Spot Analyses

The project is not located within a CO or particulate matter (PM) nonattainment or maintenance area; therefore, a project level hot spot analysis is not required.

3.5.5 Mobile Source Air Toxic (MSAT) Analysis

The project is not exempt under 40CFR 93.126 and is adding capacity and has a design year AADT <140,000; therefore, a qualitative analysis is required.

3.5.5.1 Background

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

mobile sources that are listed in their Integrated Risk Information System (IRIS) (<http://www.epa.gov/ncea/iris/index.html>).

In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future rules.

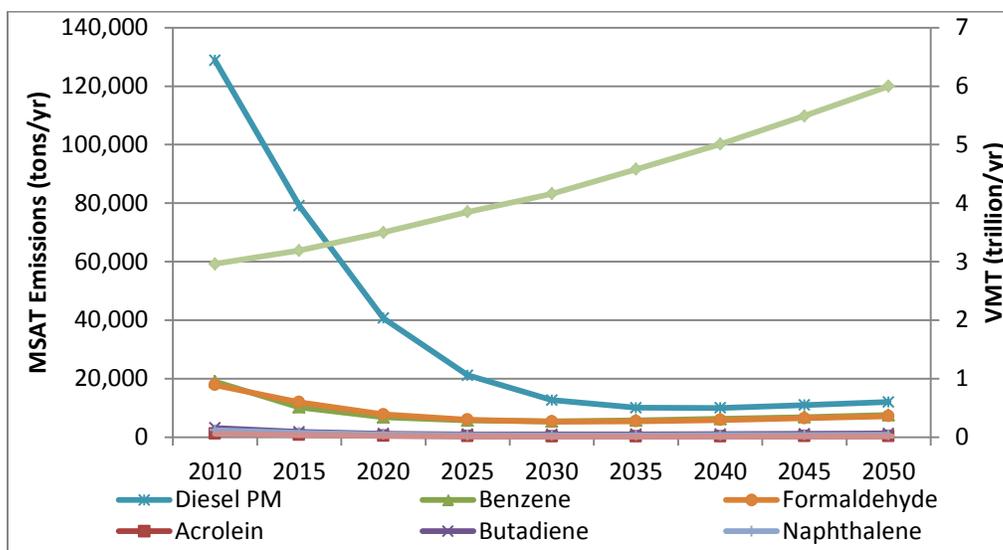
The 2007 EPA Mobile Source Air Toxics (MSAT) rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. Based on an FHWA analysis using EPA's MOVES2010b model, as shown in **Table 10** and **Figure 2**, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Table 10: Projected National MSAT Emission Trends 2010 – 2050 for Vehicles Operating on Roadways Using EPA's MOVES2010b Model

Pollutant / VMT	Pollutant Emissions (tons) and Vehicle-Miles Traveled (VMT) by Calendar Year									Change 2010 to 2050
	2010	2015	2020	2025	2030	2035	2040	2045	2050	
Acrolein	1,244	805	476	318	258	247	264	292	322	-74%
Benzene	18,995	10,195	6,765	5,669	5,386	5,696	6,216	6,840	7,525	-60%
Butadiene	3,157	1,783	1,163	951	890	934	1,017	1,119	1,231	-61%
Diesel PM	128,847	79,158	40,694	21,155	12,667	10,027	9,978	10,942	11,992	-91%
Formaldehyde	17,848	11,943	7,778	5,938	5,329	5,407	5,847	6,463	7,141	-60%
Naphthalene	2,366	1,502	939	693	607	611	659	727	802	-66%
Polycyclics	1,102	705	414	274	218	207	219	240	262	-76%
Trillions VMT	2.96	3.19	3.5	3.85	4.16	4.58	5.01	5.49	6	102%

Source: EPA MOVES2010b model runs conducted during May – June 2012 by FHWA.

Figure 2: National MSAT Emission Trends 1999-2050 for Vehicles Operating on Roadways Using EPA's MOVES2010B Model



Source: EPA MOVES2010b model runs conducted during May – June 2012 by FHWA.

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

3.5.5.2 MSAT Research

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

3.5.5.3 Project-Specific MSAT Information

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled, *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.pdf

For each alternative in the report, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in

VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project alternative will have the effect of moving some traffic closer to nearby homes and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternative than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built along FM 521 under the Build Alternative. However, the magnitude and the duration of these potential increases compared to the No Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts.

In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be lower than today.

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

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

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects,

exposures, and risks posed by air pollutants. They maintain IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, <http://www.epa.gov/ncea/iris/index.html>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's 2009 *Interim Guidance Update on Mobile Source Air Toxic Analysis* in NEPA Documents, which can be found at the following address: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policyandguidance/00109guidmem.cfm). This Appendix also discusses a variety of FHWA research initiatives related to air toxics. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, <http://pubs.healtheffects.org/view.php?id=282>) or in the future as vehicle emissions substantially decrease (HEI, <http://pubs.healtheffects.org/view.php?id=306>).

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

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

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and the HEI (<http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

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

Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable. Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

3.5.5.5 Conclusion

In this document, a qualitative MSAT assessment has been provided relative to the various alternatives of MSAT emissions and has acknowledged that the build alternative will not 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.

3.5.6 Air Quality Construction Emissions Reduction Strategies

During the construction phase of this project, temporary increases in air pollutant emissions may occur from construction activities. The primary construction-related emissions are particulate matter (fugitive dust) from site preparation. These emissions are temporary in nature (only occurring during actual construction); it is not possible to reasonably estimate impacts from these emissions due to limitations of the existing models. However, the 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.

The construction activity phase of this project may generate a temporary increase in MSAT emissions from construction activities, equipment and related vehicles. The primary MSAT

construction related emissions are particulate matter from site preparation and diesel particulate matter from diesel powered construction equipment and vehicles. The Texas Emissions Reduction Plan (TERP) includes incentive programs to encourage the development of multi-pollutant approaches to ensure that the air in Texas is both safe to breathe and meets minimum federal standards. TxDOT encourages construction contractors to utilize this program to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: <http://www.tceq.state.tx.us/implementation/air/terp/>. However, considering the temporary and transient nature of construction-related emissions, as well as the mitigation actions to be utilized (if applicable), it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

Because the proposed project would add capacity in a nonattainment area, the project has been coordinated under the TxDOT-TCEQ MOU. Coordination and responses can be found in **Appendix D**.

3.6 NOISE

This analysis was performed in accordance with TxDOT's 2011 "Guidelines for Analysis and Abatement of Highway Traffic Noise". Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. It is commonly measured in decibels and is expressed as "dB."

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

3.6.1.1 Noise Abatement Criteria

The FHWA has established the following Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact will occur. This criterion is outlined in **Table 11**.

Table 11: FHWA Noise Abatement Criteria

Activity Category	FHWA (dBA Leq)	TxDOT (dBA Leq)	Description of Land Use Activity Areas
A	57 (exterior)	56 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	66 (exterior)	Residential
C	67 (exterior)	66 (exterior)	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, schools, television studios, trails, and trail crossings
D	52 (interior)	51 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72 (exterior)	71 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties and other developed lands, properties or activities not included in categories 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.

Source: TxDOT Guidelines for Analysis and Abatement of Highway Traffic Noise (2011), 23CFR772.

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 dBA below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dBA 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 dBA. For example: a noise impact would occur at a Category B residence if the existing level is 54 dBA and the predicted level is 65 dBA (11 dBA increase).

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area. The FHWA Traffic Noise Model was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

3.6.1.2 Noise Analysis Summary

The FHWA traffic noise modeling software (TNMv2.5) was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of

vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

Existing and predicted traffic noise levels were modeled at receiver locations (**Table 12** and **Exhibit 4**) that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement.

Table 12: Traffic Noise Levels (dBA Leq)

Receiver ID	Description	NAC Category	NAC Level	Modeled Results			
				Existing Year (2013)	Predicted Year (2035)	Change + [-]	Noise Impact
R1	Residence-Shadow Creek Ranch	B	67	59	63	4	No
R2	Residence-Shadow Creek Ranch	B	67	55	60	5	No
R3	Residence-Feld Drive	B	67	54	57	3	No
R4	Residence-Tyler Street	B	67	62	64	2	No
R5	Residence-Tyler Street	B	67	56	59	3	No
R6	Residence-Riley Road	B	67	61	64	3	No

Source: Project Team, 2013.

As indicated in **Table 12**, the proposed project would not result in traffic noise impact. However, to avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs should ensure, to the maximum extent possible, no new activities are planned or constructed along or within the predicted (2035) noise impact contours as listed in **Table 13**.

Table 13: Design Year Predicted Leq Contour

Undeveloped Area	Land Use	Impact Contour	Approximate Distances to Contour (feet)*
FM 521: between FM 2234 and Riley Road	NAC Category B & C	66 dBA	170
	NAC Category E	71dBA	60

Source: Project Team, 2013.

*From the edge of the nearest travel lane. The values in the table do not represent predicted levels at every location at a particular distance from the roadway. Sound levels will vary with changes in terrain and will be affected by the shielding of objects such as buildings. This information is being included to make local officials and planners aware of anticipated highway noise levels so that future development will be compatible with these levels.

3.6.1.3 Construction Noise

Noise associated with the construction of the proposed project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected.

Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

3.6.1.4 Local Coordination

A copy of this traffic noise analysis will be made available to local officials to ensure, to the maximum extent possible, future developments are planned, designed and programmed in a manner that will avoid traffic noise impacts. 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 proposed project.

3.7 WATER QUALITY

3.7.1 Section 404 of the Clean Water Act: Waters of the U.S.

The U.S. Army Corps of Engineers (USACE) regulates impacts to jurisdictional waters, including waters of the U.S. and wetlands, under Section 404 of the Clean Water Act (CWA). The term “waters of the U.S.” is defined in 33 CFR 328.3(a) and encompasses a variety of water bodies, including interstate and intrastate waters, the use, degradation, or destruction of which could affect interstate or foreign commerce, impoundments or tributaries of such waters, and the territorial seas.

Pursuant to Executive Order 11990 (Protection of Wetlands) and Section 404 of the CWA, a preliminary wetland delineation was conducted on April 24, 2013 to determine the presence of waters of the U.S., including wetlands, within the project area. According to the USACE wetlands are those areas that are inundated or saturated with surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Wetlands are transitional areas between terrestrial and aquatic systems resulting from the interaction of hydrophytic vegetation, wetlands hydrology, and hydric soils.

As a result of the delineation, 0.92 acres of waters of the U.S., including 0.23 acres of wetlands and 1,067 linear feet of waters of the U.S. were identified within the project area (see **Table 14** and **Exhibit 4**). The Build Alternative would require USACE authorization under Section 404 of the CWA prior to the discharge of fill materials into waters of the U.S., including wetlands.

Table 14: Waters of the U.S. Delineated on the Project Site

Exhibit ID	Description	Acres	Length
A	PEM	0.03	N/A
B	PEM	0.05	N/A
C	PEM	0.05	N/A
D	RPW	0.47	486
E	PEM	0.04	N/A
G	Non-RPW	0.22	581
H	PEM	0.02	N/A
K	PEM	0.01	N/A

L	PEM	0.01	N/A
M	PEM	0.01	N/A
N	PEM	0.01	N/A
Total		0.92	1,067

PEM = Palustrine Emergent Wetland; RPW = Relatively Permanent Water; Non-RPW = Non-Relatively Permanent Water
 Source: Project Team, 2013.

It is likely that the proposed project would involve the discharge of dredged or fill materials into 0.08 acres of wetlands, and 184 linear feet of waters of the U.S. (see **Table 15**).

Table 15: Potential Effects to Waters of the U.S., including Wetlands

Exhibit ID	Description	Acres	Length	Effect ¹ (Acres)	Effect ¹ (Feet)
A	PEM	0.03	N/A	0	N/A
B	PEM	0.05	N/A	0	N/A
C	PEM	0.05	N/A	< 0.05 ²	N/A
D	RPW	0.47	486	0	0
E	PEM	0.04	N/A	0	N/A
G	Non-RPW	0.22	581	< 0.09 ²	< 184 ²
H	PEM	0.02	N/A	0	N/A
K	PEM	0.01	N/A	0	N/A
L	PEM	0.01	N/A	0.01	N/A
M	PEM	0.01	N/A	0.01	N/A
N	PEM	0.01	N/A	0.01	N/A
Total		0.92	1,067	< 0.17 ²	< 184 ²

¹ Area of permanent and temporary effects within the Section 404 jurisdictional limits.

² It is anticipated that permanent or temporary effects may occur from installation of bridge columns; however, bridge design is not complete and impacts are not quantifiable.

Source: Project Team, 2013.

The placement of temporary or permanent dredge or fill material into jurisdictional Waters of the U.S. would be authorized under Nationwide Permit (NWP) 14, with a Pre-Construction Notification (PCN). A PCN to the USACE will be required for NWP 14 if waters of the U.S. impacts are more than 1/10 acre. There is no potential to affect listed species or designated critical habitat or any historic properties listed or eligible for listing on the National Register of Historic Places (NRHP).

A PCN was prepared and submitted to the USACE on October 2, 2014. A review of the USACE requirements has been conducted. A Nationwide Permit 14 was received from the USACE on November 4, 2014. No compensatory mitigation for Section 404 impacts was required in the terms of the approved permit.

The purpose of the proposed activity is to improve the linear transportation facility. 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 re-vegetated as appropriate.

3.7.2 Section 401 of the Clean Water Act: Water Quality Certification

The 401 Certification requirements for NWP 14 would be met by implementing approved erosion and sediment control Best Management Practices (BMPs) from TCEQ's 401 Water Quality Certification Conditions for Nationwide Permits.

Throughout the duration of the construction phase of the project, temporary erosion, sedimentation, and water pollution controls will be incorporated into the construction plans at the earliest feasible point during construction. These measures will be used to prevent or correct erosion that may develop during construction. All temporary erosion controls will be in compliance with the TxDOT Standard Specifications and will be in place, according to the construction plans, prior to commencement of construction related activities. The contractor will be required to take the appropriate measures to prevent, minimize and control the spill of fuels, lubricants and hazardous materials in the construction staging area.

3.7.3 Executive Order 11990

The purpose of Executive Order 11990 is to “minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.” Federal agencies are required to consider alternatives to avoid wetland sites and limit potential impacts if a wetland cannot be avoided, before compensatory mitigation can be proposed. A majority of the proposed project has been aligned immediately adjacent to the existing ROW; thus, avoiding and minimizing effects to surrounding areas to the greatest extent practicable.

Restoring minor wetlands within the ROW is not generally compatible with TxDOT goals, where shedding water from the road is essential to prevent hazards during precipitation events. On-site mitigation within the ROW is not feasible due to the long-term commitments associated with mitigation sites; placement of a mitigation area within the proposed ROW would effectively prohibit the use of the site for future projects.

Several mitigation options may be available to compensate for unavoidable effects associated with the proposed project. These options include in-lieu fee (ILF) agreements, mitigation banking, and preservation/conservation off-site. TxDOT and FHWA guidance recommends mitigation banking be used for mitigation as much as practicable, then ILF agreements, and then other options such as restoration, enhancement, creation, preservation, and/or conservation.

Mitigation banking options available include the use of the Coastal Bottomlands Mitigation Bank, available for use by TxDOT, and the Greens Bayou Wetland Mitigation Bank administered by the Houston County Flood Control District (HCFCD). The ILF options available include the Armand Bayou Nature Center, Galveston Bay Foundation, and The Nature Conservancy of Texas.

Coordination with the USACE and other agencies would be conducted to determine whether any of the options listed above are feasible and reasonable to compensate for the proposed project effects.

3.7.4 Rivers and Harbors Act of 1899, Section 10

This project does not involve work in or over a navigable water of the U.S.; therefore, Section 10 of the Rivers and Harbors Act does not apply.

3.7.5 Section 303(d) of the Clean Water Act

The proposed project is located within the San Jacinto-Brazos Coastal Basin, which is bounded on the north by the San Jacinto River Basin, on the east by Galveston Bay and the Trinity-San Jacinto Coastal Basin, and on the west by the Brazos River Basin. This flat coastal plain drains a total of 1,440 square miles; the majority of the area consisting of small, tidally influenced streams draining into Galveston Bay or West Bay. The topography of the region varies from nearly flat terrain immediately along the Gulf Coast to a gently undulating plane that extends inland 50 miles to 100 miles.

The proposed project crosses Clear Creek and is located entirely within the Clear Creek Watershed. Clear Creek flows from west to east through Clear Lake and into Galveston Bay (HCFCD 2013). Armand Bayou is the largest tributary to Clear Creek and is a separate watershed. Development activity has historically been concentrated in the lower end of the watershed around Clear Lake and several smaller cities in the mid and upper portions of the watershed; however, in recent decades development activity has increased throughout the watershed and is expected to continue. This watershed covers approximately 197 square miles. Approximately 154 miles of streams flow within this watershed including tributary channels and two primary streams: Clear Creek and Turkey Creek (HCFCD 2013).

Currently, stormwater in the project area flows into several roadside ditches, which all flow into one classified segment of the Clear Creek. Segment 1102 (Clear Creek Above Tidal) is a freshwater stream that runs from a point 110 yards upstream of FM 528 in Galveston/Harris County to Rouen Road in Fort Bend County. Segment 1102 is designated as impaired due to PCBs (Polychlorinated biphenyls) in edible tissue in the 2012 CWA Section 303(d) list (TCEQ, 2012).

Based on HCFCD methodology, it was determined that 20.88 ac-ft of detention was needed due to added impervious cover from the proposed project. As part of this project, two detention areas would be constructed to collect stormwater runoff from the project area; which would reduce the amount of stormwater runoff reaching the impaired segment of Clear Creek. Within the “jughandle”, 18.4 ac-ft of detention is estimated to be available and 3.0 ac-ft is available for detention between FM 521 northbound exit ramp and FM 521 southbound access road (under the FM 521 bridge).

Surface water runoff from roadways frequently contains automobile pollutants such as fluids, particles from brake linings and tires, and municipal trash and debris. Stormwater runoff from the project area would flow into the two detention ponds constructed as part of this project, reducing the amount of stormwater runoff reaching Clear Creek. Coordination with TCEQ is required in regards to this project and potential contributions to the constituents of concern

within Clear Creek (Segment 1102). Coordination was completed on February 13, 2015. Coordination and responses can be found in **Appendix D**.

The greatest potential for adverse effects to water quality exists during the construction phase of the project due to the quantity of soil being disturbed, resulting in temporary water quality effects caused by temporarily increasing the level of suspended particles in storm water runoff. Overall every effort would be made to protect the water quality within the project study area. BMPs that would be utilized include silt fencing, temporary and permanent seeding, and mulching.

3.7.6 Section 402 of the Clean Water Act: Texas Pollutant Discharge Elimination System, Construction General Permit

This project would include five or more acres of earth disturbance. TxDOT will comply with the TCEQ-Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP). A Storm Water Pollution Prevention Plan (SW3P) would be implemented, and a construction site notice would be posted on the construction site. A Construction Notice of Intent (NOI) would be required.

3.7.7 Section 402 of the Clean Water Act: Texas Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System

A portion of the project area is located within the boundaries of the Phase I Houston Municipal Separate Storm Sewer System (MS4) and any work located within the boundaries of the MS4 would comply with the applicable MS4 requirements.

3.7.8 Floodplains

Executive Order 11988, "Floodplain Management", requires Federal agencies to avoid actions, to the extent practicable, which would result in the location of facilities in floodplains and/or affect floodplain values. The project was investigated for encroachments into the 100-year floodplain. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) was reviewed to determine locations of the 100-year floodplains and associated floodways in the project vicinity, as shown in **Exhibit 2**.

The southwest portion of the project area, between FM 2234 (west side) and the Fort Bend/Harris County line, lies mostly within Zone X (FEMA Map Number 48157C0283K, April 20, 2000). Zone X (unshaded) is an area of low flood hazard, usually the area outside of the 500-year flood (0.2-percent-annual-chance flood). The study area does cross into Zone AE and Zone X (shaded), in the southeast and northern portion of the project limits between FM 2234 (east side) and Riley Road (FEMA Map Number 48157C0283K, April 20, 2000 and FEMA Map Number 48201C1010L, June 18, 2007). Zone AE is characterized as an area within the limits of the 100-year flood, also referred to as the base flood, which has a 1-percent-chance of being equaled or exceeded in any given year. Zone AE also has established base flood elevations. The base flood elevations in this area range from 61 to 62 feet. Zone X (shaded) is an area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods (1-percent-annual and 0.2-percent-annual-chance flood). Zone X (shaded) areas are also used to

designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile. No portion of the project is a designated undeveloped Coastal Barrier Area.

The hydraulic design for this project would be in accordance with current FHWA and TxDOT design policies. The facility would permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing significant damage to the facility, stream, or other property. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Coordination with the local Floodplain Administrator will be required.

3.7.9 Texas Coastal Management Program

A portion of this project is located within Harris County, but is not within the Texas Coastal Management Program boundary; therefore, coordination is not required.

3.7.10 Coastal Barrier Resources Act

A portion of this project is located within Harris County, but is not located within a designated Coastal Barrier Resources Act (CBRA) zone. Coordination with the U.S. Fish and Wildlife Services (USFWS) is not required.

3.7.11 General Bridge Act/Section 9 of the Rivers and Harbors Act

This project does not involve work in or over a navigable water of the U.S.; therefore, Section 9 of the Rivers and Harbors Act does not apply.

3.8 VEGETATION AND WILDLIFE HABITAT

The project study area is located in the Gulf Coast Prairies and Marshes natural region of Texas, which includes approximately 20,312 square miles (Gould 1975). The ecoregion is outlined by a narrow band about 60 miles wide along the Texas coast from the Louisiana border to Brownsville. Gulf Coast prairies are nearly level with slow surface drainage and elevations ranging from sea level to approximately 250 feet above mean sea level (MSL). In addition to wildlife habitat, the prairies are used for crops, livestock grazing, and urban and industrial centers. It is estimated that as much as 99 percent of the coastal prairies in Texas have been converted to agricultural land (Gould 1975; McMahan et. al, 1984).

Gulf coast marshes are low, wet, marshy coastal areas commonly inundated with saline water, ranging from sea level to a few feet in elevation above MSL. These marshes support species of sedges, rushes, cordgrasses, reeds, and forbs, which provide beneficial wildlife habitat for numerous birds and marine fisheries.

Many areas in the region have been invaded by noxious volunteer species, including honey mesquite (*Prosopis glandulosa*), eastern baccharis (*Baccharis halimifolia*), huisache (*Acacia minuta*), smutgrass (*Sporobolus indicus*), yankeeweed (*Eupatorium compositifolium*),

McCartney rose (*Rosa bracteata*), flatsedge (*Cyperus entrerianus*), and Chinese tallow (*Triadica sebifera*).

According to the Ecological Mapping Systems of Texas by TPWD, the project study area is located within the West Gulf Coastal Plain Region. The vegetation types within the project area include the following. Descriptions are taken from the January 14, 2014 *Draft Descriptions of Systems, Mapping Subsystems, and Vegetation Types for Texas* (Elliot, 2014). **Exhibit 6** shows the vegetation types within 0.25-miles of the project area.

- **Urban High Intensity** - This type consists of built-up areas and wide transportation corridors that are dominated by impervious cover.
- **Urban Low Intensity** – This type includes areas that are built-up but not entirely covered by impervious cover, and includes most of the non-industrial areas within cities and towns.
- **Gulf Coast: Coastal Prairie** – A variety of grasslands are circumscribed by this mapped type, and species such as Bermudagrass, King Ranch bluestem, bahiagrass, deep-rooted sedge, rat-tail smutgrass, broomsedge bluestem, little bluestem, bushy bluestem, and brownseed paspalum may be dominant. Live oak, cedar elm, sugar hackberry, and water oak (east) are common tree components, and shrubs such as huisache, Macartney rose, mesquite, baccharis, or Chinese tallow may be present.
- **Post Oak Savanna: Live Oak Motte and Woodland** – Post oak is the most frequent dominant tree species within this mapped type. Cedar elm, blackjack oak, sugar hackberry, water oak, southern red oak (east), black hickory, and plateau live oak may all be present in the overstory. Mesquite (west), yaupon, common persimmon, possumhaw, winged elm, gum bumelia, American beautyberry, and eastern redcedar are common shrubs.
- **Native Invasive: Deciduous Woodland** – This broadly-defined type may have *Celtis laevigata* (sugar hackberry), *Quercus nigra* (water oak), *Ulmus crassifolia* (cedar elm), *Liquidambar styraciflua* (sweetgum), *Ulmus alata* (winged elm), *Ilex vomitoria* (yaupon), *Acacia farnesiana* (huisache), *Fraxinus spp.* (ashes), or *Prosopis glandulosa* (honey mesquite) among the dominants. To the south and west, species such as *Celtis ehrenbergiana* (granjeno), *Zanthoxylum fagara* (colima), and *Diospyros texana* (Texas persimmon) are more common. *Quercus stellata* (post oak), *Quercus virginiana* (coastal live oak), and *Quercus fusiformis* (plateau live oak) may be important.
- **Native Invasive: Baccharis Shrubland** – This type is mapped on salty or sandy soils and *Baccharis spp.* (baccharis), *Prosopis glandulosa* (honey mesquite), *Tamarix spp.* (salt cedars), and *Iva frutescens* (shrubby sumpweed) are the most common dominants. Other shrubs may include *Triadica sebifera* (Chinese tallow), *Borrchia frutescens* (sea ox-eye daisy), *Rosa bracteata* (Macartney rose), *Forestiera acuminata* (swamp privet),

and *Zanthoxylum fagara* (colima), and grasses may include *Spartina spartinae* (Gulf cordgrass), *Distichlis spicata* (saltgrass), *Cynodon dactylon* (bermudagrass), and *Sporobolus indicus* (rat-tail smutgrass).

- **Native Invasive: Huisache Woodland or Shrubland** – This broadly-defined type often has invasive shrubs or small trees such as *Acacia farnesiana* (huisache), *Prosopis glandulosa* (honey mesquite), *Celtis laevigata* (sugar hackberry), *Ulmus crassifolia* (cedar elm), *Sideroxylon lanuginosum* (gum bumelia), *Quercus nigra* (water oak), or *Triadica sebifera* (Chinese tallow) among the dominants. *Quercus fusiformis* (plateau live oak) or *Quercus virginiana* (coastal live oak) may be present in the tree layer and other common species include *Celtis ehrenbergiana* (granjeno), *Forestiera angustifolia* (elbow bush), *Acacia berlandieri* (guajillo), *Opuntia engelmannii* var. *lindheimeri* (Lindheimer pricklypear), *Diospyros texana* (Texas persimmon), and *Rosa bracteata* (Macartney rose).
- **Barren** – This type includes areas where little or no vegetative cover existed at the time of image data collection. Large areas cleared for development are included, as well as rural roads and buildings and associated clearing in primarily rural areas. Stream beds with exposed gravel or bedrock, rock outcrops, quarries, and mines may be mapped as this type. Fallow fields or areas within cropland blocks that remain barren throughout one growing season or heavily grazed pastures where bare soils are dominant may also be mapped as barren.

3.8.1 Local Vegetation Descriptions

A field investigation was conducted to identify vegetation types within the project area and assess the potential effects of the proposed project on native vegetation. The study area exhibits undeveloped land as well as other areas already used for transportation purposes (roadways and railroad) or urban development (residential, commercial, and industrial facilities). Adjacent to the project corridor are natural vegetation communities including aquatic features, periodically inundated wetlands, riparian forest and pastures.

The project area can be accurately described as Industrial/Commercial with a few pockets of undeveloped/vacant land consisting of pasture, wooded lots, and fields occurring throughout the project area. The existing ROW consists of existing roadway with maintained roadside grasses. Vegetated areas within the existing ROW are maintained and regularly mowed. The vegetation community is dominated by common introduced herbaceous vegetation and opportunistic weeds.

Predominant wetland vegetation found within the project area include swamp smartweed (*Polygonum hydropiperoides*), Virginia buttonweed (*Diodia virginiana*), green flat sedge (*Cyperus virens*), curly dock (*Rumex crispus*), and common rush (*Juncus effusus*). The riparian areas within the project area support a forested community dominated by Chinese tallow (*Triadica sebifera*) and sugarberry (*Celtis laevigata*). Predominant upland vegetation found within the project area includes Bermudagrass (*Cynodon dactylon*), Wild onion (*Allium* spp.),

English plantain (*Plantago lanceolata*), English ryegrass (*Lolium perenne*), Macartney rose (*Rosa bracteata*), poison ivy (*Toxicodendron radicans*), honeysuckle (*Lonicera japonica*), sawtooth greenbrier (*Smilax bona-nox*), water oak (*Quercus phellos*), yaupon (*Ilex vomitoria*), Chinese tallow, and sugarberry.

Clearing, grading, and other roadbed preparation activities associated with the construction of the Build Alternative would permanently or temporarily affect less than 16.96 acres of natural vegetation within the existing and proposed ROW. These natural vegetation communities include aquatic features, periodically inundated wetlands, riparian and upland forest and pasture. An area of 4.77 acres of vegetation is currently mowed and maintained within the ROW. The vegetated portions of the proposed ROW (12.18 acres) would be converted to maintained ROW, excavated for the installation of culverts extensions and bridge crossings, or cleared, graded, and paved to accommodate construction. An area of 1.88 acres of current roadway could be restored to natural vegetation and 6.2 acres of current vegetation would be within the proposed detention ponds.

3.8.2 Triggers for TPWD Coordination

Coordination with TPWD was required for impacts to special habitat features, including water bodies. The proposed project crosses Clear Creek. No unusual vegetation types were present. Coordination with TPWD is also required for the removal of mature woody vegetation. No unusually large native trees were observed within the existing and proposed ROW. Coordination between TxDOT and TPWD was concluded on January 13, 2015. TPWD coordination can be in **Appendix D**.

The least amount of vegetation would be cleared for the construction of the project as practicable, especially undisturbed native vegetation and mature trees. In-kind on-site replacement/restoration of the native vegetation will be done wherever practicable.

3.8.3 Memorandum of Understanding/Memorandum of Agreement (MOU/MOA) Documentation – Vegetation

In accordance with the TxDOT/TPWD MOU (effective September 1, 2013), a Tier I Site Assessment was conducted in order to define the amount and type of potential habitat within the project area and to determine the need for coordination with TPWD. The triggers for TPWD coordination are as follows.

1. Is the project within range of a state threatened or endangered species or Species of Greatest Conservation Need (SGCN) as identified by the TPWD county list and is there suitable habitat for the state threatened or endangered species or SGCN?
 - o Is the implementation of BMP's required to address potential impacts to suitable habitat?
2. Does the project adversely impact important remnant vegetation based on the judgment of qualified biologist OR as mapped in the Natural Diversity Database (NDD)?

3. Does the project require a Nationwide Permit (NWP) with preconstruction notification (PCN) or an Individual Permit (IP) from the USACE?
4. Does the project include more than 200 linear feet of stream channel within the TxDOT right-of-way or easements 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 bank excavation, scraping, clearing, or other permanent disturbance?
5. Does the project contain known wetlands outside the existing TxDOT ROW that would be directly impacted by the project?
6. Does the project impact at least 0.10 acres of riparian vegetation based on the judgment of a qualified biologist or as mapped in the EMST?
7. Does the project disturb habitat in an area equal to or greater than an area of disturbance indicated in the *Threshold Programmatic Agreement*?

The proposed project requires a Nationwide Permit as well as disturbs habitat greater than the area of disturbance indicated in the *Threshold Programmatic Agreement* (Disturbed Prairie). No additional triggers are met. TPWD coordination was initiated on August 22, 2014. Coordination between TxDOT and TPWD concluded on January 13, 2015.

3.8.4 Executive Order 13112 on Invasive Species

Invasive species could be introduced or spread via vehicles and soil disturbance activities. This includes on-going roadway maintenance which would occur under the No Build Alternative, as well as construction associated with the Build Alternative. During construction, efforts would be taken to avoid and minimize disturbance of vegetation and soils. All areas disturbed during construction would be re-vegetated according to TxDOT specifications, as soon as it becomes practicable.

In accordance with EO 13112 on Invasive Species, the Executive Memorandum on Beneficial Landscaping, and the 1999 FHWA Guidance on Invasive Species, only non-invasive species would be planted within the ROW.

3.8.5 Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds

Where required, permanent soil erosion control features would be constructed as soon as feasible during early stages of construction through proper sodding and/or seeding techniques. Disturbed areas would be restored and stabilized as soon as the construction schedule permits and temporary seeding would be considered where large areas of disturbed ground would be left bare for a considerable length of time.

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, seeding and replanting would be done where possible. Moreover, abutting turf grasses within the ROW would be expected to re-establish throughout the length of

the project. Soil disturbance would be minimized to ensure that invasive species would not establish in the ROW.

3.8.6 Wildlife

The vegetation types described in this document could support various wildlife species, such as small birds and mammals. Riparian habitats along lakes, small wetlands areas, and ditch crossings are commonly used by mammalian wildlife. Some mammalian species may continue to exist for years in these areas because of their ability to adapt to urban development. Typical mammals that could occur within the project study area include Virginia opossum (*Didelphis virginiana*), house mouse (*Mus musculus*), common raccoon (*Procyon lotor*), hispid cotton rat (*Sigmodon hispidus*), and eastern cottontail (*Sylvilagus floridanus*).

Wooded areas and grassy fields located throughout the project study area serve as habitat for many avian species, which can range from small game birds to large birds of prey. Birds that could occur within these areas include Cooper's hawk (*Accipiter cooperii*), mallard (*Anas platyrhynchos*), great egret (*Ardea alba*), great blue heron (*A. herodias*), cedar waxwing (*Bombycilla cedrorum*), cattle egret (*Bubulcus ibis*), red-tailed hawk (*Buteo jamaicensis*), green heron (*Butorides virescens*), crested caracara (*Caracara cheriway*), turkey vulture (*Cathartes aura*), belted kingfisher (*Ceryle alcyon*), killdeer (*Charadrius vociferus*), rock pigeon (*Columba livia*), black vulture (*Coragyps atratus*), American crow (*Corvus brachyrhynchos*), snowy egret (*Egretta thula*), tri-colored heron (*E. tricolor*), white ibis (*Eudocimus albus*), American kestrel (*Falco sparverius*), common snipe (*Gallinago gallinago*), loggerhead shrike (*Lanius ludovicianus*), herring gull (*Larus argentatus*), laughing gull (*L. atricilla*), ring-billed gull (*L. delawarensis*), northern mockingbird (*Mimus polyglottos*), black-crowned night-heron (*Nycticorax nycticorax*), osprey (*Pandion haliaetus*), American white pelican (*Pelecanus erythrorhynchos*), brown pelican (*P. occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), roseate spoonbill (*Platalea ajaja*), pied-billed grebe (*Podilymbus podiceps*), great-tailed grackle (*Quiscalus mexicanus*), eastern meadowlark (*Sturnella magna*), European starling (*Sturnus vulgaris*), brown thrasher (*Toxostoma rufum*), American robin (*Turdus migratorius*) and mourning dove (*Zenaida macroura*). These birds could occur in the project study area on a transient basis.

Reptiles and amphibians are considered common within the project study area. Amphibians include the cricket frog (*Acris crepitans*), gulf coast toad (*Bufo valliceps*), gray treefrog (*Hyla versicolor*) and southern leopard frog (*Rana sphenoccephala*). Common reptiles include the green anole (*Anolis carolinensis*) and rough earth snake (*Virginia striatula*).

Wildlife species observed within the project vicinity include the northern cardinal (*Cardinalis cardinalis*), great-tailed grackle, barn swallow (*Hirundo rustica*), eastern cottontail (*Sylvilagus floridanus*), and northern mockingbird.

The Build Alternative would result in permanent effects on wildlife habitat, including habitat loss through its conversion into transportation infrastructure and maintained ROW. Wildlife in the project study area has and would continue to be slowly dominated by species that are better

able to adapt to a disturbed physical environment and could tolerate possible disturbances from the proposed project. The potential loss or displacement of wildlife populations into adjacent habitats could increase competition for food and shelter for many resident and migratory species.

Temporary effects to wildlife habitat include the decreased attractiveness of habitat adjacent to the project corridor as well as possible disturbances to normal behavior patterns on wildlife as a result of increased noise levels due to construction activities.

Adjacent wildlife habitats would be protected from stormwater runoff by implementing BMPs under the SW3P, which would provide erosion and sedimentation control. Additionally, the contractor would be notified about and be responsible for complying with the Migratory Bird Treaty Act (MBTA) for migratory birds that may inhabit the project study area throughout the duration of the construction project.

3.8.7 Essential Fish Habitat

The proposed project is not located in a coastal area subject to tidal influences, nor is it in an area of a sensitive nature for aquatic or marine spawning grounds; therefore, the project is not subject to the Magnuson Stevens Fishery Conservation and Management Act and would not affect any essential fish habitat as defined by 16 United States Code (USC) 1802.

3.9 THREATENED AND ENDANGERED SPECIES

Databases of sensitive species maintained by the USFWS and TPWD were reviewed to determine state and/or federally listed threatened or endangered species that occur or historically have occurred in Harris County. The potential effects of the proposed project on these species were determined by reviewing the TPWD - NDD Element of Occurrence Records (reviewed on February 4, 2013), the USFWS database (reviewed in June 2013). According to the TPWD - NDD Element of Occurrence Records and the USFWS County List, no documented occurrences of a threatened or endangered species are known within 2.0 miles of the proposed project. A NDD search contains limited locality records and may not be exclusively used to determine the presence or absence of threatened or endangered species.

The listing status of each state and federally listed threatened or endangered species identified as potentially occurring within Harris and Fort Bend Counties, a description of suitable habitat, and the effect of the proposed project on each species is shown in **Table 16**.

Table 16: Potential Effects to Listed Species Potentially Occurring within the Study Area

Common Name (<i>Scientific Name</i>)	State Status	Federal Status	Suitable Habitat Description	Effect
AMPHIBIANS				
Houston toad (<i>Bufo houstonensis</i>)	E	E†	Sandy substrate, ephemeral pools, stock tanks.	No effect; habitat not present
BIRDS				

Common Name (Scientific Name)	State Status	Federal Status	Suitable Habitat Description	Effect
American peregrine falcon (<i>Falco peregrinus</i>)	T	DL†	Potential migrant.	No effect; rare transitory migrant
Arctic peregrine falcon (<i>Falco peregrinus tundrius</i>)	--	DL†	Potential migrant, winters along gulf coast.	No effect; rare transitory migrant
Attwater's Greater Prairie-Chicken (<i>Tympanuchus cupido attwateri</i>)	E	E†	Open prairies of mostly thick grass one to three feet tall; from near sea level to 200 feet along coastal plain on upper two-thirds of Texas coast.	No effect; habitat not present
Bald eagle (Nesting) (<i>Haliaeetus leucocephalus</i>)	T	DL†	Near water areas, in tall trees.	No effect; habitat not present
Black Rail (<i>Laterallus jamaicensis</i>)	--	*	Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous year's dead grasses; nest usually hidden in marsh grass or at base of Salicornia.	No impact; habitat not present
Brown Pelican (<i>Pelecanus occidentalis</i>)	--	DL†	Largely coastal and near shore areas, where it roosts and nests on islands and spoil banks.	No impact; habitat not present
Henslow's sparrow (<i>Ammodramus henslowii</i>)	--	*	Wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking.	No impact; habitat not present
Mountain plover (<i>Charadrius montanus</i>)	--	*	Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous.	No impact; habitat not present
Peregrine falcon (<i>Falco peregrinus</i>)	T	DL†	Both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (<i>F. p. anatum</i>) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, <i>F.p. tundrius</i> is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	No effect; habitat not present
Red-cockaded woodpecker (<i>Picoides borealis</i>)	E	E†	Cavity nests in older pine (60+ years); forages in younger pine (30+ years); prefers longleaf, shortleaf, and loblolly.	No effect; habitat not present
Snowy plover (<i>Charadrius alexandrinus</i>)	--	*	Formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast.	No impact; habitat not present
Southeastern snowy plover (<i>Charadrius alexandrinus tenuirostris</i>)	--	*	Wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats.	No impact; habitat not present
Sprague's pipit (<i>Anthus spragueii</i>)	--	C†	Diurnal migrant tied to native prairie upland and coastal grasslands; avoids edges.	No effect. No habitat present
White-faced ibis (<i>Plegadis chihi</i>)	T	*	Freshwater marshes, but some brackish or salt marshes	No impact; habitat not present
White-tailed hawk (<i>Buteo albicaudatus</i>)	T	*	Coastal prairies; cordgrass flats, scrub-live oak	No impact; transitory migrant
Whooping crane (<i>Grus americana</i>)	E	E†	Winters in Aransas NWR	No effect; habitat not present
Wood stork (<i>Mycteria americana</i>)	T	*	Prairie ponds and flooded pastures	No impact; habitat not present
FISHES				

Common Name (Scientific Name)	State Status	Federal Status	Suitable Habitat Description	Effect
American eel (<i>Anguilla rostrata</i>)	--	*	Coastal waterways below reservoirs to gulf; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes	No impact; habitat not present
Creek chubsucker (<i>Erimyzon oblongus</i>)	T	*	Tributaries of the Red, Sabine, Neches, Trinity, and San Jacinto rivers; small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes; spawns in river mouths or pools, riffles, lake outlets, upstream creeks.	No impact; habitat not present
Smalltooth sawfish (<i>Pristis pectinata</i>)	E	E†	Young found very close to shore in muddy and sandy bottoms, seldom descending to depths greater than 32 ft (10 m); in sheltered bays, on shallow banks, and in estuaries or river mouths; adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths, feed on a variety of fish species and crustaceans.	No effect; habitat not present
MAMMALS				
Louisiana black bear (<i>Ursus americanus luteolus</i>)	T	T†	Thick brushland near water	No effect; habitat not present
Plains spotted skunk (<i>Spilogale putorius interrupta</i>)	--	*	Catholic in habitat choice; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie	No impact; habitat not present
Rafinesque's big-eared bat (<i>Corynorhinus rafinesquii</i>)	T	*	Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.	No impact; habitat not present
Red wolf (<i>Canis rufus</i>)	E	E†	Extirpated, eastern half of Texas in brushy, forested areas; coastal prairies	No effect; habitat not present.
Southeastern myotis bat (<i>Myotis austroriparius</i>)	--	*	Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.	No impact; habitat not present
MOLLUSKS				
Little spectaclecase (<i>Villosa lienosa</i>)	--	*	Creeks, rivers, and reservoirs, sandy substrates in slight to moderate current, usually along the banks in slower currents; east Texas, Cypress through San Jacinto River basins.	No impact; habitat not present
Louisiana pigtoe (<i>Pleurobema riddellii</i>)	T	*	Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins.	No impact; habitat not present
Sandbook pocketbook (<i>Lampsilis satura</i>)	T	*	Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River.	No impact; habitat not present
Texas pigtoe (<i>Fusconaia askewi</i>)	T	*	Rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures; east Texas River basins, Sabine through Trinity rivers as well as San Jacinto River.	No impact; habitat not present
Wabash pigtoe (<i>Fusconaia flava</i>)	--	*	Creeks to large rivers on mud, sand, and gravel from all habitats except deep shifting sands; found in moderate to swift current velocities; east Texas River basins, Red through San Jacinto River basins; elsewhere occurs in reservoirs and lakes with no flow.	No impact; habitat not present
REPTILES				

Common Name (Scientific Name)	State Status	Federal Status	Suitable Habitat Description	Effect
Alligator snapping turtle (<i>Macrochelys temminckii</i>)	T	*	Perennial water bodies, deep water of rivers, canals, lakes, and oxbows	No impact; habitat not present
Green sea turtle (<i>Chelonia mydas</i>)	T	T†	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches.	No effect; habitat not present
Gulf saltmarsh snake (<i>Nerodia clarkia</i>)	--	*	Saline flats, coastal bays, and brackish river mouths.	No impact; habitat not present
Kemp's Ridley sea turtle (<i>Lepidochelys kempi</i>)	E	E	Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico.	No effect; habitat not present
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	E	E	Gulf and bay systems, and widest ranging open water reptile; omnivorous, shows a preference for jellyfish.	No effect; habitat not present
Loggerhead sea turtle (<i>Caretta caretta</i>)	T	T	Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles.	No effect; habitat not present
Smooth green snake (<i>Liochlorophis vernalis</i>)	T	*	Gulf Coastal Plain; mesic coastal shortgrass prairie vegetation; prefers dense vegetation.	No impact; habitat not present
Texas horned lizard (<i>Phrynosoma cornutum</i>)	T	*	Open, semi-arid regions, with bunch grass	No impact; habitat not present
Timber/Canebrake rattlesnake (<i>Crotalus horridus</i>)	T	*	Swamps/floodplains of hardwood/upland pine	No impact; habitat not present
PLANTS				
Coastal gay-feather (<i>Liatris bracteata</i>)	--	*	Texas endemic; coastal prairie grasslands of various types, from salty prairie on low-lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall.	No impact; habitat not present
Florida ladies-tresses (<i>Spiranthes brevilabris</i> var. <i>floridana</i>)	--	*	Moist to wet, relatively open sites of pine-dominated landscapes, mesic pine uplands, open scrub pinelands with saw palmetto, Catahoula sandstone barrens, meadows, open grassy lawns, pitcher plant and seepage bogs, wet prairies, wet savannahs, and flatwoods. Delicate, nearly ephemeral, orchid with winter rosette. Flowers Apr-May.	No impact; habitat not present
Giant sharpstem umbrella-sedge (<i>Cyperus cephalanthus</i>)	--	*	On saturated, fine sandy loam soils, along nearly level fringes of deep prairie depressions; also in depression area within coastal prairie remnant on heavy black clay.	No impact; habitat not present
Houston daisy (<i>Rayjacksonia aurea</i>)	--	*	Texas endemic; on and around naturally barren or sparsely vegetated saline slick spots or pimple mounds on coastal prairies, usually on sandy to sandy loam soils, occasionally in pastures and on roadsides in similar soil types where mowing may mimic natural prairie disturbance regimes.	No impact; habitat not present
Neglected coneflower (<i>Echinacea paradoxa</i> var. <i>neglecta</i>)	--	*	Rocky prairies, glades, and crosstember open woodlands and savannas. Full sun.	No impact; habitat not present
Panicled indigobush (<i>Amorpha paniculata</i>)	--	*	A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas.	No impact; habitat not present
Texas ladies'-tresses (<i>Spiranthes brevilabris</i> var. <i>brevilabris</i>)	--	*	Sandy soils in moist prairies, incl. blackland/Fleming prairies, calcareous prairie pockets surrounded by pines, pine-hardwood forest, open pinelands, wetland pine savannahs/flatwoods, and dry to moist fields, meadows, and roadsides.	No impact; habitat not present

Common Name (Scientific Name)	State Status	Federal Status	Suitable Habitat Description	Effect
Texas meadow-rue (<i>Thalictrum texanum</i>)	--	*	Texas endemic; mostly found in woodlands and woodland margins on soils with a surface layer of sandy loam, but it also occurs on prairie pimple mounds; both on uplands and creek terraces, but perhaps most common on claypan savannas; soils are very moist during its active growing season.	No impact; habitat not present
Texas prairie dawn (<i>Hymenoxys texana</i>)	E	E	In poorly drained, sparsely vegetated areas (slick spots) at the base of mima mounds in open grassland or almost barren areas on slightly saline soils that are sticky when wet and powdery when dry.	No effect; habitat not present
Texas windmill-grass (<i>Chloris texensis</i>)	--	*	Texas endemic; sandy to sandy loam soils in relatively bare areas in coastal prairie grassland remnants, often on roadsides where regular mowing may mimic natural prairie fire regimes.	No impact; habitat not present
Threeflower broomweed (<i>Thurovia triflora</i>)	--	*	Texas endemic; near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay along drier upper margins of ecotone between between salty prairies and tidal flats.	No impact; habitat not present

* These species occur on the State listing of threatened or endangered species; however, they are not federally listed at this time by the U.S. Fish and Wildlife Service (June 2013).
 † These species are listed by the U.S. Wildlife Service, however, they are not listed to occur within this county by the Clear Lake office of the U.S. Fish and Wildlife Service (June 2013).
 -- Not listed for Texas Parks and Wildlife for this county (June 2013)
 Note: E = endangered T = threatened C = candidate species DL = federally delisted
 Source: USFWS, 2013.

The potential effects of the proposed project on these species were determined by reviewing the TPWD - NDD Element of Occurrence Records and the USFWS County List and by conducting habitat assessments with qualified biologists. No unique, critical, designated, or proposed designated habitat exists in or near the proposed project. No listed species were observed during field investigations. The proposed study area does not provide suitable habitat for any of these species and no habitat critical to the survival or recovery of these species was observed in the existing ROW. As a result, the proposed project would have no effect on any federally-listed threatened or endangered species, its habitat or designated critical habitat and would not impact any state-listed species.

The project would not be within range of or in the suitable habitat of any state or federally listed threatened or endangered species. The project would not involve mitigation plans or otherwise involve proposals to redress project impacts on fish, wildlife, or plant resources. Because the project will have no effect on any federally listed species or critical habitat, no consultation with the USFWS is required under Section 7 of the Endangered Species Act.

3.9.1 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, or egg in part or in whole, without a federal permit issued in accordance within the Act’s policies and regulations.

Migration patterns would not be affected by the proposed project. No habitat within the existing ROW was observed during the field visit that would serve as a temporary or seasonal stop for

migratory birds and no additional ROW would be required for the proposed project. No nests or birds were observed during the field visit.

In the event that migratory birds are encountered on-site during project construction, every effort would be made to avoid the take of protected birds, active nests, eggs, and/or young. The contractor would remove all old migratory bird nests from any structure where work would be done. In addition, the contractor would be prepared to prevent migratory birds from building nests during construction.

Vegetation clearing activities should be excluded during the general bird nesting season, March through August, to avoid adverse impacts. If clearing vegetation during the migratory bird nesting season is unavoidable, a survey should be completed within the area proposed for disturbance to ensure that no nests with eggs or young will be disturbed. Any vegetation (trees, shrubs, and grasses) where occupied nests are located should not be disturbed until the eggs have hatched and the young have fledged.

3.9.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 prohibits the taking of Bald or Golden Eagles, and the destruction or the taking of their eggs. This act is intended to protect eagles from commercial exploitation and promote their survival. The proposed project area does not contain suitable habitat for nesting Bald or Golden Eagles. Thus, the proposed project would not endanger or impact Bald or Golden Eagles.

3.10 HISTORIC RESOURCES

Historic resources are structures, buildings, districts (a collection of related structures, buildings) and objects. Both federal and state laws require consideration of historic resources during project planning. At the federal level, NEPA and the National Historic Preservation Act (NHPA) of 1966, among others, apply to transportation projects such as this one. In addition, state laws such as the Antiquities Code of Texas apply to these projects. Compliance with these laws often requires consultation with the Texas Historical Commission (THC) / Texas State Historic Preservation Officer (SHPO) and/or federally-recognized tribes to determine the project's effects on cultural resources. Review and coordination of this project followed approved procedures for compliance with federal and state laws.

A review of the Texas Historic Sites Atlas, NRHP, the list of State Antiquities Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL) indicated that there are no previously recorded properties in the study area, which extends 1,300 feet beyond the proposed project limits.

The 2015 Programmatic Agreement for Transportation Undertakings (PA-TU) among TxDOT, FHWA, the Advisory Council for Historic Preservation, and the THC, under stipulation IX, Appendix 6, states that certain classes of undertakings have the potential to affect historic properties, but do not ordinarily require individual project coordination with SHPO.

On January 12, 2016, qualified historians determined that there are no NRHP or SAL-listed properties in the project area and the project complies with applicable state and federal laws (see **Appendix D**). Therefore, no consultation under section 106 of the National Historic Preservation Act was required.

3.11 ARCHEOLOGICAL RESOURCES

A records search online through the Texas Archeological Sites Atlas (Atlas) and a review of historic maps indicated no archeological sites, sites listed on the NRHP, Registered Texas Landmarks (RTLs), or cemeteries exist within one mile of the study area. The majority of the project area has not been surveyed for archeological resources. According to the Online Archeological Sites Atlas, maintained by the Texas Historical Commission, three previous linear surveys and one aerial survey have intersected or come within one mile of the project area with no sites recorded. A review of online files at the Texas Archeological Sites Atlas revealed no archeological sites within one mile of the area of potential effect (APE). The closest recorded archeological site is located approximately five miles north of the APE. Site 41HR904-906 was recorded in 2002 and consisted of two historic-period house sites and a historic-period family cemetery. This site is well outside the APE for the project and therefore would not be impacted by it.

The underlying geology is characterized by Beaumont Formation clays, formed in the Pleistocene. Two main soils overlying the Beaumont Formation belong to Lake Charles Clay and Bernard-Edna Complex Loam. Both soils are deep fluviomarine clays and clay loam deposits formed during the Late Pleistocene (NRCS, 2013). The remaining soils within the project area are Bernard Clay and Gessner Loam. In terms of age, Lake Charles Clay, Bernard-Edna Complex Loam and Bernard Clay all have some potential to contain shallowly buried cultural resources in areas that have not been previously disturbed.

The Houston PALM (Abbott, 2001) predictive model classifies 85 percent of the APE within Map Unit 4. The PALM recommends no survey within Map Unit 4. The remaining 15 percent is within Map Unit 2, for which it is recommended that a surface survey be accompanied by shovel testing, but not mechanical trenching.

In summary, there are no archeological sites within the APE, and based on the background research, the APE can generally be regarded as having a low overall potential of containing archeological sites. Even in areas designated as Map Unit 2 by Abbott, previous channelization, dredging for drainage ponds, road and railroad construction, and other industrial-scale activities nearby has likely affected the integrity of archeological deposits. An archeological survey is not recommended. Based on the archeological study and consultation results, no further work is warranted. A qualified archaeologist determined on July 6, 2013, that this project has no potential to affect archaeological historic properties or state archaeological landmarks (see **Appendix D**). Therefore, no consultation with the Texas Historic Preservation Officer under section 106 of the National Historic Preservation Act was required. Tribal coordination with the

Coushatta Tribe of Louisiana was initiated on May 22, 2013. No response was received. Tribal coordination can be found in **Appendix D**.

3.12 HAZARDOUS MATERIALS

An initial site assessment (ISA) was conducted to determine the potential for encountering hazardous substances and/or contamination within the vicinity of the proposed project. The preliminary investigation included a review of federal and state databases, historical aerial photographs, and a visual survey of the study area. A visual observation during field reconnaissance was conducted to verify the findings of the regulatory database report and to observe the general environmental conditions at the listed facilities and on properties located immediately adjacent to the proposed project. The current and historical land use can be categorized as predominantly undeveloped with a mixture of commercial, industrial, residential, and transportation uses.

The regulatory databases were searched within a one mile radius of the project corridor in accordance with the American Society for Testing and Materials (ASTM) Standard E 1527-05 and TxDOT standard search radii. The regulatory database listings include only those sites that are known to the regulatory agencies to be contaminated or in the process of evaluation for potential contamination at the time of publication. The database report also shows federal and state regulated sites that could be within the standard search area, but were unplotable due to insufficient address or other locator information.

All regulatory database sites listed in the regulatory database report that were observed during the field investigation are listed in **Table 17** and shown in **Exhibit 4**. This table includes only those sites listed in the database search that were identified within the vicinity of the proposed project. Exhibit ID numbers correspond to the Environmental Data Resources (EDR) Radius Map report found in **Appendix E**. No additional facilities were observed within the vicinity of the proposed project during field reconnaissance.

Table 17: Regulatory Database Sites within Project Vicinity

Exhibit ID	Database Listing(s)	Site Name	Status	Facility ID	Address	Distance from Project
1	ERNS	1714 and FM 521	Pipeline	NRC-818396	288 McHard Road Pearland, TX	Within ROW
2	ERNS	WITCO	Fixed FAC AST	571340	15200 Almeda Road Houston, TX 77053	Within ROW
		NRC-590307	Storage Tank	NRC-590307		
		NRC-831075	Fixed	NRC-831075		
		NRC-607084	Storage Tank	NRC-607084		
		NRC-553387	Fixed	NRC-553387		
		WITCO	Fixed Facility	403683		
		WITCO	Fixed Facility	553021		
		WITCO	Fixed Facility	531752		
		WITCO	Fixed Facility	641540		
		WITCO	Fixed Facility	639031		
		WITCO	Fixed Facility	588686		
UNIT R-400	Fixed	NRC-636879				

Exhibit ID	Database Listing(s)	Site Name	Status	Facility ID	Address	Distance from Project
		NRC-626114	Fixed	NRC-626114		
	NFRAP	WITCO Organics Division Houston PL	NFRAP-N	TXD0650788 26		
	OTHER	AKZO NOBEL Surface Chemistry LLC	Active	IHW-30300		
	RCRA	WITCO CORP	TSD	TXD0650788 26		
	RCRA COR	AKZO NOBEL Surface Chemistry LLC	CA	TXD0650788 26		
	RCRAGN	AKZO NOBEL Surface Chemistry LLC	LGN	TXD0650788 26		
3	PWS	DRDB-95885	-	DRDB-95885	30 Southbelt Industrial Houston, TX 77338	630 feet
4	PWS	DRDB-67733	-	DRDB-67733	35 Southbelt Industrial Houston, TX 77053	800 feet
5	RCRAGN	Sermatech International Incorporated	LGN	TXR0000422 34	25 Southbelt Industrial Houston, TX 77047	250 feet
	OTHER	Sermatech International Services	Closure Request	IHW-86744		
6	OTHER	Best Metals	Inactive	IHW-71286	14906 Alameda Road Houston, TX 77045	40 feet
7	PWS	DRDB-89068	-	DRDB-89068	38 Riley Road Houston, TX 77048	500 feet
8	PWS	DRDB-125721	-	DRDB-125721	3434 W Riley Road Houston, TX 77045	275 feet
9	OTHER	Pearland Industries	Inactive	IHW-87023	14510 Alameda Road Houston, TX 77053	800 feet
10	UST	Texas Star Oil Co.	-	64275	14502 Alameda Road Houston, TX 77053	1,000 feet
11	UST	Texas Coastal Steel	-	56345	14500 Alameda Road Houston, TX 77053	1,000 feet
12	RCRAGN	Hunt & Hunt Inc.	SGN	TXR0000297 93	14441 Alameda Road Houston, TX 77053	1,500 feet

Source: Banks Information Solutions, Inc. 2009.

An analysis of the ISA data indicates that this project could potentially involve the acquisition of known unresolved contamination where TxDOT could reasonably expect to assume liability for corrective action upon acquisition. In addition, this project could potentially involve known hazardous materials impacts that could be anticipated to adversely affect construction (e.g. cannot resolve before letting or during construction). An Environmental Data Resources (EDR) Radius Map report was ordered to facilitate ISA. A copy of the EDR Radius Map, which shows the locations of potential contamination, and the EDR report summary are included in **Appendix E**.

The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction area. The use of construction equipment within sensitive areas should be minimized or eliminated. All construction materials used for this project should

be removed as soon as the work schedule permits. Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal and state regulations and TxDOT Standard Specifications and Guidelines for handling emergency discovery of hazardous materials.

Section 6.10 of TxDOT's "*General Provisions of the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*" (TxDOT, 2004), which applies to all highway projects, includes guidelines for addressing the contractor's responsibilities regarding the discovery of hazardous materials. The contractor will be required to follow these guidelines.

3.12.1 Asbestos Management

The proposed project includes the demolition and/or relocation of one building structure. No asbestos issues are anticipated; however, asbestos inspections, specifications, notification, license, accreditation, abatement, and disposal, as applicable, would be in compliance with federal and state regulations. Asbestos issues would be addressed during the ROW process prior to construction.

3.12.2 Oil/ Gas Well Sites

If active wells are later located within the ROW of the Build Alternative, the wells will be required to be relocated or avoided by construction activities. If oil and gas wells are affected within the existing ROW, applicable plugging and supervision requirements are provided in the Texas Administrative Code, Title 16, Part I, Chapter 3, Section 3.14 under the jurisdiction of the Railroad Commission of Texas (RRC). Well plugging would need to be performed by cementing companies, service companies, or operators approved by the RRC. Arrangements with the responsible well operator for proper plugging according to applicable regulations would be addressed prior to construction. If not plugged prior to construction, the wells would be addressed per TxDOT standard specification Item 103 Disposal of Wells. The locations of the abandoned dry holes within the study area will be flagged to avoid accidental disturbance.

3.13 INVASIVE SPECIES/BENEFICIAL LANDSCAPING

Permanent soil erosion control features would be constructed as soon as feasible during early stages of construction through proper sodding and/or seeding techniques. Disturbed areas would be restored and stabilized as soon as the construction schedule permits and temporary seeding would be considered where large areas of disturbed ground would be left bare for a considerable length of time. In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, seeding and replanting would be done where possible. Moreover, abutting turf grasses within the study area are expected to re-establish throughout the length of the project. Soil disturbance would be minimized to ensure that invasive species would not establish in the ROW.

3.14 CONSTRUCTION IMPACTS

The proposed project would have minor temporary adverse effects during the construction phase. Construction might temporarily degrade air quality through dust and exhaust gases associated with construction equipment as well as raise ambient noise levels and cause occasional traffic delays. Measures to control fugitive dust would be considered, and incorporated into final design and construction specifications. All adjacent property owners would be provided access to their properties during construction activities.

CHAPTER 4: SECTION 4(F) AND CHAPTER 26 EVALUATION

Section 4(f) of the Department of Transportation Act of 1966, as amended in 2005, declares that special effort should be made to preserve public parks, recreation areas, wildlife/waterfowl refuges or any historic sites of national, state or local significance. Section 4(f) specifies that the Secretary of Transportation may approve a transportation project, only if:

- There is no prudent and feasible alternative to using that land, and
- The project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Chapter 26 Texas Parks and Wildlife Code, requires that any project that will result in the use or taking of public land designated and used as a park, must provide certain notices to the public, conduct a hearing, have a finding that there is no feasible and prudent alternative and the project includes all reasonable planning to minimize harm to the park.

This project has the potential to directly impact one public area designated as a public park. Compliance with the requirements of Chapter 26 of the Texas Parks and Wildlife Code and Section 4(f) of the Department of Transportation Act of 1966 would be required.

4.1 PROPOSED ACTION

The limits of the project extend along FM 521 from Beltway 8 to 0.3 miles south of FM 2234 (McHard Road) and along FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521. The purpose of this project is to:

- Expand capacity to enhance mobility and improve safety;
- Improve railroad/local traffic crossings; and
- Accommodate population and economic growth.

The proposed project consists of reconstructing and widening FM 521 and FM 2234 from a two-lane rural undivided facility to a four-lane divided urban arterial which will satisfy the project objectives by expanding the capacity of the roadway to enhance mobility and improve safety and accommodate population and economic growth. The project also includes grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521 which will improve railroad/local traffic crossings.

Chapters 1 and 2 provide further information regarding the proposed action, the purpose of and need for the proposed action, and alternatives. The proposed action has the potential to directly use one Section 4(f)/Chapter 26 property. This property is the Almeda Road Nature Preserve and is owned by Harris County. No constructive use would occur as a result of the proposed project.

4.2 SECTION 4(F) AND CHAPTER 26 REQUIREMENTS

There are two requirements for complying with Chapter 26 once a resource has been identified: public involvement and findings, and these requirements must be addressed in that order (3 PWC 26.001(b)). As discussed in Section 1.5, a public hearing was held in compliance with Chapter 26 public involvement requirements. In accordance with the requirements, the impact to Almeda Road Nature preserve was found to have no reasonable or prudent alternative and the impact was minimized to the greatest extent possible.

Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 4(f) can be complied with in a streamlined manner by finding that the project will have a de minimis impact on the area. De minimis impacts on publicly owned parks, recreation area, and wildlife and waterfowl refuges are defined as those that do not adversely affect the activity, features, and attributes of the Section 4(f) resource. The de minimis impact finding is based on the degree or level of impact including avoidance, minimization, and mitigation or enhancement measure that are included in the project to address the Section 4(f) use. In addition, the responsible officials with jurisdiction over the resource must agree that the impact is de minimis.

A total of 1.67 acres out of 44.13 acres of Almeda Road Nature Preserve (3.8%) is within the proposed ROW of the project, as shown in Exhibit 4. Proposed work within the park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset “T” intersections. These “T” intersections will allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays and a creation of two detention ponds; which would reduce the amount of stormwater runoff reaching the impaired segment of Clear Creek.

Impacts to the parkland were unavoidable due to the geometric constraints imposed by the required railroad crossing. In particular, the limitations of feasible bridge beam span length over the railroad ROW, combined with the requirement that permanent bridge foundations and footings not be constructed within the existing railroad ROW. An additional constraint was the minimum allowable radius for the required design speed for the proposed FM 521 facility. Given these constraints, the “tightest” feasible reverse curve configuration to achieve the railroad grade separation was laid out to successfully minimize the ROW impact to the parkland.

It is TxDOT’s opinion that the FM 521 and FM 2234 project’s minor use of the park land would not adversely affect the activities, features, and attributes of Almeda Road Nature Preserve after taking into consideration minimization measures. TxDOT is considering the impact to the resource to be de minimis as provided for under SAFETEA-LU and given that:

- The proposed use of the future Almeda Road Nature Preserve is minimal, and
- Efforts to minimize the use of the park land are incorporated into project design.

Impacts, avoidance, minimization, and mitigation measures have been developed throughout the design of the project. On April 16, 2009, an open house meeting was held to discuss the proposed expansion of FM 521 from Beltway 8 to FM 2234 and an additional public meeting was held on June 10, 2014 to discuss the project and the findings of the environmental studies (see Section 1.5). A public hearing was held on May 7, 2015 to present the project to the public and inform the public of impacts proposed to Almeda Road Nature Preserve. Harris County Precinct 1 Parks Department concurred with TxDOT's *De Minimis* determination on March 13, 2015 (See **Appendix G**). With the conclusion of the public hearing and the concurrence letter from Harris County, consultation and public coordination requirements of Section 4(f) of the Department of Transportation Act of 1996 and Chapter 26 of the Texas Parks and Wildlife Code have been satisfied.

