



# Environmental Assessment

---

## Crabb River Road (FM 2759/FM 762)

Fort Bend County and Texas Department of Transportation

Crabb River Road (FM 2759/FM 762), from 0.25 mile south of Sansbury Boulevard to the Lamar Consolidated Independent School District Secondary School Complex

CSJs 0543-03-067, 1415-03-010

Fort Bend County, Texas

July 2016

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

This page intentionally blank

TABLE OF CONTENTS

I. DESCRIPTION OF PROPOSED ACTION ..... 1

A. Description of Proposal ..... 1

B. Need and Purpose ..... 2

C. Right-of-Way Requirements and Utility Adjustments ..... 4

D. Planning Consistency and Estimated Project Cost ..... 5

E. Local and Regional Support ..... 6

F. Public Involvement ..... 6

G. Coordination with Resource Agencies ..... 7

II. DESCRIPTION OF EXISTING FACILITY ..... 9

A. Existing Facility ..... 9

B. Surrounding Terrain and Land Use ..... 9

C. Traffic Projections ..... 10

III. ALTERNATIVES ..... 11

A. No Build Alternative ..... 11

B. Alternatives Considered but Eliminated ..... 11

C. Build Alternative ..... 11

IV. POTENTIAL SOCIAL, ECONOMIC, AND ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION ..... 15

A. Regional and Community Growth ..... 15

B. Socioeconomic Conditions ..... 16

C. Community Cohesion ..... 18

D. Environmental Justice ..... 20

E. Section 4(f) and 6(f) Properties ..... 25

F. Community Facilities and Services ..... 25

G. Lakes, Rivers, and Streams ..... 26

H. Floodplain Impacts ..... 27

I. Wetlands and Waters of the US ..... 28

J. Water Quality ..... 31

K. Vegetation and Wildlife Habitat ..... 33

L. Threatened and Endangered Species ..... 36

M. Migratory Birds ..... 44

N. Invasive Species and Beneficial Landscape ..... 45

O. Essential Fish Habitat ..... 45

P. Cultural Resources ..... 45

Q. Aesthetic Considerations ..... 49

R. Prime, Unique, and Special Farmland Impacts ..... 50

S. Air Quality Assessment ..... 52

T. Noise Assessment ..... 54

U. Hazardous Waste/Substances..... 56

V. Construction Impacts ..... 61

W. Items of Special Nature..... 62

X. Permits and Commitments..... 63

Y. Indirect Impacts..... 67

Z. Cumulative Impacts..... 75

V. CONCLUSION ..... 87

VI. REFERENCES ..... 89

**TABLES**

TABLE 1: RECENT POPULATION GROWTH ..... 15

TABLE 2: PROJECTED POPULATION GROWTH, FORT BEND COUNTY..... 16

TABLE 3: 2010 PROJECT AREA CENSUS BLOCK POPULATION BY RACE/ETHNICITY..... 21

TABLE 4: CENSUS BLOCKS WITH >50% MINORITY POPULATION..... 21

TABLE 5: ESTIMATED POVERTY STATUS, INCOME AND LIMITED ENGLISH PROFICIENCY (LEP),  
PROJECT AREA CENSUS BLOCK GROUPS ..... 24

TABLE 6: SUMMARY OF DELINEATED POTENTIAL JURISDICTIONAL FEATURES ..... 31

TABLE 7: ECOLOGICAL MAPPING SYSTEMS OF TEXAS ..... 33

TABLE 8: ELEMENT OCCURENCES WITHIN 10 MILES OF PROJECT AREA ..... 37

TABLE 9: CANDIDATE, THREATENED, OR ENDANGERED SPECIES OF FORT BEND COUNTY ... 39

TABLE 10: SOILS IN THE PROJECT AREA ..... 51

TABLE 11: GEOLOGY ..... 51

TABLE 12: PROPOSED NOISE BARRIERS (PRELIMINARY) ..... 55

TABLE 13: CORRIDOR COST-AVERAGED NOISE BARRIERS (PRELIMINARY)..... 56

TABLE 14: IMPACT CAUSING ACTIVITIES ..... 72

TABLE 15: DETERMINATION OF RESOURCES INCLUDED IN THE CUMULATIVE IMPACTS  
ANALYSIS ..... 77

TABLE 16: RESOURCE STUDY AREA RESOURCES FOR CUMULATIVE IMPACTS ANALYSIS ..... 79

TABLE 17: SUMMARY OF CUMULATIVE IMPACTS ..... 83

## LIST OF EXHIBITS

- EXHIBIT 1: Project Location Map
- EXHIBIT 2: USGS Topographic Map
- EXHIBIT 3: Aerial Photo Map
- EXHIBIT 4: Typical Sections
- EXHIBIT 5: Schematic Layout
- EXHIBIT 6: RTP/TIP/STIP Documentation
- EXHIBIT 7: Public Meeting Comments: December 2009, November 2015
- EXHIBIT 8: Environmental Constraints Map
- EXHIBIT 9: Natural Resources Maps and Appendices
- EXHIBIT 10: Historic Resource APE Map and Correspondence/Coordination
- EXHIBIT 11: Noise Receiver Maps
- EXHIBIT 12: Hazardous Materials Site Location Map
- EXHIBIT 13: Indirect Effects Area of Influence
- EXHIBIT 14: Resource Study Area Map
- EXHIBIT 15: CMP Coordination

## ACRONYMS

ACS	American Community Survey
ADT	Average daily traffic
AFT	American Farmland Trust
AOI	Area of influence
APE	Area of Potential Effects
BMP	Best management practice
BNSF	Burlington Northern Santa Fe
CFR	Code of Federal Regulations
CMP	Congestion Management Process
CO	Carbon monoxide
CWA	Clean Water Act
dBA	Decibels (A-weighted)
DCR	Dry Cleaner Registration
EA	Environmental Assessment
EMST	Ecological Mapping Systems of Texas
ENV	Environmental Affairs Division
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Environmental site assessment
ETJ	Extraterritorial jurisdiction
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Farm-to-Market Road
FPPA	Farmland Protection Policy Act
GFBEDC	Greater Fort Bend Economic Development Council
H-GAC	Houston-Galveston Area Council
HOA	Homeowner Association
IH	Interstate Highway
IHW	Industrial and Hazardous Waste
iPaC	Information for Planning and Conservation

---

ISA	Initial site assessment
LCISD	Lamar Consolidated Independent School District
LEP	Limited English proficiency
LOS	Level of service
LPST	Leaking Petroleum Storage Tank
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MS4	Municipal separate storm sewer system
MSAT	Mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NLRRCRAG	No Longer Regulated Resource Conservation and Recovery Act Generator Facility
NOI	Notice of Intent
NOx	Nitrogen oxides
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
OTHM	Official Texas Historical Markers
PSS1	Palustrine scrub-shrub, broadleaf deciduous
PST	Petroleum Storage Tank
PUB	Palustrine Unconsolidated Bottom
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROW	Right-of-way
RSA	Resource study area
RTHL	Registered Texas Historic Landmark
RTP	Regional Transportation Plan
SAL	State Antiquities Landmark; State Archeological Landmark
SGCN	Species of Greatest Conservation Need
SH	State Highway

SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOV	Single-occupancy vehicle
STIP	Statewide Transportation Improvement Program
SW3P	Storm Water Pollution Prevention Plan
TARL	Texas Archeological Research Laboratory
TCAA	Texas Clean Air Act
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TP&P	Transportation Planning and Programming Division (TxDOT)
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
TxSDC	Texas State Data Center
US	United States
USACE	US Army Corps of Engineers
USCG	US Coast Guard
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VMT	Vehicle miles traveled
VOC	Volatile organic compounds
vpd	Vehicles per day

## I. DESCRIPTION OF PROPOSED ACTION

### A. Description of Proposal

Fort Bend County and the Texas Department of Transportation (TxDOT) have proposed the widening of Crabb River Road, in central Fort Bend County. Crabb River Road runs concurrently with Farm-to-Market Road (FM) 2759 from Interstate Highway (IH) 69/United States Highway (US) 59 to FM 762, and with FM 762 from FM 2759 southward. The two FM roadways intersect where Crabb River Road intersects Thompsons Road, with FM 2759 running both north and east from the intersection, and FM 762 running both south—intersecting the Burlington Northern Santa Fe (BNSF) Railroad—and west from that same point. Within the project limits, FM 2759’s functional classification is Minor Arterial and FM 762 is classified as a Major Collector. This Environmental Assessment (EA) evaluates the social, economic, and environmental impacts that would result from the proposed widening of Crabb River Road (FM 2759/FM 762), as required by the National Environmental Policy Act (NEPA) for federally funded or authorized projects that may potentially cause significant environmental impacts. The scope of the proposed project is to widen Crabb River Road (FM 2759/FM 762) from its existing two-lane and three-lane (two travel lanes plus center turn lane), undivided configuration to a four-lane (two lanes in each direction), divided facility. The proposed improvements are described in further detail in **Chapter III, Alternatives**.

The project is approximately 2.9 miles long and extends from approximately 0.25 mile south of Sansbury Boulevard to approximately 500 feet south of the Lamar Consolidated Independent School District’s (LCISD) new secondary school complex (**Exhibit 1: Project Location Map**). As part of the State of Texas Farm-to-Market Road system, the roadway is under TxDOT jurisdiction. Other maps of the project area include a US Geological Survey (USGS) topographic map (**Exhibit 2**) and an aerial photograph map (**Exhibit 3**).

The proposed project would be implemented in two phases—an interim phase (Phase I) and a final build-out phase (Phase II). Phases I and II are primarily distinguished by the inclusion of at-grade improvements in Phase I and a proposed grade separation at the BNSF Railroad and Thompsons Road (FM 762/FM 2759) in Phase II. Phase I construction is anticipated to begin in late 2016 and be completed by June 2018, based on funding availability. Phase II construction would begin as funding becomes available. Consequently, this EA evaluates the final build-out (Phase II) of the proposed Build Alternative (as well as the No Build Alternative) but also examines impacts of Phase I implementation. **Section C, Build Alternative**, of **Chapter III** explains the proposed improvements, including phased implementation, in more detail.

The preliminary design schematic of the proposed improvements was prepared by Fort Bend County and is available for inspection at the County Engineer’s Office, 1124-52 Blume Road,

---

Rosenberg, Texas 77471, and the TxDOT Houston District Fort Bend Area Office, 4235 State Highway (SH) 36, Rosenberg, Texas 77471.

## B. Need and Purpose

The proposed project is needed because of decreased mobility, heavy congestion, higher-than-average accident rates and the safety threat posed by an at-grade railroad crossing. The proposed project termini are logical because the northern terminus would tie in with the planned Grand Parkway (SH 99), Segment C, and the southern terminus would support the ingress and egress of school-related traffic at the LCISD secondary school complex, which is a point of major traffic generation. The proposed improvements would have independent utility and these improvements do not restrict consideration of other reasonably foreseeable transportation improvements.

Fort Bend County and the area adjacent to the Crabb River Road (FM 2759/FM 762) project, in particular, are experiencing rapid growth both in residential and commercial development. Fort Bend County was the fastest growing county in the US having a population over 250,000 between 2013 and 2014.<sup>1</sup> The surrounding communities of Greatwood, Tara, Canyon Gate, Bridlewood Estates, Brazos Lakes and Brazos Gardens are all experiencing significant growth and increased development is planned. For many of these communities, Crabb River Road (FM 2759/FM 762) provides front door access to the residential developments. In addition, Crabb River Road (FM 2759/FM 762) is a key travel route to and from US 59, which directly connects to major destinations and activity centers in the Houston area.

Crabb River Road (FM 2759/FM 762) is a major arterial that currently experiences significant congestion during peak periods, operating at Level of Service (LOS) F.<sup>2</sup> The 2017 average daily traffic (ADT) on the two- to three-lane roadway is estimated to be 17,700 vehicles on the FM 2759 section of the project and 12,400 vehicles on the FM 762 section. Traffic operations along Crabb River Road (FM 2759/FM 762) are complicated by the existence of a series of driveways serving neighboring developments that feed directly on to the roadway.

The LCISD secondary school complex includes a middle school, junior high school, senior high school, sports complex, and football stadium. The complex currently serves approximately 4,000 students and employs several hundred faculty, staff, and

---

<sup>1</sup> US Census Bureau, "New Census Bureau Population Estimates Reveal Metro Areas and Counties that Propelled Growth in Florida and the Nation," <http://www.census.gov/newsroom/press-releases/2015/cb15-56.html>; "County and Metro Area Population Estimates," [http://www.census.gov/newsroom/press-kits/2015/20150326\\_popestimates.html](http://www.census.gov/newsroom/press-kits/2015/20150326_popestimates.html), March 26, 2015.

<sup>2</sup> LOS F is forced or breakdown flow. Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required. Travel time cannot be predicted, with generally more demand than capacity. A road in a constant traffic jam is at this LOS, because LOS is an average or typical service rather than a constant state.

administrators. The presence of this new complex substantially affects traffic volumes and roadway congestion.

To access the school site from major population areas, traffic crosses the BNSF railroad tracks at grade. This rail line is a major freight rail corridor with an average daily train count of approximately 26 trains.<sup>3</sup> Not only does the daily volume of trains crossing Crabb River Road (FM 762) impact the traffic conditions in the area, but safety for the travelling public is compromised.

The increased residential and commercial development occurring in the communities adjacent to Crabb River Road (FM 2759/FM 762), trip attractions to the nearby George Ranch Historical Park, daily train volumes crossing Crabb River Road (FM 762) at grade, the presence of the secondary school complex, and the limited roadway network connections to major thoroughfares leading into Houston result in the two- to three-lane Crabb River Road (FM 2759/FM 762) being extremely congested and unable to provide the capacity needed to meet the growing transportation demands of the community. It is projected that the ADT on Crabb River Road (FM 2759/FM 762) will continue to increase substantially. According to traffic estimates developed by the TxDOT Transportation Planning and Programming Division (TP&P), ADT is forecast to increase by 56 to 57 percent over 20 years (see **Chapter II, Section C, Traffic Projections**).

Accident data compiled by TxDOT from 2011 to 2014 for Crabb River Road (FM 2759/FM 762) from Sansbury Boulevard to Booth Track Road (A.P. George Road) indicated that, out of 193 total crashes, 52 were injury or possible injury crashes, including two fatal crashes. This is an average of approximately 4.0 total crashes per month (or approximately 48.25 crashes per year), including approximately 1.1 injury or possible injury crashes per month (or approximately 13 crashes per year). These average crash rates are equivalent to approximately 2.8 total crashes per million vehicle miles traveled (VMT), or 0.75 injury/possible injury crashes per million VMT. For context, urban FM roadways statewide in 2013 had a crash rate of 2.3 total crashes per million VMT, and urban two-lane, two-way roadways had a crash rate of 2.1 total crashes per million VMT.

Looking more closely at specific intersection crash data from 2012 to 2014, 47 crashes occurred at the intersection with Thompsons Road (FM 762/FM 2759), including 11 injury or possible injury accidents. In addition, 22 crashes (five injury or possible injury) occurred at the intersection with Bridlewood Drive and 21 crashes (five injury or possible injury) happened at Berdett Road.

The purpose of the proposed improvement project for Crabb River Road (FM 2759/FM 762) is to improve mobility, alleviate traffic congestion and improve safety.

---

<sup>3</sup> Federal Railroad Administration, U.S. DOT – Crossing Inventory Information (February 13, 2015).

### C. Right-of-Way Requirements and Utility Adjustments

Most of the improvements would occur within the existing Crabb River Road (FM 2759/FM 762) right-of-way (ROW). The existing ROW varies, but is typically 120 feet wide on FM 2759 and 80 feet wide on FM 762. On the FM 2759 portion (north of the intersection with FM 762) the existing ROW would be sufficient for the proposed Phase I improvements, except for a strip of land up to 20 feet wide adjacent to the west side of existing ROW just north of the Thompsons Road (FM 762/FM 2759) intersection and extending to approximately 500 feet north of the intersection (approximately 0.15 acre). However, south of the BNSF railroad, on the FM 762 portion, approximately 110 feet of additional ROW would be required, with acquisition from both sides of the roadway adjacent to where new access roads would be provided to properties south of the BNSF railroad ROW (including the vacant church property—formerly Triumph Christian Center—and Cornerstone Bible Church property). Approximately 22.8 acres of proposed additional ROW would be acquired along FM 762 for the Phase I improvements. Proposed ROW from the west side of the roadway would gradually taper down to the existing ROW approximately 300 feet north of Bridlewood Drive, with all adjacent ROW acquisition (approximately 100 feet) shifting to the east side for the remainder of the project south until tapering down to the existing ROW at the southern project limit (**Exhibit 4: Typical Sections; Exhibit 5: Schematic Layout**).

In addition to proposed ROW acquisition along the roadway, three storm water detention basins would be required for the proposed project. Two are located on either side of Gapps Slough on the east side of the roadway in the southern portion of the project. One other is located approximately 750 feet west of Crabb River Road (FM 2759) on the south side of Rabbs Bayou near the northern project limit. Acquisition of land for the detention pond on the north side of Gapps Slough would require the relocation of one residence. The Phase I acquisitions would cause no displacements of businesses or community facilities. Some land adjacent to existing ROW from institutional, industrial, and agricultural uses would also be required. The land from which the detention pond acquisitions are proposed is currently undeveloped except for the one residential property affected. Total Phase I ROW acquisition for roadway widening would be approximately 22.8 acres, with approximately 19.2 acres of additional proposed ROW required for the detention ponds. The resulting total proposed additional ROW for the project with completion of Phase I would be approximately 42.0 acres. In addition, temporary construction easements would total approximately 0.8 acre.

Under Phase II, 9.4 additional acres would be required to provide ROW for access ramps at the proposed grade separation at Thompsons Road (FM 762/FM 2759) and the BNSF railroad immediately northwest of the existing intersection. This acquisition of commercial and undeveloped property would cause the displacement of two commercial properties, but would affect no residential properties. Some land would be required from an adjacent church property, but no displacement or other adverse effects on the property would be

incurred by the project. Total proposed additional ROW for the project with completion of Phase II would be 51.4 acres.

Utilities such as water lines, sewer lines, gas lines, telephone cables, electrical lines, and other subterranean and aerial utilities may require adjustments at various locations along the proposed facility. Four active natural gas pipelines cross below Crabb River Road in the FM 762 portion. These include pipelines of: San Jacinto Gas Transmission Company (at the Booth Compressor Station), Kinder Morgan Texas Pipeline (two lines near the southern project terminus), and SouthCross Gulf Coast Transmission (near the southern terminus). The Dominion Gas Ventures natural gas gathering pipeline runs parallel to Crabb River Road (FM 762) on the west from the compressor station to beyond the southern project terminus. The abandoned Texas Eastern Transmission pipeline lies below the roadway just south of the San Jacinto pipeline. An ExxonMobil pipeline carrying regular gasoline traverses beneath the roadway north of Bridlewood Estates. A Kinder Morgan Crude and Condensate crude petroleum transmission pipeline runs parallel to the gas transmission lines near the southern project terminus. Other pipelines lie within 0.5 mile of the proposed project but do not intersect, lie adjacent to, or lie within the project limits (see **Section U, Hazardous Waste/Substances**, in **Chapter IV**). Aerial and/or underground utility construction would be adjusted and the required adjustments would be provided for within TxDOT ROW by the utility companies, and within public easements on private property by Fort Bend County. The adjustment of any utilities would be handled so that no substantial disruption of service would take place while the adjustments are being made.

#### **D. Planning Consistency and Estimated Project Cost**

The Phase I project is included in the Houston-Galveston Area 2040 Regional Transportation Plan (RTP); Amendment #22 to the 2015-2018 Transportation Improvement Program (TIP), as adopted May 23, 2014, and amended September 14, 2015, for Fiscal Year 2016; and the September 2015 Out-of-cycle Revision of the 2015-2018 Statewide Transportation Improvement Program (STIP), Fiscal Year 2016 (**Exhibit 6**). Although the RTP listing shows obsolete project limits (CSJ 1415-03-010 beginning at US 59), the change in project limits is indicated in the "Changes" column and explained in the "Comments" column of the project listing in TIP Amendment #22, and the correct limits are also shown in the STIP September 2015 Revision (pending approval) (**Exhibit 6**).

Although project costs shown in the 2040 RTP listing were the most recently available estimates when the RTP was adopted in January 2015, project cost estimates have since been updated and are shown in the STIP September 2015 Revision (pending approval). TIP Amendment #22 shows only construction costs. The total estimated Phase I cost for the FM 2759 project section (CSJ 1415-03-010), north of Thompsons Road (FM 762/FM 2759), is listed in the STIP as \$17,962,126. The total estimated Phase I cost for the FM 762 project section (CSJ 0543-03-067), south of Thompsons Road (FM 762/FM 2759), is listed in the

STIP as \$24,842,275, summing to a total for both sections combined of \$42,504,401. Estimated funding for construction is anticipated to be 65 percent federal and 35 percent local (**Exhibit 6**).

Phase II is included in the 2040 RTP as an exempt project (**Exhibit 6**), with a total estimated cost of \$30.92 million, and is listed in Appendix D of the TIP as a project in the RTP undergoing environmental assessment.

### **E. Local and Regional Support**

The Crabb River Road (FM 2759/FM 762) project is being sponsored by Fort Bend County and has the full endorsement of the Fort Bend County Commissioners' Court. All phases of development, including preliminary design, engineering, site layout and schematics, construction documents, and implementation will be coordinated with TxDOT, LCISD, Houston-Galveston Area Council (H-GAC), the George Ranch and George Foundation, the Town of Thompsons, the City of Sugar Land, and the City of Rosenberg. The George Ranch Historical Park, in conjunction with the Fort Bend County Museum Association, supports the roadway project and has committed to help fund the proposed Crabb River Road (FM 2759/FM 762) widening project. The proposed project is also supported by the Gulf Coast Freight Rail District. FM 762 is proposed as a Principal Thoroughfare and FM 2759 as a Major Thoroughfare in the Fort Bend County Major Thoroughfare Plan (2015), and FM 2759 is included in the City of Sugar Land Master Thoroughfare Plan (2012).

### **F. Public Involvement**

A public meeting in open house format was held at River Pointe Community Church in Richmond, Texas, at 6:00 pm on December 10, 2009. Approximately 98 members of the general public attended the meeting as well as two elected officials. The project need and purpose, project design, environmental constraints, ROW information and corridor safety information were displayed on presentation boards. Public meeting handouts (in English and Spanish), which contained a brief project description and need and purpose of the proposed project, were available. TxDOT and consulting team staff answered questions and discussed citizens' concerns. Spanish-speaking staff members were available for those needing translation.

The meeting also provided an opportunity for citizens to submit written comments. Sixteen public meeting comment forms were submitted at the public meeting. Three comments were received via email and 38 public meeting comment forms were received via regular mail and postmarked by the deadline of December 28, 2009. Many of the comment forms addressed multiple topics. Issues expressed in the written comments included: traffic, access, trees, ROW encroachment, potential noise impacts, project design, safety, air quality and general support for the project (**Exhibit 7: Public Meeting Comments**). A **Public Meeting Summary** is available for inspection at TxDOT's Houston District office, located at 7600

Washington Avenue, Houston, Texas, and the Fort Bend County Engineering office, 1124-52 Blume Road, Rosenberg, Texas.

A second public meeting in open house format was held on November 5, 2015, at 5:30 pm, at George Ranch High School, 8181 FM 762, Richmond, Texas. Approximately 233 people attended. Information from the first public meeting was updated to display project design for Phases I and II of the proposed Build Alternative and connections to the planned Grand Parkway (SH 99), as well as updated environmental constraints and the revised project schedule. Public meeting comments and responses are provided in **Exhibit 7. A Public Meeting Summary** is available for inspection at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007. A public hearing for the proposed project will be provided with proper notification given to the public once TxDOT Environmental Affairs Division (ENV) has determined the EA and project design to be satisfactory for further processing.

#### **G. Coordination with Resource Agencies**

The proposed Crabb River Road (FM 2759/FM 762) project will be coordinated with the Texas Historical Commission (THC), Texas Commission on Environmental Quality (TCEQ), and Texas Parks and Wildlife Department (TPWD) to the extent required under the applicable memoranda of understanding between TxDOT and those entities.

This page intentionally blank

## II. DESCRIPTION OF EXISTING FACILITY

### A. Existing Facility

Crabb River Road (FM 2759/FM 762) is an existing two-lane, open-ditch, asphalt roadway (**Exhibit 4: Typical Sections**). North of the Thompsons Road (FM 2759/FM 762) intersection, the two 11-foot wide travel lanes are separated by a continuous, 12-foot wide center turn lane, with right-turn bays southbound at Thompsons Road (FM 762) and northbound at Tara Drive. South of the Thompsons Road (FM 2759/FM 762) intersection, the road is a two-lane undivided facility with 11-foot wide travel lanes. That same intersection has northbound right-turn and left-turn lanes and a southbound left-turn bay at the currently vacant church property, south of the intersection. The intersecting Thompsons Road (westbound FM 2759 and eastbound FM 762) features right- and left-turn lanes on to Crabb River Road. The at-grade BNSF railroad crossing is immediately south of the Thompsons Road (FM 762/FM 2759) intersection. Intersections are signalized at Thompsons Road (FM 762/FM 2759) and Tara Drive.

### B. Surrounding Terrain and Land Use

The topography in the proposed project area is mostly flat (**Exhibit 2: USGS Topographic Map**). The area adjacent to Crabb River Road (FM 2759/FM 762) is a mixture of rural and developed areas, with a number of new residential developments in the region that reflect a more suburban character.

Dominant land uses adjacent to the project area include single-family residential and retail commercial uses, with scattered institutional and utility uses, undeveloped properties, and areas of agricultural use in the southern reach of the proposed project (see **Chapter IV, Sections B and C**). Most of the project area lies outside of incorporated municipalities. That part of the project (FM 2759) north of Thompsons Road (FM 762/FM 2759) lies within the City of Sugar Land extraterritorial jurisdiction (ETJ), except for a small area immediately northwest of the intersection, which includes commercial and undeveloped properties within the City of Richmond ETJ. Land immediately south of the BNSF railroad ROW on the west side of FM 762 and extending south along the east side of the roadway lies within the Rosenberg city limits and remains primarily undeveloped. Land farther south on the west side of FM 762 is in the Rosenberg ETJ. Land in the southern reaches of the project lies within the Thompsons ETJ. Most unincorporated areas in the general vicinity of the project are rapidly developing under existing subdivision regulation. The Cities of Sugar Land, Rosenberg, and Richmond monitor and guide development under their respective comprehensive plans. The West Fort Bend Management District also has jurisdiction along several major roadway corridors in the Richmond and Rosenberg areas, extending into the Crabb River Road (FM 2759/FM 762) project area along Thompsons Road (FM 762) up to its intersection with Crabb River Road (FM 2759). The District develops corridor architectural

and landscape standards for adoption by the two cities. The Build Alternative would accommodate existing land uses and is consistent with local planning policies.

The privately-owned George Ranch Historical Park is located on Crabb River Road (FM 762), approximately 0.3 mile south of the limits of the proposed roadway widening project. The Historical Park is part of a 23,000-acre working ranch, includes exhibits chronicling over 100 years of local history, and offers daily tours of the authentic homes and original ranching features at the site. Crabb River Road (FM 762) provides the main access to the George Ranch Historical Park.

Within the proposed project limits, Crabb River Road (FM 2759/FM 762) traverses two named stream crossings: Rabbs Bayou and Gapps Slough. The project lies entirely within the Brazos River basin.

The Natural Resources Conservation Service (NRCS) Web Soil Survey of Fort Bend County describes the general soil types within the proposed project area as mostly Brazoria Clay (Ma), Pledger Clay (Pa), and Asa-Pledger Complex (Ac).

### **C. Traffic Projections**

According to traffic projections developed separately for FM 2759 and FM 762 by TxDOT TP&P, the existing two- to three-lane Crabb River Road (FM 2759) within the project limits will have an ADT volume of approximately 17,700 vehicles in 2017 and 27,800 vehicles in 2037. The existing two- to three-lane Crabb River Road (FM 762) within the project limits will have an ADT volume of approximately 12,400 vehicles in 2017 and 19,400 vehicles in 2037. As noted in **Chapter I**, this represents a 56 to 57 percent increase over 20 years.

### III. ALTERNATIVES

#### A. No Build Alternative

The No Build Alternative represents a scenario in which the proposed project is not constructed. This alternative avoids adverse impacts associated with new construction; however, impacts resulting from decreased mobility, congestion and safety remain. Implementation of the No Build Alternative would be inconsistent with local and regional transportation and local planning efforts. It would not meet the proposed project's need and purpose because it would not provide for improved mobility, congestion relief, and improved safety. The No Build Alternative is being carried forward for comparison purposes.

#### B. Alternatives Considered but Eliminated

Originally, three preliminary conceptual alternatives on existing location were considered for improving Crabb River Road (FM 2759/FM 762): one alternative that proposed roadway widening centered on the existing roadway and ROW location, another alternative that would have expanded the roadway and shifted the center line and ROW to the east, and an alternative that would have expanded the roadway and shifted the center line and ROW to the west. Expanding the ROW to the east would have had extensive displacement and relocation impacts to residences and businesses, and would have required obtaining additional land from public school property and church property for proposed ROW. Expanding the ROW to the west would have adversely affected the Sansberry Cemetery and also caused commercial and residential displacement and relocation impacts, including impacts to a church. The alternative centered on the existing roadway alignment was determined to be preferable to the alternatives shifting the center line and ROW to the east or west, since the widening alone (Phase I) would cause no displacements and relocations and the project would not adversely affect the Sansberry Cemetery or require as much proposed ROW from school or church properties. This alternative was developed into the proposed Build Alternative and is described in **Section C** below.

#### C. Build Alternative

In addition to the No Build Alternative, a Build Alternative has been proposed for meeting the need and purpose of the proposed project. The Build Alternative is the preferred alternative. The Crabb River Road (FM 2759/FM 762) Build Alternative was recommended because it would fulfill the need and purpose of the proposed project by alleviating traffic congestion and improving mobility and safety.

The proposed project is currently planned to be implemented in two primary phases. The first, interim phase of the project (Phase I) would include all of the Build Alternative improvements except for the grade separation at Thompsons Road (FM 762/FM 2759). The

grade separation would be constructed later and would constitute the second, final phase of the project (Phase II).

### **Phase I Build Alternative Implementation (Interim Phase Improvements)**

Under the Build Alternative, FM 2759 (north of Thompsons Road) would consist of a curb and guttered roadway with one 12-foot wide inside travel lane and one 14-foot wide outside shared lane in each direction, one-foot wide curb offsets, and a raised 18-foot wide median. FM 762 (south of Thompsons Road) would consist of an open-ditch drainage roadway with two 12-foot wide travel lanes in each direction, 8-foot wide outside paved shoulders, two-foot wide inside curb offsets, and a raised 18-foot wide median (**Exhibit 4: Typical Sections; Exhibit 5: Schematic Layout**). The proposed speed limit for this divided urban thoroughfare is 45 miles per hour. With two lanes in each direction, through traffic could stay in the center lanes and turning movements would be accommodated in the outside lanes. Lanes would also be provided for left-turn movements at selected intersections and driveway entrances (such as the LCISD complex). The shared lanes on FM 2759 and paved shoulders on FM 762 would accommodate bicyclists. Five-foot wide sidewalks on each side of FM 2759, including the Rabbs Bayou Bridge, and on the east side of FM 762 would accommodate pedestrians. In addition, provision of the 18-foot-wide median and inclusion of crosswalks at signalized intersections and entrances to the LCISD complex would facilitate pedestrian and bicycle crossings on Crabb River Road.

The signalized, at-grade intersection with Thompsons Road (FM 762/FM 2759) would be improved during Phase I. At the intersection with Thompsons Road, Crabb River Road (FM 2759/FM 762) would have two through lanes, one left-turn bay, and one right-turn bay in each direction. Thompsons Road (FM 762/FM 2759) would have one through lane, one left-turn bay, and one right-turn bay in each direction.

The existing asphalt pavement would be replaced with concrete pavement, providing a longer roadway surface life cycle than asphalt and reducing future maintenance costs. The open-ditch drainage system would be replaced and upgraded with an underground concrete storm sewer conduit. The proposed facility would include five-foot wide sidewalks on each side of the roadway.

A new bridge would be constructed over Rabbs Bayou. This bridge would also provide for increased roadway capacity and allow for safe passage over the bayou. As part of the widening project, new lighting standards would be installed along the roadway, effectively illuminating the area to increase visibility and safety.

### **Phase II Build Alternative Implementation (Ultimate Project Improvements)**

Under Phase II, the intersection improvements at Thompsons Road (FM 762/FM 2759) would be replaced with a grade separation—elevating Crabb River Road (FM 2759/FM 762) over Thompsons Road (FM 762/FM 2759) and the BNSF railroad. The grade separation

over the railroad would eliminate the signalized intersection with the Thompsons Road (FM 762/FM 2759) east-west roadway. The existing at-grade railroad crossing would also be eliminated. These improvements would improve traffic safety, increase LOS, and improve rail operations.

The elevated section of Crabb River Road (FM 2759/FM 762) would include one 12-foot wide inside travel lane and one 15-foot wide outside shared lane in each direction, with a 5-foot wide, barrier-separated sidewalk on the east side of the structure. A six-foot wide raised median on the north approach to the structure would narrow down to a concrete barrier with three-foot wide shoulders on the structure itself. Two parallel "jug-handle" ramps would be constructed west of the elevated structure providing access to/from Crabb River Road just north of the structure approach. One ramp would provide access for northbound and southbound Crabb River Road (FM 2759/FM 762) traffic to Thompsons Road (FM 762); the other ramp would provide access for Thompsons Road (FM 762) traffic to southbound Crabb River Road (FM 2759/FM 762). Each ramp would include a 12-foot wide inside lane and a 14-foot wide outside lane, with the ramps separated by an 18-foot wide raised median. A 25-foot wide dual left-turn lane would provide egress from southbound Crabb River Road (FM 2759/FM 762) to the Thompsons Road (FM 762) access ramp. Access for Thompsons Road (FM 762/FM 2759) traffic to northbound Crabb River Road (FM 2759) would be provided via at-grade turning movements on to a one-way, northbound ramp running parallel to the east side of Crabb River Road (FM 2759) and merging into travel lanes between River Road and Harpers Drive. The ramp would consist of one 14-foot wide lane with a four-foot inside shoulder and six-foot outside shoulder. Right-turn and left-turn bays would be provided for egress from Thompsons Road (FM 762/FM 2759).

South of the BNSF railroad, access to properties immediately adjacent to the elevated section of Crabb River Road (FM 762) and its approaches (including the former Triumph Christian Center and Cornerstone Bible Church properties) would be provided via one-way frontage roads with a turnaround under the elevated structure. The frontage roads would include one 18-foot lane in each direction with curbs and gutters. The turnaround would be approximately 200 feet south of the railroad.

This page intentionally blank

## IV. POTENTIAL SOCIAL, ECONOMIC, AND ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

### A. Regional and Community Growth

The proposed Crabb River Road (FM 2759/FM 762) project is in a rapidly growing, suburban portion of the Houston metropolitan area. Formerly a rural area near the small community of Crabb (west of the proposed project on Thompsons Road (FM 762)), the area is currently characterized by considerable single-family residential subdivision development, along with commercial development along major roadways (including Crabb River Road (FM 2759)) and the accompanying public services and infrastructure. The area now lies within the ETJs of three cities (Sugar Land, Rosenberg and Richmond) and one town (Thompsons) with the full purpose or limited purpose corporate limits of the three cities extending into the project area. Texas State Data Center (TxSDC) estimates show considerable growth in area communities and Fort Bend County in recent years (**Table 1**).

The 2000 and 2010 population and 2013 population estimates for Fort Bend County and communities near the project area are shown in **Table 1**. Fort Bend County's population grew by approximately 79 percent from 2000 to 2013, and the unincorporated Greatwood community (northeast of the proposed project) increased in population by similar rates. Rosenberg, Sugar Land, and Richmond—cities that have been growing into the proposed project area—grew by lesser though substantial rates.

City or County	2000 Population	2010 Population	Percent Growth 2000-2010	January 1, 2013 Estimate	Percent Growth 2000-2013
Greatwood CDP*	6,640	11,538	73.8%	12,237	84.3%
Richmond	11,081	11,679	5.4%	12,292	10.9%
Rosenberg	24,043	30,618	27.4%	33,402	38.9%
Sugar Land	63,328	78,817	24.5%	83,262	31.5%
Fort Bend County	354,452	585,375	65.2%	633,313	78.7%

\* CDP : Census Designated Place (unincorporated)  
Source: Texas State Data Center and Office of the State Demographer. Texas Population Estimates and Projections Program (online), University of Texas at San Antonio, 2014 (<http://txsdc.utsa.edu/Data/TPEPP/Estimates/Data.aspx>).

**Table 2** displays population projections for Fort Bend County through 2040 developed by the TxSDC. Two possible future scenarios developed by the TxSDC are presented—a "high-growth" scenario, under which projections assume that population growth proceeds on average at one-half the growth rates seen from 2000 to 2010, and a "very-high-growth" scenario, which assumes population growth rates similar to those which occurred from 2000 to 2010. The former scenario more closely matches estimates of current population,

and is a more sustainable scenario over the long term. The latter scenario allows for consideration of the possibility of continuing very high growth rates, although it is questionable whether this rate of growth is sustainable over the long term. In either case, substantial population growth is anticipated through 2040, with Fort Bend County's total population increasing to approximately two to three times its 2010 population.

Year	High Growth Scenario Total	5-Year % Growth	% Growth Since 2010	Very High Growth Scenario	5-Year % Growth	% Growth Since 2010
2010	585,375	—	—	585,375	—	—
2015	662,019	13.1%	13.1%	724,104	23.7%	23.7%
2020	742,705	12.2%	26.9%	888,595	22.7%	51.8%
2025	830,883	11.9%	41.9%	1,083,278	21.9%	85.1%
2030	928,474	11.7%	58.6%	1,314,652	21.4%	124.6%
2035	1,033,333	11.3%	76.5%	1,591,858	21.1%	171.9%
2040	1,143,079	10.6%	95.3%	1,920,868	20.7%	228.1%

Source: Texas State Data Center and Office of the State Demographer. Texas Population Estimates and Projections Program (online), University of Texas at San Antonio, 2014 (<http://txsdc.utsa.edu/Resources/TPEPP/Projections/2014/2014allcntymigtot.zip>).

## B. Socioeconomic Conditions

The Build Alternative is in a suburban area of Fort Bend County, and lies near the unincorporated Greatwood community, crosses the Rosenberg city limits, and lies within parts of the Sugar Land and Richmond ETJs. Local and regional economic growth is expected to continue to drive the future development and suburbanization of the area. Most of the project area will likely be annexed into the incorporated limits of the three cities over time.

Most businesses along Crabb River Road (FM 2759/FM 762) are located north of the Thompsons Road (FM 762/FM 2759) intersection. Retail commercial centers along Crabb River Road (FM 2759) within the proposed project limits include Parkway Plaza, midway between Rabbs Bayou and Thompsons Road (FM 762/FM 2759), and Crabb River Plaza, northeast of the Thompsons Road (FM 762/FM 2759) intersection. These retail centers include a mix of commercial uses, such as drug stores, restaurants and dry cleaners.

One residence would be relocated under the proposed Build Alternative where property would be acquired for a stormwater detention pond north of Gapps Slough. Two commercial properties would be displaced for the Phase II grade separation—a now vacant former car wash at 303 Crabb River Road, and a commercial facility at 103 Crabb River Road that

houses a Gulf service station and convenience store, Quick Auto Service, and Speedway Driving School. The parking area on the latter property is also a common location for a food truck. A Purple Heart charity goods drop-off trailer has recently been positioned on the property at 303 Crabb River Road. Windshield surveys and aerial photograph review indicate considerable undeveloped land adjacent to major roadways available for business relocations. ROW acquisition would have a negligible effect on the County's property tax base. The proposed Phase I improvements would not inhibit public roadway access to adjacent residences, businesses or other properties, but existing traffic patterns would be affected by the presence of the raised median within project limits. Left-turn movements directly to and from driveways serving land uses immediately adjacent to the FM 2759 section would no longer be possible. Opportunities for u-turns would be provided by median crossovers at Greatwood Knoll Drive, Tara Drive, Harpers Drive, and Rabb Ridge Road/Southwest Church of the Nazarene entrance. The rail crossing would continue to cause traffic delays during Phase I. On the FM 762 section, the raised median would prevent left-turn movements to and from driveways beginning approximately 1,000 feet south of the BNSF railroad crossing and continuing to the southern project limit. Opportunities for u-turns would be provided by median crossovers at Bridlewood Drive, Berdett Road, St. Mark's Church, and the northern two entrances to the LCISD secondary school complex.

Traffic operations would become more efficient with the grade separation at the BNSF railroad crossing under Phase II. However, implementation of the grade separation would alter some local traffic patterns. Local traffic accessing Crabb River Road (FM 2759) from River Road would no longer be able to turn left on to southbound Crabb River Road (FM 2759), but could travel approximately 750 feet north on Willoughby Street and access the improved roadway via Harpers Drive. Local traffic would no longer be able to turn left on to northbound Crabb River Road (FM 2759) from Rabb Ridge Drive or businesses with driveway access to Crabb River Road (FM 2759) within 1,000 feet north of the Thompsons Road (FM 762) access ramps. These vehicles would need to turn right on to the southbound lanes, exit and turn left (east) on to Thompsons Road (FM 762) and turn left again on to the northbound access ramp to Crabb River Road (FM 2759). Northbound Crabb River Road (FM 2759) traffic would need to turn around at Harpers Drive to access those same businesses or to turn on to Rabb Ridge Drive. Southbound Crabb River Road (FM 2759) traffic would need to take the same exit on to eastbound Thompsons Road (FM 762) to access the commercial property on the northeast corner of what is now the Crabb River Road/Thompsons Road (FM 2759/FM 762) intersection. Everything practicable would be done during the project construction phase to minimize the inconvenience to vehicles using the roadway.

The FM 2759 portion of Crabb River Road is currently a signed shoulder bicycle route, according to the H-GAC 2040 Regional and Pedestrian Bicycle Plan. In addition, the FM 762

portion of Crabb River Road and the intersecting Thompsons Road (FM 762/FM 2759) had previously been identified as having bicycle needs in the H-GAC 2035 Regional Bikeway Plan. The proposed Build Alternative would provide 14-foot wide shared outside lanes on FM 2759 and eight-foot wide outside paved shoulders on FM 762, which would accommodate bicyclists. No sidewalks are currently present along the roadway within project limits. Five-foot wide sidewalks along each side of the roadway would provide opportunities for increased pedestrian transportation and improve pedestrian safety along Crabb River Road (FM 2759/FM 762). Sidewalks would be provided on the grade separated section under Phase II, and would also be provided on the Rabbs Bayou Bridge. In addition, provision of the 18-foot-wide median and inclusion of crosswalks at signalized intersections and entrances to the LCISD complex would facilitate pedestrian and bicycle crossings on Crabb River Road.

Provisions for vehicle turning access to and egress from the LCISD complex and the proposed Phase II grade separation at the BNSF railroad would improve vehicle safety. These safety benefits would not be fully realized during Phase I, since the grade separation would not be included in the project during that phase.

Implementation of the No Build Alternative would not adversely affect any businesses or residences; however, it would not address traffic congestion, which would worsen and reduce mobility and LOS. The No Build Alternative would not provide improvements to enhance traffic and pedestrian safety.

### C. Community Cohesion

The location of the small community of Crabb is approximately 0.5 mile west of Crabb River Road (FM 2759/FM 762) on Thompsons Road (FM 762). Little remains of this small, rural community, founded in the 19<sup>th</sup> century, and the area is now dominated by modern residential subdivision and roadside commercial development.

The Greatwood community is an unincorporated area northeast of the Crabb River Road (FM 2759) project, located within the City of Sugar Land's ETJ. Limited areas of commercial uses, public open space and transportation corridors have been annexed into the city limits. This 2,050-acre planned community lies mostly between US 59 and Rabbs Bayou. Single-family residences comprise most of the community, with associated community facilities and public utilities, and limited retail commercial development along Crabb River Road north of the proposed project's limits. The estimated population as of January 1, 2013, was 12,237 (US Census Bureau). **Exhibit 7: Environmental Constraints Map** shows the location of the two nearest subdivisions within Greatwood, as well as the locations of other communities discussed below.

Other master planned communities near the proposed project include Canyon Gate at the Brazos and Bridlewood Estates. Canyon Gate is a 600-acre residential community northwest

of the proposed project's limits. It is located west of Crabb River Road (FM 2759), between US 59 and Rabbs Bayou. It has an estimated built-out population of 3,230. Bridlewood Estates is a 945-acre tract of one- to three-acre sites southwest of Crabb River Road (FM 762) and the BNSF railroad, where residents may construct their own homes. Amenities include private fishing lakes and lakeside parks, athletic practice fields, and nature and riding trails. The estimated potential full-occupancy population of the community is 1,646.

Other neighborhoods of single-family residences lie along the east side of Crabb River Road (FM 2759), south of Rabbs Bayou, and north of Thompsons Road (FM 2759). These are the Tara, Tara Colony, and Stone River neighborhoods. Across Crabb River Road (FM 2759) to the west—beyond adjacent commercial properties—is the Brazos Garden residential neighborhood. These residential subdivisions lie outside of incorporated municipalities.

The proposed project crosses the outer corporate limits of the City of Rosenberg. A strip of land crossing Crabb River Road (FM 762) south of Thompsons Road (FM 762/FM 2759) and then extending south along the east side of Crabb River Road (FM 762) lies within the Rosenberg city limits, but features little development. The Sugar Land corporate limits extend into the Greatwood community but do not lie adjacent to the proposed project. Consequently, the community cohesion of neither city would be adversely affected by the proposed improvements.

The proposed project has received community support from local homeowner associations (HOAs). These include Greatwood HOA, Bridlewood HOA, and Canyon Gate HOA.

In residential areas within walking distance of elementary schools, children do not have to cross Crabb River Road (FM 2759/FM 762). Areas west of the highway are in the Williams Elementary School attendance zone and areas east of the highway are served by Velasquez Elementary School, except for the Greatwood Knoll area at the northeastern corner of the project, which is in the Dickinson Elementary School attendance zone.

Implementation of the Build Alternative would not separate or isolate any distinct communities, neighborhoods, ethnic groups, or other specific groups. All of the neighborhoods and residential communities described above lie entirely on one side or the other of Crabb River Road (FM 2759/FM 762) and the proposed improvements do not represent an intrusion into these areas. The improvements are consistent with existing land use and activity in adjacent communities and with existing, connecting transportation facilities serving those communities. During the proposed project's construction phases, everything practicable would be done to minimize inconvenience to the vehicles using the roadway.

Implementation of the No Build Alternative would not affect, isolate, or divide any distinct neighborhoods, ethnic groups, or other specific groups. Implementation of the Build Alternative interim phase would not differ substantially from full build-out of the alternative in effects on community cohesion.

#### D. Environmental Justice

Executive Order (EO) 12898 entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of the programs on minority and low-income populations. A minority population is defined as a group of people and/or community experiencing common conditions of exposure or impact that consists of persons classified by the US Bureau of the Census as Hispanic or Latino, Black or African-American, American Indian and Alaska Native, Asian, and/or Native Hawaiian and other Pacific Islander. "Low-income" is defined as persons in households with income below the federal poverty level (\$24,300 for a family of four in 2016). "Disproportionately high and adverse effects" are defined as adverse effects that: (1) are predominantly borne by a minority population and/or a low-income population; or (2) would be suffered by the minority population and/or low-income population and would be appreciably more severe or greater in magnitude than the adverse effects that would be suffered by the non-minority population and/or non-low-income population.

The census blocks and block groups encompassing the proposed project were identified to determine the presence of minority and low-income populations according to the 2010 Census and 2010-2014 American Community Survey (ACS). Census blocks adjacent to the proposed project and within approximately 0.2 to 0.4 mile on either side of the project were included to represent a corridor of residences potentially affected by the proposed project. Blocks lacking any population or not having residences within the approximate 0.4-mile radius were excluded. **Table 3** indicates the racial and ethnic composition of populations within the proposed project corridor.

TABLE 3: 2010 PROJECT AREA CENSUS BLOCK POPULATION BY RACE/ETHNICITY		
Race/Ethnicity	Population	Percent of Total
White Non-Hispanic	1,927	46.3%
Hispanic or Latino <sup>1</sup>	1,252	30.1%
Black or African-American <sup>2</sup>	705	16.9%
Asian <sup>2</sup>	182	4.4%
Two or more races <sup>2</sup>	85	2.0%
All others <sup>2,3</sup>	10	0.2%
Total Project Area Census Blocks	4,161	100%
Source: US Census Bureau, Census 2010, Summary File 1, 2011, <a href="http://www.census.gov">www.census.gov</a> .		
<sup>1</sup> "Hispanic or Latino" may include persons of any race.		
<sup>2</sup> Race categories (Black, Asian, etc.) exclude Hispanic or Latino persons.		
<sup>3</sup> "All others" includes: American Indian and Alaska Native, Native Hawaiian and other Pacific Islander, and "some other race".		
Note: Percentages may not sum to 100% due to rounding.		

**Table 4** indicates those census blocks where minorities comprise more than 50 percent of the population. These identified census blocks are all located within Census Tracts 6746.03 and 6755. Census Tract 6746.03 covers that part of the proposed project north of Thompsons Road (FM 762/FM 2759) and east of Crabb River Road (FM 2759). Census Tract 6755 lies south of Thompsons Road (FM 762/FM 2759). The project area includes a total of 23 blocks that each has greater than 50 percent minority population. However, only four of these blocks adjacent to the project appear to have residences in close enough proximity to require further investigation. In Census Tract 6746.03, Blocks 3008, 3012, and 3022 lie adjacent to the east side of Crabb River Road (FM 2759), from the Parkway Retail Center south to Thompsons Road (FM 2759).

TABLE 4: CENSUS BLOCKS WITH >50% MINORITY POPULATION						
Location	Population	Total Minority	Hispanic or Latino <sup>1</sup>	Black or African-American <sup>2</sup>	Asian <sup>2</sup>	All others <sup>2,3</sup>
Tract 6746.03, Block 1030	35	51.4%	22.9%	8.6%	20.0%	0.0%
Tract 6746.03, Block 2005	50	54.0%	30.0%	24.0%	0.0%	0.0%
Tract 6746.03, Block 2006	96	62.5%	39.6%	18.8%	3.1%	1.0%
Tract 6746.03, Block 2009	100	57.0%	43.0%	10.0%	4.0%	0.0%

TABLE 4: CENSUS BLOCKS WITH >50% MINORITY POPULATION						
Location	Population	Total Minority	Hispanic or Latino <sup>1</sup>	Black or African-American <sup>2</sup>	Asian <sup>2</sup>	All others <sup>2,3</sup>
Tract 6746.03, Block 2014	174	66.1%	33.9%	22.4%	4.6%	5.2%
Tract 6746.03, Block 2016	48	58.3%	39.6%	16.7%	0.0%	2.1%
Tract 6746.03, Block 3007	27	63.0%	44.4%	14.8%	0.0%	3.7%
Tract 6746.03, Block 3008	110	60.9%	28.2%	25.5%	0.9%	6.4%
Tract 6746.03, Block 3009	67	65.7%	47.8%	16.4%	0.0%	1.5%
Tract 6746.03, Block 3010	149	57.1%	29.5%	26.9%	0.0%	0.7%
Tract 6746.03, Block 3012	39	74.4%	64.1%	2.6%	7.7%	0.0%
Tract 6746.03, Block 3013	96	52.1%	36.5%	14.6%	0.0%	1.0%
Tract 6746.03, Block 3014	49	59.2%	40.8%	10.2%	8.2%	0.0%
Tract 6746.03, Block 3015	77	59.7%	31.2%	22.1%	6.5%	0.0%
Tract 6746.03, Block 3016	86	62.8%	47.7%	12.8%	2.3%	0.0%
Tract 6746.03, Block 3017	119	68.1%	36.1%	31.9%	0.0%	0.0%
Tract 6746.03, Block 3018	123	56.9%	39.8%	17.1%	0.0%	0.0%
Tract 6746.03, Block 3019	211	62.1%	48.8%	10.4%	0.0%	2.8%
Tract 6746.03, Block 3020	95	55.8%	27.4%	25.3%	3.2%	0.0%
Tract 6746.03, Block 3022	298	65.8%	40.6%	19.5%	2.7%	3.1%
Tract 6746.03, Block 3023	192	60.9%	32.3%	15.1%	12.0%	1.6%
Tract 6755, Block 1039	85	64.7%	37.7%	8.2%	15.3%	3.5%
Tract 6755, Block 1080	47	83.0%	40.4%	42.6%	0.0%	0.0%

Source: US Census Bureau, Census 2010, Summary File 1, 2011, [www.census.gov](http://www.census.gov). Note: Percentages may not sum to total due to rounding.

<sup>1</sup> "Hispanic or Latino" may include persons of any race.

<sup>2</sup> Race categories (Black, Asian, all others) exclude Hispanic or Latino persons.

<sup>3</sup> "All others" includes: American Indian and Alaska Native, Native Hawaiian and other Pacific Islander, "some other race", and persons of two or more races (non-Hispanic)

Most residences in Block 3008 lie behind and are buffered by the retail center. Only one residence lies immediately adjacent to Crabb River Road (FM 2759), with five others being in close proximity to the east along the north side of Tara Drive. In Block 3012, between Tara Drive and Harpers Drive, the backyards of 14 residential properties along Willoughby Drive lie adjacent to the east side of the Crabb River Road (FM 2759) ROW. Block 3022 is located at the northeast corner of the Crabb River Road/Thompsons Road (FM 2759/FM 762) intersection. Though the majority of residences in the census block are at a substantial distance from the project site, the backyards of 19 residential properties along Willoughby Drive lie adjacent to the east side of Crabb River Road (FM 2759).

In Census Tract 6755, south of Thompsons Road (FM 762/FM 2759), Block 1080 appears to be the only predominantly minority block in close proximity to the project. It is located on the west side of Crabb River Road (FM 762) between Bridlewood Drive and Berdett Road. Though many residences are buffered from the highway ROW by a strip of open land over 700 feet wide, two residences are on properties immediately adjacent to the proposed project.

In the above described census blocks north of Thompsons Road (FM 762/FM 2759), residences on properties immediately adjacent to the project ROW would be anticipated to experience noise impacts under both Phase I and Phase II of the Build Alternative. However, noise barriers are recommended to mitigate noise impacts to residences in this area (see **Chapter IV, Section T**).

As noted in **Chapter IV, Section B**, residents of this area would also experience changes in travel patterns, as implementation of a raised median on Crabb River Road (FM 2759) would restrict some turning movements now allowed onto the undivided facility. These changes would be more numerous under Phase II than Phase I. However, it is anticipated that the improvements in mobility and safety on the proposed four-lane, divided roadway under both implementation phases would provide a net benefit to residents accessing the facility despite the inconveniences of altered travel routes, with the grade separation under Phase II providing an even greater benefit.

According to the Historic Texas Cemeteries Project, Sandberry/Sansberry (or Sansbury) Cemetery is a historically African-American cemetery. The cemetery is maintained, active and frequently visited. No property would be acquired from the cemetery and access to the cemetery would not be inhibited.

Census block groups encompassing the proposed project area were examined for the presence of low-income populations (people living in households with income below the poverty level) (**Table 5**). These included three block groups: Census Tract 6746.03, Block Group 3, covering the area east of Crabb River Road (FM 2759) and north of Thompsons Road (FM 2759); Tract 6746.04, Block Group 1, which includes the area west of Crabb River Road (FM 2759) and north of Thompsons Road (FM 762), and Census Tract 6755, Block

Group 1, which includes the entire project area south of Thompsons Road (FM 762/FM 2759).

TABLE 5: ESTIMATED POVERTY STATUS, INCOME AND LIMITED ENGLISH PROFICIENCY (LEP), PROJECT AREA CENSUS BLOCK GROUPS				
2010-2014 AMERICAN COMMUNITY SURVEY				
Location	Population	Below Poverty	Median Household Income	LEP Population
Tract 6746.03, Block Group 3	3,265	6.2%	\$75,688	4.6%
Tract 6746.04, Block Group 1	5,095	6.6%	\$81,989	8.1%
Tract 6755, Block Group 1	8,502	3.1%	\$102,308	2.3%
Total Project Area Block Groups	16,862	4.8%	\$90,401	4.5%
Source: US Census Bureau, 2010-2014 American Community Survey (ACS), 5-year Estimates (2015) <a href="http://www.census.gov">www.census.gov</a> ; WSP   Parsons Brinckerhoff, calculation of total project area median household income based on ACS data. Note: Median household income reported in 2014 inflation-adjusted dollars.				

The estimated percentage of residents of the project area block groups with household income below the poverty level was approximately 4.8 percent, according to the US Census Bureau's 2010-2014 ACS, and the area's estimated median household income was \$90,401 (Table 5). For comparison and reference, Fort Bend County's estimated poverty rate for the same period was 8.7 percent and median household income was \$86,407.

Consequently, with the mitigation of noise impacts and the anticipated net benefits of improved mobility and safety for local residents using Crabb River Road (FM 2759), no disproportionately high and adverse effects on minority or low-income populations are anticipated to result from the Build Alternative. No substantial differences in environmental justice between Phase I and Phase II of the Build Alternative would be anticipated. Implementation of the No Build Alternative would not impact minority or low-income populations in the study area, but would also fail to provide enhanced mobility and safety benefits to area residents.

### Limited English Proficiency (LEP) Populations

EO 13166, *Improving Access to Services for Persons with Limited English Proficiency*, requires federal agencies to examine the services they provide and identify any need of services to those with limited English proficiency (LEP). The EO requires federal agencies to work to ensure that recipients of federal financial assistance provide meaningful access to their LEP applicants and beneficiaries. Failure to ensure that LEP persons can effectively participate in or benefit from federally assisted programs and activities may violate the prohibition under Title VI of the Civil Rights Restoration Act of 1987 and Title VI regulations.

According to the 2010-2014 ACS, LEP populations (populations five years of age and older) who speak English “not well” or “not at all” range from approximately 2.3 percent to 8.1 percent of total population in project area block groups, with a total project area LEP population of 4.5 percent (**Table 5**). Of the identified LEP population, approximately 41 percent speak Spanish (1.8% of total population), with 46 percent speaking various Asian or Pacific Island languages (2.1% of total population), and 13 percent speaking other Indo-European languages (0.6% of total population). The ACS data do not specify which Asian and Pacific languages are spoken, but indicate that the larger racial/ethnic groups in the area associated with these languages are Vietnamese, Filipino, and Chinese. The windshield survey of the immediate study area did not reveal noticeable billboards or signs printed in non-English languages. Notices for the December 2009 and November 2015 public meetings were issued in Spanish and published in a Spanish-language newspaper with circulation in Fort Bend County. As part of the public involvement process, TxDOT and Fort Bend County will take reasonable steps to ensure that LEP persons have meaningful access to the programs, services, and information that TxDOT and Fort Bend County provide, such as making available written translations of summary documents upon reasonable request.

#### **E. Section 4(f) and 6(f) Properties**

No public lands afforded protection under Section 4(f) of the Department of Transportation Act or Section 6(f)(3) of the Land and Water Conservation Fund Act were identified adjacent to the proposed project, and no significant historic properties subject to Section 4(f) are present in the historic resources area of potential effects (APE). The proposed Build Alternative (Phase I and Phase II) would not require the use of or impair the purposes of any publicly-owned land from a public park, recreation area, or wildlife or waterfowl refuge, or any publicly or privately owned land from a significant historic property. For further detail regarding the finding of no significant historic properties in the proposed project area, please see the **Historic Resources** subsection in **Section P, Cultural Resources**.

The implementation of the No Build Alternative would not impact any 4(f) or 6(f) properties.

#### **F. Community Facilities and Services**

The following community facilities are located adjacent or very near to the Crabb River Road (FM 2759/FM 762) ROW:

- LCISD’s secondary school complex, which includes George Ranch High School, 8181 FM 762, Antoinette Reading Junior High School, 8101 FM 762, and Polly Ryon Middle School, 7901 FM 762.
- Southwest Church of the Nazarene, 319 Crabb River Road
- Cornerstone Community Bible Church, 6701 FM 762
- St. Mark’s Episcopal Church, 7615 FM 762

- vacant church (former Triumph Christian Center), 6601 FM 762
- Greatwood Academy and Child Development, 602 Crabb River Road
- Imaginare School, 748 Crabb River Road

Sansberry Cemetery (also known as Sansbury Cemetery) is located on the west side of Crabb River Road (FM 2759) approximately midway between Rabbs Bayou and the BNSF railroad (opposite Parkway Plaza and the Tara neighborhood). The cemetery is maintained, active and frequently visited. **Exhibit 8: Environmental Constraints Map** shows the locations of community facilities.

Demand-response transit service is provided in the area by the Fort Bend County Public Transportation Department. Fixed-route commuter service is provided between Sugar Land and Houston, but does not operate in the proposed project area. The proposed roadway improvements would allow more efficient operation of demand-response transit vehicles using Crabb River Road (FM 2759/FM 762) and intersecting arterials, and no adverse impacts on transit services would be expected.

Although land owned by the George Foundation abuts the project ROW, this land does not lie within the boundaries of the George Ranch Historical Park, but is cultivated farmland. The historical park would not be adversely affected by this project.

The Build Alternative would provide increased accessibility in this portion of Fort Bend County to the various religious, educational, medical, and recreational facilities in the area. Emergency public services would have a safer, more efficient facility to use in the performance of their various duties. The proposed improvements would not inhibit access to area community facilities. None of the community facilities would be adversely affected under Phase I or Phase II of the Build Alternative.

Implementation of the No Build Alternative would not result in an increase in accessibility to public facilities and services because this alternative does not address existing and future traffic congestion.

### G. Lakes, Rivers, and Streams

The Build Alternative is in the Brazos River Basin and would cross Rabbs Bayou and Gapps Slough (**Exhibit 9: Natural Resources Maps and Appendices**). These streams are not considered navigable waterways by the US Coast Guard (USCG); therefore, a navigational clearance under the General Bridge Act of 1946 and Section 9 or 10 of the Rivers and Harbors Act of 1899 would not be required. Coordination with and/or authorization from the USCG would not be required.

The US Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into wetlands and other waters of the US under Section 404, subsection 330.5(a)(21) of the Clean Water Act (CWA). Section 404 of the CWA authorizes the USACE to issue permits for

the discharge of dredged or fill material into waters of the US, including wetlands. The intent of the CWA is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution, and to restore and maintain their chemical, physical and biological integrity. Any discharge into waters of the US must be in accordance with Section 404(b)(1) guidelines developed by the US Environmental Protection Agency (EPA) in conjunction with the USACE.

Permits are required from the USACE for any activities that would result in the discharge of dredged or fill material into waters of the US. Regulated activities may be permitted through the USACE via Individual Permits, Regional General Permits or Nationwide Permits (NWP).

The field visit and an analysis of topographic maps revealed two potential jurisdictional waters of the US that could be potentially impacted by the proposed project—Rabbs Bayou and Gapps Slough (**Figure 3-1** in **Exhibit 9**). Wetland determination data forms and site photographs can be found in the **Wetlands Delineation Technical Report**, available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007. Coordination and authorization under the CWA is required in regard to Rabbs Bayou and Gapps Slough. This coordination and authorization would occur prior to construction.

Implementation of the No Build Alternative would not impact any lakes, rivers, or streams; however, it is not a practicable alternative after taking into account the entire project purpose. The Build Alternative, although impacting potentially jurisdictional waters of the US, would be in compliance with Section 404(b)(1) guidelines because no practicable alternative to the discharge of dredged or fill material would be feasible for the proposed project. No other alternative with less adverse effects on the aquatic ecosystem would be feasible for the proposed project. The proposed project consists of upgrading and widening an existing roadway that includes an existing bridge crossing of Rabbs Bayou and an existing culvert crossing of Gapps Slough.

## H. Floodplain Impacts

The hydraulic design of the proposed improvements would be in accordance with the current TxDOT and Federal Highway Administration (FHWA) policy standards. The roadway would permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing significant damage to the roadway, stream, or other property. The criteria of the Build Alternative design, in both the interim phase and full build-out, are not to increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. The Build Alternative would provide, at a minimum, at least the same flood flow capacity and, therefore, should not adversely increase the water surface elevation above the existing conditions of delineated stream crossings.

The project area is covered by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map dated April 2, 2014, number 48157C0265L. Approximately 0.25 acre

of the Build Alternative (existing ROW) lies within the 100-year floodplain of Rabbs Bayou (Figures 3-3 and 4 in Exhibit 9). Fort Bend County is a participant in the National Flood Insurance Program. Hydraulic studies are ongoing. If it is determined mitigation is necessary, the efforts would be in accordance with TxDOT and FHWA policy standards. Coordination with the Fort Bend County Drainage District would be required prior to construction. Less than one acre of new, proposed ROW is located within the floodplain.

EO 11988, "Floodplain Management," requires federal agencies to avoid actions, to the extent practicable, that would result in development within floodplains and/or affect floodplain values. A majority of the project is located outside the 100-year floodplain and floodplain encroachment would not be significant. The remaining areas of the project, 0.25 acre, are located within a Special Flood Hazard Area with defined floodplain elevations in Rabbs Bayou (FEMA, 2014). Due to the nature of the project, the expansion and widening of existing transportation infrastructure, the Build Alternative requires development in the floodplain. TxDOT will design the project and manage construction activities in order to minimize potential harm to or within the floodplain per Section 2(d) of EO 11988 and prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain.

## I. Wetlands and Waters of the US

The 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987) defines wetlands based on three criteria: hydrophytic vegetation, hydric soils and wetland hydrology. In general, all three criteria must be present for an area to be characterized as a wetland. Some exceptions occur in disturbed areas or in newly formed wetlands, where one indicator (such as hydric soils) might be lacking. These areas are dealt with on an individual basis as outlined in the Field Guide for Wetland Delineation. In addition to jurisdictional wetlands as defined above, the CWA regulates impacts to other waters of the US. The term "waters of the US" has broad meaning and incorporates both deepwater aquatic habitats and special aquatic sites, including wetlands, as listed below:

1. The territorial seas with respect to the discharge of fill material;
2. Coastal and inland waters, lakes, rivers and streams that are navigable waters of the US including their adjacent wetlands;
3. Tributaries to navigable waters of the US, including adjacent wetlands;
4. Interstate waters and their tributaries, including adjacent wetlands; and,
5. All other waters of the US not identified above, such as lakes, intermittent streams, prairie potholes and other waters that are not a part of a tributary system to interstate waters or navigable waters of the US, the degradation or destruction of which could affect interstate commerce. Note that a 2006 US Supreme Court decision found that, in many instances, isolated wetlands are not subject to USACE jurisdiction (*Rapanos vs. the US* [2006] and *Carabell vs. the USACE* [2004]).

For linear features, the Ordinary High-Water Mark is determined by assessing a combination of factors at each site. In accordance with Section 328.3(e) of the CWA, the following factors were considered in determining the jurisdictional boundary:

- Clear, natural line on the bank;
- Shelving;
- Changes in soil;
- Destruction of terrestrial vegetation; and
- Presence of litter and debris.

Field investigations were performed in December 2009 and December 2014 to locate and identify potential Section 404 jurisdictional waters of the US, including wetlands, within the proposed project location. The field visit and an analysis of topographic maps revealed two potential jurisdictional waters of the US that may be potentially impacted by the proposed project—Rabbs Bayou and Gapps Slough (**Table 6** and **Figure 3-1** in **Exhibit 9**). Wetland determination data forms can be found in the **Wetlands Delineation Technical Report**, available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007.

A review of the National Wetland Inventory indicated a Riverine (R2UBHx) wetland associated with Rabbs Bayou. During the field surveys, one 0.32-acre Palustrine Scrub-Shrub, Broadleaf Deciduous (PSS1) wetland was identified within the proposed ROW. Based on the alignment of the proposed ROW, the majority of this wetland will be filled in during the construction of additional lanes. This wetland is not located within the 100-year floodplain and does not exhibit a significant nexus to a traditional navigable waterway. Therefore, this wetland is considered to be isolated and not subject to Section 404 jurisdiction.

Two open water ponds (Palustrine Unconsolidated Bottom, or PUB) were identified within the proposed project area. Ponds typically consisted of palustrine open-water systems that were either excavated for the purpose of holding well water or created by the construction of berms or dams to capture surface sheet flow or flow from a surface tributary. Based on the alignment of the proposed ROW, Pond 1 and a small portion of Pond 2 will be filled to allow construction of a retaining wall for the additional lanes. These ponds were located outside of the 100-year floodplain (**Figure 4** in **Exhibit 9**) and would not be subject to USACE jurisdiction under Section 404 of the CWA. A temporary construction easement will be implemented for this activity.

Two ditches were identified within the proposed project area, both of which are man-made drainage ditches located within the proposed ROW. These ditches serve as a conduit for stormwater only during periods of heavy flow from intense rainfall events. Based on the alignment of the proposed ROW, a small portion of each ditch will be filled in during the

construction of additional lanes. After a review of the 1955 USGS historical topographic quadrangle, they do not appear to have been historically constructed in a wetland or replace the function of a historic tributary. Furthermore, these ditches do not have a surface tributary connection to other waters of the US. Therefore, they are considered upland drainage ditches and are not subject to Section 10 or Section 404 jurisdiction.

Construction activities may potentially affect jurisdictional waters of the US. A total of 0.32 acre of waters of the US subject to Section 404 of the CWA is located within the proposed ROW. Once the final design has been completed for the proposed project, fill quantities and exact impact amounts to waters of the US will be determined.

Based on the wetland field delineation, approximately 0.32 acre of waters of the US is located within the proposed ROW. It is anticipated that the Build Alternative would impact jurisdictional waters of the US and thus require a Section 404 permit. The USACE jurisdictional verification of waters of the US, including wetlands, has not yet been completed. The total impact to jurisdictional waters of the US, including wetlands, is approximately 0.32 acre. It is anticipated that the proposed project would require a Section 404 NWP 14 Preconstruction Notification. This permit application will be submitted to the USACE Galveston District prior to construction.

EO 11990 requires federal agencies to provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands. One isolated and non-jurisdictional 0.32-acre Palustrine Scrub-Shrub, Broadleaf Deciduous (PSS1) wetland (WET 1) was identified within the proposed ROW. The majority of WET 1 will be filled in during the construction of additional lanes. Due to the nature of the project, the expansion and widening of existing transportation infrastructure, the Build Alternative requires construction in WET 1 and no practicable alternative exists. TxDOT will design the project and manage construction activities in order to minimize potential harm to or within WET 1 per Sections 2(a) and 5(a-c) of EO 11990. Additional efforts to minimize potential harm to or within WET 1 are outlined below (erosion control and temporary fills) and in **Section IV.X** of this assessment (Section 401/404 Commitments).

Temporary erosion and sediment control measures would be planned for access to the site for drilling of the shafts, dewatering of the shafts, and clearing of vegetation. Upon completion of construction, all materials would be removed and the site returned to preexisting conditions. Construction activity would comply with all general and regional conditions applicable to NWP 14 (Linear Transportation Projects). During the modification of the linear transportation facility, appropriate measures would be taken to maintain normal downstream flows and minimize flooding. Temporary fills would be placed in a manner that would limit erosion by expected high flows. Temporary fills would be removed in their entirety and the affected area returned to pre-construction elevations, and revegetated as appropriate.

TABLE 6: SUMMARY OF DELINEATED POTENTIAL JURISDICTIONAL FEATURES

Name of Water Body	Latitude/ Longitude	Approx. OHWM (Average feet)	Proposed ROW		Flow Direction	Potential Water of the US	Impacts	
			Stream (LF/acre)	Wetland (acre)			Streams (LF/acre)	Wetland (acre)
Rabbs Bayou (Perennial)	29.548633° / -95.696930°	30	0.25	None	East	Yes	0/0	None
Gapps Slough (Perennial)	29.522150° / -95.695238°	15	0.07	None	East	Yes	0/0	None
TOTAL POTENTIAL JURISDICTIONAL WATERS			Total Streams in ROW 0.32 acre	Total Wetlands in ROW 0 acre			Total Stream Impacts- Intermittent 0 LF/ 0 acre	Total Wetland Impacts 0 acre

Source: Wetland Delineation Technical Report, Study Team 2014

Under the No-Build Alternative, no impacts to waters of the US would occur, as no new ROW would be acquired.

**J. Water Quality**

The TCEQ is responsible for monitoring, assessing, and regulating surface water quality. The results of the assessment are published periodically in the Texas Water Quality Inventory and 303(d) List, as required by Sections 305(b) and 303(d) of the CWA, which identifies water bodies that do not meet the Texas Surface Water Quality Standards designated for their use.

There are two water crossings in the project area: Rabbs Bayou and Gapps Slough. These two water bodies are not listed on the 2014 Texas 303(d) List for impaired waters. Section 303(d)-listed streams located within five miles of the proposed project area include Upper Oyster Creek, Bullhead Bayou, and Alcorn Bayou. Per the December 16, 2014, Memorandum of Understanding (MOU) between TxDOT and the TCEQ, coordination must be conducted with the TCEQ if a project is located within five miles of any Section 303(d) impaired waters.

A USACE Section 404 permit will be required for the proposed project, and construction activities would require compliance with the State of Texas Water Quality Certification Program. Section 401 Certification requirements for a NWP 14 would be met by implementing Best Management Practices (BMPs) from the TCEQ 401 Water Quality Certification Conditions for NWPs. Permanent fill amounts would not exceed 0.5 acre and would not require authorization under a Section 404 individual permit. The project would

impact less than 1,500 linear feet of stream and three acres of waters of the US and would not affect rare or ecologically sensitive wetlands.

Compliance with Section 401 of the CWA requires the use of BMPs to manage water quality on sites affecting jurisdictional waters. These BMPs would address each of the following categories: (1) erosion control, (2) post-construction total suspended solids (TSS) control, and (3) sedimentation control. Water quality BMPs that would be implemented include the following:

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

The proposed project includes approximately 51.4 acres of new ROW disturbance. The project is required to comply with the TCEQ Texas Pollutant Discharge Elimination System (TPDES) General Permit for Construction Storm Water Discharges. Because the area of disturbance will be greater than five acres, the contractor will be required to prepare and implement a Storm Water Pollution Prevention Plan (SW3P), submit a Notice of Intent (NOI), post a site notice at the construction site, and otherwise comply with the requirements for large construction activities.

This project is located within the boundaries of the Fort Bend County Municipal Separate Storm Sewer System (MS4) and would comply with the applicable MS4 requirements. The MS4 program is used to determine that storm water runoff that is discharged to local water bodies is properly managed to protect the receiving streams.

Measures would be taken to prevent and correct erosion that may develop during construction. Temporary erosion controls would be in compliance with TxDOT Standard Specifications and would be in place, according to the construction plans, prior to commencement of construction. They would be inspected regularly to ensure maximum effectiveness. Specific BMPs and commitments to maintain water quality are discussed in **Section IV.X, Permits and Commitments**.

The contractor would take appropriate measures to prevent, minimize, and control spillage of hazardous materials in the construction staging area. All materials being removed or disposed of by the contractor would be done in accordance with applicable State and Federal laws and as not to degrade ambient water quality. All of these measures would be enforced under appropriate specifications during construction of the project. Therefore, given the information above, the Build Alternative would have no discernible impacts to water quality.

The No Build Alternative would not result in adverse impacts to water quality. No differences between Phase I and Phase II of the Build Alternative would be anticipated in relation to water quality impacts.

## K. Vegetation and Wildlife Habitat

### Vegetation

According to requirements of the September 1, 2013, MOU between TxDOT and the TPWD, the Ecological Mapping Systems of Texas (EMST) tool was utilized to calculate vegetation in the proposed project ROW. The proposed project total length is 2.9 miles and the total new ROW required is 51.4 acres. The acres discussed below include the entire project survey ROW, which includes the total acreage with completion of both Phases I and II of the ultimate facility's existing and proposed ROW (94.1 acres). The largest area of MOU habitat observed in the proposed project area is listed as "Urban" and totals 64.3 acres (**Table 7** and **Figure 3-2** in **Exhibit 9**). "Urban" is defined by EMST as areas that are built up and include wide transportation corridors with impervious cover.

Site visits conducted in December 2009 and December 2014 indicated that the majority of the area within the proposed project area corresponds with the MOU habitat of "Urban Low Intensity," as described in TPWD's EMST, however there were notable differences between the EMST and observed actual vegetation. The "Barren", "Columbia Bottomlands: Evergreen Shrubland", "Columbia Bottomlands: Grassland", "Columbia Bottomlands: Live Oak Forest and Woodland", "Gulf Coast: Coastal Prairie Pondshore", and "Native Invasive: Baccharis Shrubland" MOU habitats were eliminated, and the "Native Invasive: Deciduous Woodland" and "Open Water" habitats were added.

MOU Habitat	EMST Mapped Acres	Actual Acres
Columbia Bottomlands: Live Oak Forest and Woodland	0.01	0
Columbia Bottomlands: Hardwood Forest and Woodland	3.13	0
Columbia Bottomlands: Evergreen Shrubland	0.18	0
Columbia Bottomlands: Grassland	2.10	1.89
Columbia Bottomlands: Riparian Grassland	2.11	0
Gulf Coast: Coastal Prairie	35.79	2.70
Gulf Coast: Coastal Prairie Pondshore	3.01	0
Barren	0	0

TABLE 7: ECOLOGICAL MAPPING SYSTEMS OF TEXAS		
MOU Habitat	EMST Mapped Acres	Actual Acres
Native Invasive: Baccharis Shrubland	0.28	0
Native Invasive: Huisache Woodland or Shrubland	0.45	7.01
Row Crops	9.59	4.81
Urban High Intensity	0.14	0
Urban Low Intensity	31.42	64.30
Native Invasive: Deciduous Woodland	5.91	11.60
Native Invasive: Deciduous Shrubland	0	1.51
Open Water	0	0.28
Total Acres	<b>94.11*</b>	<b>94.11*</b>
Source: TPWD 2013; Study Team 2015		
*Includes total existing and proposed ROW for ultimate facility with completion of Phases I and II.		
Note: Totals may vary slightly from sum of numbers shown due to rounding.		

There were large acreage changes in the "Gulf Coast: Coastal Prairie", "Urban High Intensity", and "Urban Low Intensity". In addition there were small changes in the "Columbia Bottomlands: Hardwood Forest and Woodland", "Columbia Bottomlands: Riparian Grassland", "Native Invasive: Huisache Woodland or Shrubland", and "Row Crops." A summary of the MOU habitats observed in the proposed project area can be found in the project Biological Evaluation Form, which is available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007.

The project area is within the Gulf Coast Prairies and Marshes as described in the 2012 Texas Conservation Action Plan (TCAP). This ecoregion is sometimes split into three sub-regions based on bay systems: Sabine Lake and Galveston Bay; Matagorda Bay, San Antonio Bay, Aransas Bay, Corpus Christi Bay, Upper Laguna Madre; and Lower Laguna Madre (TCAP, 2012).

Dominant vegetation found within the Cropland areas included corn, cotton, soybean, and rice. At the time of the field surveys, recent plowing had removed most vegetation from cropland areas.

Areas described as "upland pasture/grassland" are common throughout the proposed project area and typically support native and ruderal herbaceous species that are maintained via mowing. Typical vegetation included Bermuda grass (*Cynodon dactylon*), Johnson grass (*Sorghum halepense*), Bahia grass (*Paspalum notatum*), annual ragweed (*Ambrosia artemisiifolia*), and white clover (*Trifolium repens*).

Areas described as upland scrub-shrub within the proposed project area typically consist of vegetative cover dominated by woody species with a diameter at breast height (dbh) of less than three inches and of various heights interspersed with an understory of various grass, forb, and vine species. Typical woody vegetation observed included Chinese tallow (*Triadica sebifera*), eastern baccharis (*Baccharis halimifolia*), huisache (*Vachellia farnesiana*), Japanese privet (*Ligustrum japonicum*), red mulberry (*Morus rubra*), and yaupon (*Ilex vomitoria*). Dominant woody vine and herbaceous species include Johnson grass, great ragweed (*Ambrosia trifida*), tall goldenrod (*Solidago altissima*), southern dewberry (*Rubus trivialis*), Japanese honeysuckle (*Lonicera japonica*), and grape (*Vitis spp.*).

Areas described as upland forest within the proposed project area typically consist of woody vegetation with a dbh greater than three inches. Typical tree species included American elm (*Ulmus americana*), cedar elm (*U. crassifolia*), Chinese tallow, Chinaberry (*Melia azedarach*), coastal live oak (*Quercus virginiana*), sweetgum (*Liquidambar styraciflua*), and sugarberry (*Celtis laevigata*). Sapling, shrub, and herbaceous strata were similar in species composition to areas identified as upland scrub-shrub.

Areas described as PSS1 typically consist of a wetland that contains a dominance of broad-leaved woody (hardwood) vegetation generally less than 20 feet tall with a dbh of less than three inches. The single identified PSS1 wetland consisted primarily of a black willow (*Salix nigra*) and poisonbean (*Sesbania drummondii*) sapling and shrub layer with eastern annual saltmarsh aster (*Symphotrichum subulatum*) understory.

There are no natural plant communities or native prairie remnants within or immediately adjacent to the proposed project area, and no unusual vegetation features were observed. However, coordination with TPWD would be required for the following triggers:

- (3) The project requires a nationwide permit with pre-construction notification or an individual permit, issued by the United States Army Corps of Engineers;
- (5) A single isolated wetland is present (WET 1, **Figures 3-1 and 4, Exhibit 9**); and
- (7) The proposed ROW exceeds the thresholds identified in the Threshold Table Programmatic Agreement for each of the following MOU types for the Western Gulf Coastal Plain Ecoregion: Tallgrass Prairie; Mixed Woodlands and Forest; Floodplain; and Scrub, Thornscrub, and Shrubland.

Non-urban vegetation impacted by the proposed project (ultimate facility—both phases) would total approximately 29.1 acres of habitat outside of the existing TxDOT ROW, while a large majority (64.3 acres) of the vegetation impacted is classified as "Urban," with 42 acres within the existing ROW and 22.3 acres outside of existing TxDOT ROW.

## Wildlife

Some wildlife species typical to Fort Bend County are expected within the proposed project area. Among those expected are the common wild bird species including white-winged dove

(*Zenaida asiatica*), mourning dove (*Z. macroura*), blue jay (*Cyanocitta cristata*), Carolina chickadee (*Poecile carolinensis*), black-crested titmouse (*Baeolophus atricristatus*), Carolina wren (*Thryothorus ludovicianus*), northern mockingbird (*Mimus polyglottos*), and great-tailed grackle (*Quiscalus mexicanus*). Typical wild mammals include fox squirrel (*Sciurus niger*), jackrabbit (*Lepus californicus*), cottontail (*Sylvilagus floridanus*), coyote (*Canis latrans*), opossum (*Didelphis marsupialis*), and raccoon (*Procyon lotor*).

#### L. Threatened and Endangered Species

The US Fish and Wildlife Service (USFWS) has legislative authority to list and monitor the status of species whose populations are considered to be imperiled. This federal legislative authority for the protection of vulnerable species is derived from the Endangered Species Act of 1973 and its subsequent amendments. Petitions for federal protection of species receive an initial review and if the USFWS finds that listing may be warranted, the species undergoes a thorough status review. After the status review is complete, vulnerable species that qualify for listing are either listed as threatened or endangered or categorized as candidates. Endangered species are those that are in danger of extinction throughout all or a significant portion of a species' range while threatened species are those likely to become endangered. Candidate species have been deferred from listing while the USFWS works on listing proposals for other species they determine are at greater risk. Fish and wildlife species listed as endangered or threatened by the USFWS are provided full protection under the Endangered Species Act. This protection includes a prohibition on direct "take" of the listed species in addition to indirect "take" through the destruction or degradation of critical habitat. Species listed by the USFWS under the Endangered Species Act can be found on the USFWS Information for Planning and Conservation (iPaC) database. While the USFWS works closely with the states to develop and maintain conservation programs for federally-listed species, it does not play a role in the protection of state-listed threatened or endangered species. Thus, many state-listed species are not afforded protection under the Act.

The TPWD is the regulatory body responsible for the protection and conservation of state-listed threatened and endangered species, as well as state-listed Species of Greatest Conservation Need (SGCN) within the borders of Texas. The TPWD oversees endangered or imperiled resources through the Wildlife Division's Wildlife Diversity Program. This program is responsible for maintaining county occurrence records for federal- and state-listed threatened and endangered species and state-listed SGCNs, as well as maintaining the Texas Natural Diversity Database (TXNDD). This database provides site specific information and other species status tracking information on listed or rare animal and plant species, including unique or declining vegetation communities of concern. Additionally, the TPWD maintains annotated county lists of rare species for each county in the state.

Unlike federally listed species, state-listed species have limited regulatory protection. Per the TPWD, state authority prohibits the taking, possession, transportation or sale of any

state-listed species as well as the commerce of state-listed plants and their collection from public lands without the issuance of a permit. Unlike the federal regulations promulgated under the Endangered Species Act and enforced by the USFWS, state regulations do not afford protection to the habitats of state-listed species, except on tracts managed by state, federal, or private interests for conservation purposes. Additionally, state-listed SGCNs lack the legal protections afforded to state-listed threatened and endangered species under state law and are instead managed under the TPWD's Texas Conservation Action Plan, a plan that guides the Department's nongame conservation efforts. While overlap exists between the species listed by the USFWS and the TPWD, the TPWD does not have oversight on the federal list nor can it enforce the Endangered Species Act.

Information from the TPWD-TXNDD was obtained on November 30, 2015, regarding state and federal threatened and endangered species. Information was requested from the Sugarland USGS 7.5-minute topographical quadrangle maps, which include the project area. Based on species occurrence data acquired from TPWD, only one TXNDD element occurrence, ID 7514 – Bald Eagle, is listed within 1.5 miles of the proposed project area; however; during site visits, no suitable bald eagle habitat was observed. **Table 8** provides a summary of all TXNDD element occurrences recorded within 10 miles of the proposed project area. Please note that in certain cases, such as adjacent stream reaches, element occurrence ID numbers may be used more than once.

TABLE 8: ELEMENT OCCURENCES WITHIN 10 MILES OF PROJECT AREA				
Element Occurrence ID	Common Name	Scientific Name	Listing Status	Buffer Zone
7514	Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST	1.5 Mile
1650	Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST	10 Mile
12535	Texas Fawnsfoot	<i>Truncilla macrodon</i>	FC, ST	10 Mile
3607	Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST	10 Mile
7455	Colonial Wading Bird Colony	NA	NA	10 Mile
12535	Texas Fawnsfoot	<i>Truncilla macrodon</i>	FC, ST	10 Mile
2530	Colonial Wading Bird Colony	NA	NA	10 Mile
10613	Awnless Bluestem	<i>Bothriochloa exaristata</i>	SGCN	10 Mile
10386	Awnless Bluestem	<i>Bothriochloa exaristata</i>	SGCN	10 Mile
ST = State Threatened; FC = Federal Candidate; NA = Not Applicable; SGCN = Species of Greatest Conservation Need Source: TPWD, Texas Natural Diversity Database, 2015				

Site visits conducted by qualified biologists in December 2009 and December 2014 revealed that no suitable habitat exists within the proposed project's ROW for federal- and/or state-listed threatened or endangered species, and state-listed rare species. A justification for the lack of suitable habitat is provided for each species in **Table 9** below.

A summary of the lack of potential habitat for federal and state-listed endangered species and of the TXNDD element occurrences within ten miles of the proposed project area can be found in the project **Biological Evaluation Form**, which is available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007.

A review on November 18, 2015, of the TPWD *Annotated County List of Rare Species* for Fort Bend County, the USFWS iPaC database, and the USFWS *Southwest Region County-by-County List*, located on the Southwest Region Ecological Services website, revealed 18 species listed as candidate, threatened, or endangered in Fort Bend County. Species from both lists are recorded in **Table 9**. In order to distinguish between federal regulatory requirements and voluntary measures, specific terms are used to describe potential impacts to species.

Species not protected under the Endangered Species Act are described using the following terms:

- "No impact,"
- "May impact"
- "Would impact"

Species under the regulatory protection of the Endangered Species Act are described using one of the following:

- "No effect"
- "May affect, is not likely to adversely affect"
- "May affect, is likely to adversely affect"

The proposed project would have no effect or impact on federal- or state-listed threatened or endangered species or their habitat, except that the project may impact the smooth pimpleback (*Quadrula houstonensis*) and the Texas fawnsfoot (*Truncilla macrodon*), both of which are state-listed freshwater mussel species. Prior to construction, surveys will be conducted to determine if any individuals are present. Any individuals of these two species would be relocated prior to construction.

TABLE 9: CANDIDATE, THREATENED, OR ENDANGERED SPECIES OF FORT BEND COUNTY					
Species	State Status	Federal Status	Potential Habitat Present	Species Effect/Impact	Justification
Houston Toad <i>Anaxyrus houstonensis</i>	E	E	No	No Effect	No suitable habitat present. Species prefers deep sandy soils in post oak savannah or pine woodlands associated with native bunchgrasses and forbs. Project is located on largely disturbed clay soils and is predominately coastal prairie. Additionally, the project area does not occur over the geologic formations where the species is generally found.
American Peregrine Falcon <i>Falco peregrinus anatum</i>	T	DL	No	No Impact	No suitable habitat present. Species prefers tall cliffs in mountainous areas and canyons over major waterways for roosting or open coastline and tidal flats during migration. None of these preferred habitat types are present within the proposed project area.
Arctic Peregrine Falcon <i>Falco peregrinus tundrius</i>	SGCN	DL	No	No Impact	No suitable habitat present. Species prefers tall cliffs in mountainous areas and canyons over major waterways for roosting or open coastline and tidal flats during migration. None of these preferred habitat types are present within the proposed project area.
Attwater's Prairie Chicken <i>Tympanuchus cupido attwateri</i>	E	E	No	No Effect	No suitable habitat present. Species found only in the coastal prairie of Texas and prefer prairie with a mixture of native grasses of varying height and topography for courtship, feeding, roosting, nesting, and escaping. Prime habitat consists of open tall grass prairie dominated by bunchgrasses and forbs devoid of any woody or shrub cover. While 2.7 acres of Gulf Coast tallgrass prairie are found within the project area, due to the encroachment of non-native vegetation, it is not considered suitable habitat. Additionally, while the project area is in the species' historic range, the species is largely restricted to managed wildlife refuges and private land.
Bald Eagle <i>Haliaeetus leucocephalus</i>	T	DL	No	No Impact	No suitable habitat present. Species prefers to nest and roost in tall trees (40 to 120 feet) near large rivers, reservoirs, or lake shores. Generally nests within one mile of water, along habitat edges or ecotones. The lack of tall trees, especially loblolly pines, large bodies of water, and significant wetlands within the proposed project area greatly reduces the chances of encountering this species, despite presence of TXNDD element occurrence within 1.5 miles at Smithers Lake.