CHAPTER 5: INDIRECT AND CUMULATIVE EFFECTS

This section describes the indirect and cumulative effects analyses conducted for this EA. This analysis examines the indirect and cumulative effects the proposed project may have on the surrounding area to the year 2040. In general, indirect and cumulative effects include those consequences of a proposed action that are not direct and may not be readily observable. Indirect effects are those effects that would be expected to be caused by the proposed project but would be later in time or removed in distance. Cumulative effects are those impacts that would result from the incremental consequences of an action when added to other past, present, and reasonably foreseeable future actions. This analysis follows the requirements and processes outlined in the following guidelines:

- Revised Guidance on Preparing Indirect and Cumulative Impact Analyses, TxDOT, 2010
- Position Paper – Secondary and Cumulative Impact Assessment in the Highway Project Development Process, FHWA, 1992
- Report 466 – Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects, NCHRP, 2002
- Report 25-25/Task 22 – Forecasting Indirect Land Use Effects of Transportation Projects, NCHRP, 2007
- Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process (Interim Guidance), FHWA, 2003
- Considering Cumulative Effects Under the National Environmental Policy Act, CEQ, 1997
- Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, CEQ, 2005

- Guidance for Preparers of Cumulative Impact Analysis Approach and Guidance, California Department of Transportation, 2005

5.1 INDIRECT EFFECTS ANALYSIS

Indirect Effects are defined by the CEQ as “...impacts caused by the action and are later in time and farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth-induced effects and other effects related to induced changes in the pattern of land use, population density or growth rate unrelated effects on air and water and other natural systems, including ecosystems” (40 CFR 1508.8).

There are three general categories of indirect effects:

- Encroachment-Alteration Effects – are those effects that alter the behavior and functioning of the physical environment. These effects are related to project design features, but are separated from the project by time and/or distance.
- Access-Alteration Effects (also known as Project-Influenced Effects or the Land Use Effect) – are those effects that change access and mobility which may result in changes in land use and may promote development, or influence an increase in the rate of development (induced growth).
- Effects Related to Project-Influenced Development (Induced Growth-Related Effects) – are effects attributable to the induced growth itself.

TxDOT’s Revised Guidance on Preparing Indirect and Cumulative Impact Analyses (September 2010) describes a seven-step process for conducting an indirect impacts analysis. The steps are listed in **Table 18** and are the steps followed for the analysis of indirect effects for this proposed project.

Table 18: Steps for Conducting an Indirect Effects Analysis

Step 1	Scoping
Step 2	Identify the Study Area’s Goals and Trends
Step 3	Inventory the Study Area’s Notable Features
Step 4	Identify Impact-Causing Activities of Proposed Action and Alternatives
Step 5	Identify Potentially Substantial Indirect Effects for Analysis
Step 6	Analyze Indirect Effects and Evaluate Results
Step 7	Assess Consequences (as Appropriate)

Source: TxDOT, 2010.

Step 1: Scoping

The area of influence (AOI) for this project was defined using the traffic analysis zones (TAZs) adjacent to the proposed project (**Exhibit 7**). The area MPO and TxDOT cooperatively developed the TAZs as a special-purpose geographic entity for tabulating traffic related data from the decennial census, such as journey-to-work and place-of-work statistics. The TAZs

boundaries adjacent to the proposed project were selected for the AOI because most TAZ boundaries are drawn to represent a vehicle flow sheds onto the major arterials of the regional road network and areas outside of the AOI are better served by other roadways. This area is approximately 7,210 acres or 11.3 square miles and extends from approximately Beltway 8 to the north and County Road 59 to the south. Indirect impacts from the proposed project will be analyzed until 2040, which is the horizon year of the current 2040 RTP Update (H-GAC, 2016).

Step 2: Identify the Study Area's Goals and Trends

The AOI is found within Harris, Fort Bend and Brazoria Counties. The AOI includes portions of the city of Houston and its Extra-Territorial Jurisdiction (ETJ) and the city of Pearland and its ETJ. Harris, Fort Bend, and Brazoria Counties are all part of the H-GAC. The H-GAC is a Metropolitan Planning Organization and is responsible for coordinating transportation planning for the eight-county region (Harris and the seven adjacent counties). H-GAC's 2010 Vision for Tomorrow: Regional Comprehensive Plan states that it is expected for this region to grow by 3.5 million people from 2005 to 2035 and 80% of the population growth is expected to occur outside of Beltway 8. This will bring the total regional population to 8.8 million people. More than 121,000 employers currently provide jobs for more than 2.2 million workers and 1.5 million new jobs is projected to be added to the region by 2035. With the increase in population, it is imperative that the region continues to improve mobility and reduce congestion. By maintaining roadways, selectively increasing road system capacity, and focusing on operation management (H-GAC, 2010).

The purpose of the City of Houston's 2006 General Plan was to comprise a series of plans to help resolve specific issues across the city. The highest priority was to develop work plans for mobility and drainage. The Major Thoroughfare and Freeway Plan (MTFP), the City's and its ETJ long range transportation plan, was developed to help guide urban and suburban development and mobility to Houston and its ETJ. Currently, FM 521 is listed as a major thoroughfare for the city. Major thoroughfares are streets designed for fast, heavy traffic. To maximize mobility, streets designated as major thoroughfares generally require a wider right-of-way and designed to accommodate dual 2- or 3-lane roadways (MTFP, 2012).

Development in the AOI is regulated through the subdivision ordinances of Houston and Pearland jurisdictions. Currently within the AOI, development is planned on 430 acres of the 2,147 acres of available vacant developable land, including farmland.

The cities of Houston and Pearland require floor elevations in the 100-year floodplain to be 12 inches above base flood levels. Houston and Pearland enacted a flood control ordinance that requires on- or off-site detention requirements for urban development that will increase stormwater runoff. In order to accommodate the ordinance, construction of detention ponds, or berms and swales to manage stormwater are typically required. The City of Pearland recommends that ditches and future detention reservoirs be promoted as visual recreational amenities. The City of Houston also requires no net loss of floodplain capacity.

National Wetland Inventory (NWI) wetlands within the AOI have decreased since 1992 due to changes in land use. Based on NWI mapping and aerial images, there are approximately 214 acres of wetlands remaining within the AOI, of which 105 acres are classified as freshwater emergent wetland and freshwater forested/shrub wetland and 109 acres are classified as freshwater pond and lake. However, in accordance with flood control ordinances, recent neighborhood developments within the city of Pearland have created detention areas which would contribute to nearly 120 acres of additional open waters within the AOI.

Changes in land use within the AOI have also impacted wildlife and vegetation. Soils, plant communities, and breeding and nesting habitat have been converted to developed land (including land fill/undevelopable areas), which has resulted in diminished wildlife habitat.

The AOI is within the Houston-Galveston-Brazoria area that has been designated by EPA as a moderate nonattainment area for the 2008 ozone NAAQS, therefore the air quality in the AOI is currently considered in poor or declining health. The H-GAC 2040 RTP Update addresses regional growth and its mobility needs by identifying roadway, transit, and other transportation projects that are needed in the region for the next 20+ years. This proposed project is included in the 2040 RTP Update.

Step 3: Inventory the Study Area's Notable Features

The AOI for the proposed project consists mostly of urban areas and other developed land. Notable features within the AOI are relatively scarce. The proposed project would not affect any planned development within the AOI or bisect any established neighborhoods or isolate any neighborhoods or communities. Community facilities within the AOI include a U.S. Post Office and Sovereign Grace Church.

Prime farmland soils occur throughout the AOI – approximately 4,217 acres. Prime Farmland soils are designated by the NRCS and the total acreage does not include soils within the Houston or Pearland city boundary. Vacant developable land (including farmland) consists of 2,147 acres or 30 percent of the total AOI, and currently 430 acres are planned for development.

Wetland (approximately 105 acres) and riparian vegetation exists near some of the aquatic features within the AOI. Aquatic features include roadside ditches, Clear Creek and the American Canal, as well as ponds including those constructed for urban developments. Clear Creek is designated as impaired due to PCBs in edible tissue in the 2014 Clean Water Act Section 303(d) list. There is approximately 1,670 acres of floodplain (23 percent) within the boundaries of the AOI. The amount of parks and open space within the AOI is approximately 178 acres. **Table 19** lists the study area's notable features.

Table 19: Study Area's Notable Features

Resource Category	Resource Evaluated	Amount of Evaluated Resource in Study Area
Soils	Prime Farmland	4,217 ac
Water Resources	Wetlands	105 ac Wetlands

	Surface Water	5.95 mi stream channel and 234 ac ponds
	Water Quality	Clear Creek (impaired)
	Floodplains	1,670 ac
Biological Resources	Vegetation	178 ac of Parks and Open Space
	Aquatic and Wildlife Habitat	See Surface Waters and Vegetation above

Source: Project Team, 2013.

Step 4: Identify Impact-Causing Activities of Proposed Action and Alternatives

The proposed project would include construction of FM 521 to a “typical” four-lane divided curb and gutter section with a 16-foot raised median from Riley Road to FM 2234, improvements to the intersection at FM 521 and FM 2234 to provide for a “jug-handle” option that creates two offset “T” intersections (one along FM 521 and one along FM 2234), and eliminate both at-grade railroad crossings with railroad overpasses on FM 521 and FM 2234. Two drainage ponds would also be constructed to control stormwater runoff. The largest pond would be located within the “jughandle” area and the second pond is located between the proposed FM 521 northbound exist ramp and FM 521 southbound access road (under the FM 521 bridge).

Impact-causing activities are described in more detail below, and include the steps involved in construction, operation, and maintenance of the facility. There are ten general categories of impact-causing activities. **Table 20** lists these activities and the associated project specific activity and relevant details.

Table 20: Impact-Causing Activities

Type of Activity	Project Specific Activity	Relevant Details
Modification of Regime	Removal of vegetation and wildlife	Vegetation within the existing and proposed right-of-way and drainage easements would be removed for construction of the proposed project.
	Alteration of surface drainage	Best management practices would be put in place.
Land Transformation and Construction	Noise	Noise and vibration would result from construction equipment trenching, excavation, backfilling, grading, and pavement laying activities.
Resource Extraction	Excavation	Excavation would be required throughout the project limits for construction of the new lanes, detention ponds, and bridge structures.
Processing	Storage of construction materials including aggregate, concrete pipes, traffic control barricades, steel rebar, road signs, etc., temporary construction office trailers equipped with temporary utility service including some means of sanitary waste disposal.	Material storage areas and construction office trailers are commonly located within the project right-of-way during construction. Appropriate measures would be taken to prevent, minimize, and control the spill of fuels, lubricants, and hazardous materials in the construction staging area. TxDOT would not allow the contractor to store hazardous materials within the right-of-way and will include provisions in the plans to address spills if they were to occur during construction.

Type of Activity	Project Specific Activity	Relevant Details
Land Alteration	Erodible materials exposed to surface runoff	Erosion Control and Sedimentation Control BMP's would be implemented and maintained until construction is complete. Upon completion of the project, Post-Construction Total Suspended Solids Control BMP's would be implemented.
	Landscaping	Landscaping in accordance with EO 13112 on Invasive Species and Executive Memorandum on Beneficial Landscaping.
Resource Renewal	None Anticipated	N/A
Changes in Traffic	Changes in traffic patterns on project and adjoining facilities	Some changes would occur since additional travel lanes, grade separations, bicycle lanes, and sidewalks would be added. There would be some minimal change in travel patterns but the proposed designs would improve mobility and safety.
Waste Emplacement and Treatment	Disposal of vegetation removed for construction	Vegetation removed for construction would likely be mulched.
Chemical Treatment	Fertilization	When used, fertilizers are generally only used during the revegetative phase of the project, and after which the use of fertilizers is discontinued.
	De-icing	TxDOT typically uses inert sand materials for ice control, and these are applied only on bridges and pavement over culverts.
Access Alteration	Mobility improvement but no undeveloped areas would be provided with new access	The proposed project would widen the existing roadway, provide grade separations at existing railroad crossings at FM 521 and FM 2234, and would provide bicycle and pedestrian accommodations.

Step 5: Identify Potentially Substantial Indirect Effects for Analysis

The potential indirect effects of this proposed project were further explored in order to establish which effects are potentially substantial and merit detailed analysis, as well as which effects are not substantial and wouldn't require further assessment. Types of indirect effects include encroachment-alteration effects, induced growth effects, and effects related to induced growth.

Encroachment-Alteration Effects (Ecological)

This project would affect 7.41 acres of vegetation which does not include existing mowed and maintained ROW. Potential wetland (0.08 acres) and other waters of the U.S. impacts would be avoided and minimized to the greatest extent possible. Vegetation and Water of the U.S. impacts would not substantially alter the hydric regime or reduce diversity within the AOI; therefore indirect impacts to vegetation and Waters of the U.S. would be insubstantial.

Surface water runoff from roadways frequently contains automobile pollutants. Installation of BMPs would remove pollutants and suspended solids from soil erosion added by the project. Two proposed detention ponds would alleviate the increase in stormwater runoff, reduce the amount of pollutants reaching the impaired section of Clear Creek, and accommodate the no net loss of floodplain capacity ordinance. The proposed project will not increase the sources of these

pollutants within the study area and will not have a substantial indirect effect on water quality within the AOI.

The total acreage of prime farmland soils within the AOI is 4,217 acres and does not include soils within the Houston or Pearland city boundary. The majority of the vacant undeveloped land (including farmland) is located in the southern portion of the AOI and is currently being developed for primarily residential use. Indirect impacts to prime farmland soils from induced development associated with this project would be insubstantial.

The AOI is within the Houston-Galveston-Brazoria area that has been designated by EPA as a moderate nonattainment area for the 2008 ozone NAAQS. A qualitative MSAT assessment has been completed and it was concluded that this project will not result in increased exposure to MSAT emissions. However, during construction of this project, temporary increases in air pollutant emissions may occur, primarily particulate matter (fugitive dust) from site preparation. These emissions are temporary in nature (only occurring during actual construction) and potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures. The proposed project is not anticipated to result in any substantial indirect air quality impacts.

Most of the proposed project area is developed; therefore wildlife habitat in the project vicinity is limited. Fragmentation of wildlife habitat has already occurred due to the previous construction of roadways and land development and existing roadway and other developments act as barriers to wildlife movement.

No substantial ecological encroachment-alteration effects would be expected to vegetation, Waters of the U.S., water quality, prime farmland, air quality, wildlife, or any other ecological resource; therefore, these resources will not be carried forward for further study.

Encroachment-Alteration Effects (Socioeconomics)

FM 521 is a major thoroughfare for the cities of Houston and Pearland. Planned residential development is already occurring southeast of the project area in Pearland. This project would enhance mobility, improve safety, and improve railroad/local traffic crossings, but would not substantially change travel patterns or access in the project area. The areas that would experience change are:

- FM 521 would be reconstructed and widened to a four-lane divided roadway with a 16-foot raised median from Riley Road to FM 2234.
- Proposed grade separation (bridge) at FM 2234 over the Union Pacific Railroad and FM 521;
- Proposed grade separation (bridge) at FM 521 over the Union Pacific Railroad (approximately South Drive to Bluebonnet Drive); and

- Construction of a “jughandle” that creates two offset “T” intersections (one along FM 521 and one along FM 2234).

Construction would temporarily impact access for side streets and businesses as well as driveways to developed properties that currently use FM 521 and FM 2234. No relocations of residences would occur as a result of this project. One commercial property, Lady J’s Sports Bar, located on the southwest corner of Bluebonnet and FM 521 (15002 Almeda Road) has been displaced and relocated. Commercial property is available for sale or lease in the project vicinity in sufficient quantity and in potentially desirable locations to accommodate the business affected by the project. As discussed in **Section 3.3.2**, this relocation has already occurred.

The proposed project would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. No residences, churches, or other community facilities would be affected by the proposed project.

No substantial encroachment-alteration effects would be expected to travel patterns, aesthetics, neighborhoods, the economy, or any other socioeconomic resource; therefore, these resources in regards to encroachment-alteration effects will not be carried forward for further study.

Induced Growth Effects

The majority of the AOI is already developed, planned to be developed, or is classified as landfill/undevelopable. According to local land use plans, the area classified as landfill/undevelopable land (33 percent) will remain undevelopable for the foreseeable future. The AOI does contain 2,147 acres of developable land (30 percent) and approximately 430 acres are already planned for development. The trend in the AOI, as indicated by local plans, is rural land being converted to urban use. Reduced congestion and improved accessibility along FM 521 would be an incentive to future development or redevelopment along the project corridor.

Effects Related to Induced Growth

Induced development could also have potential indirect effects on air quality, waters of the U.S., including wetlands, water quality, and wildlife habitat. Most of the undeveloped area includes vacant/developable land (including farmland) and areas that are classified as landfill/undevelopable. Wildlife habitat that exists within the AOI is already fragmented and mainly surrounds Clear Creek and other waters of the U.S and human activity is common throughout the area. Additional development within the AOI would serve to further fragment habitat and reduce the amount available, but species within the AOI are consistent with that of an urbanized area. Ecological effects related to induced growth will be carried forward for further study.

Any increase in capacity and accessibility from the proposed project improvements is anticipated to enhance the area’s attractiveness to future business development. Socioeconomic effects related to induced growth will also be evaluated in Step 6.

Step 6: Analyze Indirect Effects and Evaluate Results

A possible indirect effect of the proposed project would be the result of induced development. Most of AOI is currently developed or considered undevelopable. Although there is a relationship between transportation and development, many factors determine when and where development occurs. The proposed project could have an effect on the timing, location, and type of development that occurs in the area, if other factors affecting development do not change. According to the Urban Land Institute (ULI), transportation improvements are not the driving force in developing plans for communities. Factors other than transportation, such as market demand, site suitability, economic feasibility, and regulations play a significant role in determining development. Transportation can have a strong influence, but it does not control the outcome (ULI, 2004).

Access and improved mobility provided by Beltway 8, State Highway (SH) 288, SH 6, and Fort Bend Tollway, which surround the proposed project, have been factors in the development of the area. Approximately 30 percent of the AOI is vacant developable, the terrain in the area is relatively flat and state and local codes provide few restrictions to development. These factors may facilitate development or redevelopment within the AOI possibly sooner than originally planned by improving roadway capacity and mobility; however, the project would not improve access to previously inaccessible property. Development may continue within the AOI, which is consistent with local plans and private developments in the vicinity, but other factors, such as the economy, will have a greater influence on when development occurs.

Construction of the proposed project could have indirect effects on local and regional employment, output, and income. Indirect effects begin with effects on supporting industries that provide goods to the suppliers of the roadway construction sector. Indirect effects distribute throughout the economy at each round of purchases, and are generated by the re-spending of worker income associated with the construction project on consumer goods and services. Induced development could also have indirect economic effects including increased property values, sales taxes from new commercial activity, and increased employment accompanying new businesses. New businesses and residential properties would provide additional tax base and employment opportunities within the AOI.

Induced development could impact timing, location, and type of development within the AOI. Businesses, including area sources of air pollution, such as dry cleaners, gas stations, auto repair facilities, etc., could be included in the induced development. Development projects would likely impact some waters of the U.S., including wetlands, within the AOI.

Increased impervious surfaces and runoff from surrounding areas could impact water quality within the receiving waters and downstream watersheds. Local regulations require installation of BMPs to remove pollutants and suspended solids added by new developments.

Induced development could convert vacant undeveloped land, including farmland, into impervious surface and change vegetation communities to urban vegetation. As a result, wildlife species more adaptive to a more urbanized area may compete with other wildlife species within

the project vicinity. Noise, generated by construction of the new development, may increase temporarily and would be limited to wildlife immediately in the vicinity.

Step 7: Assess Consequences

Development within the AOI would be required to comply with regulations for the city of Houston or Pearland, depending on the jurisdiction. Development would also be required to comply with local floodplain regulations and guidelines to mitigate for potential activities within floodplains. Effects from induced development to waters of the U.S., including wetlands, would be mitigated through the USACE permitting process and any local regulations. The potential of indirect effects to water quality downstream during construction activities will be mitigated by the development and implementation of a Stormwater Pollution Prevention Plan (SW3P) and the use of BMPs such as the use of silt fence, rock berms, and/or detention/retention ponds.

Indirect impacts to vegetation and wildlife would be regulated by Federal and state regulations and guidelines, in particular to protected species. Many of the larger master planned developments incorporate design concepts to maximize detention, open space, and aesthetics. Native plant species can be encouraged to be planted in developed areas instead of invasive non-native species.

Indirect impacts on air quality and MSATs are controlled by Federal and state regulatory programs. Development or redevelopment in the area must meet regulatory emission limits established by TCEQ and EPA.

Because of these mitigation measures, adverse indirect impacts from the proposed improvements are not anticipated.

5.2 CUMULATIVE EFFECTS ANALYSIS

The CEQ regulations define cumulative impact to mean:

“the impact on the environment which 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” (40 CFR 1508.7).”

Cumulative effects include direct and indirect effects that would result from the proposed project, as well as the effects from other past, present, and reasonably foreseeable future projects in the same area. An eight-step process was followed to assess cumulative impacts, based on TxDOT’s Revised Guidance on Preparing Indirect and Cumulative Impact Analyses. The steps are listed in **Table 21**.

Table 21: Steps for Conducting an Indirect Effects Analysis

Step 1	Identify the resources to consider in the analysis
Step 2	Define the study area for each affected resource

Step 3	Describe the current health and historical context for each resource
Step 4	Identify direct and/or the indirect impacts that may contribute to a cumulative impact (Analysis is required if either a direct or impact is identified for a particular resource.)
Step 5	Identify other reasonably foreseeable actions that may affect resources
Step 6	Assess potential cumulative impacts to each resource
Step 7	Report the results
Step 8	Assess and discuss mitigation issues for all adverse impacts

Source: TxDOT, 2010.

Step 1: Identify the Resources to Consider in the Analysis

The first step in performing the cumulative impact analysis was to identify which resources to consider in the analysis. The cumulative impacts analysis focused on: 1) those resources substantially impacted by the project and 2) resources currently in poor or declining health or at risk even if the project impacts (either direct or indirect) are relatively small.

The proposed project is not expected to have substantial direct or indirect impacts to any resource evaluated. **Table 22** summarizes the current health of each resource evaluated, the direct, indirect, and cumulative effects of the proposed project and if the resource was carried forward for detailed cumulative effects analysis.

Table 22: Cumulative Effects Analysis

Current Health of Resource	Direct Effects	Indirect Effects	Cumulative Effects	Carried Forward for Detailed Cumulative Effects Analysis?
Prime Farmland				
<p>Texas lost over 2.1 million acres of farms, ranches and forestlands from 1997 to 2007. Farmlands are being converted to residential and other developed land use as the population grows. Roughly 149 acres of agricultural lands were consumed per 1,000 new residents during that same time period.</p>	<p>Out of 13.16 acres of additional ROW to be acquired for the proposed project, 7.9 acres occur over prime farmland soils and would be converted directly</p>	<p>The minimal induced development within the AOI could convert some existing farm and agriculture land to urban uses and could result in the loss of prime farmland.</p>	<p>This Prime Farmland RSA is likely to develop without the proposed project improvements, such as areas adjacent to other roads that provide access to commercial and major employment centers. Approximately 565 acres of the 2,087 acres of farmland within the Prime Farmland RSA are planned to be converted to residential and other developed land use, including transportation.</p>	<p>Yes</p>
Socioeconomics				
<p>Displacements and Relocations: The existing ROW width along FM 521 is typically 100 to 160 feet wide. Currently, land use in the project study area consists primarily of mixed commercial and industrial uses. Several utilities are present within the existing ROW, including telephone cables, fiber optic cables, electric, water lines, and gas lines. In Harris County, commercial property is available for sale or lease in the project vicinity in sufficient quantity and in potentially desirable locations.</p>	<p>An area of 13.16 acres of ROW would be acquired and one business has been displaced. Relocation of this business occurred under the previously approved State Environmental assessment as discussed in section 3.3.2 of this document.</p>	<p>Induced development would be minimal and most land planned for development is currently vacant land, which includes farmland.</p>	<p>Most of the planned development within the RSA is located on vacant land/farmland. For any planned transportation project, TxDOT's acquisition and relocation assistance program would provide assistance to property owners that may require relocation as a result of ROW acquisition. The relocation assistance program is conducted in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended. Businesses would be provided information on adequate replacement locations for their current property and may be reimbursed for costs based on TxDOT policies and procedures.</p>	<p>No</p>

Current Health of Resource	Direct Effects	Indirect Effects	Cumulative Effects	Carried Forward for Detailed Cumulative Effects Analysis?
<p>Economics: The commercial and industrial buildings located along the existing ROW have a variety of functions and uses.</p>	<p>Direct effects to economic resources would include the displacement of one business along FM 521. Relocation of this business occurred under the previously approved State Environmental assessment as discussed in section 3.3.2 of this document.</p>	<p>Induced development could have indirect economic effects including increased property values, sales taxes from new commercial activity, and increased employment accompanying new businesses.</p>	<p>Development construction activities would create new job opportunities and income potential in the area in the short term. The number of construction-related jobs would vary, depending on the type of the project construction. Long term economic effects could result from new businesses and increased property values.</p>	<p>No</p>
<p>Aesthetic and Visual Quality: The project area is predominantly marked by industrial development, with a limited amount of older, small residential properties and a few commercial types scattered throughout. The project area runs parallel and crosses the Union Pacific Railroad as well as Clear Creek.</p>	<p>Elevated bridges along FM 2234 and FM 521 would cause some direct visual and aesthetic impacts in the area.</p>	<p>Induced development along the project corridor could affect visual quality in the area.</p>	<p>Increased land development within the RSA could affect visual quality. Many of the larger master planned developments incorporate design concepts to maximize detention, open space, and aesthetics.</p>	<p>No</p>

Current Health of Resource	Direct Effects	Indirect Effects	Cumulative Effects	Carried Forward for Detailed Cumulative Effects Analysis?
<p>Community: There were no social or community facilities identified within or immediately adjacent to the proposed project. The area primarily consists of industrial development, with some residential and commercial properties.</p>	<p>The proposed project would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. No relocations of residences would occur as a result of this project. One business, Lady J'z Sports Bar, has been relocated. Relocation of this business occurred under the previously approved State Environmental assessment as discussed in section 3.3.2 of this document.</p> <p>Access would not be restricted to any existing public or community service, commercial area, business, or employment center. Any inconveniences of the roadway being used for access to residences or businesses would be minimized during project construction.</p>	<p>Induced development in the AOI could require additional community services and infrastructure, such as new roadways, drainage, water supply, schools, libraries, and medical services.</p>	<p>Over the long-term, the entire community would benefit from new transportation developments as a result of improved capacity and accessibility and reduced traffic congestion. As a result of expanding development, new community services and infrastructure would benefit the entire community.</p>	<p>No</p>
<p>Environmental Justice and Demographics: According to the 2010 Census summary data, 84.2 percent of the 73 Census Block population is considered to be minority. According to the 2011 American Community Survey, 16.7 percent of the households within the project Census Block Groups are below the 2017 DHHS poverty guideline of \$24,600.</p>	<p>None of the six Census Block Groups are below the federal poverty level. Neighborhoods located within the study area would benefit from improved accessibility and reduced congestion resulting from the proposed project. Overall, the proposed project would not cause disproportionately high and adverse effects on any minority or low-income populations</p>	<p>No indirect impact to environmental justice populations or demographic changes of the study area would be expected as a result of the proposed project.</p> <p>Increased overall mobility may expedite development, bringing expanded public facilities and services.</p>	<p>All new development within the RSA would be subject to Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This rule 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.</p>	<p>No</p>

Current Health of Resource	Direct Effects	Indirect Effects	Cumulative Effects	Carried Forward for Detailed Cumulative Effects Analysis?
Air Quality				
<p>This project is located within Fort Bend and Harris Counties, which are part of the Houston-Galveston-Brazoria area that has been designated by EPA as a marginal nonattainment area for the 2008 ozone NAAQS.</p> <p>According to the H-GAC, air quality has been improving in the Houston-Galveston area over the past 30 years and is expected to continue to improve.</p> <p>According to EPA studies, Mobile Source Air Toxics (MSAT) are expected to be much lower in the future compared to current levels due to improvements in vehicle technology and fuels.</p>	<p>Direct impacts on air quality and MSATs from the project are primarily those associated with the increased capacity and accessibility, as well as the resulting projected increases in VMT. EPA's new fuel and vehicle standards projected to reduce emissions of air pollutants and MSATs are expected to offset these impacts resulting from the increases in VMT. These net emissions reductions are expected to contribute to continued maintenance and improvement of air quality and MSAT levels in the AOI.</p>	<p>The potential indirect impacts on air quality and MSATs are primarily related to any expected development/redevelopment resulting from project's increased accessibility or capacity to the area. However, any increased air pollutant or MSAT emissions resulting from the potential development or redevelopment of the area must meet regulatory emissions limits established by the TCEQ and EPA, as well as obtain appropriate authorization from the TCEQ. Regulatory emission limits set by TCEQ and EPA are established to attain and maintain the NAAQS by assuring any emissions sources resulting from new development or redevelopment will not cause or contribute to a violation of those standards.</p>	<p>All projects in the H-GAC, TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in 23 CFR 450 and Subpart B of 49 CFR 613.200. The RTP and the TIP were found to conform to the TCEQ State Implementation Plan (SIP) by FHWA and FTA.</p> <p>The 2007 EPA MSAT rule requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis, even if vehicle activity (vehicle-miles travelled, VMT) increases by 102 percent as assumed, a combined reduction of 80 percent in the total annual emission rate for the priority MSAT is projected from 2010 to 2050.</p>	No
Noise				
<p>Roadway traffic is the dominant source of noise in the project area.</p>	<p>Construction noise would be temporary and no permanent noise impacts are anticipated.</p>	<p>Induced development could cause changes in noise levels.</p>	<p>Transportation development in the area will be in accordance with TxDOT's (FHWA approved) <i>Guidelines for Analysis and Abatement of Roadway Traffic Noise</i> (2011) and local, state, and federal guidelines will be followed.</p>	No

Current Health of Resource	Direct Effects	Indirect Effects	Cumulative Effects	Carried Forward for Detailed Cumulative Effects Analysis?
Water Quality				
<p>Clear Creek (Segment 1102) is designated as impaired due to PCBs (Polychlorinated biphenyls) in edible tissue in TCEQ's 2014 Clean Water Act Section 303(d) list.</p>	<p>During construction, soil being disturbed can result in temporary water quality effects caused by temporarily increasing the level of suspended particles in storm water runoff. Use of BMPs, including the two drainage ponds, would minimize the impact.</p>	<p>Indirect effects to water quality would be minor because land developers would have to comply with local, state, and federal water quality standards for protection of water quality.</p>	<p>Section 303(d) of the federal CWA requires state agencies to make a list of water bodies with impairments or water quality concerns. Storm water control measures and BMPs would be implemented during and after construction of any new development to prevent and minimize impacts to water quality. Local, state, and federal guidelines will be followed to minimize and mitigate impacts.</p>	<p>Yes</p>
Floodplains				
<p>Flooding continues to be a problem in the Houston area. Land development has caused encroachment in the floodplain, however development in the floodplain is typically offset with BMPs.</p>	<p>The study area does cross into Zone AE and Zone X (shaded). The proposed project would not increase the base flood elevation to a level that would violate the applicable floodplain regulations or ordinances.</p>	<p>Development within floodplains could occur as an indirect impact and would be subject to federal and local regulations. Storm water detention and hydraulic features would offset any fill in the floodplain or increase in impermeable cover.</p>	<p>Development projects in the RSA would be required to comply with federal, state, and local floodplain regulations and guidelines to mitigate for potential fill activities within floodplain areas. Harris, Fort Bend, Galveston, and Brazoria Counties, as well as the cities within the RSA are participants in the National Flood Insurance Program.</p>	<p>No</p>
Wetlands/Waters of the U.S.				
<p>Changes in land use due primarily to development have impacted wetlands.</p>	<p>It is likely that the proposed project would involve the discharge of dredged or fill materials into 0.08 acres of wetlands and 184 linear feet of waters of the U.S.</p>	<p>Induced development could affect waters of the U.S. and wetlands.</p>	<p>Future development would need to comply with Section 404 of the CWA for any impacts to jurisdictional waters of the U.S., including wetlands.</p>	<p>Yes</p>

Current Health of Resource	Direct Effects	Indirect Effects	Cumulative Effects	Carried Forward for Detailed Cumulative Effects Analysis?
Vegetation				
Development has caused a loss and fragmentation of natural vegetation communities.	Clearing, grading, and other roadbed preparation activities associated with the construction of the Build Alternative would permanently or temporarily affect less than 16.96 acres of vegetation within the existing and proposed ROW. The vegetated portions of the proposed ROW (12.18 acres) would be converted to maintained ROW.	Induced development could convert vacant undeveloped land, including farmland, into impervious surface and change vegetation communities to urban vegetation.	Most of the native vegetation within the RSA was previously altered by urbanization or farming practices. Vegetation species occurring throughout the RSA are not anticipated to be diminished to a point where it may become threatened or endangered.	No
Wildlife				
Wildlife in the area has been affected by habitat fragmentation and loss due to continued development.	The proposed project would result in permanent effects on wildlife habitat through its conversion into transportation infrastructure and maintained ROW. Temporary effects include the decreased attractiveness of habitat adjacent to the project corridor as well as possible disturbances from noise due to construction activities.	The proposed roadway improvements could have an indirect effect on wildlife through development that would disrupt or remove wildlife habitats.	Most of the 32,422 acres of undeveloped area within the RSA has been previously disturbed. Only limited areas are suitable as wildlife habitat.	No
Threatened and Endangered Species				
The project would not be within range of or in the suitable habitat of any state or federally listed threatened or endangered species.	The proposed project would have no effect on any federally-listed threatened or endangered species, its habitat or designated critical habitat and would not impact any state-listed species.	No federally-listed threatened or endangered species, its habitat or designated critical habitat is found within the AOI. No indirect effects are anticipated to federally-listed or state-listed species.	The Endangered Species Act requires federal agencies, in consultation with the USFWS and/or the NOAA Fisheries Service, to ensure that their actions are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical	No

Current Health of Resource	Direct Effects	Indirect Effects	Cumulative Effects	Carried Forward for Detailed Cumulative Effects Analysis?
			habitat. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife.	
Non-Archeological and Archeological Resources				
No historic properties, archeological historic properties, or State Archeological Landmarks were identified within the APE of the proposed project.	The project has no potential to affect historic or archeological historic properties, or State Archeological Landmarks. In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archeological staff will be contacted.	No known indirect impacts.	Most of the 32,422 acres of undeveloped area within the RSA has been previously disturbed.	No

Source: Project Team, 2013.

Step 2: Define the Study Area for Each Resource

A Resource Study Area (RSA) was defined for each resource. The cumulative effects analysis considered both geographic and temporal study limits, where applicable. Cumulative effects were determined considering the potential cumulative effect on the health and trend of the resource within the RSA.

Prime Farmland

Prime farmland soils surrounding the project area were used as the RSA for prime farmlands. The area covers approximately 12,732 acres (20 square miles) of Harris, Fort Bend, and Brazoria Counties (see **Exhibit 8**). The time period for cumulative impacts spans from 1945, the year FM 521 (Almeda Road) was designated as FM 521 and continues through 2040, the horizon of the current 2040 RTP Update. **Table 23** lists the type of soil and the amount of each soil type found with the RSA.

Table 23: Prime Farmland Soils within the RSA

Soil Type	Prime Farmland	Acreage within RSA
Aris fine sandy loam	Prime farmland if drained	316
Bacliff clay, 0 to 1 percent slopes	Prime farmland if drained	12
Bernard-Edna complex	All areas are prime farmland	1,738
Bernard clay loam	All areas are prime farmland	987
Gessner loam	Prime farmland if drained	362
Lake Charles clay, 0 to 1 percent slopes	All areas are prime farmland	9,317

Source: NRCS, 2013.

Water Quality and Waters of the U.S., including Wetlands

The Clear Creek watershed was used as the RSA for water quality and waters of the U.S., including wetlands. The project area is located entirely in the Clear Creek watershed and it encompasses 197 square miles of Harris, Fort Bend, Brazoria, and Galveston Counties (see **Exhibit 9**).

The time period for cumulative impacts spans from 1992 and continues through 2040, the horizon of the current 2040 RTP Update. Clear Creek above Tidal (Segment 1102) was listed in the earliest available 1992 Section 303(d) list for Texas and the National Wetlands Inventory (NWI) of 1992 was used to estimate the area of open water and associated wetlands within the RSA for waters of the U.S., including wetlands.

Step 3: Describe the Current Status/Viability and Historical Context for Each Resource

Prime Farmland

Prime farmland soils are subject to protection under the Farmland Protection Policy Act (FPPA). The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of prime farmland (7 United States Code [USC] §

4201). Within the RSA there is approximately 12,732 acres of prime farmland soils. According to the NRCS, “lands that are already in or committed to urban development or water storage, including those with a density of 30 structures per 40 acres” are not subject to the FPPA. Within the Cities of Houston and Pearland, there are 7,407 acres of prime farmland soils that are committed to urban development. Of the remaining 5,325 prime farmland soils within the RSA, approximately 67 percent (3,542 ac) are Lake Charles clay, 0 to 1 percent slopes (all areas are prime farmland). **Table 24** lists the soil types and amounts that remain within the RSA outside of the city boundaries.

Table 24: Prime Farmland Soils Outside Existing City Boundaries

Soil Type	Prime Farmland	Acreage (Percent)
Aris fine sandy loam	Prime farmland if drained	55 (1%)
Bacliff clay, 0 to 1 percent slopes	Prime farmland if drained	0 (0%)
Bernard-Edna complex	All areas are prime farmland	827 (16%)
Bernard clay loam	All areas are prime farmland	668 (12%)
Gessner loam	Prime farmland if drained	233 (4%)
Lake Charles clay, 0 to 1 percent slopes	All areas are prime farmland	3,542 (67%)
Total		5,325 (100%)

Source: NRCS, 2013.

FM 521 (Almeda Road) was designated as FM 521 on July 9, 1945. Over the years, existing roads and extensions have lengthened the road considerably. At nearly 95 miles long, FM 521 is one of the longest farm-to-market roads in Texas. It starts at US 90A near downtown Houston and runs south and southwest through Harris, Brazoria, and Matagorda counties.

In Texas there over 142 million acres of private farms, ranches and forestlands, which accounts for approximately 84 percent of the state. However, in 2009 the Institute for Renewable Natural Resources at Texas A&M University for American Farmland Trust found that Texas lost 2.1 million acres of farms, ranches and forest land between 1997 and 2007. Farmlands are being converted to residential and other developed land use as the population grows. Roughly 149 acres of agricultural lands were consumed per 1,000 new residents during that same time period.

Land use adjacent to FM 521 within the RSA consists of a mixture of industrial/commercial areas (including landfill) with some residential areas. According to aerial photos from 1944 – 1965, land use within the RSA consisted mostly of farmland or agricultural land. By 1978 SH 288 had been built and urban development had increased in the northern portion of the RSA (Houston). At this time industrial and residential areas replaced rural areas adjacent to the proposed project. The southern portion of the RSA remained mostly rural. By 1995, Beltway 8 had been constructed and residential areas were expanding in Houston and Pearland within the RSA. By 2012, the RSA had been converted from continuous rural areas to mostly urban areas with fragmented farmland.

Currently, within the Prime Farmland RSA, there are approximately 2,087 acres of fragmented farmland; however excluding the farmland within the city boundaries, there are approximately 652 acres of farmland over prime farmland soils within the RSA. Farmland adjacent to FM 521 within the RSA consists of approximately 82 acres.

Water Quality and Waters of the U.S., including Wetlands

The USACE has regulatory jurisdiction over waters of the United States, including wetlands. The NWI of 1992 was used to estimate the area of open water and associated wetlands within the RSA for waters of the U.S., including wetlands. Water quality is generally regulated through Sections 401 and 402 of the CWA. These regulations provide guidelines and permitting requirements for runoff into waters of the U.S. The TCEQ is responsible for monitoring water quality within the watersheds to determine if specific streams and stream segments are not meeting specific state water quality standards. If specified water quality standards are not met over a given period of time, the TCEQ may determine these water bodies, within a certain designated area (segment), are threatened and/or impaired.

Since the 1950's, the Greater Houston Area has had substantial losses to wetlands and other habitats. The loss of wetland areas is due to urban development, agriculture use, channelization and stream modifications, and flood protection. Since the early to mid-1990s, the area south of Houston has also experienced increased land development with the construction of residential and commercial areas. Land development activities have led to the loss of open, undeveloped land in the RSA. According to the NWI of 1992, there were approximately 5,957 acres of wetlands and 6,084 acres of open water within the RSA. Of the 6,084 acres approximately 68 percent (4,123 acres) consisted of Clear Lake and Taylor Lake. Using Geographic Information System (GIS), aerial photography, and NWI mapped wetlands there are approximately 4,628 acres of wetlands within the RSA. In accordance with flood control ordinances, neighborhood developments have created detention/retention areas which would contribute to additional open waters within the RSA. The proposed project would construct two drainage ponds, consisting of 6.1 acres, within the project area.

Many of the watercourses within the RSA have been altered due to stream modifications, including Clear Creek. Urbanization of the Clear Creek watershed will continue to result in reducing pervious surfaces and replacing them with impervious surfaces, which could potentially create point-source discharges that may affect water quality. As pervious surfaces decrease and impervious surfaces increase, there could be a need for additional modification of streams and development of retention/detention areas within the RSA to manage flood risk. Modifications to streams include vegetation clearing and channel rectification. Rectifying stream channels usually requires the removal of streamside vegetation and straightening meanders in the streams. This improves flow, but reduces the natural diversity of the stream channels and potentially removes riparian habitat, including wetlands.

Step 4: Identify Direct and Indirect Impacts of the Project that Might Contribute to a Cumulative Impact

Prime Farmland

The trend in the area, as indicated by local plans, is rural land being converted to urban use. Out of the approximate 13.16 acres of additional ROW to be acquired for the proposed project, 7.9 acres occur over prime farmland soils (See Table 5) and would be converted directly. This area is primarily needed for the drainage pond (4.6 acres) located in the “jughandle” area.

The total acreage of prime farmland soils within the AOI is 4,217 acres and does not include soils within the Houston or Pearland city boundary. Undeveloped land comprises nearly 33 percent of the land use within the proposed ROW. The majority of the vacant undeveloped land (including farmland) is fragmented, being developed or planned to be developed. Indirect impacts to prime farmland soils from induced development associated with this project would be insubstantial.

Water Quality and Waters of the U.S., including Wetlands

The Build Alternative would require USACE authorization under Section 404 of the CWA prior to the discharge of fill materials into waters of the U.S., including wetlands. An area of 0.92 acres of waters of the U.S., including 0.23 acres of wetlands and 1,067 linear feet of waters of the U.S. were identified within the project area. It is likely that the proposed project would affect 0.08 acres of wetlands and 184 linear feet of waters of the U.S.

Clear Creek (Segment 1102) is designated as impaired due to PCBs in edible tissue in the 2014 Clean Water Act Section 303(d) list. Stormwater control measures and BMPs would be utilized to protect the water quality within the project study area during and after construction. Induced development as a result of this project would be minimal and indirect effects to water quality would be minor. Any effects from future development projects to waters of the U.S., including wetlands, would be mitigated through the USACE permitting process.

Step 5: Identify Other Reasonably Foreseeable Future Effects

Reasonable foreseeable actions are those that are likely to occur, or are probably, rather than those that are possible. Reasonably foreseeable projects in the RSA include roadway projects listed in the 2040 RTP Update and large master planned community developments. These reasonably foreseeable projects could contribute to effects in the RSAs. **Table 25** lists the reasonably foreseeable land development projects within the RSAs.

The area within the RSAs is expected to continue to have steady growth and development. Approximately 4,468 acres of land development is in progress or is currently planned within the RSAs. Overall, the land use patterns in the area would not change as a result of this project. The project is consistent with local plans and policies.

Table 25: Land Development Projects in the RSAs

Name	Location	Type	Acres	Status
Brunswick Meadows*	BW 8 and SH 288, Harris County	Residential development	317	Planned/ In Progress
HCA Hospital*	East of FM 521, south of McHard Rd, Brazoria County	Future Hospital	6	Planned
Shadow Creek Ranch*	East of FM 521, south of McHard Rd, Fort Bend and Brazoria Counties	Residential development with some commercial and public	3,500	Planned/ In Progress
Southern Trails	East of FM 521, south of CR 8596, City of Pearland	Residential development	379	Planned/ In Progress
Southfork	East of FM 521, south of CR 59, City of Pearland	Residential development	266	Planned/ In Progress
Total Land Development Acres			4,468	-

* At least a portion of this project lies within the Prime Farmland RSA.

The proposed project would not create a new road, however it would provide additional capacity and above grade crossings at the railroad. There are several other north/south major thoroughfares within the RSAs including Interstate Highway (IH) 45, SH 288, SH 35, SH 146, SH 3, and FM 865. Major east-west thoroughfares in the RSAs include Beltway 8, FM 518, FM 528, FM 2351, and NASA 1. It is expected for the H-GAC region to grow by 3.5 million people from 2005 to 2035, which will bring the total regional population to 8.8 million people. Approximately 80% of the population growth is expected to occur outside of Beltway 8. With this increase in population, the region needs to continue to improve mobility and reduce congestion. Numerous roadway projects are planned within the RSAs in order to help serve this projected growth. **Table 26** lists the reasonably foreseeable transportation development projects in the RSAs that are included in the 2040 RTP Update, not including the proposed FM 521 project, bridge replacements or projects under construction.

Table 26: Transportation Development Projects in the RSAs

Project	Limits/Location	Description ¹	Length (miles)	Acres ²	Letting Date ³
Brazoria County					
Bailey Rd	FM 1128 to Veterans Dr / City of Pearland	Widen from 2 to 4-lanes divided with raised median	2.5	6.06	2014
Business Center Dr	Broadway St to Southfork Dr / City of Pearland	Construct 4-lane divided curb and gutter	1	9.70	2014
CR 403*	CR 94 to FM 865 / Brazoria County	Widen 2-lanes to 4-lanes, add median , shoulders, and sidewalks	2.13	5.16	2020
CR 59*	Fort Bend C/L to CR 48 / City of Pearland	Widen from 2 to 4-lanes with bridge	1.01	2.45	2023
CR 59*	CR 48 to SH 288 / Brazoria County	Widen from 2 to 4-lanes with bridge	1.79	4.13	2018
CR 894*	Fort Bend C/L to CR 48 / City of Pearland	Construct 4-lane divided curb and gutter on new alignment	2.26	21.92	2031
Cullen Blvd	Southfork Dr to Bailey Rd / City of Pearland	Widen from 2 to 4-lanes divided curb and gutter	0.83	2.01	2017
Fite Rd	McLean Rd to Veterans Dr / City of Pearland	Construct 4-lane undivided	0.473	4.59	2014

Project	Limits/Location	Description ¹	Length (miles)	Acres ²	Letting Date ³
FM 2351	SH 35 to Galveston C/L / Brazoria County	Reconstruct and widen to a 4-lane divided rural section	2.3	5.58	2020
Harkey Rd	Broadway to Bailey / City of Pearland	Widen from 2 to 4-lanes divided curb and gutter	2.0	4.85	2021
Hastings Cannon Rd	Harkey Blvd to Veterans Rd / City of Pearland	Widen from 2 to 4-lanes divided curb and gutter	2.02	4.90	2032
Hastings Cannon Rd	Veterans Rd to SH 35 / City of Pearland	Widen from 2 to 4-lanes divide curb and gutter	2.49	6.04	2033
Hughes Ranch Rd	Stone Rd W to Garden Rd / City of Pearland	Construct 4-lane roadway	1.231	11.94	2017
Max Rd	McHard Rd to Hughes Ranch Rd / City of Pearland	Widen from 2 to 4-lanes divided curb and gutter	0.7	1.70	2018
Max Rd	Brookside Rd to McHard Rd / City of Pearland	Widen from 2 to 4-lanes undivided curb and gutter	0.5	1.21	2018
Max Rd	Hughes Ranch Rd to 2700' S of Hughes Ranch Rd / City of Pearland	Widen from 2 to 4-lanes divided curb and gutter	0.492	1.19	2014
McHard Rd*	Cullen Blvd to Mykawa Rd / City of Pearland	Construct 4-lane divided on new location	3	29.09	2015
Mykawa Rd	BW 8 to FM 518 / City of Pearland	Widen 2-lane to 4-lane with raised median (S of McHard) and flush median (N of McHard)	2.7	6.55	2016
Mykawa Rd	FM 518 to Walnut St W / City of Pearland	Construct new 4-lane divided to connect Mykawa to Veterans	0.25	2.42	2021
Oday Rd	McHard Rd to Broadway / City of Pearland	Widen from 2 to 4-lane divided curb and gutter	1.93	4.68	2018
Oday Rd	Brookside Rd to McHard Rd (Future Alignment) / City of Pearland	Widen from 2 to 4-lanes undivided curb and gutter	0.4	0.97	2018
Orange W St	Oday Rd to Hatfield St / City of Pearland	Construct 4-lane undivided	0.473	4.59	2018
Pearland Pkwy	Dixie Farm Rd to FM 2351 / City of Pearland	Construct 4-lane divided on new location	1.75	16.97	2018
SH 288*	Brazoria C/L to SH 6 / Brazoria County	Construct 2 toll lanes (reversible)	3	29.09	2014
SH 288*	Harris C/L to SH 6 / Brazoria County	Widen to 4 toll lanes	3	7.27	2032
Smith Ranch Rd*	Hughes Ranch Rd to Broadway / City of Pearland	Widen from 2 to 4-lane divided curb and gutter	1	2.42	2015
Veterans Rd	Walnut W to Bailey Rd / City of Pearland	Widen from 2 to 4-lanes divided curb and gutter	2.02	4.90	2017
Veterans Rd	Bailey Rd to Hastings Cannon Rd / City of Pearland	Widen from 2 to 4-lanes divided curb and gutter	4	9.70	2020
Total for Brazoria County Projects			47.249	212.08	-
Galveston County					
Bay Area Blvd	Brittany Bay Blvd to Clear Creek / City of League City	Construct Hike and Bike	1.683	2.04	2020
Brittany Bay Blvd	FM 2351 to FM 528 / City of Friendswood	Construct 4-lane Blvd with curb and gutter	1.81	17.55	2014
FM 270	FM 518 to FM 646 / City of League City	Widen to 4-lane divided	2.29	5.55	2020

Project	Limits/Location	Description ¹	Length (miles)	Acres ²	Letting Date ³
IH 45 S	0.452 Mi S of FM 518 to N of FM 517 / Galveston County	Widen to 8 main lanes and two 2-lane frontage roads	1.11	2.69	2032
IH 45 S	Harris C/L to 0.452 Mi S of FM 518 / Galveston County	Widen to 10 main lanes, two 3-lane frontage roads and 2 HOV lanes	0.842	2.04	2031
SH 146	Harris/Galveston C/L to FM 518 / Galveston County	Widen to 6-lanes arterial with 4-lane express lanes	1.69	4.10	2034
SH 96	0.26 Mi E of IH 45 to FM 1266 / City of League City	Construct Hike/Bike trail along SH 96	1.75	2.12	2021
Total for Galveston County Projects			11.175	36.09	-
Harris County					
Beamer Rd	Dixie Farm Rd to W Bay Area Blvd / Harris County	Widen to 4-lane concrete Blvd with bridges and drainage	3.701	8.97	2014
BW 8	SH 288 to IH 45 S / Harris County	Widen from 4 to 8 main lanes in sections	3.001	7.28	2016
Clear Creek Bicycle Trail*	Tom Bass Regional Park to El Franco Lee Park / Harris County	Construct Clear Creek Bicycle Trail	6	7.27	2015
Hiram Clarke Rd	BW 8 to Hiram Clarke Rd Terminus / City of Houston	Construct 4-lane curb and gutter with storm sewer	0.5	4.85	2017
IH 45 S	0.210 Mi S of NASA 1 to Galveston C/L / Harris County	Widen to 10 main lanes, two 2-lane frontage roads and one HOV lane	0.606	1.47	2031
Port Rd	Bay Area Blvd to SH 146 / Harris County	Construct 4-lane concrete section with curb and gutter, storm sewer, bridges and related work	1	2.42	2019
SH 146	Fairmont Parkway to Red Bluff Rd / Harris County	Widen to 6-lanes with two 2-lane frontage roads	2.01	4.87	2025
SH 146	Red Bluff to NASA 1 / Harris County	Widen to 8-lanes, GS at major intersections and two 2-lane frontage roads	1.53	3.71	2034
SH 146	NASA 1 to Galveston/Harris C/L / Harris County	Widen to 6-lane arterial with 4-lane express lanes	1.02	2.47	2031
SH 288*	IH 610 to Brazoria C/L / Harris County	Construct 2 toll lanes (reversible)	1.4-0.77	13.58	2014
SH 288*	IH 610 to Brazoria C/L / Harris County	Widen to 4 toll lanes	1.4-0.77	3.39	2032
Total for Harris County Projects			22.168	60.28	-
			Total Acres of Additional ROW within RSA	308.45	-

Source: 2040 RTP Update, as amended, Appendix E – Project Listing; H-GAC RTP project viewer (at <http://rtp.h-gac.com/>, accessed August 23, 2013)

* At least a portion of this project lies within the Prime Farmland RSA.

¹ Descriptions are summarized from project listing in source referenced.

² Roadway widening based on 20 feet of additional ROW; new roadway construction based on 80 feet of ROW; new trail construction based on 10 feet of ROW.

³ Letting dates are from the H-GAC RTP Update.

Step 6: Identify and Assess Cumulative Impacts

Prime Farmland

Farmlands are being converted to residential and other developed land use as the population grows. Farmlands were analyzed using GIS, aerial photography, H-GAC land use data and NRCS soils data. Within the Prime Farmland RSA, there are approximately 2,087 acres of

fragmented farmland. There are approximately 3,823 acres of land development projects planned or in progress within the RSA. Those projects include Brunswick Meadows, HCA Hospital, and Shadow Creek Ranch (see **Table 25**). Of the 2,087 acres of farmland in the RSA, approximately 509 acres lie within the land development areas.

The listed projects from the 2040 RTP Update could require approximately 55.53 acres of ROW in the Prime Farmland RSA, which could affect properties where land would be acquired. With the completion of the planned roadway projects within the RSA, overall mobility and access in the area would be improved and this could facilitate development.

Water Quality and Waters of the U.S., including Wetlands

Water quality and waters of the U.S., including wetlands were analyzed using GIS, aerial photography, NWI wetland data, and the 2014 Section 303(d) report. Development in the area would increase impervious surfaces and potential point-source pollution sources could also increase within the Clear Creek Watershed RSA. As a result, additional pollutants may enter the watershed and potentially adversely affect water quality.

There are approximately 4,628 acres of wetlands within the Clear Creek Watershed RSA and 6,051 acres of open water. Future residential, commercial, industrial, and transportation development could impact approximately 67 acres, or approximately 0.01 percent, of the wetlands mapped within the RSA.

Step 7: Report the Results

Prime Farmland

No substantial cumulative effect to prime farmlands is expected. The RSA would likely develop without the proposed project improvements, such as areas adjacent to SH 288, FM 2234, FM 865 and Beltway 8 because these roads provide access to commercial and major employment centers. Induced development associated with this project would be insubstantial; however with the completion of transportation projects throughout the Prime Farmland RSA and improved mobility, adjacent land is more attractive to developers and home buyers. Approximately 565 acres of the 2,087 acres of farmland within the Prime Farmland RSA are planned to be converted to residential and other developed land use, including transportation.

Water Quality and Waters of the U.S., including Wetlands

No substantial cumulative effect to water quality or waters of the U.S., including wetlands is expected. Stormwater control measures and BMPs are required to be utilized to protect water quality during and after construction of any development. The master planned communities currently under construction or planned within the Clear Creek Watershed RSA would include some green space and in accordance with flood control and drainage ordinances, detention/retention areas. The proposed project would construct two drainage ponds, consisting of 6.1 acres, within the project area.

It is anticipated that the proposed project would affect approximately 0.08 acres of wetlands, or 0.002 percent of the NWI mapped wetlands, which is a minimal area when compared to the estimated wetlands within the RSA. Other reasonably foreseeable projects could impact approximately 67 acres, or approximately 0.01 percent of the NWI mapped wetlands within the Clear Creek Watershed RSA. Jurisdictional wetlands lost as a direct effect from this project and other reasonably foreseeable projects would be mitigated in compliance with applicable regulations.

Step 8: Assess the Need for Mitigation

Prime Farmland

The Texas Farm and Ranch Lands Conservation Program (TFRLCP), a statewide Purchase of Development Rights program was created in 2005. The TFRLCP is a grant-making program that provides landowners with financial incentives to conserve their land through the voluntary sale of either perpetual or term agricultural conservation easements. These easements restrict all future development while allowing the landowner to continue farming or ranching (American Farmland Trust, 2009). The TFRLCP is most beneficial in areas where relatively large ownerships (greater than 2,000 acres) are present. This type of program would not be effective mitigation within the Prime Farmland RSA because the average farm size in Brazoria County is 205 acres; Fort Bend County is 273 acres; and Harris is 117 acres (USDA, 2007).

Incorporated areas can manage growth issues through local ordinances, such as zoning and subdivision ordinances, and traffic, drainage and utility requirements. Development activities outside the incorporated areas are under the jurisdiction of Harris, Fort Bend, and Brazoria Counties, which use subdivision ordinances primarily to regulate lot sizes and density.

Water Quality and Waters of the U.S., including Wetlands

Developers and/or local jurisdictions could implement mitigation strategies to offset potential adverse effects to water quality, including development of storm water detention basins that treat water quality through biological and/or engineering controls; implementation and enforcement of BMPs prior to, during, and post construction; and minimize and avoid impacts to riparian areas and waters of the U.S., including wetlands.

Mitigation strategies for developers and/or local jurisdictions for impacts to waters of the U.S. could include planting vegetation along disturbed stream banks; on-site mitigation wetland mitigation; and off-site wetland mitigation, such as purchasing credits within a wetlands mitigation bank or an in-lieu fee as compensation for impacts. Compensatory mitigation was not required under the terms of the permit issued by the USACE on November 4, 2014.

CHAPTER 6: RECOMMENDATION OF THE BUILD ALTERNATIVE

6.1 BUILD ALTERNATIVE

Section V of this EA describes the Build Alternative, which includes widening FM 521 to a “typical” four-lane divided curb and gutter section with a 16-foot raised median from Riley Road to FM 2234 and ties to the existing seven-lane section north of Riley Road. The build alternative also includes grade separations over the Union Pacific Railroad on FM 521 and on FM 2234. This alternative achieves the project goals and minimizes environmental impacts of the proposed project.

6.2 SUPPORT RATIONALE

The Build Alternative would meet the purpose of the project by expanding capacity to enhance mobility, improving safety, and improving railroad/local traffic crossings. Proposed improvements have been designed to minimize ROW acquisition and potential adverse impacts to the natural and social environment.

6.3 MITIGATION AND MONITORING COMMITMENTS

The contractor would be notified about and be responsible for complying with the MBTA for migratory birds that may inhabit the study area throughout the duration of the construction project. In the event that migratory birds or their nests are observed prior to construction activities, measures would be taken to avoid harm to migratory birds, their nests, eggs, or young. To ensure compliance with the MBTA, clearing and grubbing vegetation within the study area would not take place during the migratory bird nesting season or measures would be taken to discourage birds from nesting in existing structures.

The contractor will be advised of the potential occurrence of the Plains Spotted Skunk in the project area, and to avoid harming the species if encountered, and to avoid unnecessary impacts to dens.

The Build Alternative would disturb more than one acre; therefore, TxDOT would be required to comply with the TCEQ - TPDES General Permit for Construction Activity. The project would disturb more than five acres; therefore, a NOI would be filed to comply with TCEQ stating that TxDOT would have a SW3P in place during construction of proposed project. This SW3P utilizes the temporary control measures as outlined in the Department's manual "Standard Specifications for the Construction of Highways, Streets, and Bridges". Effects would be minimized by avoiding work by construction equipment directly in the stream channels and/or adjacent areas. No long-term water quality impacts are expected.

A portion of the Build Alternative lies within the limits of the 100-year flood plain. The hydraulic design for this project would be in accordance with current FHWA and TxDOT design policies. The facility would permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing significant damage to the facility, stream, or other property. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Coordination with the local Floodplain Administrator will be required.

Adjacent wildlife habitats would be protected from stormwater runoff by implementing BMPs under the SW3P, which would provide erosion and sedimentation control. The Executive Memorandum on Beneficial Landscaping directs that native species of plants will be used in the seeding and replanting of roadway ROWs, where possible. A mix of native grasses and native forbs would be used to revegetate the ROW of the proposed project, where practicable. The Executive Memorandum of August 10, 1995 directs that, where cost-effective and to the extent practicable, agencies will (1) use regionally native plants for landscaping; (2) design, use, or promote construction practices that minimize adverse effects on the natural habitat; (3) seed to prevent pollution by, among other things, reducing fertilizer and pesticide use; (4) implement water-efficient and runoff reduction practices; and (5) create outdoor demonstration projects employing the above measures and practices.

Compensatory mitigation for section 404 impacts was not required under the terms of the permit issued by the USACE on November 4, 2014.

Measures would be taken to minimize traffic disruptions during the construction phase with detours, alternating closures, and temporary reductions in lane widths. Construction at road crossings would be scheduled during off-peak hours whenever possible. Construction signs would be posted well in advance to minimize travel delays and provide alternative access to affected residences and businesses in the area.

The contractor would take appropriate measures to prevent, minimize, and control the spill of fuels, lubricants, and hazardous materials in the construction staging area. All materials being removed and/or disposed of by the contractor would be done in accordance to state and federal laws and by the approval of the Project Engineer. The use of construction equipment within sensitive areas should be minimized or eliminated. All construction materials used for this project should be removed as soon as the work schedule permits. Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal and state regulations and TxDOT Standard Specifications and Guidelines for handling emergency discovery of hazardous materials.

The proposed project includes the demolition and/or relocation of one building structure. No asbestos issues are anticipated; however, asbestos inspections, specifications, notification, license, accreditation, abatement, and disposal, as applicable, would be in compliance with federal and state regulations. Asbestos issues would be addressed during the ROW process prior to construction.

If active wells are later located within the ROW the wells will be required to be relocated or avoided by construction activities. If oil and gas wells are affected within the existing ROW, applicable plugging and supervision requirements are provided in the Texas Administrative Code, Title 16, Part I, Chapter 3, Section 3.14 under the jurisdiction of the Railroad Commission of Texas (RRC). Well plugging would need to be performed by cementing companies, service companies, or operators approved by the RRC. Arrangements with the responsible well operator

for proper plugging according to applicable regulations would be addressed prior to construction. If not plugged prior to construction, the wells would be addressed per TxDOT standard specification Item 103 Disposal of Wells. The locations of the abandoned dry holes within the study area will be flagged to avoid accidental disturbance.

Section 6.10 of TxDOT's "*General Provisions of the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*" (TxDOT, 2004), which applies to all highway projects, includes guidelines for addressing the contractor's responsibilities regarding the discovery of hazardous materials. The contractor will be required to follow these guidelines.

Measures would be implemented to minimize noise levels anticipated in areas within and adjacent to the project construction site. Impacts to any given receptor would be relatively short-term in nature and extended disruption of normal activity is not likely. Unnecessary idling of construction vehicles would be limited and construction vehicles that are not in use would be shut down to reduce both noise and air pollution.

6.4 RECOMMENDATION FOR THE BUILD ALTERNATIVE AND FOR A FONSI

This EA concludes that the proposed project is necessary in order to enhance mobility, improve safety, and improve railroad/local traffic crossings within the project corridor. This EA analyzed and evaluated the proposed project's social, economic, and environmental direct, indirect, and cumulative impacts and determined that the project would have no significant impacts and would not warrant an environmental impact statement. Therefore, a Finding of No Significant Impact (FONSI) is anticipated.