TABLE 9: CANDIDATE, THREATENED, OR ENDANGERED SPECIES OF FORT BEND COUNTY

Species	State Status	Federal Status	Potential Habitat Present	Species Effect/Impact	Justification
Interior Least Tern <i>Sterna antillarum athalassos</i>	E	E	No	No Effect	No suitable habitat present. Species prefers sand bars on braided sections of major rivers for breeding and vegetated beaches, sandbars, islands, and salt flats associated with rivers and reservoirs for nesting. Species is generally restricted to less altered or disturbed river systems. None of these preferred habitat types are present within the proposed project area.
Peregrine Falcon <i>Falco peregrinus</i>	T	DL	No	No Impact	No suitable habitat present. Species prefers tall cliffs in mountainous areas and canyons over major waterways for roosting or open coastline and tidal flats during migration. None of these preferred habitat types are present within the proposed project area.
Piping Plover <i>Charadrius melodus</i>	SGCN	T*	No	No Effect	No suitable habitat present. Species prefers to breed on sandy beaches, gravel shores, river sandbars, island, barren shorelines, and alkali wetlands. Gulf Coast wintering habitats include beaches, sand flats, mudflats, algal mats, emergent seagrass beds, wash-over passes, and small dunes. None of these preferred habitat types are present within the proposed project area.
Red Knot <i>Calidris canutus rufa</i>	SGCN	T*	No	No Effect	No suitable habitat present. Species prefers shoreline habitat associated with coasts and bays and will utilize mudflats or herbaceous wetlands during rare inland encounters. Proposed project area is generally considered outside of the species' wintering range. Additionally, no preferred food sources (salt water and brackish clam species) are likely to be present within the project area.
Sprague's Pipit <i>Anthus spragueii</i>	SGCN	—	No	No Impact	No suitable habitat present within the project limits. Species is present in Texas during the non-breeding winter portion of its yearly migration (September to April). Species is generally associated with larger patches of native upland prairies displaying varying topography but has been known to utilize human-disturbed sites on occasion. Additionally, the species largely avoids edges/ecotones, cultivated land, non-native prairie/pasture, and any areas with extensive tree or shrub coverage.

TABLE 9: CANDIDATE, THREATENED, OR ENDANGERED SPECIES OF FORT BEND COUNTY

Species	State Status	Federal Status	Potential Habitat Present	Species Effect/Impact	Justification
White Faced Ibis <i>Plegadis chihi</i>	T	—	No	No Impact	No suitable habitat present within project limits. Species prefers freshwater marshes, irrigated cropland, flooded pastures, damp meadows, and sloughs but can often be found in brackish or saltwater habitats. Tends to nest in low trees adjacent to marshland or at ground-level in bulrush stands or mats. Species may utilize shallow waters in the proposed project area for feeding, but preferred nesting and roosting habitats are not present in proposed project area. Due to the species high level of adaptability in habitat choice, often changing nesting and foraging sites from year to year depending on water level.
White-tailed Hawk <i>Buteo albicaudatus</i>	T	—	No	No Impact	No suitable habitat present. Species generally prefers dry, open grasslands with scattered shrubs or low trees on the coastal prairies. Often utilizes mesquite, hackberry, and oak trees for nesting and roosting. The species strong preference for semi-arid to arid habitat largely rules out the proposed project area as having potential habitat.
Whooping Crane <i>Grus americana</i>	E	E	No	No Effect	No suitable habitat present within project limits. Species is known to use a variety of habitat types during migration including wetlands, croplands, submerged sandbars, and riverine habitats isolated from human disturbance. Wintering habitat consists of 22,500 acres of marshes and salt flats on Aransas National Wildlife Refuge and adjacent publicly and privately owned wetlands. While low-lying croplands are present within the proposed project area, it is unlikely that this species would be anything more than a migrant through the project area.
Wood Stork <i>Mycteria americana</i>	T	—	No	No Impact	No preferred habitat present within project limits. Species generally feeds in prairie ponds, flooded pastures or fields, ditches, wetlands, mudflats, and other shallow bodies of standing water. Species prefers to roost and nest in tall snags associated with riverine habitats and established rookeries. While preferred feeding habitat is present within the proposed project area, no preferred roosting or nesting habitat is present.

TABLE 9: CANDIDATE, THREATENED, OR ENDANGERED SPECIES OF FORT BEND COUNTY					
Species	State Status	Federal Status	Potential Habitat Present	Species Effect/Impact	Justification
Sharpnose Shiner <i>Notropis oxyrhynchus</i>	SGCN	E	No	No Effect	No suitable habitat present. Species is endemic to the Upper Brazos River basin and prefers large, turbid river channels with bottom substrates consisting of a mixture of sand, gravel, and clay. Species mainly occurs above Possum Kingdom Lake in North Texas and is generally considered extirpated below that portion of the Brazos River drainage. The proposed project area is located in the Lower Brazos River basin and does not contain any preferred habitat.
Louisiana Black Bear <i>Ursus americanus luteolus</i>	T	E	No	No Effect	No suitable habitat present. Species is generally considered a transient within the State of Texas and encounters are rare save for the occasional movements of solitary juvenile males into deep East Texas. Species generally prefers large, remote blocks of land in bottomland hardwood forests highly isolated from human disturbance. This preferred habitat type is not present within the proposed project area.
Red Wolf <i>Canis rufus</i>	E	E	No	No Effect	No suitable habitat present. Species is generally considered extirpated from the State of Texas. Currently the only population not maintained in a captive breeding program is located in eastern North Carolina.
Smooth Pimpleback <i>Quadrula houstonensis</i>	T	C	Yes	May Impact	Potentially suitable habitat may be present within project limits. Species occurs in medium to large streams and rivers as well as moderate sized reservoirs. Typically found on mud, sand, and fine gravel substrates in shallow water. Tolerates slow to moderate flow rates, but appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms. Threatened and deterred by sedimentation, development, dewatering, impoundments, decreased water flows and quality, and chemical contaminants from urban and agricultural use.  Historically found throughout the Colorado River basin, now limited to just one tributary along with the central and lower Brazos River drainage. Many populations found in the Colorado and Brazos basins are limited to just a few individuals. No known recent occurrences, as of surveys in 2011, of species in Brazos River drainage south of Waller County, Texas. Species surveys will be conducted within Rabbs Bayou to determine if suitable habitat is present or if individual specimens occur.

TABLE 9: CANDIDATE, THREATENED, OR ENDANGERED SPECIES OF FORT BEND COUNTY

Species	State Status	Federal Status	Potential Habitat Present	Species Effect/Impact	Justification
Texas Fawnsfoot <i>Truncilla macrodon</i>	T	C	Yes	May Impact	<p>Potentially suitable habitat may be present within project limits. Little is known about species preferred habitat as live populations were not found until recently. The species likely prefers rivers and larger streams and is probably intolerant of impoundments such as ponds and lakes. Recently discovered live populations in the Brazos River indicate that the species occurs in rivers with soft, sandy sediment with moderate water flow. Threatened and deterred by sedimentation, development, impoundments, dewatering, decreased water flows and quality, and chemical contaminants from urban and agricultural use.</p> <p>Historically found throughout the Colorado and Brazos river basins but has now been extirpated from nearly all of the Colorado basin and much of the Brazos. Of the five known populations remaining, only three are likely to be stable and recruiting; remaining populations are disjunction and restricted to short stream reaches. No known recent occurrences, as of surveys in 2011, of species in Brazos River drainage south of Austin County, Texas. Species surveys will be conducted within Rabbs Bayou to determine if suitable habitat is present or if individual specimens occur.</p>
Alligator Snapping Turtle <i>Macrochelys temminckii</i>	T	—	No	No Impact	<p>No suitable habitat present within project limits. Species generally prefers deep, perennial water bodies such as rivers, canals, lakes, oxbows, bayous, swamps, marshes, and ponds. May be found in brackish coastal waters. Prefers extensive aquatic vegetation coverage and mud bottoms. Rabbs Bayou does not exhibit the species' preferred habitat characteristics (e.g. deep water, extensive vegetative cover).</p>
Texas Horned Lizard <i>Phrynosoma cornutum</i>	T	—	No	No Impact	<p>No suitable habitat present. Species prefers open, arid to semi-arid habitats with sparse vegetation such as brush, cactus, or native grasses. Generally prefers sandy or loamy soil but can utilize rocky soil as well. Almost always found in association with harvester/red ant colonies, as they are the species' preferred prey. Due to a lack of: open, arid habitat, loose soils, and harvester/red ant colonies, it is unlikely that the species would be found in the proposed project area.</p>

TABLE 9: CANDIDATE, THREATENED, OR ENDANGERED SPECIES OF FORT BEND COUNTY					
Species	State Status	Federal Status	Potential Habitat Present	Species Effect/Impact	Justification
Timber Rattlesnake <i>Crotalus horridus</i>	T	—	No	No Impact	No suitable habitat present. Species prefers moist lowland forests and hilly woodlands or thickets near permanent water sources where dense ground cover, tree stumps, logs and/or branches provide refuge. May also utilize abandoned farmland, limestone bluffs, palmetto stands, swamps, or upland pine. None of these preferred habitat types are present within the proposed project area. Additionally, limited natural ground cover makes it unlikely that the species would be found in the proposed project area.
Texas Prairie Dawn <i>Hymenoxys texana</i>	E	E	No	No Effect	No suitable habitat present. Species is almost always found on the barren, saline, and poorly drained sandy soils associated with mima-mound micro-topography. Said soils are often covered with a blue-green algae. No mima-mound formations were encountered during field investigations and soils in the project area are predominately clays and loams.
<p><u>USFWS</u> (E = Endangered, DL = Delisted taxon, C = Candidate, T* = Threatened, but only needs to be considered for wind-related projects within migratory route)</p> <p><u>TPWD</u> (E = State endangered, T = State threatened, SGCN = Species of Greatest Conservation Need)</p> <p>— = (No regulatory status)</p>					
Source: USFWS & TPWD November 18, 2015.					

### M. Migratory Birds

The Migratory Bird Treaty Act (MBTA) states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit issued in accordance with the Act’s policies and regulations. All of the bird species in **Table 9** are considered migratory. Furthermore, there are other migratory bird species in addition to those listed above that could utilize the proposed project area.

The migration patterns of the listed bird species would not be affected by the proposed Crabb River Road project. Site visits and a visual inspection of the project area (in December 2009 and 2014) revealed nesting may occur within woody vegetation adjacent to existing ROW. Prior to clearing of vegetation, nest surveys would be conducted to verify the presence/absence of active nests. It is not anticipated that migratory birds would be disturbed during proposed construction of the project. In accordance with the MBTA, no vegetation or man-made structures would be removed containing nests, eggs, or young should they be discovered during construction. All efforts necessary to avoid impacts would

be made to protect birds, active nests, eggs and young if migratory birds are encountered during construction.

The 2013 MOU between TxDOT and TPWD establishes a list of BMPs in the Best Management Practices Programmatic Agreement in regards to migratory birds and the MBTA. Per the implementation of this Programmatic Agreement, appropriate measures would be taken to avoid adverse impacts on migratory birds and would include the following:

- The disturbance, destruction, or removal of active nests, including ground nesting birds, during the nesting season would be prohibited;
- The removal of unoccupied, inactive nests would be avoided as practicable;
- The establishment of active nests during the nesting season on TxDOT-owned and -operated facilities and structures proposed for replacement or repair would be prevented; and
- The collection, capture, relocation, or transportation of birds, eggs, young, or active nests without a permit would be prohibited.

#### **N. Invasive Species and Beneficial Landscape**

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

#### **O. Essential Fish Habitat**

The proposed project is outside the limits of tidally-influenced waters and would not impact essential fish habitat; therefore, coordination with the National Oceanic and Atmospheric Administration - National Marine Fisheries Service would not be required.

#### **P. Cultural Resources**

Cultural resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings, and/or archeological sites), cemeteries and objects. Both federal and state laws require consideration of cultural resources during project planning. At the federal level, NEPA and the National Historic Preservation Act of 1966 (NHPA), 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 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 follows approved procedures for compliance with federal and state laws.

### Historic Resources

Review of impacts to historic properties was conducted under Section 106 of the National Historic Preservation Act of 1966. This included 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), which indicated that no historically significant resources have been previously listed within the APE. Three contributing resources within the five-site George Ranch Tenant Farm Historic District were identified as eligible for the NRHP in a TxDOT survey conducted in 2000. However, two of these contributing resources were removed prior to 2006 and determined no longer eligible due to a loss of integrity. The remaining tenant farm in the project's APE was located at 8435 Crabb River Road.

It has been determined through consultation with the SHPO that the APE for the proposed project is 150 feet beyond the proposed ROW, as shown in **Exhibit 10**. A site visit was performed by a qualified consulting historian to identify sites containing historic-age (built prior to 1966) resources within the project's APE in 2010. This site visit identified ten historic-age properties within the current project's APE, including the Sandberry/Sansbury Cemetery (determined not eligible by TxDOT Environmental Affairs Division in October 2010), and confirmed the eligibility of the tenant farm at 8435 Crabb River Road as a contributing resource to the eligible George Ranch Tenant Farm Historic District. These results were reported in the 2010 **Non-Archeological Historic Resource Reconnaissance Survey**. However, the standing structures were removed from the site at 8435 Crabb River Road in 2015. An **Addendum to Report for Historical Studies Survey** proposed that the site is no longer eligible for the NRHP due to a loss of integrity. The reversal of that eligibility determination leaves no NRHP-eligible properties within the project's APE.

Pursuant to Stipulation IX, "Undertakings with Potential to Cause Effects," of the Section 106 Programmatic Agreement (PA) between TxDOT, the Texas SHPO, the Advisory Council on Historic Preservation and FHWA, TxDOT determined no historic properties are present. Therefore, individual project coordination with the Texas SHPO is not required (see memoranda in **Exhibit 10**). The **Non-Archeological Historic Resource Reconnaissance Survey** (2010) and the **Addendum to Report for Historical Studies Survey** (2015) are available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007.

## Archeology

### Archeological Records Review

A cultural resource file records review was performed to determine if the project area has been previously surveyed for cultural resources or if any archeological sites have been recorded within the APE for archeology, which is the existing and proposed new ROW, including any permanent or temporary easements. To conduct this review, an archeologist reviewed the Sugar Land (2995-312), Texas USGS 7.5-minute topographic quadrangle maps at the Texas Archeological Research Laboratory (TARL) and on the THC's Texas Archeological Sites Atlas. These sources provide information on the nature and location of previously conducted archeological surveys, previously recorded cultural resource sites, locations of NRHP properties, sites designated as SALs, Official Texas Historical Markers (OTHM), RTHLs, cemeteries, and local neighborhood surveys. The literature review examined archeological reports and project files which are housed at TARL and the THC Library. Historic maps in TxDOT's Historic Overlay were also utilized to assess the potential presence of historic archeological resources in or near the project area. Other sources, such as aerial maps and US Department of Agriculture (USDA) soil surveys, were also consulted as part of the study.

The cultural resources investigations records review determined that portions of the APE have been previously surveyed, the recorded boundary of site 41FB133 extends into the existing ROW of the APE, and that there are no NRHP Districts or properties, listed SAL properties, OTHMs, RTHLs, or cemeteries within the APE.

Subsequent to the background review, an intensive survey was accomplished across the entire APE from the north bank of Rabbs Bayou to the APE's southern terminus. The intensive survey did not encounter site 41FB133 within the existing ROW, and no new ROW is proposed at this location. The **Intensive Archeological Survey Report** is available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007. THC concurrence will be documented in **Exhibit 10** once it has been issued.

### Previous Investigations

Results of the records review indicate that three previous investigations have surveyed portions of the current APE and that site 41FB133 has been recently revisited (Sager and Cordova, 2010) and no remnant of it was found within the current ROW of Crabb River Road. An intensive archaeological survey including a portion of the currently proposed project was conducted for the Preferred Alternative of Segment C of the Grand Parkway. The survey was conducted by Atkins in 2001 and 2003 under Antiquities Code Permit No. 2553. This survey overlaps the current APE for about 800 meters (0.5 mile) between the BNSF Railroad and Gapps Slough (Sherman et al, 2009). Historical research conducted during this survey concluded that a likely location for Wily Martin's residence is at the intersection of Gapps Slough and FM 762, which is within the current APE (Sherman et al, 2009:40). Martin was one of Stephen F. Austin's "Old Three Hundred" and a prominent figure in early Texas

history. Subsequently, the existing ROW of Crabb River Road from US 59 to the current APE's southern terminus and the ROW adjacent to Sandberry/Sansbury Cemetery was surveyed by Atkins in 2010 under Antiquities Code Permit No. 5511 (Sager and Cordova, 2010). Finally, the proposed new ROW and drainage easements to the east of the roadway and south of Gapps Slough were surveyed by Moore Archeological Consultants under Antiquities Permit No. 4673 (Mangum and Driver, 2008).

#### Recorded Archeological Sites

Site 41FB133 is the only previously recorded site located within the proposed project. It was recorded in 1986 by Riverbrook Associates during a survey conducted on behalf of the USACE near Rabbs Bayou. Site 41FB133 consists of the remains of a twentieth-century historic house or farm site about 12.19 meters (40 feet) east of Crabb River Road. No structures remained standing at the time of recording, but materials noted include a brick fragment, wire nails, an earthenware vessel handle, iron fragments, and a small glass jar. The site was recommended in 1986 as not eligible for inclusion on the NRHP and no further work was recommended. Site 41FB133 was revisited in 2010, and no remnant of the site was encountered within the current APE (Sager and Cordova, 2010).

#### State Archeological Landmarks

There are no listed SAL properties within the APE.

#### Archeological Survey

No NRHP-eligible archeological resources, nonarcheological historic resources, or combinations thereof, were located within or adjacent to the APE or encountered during the intensive cultural resources survey conducted by Atkins archeologists for the proposed Crabb River Road project. The survey was performed in compliance with the National Historic Preservation Act of 1966, and the Antiquities Code of Texas; and in accordance with 36 CFR 800, 13 Texas Administrative Code 26, and guidelines set forth by the Register of Professional Archaeologists and the Council of Texas Archeologists. No artifacts, features, or sites were observed on the ground surface of the survey area, or encountered within any of the 18 shovel tests excavated, except modern debris noted in one shovel test.

#### Environmental Consequences

No archeological cultural resources that are eligible for listing in the NRHP or for designation as an SAL would be affected by the Build Alternative. In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area would cease and TxDOT archeological staff would be contacted to initiate post-review discovery procedures under the provisions of the First Amended PA among the FHWA, TxDOT, the Texas SHPO, and the Advisory Council on Historic Preservation, regarding the Implementation of Transportation Undertakings.

Implementation of the No-Build Alternative would have no effect on known or undocumented historic or cultural resources. The ground disturbance associated with construction would not occur, and *in situ* resources would remain in place. No structures would be built, and therefore, no NRHP-eligible properties would be affected.

## Q. Aesthetic Considerations

The landscape is generally flat in the Crabb River Road (FM 2759/FM 762) project area, with no hills or tall trees within viewsheds. North of the Thompsons Road (FM 762/FM 2759) intersection, residential neighborhoods interspersed with commercial development are visible. To the south lie agricultural lands—potentially subject to future development, institutional properties (such as churches and schools) potentially subject to further improvements, and large-lot, rural residential properties.

Since Phase I would feature at-grade highway intersections, rather than grade separations, no above-ground overpass structures would be included in the Phase I project design that would cause a visual intrusion into the existing landscape. No substantial impact on visual resources would be anticipated under Phase I.

The primary intrusion on viewsheds from the Build Alternative would be the Phase II elevated grade-separation structure over the BNSF railroad and Thompsons Road (FM 762/FM 2759). This would affect views of the horizon and sky to the southwest from the Tara Colony/Stone River neighborhood; views to the southeast from the Brazos Garden neighborhood; and views to the west and northwest from the currently vacant church property. Traffic signals and utility poles are currently present at the location where the overpass would be built. **Figures 1 and 2** provide views of the landscape at the location of the BNSF railroad overpass. The proposed improvements would not be expected to cause substantially adverse impacts on visual resources.

In general, with respect to aesthetics, the Build Alternative is expected to blend with the character of the area so that the project would be aesthetically pleasing. This is a federally assisted project and where cost effective, and to the extent practicable, regionally native plants would be used for landscaping. Moreover, Fort Bend County would design and promote construction practices that minimize adverse effects on existing vegetation. The No Build Alternative would have no discernible impact on visual resources.



**Figure 1.** Looking southeast across Crabb River Road / Thompsons Road (FM 2759/FM 762) intersection, site of proposed BNSF Railroad grade separation.



**Figure 2.** Looking southwest across Crabb River Road / Thompsons Road (FM 2759/FM 762) intersection, site of proposed BNSF Railroad grade separation.

## R. Prime, Unique, and Special Farmland Impacts

Based on the mapped soils for Fort Bend County, (California Soil Resource Lab, 2014), the proposed project area traverses eight distinct soil units. Descriptions of the mapped soil types are provided in **Table 10**. The parenthetical abbreviation following the soil name corresponds to the soil unit symbols provided on **Figure 3-1** in **Exhibit 8**.

The NRCS Web Soil Survey of Fort Bend County describes the general soil types within the proposed project area as mostly Brazoria Clay (Ma), Pledger Clay (Pa), and Asa-Pledger

Complex (Ac). According to the NRCS, Ma soils have a slope of 1 to 4 percent with more than 80 inches to depth to water and somewhat poorly drained. Pa soils are listed as having a 0 to 1 percent slope, with more than 80 inches depth to water and moderately well drained. Ac soils are listed to have 0 to 1 percent slopes with more than 80 inches depth to water and well drained. NRCS lists all of these soils as Prime Farmland (NRCS, 2014).

Existing soils within the proposed project area may be disturbed by construction activities. During construction, deep excavation would take place where additional drilled shafts are proposed. This would result in minor disturbances of the soils. Soil units and their corresponding characteristics are listed in **Table 10**.

TABLE 10: SOILS IN THE PROJECT AREA				
Soil Series	Characteristics	Soil Units	Hydric?	Prime and Unique Farmland?
Brazoria Clay	- Moderately well drained - Very low to moderately low available water capacity	<b>Ma</b> - Brazoria Clay, 0 to 1 percent slopes, rarely flooded	Yes	Yes
Pledger Clay	- Moderately well drained - Very low to moderately low available water capacity	<b>Pa</b> - Pledger Clay	Yes	Yes
Asa-Pledger Complex	-Well drained -Moderately high to high	<b>Ac</b> - Asa-Pledger Complex	Yes	Yes

Source: NRCS, Web Soil Survey, Fort Bend County, 2014.

**Table 11** shows the general stratigraphy of the area.

TABLE 11: GEOLOGY		
Symbol	Stratigraphy	Series
Qal	Alluvium	Phanerozoic, Cenozoic, Quaternary, Holocene

**Qal:** Alluvium and low terrace deposits along streams, sand, silt, clay, and gravel. Clayey fine to very fine quartz sand and shell sand. Primary rock type is sand, secondary is silt, and other is clay or mud and gravel.

Residential, commercial and institutional developments are the dominant land uses. However, the NRCS lists soils as Prime and Unique Farmland. Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. Prime and unique farmlands are provided protection under the Farmland Protection Policy Act (FPPA), Subtitle I of Title XV of the Agricultural and Food Act of 1981. The proposed ROW is located within Prime and

Unique Farmland soils; therefore, a Farmland Conservation Impact Rating (Form AD-1006) was completed.

### **Farmland Protection Policy Act**

The FPPA is intended to minimize the impact that federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. Projects considered exempt under the FPPA include those that require no additional ROW or require ROW in which the ROW is developed, urbanized, or zoned for urban use. As noted above, because the Build Alternative would require additional ROW and prime farmland soils were identified within the project area, a Farmland Conservation Impact Rating (Form AD-1006) was completed to determine whether prime, unique, or otherwise important farmland would be impacted by the Build Alternative. Upon completion of the site assessment for the Farmland Conservation Impact Rating, it was determined that the total site assessment score was only 43 points, allowing only a possible total impact rating of 143 points, which is below the 160-point threshold at which further coordination with NRCS would be required. Consequently, no further coordination with NRCS is required for the proposed project. The project's completed Form AD-1006 site assessment is on file with the TxDOT Houston District.

### **S. Air Quality Assessment**

Since the proposed Crabb River Road (FM 2759/FM 762) project (CSJs 1415-03-010 and 0543-03-067) is located within an area that has been designated by EPA as a marginal nonattainment area for the 2008 ozone National Ambient Air Quality Standard (NAAQS), the transportation conformity rules apply.

The proposed action is consistent with the H-GAC's financially constrained 2040 RTP and the 2015-2018 TIP, as amended, which were initially found to conform to the TCEQ State Implementation Plan (SIP) by FHWA and Federal Transit Administration on September 11, 2015, and December 2, 2014, respectively. Copies of the RTP and TIP pages are included in **Exhibit 6**. 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 Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR.

Temporary air quality impacts associated with construction activity are discussed in **Section V, Construction Impacts**.

### **Traffic Air Quality Analysis**

The most recent traffic projections for 2017 estimated 17,700 vehicles per day (vpd) on the FM 2759 section of Crabb River Road and 12,400 vpd on the FM 762 section. Traffic data for the design year 2037 project 27,800 vehicles ADT on the FM 2759 section and 19,400 vpd on the FM 762 section. A prior TxDOT modeling study demonstrated that it is unlikely that a carbon monoxide standard would ever be exceeded as a result of any project with an ADT below 140,000 vpd. The ADT projections for the Build Alternative do not exceed

140,000 vehicles per day; therefore a Traffic Air Quality Analysis was not required. The project is not located within a carbon monoxide or particulate matter nonattainment or maintenance area; therefore, a project level hot spot analysis is not required.

### **Mobile Source Air Toxics (MSAT)**

A **Mobile Source Air Toxics (MSAT) Qualitative Analysis** technical report on the potential for MSAT emissions is available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007. This analysis has acknowledged that the Build Alternative may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

### **Congestion Management Process**

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. However, the proposed project is not included in the CMP network or Tier 2 network as a segment listed in H-GAC's January 2015 CMP. Only that portion of FM 2759 that, in the future, will serve as the southbound frontage road for Grand Parkway Segment C (from US 59 to SH 99) is included in the CMP network. That part of FM 2759 is not currently included in the proposed Crabb River Road (FM 2759/FM 762) project. FM 762 is excluded from the CMP network and Tier 2 segment lists. According to correspondence with H-GAC in May 2010, added capacity roadway projects not on the CMP network are not subject to the congestion mitigation analysis requirements of the CMP (**Exhibit 15**).

However, based on the Congestion Management System Plan in effect as of May 2010, H-GAC completed a congestion mitigation analysis for FM 2759 from US 59 to FM 762. H-GAC's review found that the congestion mitigation analysis report and results were consistent with the requirements of the CMP. The analysis found that any widening of FM 2759 from US 59 to FM 762 would be justified in accordance with H-GAC's CMP (**Exhibit 15**). Since this analysis found that traffic signal re-timing and synchronization would have an extensive impact on congestion mitigation, this CMP element is considered "significant." Under the CMP, FHWA requires the implementing agency to demonstrate commitment to implementing such significant projects. TxDOT will send a Letter of Commitment for Traffic Signal Re-Timing and Synchronization projects to H-GAC, which will include a complete timeline of the execution of this project, so that H-GAC can monitor timely implementation of this transportation system management action.

Concurrently, the proposed project on FM 762 was issued a waiver from the CMP by H-GAC in a May 2010 letter, as it was not included on the Congestion Management System Plan

Network in effect at that time (**Exhibit 15**). Correspondence with H-GAC in March 2016 confirmed that this waiver remains valid.

## T. Noise Assessment

The proposed project would increase the number of through travel lanes; therefore, a noise analysis was conducted for Phases I and II of the Build Alternative, consistent with FHWA Regulation 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise," and TxDOT's 2011 *Guidelines for Analysis and Abatement of Roadway Traffic Noise*. The **Noise Technical Report** for this project is available for review at TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007.

The **Noise Technical Report** concludes that the Build Alternative would result in traffic noise impacts and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers. Of the above noise abatement measures, only noise barriers would be both feasible and reasonable, as discussed in the technical report. Proposed noise barrier locations are shown in **Exhibit 11**, and would be implemented with construction of Phase I of the proposed project.

Under the Build Alternative (Phases I and II), traffic noise would affect seven residences located within the Greatwood Knoll subdivision east of Crabb River Road (FM 2759). The seven residences are split by Greatwood Knoll Drive, with four residences north of Greatwood Knoll Drive and three residences south of that same street.

Since all the residences are within the same neighborhood, the barriers assessed can be combined as one wall to determine if the whole barrier system is reasonable for all affected residences in the neighborhood. Based on preliminary calculations, a combination of two barriers with a total length of 840 feet, NB-1 and NB-2, was evaluated on the east side of the roadway (northbound lanes). The barrier would be feasible, with noise reduction from five to 12 dBA, with a 12-foot high noise barrier. The total cost would be \$181,440, or \$25,920 for each benefitted receiver, which would not fall within the reasonable criteria (see **Table 12**).

TABLE 12: PROPOSED NOISE BARRIERS (PRELIMINARY)					
Barrier	Total No. Receivers Benefited	Length (feet)	Height (feet)	Total Cost	\$/Benefited Receiver
NB-1 & NB-2	7	840	12	\$181,440	\$25,920*
NB-3 – NB-6	34	2,231	12	\$488,896	\$14,173

\*Does not meet reasonable criteria.

Another 34 residences affected under Phase I are located within the Tara Colony subdivision east of Crabb River Road (FM 2759). These residences are split by Tara Drive, with one residence north of Tara Drive, 14 residences south of Tara Drive and north of Harpers Drive, 12 residences south of Harpers Drive and north of River Road, and seven residences south of River Road.

Since all the residences are within the same neighborhood, the barriers assessed can be combined as one wall to determine if the whole barrier system is reasonable for all affected residences in the neighborhood. Based on preliminary calculations, a combination of four barriers with a total length of 2,231 feet, NB-3 through NB-6, was evaluated on the east side of the roadway (northbound lanes). The barrier would be feasible, with noise reduction from seven to 11 dBA, with a 12-foot-high noise barrier. The total cost would be \$488,896, or \$14,173 for each benefitted receiver, which would fall within the reasonable criteria (see **Table 12**).

Under Phase II, three of the 34 residences discussed above would no longer be impacted because of the proposed grade separation elevating the roadway; however, abatement measures implemented during Phase I for the Tara Colony subdivision would be left in place during Phase II.

Noise barrier NB-1 and NB-2 does not fall within the reasonable criteria. In order to provide corridor-wide mitigation for all feasible noise barriers, the overall cost for noise mitigation was totaled and averaged instead of looking at each group of noise barriers individually.

The overall cost for feasible noise barriers (NB-1 through NB-6) was averaged for all the benefitted receivers within the project corridor. The total allowance for the 41 benefitted residences was determined to be \$1,025,000 at a cost per benefitted residence of \$25,000. The total cost for mitigation is estimated to be \$669,816 with the cost per benefitted residence at \$16,337. It was determined that all feasible barriers at a height of 12 feet would meet the corridor-wide reasonableness criteria. These are shown in **Table 13** and are proposed for inclusion in the Crabb River Road project.

Barrier	Total No. Receivers Benefited	Length (feet)	Height (feet)	Total Cost	\$/Benefited Receiver
NB-1 & NB-2	7	840	12	\$181,440	\$25,920
NB-3 – NB-6	34	2,231	12	\$488,896	\$14,173
<b>Total Cost</b>				<b>\$663,336</b>	<b>\$16,179</b>

One single-family residence and one church on the west side of Crabb River Road (FM 2759) near Rabb Ridge Drive would receive noise impacts under Phases I and II; however, barriers at these locations would not be feasible, as they would restrict access to the affected properties.

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

Under the No-Build Alternative, noise levels would be expected to increase with associated increases in traffic volumes. Temporary noise impacts associated with construction activity are discussed in **Section V, Construction Impacts**.

At the time of this noise analysis, no building permits had been issued for undeveloped properties adjacent to the proposed project. 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 would avoid traffic noise impacts. On the date of approval of this document (Date of Public Knowledge), FHWA, TxDOT and Fort Bend County are no longer responsible for providing noise abatement for new development adjacent to the project.

#### **U. Hazardous Waste/Substances**

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act (RCRA), a preliminary investigation was conducted to identify sites within the project study area that are "at risk" of environmental contamination by hazardous wastes and substances.

An **Initial Site Assessment** (ISA) for hazardous materials was conducted by qualified personnel, including a visual survey of the project limits and surrounding area, research on the existing and previous land use, and review of federal and state regulatory databases/lists. The purpose of the ISA is to identify possible hazardous materials within the project limits in support of the EA. Documentation of the ISA is available for review at

TxDOT's Houston District Office, 7600 Washington Avenue, Houston, Texas 77007. The regulatory database search report and site photographs are included in the ISA.

Sites considered likely to be contaminated and within the proposed ROW are categorized as "high risk". "Moderate risk" sites are those sites that are adjacent or within the ROW with a lower possibility to contaminate the ROW. Sites are categorized as "low risk" if available information indicated that some potential for contamination exists, but the site is not likely to pose a contamination problem to highway construction.

Phase I of the proposed Build Alternative would require the demolition of the bridge over Rabbs Bayou and one residence. Phase II of the Build Alternative includes the demolition of two commercial building structures located northwest of the Crabb River Road/Thompsons Road (FM 2759/FM 762) intersection. It is not known if these structures contain asbestos-containing materials. The Rabbs Bayou Bridge would require inspection for asbestos-containing materials and lead based paint. The residence and two commercial structures to be demolished would also require inspection for asbestos-containing materials. Asbestos inspections, specification, notification, license, accreditation, abatement, and disposal, as applicable, would comply with federal and state regulations. Asbestos issues would be addressed during the ROW process prior to construction.

Since excavation greater than three feet would be required, the leaking petroleum storage tank (LPST) and registered petroleum storage tank (PST) facilities adjacent to the proposed project were reviewed, as listed and described below:

KMS Kwik Stop, 909 Crabb River Road, Richmond, TX (Map ID 1 - LPST): This site is located on the west side of Crabb River Road (FM 2759) and immediately south of Rabbs Bayou (**Exhibit 12**). The site is a gasoline service station that is listed in the TCEQ PST and LPST databases. According to the database, three 6,000-gallon gasoline PSTs are in use and one 4,000-gallon PST is currently out of service at this site. Proposed project ROW would not be required from this site. In addition, it is not anticipated that deep excavation would be required within the vicinity of this LPST site. According to the database, a subsurface release of petroleum hydrocarbons from this site was reported on March 19, 1990. The LPST database indicates that this site has impacted groundwater as a result of the LPST. The TCEQ has issued "Final Concurrence, Case Closed". No visible concerns such as remediation equipment, groundwater monitoring wells, stressed/dead vegetation, or soil borings were observed during the site visit. Concern at this site is due to the potential for migration of the contaminant into existing ROW. Based on the best available information, proximity of the LPST site relative to the proposed project, and the potential soil disturbance at this location, this site is designated as a LOW risk to the proposed project.

Crabb River Exxon (currently Gulf), 103 Crabb River Road, Richmond, TX (Map ID 3 - PST/Dry Cleaner Registration (DCR)): This site is located at the Crabb River Road/Thompsons Road (FM 2759/FM 762) intersection, northwest quadrant (**Exhibit 12**). This property would be

acquired for proposed ROW during Phase I of the proposed project, but construction on the site would not begin until Phase II. According to the PST database, one 10,000-gallon gasoline PST and one 7,000-gallon gasoline PST are in use at this site. This site is listed as a drop-off dry cleaning facility. In addition, an auto repair shop is also at this location, which uses various solvents, chemicals, and petroleum-based products. One 55-gallon steel drum labeled as used oil filter storage and one plastic tote (capacity unknown) labeled as used oil storage were observed behind the building. Minor oil staining was observed behind the building in the grass near the garage door. A cell tower is also present at this location. Concern at this site is due to proposed ROW acquisition, since this site contains PSTs that may require removal as a result of the proposed project, and also because of the oil staining that was observed and may have impacted soil and groundwater. Based on the best available information, location of this site within the proposed project ROW, and no known or suspected release of petroleum from the PSTs, this site was designated as a MODERATE risk to the proposed project.

Prior to ROW acquisition for and construction of Phase II of the proposed project, it is recommended that subsurface investigations be conducted within the vicinity of the Exxon PST site (Map ID 3) to determine if hazardous materials from this facility have adversely affected the subsurface conditions of the proposed project. Prior to performing any Phase II Environmental Site Assessment (ESA)<sup>4</sup> subsurface investigations for this site, all records maintained by the TCEQ concerning this facility should be reviewed. The subsurface investigations would consist of the sampling of one or more soil borings and associated groundwater (if applicable) at appropriate location(s), and laboratory analysis of the cuttings/groundwater. Based on the results of the subsurface investigation, remediation might be required. The subsurface investigation and resulting remediation (if required) would be conducted in a manner complying with applicable federal, state, and local laws.

Crabb River Shell, 110 Crabb River Road, Richmond, TX (Map ID 5 - PST): This site is located at the Crabb River Road/Thompsons Road (FM 2759/FM 762) intersection, northeast quadrant (**Exhibit 12**). Proposed project ROW would not be required from this site. According to the PST database, two 20,000-gallon gasoline PSTs are in use at this site. No visible concerns such as remediation equipment, groundwater monitoring wells, stressed/dead vegetation, or soil borings were observed during the site visit. Based on the best available information and no known or suspected release of petroleum from the PSTs, this site was designated as a LOW risk to the proposed project.

Citgo (formerly Valero/Parkway Food Mart), 722 Crabb River Road, Richmond, TX (Map ID 6 - PST, Industrial and Hazardous Waste Site (IHW), DCR, and No Longer Regulated Resource

---

<sup>4</sup> Please note that "Phase II" of the proposed project and a "Phase II" ESA are unrelated terms with entirely different meanings. The former pertains to construction and implementation of the proposed project and the latter is a specific level of hazardous materials site assessment.

Conservation and Recovery Act Generator Facility (NLRRCRAG)): This site is located north of the intersection of Crabb River Road (FM 2759) and Tara Drive, on the east side of Crabb River Road (**Exhibit 12**). Proposed project ROW would not be required from this site. According to the database, two 20,000-gallon gasoline PSTs are in use at this site. No visible concerns such as remediation equipment, groundwater monitoring wells, stressed/dead vegetation, or soil borings were observed during the site visit in the area of the gas station. In addition, Map ID 6 is also listed in the IHW, DCR, and NLRRCRAG databases. This site, Crabb River Cleaners, is located in a separate retail space within the same building as the Citgo. Eight 55-gallon steel drums that appeared to contain a waste product associated with the dry cleaning service were observed behind the building near the back door of Crabb River Cleaners. No other visible concerns such as staining, remediation equipment, groundwater monitoring wells, stressed/dead vegetation, or soil borings were observed during the site visit in the area of the dry cleaners. Based on the best available information and no known or suspected release of petroleum from the PSTs, this site was designated as a LOW risk to the proposed project.

Timewise Food Store (Store # 3301)/Chevron, 1274 Crabb River Road, Richmond, TX (Map ID 8 – LPST): This site is located at the intersection of Crabb River Road (FM 2759) and Sansbury Boulevard, southeast quadrant, approximately 0.23 mile northeast of the northern project terminus (**Exhibit 12**). Proposed project ROW would not be required from this site. This site is listed in the TCEQ LPST database for a subsurface release of petroleum hydrocarbons, which was reported on April 24, 2003. The TCEQ LPST database query reported that groundwater (groundwater depth at 31 feet) has been impacted at the site. The TCEQ LPST database query also indicated that the site is currently being monitored (details provided in the ISA). Based on the best available information and the proximity of the LPST site relative to the proposed project, this site was designated as a LOW risk to the proposed project.

The following LPST site is located approximately 0.5 mile west of the proposed project (**Exhibit 12**) and is not considered likely to pose a threat of contamination to the project:

Gonyos Service Station, 6107 Thompsons Road, Richmond, TX (Map ID 12 – LPST): According to the database, three PSTs were in use at this site. However, the PSTs have been removed from the ground and the gas station is no longer in operation. The LPST database indicates that groundwater was not impacted and there appears to be no threats or impacts to receptors as a result of the LPST. The TCEQ has issued “Final Concurrence, Case Closed”. No visible concerns such as remediation equipment, groundwater monitoring wells, stressed/dead vegetation, or soil borings were observed during the site visit.

Other non-PST sites identified in the regulatory database search were located adjacent to the proposed project and were investigated but not considered likely to pose a threat of contamination to the proposed project. No ROW would be acquired from these properties. These include the following:

River Road Animal Clinic Landfill, 401 Crabb River Road, Richmond, TX (Map ID 2 – Municipal Solid Waste Landfill Site (MSWLF)): This site is located on the west side of Crabb River Road, north of Thompsons Road (**Exhibit 12**). According to the database, this site is an inactive sanitary landfill that was used for brush and/or construction-demolition material. No visible concerns such as remediation equipment, groundwater monitoring wells, stressed/dead vegetation, or soil borings were observed during the site visit.

Fort Bend Municipal Utility District #116, 1003 FM 2759, Richmond, TX (Map ID 4 – Emergency Response Notification System (ERNSTX)): This site is located on the west side of Crabb River Road, immediately north of Rabbs Bayou (**Exhibit 12**). According to the ERNSTX database, 25 pounds of chlorine were released from a 150-pound chlorine cylinder due to a failed regulator. The system was shut down and repairs were made to the regulator. No visible concerns such as remediation equipment, groundwater monitoring wells, stressed/dead vegetation, or soil borings were observed during the site visit.

All other sites listed in the regulatory database report had no concerns needing to be addressed or discussed and would likely pose no threat of contamination to the proposed project. These remaining five sites are listed by map ID number, site name, and address in the Report Summary of Locatable Sites included with the site location maps in **Exhibit 12**.

Five wells (one active gas well, one plugged gas well, one permitted location, and two dry holes) were identified in the Texas Railroad Commission database and are located within 0.125 mile to 1.0 mile of the proposed project. The identified oil and gas wells within the project area appear to be beyond the limits of the proposed project ROW and would not pose the potential for contamination. However, if oil and gas wells that were not identified in the database search are encountered within the proposed project ROW, they should be considered sites with a high potential for hazardous material or petroleum product contamination during construction and would require further investigation. Previously unidentified wells would present the potential that a subsurface release of petroleum hydrocarbons could adversely affect the subsurface conditions of the proposed ROW required for the project. Maps showing the location of all wells within the proposed project ROW or within 0.25 mile of the proposed project ROW are contained in **Exhibit 12**.

During the preliminary investigations, six pipelines were found to bisect the proposed project. The locations of the pipelines are shown in **Exhibit 12**. If required, negotiations would be conducted with the pipeline owners to relocate or deepen any affected pipelines. Four active natural gas pipelines cross below Crabb River Road in the FM 762 portion. These include pipelines of: San Jacinto Gas Transmission Company (at the Booth Compressor Station), Kinder Morgan Texas Pipeline (two lines near the southern project terminus), and SouthCross Gulf Coast Transmission (near the southern terminus). The Dominion Gas Ventures natural gas gathering pipeline runs parallel to Crabb River Road (FM 762) on the west from the compressor station to beyond the southern project terminus. The abandoned Texas Eastern Transmission pipeline lies below the roadway just south of the San Jacinto

pipeline. An ExxonMobil pipeline carrying regular gasoline traverses beneath the roadway north of Bridlewood Estates. A Kinder Morgan Crude and Condensate crude petroleum transmission pipeline runs parallel to the gas transmission lines crossing under the roadway near the southern project terminus. Other pipelines lie within 0.5 mile of the proposed project but do not intersect, lie adjacent to, or lie within the project limits.

Any unanticipated hazardous materials encountered during construction would be handled according to applicable federal and state regulations per TxDOT Standard Specifications.

Implementation of the No Build Alternative would not impact potential recognized environmental conditions.

## **V. Construction Impacts**

Any construction activity has the potential to result in community, noise, air quality, and water quality construction-related impacts. No construction impacts are related to the No-Build Alternative, as the area would remain in its present condition. All construction related impacts associated with the Build Alternative are expected to be temporary in nature.

### **Temporary Community Impacts**

The proposed improvements would entail some unavoidable disruption to traffic. During the construction phase, motorists may seek alternative travel routes to avoid construction-related traffic congestion and delays; however, adverse impacts to local traffic patterns due to construction activities would be temporary. Substantial disruption of neighborhood traffic is not anticipated. To alleviate disruption, the proposed project would be constructed in phases and a detailed traffic control plan would be developed and implemented.

Businesses may be inconvenienced during the construction phase of the project; however, this situation would be temporary. Phased construction and maintenance of access to adjacent properties would minimize this impact. Everything practicable would be done to minimize the inconvenience to the drivers using the roadway during the construction phase. Disruptions would be minimized to the extent possible by the timely notification of affected residents and business owners through posted notices, personal contact, or other notification procedures. These procedures would include rerouting the traffic, barricading, using traffic cones, or any other measures deemed necessary and prudent by Fort Bend County and the construction contractor to comply with all local, state, and federal traffic and safety regulations. Overall, the proposed roadway expansion would increase mobility and safety in the area, which would benefit local residents and businesses as well as through-travelers.

### **Temporary Noise Impacts**

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns.

However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

### **Temporary Air Quality Impacts**

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

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

<http://www.tceq.state.tx.us/implementation/air/terp/>.

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

### **Temporary Water Quality Impacts**

Temporary environmental impacts potentially occurring as a result of construction activities could also include potential impacts on water quality from runoff and soil erosion from exposed surfaces. BMPs would be used to reduce runoff-related impacts to water quality, which are discussed further in **Section X, Permits and Commitments**.

### **W. Items of Special Nature**

Fort Bend County will coordinate with the BNSF railroad regarding the proposed grade separation structure over the railroad on Crabb River Road (FM 2759/FM 762). Otherwise, there are no items of special nature or interest such as navigation or airway-highway clearances, special permits or agreements involved with this project. The Build Alternative would not affect land or water uses within an area covered by a State Coastal Zone Management Program, nor would it impact coastal barrier resources. Coordination with the USCG would not be required. The Build Alternative would not impact any present, proposed, or potential unit of the National Wild and Scenic Rivers System.

---

## X. Permits and Commitments

The permits, issues, and commitments relevant to the proposed project are as follows:

- Section 402 Commitments
  - The CWA makes it unlawful to discharge storm water from construction sites into waters of the US unless authorized by TCEQ's TPDES General Construction Permit. If more than five acres of ROW are disturbed at one time during construction, an NOI must be filed with the TCEQ. Construction activities would disturb an estimated 94.1 acres of land within the existing and proposed ROW (with completion of Phases I and II); therefore, the permit coverage threshold would be reached and TxDOT would be required to obtain a TPDES General Permit and to file an NOI with the TCEQ. A non-TxDOT MS4 operator would be notified in the event they would receive storm water discharge from the proposed project construction activities.
  - In accordance with TxDOT policies and to fulfill the permit commitments, an SW3P would be prepared before construction; compliance with the practices and procedures in the SW3P would be implemented and followed during construction. Pollution from storm water would be minimized through adherence to measures in the project's SW3P. Temporary erosion and sediment control measures would be planned for access to the site for drilling of the shafts, dewatering of the shafts, and clearing of vegetation. These may include the use of silt fencing, rock berms, seeding or sodding of bare areas, or other suitable means of containment. Temporary erosion control structures would be built before construction begins (where appropriate) and maintained during construction. Vegetation would be cleared only as needed, and clearing may be phased to maintain soil integrity and minimize exposure of an erosive surface. Upon completion of construction, all materials would be removed and the site returned to preexisting conditions. Disturbed areas would be restored and reseeded according to the TxDOT specification *Seeding for Erosion Control*.
- Section 401/404 Commitments
  - Based on the preliminary data review, approximately 0.32 acre of jurisdictional waters of the US are located within the proposed ROW; therefore, the permit coverage threshold would be reached and TxDOT would be required to obtain a Section 404 Permit. After completion of the proposed project design, the precise total impacts to jurisdictional waters of the US will be calculated. To fulfill permit commitments, an NWP 14 PCN would be submitted to the USACE Galveston District, if required. The

- 
- PCN would include required environmental reports, evaluations, coordination letters, and impacts.
- Construction activity would comply with all general and regional conditions applicable to NWP 14. During the modification of the linear transportation facility, appropriate measures would be taken to maintain normal downstream flows and minimize flooding. Temporary fills would be placed in a manner that would limit erosion by expected high flows. Temporary fills would be removed in their entirety and the affected area returned to pre-construction elevations, and revegetated as appropriate.
  - Water quality BMPs that would be implemented include the following:
    - Approved temporary vegetation;
    - Blankets/matting or mulch filter berms;
    - Vegetated filter strips;
    - Silt fence, sand bag and/or compost filter berms and socks.
  - EO 11990 Commitments
    - TxDOT will manage construction activities in order to minimize potential harm to or within the 0.32-acre PSS1 wetland (WET 1) per Sections 2(a) and 5(a-c) of EO 11990. Additional efforts to minimize potential harm to or within WET 1 are outlined below (erosion control and temporary fills) and in the Section 401/404 Commitments listed above.
    - Temporary erosion and sediment control measures would be planned for access to the site for drilling of the shafts, dewatering of the shafts, and clearing of vegetation. Upon completion of construction, all materials would be removed and the site returned to preexisting conditions. Construction activity would comply with all general and regional conditions applicable to NWP 14 (Linear Transportation Projects).
    - During the modification of the linear transportation facility, appropriate measures would be taken to maintain normal downstream flows and minimize flooding. Temporary fills would be placed in a manner that would limit erosion by expected high flows. Temporary fills would be removed in their entirety and the affected area returned to pre-construction elevations, and revegetated as appropriate.
  - Cultural Resources Commitment
    - In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area would cease and TxDOT archeological staff would be contacted to initiate post-review discovery
-

procedures under the provisions of the First Amended PA among FHWA, TxDOT, the Texas SHPO, and the Advisory Council on Historic Preservation, regarding the Implementation of Transportation Undertakings.

- Vegetation Resources Commitments
  - No compensatory mitigation is proposed for the proposed project.
  - In accordance with the Executive Memorandum on Beneficial Landscaping of August 10, 1995, all agencies shall comply with the NEPA as it relates to vegetation management and landscape practices for all federally assisted projects. Landscaping included with this project would be in compliance with the Executive Memorandum and the guidelines for environmentally and economically beneficial landscape practices. Landscaping would be limited to seeding or planting of the ROW using TxDOT's approved seeding specification.
  - EO 13112 states that revegetation would follow FHWA Invasive Species guidelines to prevent the introduction of noxious and invasive species. In accordance with EO 13112 on invasive species, native plant species would be used in any landscaping and in any seed mixes where practicable. Soil disturbance would be minimized to ensure that invasive species would not establish in the ROW. Vegetation would be cleared only as needed, and clearing may be phased, to maintain soil integrity and minimize exposure to erosive surfaces.
- Threatened and Endangered Species / MBTA Commitments
  - In the event that migratory birds are encountered on-site during project construction, every effort would be made to avoid impacts to protected birds, active nests, eggs and/or young. Prior to clearing of vegetation, nest surveys would be conducted to verify the presence/absence of active nests. In accordance with the MBTA, no vegetation or man-made structures would be removed containing nests, eggs, or young should they be discovered during construction.
  - Appropriate measures from the list of BMPs in the Best Management Practices Programmatic Agreement (2013 TxDOT-TPWD MOU) would be taken to avoid adverse impacts on migratory birds and would include the following:
    - The disturbance, destruction, or removal of active nests, including ground nesting birds, during the nesting season would be prohibited;
    - The removal of unoccupied, inactive nests would be avoided as practicable;

- 
- The establishment of active nests during the nesting season on TxDOT-owned and operated facilities and structures proposed for replacement or repair would be prevented; and
  - The collection, capture, relocation, or transportation of birds, eggs, young, or active nests without a permit would be prohibited.
  - In the event that Bald or Golden Eagles are found within the project area during construction, every effort would be made to avoid impacts to ensure compliance with the Bald and Golden Eagle Protection Act.
  - Surveys will be performed to determine the presence/absence of freshwater mussels within the project limits.
  - Hazardous Materials or Contamination Issues Commitments
    - Phase II ESA subsurface investigation is recommended prior to ROW acquisition for and construction of Phase II of the proposed Build Alternative for the former Crabb River Exxon (currently Gulf) property, 103 Crabb River Road.
    - Inspection for asbestos-containing materials will be required for the residence and two commercial structures proposed for demolition. Inspection of the Rabbs Bayou Bridge for asbestos-containing materials and lead-based paint will be required prior to demolition. Asbestos issues will be addressed during the ROW process prior to construction.
    - Six pipelines were found to bisect the proposed project—five active and one abandoned—and one pipeline runs parallel in close proximity. If required, negotiations would be conducted with the pipeline owners to relocate or deepen any affected pipelines.
    - Any unanticipated hazardous materials encountered during construction would be handled according to applicable federal and state regulations per TxDOT Standard Specifications.
    - The contractor would take appropriate measures to prevent, minimize, and control spillage of hazardous materials in the construction staging area. All materials being removed or disposed of by the contractor would be done in accordance with applicable State and Federal laws and as not to degrade ambient water quality.
  - Floodplain Commitments
    - Coordination with the Fort Bend County Drainage District would be necessary to comply with all applicable rules and regulations regarding the hydraulic design of the proposed project.
-

- TxDOT will manage construction activities in order to minimize potential harm to or within the floodplain per Section 2(d) of EO 11988.
- TxDOT will prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain.
- Congestion Management Process Commitment
  - TxDOT will send a Letter of Commitment for Traffic Signal Re-Timing and Synchronization projects to H-GAC, which will include a complete timeline of the execution of this project.
- Relocations Commitment
  - The acquisition of proposed ROW and any relocations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources are available to all residential and business relocatees without discrimination.

## Y. Indirect Impacts

This section describes the indirect impacts analysis prepared for the proposed improvements to Crabb River Road (FM 2759/FM 762) in Fort Bend County, Texas. This analysis was conducted in accordance with Council on Environmental Quality (CEQ), FHWA, and TxDOT regulations and guidance documents. The CEQ (40 CFR 1508.8) defines indirect impacts as:

*"...effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."*

There are three general categories of indirect effects:

- Encroachment-Alteration Effects, which are those that alter the behavior and functioning of the physical environment and are related to project design features, but are separated from the project by time and/or distance. An example of this type of effect would be a change in habitat regime and nesting patterns of a bird species due to the installation of a bridge.
- Access-Alteration Effects or Induced Growth Effects are also known as Project-Influenced Effects or the Land Use Effect and involve changes in land use resulting from changes in traffic, access, and mobility. Also referred to as induced growth, Access-Alteration Effects can result from highway projects that may promote an increased rate of development. An example would be development

(i.e., new subdivision) in an area that was previously inaccessible prior to construction of a new road.

- Effects Related to Project-Influenced Development, or Induced Growth-Related Effects, are those effects that are attributable to the induced growth itself.

The methodology for the indirect impact analysis is based on the findings in the National Cooperative Highway Research Program (NCHRP) Report 466, *Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects* and the TxDOT *Guidance on Preparing Indirect and Cumulative Analyses* (revised September 2010). For this analysis, TxDOT methodology was employed, which has been adapted from the findings set forth in NCHRP Report 466 to include the following eight steps:

- Step 1: Scoping. The basic approach, effort required, and geographical boundaries of the study area are determined.
- Step 2: Identify the Study Area's Goals and Trends. Information regarding the study area is compiled with the goal of defining the context for assessment.
- Step 3: Inventory the Study Area's Notable Features. Additional data on environmental features are gathered and synthesized with a goal of identifying specific environmental features that are valued, vulnerable, or unique. This step also contributes to defining the context for the analysis.
- Step 4: Identify Impact-Causing Activities of Proposed Action and Alternatives. Fully describe the component activities of each project alternative.
- Step 5: Identify Potentially Substantial Indirect Effects for Analysis. Indirect effects associated with project activities and alternatives are cataloged, and potentially significant effects meriting further analysis are identified.
- Step 6: Analyze Indirect Effects. Qualitative and quantitative techniques are employed to estimate the magnitude of the potentially significant effects identified in Step 5 and describe future conditions with and without the proposed transportation improvement.
- Step 7: Evaluate Analysis Results. The uncertainty of the results of the indirect effect analysis is evaluated for its ramification on the overall assessment.
- Step 8: Assess Consequences and Develop Mitigation. The consequences of indirect effects are evaluated against the context of the project to determine their importance. Strategies to avoid or lessen any effects found to be unacceptable are developed. Effects are reevaluated in the context of those mitigation strategies.

---

## Step 1: Scoping

The process outlined above served as the basic approach for the indirect impacts analysis. A qualitative assessment is warranted due to the type, scale, and purpose of the project (i.e., the proposed project is the widening of an existing roadway to improve mobility and safety for the local community in response to anticipated population growth unrelated to the proposed project). Additionally, the project area contains notable features; therefore analysis of encroachment-alteration effects needs to be considered.

Per coordination with the Greater Fort Bend Economic Development Council (GFBEDC, 2010), the following considerations were taken into account during the determination of the indirect effects area of influence (AOI):

- The widening of Crabb River Road (FM 2759/FM 762) may accelerate any possible development but development will occur regardless of the improvement. The widening (as an improvement) of this roadway will enhance quality of life.
- Crabb River Road (FM 2759/FM 762) is a major artery for this portion of Fort Bend County and there is no parallel alternative.
- There is a clear immediacy and need for the improvement of public safety in light of the existing deteriorated roadway condition. The new LCISD secondary school complex, at the southern terminus, will have a tremendous impact on the wear and tear of this roadway with the increased capacity and traffic movement.

The geographical boundaries of the indirect effects study area for the indirect impact analysis follow existing patterns of development and are limited by IH 69/US 59 to the north, the Greatwood Village development to the east, Bridlewood Estates to the west and just north of the George Ranch Historical Park, to the south. Although Royal Lake Estates does not connect directly to Crabb River Road (FM 762), the widening would facilitate movement onto FM 762 and therefore could improve visibility of Royal Lake Estates and surrounding undeveloped land. The study area was selected because it includes the area in which the proposed widening of Crabb River Road (FM 2759/FM 762) could influence local traffic patterns or potential land development. The selected study area is defined as the AOI and is presented on **Exhibit 13**. This study area consists of 5,297 acres, of which 2,351 acres are undeveloped. The temporal boundaries are from 2016, the year of construction, until 2040, the year of the H-GAC RTP.

Areas outside of the AOI are better served by other regional roadways and growth would occur similarly in those areas under the Build or No Build scenarios.

## Step 2: Identify the Study Area's Direction and Goals

Indirect effects are commonly related to changes in land use. When a transportation project is constructed, an indirect impact may occur when the project induces other types of land development as a result of increased or new access. New development can alter the

landscape, increase impervious cover, modify species composition of any remaining habitats, and introduce fertilizers and anthropogenic chemicals into the biotic system.

As previously discussed in the **Regional and Community Growth** section, the population in the project area has grown tremendously since the last census in 2010. By 2040, the population of Fort Bend County is anticipated to have increased between approximately 95 and 228 percent since the 2010 census. With this population growth in mind, demands on existing infrastructure and the ability to support the growth are examined here. Currently, while portions of the AOI are undeveloped, the new school complex, George Ranch Historical Park, and existing residential and agricultural uses will exacerbate the strain placed on the existing two- to three-lane roadway. The potential changes in population and the development patterns are anticipated to occur whether or not Crabb River Road (FM 2759/FM 762) is widened.

In order to assist with developing the goals for this project the local jurisdictions' plans were reviewed. The City of Sugar Land has a *Future Land Use Plan*, the West Ford Bend Management District monitors the areas included in Richmond and Rosenberg with its *Corridor Development Standards*, and the County monitors growth along its roadways with its *Major Thoroughfare Plan*.

The H-GAC RTP defines transportation systems and services in the area containing the boundaries of the AOI. The RTP addresses regional transportation needs that are identified through forecasting current and future travel demand, developing and evaluating system alternatives and selecting those options which best meet the mobility needs of the region. The proposed facility is included in the 2040 RTP.

The analysis conducted in finalizing the goals for the project area concluded that the widening of Crabb River Road (FM 2759/FM 762) would not be a catalyst for change. Regardless of whether the Build Alternative is constructed, what is currently planned to be developed will remain as such (for example, the LCISD complex). The wetland and floodplain areas provide regulatory constraints on the undeveloped lands. The widening of Crabb River Road (FM 2759/FM 762) is a consensus-driven effort and all interested jurisdictional parties have given their support (Newsome, 2009). The overriding goal for the governing jurisdictions is to provide a safe, reliable route for this area of the county that will ensure that quality of life is enhanced for those who live and work in this area.

### **Step 3: Inventory the Study Area's Notable Features**

Indirect effects to resources outside of the proposed project ROW could occur within the AOI. Of these resources, the indirect effects analysis requires an assessment of potential indirect effects of the proposed project on the area's notable features.

Notable features are generally described as sensitive species or habitats, valued environmental components that we seek to use, protect, or enhance, unique or unusual

resources, or vulnerable elements of the human population, such as elderly, children, disabled, low-income, or minority populations (NCHRP, 2002). Based on the results of this EA, these notable features were found to require inclusion in the indirect effects analysis: undeveloped land; soil and farmlands; vegetation/wildlife habitat; waters of the US, including wetlands; and air quality.

#### Lamar Consolidated Independent School District Facility

This secondary school complex includes a junior high school and high school along with athletic fields, and can support an enrollment of 3,200 students and 266 faculty and staff. The school complex opened in 2010.

#### Land Use (Undeveloped Land)

Decisions to change current land-use patterns along these roadways could be a result of the indirect effects associated with travel demand in the Build Alternative. These potential changes to land-use patterns, however, remain within the purview of local agencies. Through the analysis it was determined that approximately 2,351 acres of undeveloped land exist within the AOI and, if warranted by local jurisdictional agencies, could provide development opportunities.

#### Soil and Farmlands

Future construction may expose some geologic resources to erosion, but this type of exposure would be of short duration and is usually associated with grading, excavation, and placement of fill material. Typically, soils would be removed from the ROW and the remaining soils would be subject to compaction and increased erosion potential. These effects would be short term, localized, and manageable. Based on the analysis conducted, approximately 5,194 acres of farmland soils exist within the AOI.

#### Waters of the US, Including Wetlands

Under the Build Alternative, some degradation of waters of the US, including wetlands, may occur from future development within the AOI. Potential effects to waters of the US from development include loss of wetland habitat as a result of placement of fill and degradation through encroachment and as a result of increased runoff. There are approximately 45.84 acres of wetlands and waters of the US within the AOI.

#### Vegetation and Wildlife Habitat

Development under the Build Alternative would impact vegetation (pastureland, grassland and cropland) and wildlife habitat through a continuing net loss of established, late successional woody and herbaceous vegetation, fragmentation of remaining vegetation resources, and reduction of habitat connectivity in the larger area. There are 4,490 acres of vegetation and wildlife habitat within the AOI.

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

Steps 2 and 3 of the indirect effects assessment framework have focused on the identification of trends, goals and notable features. The next steps involve identification and assessment of impacts that may come into conflict with these goals and features. The fourth step consists of listing the impact-causing actions of the project. The general types of impact-causing activities and a description as they relate to the project are provided in **Table 14**.

Impact-causing activities of the proposed action that are relevant to indirect effects of the Build Alternative include those activities that are related to the project design and result in the alteration of the behavior or functioning of the physical environment or that cause changes in traffic patterns and influence land uses in the area.

TABLE 14: IMPACT CAUSING ACTIVITIES		
Type of Activity	Project Specific Activity	Relevant Details
Modification of Regime	Alteration of Ground Cover	Ground cover adjacent to the proposed extension would be temporarily disturbed. Best Management Practices (BMPs) would be in place to control soil erosion. When construction is complete, ground cover would be reestablished according to EO 13116 – Invasive Species.
Modification of Regime	Modification of Habitat	New ROW would result in the conversion of 51.4 acres of existing vegetation (pastureland, grassland and cropland) to transportation ROW. Effects would be minimized through BMPs to control erosion and pollutant discharge and EO 13112 would ensure no invasive species is used to establish vegetation within the ROW. Vegetation clearing would occur outside the breeding season in compliance with the MBTA.
Land Transformation and Construction	New or Expanded Transportation Facility	The proposed project includes a widening of a two to three-lane existing roadway [Crabb River Road (FM 2759/FM 762) from 0.25 mile south of Sansbury Boulevard to just south of the new LCISD Secondary School Complex, a distance of approximately 2.9 miles] to a concrete four-lane divided curb and gutter roadway with underground storm sewer drainage. The proposed project would require that 51.4 acres be converted to transportation ROW.
Source: TxDOT Guidance on Preparing Indirect and Cumulative Impact Analyses, September 2010		

The Build Alternative would require 51.4 acres of land to be converted to transportation ROW. Also, based on preliminary review it was determined that approximately 0.32 acre of potentially jurisdictional waters of the US is located within the ROW.

There would be no change in traffic patterns or access alteration as a result of the proposed project. The widening of Crabb River Road (FM 2759/FM 762) is needed to alleviate traffic congestion; ensure a safe roadway and access for students, parents and faculty/staff

traveling to and from the new LCISD secondary school complex; and maintain adequate roadside access to adjacent properties.

### **Step 5: Identify Potentially Substantial Indirect Effects for Analysis**

This step summarizes the methods used to identify indirect impacts and presents the framework for determining, which impacts merit further analysis, or conversely, which impacts require no further analysis. The methods used to identify indirect impacts are primarily qualitative. This technique focused on the elements or indicators that characterize the study area using ecological and social data from the baseline investigations. The discussion of indirect impacts is organized by three different types of impacts; encroachment-alteration impacts, induced growth impacts and impacts related to induced growth.

#### Encroachment-Alteration Impacts

Encroachment-alteration impacts are defined as the alteration of the behavior and functioning of the affected environment caused by project encroachments. These impacts are generally categorized as ecological or socioeconomic.

Potential indirect ecological effects include habitat fragmentation, degradation of habitat, disruption of natural processes (i.e. hydrology, species competition, etc.), pollution effects on species and disruption of ecosystem functioning.

#### *Ecological Effects*

The interconnections in ecosystems are numerous and complex. In the absence of a major disruption, species composition and relative abundance in a community can be expected to vary within definable boundaries, perhaps cyclically or perhaps randomly. Disruption of such systems (i.e. the introduction of contaminants) creates new boundaries, changing the range of possibilities in ways that are not always predictable. Transportation corridors have unique impacts on ecosystems associated with their linear form. These corridors may function as specialized habitats, conduits of movement, barriers or filters to movement, or sources of effects on surrounding habitats. Improvements within corridors can have consequences to habitats removed in time and distance from the project.

The ecological features that were considered for this indirect effects analysis are: soil and farmlands; waters of the US, including wetlands; vegetation and wildlife habitat; and air quality. These features were considered for the AOI as well as the conversion to transportation ROW. Of these, vegetation is the feature that would be directly impacted. Indirect impacts are not anticipated because the proposed project would not provide new access to developable lands. Therefore, no induced development is anticipated that would lead to increased stormwater runoff and degradation to vegetative communities. Also, habitat fragmentation has already occurred within the AOI and the project area due to the existing development of master-planned communities and commercial uses. This, therefore,

leads to the conclusion that no indirect impacts to ecological features and habitat fragmentation, and no disruption to ecosystem function are anticipated as a result of this project.

The AOI is part of the EPA designated eight-county nonattainment area for ozone. The AOI is currently in attainment for all other NAAQS pollutants; please refer to **Section IV.S**. Based on the results of Steps 1 through 4 that evaluated the possible project-related actions that can indirectly impact air, it was determined that the proposed project would not be anticipated to cause indirect air quality impacts in the AOI. No change in attainment status is anticipated within the AOI area as the result of emissions associated with the proposed project. In order for the region to achieve ozone attainment, a variety of point, non-point, and mobile source emission reduction strategies must be implemented for the entire Houston-Galveston-Brazoria area as outlined in the SIP. Indirect air quality impacts from MSATs are unquantifiable due to existing limitations on determining pollutant emissions, dispersion, and impacts to human health. Emissions would likely be lower than present levels in future years as a result of the EPA's national control regulations (i.e., new light-duty and heavy duty on-road fuel and vehicle rules, the use of low sulfur diesel fuel). Even with an increase in VMT and possible temporary emission increases related to construction activities, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions of on-road emissions, MSATs, and the ozone precursors VOC and NOx.

#### *Socioeconomic Effects*

There are two major types of socioeconomic encroachment impacts: changes in travel patterns and access; and relocation of homes, businesses or public facilities. This project would result in one residential and two commercial relocations. To address safety concerns, a grade separation—an elevated crossing at the BNSF railroad—is included in the project. The grade separation over the railroad would improve traffic safety, increase the LOS and also improve operations for the railroad company. As part of the widening project, new lighting standards would be installed along the roadway. The light fixtures would effectively illuminate the area to increase visibility and safety.

The two socioeconomic features that were discussed in the indirect effects analysis were the LCISD secondary school complex and the possible changes to land use and undeveloped lands. The school is not anticipated to be indirectly impacted by the proposed project. Indirect effects to land use and undeveloped lands at this time are not anticipated due to the proposed project. These changes are difficult to anticipate and, if they were to occur, would only happen with the consent and approval of the jurisdictional authorities and affected public.

#### Induced Growth Impacts and Effects Related to Induced Growth

The proposed improvements to Crabb River Road (FM 2759/FM 762) would not result in induced growth impacts since they would not provide new public roadway access to adjacent

properties or increase mobility to such an extent that existing or anticipated rates and patterns of development would be substantially altered. Based on the interviews conducted with local experts with the GFBEDC, review of land use policies, review of historical and existing development trends, and review of current development patterns along Crabb River Road (FM 2759/FM 762), it was determined that this widening project would not induce additional development that would jeopardize any resources outlined in this analysis.

As previously discussed, no indirect development is anticipated within the AOI. Therefore, current growth patterns would continue, and no substantial change in socioeconomic effects would occur as a result of the project.

### Summary of Indirect Effects Analysis

Through this analysis it was determined that the Build Alternative (Phase I or Phase II) would not cause substantive indirect impacts. This is due to the governing policies (i.e. land use planning; wetland and floodplain regulatory constraints) that were in place at the time this analysis was conducted. Therefore, substantial encroachment-alteration impacts, induced growth impacts, or effects related to induced growth are not anticipated. The Build Alternative is not likely to stimulate complementary land development because of the existing land use along Crabb River Road (FM 2759/FM 762) and how it is currently developed. In conclusion, no additional issues will be carried forward for further analysis in Steps 6, 7 and 8.

The resources that were evaluated for indirect impacts are summarized in **Table 17**. Of those, land use (undeveloped land); soil and farmlands; vegetation/wildlife habitat; waters of the US, including wetlands; and air quality were deemed to require a cumulative impact analysis. Primarily this is either due to the anticipated direct impact, potential indirect impact, and/or due to their proximity within the AOI.

### Z. Cumulative Impacts

The cumulative impact assessment prepared for the proposed project was conducted in accordance with CEQ, FHWA, and TxDOT regulations and guidance documents. The CEQ regulations (40 CFR § 1508.7) define cumulative impacts as:

*"...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time."*

The analysis considers the magnitude of the cumulative impact on the resource health. Health refers to the general overall condition, stability, or vitality of the resource and the trend of that condition. Therefore, the resource health and trend are key components of the cumulative impacts analysis. Laws, regulations, policies, or other factors that may change or

sustain the resource trend will be considered to determine if more or less stress on the resource is likely in the foreseeable future. Opportunities to mitigate adverse cumulative impacts will be described.

The methodology for the analysis of potential cumulative impacts follows the process recommended in the *TxDOT Guidance on Preparing Indirect and Cumulative Impact Analyses* (revised September 2010). TxDOT developed an eight-step approach to evaluate cumulative impacts. These steps include:

1. Identify the resources to consider in the analysis.
2. Define the study area for each affected resource.
3. Describe the current health and historical context for each resource.
4. Identify the direct and indirect impacts that may contribute to a cumulative impact.
5. Identify other reasonably foreseeable future actions that may affect the resources.
6. Assess potential cumulative impacts to each resource.
7. Report the results.
8. Assess and discuss mitigation issues for all adverse impacts.

The TxDOT eight-step process is intended to provide an efficient, consistent, and logical method of evaluating cumulative impacts of a project. The following describes each of the steps used in this cumulative impacts analysis.

### **Step 1. Identify Resources to Consider in the Analysis**

This analysis focuses on resources that are affected by the proposed project and considered to be at risk of declining, even though the proposed project's direct impacts are relatively minor, and there were no substantial indirect impacts identified as a result of this project.

According to TxDOT guidance, if a project does not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource. Based on the information obtained during environmental investigations, the proposed project would not cause any substantial direct or indirect impacts. As previously discussed, it was determined that the proposed project would have direct impacts to: land use (undeveloped land); vegetation/wildlife habitat; waters of the US, including wetlands; and air quality. While there will be negligible soil and farmland direct impacts, it was determined through the FPPA and NRCS assessment that the combined possible rating of 143 falls below the threshold of 160, therefore no further coordination is required. Due to current governing policies, as stated previously, there are no substantial indirect impacts caused by the Build Alternative anticipated to these resources (**Table 15**).

TABLE 15: DETERMINATION OF RESOURCES INCLUDED IN THE CUMULATIVE IMPACTS ANALYSIS

Resource	Summary of Direct Impacts	Indirect Impacts	Topic to be included in Cumulative Impact Analysis	Reason Eliminated from Cumulative Impact Analysis
Community Impacts (including Socioeconomic and Environmental Justice)	No communities would be bisected by the Build Alternative. One residential and two commercial property acquisitions would be required by the proposed project. Additionally, access to affected property owners' land would be altered.	No substantial indirect impacts are anticipated. No change in community cohesion or travel patterns.	No	Impacts not substantial; resource not at risk.
Section 4(f) and 6(f) Properties	No Section 4(f) or 6(f) properties would be impacted by the Build Alternative.	No indirect impacts.	No	No impact.
Floodplains	0.25 acre of the Build Alternative lies in the 100-year floodplain of Rabbs Bayou.	No indirect impacts are anticipated.	No	Impacts not substantial; resource not at risk.
Waters of the US, including Wetlands	Approximately 0.32 acre of waters of the US would be impacted.	Although nearly 45.84 acres of waters of the US, including wetlands, are within the AOI, no indirect impact is expected as a result of this project.	Yes	N/A
Water Quality	The Build Alternative would disturb approximately 5 acres. County will apply for TPDES permit.	No indirect impacts are anticipated.	No	No impaired stream segments present, underground storm sewer drainage to be constructed; resource not at risk.
Threatened and Endangered Species	No threatened and endangered species directly impacted by the Build Alternative.	No indirect impacts are anticipated.	No	There are no direct or indirect impacts anticipated for threatened and endangered species; therefore, they will not be considered in the cumulative impacts analysis.
Vegetation and Wildlife Habitat	94.1 acres of vegetation (pastureland, grassland, and cropland) are located within the existing and proposed ROW.	Although nearly 4,490 acres of vegetation were found within the AOI, no indirect impact is expected as a result of this project.	Yes	N/A
Historic Resources	No NRHP properties would be impacted by the Build Alternative.	No indirect impacts are anticipated	No	No impact; resource not at risk.

TABLE 15: DETERMINATION OF RESOURCES INCLUDED IN THE CUMULATIVE IMPACTS ANALYSIS

Resource	Summary of Direct Impacts	Indirect Impacts	Topic to be included in Cumulative Impact Analysis	Reason Eliminated from Cumulative Impact Analysis
Archeological Resources	One archeological site within the proposed ROW.	No indirect impacts are anticipated.	No	No impact; no remnants of site within proposed ROW; resource not at risk.
Aesthetic Considerations	No direct impacts are anticipated.	No indirect impacts are anticipated.	No	No impact.
Land Use	51.4 acres of existing land uses converted to ROW for transportation and associated storm water drainage; no change in land use patterns.	Although nearly 2,351 acres of undeveloped land are within the AOI, no indirect impact is expected as a result of this project.	Yes	N/A
Soil and Farmlands	No prime farmland directly affected by the Build Alternative.	Although nearly 5,194 acres of prime farmland are within the AOI, no indirect impact is expected as a result of this project.	Yes	N/A
Air Quality	Direct impacts on air quality and MSATs from the project are primarily those associated with the increased capacity, accessibility and the resulting projected increases in VMT. Emission reductions as a result of EPA's new fuel and vehicle standards are anticipated to offset impacts associated with VMT increases.	Indirect impacts on air quality and MSATs are primarily related to any expected development resulting from project's increased accessibility or capacity to the area. Any increased air pollutant or MSAT emissions resulting from the potential development of the area must meet regulatory emissions limits established by the TCEQ and EPA as well as obtain appropriate authorization from the TCEQ and therefore are not expected to result in any degradation of air quality or MSAT levels.	Yes	N/A

Source: GIS data and field reconnaissance; Project Study Team 2014-2015

## Step 2. Define Study Area for Affected Resources

The Resource Study Area (RSA) for each resource was chosen based on the determination of the potential direct impacts and indirect impacts arising primarily from changes in land use occurring along the proposed project, as well as other known projects that may contribute to cumulative impacts. The geographic area reviewed for the RSA for each resource is listed in **Table 15**. For this evaluation, the waters of the US (including wetlands) RSA was determined

based on the watershed boundaries found near Crabb River Road (FM 2759/FM 762) (see **Exhibit 15**).

**Step 3. Describe the Current Health and Historical Context of Resources**

Land Use

Land use in the RSA, as defined in **Table 16** below, consists primarily of undeveloped land uses. There are approximately 22,652 acres (53 percent) of undeveloped land within the RSA. Based on review of historical aerials the land use of the RSA has remained stable. The majority of the commercial and residential developments within the RSA are located within the Sugar Land ETJ. Agricultural land uses are prevalent throughout the RSA. Scattered single-family residences are located throughout the RSA with higher concentrations in the Sugar Land ETJ. Much of Fort Bend County has been experiencing growth since the last census. Based on past development trends, future land uses are expected to remain the same with some potential for additional development but only if agricultural land uses change.

TABLE 16: RESOURCE STUDY AREA RESOURCES FOR CUMULATIVE IMPACTS ANALYSIS	
Resource	RSA
Land Use	Contiguous area not developed within the Sugar Land ETJ and also includes the AOI for Crabb River Road (FM 2759/FM 762).
Soil and Farmlands	Prime farmland within the undeveloped land identified within the AOI for Crabb River Road (FM 2759/FM 762).
Vegetation and Wildlife Habitat	Contiguous vegetation and wildlife habitat within the AOI
Waters of the US, Including Wetlands	Designated wetlands and waters of the US within the Watershed RSA ( <b>Figure 15</b> )
Air Quality	<p>The RSA for evaluating the ozone NAAQS was designated as the Houston-Galveston-Brazoria eight-hour ozone nonattainment area, which includes Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties.</p> <p>The RSA for carbon monoxide was based on the ROW line, which represents the locations with the highest potential for carbon monoxide (CO) concentrations. However, the nature of the proposed project does not warrant a Traffic Air Quality Analysis (TAQA). Therefore, CO levels resulting from this project would not be expected to exceed the NAAQS for CO and negatively impact air quality in this area.</p> <p>The RSA for MSATs is the boundaries of Fort Bend County. Unlike the other resources evaluated, air quality impacts from MSATs have been evaluated qualitatively in this proposed project by TxDOT. MSATs are regulated by EPA on a national basis through requirements for fuels and vehicle technology. The MSAT RSA qualitatively evaluated emission changes based on the proposed project and national trends.</p>
Source: Project Study Team, 2014-2015	

### Soil and Farmlands

The RSA contains approximately 31,166 acres of prime farmlands. This represents 72 percent of the RSA. Over time, portions of the land in this area have been developed from a passive use and some lands have been converted from farmland.

### Vegetation and Wildlife Habitat

Approximately 29,843 acres of vegetation and wildlife habitat are located within the RSA, which is 69 percent of the RSA. Previously approved master-planned communities have influenced mixed-use (residential and commercial) development in the northern portion of the corridor. Forest clearing, roadways, irrigation systems, land use and human encroachment have all contributed to fragmentation over time. If any future development is approved by the local jurisdictions then it is anticipated that vegetation and wildlife habitat could be impacted as a result, regardless of the improvement to Crabb River Road (FM 2759/FM 762).

### Waters of the US, Including Wetlands

Within the RSA, 3,950 acres of waters of the US, including wetlands were found. This represents nine percent of the RSA. Any possible future development and therefore subsequent land conversion would cause direct and indirect effects to waters of the US. The amount of impervious cover as a result of agricultural land being converted segments hydric features.

### Air Quality

The EPA establishes limits on atmospheric pollutant concentrations through enactment of the NAAQS for six principal, or criteria, pollutants. The EPA designated eight counties in the Houston-Galveston-Brazoria area as nonattainment for ozone. The region is currently in attainment for all other criteria pollutants. Although there have been year-to-year fluctuations, the ozone trend continues to show improvement. The trend of improving air quality in the region is attributable in part to the effective integration of highway and alternative modes of transportation, cleaner fuels, improved emission control technologies, and H-GAC regional clean air initiatives.

The proposed action is consistent with the H-GAC's financially constrained 2040 RTP and the 2015-2018 TIP, as amended, which were initially found to conform to the TCEQ SIP by FHWA and Federal Transit Administration on September 11, 2015, and December 2, 2014, respectively. Copies of the RTP and TIP pages are included in **Exhibit 6**. 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 Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR.

---

#### **Step 4. Identify Direct and Indirect Impacts That May Contribute to Cumulative Impact**

A summary of direct and indirect impacts that may contribute to cumulative impacts are summarized in **Table 17**. An analysis of indirect impacts is provided in the previous section.

#### **Step 5. Identify Other Reasonably Foreseeable Actions That May Affect Resources**

In addition to the direct and indirect impacts of the Build Alternative, several other actions have affected, or are likely to affect resources in the project area.

##### Past Transportation Infrastructure Construction

Major roadways within the AOI include IH 69/US 59, FM 2759, and FM 762. These roads were constructed prior to the year 2000.

##### Additional Public Development in Future Land Use Plan

The City of Sugar Land is currently the only jurisdiction with a future land use plan. Along the project corridor the land uses are primarily residential with some commercial and public uses at the northern terminus. The LCISD campus is now complete and was included for consideration in this analysis. The school is approximately 140 acres in scale and is considered a major development along the Crabb River Road corridor. In 2009 the shopping plaza that supports the residential master-planned community Canyon Gate at the Brazos (located at intersection with Sansbury Boulevard) was completed. The total acreage of the Canyon Gate at the Brazos project was 600 acres.

##### Future Transportation Projects

*Grand Parkway (SH 99), Segment C* – A Final Environmental Impact Statement and Record of Decision (ROD) was completed for this planned roadway and is currently being reevaluated for design changes that would incorporate the existing Crabb River Road (FM 2759) north of Rabbs Bayou for northbound traffic during the interim period prior to full build-out of Segment C. Segment C of the Grand Parkway (SH 99) would tie in with the northern terminus of the proposed Crabb River Road (FM 2759) widening project and veer westward and take on a different alignment. Where the proposed SH 99 intersects FM 762, west of Crabb River Road, an interchange has been proposed. This project has been under evaluation for many years and is well known by the jurisdictional agencies and members of the public.

*Sansbury Boulevard* – Improvements have been proposed for the intersection of Sansbury Boulevard with the planned Grand Parkway Segment C frontage roads.

#### **Step 6. Assessment of Potential Cumulative Impacts to Each Resource**

The Build Alternative, in combination with other past, present, and reasonably foreseeable future actions discussed above, would cumulatively impact the health of the resources considered, which include: land use (undeveloped land); soil and farmlands; vegetation and wildlife habitat; wetlands and waters of the US, and air quality. Some impacts would be

positive, some negative, but all are considered generally mild in terms of their intensity and context. **Table 17** provides a matrix for understanding the cumulative impacts on the five resources. Cumulative impacts would be minimal based on population and economic growth projections, which are dependent on variables exclusive of the construction of the Build Alternative. Existing roadway corridors would be utilized and the current socioeconomic landscape would be maintained.

Any increased air pollutant or MSAT emissions resulting from increased capacity, accessibility and development are projected to be more than offset by emissions reductions from EPA's new fuel and vehicle standards or addressed by EPA's and TCEQ's regulatory emissions limits programs. Projected traffic volumes are expected to result in minimal impacts on air quality; improved mobility and circulation may benefit air quality. Increases in urbanization would likely have a negative impact on air quality. However, planned transportation improvements in the project area as listed in a conforming RTP and TIP, coupled with EPA's vehicle and fuel regulations fleet turnover, are anticipated to have a cumulatively beneficial impact on air quality.

**Step 7. Results**

Based on the analysis conducted, the results are summarized in **Table 17**.

TABLE 17: SUMMARY OF CUMULATIVE IMPACTS				
Resource	Direct Impacts	Indirect Impacts	Third Party Action	Cumulative Effect on the Resource
Waters of the US, including Wetlands	0.32 acre	Although nearly 45.84 acres of waters of the US, including wetlands, are within the AOI, no indirect impact is expected as a result of this project.	N/A	Continuation of existing development trends could impact waters of the US or wetland communities.
Vegetation and Wildlife Habitat	51.4 acres	Although nearly 4,490 acres of vegetation were found within the AOI, no indirect impact is expected as a result of this project.	N/A	Conversion of 51.4 acres to transportation ROW for ultimate facility; continuation of existing development trends could result in fragmentation and diminished habitat quality.
Land Use	51.4 acres	Approximately 2,351 acres of undeveloped land are within the AOI. Even though this resource was identified in the AOI, no indirect impact is expected as a result of this project.	140 acres (LCISD)	Conversion of 191.4 acres of undeveloped land; continuation of existing development trends.
Soil and Farmlands	Prime farmland soils present within the proposed ROW of the Build Alternative.	Although nearly 5,194 acres of prime farmland are within the AOI, no indirect impact is expected as a result of this project.	N/A	Continuation of existing development trends could diminish farming/ranching operations.
Air Quality	Direct impacts on air quality and MSATs from the project are primarily those associated with the increased capacity, accessibility and the resulting projected increases in VMT. Emission reductions as a result of EPA's new fuel and vehicle standards are anticipated to offset impacts associated with VMT increases.	Indirect impacts on air quality and MSATs are primarily related to any expected development resulting from project's increased accessibility or capacity to the area. Any increased air pollutant or MSAT emissions resulting from the potential development of the area must meet regulatory emissions limits established by the TCEQ and EPA as well as obtain appropriate authorization from the TCEQ and therefore are not expected to result in any degradation of air quality or MSAT levels.	N/A	The cumulative impact on air quality from the proposed project and other reasonably foreseeable transportation projects are addressed at the regional level by analyzing the air quality impacts of transportation projects in the 2040 RTP and the 2015-2018 TIP, as amended. The proposed project and the other reasonably foreseeable transportation projects were included in the 2040 RTP and the 2015-2018 TIP, as amended and have been determined to conform to the SIP. When combined, planned transportation improvements, revised EPA fuel and vehicle regulations, and fleet turnover are anticipated to have a cumulatively beneficial impact on air quality.
Source: Project Study Team, 2014-2015				

## Step 8. Assess and Discuss Mitigation Issues for All Adverse Impacts

### Land Use (Undeveloped Land)

Development plans are subject to city and county subdivision plat approval processes and/or land use development codes. Any land development taking place within a city or its ETJ would be subject to city land use development regulations and policies. Development proposed outside of the city limits or outside of the ETJ would be subject to the county's development review process.

### Soil and Farmlands

The potential future loss of farmland could be limited by the implementation of more stringent local, state, and federal restrictions on the conversion of the farmland resource. Through a conservation loan guarantee program, the USDA could incorporate private dollars as a source of capital for producers seeking to implement conservation systems on their operations (American Farmland Trust [AFT], 2006). The AFT has developed an *Agenda 2007: A New Framework and Direction for U.S. Farm Policy*, which includes environmental stewardship to aid in conservation of natural resources (AFT, 2006). AFT recommends that conservation program payments would be used in conjunction with "green payments" by providing cost-share funding to producers who alter farming practices and land use to improve environmental quality. Due to the high number of farmers and ranchers requesting funding for this program, funding for existing working lands conservation programs should be doubled in the proposed 2008 Farm Bill (AFT, 2008). Through programs such as these, producers may be able to continue farming operations without the pressure to sell their land to developers.

### Vegetation Including Wildlife Habitat

The roadway may bring future development, which may cause occurrence of the additional loss of vegetation, including wildlife habitat. An additional 4,490 acres of vegetation including wildlife habitat may be indirectly impacted by potential future development within the AOI. In addition to impacts from induced development, indirect and cumulative impacts would occur to wildlife such as fragmentation of habitat and reduction of travel corridors. Mitigation for loss of vegetation from private development would occur on a case by case basis.

In terms of future roadway developments, mitigation includes measures that avoid, minimize, or compensate for impacts to resources. Initial mitigation measures in the planning or alignment of highway projects attempt to avoid or minimize impacts to vegetation communities that may serve as wildlife habitat, special habitat features according to the MOU between TxDOT and TPWD, or wetlands through alternative route evaluation. Impacts to mature woody vegetation would be minimized where possible, and areas cleared of vegetation would be landscaped as outlined in the Executive Memorandum

for Beneficial Landscaping Practices. Impacts would be further minimized by using appropriate BMPs that include, but are not limited to, installing appropriate erosion and sedimentation controls, seeding bare ground areas, reducing or eliminating the discharge of various pollutants, and implementing procedures for the proper disposal of waste products.

EO 13112 requires Federal agencies to prevent introduction of invasive species and provide for their control and then to minimize the economic, ecological, and human health impacts that invasive species cause. Also, In accordance with the Executive Memorandum on Economically and Environmentally Beneficial Landscaping of August 10, 1995, where applicable, native plant species of grasses, shrubs, or trees would be used in the landscaping and in the seed mixes. The Build Alternative would utilize the TxDOT-approved seed mix. No invasive species would be used in seeding the ROW, and soil disturbance would be minimized to prevent invasive species establishment within the ROW.

#### Waters of the US, Including Wetlands

One 0.32-acre, isolated, non-jurisdictional wetland was found in the transportation ROW; however, no jurisdictional wetlands were present. A total of 0.32 acre of potentially jurisdictional waters of the US was found in the transportation ROW. Within the AOI, 45.84 acres of waters of the US, including wetlands were found.

The USACE jurisdictional verification of waters of the US, including wetlands, is currently pending. After completion of the USACE verification, the total direct impacts to jurisdictional waters of the US, including wetlands, will be calculated and the appropriate Section 404 permit application will be submitted to the USACE. A mitigation plan addressing direct impacts would be included in the permit application identifying the proposed mitigation required for the impacts associated with the Build Alternative.