CHAPTER 7: REFERENCES

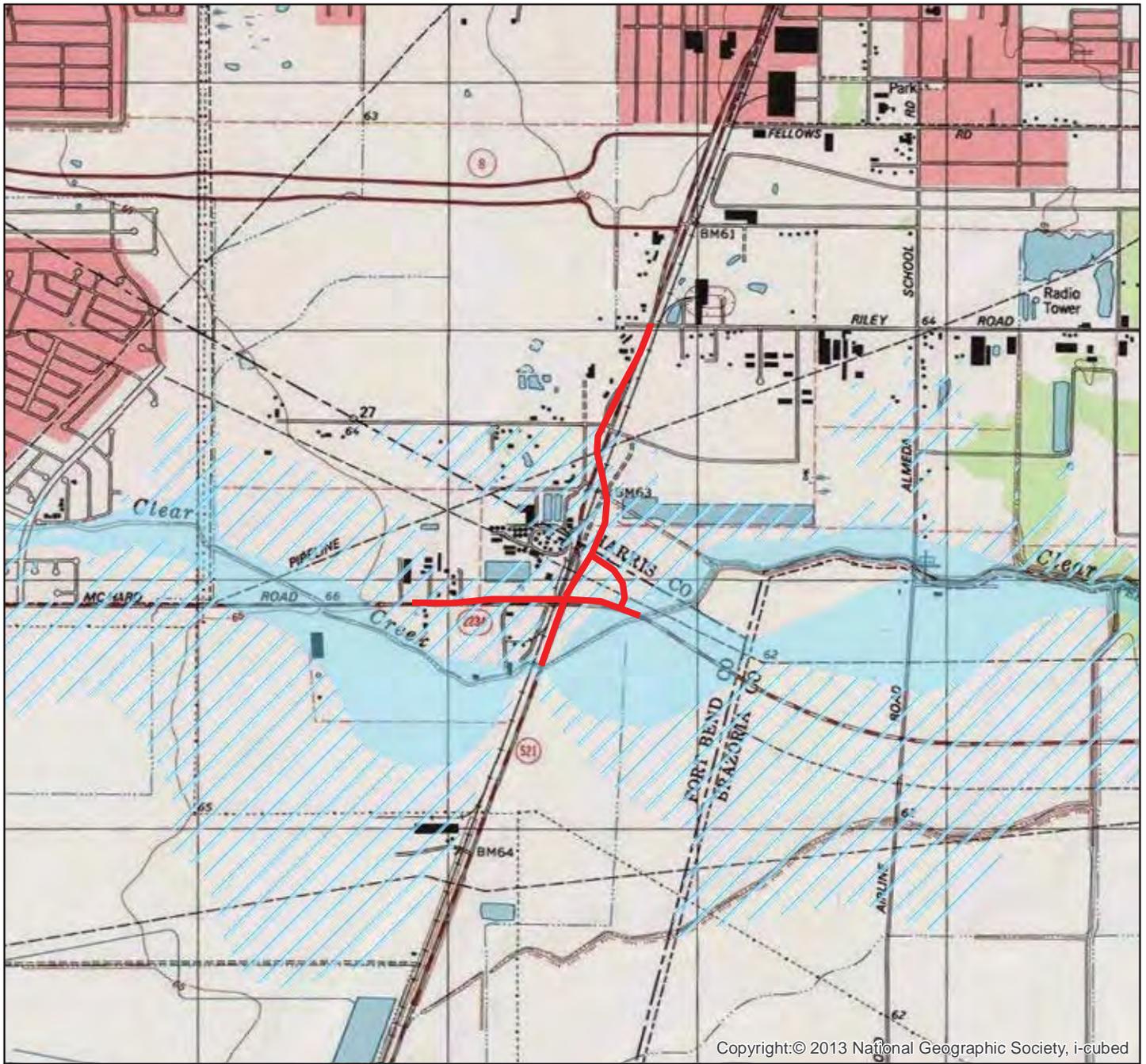
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Exhibits



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Legend

-  Project Location
-  Floodway
-  100-Year Floodplain

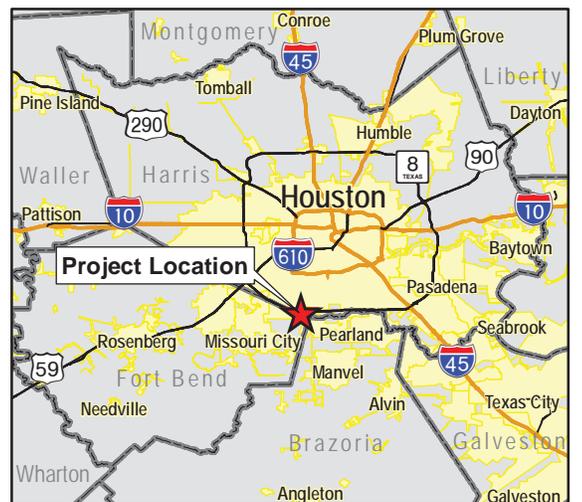
USGS Quad: Almeda

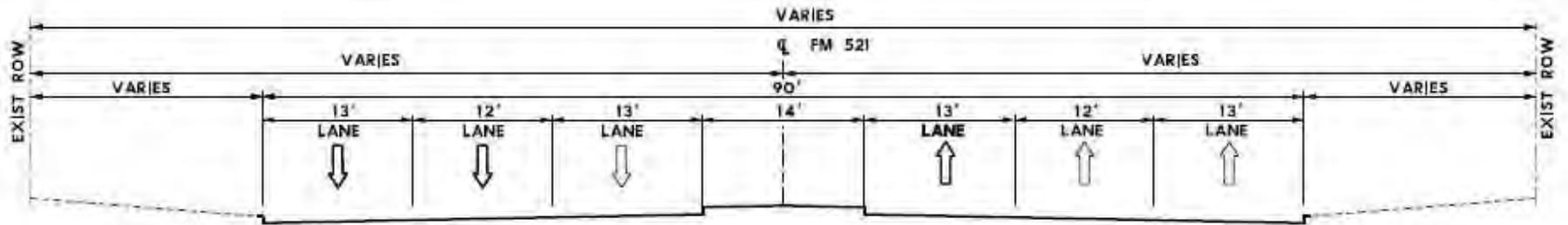


0 1,000 2,000 3,000 Feet

**Exhibit 2:
FEMA FLOODPLAIN AND
USGS TOPOGRAPHIC MAP**

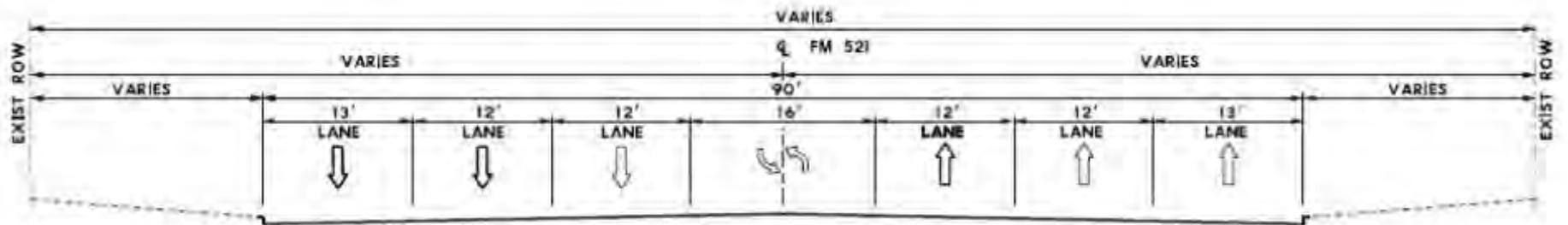
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas





EXISTING TYPICAL SECTION (FM 521)

FROM BELTWAY 8 TO APPROX STA 108+00



EXISTING TYPICAL SECTION (FM 521)

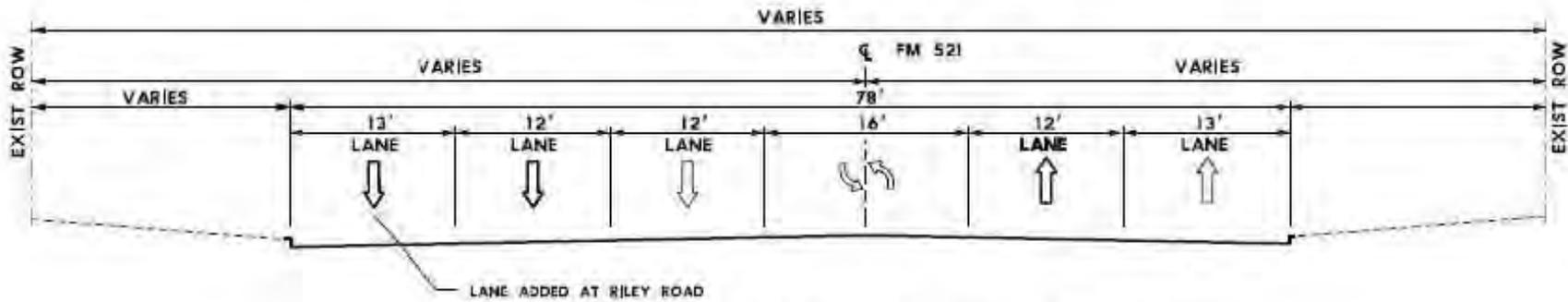
FROM APPROX STA 108+00 TO TYLER ST.

**Exhibit 3a:
Typical Sections**

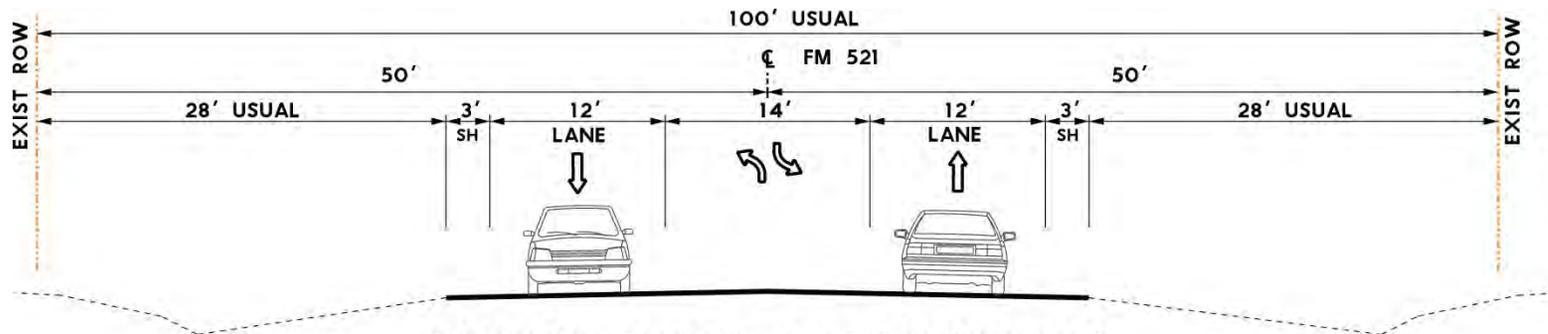
Sheet 1 of 7

**FM 521 at FM 2234
Harris and Fort Bend Counties, Texas**





EXISTING TYPICAL SECTION (FM 521)
 FROM TYLER SREET TO SOUTH OF RILEY ROAD



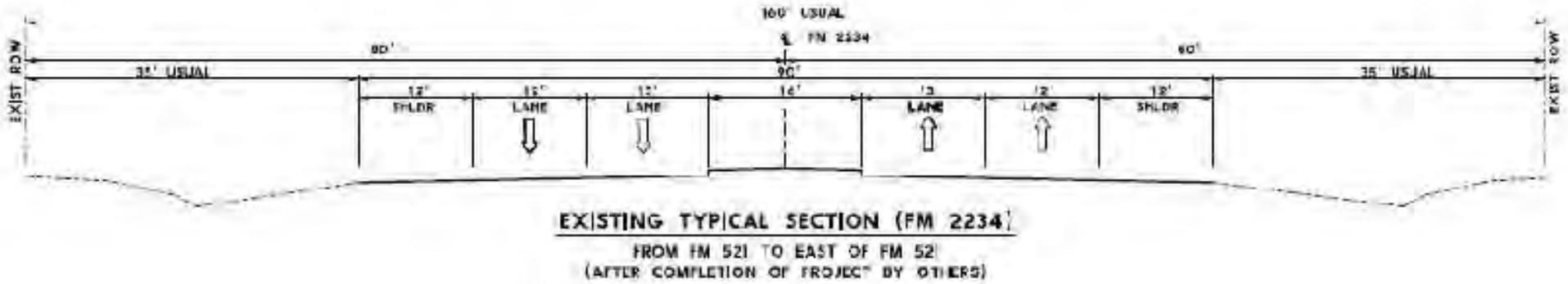
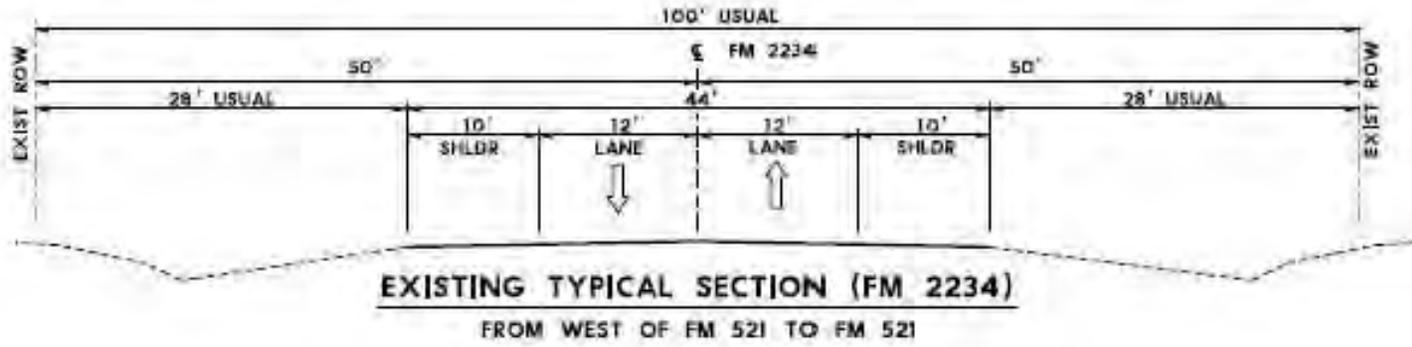
EXISTING TYPICAL SECTION (FM 521)
 FROM SOUTH OF RILEY ROAD TO SOUTH OF FM 2234

Exhibit 3a:
 Typical Sections

Sheet 2 of 7

FM 521 at FM 2234
 Harris and Fort Bend Counties, Texas



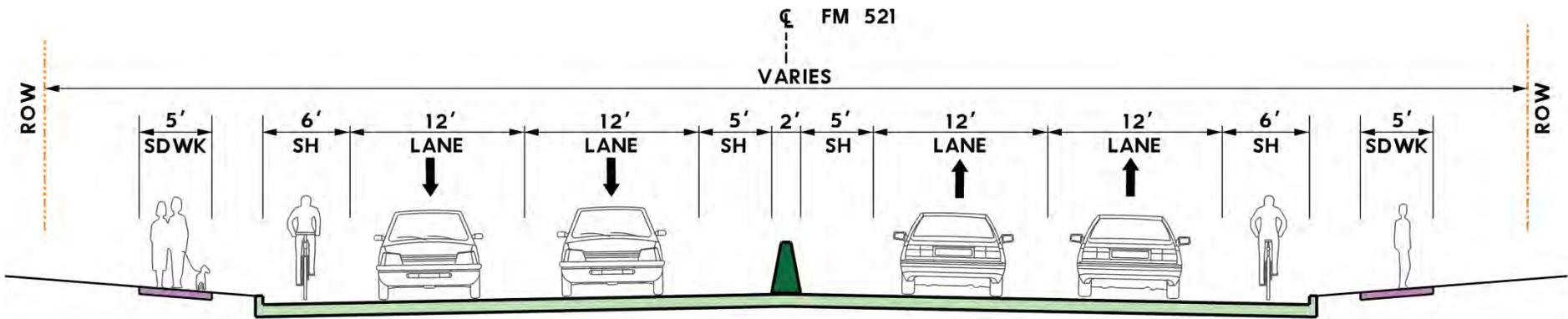


**Exhibit 3a:
Typical Sections**

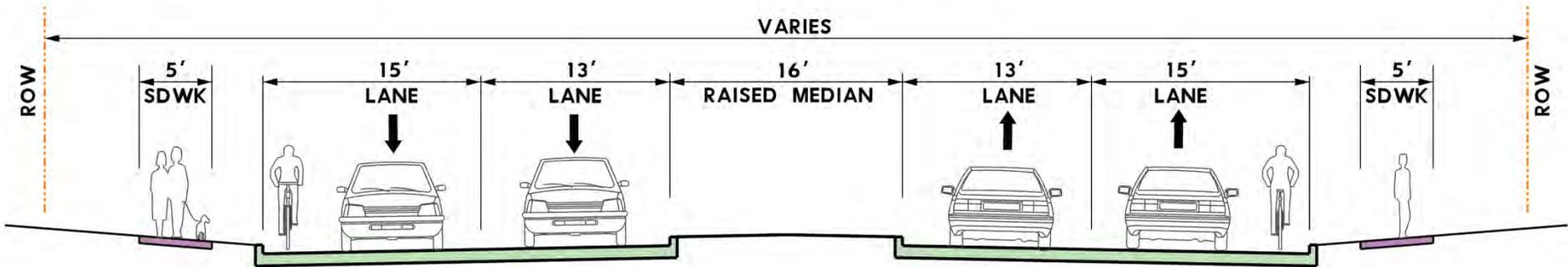
Sheet 3 of 7

**FM 521 at FM 2234
Harris and Fort Bend Counties, Texas**





PROPOSED TYPICAL SECTION (FM 521)
 FROM SOUTH OF RILEY RD TO LOOP RD.

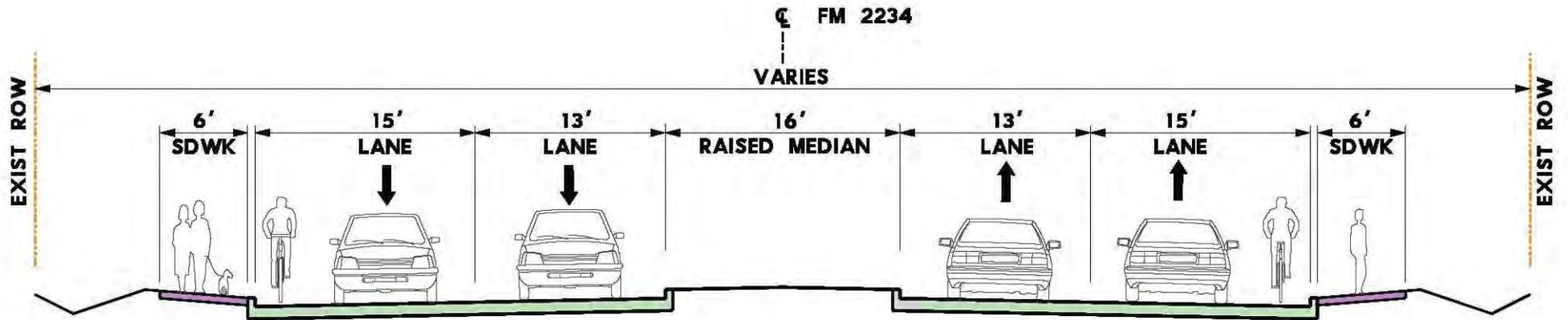


PROPOSED TYPICAL SECTION (FM 521)
 FROM LOOP RD. TO SOUTH OF FM 2234

Exhibit 3a:
 Typical Sections

Sheet 4 of 7

FM 521 at FM 2234
 Harris and Fort Bend Counties, Texas

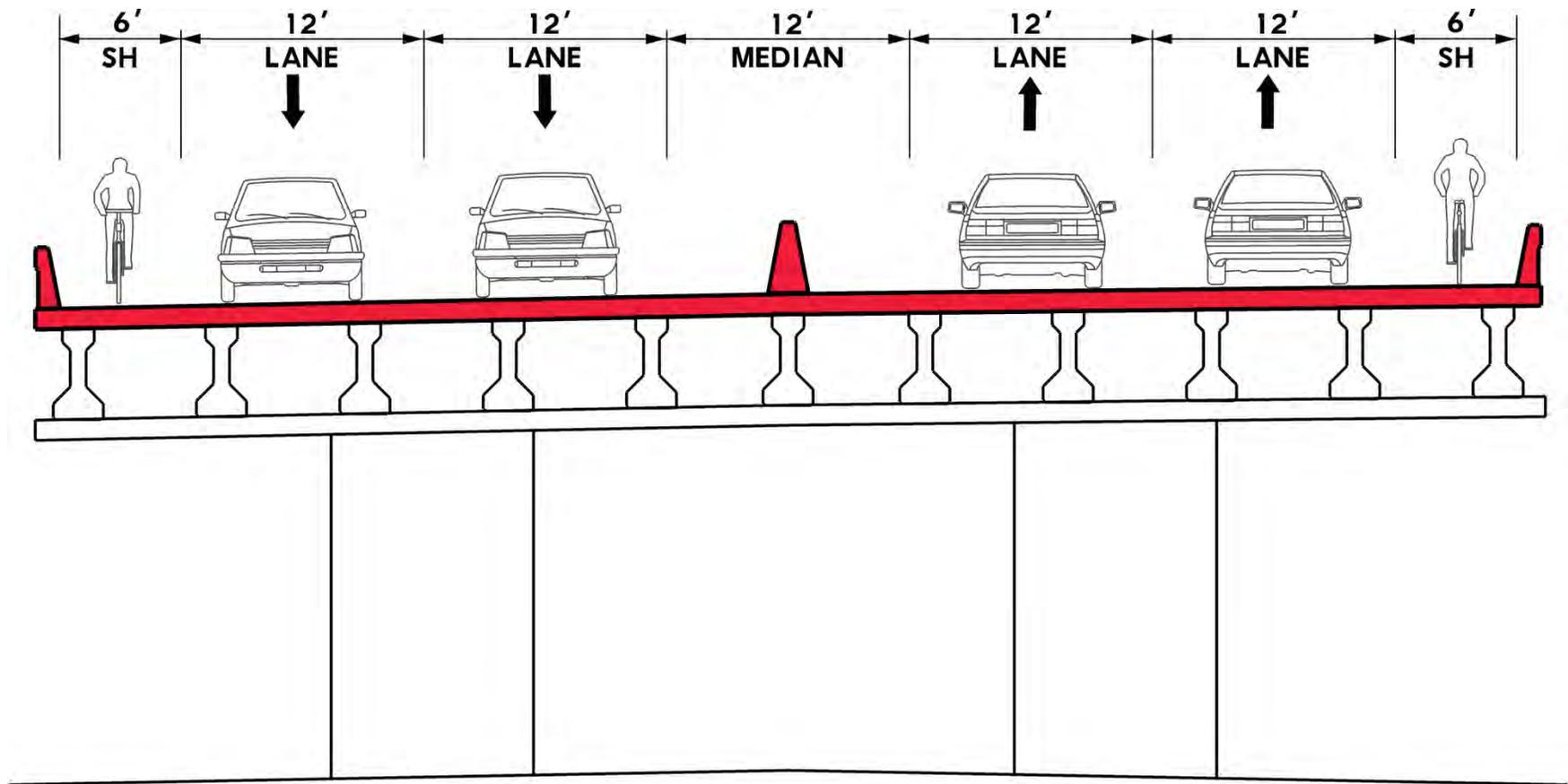


PROPOSED TYPICAL SECTION (FM 2234)
FROM WEST OF FM 521 TO FM 521

Exhibit 3a:
Typical Sections

Sheet 5 of 7

FM 521 at FM 2234
Harris and Fort Bend Counties, Texas



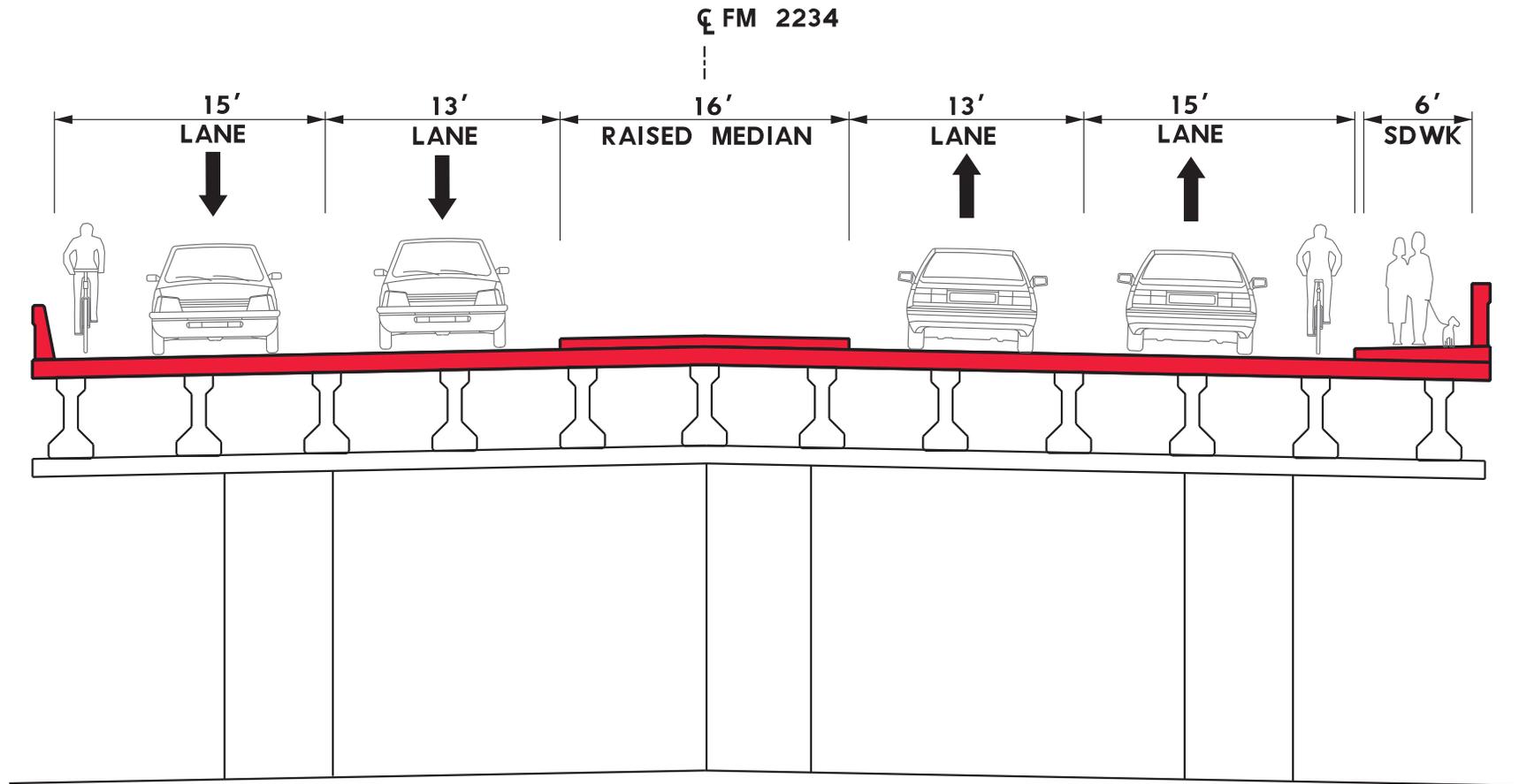
PROPOSED BRIDGE SECTION (FM 521)

**Exhibit 3a:
Typical Sections**

Sheet 6 of 7

**FM 521 at FM 2234
Harris and Fort Bend Counties, Texas**





PROPOSED BRIDGE SECTION (FM 2234)

**Exhibit 3a:
Typical Sections**

Sheet 7 of 7

**FM 521 at FM 2234
Harris and Fort Bend Counties, Texas**



TEXAS DEPARTMENT OF TRANSPORTATION
 HOUSTON DISTRICT
 GEOMETRIC SCHEMATIC LAYOUT
 HARRIS & FORT BEND COUNTIES
 FM 521 AT FM 2234

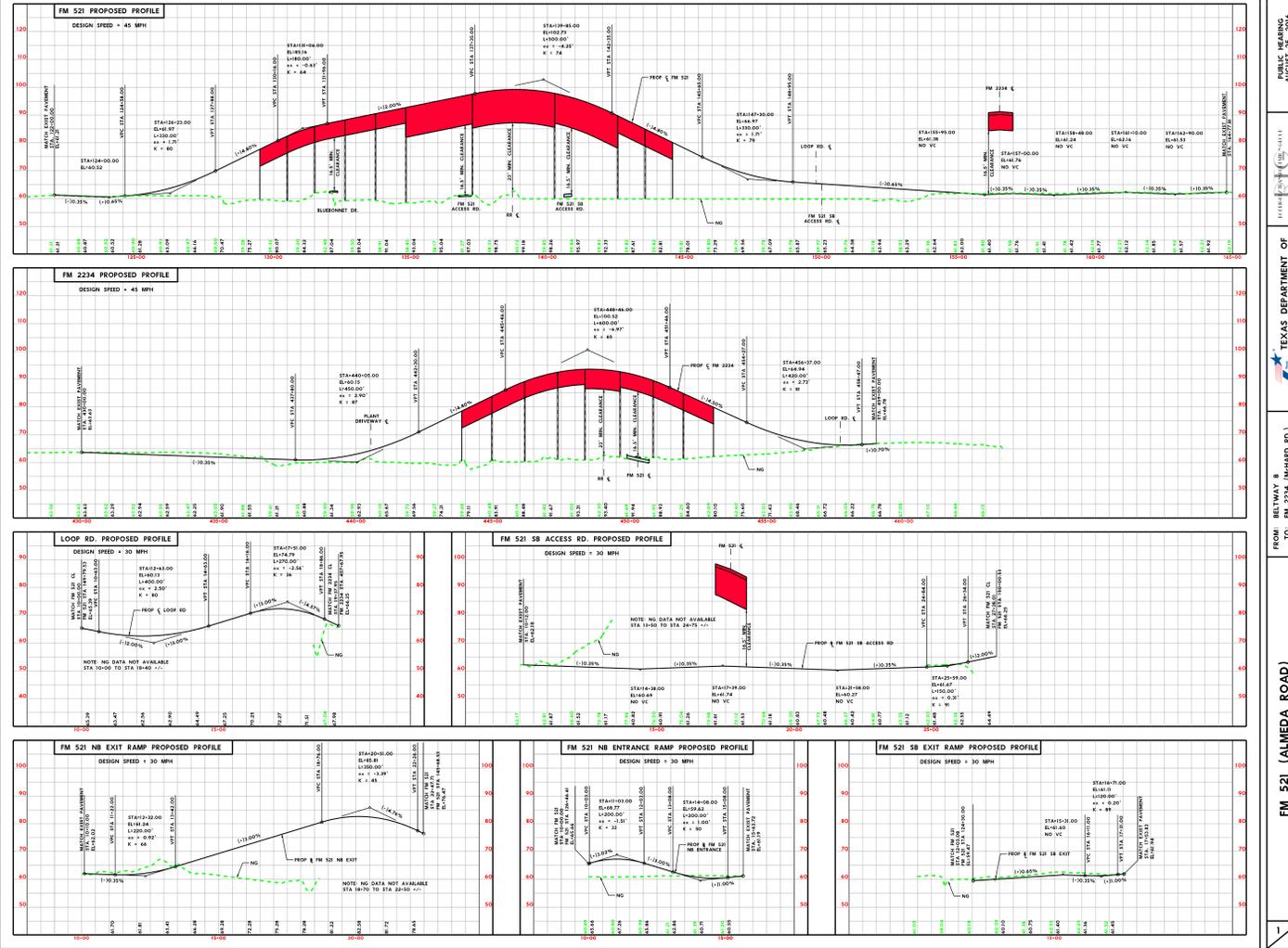
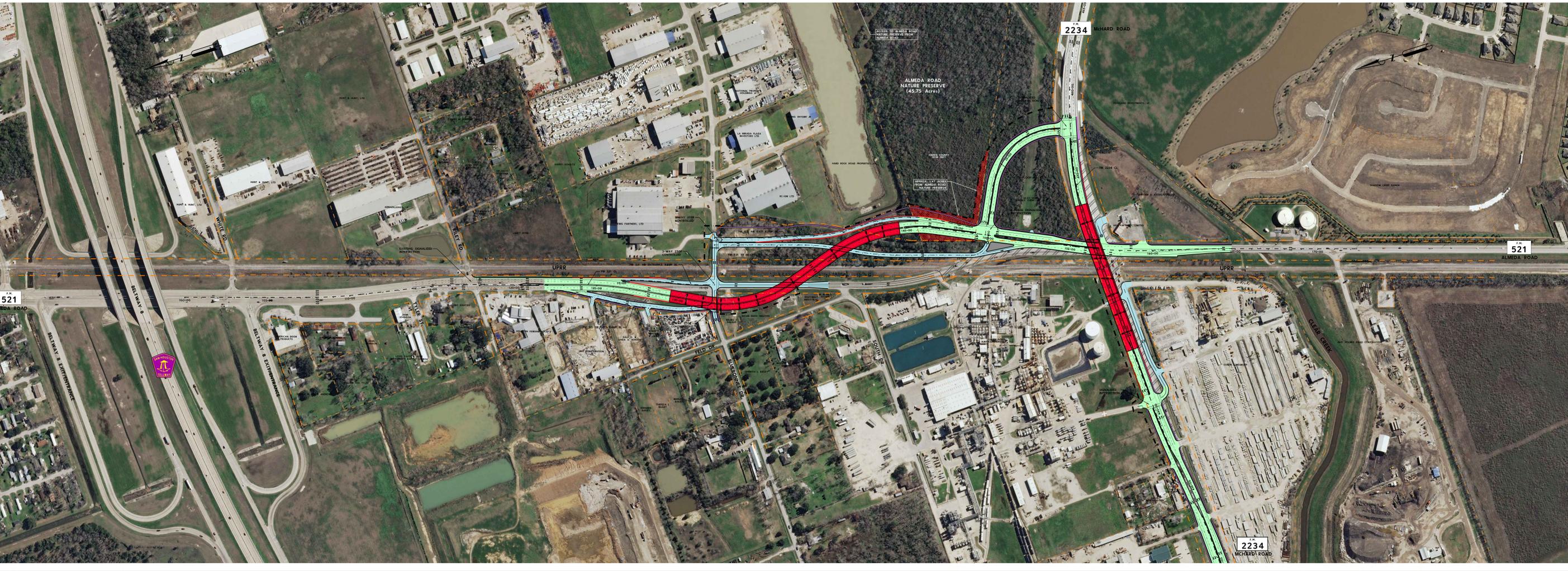
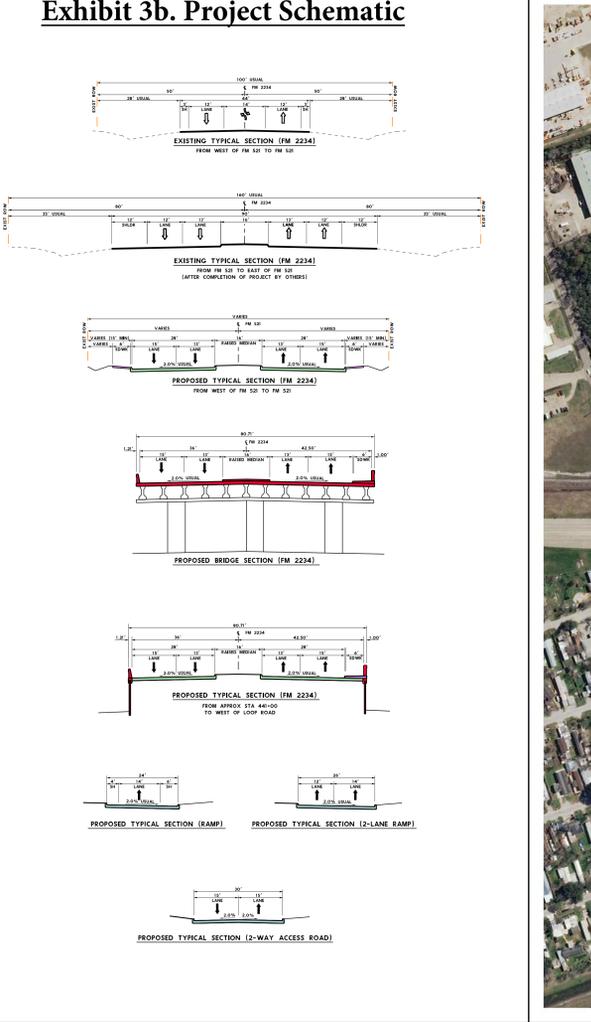
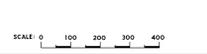
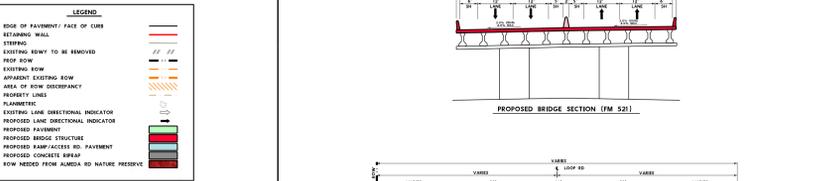
LIMITS : FROM BELTWAY 8 TO FM 2234
 CS1'S : 0111-01-047, 0113-03-031,
 2105-01-048
 LENGTH : 1.2 MILES

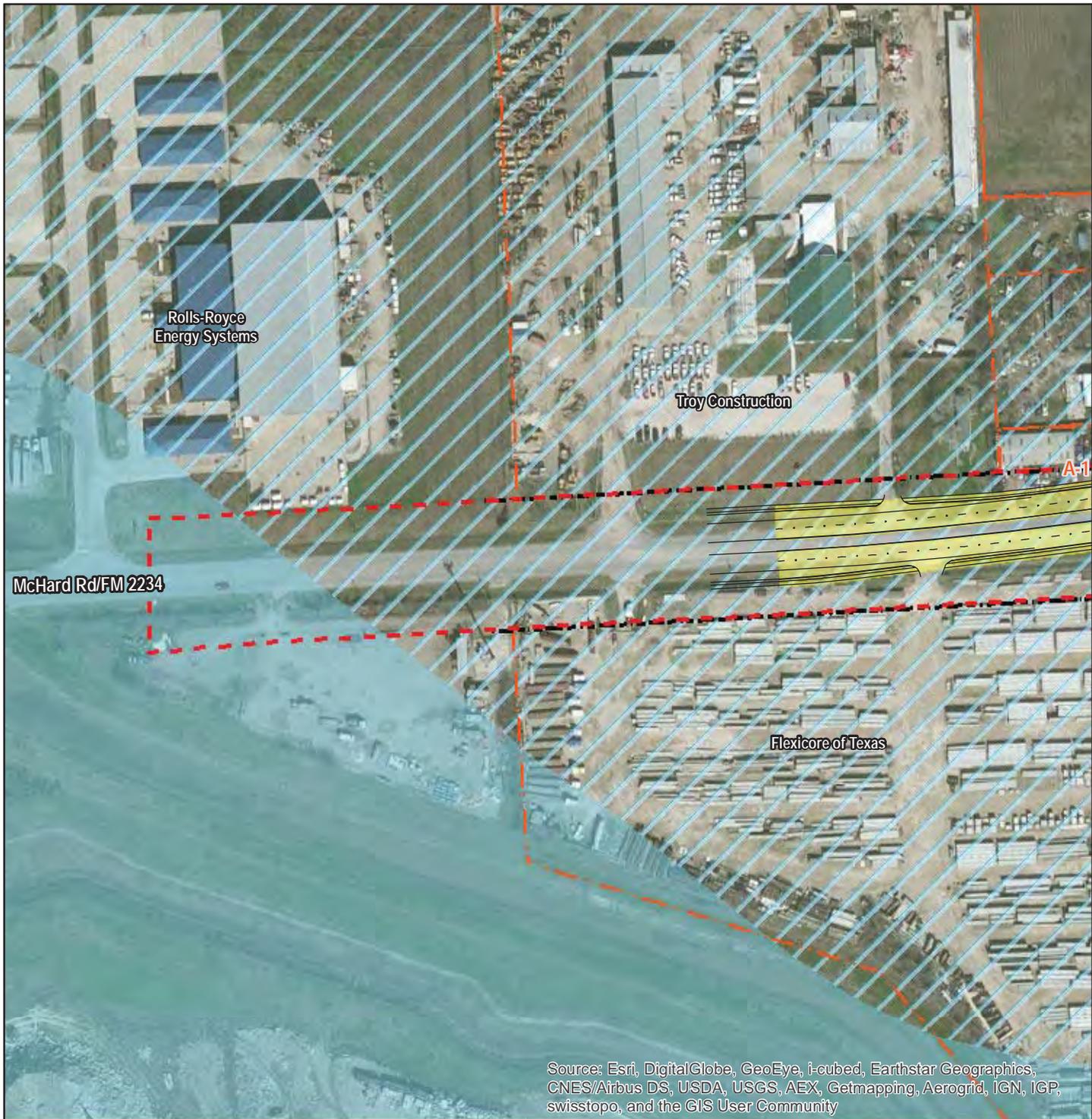
DESIGN SPEED (FM 521 AND FM 2234) : 45 MPH
 DESIGN SPEED (RAMPS AND COLLECTOR ROADS) : 30 MPH (DES); 20 MPH (MIN)
 CURRENT ADT : 17,000 (2008)
 PROJECTED ADT : 33,000 (2035)
 FUNCTIONAL CLASS : HIGH SPEED URBAN ARTERIAL
 (FM 521 AND FM 2234)



NOT A BIDDING DOCUMENT
 HARRIS & FORT BEND COUNTIES
 TEXAS DEPARTMENT OF TRANSPORTATION

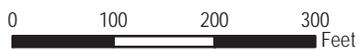
**PRELIMINARY
 SUBJECT TO CHANGE**





Legend

- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Design
- Proposed Detention Pond
- Proposed Pavement
- Proposed Bridge
- Project Area
- Property Line
- Noise Receptor
- Hazardous Materials Site
- Potential Acquisition
- Waters of the U.S.
- Wetland
- Floodway
- 100-Year Floodplain



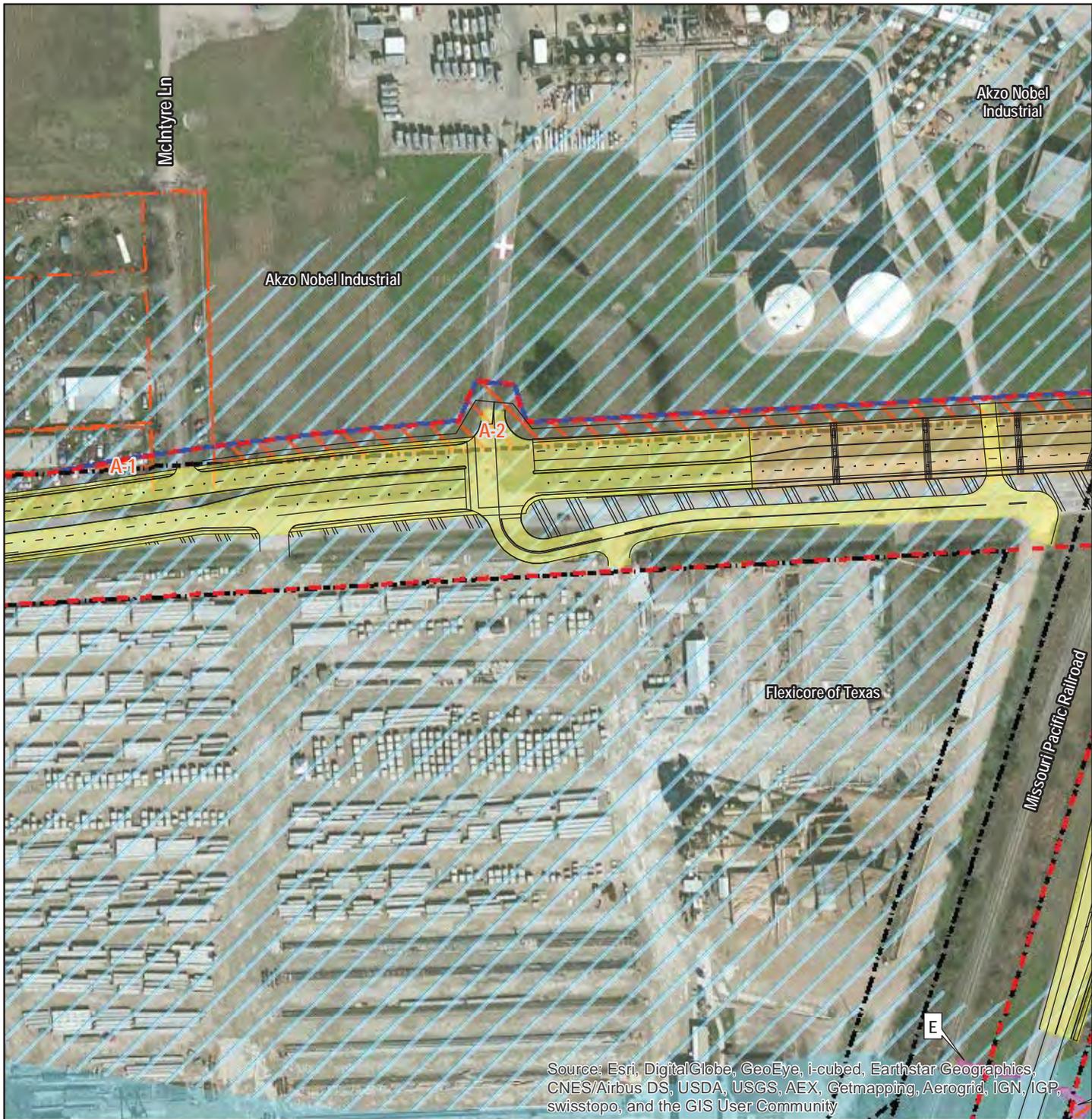
**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**

Sheet 1 of 9

FM 521 at FM 2234

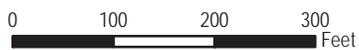
Harris and Fort Bend Counties, Texas





Legend

- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Design
- - - Proposed Detention Pond
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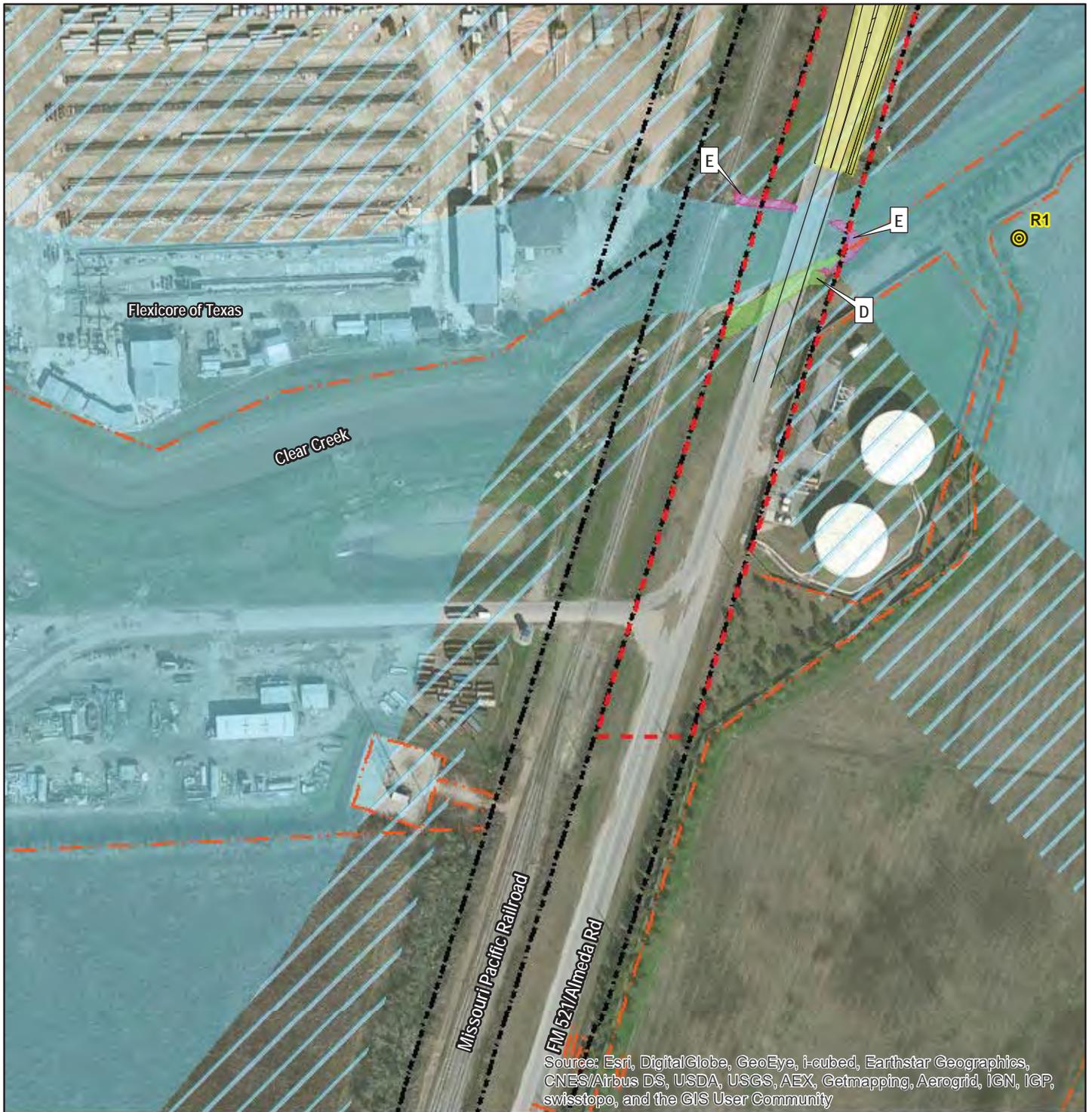
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ENVIRONMENTAL CONSTRAINTS**

Sheet 2 of 9

FM 521 at FM 2234

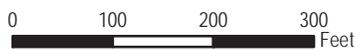
Harris and Fort Bend Counties, Texas





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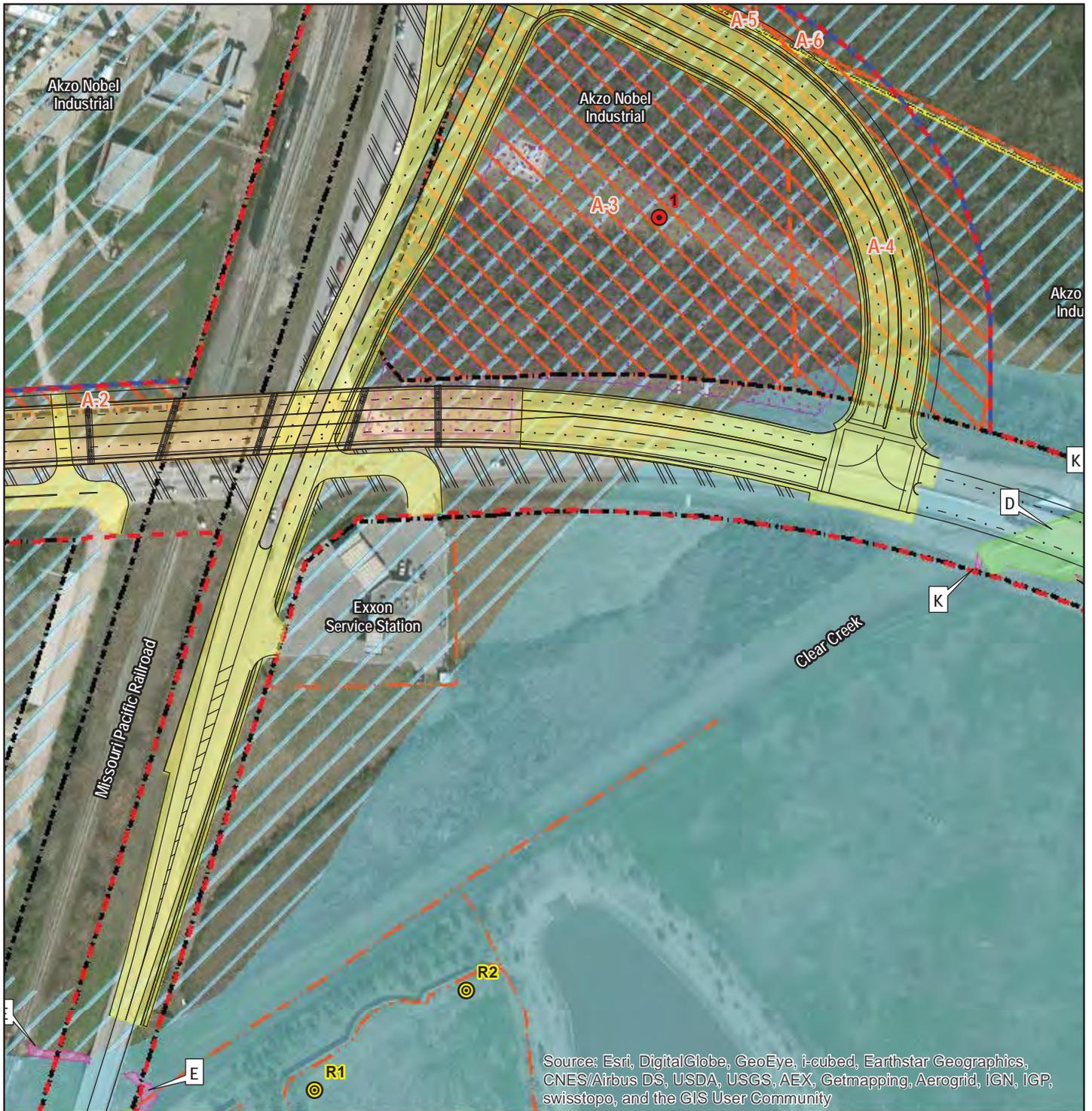
**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**

Sheet 3 of 9

FM 521 at FM 2234

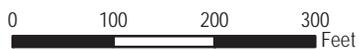
Harris and Fort Bend Counties, Texas





Legend

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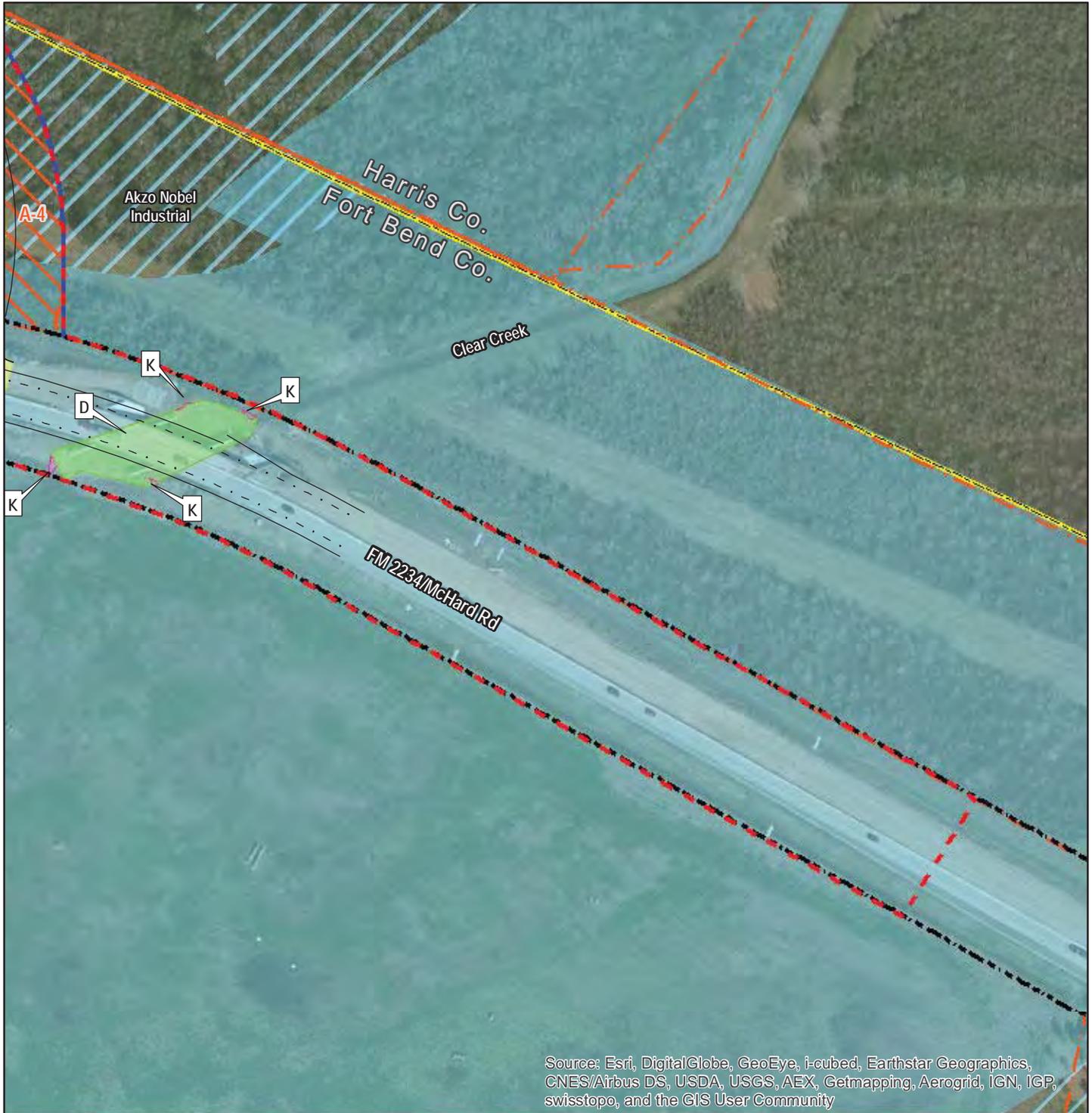
**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**

Sheet 4 of 9

FM 521 at FM 2234

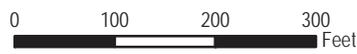
Harris and Fort Bend Counties, Texas





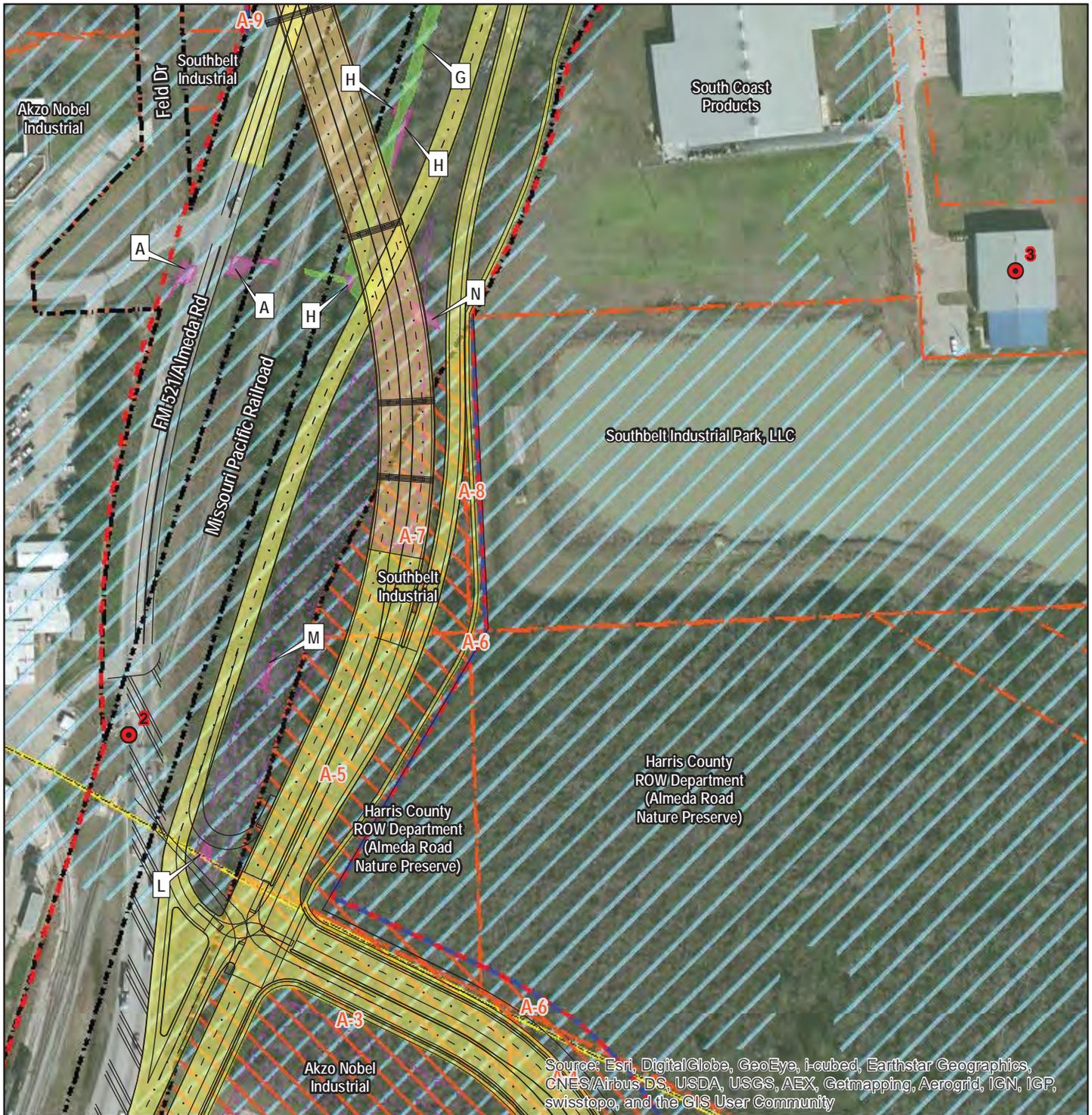
Legend

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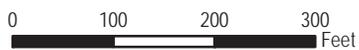
**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**
Sheet 5 of 9
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas





Legend

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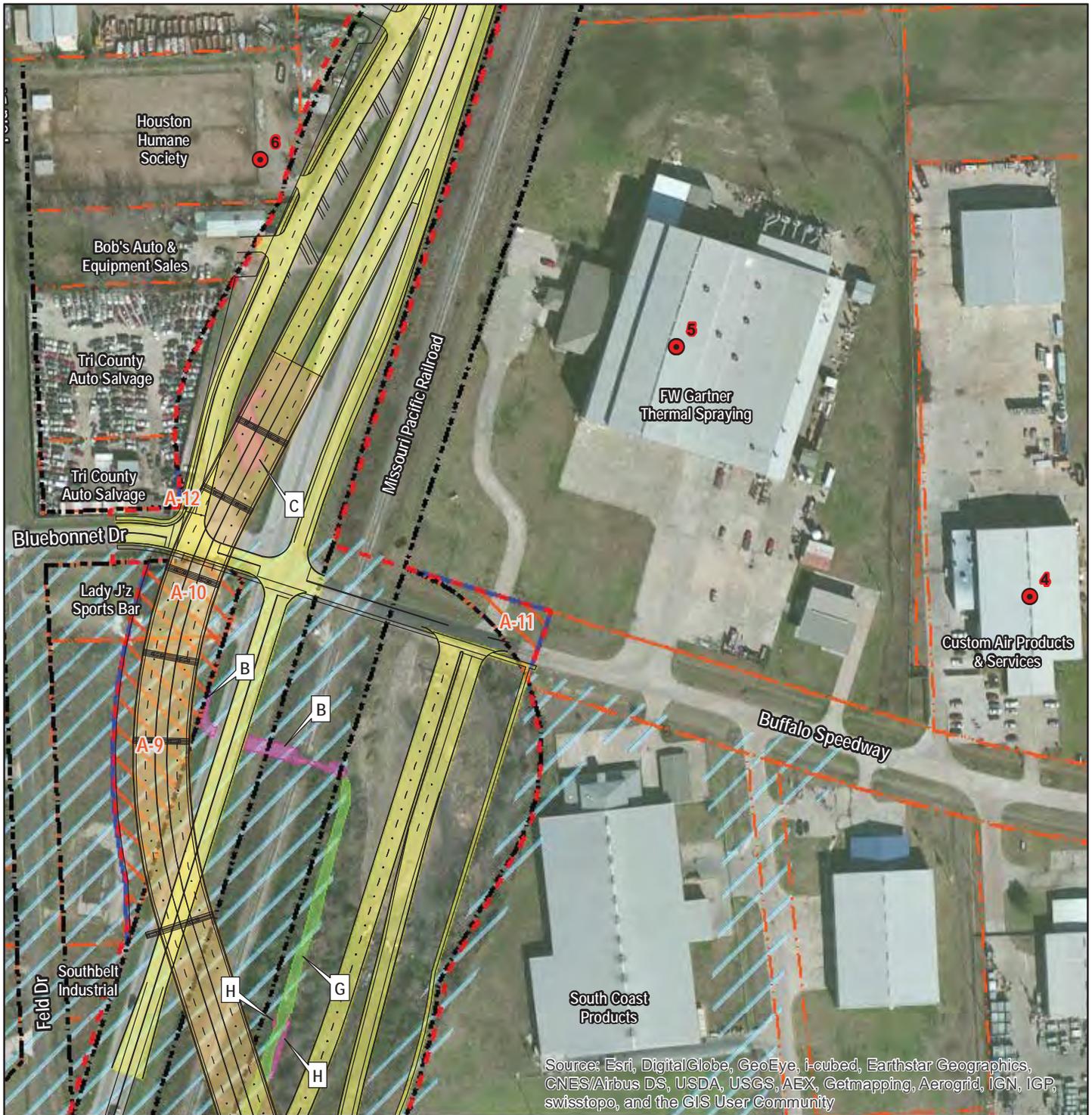
**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**

Sheet 6 of 9

FM 521 at FM 2234

Harris and Fort Bend Counties, Texas

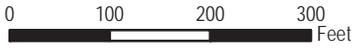




Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

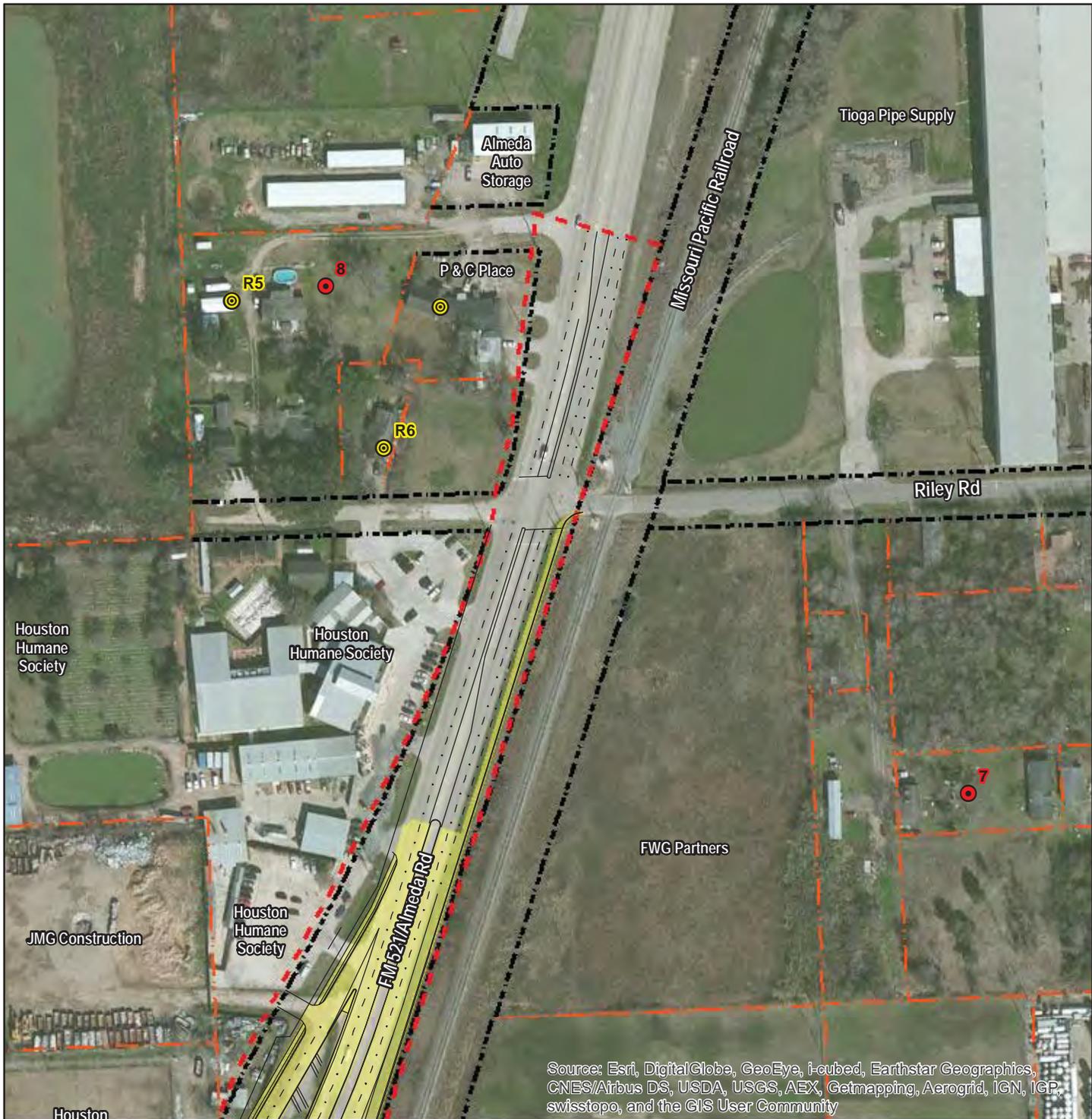
Legend

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**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**
Sheet 7 of 9
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas

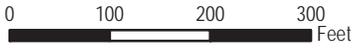




Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

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- ▭ 100-Year Floodplain



**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**
Sheet 8 of 9
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas

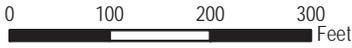




Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, Swisstopo, and the GIS User Community

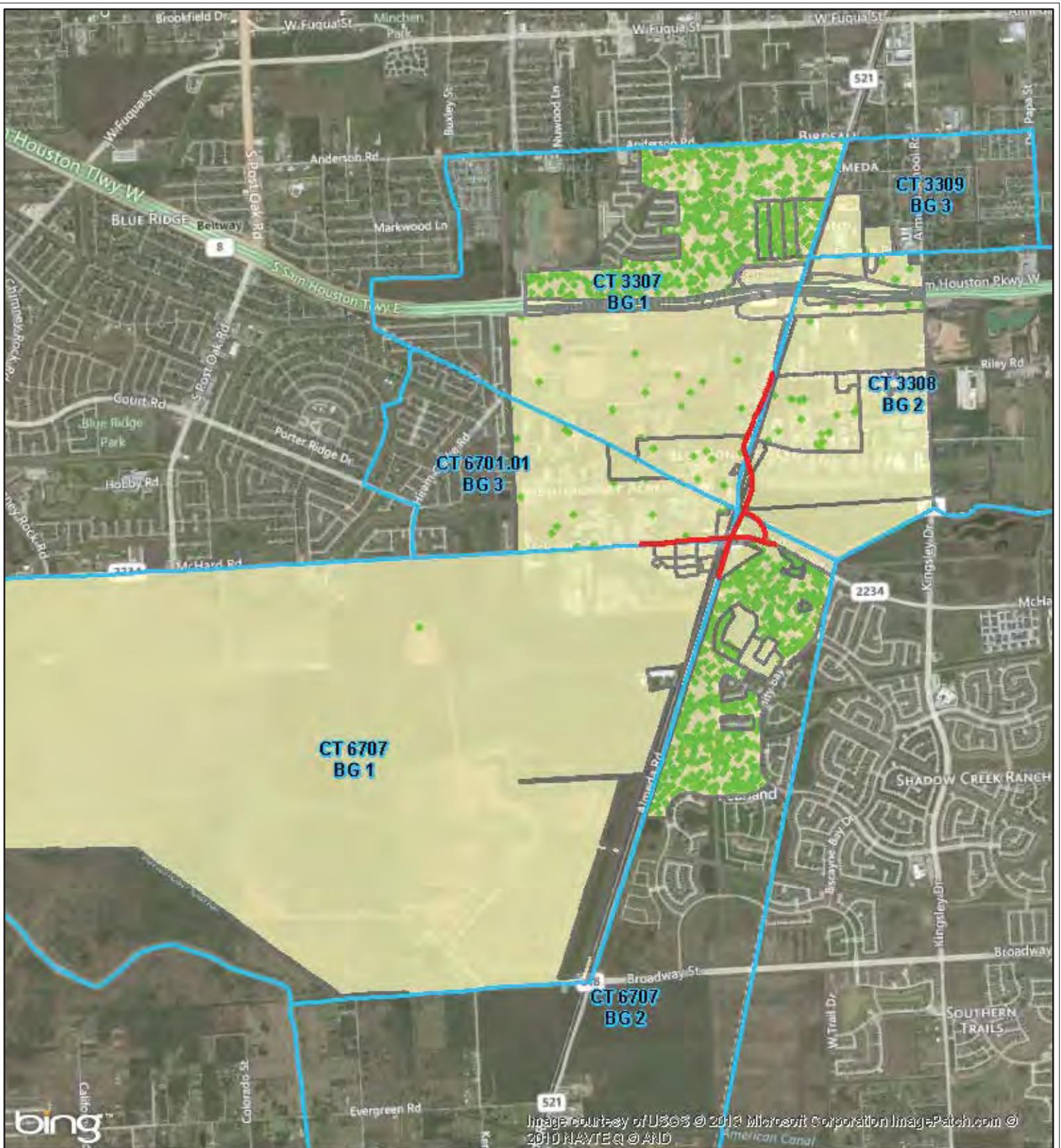
Legend

- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Design
- Proposed Detention Pond
- Proposed Pavement
- Proposed Bridge
- Project Area
- Property Line
- Noise Receptor
- Hazardous Materials Site
- Potential Acquisition
- Waters of the U.S.
- Wetland
- Floodway
- 100-Year Floodplain



**EXHIBIT 4:
ENVIRONMENTAL CONSTRAINTS**
Sheet 9 of 9
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas



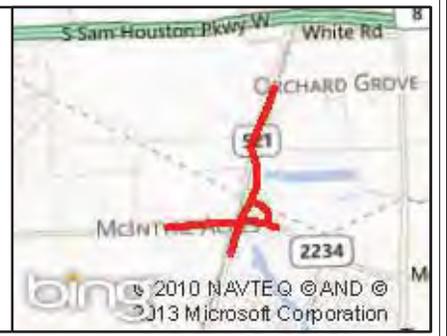


Legend

- Project Location
- U.S. Census 2010 Block Groups
- U.S. Census 2010 Blocks
- 1 Dot = 1 Minority Individual

0 1,500 3,000 Feet

**Exhibit 5a:
U.S. 2010 CENSUS
MINORITY POPULATION DENSITY MAP
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas**



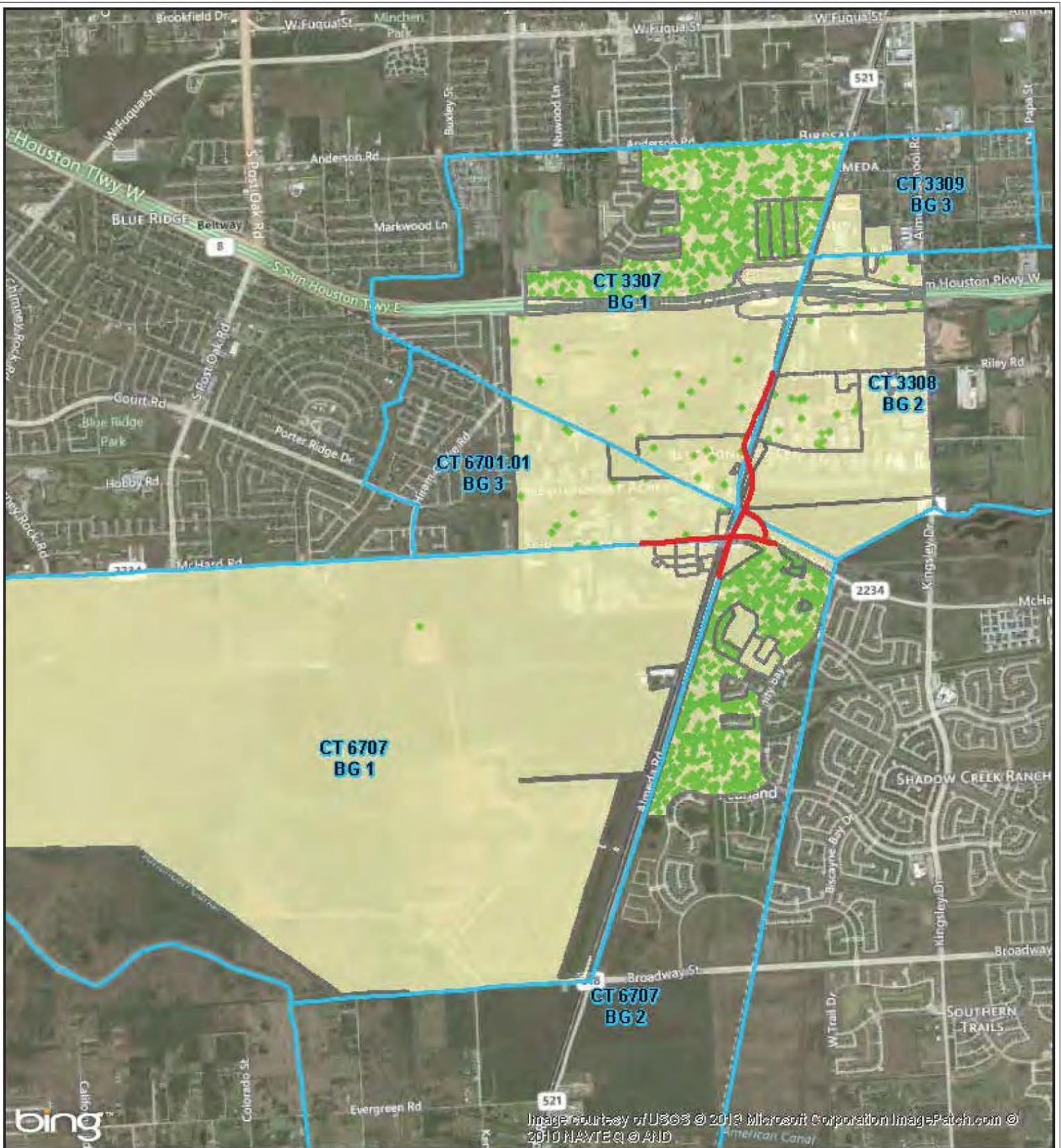
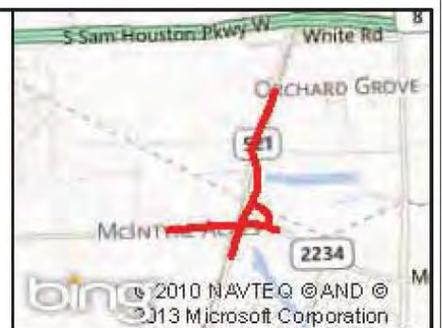
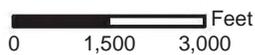


Image courtesy of USGS © 2013 Microsoft Corporation ImagePatch.com © 2010 NAVTEQ © AND

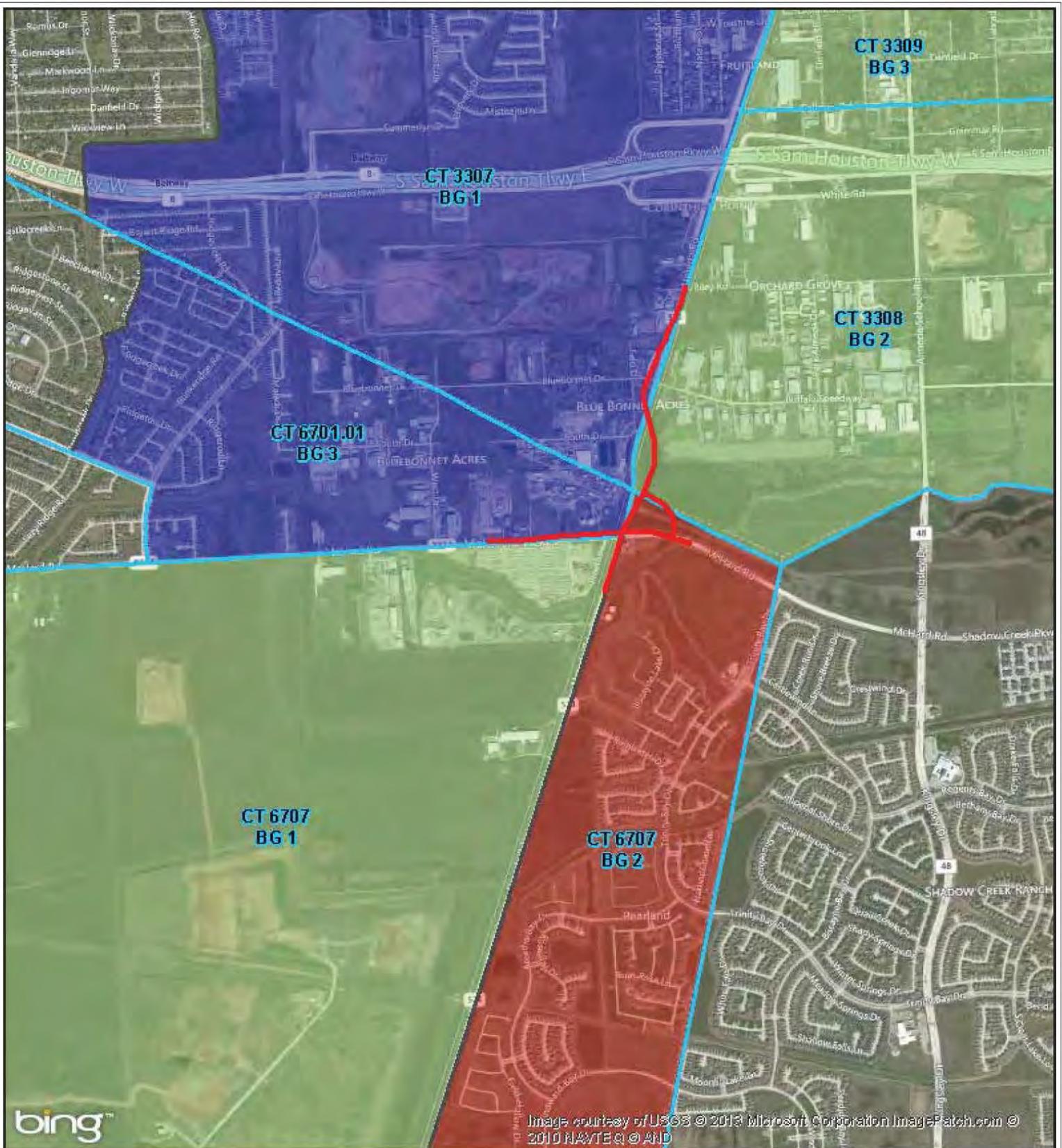
Legend

-  Project Location
-  U.S. Census 2010 Block Groups
-  U.S. Census 2010 Blocks
-  1 Dot = 1 Minority Individual

**Exhibit 5a:
U.S. 2010 CENSUS
MINORITY POPULATION DENSITY MAP
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas**



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Legend

- Project Location
- U.S. Census 2011 Tracts

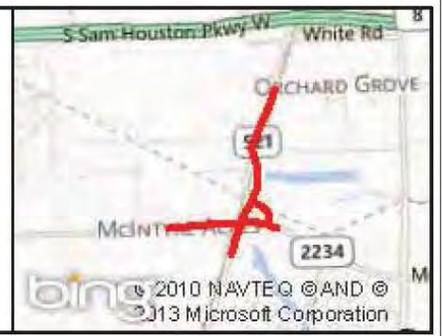
U.S. Census 2011 Block Groups

Median Household Income (2011)

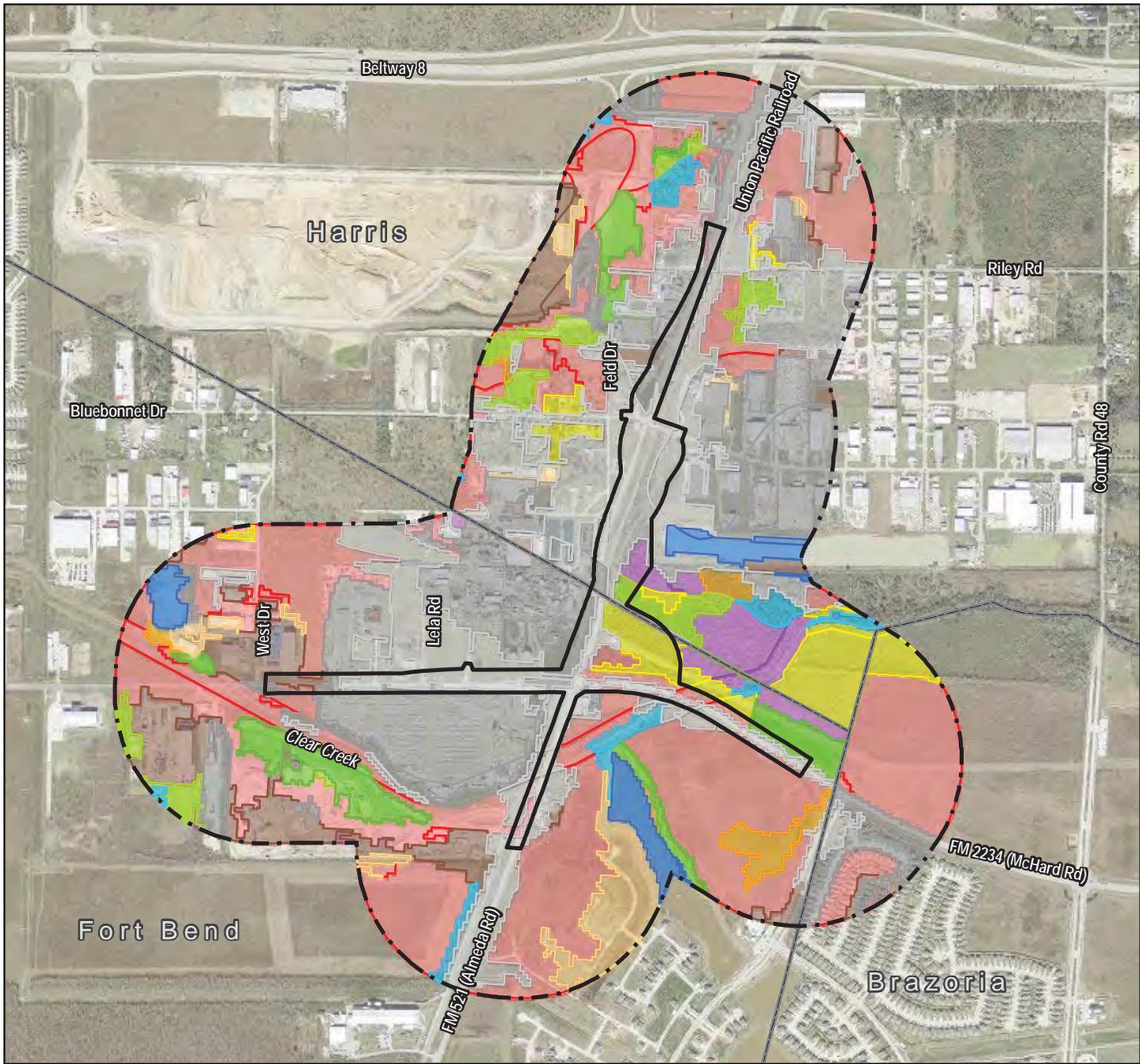
- < \$45,000
- \$45,000 - \$65,000
- > \$65,000

0 1,000 2,000 Feet

Exhibit 5b:
U.S. 2011 CENSUS
MEDIAN HOUSEHOLD INCOME
FM 521 at FM 2234
Harris and Fort Bend Counties, Texas
Census Tracts 0111001006703 and 0111003001



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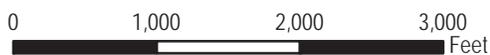


Legend

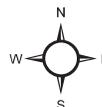
- Project Area
- 0.25-mi Buffer
- County Boundary

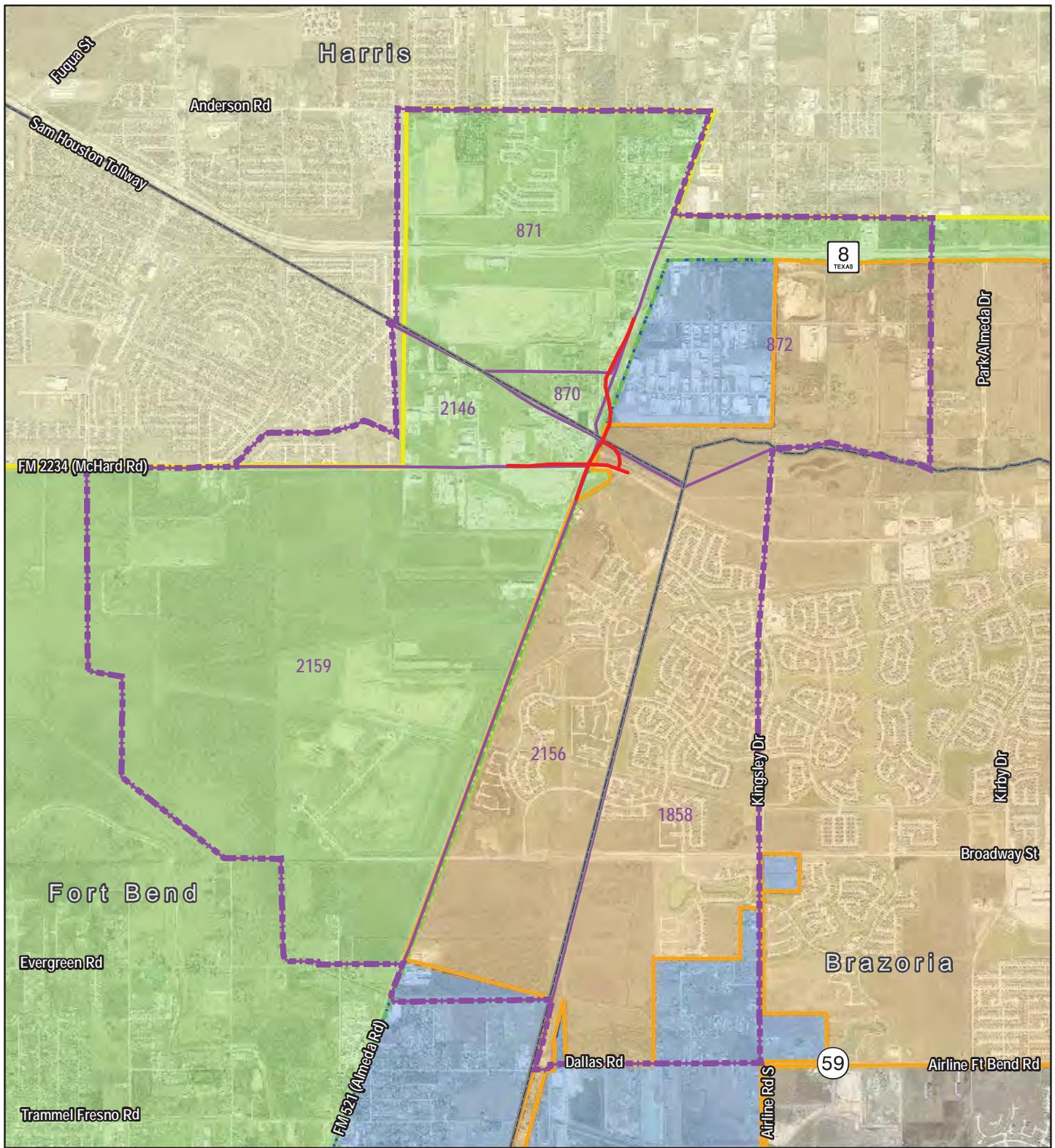
Western Gulf Coastal Plain Vegetation Types

- | | |
|--|---|
| <ul style="list-style-type: none"> Barren Gulf Coast: Coastal Prairie Gulf Coast: Coastal Prairie Pondshore Native Invasive: Baccharis Shrubland Native Invasive: Deciduous Woodland Native Invasive: Huisache Woodland or Shrubland Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland | <ul style="list-style-type: none"> Open Water Post Oak Savanna: Live Oak Motte and Woodland Post Oak Savanna: Post Oak - Redcedar Motte & Woodland Row Crops Urban High Intensity Urban Low Intensity |
|--|---|



**Exhibit 6: EMST VEGETATION TYPES
WITHIN 0.25-MILES
OF FM 521 PROJECT LOCATION**





Legend

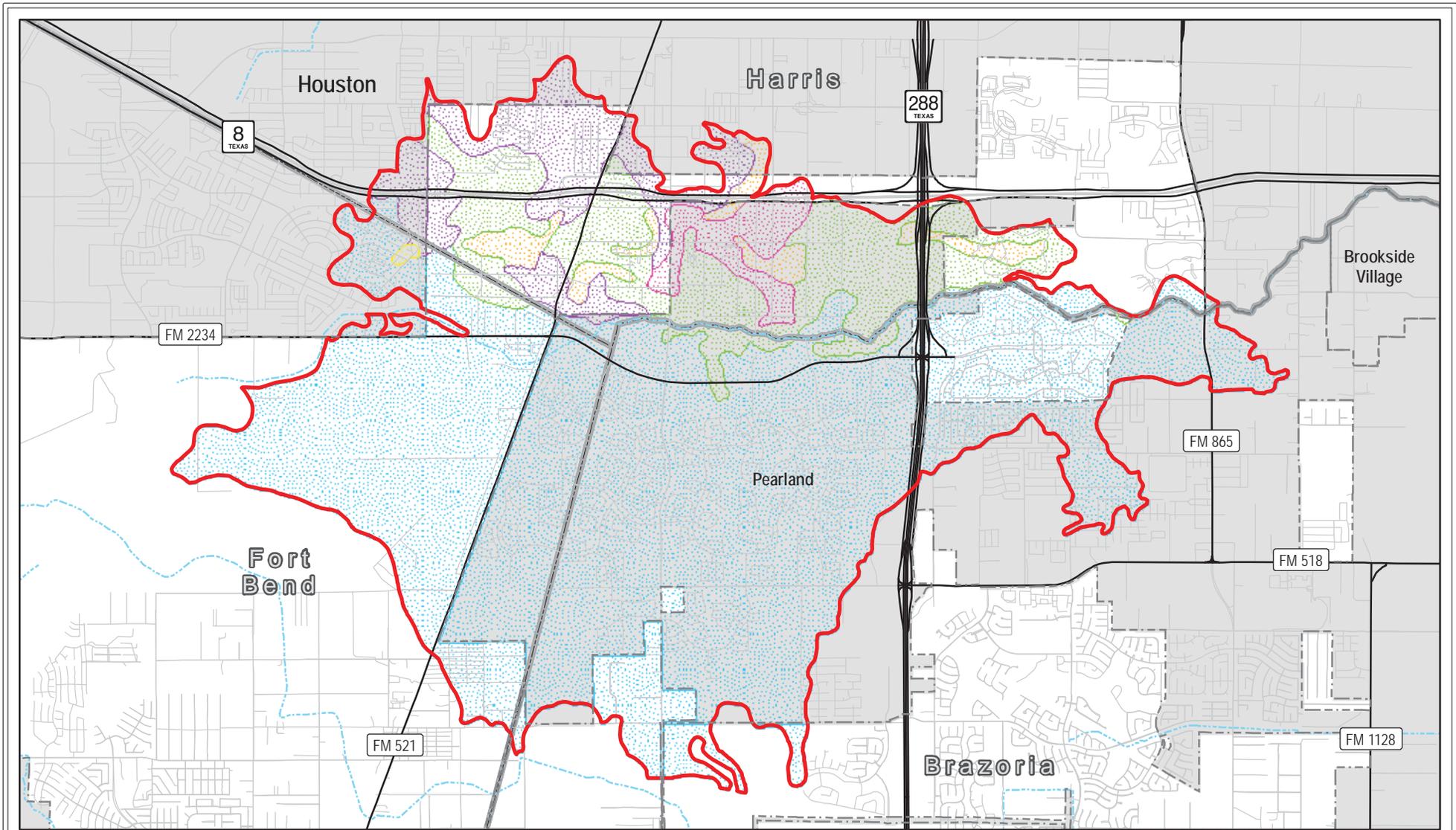
- Proposed Project
- Area of Influence (AOI)
- County Boundary
- Traffic Analysis Zone (TAZ)
- Houston
- Houston ETJ
- Pearland
- Pearland ETJ



**EXHIBIT 7:
AREA OF INFLUENCE (AOI)**

FM 521 at FM 2234
Harris and Fort Bend Counties, Texas

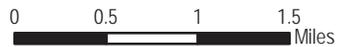




Legend

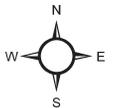
- Prime Farmland RSA Boundary
- Municipality
- County Boundary

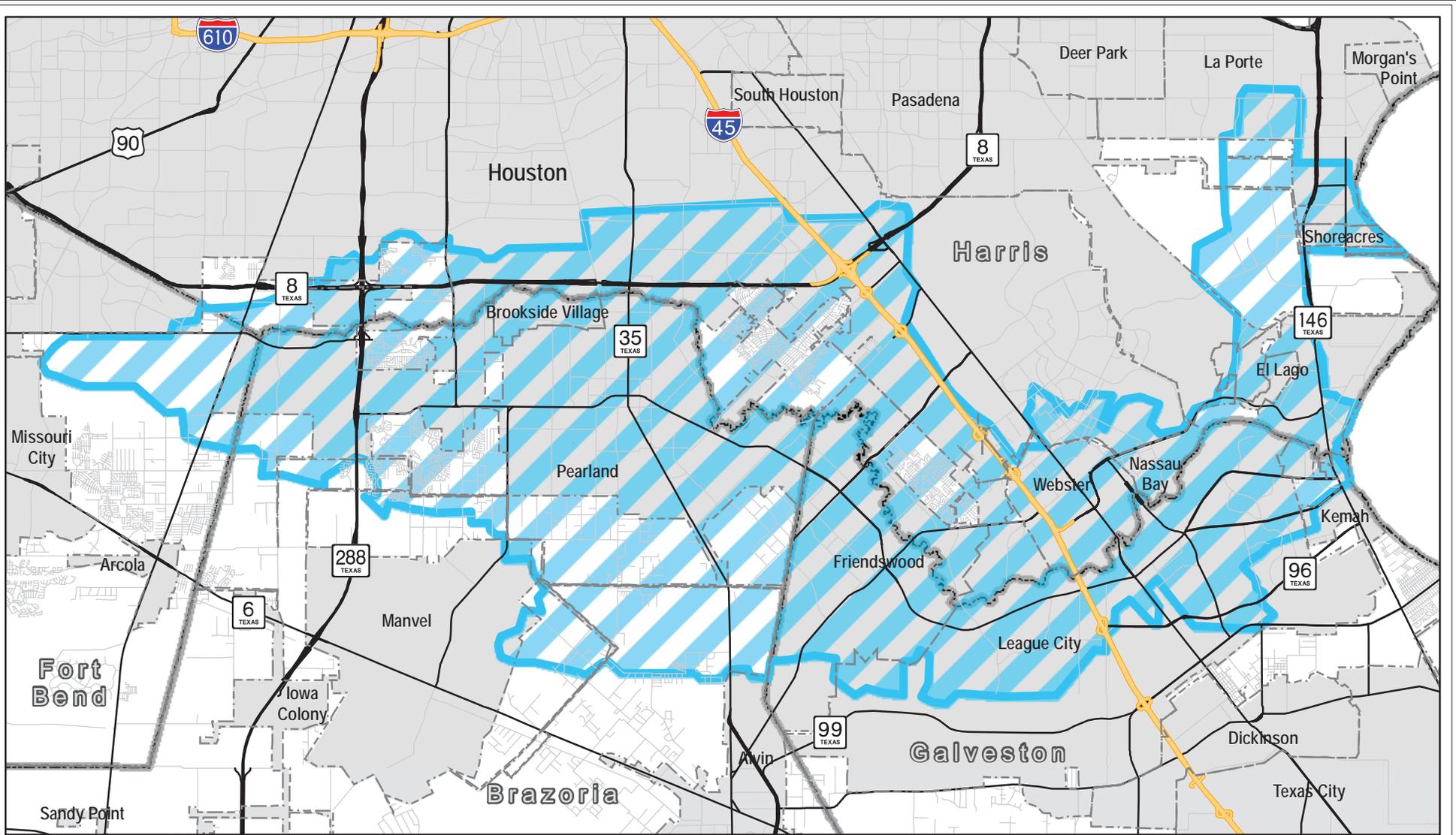
- Aris fine sandy loam, Prime farmland if drained
- Bacliff clay, 0 to 1 percent slopes, Prime farmland if drained
- Bernard clay loam, All areas are prime farmland
- Bernard-Edna complex, All areas are prime farmland
- Gessner loam, Prime farmland if drained
- Lake Charles clay, 0 to 1 percent slopes, All areas are prime farmland



**EXHIBIT 8:
RESOURCE STUDY AREA (RSA)
FOR PRIME FARMLANDS**

FM 521 at FM 2234
Harris and Fort Bend Counties, Texas



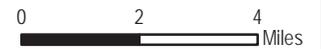
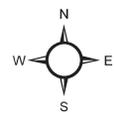


Legend

-  Clear Creek Watershed
-  Municipality
-  County Boundary

**EXHIBIT 9:
RESOURCE STUDY AREA (RSA)
FOR WATER QUALITY AND WATERS OF THE U.S.**

FM 521 at FM 2234
Harris and Fort Bend Counties, Texas



Source: Harris County Flood Control District 2013

APPENDIX A:
Photographic Documentation



Looking north on FM 521 at Beltway 8 (approx. 775 ft from Beltway 8).



Looking north on FM 521 at Feld Drive and FM 521.



Looking south on FM 521 at UP Railroad crossing.



Looking south on FM 521 at UP Railroad crossing.



Looking south on FM 521, south of FM 2234 and FM 521 intersection.



Looking south on FM 521, south of FM 2234 and FM 521 intersection.



Looking north on FM 521, from south of FM 2234 and FM 521 intersection.



Looking south on FM 521, approx. 1300ft south of FM 2234 and FM 521 intersection.



Looking north on FM 521, from approx. 1300ft from south of FM 2234 and FM 521 intersection.



Looking north on FM 521, from approx. 1300ft from south of FM 2234 and FM 521 intersection.



Looking at northwest side of FM 521 approx. 1100 ft south of FM 521 and FM 2234.



Looking south on FM 521 from south of FM 2234 and FM 521 intersection.



Looking north on FM 521 from south of FM 2234 and FM 521 intersection.



Looking north on FM 521 from south of FM 2234 and FM 521 intersection.



Looking west of FM 521 from 2200 Blue Ridge Process Facility.



Looking west of FM 521 from 2200 Blue Ridge Process Facility.



Looking east of FM 521 at 2200 Blue Ridge Process Facility.



Looking east of FM 521 at 2200 Blue Ridge Process Facility.



Looking north on FM 521 from west side of road, at 2200 Blue Ridge Facility.



Looking east of FM 521 from west side of road, south of FM 521 & FM 2234.



Looking at west side of FM 521, approx. 3500 ft south of intersection of FM 521 & FM 2234.



Looking at west side of FM 521, approx. 3500 ft south of intersection of FM 521 & FM 2234.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking south on FM 521 at FM 2234, from south of intersection.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking south on FM 521 from northeast of FM 521 and RR crossing.



Looking south on FM 521 from northeast of FM 521 and RR crossing.



Looking south on FM 521 from south of FM 521 & Fm 2234 intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking north on FM 521 from center of FM 521 & FM 2234 intersection.



Looking south on UP Railroad at FM 2234, south of FM 521 & FM 2234 intersection.



Looking west on FM 2234, from west of FM 521 & FM 2234 intersection.



Looking east on FM 2234 at intersection of FM 521 & FM 2234.



Looking east on FM 2234 at intersection of FM 521 & FM 2234.



Looking east on FM 2234 at intersection of FM 521 & FM 2234.



Looking north on UP Railroad from FM 2234, west of FM 521 & FM 2234 intersection.



Looking at northeast corner of FM 521 & FM 2234 intersection, from southwest corner.



Looking at southeast corner of FM 521 & FM 2234 intersection.



Looking at southeast corner of FM 521 & FM 2234 intersection.



Looking north on FM 521 at FM 521 & UP crossing.



Looking north on FM 521 at FM 521 & UP crossing.



Looking north on FM 521 at FM 521 & UP crossing.



Looking south on FM 521 at FM 521 & FM 2234 intersection, from FM 521 & UP crossing.



Looking south on FM 521 at FM 521 & FM 2234 intersection, from FM 521 & UP crossing.



Looking south on UP railroad, from FM 521 at FM 521 & UP crossing.



Looking north on FM 521, from FM 521 and UP crossing.



Looking north on FM 521 at Beltway 8.



Looking north on FM 521 at Beltway 8.



Looking south on FM 521 at Beltway 8.

APPENDIX B:
NRCS Form CPA-106

United States Department of Agriculture



Natural Resources Conservation Service

101 S. Main Street
Temple, TX 76501-6624
Phone: 254-742-9826
FAX: 254-742-9859

May 28, 2013

Baker, Inc.
165 South Union Boulevard
Suite 200
Lakewood, CO 80228

Attention: Tamara Keefe

Subject: LNU-Farmland Protection
Proposed FM 521/Beltway 8 to FM 2234 Highway Widening
Harris and Fort Bend Counties, Texas

We have reviewed the information provided in your correspondence dated May 24, 2013 concerning the proposed highway project in Harris and Fort Bend 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 (Form 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 encourage the use of accepted erosion control methods during the construction of this project.

If you have any questions, please contact me at (254) 742-9854, Fax (254) 742-9859 or by email at drew.kinney@tx.usda.gov.

Sincerely,

A handwritten signature in cursive script that reads "Drew Kinney".

Drew Kinney
NRCS GIS Specialist

Attachment

FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 5/24/13	4. Sheet 1 of 1
1. Name of Project FM 521 from Beltway 8 to FM 2234		5. Federal Agency Involved Federal Highway Administration	
2. Type of Project Highway widening and grade separations		6. County and State Harris and Fort Bend Counties, Texas	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 5-24-2013	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 <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated Average Farm Size 33,140 273	
5. Major Crop(s) Grain Sorghum	8. Farmable Land in Government Jurisdiction Acres: 1,267,348 % 80	7. Amount of Farmland As Defined in FPPA Acres: 1,267,348 % 76	
6. Name of Land Evaluation System Used LESA	9. Name of Local Site Assessment System NA	10. Date Land Evaluation Returned by NRCS 6-5-2013	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment 1			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	7.9			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	7.9			

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	14.7			
B. Total Acres Statewide And Local Important Farmland	2.5			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.001			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	19			

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)	86			
--	----	--	--	--

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	5			
2. Perimeter In Nonurban Use	10	1			
3. Percent Of Corridor Being Farmed	20	0			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	0			
6. Creation Of Nonfarmable Farmland	25	14			
7. Availability Of Farm Support Services	5	0			
8. On-Farm Investments	20	5			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	10			
TOTAL CORRIDOR ASSESSMENT POINTS	160	35	0	0	0

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	86	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	35	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	121	0	0	0

1. Corridor Selected: A	2. Total Acres of Farmlands to be Converted by Project: 7.9	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
----------------------------	--	-----------------------	--

5. Reason For Selection:

Signature of Person Completing this Part: _____ DATE _____

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

APPENDIX C:
RTP and STIP Excerpts

CORRIDOR-BASED MAJOR INVESTMENTS

MPOID	CSJ	County	Facility	From	To	Description	Length (mi)	Main Lanes	Frontage Lanes	Fiscal Year	Analysis Year	Total Project
												Cost (M, YOE)
SH 146												
137	0389-05-087	Harris	SH 146	FAIRMONT PARKWAY	RED BLUFF RD	WIDEN TO 6-LANES WITH TWO 2-LANE FRONTAGE ROADS	4.6	(4,6)	(0,4)	2018	2025	\$ 51.50
139	0389-05-088	Harris	SH 146	RED BLUFF RD	NASA I	WIDEN TO 8-LANES, GS AT MAJOR INTERSECTIONS AND 2 2-LANE FRONTAGE ROADS	1.8	(4,8)	(0,4)	2018	2025	\$ 76.70
14632	0389-05-116	Harris	SH 146	NASA RD I	GALVESTON/HARRIS CL	WIDEN TO 6-LANE ARTERIAL WITH 4-LANE EXPRESS LANES	1.0	(4,10)	n/a	2018	2025	\$ 98.80
468	0389-06-088	Galveston	SH 146	FM 518	FM 1764	WIDEN TO 6-LANES WITH TWO NONCONTINUOUS 2-LANE FRONTAGE ROADS IN SECTIONS	10.4	(4,6)	(0,4)	2021	2025	\$ 210.00
13842	0389-06-095	Galveston	SH 146	HARRIS/GALVESTON C/L	FM 518	WIDEN TO 6-LANES ARTERIAL WITH 4-LANE EXPRESS LANES	1.7	(4,10)	n/a	2019	2025	\$ 139.00
467	0389-07-025	Galveston	SH 146	FM 519	LP 197	CONSTRUCT RR OVERPASS	0.7	(2,4)	n/a	2030	2035	\$ 55.23
536	0389-13-039	Harris	SH 146	AT BS 146E	FERRY RD	CONSTRUCT 4 MAINLANES AND GRADE SEPARATION	0.9	(0,4)	(6,6)	2020	2025	\$ 47.09
7521		Harris	SH 146	SH 146 SB	SOUTHERN ACCESS RD	CONSTRUCT DIRECT CONNECTOR FROM SB LANES OF SH 146	0.5	n/a	n/a	2020	EREA (2025)	\$ 13.92
17055		Chambers	SH 146	SH 146 SB AT IH 10 AND	IH 10 WB FRTG RD AT SH 146 NB	CONSTRUCT MEDIAN IMPROVEMENTS AND EXTEND AND WIDEN TURN LANES	0.3	(4,4)	n/a	2018	EREA (2025)	\$.37
SH 249												
914	0720-02-074	Montgomery	SH 249	FM 1774/FM 149 IN PINEHURST	SPRING CREEK/HARRIS C/L	CONSTRUCT 6-LANE TOLLWAY WITH GRADE SEPARATIONS AT STAGECOACH RD AND WOODLANDS PARKWAY	3.6	(0,6)	(4,4)	2016	2025	\$ 129.93
339	0720-03-074	Harris	SH 249	MONTGOMERY C/L	BROWN RD	CONSTRUCT TWO 3-LANE FRONTAGE ROADS	1.1	(6,6)	(0,6)	2016	2025	\$ 35.17
913	0720-03-123	Harris	SH 249	MONTGOMERY C/L	BROWN RD	CONSTRUCT 6-LANE TOLLWAY WITH GRADE SEPARATIONS AT BROWN, BAKER AND ZION ROADS	1.2	(6,6)	(0,6)	2016	2025	\$ 165.00
11570	3635-01-001	Montgomery	SH 249	GRIMES COUNTY LINE	FM 1774/FM 149 IN PINEHURST	CONSTRUCT 4-LANE TOLLWAY IN SECTIONS	12.2	(0,4)	n/a	2016	2025	\$ 271.31
14524	3635-02-001	Grimes	SH 249	FM 1774 IN TODD MISSION	MONTGOMERY COUNTY LINE	**INFORMATION ONLY** PROJECT CONSISTENT WITH MONTGOMERY CO. PROJECT IN PLAN (MPOID 11570). CONSTRUCT 4-LANE TOLLWAY (GRIMES CO.)	2.4	(0,4)	n/a	2016	2025	\$ 473.40
SH 288												
14224	2105-01-048	Fort Bend	FM 2234	AT UPRR		CONSTRUCT GRADE SEPARATION (DOT# 447 968S)	0.6	(2,4)	n/a	2016	2025	\$ 20.10

CORRIDOR-BASED MAJOR INVESTMENTS

MPOID	CSJ	County	Facility	From	To	Description	Length (mi)	Main Lanes	Frontage Lanes	Fiscal Year	Analysis Year	Total Project
												Cost (M, YOE)
SH 288												
17110		Fort Bend	FM 521	FM 2234	SH 6	RECONSTRUCT AND WIDEN TO 4-LANES WITH RAISED MEDIANS, INTERSECTION IMPROVEMENTS, SIGNAL IMPROVEMENTS AND PEDESTRIAN ACCESS	5.2	(2,4)	n/a	2024	2035	\$ 93.30
534	0111-01-067	Harris	FM 521	BW 8	FORT BEND C/L	WIDEN TO 4-LANE DIVIDED SECTION AND CONSTRUCT GRADE SEPARATION AT UPRR (DOT# 447 969Y)	0.6	(2,4)	n/a	2016	2025	\$ 29.60
495	0111-03-031	Fort Bend	FM 521	HARRIS C/L	S OF FM 2234	WIDEN TO 4-LANE DIVIDED	0.3	(2,4)	n/a	2016	2025	\$ 4.10
10568	0598-01-090	Harris	SH 288	S OF US 59	IH 610	CONSTRUCT 4 TOLL LANES AND RECONSTRUCT DIRECT CONNECTORS AT IH 610	4.5	(0,4)	n/a	2016	2025	\$ 510.80
13856	0598-01-092	Harris	SH 288	IH 610	BRAZORIA C/L	CONSTRUCT 4 TOLL LANES	6.6	(0,4)	n/a	2016	2025	\$ 243.70
16026	0598-01-095	Harris	SH 288	AT HOLCOMBE BLVD		CONSTRUCT NB-WB AND EB-SB CONNECTORS TO SH 288 TOLL LANES	1.2	n/a	n/a	2016	2025	\$ 14.40
16033	0598-01-096	Harris	SH 288	AT BW 8		CONSTRUCT 8 DCS AT BW 8 INTERCHANGE	1.0	n/a	n/a	2016	2025	\$ 169.80
7748	0598-01-906	Harris	SH 288	IH 610	BW 8	RECONSTRUCT AND WIDEN TO 8 MAIN LANES	5.6	(6,8)	n/a	2032	2035	\$ 221.00
13765	0598-02-092	Brazoria	SH 288	HARRIS C/L	CR 58	CONSTRUCT 4 TOLL LANES WITH GRADE SEPARATIONS	5.0	(0,4)	n/a	2017	2025	\$ 206.44
13767	0598-02-093	Brazoria	SH 288	CR 58	SH 99	CONSTRUCT 4 TOLL LANES WITH GRADE SEPARATIONS	8.2	(0,4)	n/a	2032	2035	\$ 261.00
17060		Brazoria	SH 288	AT FM 518		RECONSTRUCT INTERSECTION INCLUDING ADDITIONAL THROUGH AND TURN LANES ON FM 518 AND ADDITIONAL TURN LANES ON SH 288 FRTG ROADS WITH SIGNAL AND PEDESTRIAN FACILITY UPGRADES	0.0	n/a	n/a	2017	EREA (2025)	\$ 17.50
16035	0598-01-099	Harris	SH 288	AT IH 610		RECONSTRUCT INTERCHANGE	5.0	(2,2)	n/a	2032	EREA (2035)	\$ 203.00
17016	0598-02-117	Brazoria	SH 288	AT FM 518		RECONSTRUCT NB AND SB MAIN LANE BRIDGES OVER FM 518 AND DESIGN SH 288/FM 518 INTERSECTION RECONFIGURATION	0.0	(6,6)	n/a	2017	EXEMPT	\$ 11.30
SH 36												
263	0188-01-016	Fort Bend	SH 36	US 59 S	FM 2218	WIDEN TO 4-LANE DIVIDED WITH CONTINUOUS LEFT TURN LANE, INTERSECTION IMPROVEMENTS AND BICYCLE ACCOMMODATIONS	2.9	(2,4)	n/a	2021	2025	\$ 51.80
262	0188-02-029	Fort Bend	SH 36	FM 2218	S OF NEEDVILLE FAIRCHILDS RD	WIDEN TO 4-LANE DIVIDED ROADWAY (CONTINUOUS LEFT TURN LANE AND RURAL IN SECTIONS) WITH INTERSECTION IMPROVEMENTS AND BICYCLE ACCOMMODATIONS	8.1	(2,4)	n/a	2019	2025	\$ 117.90

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM
HOUSTON-GALVESTON MPO - HIGHWAY PROJECTS
FY 2018

2017-2020 STIP		07/2016 Revision: Approved 12/19/2016							
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST		
HOUSTON	HOUSTON-GALVESTON	HARRIS	0389-05-116	SH 146	C	SEABROOK	\$ 79,700,000		
LIMITS FROM NASA RD 1							PROJECT SPONSOR TXDOT		
LIMITS TO GALVESTON/HARRIS CL							REVISION DATE 07/2016		
PROJECT WIDEN TO 6-LANE ARTERIAL WITH 4-LANE EXPRESS LANES							MPO PROJ NUM 14632		
DESCR							FUNDING CAT(S) 2M		
REMARKS		PROJECT HISTORY							
P7									
TOTAL PROJECT COST INFORMATION			AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	3,905,300	COST OF APPROVED PHASES \$ 79,700,000	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	0		2M	\$ 63,760,000	\$ 15,940,000	\$ 0	\$ 0	0	\$ 79,700,000
CONSTR \$	79,700,000		TOTAL	\$ 63,760,000	\$ 15,940,000	\$ 0	\$ 0	0	\$ 79,700,000
CONST ENG \$	3,188,000								
CONTING \$	7,970,000								
INDIRECT \$	4,048,760								
BOND FIN \$	0								
PT CHG ORD \$	0								
TOTAL CST \$	98,812,060								

2017-2020 STIP		07/2016 Revision: Approved 12/19/2016							
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST		
HOUSTON	HOUSTON-GALVESTON	HARRIS	0389-05-088	SH 146	C	SEABROOK	\$ 29,000,000		
LIMITS FROM RED BLUFF RD							PROJECT SPONSOR TXDOT		
LIMITS TO NASA 1							REVISION DATE 07/2016		
PROJECT WIDEN TO 8-LANES, GS AT MAJOR INTERSECTIONS AND 2 2-LANE FRONTAGE ROADS							MPO PROJ NUM 139		
DESCR							FUNDING CAT(S) 2M		
REMARKS		PROJECT HISTORY							
P7									
TOTAL PROJECT COST INFORMATION			AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	1,421,000	COST OF APPROVED PHASES \$ 29,000,000	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	40,779,606		2M	\$ 23,200,000	\$ 5,800,000	\$ 0	\$ 0	0	\$ 29,000,000
CONSTR \$	29,000,000		TOTAL	\$ 23,200,000	\$ 5,800,000	\$ 0	\$ 0	0	\$ 29,000,000
CONST ENG \$	1,160,000								
CONTING \$	2,900,000								
INDIRECT \$	1,473,200								
BOND FIN \$	0								
PT CHG ORD \$	0								
TOTAL CST \$	76,733,806								

2017-2020 STIP		07/2016 Revision: Approved 12/19/2016							
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST		
HOUSTON	HOUSTON-GALVESTON	HARRIS	0111-01-067	FM 521	C,R	NONE	\$ 23,750,000		
LIMITS FROM BW 8							PROJECT SPONSOR TXDOT		
LIMITS TO FORT BEND C/L							REVISION DATE 07/2016		
PROJECT WIDEN TO 4-LANE DIVIDED SECTION AND CONSTRUCT GRADE SEPARATION AT UPRR (DOT# 447							MPO PROJ NUM 534		
DESCR 969Y)							FUNDING CAT(S) 2M		
REMARKS		PROJECT HISTORY							
P7									
TOTAL PROJECT COST INFORMATION			AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	1,127,907	COST OF APPROVED PHASES \$ 23,750,000	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	731,500		2M	\$ 19,000,000	\$ 4,750,000	\$ 0	\$ 0	0	\$ 23,750,000
CONSTR \$	23,018,500		TOTAL	\$ 19,000,000	\$ 4,750,000	\$ 0	\$ 0	0	\$ 23,750,000
CONST ENG \$	1,150,925								
CONTING \$	2,301,850								
INDIRECT \$	1,169,340								
BOND FIN \$	0								
PT CHG ORD \$	0								
TOTAL CST \$	29,500,021								

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM
HOUSTON-GALVESTON MPO - HIGHWAY PROJECTS
FY 2018

2017-2020 STIP		07/2016 Revision: Approved 12/19/2016						
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST	
HOUSTON	HOUSTON-GALVESTON	FORT BEND	0111-03-031	FM 521	C	PEARLAND	\$ 3,280,000	
LIMITS FROM HARRIS C/L		PROJECT SPONSOR TXDOT						
LIMITS TO S OF FM 2234		REVISION DATE 07/2016						
PROJECT WIDEN TO 4-LANE DIVIDED		MPO PROJ NUM 495						
DESCR		FUNDING CAT(S) 2M						
REMARKS		PROJECT HISTORY						
P7								
TOTAL PROJECT COST INFORMATION		AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	160,720	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	0	2M	\$ 2,624,000	\$ 656,000	\$ 0	\$ 0	\$ 0	\$ 3,280,000
CONSTR \$	3,280,000	TOTAL	\$ 2,624,000	\$ 656,000	\$ 0	\$ 0	\$ 0	\$ 3,280,000
CONST ENG \$	196,800	COST OF APPROVED PHASES						
CONTING \$	328,000	\$ 3,280,000						
INDIRECT \$	166,624							
BOND FIN \$	0							
PT CHG ORD \$	0							
TOTAL CST \$	4,132,144							

2017-2020 STIP		07/2016 Revision: Approved 12/19/2016						
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST	
HOUSTON	HOUSTON-GALVESTON	FORT BEND	1258-03-046	FM 1093	C,E,R	NONE	\$ 17,000,000	
LIMITS FROM AT SH 99		PROJECT SPONSOR FBCTRA						
LIMITS TO		REVISION DATE 07/2016						
PROJECT WESTPARK TOLL ROAD EB-NB DIRECT CONNECTOR CONSTRUCTION		MPO PROJ NUM 16080						
DESCR		FUNDING CAT(S) 3RTR						
REMARKS		PROJECT HISTORY						
P7								
TOTAL PROJECT COST INFORMATION		AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	555,407	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	2,833,711	3RTR	\$ 0	\$ 0	\$ 0	\$ 0	\$ 17,000,000	\$ 17,000,000
CONSTR \$	11,334,845	TOTAL	\$ 0	\$ 0	\$ 0	\$ 0	\$ 17,000,000	\$ 17,000,000
CONST ENG \$	566,742	COST OF APPROVED PHASES						
CONTING \$	1,133,484	\$ 17,000,000						
INDIRECT \$	575,810							
BOND FIN \$	0							
PT CHG ORD \$	0							
TOTAL CST \$	17,000,000							

2017-2020 STIP		07/2016 Revision: Approved 12/19/2016						
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST	
HOUSTON	HOUSTON-GALVESTON	FORT BEND	2105-01-048	FM 2234	C,R	PEARLAND	\$ 16,880,000	
LIMITS FROM AT UPRR		PROJECT SPONSOR TXDOT						
LIMITS TO		REVISION DATE 07/2016						
PROJECT CONSTRUCT GRADE SEPARATION (DOT# 447 968S)		MPO PROJ NUM 14224						
DESCR		FUNDING CAT(S) 2M						
REMARKS		PROJECT HISTORY						
P7								
TOTAL PROJECT COST INFORMATION		AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	620,340	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	4,220,000	2M	\$ 13,504,000	\$ 3,376,000	\$ 0	\$ 0	\$ 0	\$ 16,880,000
CONSTR \$	12,660,000	TOTAL	\$ 13,504,000	\$ 3,376,000	\$ 0	\$ 0	\$ 0	\$ 16,880,000
CONST ENG \$	633,000	COST OF APPROVED PHASES						
CONTING \$	1,266,000	\$ 16,880,000						
INDIRECT \$	643,128							
BOND FIN \$	0							
PT CHG ORD \$	0							
TOTAL CST \$	20,042,468							

APPENDIX D:
Agency Coordination

Troy Olney-C

From: NEPA <NEPA@tceq.texas.gov>
Sent: Friday, February 13, 2015 3:43 PM
To: Troy Olney-C
Cc: NEPA
Subject: RE: FM 521 (0111-01-067) Draft EA Document for Review

The Texas Commission on Environmental Quality (TCEQ) received a request from the Texas Department of Transportation (TxDOT) regarding the following project: **FM 521 (0111-01-067) Draft EA Document for Review.**

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 severe nonattainment for the 1997 ozone National Ambient Air Quality Standard (NAAQS) and marginal nonattainment for the 2008 ozone NAAQS. 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.

Office of Water does not have any comments.

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 Elizabeth McKeefer, CAPM, NEPA Coordinator at (512) 239-2997 or NEPA@tceq.texas.gov.

From: Troy Olney-C [<mailto:TOLNEY-C@txdot.gov>]
Sent: Thursday, February 05, 2015 2:02 PM
To: TxDot
Subject: FM 521 (0111-01-067) Draft EA Document for Review

Hello,

TxDOT requests the TCEQ evaluate the Farm-to-Market Road (FM) 521 project per 43 TAC §2.305. An Environmental Assessment (EA) was prepared for proposed work on FM 521 from Beltway 8 to FM 2234 (McHard Road) in Harris and Fort Bend Counties, Texas. The project assessed in the EA includes reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 mile south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521.

We are requesting TCEQ review since the project meets MOU triggers related to the project adding capacity in a non-attainment area (43 TAC §2.305 (b)(1)), as well as the project's location within five miles of an impaired assessment unit and within the watershed of the impaired assessment unit (Clear Creek Segment 1102; 43 TAC §2.305 (b)(2)(C)).

An electronic version of the Draft EA document will be transmitted to your office using our FTP system. Please let me know if you have any questions.

Thank you,

Troy Olney

Environmental Affairs Division

Texas Department of Transportation

512-416-2522

TOLNEY-C@txdot.gov

Drive Smart in Winter Weather





MEMORANDUM

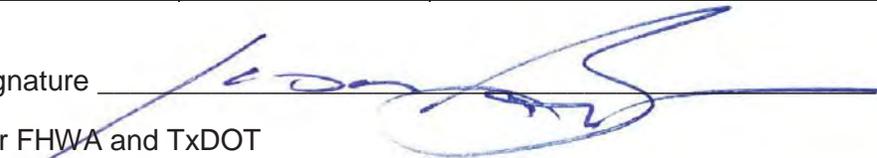
TO: 850 File, Various Road Projects, Various CSJs, Various Districts **DATE:** May 29, 2013

FROM: Scott Pletka, Ph.D.

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), and internal review under the Memorandum of Understanding (MOU) Between the Texas Historical Commission and the Texas Department of Transportation

Listed below, are the projects reviewed internally by qualified TxDOT archeologists from 05/23/13 to 05/29/13. These projects either do not warrant survey as a result of a low probability of encountering archeological historic properties and State Archeological Landmarks, or the projects were inspected by survey or impact evaluation and do not warrant further work. As provided under the PA-TU, consultation with the Texas State Historic Preservation Officer is not necessary for these undertakings. As provided under the MOU, the proposed projects do not require individual coordination with the Texas Historical Commission.

CSJ	DISTRICT	ROADWAY	WORK PERFORMED
1201-02-019	Austin	FM 487	No Survey
0111-01-067	Houston	FM 521	No Survey
0211-09-029	Yoakum	FM 155	Survey

Signature  Date: 05 / 30 / 2013
 For FHWA and TxDOT

cc: ECOS Data Entry; PD; ENV_ARC: PA File

WEEKLY LIST - 05/21/2013

EA

FM 521: Riley Road to FM 2234

Harris and Fort Bend Counties – Houston District

CSJ: 0111-01-067, -03-031, -057, and 2105-01-048

No Survey Warranted

Allen Bettis

The proposed project would improve Farm-to-Market Road (FM) 521 between Riley Road (Rd) and FM 2234 in Harris and Fort Bend Counties. The proposed project would improve widen and FM 521 from a two-lane, rural undivided facility to a four-lane, divided urban facility with curb and gutter and proposed grade separations at the Union Pacific Railroad and FM 2234. The proposed improvements would tie into the existing seven-lane facility north of Riley Rd. The proposed project would also construct a detention basin within the “jughandle” constructed at the south end of the proposed project limits at FM 2234. The proposed project would acquire 11.56 acres of proposed right of way (ROW). No easements would be needed for the proposed project.

The area of potential effect (APE) is defined as the proposed project area (approximately 53.59 acres), the project length of approximately 1.5 miles, the existing 100-foot wide ROW on FM 521 and FM 2234, the 11.56 acres of proposed ROW, and the depth of construction impacts (usually 4-feet, no more than 25-feet in depth for grade separations). For the purposes of this cultural resources review, potential impacts are considered within an area that includes the stated APE, as well as a 50-foot lateral buffer 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 buffer, based on the final design.

The proposed project APE is described as an area of rolling coastal prairie, with an approximate elevation of 65-feet NGVD. The APE is located in a semi-urban setting. Current land use is as an existing roadway, maintained ROW, and private property. The proposed project is depicted on the USGS Almeda, TX (2995-422) 7.5' topographic quadrangle map.

The Geologic Atlas of Texas, Houston Sheet (BEG, UT-Austin: 1982), depicts the APE entirely within a broad area mapped as Beaumont Formation. The Web Soil Survey (USDA-NRCS: 2008, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>) for Harris and Fort Bend Counties, Texas, depicts the APE within an area mapped as Bernard clay, Bernard-Edna Complex soils, Gessner loam, and Lake Charles clay. The parent materials for these soils are clayey and loamy fluviomarine deposits of early Pleistocene age.

Review of the Houston Potential Archeological Liability Map (PALM) revealed that the proposed bridge replacement is located in an area depicted as Map Units #2 and #4. Map Unit #2 recommends an archeological surface survey. Map Unit #4 recommends no survey warranted. The historic topographic quadrangle maps on the Houston Historic Overlay for the PALM indicate that there is a reasonable potential for historic-age archeological materials within this general area surrounding the proposed project APE. Review of the 1936 Texas Highway Department General Road Map for Fort Bend County and for Harris County, as well as the 1915 USGS Almeda, TX quad map, depict no historic structures in the immediate vicinity of the proposed project APE that have not been built over by industrial complexes and other structures. The Clear Creek channel appears to have been channelized as early as 1915. Based on the high degree of urban/industrial development, there is no reasonable potential for intact historic archeological deposits within the APE.

A review of the Texas Archeological Sites Atlas revealed that there are no previously recorded sites located within or adjacent to the APE for the proposed project. The nearest recorded sites are located approximately 8,000 meters (26,400-feet) outside of the APE. There are several archeological surveys located within 2,000 meters (6,600-feet) of the APE. Two are located adjacent to or overlapping the APE, a 1973 US Army Corps of Engineers – Galveston District survey along either side of Clear Creek and a 2004 TxDOT survey of FM 2234. None of these surveys encountered archeological materials. AmaTerra Environmental, Inc., recently (2013) performed an archival background study of the proposed project APE, forming the basis for this coordination, and concluded that the APE was extensively disturbed, was in an area of low potential, and that the proposed project would have no effect on any eligible archeological sites and did not warrant any further archeological investigation. TxDOT agreed.

The APE is located within an area of relict and highly disturbed soils. Review of available historic maps and aerial photos reveal a potential for historic-age archeological materials in the general area of the APE. The PALM recommends there is a no potential for prehistoric archeological materials within the immediate area of the APE; previous archeological surveys adjacent to and overlapping the APE did not encounter any archeological materials. The proposed APE has been previously disturbed by transportation developmental and maintenance activities. The soils within the APE have been extensively disturbed by the above activities compromising the horizontal and vertical integrity of the soils within the APE. Any sites that might occur within the APE would lack sufficient horizontal and vertical integrity of location, association, and materials to be able to address important questions of history and prehistory (36 CFR 60.4). Any archeological materials that might have been located within the APE have long since been disturbed and no longer retain any integrity or significance.

Pursuant to Stipulation VI of the PA and 43 TAC 2.24(f)(1)(C) of the MOU, TxDOT finds that the proposed undertaking would not affect archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks. No further investigations are warranted. As provided in Stipulation IX .D.6.a of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic

Preservation Officer (SHPO), and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings, consultation with SHPO is not necessary for this undertaking. Based on the above findings, TxDOT proposes the following recommendations:

- an archival review has found that no archeological historic properties (36 CFR 800.16(1)) or SAL (13 TAC 26.8) would be affected by this project;
- that no further archeological investigation is warranted at this time and the proposed project should be allowed to proceed to construction;
- that a buffer zone of 50 feet beyond the APE be considered as part of the cultural resources evaluation; and,
- if changes to the project APE extend beyond the 50-foot buffer and the APE requires an archeological investigation, additional coordination with your office would be necessary;

In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archeological staff will be contacted to initiate post-review discovery procedures under the provisions of the PA-TU and MOU.



**ARCHEOLOGICAL BACKGROUND STUDY OF FM 521 FROM
RILEY ROAD TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS
CSJ #0111-01-067, 0111-03-031, 0111-03-057, AND 2105-01-048**

Introduction

Texas Department of Transportation (TxDOT) plans to make improvements to FM521 from Riley Road to past FM 2234 in Pearland, Harris and Fort Bend Counties, Texas. The total linear distance of the undertaking is 1.5 miles (2.4 km). The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided rural roadway from Beltway 8 to 0.5 miles south of FM 2234 (McHard Road) with a proposed grade separation at Union Pacific Railroad (UPRR) and FM 2234. The logical termini of the project are Beltway 8 and FM 2234.

The project widens FM 521 to a four-lane divided curb and gutter section with a 16-foot raised median from Riley Road to FM 2234 and ties to the existing seven-lane section north of Riley Road. Project improvements to the intersection at FM 521 and FM 2234 provide for a “jug-handle” that creates two offset “T” intersections (one along FM 521 and one along FM 2234).

The horizontal Area of Potential Effect (APE) is defined based on schematics as the footprint of the existing and proposed new right of way (ROW) along project area length from Riley Road to past FM 2234 (see Attachment A). Thus, the APE for this project consists of all areas along FM 521 south of Riley Rd to 0.2 miles south of FM 2234, and areas along FM 2234 from 0.37 miles west of FM 521 and 0.15 miles east of FM 521 (Figure 1). The total area for the APE is approximately 53.59 acres (42.03 acres of existing ROW and 11.56 acres of proposed ROW). The vertical APE is less than four feet along most of the route, though bridge piers over the railroad would extend to a depth exceeding 25 feet.

Archeological Background and Previous Archeological Studies

Background research for this project consisted of a records search online through the Texas Archeological Sites Atlas (Atlas) and a review of historic maps. No archeological sites, sites listed on the National Register of Historic Places (NRHP), Registered Texas Landmarks (RTLs), or cemeteries are within one mile (1.6 kilometers) of the APE (Texas Historic Commission 2013).

The majority of the project area has not been surveyed for archeological resources. According to the Online Archeological Sites Atlas, maintained by the Texas Historical Commission, three previous linear surveys and one areal survey have intersected or come within one mile of the project area with no sites recorded within the project APE (Figure 2). The surveys are:

- In 1985 TxDOT sponsored a linear survey in advance of construction of Beltway 8. The survey intersected the APE just south of Fellows Road. No sites were recorded within one mile of the current APE.
- In 1973 the Galveston Corps of Engineers sponsored a linear survey that flanked both sides of Clear Creek. The survey was not conducted under permit and therefore, there is no information on the THC's online sites atlas about what level of effort was expended. However no sites were recorded within one mile of the APE.
- In 2004, Moore Archaeological Consultants conducted a survey for TxDOT in advance of road expansion along FM 2234, under Permit 3490. FM 521 formed the eastern terminus of that survey which consisted of shovel tests and visual inspection. No sites were recorded within one mile of the current APE.
- In 2011, Atkins conducted a survey of many detention pond locations along Beltway 8, under Permit 5969. Three of these locations are within one mile of the APE with no sites recorded.