No indirect impacts to jurisdictional waters are anticipated. Any remaining cumulative effects would result from other potential, reasonably foreseeable development actions. TxDOT and Fort Bend County are not responsible for mitigation of actions conducted by other parties, such as private development. The USACE has jurisdiction over mitigation activities for such impacts to waters of the US, and as such, would determine the mitigation responsibilities of developers and other parties. Mitigation for impacts to waters of the US caused by private development or development by other public entities could include the construction of mitigation areas or purchasing credits from a mitigation bank by the private or public entities involved in those actions.

#### Air Quality

A variety of federal, state, and local regulatory controls as well as local plans and projects have had a beneficial impact on regional air quality. The CAA, as amended, provides the framework for federal, state, tribal, and local rules and regulations to protect air quality. The CAA required the EPA to establish NAAQS for pollutants considered harmful to public health

and the environment. In Texas, the TCEQ has the legal authority to implement, maintain, and enforce the NAAQS. The TCEQ establishes the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general comprehensive plan. Authorization in the Texas Clean Air Act (TCAA) allows the TCEQ to do the following: collect information and develop an inventory of emissions; conduct research and investigations; prescribe monitoring requirements; institute enforcement; formulate rules to control and reduce emissions; establish air quality control regions; encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and to establish and operate a system of permits for construction or modification of facilities. Local governments having some of the same powers as the TCEQ can make recommendations to the commission concerning any action of the TCEQ that may affect their territorial jurisdiction, and can execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA or the rules or orders of the TCEQ.

The CAA also requires states with areas that fail to meet the NAAQS prescribed for criteria pollutants to develop an SIP. The SIP describes how the state would reduce and maintain air pollution emissions in order to comply with the federal standards. Important components of the SIP include emission inventories, motor vehicle emission budgets, control strategies to reduce emissions, and an attainment demonstration. The TCEQ develops the Texas SIP for submittal to the EPA. One SIP is created for each state, but portions of the plan are specifically written to address each of the non-attainment areas. These regulatory controls, as well as other local transportation and development initiatives implemented throughout the Houston-Galveston-Brazoria area by local governments and other entities provide the framework for growth throughout the area consistent with air quality goals. As part of this framework, all major transportation projects, including the proposed project, are evaluated at the regional level by the H-GAC for conformity with the SIP.

The cumulative impact of reasonably foreseeable future growth and urbanization on air quality within this area would be minimized by enforcement of federal and state regulations, including the EPA and TCEQ, which are mandated to ensure that such growth and urbanization would not prevent attainment of the ozone standard or threaten the maintenance of the other air quality standards.

## V. CONCLUSION

The engineering, social, economic, and environmental investigations conducted thus far on the Build Alternative indicate that it would result in no significant impacts on the quality of the human or natural environment; therefore a Finding of No Significant Impact is anticipated.

This page intentionally blank

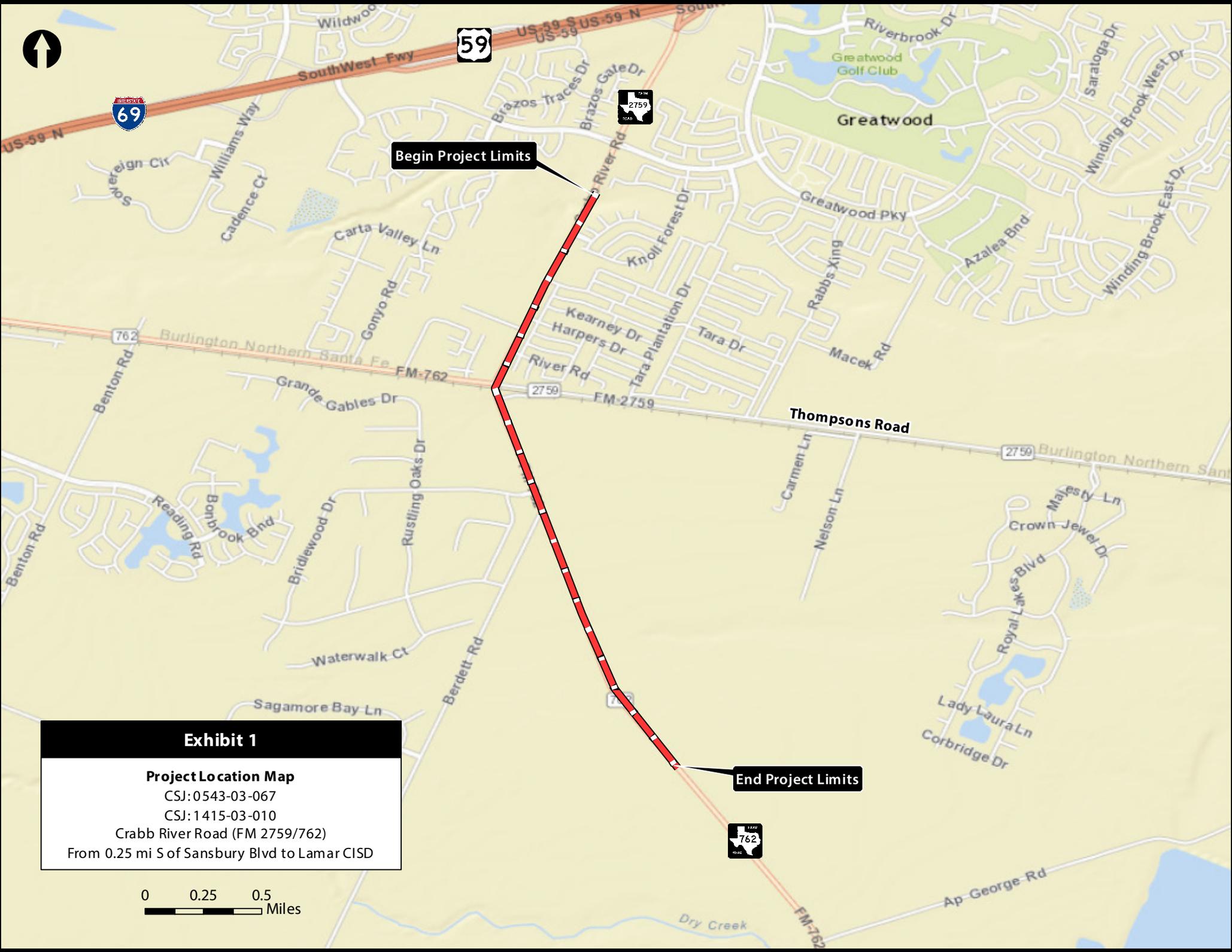
---

## VI. REFERENCES

- American Farmland Trust. *Agenda 2007: A New Framework and Direction for U.S. Farm Policy*. May 8, 2006. [http://www.farmland.org/documents/AFT\\_Agenda2007\\_May06.pdf](http://www.farmland.org/documents/AFT_Agenda2007_May06.pdf)
- American Farmland Trust. 2008. Farm Bill: House Committee on Agriculture. Title II – Conservation Fact Sheet.
- Federal Emergency Management Administration, Flood Map Service Center. Flood Map 48157C0265L, April 2, <https://msc.fema.gov/portal/search>. Accessed March 2015.
- Federal Railroad Administration. US DOT – Crossing Inventory Information (February 13, 2015).
- FHWA Policy Memoranda. Executive Memorandum on Economically and Environmentally Beneficial Landscaping of August 10, 1995. <http://www.fhwa.dot.gov/legsregs/directives/policy/memo50.htm>
- FHWA Regulation 23 CFR 772. 2010. "Procedures for Abatement of Highway Traffic Noise and Construction Noise,"
- Fort Bend County *Major Thoroughfare Plan*. January 23, 2015.
- Greater Fort Bend Economic Development Council. January 5, 2010. Meeting with GFBEDC staff to discuss ICI components.
- National Cooperative Highway Research Program. 2002. Report 466, Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects.
- National Oceanic Atmospheric Administration, Essential Fish Habitat Mapper, 2014. Available online at <http://www.habitat.noaa.gov/protection/efh/habitatmapper.html>. Accessed December 2014.
- National Register of Historic Places online database, <http://nrhp.focus.nps.gov/>.
- Newsome, Freddie, Mayor. September 8, 2009. Letter from Town of Thompsons to USDOT in regard to the Crabb River Road improvements.
- Sherman, David, Eugene Foster, Michelle Dippel, Brandy Lim, and Linda Nance. 2006 Intensive Archaeological Survey of the Grand Parkway Segment C Preferred Alternative in Fort Bend and Brazoria Counties, Texas. Document 040119. PBS&J, Austin, Texas.
- Texas Commission on Environmental Quality, Texas 303(d) List (Category 5). [https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/12twqi/2012\\_303d.pdf](https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/12twqi/2012_303d.pdf). Accessed March 2015.
- Texas Department of Transportation, Environmental Affairs Division. 2011. *Guidance on Preparing Indirect and Cumulative Impact Analyses*.
- Texas Department of Transportation. 2011. Environmental Affairs Division. *Guidelines for Analysis and Abatement of Roadway Traffic Noise*.
- Texas Historical Commission. 2015 Texas Archeological Sites Atlas. Available at <http://nueces.thc.state.tx.us/>.
- Texas Parks and Wildlife Department. Texas Conservation Action Plan, Gulf Coast Prairies, and Marshes. August 2012. Available at: [http://tpwd.texas.gov/landwater/land/tcap/documents/gcpm\\_tcap\\_2012.pdf](http://tpwd.texas.gov/landwater/land/tcap/documents/gcpm_tcap_2012.pdf). Accessed March 2015.
-

- 
- Texas Parks and Wildlife Department. Threatened and Endangered Species Lists by County, 2015. Available online at <http://tpwd.texas.gov/gis/ris/es/>. Accessed August 2015.
- Texas Parks and Wildlife Department. 2015. Texas Natural Diversity Database. Available online at [https://tpwd.texas.gov/huntwild/wild/wildlife\\_diversity/txndd/](https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/txndd/). Accessed November 2015.
- Texas State Data Center and Office of the State Demographer. 2014. Texas Population Estimates and Projections Program (online), University of Texas at San Antonio, <http://txsdc.utsa.edu/Data/TPEPP/Estimates/Data.aspx>
- Texas State Data Center and Office of the State Demographer. 2014. Texas Population Estimates and Projections Program (online), University of Texas at San Antonio, <http://txsdc.utsa.edu/Resources/TPEPP/Projections/2014/2014allcntymigtot.zip>
- US Census Bureau. 2011. Census 2010, Summary File 1, [www.census.gov](http://www.census.gov).
- US Census Bureau. 2015. American Community Survey, 2010-2014 5-year Estimates, [www.census.gov](http://www.census.gov).
- US Census Bureau. 2015. "County and Metro Area Population Estimates," [http://www.census.gov/newsroom/press-kits/2015/20150326\\_popestimates.html](http://www.census.gov/newsroom/press-kits/2015/20150326_popestimates.html).
- US Census Bureau. 2015. "New Census Bureau Population Estimates Reveal Metro Areas and Counties that Propelled Growth in Florida and the Nation," <http://www.census.gov/newsroom/press-releases/2015/cb15-56.html>.
- US Department of Agriculture, National Resource Conservation Service. Web Soils Survey, 2014. Available online at: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed December 2014.
- US Fish and Wildlife Service. Threatened and Endangered Species. Available online at: <http://www.fws.gov/ endangered/>. Accessed December 2014.
- US Fish and Wildlife Service. Information for Planning and Conservation (iPaC). Available online at: <http://ecos.fws.gov/ipac/>. Accessed February 2016.
- US Geological Survey. Geological Map of Texas, 2014. Available online at: <http://mrdata.usgs.gov/geology/state/sgmc-unit.php?unit=TXOhg%3B0>. Accessed December 2014.

**EXHIBIT 1**  
**Project Location Map**



Begin Project Limits

End Project Limits

**Exhibit 1**

**Project Location Map**  
 CSJ: 0543-03-067  
 CSJ: 1415-03-010  
 Crabb River Road (FM 2759/762)  
 From 0.25 mi S of Sansbury Blvd to Lamar CISD



**EXHIBIT 2**  
**USGS Topographic Map**

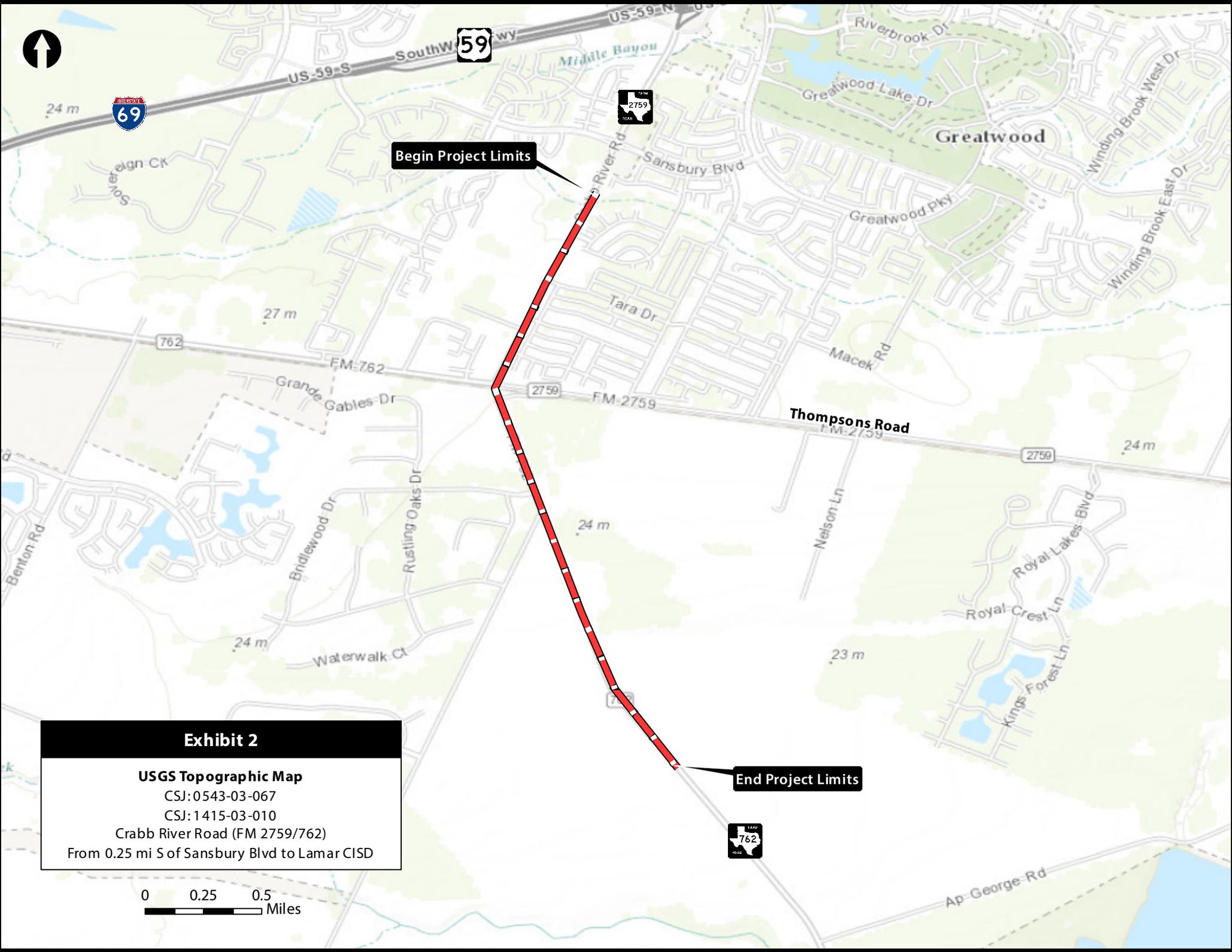


**Begin Project Limits**

**End Project Limits**

**Exhibit 2**

**USGS Topographic Map**  
 CSJ: 0543-03-067  
 CSJ: 1415-03-010  
 Crabb River Road (FM 2759/762)  
 From 0.25 mi S of Sansbury Blvd to Lamar CISD



**EXHIBIT 3**  
**Aerial Photo Map**



Begin Project Limits

Thompsons Road

End Project Limits



### Exhibit 3

#### Aerial Map

CSJ: 0543-03-067

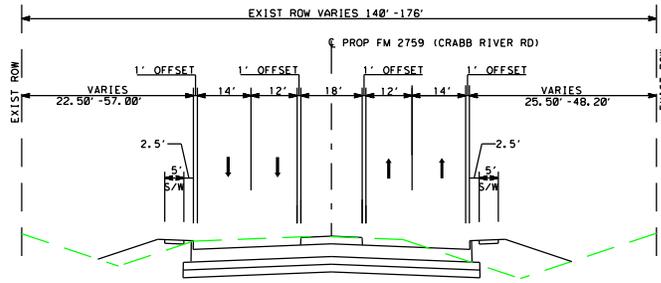
CSJ: 1415-03-010

Crabb River Road (FM 2759/762)

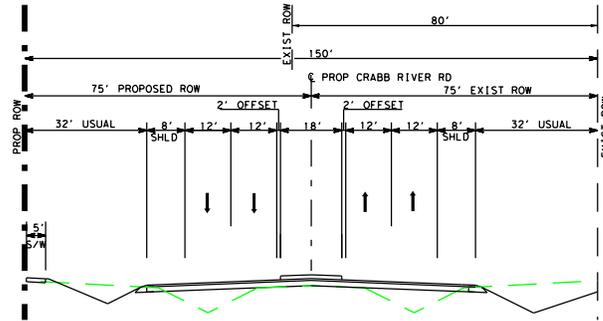
From 0.25 mi S of Sansbury Blvd to Lamar CISD

0 0.25 0.5  
Miles

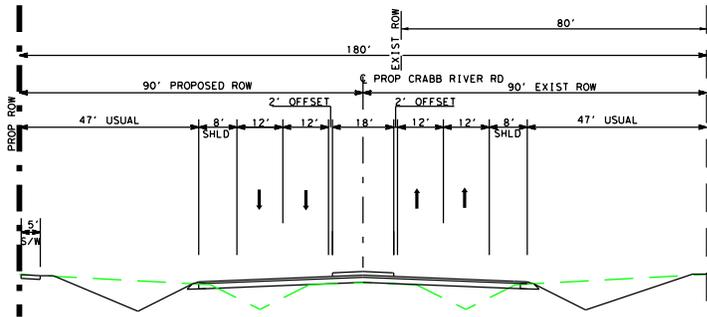
**EXHIBIT 4**  
**Typical Sections**



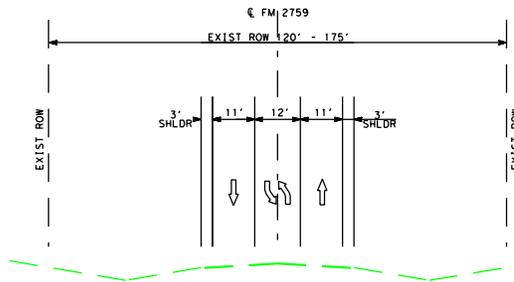
CRABB RIVER RD PHASE 1  
PROPOSED TYPICAL SECTION A-A



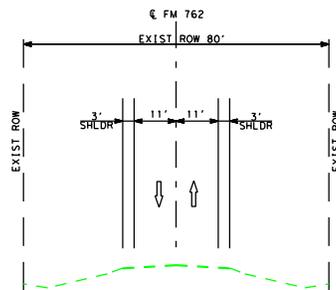
CRABB RIVER RD PHASE 1  
PROPOSED TYPICAL SECTION B-B



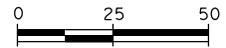
CRABB RIVER RD PHASE 1  
PROPOSED TYPICAL SECTION C-C



FM 2759 (N)  
EXISTING TYPICAL SECTION



FM 762 (S)  
EXISTING TYPICAL SECTION



Planners-Engineers-Program Managers  
IDC, INC. F-2910

IDC, Inc.  
11111 Wilcrest Green, Suite 250  
Houston, Texas 77042  
(713) 541-5591 Fax (713) 541-3501



901 Mopac Expy South, Barton Oaks Plaza Two  
Suite 595 Austin, Tx 78745 TBP# 42263

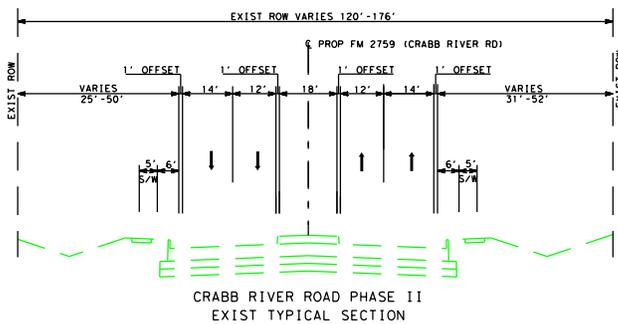
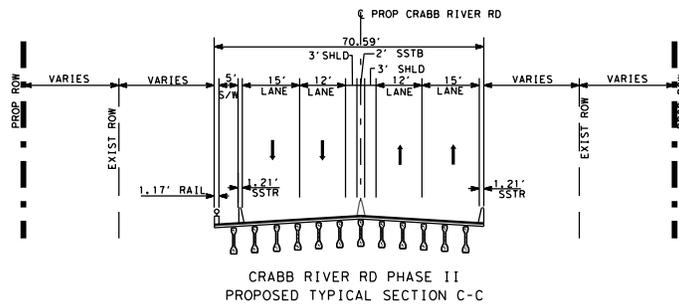
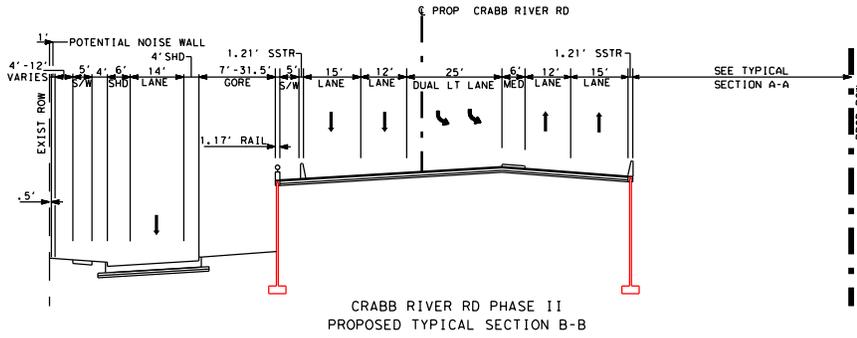
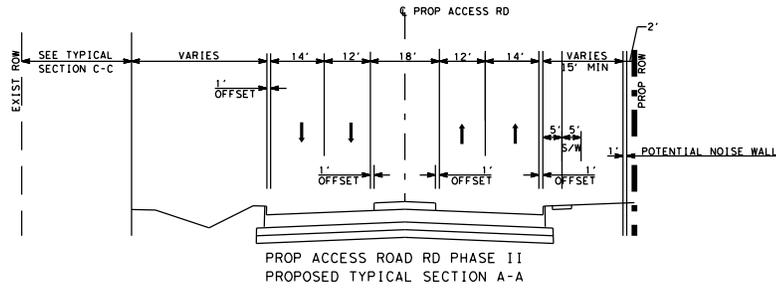


Texas Department  
of Transportation

EXHIBIT 4 - TYPICAL SECTIONS  
Crabb River Road (FM 2759/FM 762) Phase I  
From RABBS BAYOU BRIDGE TO  
0.09 MILES SOUTH OF LAMAR ISD  
Fort Bend County, Texas

SHEET 1 OF 1

DSN: XXX	FED. RD. DIV. NO. X	STATE TEXAS	PROJECT NO.			HIGHWAY NO. XXXX
CK: XXX	STATE DISTRICT XXX	COUNTY FT BEND	CONTROL NO. XXXX	SECTION NO. XX	JOB NO. XXX	SHEET NO.
APPVD: XXX	XXX	FT BEND	XXXX	XX	XXX	



**IDC**  IDC, Inc.  
 11111 Wilcrest Green, Suite 250  
 Houston, Texas 77042  
 Planners-Engineers-Program Managers (713) 541-5591 Fax (713) 541-3501  
 IDC, INC. F-2910

**PARSONS BRINCKERHOFF**  
 901 Mopac Expwy South, Barton Oaks Plaza Two  
 Suite 595 Austin, Tx 78745 TBP# 42263

 **Texas Department of Transportation**  
 © 2015

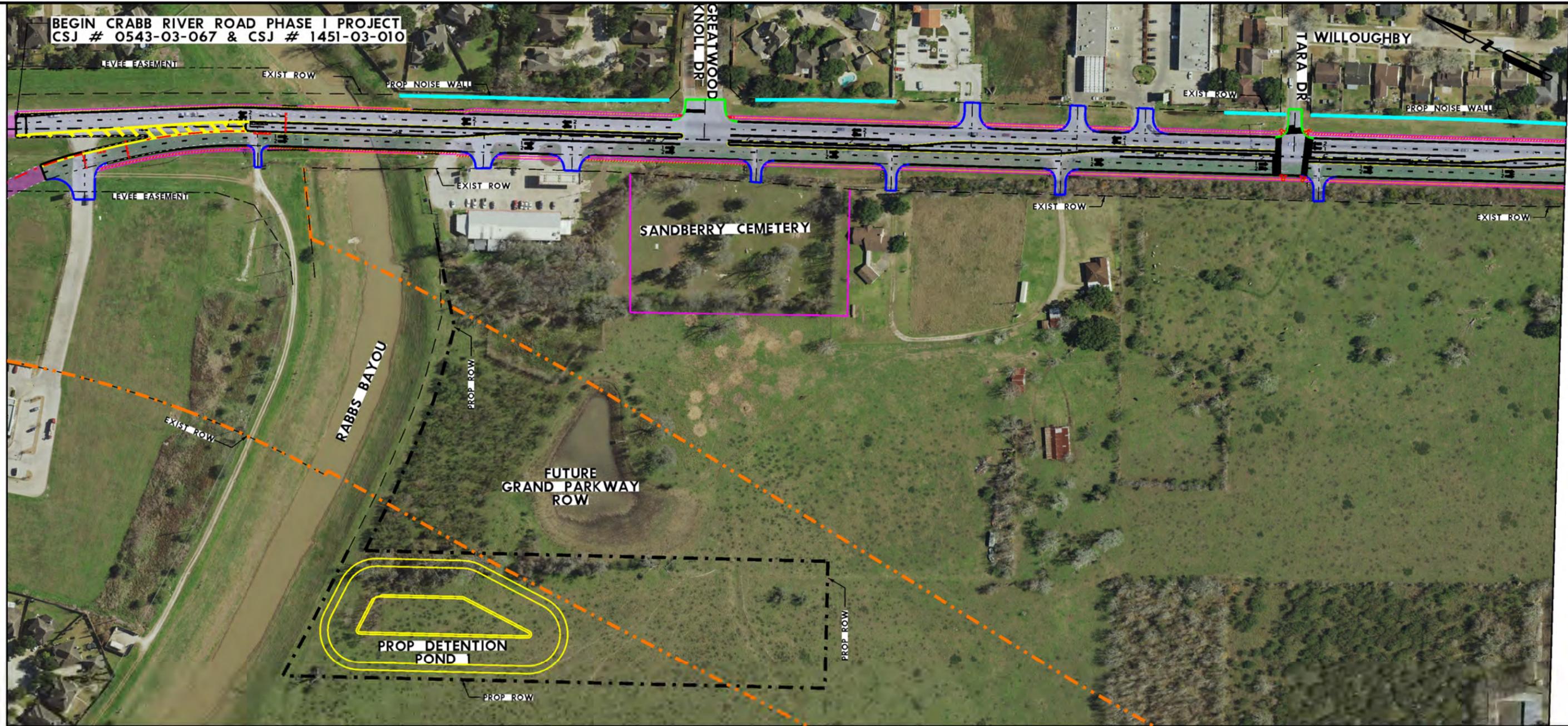
EXHIBIT 4 - TYPICAL SECTIONS  
 Crabb River Road (FM 2759/FM 762) Phase II  
 From RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

SHEET 1 OF 1

DSN: XXX	FED. RD. DIV. NO. X	STATE TEXAS	PROJECT NO.			HIGHWAY NO.
CK: XXX						XXXX
DRN: XXX	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
APPVD: XXX	XXX	FT BEND	XXXX	XX	XXX	

**EXHIBIT 5**  
**Schematic Layout**

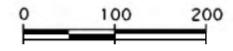
**BEGIN CRABB RIVER ROAD PHASE I PROJECT**  
**CSJ # 0543-03-067 & CSJ # 1451-03-010**



MATCH LINE STA 169+00

PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
MAIN LANES	3	BLACK	0
FRONTAGE ROADS AND RAMPS	1	BLUE	1
TURNAROUNDS	1	BLUE	1
EXISTING ROW TO REMAIN	2	GREEN	2
EMBANKMENT	3	RED	3
CONTROL OF ACCESS	3	RED	3
PROP ROW	5	BLACK	0
EXISTING ROW	0	BLACK	0
ACCESS ROAD	1	BLUE	1
PLANIMETRIC	1	GREEN	2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK	0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK	0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK	0
BRIDGE	4	ORANGE	6
FUTURE	1	BLUE	1
RETAINING WALL	6	RED	3
CEMETERY	2	PURPLE	5
CONSTRUCTION EASEMENT	3	RED	3

PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
RECOMMENDED NOISE ABATEMENT WALL	10	LIGHT BLUE	7
STRIPING	2	LIGHT BLUE	7
PROPOSED ROW PHASE 2	2	ORANGE	6
ELECTRICAL TRANSMISSION LINE	1	RED	3
ELECTRICAL DISTRIBUTION LINE	1	BLUE	1
AT&T UNDERGROUND CABLE	1	ORANGE	6
6" GAS LINE	1	ORANGE	6
16" GAS LINE	1	LT BLUE	7
16" GAS LINE	1	GREEN	2
30" GAS LINE	1	PURPLE	5
TYPE III TRAFFIC BARRIER	3	RED	3
CONCRETE PAVEMENT		PURPLE	
ASPHALT OVERLAY		LT PINK	
ASPHALT WIDENING		BROWN	
SIDEWALK		YELLOW	



**IDC** Inc.  
 Planners-Engineers-Program Managers  
 10C, INC. F-2910  
 (1111) Blinnest Green, Suite 250  
 Houston, Texas 77042  
 (713)-541-5591 Fax (713) 541-3501

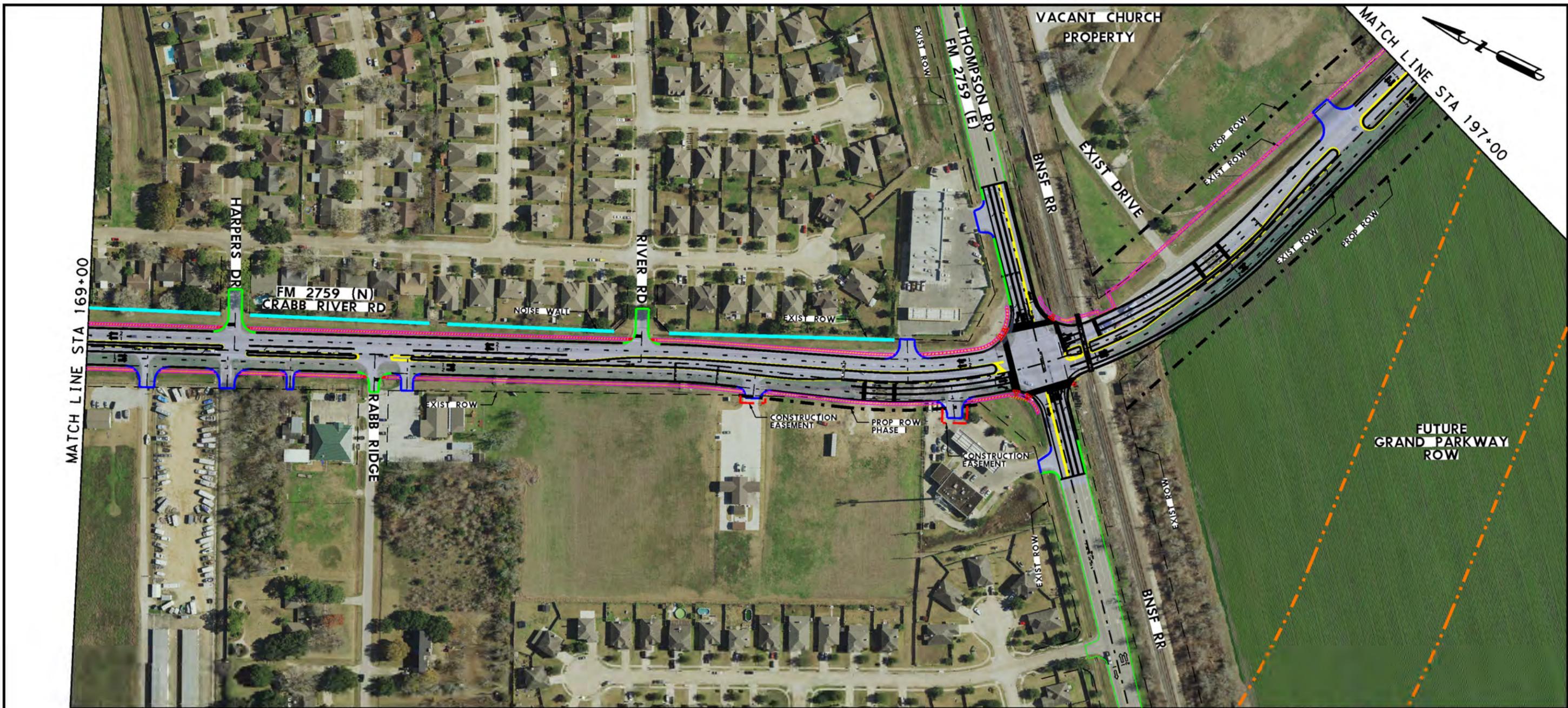
**PARSONS BRINCKERHOFF**  
 901 Marac Expwy South, Barton Oaks Plaza Two  
 Suite 595 Austin, Tx 78745 TBPE #2263



**EXHIBIT 5 - SCHEMATIC LAYOUT**  
 Crabb River Road (FM 2759/FM 762) Phase I  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

SHEET 1 OF 7

DSN: XXX	FED. NO.:	STATE:	PROJECT NO.:	Highway No.:
CJ: XXX	X	TEXAS		CRR
DRN: XXX	STATE DISTRICT:	COUNTY:	CONTROL NO.:	SECTION NO.:
APPR: XXX	XXX	FT BEND	XXXX	XX
				JOB NO.:
				SHEET NO.:



MATCH LINE STA 169+00

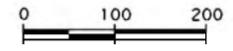
MATCH LINE STA 197+00

**PLAN LEGEND**

SYMBOLGY	LINE WT	COLOR CODE
MAIN LANES	3	BLACK 0
FRONTAGE ROADS AND RAMPS	1	BLUE 1
TURNAROUNDS	1	BLUE 1
EXISTING RDWY TO REMAIN	2	GREEN 2
EMBANKMENT	3	RED 3
CONTROL OF ACCESS	3	RED 3
PROP ROW	5	BLACK 0
EXISTING ROW	0	BLACK 0
ACCESS ROAD	1	BLUE 1
PLANIMETRIC	1	GREEN 2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK 0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK 0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK 0
BRIDGE	4	ORANGE 6
FUTURE	1	BLUE 1
CEMETERY	2	PURPLE 5
CONSTRUCTION EASEMENT	3	RED 3

**PLAN LEGEND**

SYMBOLGY	LINE WT	COLOR CODE
RECOMMENDED NOISE ABATEMENT WALL	7	LIGHT BLUE 7
STRIPING	2	LIGHT BLUE 7
PROPOSED ROW PHASE 2	5	ORANGE 6
ELECTRICAL TRANSMISSION LINE	1	RED 3
ELECTRICAL DISTRIBUTION LINE	1	BLUE 1
AT&T UNDERGROUND CABLE	1	ORANGE 6
6" GAS LINE	1	ORANGE 6
16" GAS LINE	1	LT BLUE 7
16" GAS LINE	1	GREEN 2
30" GAS LINE	1	PURPLE 5
TYPE III TRAFFIC BARRIER	3	RED 3
CONCRETE PAVEMENT		PURPLE
ASPHALT OVERLAY		LT PINK
ASPHALT WIDENING		BROWN
SIDEWALK		YELLOW



**IDC** Inc.  
 Planners-Engineers-Program Managers  
 11111 Wilcrest Green, Suite 250  
 Houston, Texas 77042  
 (713) 541-5591 Fax (713) 541-3501  
 IDC, INC. F-2910

**PARSONS BRINCKERHOFF**  
 901 Maple Expressway South, Barton Oaks Plaza Two  
 Suite 595 Austin, Tx 78745 TBPE #2263



EXHIBIT 5 - SCHEMATIC LAYOUT  
 Crabb River Road (FM 2759/FM 762) Phase I  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABB'S BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

DSN#	XXX	FED. NO.	STATE	PROJECT NO.	Highway No.
CJ#	XXX	X	TEXAS		CRR
DR#	XXX	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.
APPRV#	XXX	XXX	FT BEND	XXXX	XX XXX

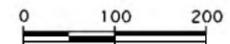
MATCH LINE STA 197+00



MATCH LINE STA 226+00

PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
MAIN LANES	3	BLACK	0
FRONTAGE ROADS AND RAMPS	1	BLUE	1
TURNAROUNDS	1	BLUE	1
EXISTING RDWY TO REMAIN	2	GREEN	2
EMBANKMENT	3	RED	3
CONTROL OF ACCESS	3	RED	3
PROP ROW	5	BLACK	0
EXISTING ROW	0	BLACK	0
ACCESS ROAD	1	BLUE	1
PLANIMETRIC	1	GREEN	2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK	0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK	0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK	0
BRIDGE	4	ORANGE	6
FUTURE	1	BLUE	1
CEMETERY	2	PURPLE	5
CONSTRUCTION EASEMENT	3	RED	3

PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
RECOMMENDED NOISE ABATEMENT WALL	7	LIGHT BLUE	7
STRIPING	2	LIGHT BLUE	7
PROPOSED ROW PAHSE 2	5	ORANGE	6
ELECTRICAL TRANSMISSION LINE	1	RED	3
ELECTRICAL DISTRIBUTION LINE	1	BLUE	1
AT&T UNDERGROUND CABLE	1	ORANGE	6
6" GAS LINE	1	ORANGE	6
16" GAS LINE	1	LT BLUE	7
16" GAS LINE	1	GREEN	2
30" GAS LINE	1	PURPLE	5
TYPE III TRAFFIC BARRIER	1	RED	3
CONCRETE PAVEMENT		PURPLE	
ASPHALT OVERLAY		LT PINK	
ASPHALT WIDENING		BROWN	
SIDEWALK		YELLOW	



**IDC** Inc.  
 Planners-Engineers-Program Managers  
 10011 Blinnwood Green, Suite 250  
 Houston, Texas 77042  
 (713) 541-5591 Fax (713) 541-3501  
 IDC, INC. F-2910

**PARSONS BRINCKERHOFF**  
 901 Maple Expressway South, Barton Oaks Plaza Two  
 Suite 595 Austin, TX 78745 TBPE #2263



EXHIBIT 5 - SCHEMATIC LAYOUT  
 Crabb River Road (FM 2759/FM 762) Phase I  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

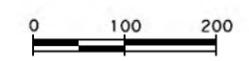
SHEET 3 OF 7

DSN#	XXX	FED. NO.		STATE		PROJECT NO.	
CJ#	XXX	X		TEXAS			CRR
DR#	XXX	STATE DISTRICT		COUNTY		CONTROL NO.	SECTION NO.
APPR#	XXX	XXX	FT BEND	XXXX	XX	XXX	JOB NO.



SYMBOL	LINE WT	COLOR	CODE
MAIN LANES	3	BLACK	0
FRONTAGE ROADS AND RAMPS	1	BLUE	1
TURNAROUNDS	1	BLUE	1
EXISTING RDWY TO REMAIN	2	GREEN	2
EMBANKMENT	3	RED	3
CONTROL OF ACCESS	3	RED	3
PROP ROW	5	BLACK	0
EXISTING ROW	0	BLACK	0
ACCESS ROAD	1	BLUE	1
PLANIMETRIC	1	GREEN	2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK	0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK	0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK	0
BRIDGE	4	ORANGE	6
FUTURE	1	BLUE	1
CEMETERY	2	PURPLE	5
CONSTRUCTION EASEMENT	3	RED	3

SYMBOL	LINE WT	COLOR	CODE
RECOMMENDED NOISE ABATEMENT WALL	7	LIGHT BLUE	7
STRIPING	2	LIGHT BLUE	7
PROPOSED ROW PHASE 2	5	ORANGE	6
ELECTRICAL TRANSMISSION LINE	1	RED	3
ELECTRICAL DISTRIBUTION LINE	1	BLUE	1
AT&T UNDERGROUND CABLE	1	ORANGE	6
6" GAS LINE	1	ORANGE	6
16" GAS LINE	1	LT BLUE	7
16" GAS LINE	1	GREEN	2
30" GAS LINE	1	PURPLE	5
TYPE III TRAFFIC BARRIER	0	RED	3
CONCRETE PAVEMENT	0	PURPLE	5
ASPHALT OVERLAY	0	LT PINK	5
ASPHALT WIDENING	0	BROWN	5
SIDEWALK	0	YELLOW	5



**IDC** INC. 11111 Wilcrest Green, Suite 250  
Houston, Texas 77042  
Planners-Engineers-Program Managers (713) 541-5591 Fax (713) 541-3501  
IDC, INC. F-2910

**PARSONS BRINCKERHOFF**  
901 Maple Expressway South, Barton Oaks Plaza Two  
Suite 595 Austin, TX 78745 TBP# 2263



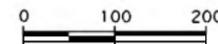
EXHIBIT 5 - SCHEMATIC LAYOUT  
Crabb River Road (FM 2759/FM 762) Phase I  
CSJ: 0543-03-067 & 1415-03-010  
FROM RABBS BAYOU BRIDGE TO  
0.09 MILES SOUTH OF LAMAR ISD  
Fort Bend County, Texas

DSN: XXX	STATE: TEXAS	PROJECT NO.	CRR
CR: XXX	COUNTY: FT BEND	SECTION NO.	SHEET NO.
APPV: XXX	DISTRICT: XXX	JOB NO.	



PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
MAIN LANES	3	BLACK	0
FRONTAGE ROADS AND RAMPS	1	BLUE	1
TURNAROUNDS	1	BLUE	1
EXISTING RDWY TO REMAIN	2	GREEN	2
EMBANKMENT	3	RED	3
CONTROL OF ACCESS	3	RED	3
PROP ROW	5	BLACK	0
EXISTING ROW	0	BLACK	0
ACCESS ROAD	1	BLUE	1
PLANIMETRIC	1	GREEN	2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK	0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK	0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK	0
BRIDGE	4	ORANGE	6
FUTURE	1	BLUE	1
CEMETERY	2	RED	5
CONSTRUCTION EASEMENT	3	RED	3

PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
RECOMMENDED NOISE ABATEMENT WALL	7	LIGHT BLUE	7
STRIPING	2	LIGHT BLUE	7
PROPOSED ROW PHASE 2	5	ORANGE	6
ELECTRICAL TRANSMISSION LINE	1	RED	3
ELECTRICAL DISTRIBUTION LINE	1	BLUE	1
AT&T UNDERGROUND CABLE	1	ORANGE	6
6" GAS LINE	1	ORANGE	6
16" GAS LINE	1	LT BLUE	7
16" GAS LINE	1	GREEN	2
30" GAS LINE	1	PURPLE	5
TYPE III TRAFFIC BARRIER		RED	3
CONCRETE PAVEMENT		PURPLE	
ASPHALT OVERLAY		LT PINK	
ASPHALT WIDENING		BROWN	
SIDEWALK		YELLOW	



**IDC**  
 Planners-Engineers-Program Managers  
 IDC, INC. F-2910  
 (111) Blinnest Green, Suite 250  
 Houston, Texas 77042  
 (713) 541-5591 Fax (713) 541-3501

**PARSONS BRINCKERHOFF**  
 901 Maple Expressway South, Barton Oaks Plaza Two  
 Suite 595 Austin, TX 78745 TBPE #2263



EXHIBIT 5 - SCHEMATIC LAYOUT  
 Crabb River Road (FM 2759/FM 762) Phase I  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

SHEET 5 OF 7

DSN: XXX	FED. NO.:	STATE:	PROJECT NO.:	Highway No.:
CD: XXX	X	TEXAS		CRR
DRN: XXX	STATE DISTRICT:	COUNTY:	CONTROL NO.:	SECTION NO.:
APPRV: XXX	XXX	FT BEND	XXXX	XX
				XXX

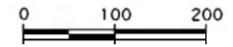


**PLAN LEGEND**

SYMBOL	LINE WT	COLOR	CODE
MAIN LANES	3	BLACK	0
FRONTAGE ROADS AND RAMP	1	BLUE	1
TURNAROUNDS	1	BLUE	1
EXISTING RDWY TO REMAIN	2	GREEN	2
EMBANKMENT	3	RED	3
CONTROL OF ACCESS	3	RED	3
PROP ROW	5	BLACK	0
EXISTING ROW	0	BLACK	0
ACCESS ROAD	1	BLUE	1
PLANIMETRIC	1	GREEN	2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK	0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK	0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK	0
BRIDGE	4	ORANGE	6
FUTURE	1	BLUE	1
CEMETERY	2	PURPLE	5
CONSTRUCTION EASEMENT	3	RED	3

**PLAN LEGEND**

SYMBOL	LINE WT	COLOR	CODE
RECOMMENDED NOISE ABATEMENT WALL	7	LIGHT BLUE	7
STRIPING	2	LIGHT BLUE	7
PROPOSED ROW PHASE 2	5	ORANGE	6
ELECTRICAL TRANSMISSION LINE	1	RED	3
ELECTRICAL DISTRIBUTION LINE	1	BLUE	1
AT&T UNDERGROUND CABLE	1	ORANGE	6
6" GAS LINE	1	ORANGE	6
16" GAS LINE	1	LT BLUE	7
16" GAS LINE	1	GREEN	2
30" GAS LINE	1	PURPLE	5
TYPE III TRAFFIC BARRIER		RED	3
CONCRETE PAVEMENT		PURPLE	
ASPHALT OVERLAY		LT PINK	
ASPHALT WIDENING		BROWN	
SIDEWALK		YELLOW	



**IDC** Inc.  
 1111 Wilcrest Green, Suite 250  
 Houston, Texas 77042  
 (713) 541-5591 Fax (713) 541-3501  
 IDC, INC. F-2910

**PARSONS BRINCKERHOFF**  
 901 Marac Expwy South, Barton Oaks Plaza Two  
 Suite 595 Austin, Tx 78745 TBPE #2263

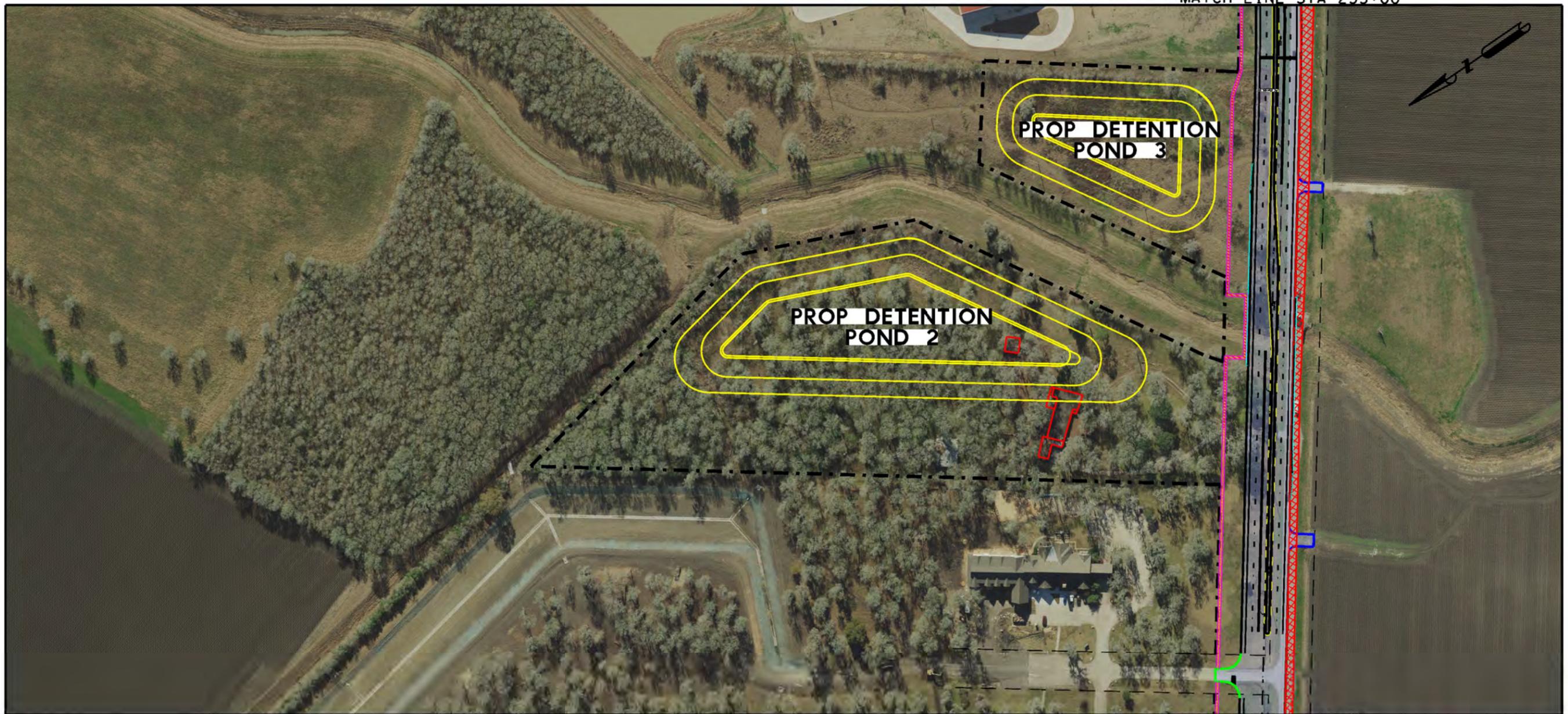


EXHIBIT 5 - SCHEMATIC LAYOUT  
 Crabb River Road (FM 2759/FM 762) Phase I  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

SHEET 6 OF 7

DSN: XXX	FED. NO. X	STATE TEXAS	PROJECT NO.	Highway No.
CJ: XXX				CRR
DRN: XXX	STATE DISTRICT XXX	COUNTY FT BEND	CONTROL NO. XXXX	SECTION NO. XX
APPR: XXX				JOB NO. XXX
				SHEET NO.

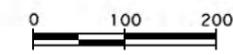
MATCH LINE STA 255+00



MATCH LINE STA 226+00

SYMBOL	LINE WT	COLOR	CODE
	3	BLACK	0
	1	BLUE	1
	2	GREEN	2
	3	RED	3
	5	BLACK	0
	1	BLUE	1
	1	GREEN	2
	1	RED	3
	4	ORANGE	6
	1	PURPLE	5

SYMBOL	LINE WT	COLOR	CODE
	7	LIGHT BLUE	7
	2	LIGHT BLUE	7
	5	ORANGE	6
	1	RED	3
	1	BLUE	1
	1	ORANGE	6
	1	ORANGE	6
	1	LT BLUE	7
	1	GREEN	2
	1	PURPLE	5
	3	RED	3
		PURPLE	
		LT PINK	
		BROWN	
		YELLOW	



**IDC** Inc.  
 11111 Wilcrest Green, Suite 250  
 Houston, Texas 77042  
 (713) 541-5591 Fax (713) 541-3501  
 IDC, INC. F-2910

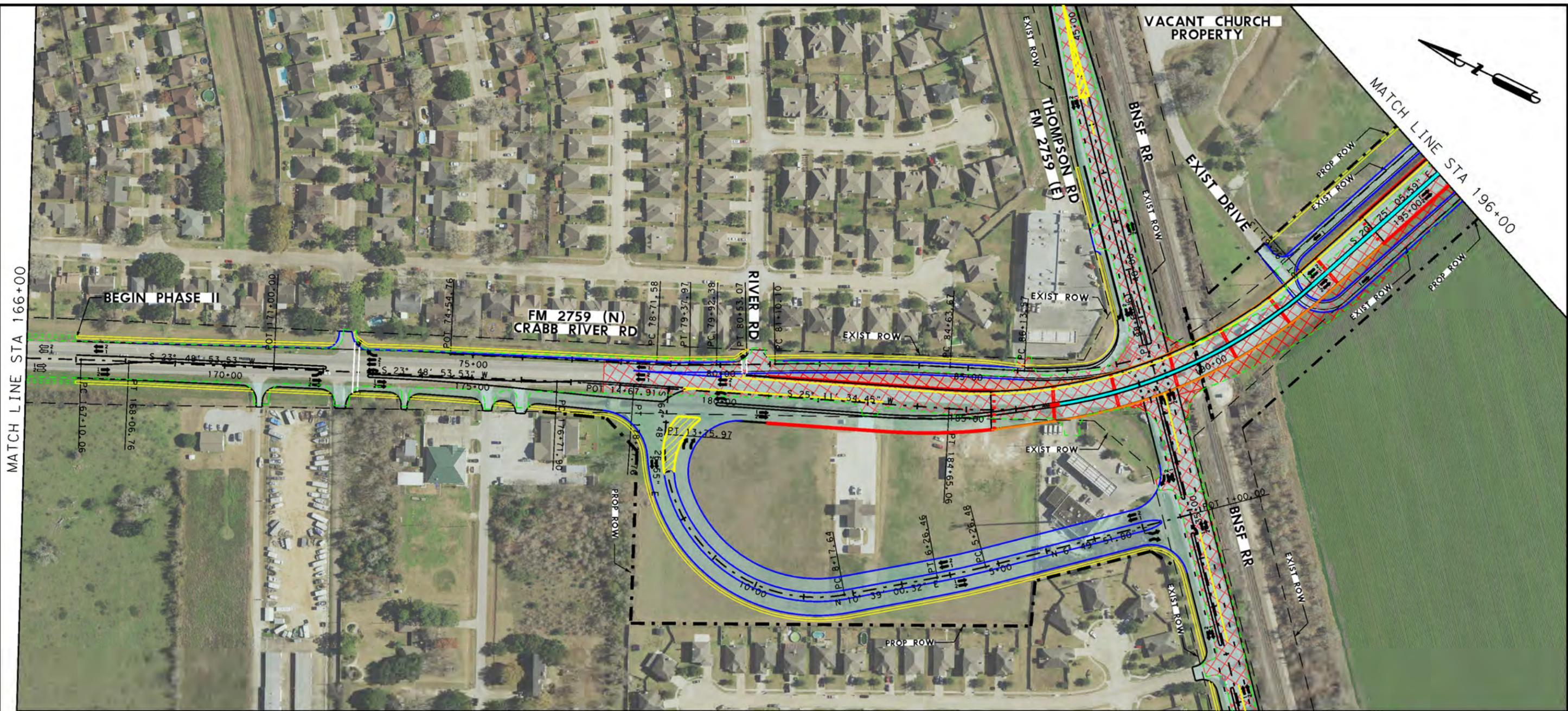
**PARSONS BRINCKERHOFF**  
 901 Mopac Expressway South, Barton Oaks Plaza Two  
 Suite 595 Austin, Tx 78745 TBP# \*2263



EXHIBIT 5 - SCHEMATIC LAYOUT  
 Crabb River Road (FM 2759/FM 762) Phase I  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

SHEET 7 OF 7

DSN: XXX	STATE: TEXAS	PROJECT NO.	
CR: XXX	COUNTY: FT BEND	SECTION NO.	XX
APPV: XXX	DISTRICT: XXX	JOB NO.	XXX



MATCH LINE STA 166+00

MATCH LINE STA 196+00

**PLAN LEGEND**

SYMBOLGY	LINE WT	COLOR CODE
MAIN LANES	3	BLACK 0
FRONTAGE ROADS AND RAMPS	1	BLUE 1
TURNAROUNDS	1	BLUE 1
EXISTING RDWY TO REMAIN	2	GREEN 2
EXISTING RDWY TO BE REMOVED	1	RED 2
DRIVEWAYS	1	BLUE 1
STREETS	1	GREEN 2
PROP ROW	5	BLACK 0
EXISTING ROW	0	BLACK 0
ACCESS ROAD	1	BLUE 1
PLANIMETRIC	1	GREEN 2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK 0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK 0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK 0
BRIDGE	4	ORANGE 6
FUTURE	1	BLUE 1
RETAINING WALL	6	RED 3
CEMETERY	2	PURPLE 13

**PLAN LEGEND**

SYMBOLGY	LINE WT	COLOR CODE
RECOMMENDED NOISE ABATEMENT WALL	10	LIGHT BLUE 7
STRIPING	2	YELLOW 4
PROP ROW GRAND PARKWAY	5	ORANGE 6
PROPOSED CONCRETE PAVEMENT		PURPLE
SIDEWALK		YELLOW

**IDC** Inc.  
 Planners-Engineers-Program Managers  
 11111 Briarcrest Green, Suite 250  
 Houston, Texas 77042  
 (713) 541-5591 Fax (713) 541-3501  
 IDC, INC. F-2910

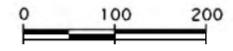
**PARSONS BRINCKERHOFF**  
 901 Maple Expressway South, Barton Oaks Plaza Two  
 Suite 595 Austin, TX 78745 TBPE #2263

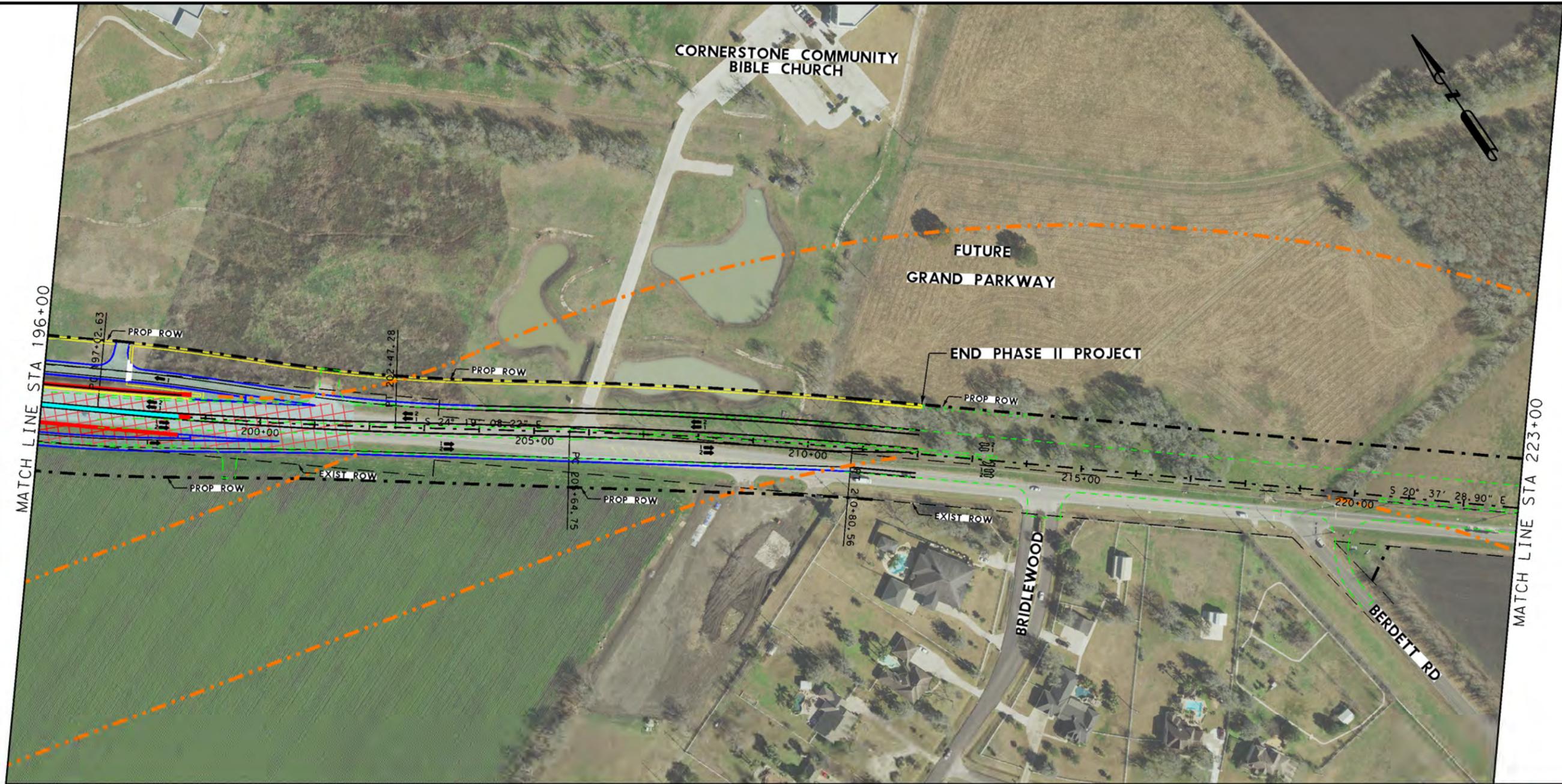


EXHIBIT 5 - SCHEMATIC LAYOUT  
 Crabb River Road (FM 2759/FM 762) Phase II  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

SHEET 1 OF 2

DS#:	XXX	FED. NO.:		STATE:		PROJECT NO.:	
CJ#:	XXX	DIV. NO.:	X	TEXAS			CRR
DR#:	XXX	STATE DISTRICT:		COUNTY:		CONTROL NO.:	
APPRV#:	XXX	XXX	FT BEND	XXXX	XX	JOB NO.:	XXX





MATCH LINE STA 196+00

MATCH LINE STA 223+00



PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
MAIN LANES	3	BLACK	0
FRONTAGE ROADS AND RAMPS	1	BLUE	1
TURNAROUNDS	1	BLUE	1
EXISTING RDWY TO REMAIN	2	GREEN	2
EXISTING RDWY TO BE REMOVED	1	RED	2
DRIVEWAYS	1	BLUE	1
STREETS	1	GREEN	2
PROP ROW	5	BLACK	0
EXISTING ROW	0	BLACK	0
ACCESS ROAD	1	BLUE	1
PLANIMETRIC	1	GREEN	2
TRAFFIC COUNT YEAR ( ) DHV	0	BLACK	0
EXISTING LANE DIRECTIONAL INDICATOR	0	BLACK	0
PROPOSED LANE DIRECTIONAL INDICATOR	0	BLACK	0
BRIDGE	4	ORANGE	6
FUTURE	1	BLUE	1
RETAINING WALL	6	RED	3
CEMETERY	2	PURPLE	13

PLAN LEGEND			
SYMBOLGY	LINE WT	COLOR	CODE
RECOMMENDED NOISE ABATEMENT WALL	10	LIGHT BLUE	7
STRIPING	2	YELLOW	4
PROP ROW GRAND PARKWAY	5	ORANGE	6
CONCRETE PAVEMENT		PURPLE	
SIDEWALK		YELLOW	

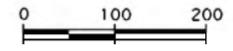
**IDC** Inc.  
 11111 Wilcrest Green, Suite 250  
 Houston, Texas 77042  
 (713) 541-5591 Fax (713) 541-3501  
 IDC, INC. F-2910

**PARSONS BRINCKERHOFF**  
 901 Maple Expwy South, Barton Oaks Plaza Two  
 Suite 595 Austin, Tx 78745 TBPE #2263



EXHIBIT 5 - SCHEMATIC LAYOUT  
 Crabb River Road (FM 2759/FM 762) Phase II  
 CSJ: 0543-03-067 & 1415-03-010  
 FROM RABBS BAYOU BRIDGE TO  
 0.09 MILES SOUTH OF LAMAR ISD  
 Fort Bend County, Texas

SHEET 2 OF 2



DSNH: XXX	FED. NO.:	STATE:	PROJECT NO.:	RIGHTWAY NO.:
CD: XXX	DEV. NO.:	TEXAS		CRR
DRH: XXX	STATE DISTRICT:	COUNTY:	CONTROL NO.:	SECTION NO.:
APPROV: XXX	XXX	FT BEND	XXXX	XX
				JOB NO.:
				SHEET NO.:

**EXHIBIT 6**  
**RTP/TIP/STIP Documentation**

**REGIONAL INVESTMENT PROGRAMS, PROJECTS SUBJECT TO CONFORMITY**

MPOID	CSJ	County	Facility	From	To	Description	Length (mi)	Main Lanes	Frontage Lanes	Fiscal Year	Analysis Year	Total Project
												Cost (M, YOE)
<b>LOCAL HIGH CAPACITY TRANSIT (CONT'D)</b>												
I1467		Harris	METRORAIL SOUTHEAST CORRIDOR LRT	AT BROADWAY ST		CONVERSION/RELOCATION OF HOBBY TRANSIT CENTER WITH LIGHT RAIL TRANSIT	0.00	n/a	n/a	2022	2025	\$ 3.00
I1767		Harris	NORTHWEST CORRIDOR	UPTOWN-GALLERIA LINE	HEMPSTEAD INTERMODAL TERMINAL	UPTOWN-GALLERIA LINE EXTENSION TO HEMPSTEAD INTERMODAL TERMINAL	3.00	n/a	n/a	2035	2040	\$ 60.00
I1005	0912-72-329	Harris	POST OAK BLVD	IH 610	RICHMOND AVE	DESIGN AND RECONSTRUCT ROADWAY WITH TRANSITWAY	1.77	(6,6)	n/a	2016	2025	\$ 125.00
I1764		Harris	SH 288	ALMEDA LINE GRT (RR ROW)	INTERMODAL TERMINAL	SH 288 ALMEDA LINE GUIDED RAPID TRANSIT	0.00	n/a	n/a	2033	2035	\$ 250.00
I5241		Harris	UNIVERSITY LINE LRT CORRIDOR	HILLCROFT TRANSIT CENTER	EASTWOOD TRANSIT CENTER	METRO SOLUTIONS - UNIVERSITY CORRIDOR	10.00	n/a	n/a	2019	2025	\$ 1,000.00
I4958		Harris	UPTOWN CORRIDOR	NORTHWEST TRANSIT CENTER	WESTPARK	METRO SOLUTIONS UPTOWN CORRIDOR	4.25	n/a	n/a	2035	2040	\$ 625.00
I1765		Harris	US 290	AT N. POST OAK		NORTHWEST CORRIDOR HEMPSTEAD INTERMODAL TERMINAL	0.00	n/a	n/a	2023	2025	\$ 50.00
<b>OTHER MAJOR ROADWAY IMPROVEMENTS</b>												
2977		Harris	BELLAIRE BLVD	BW 8	FONDREN RD	WIDEN TO 8-LANES	2.10	(6,8)	n/a	2020	2025	\$ 28.33
I1079		Harris	CROSBY LYNCHBURG RD	FM 1942	ARCADIAN RD	WIDEN FROM 2 LANE ASPHALT TO 4 LANE CONCRETE	0.50	(2,4)	n/a	2015	2025	\$ 3.08
537	1062-02-009	Harris	FM 2100	2.1 MI N OF WOLF RD	FM 1960	WIDEN TO 4-LANE DIVIDED	4.45	(2,4)	n/a	2027	2035	\$ 82.00
538	1062-04-022	Harris	FM 2100	FM 1960	DIAMOND HEAD BLVD	WIDEN TO 4-LANE DIVIDED	7.67	(2,4)	n/a	2017	2025	\$ 34.15
I4711	1415-03-010	Fort Bend	FM 2759	US 59	FM 762/FM 2759 ON CRABB RIVER RD	WIDEN TO 4-LANES DIVIDED	1.70	(2,4)	n/a	2016	2025	\$ 10.95
7564	1414-02-016	Brazoria	FM 528	BS 35/GORDON ST	SH 6	EXTEND FM 528 ACROSS GORDON ST (SH 35B) TO SH 6. INCLUDES 2-LANES ON NEW LOCATION WITH A RAILROAD GRADE SEPARATION. NEW SIGNAL AT GORDON & SH 6.	1.12	(0,2)	n/a	2022	2025	\$ 18.28

**REGIONAL INVESTMENT PROGRAMS, PROJECTS SUBJECT TO CONFORMITY**

MPOID	CSJ	County	Facility	From	To	Description	Length (mi)	Main Lanes	Frontage Lanes	Fiscal Year	Analysis Year	Total Project
												Cost (M, YOE)
<b>OTHER MAJOR ROADWAY IMPROVEMENTS (CONT'D)</b>												
13475	0978-01-034	Galveston	FM 646	FM 1764	SH 6	WIDEN FROM 2 LANES TO 4-LANE DIVIDED	1.40	(2,4)	n/a	2015	2025	\$ 16.31
10144	0978-02-053	Galveston	FM 646	FM 3436	SH 146	WIDEN FROM 2-LANES TO 4-LANE DIVIDED	0.83	(2,4)	n/a	2026	2035	\$ 19.50
514	3049-01-022	Galveston	FM 646	EDMUNDS WAY	FM 1266	WIDEN FROM 2 LANES TO 4-LANES DIVIDED WITH OVERPASS BRIDGE (PHASE II)	1.75	(2,4)	n/a	2025	2035	\$ 76.16
10920	3049-01-023	Galveston	FM 646	FM 3436	FM 1266	WIDEN TO 4-LANE DIVIDED RURAL ROAD	2.41	(2,4)	n/a	2028	2035	\$ 56.56
14710	0543-03-067	Fort Bend	FM 762	FM 762/FM 2759	S OF LCISD SCHOOL ON CRABB RIVER RD	WIDEN TO 4-LANES DIVIDED	1.70	(2,4)	n/a	2016	2025	\$ 10.95
16295		Fort Bend	FORT BEND PKWY TOLL ROAD	0.59 MI N OF SH 6	0.38 MI S OF SH 6	CONSTRUCT OVERPASS	0.97	(0,4)	(4,4)	2015	2025	\$ 30.35
77		Harris	GESSNER DR S	N OF BRIAR FOREST	RICHMOND AVE	WIDEN TO 6-LANES	1.67	(4,6)	n/a	2020	2025	\$ 1.84
83	8170-12-001	Harris	HEMPSTEAD RD & WASHINGTON AVE	W OF 12TH ST	E OF WASHINGTON AVE/KATY RD SPLIT	CONSTRUCT 6-LANE DIVIDED URBAN ST FACILITY W/ AUTOMATIC PUMP STATION AND RR LINE W/ UNDERPASS (PHASE 2)	1.04	(4,6)	n/a	2019	2025	\$ 68.04
8052		Harris	KUYKENDAH L RD	FM 1960	RANKIN RD	WIDEN 4 TO 6 LANE CONCRETE BLVD	2.50	(4,6)	n/a	2023	2025	\$ 10.44
111		Harris	LITTLE YORK RD W	US 290	HOUSTON CITY LIMITS	WIDEN TO 6-LANE DIVIDED	2.99	(4,6)	n/a	2023	2025	\$ 7.34
13760		Fort Bend	POST OAK RD S	BW 8	FM 2234	DESIGN AND CONSTRUCTION OF TWO ADDITIONAL LANES WITHIN EXISTING RIGHT-OF-WAY	1.40	(4,6)	n/a	2015	2025	\$ 3.08
4000		Harris	SENS RD	N H ST	SPENCER HWY	WIDEN FROM 2-LANE ASPHALT TO 4-LANE CONCRETE	0.70	(2,4)	n/a	2016	2025	\$ 8.30
12007		Liberty	SH 105 BYPASS	SH 105 W OF CLEVELAND	SH 321 E OF CLEVELAND	WIDEN FROM 2 TO 4 LANES	2.07	(2,4)	n/a	2034	2035	\$ 12.29
15383	0192-01-093	Fort Bend	SH 6	N OF BROOKS ST	LEXINGTON BLVD	WIDEN FROM 6 TO 8-LANES	1.40	(6,8)	n/a	2016	2025	\$ 7.08

**REGIONAL INVESTMENT PROGRAMS, EXEMPT PROJECTS IN FIRST TEN YEARS (FY 2015-2024)**

MPOID	CSJ	County	Sponsor	Facility	From	To	Description	Fiscal Year	Total Project Cost (M, YOE)
<b>LOCAL HIGH CAPACITY TRANSIT (CONT'D)</b>									
11482		Harris	METRO	NORTHWEST TRANSIT CENTER	IH 610		ADVANCED HIGH CAPACITY TRANSIT IH-610/NORTHWEST TRANSIT CENTER RAMP PROVISIONS (FY 2015)	2015	\$ 1.00
16207		Harris	METRO	UPTOWN MANAGEMENT DISTRICT	NORTHWEST TRANSIT CENTER	UPTOWN/WESTPARK TRANSIT CENTER	ACQUIRE LOW-FLOOR ARTICULATED TRANSIT VEHICLES	2016	\$ 13.00
16078	0912-72-328	Harris	UPTOWN HOUSTON DISTRICT	UPTOWN MULTIMODAL TRANSIT CENTER	POST OAK BLVD AT WESTPARK DR		DESIGN AND CONSTRUCT MULTIMODAL TRANSIT CENTER/PARK & RIDE TERMINAL AND BUS ACCESS ENHANCEMENTS (YEAR 3)	2016	\$ 27.00
11720		Harris	METRO	UPTOWN SIGNATURE BUS ROUTE			SIGNATURE BUS EXPRESS SERVICE ROUTES: UPTOWN INCLUDING SHELTERS AND SIGNAGE	2019	\$ 15.00
15484	0675-08-108	Montgomery	CITY OF CONROE	CONROE P&R	IH 45 @ FM 2854		DESIGN AND CONSTRUCT PARK AND RIDE FACILITY & ASSOCIATED TRANSIT AMENITIES	2016	\$ 1.00
<b>OTHER MAJOR ROADWAY IMPROVEMENTS</b>									
16139	0178-03-152	Brazoria	TXDOT HOUSTON DISTRICT	SH 35	S. of FM 1462	FM 2403	ADD AUXILIARY LANE	2015	\$ 2.20
15382		Fort Bend	FORT BEND COUNTY	FM 2759	1000' N OF BNSF RR TO 1000' S		PHASE 2: CONSTRUCT ELEVATED INTERSECTION OF CRABB RIVER ROAD AND THOMPSON'S HIGHWAY OVER BNSF RR	2019	\$ 30.92
16141	1062-05-009	Harris	TXDOT HOUSTON DISTRICT	FM 1942	US 90	CROSBY LYNCHBURG RD	WIDEN ROADWAY FROM 2 TO 4- LANES TO MATCH HARRIS COUNTY PROJECT ACCOMMODATING INCREASED TRAFFIC	2015	\$ 1.51
11057		Harris	CITY OF PASADENA	RED BLUFF RD	SPENCER HWY	CENTER ST	DESIGN AND RECONSTRUCT 4-LANE DIVIDED ROADWAY INCL SIGNALS AT CENTER STREET AND FAIRMONT PKWY	2019	\$ 3.64
11058		Harris	CITY OF PASADENA	RED BLUFF RD	SH 225	BEARLE ST	DESIGN AND RECONSTRUCT 4-LANE DIVIDED ROADWAY INCL DRAINAGE AND SIGNALS AT SH 225, BEARLE AND THOMAS	2020	\$ 3.84
11059		Harris	CITY OF PASADENA	RED BLUFF RD	BW 8	SPENCER HWY	DESIGN AND RECONSTRUCT 4-LANE DIVIDED ROADWAY INCL DRAINAGE AND SIGNALS AT RANDOLPH (JANA), KINGSDALE AND SPENCER HWY	2019	\$ 7.88

**HOUSTON-GALVESTON MPO  
2015-2018 TRANSPORTATION IMPROVEMENT PROGRAM**

---

**Amendment #: 22**

**Amendment Type:**     Administrative Action             TPC Action             Emergency Action

**STIP Revision Required? YES**

---

**Projects Affected (MPOID (CSJ)):**

16147 (0912-70-082)        **14710 (0543-03-067)**        **14711 (1415-03-010)**        15000 (3510-03-006)

---

**Purpose of Amendment:**

Increase H-GAC funding on two projects with significantly increased costs. Sponsors have requested additional \$13.7 million from H-GAC (\$5.3M for Memorial Drive, \$8.4M for Crabb River Road).

**Financial Constraint Statement:**

This amendment is consistent with fiscal constraint requirements.

**Air Quality Conformity Statement:**

Projects covered by this amendment are included in the 2035 RTP and the resulting air quality conformity analysis or are exempt from regional emissions analysis.

---

**Attachments:**

1. Summary of Proposed Changes
- 

 9/14/15

**Alan Clark**  
MPO Director  
Houston-Galveston Area Council

Date

 9/14/2015

**Andrew Mao, P.E.**  
Director of Advanced Planning  
TxDOT, Houston District

Date

## Amendment # 22

### Modify Project Scopes and Funding at Sponsors' Requests

Action	Project Details						Proposed Changes	
	MPOID	CSJ	Fiscal Year	Sponsor	Description	Funding	Change	Comments
Modify	14710	0543-03-067	2016	FORT BEND COUNTY	Facility: FM 762 From: FM 762/FM 2759 To: S OF LCISD SCHOOL ON CRABB RIVER RD Description: WIDEN TO 4-LANES DIVIDED (SEGMENT 2)	Federal: \$7,009,600 State: \$0 Local: \$1,752,400 Categories: 7-STP-MM	Modify funding as follows: Federal: \$12,567,100 Local: \$7,309,900 Categories: 7-STP-MM	Fort Bend County will construct the portion of the project which will become the ultimate SH 99 frontage road using local funds. Remaining project scope and costs adjusted to reflect current estimates.
Modify	14711	1415-03-010	2016	FORT BEND COUNTY	Facility: FM 2759 From: US 59 To: FM 762/FM 2759 ON CRABB RIVER RD Description: WIDEN TO 4-LANES DIVIDED (SEGMENT 2)	Federal: \$7,009,600 State: \$0 Local: \$1,752,400 Categories: 7-STP-MM	Modify the limits and funding as follows: From: S OF SANSBURY BLVD To: FM 762/FM 2759 ON CRABB RIVER RD Federal: \$9,814,600 Local: \$4,557,400 Categories: 7-STP-MM	
Add	15000	3510-03-006	2016	FORT BEND COUNTY	Facility: SH 99 From: IH 69 To: S OF SANSBURY BLVD Description: CONSTRUCT 2-LN SOUTHBOUND FRONTAGE ROAD ON ULTIMATE LOCATION & CONVERT EXISTING CRABB RIVER RD TO NORTHBOUND FRONTAGE ROAD (SEGMENT 1)	Federal: \$0 State: \$0 Local: \$4,450,000 Categories: 3-LOCAL	Add to the TIP using local funds.	
Modify	16147	0912-70-082	2015	CITY OF HOUSTON	Facility: MEMORIAL DR From: N ELDRIDGE PARKWAY To: N KIRKWOOD DR Description: RECONSTRUCT AND WIDEN TO 4-LANES DIVIDED WITH INTERSECTION IMPROVEMENTS, SIGNALS, LIGHTING, SIDEWALKS, AND NECESSARY UNDERGROUND UTILITIES. REPLACE EXISTING ROADSIDE DITCHES WITH STORM SEWERS AND BRIDGE OVER TURKEY CREEK.	Federal: \$0 State: \$13,200,000 Local: \$3,300,000 Categories: 3-TMF, 3-LOCAL CONT	Modify the funding as follows: Federal: \$0 State: \$18,504,471 Local: \$13,274,255 Categories: 3-TMF, 3-LOCAL CONT	Project bid on May 14, 2015 with a low bid of \$31,778,726. Sponsor attributes increase due to escalated unit prices. Additional \$5.3m TMF funding is 50% of the increase, excluding non-participating local utilities.

**HOUSTON-GALVESTON MPO  
APPENDIX D**

**2035 RTP UPDATE - PROJECTS UNDERGOING ENVIRONMENTAL ASSESSMENT**

MPOID [CSJ] SPONSOR	FACILITY FROM TO	DESCRIPTION	FISCAL YEAR LENGTH TOTAL PROJECT COST
<b>Fort Bend County Projects</b>			
<b>980</b> CITY OF MISSOURI CITY	<b>FM 2234</b> US 90A LEXINGTON BLVD	WIDEN FROM 4 TO 6-LANES UNDIVIDED	2020 1.4 \$11,350,000
<b>15382</b> FORT BEND COUNTY	<b>FM 2759</b> 1000' N OF BNSF RR TO 1000' S	PHASE 2: CONSTRUCT ELEVATED INTERSECTION OF CRABB RIVER ROAD AND THOMPSON'S HIGHWAY OVER BNSF RR	2019 0.001 \$30,918,888
<b>12855</b> [0543-02-055] TXDOT HOUSTON DISTRICT	<b>FM 359</b> AT US 90A AND UP RR	RAILROAD GRADE SEPARATION (ELEVATED T)	2025 0.35 \$25,799,147
<b>8014</b> [0543-02-064] FORT BEND COUNTY	<b>FM 359</b> W OF CROSS CREEK RANCH BLVD FM 1463/FM 359	CONSTRUCT 4 TOLL LANES	2020 1.7 \$19,011,508
<b>11532</b> FORT BEND COUNTY	<b>FM 521 P&amp;R</b> AT SH 6	ACQUIRE 6 LARGE TRANSIT VEHICLES (PHASE 2) FOR EXPRESS SERVICES FROM FM 521 P&R FROM ARCOLA- SIENNA P&R	2024 0.001 \$6,855,684
<b>803</b> [0543-03-900] TXDOT HOUSTON DISTRICT	<b>FM 762</b> US 59 CRABB RIVER RD	WIDEN 2-LANE TO 4-LANE DIVIDED SUBURBAN ARTERIAL	2034 2.8 \$57,491,183
<b>11541</b> FORT BEND COUNTY	<b>FORT BEND O&amp;M FACILITY</b> SUGAR LAND AREA SITE TBD	CONSTRUCT A SECOND FORT BEND COUNTY TRANSIT OPERATIONS AND MAINTENANCE FACILITY TO SUPPORT EXPANDED TRANSIT SERVICES	2025 0.001 \$3,000,000
<b>919</b> [3585-02-900] FBCTRA	<b>FORT BEND PKWY TOLL ROAD</b> SIENNA PKWY SH 99	CONSTRUCT 4-LANE TOLL ROAD AND BRAZOS BRIDGE	2025 9.25 \$240,861,162
<b>2381</b> FORT BEND COUNTY	<b>GUBBELS RD</b> AT WATERS LAKE BAYOU	REPLACE BRIDGE	2023 0.001 \$554,827
<b>12622</b> FORT BEND COUNTY	<b>HARLEM RD</b> SH 99 US 90A	WIDEN FROM 4 TO 6 LANES W/BRIDGES	2020 4.044 \$33,892,128
<b>975</b> CITY OF MEADOWS PLACE	<b>KIRKWOOD DR S</b> HARRIS C/L CITY LIMITS	RECONSTRUCT 4-LANE BOULEVARD	2020 0.5 \$1,872,000

Sorted by: Street, CSJ Number, then MPOID

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM  
HOUSTON-GALVESTON MPO - HIGHWAY PROJECTS  
FY 2016

2015-2018 STIP		09/2015 Revision: Pending Approval							
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST		
HOUSTON	HOUSTON-GALVESTON	WALLER	0912-56-052	CS	C		\$ 1,598,660		
LIMITS FROM VA		PROJECT SPONSOR CITY OF WALLER							
LIMITS TO VA		REVISION DATE 09/2015							
PROJECT CITY OF WALLER LCI -CONSTRUCT INTERSECTION IMPROVEMENTS, SIDEWALKS, PEDESTRIAN/B		MPO PROJ NUM 16164							
DESCR ICYCLE AMENITIES (LIGHTING, SIGNAGE, BENCHES, PLANTED BUFFERS, BIKE RACKS), AND C		FUNDING CAT(S) 3LC,3TMF,9TAP							
REMARKS Facility: DOWNTOWN CITY OF WALLER		PROJECT HISTORY Amendment #7 - 12/19/14 - Replace federal STP-MM funds with State TMF bond funds due to a restriction on STP-MM funds which prevents their use on facilities which are functionally classified as local roads per Amendment 63 approved 7/25/14.							
P7									
TOTAL PROJECT COST INFORMATION			AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	399,665	COST OF APPROVED PHASES	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	0		3TMF	\$ 0	\$ 694,813	\$ 0	\$ 0	\$ 0	\$ 694,813
CONSTR \$	1,598,660		3LC	\$ 0	\$ 0	\$ 0	\$ 173,703	\$ 173,703	
CONST ENG \$	95,920		9TAP	\$ 584,115	\$ 0	\$ 0	\$ 146,029	\$ 730,144	
CONTING \$	159,866		TOTAL	\$ 584,115	\$ 694,813	\$ 0	\$ 146,029	\$ 1,598,660	
INDIRECT \$	81,212								
BOND FIN \$	0								
PT CHG ORD \$	0								
TOTAL CST \$	2,335,323								

2015-2018 STIP		09/2015 Revision: Pending Approval							
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST		
HOUSTON	HOUSTON-GALVESTON	HARRIS	0912-72-313	CS	C,E	HOUSTON	\$ 3,805,058		
LIMITS FROM WESTHEIMER ST		PROJECT SPONSOR UPPER KIRBY MD							
LIMITS TO LEVY PARK		REVISION DATE 09/2015							
PROJECT RECONSTRUCT ROADWAY WITH ANGLED PARKING AND PEDESTRIAN IMPROVEMENTS CONTINUOUS		MPO PROJ NUM 16131							
DESCR IDEWALKS, CROSSWALKS, LIGHTING, ADA FACILITIES, LANDSCAPING)		FUNDING CAT(S) 3LC,3TMF,9TAP							
REMARKS Facility: EASTSIDE ST		PROJECT HISTORY Amendment #7 - 12/19/14 - Replace STP-MM funds with TMF bond funds due to a restriction on STP-MM funds which prevents their use on facilities which are functionally classified as local roads. (Engineering phase authorized for design review costs only)							
P7									
TOTAL PROJECT COST INFORMATION			AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	261,448	COST OF APPROVED PHASES	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	0		3TMF	\$ 0	\$ 1,239,240	\$ 0	\$ 0	\$ 0	\$ 1,239,240
CONSTR \$	3,730,058		3LC	\$ 0	\$ 0	\$ 0	\$ 309,810	\$ 309,810	
CONST ENG \$	228,303		9TAP	\$ 1,804,806	\$ 0	\$ 0	\$ 451,202	\$ 2,256,008	
CONTING \$	380,506		TOTAL	\$ 1,804,806	\$ 1,239,240	\$ 0	\$ 451,202	\$ 3,805,058	
INDIRECT \$	193,297								
BOND FIN \$	0								
PT CHG ORD \$	0								
TOTAL CST \$	4,793,612								

2015-2018 STIP		09/2015 Revision: Pending Approval							
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST		
HOUSTON	HOUSTON-GALVESTON	FORT BEND	1415-03-010	FM 2759	C	ROSENBERG	\$ 14,372,000		
LIMITS FROM S OF SANBURY BLVD		PROJECT SPONSOR FORT BEND CO							
LIMITS TO FM 762/FM 2759 ON CRABB RIVER RD		REVISION DATE 09/2015							
PROJECT WIDEN TO 4-LANES DIVIDED (SEGMENT 2)		MPO PROJ NUM 14711							
DESCR		FUNDING CAT(S) 3LC,7							
REMARKS		PROJECT HISTORY Amendment #22 - 9/14/15 - Modify limits and funding. Fort Bend County will construct the portion of the project which will become the ultimate SH 99 frontage road using local funds. Remaining project scope and costs adjusted to reflect current estimates.							
P7									
TOTAL PROJECT COST INFORMATION			AUTHORIZED FUNDING BY CATEGORY/SHARE						
PREL ENG \$	704,228	COST OF APPROVED PHASES	CATEGORY	FEDERAL	STATE	REGIONAL	LOCAL	LC	TOTAL
ROW PURCH \$	0		7	\$ 9,814,600	\$ 0	\$ 0	\$ 2,453,650	\$ 0	\$ 12,268,250
CONSTR \$	14,372,000		3LC	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,103,750	\$ 2,103,750
CONST ENG \$	718,600		TOTAL	\$ 9,814,600	\$ 0	\$ 0	\$ 2,453,650	\$ 2,103,750	\$ 14,372,000
CONTING \$	1,437,200								
INDIRECT \$	730,098								
BOND FIN \$	0								
PT CHG ORD \$	0								
TOTAL CST \$	17,962,126								

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM  
HOUSTON-GALVESTON MPO - HIGHWAY PROJECTS  
FY 2016

2015-2018 STIP		09/2015 Revision: Pending Approval						
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST	
HOUSTON	HOUSTON-GALVESTON	FORT BEND	0543-03-067	FM 762	C	ROSENBERG	\$ 19,877,000	
<b>LIMITS FROM</b> FM 762/FM 2759		<b>PROJECT SPONSOR</b> FORT BEND CO						
<b>LIMITS TO</b> S OF LCISD SCHOOL ON CRABB RIVER RD		<b>REVISION DATE</b> 09/2015						
<b>PROJECT</b> WIDEN TO 4-LANES DIVIDED (SEGMENT 2)		<b>MPO PROJ NUM</b> 14710						
<b>DESCR</b>		<b>FUNDING CAT(S)</b> 3LC,7						
<b>REMARKS</b> P7		<b>PROJECT HISTORY</b> Amendment #22 - 9/14/15 - Modify funding. Fort Bend County will construct the portion of the project which will become the ultimate SH 99 frontage road using local funds. Remaining project scope and costs adjusted to reflect current estimates.						
<b>TOTAL PROJECT COST INFORMATION</b>			<b>AUTHORIZED FUNDING BY CATEGORY/SHARE</b>					
<b>PREL ENG</b>	\$ 973,973	<b>CATEGORY</b>	<b>FEDERAL</b>	<b>STATE</b>	<b>REGIONAL</b>	<b>LOCAL</b>	<b>LC</b>	<b>TOTAL</b>
<b>ROW PURCH</b>	\$ 0	7	\$ 12,567,100	\$ 0	\$ 0	\$ 3,141,775	\$ 0	\$ 15,708,875
<b>CONSTR</b>	\$ 19,877,000	3LC	\$ 0	\$ 0	\$ 0	\$ 0	\$ 4,168,125	\$ 4,168,125
<b>CONST ENG</b>	\$ 993,850	<b>TOTAL</b>	\$ 12,567,100	\$ 0	\$ 0	\$ 3,141,775	\$ 4,168,125	\$ 19,877,000
<b>CONTING</b>	\$ 1,987,700							
<b>INDIRECT</b>	\$ 1,009,752							
<b>BOND FIN</b>	\$ 0							
<b>PT CHG ORD</b>	\$ 0							
<b>TOTAL CST</b>	\$ 24,842,275							

2015-2018 STIP		09/2015 Revision: Pending Approval						
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST	
HOUSTON	HOUSTON-GALVESTON	BRAZORIA	0000-00-000	CR		ALVIN	\$ 0	
<b>LIMITS FROM</b> SH 6		<b>PROJECT SPONSOR</b> CITY OF ALVIN						
<b>LIMITS TO</b> SH 35		<b>REVISION DATE</b> 09/2015						
<b>PROJECT</b> RECONSTRUCT & WIDEN EXISTING 2-LANE RURAL TO 2-LANE RURAL WI SHOULDERS & NEW LOCATION 2-LANE RURAL SECTION		<b>MPO PROJ NUM</b> 10581						
<b>DESCR</b>		<b>FUNDING CAT(S)</b>						
<b>REMARKS</b> Facility: CR 185 P7		<b>PROJECT HISTORY</b> Amendment #15 - 9/25/15 - Delay to FY 2019. Delay from TIP to RTP.						
<b>TOTAL PROJECT COST INFORMATION</b>			<b>AUTHORIZED FUNDING BY CATEGORY/SHARE</b>					
<b>PREL ENG</b>	\$ 0	<b>CATEGORY</b>	<b>FEDERAL</b>	<b>STATE</b>	<b>REGIONAL</b>	<b>LOCAL</b>	<b>LC</b>	<b>TOTAL</b>
<b>ROW PURCH</b>	\$ 0	TOTAL	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
<b>CONSTR</b>	\$ 0							
<b>CONST ENG</b>	\$ 0							
<b>CONTING</b>	\$ 0							
<b>INDIRECT</b>	\$ 0							
<b>BOND FIN</b>	\$ 0							
<b>PT CHG ORD</b>	\$ 0							
<b>TOTAL CST</b>	\$ 0							

2015-2018 STIP		09/2015 Revision: Pending Approval						
DISTRICT	MPO	COUNTY	CSJ	HWY	PHASE	CITY	YOE COST	
HOUSTON	HOUSTON-GALVESTON	MONTGOMERY	0720-02-074	SH 249	C,E,R	NONE	\$ 129,930,000	
<b>LIMITS FROM</b> FM 1774/FM 149 IN PINEHURST		<b>PROJECT SPONSOR</b> MONTGOMERY CO						
<b>LIMITS TO</b> SPRING CREEK/HARRIS C/L		<b>REVISION DATE</b> 09/2015						
<b>PROJECT</b> CONSTRUCT 6-LANE TOLLWAY WITH GRADE SEPARATIONS AT STAGECOACH RD AND WOODLANDS PARKWAY		<b>MPO PROJ NUM</b> 914						
<b>DESCR</b>		<b>FUNDING CAT(S)</b> 3RTR						
<b>REMARKS</b> P7		<b>PROJECT HISTORY</b> Amendment #15 - 9/25/15 - Add to TIP.						
<b>TOTAL PROJECT COST INFORMATION</b>			<b>AUTHORIZED FUNDING BY CATEGORY/SHARE</b>					
<b>PREL ENG</b>	\$ 3,539,272	<b>CATEGORY</b>	<b>FEDERAL</b>	<b>STATE</b>	<b>REGIONAL</b>	<b>LOCAL</b>	<b>LC</b>	<b>TOTAL</b>
<b>ROW PURCH</b>	\$ 0	3RTR	\$ 0	\$ 0	\$ 0	\$ 0	\$ 129,930,000	\$ 129,930,000
<b>CONSTR</b>	\$ 93,138,739	<b>TOTAL</b>	\$ 0	\$ 0	\$ 0	\$ 0	\$ 129,930,000	\$ 129,930,000
<b>CONST ENG</b>	\$ 11,968,328							
<b>CONTING</b>	\$ 14,790,432							
<b>INDIRECT</b>	\$ 6,491,770							
<b>BOND FIN</b>	\$ 0							
<b>PT CHG ORD</b>	\$ 0							
<b>TOTAL CST</b>	\$ 129,928,541							

**EXHIBIT 7**  
**Public Meeting Comments: December 2009, November 2015**

## **PUBLIC MEETING SUMMARY**

**FOR:** Crabb River Road (FM 2759/762)

**FROM:** US 59

**TO:** 500 feet south of LCISD complex

**COUNTY:** Fort Bend

Fort Bend County and the Texas Department of Transportation conducted a Public Meeting concerning the proposed Crabb River Road (FM 2759/762) roadway expansion from US 59 to 500 feet south of the Lamar Consolidated Independent School District Complex in Fort Bend County, Texas. The meeting was held on December 10, 2009 in the Big Tent at River Pointe Community Church located at 5000 Ransom Road, Richmond, TX 77469. The proposed project consists of widening the existing roadway from an open ditch two-lane undivided facility to a four-lane curb and gutter divided facility with underground storm sewer drainage. The total length of the project is approximately 3.8 miles. Additional right-of-way (ROW) would be needed for the proposed project. The additional ROW would be acquired from either the east or west side of the roadway, or a combination of both.