One historical marker is located along FM 521 north of the APE. This marker describes the origins of Almeda.

A review of online files at the Texas Archeological Sites Atlas revealed that there are no archeological sites within one mile of the current APE. The closest sites are 41HR904-906, located along FM 521 approximately five miles north of the APE. These three sites, recorded in 2002 consist of two historic-period house sites and an historic-period family cemetery. These would not be impacted by the current proposed undertaking.

Physical Setting

The project area is located within the West Gulf Coastal Plain as defined by Fenneman (1938). The Coastal Plain extends eastward and northeastward into eastern Texas and Louisiana as well as south to the Rio Grande. The FM 521 corridor on which the project area is located has been extensively modified over the years by industrial development stemming from the petrochemical industry and from development emanating from Houston. Much of the proposed APE has been landscaped, built upon, or disturbed in other ways as a result of this development. Based on a review of aerial photography and historical maps, the current channel alignment of Clear Creek is artificial, the original channel being located farther north than the current alignment.

Geology and Soils

The project area is located over the Pleistocene aged Beaumont Formation (Qbc) that is dominated by dense clay. Small pockets of the eastern section of the project area feature Rio Grande Delta clay veneer over sand meanderbelts. The Pleistocene Beaumont terrace on which the entire project area is located has existed in its approximate modern form since at least the last Full Glacial (approximately 18,000 years ago), and thus the deposits that underlie the surfaces have negligible potential to contain artifacts dating from demonstrated, culturally relevant periods (Abbott 2001:141). From a geoarcheological perspective, the Beaumont uplands represent long-term stable surfaces. Where the epipedon is clayey to loamy, they have little to no potential to host sites with contextual integrity except where pimple mounds are present (Abbott 2001:143).

Soils within the project area comprise two main soil mapping units: Lake Charles Clay (La, 37.4%) and Bernard-Edna Complex Loam (Be 42%). Both soils are deep fluviomarine clays and clay loam deposits formed during the Late Pleistocene (USDA_NRCS 2013). Lake Charles Clay occurs on flats, while Bernard-Edna is found on former creek meanders. Bernard Clay (Bc, 15.5%) and Gessner Loam (Ge, 4.4%) make up the remainder of soils. Bernard Clay is similar to Bernard-Edna Complex loam, consisting of deep clays formed during the late Pleistocene. Gessner loam forms within depressions, tends to be concave and typically dates to the early Pleistocene. In terms of age, Lake Charles Clay, Bernard-Edna Complex Loam and Bernard Clay all have some potential to contain shallowly buried cultural resources in areas that have not been previously disturbed.

Historical Land Use

A review of historic maps suggests that few structures were present within the APE until after 1939. The 1915 USGS Almeda topographic quad shows no structures within the APE (Figure 3). The 1939 Harris County highway map suggests that no structures were present. However, since the map is not scaled, the two structures, likely farmhouses, present to the north of the approximate APE could be within it (Figure 4). The 1955 Almeda USGS topographic quad (Figure 5) shows up to five additional structures present on the west side of FM521, only one on the east side, at the corner of Riley Road and FM 521, and several on FM 2234 but these appear to have been razed in favor of the present industrial complexes. Notably, the 1915 topographic map also depicts Clear Creek as having been channelized at that time.

Post 1950s development in the APE has centered on light commercial and industrial uses. Examples of current land use around the FM 521 project include a chemical plant, industrial warehouses and machine stores, a water treatment plant, and a humane society facility. However, the area south of Clear Creek is still largely agricultural.

Archeological Site Potential

The Pleistocene geology and alluvial soils within the APE demonstrate some potential to contain prehistoric archeological resources, but these would likely be shallowly buried.

For a study conducted within the TxDOT Houston District, Abbott (2001:21-23, 158, Appendix VI) created a Houston District Potential Archeological Liability Map (Houston-PALM) and assigned map unit designations and archeological work recommendations to soil zones. The geoarcheological potential varied from “very high” in Map Unit 1 to “low” in Map Unit 4. Approximately 85% of the APE falls within Map Unit 4 for which pedestrian survey is not recommended. The remaining 15% is within Map Unit 2, for which the Houston-PALM recommends surface survey accompanied by shovel testing, but not mechanical trenching (Figure 6). It should be noted, however, that Abbott’s model addresses only the geoarcheological potential for prehistoric sites. Historic archeological sites could be found in virtually any of Abbott’s map units. These sites are typically shallowly buried or on the surface. Based on map research, however, the potential for historic-period archeological sites that pre-date 1939 is low.

Summary and Recommendations

Based on information obtained from the background research, the APE can generally be regarded as having a low overall potential of containing archeological sites. Even in areas designated as Map Unit 2 by Abbott, previous channelization, dredging for drainage ponds, road and railroad construction, and other industrial-scale activities nearby has likely affected the integrity of archeological deposits. Furthermore, previous surveys conducted in the area have documented no evidence of archeological resources. Based on these factors, an archeological survey of the proposed APE is not warranted.

Section 106 review and consultation should proceed in accordance with the First Amended Programmatic Agreement among TxDOT, the THC, the Federal Highway Administration, and the Advisory Council on Historic Preservation, as well as the Memorandum of Understanding between THC and TxDOT. In the event that unanticipated archeological resources are found during construction, all work should cease until a representative from TxDOT can be notified and evaluate the finds.

References Cited

Abbott, J.T.

2001 Houston Area Geoarchaeology. Texas Department of Transportation. Austin, Texas.

Fenneman, N.M.

1938 Physiography of Eastern United States. McGraw-Hill Book Co, New York.

Texas Historical Commission

2012 *Texas Archeological Sites Atlas Online*. <http://nueces.thc.state.tx.us/>, Accessed February 8, 2013.

United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS)

2013 Soil Survey, Fort Bend County Texas.

<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS

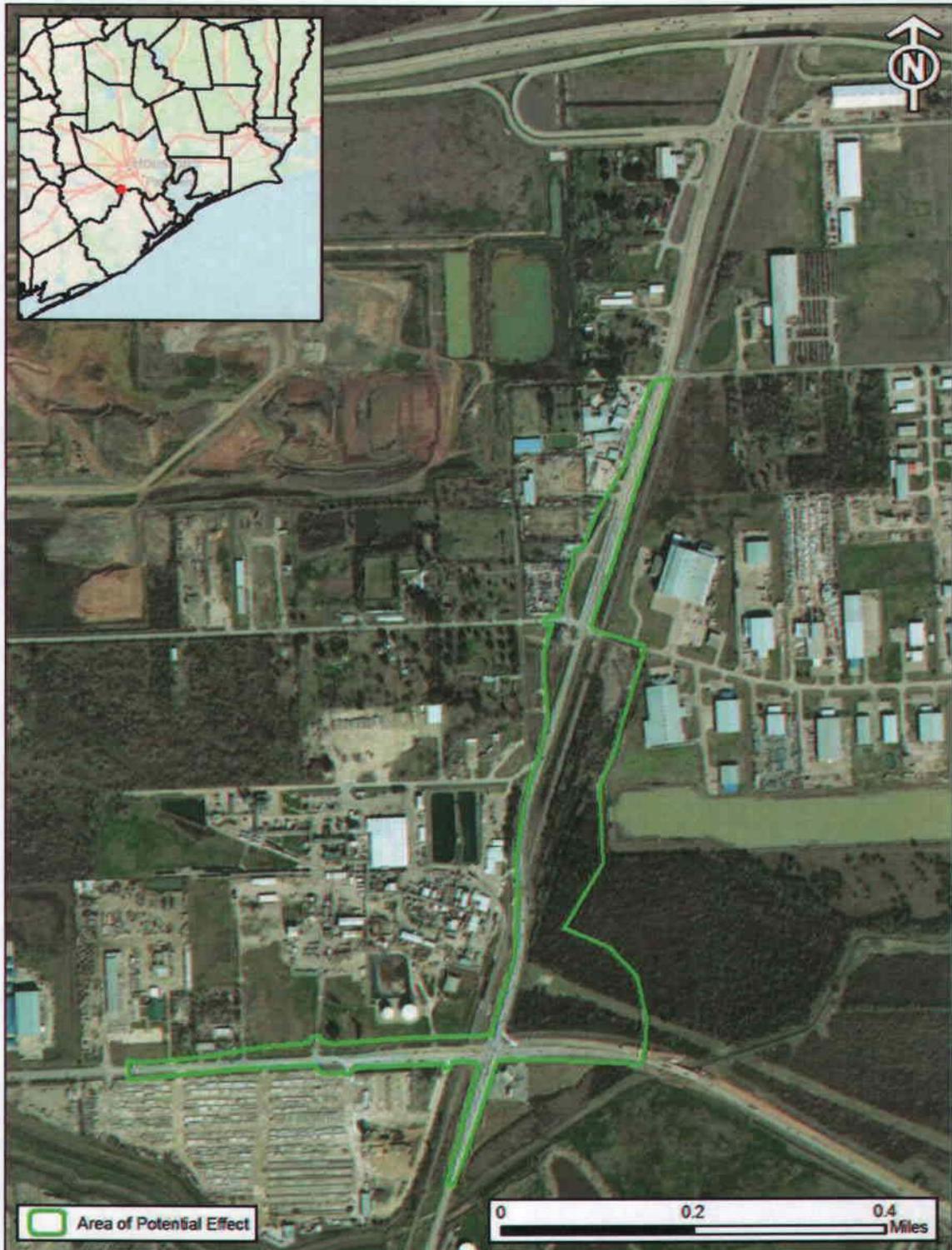


Figure 1. APE plotted on current Bing Maps aerial.

ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS

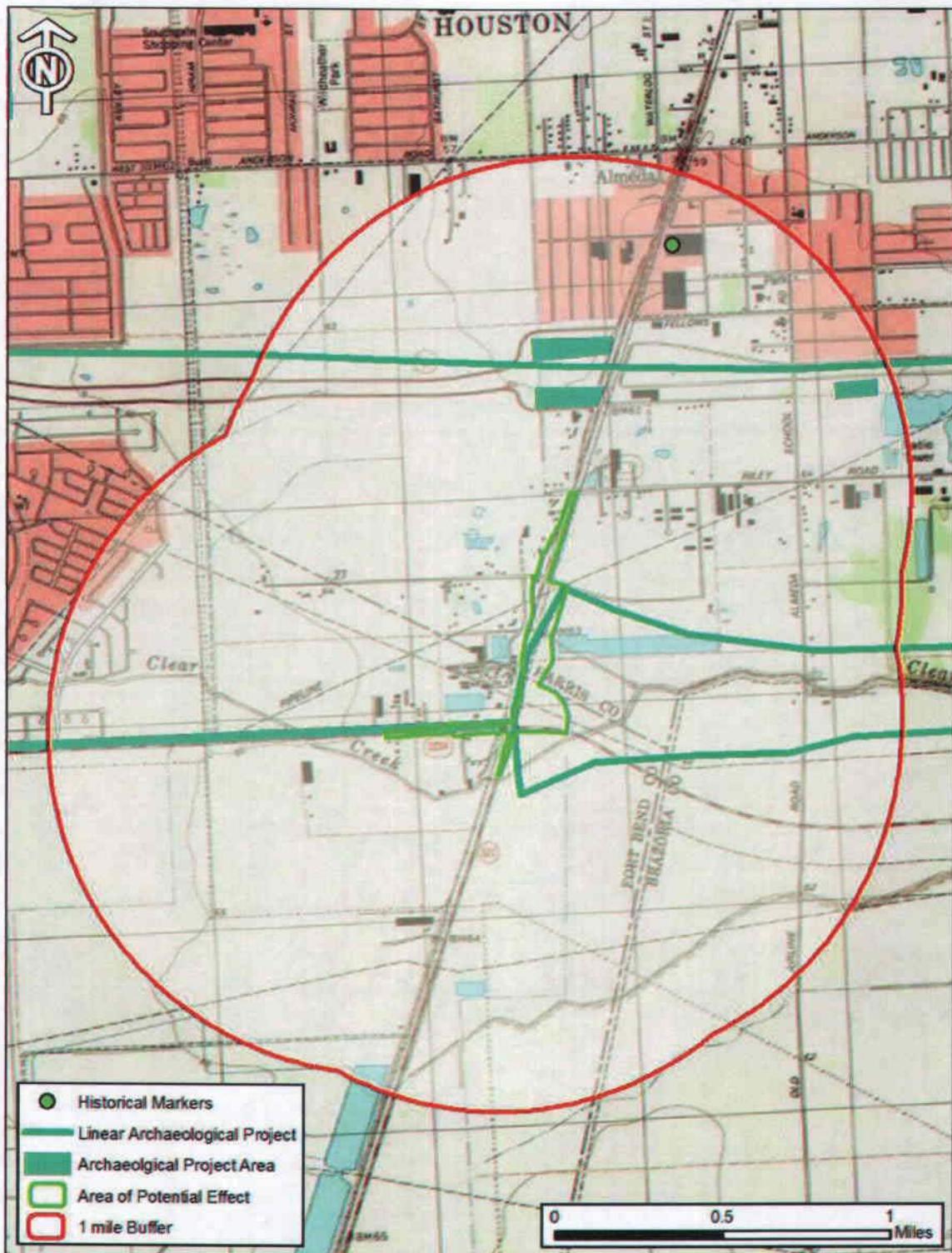


Figure 2. THC data plotted with one mile buffer around the APE.

ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS

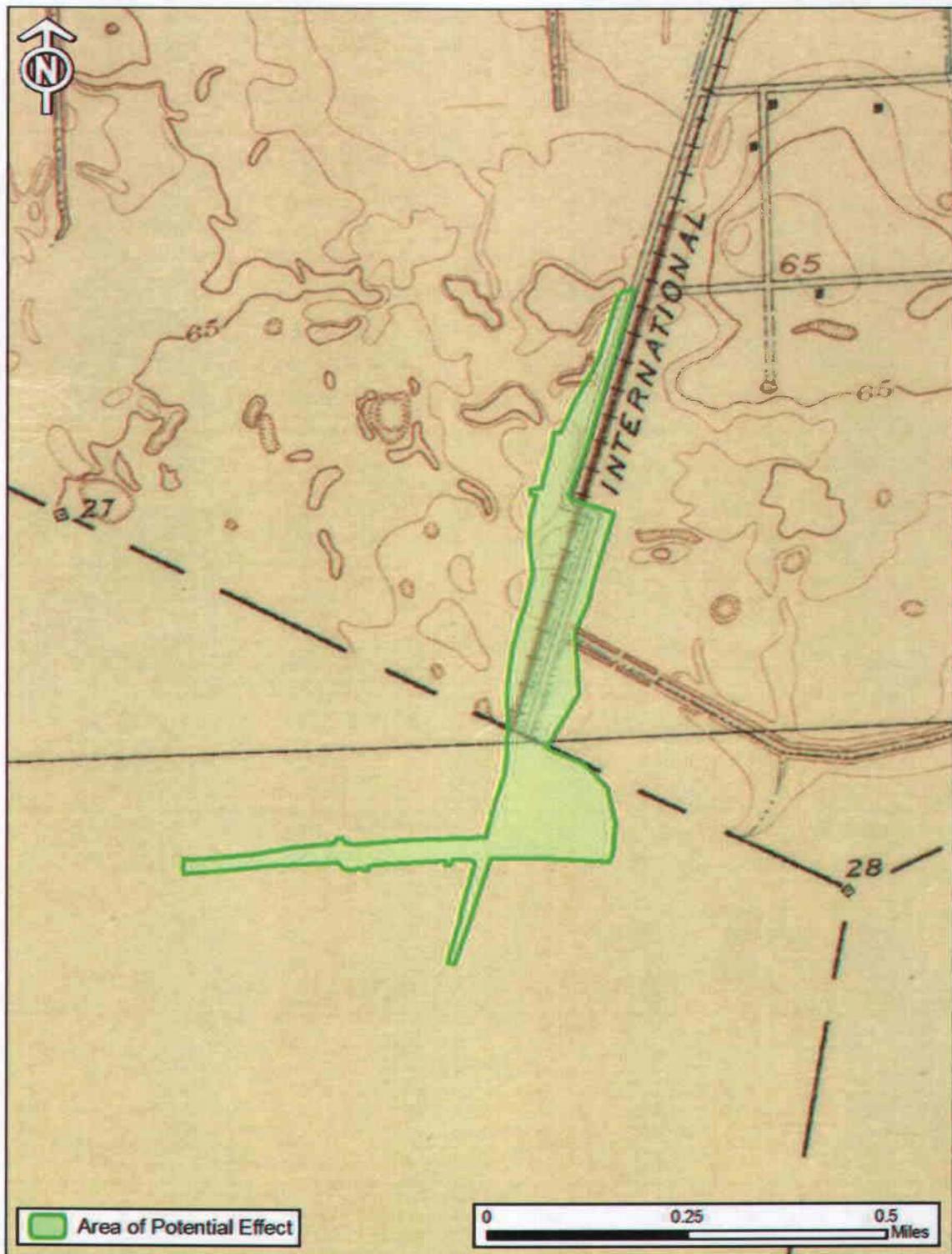


Figure 3. APE plotted on 1915 Alameda, Tx USGS Topographic Map.

ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS

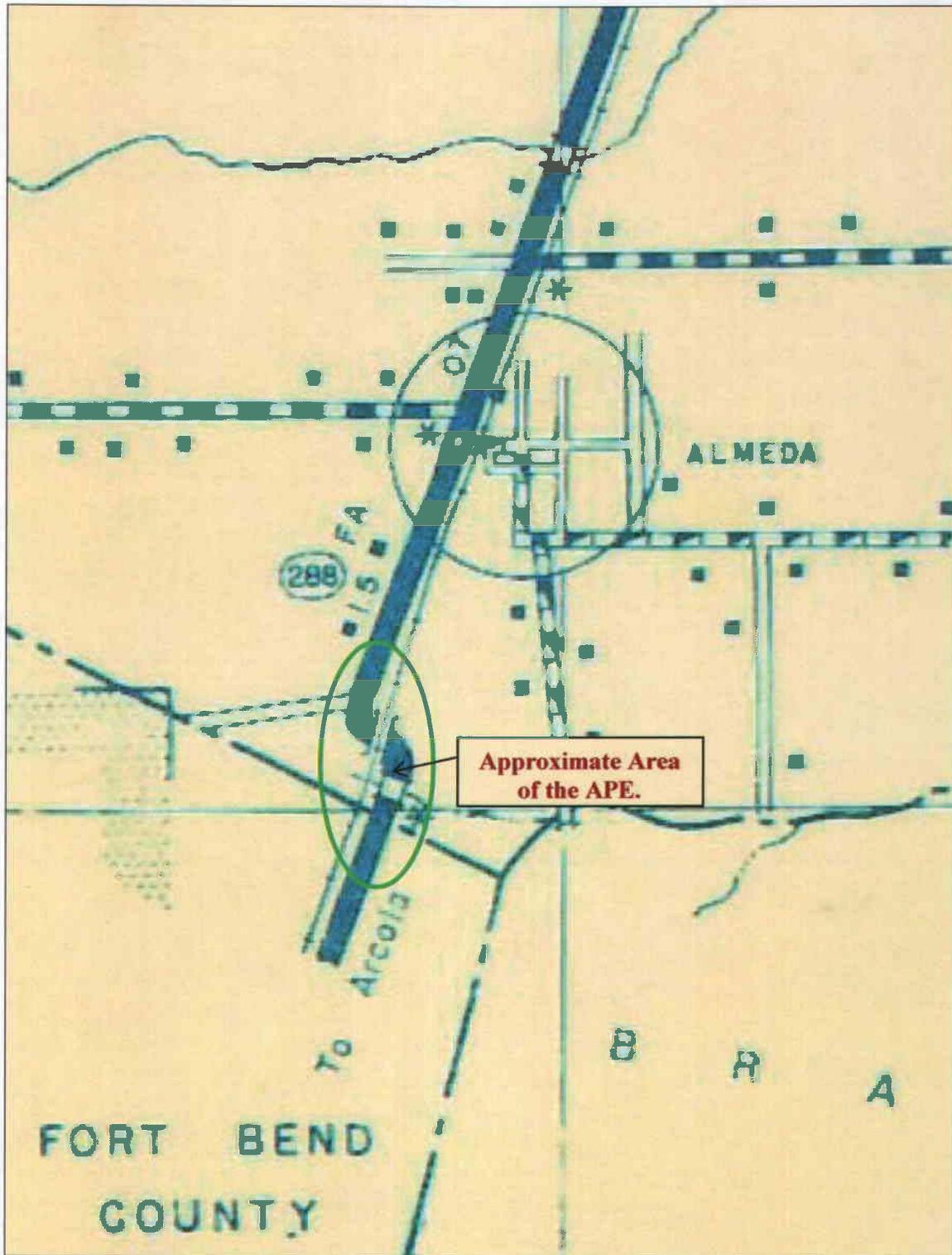


Figure 4. Portion of the 1940 Harris County Highway Map (not to scale).

ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS

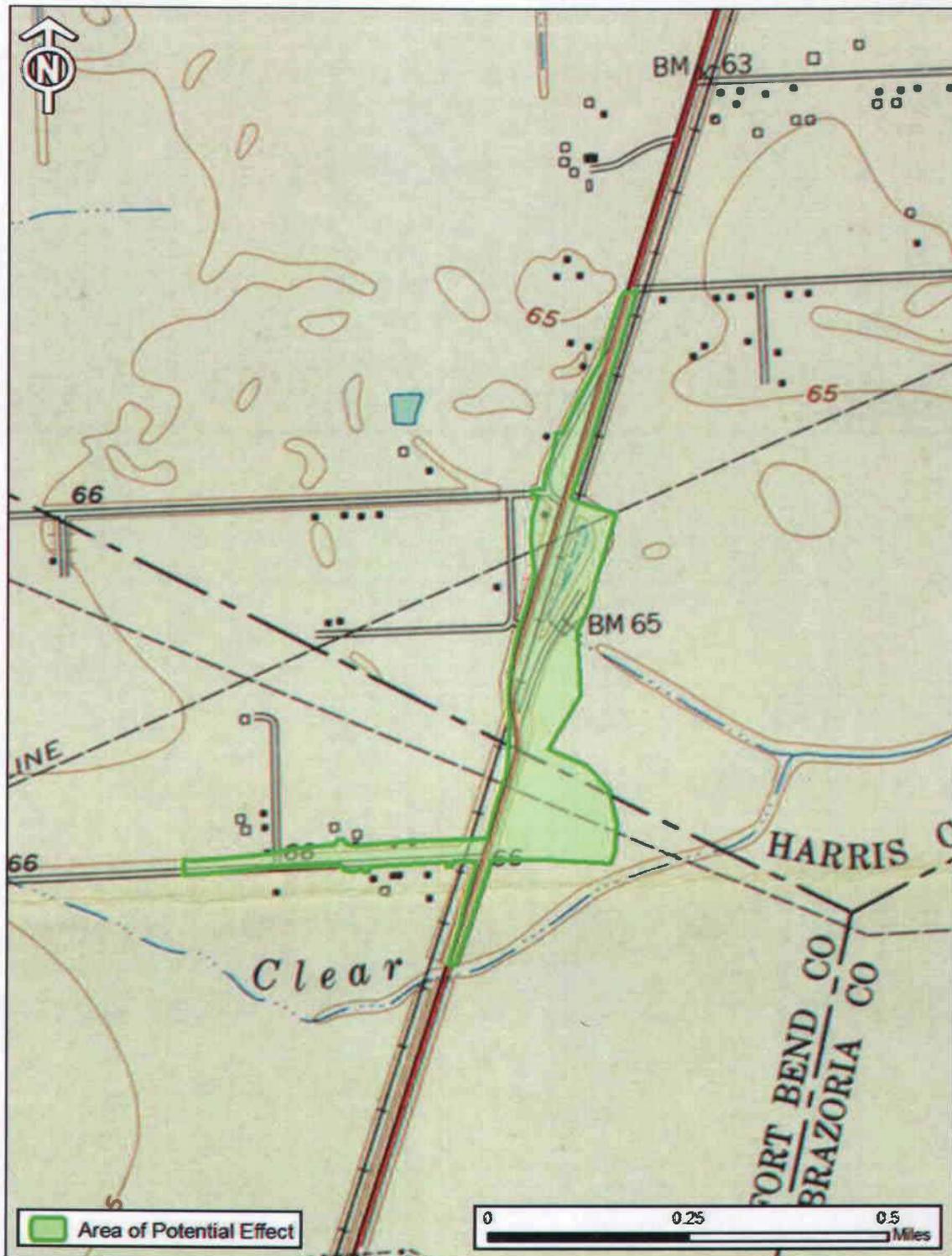


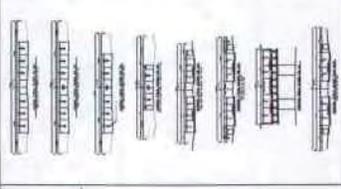
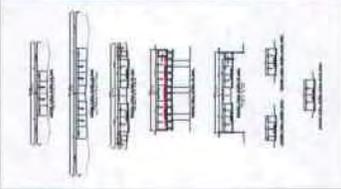
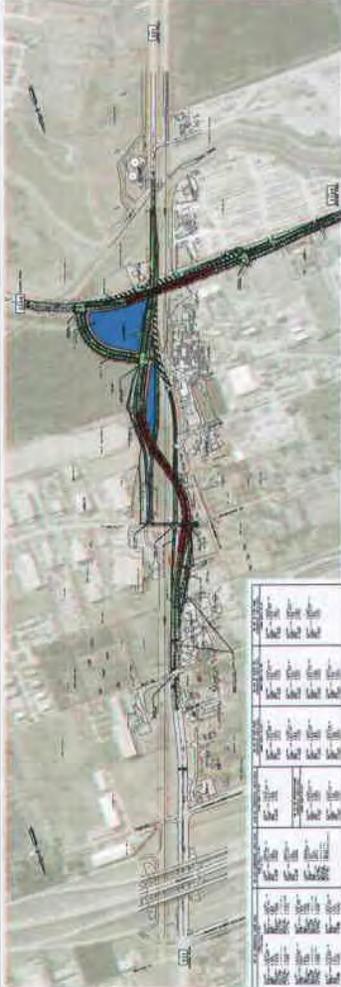
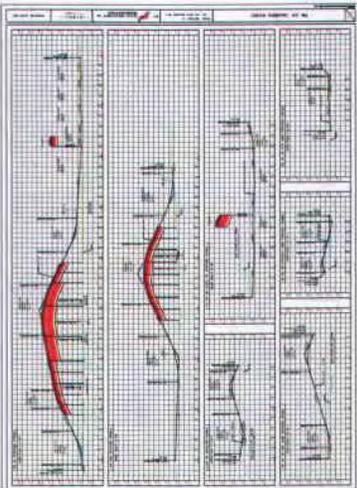
Figure 5. APE plotted on the 1955 Alameda, Tx USGS Topographic Map.

ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS



Figure 6. Houston PALM data overlain on the APE.

APPENDIX A-
SCHEMATICS, PROFILES AND TYPICAL SECTIONS



1. PRELIMINARY DESIGN
 2. SUBJECT TO CHANGE
 3. SEE NOTES FOR DETAILS
 4. SEE NOTES FOR DIMENSIONS
 5. SEE NOTES FOR MATERIALS
 6. SEE NOTES FOR CONSTRUCTION
 7. SEE NOTES FOR MAINTENANCE
 8. SEE NOTES FOR SAFETY
 9. SEE NOTES FOR ENVIRONMENT
 10. SEE NOTES FOR COSTS
 11. SEE NOTES FOR SCHEDULE
 12. SEE NOTES FOR RISK
 13. SEE NOTES FOR LEGAL
 14. SEE NOTES FOR ETHICS
 15. SEE NOTES FOR PROFESSIONAL RESPONSIBILITY



U.S. Department
of Transportation
**Federal Highway
Administration**

FEDERAL HIGHWAY ADMINISTRATION
300 EAST 8TH STREET, RM 826
AUSTIN, TEXAS 78701

SCANNED
5/22/13 SKD



**Texas
Department
of Transportation**
TEXAS DEPARTMENT OF TRANSPORTATION
125 E. 11th STREET
AUSTIN, TEXAS 78701-2483

May 22, 2013

Mr. Kevin Sickey, Chairperson
Coushatta Tribe of Louisiana
P.O. Box 818
Elton, LA 70532

RE: CSJ: 0111-01-067, 0111-03-031, 0111-03-057, 2105-01-048; FM 521, from Riley Road to FM 2234, Roadway Widening and Reconstruction; Harris and Fort Bend Counties, Houston District

Dear Mr. Sickey:

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 purpose of this letter is to contact you in order to initiate Section 106 consultation 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 may be of interest to your Tribe.

The proposed project would provide improvements on Farm-to-Market Road (FM) 521, between Riley Road and FM 2234, in Harris and Fort Bend Counties, Texas. Maps that show the proposed project area are enclosed, as well as a map of the state that indicates the location of Harris and Fort Bend Counties.

The proposed project would widen FM 521 from a 2-lane, rural undivided facility to a 4-lane, divided urban facility with curb and gutter and proposed grade separations at the Union Pacific Railroad and FM 2234. The proposed improvements would tie into the

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Project, Houston District
CSJ: 0111-01-067, 0111-03-031, 0111-03-057, 2105-01-048; FM 521, from Riley Road to
FM 2234, Roadway Widening and Reconstruction; Harris and Fort Bend Counties

existing 7-lane facility north of Riley Road. The project would also include construction of a detention basin within the "jughandle" constructed at the south end of the proposed project limits at FM 2234. The proposed project would acquire 11.56 acres of proposed right of way (ROW). No easements would be needed for the proposed project.

The area of potential effects (APE) would be defined as the proposed project area (approximately 53.59 acres), the project length of approximately 1.5 miles, the existing 100-foot-wide ROW on FM 521 and 2235, the 11.56 acres of proposed ROW, and the depth of construction impacts. The depth of impacts would be 4 feet below ground surface for much of the project area, with a maximum of 25 feet below ground surface for construction of the grade separations. For the purposes of this cultural resources review, potential impacts are considered within an area that includes the stated APE, as well as a 50-foot lateral buffer 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 buffer, based on the final design.

The proposed project APE is described as an area of rolling coastal prairie, with an approximate elevation of 65 feet National Geodetic Vertical Datum (NGVD). The APE is located in a semi-urban setting. Current land use is as an existing roadway, maintained ROW, and private property. The proposed project is depicted on the USG Almeda, TX (2995-422) 7.5 minute topographic quadrangle (see enclosed map section).

The Geologic Atlas of Texas, Houston Sheet, maps the APE entirely within a broad area of Beaumont Formation (Bureau of Economic Geology, The University of Texas at Austin: 1982). The Web Soil Survey for Harris and Fort Bend Counties, courtesy of the United States Department of Agriculture Natural Resources Conservation Service, depicts the APE within an area mapped as Bernard clay, Bernard-Edna Complex soils, Gessner loam, and Lake Charles clay (<http://websoilsurvey.nrcs.usda.gov/ap/WebSoilSurvey.aspx>). The parent materials for these soils are clayey and loamy fluviomarine deposits of early Pleistocene age.

Review of the Houston Potential Archeological Liability Map (Houston PALM) indicates that the proposed project is located in an area depicted as Map Units #2 and #4. Map Unit #2 recommends an archeological surface survey. Map Unit #4 recommends no survey warranted. The historic topographic quadrangle maps on the Houston Historic Overlay for the Houston PALM indicate that there is a reasonable potential for historic-age archeological materials within this general area surrounding the proposed project APE. Review of the 1936 Texas Highway Department General Road Map for Fort Bend County and Harris County, as well as the 1915 USGS Almeda, TX quadrangle, depict no historic-age structures in the immediate vicinity of the proposed project APE that have not been built over by industrial complexes and other structures. The Clear Creek channel appears to have been channelized as early as 1915. Based

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Project, Houston District
CSJ: 0111-01-067, 0111-03-031, 0111-03-057, 2105-01-048; FM 521, from Riley Road to
FM 2234, Roadway Widening and Reconstruction; Harris and Fort Bend Counties

on the high degree of urban/industrial development, there is no reasonable potential for intact historic-age archeological deposits within the APE.

A review of the Texas Archeological Sites Atlas (Atlas) shows no previously recorded archeological sites located within or adjacent to the APE for the proposed project. The nearest recorded sites are located approximately 8.0 kilometers (4.97 miles) beyond the APE. The Atlas indicates completion of several archeological surveys within 2.0 kilometers (1.24 miles) of the APE. None of these surveys encountered archeological materials. In 1973 the US Army Corps of Engineers - Galveston District completed a survey along either side of Clear Creek. In 2004, TxDOT completed a survey of FM 2234. These two investigations were located adjacent to or overlapping the APE for the current project. AmaTerra Environmental, Inc., recently completed an archival background study of the proposed project APE, which forms the basis for this consultation. They concluded that the APE is extensively disturbed, is in an area of low potential, and that the proposed project would have no effect on any eligible archeological sites and did not warrant any further archeological investigation. TxDOT agrees with their conclusions.

The APE is located within an area of relict and highly disturbed soils. Review of available historic maps and aerial photos reveal a potential for historic-age archeological materials in the general area of the APE. The Houston PALM recommends no potential for prehistoric archeological materials within the immediate area of the APE. Previous archeological surveys adjacent to and overlapping the APE did not encounter any archeological materials. The proposed APE has been previously disturbed by transportation development and maintenance activities. The soils within the APE have been extensively disturbed by the above activities, which compromises the horizontal and vertical integrity of the soils within the APE. Any sites that might occur within the APE would lack sufficient horizontal and vertical integrity of location, association, and materials to be able to address important questions of history and prehistory (36 CFR 60.4). Any archeological materials that might have been located within the APE have long since been disturbed and no longer retain any integrity or significance. Based on the above review, ***TxDOT provides the following findings and recommendations for this proposed project:***

- ***that no archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks (13 TAC 26.8) would be affected by this project;***
- ***that a buffer zone of 50 feet beyond the APE be considered as part of the cultural resources evaluation;***
- ***that no further archeological investigation is warranted at this time.***

According to our procedures and at the request of the FHWA under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Project, Houston District
CSJ: 0111-01-067, 0111-03-031, 0111-03-057, 2105-01-048; FM 521, from Riley Road to
FM 2234, Roadway Widening and Reconstruction; Harris and Fort Bend Counties

properties of cultural or religious significance to your Tribe that may be affected by the proposed undertaking APE and the area within the above defined buffer. Any comments you may have on the TxDOT recommendation 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 with a recommendation "no historic properties affected," please sign below to indicate your concurrence. In the event that further investigations by our office disclose 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 Allen Bettis (TxDOT Archeologist) at 512/416-2747 (email: Allen.Bettis@txdot.gov) or me at 512/416-2638 (email: Sharon.Dornheim@txdot.gov). When replying to this correspondence, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Sincerely,



Sharon Dornheim
Staff Archeologist / Consultation Coordinator
Archeological Studies Branch
Environmental Affairs Division

Concurrence by:

Date:

Attachments

cc w/attachments:

John J. Zachary, Tribal Attorney, Coushatta Tribe of Louisiana;
Sue Theiss, TxDOT Houston District Environmental Coordinator;
Juan Valera-Lema, ENV-PD TxDOT;
Allen Bettis, ENV-ARCH TxDOT;
ENV-ARCH Project File / ENV-ARCH ECOS

The attached letter was sent to the following tribes on May 22, 2013 :

Mr. Kevin Sickey, Chairperson
Coushatta Tribe of Louisiana
P.O. Box 818
Elton, LA 70532

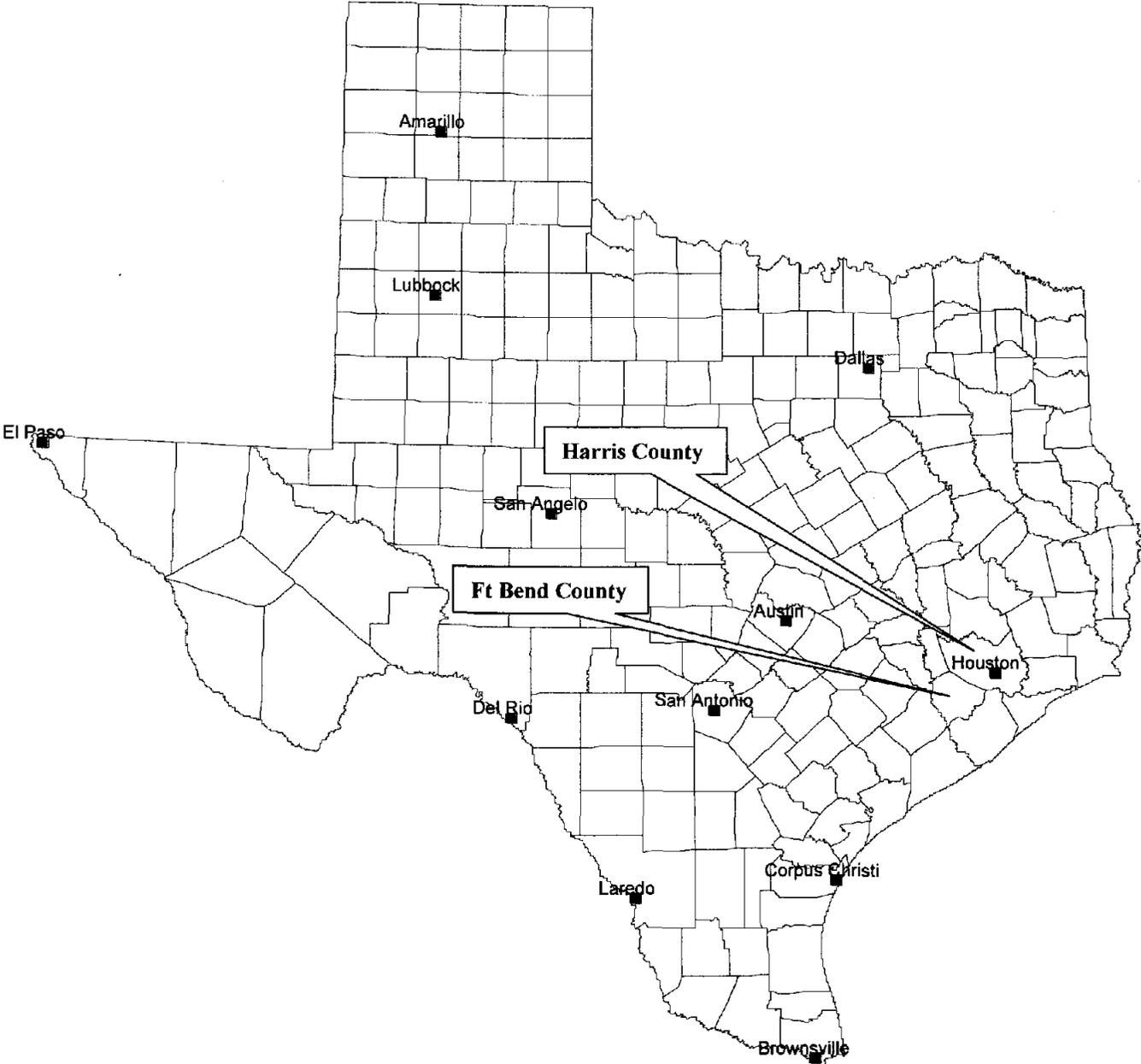
[copy to John J. Zachary]

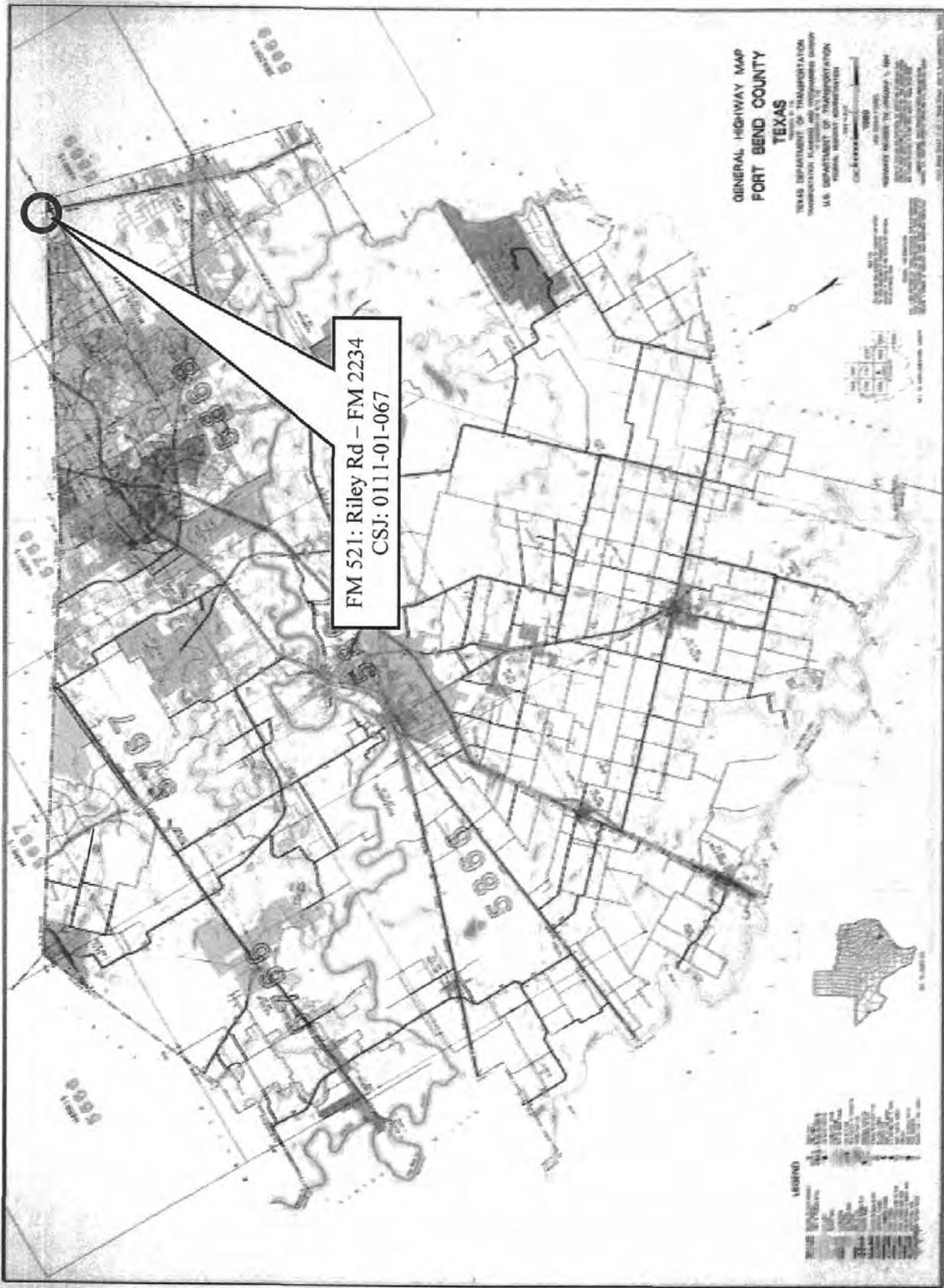
County Location Map

County: Harris and Fort Bend

Project CSJ: 0111-01-067, -03-031, -057, 2105-01-048

Project Name: FM 521: Riley Road to FM 2234





FM 521: Riley Rd - FM 2234
CSI: 0111-01-067

GENERAL HIGHWAY MAP
FORT BEND COUNTY
TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING AND RESEARCH CENTER
U.S. DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C. 20590

LEGEND

1/4" = 1 MILE
1/2" = 1 MILE
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ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS



Figure 1. APE plotted on current Bing Maps aerial.

ARCHEOLOGICAL BACKGROUND STUDY – FM 288 FROM RILEY ROAD
TO FM 2234, HARRIS AND FORT BEND COUNTIES, TEXAS

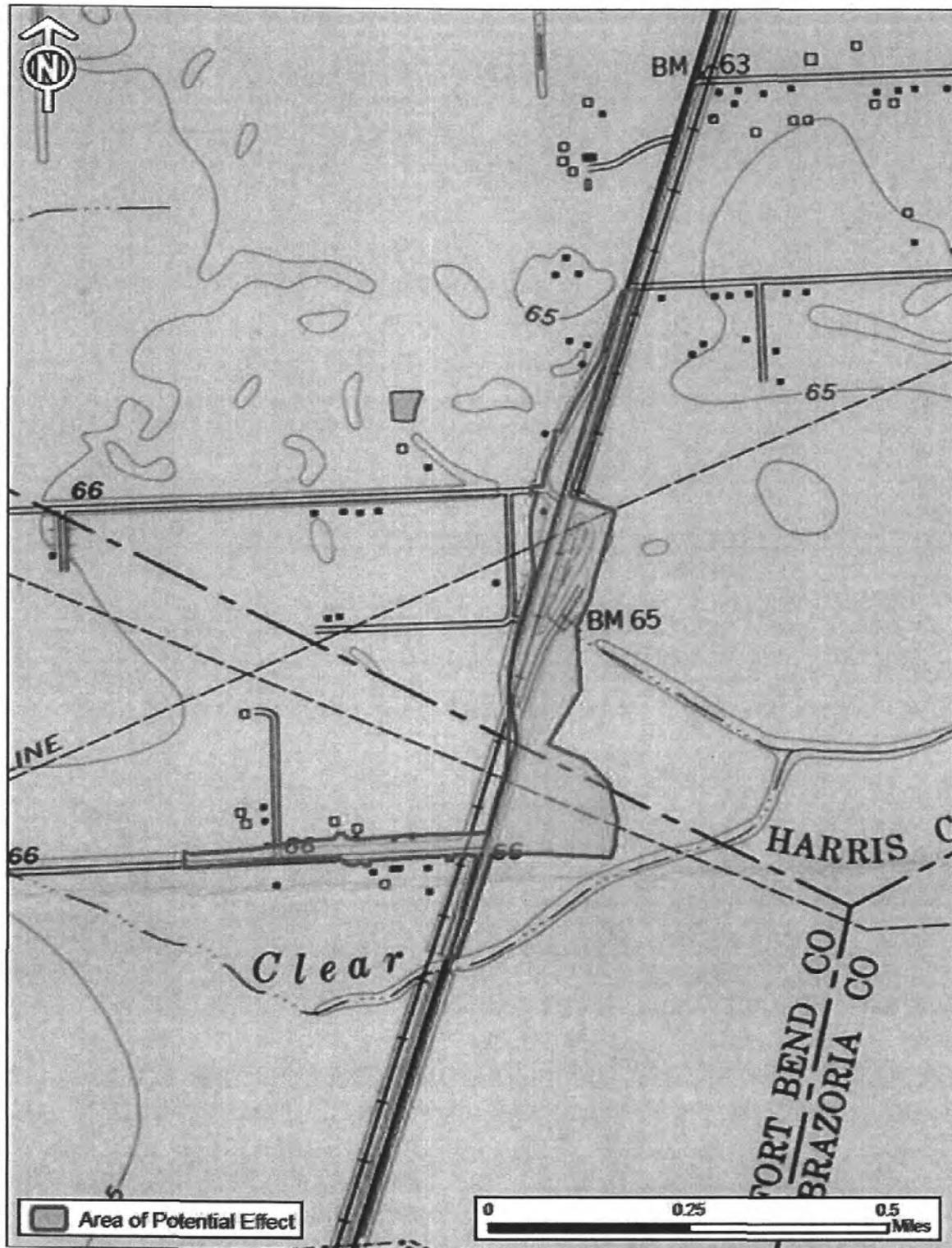


Figure 5. APE plotted on the 1955 Almeda, Tx USGS Topographic Map.



MEMO

January 5, 2016

TO: Administrative File
From: Renee Benn

District: Houston
County: Fort Bend
CSJ#: 0111-01-067
Highway: FM 521
Let Date: August 2016

Project Limits: Along FM 521 from Riley Rd to Clear Creek (0.91 mile); along FM 2234 from 0.10 mile east of West Dr to Clear Creek (0.66 mile).

Project Description: Stipulation IX, Appendix 6. Widen from 2-3 lanes to 4 lanes, build RR overpasses. 13.2 acres of new ROW. No historic, non-archeological properties present.

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

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

Existing Conditions:

Currently, FM 521 is a two to three lane (third is a turn lane) roadway in an approximate right-of-way (ROW) width of 90 feet.

Proposed Project:

The proposed project would modify FM 521 by widening it to a four-lane divided facility with curb and gutter drainage and a 16' raised median. Improvements at the intersection of FM 521 and FM 2234 provide for a "jug-handle" option that creates two offset "T" intersections (for clarification see attached schematics and map). This will eliminate two at-grade railroad crossings by providing overpasses. Two retention ponds are also proposed which is the reason for requirement of most of the new ROW.

Stipulation IX, Appendix 6:

A review of the National Register of Historic Places (NRHP), the list of State Antiquities Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL) indicated that no historically significant resources were previously documented within the area of potential effects

OUR GOALS

MAINTAIN A SAFE SYSTEM • ADDRESS CONGESTION • CONNECT TEXAS COMMUNITIES • BEST IN CLASS STATE AGENCY

An Equal Opportunity Employer

Andrew Leske

From: Sue Reilly <Sue.Reilly@tpwd.texas.gov>
Sent: Tuesday, January 13, 2015 4:28 PM
To: Andrew Leske
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Andrew,

Thank you for submitting the following project for early coordination: FM 521 at FM 2234 road widening (CSJ 0111-01-067). TPWD appreciates TxDOT's commitment to implement the practices listed in previous documentation and below. Based on a review of the documentation, the avoidance and mitigation efforts described, and provided that project plans do not change, TPWD considers coordination to be complete. However, please note it is the responsibility of the project proponent to comply with all federal, state, and local laws that protect fish and wildlife.

Thank you,

Sue Reilly
Transportation Assessment Liaison
TPWD Wildlife Division
512-389-8021

From: Andrew Leske [mailto:Andrew.Leske@txdot.gov]
Sent: Tuesday, January 13, 2015 7:38 AM
To: Sue Reilly
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Yes ma'am. TxDOT will be notifying the contractor of Plains Spotted Skunk.

From: Sue Reilly [mailto:Sue.Reilly@tpwd.texas.gov]
Sent: Monday, January 12, 2015 1:51 PM
To: Andrew Leske
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Andrew,

Thank you for the response. For the parks, we do not need to address it further in the coordination process. I just wanted to make sure you were aware of the parks since they had not been mentioned in the documents.

For the species BMPs, can you please confirm what species you will be notifying the contractor of? It looks like plains spotted skunk, but I wanted to double check.

Thank you,

Sue

From: Andrew Leske [<mailto:Andrew.Leske@txdot.gov>]
Sent: Wednesday, January 07, 2015 9:10 AM
To: Sue Reilly
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Good morning Ms. Reilly!

Attached please find responses to TPWDs comments.

Please let me know if you need anything else to continue your review of the project.

Many Thanks!

*Andrew Leske
Environmental Specialist
TxDOT – Houston District
(713) 802-5885
Andrew.Leske@TxDOT.gov*

From: Sue Reilly [<mailto:Sue.Reilly@tpwd.texas.gov>]
Sent: Tuesday, October 21, 2014 5:10 PM
To: Andrew Leske
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Andrew,

Thank you for coordinating FM 521 at FM 2234 road widening, CSJ 0111-03-031. This project includes reconstructing and widening FM 521 from Beltway 8 to 0.3 miles south of FM 2234; improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521; and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. TPWD has the following comments, requests, and recommendations:

1. TPWD recommends that detention ponds that be wet-bottomed to improve water quality, or alternatively include water quality features. Design criteria for wet-bottomed detention ponds are available from Harris County Flood Control District. TPWD recommends landscaping detention basins with native plants.
2. The Biological Evaluation Form states that contractors “would remove old migratory bird nests from any structure where work would be done.” Please ensure that the contractor only engages in these activities when the birds are not using the nests, in compliance with the Migratory Bird Treaty Act.
3. Please clarify how the project includes the Clear Creek crossing structures on either FM 521 or FM 2234, as the impacts of the project include 184 linear feet of Clear Creek but plans do not show impacts to the structures. If the creek will be impacted, please determine if work is in the water or out of the water. As a perennial stream, Clear Creek has potential habitat for mussels and other aquatic species.
4. Please note that the project boundary overlaps a significant portion of Almeda School Road Park, a 47.41 acre park owned by Harris County. It is also less than a mile from the Shadow Creek Ranch (City of Pearland) Nature Park. These impacts are not noted in project documentation.
5. It is likely that the project area is within range and contains suitable habitat for timber rattlesnake, plains spotted skunk, and aquatic species in Clear Creek such as mussels. The project area also includes undeveloped woodland that is habitat for migratory and nesting birds. Please implement the Bird BMPs as well as any appropriate species BMPs as noted.
6. The woody vegetation in this area is likely habitat for rich avian fauna and stopover habitat for migrants. TPWD recommends minimizing removal of vegetation.

Please respond to indicate whether TxDOT can commit to implementing these recommendations. Please provide updated project plans if they are available. Thank you very much.

Sue Reilly
Transportation Assessment Liaison
TPWD Wildlife Division
512-389-8021

From: Andrew Leske [<mailto:Andrew.Leske@txdot.gov>]
Sent: Tuesday, October 21, 2014 7:33 AM
To: Sue Reilly
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Good Morning Ms. Reilly,

Any updates on the review of this project?

Thank you!

Andrew Leske
Environmental Specialist
TxDOT – Houston District
(713) 802-5885
Andrew.Leske@TxDOT.gov

From: Sue Reilly [<mailto:Sue.Reilly@tpwd.texas.gov>]
Sent: Tuesday, October 07, 2014 9:42 AM
To: Andrew Leske
Cc: Meghan Pawlowski
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Andrew,

Thank you for letting me know about the change in contacts. I will start reviewing this project later this week and I expect to have comments to you next week.

I will let you know if any questions come up. Thanks!

Sue Reilly
Transportation Assessment Liaison
TPWD Wildlife Division
512-389-8021

From: Andrew Leske [<mailto:Andrew.Leske@txdot.gov>]
Sent: Tuesday, October 07, 2014 8:15 AM
To: Sue Reilly
Cc: Meghan Pawlowski
Subject: FW: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Good Morning Ms. Reilly,

The previous environmental coordinator assigned to the subject project (Courtney Blechle) is leaving TxDOT to pursue new career opportunities. With her departure, I have now been assigned this project. Is there an estimated time line for the completion of the review for project ID #33396? Is there anything else I need to provide to help complete the review?

Thank you!

Andrew Leske
Environmental Specialist
TxDOT – Houston District
(713) 802-5885
Andrew.Leske@txdot.gov

From: WHAB_TxDOT [mailto:WHAB_TxDOT@tpwd.texas.gov]
Sent: Friday, August 22, 2014 1:54 PM
To: Courtney Blechle; WHAB_TxDOT
Cc: Sue Reilly
Subject: RE: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Good afternoon,

The TPWD Wildlife Habitat Assessment Program has received your request for Early Coordination and has assigned it project ID #33396. The Habitat Assessment Biologist who will complete your project review is copied on this email.

Thank you,
Gloria Garza
Administrative Assistant
Texas Parks and Wildlife Dept
Wildlife Division - Habitat Assessment Program
4200 Smith School Rd
Austin, TX 78744

Office: (512) 389-4571
Fax: (512) 389-4599

gloria.garza@tpwd.texas.gov

Texas Parks and Wildlife is Celebrating 50 Years of Making Life Better Outside. Join Us!:
<http://bit.ly/TPW50>

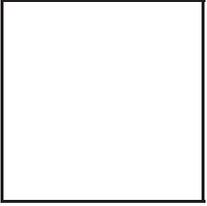
From: Courtney Blechle [<mailto:Courtney.Blechle@txdot.gov>]
Sent: Thursday, August 21, 2014 1:00 PM
To: WHAB_TxDOT
Subject: Project Coordination - FM 521 0111-01-067/0111-03-031/2105-01-048

Please find the attached information to initiate coordination for the FM 521 roadway widening plus grade separation. The project proposes to widen FM 521 to a 4 lane divided roadway with a grade separation over UPRR at FM 2234.

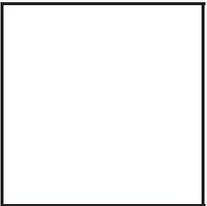
Please let me know if any further information is required.

Thanks,
Courtney

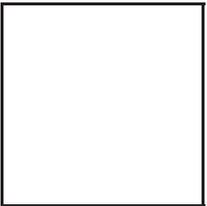
Don't mess with Texas® means don't litter.



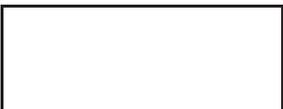
Join us Jan. 14, 2015 as we celebrate 10 years of transportation transformation in Texas.



Join us Jan. 14, 2015 as we celebrate 10 years of transportation transformation in Texas.



Drive Smart in Winter Weather



Drive Smart in Winter Weather



APPENDIX E:
EDR Summary and Radius Map

TxDOT Hazardous Materials Initial Site Assessment (ISA)

Project Information

CSJ No: 0111-01-067 and 0111-03-031	City: Pearland	Zip Code: 77584	County: Harris and Fort Bend Counties
HWY: FM 521 and FM 2234	Limits: 1.1 miles of FM 521 from approximately Beltway 8 to FM 2234 (McHard Road). The proposed action would widen the existing two-lane, rural, undivided roadway to a minimum four-lane divided section from just south of Riley Road (approximately 0.7 miles north of FM 2234) to approximately 0.3 miles south of FM 2234. The project would also include improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521.		

ISA Exclusion/Screening

The project does not consist of any work activities other than overlay, seal coat, resurfacing, rehabilitation, or restoration done within the existing ROW on an existing road and completely within the footprint of existing base course. Therefore, no further hazardous materials action is required and the project is eligible for a PCE or lesser classification pending review of other environmental conditions.

The project does **not** meet the conditions listed above and, therefore, the ISA form must be completed. Proceed with the following Preliminary Project Design and Right-of-Way questions.

Section 1: Identify Previously Known Hazmat Conditions and Preliminary Project Design and Right-of-Way Requirements

Yes/No	Obtain information/comments from design (DES), right of way (ROW), and/or environmental (ENV) staff. Attach maps and/or details as appropriate.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Are there any previous environmental assessments, testing or studies performed within the proposed project area related to contamination issues? If yes, explain here if there are any concerns to the proposed project:
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are preliminary plans detailed enough to show excavation, ROW features, pipelines, utilities and storm sewer details?

Section 2: Identify Potential Hazardous Material Issues

Yes/No	Using the preliminary design and ROW information for this project, determine if the project includes any of the activities listed below. These activities are known to increase the chance of encountering a contamination issue. (Indicate all that apply)
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there proposed structure demolition operations or structure modifications (include all ROW structures and bridges). If yes, provide structure locations, anticipated demolitions and/or renovations here: Potential issues: lead based paint, asbestos, municipal/hazardous waste disposal.
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there proposed excavations exceeding three feet below the surface, to include: tunneling, underpass construction, vertical alignment changes, trenching, drilled shafts or storm sewers. If yes, provide location and depth information here: Potential issues: Soil or groundwater contamination
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there proposed pipeline and underground utility installation or adjustments. If yes, provide type, location and depth information here: Potential issues: asbestos coating on pipe, soil or groundwater contamination

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there proposed de-watering operations. If yes, what is the estimated depth to groundwater? Provide location and depth of excavation information here:</p> <p>Potential issue: Contaminated groundwater</p>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Are there known encroachments into the project area? If yes, provide location and type here:</p> <p>Potential issues: Asbestos or lead if structures are present, soil or groundwater contamination from encroaching pipelines, petroleum tanks or other industrial facilities.</p>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Is there a purchase of new ROW or easement? If yes, provide location and approximate acreage/dimensions here:</p> <p>Potential issues: asbestos or lead if structures are present, soil or groundwater contamination from nearby pipelines, petroleum tanks or other industrial activities.</p>

Complete the appropriate box below:

- The project includes one or more of the activities listed above. Please proceed to Section 3.
- The project does not include any of the activities listed above. Please perform a site survey and document the results in Section 6 and then mark the appropriate box below.
- The site survey did not identify evidence of any environmental concerns listed in Section 6; consequently, the project meets the outlined conditions and the ISA is complete. Sign the ISA and file it in the project file. See Appendix A, Table 2 for suggested NEPA documentation language
 - The site survey identified evidence of environmental concerns listed in Section 6. Continue with **Section 3** below to determine additional data collections required.

Section 3: Identification of Data Collection Actions

Note: Using the information listed on **Table 1, Appendix A**, determine the level 1 data collection actions for the ISA.

Required? Yes /No	Required Level 1 Data Collection Action	Corresponding Section of the ISA Form to Complete
<input type="checkbox"/> Yes <input type="checkbox"/> No	Conduct Current & Historic Land Use Review	Section 4
<input type="checkbox"/> Yes <input type="checkbox"/> No	Review existing project geotechnical boring logs to identify potential environmental concerns	Section 4.6
<input type="checkbox"/> Yes <input type="checkbox"/> No	Conduct ASTM E1527 Level or Equivalent Regulatory Database Search	Section 5
<input type="checkbox"/> Yes <input type="checkbox"/> No	Conduct Site Survey	Section 6
<input type="checkbox"/> Yes <input type="checkbox"/> No	Conduct Interviews	Section 7
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Conduct ASTM E1527-05 Phase 1 ESA	No Corresponding Section (This requires the completion of a separate document. Call ENV for assistance)

Note: Based on the data collection actions indicated above (Section 3), complete the required corresponding sections of the ISA form below. Use best professional judgment to determine whether to collect other data that is not required (Contact ENV for assistance or guidance). Place an "NA" in non-required sections.



Banks Information Solutions, Inc.

Environmental FirstSearch™ Report

TARGET PROPERTY:

FM 521 ROAD

PEARLAND TX 77584

Job Number: 011101067

PREPARED FOR:

Texas Department of Transportation

7721 Washington Avenue

Houston, Tx 77007

02-17-09



Tel: (512) 478-0059

Fax: (512) 478-1433

Environmental FirstSearch Search Summary Report

Target Site: FM 521 ROAD
PEARLAND TX 77584

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	01-12-09	1.25	0	0	0	0	0	0	0
NPL Delisted	Y	01-12-09	0.50	0	0	0	0	-	0	0
CERCLIS	Y	01-09-09	0.50	0	0	0	0	-	0	0
NFRAP	Y	01-09-09	0.25	0	1	0	-	-	0	1
RCRA COR ACT	Y	11-13-08	1.25	0	1	0	0	0	0	1
RCRA TSD	Y	11-13-08	0.50	0	1	0	0	-	0	1
RCRA GEN	Y	09-08-08	0.50	0	4	1	5	-	8	18
Federal IC / EC	Y	12-16-08	0.75	0	0	0	0	0	1	1
ERNS	Y	11-17-08	0.25	0	13	0	-	-	15	28
Tribal Lands	Y	12-01-05	1.25	0	0	0	0	0	3	3
State/Tribal Sites	Y	12-29-08	1.25	0	0	0	0	0	1	1
State Spills 90	Y	07-30-08	0.25	0	0	0	-	-	8	8
State/Tribal SWL	Y	12/17/08	0.75	0	0	0	0	0	0	0
State/Tribal LUST	Y	12/08/08	0.75	0	1	0	0	0	2	3
State/Tribal UST/AST	Y	12/08/08	0.50	0	5	2	3	-	1	11
State/Tribal EC	Y	03-20-08	0.75	0	0	0	0	0	0	0
State/Tribal IC	Y	03-20-08	0.50	0	0	0	0	-	0	0
State/Tribal VCP	Y	01-02-09	0.75	0	0	0	0	0	1	1
State/Tribal Brownfields	Y	12-13-09	0.75	0	0	0	0	0	0	0
State Wells	Y	07-18-97	0.50	0	28	22	12	-	0	62
Federal Wells	Y	02-29-08	0.50	0	9	6	3	-	0	18
State Other	Y	01/30/09	1.25	0	5	2	7	6	7	27
Oil & Gas Wells	Y	01-08-01	0.50	0	0	0	1	-	0	1
- TOTALS -				0	68	33	31	6	47	185

Notice of Disclaimer

Due to the limitations, constraints, inaccuracies and incompleteness of government information and computer mapping data currently available to Banks Information Solutions, Inc., certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in Banks Information Solutions, Inc.'s databases. All EPA NPL and state landfill sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

Waiver of Liability

Although Banks Information Solutions, Inc. uses its best efforts to research the actual location of each site, Banks Information Solutions, Inc. does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of Banks Information Solutions, Inc.'s services proceeding are signifying an understanding of Banks Information Solutions, Inc.'s searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

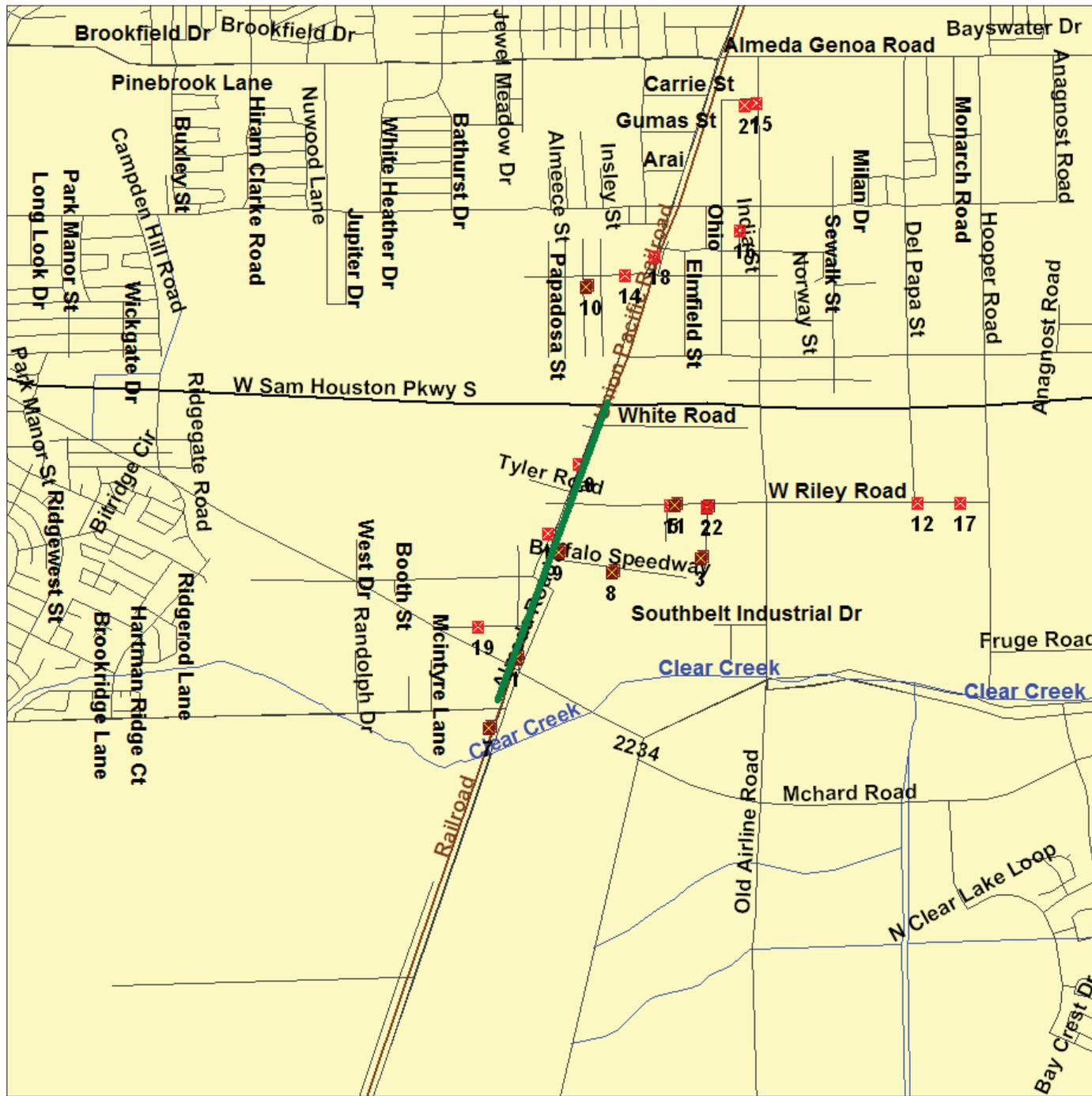


Environmental FirstSearch

1.25 Mile Radius from Line
TXDOT AAI: NPL, RCRACOR, STATE, OTHER

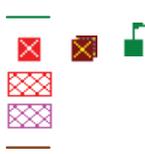


FM 521 ROAD, PEARLAND TX 77584



Source: 2002 U.S. Census TIGER Files

- Linear Search Line
- Identified Site, Multiple Sites, Receptor
- NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste
- Triballand.....
- Railroads



- Public Water Supply, Zone II, Zone A, Interim Wellhead Protection Areas
- Federal Wells
- Oil Gas Wells





Environmental FirstSearch

.75 Mile Radius from Line
TXDOT AAI: LUST, SWL, BROWNFIELD



FM 521 ROAD, PEARLAND TX 77584



Source: 2002 U.S. Census TIGER Files

Linear Search Line		Public Water Supply, Zone II, Zone A, Interim Wellhead Protection Areas		
Identified Site, Multiple Sites, Receptor		Federal Wells		
NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste		Oil Gas Wells		
Triballand.....				
Railroads				



Environmental FirstSearch

.5 Mile Radius from Line
TXDOT AAI: Multiple Databases

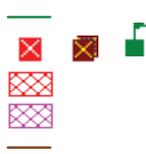


FM 521 ROAD, PEARLAND TX 77584



Source: 2002 U.S. Census TIGER Files

- Linear Search Line
- Identified Site, Multiple Sites, Receptor
- NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste
- Triballand.....
- Railroads



- Public Water Supply, Zone II, Zone A, Interim Wellhead Protection Areas
- Federal Wells
- Oil Gas Wells



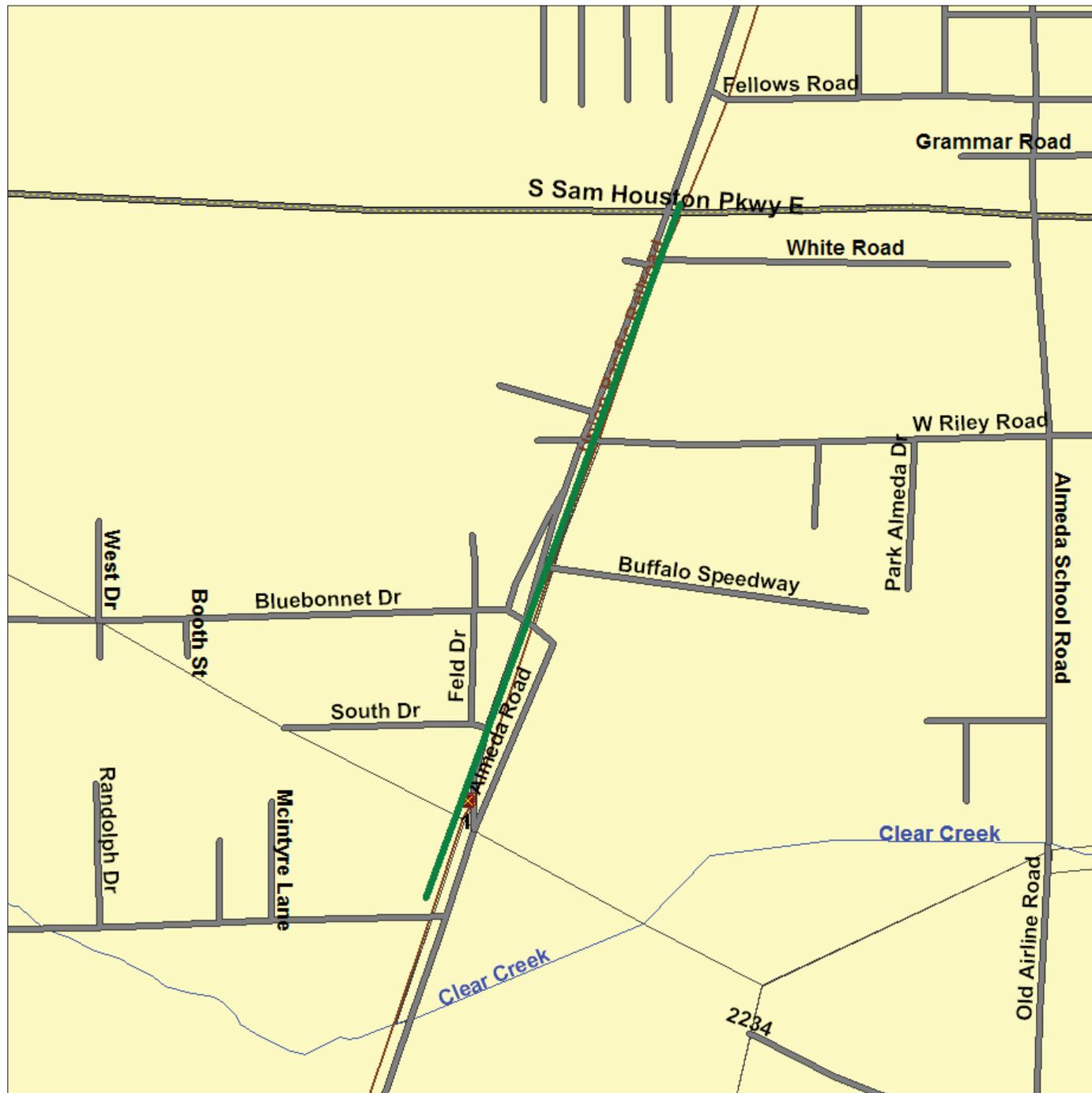


Environmental FirstSearch

.25 Mile Radius from Line
TXDOT AAI: NFRAP, SPILLS90, ERNS



FM 521 ROAD, PEARLAND TX 77584



Source: 2002 U.S. Census TIGER Files

Linear Search Line		Public Water Supply, Zone II, Zone A, Interim Wellhead Protection Areas		
Identified Site, Multiple Sites, Receptor		Federal Wells		
NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste		Oil Gas Wells		
Triballand.....				
Railroads				

***Environmental FirstSearch
Site Information Report***

Request Date: 02-17-09
Requestor Name: Lance Olenius
Standard: TXDOT AAI

Search Type: LINEAR
Job Number: 011101067

TARGET ADDRESS: FM 521 ROAD
PEARLAND TX 77584

Demographics

Sites: 185	Non-Geocoded: 47	Population: NA
Radon: 0.1 - 0.5 PCI/L		

Site Location

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>		<u>UTMs</u>
Longitude:	-95.429177	-95:25:45	Easting:	264712.011
Latitude:	29.589422	29:35:22	Northing:	3275576.831
			Zone:	15

Comment

Comment: BW8TOFM2234

Additional Requests/Services

Adjacent ZIP Codes: 1.25 Mile(s)	Services:																																																						
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">ZIP Code</th> <th style="text-align: left;">City Name</th> <th style="text-align: left;">ST</th> <th style="text-align: left;">Dist/Dir</th> <th style="text-align: left;">Sel</th> </tr> </thead> <tbody> <tr> <td>77047</td> <td>HOUSTON</td> <td>TX</td> <td>0.00 --</td> <td>Y</td> </tr> <tr> <td>77053</td> <td>HOUSTON</td> <td>TX</td> <td>0.00 --</td> <td>Y</td> </tr> <tr> <td>77045</td> <td>HOUSTON</td> <td>TX</td> <td>1.16 NW</td> <td>N</td> </tr> <tr> <td>77545</td> <td>FRESNO</td> <td>TX</td> <td>0.04 SE</td> <td>N</td> </tr> <tr> <td>77583</td> <td>ROSHARON</td> <td>TX</td> <td>0.50 SE</td> <td>N</td> </tr> </tbody> </table>	ZIP Code	City Name	ST	Dist/Dir	Sel	77047	HOUSTON	TX	0.00 --	Y	77053	HOUSTON	TX	0.00 --	Y	77045	HOUSTON	TX	1.16 NW	N	77545	FRESNO	TX	0.04 SE	N	77583	ROSHARON	TX	0.50 SE	N	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Requested?</th> <th style="text-align: center;">Date</th> </tr> </thead> <tbody> <tr> <td>Sanborns</td> <td style="text-align: center;">No</td> <td></td> </tr> <tr> <td>Aerial Photographs</td> <td style="text-align: center;">No</td> <td></td> </tr> <tr> <td>Historical Topos</td> <td style="text-align: center;">No</td> <td></td> </tr> <tr> <td>City Directories</td> <td style="text-align: center;">No</td> <td></td> </tr> <tr> <td>Title Search/Env Liens</td> <td style="text-align: center;">No</td> <td></td> </tr> <tr> <td>Municipal Reports</td> <td style="text-align: center;">No</td> <td></td> </tr> <tr> <td>Online Topos</td> <td style="text-align: center;">No</td> <td></td> </tr> </tbody> </table>		Requested?	Date	Sanborns	No		Aerial Photographs	No		Historical Topos	No		City Directories	No		Title Search/Env Liens	No		Municipal Reports	No		Online Topos	No	
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Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
86	FEDWELLS	JY-65-29-518 FW-TX-2926/USGS GROUNDWATER INV	TX 77053	0.01 NW	1
86	FEDWELLS	JY-65-29-515 FW-TX-2924/USGS GROUNDWATER INV	TX 77053	0.01 NW	2
86	FEDWELLS	JY-65-29-517 FW-TX-2925/USGS GROUNDWATER INV	TX 77053	0.01 NW	3
4	RCRAGN	HUNT & HUNT INC TXR000029793/SGN	14441 ALMEDA RD HOUSTON TX 77053	0.01 NW	4
1	ERNS	WITCO 571340/FIXED FAC./AST	15200 ALMEDA RD HOUSTON TX	0.01 SE	5
1	ERNS	NRC-590307/STORAGE TANK	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	6
1	ERNS	NRC-831075/FIXED	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	9
1	ERNS	NRC-607084/STORAGE TANK	15200 ALMEDA ROAD HOUSTON TX	0.01 SE	12
1	ERNS	NRC-553387/FIXED	15200 ALMEDA RD HOUSTON TX	0.01 SE	15
1	ERNS	WITCO 403683/FIXED FACILITY	15200 ALMEDA RD HOUSTON TX	0.01 SE	18
1	ERNS	WITCO 553021/FIXED FACILITY	15200 ALMEDA RD HOUSTON TX	0.01 SE	18
1	ERNS	WITCO 531752/FIXED FACILITY	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	19
1	ERNS	WITCO 641540/FIXED FACILITY	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	20
1	ERNS	WITCO 639031/FIXED FACILITY	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	21
1	ERNS	WITCO 588686/FIXED FACILITY	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	22
1	ERNS	UNIT R-400 NRC-636879/FIXED	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	23
1	ERNS	NRC-626114/FIXED	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	26
1	NFRAP	WITCO,ORGANICS DIVISION-HOUSTON PL TXD065078826/NFRAP-N	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	29
1	OTHER	AKZO NOBEL SURFACE CHEMISTRY HOUST IHW-30300/ACTIVE	15200ALMEDARD HOUSTON TX 77053	0.01 SE	30
1	RCRA	WITCO CORP TXD065078826/TSD	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	33
1	RCRACOR	AKZO NOBEL SURFACE CHEMISTRY LLC TXD065078826/CA	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	36

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
1	RCRAGN	AKZO NOBEL SURFACE CHEMISTRY LLC TXD065078826/LGN	15200 ALMEDA RD HOUSTON TX 77053	0.01 SE	39
20	OTHER	PEARLAND INSUTRIES IHW-87023/INACTIVE	14510ALEMEDARD HOUSTON TX 77053	0.02 NW	40
53	PWS	GWDB-6529515	TX	0.02 NW	42
54	PWS	GWDB-6529518	TX	0.02 NW	43
53	PWS	GWDB-6529517	TX	0.02 NW	44
31	UST	TEXAS STAR OIL COMPANY 0064275	14502 ALMEDA RD HOUSTON TX 77053	0.02 NW	45
30	UST	TEXAS COASTAL STEEL 0056345	14500 ALMEDA RD HOUSTON TX 77053	0.02 NW	48
9	OTHER	SERMATECH INTERNATIONAL SERVICES IHW-86744/CLOSURE REQUEST	25SOUTHBELT INDUSTRIALDR HOUSTON TX 77047	0.02 SE	49
9	RCRAGN	SERMATECH INTERNATIONAL INCORPORAT TXR000042234/LGN	25 SOUTHBELT INDUSTRIAL DR HOUSTON TX 77047	0.02 SE	52
13	OTHER	BEST METALS IHW-71286/INACTIVE	14906ALEMEDAROAD HOUSTON TX 77045	0.03 NW	54
80	FEDWELLS	JY-65-29-503 FW-TX-1206-4884/USGS GROUNDWATER I	TX 77053	0.05 NW	55
80	FEDWELLS	JY-65-29-502 FW-TX-2935/USGS GROUNDWATER INV	TX 77053	0.05 NW	56
50	PWS	GWDB-6529502	TX	0.05 NW	57
26	LUST	HANDI PLUS 52 117076	333 ALMEDA RD FRESNO TX 77545	0.05 SE	58
57	PWS	DRDB-49292	810 FM 521 Fresno TX 77475	0.05 SE	61
57	PWS	DRDB-46927	810 FM 521 Houston TX 77545	0.05 SE	62
57	PWS	DRDB-46926	810 FM 521 Houston TX 77545	0.05 SE	63
57	PWS	DRDB-46923	810 FM 521 Fresno TX 77545	0.05 SE	64
57	PWS	DRDB-49293	810 FM 521 Fresno TX 77475	0.05 SE	65
57	PWS	DRDB-49291	810 FM 521 Fresno TX 77475	0.05 SE	66

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
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TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
57	PWS	DRDB-49289	810 FM 521 Fresno TX 77475	0.05 SE	67
57	PWS	DRDB-49288	810 FM 521 Fresno TX 77475	0.05 SE	68
56	PWS	GWDB-6529520	TX	0.05 SE	69
57	PWS	DRDB-46925	810 FM 521 Houston TX 77545	0.05 SE	70
57	PWS	DRDB-46922	810 FM 521 Fresno TX 77545	0.05 SE	71
26	UST	HANDI STOP 52 0068585	333 ALMEDA RD FRESNO TX 77545	0.05 SE	72
60	PWS	DRDB-116638	521 FM 521 Fresno TX 77545	0.06 SE	75
60	PWS	DRDB-116636	521 FM 521 Fresno TX 77545	0.06 SE	76
60	PWS	DRDB-116637	521 FM 521 Fresno TX 77545	0.06 SE	77
88	FEDWELLS	LJ-65-29-213 FW-TX-3990/USGS GROUNDWATER INV	TX 77047	0.07 SE	78
52	PWS	PWS-G0790114A	TX	0.07 SW	79
51	PWS	10004575	TX 77053	0.07 SW	79
58	PWS	10004734	TX 77053	0.08 SE	80
27	UST	HELDENFELDS CONSTRUCTION SITE 0050855	HWY 288 AT MCHARD RD HOUSTON TX 77053	0.08 SE	81
67	PWS	DRDB-89068	38 RILTEY RD HOUSTON TX 77048	0.09 SE	82
61	PWS	PWS-G0790339A	TX	0.09 SE	83
48	PWS	PWS-G0790114B	TX	0.09 SW	83
49	PWS	10004576	TX 77053	0.09 SW	84
7	OTHER	PITTSBURGH CORNING IHW-83607/ACTIVE	810FM 821 FRESNO TX 77545	0.10 SW	85
47	PWS	GWDB-6529501	TX	0.10 SW	88

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
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TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
47	PWS	GWDB-6529510	TX	0.10 SW	89
7	RCRAGN	PITTSBURGH CORNING CORPORATION TX0000981142/SGN	810 FM 821 FRESNO TX 77545	0.10 SW	90
79	FEDWELLS	JY-65-29-501 FW-TX-2915/USGS GROUNDWATER INV	TX 77053	0.11 SW	92
79	FEDWELLS	JY-65-29-510 FW-TX-2916/USGS GROUNDWATER INV	TX 77053	0.11 SW	93
89	FEDWELLS	LJ-65-29-214 FW-TX-1206-4931/USGS GROUNDWATER I	TX 77047	0.12 SE	94
63	PWS	DRDB-5126	115 SOUTHBELT IND. DR. Houston TX 77338	0.12 SE	95
24	UST	CHERRY CRUSHED CONCRETE 0079373	616 FM 521 FRESNO TX 77545	0.12 SW	96
66	PWS	DRDB-67733	35 S. BELT INDUSTRIAL DR. Houston TX 77053	0.13 SE	98
19	OTHER	PARKER INDUSTRY IHW-75316/INACTIVE	3770SOUTH LOOPE HOUSTON TX 77021	0.14 NW	99
46	PWS	PWS-G0790114E	TX	0.14 SW	101
42	PWS	10004579	TX 77053	0.14 SW	101
70	PWS	10006792	TX 77053	0.15 NW	102
68	PWS	PWS-G1010681B	TX	0.15 NW	102
25	UST	COASTAL EQUIPMENT 0023459	100 FELLOWS RD HOUSTON TX 77047	0.16 NE	103
64	PWS	DRDB-95885	30 S. BELT INDUSTRIAL DR. Houston TX 77338	0.16 SE	105
85	FEDWELLS	JY-65-29-513 FW-TX-2917/USGS GROUNDWATER INV	TX 77053	0.16 SW	106
85	FEDWELLS	JY-65-29-514 FW-TX-2918/USGS GROUNDWATER INV	TX 77053	0.16 SW	107
41	PWS	10004578	TX 77053	0.16 SW	108
39	PWS	GWDB-6529514	TX	0.16 SW	109
39	PWS	GWDB-6529513	TX	0.16 SW	110

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

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Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
45	PWS	PWS-G0790114D	TX	0.16 SW	111
69	PWS	PWS-G1010681A	TX	0.17 NW	111
71	PWS	10006791	TX 77053	0.17 NW	112
40	PWS	10004577	TX 77053	0.18 SW	112
44	PWS	PWS-G0790114C	TX	0.18 SW	113
65	PWS	GWDB-6529206	TX	0.19 NW	114
59	PWS	DRDB-55905	4107 S. SAM HOUSTON PARKWAY Houston TX 77053	0.21 NW	115
38	PWS	PWS-G0790413A	TX	0.22 NW	116
8	OTHER	PRO LINE MACHINE AND REPAIR IHW-85717/INACTIVE	16650BUFFALO SPEEDWAY HOUSTON TX 77047	0.22 SE	117
8	RCRAGN	PRO-LINE MACHINE & REPAIR TXR000028258/SGN	16650 BUFFALO SPEEDWAY HOUSTON TX 77047	0.22 SE	119
62	PWS	DRDB-125721	3434 W RILEY RD. Houstrn TX 77045	0.23 NW	120
29	UST	STEEL DISTRIBUTORS INC 4931 0026999	14200 ALMEDA HOUSTON TX 77047	0.24 NE	121
84	FEDWELLS	JY-65-29-509 FW-TX-2929/USGS GROUNDWATER INV	TX 77053	0.25 NW	124
84	FEDWELLS	JY-65-29-508 FW-TX-2928/USGS GROUNDWATER INV	TX 77053	0.25 NW	125
83	FEDWELLS	JY-65-29-507 FW-TX-2930/USGS GROUNDWATER INV	TX 77053	0.25 NW	126
37	PWS	GWDB-6529507	TX	0.25 NW	127
36	PWS	GWDB-6529509	TX	0.25 NW	128
36	PWS	GWDB-6529508	TX	0.25 NW	129
81	FEDWELLS	JY-65-29-504 FW-TX-2923/USGS GROUNDWATER INV	TX 77053	0.25 SW	130
35	PWS	GWDB-6529504	TX	0.25 SW	131

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
90	FEDWELLS	LJ-65-29-216 FW-TX-1206-4960/USGS GROUNDWATER I	TX 77047	0.27 SE	132
73	PWS	DRDB-5730	14800 JERSEY SHORE HOUSTON TX 77047	0.28 SE	133
28	UST	LEWIS CRANE & HOIST 0078757	14800 JERSEY SHORE DR HOUSTON TX 77047	0.28 SE	134
72	PWS	GWDB-6529216	TX	0.29 SE	135
23	UST	BALFOUR BEATTY CONSTRUCTION 0067213	3401 1/2 GULF FWY S LEAGUE CITY TX 77047	0.29 SE	136
43	PWS	DRDB-55904	4107 S. SAM HOUSTON PARKWAY Houston TX 77053	0.30 NW	138
11	OTHER	APOLLO ELECTRIC IHW-77597/INACTIVE	100RILEYRD HOUSTON TX 77047	0.32 SE	139
82	FEDWELLS	JY-65-29-506 FW-TX-2931/USGS GROUNDWATER INV	TX 77053	0.33 NW	141
33	PWS	GWDB-6529506	TX	0.34 NW	142
55	PWS	DRDB-55911	4107 S. SAM HOUSTON PARKWAY Houston TX 77053	0.34 NW	143
5	OTHER	MEL TEX VALVE IHW-72488/INACTIVE	104RILEYRD HOUSTON TX 77047	0.34 SE	144
5	RCRAGN	MEL TEX VALVE TXD096609409/VGN	104 RILEY RD HOUSTON TX 77047	0.34 SE	146
5	UST	COMPRESSOR DYNAMICS INC 0009353	104 RILEY RD HOUSTON TX 77047	0.34 SE	147
32	PWS	GWDB-6529503	TX	0.35 SW	150
74	PWS	DRDB-73453	14850 PARK ALMEDA Houston TX 77053	0.38 SE	151
10	OTHER	TEXAS POWER STEERING REBUILDERS IHW-90193/INACTIVE	14213NATALIEST HOUSTON TX 77053	0.39 NW	152
10	RCRAGN	TX PWR STEERING REBUILDERS TXD147169106/LGN	14213 NATALIE ST HOUSTON TX 77053	0.39 NW	154
34	PWS	DRDB-82242	3816 BLUEBONNET Houston TX 77053	0.40 NW	155
14	OTHER	BURKE CUSTOM FORMS IHW-20423/INACTIVE	303WFOXSHIRE HOUSTON TX 77053	0.43 NE	156
6	RCRAGN	NATIONAL SERVICE CENTER TXR000026773/VGN	16702 BUFFALO SPEEDWAY HOUSTON TX 77047	0.43 SE	157

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
87	FEDWELLS	LJ-65-29-212 FW-TX-3985/USGS GROUNDWATER INV	TX 77047	0.44 SE	159
22	OTHER	TITLEIST ENVIRONMENTAL SERVICES IN IHW-85632/INACTIVE	14706PARK ALMEDA HOUSTON TX 77047	0.44 SE	160
2	OTHER	BARTRAN IHW-41220/ACTIVE	14710PARK ALMEDA HOUSTON TX 77047	0.44 SE	161
78	PWS	DRDB-55906	4107 S. SAM HOUSTON PARKWAY Houston TX 77053	0.44 SE	162
2	RCRAGN	BARTRAN CORPORATION TXD982548513/TRANSPORTER	14710 PARK ALMEDA HOUSTON TX 77047	0.44 SE	163
91	OILGASWELLS	42-157-31702-00	TX	0.45 NW	165
3	OTHER	C LEE COOK HOUSTON OPERATIONS IHW-86938/ACTIVE	65SOUTHBELT INDUSTRIALDRIVE HOUSTON TX 77047	0.48 SE	166
3	RCRAGN	C LEE COOK DOVER RESOURCES TXR000047530/SGN	65 SOUTHBELT INDUSTRIAL DRI HOUSTON TX 77047	0.48 SE	168
76	PWS	GWDB-6529207	TX	0.49 NE	170
77	PWS	GWDB-6529214	TX	0.49 SE	171
75	PWS	GWDB-6529205	TX	0.50 NE	172
18	OTHER	KRESTMARK IHW-31715/INACTIVE	14029ALMEDARD HOUSTON TX 77047	0.52 NE	173
16	OTHER	DRANE RANGER IHW-85056/ACTIVE	13911INDIA HOUSTON TX 77047	0.73 NE	174
21	OTHER	ROBERTS PIPE INSPECTION IHW-81939/INACTIVE	150CARRIE HOUSTON TX 77047	1.10 NE	175
12	OTHER	ARDCO INDUSTRIES IHW-37565/INACTIVE	322RILEYRD HOUSTON TX 77047	1.10 SE	176
15	OTHER	CRC EVANS REHABILITATION IHW-23224/INACTIVE	13502ALMEDA SCHOOLROAD HOUSTON TX 77047	1.13 NE	179
17	OTHER	EXCHANGER IHW-34047/INACTIVE	802RILEYRD HOUSTON TX 77047	1.24 SE	181

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	ERNS	NRC-710582/MOBILE	2401 SUN SPOT PEARLAND TX	NON GC	N/A
	ERNS	50915/UNKNOWN	OFF OF HWY 518/ CO. 403 / C PEARLAND TX	NON GC	N/A
	ERNS	WAREHOUSE NRC-768898/FIXED	1919 EAST BROADWAY PEARLAND TX	NON GC	N/A
	ERNS	320302/FIXED FACILITY	SW CORNER OF FUQUA AND ATTA PEARLAND TX	NON GC	N/A
	ERNS	NRC-523544/RAILROAD	RAILYARD PEARLAND TX	NON GC	N/A
	ERNS	MW PETROLEUM CORP/APACHE 509479/FIXED FACILITY	GUIDO LEASE HASTINGS OIL FI PEARLAND TX	NON GC	N/A
	ERNS	ENRON GAS PIPELINE CO 173277/FIXED FACILITY	MANVEL COMPRESSOR STATION PEARLAND TX	NON GC	N/A
	ERNS	AT THE START OF AMOCO DR OFF OF 17 NRC-569492/STORAGE TANK	BEHIND 1881 PEARLAND TX	NON GC	N/A
	ERNS	1714 FM 521 NRC-818396/PIPELINE	288 MCHARD ROAD PEARLAND TX	NON GC	N/A
	ERNS	NRC-848408/STORAGE TANK	COUNTY ROAD 129 4 MILES EAS PEARLAND TX	NON GC	N/A
	ERNS	14000 800 BLOCK OF HOOPER ROAD NRC-815757/FIXED	PEARLAND TX	NON GC	N/A
	ERNS	328891/FIXED FACILITY	13805 HIRME RD HOUSTON TX 77053	NON GC	N/A
	ERNS	645793/FIXED FACILITY	DOWLING MIDDLE SCHOOL 14000 HOUSTON TX 77053	NON GC	N/A
	ERNS	400455/PIPELINE RELATED	HASTING OIL FIELD, HWY 35, PEARLAND TX	NON GC	N/A
	ERNS	121703/UNKNOWN	WEST HASTINGS UNIT 5 MILES PEARLAND TX	NON GC	N/A
	FEDBROWNFIELD	0 SCOTT ST. 69598252-40184/EPA BROWNFIELD	0 SCOTT ST. (10600-10700 BL HOUSTON TX 77047	NON GC	N/A
	LUST	TXDOT 092677	HWY 90 BRACKETTVILLE TX 77584	NON GC	N/A
	LUST	GO 4 IT FOOD & FUEL 117474	5455 COURT RD HOUSTON TX 77053	NON GC	N/A
	OTHER	QUALEX HSE DEPARTMENT TARGET 1459 IHW-87078/INACTIVE	3045SILVERLAKE VILLAGEDR PEARLAND TX 77584	NON GC	N/A
	OTHER	CACHET CLEANER RN104708151	10223 BROADWAY ST STE U PEARLAND TX 77584	NON GC	N/A

Environmental FirstSearch Sites Summary Report

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	OTHER	OXFORD CLEANERS 3 RN105426944	1901 KIRBY ST STE 115 PEARLAND TX 77584	NON GC	N/A
	OTHER	OXFORD CLEANERS 2 RN104061445	9821 BROADWAY ST STE 101 PEARLAND TX 77584	NON GC	N/A
	OTHER	MW CLEANERS 10261 RN105386882	2805 BUSINESS CENTER DR PEARLAND TX 77584	NON GC	N/A
	OTHER	HOME DEPOT USA HD6567 IHW-88378/ACTIVE	10111BROADWAY PEARLAND TX 77584	NON GC	N/A
	OTHER	CVS 5807 IHW-87382/ACTIVE	9522BROADWAYST PEARLAND TX 77584	NON GC	N/A
	RCRAGN	BET CLEANERS TXR000071720/VGN	11711 SHADOW CREEK PKWY STE PEARLAND TX 77584	NON GC	N/A
	RCRAGN	HOME DEPOT USA INC TXR000060053/SGN	10111 BROADWAY PEARLAND TX 77584	NON GC	N/A
	RCRAGN	TEXACO STATION TX0001011659/VGN	16255 S OAKS RD HOUSTON TX 77053	NON GC	N/A
	RCRAGN	WALGREENS CORPORATION TXR000078032/SGN	11633 SHADOW CREEK PKWY PEARLAND TX 77584	NON GC	N/A
	RCRAGN	WAL-MART SUPERCENTER 3572 TXR000052654/VGN	10505 BROADWAY PEARLAND TX 77584	NON GC	N/A
	RCRAGN	CVS PHARMACY INC TXR000068650/SGN	11600 SHADOW CREEK PKWY PEARLAND TX 77584	NON GC	N/A
	RCRAGN	NTB 743 TXR000078010/VGN	9305 BROADWAY ST PEARLAND TX 77584	NON GC	N/A
	RCRAGN	QUALEX INC TXR000049825/SGN	3045 SILVERLAKE VILLAGE DR PEARLAND TX 77584	NON GC	N/A
	SPILLS	18842 MORRIS ST 52551/CLOSED	PEARLAND TX	NON GC	N/A
	SPILLS	1722 GARDEN RD 31848/CLOSED	PEARLAND TX	NON GC	N/A
	SPILLS	PEARLAND PIPE COATING PLANT 104738/CLOSED	4501 KNAPP RD, PEARLAND, TX PEARLAND TX	NON GC	N/A
	SPILLS	6830 SHARON 23923/CLOSED	PEARLAND TX	NON GC	N/A
	SPILLS	8905 FITE RD 41299/CLOSED	SUB: ALLISON - RICHEY GULF PEARLAND TX	NON GC	N/A
	SPILLS	DIXIE FARM ROAD LANDFILL 74462/CLOSED	0.25 MILES NE OF STATE HIGH PEARLAND TX	NON GC	N/A
	SPILLS	DIXIE FARM ROAD LANDFILL 74715/CLOSED	0.25 MILES NE OF STATE HIGH PEARLAND TX	NON GC	N/A

***Environmental FirstSearch
Sites Summary Report***

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

TOTAL: 185 **GEOCODED:** 138 **NON GEOCODED:** 47 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	SPILLS	OAKRIDGE MOBILE HOME PARK 76117/CLOSED	PEARLAND TX	NON GC	N/A
	STATE	CAMTRACO ENTERPRISES INC RN100903434/ACTIVE	18823 AMOCO ST PEARLAND TX 77584	NON GC	N/A
	TRIBALLAND	BUREAU OF INDIAN AFFAIRS CONTACT I BIA-77584	UNKNOWN TX 77584	NON GC	N/A
	TRIBALLAND	BUREAU OF INDIAN AFFAIRS CONTACT I BIA-77047	UNKNOWN TX 77047	NON GC	N/A
	TRIBALLAND	BUREAU OF INDIAN AFFAIRS CONTACT I BIA-77053	UNKNOWN TX 77053	NON GC	N/A
	UST	BUC EES 20 0078414	11151 SHADOW CREEK PKWY PEARLAND TX 77584	NON GC	N/A
	VCP	MYKAWA ROAD SITE IOP-0657/INVESTIGATION	1720 MYKAWA ROAD PEARLAND TX	NON GC	N/A

Environmental FirstSearch Database Descriptions

NPL: *EPA* NATIONAL PRIORITY LIST - Database of confirmed and proposed Superfund sites.

NPL Delisted: *EPA* NATIONAL PRIORITY LIST Subset - Database of delisted Superfund sites.

CERCLIS: *EPA* COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM - Database of current and potential Superfund sites currently or previously under investigation.

NFRAP: *EPA* COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM ARCHIVED SITES - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

RCRA COR ACT: *EPA* RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of RCRA facilities with reported violations and subject to corrective actions.

RCRA TSD: *EPA* RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM TREATMENT, STORAGE, and DISPOSAL FACILITIES. - Database of facilities licensed to store, treat and dispose of hazardous waste materials.

RCRA GEN: *EPA* RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of facilities that generate or transport hazardous waste or meet other RCRA requirements.

LGN - Large Quantity Generators

SGN - Small Quantity Generators

VGN – Conditionally Exempt Generator.

Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities.

Federal IC / EC: *EPA* BROWNFIELD MANAGEMENT SYSTEM (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs.

FEDERAL ENGINEERING AND INSTITUTIONAL CONTROLS- Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated.

ERNS: *EPA/NRC* EMERGENCY RESPONSE NOTIFICATION SYSTEM - Database of emergency response actions. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

Tribal Lands: *DOI/BIA* INDIAN LANDS OF THE UNITED STATES - Database of areas with boundaries established by treaty, statute, and (or) executive or court order, recognized by the Federal Government as territory in which American Indian tribes have primary governmental authority. The Indian Lands of the United States map layer shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are Federally-administered lands within a reservation which may or may not be considered part of the reservation.

State/Tribal Sites: *TCEQ* Listing of sites contained in the State Superfund Registry.

State Spills 90: *TCEQ* Database of emergency response actions and spill releases dating from 2002 to present

State/Tribal SWL: *TCEQ* Listing of all permitted solid waste landfills, transfer stations, and incinerators

State/Tribal LUST: *TCEQ* Listing of all leaking underground petroleum storage tanks

State/Tribal UST/AST: *TCEQ* Listing of all underground petroleum storage tanks

State/Tribal EC: *TCEQ* See Institutional Controls database

State/Tribal IC: *TCEQ* Listing of sites in the Voluntary Cleanup Program (VCP) and the Innocent Owner/Operator Program (IOP) where Institutional or Engineering Controls have been placed on them.

State/Tribal VCP: *TCEQ* Listing of all sites in the Voluntary Cleanup Program (VCP) and the Innocent Owner/Operator Program (IOP). Some VCP and IOP sites are noted as having institutional controls placed on them.

State/Tribal Brownfields: *TCEQ/EPA* Listing of all former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. Some sites are noted as having institutional controls placed on them.

Brownfields Management System (BMS) is an analytical database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs.

State Wells: *TWDB* Database of public drinking water well and surface intake sites.

Federal Wells: *USGS* UNITED STATES GROUND-WATER SITES INVENTORY - Database of more than 850,000 records of wells, springs, test holes, tunnels, drains, and excavations in the United States.

RADON: *NTIS* NATIONAL RADON DATABASE - EPA radon data from 1990-1991 national radon project collected for a variety of zip codes across the United States.

State Other: *TCEQ* Texas Industrial Hazardous Waste Notice of Registration (IHW NOR) data. The TCEQ enters all information submitted by industrial and hazardous waste transporters, receivers (including recyclers), generators and one time shipments into a database that tracks industrial and hazardous waste generation and management activities in the state of Texas. All facilities of these types receive a solid waste registration number.

OIL & GAS WELLS: *RRC* Listing of completions, pluggings and permits. Data is obtained only from digital data provided by the Texas Railroad Commission.

Environmental FirstSearch Database Sources

NPL: *EPA* Environmental Protection Agency

Updated quarterly

NPL Delisted: *EPA* Environmental Protection Agency

Updated quarterly

CERCLIS: *EPA* Environmental Protection Agency

Updated quarterly

NFRAP: *EPA* Environmental Protection Agency.

Updated quarterly

RCRA COR ACT: *EPA* Environmental Protection Agency.

Updated quarterly

RCRA TSD: *EPA* Environmental Protection Agency.

Updated quarterly

RCRA GEN: *EPA* Environmental Protection Agency.

Updated quarterly

Federal IC / EC: *EPA* Environmental Protection Agency

Updated quarterly

ERNS: *EPA/NRC* Environmental Protection Agency

Updated semi-annually

Tribal Lands: *DOI/BIA* United States Department of the Interior

Updated annually

State/Tribal Sites: *TCEQ* The Texas Commission on Environmental Quality's Office of Permitting, Remediation and Registration, Remediation Division

Updated quarterly

State Spills 90: TCEQ The Texas Commission on Environmental Quality

Updated quarterly

State/Tribal SWL: TCEQ The Texas Commission on Environmental Quality's Office of Permitting, Remediation and Registration, Waste Permits Division, Municipal Solid Waste Permits Section

Updated annually

State/Tribal LUST: TCEQ The Texas Commission on Environmental Quality's Office of Permitting, Remediation and Registration, Waste Permits Division, Petroleum Storage Tank Program

Updated quarterly

State/Tribal UST/AST: TCEQ The Texas Commission on Environmental Quality's Office of Permitting, Remediation and Registration, Waste Permits Division, Petroleum Storage Tank Program

Updated quarterly

State/Tribal EC: TCEQ The Texas Commission on Environmental Quality

Updated quarterly

State/Tribal IC: TCEQ The Texas Commission on Environmental Quality

Updated quarterly

State/Tribal VCP: TCEQ The Texas Commission on Environmental Quality

Updated quarterly

State/Tribal Brownfields: TCEQ/EPA The Texas Commission on Environmental Quality

Updated quarterly

State Wells: TWDB Texas Water Development Board

Updated when available

Federal Wells: USGS United States Geographical Survey.

Updated annually

RADON: NTIS Environmental Protection Agency, National Technical Information Services

Updated periodically

State Other: TCEQ The Texas Commission on Environmental Quality's Office of Permitting, Remediation and Registration

Updated quarterly

OIL & GAS WELLS: RRC

Updated

Environmental FirstSearch
Street Name Report for Streets within 1 Mile(s) of Target Property

TARGET SITE: FM 521 ROAD
PEARLAND TX 77584

JOB: 011101067
BW8TOFM2234

Street Name	Dist/Dir	Street Name	Dist/Dir
2234	0.51 SE	Jersey Shore Dr	0.31 SE
Airline Rd S	0.83 SE	Jupiter Dr	0.94 NW
Alkay St	0.67 NW	Labrador Dr	0.77 NE
Almeda Rd	0.00 --	McHard Rd	0.03 SE
Almeda School Rd	0.52 NE	McIntyre Ln	0.22 -W
Almeece St	0.67 NW	Mesa Village Dr	0.99 NW
Alrover St	0.66 NW	Monrad Dr	1.00 NW
Anderson Rd	0.65 NW	Natalie St	0.17 NW
Arai	0.79 NE	Nautique Way	0.65 SE
Bathurst Dr	0.83 NW	Norway St	0.70 NE
Betty Sue Ln	0.86 NE	Oakside Dr	0.88 NW
Bluebonnet Dr	0.03 NW	Ohio	0.62 NE
Booth St	0.44 NW	Old Airline Rd	0.84 SE
Bridgeport Rd	0.42 NE	Papadosa St	0.25 NW
Broadhurst Dr	0.54 NE	Park Almeda Dr	0.44 SE
Buffalo Speedway	0.00 --	Park Ave	0.60 NE
Burnham St	0.20 NW	Randolph Dr	0.47 SW
Cedar	0.60 NE	Remus Dr	0.94 NW
Commercial Ln	0.46 NE	S Sam Houston Pky E	0.00 --
Curly Oaks Dr	0.97 NW	S Sam Houston Pky W	0.01 SE
Danfield Dr	0.48 NE	Sewalk St	0.81 NE
E Anderson Rd	0.70 NE	South Dr	0.00 --
Elmfield	0.50 NE	Southbelt Industrial	0.60 SE
Elmfield St	0.31 NE	Tyler Rd	0.01 NW
Farm-to-Market Road	0.04 SE	W Foxshire Ln	0.43 NW
Feld Dr	0.02 NW	W Riley Dr	0.00 --
Fellows Rd	0.17 NE	W Sam Houston Pky S	0.01 NW
Foxshire Ln	0.45 NE	Walksew St	0.78 NE
Grammar Rd	0.42 NE	Waterloo Dr	0.61 NE
Gumas St	0.92 NE	West Dr	0.56 NW
High Point Ln	0.92 NW	White Heather Dr	1.00 NW
India St	0.68 NE	White Rd	0.00 --
Industry	0.15 NW		
Insley St	0.65 NW		

APPENDIX F:
Biological Evaluation Form



Biological Evaluation Form

CSJ: 0111-03-031,-01-067,

2105-01-048

FM 521

At FM 2234

CSJ: 0111-03-031,-01-067, 2105-01-048

Project has no Federal nexus.

Date of Evaluation: August 20, 2014

Proposed Letting Date: January 2015

County: Fort Bend

Additional Counties: Harris

Roadway Name: FM 521

Project Limits: At FM 2234

Project Description: The proposed project includes reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521.

Endangered Species Act (ESA)

1. No Is the action area of the proposed project within the range and in suitable habitat of federally protected species?

Date [USFWS County List](#) Accessed: June 2013

Comments:

Resources consulted or activities conducted to make effect determination (if applicable):

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> TPWD County List | <input type="checkbox"/> USFWS Critical Habitat Maps | <input type="checkbox"/> Species Expert Consulted |
| <input checked="" type="checkbox"/> Aerial Photography | <input type="checkbox"/> Coastal Areas Maps | <input checked="" type="checkbox"/> Site Visit |
| <input checked="" type="checkbox"/> Topographic Map | <input type="checkbox"/> Species Study Conducted | <input type="checkbox"/> Karst Zone Maps |
| <input checked="" type="checkbox"/> Ecological Mapping System of Texas (EMST) | <input checked="" type="checkbox"/> Natural Diversity Database (NDD) | |

Other:

Migratory Bird Treaty Act (MBTA)

1. No Is there potential for nesting birds to be present in the project action area during construction?
2. Yes Will BMPs will be incorporated to protect migratory bird nests?

Comments:

The contractor would remove all old migratory bird nests from any structure where work would be done. In addition, the contractor would be prepared to prevent migratory birds from building nests during construction.

Bald and Golden Eagle Protection Act (BGEPA)

1. No Does the proposed project have the potential to impact Bald or Golden Eagles?

Comments:

Fish and Wildlife Coordination Act (FWCA)

1. Yes Does the project have impacts on one or more Waters of the U.S. or wetlands?
- 1.1 Yes Is the project covered by a Nationwide Permit?
- 1.2 No Is the project covered by an Individual Permit from the USACE?

Comments:

NWP 14 with PCN is expected for 0.17 acres impacts to wetlands and other waters.

Executive Order 13112 on Invasive Species

1. Yes Would the proposed project be in compliance with EO 13112?

Comments

Executive Memorandum on Beneficial Landscaping

1. Yes Would landscaping be included in the proposed projects?

Describe landscaping activities:

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, seeding and replanting would be done where possible. Moreover, abutting turf grasses within the ROW would be expected to re-establish throughout the length of the project. Soil disturbance would be minimized to ensure that invasive species would not establish in the ROW.

2. Yes Would the proposed project be in compliance with the Executive Memorandum on Beneficial Landscaping?

Comments

Farmland Protection Policy Act (FPPA)

1. Yes Would the project require new ROW or permanent easements (*Do not include temporary easements*)?
2. No Is the proposed project exempt from the provisions of FPPA in accordance with [§523.11](#) of the act?
3. Yes Has the new ROW been scored using either [FPPA Form AD-1006](#) or [SCS-CPA 106](#)?
4. Yes Was the resulting score above 60 on part V of either form? (If the project scores above 60 on part V of either form, then coordination with NRCS is required.)

Comments:

NRCS coordination documents attached.

General Comments

TPWD Analysis Section

Coordination Conditions

1. No Is the project limited to a maintenance activity exempt from coordination?
https://ftp.dot.state.tx.us/pub/txdot-info/env/env_assessment.pdf
2. No Has the project previously completed coordination with TPWD?

Tier I Site Assessment

MOU-Triggers

1. No Is the project within range of a state threatened or endangered species or SGCN and suitable habitat is present?

Comments:

Date [TPWD County](#) List Accessed: May 2, 2013

Date that the NDD was accessed: February 4, 2013

What agency performed the NDD search? TPWD

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

Comments:

3. Yes Does the project require a NWP with PCN or IP by USACE?

*Explanation:

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

Comments:

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

Comments:

6. No Would the project impact at least 0.10 acre of riparian vegetation?

Comments:

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

*Explanation:

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

Excel File Name:

7.1 No Is there a discrepancy between actual habitat(s) and EMST mapped habitat(s)?

Comments:

Is TPWD Coordination Required?

Yes

Early Coordination

Administrated Coordination

BMPs Implemented or EPICs included (as necessary):

TxDOT Contact Information

Name: Courtney Blechle

Phone Number: 713-802-5245

E-mail: Courtney.Blechle@txdot.gov

Findings

Endangered Species Act (ESA)

No suitable habitat was observed for any federally listed species; therefore, there will be no effect on federally listed species. However, measures to avoid harm to any threatened and endangered species will be taken should they be observed during construction of the proposed project. Coordination with the USFWS will not be required. The USFWS County list was accessed on June 2013.

Essential Fish Habitat (EFH)

Essential fish habitat is defined by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Tidally influenced waters do not occur within the project action area. Coordination with National Marine Fisheries Service (NMFS) is not required.

Coastal Barrier Resources Act (CBRA)

The Coastal Barrier Resources Act (CBRA) established the Coastal Barrier Resources System (CBRS) to protect a defined set of geographic units along the coast of the U.S.

This project is not located within a designated CBRA map unit. Coordination with the USFWS is not required.

Marine Mammal Protection Act (MMPA)

Marine mammals are protected under the Marine Mammal Protection Act (MMPA). The Texas coast provides suitable habitat and is within range of several marine mammals including the West Indian Manatee (*Trichechus manatus*), and bottlenose dolphin (*Tursiops truncatus*).

The project action area does not contain suitable habitat for marine mammals. Coordination with NMFS is not required.

Migratory Bird Treaty Act (MBTA)

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 within the Act's policies and regulations.

TxDOT will take all appropriate actions to prevent the take of migratory birds, their active nests, eggs, or young by the use of proper phasing of the project or other appropriate actions. A MBTA appropriate EPIC will be included in the PS&E.

Bald and Golden Eagle Protection Act (BGEPA)

The proposed project does not have the potential to impact Bald or Golden Eagles.

Executive Order 13112 on Invasive Species

Re-vegetation of disturbed areas would be in compliance with the Executive Order on Invasive Species (EO 13112). Regionally native and non-invasive plants will be used to the extent practicable in landscaping and re-vegetation.

Executive Memorandum on Beneficial Landscaping

Landscaping would be a part of the proposed project activities. Re-vegetation of disturbed areas would be in compliance with the Executive Memorandum on Beneficial Landscaping (26Apr94). Regionally native and non-invasive plants will be used to the extent practicable in landscaping and re-vegetation.

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, seeding and replanting would be done where possible. Moreover, abutting turf grasses within the ROW would be expected to re-establish throughout the length of the project. Soil disturbance would be minimized to ensure that invasive species would not establish in the ROW.

Farmland Protection Policy Act (FPPA)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. The proposed project would convert farmland subject to the FPPA to non-agricultural, transportation use, and the combined scores of the relative value of the farmland and the site assessment, as documented with the appropriate NRCS form and supporting documentation, are such that the NRCS opinion for reducing the impact must be solicited and alternative actions must be considered.

Fish and Wildlife Coordination Act (FWCA)

The Fish and Wildlife Coordination Act (FWCA) of 1958 requires that federal agencies obtain comments from USFWS and TPWD. This coordination is required whenever a project involves impounding, diverting, or deepening a stream channel or other body of water.

The proposed project is authorized under a Section 404 of the Clean Water Act Nationwide Permit; therefore, no coordination under FWCA would be required.

Andrew Leske, Env.Specialist II
TxDOT Reviewer

3/12/15

Date

Suggested Attachments

Aerial Map (with delineated project boundaries)

USFWS T&E List

TPWD T&E List

Species Impact Table

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

NOAA EFH Mapper Printout

USFWS CBRA Mapper Printout

EMST Project MOU Summary Table (Required for TPWD Coordination)

TPWD SGCN List

FPPA Documentation

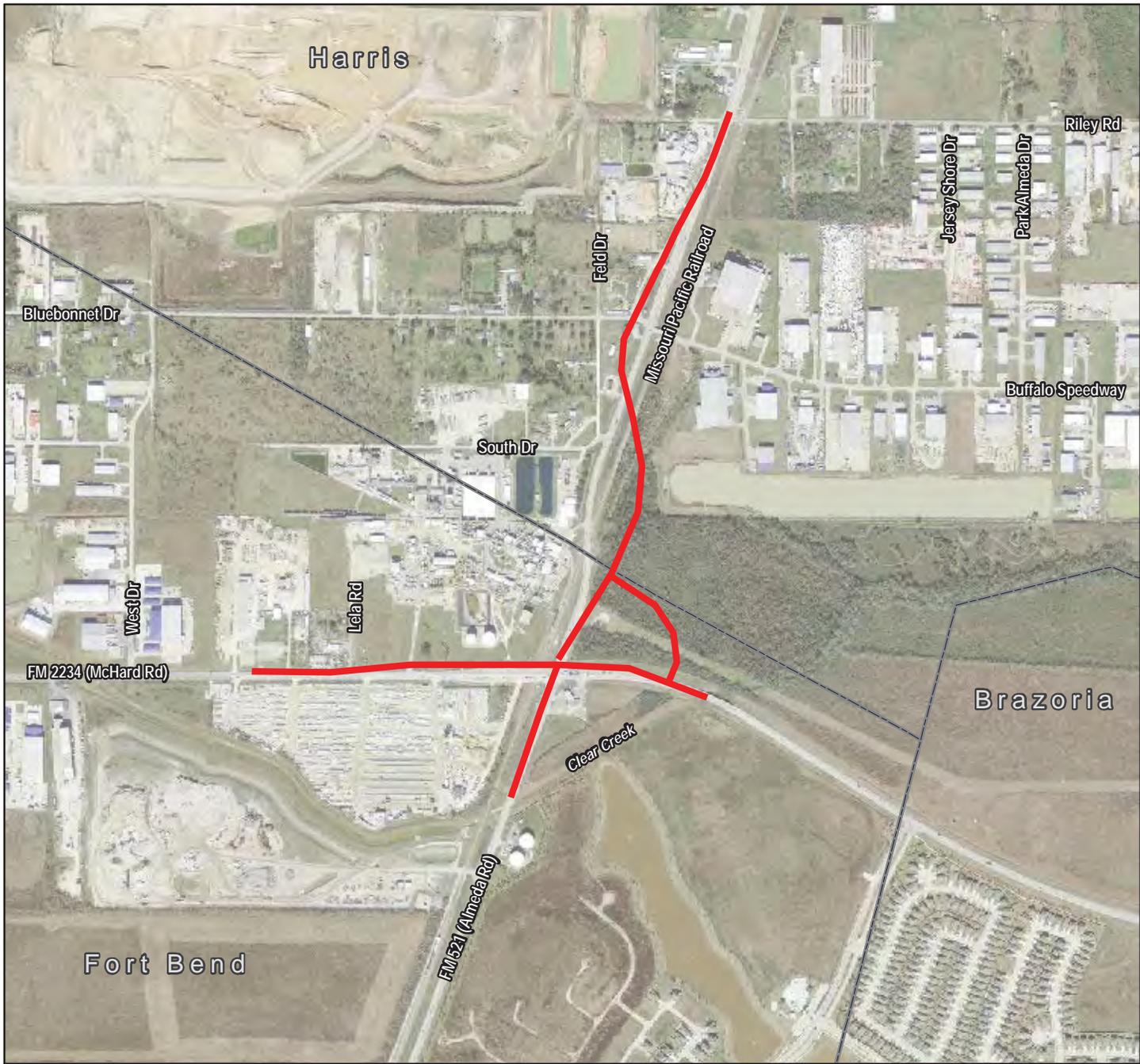
Landscaping Plans

Photos (Required for TPWD Coordination)

Previous TPWD Coordination Documentation (if applicable)

The following table shows the revision history for this guidance document.

Revision History	
Effective Date Month, Year	Reason for and Description of Change

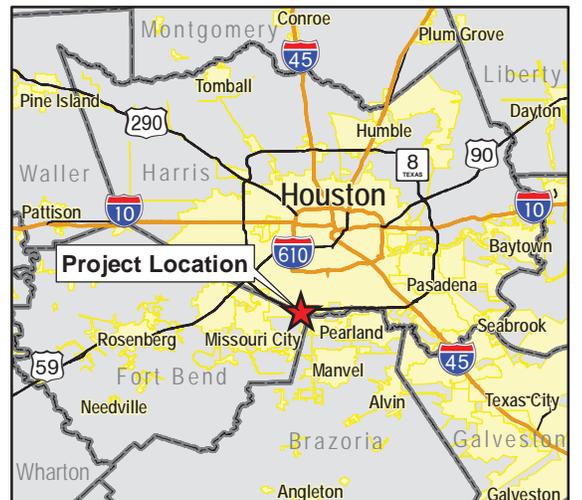
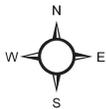


Legend

- Project Location
- County Boundary

**Exhibit 1:
PROJECT LOCATION MAP**

FM 521 at FM 2234
 Harris and Fort Bend Counties, Texas
 CSJs: 0111-01-067, 0111-03-031, and 2105-01-048



Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Birds	Bald eagle (Haliaeetus	lower 48 States	Recovery	Rock Island Ecological Services	Northern States Bald Eagle	Final
Birds	Bald eagle (Haliaeetus	lower 48 States	Recovery	Rock Island Ecological Services	Recovery Plan for the Pacific	Final
Birds	Bald eagle (Haliaeetus	lower 48 States	Recovery	Rock Island Ecological Services	Southeastern States Bald Eagle	Final Revision 1
Birds	Bald eagle (Haliaeetus	lower 48 States	Recovery	Rock Island Ecological Services	Southwestern Bald Eagle	Final
Birds	Bald eagle (Haliaeetus	lower 48 States	Recovery	Rock Island Ecological Services	Chesapeake Bay Bald Eagle	Final Revision 1
Birds	Sprague's pipit (Anthus		Candidate	North Dakota Ecological		
Flowering Plants	Texas prairie dawn-flower		Endangered	Houston Ecological Services	Hymenoxys texana Recovery	Final
Mammals	West Indian Manatee	Entire	Endangered	North Florida Ecological	Florida Manatee Recovery Plan,	Final Revision 3
Mammals	West Indian Manatee	Entire	Endangered	North Florida Ecological	Recovery Plan Puerto Rican	Final

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Birds	Whooping crane (Grus)	except where EXPN	Endangered	Assistant Regional Director-	Whooping Crane Recovery	Final Revision 3
Birds	Whooping crane (Grus)	U.S.A. (CO, ID, FL, NM, UT,	Experimental Population, Non-	Office Of The Regional Director		
Birds	Bald eagle (Haliaeetus)	lower 48 States	Recovery	Rock Island Ecological Services	Chesapeake Bay Bald Eagle	Final Revision 1
Birds	Bald eagle (Haliaeetus)	lower 48 States	Recovery	Rock Island Ecological Services	Northern States Bald Eagle	Final
Birds	Bald eagle (Haliaeetus)	lower 48 States	Recovery	Rock Island Ecological Services	Southwestern Bald Eagle	Final
Birds	Bald eagle (Haliaeetus)	lower 48 States	Recovery	Rock Island Ecological Services	Southeastern States Bald Eagle	Final Revision 1
Birds	Bald eagle (Haliaeetus)	lower 48 States	Recovery	Rock Island Ecological Services	Recovery Plan for the Pacific	Final
Clams	Texas fawnsfoot (Truncilla)		Candidate	Austin Ecological Services Field		
Clams	Smooth pimpleback (Quadrula)		Candidate	Austin Ecological Services Field		
Flowering Plants	Texas prairie dawn-flower		Endangered	Houston Ecological Services	Hymenoxys texana Recovery	Final

Potential Effects to Listed Species Potentially Occurring within the Study Area

Common Name (<i>Scientific Name</i>)	State Status	Federal Status	Suitable Habitat Description	Effect
AMPHIBIANS				
Houston toad (<i>Bufo houstonensis</i>)	E	E†	Sandy substrate, ephemeral pools, stock tanks.	No effect; habitat not present
BIRDS				
American peregrine falcon (<i>Falco peregrinus</i>)	T	DL†	Potential migrant.	No effect; rare transitory migrant
Arctic peregrine falcon (<i>Falco peregrinus tundrius</i>)	--	DL†	Potential migrant, winters along gulf coast.	No effect; rare transitory migrant
Attwater's Greater Prairie-Chicken (<i>Tympanuchus cupido attwateri</i>)	E	E†	Open prairies of mostly thick grass one to three feet tall; from near sea level to 200 feet along coastal plain on upper two-thirds of Texas coast.	No effect; habitat not present
Bald eagle (Nesting) (<i>Haliaeetus leucocephalus</i>)	T	DL†	Near water areas, in tall trees.	No effect; habitat not present
Black Rail (<i>Laterallus jamaicensis</i>)	--	*	Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous year's dead grasses; nest usually hidden in marsh grass or at base of Salicornia.	No impact; habitat not present
Brown Pelican (<i>Pelecanus occidentalis</i>)	--	DL†	Largely coastal and near shore areas, where it roosts and nests on islands and spoil banks.	No impact; habitat not present
Henslow's sparrow (<i>Ammodramus henslowii</i>)	--	*	Wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking.	No impact; habitat not present
Mountain plover (<i>Charadrius montanus</i>)	--	*	Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous.	No impact; habitat not present
Peregrine falcon (<i>Falco peregrinus</i>)	T	DL†	Both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (<i>F. p. anatum</i>) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, <i>F.p. tundrius</i> is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	No effect; habitat not present
Red-cockaded woodpecker (<i>Picoides borealis</i>)	E	E†	Cavity nests in older pine (60+ years); forages in younger pine (30+ years); prefers longleaf, shortleaf, and loblolly.	No effect; habitat not present
Snowy plover (<i>Charadrius alexandrinus</i>)	--	*	Formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast.	No impact; habitat not present
Southeastern snowy plover (<i>Charadrius alexandrinus tenuirostris</i>)	--	*	Wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats.	No impact; habitat not present
Sprague's pipit (<i>Anthus spragueii</i>)	--	C†	Diurnal migrant tied to native prairie upland and coastal grasslands; avoids edges.	No effect. No habitat present

Common Name (Scientific Name)	State Status	Federal Status	Suitable Habitat Description	Effect
White-faced ibis (<i>Plegadis chihi</i>)	T	*	Freshwater marshes, but some brackish or salt marshes	No impact; habitat not present
White-tailed hawk (<i>Buteo albicaudatus</i>)	T	*	Coastal prairies; cordgrass flats, scrub-live oak	No impact; transitory migrant
Whooping crane (<i>Grus americana</i>)	E	E†	Winters in Aransas NWR	No effect; habitat not present
Wood stork (<i>Mycteria americana</i>)	T	*	Prairie ponds and flooded pastures	No impact; habitat not present
FISHES				
American eel (<i>Anguilla rostrata</i>)	--	*	Coastal waterways below reservoirs to gulf; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes	No impact; habitat not present
Creek chubsucker (<i>Erimyzon oblongus</i>)	T	*	Tributaries of the Red, Sabine, Neches, Trinity, and San Jacinto rivers; small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes; spawns in river mouths or pools, riffles, lake outlets, upstream creeks.	No impact; habitat not present
Smalltooth sawfish (<i>Pristis pectinata</i>)	E	E†	Young found very close to shore in muddy and sandy bottoms, seldom descending to depths greater than 32 ft (10 m); in sheltered bays, on shallow banks, and in estuaries or river mouths; adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths, feed on a variety of fish species and crustaceans.	No effect; habitat not present
MAMMALS				
Louisiana black bear (<i>Ursus americanus luteolus</i>)	T	T†	Thick brushland near water	No effect; habitat not present
Plains spotted skunk (<i>Spilogale putorius interrupta</i>)	--	*	Catholic in habitat choice; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie	No impact; habitat not present
Rafinesque's big-eared bat (<i>Corynorhinus rafinesquii</i>)	T	*	Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.	No impact; habitat not present
Red wolf (<i>Canis rufus</i>)	E	E†	Extirpated, eastern half of Texas in brushy, forested areas; coastal prairies	No effect; habitat not present.
Southeastern myotis bat (<i>Myotis austroriparius</i>)	--	*	Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.	No impact; habitat not present
MOLLUSKS				
Little spectaclecase (<i>Villosa lienosa</i>)	--	*	Creeks, rivers, and reservoirs, sandy substrates in slight to moderate current, usually along the banks in slower currents; east Texas, Cypress through San Jacinto River basins.	No impact; habitat not present
Louisiana pigtoe (<i>Pleurobema riddellii</i>)	T	*	Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins.	No impact; habitat not present

Common Name (Scientific Name)	State Status	Federal Status	Suitable Habitat Description	Effect
Sandbook pocketbook (<i>Lampsilis satura</i>)	T	*	Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River.	No impact; habitat not present
Texas pigtoe (<i>Fusconaia askewi</i>)	T	*	Rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures; east Texas River basins, Sabine through Trinity rivers as well as San Jacinto River.	No impact; habitat not present
Wabash pigtoe (<i>Fusconaia flava</i>)	--	*	Creeks to large rivers on mud, sand, and gravel from all habitats except deep shifting sands; found in moderate to swift current velocities; east Texas River basins, Red through San Jacinto River basins; elsewhere occurs in reservoirs and lakes with no flow.	No impact; habitat not present
REPTILES				
Alligator snapping turtle (<i>Macrochelys temminckii</i>)	T	*	Perennial water bodies, deep water of rivers, canals, lakes, and oxbows	No impact; habitat not present
Green sea turtle (<i>Chelonia mydas</i>)	T	T†	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches.	No effect; habitat not present
Gulf saltmarsh snake (<i>Nerodia clarkia</i>)	--	*	Saline flats, coastal bays, and brackish river mouths.	No impact; habitat not present
Kemp's Ridley sea turtle (<i>Lepidochelys kempii</i>)	E	E	Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico.	No effect; habitat not present
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	E	E	Gulf and bay systems, and widest ranging open water reptile; omnivorous, shows a preference for jellyfish.	No effect; habitat not present
Loggerhead sea turtle (<i>Caretta caretta</i>)	T	T	Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles.	No effect; habitat not present
Smooth green snake (<i>Liochlorophis vernalis</i>)	T	*	Gulf Coastal Plain; mesic coastal shortgrass prairie vegetation; prefers dense vegetation.	No impact; habitat not present
Texas horned lizard (<i>Phrynosoma cornutum</i>)	T	*	Open, semi-arid regions, with bunch grass	No impact; habitat not present
Timber/Canebrake rattlesnake (<i>Crotalus horridus</i>)	T	*	Swamps/floodplains of hardwood/upland pine	No impact; habitat not present
PLANTS				
Coastal gay-feather (<i>Liatris bracteata</i>)	--	*	Texas endemic; coastal prairie grasslands of various types, from salty prairie on low-lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall.	No impact; habitat not present
Florida ladies-tresses (<i>Spiranthes brevilabris</i> var. <i>floridana</i>)	--	*	Moist to wet, relatively open sites of pine-dominated landscapes, mesic pine uplands, open scrub pinelands with saw palmetto, Catahoula sandstone barrens, meadows, open grassy lawns, pitcher plant and seepage bogs, wet prairies, wet savannahs, and flatwoods. Delicate, nearly ephemeral, orchid with winter rosette. Flowers Apr-May.	No impact; habitat not present
Giant sharpstem umbrella-sedge (<i>Cyperus cephalanthus</i>)	--	*	On saturated, fine sandy loam soils, along nearly level fringes of deep prairie depressions; also in depression area within coastal prairie remnant on heavy black clay.	No impact; habitat not present

Common Name (Scientific Name)	State Status	Federal Status	Suitable Habitat Description	Effect
Houston daisy (<i>Rayjacksonia aurea</i>)	--	*	Texas endemic; on and around naturally barren or sparsely vegetated saline slick spots or pimple mounds on coastal prairies, usually on sandy to sandy loam soils, occasionally in pastures and on roadsides in similar soil types where mowing may mimic natural prairie disturbance regimes.	No impact; habitat not present
Neglected coneflower (<i>Echinacea paradoxa</i> var. <i>neglecta</i>)	--	*	Rocky prairies, glades, and crosstember open woodlands and savannas. Full sun.	No impact; habitat not present
Panicled indigobush (<i>Amorpha paniculata</i>)	--	*	A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas.	No impact; habitat not present
Texas ladies'-tresses (<i>Spiranthes brevilabris</i> var. <i>brevilabris</i>)	--	*	Sandy soils in moist prairies, incl. blackland/Fleming prairies, calcareous prairie pockets surrounded by pines, pine-hardwood forest, open pinelands, wetland pine savannas/flatwoods, and dry to moist fields, meadows, and roadsides.	No impact; habitat not present
Texas meadow-rue (<i>Thalictrum texanum</i>)	--	*	Texas endemic; mostly found in woodlands and woodland margins on soils with a surface layer of sandy loam, but it also occurs on prairie pimple mounds; both on uplands and creek terraces, but perhaps most common on claypan savannas; soils are very moist during its active growing season.	No impact; habitat not present
Texas prairie dawn (<i>Hymenoxys texana</i>)	E	E	In poorly drained, sparsely vegetated areas (slick spots) at the base of mima mounds in open grassland or almost barren areas on slightly saline soils that are sticky when wet and powdery when dry.	No effect; habitat not present
Texas windmill-grass (<i>Chloris texensis</i>)	--	*	Texas endemic; sandy to sandy loam soils in relatively bare areas in coastal prairie grassland remnants, often on roadsides where regular mowing may mimic natural prairie fire regimes.	No impact; habitat not present
Threeflower broomweed (<i>Thurovia triflora</i>)	--	*	Texas endemic; near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay along drier upper margins of ecotone between between salty prairies and tidal flats.	No impact; habitat not present

* These species occur on the State listing of threatened or endangered species; however, they are not federally listed at this time by the U.S. Fish and Wildlife Service (June 2013).