The Notice of Public Meeting was published on November 11<sup>th</sup> in the Houston Chronicle and El Dia; on November 12<sup>th</sup> in Fort Bend & Sugar Land Sun (English and Spanish); and on November 18<sup>th</sup> in Las Noticias de Fort Bend, a Spanish language paper. The notices and affidavits of insertion are attached in Appendix A.

The public meeting was held from 6 PM to approximately 8 PM in an open house format to give citizens the opportunity to view the various exhibits that were on display at the meeting and to discuss and ask questions concerning the proposed project with project staff members. The exhibits consisted of 1) the project purpose and need, 2) schematics and typical cross sections for the proposed project, 3) an environmental constraints map, 4) safety information for the corridor, and 5) Right-of-Way (ROW) information. Input gathered from meeting attendees will be considered and evaluated in the final design for the proposed project. Approximately 98 members of the general public attended the meeting as well as two elected officials.

A registration table was located at the entrance to the Big Tent where the meeting was conducted. The registration table provided sign-in sheets for attendees to register, Public Meeting Comment Forms (in English and Spanish) for attendees to share their thoughts, and Public Meeting Handouts (in English and Spanish), which contained a brief description and purpose of the proposed project. A ROW information table was located near the exit to address any questions concerning property acquisition.

### **Public Comments**

At the open house, the general public was invited to ask questions and comment on the proposed project. All verbal questions and comments were immediately responded to at the meeting. Sixteen Public Meeting Comment Forms were submitted at the public meeting, three comments were received via email by the deadline of December 28,

2009 and 38 Public Meeting Comment Forms were received via regular mail, postmarked by the deadline of December 28, 2009. Numerous forms contained multiple comments. A brief summary of the questions/comments received and responses are summarized as follows:

*Comment 1:* The raised median between Hwy 59 and Sansbury would significantly impact access to our business. We suggest an at-grade median that would accommodate turns.

*Response:* A raised median would improve safety along the corridor. By reducing mid-block left turns, and creating left turn lanes at median cuts, traffic would flow more smoothly and vehicle/vehicle accidents would be greatly reduced. Business access would be maintained throughout the corridor.

*Comment 2:* Looks great!! Sooner the better.

*Response:* Noted

*Comment 3:* Much better than previous design. My compliments. This, we can support.

*Response:* Noted

*Comment 4:* I am concerned about northbound merge lane entering from Sansbury during the A.M. rush hour (also may be an issue on southbound exit to Sansbury) causing traffic to back up.

*Response:* As the design progresses into the final design stage, a traffic study would determine any exclusive lanes required to accommodate turning vehicles.

*Comment 5:* Thank you for having informed and courteous representatives from TxDOT at the 12/10 public meeting.

*Response:* Noted

*Comment 6:* Please minimize impact to mature trees within ROW

*Response:* Only small amounts of right-of-way would need to be acquired for this project. It is not anticipated that any mature trees would be impacted by the construction activities.

*Comment 7:* I am concerned about traffic merging at Sansbury and Crabb River Road during morning and evening rush hours.

*Response:* As the design progresses into the final design stage, a traffic study would determine any exclusive lanes required to accommodate turning vehicles.

*Comment 8:* I prefer this to an extension of Grand Parkway

*Response:* Noted

*Comment 9:* I own the Exxon/Burger King at Crabb River Road and Hwy 59. We need a median cut in front of our business on Crabb River. Current proposed drawings do not show any median cuts. It will be devastating to our business if there are no cuts.

*Response:* During the final design phase of this project, median openings would be determined on a case by case basis.

*Comment 10:* Great plan. Finally, an idea that makes sense. Please press forward with speed. Congestion on Crabb River Road must be addressed immediately.

*Response:* Noted

*Comment 11:* I am concerned about residents being able to safely exit Bridlewood Drive and Berdett. Signal lights might be required.

*Response:* A signal warrant study would be prepared to determine location of traffic signals for the project.

*Comment 12:* The Crabb River median should be at level so individuals can make a turn into the businesses located on Crabb River Road.

*Response:* A raised median would improve safety along the corridor. By reducing mid-block left turns, and creating left turn lanes at median cuts, traffic would flow more smoothly and vehicle/vehicle accidents would be greatly reduced. Business access would be maintained throughout the corridor.

*Comment 13:* To begin, I regret voting for Mr. Morrison in the past election. It is clear that this proposal supports his personal agenda of postponing the construction of 99. My property is positioned closer to the road than any other home in the Stone River subdivision. As explained to me in this meeting, I can expect to have a road approximately 4' – 6' from my fence and no plans currently exist to build any type of privacy fence. This is a definite safety concern for my family simply because of the additional traffic and the proximity to my home. Furthermore, I intend to begin investigating my rights as a homeowner, including how close a major road can be to my property. It would be great if you actually had some information available on the TxDOT website for the public about this as you did for Grand Parkway.

*Response:* This proposed project is not intended as a replacement for Grand Parkway, but as a much-needed safety and roadway improvement for the residents and businesses along Crabb River Road. While it is true that there are currently no plans to construct privacy walls, there is a noise study being conducted. Depending on the results of this study, TxDOT will recommend whether or not noise walls should be

constructed. For additional information on this proposed project, please visit the Fort Bend County website at <http://www.co.fort-bend.tx.us/getSitePage.asp?sitePage=29844> where you can find copies of letters of support and additional information.

*Comment 14:* I'd like to request a median opening at approximately station 157. I have a property with a driveway on the east side of Crabb River Road. We are building a day care at this location and a medical plaza will follow. We need access to the property coming from US 59. The business park at station 158 will also be affected if a median opening is not put in. The majority of our business will come from Greatwood and Canyon Gate. Our future patrons need access to our driveway. Thank you for your consideration.

*Response:* The schematics presented at the public meeting are not in their final format. The final decision on where to place median cuts and left turn lanes would occur during final design and would depend on a number of contributing factors including business traffic, safety, and sight lines.

*Comment 15:* The Crabb River Road expansion should not have a raised median because it will severely impact business and land values due to loss of turning in ability in both directions. The median should be at grade level with the street to accommodate turns.

*Response:* A raised median would improve safety along the corridor. By reducing mid-block left turns, and creating left turn lanes at median cuts, traffic would flow more smoothly and vehicle/vehicle accidents would be greatly reduced. Business access would be maintained throughout the corridor.

*Comment 16:* With no median turn arounds, it makes it inconvenient for our customers to access private businesses. Recommend flat medians in order for business turnarounds.

*Response:* A raised median would improve safety along the corridor. By reducing mid-block left turns, and creating left turn lanes at median cuts, traffic would flow more smoothly and vehicle/vehicle accidents would be greatly reduced. Business access would be maintained throughout the corridor.

*Comment 17:* I live at the corner of Crabb River and 762. The proposed road will be about 15 feet from my back door. This is unacceptable. I am sorry I cast my vote for Morrison. The only way I would quietly go away would be a buy-out. The overpass and frontage road are too close for safety purposes to the homes on that end of the road.

*Response:* Noted

*Comment 18:* It [the public meeting] was very informative to our concerns.

*Response:* Noted

*Comment 19:* I am a homeowner who voted for Morrison. The letter I received in the mail stated that various proposals would be offered tonight. There is only one proposal. I feel duped.

The answer is not to widen existing roads but to offer more (Thompson should go through to Sugarland or Arcola). The elevation of this proposal would exceed any hoped for sound barrier and would be at its most insidious directly behind my home creating more pollution, noise & less privacy. I am strongly opposed to this proposal and would welcome a genuine discussion.

*Response: Noted*

*Comment 20:* This plan should include a noise barrier – lack of privacy and pollution. Instead of an overpass, what would an underpass represent? Or maybe even a raised roadway along the drain ponds built in the subdivision further down Thompson Highway.

*Response:* An underpass would be prohibitively expensive and impossible to do safely given the presence of the railroad line and the gas stations in the area. Noise studies are still being conducted and a recommendation on whether or not to build noise walls will be forthcoming.

*Comment 21:* I believe the best way to move more traffic would be to make Crabb River Road 3 lanes of the traffic each way (6 lanes total) with a center turn lane or divided. A raised divided lane will restrict entrances to businesses along Crabb River Road.

*Response:* A six lane facility for Crabb River Road would require additional ROW that would have a major impact on existing businesses and homes adjacent to the proposed roadway. A raised median along this facility would increase traffic safety for turning vehicles, throughput capacity and reduce delays.

*Comment 22:* Is there a plan to build an overpass at the BNSF railroad?

*Response:* The proposed project would provide grade separation overpass between the roadway and Burlington Northern Santa Fe Railroad line which runs parallel to Thompsons Highway.

*Comment 23:* Is there a plan to create a new entry for Royal Lake Estates at FM 762 near the new high school complex? I am an RLE resident and Commissioner Morrison said he would discuss this at the meeting.

*Response:* The schematics presented at the public meeting are not in their final format. The final decision on where to place median cuts and left turn lanes would occur during final design, after environmental approvals are received, and would depend on a

number of contributing factors including business traffic, safety, and sight lines.

*Comment 24:* Is there anyway to view the plans online?

*Response:* Not at this time. The design schematics for the proposed improvements will be available for inspection at the Fort Bend County Engineer's Office, 1124-52 Blume Road, Rosenberg, Texas 77471, and the TxDOT Houston District Fort Bend Area Office, 4235 SH 36, Rosenberg, Texas 77471.

*Comment 25:* I fully support the proposed widening of Crabb River Road in Fort Bend County Precinct 1. I am a resident of the Greatwood subdivision and with children getting ready to attend Lamar Consolidated Independent School District's side for a new junior high and high school complex at George Ranch. I welcome the state's effort to accommodate the thousands of more vehicles carrying students, parents and school staff that will be on the road with the planned opening of the schools next year. I am very concerned about the road crossing the railroad tracks as it does currently, especially with teenage drivers having to contend with negotiating the tracks with trains coming all throughout the day. My fear is that there will be a lot of kids trying to beat on-coming trains in order to be on time for school eager to get home after school, etc. I hope that part of the expansion is taken care of first. The sooner the widening of the road starts, the better!

*Response:* Noted

**Seven residents submitted the following comments:**

*Comment 26:* The purpose of this letter is to request a median break at station 157 of the expansion project. A break in the median will enable me to safely turn into a private school being built on Crabb River Road. This break would allow south bound drivers on C.R. Road uninterrupted access to a private school and other businesses. As a resident of Canyon Gate, in order to arrive at the school, I would have to make a U-turn at Tara Drive, causing traffic delays and creating a dangerous situation. Thank you for seriously considering this petition.

*Response:* During the final design phase of this project, median openings other than at street intersections would be considered on a case by case basis.

*Comment 27:* Dear Sirs: My wife and I, along with 3 other couples, have invested our life savings in building a private school on Crabb River Road (east side) at approx. sect. station 157. We would like to request an interrupted median access to our facility. We are scheduled to open late Spring 2010. Our future patrons will need uninterrupted access to our driveway when southbound on FM 2759. A median break is crucial, for without it, our business will be adversely affected, compromising our investment and the future well-being of our family. Also, without this median break, our customers would have to travel to the next light at Tara Drive and make a U-turn, causing traffic jam, delays, and hazardous situations. Thank you in advance for your consideration and

hopefully our request is granted. This is a very important factor that will ensure we have a successful school.

*Response:* During the final design phase of this project, median openings other than at street intersections would be determined on a case by case basis.

*Comment 28:* Dear Sirs: I would kindly like to request an interrupted median in front of my property located on the east side of Crabb River Road at approximately sect. 157, between Greatwood Knoll and Tara Drive. My close ones have invested a lot of hard work and money into the new business being developed on that road. By making it easier to access this property, future patrons can arrive safely at our business. This will also enable our business to succeed and have a positive impact on the community. Thank you for taking this petition into serious consideration.

*Response:* During the final design phase of this project, median openings other than at street intersections would be determined on a case by case basis.

*Comment 29:* Dear Sirs: I would kindly like to request an interrupted in front of my property located on the east side of Crabb River Road at approximately sect. 157, between Greatwood Knoll and Tara Drive. I am building a private school and the residents from Greatwood, Canyon Gate, and beyond 59 need to have uninterrupted access when turning left (southbound) into my school. Thank you in advance for considering this important aspect of my business when building the road.

*Response:* During the final design phase of this project, median openings other than at street intersections would be determined on a case by case basis.

*Comment 30:* Build turn lanes at approximately 244 marker at entrance to St. Mark's Episcopal Church and Allied Concrete office

*Response:* During the final design phase of this project, median openings other than at street intersections would be determined on a case by case basis.

*Comment 31:* Extend existing driveway to meet new road that is approx. 250' south of main entrance to St. Mark's Episcopal Church

*Response:* Existing driveways would be extended from the existing ROW line to connect to the proposed row.

*Comment 32:* We attended the public meeting on the 10<sup>th</sup> of December and found the information to be very informative. The individuals working at the event were attentive and answered our questions. The County Commissioner Richard Morrison is to be commended for his efforts to provide our communities with the expansion needed with as little intrusion environmentally as possible. The overpass over the railroad tracks is a must for our school children. This plan is a lot more sensible than the Segment C Toll Road previously offered. We attended all of the Grand Parkway Association meetings

and found the TxDOT folks and associates at the Dec. 10<sup>th</sup> meeting to be a lot more friendly and willing to listen to suggestion. The GP Association representatives were unfriendly and were uncompromising in their positions on a project few in our community supported. Thanks again for this meeting. I am a writer for the Greatwood News as well as a member of the editorial committee, and we are doing very favorable articles for this expansion.

*Response:* Noted

*Comment 33:* Commissioner Morrison deserves a lot of credit for this very much improved plan for Crabb River Road and 762. I would like to make a recommendation that you install signs prohibiting trucks for using the turn-around at 59 & Crabb River Road/99. The curbs, dirt, and guideposts are being damaged by these vehicles that are using the turn-arounds.

*Response:* Noted

*Comment 34:* No left turn lanes going southbound off 59 and forcing a U-turn at Sansbury is impractical.

*Response:* The schematics presented at the public meeting are not in their final format. The final decision on where to place median cuts and left turn lanes would occur during final design and would depend on a number of contributing factors including business traffic, safety, and sight lines.

*Comment 35:* If Grand Parkway is a reality, do leg from 59 to Sansbury as planned by Grand Parkway so as not to need to tear up and redo again

*Response:* The Crabb River Road project is a separate project from the proposed Grand Parkway; however, this facility would be compatible with the future Grand Parkway improvements.

*Comment 36:* More than one entry/exit point from the new Junior/Senior high school otherwise come 3:00 PM every school day will be a mess!

*Response:* As the design of the project advances into the final stage, coordination with school officials would take place to determine the needs for exclusive turning lanes as well as openings to accommodate buses and vehicular traffic.

**23 residents submitted the following comment:**

*Comment 37:* The purpose of this comment letter is to bring to your attention the lack of a turn break in the proposed FM 2759 expansion in section 157 between Greatwood Knoll and Tara Drive signal lights. On the east side of FM 2759 a 2.0 & 2.5 acre commercial parcel of land that as this letter is being written is being developed into a

private school and a medical facility. These developments are going to be adversely affected by the lack of this turn break.

Community residents from Greatwood, Canyon Gate, River Park and the general traffic heading southbound to these businesses will now find themselves stuck at the Tara traffic light to make a U-turn to reach the east side of the road. This is not logical as not only will it create a hassle, delay, and a traffic line at the signal light for the above intersections, but for the residents of Tara subdivision that now are stuck behind the vehicles trying to make a slow U-turn.

We urge you to consider a full break in front of these two parcels of land. At the very least, a left only turn or better known as a button hook turn to the left going southbound on this road.

As a community resident, tax payer and daily user of this road, I urge you to strongly consider my feedback into this project as there are multiple communities that are being affected.

*Response:* During the final design phase of this project, median openings other than at street intersections would be determined on a case by case basis.

*Comment 38:* The Sierra Club supports portions of this proposal including the underpass at Sansbury Blvd.; an overpass at the intersection of FM 2759/FM 762 and the existing railroad track; landscaping and tree planting; and a hike/bike trail that will access adjacent or nearby neighborhoods. Some portions of this proposal address local needs and fit in well with that the local community wants. This is good.

*Response: Noted*

*Comment 39:* The Sierra Club understands that funding may also be sought for alternative energy installations (wind or solar) that would be constructed near this road to provide power for traffic lights and other safety features. If wind energy power is sought then studies must be conducted to ensure that any potential bird mortality due to strikes against windmills will be mitigated to acceptable levels as determined by Texas Parks and Wildlife Department and U.S. Fish and Wildlife Service.

*Response: Noted*

*Comment 40:* The Sierra Club supports the placement of noise barriers on the overpass across the railroad tracks that cross FM 762. The Sierra Club recently drove the potential route of the proposed road expansion and saw that several church related complexes either have been built or will soon be built near this overpass. The people and children that visit, go to school work, and worship at these institutions should be protected from the negative impacts of noise due to the increase in traffic that will be created by the construction of the road expansion and the completion of the nearby school complex.

*Response: Noted*

*Comment 41:* The Sierra Club does not want to simply plan for our children to be “on the edge of their safety zone” with regard to air pollution. We want to make sure there is a margin of safety so our children are safe and healthy. The Lamar Consolidated Independent School District school complex is only a few hundred feet from the proposed road expansion. Children, teachers, administrators, parents, and all people need to be protected from air and noise pollution that comes from nearby roads. Various studies have indicated that people living near roads (within about 1,000 feet) have greater health risks due to their exposure to greater levels of air pollution. Children have an even greater risk due to air pollution because their bodies are growing and developing. Some of these studies and the distances from roads that may be dangerous to people’s health or cause an increase in exposure and risk that are documented in these studies are:

- 1) 750 feet (250 yards), “Distance-weighted traffic density in proximity to a home is a risk factor for leukemia and other childhood cancers,” by Watchell Pearson, Robert L. Pearson, and Kristie Ebie, *Journal of Air and Waste Management Association* 50: 175-180, 2000.
- 2) 660 feet (220 yards), “Childhood Asthma Hospitalization and Residential Exposure to State Route Traffic,” by Shao Lin, et. al., *Environmental Research Section A, Volume 88*, pp. 73-81, 2002.
- 3) 990 feet (330 yards), “Concentration and size distribution of ultra-fine particles near a major highway,” by Yifang Zhu, et. al., *Journal of the Air and Waste Management Association*, September 2002, and “Study of ultra-fine particles near a major highway with heavy-duty diesel traffic,” *Atmospheric Environment* 36(2002), 4323-4355.
- 4) 270 feet (90 yards), “Living Near a Main Road and the Risk of Wheezing Illness in Children,” by Venn, et. al., *American Journal of Respiratory and Critical Care Medicine*, Volume 164, pp. 2177-2180, 2001.
- 5) 15,849 feet (3 miles), “Hazard proximities of childhood cancers in Great Britain from 1953-1980,” by Knox and Gilman, *Journal of Epidemiology and Community Health*, 51:151-159, 1997.
- 6) 300 feet (100 yards), “Traffic, Air Pollution, and Mortality Rate Advancement Periods,” by M. Finkelstein, M. Jerrett, and M. Sears, *American Journal of Epidemiology*, Volume 160, pp. 173-177, 2004.
- 7) 400 feet (150 meters), “Air Pollutant Concentrations Near Texas Roadways,” by David Allen, et. al., *Texas Commission on Environmental Quality, Draft Final Report, Service Order 18, Contract No. 852-4-56385*, August 31, 2007.
- 8) 225 feet (75 meters), “Traffic, Susceptibility, and Childhood Asthma,” by Rob McConnell, et. al., *Environmental Health Perspectives*, Volume 114, Number 5, May 2006.
- 9) 1,640 feet (500 meters), “Effects of exposure to traffic on lung development from 10 to 18 years of age: a cohort study,” Gauderman, et. al., [www.thelancet.com](http://www.thelancet.com), Volume 368, January 26, 2007.

In addition, the study “Association Between Local Traffic-Generated Air Pollution and Preeclampsia and Preterm Delivery in South Coast Air Basin of California,” by Jun Wu, et. al., shows there are increases in preeclampsia (a multi-system disorder in pregnant women characterized by elevated blood pressure, edema, and protein in the urine) and preterm delivery near roadways in California.

Other documents that deal with air pollution effects on people near roadways include:

- 1) Particulate Matter and Air Toxic Pollutant Exposures Near Heavily Traveled Roadways in the U.S., by Patricia Rowley and Richard Cook, U.S. EPA.
- 2) Bibliography of Near Roadway Health Effects (I) and Exposure Studies (II), U.S. EPA, March 2007.
- 3) Highway Health Hazards, Sierra Club, 2004.
- 4) Freeways & Health: Recent Studies, Dr. Winifred J. Hamilton, June 4, 2002.
- 5) Diesel and Health in America: The Lingering Threat, Clean Air Task Force, February 2005.
- 6) Health Assessment Document for Diesel Engine Exhaust, U.S. EPA, May 2002.
- 7) Health Effects of Air Pollution: Beyond the Criteria Pollutants, Dr. Philip Bromberg, et. al., Air Toxics Workshop II, Section 1, Mickey Leland Center, June 12, 2007.
- 8) Near-Roadway Exposure and Health, Chad Bailey, U.S. EPA, Office of Transportation and Air Quality, Air Toxics Workshop II, Mickey Leland Center, June 12, 2007.
- 9) Air Pollutant Concentrations Near Texas Roadways, David Allen, et. al., Draft Final Report, Texas Commission on Environmental Quality, August 31, 2007.

These studies and others should be used in determining potential environmental impacts due to the proposed expansion of 3.8 miles of Crabb River Road (FM 2759/FM 762), from a two-lane to a four-lane road, from U.S. 59 South to 500 feet past the Lamar Consolidated Independent School District school complex in Fort Bend County. In addition, these studies should be used to develop mitigation measures to reduce any potential air pollution health impacts that may occur to humans due to the implementation of this proposal. The U.S. Environmental Protection Agency has done and continues to conduct research on this issue and should be contacted for assistance.

The Sierra Club has already provided most of these studies to Commissioner Morrison recently and to the TxDOT during the comment periods for the environmental impact statements for the proposed Grand Parkway, Segment E and Trans-Texas Corridor/Interstate 69 projects. If TxDOT would like to receive additional copies of these studies again please contact me and I will make hard copies and provide them to TxDOT.

*Response: Noted*

*Comment 42:* The Sierra Club is enclosing with this letter the studies “Traffic, Air Pollution, and Mortality Rate Advancement Periods,” by M. Finkelstein, M. Jerrett, and M. Sears, American Journal of Epidemiology, Volume 160, pp. 173-177, 2004 and “Effects of exposure to traffic on lung development from 10 to 18 years of age: a cohort study,” Gauderman, et. al., [www.thelancet.com](http://www.thelancet.com), Volume 368, January 26, 2007, which provide additional information about the potentially harmful air pollution impacts of roads.

*Response: Noted*

*Comment 43:* Some studies suggest that air pollution interacts with noise pollution to cause additive environmental impacts on human health/welfare. Other pollution hazards that are of concern include in-vehicle levels of air pollution which drivers and passengers breathe; vehicle in motion concentrations of air pollutants that are emitted during actual driving conditions/routes; and actual noise levels at major roads out at least 1,000 feet.

The Sierra Club strongly recommends that TxDOT and Fort Bend County protect children and other people that work and visit the Lamar Consolidated Independent School District school complex on FM 762 from air and noise pollution by requiring mitigation measures. The Sierra Club particularly recommends that a noise wall and series of off-set tree plantings (3-5 rows) be constructed and implemented near the boundary of the school property and the expanded FM 762 to reduce both noise and air pollution.

Trees and shrubs used for the green living noise and air pollution barrier should be a mixture of local Colombia Bottomland species found in the Brazos River Floodplain. Species should be used that grow to different heights (understory, midstory, and overstory trees) to ensure that air and noise pollution is filtered or attenuated at all height levels. Some acceptable local species of trees or shrubs include Bur Oak, Shumard Oak, Live Oak, Water Oak, Pecan, Sugarberry, Cedar Elm, Green Ash, Red Bud, Rough-Leaf Dogwood, American Elm, Carolina Laurel Cherry, Water Hickory, Bald Cypress, Soapberry, Little Hip Hawthorn, Deciduous Holly, Yaupon Holly, Swamp-Privet, Button-Bush, Box Elder, Black Willow, Honey Locust, and Dwarf Palmetto. This area can also be landscaped attractively with small ponds to provide wildlife habitat as well as serve as a scenic frontispiece for the school complex as well as serve as noise and air pollution mitigation area.

Enclosed is an article entitled “The effects of roadside structures on the transport and dispersion of ultrafine particles from highways,” by George E. Bowker, et. al., Atmospheric Environment, article in press, accepted June 27, 2007 which states “Results indicated that air pollutant concentrations near the road were generally higher in open terrain situations with no barriers present” and documents that noise barriers and trees can reduce air pollution near roads.

*Response: Noted*

*Comment 44:* Crabb River Road/FM 2759/FM 762 should be the gateway to Brazos Bend State Park. If this is going to occur then plantings of tree and shrub species mentioned above (representative of the Columbia Bottomlands) should be planted to line both sides of the road. Later projects for this area should extend this theme planting all the way to Brazos Bend State Park.

*Response: Noted*

**Crabb River Road (FM 2759/FM762)**  
**CSJs 0543-03-067, 1415-03-010**  
**Public Meeting, November 5, 2015**

		Comment/Response Matrix	
Comment #	Name of commenter	Date comment received	Comment (verbatim)
1	[REDACTED]	11/6/2015 - via email	<p>I am very concerned about the lack of coordination for the Crabb River Road Expansion.</p> <p>I am disappointed there is no funding or timeline for Phase 2--until Phase 2 is completed, this road will continue to be a nightmare.</p> <p>How many kids are going to die driving to/from George Ranch high school before this road is improved?</p>
2	[REDACTED]	11/09/15 - via email	<p>Off the top, if the overpass is not the first phase you should probably not start the project, as it will only make matters much worse.</p> <p>I do not know what kind of data the consultant has put into the community impacts section of the EA but here is what I know. The current student population at George Ranch High School is right around 2,300. This covers ninth through twelfth grades. Most kids get the driver's license as soon as possible, and most kids by the time they are in eleventh grade are 16. That means that there are between 600 and 1,000 potential drivers. The school staff, including all the specialists, administrators, police, and custodial personnel surpasses 150. Many of the students have parents who do not trust the school bus system so you can add between 600 and 1,000 vehicle trips. Of course, many students still ride the bus and there are about 12 routes that terminate at the school.</p> <p>In terms of the community, there are already several hundred homes south of the FM 2759/762 intersection. Several thousand more are anticipated within the next 20 years. All of the wage earners and other residents must use the intersection every day, at least twice. Also, there is a major regional landfill near Needville, all of the trucks that collect trash north of the intersection also use the same intersection. Now add all the other commercial vehicles that pass through the intersection every day and you have a rough picture of the capacity need. Yes, four lanes will be an improvement over the existing "two".</p>
			<p><b>Response</b></p> <p>Comment noted</p> <p>Comment noted</p> <p>Additional lanes will add capacity; raised median will limit turning movements and provide refuge for left turning traffic.</p> <p>Improvements include sidewalk for pedestrians &amp; shared use outside lane for bikes. Improved safety &amp; reduction of accidents is one of the purposes of the proposed project.</p> <p>Providing additional vehicle capacity to Crabb River Road in Phase I by adding travel lanes will improve traffic movement and reduce congestion from current forecast levels, although vehicles will still have to wait on trains at the at-grade crossing. This will improve safety. The Phase II overpass is proposed for construction when funding becomes available.</p> <p>Traffic is anticipated to increase substantially on Crabb River Road regardless of whether the project is constructed or not. According to traffic projects developed by TxDOT, the existing two- to three-lane Crabb River Road (FM 2759) within the project limits will have an Average Daily Traffic (ADT) volume of approximately 17,700 vehicles in 2017 and 27,800 vehicles in 2037. The existing two- to three-lane Crabb River Road (FM 762) within the project limits will have an ADT volume of approximately 12,400 vehicles in 2017 and 19,400 vehicles in 2037. The project is intended to accommodate growing traffic volumes by increasing the roadway's vehicle capacity with additional travel lanes and improving operational efficiency with the proposed grade separation over the railroad crossing and Thompsons Road intersection.</p> <p>The Greatwood community has an estimated 2013 population of 12,237. Canyon Gate has an estimated built-out population of 3,230. Bridlewood Estates has an estimated potential full-occupancy population of 1,646. The proposed project has received community support from local homeowners associations (HOAs) including Greatwood HOA, Bridlewood HOA and Canyon Gate HOA.</p>

<p>Crabb River Road (FM2759/FM762) is a major arterial that currently experiences significant congestion during peak periods, operation at Level of Service (LOS) F.</p>	<p>But the discussion of the traffic does not include three additional factors. First, recall the 12 school busses. By law, they must fully stop at the railroad crossings, observe train traffic in each direction, and proceed. Buses are not indi cars. They do not accelerate quickly. Now consider six to eight busses approaching from four directions simultaneously. First, they need to negotiate the intersection and then they must cross the track. Due to routes and scheduling, such a thing happens at least twice each morning. Second, the railroad track, itself, is a major factor. The trains pass through the area throughout the day and night. The volume of cargo has also increased over time, and very few trains are less than 100 cars in length. Third, south of the tracks on FM 762 there are two intersections and several driveways, all of which experience use regardless of the time of day. All of this means that for roughly six hours every day the LOS of FM 2759/762 is F. For another four hours it improves to D or E. Never except after 8:00 (and not even then if there is a major event at the school) does the LOS improve to more than C or B.</p>	
<p>Thank you for your comment dramatically illustrating the need for Phases I and II of the proposed project.</p>	<p>Of course, people need to get to school and work. The truly horrible conditions get people very upset, frustrated, angry, and impulsive. Previously I placed the number of existing lanes in quotation marks. In reality, this is very incorrect. The roadway also has a continuous left turn lane (CLTL). About two years ago, some kid, tired of the line-up, flipped into the CLTL and got right to the intersection, where they forced themselves into the flow of traffic crossing the track. Now, two years later, this is a daily occurrence. Between roughly 7:15 and 8:30, students, parents, commercial trucks, school busses, and every other manner of vehicle use the CLTL as a regular lane. This practice is now so bad that the CLTL is no longer a viable option to avoiding delays. This year it got one step worse. Drivers are now using the shoulder to bypass the lineup. There have also been cases of drivers in the CLTL using the northbound lane to move ahead in traffic.</p>	
<p>Improvements include sidewalks for pedestrians and shared use outside lanes for bikes; safety should improve.</p>	<p>The final element is one that nobody considers, not even TxDOT. As strange as it may seem, some people like to walk or ride their bicycle. TxDOT's rationale for not having sidewalks is that sidewalks encourage pedestrians to use on-system roadways, which are often dangerous for pedestrians. Lack of sidewalks means reduction of safety concerns. Unfortunately, in the real world, where FM 2759/762 is located, people walk. On FM 2759/762 they have two options: share the roadway or walk in the ditch. Since the ditch can be difficult passage, pedestrians typically choose the roadway. This is a terrible scenario that, giving the fools out there, destined to be a tragedy.</p>	

<p>Phase 1 will add 2 additional lanes which will alleviate congestion, also the alignment at the RR will be improved to meet standards and may reduce accidents. Phase 2 will eliminate that RR crossing which will reduce congestion.</p>	<p>I have spoken to the County, the sheriff, the DPS, and the School District and nobody sees this as a big enough issue to take action. I had a traffic planning professor who succinctly summed up the problem with added capacity projects. "An extra lane has never, and will never, solve congestion issues." It will raise the LOS somewhat, but eventually the new congestion will surpass the original capacity. In other words, without a clear route you are basically putting a cork at the end of a very wide opening.</p>		
<p>Phase I benefits include 2 additional lanes, raised median, and wider shoulder south of BNSF RR crossing, which will improve safety. Phase II benefits include eliminating the at-grade RR crossing which will further improve safety.</p>	<p>If the overpass is not in Phase 1, I have two predictions I know will be fulfilled:</p> <ol style="list-style-type: none"> <li>1. Congestion will worsen.</li> <li>2. Eventually, an innocent person is going to die.</li> </ol>		
<p>TxDOT, County and consulting engineers and planners have been to the project site. The proposed project is intended to address and alleviate peak traffic period conditions.</p>	<p>I realize you probably cannot do much about the whole thing. But would you please pass it on to somebody who might? I do not know if anybody has ever really thought about the conditions that law-abiding people must endure each morning and afternoon. Most of this will not be obvious unless the planners actually come to the site during the worst conditions. FM 2759/762 is a minor roadway that is not, nor ever has been, in the news for its capacity issues.</p>		
<p>Comment noted</p>	<p>So you are aware, I copied this to the Director of Project Development email address.</p> <p>For the Purpose of the Comment Form:</p> <ol style="list-style-type: none"> <li>1. I am not an Elected Official.</li> <li>2. My primary interest in the project is from the standpoint of a residential property owner.</li> <li>3. Per Texas Transportation Code 201.811(a)(5), I am not a TxDOT employee, but I have periodically done business with TxDOT; not on this project, nor could I benefit monetarily from the project or other item about which I am commenting.</li> <li>4. I heard about this meeting from the Texas Department of Public Safety and via a notice in the mail.</li> <li>5. I am fully in support of this proposed project, and I would like to see it kick-off before the end of 2016 to transportation planning is equivalent to this afternoon by ordinary time keeping).</li> <li>6. Yes, please place me on your mailing list for updates.</li> </ol>		
<p>Thank you for your comment. We will place your name in our database for any updates to the project. Also, project updates will be posted on the TxDOT project website at: <a href="http://www.txdot.gov/inside-txdot/get-involved/about/hearings-meetings/houston/110515.html">http://www.txdot.gov/inside-txdot/get-involved/about/hearings-meetings/houston/110515.html</a></p>	<p>We have lived off Smither Lake Rd, for a long time. When the school was built on a 2 lane Rd, what were you thinking?</p>	<p>11/5/2015</p>	
<p>The proposed Phase I improvements extend to the LCISD secondary school complex to account for the campus as a major traffic generator and address traffic growth in that area with expanded roadway capacity.</p>	<p>Now you want to make the Rd 762 wider because of the traffic. If that is the deal then TxDOT needs to fund it immediately.</p>		
<p>Federal, State and Local funds are being allocated for the project.</p>	<p>Also, the school needs to turn off the lights at night when not in use. Because tax dollars are being spent and I don't appreciate it.</p>		
<p>Please contact the school with your suggestion.</p>			

4	[REDACTED]	11/5/2015	<p>The stop lights need to be blinking on the weekend as not to stop all the time when we are traveling with cows or horses. I enjoy my country life and now this.</p> <p>Lots of talk and no action. Is funding planned?</p>	<p>The traffic signal is programmed by the traffic section of TxDOT based on current traffic conditions.</p> <p>Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months</p>
5	[REDACTED]	11/5/2015	<p>The overpass is much needed and it is time to stop talking and get started. Has funding been assigned to get going. This area is growing out of control.</p>	<p>Thank you for your comment. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months</p>
6	[REDACTED]	11/5/2015	<p>My main interest is the intersection of 762 and 2759. There are times that it is impossible to even reach the intersection from the Booth/Thompson area due to traffic trying to make a left turn on 762.</p>	<p>Providing additional vehicle capacity to Crabb River Road in Phase I by adding travel lanes will improve traffic movement and reduce congestion from current forecast levels, although vehicles will still have to wait on trains at the at-grade crossing. The Phase II overpass is proposed for construction when funding becomes available.</p>
7	[REDACTED]	11/5/2015	<p>The sooner the Better! Too many wrecks near school. Major traffic congestion. Took me 25 minutes to get to this mtg from Greatwood!</p>	<p>Comment noted The proposed improvements will reduce forecasted traffic congestion and improve safety.</p>
8	[REDACTED]	11/5/2015	<p>Please ensure <u>safety</u> of traffic during this project. "Hurry up" incentives would be appreciated. Thank you! Phase 2 needs a better plan.</p>	<p>The proposed improvements will reduce forecasted traffic congestion and improve safety. Comment noted; the proposed Phase II was designed to provide safe and efficient access to the grade-separated facility while minimizing impacts to the social, economic, natural and cultural environment.</p>
9	[REDACTED]	11/5/2015	<p>Don't kill or trap animals. Relocate them. Affected by this from the pastures and fields.</p>	<p>Killing or trapping animals is not proposed for the project. No federal or state listed threatened or endangered species or state species of concern or their habitat have been identified in the project area. Before clearing vegetation, bird nest surveys will be conducted to verify the presence/absence of active nests. It is not anticipated that migratory birds will be disturbed by project construction. In accordance with the Migratory Bird Treaty Act, no vegetation or structures would be removed containing nests, eggs, or young if discovered during construction. All efforts necessary to avoid impacts would be made to protect birds, active nests, eggs and young if migratory birds are encountered during construction.</p>
	[REDACTED]		<p>Should have had people familiar with the widening of Crabb River Rd at the US 59 end.</p>	<p>Representatives from Fort Bend County Toll Road Authority were present at the meeting to discuss the widening of Crabb River Road at the US 59 end, which is part of the Grand Parkway project.</p>

10	[REDACTED]	11/5/2015	<p>Due to the congestion at the intersection of 762 &amp; 2759 the grade separation approach at this location would best serve this area.</p> <p>The at grade intersection will be a waste of time &amp; money.</p>	<p>The project is intended to accommodate growing traffic volumes by increasing the roadway's vehicle capacity with additional travel lanes and improving operational efficiency with the proposed grade separation(Phase II) over the railroad crossing and Thompsons Road intersection.</p> <p>Providing additional vehicle capacity to Crabb River Road in Phase I by adding travel lanes will improve traffic movement and reduce congestion from current forecast levels, although vehicles will still have to wait on trains at the at-grade crossing. The Phase II overpass is proposed for construction when funding becomes available.</p> <p>Comment noted Federal, State and Local funds are being allocated for the project.</p>
11	[REDACTED]	11/5/2015	<p>This has been going on long enough and needs to get done. The use of Prop 1 and Prop 7 funds from the past few elections should be used. Needs to happen faster! :</p>	<p>The project is scheduled for the earliest completion given the requirements to comply with all applicable federal and state environmental laws and regulations, the acquisition of properties needed for right-of-way, and carefully implementing required design standards to assure roadway safety and efficiency.</p>
12	[REDACTED]	11/5/2015	<p>Want overpass above railroad and want it to be funded now not later. If only widening of Crabb River Rd is done now then at rail road crossings there will be bottleneck for traffic if if the overpass is not built simultaneously.</p>	<p>An overpass at the railroad is proposed when funding becomes available. Providing additional vehicle capacity to Crabb River Road in Phase I by adding travel lanes will improve traffic movement and reduce congestion from current forecast levels, although vehicles will still have to wait on trains at the at-grade crossing. The Phase II overpass is proposed for construction when funding becomes available.</p>
13	[REDACTED]	11/5/2015	<p>Also need turning lane on intersections of 762 &amp; Berdett going towards school, especially in mornings too much back up on Berdett. Phase 2 overpass should be done immediately as it does not make sense to expand and then come back and tear it up.</p>	<p>TxDOT and Fort Bend County are evaluating the possibility of adding a right turn lane at this intersection. Providing additional vehicle capacity to Crabb River Road in Phase I by adding travel lanes will improve traffic movement and reduce congestion from current forecast levels, although vehicles will still have to wait on trains at the at-grade crossing. The Phase II overpass is proposed for construction when funding becomes available.</p>
14	[REDACTED]	11/5/2015	<p>Phase 1 needs to be done as soon as possible.  However, if the lights would be timed properly and the crossing arms functional, it would eliminate much of the traffic issues in the morning and the afternoon. Fix the traffic lights now!  For current situation - to relieve congestion work on syncing traffic lights to keep traffic moving - ??</p>	<p>TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months. Additional signals will be added during this project; the timing will be adjusted based on projected traffic conditions. If there are problems with the crossing arms, please contact TxDOT's Fort Bend Area. Please report any problems with current traffic lighting to the Fort Bend area office.</p>

			Why do construction at 762 RR tracks twice??	Providing additional vehicle capacity to Crabb River Road in Phase I by adding travel lanes will improve traffic movement and reduce congestion from current forecast levels, although vehicles will still have to wait on trains at the at-grade crossing. The Phase II overpass is proposed for construction when funding becomes available. Comment noted
15			Go ahead and do the elevated option in the Crabb River Rd project. I am in support of building the overpass at FM 762 and FM 2759 immediately. This should be priority #1.	Comment noted
16			From the two lanes off 2759 to Rabbs Bayou, why have 3 lanes to two lanes and move the congestion from by 59 to the Bayou? Two lanes continues to the flow in. Think Build the bridge now over 762 RR. Don't do the work twice, Please.	Phase I widens to 2 lanes in each direction, with raised median and left turn lanes. Providing additional vehicle capacity to Crabb River Road in Phase I by adding travel lanes will improve traffic movement and reduce congestion from current forecast levels, although vehicles will still have to wait on trains at the at-grade crossing. The Phase II overpass is proposed for construction when funding becomes available.
17			In support of project	Comment noted
18			The Royal Lakes Estates subdivision will be affected by this project and no one here tonight knew anything about it.	Public meeting notices were run in the Houston Chronicle, Fort Bend Herald on October 1, 2015 and October 21, 2015 and LaVoz on October 4, 2015 and October 25, 2015. Royal Lakes Estates will be added to the mailing list for future notifications.
19			Please fund overpass over the railroad tracks	Comment noted
20			We own property where proposed pond is. This property has a house and several other buildings etc. please contact me. Thanks	TxDOT Right of Way Division will directly contact all property owners who will be affected by proposed acquisition. Structures on the property have been identified and mapped for purposes of the Environmental Assessment.
21			Save money and build Grand Parkway! This is a little to late! By the time it's built you'll need Grand Parkway!	The Crabb River Road project will provide congestion relief and safety improvements before Grand Parkway is built.
22			Ignore the idiots that think it's too close to their house! Please cut Ameyer Rd through to 762 at LCISD complex now!! I support the overpass at BNSF and would like that funded now! We will need NOISE walls in front of Bridlewood.	Comment noted Comment noted; A Meyers Road is a County project and not part of the current project. Thank you for your comment. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months A noise analysis has been performed as part of the Environmental Assessment. If the noise analysis identifies noise impacts and finds noise walls to be feasible and reasonable, noise walls will be proposed and a noise workshop with affected adjacent property owners will be held to gather public input

23		11/5/2015	I don't understand why roads were not built with the school.  This may correct some of the issues, but as you will not be building an overpass @ the railroad track there will still be a blockage.  A. Myers will help the general congestion, I hope I do believe phase I should go further past the school.  The Project is terrible for Bridlewood Estates access to 762.  If TxDOT would communicate with County Engineers they would see the extension of A. Meyers Road to 762 not on any maps this would reduce the # of vehicles using 762 by more than 1/2. Right hand doesn't know what left is doing - typical government at work.  Hurry with the bridge over the RR tracks  but redesign the exit to FM762.  Please hurry on widening Crabb River Road. Also please hurry on building A Myers Road to GRHS. That would help with the traffic in Bridlewood subdivision.  Make A. Myers Road a bus lane. The buses cut through Bridlewood Subdivision speeding.  You need to have an immediate turn right on to 762 from the school in addition to the proposed loop. Half the people turn right to go down 762.  The proposed loop will cause significant backup.	The proposed Phase I improvements extend to the LCISD secondary school complex to account for the campus as a major traffic generator and address traffic growth in that area with expanded roadway capacity. An overpass at the railroad is proposed when funding becomes available for Phase II.  Comment noted; A Meyers Road is a County project and not part of the current project. The LCISD school complex is a logical end point for the project, given the traffic generated by the facility. Ingress and egress to the adjacent properties will be maintained as much as possible during construction and all affected driveways will be reconstructed.  TxDOT and Fort Bend County are working together on the Crabb River Road project. Improvements to other roadways are not expected to address the need for the Crabb River Road project.  Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months. Federal, State and local funding is being allocated for this project.  Ramp provides access to FM762.  Comment noted Comment noted; A Meyers Road (County Road project) is not part of the current project.  Comment noted; A Meyers Road is not part of the current project.  The schematics team is working to make sure the lanes are developed correctly.  The proposed Phase II grade-separation, of which the access ramps (or loop) are part, would eliminate vehicle delays on Crabb River Road attributable to the railroad crossing, thereby providing considerable traffic relief on the roadway.
24		11/5/2015	Want the overpass over the railroad to be funded by TxDOT and constructed ASAP!	Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months. Federal, State and local funding is being allocated for this project.  Comment noted
25		11/5/2015	I support the TexDOT. I want to build this project ASAP.	Comment noted
26		11/5/2015	Move the timeline for phase 2 forward to build the overpass at the train tracks as soon as possible.	TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
27		11/5/2015		
28		11/5/2015		
29		11/5/2015		
30		11/5/2015		

31		11/5/2015	Need overpass over railroad tracks at FM 762 asap and pd for by TxDOT.	Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months.
32		11/5/2015	I support the overpass at BNSF Railroad intersection at the BNSF Railroad & Thompson Road (FM 2759/FM 762) Please fund the project.	Comment noted  Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
33		11/5/2015	I support the overpass at BNSF Railroad intersection at the BNSF Railroad & Thompson Road (FM 2759/FM 762) Please fund the project.	Comment noted  Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
34		11/5/2015	I support the overpass at BNSF Railroad intersection at the BNSF Railroad & Thompson Road (FM 2759/FM 762) Please fund the project.	Comment noted  Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
35		11/5/2015	I support the overpass at BNSF Railroad intersection at the BNSF Railroad & Thompson Road (FM 2759/FM 762) Please fund the project.	Comment noted  Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
36		11/5/2015	Need overpass over the existing rail. Need to maintain existing traffic capability during construction.	Comment noted. During construction the number of through lanes will not be reduced. However, temporary off-peak lane closures may be necessary.
37		11/5/2015	Desire plan/timetable for Grand Pkwy (99). We need the project for the overpass to start right away.	Please contact the Fort Bend Grand Parkway Toll Authority TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
38		11/5/2015	I am in favor of funding the overpass over RR tracks ASAP for school safety.	Comment noted

			Buses have to stop & open doors. Backs up traffic & unsafe.	School bus stop locations and bus operations are determined and managed by the LCISD, to whom comments may be addressed. Fort Bend County does not currently operate a fixed route bus service within the project limits.
			TxDOT should fund ASAP.	Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
39		11/5/2015	We definitely support the overpass over the railroad. We believe it's a big step toward alleviating traffic & providing more safety for the folks who live here. And, we'd like to get this project funded & started right away. Thank you!	Comment noted
40		11/5/2015	1) Support the project. (Phase 1&2) 2) Fund as soon as possible	Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016 or early 2017. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
41		11/5/2015	Please build elevated section over RR Track @ 762/Crabb	Comment noted Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016 or early 2017. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months.
42		11/5/2015	Yes - supportive of this proposed project Please start this project as soon as possible.	Comment noted TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
43		11/5/2015	It takes 40 minutes in the morning to get from Greatwood to George Ranch! If I come to the school when it is <u>not</u> rush hour it takes 13 minutes! I think the roads need to be fixed and widened, but I think that TxDOT needs to consider the construction along 59 before starting to do construction on Crabb River. Also the Phase 2 portion is not very well thought out for the residents here.	Both Phase 1 and Phase II will help to alleviate congestion, that is why this project is a priority for TxDOT and Fort Bend County.
44		11/5/2015		Crabb River Road and US 59 are independent projects.  Comment noted; the proposed Phase II was designed to provide safe and efficient access to the grade-separated facility while minimizing impacts to the social, economic, natural and cultural environment.