† These species are listed by the U.S. Wildlife Service, however, they are not listed to occur within this county by the Clear Lake office of the U.S. Fish and Wildlife Service (June 2013).

-- Not listed for Texas Parks and Wildlife for this county (June 2013)

Note: E = endangered T = threatened C = candidate species DL = federally delisted

Source: USFWS, 2013.

Element Occurrence Record

Scientific Name: Anaxyrus houstonensis

Occurrence #: 4

Eo Id: 3159

Common Name: Houston Toad

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G1

State Rank: S1

Federal Status: LE

Location Information:

Directions:

SOUTHEAST HOUSTON, NORTH OF CLEAR CREEK, WEST OF I-45, EAST OF TELEPHONE ROAD, SOUTHEAST AND SOUTH OF HOBBY AIRPORT. ALSO ELLINGTON AIR FORCE BASE.

Survey Information:

First Observation: 1953

Survey Date:

Last Observation: 1976

Eo Type:

Eo Rank: H

Eo Rank Date: 1984-01-01

Observed Area: 600.00

Comments:

General Description: SANDY SUBSTRATE, POOLS - EPHEMERAL & PERMANENT FRESH WATER. URBAN AREA, ENCROACHING URBANIZATION.

Comments: NOT A PROTECTABLE OCCURRENCE, NOT SEEN RECENTLY. URBANIZATION HAS PROBABLY ELIMINATED HABITAT.

Protection Comments: WORK WITH HRRS, BRZR CO. PARKS TO ENSURE HABITAT MAINTENANCE

Management Comments: REINTRODUCE IN PROTECTED HABITAT

Data:

EO Data: A NUMBER OBSERVED UNTIL MID 70'S. NEEDS SANDY SUBSTRATE AND EPHEMERAL RAIN POOLS TO BREED. BREEDS IN FEBRUARY. OCCASIONAL HYBRIDS WITH OTHER BUFO SPP. FACILITATED BY HABITAT MODIFICATION

Reference:

Citation:

BROWN, L.E., ET. AL., 1983. AGENCY REVIEW DRAFT OF THE RECOVERY PLAN FOR THE HOUSTON TOAD (BUFO HOUSTONENSIS). USF& WS, ALBUQUERQUE, NM. 48PP.

QUINN, HUGH R. AND GREG MENGDEN. 1984. REPRODUCTION AND GROWTH OF BUFO HOUSTONENSIS (BUFONIDAE). S.W. NAT. 29(2): 189-195.

BROWN, LAUREN E., 1971. NATURAL HYBRIDIZATION AND TREND TOWARD EXTINCTION IN SOME RELICT TEXAS TOAD POPULATIONS. SOUTHWESTERN NATURALIST 16(2):185-199.

QUINN, HUGH. NO DATE. CURATOR OF REPTILES HOUSTON ZOOLOGICAL GARDENS PARKS & RECREATION DEPARTMENT PH-713/520-3208.

Specimen:

Element Occurrence Record

Scientific Name: Anaxyrus houstonensis

Occurrence #: 6

Eo Id: 968

Common Name: Houston Toad

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G1

State Rank: S1

Federal Status: LE

Location Information:

Directions:

2 MILES WEST OF FRESNO, FORT BEND COUNTY

Survey Information:

First Observation: 1953

Survey Date:

Last Observation:

Eo Type:

Eo Rank: D

Eo Rank Date:

Observed Area:

Comments:

General Description: SANDY SUBSTRATE. EPHEMERAL POOLS AND STOCK TANKS.

Description:

Comments: COLLECTED BY JOHN C. WATTRING. OLD, VAGUE LOCALITY RECORD.

Protection

Comments:

Management

Comments:

Data:

EO Data: NEEDS SAND SUBSTRATE, WATER IN POOLS. BREEDS IN FEBRUARY AFTER RAINS. RELICTUAL FROM MORE EQUABLE CLIMATE. OCCASIONALLY HYBRIDIZES WITH OTHER BUFO SP.

Reference:

Citation:

BROWN, LAUREN E., 1971. NATURAL HYBRIDIZATION AND TREND TOWARD EXTINCTION IN SOME RELICT TEXAS TOAD POPULATIONS. SOUTHWESTERN NATURALIST 16(2):185-199.

BROWN, L.E., ET. AL., 1983. AGENCY REVIEW DRAFT OF THE RECOVERY PLAN FOR THE HOUSTON TOAD (BUFO HOUSTONENSIS). USF& WS, ALBUQUERQUE, NM. 48PP.

SANDERS, O. 1953. A NEW SPECIES OF TOAD WITH A DISCUSSION OF MORPHOLOGY OF THE BUFONID SKULL. HERPETOLOGICA 9:25-47.

Specimen:

Element Occurrence Record

Scientific Name: Chloris texensis

Occurrence #: 12

Eo Id: 8010

Common Name: Texas windmill-grass

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2

State Rank: S2

Federal Status:

Location Information:

Directions:

3 MILES SOUTH OF ALVIN [RECORDED AS HARRIS COUNTY, MAPS TO BRAZORIA COUNTY]

Survey Information:

First Observation: 1966

Survey Date:

Last Observation: 1966-11-04

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General EXPOSED CLAY LOWLAND

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: IN FRUIT

Reference:

Citation:

Specimen:

Texas A & M University, Tracy Herbarium. 1966. J. Parks #117, Specimen # 107124 AM. 4 November 1966.

Element Occurrence Record

Scientific Name: Chloris texensis

Occurrence #: 18

Eo Id: 1901

Common Name: Texas windmill-grass

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2

State Rank: S2

Federal Status:

Location Information:

Directions:

AROUND AMERICAN LEGION LITTLE LEAGUE FIELD NEAR WESTBURY HIGH SCHOOL IN HOUSTON

Survey Information:

First Observation:

Survey Date:

Last Observation: 1976-11-11

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General TIGHT BLACK CLAY SOIL IN MOWED AREA

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: COMMON; FLOWERING IN NOVEMBER 1976

Reference:

Citation:

Specimen:

Southern Methodist University Herbarium. 1976. L.E. Brown #2121, Specimen # none SMU. 11 November 1976.

Element Occurrence Record

Scientific Name: Haliaeetus leucocephalus

Occurrence #: 11

Eo Id: 3607

Common Name: Bald Eagle

Track Status: Track all extant and selected historical EOs

TX Protection Status: T

Global Rank: G4

State Rank: S3B,S3N

Federal Status:

Location Information:

Directions:

TERRITORY INCLUDES AREA +/- THREE MILE RADIUS CENTERED ON WORTHINGTON LAKE

Survey Information:

First Observation: 1982

Survey Date: 2003

Last Observation: 2002

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General Description: FOREST NEAR WATER

Description:

Comments: TPWD NEST NUMBERS 079-1A/B/C/D/E/F/G/H/I

Protection

Comments:

Management

Comments:

Data:

EO Data: NEST # 079-1A: 1982-1983 - NEST WAS INACTIVE; 1984 - THE NEST FELL. NEST # 079-1B: 1982 - NEST PRODUCED 2 YOUNG; 1983 - NEST PRODUCED 3 YOUNG; 1984-1987 - NEST WAS INACTIVE; 1988 - NEST WAS ACTIVE BUT PRODUCED 0 YOUNG; 1989 - THE NEST FELL. NEST # 079-1C: 1984 - NEST PRODUCED 2 YOUNG; 1985 - NEST WAS ACTIVE BUT PRODUCED 0 YOUNG; 1986 - NEST PRODUCED 1 YOUNG; 1987 - THE NEST FELL. NEST # 079-1D: 1989 - NEST WAS ACTIVE BUT PRODUCED 0 YOUNG; 1990-1992 - NEST WAS INACTIVE; 1993 - THE NEST FELL. NEST # 079-1E: 1990 - NEST WAS ACTIVE BUT PRODUCED 0 YOUNG; 1991-1992 - NEST WAS INACTIVE; 1993 - THE NEST FELL. NEST # 079-1F: 1990-1992 - NEST WAS INACTIVE; 1994 - THE NEST FELL. NEST # 079-1G: 1993 - NEST PRODUCED 1 YOUNG; 1997 - THE NEST FELL. NEST # 079-1H: 1995-1996 - NEST PRODUCED 1 YOUNG; 1997 - THE NEST FELL; 2001-2002 - NEST WAS INACTIVE. NEST # 079-1I: 1997-1998 - NEST WAS ACTIVE BUT PRODUCED 0 YOUNG; 1999 - NEST WAS INACTIVE; 2000-2001 - NEST PRODUCED 1 YOUNG; 2002 - NEST PRODUCED 2 YOUNG; 2003 - NEST WAS INACTIVE.

Reference:

Element Occurrence Record

Citation:

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

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

Polasek, Len. 1999. Chronological outcome of bald eagle nest surveys in Texas 1982-1999.

Polasek, Len G. 2000. Performance report Project No. 10: Bald eagle nest survey and management. Federal Aid Grant No. W-125-R-11. 31 August 2000.

Ortego, Brent. 2001. Performance Report Project No. 10: Bald eagle nest survey and management. Federal Aid Grant No. W-125-R-12. 30 September 2001.

Ortego, Brent. 2003. Chronological outcome of bald eagle nest surveys in Texas, 1982-2003.

Specimen:

Element Occurrence Record

Scientific Name: Haliaeetus leucocephalus

Occurrence #: 54

Eo Id: 7514

Common Name: Bald Eagle

Track Status: Track all extant and selected historical EOs

TX Protection Status: T

Global Rank: G4

State Rank: S3B,S3N

Federal Status:

Location Information:

Directions:

TERRITORY INCLUDES AREA +/- THREE MILE RADIUS CENTERED ON SMITHERS LAKE

Survey Information:

First Observation: 1991

Survey Date: 2002

Last Observation: 2001

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: TPWD NEST #079-2A/B/C

Protection

Comments:

Management

Comments:

Data:

EO Data: NEST # 079-2A: 1991 - THE NEST FELL. NEST # 079-2B: 1991 - NEST PRODUCED 2 YOUNG; 1992 - NEST WAS INACTIVE; 1993 - THE NEST WAS DETERIORATING; 1994 - NEST WAS INACTIVE; 1995 - THE NEST FELL. NEST # 079-2C: 1992 - NEST PRODUCED 1 YOUNG; 1993 - NEST PRODUCED 2 YOUNG; 1994 - NEST PRODUCED 1 YOUNG; 1995 - NEST PRODUCED 2 YOUNG; 1996 - NEST PRODUCED 1 YOUNG; 1997-1998 - NEST WAS ACTIVE BUT PRODUCED 0 YOUNG; 1999 - NEST PRODUCED 2 YOUNG; 2000-2001 - NEST PRODUCED 1 YOUNG; 2002 - NEST WAS INACTIVE.

Reference:

Citation:

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

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

Polasek, Len. 1999. Chronological outcome of bald eagle nest surveys in Texas 1982-1999.

Polasek, Len G. 2000. Performance report Project No. 10: Bald eagle nest survey and management. Federal Aid Grant No. W-125-R-11. 31 August 2000.

Ortego, Brent. 2001. Performance Report Project No. 10: Bald eagle nest survey and management. Federal Aid Grant No. W-125-R-12. 30 September 2001.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Hymenoxys texana

Occurrence #: 53

Eo Id: 26

Common Name: Texas prairie dawn

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G2

State Rank: S2

Federal Status: LE

Location Information:

Directions:

(Site 1) NORTH OF GASMER AND EAST OF SOUTH POST OAK, SOUTH OF SUBDIVISION; FOLLOW PIPELINE RIGHT-OF-WAY SOUTHEAST ACROSS PROPERTY TO 293911N, 0952725W, THEN HEAD NORTH TO 293913N, 0952724W and (Site 2) NORTH OF RAILROAD TRACKS, SOUTH OF SUBDIVISION; FOLLOW TRAIL MADE BY LOCAL RESIDENTS THROUGH FENCE SOUTH OF INTERSECTION OF WARM SPRINGS AND WILLOWILDE AND TURN LEFT AT FIRST SMALL SIDE TRAIL

Survey Information:

First Observation: 1999-03

Survey Date:

Last Observation: 1999-03

Eo Type:

Eo Rank: E

Eo Rank Date: 1999-03-18

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

BROWN, LARRY E. 1999. LETTER TO EDITH ERFLING OF USFWS-CLEAR LAKE OFFICE DATED 18 MARCH 1999 CONTAINING NEW HYMENOXYS TEXANA OCCURRENCES.

Specimen:

Element Occurrence Record

Scientific Name: Hymenoxys texana

Occurrence #: 55

Eo Id: 3565

Common Name: Texas prairie dawn

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G2

State Rank: S2

Federal Status: LE

Location Information:

Directions:

(Site 1) BEHIND FOXFIRE FARMS ON WEST SIDE OF SOUTH POST OAK ROAD SOUTH OF INTERSECTION WITH ALLUM AND NORTH OF INTERSECTION WITH LOTUS and (Site 2) FOLLOW PIPELINE RIGHT-OF-WAY SOUTHWEST FROM LOTUS STREET WEST OF SOUTH POST OAK; AT INTERSECTION WITH POWERLINE RIGHT-OF-WAY TURN DUE WEST.

Survey Information:

First Observation: 1999-03

Survey Date:

Last Observation: 1999-03

Eo Type:

Eo Rank: E

Eo Rank Date: 1999-03-18

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

BROWN, LARRY E. 1999. LETTER TO EDITH ERFLING OF USFWS-CLEAR LAKE OFFICE DATED 18 MARCH 1999 CONTAINING NEW HYMENOXYS TEXANA OCCURRENCES.

Specimen:

Element Occurrence Record

Scientific Name: *Liochlorophis vernalis*

Occurrence #: 3

Eo Id: 6278

Common Name: Smooth Green Snake

Track Status: Track all extant and selected historical EOs

TX Protection Status: T

Global Rank: G5

State Rank: S1

Federal Status:

Location Information:

Directions:

0.6 MILES SOUTH OF THE INTERSECTION OF ALAMEDA-GENOA ROAD WITH TELEPHONE ROAD, HOUSTON.

Survey Information:

First Observation:

Survey Date:

Last Observation: 1964-06-15

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: SPECIMEN COLLECTED ON JUNE 15, DEAD-ON-ROAD. IN THE AUTHOR'S PRIVATE COLLECTION.

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, RICHARD D. 1974. REMARKS ON THE DISTRIBUTION OF THE SMOOTH GREEN SNAKE, OPHEODRYS VERNALIS BLANCHARDI GROBMAN IN TEXAS. SOUTHWESTERN NAT. 18(3): 344-346.

Specimen:

R.W. Worthington Private Collection. 1964. R.W. Worthington #?, Catalog # ? RW. 15 June 1964.

Element Occurrence Record

Scientific Name: Quercus virginiana-carya illinoensis series

Occurrence #: 7

Eo Id: 5295

Common Name: Coastal Live Oak-pecan Series

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G3

State Rank: S3

Federal Status:

Location Information:

Directions:

1.5 MILES NORTH OF INTERSECTION OF FM 1492 AND FM 762, WEST OF FM 762

Survey Information:

First Observation: 1986

Survey Date: 1986-06

Last Observation: 1986-06

Eo Type:

Eo Rank: B

Eo Rank Date:

Observed Area: 200.00

Comments:

General Description: PATCHY; BEST WOODLANDS ALONG BRAZOS RIVER CONTAIN OLD GROWTH LIVE OAK, PECAN, CEDAR ELM, RED OAK, SHUMARD OAK, HACKBERRY, AND HAWTHORN; GOOD SPECIES DIVERSITY FOR THIS COMMUNITY TYPE

Comments: ADJACENT UPLAND GRASSLANDS MOSTLY FAIR; UPLAND LIVE OAK-PECAN WOODLANDS GOOD

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

DIAMOND, D.D., I. BUTLER, N.J. CRAIG, AND T. FOTI. 1986. A SURVEY OF THE POTENTIAL NATIONAL NATURAL LANDMARKS OF THE WEST GULF COASTAL PLAIN: BIOTIC THEMES. USDOJ, NPS, WASHINGTON, D.C.

Specimen:

Element Occurrence Record

Scientific Name: Rookery

Occurrence #: 586 **Eo Id:** 2530

Common Name:

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: GNR

State Rank: SNR

Federal Status:

Location Information:

Directions:

PILANT LAKE, CA. 6 AIR MILES SOUTH OF SMITHERS LAKE

Survey Information:

First Observation:

Survey Date:

Last Observation: 1992

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: COLONY NUMBER 600-321

Protection

Comments:

Management

Comments:

Data:

EO Data: NESTING COLONY OF THE OLIVACEOUS CORMORANT, LITTLE BLUE HERON

Reference:

Citation:

Wagner, Matt. 1992. Texas Colonial Waterbird Census Summary 1991 - 1992. Compiled for Texas Parks & Wildlife Dept. and Texas Colonial Waterbird Society. 1992.

Specimen:

Element Occurrence Record

Scientific Name: *Thalictrum texanum*

Occurrence #: 13 **Eo Id:** 7697

Common Name: Texas meadow-rue

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2Q **State Rank:** S2

Federal Status:

Location Information:

Directions:

JUNCTION OF CLIFFWOOD AND MCDERMED ROADS, EAST AT 10 METERS AND 90 METERS UNDER POWERLINE IN WILLOW PARK

Survey Information:

First Observation: 2004-01-28 **Survey Date:** 2004-01-28 **Last Observation:** 2004-01-28

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: MICRO-RELIEF, RELATIVELY FLAT TERRAIN WITH PLANTS GROWING ON HIGHER, SLIGHTLY MOUNDED FEATURES IN WILLOW PARK; SPOROBOLUS INDICUS AND STENOTAPHRUM SECUNDATUM DOMINANTS

Comments: HIGHLY DISTURBED AND MANICURED PARK

Protection

Comments:

Management

Comments:

Data:

EO Data: THREE SUBPOPULATIONS OF PLANTS UNDER POWERLINE GOING WEST TO EAST; SUBPOPULATION 1 IS CA. 150 INDIVIDUALS, SUBPOPULATION 2 IS 34 PLANTS, AND SUBPOPULATION 3 IS 7 PLANTS; PLANTS VEGETATIVE ONLY

Reference:

Citation:

SINGHURST, JASON. 2004. FIELD NOTES ON THALICTRUM TEXANUM IN HARRIS AND WALLER COUNTIES, 28 JANUARY 2004.

Specimen:

BAYLOR UNIVERSITY HERBARIUM. 2004. JASON SINGHURST #12540 AND BILL CARR, SPECIMEN # ? BAYLU. 28 JANUARY 2004.

Managed Area Information

Managed Area Name: Brazos Bend State Park

Acres: 4,897.00

Description:

BRAZOS RIVER FLOOD PLAIN; INCLUDES COASTAL PRAIRIE, LIVE OAK WOODLANDS, AND BOTTOMLAND MIXED HARDWOOD PLUS NUMEROUS MICRO-HABITATS, INCLUDING WETLANDS

Comments:

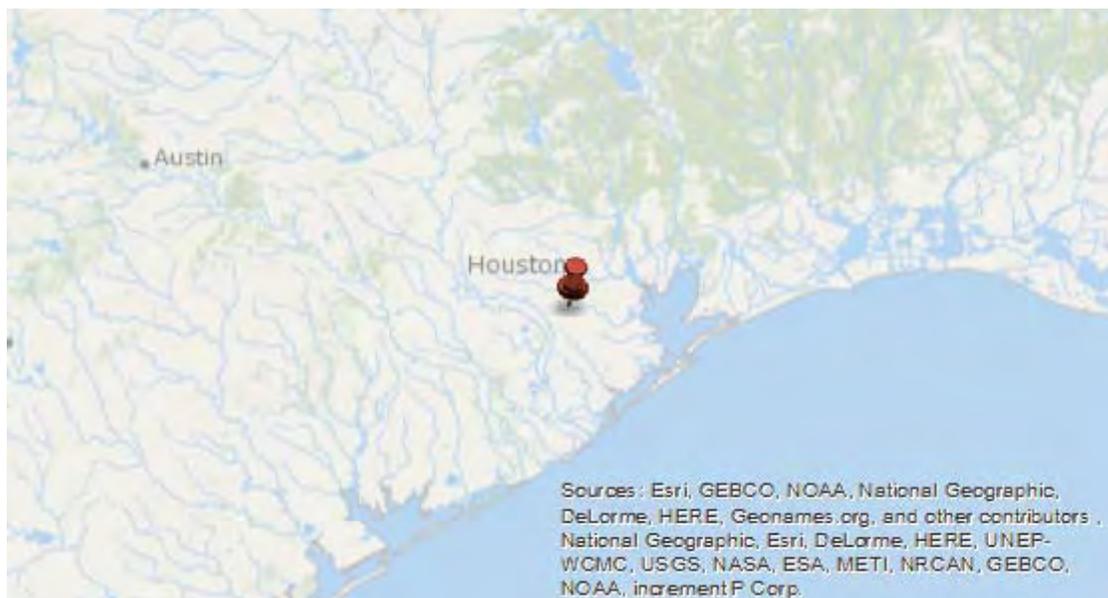
PARK HAS SUFFERED HUMAN, WILDLIFE, AND LIVESTOCK DAMAGE; MANAGEMENT OF FIRE ANTS, FERAL HOGS, AND WATER HYACINTHS IS UNDERWAY

Manager:

JERRY BARTEL
SUPERINTENDENT
21901 FM 762

NEEDVILLE, TX 77461
409 553-3243

EFH Data Notice: Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional Fishery Management Councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.



Query Results

Degrees, Minutes, Seconds: Latitude = , Longitude =
Decimal Degrees: Latitude = , Longitude =

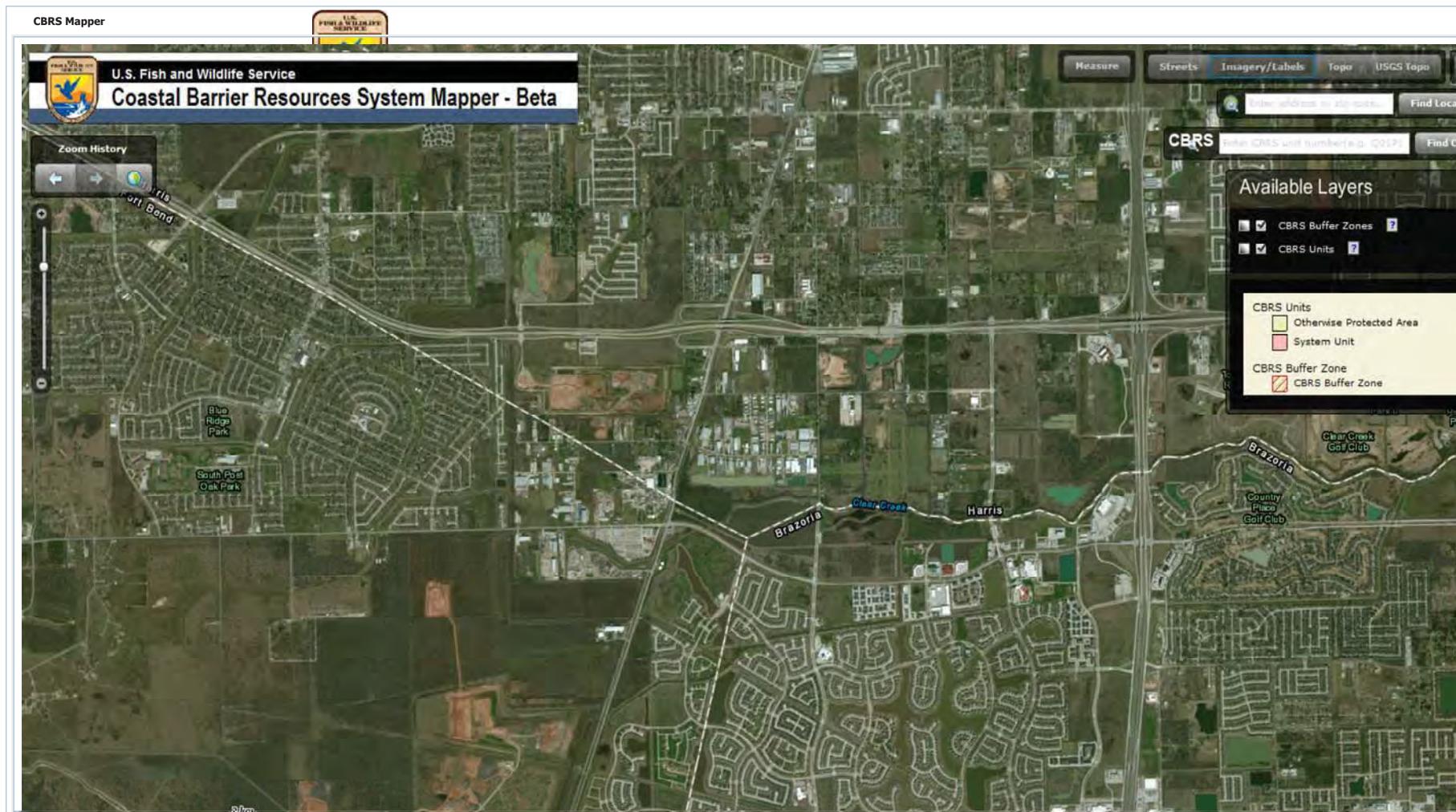
The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.



FM 521 at FM 2234 EMST

FID	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Acres	TPWD_Ecosy	EcoRegion
0	9124	Native Invasive: Huisache Woodland or Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.176345	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
1	602	Post Oak Savanna: Live Oak Motte and Woodland	R150AY526TX	BLACKLAND	Post Oak Savanna	1.554895	East-Central Texas Plains Post Oak Savanna and Woodland	Western Gulf Coastal Plain
2	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.002679	Urban	Western Gulf Coastal Plain
3	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	7.844516	Urban	Western Gulf Coastal Plain
4	9000	Barren	R150AY526TX	BLACKLAND	Agriculture	0.202572	Barren	Western Gulf Coastal Plain
5	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.040967	Urban	Western Gulf Coastal Plain
6	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.078463	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
7	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	2.007486	Urban	Western Gulf Coastal Plain
8	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.037938	Urban	Western Gulf Coastal Plain
9	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.498494	Urban	Western Gulf Coastal Plain
10	9411	Urban Low Intensity	R150AY537TX	LOWLAND PE 31-44	Urban	2.547093	Urban	Western Gulf Coastal Plain
11	9000	Barren	R150AY526TX	BLACKLAND	Agriculture	0.297814	Barren	Western Gulf Coastal Plain
12	9116	Native Invasive: Baccharis Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.003442	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
13	9116	Native Invasive: Baccharis Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	5.439941	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
14	9116	Native Invasive: Baccharis Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.008449	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain

FID	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Acres	TPWD_Ecosy	EcoRegion
15	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.009617	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
16	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.018464	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
17	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	1.334516	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
18	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.15553	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
19	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.55722	Urban	Western Gulf Coastal Plain
20	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.086392	Urban	Western Gulf Coastal Plain
21	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	1.333246	Urban	Western Gulf Coastal Plain
22	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	1.126613	Urban	Western Gulf Coastal Plain
23	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.197341	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
24	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.091718	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
25	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.659201	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
26	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.001529	Urban	Western Gulf Coastal Plain
27	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.161476	Urban	Western Gulf Coastal Plain
28	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.019075	Urban	Western Gulf Coastal Plain
29	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.073317	Urban	Western Gulf Coastal Plain
30	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	3.130662	Urban	Western Gulf Coastal Plain
31	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.067568	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
32	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.00307	Urban	Western Gulf Coastal Plain
33	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.00978	Urban	Western Gulf Coastal Plain
34	9104	Native Invasive: Deciduous	R150AY526TX	BLACKLAND	Disturbed Prairie	0.912788	Native Invasive Shrub and	Western Gulf Coastal Plain

FID	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Acres	TPWD_Ecosy	EcoRegion
		Woodland					Woodland	
35	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.160736	Urban	Western Gulf Coastal Plain
36	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.251164	Urban	Western Gulf Coastal Plain
37	9124	Native Invasive: Huisache Woodland or Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.037801	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
38	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.087742	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
39	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.864997	Urban	Western Gulf Coastal Plain
40	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.055758	Urban	Western Gulf Coastal Plain
41	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.008813	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
42	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.034632	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
43	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.066288	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
44	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.074975	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
45	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.683398	Urban	Western Gulf Coastal Plain
46	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.763313	Urban	Western Gulf Coastal Plain
47	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.301689	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
48	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.105627	Urban	Western Gulf Coastal Plain
49	9124	Native Invasive: Huisache Woodland or Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.496389	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
50	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.521188	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
51	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.181714	Urban	Western Gulf Coastal Plain
52	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.134307	Urban	Western Gulf Coastal Plain

FID	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Acres	TPWD_Ecosy	EcoRegion
		Intensity						Coastal Plain
53	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	1.20491	Urban	Western Gulf Coastal Plain
54	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.022214	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
55	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	1.586558	Urban	Western Gulf Coastal Plain
56	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.001789	Urban	Western Gulf Coastal Plain
57	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.212365	Urban	Western Gulf Coastal Plain
58	9000	Barren	R150AY526TX	BLACKLAND	Agriculture	0.436665	Barren	Western Gulf Coastal Plain
59	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.180763	Urban	Western Gulf Coastal Plain
60	9116	Native Invasive: Baccharis Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.000104	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
61	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.351528	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
62	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.13299	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
63	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.334	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
64	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.024748	Urban	Western Gulf Coastal Plain
65	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.512242	Urban	Western Gulf Coastal Plain
66	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.000798	Urban	Western Gulf Coastal Plain
67	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.01298	Urban	Western Gulf Coastal Plain
68	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.047934	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
69	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.37367	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
70	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.588767	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
71	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.040679	Urban	Western Gulf Coastal Plain

FID	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Acres	TPWD_Ecosy	EcoRegion
72	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.345416	Urban	Western Gulf Coastal Plain
73	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.402527	Urban	Western Gulf Coastal Plain
74	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	3.373649	Urban	Western Gulf Coastal Plain
75	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.288446	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
76	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.249986	Urban	Western Gulf Coastal Plain
77	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.085239	Urban	Western Gulf Coastal Plain
78	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.304359	Urban	Western Gulf Coastal Plain
79	9124	Native Invasive: Huisache Woodland or Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.13161	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
80	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.159639	Urban	Western Gulf Coastal Plain
81	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	1.650454	Urban	Western Gulf Coastal Plain
82	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.091712	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
83	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	2.024002	Urban	Western Gulf Coastal Plain
84	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.065964	Urban	Western Gulf Coastal Plain
85	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.234039	Urban	Western Gulf Coastal Plain
86	9000	Barren	R150AY526TX	BLACKLAND	Agriculture	0.443247	Barren	Western Gulf Coastal Plain
87	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.00027	Urban	Western Gulf Coastal Plain
88	9116	Native Invasive: Baccharis Shrubland	R150AY526TX	BLACKLAND	Disturbed Prairie	0.105763	Native Invasive Shrub and Woodland	Western Gulf Coastal Plain
89	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.185553	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
90	5207	Gulf Coast:	R150AY526TX	BLACKLAND	Coastal Grassland	0.009272	Texas-Louisiana	Western Gulf

FID	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Acres	TPWD_Ecosy	EcoRegion
		Coastal Prairie					Coastal Prairie	Coastal Plain
91	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.041361	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
92	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.005784	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
93	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.027348	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
94	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.017134	Urban	Western Gulf Coastal Plain
95	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.008098	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
96	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.119193	Urban	Western Gulf Coastal Plain
97	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.665116	Urban	Western Gulf Coastal Plain
98	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.361062	Urban	Western Gulf Coastal Plain
99	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.105067	Urban	Western Gulf Coastal Plain
100	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.180196	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
101	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.082583	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
102	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.3315	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
103	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.000621	Urban	Western Gulf Coastal Plain
104	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.077815	Urban	Western Gulf Coastal Plain
105	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.916518	Urban	Western Gulf Coastal Plain
106	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	3.925401	Urban	Western Gulf Coastal Plain
107	5207	Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Coastal Grassland	0.064163	Texas-Louisiana Coastal Prairie	Western Gulf Coastal Plain
108	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.008432	Urban	Western Gulf Coastal Plain
109	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.370603	Urban	Western Gulf Coastal Plain

FID	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Acres	TPWD_Ecosy	EcoRegion
110	9410	Urban High Intensity	R150AY526TX	BLACKLAND	Urban	0.401337	Urban	Western Gulf Coastal Plain
111	9411	Urban Low Intensity	R150AY526TX	BLACKLAND	Urban	0.022882	Urban	Western Gulf Coastal Plain

Western Gulf Coastal Plains (Pineywoods, East Texas) Ecoregion Species of Greatest Conservation Need

WESTERN GULF COASTAL PLAINS (PINEYWOODS, EAST TEXAS) SPECIES OF GREATEST CONSERVATION NEED									
Scientific Name	Common Name	Status		Abundance Ranking		WGCP	General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information W.B. Davis and D.J. Schmidly. 1997 and 1994. Mammals of Texas (online and in print). Texas Tech University (1997) and Texas Parks and Wildlife Department (1994). http://www.nsr.ttu.edu/tmot1/Default.htm (accessed 2011)	Other Notes	Endemic in Texas
		Federal	State	Global	State				
MAMMALS									
<i>Blarina carolinensis</i>	Southern short-tailed shrew			G5N5	S4	WGCP	Forest, Woodland, Grassland		N
<i>Corynorhinus rafinesquii</i>	Rafinesque's big-eared bat		T	G3G4	S3	WGCP	Forest, Artificial Refugia		N
<i>Lutra canadensis</i>	River otter			G5	S4	WGCP	Riparian	Appendix II, CITES	N
<i>Mustela frenata</i>	Long-tailed weasel			G5	S5	WGCP	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland	Statewide	N
<i>Myotis austroriparius</i>	Southeastern myotis			G3G4	S3	WGCP	Caves/Karst, Forest, Riparian		N
<i>Puma concolor</i>	Mountain lion			G5	S2	WGCP	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian	Statewide	N
<i>Spilogale putorius</i>	Eastern spotted skunk			G4T	S4	WGCP	Savanna/Open Woodland, Grassland		N
<i>Sylvilagus aquaticus</i>	Swamp rabbit			G5	S5	WGCP	Riparian, Freshwater Wetland		N
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat			G5	S5	WGCP	Cave/Karst, Artificial Refugia	Statewide	N
<i>Ursus americanus luteolus</i>	Louisiana black bear	LT	T	G5T3	SNA	WGCP	Forest, Woodland, Savanna/Open Woodland, Shrubland, Riparian	see also Black Bear	N
BIRDS									
The Birds of North America Online (A. Poole, Ed.). 2005 (with current updates by species). Retrieved from The Birds of North America Online database: http://bna.birds.cornell.edu/BNA/ (accessed 2011). Supported by information from the Cornell Lab of Ornithology and the American Ornithologists' Union (http://www.aou.org/).									
<i>Anas acuta</i>	Northern Pintail			G5	S3B,S5N	WGCP	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine	Winter	2
<i>Colinus virginianus</i>	Northern Bobwhite			G5	S4B	WGCP	Grassland, Shrubland, Savanna/Open Woodland	deleted for CHIH	4
<i>Meleagris gallopavo</i>	Wild Turkey			G5	S5B	WGCP	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural	Year-round, added <i>merriami</i> for CHIH	8
<i>Ixobrychus exilis</i>	Least Bittern			G5	S4B	WGCP	Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary	Breeding	11
<i>Egretta thula</i>	Snowy Egret			G5	S5B	WGCP	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	12
<i>Egretta caerulea</i>	Little Blue Heron			G5	S5B	WGCP	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	13
<i>Egretta tricolor</i>	Tricolored Heron			G5	S5B	WGCP	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	14
<i>Butorides virescens</i>	Green Heron			G5	S5B	WGCP	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic	Breeding	16
<i>Plegadis chihi</i>	White-faced Ibis		T	G5	S4B	WGCP	Lacustrine, Freshwater Wetland, Agricultural	Breeding	17
<i>Mycteria americana</i>	Wood Stork		T	G4	SHB,S2N	WGCP	Riverine, Freshwater wetland	Migrant	18
<i>Elanoides forficatus</i>	Swallow-tailed Kite		T	G5	S2B	WGCP	Woodland, Forest, Riparian	Breeding	19
<i>Ictinia mississippiensis</i>	Mississippi Kite			G5	S4B	WGCP	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Breeding	20
<i>Haliaeetus leucocephalus</i>	Bald Eagle			G5	S3B,S3N	WGCP	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland	Year-round, added CRTB	22
<i>Circus cyaneus</i>	Northern Harrier			G5	S2B,S3N	WGCP	Grassland, Shrubland	Year-round	23
<i>Buteo lineatus</i>	Red-shouldered Hawk			G5	S4B	WGCP	Woodland, Forest, Riparian, Freshwater Wetland	Year-round	26
<i>Falco sparverius</i>	American Kestrel			G5	S4B	WGCP	Grassland, Savanna/Open Woodland	Year-round; paulus & southwest population	33
<i>Rallus elegans</i>	King Rail			G4	S3B	WGCP	Lacustrine, Freshwater Wetland	Year-round	37
<i>Pluvialis dominica</i>	American Golden-Plover			G5	S3	WGCP	Grassland, Freshwater Wetland, Agricultural	Migrant	39
<i>Scolopax minor</i>	American Woodcock			G5	S2B,S3N	WGCP	Woodland, Forest, Riparian	Winter (some breeding during that time)	51
<i>Caprimulgus carolinensis</i>	Chuck-will's-widow			G5	S3S4B	WGCP	Woodland, Forest, Riparian	Breeding	66
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker			G5	S3B	WGCP	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	67
<i>Picoides borealis</i>	Red-cockaded Woodpecker	LE	E	G3	S2B	WGCP	Savanna/Open Woodland, Woodland, Forest	Year-round	68
<i>Dryocopus pileatus</i>	Pileated Woodpecker			G5	S4B	WGCP	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	69
<i>Tyrannus forficatus</i>	Scissor-tailed Flycatcher			G5	S3B	WGCP	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Breeding	71
<i>Lanius ludovicianus</i>	Loggerhead Shrike			G4	S4B	WGCP	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed	Year-round	73
<i>Poecile carolinensis</i>	Carolina Chickadee			G5	S5B	WGCP	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	76
<i>Thryomanes bewickii (bewickii)</i>	Bewick's Wren			G5	S5B	WGCP	Shrubland, Savanna/Open Woodland, Woodland, Developed: Urban/Suburban/Rural	Year-round, red-backed form only	77
<i>Cistothorus platensis</i>	Sedge Wren			G5	S4	WGCP	Grassland, Freshwater Wetland	Winter	78
<i>Hylocichla mustelina</i>	Wood Thrush			G5	S4B	WGCP	Woodland, Forest, Riparian	Breeding	79
<i>Dendroica dominica</i>	Yellow-throated Warbler			G5	S4B	WGCP	Woodland, Forest, Riparian	Breeding	84
<i>Protonotaria citrea</i>	Prothonotary Warbler			G5	S3B	WGCP	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Breeding	86
<i>Helminthos vermivorum</i>	Worm-eating Warbler			G5	S3B	WGCP	Woodland, Forest	Breeding	87
<i>Limnithlypis swainsonii</i>	Swainson's Warbler			G4	S3B	WGCP	Woodland, Forest, Riparian	Breeding	88
<i>Seiurus motacilla</i>	Louisiana Waterthrush			G5	S3B	WGCP	Woodland, Forest, Riparian	Breeding	89
<i>Oporornis formosus</i>	Kentucky Warbler			G5	S3B	WGCP	Woodland, Forest	Breeding	90
<i>Aimophila aestivalis</i>	Bachman's Sparrow		T	G3	S3B	WGCP	Savanna/Open Woodland	Year-round	93
<i>Spizella pusilla</i>	Field Sparrow			G5	S5B	WGCP	Grassland, Shrubland, Savanna/Open Woodland	Year-round	96
<i>Ammodramus savannarum</i>	Grasshopper Sparrow			G5	S3B	WGCP	Grassland, Agricultural	Year-round	97
<i>Chondestes grammacus</i>	Lark Sparrow			G5	S4B	WGCP	Grassland, Shrubland, Savanna/Open Woodland	Year-round	98
<i>Ammodramus henslowii</i>	Henslow's Sparrow			G4	S2S3N,SXB	WGCP	Grassland, Savanna/Open Woodland	Winter	100
<i>Ammodramus leconteii</i>	Le Conte's Sparrow					WGCP	Grassland	Winter	101
<i>Piranga rubra</i>	Summer Tanager			G5	S5B	WGCP	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Breeding	106
<i>Passerina ciris</i>	Painted Bunting			G5	S4B	WGCP	Shrubland, Agricultural	Breeding	107
<i>Spiza americana</i>	Dickcissel			G5	S4B	WGCP	Grassland, Agricultural	Breeding	108
<i>Sturnella magna</i>	Eastern Meadowlark			G5	S5B	WGCP	Grassland, Shrubland, Savanna/Open Woodland	Year-round; subspecies <i>lilliana</i> added for CHIH	109
<i>Euphagus carolinus</i>	Rusty Blackbird			G4	S3	WGCP	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Winter	110
<i>Icterus spurius</i>	Orchard Oriole			G5	S4B	WGCP	Shrubland, Savanna/Open Woodland, Woodland, Riparian	Breeding	111

Western Gulf Coastal Plains (Pineywoods, East Texas) Ecoregion Species of Greatest Conservation Need

Scientific Name	Common Name	Status		Abundance Ranking		WGCP	General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas	
		Federal	State	Global	State					
REPTILES AND AMPHIBIANS										
							J.E. Werler and J.R. Dixon. 2000. Texas Snakes: Identification, Distribution, and Natural History. University of Texas Press, Austin. 519 pgs. J.R. Dixon. 1987. Amphibians and Reptiles of Texas. Texas A&M University Press, College Station. 434 pp.			
<i>Apalone mutica</i>	smooth softshell turtle					WGCP	riparian, riverine, lacustrine, freshwater wetland	added	N	
<i>Apalone spinifer</i>	spiny softshell turtle					WGCP	riparian, riverine, lacustrine, freshwater wetland	added, not AZNM	N	
<i>Camphora coccinea copei</i>	Northern Scarlet Snake		T	G5T5	S3	WGCP	forest, woodlands, grassland, riparian, barren, sparse vegetation		N	
<i>Cheyleydra serpentina</i>	Common snapping turtle					WGCP	riparian, riverine	added	N	
<i>Crotalus horridus</i>	Timber (Canebrake) Rattlesnake		T	G4	S4	WGCP	woodland, forest, riparian		N	
<i>Desmognathus auriculatus</i>	Southern dusky salamander					WGCP	forest, freshwater wetland	state rank significant change	N	
<i>Lithobates areolatus (Rana areolata)</i>	Crawfish frog					SU	forest, grassland, freshwater wetlands, woodland		N	
<i>Macrochelys temminckii</i>	alligator snapping turtle		T	G3G4	S3	WGCP	riparian, riverine, cultural aquatic	added	N	
<i>Ophisaurus attenuatus</i>	western slender glass lizard					WGCP	grassland, savanna	added	N	
<i>Pituophis ruthveni</i>	Louisiana pine snake	C	T	G5T3		WGCP	forest, woodland, savanna		N	
<i>Pseudacris fouquettei (triseriata/feriarum)</i>	Cajun chorus frog					SU	forest, woodland, riparian, cultural aquatic, freshwater wetland, savanna		N	
<i>Pseudacris streckeri</i>	Strecker's Chorus Frog					G5 S3	grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland		N	
<i>Terrapene carolina</i>	Eastern box turtle					G5 S3	grasslands, savanna, woodland		N	
<i>Terrapene ornata</i>	Ornate box turtle					G5 S3	grassland, barren/sparse vegetation, desert scrub, savanna, woodland		N	
<i>Trachemys scripta</i>	Red-eared slider					WGCP	riparian, riverine, lacustrine, freshwater wetland, cultural aquatic	added	N	
							C. Thomas, T.H. Bonner and B.G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. Sponsored by The River Systems Institute at Texas State University, published by Texas A&M University Press. Editor's Note: All freshwater fishes life history information in this table was sourced directly from the online version; citations are embedded in the online version at http://www.bio.txstate.edu/~tbonner/bf/fishes/	Range in Texas, as known		
FRESHWATER FISHES										
<i>Ammocrypta clara</i>	Western sand darter					WGCP	over sandy substrata	Range: Neches, Sabine, and Red River basins	N	
<i>Anguilla rostrata</i>	American eel			G4	S5	WGCP	streams and reservoirs in drainages connected to marine environments	mouth upstream to and including the Kiamichi River), Sabine Lake (including minor	N	
<i>Atractosteus spatula</i>	alligator gar					WGCP	channel snag, pool-snag complex, pool-edge, and pool-vegetation habitat	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N	
<i>Cyprinella elongata</i>	Blue sucker		T	G3G4	S3	WGCP	large, deep rivers, and deeper zones of lakes	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N	
<i>Emyazon oblongus</i>	Creek chubsucker		T	G5	S2S3	WGCP	vegetation depending somewhat on age and stage of reproductive cycle; declines due to siltation	record exists from the Devils River	N	
<i>Etheostoma radiosum</i>	Orangebelly darter					WGCP	preferring riffle areas of gravel-bottoms streams with moderate to high currents	Red River drainage	N	
<i>Hiodon alosoides</i>	Goldeye					WGCP	large lakes; backwaters	Red River	N	
<i>Notropis atrocaudalis</i>	Blackspot shiner					WGCP	backwater and swiftest currents	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N	
<i>Notropis bairdi</i>	Red River shiner					WGCP	streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation,	Red River, from the mouth upstream to and including the Kiamichi River	N	
<i>Notropis chalybaeus</i>	Ironcolor shiner					WGCP	Plain streams and rivers of low to moderate gradient; often at the upstream ends of pools, with a moderate to	(including minor coastal drainages west to Galveston Bay), San Antonio Bay (including	N	
<i>Notropis maculatus</i>	Taillight shiner					WGCP	Quiet, usually vegetated oxbow lakes, ponds, or backwaters; mud bottom	Sulphur and Cypress drainages, Red River basin	N	
<i>Notropis potteri</i>	Chub shiner		T	G4	S3	WGCP	turbid, flowing water with silt or sand substrate; tolerant of high salinities	Brazos River, Colorado River, San Jacinto River, Trinity Rivers, and Galveston Bay	N	
<i>Notropis sabineae</i>	Sabine shiner					WGCP	Small creeks and rivers having slight to moderate current, primarily sand bottom	Creek and LaNana Bayou (tributaries of the Angelina River, Nacogdoches County)	N	
<i>Notropis shumardi</i>	Silverband shiner					WGCP	channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N	
<i>Percina maculata</i>	Blackside darter		T	G5	S1	WGCP	variable in location; mostly in clear waters, with gravel and boulder substrates	Red River basin in the northeast part of the state	N	
<i>Polyodon spathula</i>	Paddlefish		T	G4	S3	WGCP	sized rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if	eastward; currently only Red River, from the mouth upstream to and including the	N	
<i>Pteronotopis hubbsi</i>	Bluehead shiner		T	G3	S1	WGCP	substrate; water typically tannin-stained, and heavy growth of submergent or semi-emergent vegetation	Caddo Lake	N	
<i>Scaphirhynchus platyrhynchus</i>	Shovelnose sturgeon		T	G4	S2	WGCP	bottom of main channels and embayments of large, turbid rivers www.texasstate.edu/~tbonner/bf/fishes/ www.texasento.net – compilation of information on insects in Texas www.odonatacentral.org – resource for identification and distribution of damselflies and dragonflies www.butterfliesandmoths.org – resource for identification and distribution of Lepidoptera www.texasmussels.wordpress.com – resource for information on freshwater mussels in Texas Howells, R. G., R. W. Neck and H. D. Murray. 1996. Freshwater Mussels of Texas. Texas Parks and Wildlife Dept. Austin.	Red River below Dennison Dam (Lake Texoma Reservoir)	N	
INVERTEBRATES										
<i>Arkansas wheeleri</i>	Ouachita rock pocketbook	LE		G1	SH*	WGCP	Riverine	Aquatic - Freshwater - Mollusks; new state rank		
<i>Bombus pensylvanicus</i>	American bumblebee				GU	SU*	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Bee/Wasp/Ant		
<i>Cheumatopsyche morsei</i>	A caddisfly			G1G3	S1	WGCP	Riparian, Riverine	Aquatic - Insects - Caddisflies		
<i>Chimarra holzenthali</i>	Holzenthals' Philopotamid caddisfly			G1G2	S1	WGCP	Riparian, Riverine	Aquatic - Insects - Caddisflies; added TBPR, ECPL		
<i>Cisthene conjuncta</i>	A lichen moth			G1Q	S1Q*	WGCP	Forest, Savanna/Open Woodland	Terrestrial - Insect - Butterflies/Moths		
<i>Fallicambarus houstonensis</i>	Houston burrowing crayfish			G2G3*	S2S3*	WGCP	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish		
<i>Fallicambarus kountzeae</i>	Big Thicket burrowing crayfish			G2	S2*	WGCP	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish		
<i>Faxonella blairi</i>	Blair's fencing crayfish			G2	S2*	WGCP	Freshwater Wetland	Aquatic - Crustaceans - Crayfish		
<i>Fusconaia askewi</i>	Texas pigtoe		T	G2G3	S2S3*	WGCP	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status		
<i>Fusconaia lananensis</i>	Triangle pigtoe		T	G1Q	S1	WGCP	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status		
<i>Hydroptila ouachita</i>	A caddisfly			G1G2	S1	WGCP	Riparian, Riverine	Aquatic - Insects - Caddisflies		
<i>Isoperla sagittata</i>	Arrowhead Stripetail			G1	S1*	WGCP	Riparian, Riverine	Aquatic - Insects - Stoneflies		
<i>Lampsilis satura</i>	Sandbank pocketbook		T	G2	S1	WGCP	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status		
<i>Neotrichia mobilensis</i>	A caddisfly			G1G2	S1?*	WGCP	Riparian, Riverine	Aquatic - Insects - Caddisflies		
<i>Obovaria jacksoniana</i>	Southern hickorynut		T	G2	S1*	WGCP	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status		
<i>Orconectes maletae</i>	Kisatchie painted crayfish			G2	S2*	WGCP	Riparian, Riverine	Aquatic - Crustaceans - Crayfish		
<i>Phyllocentropus harrisi</i>	A caddisfly			G1G2	S1	WGCP	Riparian, Riverine	Aquatic - Insects - Caddisflies		
<i>Pleurobema riddelli</i>	Louisiana pigtoe		T	G1G2	S1	WGCP	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status		
<i>Pogonomyrmex comanche</i>	Comanche harvester ant			G2G3*	S2*	WGCP	Barren/Sparse Vegetation	Terrestrial - Insect - Bee/Wasp/Ant; ecoregions added		
<i>Potamilus amplichaenus</i>	Texas heelsplitter		T	G1G2	S1	WGCP	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status		

Western Gulf Coastal Plains (Pineywoods, East Texas) Ecoregion Species of Greatest Conservation Need

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		Federal	State	Global	State				
<i>Procambarus brazoriensis</i>	Brazoria crayfish			G1	S1	WGCP	Riverine, Riparian	Aquatic - Crustaceans - Crayfish	
<i>Procambarus nechesae</i>	Neches crayfish			G2	S1S2	WGCP	Riverine, Riparian	Aquatic - Crustaceans - Crayfish	
<i>Procambarus nigrocinctus</i>	Blackbelted crayfish			G1G2	S1	WGCP	Riverine, Riparian	Aquatic - Crustaceans - Crayfish	
<i>Somatichlora magarita</i>	Texas emerald			G2	S2	WGCP	Freshwater Wetland	Aquatic - Insects - Dragonflies/Damselflies	
<i>Sparbarus couchatta</i>	A mayfly			G1G2	S1?*	WGCP	Riverine, Riparian	Aquatic - Insects - Mayflies	
<i>Tricorythodes curvatus</i>	A mayfly			G1G3	S2?*	WGCP	Riparian, Riverine	Aquatic - Insects - Mayflies	
<p>PLANTS</p> <p>J.M. Poole, W.R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station.</p> <p>D.S. Correll and M.C. Johnston. 1979. Manual of the Vascular Plants of Texas. The University of Texas at Dallas, Richardson.</p> <p>M.C. Johnston. 1990. The Vascular Plants of Texas: A List Up-dating the Manual of the Vascular Plants of Texas, 2nd Edition. Marshall C. Johnston, Austin.</p> <p>F.W. Gould. 1975. The Grasses of Texas. Texas A & M University Press, College Station.</p> <p>S.D. Jones, J.K. Wipff, and P.M. Montgomery. 1997. Vascular Plants of Texas: A Comprehensive Checklist including Synonymy, Bibliography, and Index. University of Texas Press, Austin.</p> <p>R.A. Vines. 2004. Trees, Shrubs and Woody Vines of the Southwest. Blackburn Press.</p>									
<i>Agalinis navasotensis</i>	Navasota false foxglove			G1	S1	WGCP	Savanna/Open Woodland (sandstone outcrops)	Terrestrial	Y
<i>Agrimonia incisa</i>	incised groovebur			G3	S3	WGCP	Forest; Savanna/Open Woodland (Longleaf Pine)	Terrestrial	N
<i>Amorpha laevigata</i>	smooth indigobush			G3	S1	WGCP	Savanna/Open Woodland	Terrestrial	N
<i>Amorpha paniculata</i>	panicled indigobush			G2G3	S2	WGCP	Freshwater Wetland	Wetland, Aquatic	N
<i>Astragalus reflexus</i>	Texas milk vetch			G3	S3	WGCP	Savanna/Open Woodland	Terrestrial	Y
<i>Bartonia texana</i>	Texas screwstem			G2	S2	WGCP	Freshwater Wetland	Wetland, Aquatic	N
<i>Calopogon oklahomensis</i>	Oklahoma grass pink			G3	S1S2	WGCP	Savanna/Open Woodland; Grassland; Freshwater Wetland	Terrestrial	N
<i>Carex decomposita</i>	cypress knee sedge			G3	S1	WGCP	Freshwater Wetland	Aquatic	N
<i>Clematis carizoanus</i>	Carrizo sands leather-flower			G2	S2	WGCP	Savanna/Open Woodland	Terrestrial	Y
<i>Coreopsis intermedia</i>	goldenwave tickseed			G3	S3	WGCP	Savanna/Open Woodland	Terrestrial	N
<i>Crataegus anamesa</i>	Fort Bend hawthorn			G3Q	S3	WGCP	Grasslands; woodlands?	Terrestrial	Y
<i>Crataegus nananixonii</i>	Nixon's dwarf hawthorn			G1	S1	WGCP	Savanna/Open Woodland; Forest (Shortleaf Pine)	Terrestrial	Y
<i>Crataegus stenosepala</i>	narrow-sepal hawthorn			G3Q	S3	WGCP	Woodland? Riparian?	Terrestrial	Y
<i>Crataegus warneri</i>	Warner's hawthorn			G3Q	S3	WGCP	Savanna/Open Woodland; Woodland; Forest	Terrestrial	Y
<i>Cuscuta attenuata</i>	marsh-elder dodder			G3	S2	WGCP	Grassland	Terrestrial	N
<i>Cyperus grayioides</i>	Mohlenbrock's sedge			G3G4	S3S4	WGCP	Savanna/Open Woodland (sandhills)	Terrestrial	N
<i>Cyripedium kentuckiense</i>	Southern lady's-slipper			G3	S1	WGCP	Forest (mesic)	Terrestrial	N
<i>Echinacea atrorubens</i>	Topeka purple-coneflower			G3	S3	WGCP	Savanna/Open Woodland	Terrestrial	N
<i>Eriocaulon koernickianum</i>	small-headed pipewort			G2	S1	WGCP	Freshwater Wetland (bogs)	Wetland	N
<i>Gaillardia aestivalis</i> var. <i>winkleri</i>	white firewheel			G5T2	S2	WGCP	Savanna/Open Woodland (Longleaf Pine Savanna; Sandhills)	Terrestrial	Y
<i>Geocarpum minimum</i>	earth fruit	LT	T	G2	S1	WGCP	Barren/Sparse Vegetation (slick spots) within Grassland (saline prairie) matrix	Wetland	N
<i>Hibiscus dasycalyx</i>	Neches River rose-mallow	C		G1	S1	WGCP	Riparian (oxbows, swamps)	Wetland	Y
<i>Lachnocaulon digynum</i>	tiny bog button			G3	S1	WGCP	Freshwater Wetland (bogs)	Aquatic	N
<i>Leavenworthia texana</i>	Texas golden gladdess	C		G1	S1	WGCP	Savanna/Open Woodland (glades)	Terrestrial, Wetland	Y
<i>Liatris tenuis</i>	slender gay-feather			G3	S3	WGCP	Savanna/Open Woodland (Longleaf Pine savanna, sandstone barrens)	Terrestrial	N
<i>Paronychia setacea</i>	bristle nailwort			G3	S3	WGCP	Savanna/Open Woodland	Terrestrial	Y
<i>Phlox nivalis</i> subsp. <i>texasensis</i>	Texas trailing phlox	LE	E	G4T2	S2	WGCP	Savanna/Open Woodland (Longleaf Pine savanna, sandhills)	Terrestrial	Y
<i>Physaria pallida</i>	white bladderpod	LE	E	G1	S1	WGCP	Savanna/Open Woodland (glades); Grassland	Terrestrial, Wetland	Y
<i>Physostegia longisepala</i>	long-sepaled false dragon-head			G2G3	S2	WGCP	Savanna/Open Woodland (Longleaf Pine savanna); Freshwater Wetland	Wetland	N
<i>Platanthera chapmanii</i>	Chapman's orchid			G2	S1	WGCP	Freshwater Wetland; Savanna/Open Woodland (Longleaf Pine savanna)	Wetland	N
<i>Platanthera integra</i>	yellow fringed orchid			G3G4	S1	WGCP	Freshwater Wetland (bogs); Savanna/Open Woodland (Longleaf Pine Savanna)	Wetland	N
<i>Prenanthes barbata</i>	barbed rattlesnake-root			G3	S3	WGCP	Forest (mesic)	Terrestrial	N
<i>Quercus arkansana</i>	Arkansas oak			G3	S1	WGCP	Savanna/Open Woodland; Woodland; Forest	Terrestrial	N
<i>Quercus boyntonii</i>	Boynton's oak			G1	SH	WGCP	Grassland?; Forest (loblolly pine-oak)?	Terrestrial	N
<i>Rhododon ciliatus</i>	Texas sandmint			G3	S3	WGCP	Savanna/Open Woodland (sandhills)	Terrestrial	Y
<i>Rhynchospora macra</i>	large beakrush			G3	S2	WGCP	Freshwater Wetland (bogs)	Wetland, Aquatic	N
<i>Schoenolirion wrightii</i>	Texas sunnybell			G3	S3	WGCP	Savanna/Open Woodland (sandstone barrens); Forest	Terrestrial	N
<i>Silene subciliata</i>	scarlet catchfly			G3	S3	WGCP	Savanna/Open Woodland (Longleaf Pine Savanna; Sandhills)	Terrestrial	N
<i>Spiranthes brevibrabis</i> var. <i>brevibrabis</i>	Texas ladies'-tresses orchid			G1T1	S1	WGCP	Grassland	Terrestrial	N
<i>Spiranthes longibrabis</i>	giant spiral ladies'-tresses			G3	S1	WGCP	Freshwater Wetland (swamp)	Aquatic	N
<i>Spiranthes parkii</i>	Navasota ladies'-tresses	LE	E	G3	S3	WGCP	Savanna/Open Woodland; Woodland	Terrestrial	Y
<i>Streptanthus maculatus</i> subsp. <i>maculatus</i>	clasping twistflower			G3T2T3	S2	WGCP	Savanna/Open Woodland; Forest; Grassland (glades)	Terrestrial	N
<i>Symphytotrichum puniceum</i> var. <i>scabrifolium</i>	rough-stem aster			G5T2	S2	WGCP	Freshwater Wetland (bogs)	Wetland	N
<i>Thalictrum arkansanum</i>	Arkansas meadow-rue			G2Q	S2	WGCP	Forest; Riparian (bottomland forest)	Wetland	N
<i>Trillium texanum</i>	Texas trillium			G2	S2	WGCP	Forest; Freshwater Wetland (forested seeps and baygalls)	Wetland, Aquatic	N
<i>Triphora trianthophora</i> var. <i>texasensis</i>	Texas three-birds orchid			G3G4T1Q	S1	WGCP	Forest (mesic)	Terrestrial	Y
<i>Xyris chapmanii</i>	Chapman's yellow-eyed grass			G2	S2	WGCP	Freshwater Wetland (bogs)	Wetland	N
<i>Xyris drummondii</i>	Drummond's yellow-eyed grass			G3	S2	WGCP	Freshwater Wetland (bogs)	Wetland	N
<i>Xyris scabrifolia</i>	roughleaf yellow-eyed grass			G3	S2	WGCP	Freshwater Wetland (bogs)	Wetland	N
<i>Yucca cernua</i>	nodding yucca			G1	S1	WGCP	Savanna/Open Woodland; Forest (calcareous openings)	Terrestrial	Y

United States Department of Agriculture



Natural Resources Conservation Service

101 S. Main Street
Temple, TX 76501-6624
Phone: 254-742-9826
FAX: 254-742-9859

May 28, 2013

Baker, Inc.
165 South Union Boulevard
Suite 200
Lakewood, CO 80228

Attention: Tamara Keefe

Subject: LNU-Farmland Protection
Proposed FM 521/Beltway 8 to FM 2234 Highway Widening
Harris and Fort Bend Counties, Texas

We have reviewed the information provided in your correspondence dated May 24, 2013 concerning the proposed highway project in Harris and Fort Bend 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 (Form 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 encourage the use of accepted erosion control methods during the construction of this project.

If you have any questions, please contact me at (254) 742-9854, Fax (254) 742-9859 or by email at drew.kinney@tx.usda.gov.

Sincerely,

A handwritten signature in cursive script that reads "Drew Kinney".

Drew Kinney
NRCS GIS Specialist

Attachment

FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 5/24/13	4. Sheet 1 of 1
1. Name of Project FM 521 from Beltway 8 to FM 2234		5. Federal Agency Involved Federal Highway Administration	
2. Type of Project Highway widening and grade separations		6. County and State Harris and Fort Bend Counties, Texas	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 5-24-2013	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 <input checked="" type="checkbox"/> NO <input type="checkbox"/>	4. Acres Irrigated Average Farm Size 33,140 273
5. Major Crop(s) Grain Sorghum	8. Farmable Land in Government Jurisdiction Acres: 1,267,348 % 80	7. Amount of Farmland As Defined in FPPA Acres: 1,267,348 % 76	
6. Name Of Land Evaluation System Used LESA	9. Name of Local Site Assessment System NA	10. Date Land Evaluation Returned by NRCS 6-5-2013	

PART III (To be completed by Federal Agency)		Alternative Corridor For Segment 1			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	7.9				
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0				
C. Total Acres In Corridor	7.9				

PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland	14.7				
B. Total Acres Statewide And Local Important Farmland	2.5				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.001				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	19				

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)					
		86			

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	5				
2. Perimeter In Nonurban Use	10	1				
3. Percent Of Corridor Being Farmed	20	0				
4. Protection Provided By State And Local Government	20	0				
5. Size of Present Farm Unit Compared To Average	10	0				
6. Creation Of Nonfarmable Farmland	25	14				
7. Availability Of Farm Support Services	5	0				
8. On-Farm Investments	20	5				
9. Effects Of Conversion On Farm Support Services	25	0				
10. Compatibility With Existing Agricultural Use	10	10				
TOTAL CORRIDOR ASSESSMENT POINTS		160	35	0	0	0

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	86	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	35	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	121	0	0	0

1. Corridor Selected: A	2. Total Acres of Farmlands to be Converted by Project: 7.9	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
----------------------------	--	-----------------------	--

5. Reason For Selection:

Signature of Person Completing this Part: _____ DATE _____

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



Looking north on FM 521 at Beltway 8 (approx. 775 ft from Beltway 8).



Looking north on FM 521 at Feld Drive and FM 521.



Looking south on FM 521 at UP Railroad crossing.



Looking south on FM 521 at UP Railroad crossing.



Looking south on FM 521, south of FM 2234 and FM 521 intersection.



Looking south on FM 521, south of FM 2234 and FM 521 intersection.



Looking north on FM 521, from south of FM 2234 and FM 521 intersection.



Looking south on FM 521, approx. 1300ft south of FM 2234 and FM 521 intersection.



Looking north on FM 521, from approx. 1300ft from south of FM 2234 and FM 521 intersection.



Looking north on FM 521, from approx. 1300ft from south of FM 2234 and FM 521 intersection.



Looking at northwest side of FM 521 approx. 1100 ft south of FM 521 and FM 2234.



Looking south on FM 521 from south of FM 2234 and FM 521 intersection.



Looking north on FM 521 from south of FM 2234 and FM 521 intersection.



Looking north on FM 521 from south of FM 2234 and FM 521 intersection.



Looking west of FM 521 from 2200 Blue Ridge Process Facility.



Looking west of FM 521 from 2200 Blue Ridge Process Facility.



Looking east of FM 521 at 2200 Blue Ridge Process Facility.



Looking east of FM 521 at 2200 Blue Ridge Process Facility.



Looking north on FM 521 from west side of road, at 2200 Blue Ridge Facility.



Looking east of FM 521 from west side of road, south of FM 521 & FM 2234.



Looking at west side of FM 521, approx. 3500 ft south of intersection of FM 521 & FM 2234.



Looking at west side of FM 521, approx. 3500 ft south of intersection of FM 521 & FM 2234.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



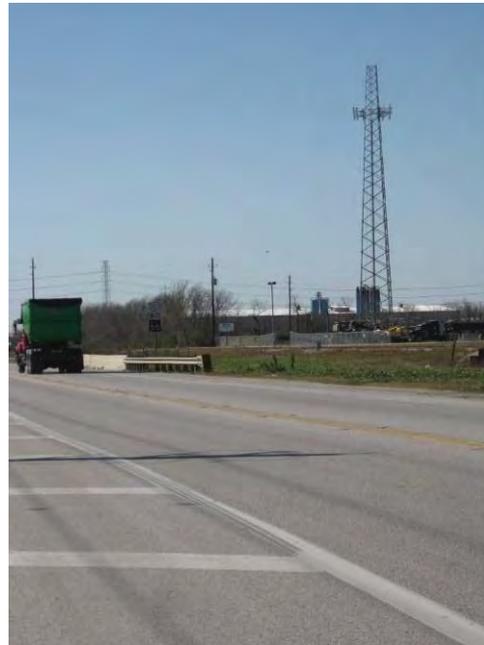
Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking south on FM 521 at FM 2234, from south of intersection.



Looking north on FM 521 at FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking south on FM 521 from northeast of FM 521 and RR crossing.



Looking south on FM 521 from northeast of FM 521 and RR crossing.



Looking south on FM 521 from south of FM 521 & Fm 2234 intersection.



Looking at northeast corner of FM 521 & FM 2234, from south of intersection.



Looking north on FM 521 from center of FM 521 & FM 2234 intersection.



Looking south on UP Railroad at FM 2234, south of FM 521 & FM 2234 intersection.



Looking west on FM 2234, from west of FM 521 & FM 2234 intersection.



Looking east on FM 2234 at intersection of FM 521 & FM 2234.



Looking east on FM 2234 at intersection of FM 521 & FM 2234.



Looking east on FM 2234 at intersection of FM 521 & FM 2234.



Looking north on UP Railroad from FM 2234, west of FM 521 & FM 2234 intersection.



Looking at northeast corner of FM 521 & FM 2234 intersection, from southwest corner.



Looking at southeast corner of FM 521 & FM 2234 intersection.



Looking at southeast corner of FM 521 & FM 2234 intersection.



Looking north on FM 521 at FM 521 & UP crossing.



Looking north on FM 521 at FM 521 & UP crossing.



Looking north on FM 521 at FM 521 & UP crossing.



Looking south on FM 521 at FM 521 & FM 2234 intersection, from FM 521 & UP crossing.



Looking south on FM 521 at FM 521 & FM 2234 intersection, from FM 521 & UP crossing.



Looking south on UP railroad, from FM 521 at FM 521 & UP crossing.



Looking north on FM 521, from FM 521 and UP crossing.



Looking north on FM 521 at Beltway 8.



Looking north on FM 521 at Beltway 8.



Looking south on FM 521 at Beltway 8.

APPENDIX G:
Chapter 26 and Section 4(f) Documentation



Checklist for TxDOT Compliance with Chapter 26 of the Texas Parks and Wildlife Code

Control Section Job Number (CSJ): 0111-01-067

District/County: Houston District/Harris County

Property ID: Almeda Nature Preserve 3307

Property Name: Almeda Nature Preserve

The following checklist serves as a tool to facilitate compliance with the Texas Parks and Wildlife Code and to ensure that all necessary information is documented in the File of Record (ECOS). This checklist also serves as TxDOT's record of decision.

Note: This checklist is not all-inclusive and should be modified as appropriate in consultation with ENV.

For each of the following steps and/or items, check the appropriate box in the columns on the left. Check one box **ONLY**.

I. Chapter 26 - Defining Criteria for Parks, Recreation, Refuges, and Historic Properties

Yes No

- A. Is the property publicly owned?
- B. Is it officially designated and used as a park, recreation area, scientific area, or wildlife refuge?
- C. Is it officially designated historic on the Federal, State or local level (NRHP, RTHL, SAL, local zoning)?

II. Establishing Chapter 26 "Take or Use" of the Property

Yes No

- A. Does the project require acquisition of acreage from the property
If so, specify: 1.67 acres
- B. Does the proximity of the project activities cause the property to no longer function for its intended purposes?
If so, how?: Project would only take a small section from the far western edge of the nature preserve. Park would not lose original intended functionality.



III. Establishing Requirements of Chapter 26 Specialized Notice & Hearing

TxDOT staff determined a public hearing was required.

Date of Public Hearing: Thursday May 7th, 2015

Yes No

- A. Notice of public hearing sent to the Official with Jurisdiction (OWJ) 30 days prior to the hearing date?

Date sent: April 3, 2015

Name of the OWJ: Chambers Washington

Affiliation of the OWJ: Superintendent of Parks, Harris County Precinct 1 Parks Department

- B. Was a newspaper notice of the hearing published once a week for three consecutive weeks, with the last day of publication no less than one week or more than two weeks before the hearing?

If yes, provide dates: 4/13/15, 4/20/15, and 4/27/15

- C. Did the notice of the hearing clearly state the nature of the project and how it is subject to Chapter 26?

After the hearing, TxDOT determined that there is no feasible and prudent alternative to the use or taking of the property.

Due to the geometry of the land, and the surrounding industrial facilities to the west of the proposed project location, complete avoidance of the park was not possible.

The design of the proposed project was evaluated to minimize impacts to the parkland, as to only take 1.67 acres of the 43 acre nature preserve. The take would occur along the western edge of the preserve, on the opposite end from the parking and public facilities, so it would not interfere with the function of the nature preserve.

V. Documentation

The following **MUST** be attached to this checklist to ensure proper documentation of compliance with Chapter 26:

1. Proof of public notice and any comments made by the public
2. Notice letter to the Official with Jurisdiction



VI. TxDOT Approval Signatures

District Reviewer Certification

I reviewed this checklist and all attached documentation and confirm that the above property and proposed project meet the requirements of Chapter 26 of the Texas Parks and Wildlife Code.

Anden Lee

District Personnel Name

5/22/15

Date

ENV Technical Expert Reviewer Certification

I reviewed this checklist and all attached documentation and confirm that the above property and proposed project meet the requirements of Chapter 26 of the Texas Parks and Wildlife Code.

Amy Ohry

ENV Personnel Name

5/22/15

Date

TxDOT-ENV Chapter 26 Final Approval

Based upon the above considerations, this documentation satisfies the requirements of compliance with Chapter 26 of the Texas parks and Wildlife Code.

Jenise Walton

TxDOT-ENV, PD Director or designee

5/26/15

Date



Review Standard for Compliance with Chapter 26 of the Texas Parks and Wildlife Code

The following table shows the revision history for this document.

Revision History	
Effective Date Month, Year	Reason for and Description of Change

FM 521 Ch 26 Texas Parks and Wildlife Code Checklist Documentation

1. Brief Project Description with explanation of how the property will be used;

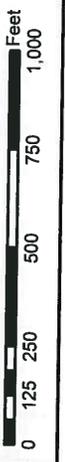
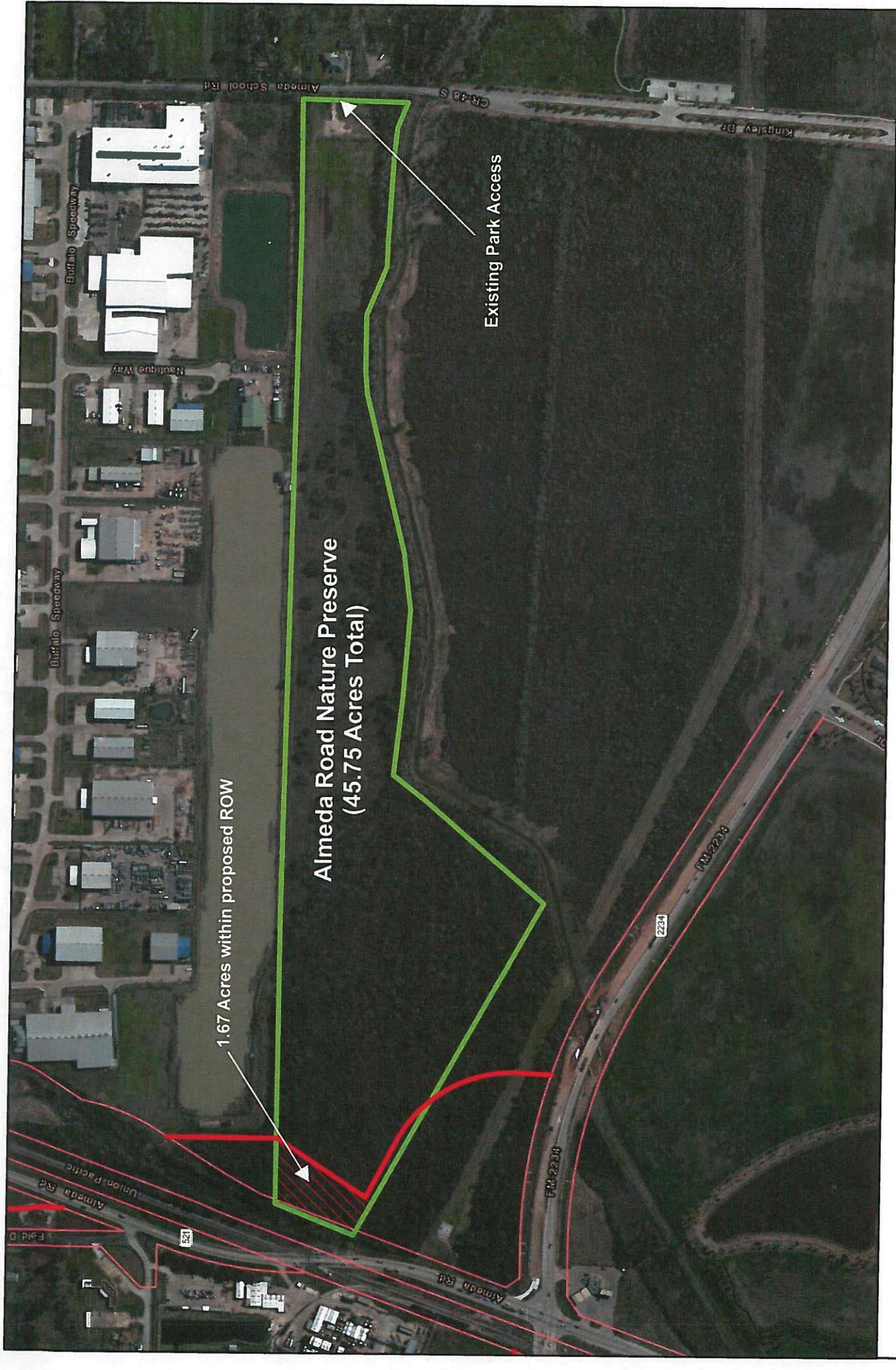
The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. Approximately 13.2 acres of additional right-of-way (ROW) would be required for the proposed project.

The proposed project would require acquisition of public land designated and used as a nature preserve/park and afforded protection under Chapter 26 of the Texas Parks and Wildlife Code and Section 4(f) of the Department of Transportation Act. A total of 1.67 acres out of 45.75 acres of Almeda Road Nature Preserve (3.65%), owned by Harris County, is within the proposed right-of-way of the project. Proposed work within the nature preserve/park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset "T" intersections. These "T" intersections would allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays.

TxDOT would acquire the ROW from the far western edge of the Almeda Nature Preserve parcels. Public access to the nature preserve is located at the far northwestern corner of the property via a fenced and gated entrance off of Almeda School Road. The nature preserve property includes a small gravel parking area and some portable restrooms. No other facilities are present on the nature preserve property. TxDOT met with Harris County Parks Department Precinct 1 Parks Superintendent (the Official with Jurisdiction) and other Harris County Staff on November 18, 2014 to discuss the proposed project and the unavoidable need for ROW from the Almeda Road Nature Preserve. Upon review of the proposed project, Harris County agreed that TxDOT could not avoid the ROW acquisition and given the location of the needed ROW on the far western edge of the nature preserve property, that TxDOT minimized the amount of needed ROW from the nature preserve property, and that the proposed project would not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. TxDOT will continue to coordinate with Harris County regarding the need for ROW from this nature preserve/park property.

- ### 2. Detailed Map of the section 4(f) property;
- a. Included in attachments

3. Proof of public notice and any comments made by public
 - a. IProof of publication and comments included in attachments. (No comments pretaining to Alameda Road Nature Preserve were recieved.
4. Concurrence letter with the official with Jurisdiction
 - a. Included in attachments



Alameda Road Nature Preserve
 Chapter 26/Section 4(f) Property
 FM 521 at FM 2234
 Harris and Fort Bend Counties, Texas
 CSJs: 0111-01-067 and 0111-03-031

- Park Property
- Existing ROW
- Proposed ROW

Alameda Road Nature Preserve
 (45.75 Acres Total)

1.67 Acres within proposed ROW

Existing Park Access

Alameda School Rd
 Kingsley Dr
 CR 48 S

Buffalo Speedway

Alameda Rd
 Union Pacific
 FM 521

FM 2234
 2234
 FM 2234

Legal Notices

INVITATION TO BIDDERS

Sealed Bids, in duplicate, addressed to Brazoria County Municipal Utility District No. 22, Attention: Ms. Stacie Posten, President, Board of Directors, will be received at the office of the Engineer, LJA Engineering, Inc., 2929 Briarpark Drive, Suite 320, Houston, Texas 77042, until 1:00 p.m. Local Time, Thursday, May 7, 2015, and then publicly opened and read for "Construction of the Water, Sanitary Sewer and Drainage Facilities to Serve Laurel Heights at Savannah Section Seven for Brazoria County Municipal Utility District No. 22, Brazoria County, Texas".

Scope of Work of the Contract includes the construction of water, sanitary sewer and drainage facilities.

Bids received after the closing time will be returned unopened. A MANDATORY pre-bid conference will be held on Thursday, April 30, 2015, at 1:00 p.m. Local Time, at 2929 Briarpark Drive, Suite 320, Houston, Texas 77042. Attendance by each prospective bidder or its representative at the pre-bid conference is MANDATORY, and no bid will be opened unless the bidder or representative was present at the pre-bid conference.

Each Bid must be accompanied by a bid bond or a certified or cashier's check, acceptable to the Owner, in an amount not less than 5 percent of the total amount bid, as a guarantee that the successful bidder will enter into the Contract and execute the Bonds on the terms provided and provide the required insurance certificates within 7 days after the date Contract Documents are received by the Contractor.

Bidding documents may be examined at LJA Engineering, Inc., AGC of Texas, AGC Houston, and Amtek or may be obtained by prospective bidders or suppliers upon payment of one hundred dollars (\$100.00 non-refundable plus cost of delivery) (\$50.00 for electronic copy) for each set of documents at LJA Engineering, Inc., 2929 Briarpark Drive, Suite 320, Houston, Texas 77042.

The Owner reserves the right to reject any or all Bids and to waive all defects and irregularities in bidding or bidding process except bidders or suppliers. The Successful Bidder, if any, will be the responsible Bidder which in the Board's judgment will be most advantageous to the District and result in the best and most economical completion of the Project.

Brazoria County Municipal Utility District No. 22
04/16, 04/23/15

Legal Notices

NOTICE OF GENERAL ELECTION

To the Registered Voters of the Deer Park Independent School District:

The Deer Park Independent School District hereby gives notice of a general election that will be held on May 9, 2015, at the polling places listed below from 7:00 a.m. to 7:00 p.m. for the purpose of voting on the following:

Deer Park Independent School District - Board of Trustees

LOCATION OF POLLING PLACES ELECTION DAY

PRECINCTS	LOCATION
LA 4, 170, 279, 420, 470, 665, 673, 695, 696, 704	Deer Park Community Center 610 East San Augustine Deer Park, TX 77536
TEJ 302, 527, 535, 796, 950	Deepwater Elementary School 309 Glenmore Pasadena, TX 77503
EL 5 7:30 346, 740, 791	First Apostolic Church 1211 South Mann Highlands, TX 77562
DE N 452, 534, 662, 718	Fairmont Elementary School 4315 Heathfield Pasadena, TX 77505

Direct recording electronic (DRE) equipment shall be used for voting at the designated electronic polls, and electronic counting devices and equipment shall be used for counting the ballots cast for the election.

EARLY VOTING

Early voting by personal appearance will begin on April 27, 2015, and end on May 5, 2015. Early voting by personal appearance will be held at the following early voting location:

Deer Park Independent School District
Education Support Center
2800 Texas Avenue
Deer Park, TX 77536

Hours: 7:30 a.m. until 4:30 p.m.

Sealed Bids will be accepted until 2:00 p.m., Tuesday, May 12, 2015.

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Legal Notices

NOTICE TO CREDITORS

Notice is hereby given that original Letters Testamentary for the Estate of Clara Arlene Matthews, deceased, were issued on April 2, 2015, in Cause No. PR33387, pending in the County Court at Law No. 1, Brazoria County, Texas, to: Christopher L. Duke.

All persons having claims against this Estate which is currently being administered are required to present them to the undersigned within the time and in the manner prescribed by law.

Attorney at Law
Mary Peter Cudd
229 East Cedar
Angleton, Texas 77515

DATED the 2nd day of April, 2015.

Mary Peter Cudd
Attorney for Christopher L. Duke
State Bar No.: 05201720
229 East Cedar
Angleton, Texas 77515
Telephone: (979) 849-6544
Facsimile: (979) 849-9108

NOTICE OF PUBLIC HEARING

The Texas Department of Transportation (TxDOT) is proposing improvements to FM 521 (Alameda Road) from Beltway 8 to FM 2234 (McHard Road) in Harris and Fort Bend Counties, Texas. A public hearing for the proposed project will be held on Thursday, May 7, 2015, at Willowridge High School, Cafeteria, located at 16301 Chimney Rock, Houston, Texas 77053. The public hearing will begin with an open house at 5:30 p.m. followed by a formal presentation at 6:30 p.m.

The purpose of the hearing is to discuss the proposed improvements to FM 521. This hearing will be conducted in accordance with Chapter 26 of the Texas Parks and Wildlife Code to allow the public the opportunity to review the Draft Section 4(f) de minimis impact determination and project details specifically as they relate to the Alameda Road Nature Preserve and provide comments.

The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. Approximately 13.2 acres of additional right of way (ROW) would be required for the proposed project.

The proposed project would require acquisition of public land designated and used as a nature preserve/park. A total of 1.67 acres out of 45.75 acres of Alameda Road Nature Preserve (3.65%) is within the proposed ROW of the project. Proposed work within the nature preserve/park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset "T" intersections. These "T" intersections would allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays.

A schematic plan showing the location of the project and geometric design, the environmental document prepared for the project, and other information pertinent to the project are on file and available for inspection at the TxDOT Houston District Office, located at 7600 Washington Avenue, Houston, TX 77007. For specific information regarding the design, construction, or schedule of this project, please contact Mr. Fat Nwachukwu, P.E., at 713-802-5961.

The public hearing will provide an opportunity to submit written comments, and a court reporter will be present to record oral comments. Both written and oral comments will be considered equally. Written comments may be submitted in person at the public hearing, or by mail to TxDOT Houston District, Attn: Director of Project Development, P.O. Box 1386, Houston, Texas 77251-1386, or by email to hou-plowebmail@txdot.gov. All comments must be submitted within ten (10) working days after the public hearing (postmarked on or before May 21, 2015).

All interested persons are invited to attend this public hearing. Materials will be presented in English and Spanish, and Spanish language interpreters will be present. Persons interested in attending the public hearing who have special communication or accommodation needs are encouraged to contact TxDOT's Public Information Office at 713-802-5072 at least two (2) working days prior to the public hearing. TxDOT will make every reasonable effort to accommodate these needs. The TxDOT offices are open Monday through Friday, from 8:00 a.m. to 5:00 p.m., excluding national holidays.

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.
PF 04/16/15

NOTICE TO BIDDERS CITY OF PEARLAND, TEXAS

Sealed Bids will be accepted until 2:00 p.m., Tuesday, May 12, 2015.

Legal Notices

PUBLIC NOTICE OF TEST OF AUTOMATIC TABULATING EQUIPMENT AND LOGIC AND ACCURACY TEST

Notice is hereby given that the automatic tabulating equipment that will be used in the City of Friendswood, Texas, General Election held on May 09, 2015, will be tested on April 22, 2015, at 10:00 AM at 910 S. Friendswood Drive, Friendswood City Hall to ascertain that it will accurately count the votes cast for all offices on all measures.

Kevin M. Holland
Signature of Officer

AVISO PUBLICO DE PROBAR EL EQUIPO PARA TABULAR AUTOMATICAMENTE Y PRUEBA DE LOGICA Y PRECISION

Por lo presente se da aviso que el equipo para tabular automaticamente que se usara en la Eleccion City of Friendswood, Texas, General que se lleva a cabo el 09 de Mayo de 2015 se probará el 22 de Abril de 2015 a las 10:00 AM en 910 S. Friendswood Drive, Friendswood City Hall para determinar si el equipo contará con exactitud los votos para todos los puestos oficiales y sobre todas las proyectos de ley.

Kevin M. Holland
Firma de Jefe Oficial

NOTICE OF A JOINT PUBLIC HEARING OF THE CITY COUNCIL AND ZONING COMMISSION OF THE CITY OF FRIENDSWOOD, TEXAS

NOTICE IS HEREBY GIVEN that the City of Friendswood City Council and Planning and Zoning Commission will hold a Joint Docketed Public Hearing at Friendswood City Hall, 910 South Friendswood Drive, on the following date and time:

MONDAY, MAY 4, 2015 - 7:00 PM

to consider the following:

A. Zone classification change request for a tract of land containing 135,778 acres out of the Sarah McKittrick Survey property located at 3801 FM 528, Harris County, to change from Planned Unit Development (Ordinance No. 2004-13 and Ordinance No. 2005-34) to Planned Unit Development (new). (Whitcomb Property)

At said hearing, all interested persons have the right and opportunity to appear and be heard on the subject both oral and written. Documentation is available for review at the City Secretary's Office, 910 South Friendswood Drive, Friendswood, Texas. For questions regarding details of this Joint Public Hearing, please contact Planning Manager Nick Haby in the Community Development Department at 281-996-3280.

Melinda Welsh, TRMC
City Secretary
Friendswood, Texas

REQUEST FOR PROPOSAL CITY OF FRIENDSWOOD, TEXAS RFP NO. 2015-05

Legales / Avisos Públicos

AVISO DE AUDIENCIA PÚBLICA

El Departamento de Transporte de Texas (TxDOT) está proponiendo realizar mejoras a la FM 521 (Almeda Road) desde el Beltway 8 hasta la FM 2234 (McHard Road) en los Condados de Harris y Fort Bend, Texas. La audiencia pública para el proyecto propuesto, se llevará a cabo el Jueves 7 de Mayo de 2015, en la escuela Willowridge High School, cafetería, ubicada en la 16301 Chimney Rock, Houston, Texas 77053. La audiencia pública comenzará con un formato de foro abierto a las 5:30 p.m. seguido por una presentación formal a las 6:30 p.m.

El propósito de la audiencia es discutir las mejoras propuestas a la FM 521. Esta audiencia se llevará a cabo en conformidad con el Capítulo 26 del Código de Parques y Vida Silvestre de Texas (TPWD por sus siglas en inglés) para permitir al público la oportunidad de revisar la determinación de impacto preliminar de la sección 4(f) de minimis (por sus siglas en inglés) y detalles del proyecto específicos relacionados a la Almeda Road Nature Preserve, y ofrecer comentarios.

El proyecto propuesto consiste en la reconstrucción y ampliación de los carriles rurales sin división existente a una de cuatro carriles arteriales urbanos con división desde el Beltway 8 hasta 0.3 milla al sur de la FM 2234. El proyecto también incluye mejoras a la FM 2234 desde 0.3 millas al oeste de la FM 521 hasta 0.2 millas al este de la FM 521 y los separación de niveles propuestas para los cruces del Union Pacific Railroad en la FM 2234 y en la FM 521.

El proyecto propuesto requeriría la adquisición de terrenos designados como públicos y utilizados como una reserva natural/parque. Un total de 1.67 acres de 45.75 acres de Almeda Road Nature Preserve (3.65%) se encuentran dentro del derecho de vía propuesto para el proyecto. Dentro de los trabajos propuestos dentro de la reserva natural/límite de parque incluiría mejoras a la carretera en la intersección de la FM 521 y la FM 2234 para proporcionar dos intersecciones en forma de "T". Estas intersecciones en forma de "T" permitirían pasos elevados a desnivel del ferrocarril en la FM 521 y en la FM 2234 para reducir retrasos vehiculares.

Un plano esquemático que muestra la ubicación del proyecto y el diseño geométrico, el documento ambiental preparado para el proyecto, y otra información pertinente al proyecto están archivados y disponibles para su consulta en la Oficina del Distrito de Houston del TxDOT, ubicado en el 7600 Washington Avenue, Houston, TX 77007. Para obtener información específica sobre el diseño, la construcción o el itinerario de este proyecto, por favor contacte al Sr. Pat Nwachukwu, P.E., en el 713802-5961.

La audiencia pública proporcionará una oportunidad para presentar comentarios escritos, y un reportero de la corte estará presente para grabar los comentarios orales. Comentarios escritos como orales serán considerados por igual. Los comentarios escritos pueden presentarse en persona en la audiencia pública, o por correo a TxDOT Houston District, a la atención de: Director of Project Development, PO Box 1386, Houston, Texas 77251-1386, o por correo electrónico a hou-piowebmail@txdot.gov. Todos los comentarios deben ser recibidos dentro de diez (10) días laborales después de la audiencia pública (matasellado en o antes de la 21 de Mayo de 2015).

Se invita a todas las personas interesadas a asistir a esta audiencia pública. Los materiales se presentarán tanto en inglés como en español, además, miembros del equipo que hablan español estarán presentes. A las personas interesadas en asistir a la audiencia pública que tienen necesidades de comunicación o necesitan acomodos especiales favor de ponerse en contacto con la Public Information Office (Oficina de Información Pública) del TxDOT al 713-802-5072 al menos dos (2) días laborales antes de la audiencia pública. El TxDOT hará todos los esfuerzos razonables para realizar dichos acomodos. Las oficinas del TxDOT están abiertas de lunes a viernes de 8:00 a.m. a 5:00 p.m., excluyendo los días festivos estatales.

La revisión ambiental, consultas y otras acciones requeridas por las leyes ambientales federales aplicables para este proyecto están siendo o han sido, llevado a cabo por TxDOT en virtud de 23 USC 327 y un Memorando de Entendimiento fechado el 16 de diciembre del 2014, y ejecutado por la Administración Federal de Carreteras (FHWA) y el TxDOT.

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Legales / Avisos Públicos

AVISO DE AUDIENCIA PÚBLICA

El Departamento de Transporte de Texas (TxDOT) está proponiendo realizar mejoras a la FM 521 (Alameda Road) desde el Beltway 8 hasta la FM 2234 (McHard Road) en los Condados de Harris y Fort Bend, Texas. La audiencia pública para el proyecto propuesto, se llevará a cabo el Jueves 7 de Mayo de 2015, en la escuela Willowridge High School, cafetería, ubicada en la 16301 Chimney Rock, Houston, Texas 77053. La audiencia pública comenzará con un formato de foro abierto a las 5:30 p.m. seguido por una presentación formal a las 6:30 p.m.

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El proyecto propuesto consiste en la reconstrucción y ampliación de los carriles rurales sin división existente a una de cuatro carriles arteriales urbanos con división desde el Beltway 8 hasta 0.3 milla al sur de la FM 2234. El proyecto también incluye mejoras a la FM 2234 desde 0.3 millas al oeste de la FM 521 hasta 0.2 millas al este de la FM 521 y los separación de niveles propuestas para los cruces del Union Pacific Railroad en la FM 2234 y en la FM 521.

El proyecto propuesto requeriría la adquisición de terrenos designados como públicos y utilizados como una reserva natural/parque. Un total de 1.67 acres de 45.75 acres de Alameda Road Nature Preserve (3.65%) se encuentran dentro del derecho de vía propuesto para el proyecto. Dentro de los trabajos propuestos dentro de la reserva natural/limite de parque incluiría mejoras a la carretera en la intersección de la FM 521 y la FM 2234 para proporcionar dos intersecciones en forma de "T". Estas intersecciones en forma de "T" permitirían pasos elevados a desnivel del ferrocarril en la FM 521 y en la FM 2234 para reducir retrasos vehiculares.

Un plano esquemático que muestra la ubicación del proyecto y el diseño geométrico, el documento ambiental preparado para el proyecto, y otra información pertinente al proyecto están archivados y disponibles para su consulta en la Oficina del Distrito de Houston del TxDOT, ubicado en el 7600 Washington Avenue, Houston, TX 77007. Para obtener información específica sobre el diseño, la construcción o el itinerario de este proyecto, por favor contacte al Sr. Pat Nwachukwu, P.E., en el 713802-5961.

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La revisión ambiental, consultas y otras acciones requeridas por las leyes ambientales federales aplicables para este proyecto están siendo o han sido, llevado a cabo por TxDOT en virtud de 23 USC 327 y un Memorando de Entendimiento fechado el 16 de diciembre del 2014, y ejecutado por la Administración Federal de Carreteras (FHWA) y el TxDOT.

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STATE OF TEXAS:

COUNTY OF HARRIS:

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared, the Newspaper Representative at the HOUSTON CHRONICLE, a daily newspaper published in Harris County, Texas, and generally circulated in the Counties of: HARRIS, TRINITY, WALKER, GRIMES, POLK, SAN JACINTO, WASHINGTON, MONTGOMERY, LIBERTY, AUSTIN, WALLER, CHAMBERS, COLORADO, BRAZORIA, FORT BEND, GALVESTON, WHARTON, JACKSON, and MATAGORDA and that the publication, of which the annexed herein, or attached to, is a true and correct copy, was published to-wit:

MICHAEL BAKER INTERNATIONAL	26257311	33400323
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Edward Silva
NEWSPAPER REPRESENTATIVE

Sworn and subscribed to before me, this the 27th Day of April A.D. 2015



Delilah Metzger
Notary Public in and for the State of Texas

NOTICE OF PUBLIC HEARING

The Texas Department of Transportation (TxDOT) is proposing improvements to FM 521 (Alameda Road) from Beltway 8 to FM 2234 (McHard Road) in Harris and Fort Bend Counties, Texas. A public hearing for the proposed project will be held on Thursday, May 7, 2015, at Willowridge High School Cafeteria, located at 16301 Chimney Rock, Houston, Texas 77053. The public hearing will begin with an open house at 5:30 p.m. followed by a formal presentation at 6:30 p.m.

The purpose of the hearing is to discuss the proposed improvements to FM 521. This hearing will be conducted in accordance with Chapter 26 of the Texas Parks and Wildlife Code to allow the public the opportunity to review the Draft Section 4(f) de minimis impact determination and project details specifically as they relate to the Alameda Road Nature Preserve and provide comments.

The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234.

The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. Approximately 13.2 acres of additional right of way (ROW) would be required for the proposed project.

The proposed project would require acquisition of public land designated and used as a nature preserve/park. A total of 1.67 acres out of 45.75 acres of Alameda Road Nature Preserve (3.65%) is within the proposed ROW of the project. Proposed work within the nature preserve/park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset "T" intersections. These "T" intersections would allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays.

A schematic plan showing the location of the project and geometric design, the environmental document prepared for the project, and other information pertinent to the project are on file and available for inspection at the TxDOT Houston District Office, located at 7600 Washington Avenue, Houston, TX 77007. For specific information regarding the design, construction, or schedule of this project, please contact Mr. Pat Nwachukwu, P.E., at 713-803-5561.

The public hearing will provide an opportunity to submit written comments, and a court reporter will be present to record oral comments. Both written and oral comments will be considered equally. Written comments may be submitted in person at the public hearing, or by mail to TxDOT Houston District, Attn: Director of Project Development, P.O. Box 1386, Houston, Texas 77251-1386, or by email to hdu-pfove@mta.txdot.gov. All comments must be submitted within ten (10) working days after

2015. All comments must be submitted within ten (10) working days after the public hearing (post-marked on or before May 21, 2015).

All interested persons are invited to attend this public hearing. Materials will be presented in English and Spanish, and Spanish language interpreters will be present. Persons interested in attending the public hearing who have special communication or accommodation needs are encouraged to contact TxDOT's Public Information Office at 713-802-5072 at least two (2) working days prior to the public hearing. TxDOT will make every reasonable effort to accommodate these needs. The TxDOT offices are open Monday through Friday, from 8:00 a.m. to 5:00 p.m., excluding national holidays.

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.

AFFIDAVIT OF PUBLICATION

STATE OF TEXAS:

COUNTY OF HARRIS:

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared, the Newspaper Representative at the HOUSTON CHRONICLE, a daily newspaper published in Harris County, Texas, and generally circulated in the Counties of: HARRIS, TRINITY, WALKER, GRIMES, POLK, SAN JACINTO, WASHINGTON, MONTGOMERY, LIBERTY, AUSTIN, WALLER, CHAMBERS, COLORADO, BRAZORIA, FORT BEND, GALVESTON, WHARTON, JACKSON, and MATAGORDA and that the publication, of which the annexed herein, or attached to, is a true and correct copy, was published to-wit:

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Edward Silva
NEWSPAPER REPRESENTATIVE

Sworn and subscribed to before me, this the 20th Day of April A.D. 2015



Delilah Metzger
Notary Public in and for the State of Texas

NOTICE OF PUBLIC HEARING

The Texas Department of Transportation (TxDOT) is proposing improvements to FM 521 (Almeda Road) from Beltway 8 to FM 2234 (McHard Road) in Harris and Fort Bend Counties, Texas. A public hearing for the proposed project will be held on Thursday, May 7, 2015, at Willowridge High School, Cafeteria, located at 16301 Chimney Rock, Houston, Texas 77053. The public hearing will begin with an open house at 5:30 p.m. followed by a formal presentation at 6:30 p.m.

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The public hearing will provide an opportunity to submit written comments, and a court reporter will be present to record oral comments. Both written and oral comments will be considered equally. Written comments may be submitted in person at the public hearing, or by mail to TxDOT Houston District, Attn: Director of Project Development, P.O. Box 1386, Houston, Texas 77251-1386, or by email to hau-piowebmail@txdot.gov. All comments must be submitted within ten (10) working days af-

http://www.txdot.gov. All comments must be submitted within ten (10) working days after the public hearing (postmarked on or before May 21, 2015).

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AFFIDAVIT OF PUBLICATION

STATE OF TEXAS:

COUNTY OF HARRIS:

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared, the Newspaper Representative at the HOUSTON CHRONICLE, a daily newspaper published in Harris County, Texas, and generally circulated in the Counties of: HARRIS, TRINITY, WALKER, GRIMES, POLK, SAN JACINTO, WASHINGTON, MONTGOMERY, LIBERTY, AUSTIN, WALLER, CHAMBERS, COLORADO, BRAZORIA, FORT BEND, GALVESTON, WHARTON, JACKSON, and MATAGORDA and that the publication, of which the annexed herein, or attached to, is a true and correct copy, was published to-wit:

MICHAEL BAKER INTERNATIONAL	26249199	33400323
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Edward Scher

NEWSPAPER REPRESENTATIVE

Sworn and subscribed to before me, this the 13th Day of April A.D. 2015



Charles E. Walichowski

Notary Public in and for the State of Texas

NOTICE OF PUBLIC HEARING

The Texas Department of Transportation (TxDOT) is proposing improvements to FM 521 (Alameda Road) from Beltway 8 to FM 2234 (McHard Road) in Harris and Fort Bend Counties, Texas. A public hearing for the proposed project will be held on Thursday, May 7, 2015, at Willowridge High School, Cafeteria, located at 16301 Chimney Rock, Houston, Texas 77053. The public hearing will begin with an open house at 5:30 p.m. followed by a formal presentation at 6:30 p.m.

The purpose of the hearing is to discuss the proposed improvements to FM 521. This hearing will be conducted in accordance with Chapter 28 of the Texas Parks and Wildlife Code to allow the public the opportunity to review the Draft Section 4(f) de minimis impact determination and project details specifically as they relate to the Alameda Road Nature Preserve and provide comments.

The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. Approximately 13.2 acres of additional right of way (ROW) would be required for the proposed project. The proposed project would require acquisition of public land designated and used as a nature preserve/park. A total of 1.67 acres out of 45.75 acres of Alameda Road Nature Preserve (3.65%) is within the proposed ROW of the project. Proposed work within the nature preserve/park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset "T" intersections. These "T" intersections would allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays.

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COMMENT FORM
(FORMA DE COMENTARIOS)

Public Hearing – Project roadway (FM 521 [Almeda Road] from Beltway 8 to FM 2234 [McHard Road])
Audiencia Pública – Límites del proyecto (FM 521 [Almeda Road] desde el Beltway 8 hasta la FM 2234 [McHard Road])

CSJ Nos. 0111-01-067 and 0111-03-031

Thursday, May 7, 2015
(el Jueves 7 de Mayo de 2015)

I am an Elected Official (Soy Funcionario/a electo) Position (Posición): _____

Name and Mailing Address (Optional) (Nombre y Dirección [Opcional]):

Name (Nombre) JOSEPH CLAESSEN
Address (Dirección) 15200 ALMEDA RD, HOUSTON, TX 77053
Email Address (Correo Electrónico) jcs.claessen@akronobel.com
Telephone (Teléfono) (713) 434-4479 OR: (281) 435-0403 cell phone

PLEASE CHECK THE APPROPRIATE ITEMS BELOW: (Favor de marcar la que le aplique)

I am primarily interested in the project from the standpoint of a: (Estoy interesado en el proyecto desde el punto de vista de:)

Residential property owner or renter (Propietario o inquilino residencial) Business property owner or lessee (Propietario o inquilino del negocio)

Other (Please explain) (Otro [Por favor explique]) _____

Per Texas Transportation Code, §201.811(a)(5): check each of the following boxes that apply to you: (Por Código de
Transportación de Texas, §201.811(a)(5): marcar todas las que le aplique:)

I am employed by TxDOT (Soy empleado de TxDOT)

I do business with TxDOT (Hago negocios con TxDOT)

I could benefit monetarily from the project or other item about which I am commenting (Pudiera beneficiarme económicamente con este proyecto u otro asunto del cual estoy comentando)

How did you learn about this meeting? (¿Como se entero usted de esta reunión?)

Newspaper (Periódico) Notice in the Mail (Aviso por Correo)

Other (Please explain) (Otro [Por favor explique]) previous meeting with your project managers

Do you support the proposed project? (¿Apoya el proyecto propuesto?) Yes (Sí) No (No) Undecided (Indeciso)

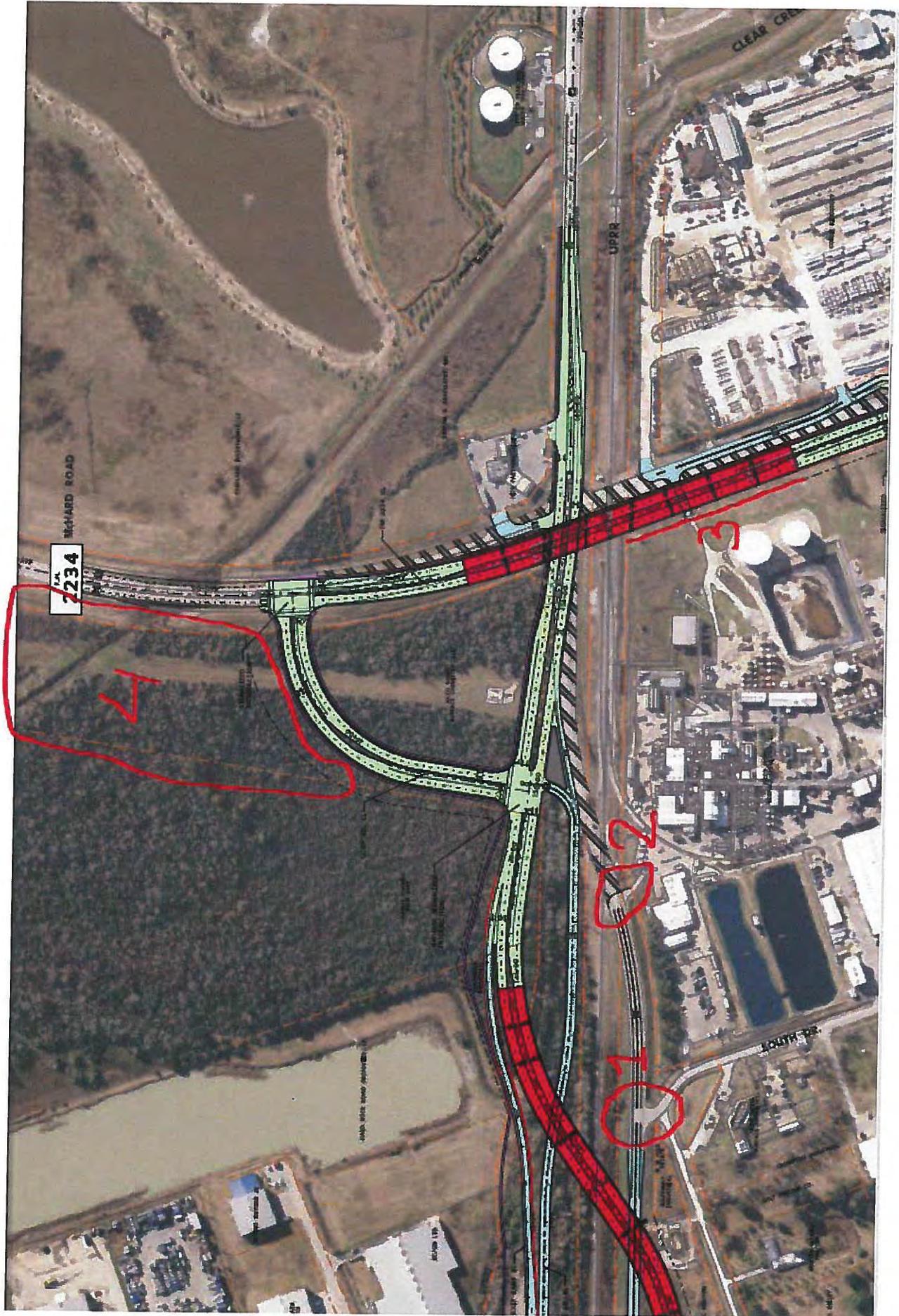
COMMENTS (COMENTARIOS): See e-mail

Please make additional comments on the back. (Favor de hacer comentarios adicionales al dorso de esta forma.)

This comment form may be turned in tonight, mailed, or emailed by May 21, 2015 to the address below:

(Esta forma de comentarios se puede entregar esta noche, por correo postal, o por correo electrónico en o antes del 21 de mayo de 2015:)

Director of Project Development
Texas Department of Transportation – Houston District
P.O. Box 1386
Houston, Texas 77251-1386
Email: hou-piowebmail@txdot.gov



From: [Pat Henry](#)
To: [Andrew Leske](#)
Subject: FW: AkzoNobel Almeda Rd Reconstruction
Date: Wednesday, May 20, 2015 1:19:50 PM
Attachments: [Comment Form AN.pdf](#)
[Comment Form Drawing.docx](#)
Importance: High

Comment for PH response report.

From: HOU-PIOWebMail
Sent: Wednesday, May 20, 2015 12:34 PM
To: Pat Henry
Subject: FW: AkzoNobel Almeda Rd Reconstruction
Importance: High

fyi

Kristina Hadley
Public Information Office
TxDOT-Houston District
Phone: (713) 802-5076
Kristina.Hadley@txdot.gov

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Watch us [@www.youtube.com/txdotpio](http://www.youtube.com/txdotpio)

From: Claessen, Jos [<mailto:Jos.Claessen@akzonobel.com>]
Sent: Friday, May 15, 2015 1:31 PM
To: HOU-PIOWebMail
Cc: Kozlowski, T.M. (Tom)
Subject: AkzoNobel Almeda Rd Reconstruction
Importance: High

Dear Sir/Madame,

I'm sending you this email as the Site Director of AkzoNobel located on 15200 Almeda Rd, Houston.
Our site is impacted by the TxDOT project "Roadway FM 521 (Almeda Road) from Beltway 8 to FM 2234 (McHard Road).

The meeting we had with your employees Hilda Garza Scott and Pat N. Nwachukwu on April 20th and the public hearing of May 7th gave us a good understanding of the project and how we're impacted.

Overall we are supporting the project since it adds to road safety for the general public as well as for our employees while entering and leaving the plant.

However, we also have some concerns that I want to make you aware of and that we think can be relatively easily taken care of when further detailing the design of the project or during construction (see also the attached document called 'Comment Form Drawing.docx':

1. Access to the plant on a 24/7 basis via the current main entrance on Almeda Road for personal vehicles as well as tank or semi-trailer trucks is crucial for our business.
2. Part of the 'old' Almeda Road from the intersection with FM 2234 till just north of the rail tracks will be demolished and a physical barrier between the remaining south end of the 'old' Almeda Road and the rail tracks will be installed. The design needs to be executed in such a way that we continue to have access to our plant through gate #1 with tank and semi-trailer trucks.
This might already be part of your detailed design but that is difficult to judge for us when just being able to see the 'big picture'.
3. The overpass (East-West) on FM 2234 over Almeda Road would enable people to toss objects onto our property and it makes the plant activities more visible which is a security concern based on the chemicals that we handle and store on site. Having a fence with obstructed view on the north side on the overpass would take care of our concern.
4. Execution of this project will result in our company having to give up some of our property. The biggest lot size is needed on the east side of Almeda Road. As a result of that the remaining lot size further to the east will lose a lot of value for our business since execution of the project will create a large physical barrier between our current activities and the remaining lot east of Almeda Road.

As I mentioned earlier we're supporting this project and expect that the concerns mentioned above can be addressed without too much effort in the design of the project or during construction.

Please let me know your response or if you have some questions that you would like to have answered.

Jos Claessen
Site Director

T +1 (713) 434-4479
F +1 (713) 433-5489
M +1 (281) 435-0403
E jos.claessen@akzonobel.com

Akzo Nobel Surface Chemistry LLC
15200 Almeda Road
Houston, TX 77053
USA
www.akzonobel.com



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The information contained in this message, including any attachments, may be privileged and confidential and is intended only for the use of the individual and/or entity identified in the address of this message. If you are not an intended recipient, please notify the sender and delete and destroy this message, including any back-up copies. Please refer to

www.akzonobel.com/legal-entities for further legal information regarding the sending entity if from the EU, Croatia, Norway, Turkey, Ukraine or Switzerland.

From: [Pat Henry](#)
To: [Andrew Leske](#)
Subject: FW: FM 521 AND FM 2234
Date: Thursday, May 21, 2015 4:05:18 PM

comment

From: HOU-PIOWebMail
Sent: Thursday, May 21, 2015 3:46 PM
To: Pat Henry
Subject: FW: FM 521 AND FM 2234

fyi

Kristina Hadley
Public Information Office
TxDOT-Houston District
Phone: (713) 802-5076
Kristina.Hadley@txdot.gov

Follow us on twitter @txdothoustonpio
Watch us @www.youtube.com/txdotpio

From: FirdousHamani [<mailto:hamaniholdinginc@yahoo.com>]
Sent: Thursday, May 21, 2015 2:50 PM
To: HOU-PIOWebMail
Subject: FM 521 AND FM 2234

TO WHOM IT MAY CONCERN,

I am the owner of the land on the corner of Fm 521 and FM 2234. My land is behind the Exxon Food Mart Gas station on both side of FM 521 and FM 2234. I bought this land for future development but because of your proposed improvement I will loose my property access and can not develop in future. I just learn about this from next door property owner that, you are going to put a bridge over their but my understanding is that, the way you are going to put the bridge it will completely destroy my property because I do not have impaired access.

Please contact me via email: newmart@verizon.com or call me at: 281-788-8343 before you finalize any decision

As per the next door neighbor, he spoke to Mr. Patrick G. Gant. P.E. and his boss Bill Brandnick today May 21, 2015 and as per their conversation they are going to give us an access to my property between the light at 2234 (new intersection).

Regards,

Cherian Zacharian
Tel: (281)-788-8343

From: [Pat Henry](#)
To: [Andrew Leske](#)
Subject: FW: Proposed Improvements to FM 521 from Beltway 8 to FM 2234 CSJs:0111-01-067 and 0111-03-031
Date: Thursday, May 21, 2015 4:06:57 PM

From: HOU-PIOWebMail
Sent: Thursday, May 21, 2015 3:46 PM
To: Pat Henry
Subject: FW: Proposed Improvements to FM 521 from Beltway 8 to FM 2234 CSJs:0111-01-067 and 0111-03-031

fyi

Kristina Hadley
Public Information Office
TxDOT-Houston District
Phone: (713) 802-5076
Kristina.Hadley@txdot.gov

Follow us on twitter @txdothoustonpio
Watch us @www.youtube.com/txdotpio

From: FirdousHamani [<mailto:hamaniholdinginc@yahoo.com>]
Sent: Thursday, May 21, 2015 2:39 PM
To: HOU-PIOWebMail
Subject: Proposed Improvements to FM 521 from Beltway 8 to FM 2234 CSJs:0111-01-067 and 0111-03-031

TO WHOM IT MAY CONCERN

I am an owner of Exxon Food Mart that is located on the corner of FM-521 & FM-2234 in Fresno Texas the physical address is 333 FM 521 Rd, Fresno, TX, 77545-8211, Fort Bend. I am writing this letter regarding Proposed Improvements by TxDOT to FM 521 from Beltway 8 to FM 2234 CSJs: 0111-01-067 and 0111-03-031. This proposition of improvements will affect our business. If this goes through, our revenues will drop and we will be out of business. We do not want you to stop this project, but we would like you to make this project as corner of FM 521 and Highway 6, this way my property will not lose as much business and value. The way you are proposing this improvement it will kill my property completely and I will also loose impaired access. Also, the way you are proposing FM 521 project, the median you are putting in front of my store is too long, which in this case will give my customer a very hard time getting in and out this location. This project will not only effect me, it will also effect the county as well as the State, in which we all will face some sort of loss. The county and state will lose the tax revenues, such as property tax as well as sales tax.

Sir/Ma'am, I have a family with a supporting wife and three children, my business revenue will affect my children's future. You can check my record as we have been a long time tax

payer, I have been here for almost ten years, and like any business when you are there for so long, your customers even become like family, and as a store owner I would hate to bother, or make it harder for my customers to come to in and out of my location.

I attended meeting on May 7, 2015 with above mentioned issue. I do not remember who was the person who told me that is a Right of Way agent either he is Mr. Colan D Dishman or Hilda Scott or Pat N. Nwachukwe, P.E will shorten the maiden for in and out to my store. I also met Patrick G. Gant. P.E. and his boss Bill Brandnick today May 21, 2015. I have explained them the complete issue and they said its is not possible to remove the new road between 521 and 2234 to delete from their plan and put it behind my property. They are going to give me an access for my customers to move in and out between the light at 2234 (new intersection)

Please help me with this issue so my customers wont face hard time accessing to my property and reply me back so to make sure we have same understanding.

Regards,

Firdous Hamani

Hamani Holding Inc.

Tri Star Petroleum Inc.

7447 Harwin Drive, Suite 213,

Houston, TX - 77036.

Tel: (713)-783-5000

Fax: (713)-783-5519



Texas Department of Transportation

P. O. BOX 1386 | HOUSTON, TEXAS 77251-1386 | (713) 802-5000 | WWW.TXDOT.GOV

April 3, 2015

CERTIFIED MAIL 7013 2250 0001 8100 7331

Chambers Washington
Superintendent of Parks
Harris County, Precinct 1
7901 El Rio Street
Houston, Texas 77054

RE: Notice of Public Hearing
Fort Bend and Harris Counties
FM 521: From Beltway 8 to FM 2234 (McHard Road)
Control 0111-01-067 and 0111-03-031

Dear Mr. Washington:

This is to notify you of an upcoming public hearing to present the proposed improvements to FM 521 from Beltway 8 to FM 2234 (McHard Road) in Harris and Fort Bend Counties, Texas. The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from BW 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separation at the Missouri Pacific Railroad crossing on FM 2234 and FM 521. Approximately 13.2 acres of additional right-of-way (ROW) would be required for the proposed project. This includes 1.67 acres out of a total of 45.75 acres of Almeda Road Nature Preserve.

The purpose of this hearing is to gather public input on the proposed project and to present exhibits showing the proposed improvements and environmental constraints. This hearing will be conducted in accordance with Chapter 26 of the Texas Parks and Wildlife Code to allow the public the opportunity to review the Draft Section 4(f) de minimis impact determination and project details specifically as they relate to the Almeda Road Nature Preserve. Representatives from the Texas Department of Transportation and the City of Pearland will be available to answer questions from officials and citizens. You, or your representative, are cordially invited to attend this meeting, which will be held as follows:

**Thursday May 7th, 2015, Willowridge High School
16301 Chimney Rock, Houston, Texas 77053
Open House at 5:30 p.m. - Formal Presentation at 6:30 p.m.**

We are available to meet with you prior to the public meeting to answer any questions that you may have or to review the proposed project. If you have any questions in the interim, please contact Pat Henry, P.E., at (713) 802-5241.

Sincerely,

Pat Henry, P.E.
Director of Project Development
Houston District

Attachments
cc: Pat Henry, P.E.

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NOTICE OF PUBLIC HEARING

The Texas Department of Transportation (TxDOT) is proposing improvements to FM 521 (Almeda Road) from Beltway 8 to FM 2234 (McHard Road) in Harris and Fort Bend Counties, Texas. A public hearing for the proposed project will be held on Thursday, May 7, 2015, at Willowridge High School, Cafeteria, located at 16301 Chimney Rock, Houston, Texas 77053. The public hearing will begin with an open house at 5:30 p.m. followed by a formal presentation at 6:30 p.m.

The purpose of the hearing is to discuss the proposed improvements to FM 521. This hearing will be conducted in accordance with Chapter 26 of the Texas Parks and Wildlife Code to allow the public the opportunity to review the Draft Section 4(f) *de minimis* impact determination and project details specifically as they relate to the Almeda Road Nature Preserve and provide comments.

The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. Approximately 13.2 acres of additional right-of-way (ROW) would be required for the proposed project.

The proposed project would require acquisition of public land designated and used as a nature preserve/park. A total of 1.67 acres out of 45.75 acres of Almeda Road Nature Preserve (3.65%) is within the proposed ROW of the project. Proposed work within the nature preserve/park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset "T" intersections. These "T" intersections would allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays.

A schematic plan showing the location of the project and geometric design, the environmental document prepared for the project, and other information pertinent to the project are on file and available for inspection at the TxDOT Houston District Office, located at 7600 Washington Avenue, Houston, Texas 77007. For specific information regarding the design, construction, or schedule of this project, please contact Pat Nwachukwu, P.E., at (713) 802-5961.

The public hearing will provide an opportunity to submit written comments, and a court reporter will be present to record oral comments. Both written and oral comments will be considered equally. Written comments may be submitted in person at the public hearing, or by mail to TxDOT Houston District, Attn: Director of Project Development, P.O. Box 1386, Houston, Texas 77251-1386, or by email to hou-piowebmail@txdot.gov. All comments must be submitted within ten (10) working days after the public hearing (**postmarked on or before May 21, 2015**).

All interested persons are invited to attend this public hearing. Materials will be presented in English and Spanish, and Spanish language interpreters will be present. Persons interested in attending the public hearing who have special communication or accommodation needs are encouraged to contact TxDOT's Public Information Office at (713) 802-5072 at least two (2) working days prior to the public hearing. TxDOT will make every reasonable effort to accommodate these needs. The TxDOT offices are open Monday through Friday, from 8:00 a.m. to 5:00 p.m., excluding national holidays.

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.



Main CSJ: 0111-01-067

District(s): Houston

County(ies): Harris

Property ID: Almeda Nature Preserve 3307

Property Name: Almeda Nature Preserve

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 following checklist was developed as a tool to assist in streamlining the Section 4(f) *De Minimis* process and to ensure that all necessary information is documented in the File of Record (ECOS).

What Type of Property is Being Evaluated?

- A park, recreation land, or wildlife/waterfowl refuge
- A historic property

Section 4(f) Defining Criteria for Parks, Recreation, and Refuge Properties

1. Yes Is the property publicly owned?
2. Yes Is the property open to the public (except in certain cases for refuges)?
3. Yes Is the property's major purpose for park, recreation, or refuge activities?
4. Yes Is the property significant?

Defining the Property's Significance

Note: Significance is presumed in the absence of a determination with the official with jurisdiction.

1. Yes Does the property play an important role in meeting the park, recreation, or refuge objectives for the official with jurisdiction?
2. Yes Is the property's major purpose for park, recreation, or refuge activities?

Establishing Section 4(f) Use of the Property

1. Yes Does the project require a use (i.e., new right of way, new easement(s), etc.)?

Establishing Section 4(f) *De Minimis* Eligibility



Checklist for Section 4(f) De Minimis for Public Parks, Recreation Lands, Wildlife & Waterfowl Refuges, and Historic Properties

1. Yes Was it determined that the project will not adversely affect the activities features, or attributes that make the property eligible for Section 4(f) protection?
2. Yes Was a public notice and an opportunity for public review and comment provided?
(This requirement can be satisfied in conjunction with other public involvement procedures, such as those for NEPA process)
3. Yes Did the Official with Jurisdiction concur that the property was significant and that the proposed project meets ALL conditions of items above?

Documentation

The following **MUST** be attached to this checklist to ensure proper documentation of the Section 4(f) *De Minimis*:

1. Brief project description
2. Explanation of how the property will be used.
3. A detailed map of the Section 4(f) property including:
 - a. Current and proposed ROW
 - b. Property boundaries
 - c. Existing and planned facilities
4. Concurrence letter with the Official with Jurisdiction

TxDOT Approval Signatures

District Reviewer Certification

I reviewed this checklist and all attached documentation and confirm that the above property and proposed project meet the requirements of 23 CFR 774 for a Section 4(f) *De Minimis* finding.

Andrew Leske

Digitally signed by Andrew Leske
DN: cn=Andrew Leske, o=TxDOT, ou=Houston District,
email=Andrew.Leske@txdot.gov, c=US
Date: 2015.12.22 12:41:51 -06'00'

District Personnel Name

December 22, 2015

Date

ENV Technical Expert Reviewer Certification

I reviewed this checklist and all attached documentation and confirm that the above property and proposed project meet the requirements of 23 CFR 774 for a Section 4(f) *De Minimis* finding.

Troy Olney

Digitally signed by Troy Olney
DN: cn=Troy Olney, o=TxDOT, ou=Environmental Affairs,
email=tolney-c@txdot.gov, c=US
Date: 2016.01.14 10:38:40 -06'00'

ENV Personnel Name

January 14, 2016

Date

TxDOT-ENV Section 4(f) *De Minimis* Final Approval

Based upon the above considerations, this Section 4(f) *De Minimis* satisfies the requirements of 23 CFR 774.

Bruce Jensen

Digitally signed by Bruce Jensen
DN: cn=Bruce Jensen, o=Texas Department of Transportation, ou=CRM
Section Director, Environmental Affairs, email=bruce.jensen@txdot.gov, c=US
Date: 2016.03.08 15:09:55 -06'00'

TxDOT-ENV, PD Director or designee

March 8, 2016

Date

FM 521 4(f) De Minimis Determination Checklist Documentation

1. Brief Project Description with explanation of how the property will be used;

The proposed project consists of reconstructing and widening the existing two-lane rural undivided facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. Approximately 13.2 acres of additional right-of-way (ROW) would be required for the proposed project.

The proposed project would require acquisition of public land designated and used as a nature preserve/park and afforded protection under Chapter 26 of the Texas Parks and Wildlife Code and Section 4(f) of the Department of Transportation Act. A total of 1.67 acres out of 45.75 acres of Almeda Road Nature Preserve (3.65%), owned by Harris County, is within the proposed right-of-way of the project. Proposed work within the nature preserve/park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset "T" intersections. These "T" intersections would allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays.

TxDOT would acquire the ROW from the far western edge of the Almeda Nature Preserve parcels. Public access to the nature preserve is located at the far northwestern corner of the property via a fenced and gated entrance off of Almeda School Road. The nature preserve property includes a small gravel parking area and some portable restrooms. No other facilities are present on the nature preserve property. TxDOT met with Harris County Parks Department Precinct 1 Parks Superintendent (the Official with Jurisdiction) and other Harris County Staff on November 18, 2014 to discuss the proposed project and the unavoidable need for ROW from the Almeda Road Nature Preserve. Upon review of the proposed project, Harris County agreed that TxDOT could not avoid the ROW acquisition and given the location of the needed ROW on the far western edge of the nature preserve property, that TxDOT minimized the amount of needed ROW from the nature preserve property, and that the proposed project would not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. TxDOT will continue to coordinate with Harris County regarding the need for ROW from this nature preserve/park property.

A public hearing was held on Thursday May 7, 2015 at Willowridge High School. The public hearing summary report can be found in the official file of record.

2. Detailed Map of the section 4(f) property;
 - a. Included in attachments

3. Concurrence letter with the official with Jurisdiction
 - a. Included in attachments



PO BOX 1386 | HOUSTON, TEXAS 77251-1386 | (713) 802-5000 | WWW.TXDOT.GOV

CERTIFIED MAIL 7013 2250 0001 8100 7331

March 9, 2015

Chambers Washington
Superintendent of Parks
Harris County, Precinct 1
7901 El Rio Street
Houston, Texas 77054

RE: Notification of Intent of Pursue De Minimis to Section 4(f) (23 CRF 774.3(b))
Section 4(f) Property: Almeda Road Nature Preserve
Harris and Fort Bend Counties
FM 521: At FM 2234
Control 0111-01-067 and 0111-03-031

Dear Mr. Washington:

In accordance with 23 CRF 774.3(b), we are seeking concurrence for the above referenced project, which will be carried out with Federal funds. This letter requests review and consultation concerning the determinations of significance and findings of no adverse effects within the project's area of potential effects (APE). TxDOT also intends to pursue a Section 4(f) *de minimis*.

Introduction

The Texas Department of Transportation (TxDOT) proposes to reconstruct and widen the existing two-lane rural undivided FM 521 facility to a four-lane divided urban arterial from Beltway 8 to 0.3 miles south of FM 2234. The project also includes improvements on FM 2234 from 0.3 miles west of FM 521 to 0.2 miles east of FM 521 and proposed grade separations at the Union Pacific Railroad crossings on FM 2234 and FM 521. The proposed project would require acquisition of public land designated and used as a nature preserve/park. A total of 1.67 acres out of 45.75 acres of Almeda Road Nature Preserve (3.65%) is within the proposed right-of-way (ROW) of the project. Proposed work within the nature preserve/park boundary would include roadway improvements to the intersection at FM 521 and FM 2234 to provide for two offset "T" intersections. These "T" intersections would allow for railroad overpasses on FM 521 and FM 2234 to reduce vehicular delays.

Impacts to the parkland were unavoidable due to the geometric constraints imposed by the required railroad crossing. In particular, the limitations of feasible bridge beam span length over the railroad ROW combined with the requirement that permanent bridge foundations and footings not be constructed within the existing railroad ROW. An additional constraint was the minimum allowable radius for the required design speed for the proposed FM 521 facility. Given these constraints, the "tightest" feasible reverse curve configuration to achieve the railroad grade separation was laid out to successfully minimize the ROW impact to the parkland.

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Determination of No Adverse Effects and Certification of Section 4(f) De Minimis

Survey determined that the Alameda Road Nature Preserve on which the *use* will take place has significance under the requirements of 23 CRF 774.3(b). In order to qualify for a Section 4(f) *de minimis*, it was established that the project activities will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection.

The function of Alameda Nature Preserve will not be impaired and its function will not cease. Nor will the project impair the function of the property as a whole. Therefore, these minor changes would have no adverse effect. The property would still possess its significance after the project is complete.

If you feel that TxDOT has met the above requirements and have no additional comments about the project, then please endorse this letter and return it to us by April 20, 2015. This endorsement will signify your concurrence that there is no adverse effect to the above property. Additional information about Section 4(f) requirements can be found at the following or you may request additional information from TxDOT:

[http://environment.fhwa.dot.gov/\(S\(1vyep545s3wmhuubnvexkmm2\)\)/4f/index.asp](http://environment.fhwa.dot.gov/(S(1vyep545s3wmhuubnvexkmm2))/4f/index.asp)

Conclusion

In accordance with 23 CRF 774.3(b), I hereby request your signed concurrence with the finding of no adverse effects. Furthermore, TxDOT determined that the proposed project activities meet the requirements of a *de minimis* finding under Section 4(f).

Thank you for your assistance with the federal review process.

If you need further information, please call Pat Henry, P.E., at (713) 802-5241.

Sincerely,



Pat Henry, P.E.
Director of Project Development
Houston District

Attachment

CONCUR: NO ADVERSE EFFECT	
DETERMINATION OF DE MINIMIS IMPACT UNDER SECTION 4(f) GUIDELINES	
NAME: <u></u>	DATE: <u>03-13-15</u>
<small>Harris County Precinct 1 Superintendent of Parks Mr. Chambers Washington</small>	



Almeda Road Nature Preserve
 Chapter 26/Section 4(f) Property
 FM 521 at FM 2234
 Harris and Fort Bend Counties, Texas
 CSJs: 0111-01-067 and 0111-03-031

- Park Property
- Existing ROW
- Proposed ROW

Andrew Leske

From: Troy Olney-C
Sent: Wednesday, May 27, 2015 10:28 AM
To: Chambers.Washington@cp1.hctx.net
Cc: Andrew Leske; Pat Henry
Subject: TxDOT FM 521 4(f) De Minimus
Attachments: FM_521_4(f)_Notification Letter.pdf

Good Morning Mr. Washington,

I am writing to inform you of an omission on the attached "Notification of Intent to Pursue De Minimis to Section 4(f) (22 CFR 774.3(b))" letter for the FM 521 Project. The letter failed to notify you of the recent assignment of some NEPA responsibilities to the Texas Department of Transportation (TxDOT) by the Federal Highway Administration (FHWA), as required by the Memorandum of Understanding between TxDOT and FHWA. The letter should have included the following statement:

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.

Please feel free to contact me with any questions on this matter.

Thank you,

Troy Olney
Environmental Affairs Division
Texas Department of Transportation
512-416-2522
TOLNEY-C@txdot.gov