			Also, what will happen to the wildlife that this will affect? You will displace them and cause them to come into our homes.	TxDOT will coordinate with the Texas Parks and Wildlife Department according to the Memorandum of Understanding between the two agencies to address impacts to wildlife habitat required by law. No federal or state listed threatened or endangered species or state species of concern or their habitat have been identified in the project area. Before clearing vegetation, bird nest surveys will be conducted to verify the presence/absence of active nests. It is not anticipated that migratory birds will be disturbed by project construction. In accordance with the Migratory Bird Treaty Act, no vegetation or structures would be removed containing nests, eggs, or young if discovered during construction. All efforts necessary to avoid impacts would be made to protect birds, active nests, eggs and young if migratory birds are encountered during construction.
		11/5/2015	I'm for & against the road to be widened. For if it will help us but against Phase 2 plan and the destruction & displacements of property.	Comment noted
45		11/10/2015	You need to cut Williams Way through from Hwy 59 to 762 before you start this project. Traffic on Crabb River Rd. would be relieved greatly if you would do this first.	Any proposed projects along Williams Way should be addressed to Fort Bend Count. This work is not included within the current project.
46		11/12/2015	Bridlewood Estates subdivision has a major problem with flooding. My lot has been flooded twice this year with water at the edge of the house. Flooding is due to drainage problems with GAPPS Slough. Fort Bend did a study in 2012-2013 that showed that part of the problem is slow drainage of Gapps Slough under 762 (Crabb River Rd). So it is important when widening CRABB River Rd to not make the drainage worse than it is now.	TxDOT will make every effort to ensure the occurrence of flooding does not increase as a result of this project. Storm water detention ponds have been included in the project design to address potential drainage issues.
47		11/12/2015	Politics has delayed this project. It is time for Herbert and Patterson to step aside and let this project move forward.	Comment noted; storm water detention ponds have been included in the project design to address potential drainage issues.
48		11/12/2015	Do this project right! Don't build it the cheap "Patterson" way... We don't want to flood like the Grand Parkway (99) at US 90 in Sugarland.	Comment noted
49		11/12/2015	People shouldn't have to pay a toll to take their kids to school. We need this project built.	Comment noted. TxDOT will make every effort to ensure the occurrence of flooding does not increase as a result of this project. Storm water detention ponds have been included in the project design to address potential drainage issues.
50		11/12/2015	TxDOT should go forward with this project, just like the one way pairs on US 90A in Rosenberg.	Comment noted
			Do what's right despite the petty politics of Hebert and Patterson.	Comment noted
51		11/12/2015	People are tired of waiting for this project. What happened to the T-Overpass at the railroad.	Comment noted; the proposed Phase II overpass was designed to provide safe and efficient access to the grade-separated facility while minimizing impacts to the social, economic, natural and cultural environment.
52		11/12/2015	We need Phase I and Phase II.	Comment noted
53		11/12/2015	This project should have been finished 10 years ago.	Comment noted
54		11/12/2015	We need the whole project -- Phase 1 and Phase 2.	Comment noted

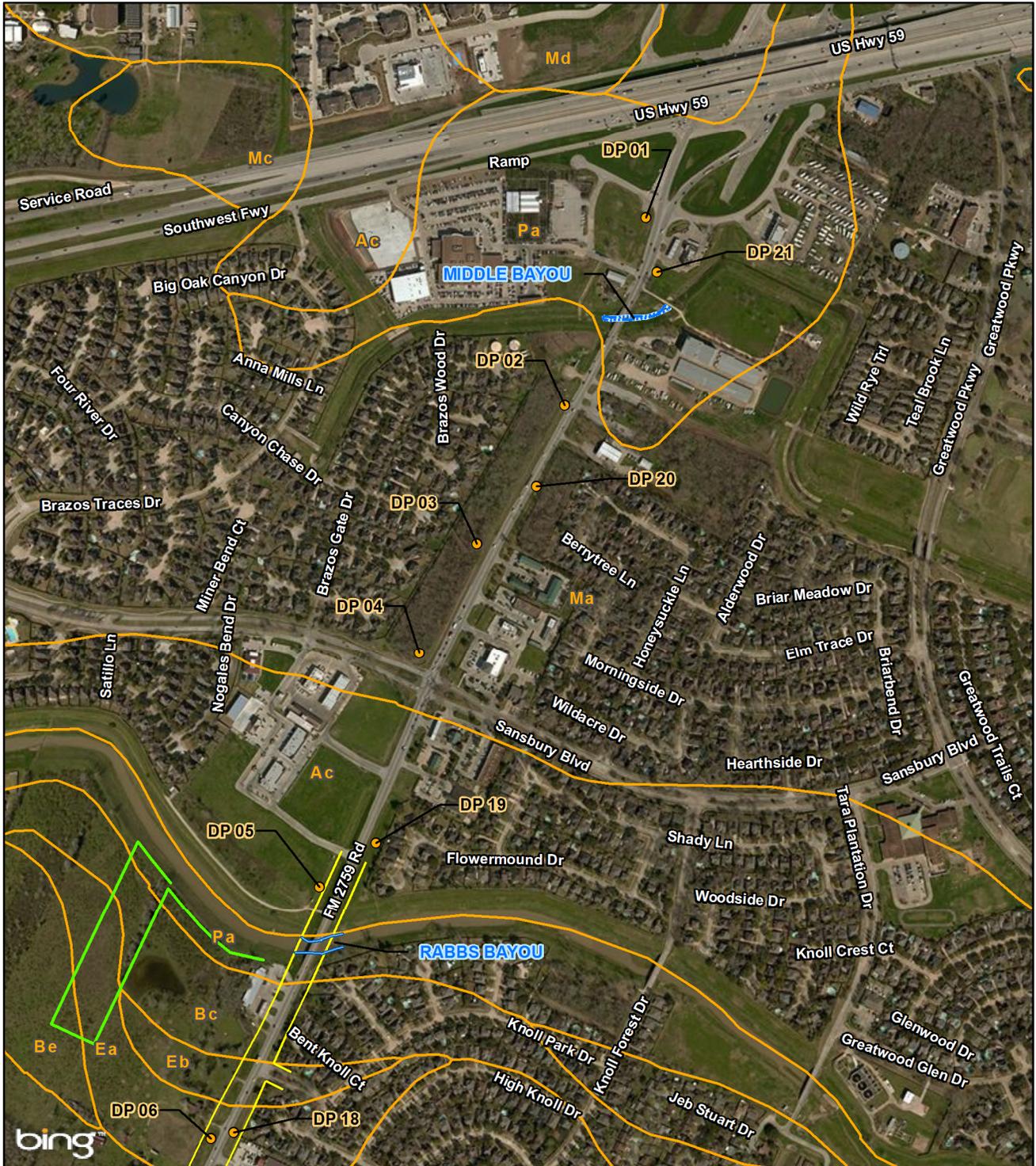
53		11/12/2015	This project should have been finished 10 years ago.	Comment noted
54		11/12/2015	We need the whole project -- Phase 1 and Phase 2.	Comment noted
55			Please fund the project to widen Crabb River Road from U.S. 59 all the way south past George Ranch High School, of particular concern is the intersection of Crabb River Road, Fm 2759 and FM 762. This area is in dire need of the expansion project due to the high volume of automobile and railroad traffic. Thank you for your consideration.	Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
56			Please fund the project to widen Crabb River Road. Widen from U.S. 59 all the way south past George Ranch High School the whole stretch needs to be widened because of heavy traffic or heavy volume of cars that travel this road. With so much development of housing the road can no longer handle the amount of cars that drive on this daily. Thanks for the consideration.	Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
57		11/13/2015	Project is long overdue. Need to implement Phase 2	Comment noted
58		11/16/2015	The railroad overpass in Phase 2 should be brought forward due to the large amount of school students and school bus traffic at the 2759/762 intersection there has been several accidents at this site and luckily no one has died. BNSF trains coming thru during this time greatly adds to the congestion. (Overpass is need much more than road widening which will also add congestion.)	Comment noted; the proposed Phase II overpass was designed to provide safe and efficient access to the grade-separated facility while minimizing impacts to the social, economic, natural and cultural environment.
59		11/13/2015	This road is a safety hazard. We shouldn't have to pay tolls to take and pick up our children from school.	Comment noted
60		11/13/2015	Let's build it already! Both Phases! You should have kept the elevated T-intersection at the RR.	Comment noted
61		11/20/2015	Please fund the project to widen Crabb River Rd. from US 59 all the way south past George Ranch High School. Of particular concern is the intersection of Crabb River Rd. , FM 2759 and FM 762. Dire need to traffic volume. Thank you for your consideration.	Federal, State and Local funds are being allocated for the project. TxDOT anticipates letting the project for construction of Phase I in late 2016, or early 2017, and construction to be completed within approximately 18-24 months. Phase II construction will begin when funding is available. Once started, Phase II would be completed in about 18 months
62		11/13/2015	Hebert and Patterson blocked and broke up this project for too long.	Comment noted
63		11/13/2015	Phase 1: The widening of the existing Crabb River Road (FM 2759/FM 762) roadway to a four lane should not have raised median roadway. However, it should be the same - continuous for lanes with central lane to turn right or left turn from each direction of HWY 59/Crabb River Roadway. As there are shopping centers and gas stations, this will need more room for the 18 wheelers to make turns, in and out. This will eliminate the 80-90% of the problem	Raised medians increase safety and improve traffic flow. Median openings with left turn lanes will be strategically located for access to businesses.

64		11/5/2015 via Twitter	<p>Phase 2:  Further. I am strongly opposed to the Phase II grade separation (Overpass) at FM 2759/FM 762 as it would help ease the traffic and will shift the congested intersection at FM 2759/FM 762 to two locations on Crabb River &amp; Fm 762 ramp. This will be waste of the tax payer money as the phase I will take care of almost 80-90% of the problem. I would rather suggest. We should see how Grand Parkway (Hwy 99) grade separation (overpass) will be built above the BNSF railway track. We need only one overpass (Grand Parkway). We don't need two overpasses (grade separations). This will save the tax payer money. Finally, inconvenience of maneuvering of traffic will have serious impact on the local businesses &amp; eventually lead to job &amp; services of people in stress. It will also cause traffic congestion of neighborhood traffic &amp; domino effect will take place.</p> <p>Yes please widen that section of road and have the rail road company fix that rr beams at that rr crossing</p>	Comment noted
				Comment noted

**EXHIBIT 8**  
**Environmental Constraints Map**



**EXHIBIT 9**  
**Natural Resources Maps and Appendices**



- Upland Data Point
- Wetland Data Point
- Proposed ROW
- Existing ROW
- Soils
- DITCH
- Intermittent Stream
- Perennial Stream
- ▨ PSS Wetland

# ATKINS

Figure 3-1  
 Aerial Wetland Delineation Map  
**Fort Bend County**  
 Crabb River Road Project

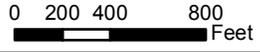
Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 1 of 4

Prepared By: Atkins/WHIT6392      Scale: 1" = 800'

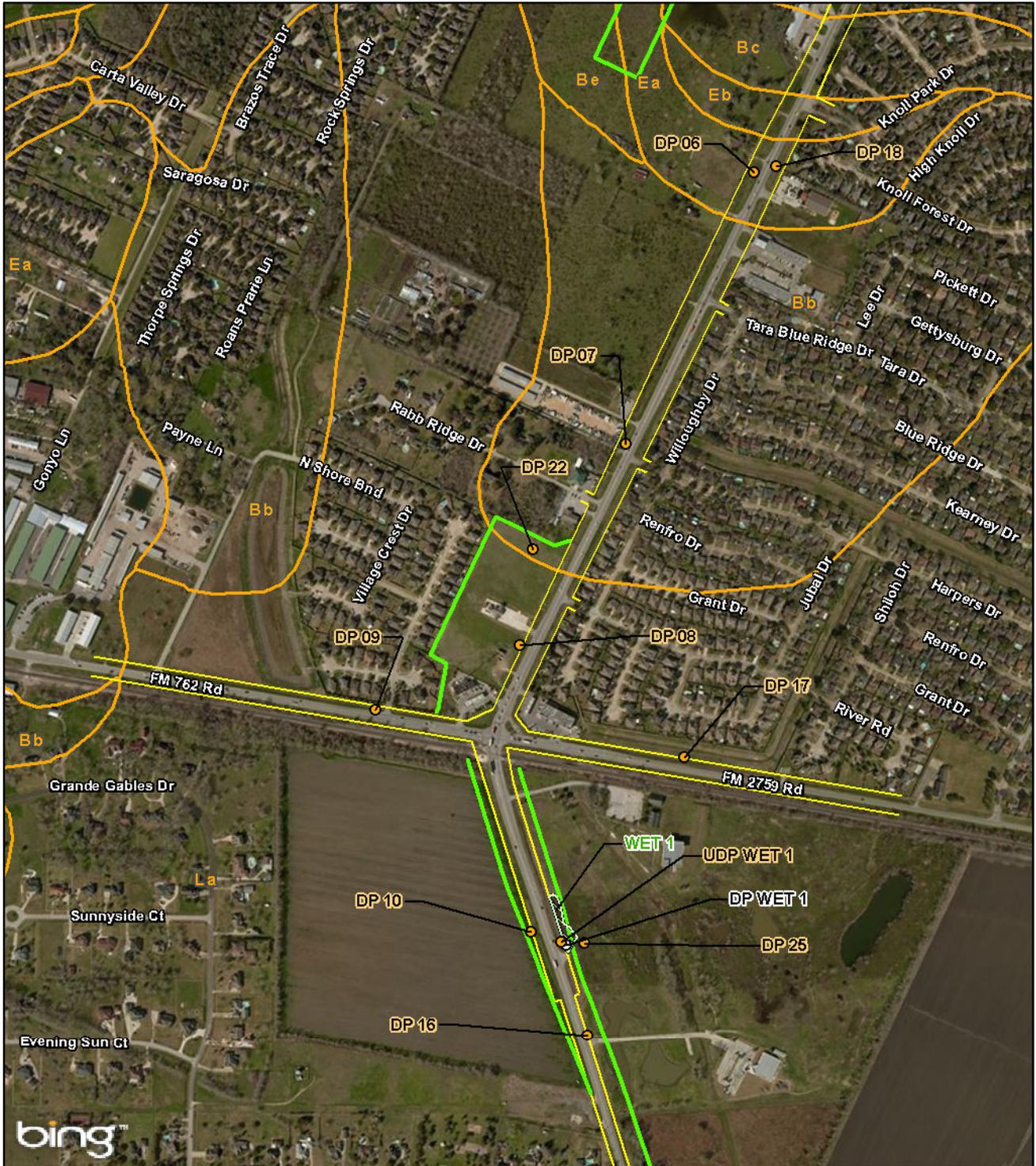
Job No.: 100011402      Date: Feb 29, 2016

File: N:\E\_FF1\_Bend\_Col\100011402\geotiffs\env\_map\WDR\WDR\_map\_aerial\_vr5.mxd

Datum: NAD 1983  
 Projection: UTM 15 N  
 Soils: NRCS 2015  
 Units: Meters  
 Aerial: Bing Maps Aerial



Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2013. 1:9.600; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (29 February 2016)



- Upland Data Point
- Wetland Data Point
- Proposed ROW
- Existing ROW
- Soils
- DITCH
- Intermittent Stream
- Perennial Stream
- ▨ PSS Wetland

## ATKINS

Figure 3-1  
Aerial Wetland Delineation Map  
**Fort Bend County**  
Crabb River Road Project

Sugar Land Quadrangle  
Fort Bend County, Texas  
Sheet 2 of 4

Prepared By: Atkins/WHIT6392      Scale: 1" = 800'

Job No.: 100011402      Date: Jul 07, 2016

File: N:\Clients\E\_FFL\_Bend\_Co\100011402\geotiffs\env\_map\WDR\WDR\_map\_aerial\_vr6.mxd

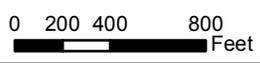
Datum: NAD 1983  
Projection: UTM 15 N  
Soils: NRCS 2015  
Units: Meters  
Aerial: Bing Maps Aerial





- Upland Data Point
- Wetland Data Point
- Proposed ROW
- Existing ROW
- Soils
- DITCH
- Intermittent Stream
- Perennial Stream
- ▨ PSS Wetland

Datum: NAD 1983  
 Projection: UTM 15 N  
 Soils: NRCS 2015  
 Units: Meters  
 Aerial: Bing Maps Aerial



# ATKINS

Figure 3-1  
 Aerial Wetland Delineation Map  
**Fort Bend County**  
 Crabb River Road Project

Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 3 of 4

Prepared By: Atkins/WHIT6392      Scale: 1" = 800'

Job No.: 100011402      Date: Feb 29, 2016

File: N:\E\_FFL\_Bend\_Col\100011402\geotiffs\env\_map\WDR\WDR\_map\_aerial\_vr5.mxd

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2013. 1:9.600; generated by Atkins; using ArcMap. < http://www.bing.com/maps > (29 February 2016)



- Upland Data Point    - - - - DITCH
- Wetland Data Point    - · - · - Intermittent Stream
- Proposed ROW        — Perennial Stream
- Existing ROW        [ ] PSS Wetland
- [ ] Soils

<h2 style="margin: 0;">ATKINS</h2>	
<p style="margin: 0;">Figure 3-1 Aerial Wetland Delineation Map <b>Fort Bend County</b> Crabb River Road Project</p> <p style="margin: 0;">Sugar Land Quadrangle Fort Bend County, Texas Sheet 4 of 4</p>	
Prepared By: Atkins/WHIT6392	Scale: 1" = 800'
Job No.: 100011402	Date: Feb 29, 2016
File: N:\E_FFL_Bend_Col\100011402\geotiffs\env_map\WDR\WDR_map_aerial_vr5.mxd	

Datum: NAD 1983  
Projection: UTM 15 N  
Soils: NRCS 2015  
Units: Meters  
Aerial: Bing Maps Aerial



Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2013. 1.9.600; generated by Atkins using ArcMap. < http://www.bing.com/maps > (29 February 2016)



- Survey Corridor
- Proposed ROW of Project Area
- Existing ROW

## ATKINS

Figure 3-2a  
 Actual Land Use Classification  
**Fort Bend County**  
 Crabb River Road Project  
 Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 1 of 4

Prepared By: Atkins/WHIT6392

Scale: 1" = 600'

Job No.: 100011402

Date: Feb 29, 2016

File: N:\E\_FF\_Bend\_Co\100011402\geofigs\env\_map\EMSTEMST\_actual\_aerial\_vr6.mxd

Datum: NAD 1983  
 Projection: UTM 15 N  
 Units: Meters  
 Aerial: Bing Maps Aerial

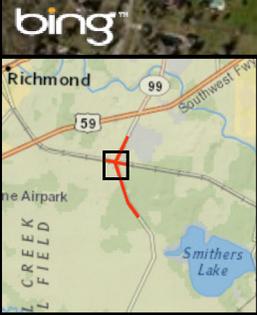
0 150 300 600  
 Feet





**Actual Land Use Classification**

	4727, Columbia Bottomlands: Riparian Grassland
	5207, Gulf Coast: Coastal Prairie
	9104, Native Invasive: Deciduous Woodland
	9124, Native Invasive: Huisache Woodland or Shrubland
	9126, Native Invasive: Deciduous Shrubland
	9307, Row Crops
	9411, Urban Low Intensity
	9600, Open Water



- Survey Corridor
- Proposed ROW of Project Area
- Existing ROW

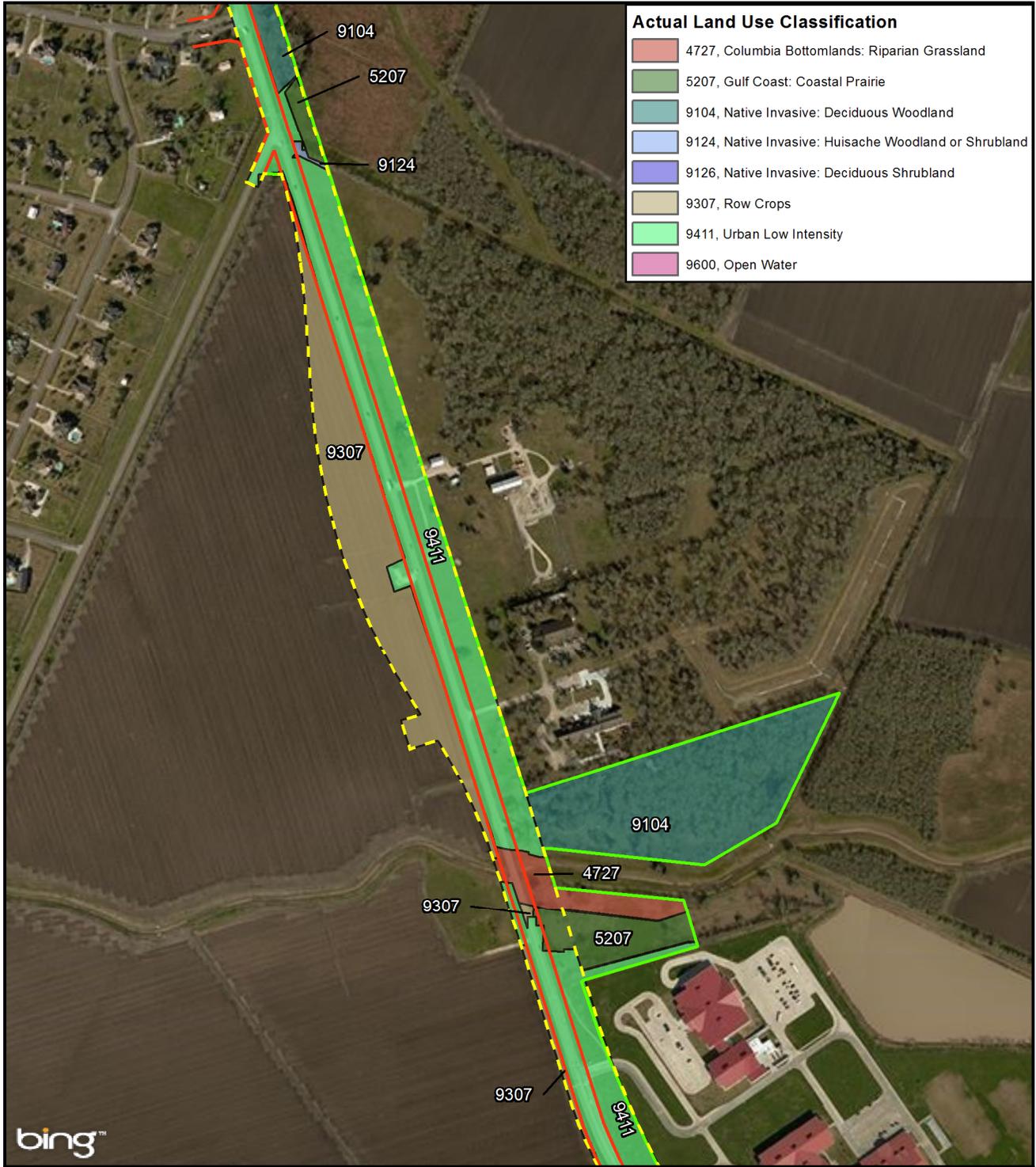
# ATKINS

Figure 3-2a  
 Actual Land Use Classification  
**Fort Bend County**  
 Crabb River Road Project  
 Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 2 of 4

Prepared By: Atkins/WHIT6392	Scale: 1" = 600'
Job No.: 100011402	Date: Feb 29, 2016

Datum: NAD 1983  
 Projection: UTM 15 N  
 Units: Meters  
 Aerial: Bing Maps Aerial





**Actual Land Use Classification**

	4727, Columbia Bottomlands: Riparian Grassland
	5207, Gulf Coast: Coastal Prairie
	9104, Native Invasive: Deciduous Woodland
	9124, Native Invasive: Huisache Woodland or Shrubland
	9126, Native Invasive: Deciduous Shrubland
	9307, Row Crops
	9411, Urban Low Intensity
	9600, Open Water



- Survey Corridor
- Proposed ROW of Project Area
- Existing ROW

**ATKINS**

Figure 3-2a  
Actual Land Use Classification  
**Fort Bend County**  
Crabb River Road Project  
Sugar Land Quadrangle  
Fort Bend County, Texas  
Sheet 3 of 4

Datum: NAD 1983  
Projection: UTM 15 N  
Units: Meters  
Aerial: Bing Maps Aerial

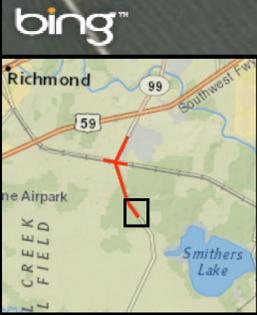


Prepared By: Atkins/WHIT6392	Scale: 1" = 600'
Job No.: 100011402	Date: Feb 29, 2016
File: N:\E_FF_Bend_Co\100011402\geofigs\env_map\EMSTEMST_actual_aerial_vr6.mxd	



**Actual Land Use Classification**

	4727, Columbia Bottomlands: Riparian Grassland
	5207, Gulf Coast: Coastal Prairie
	9104, Native Invasive: Deciduous Woodland
	9124, Native Invasive: Huisache Woodland or Shrubland
	9126, Native Invasive: Deciduous Shrubland
	9307, Row Crops
	9411, Urban Low Intensity
	9600, Open Water



- Survey Corridor
- Proposed ROW of Project Area
- Existing ROW

# ATKINS

Figure 3-2a  
 Actual Land Use Classification  
**Fort Bend County**  
 Crabb River Road Project  
 Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 4 of 4

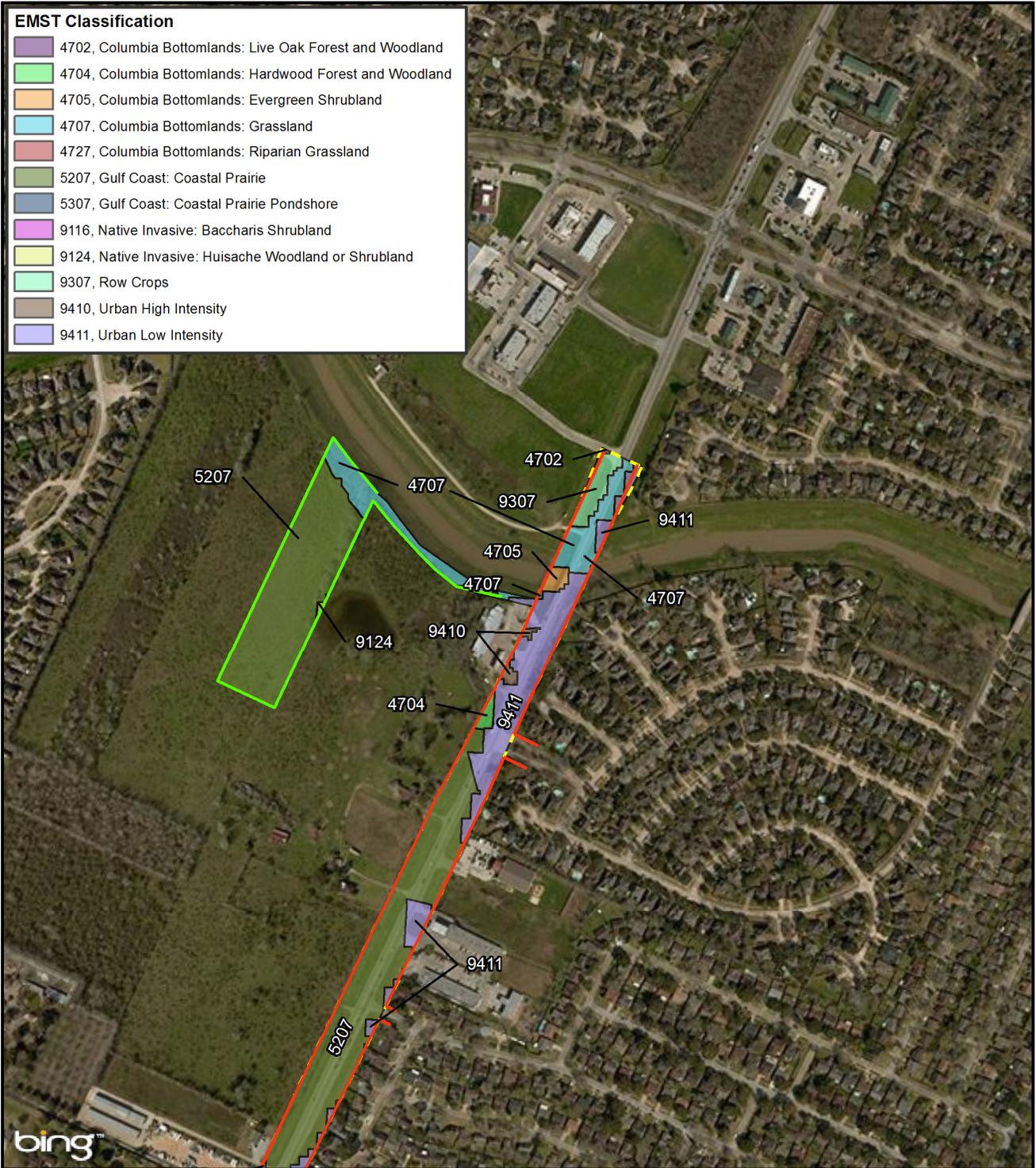
Prepared By: Atkins/WHIT6392	Scale: 1" = 600'
Job No.: 100011402	Date: Feb 29, 2016

Datum: NAD 1983  
 Projection: UTM 15 N  
 Units: Meters  
 Aerial: Bing Maps Aerial



**EMST Classification**

- 4702, Columbia Bottomlands: Live Oak Forest and Woodland
- 4704, Columbia Bottomlands: Hardwood Forest and Woodland
- 4705, Columbia Bottomlands: Evergreen Shrubland
- 4707, Columbia Bottomlands: Grassland
- 4727, Columbia Bottomlands: Riparian Grassland
- 5207, Gulf Coast: Coastal Prairie
- 5307, Gulf Coast: Coastal Prairie Pondshore
- 9116, Native Invasive: Baccharis Shrubland
- 9124, Native Invasive: Huisache Woodland or Shrubland
- 9307, Row Crops
- 9410, Urban High Intensity
- 9411, Urban Low Intensity



- Proposed ROW of Project Area
- Existing ROW
- Survey Corridor

**ATKINS**

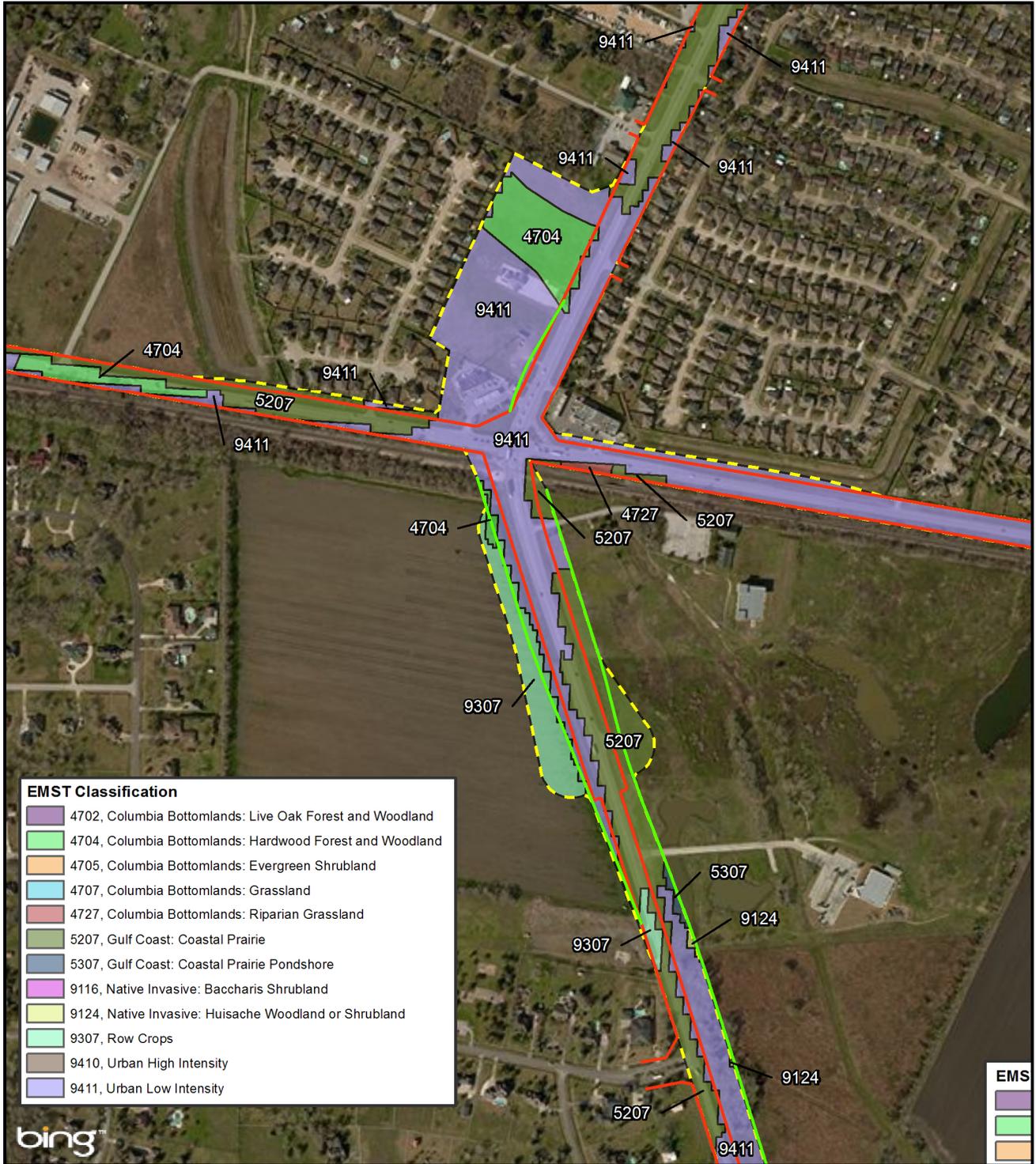
Figure 3-2b  
 Habitat Types Within Survey Corridor Based on  
 Ecological Mapping Systems of Texas (EMST)  
**Fort Bend County**  
 Crabb River Road Project  
 Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 1 of 4

Prepared By: Atkins/WHIT6392	Scale: 1" = 600'
Job No.: 100011402	Date: Feb 29, 2016

File: N:\E\_FF\_Bend\_Co\100011402\geo\figs\env\_map\EMSTEMST\_original\_aerial\_vr6.mxd

Datum: NAD 1983  
 Projection: UTM 15 N  
 Units: Meter  
 Aerials: Bing Maps Aerial





- Proposed ROW of Project Area
- Existing ROW
- Survey Corridor

# ATKINS

Figure 3-2b  
 Habitat Types Within Survey Corridor Based on  
 Ecological Mapping Systems of Texas (EMST)  
**Fort Bend County**  
 Crabb River Road Project  
 Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 2 of 4

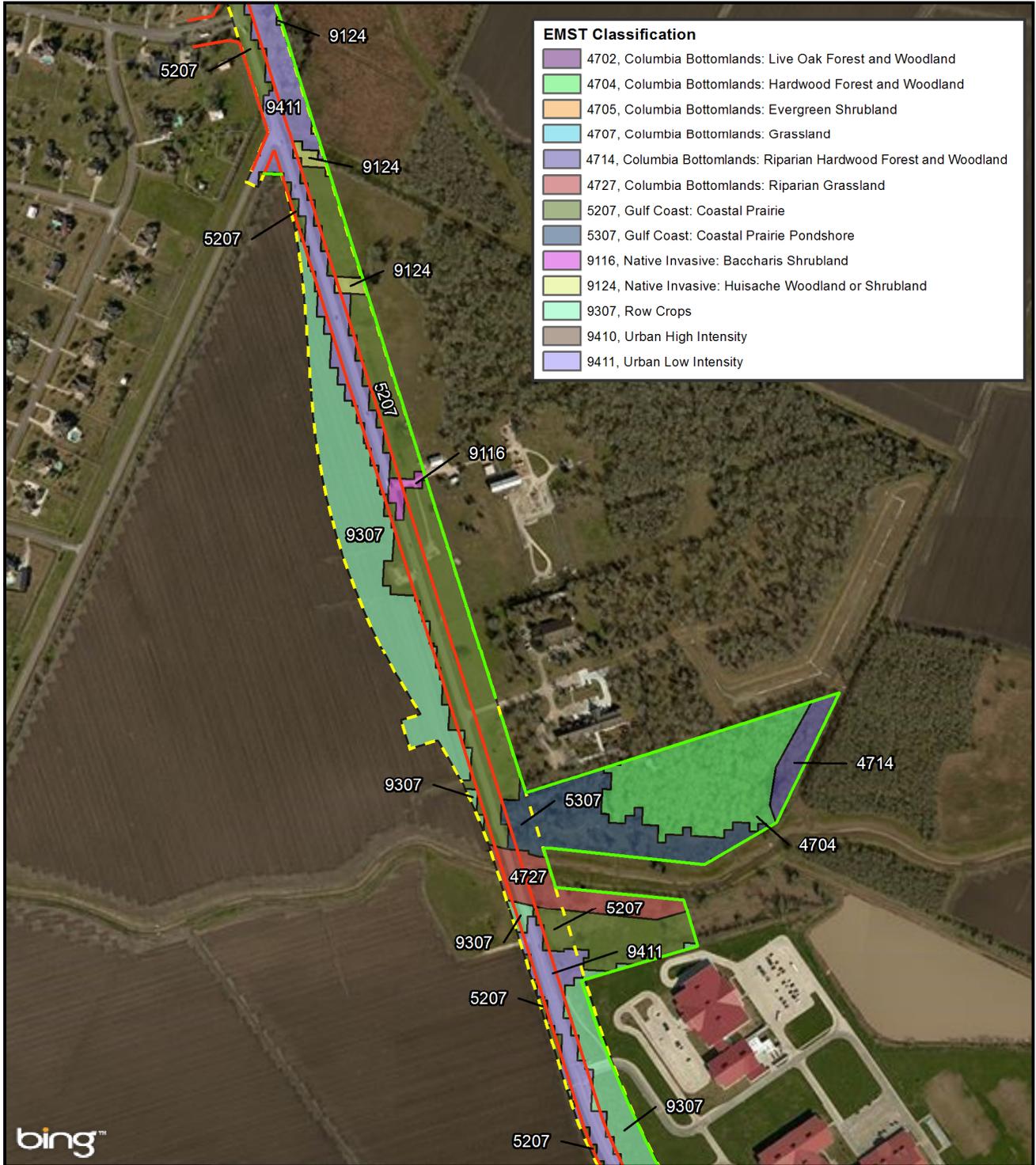
Prepared By: Atkins/WHIT6392	Scale: 1" = 600'
Job No.: 100011402	Date: Feb 29, 2016

File: N:\E\_FF\_Bend\_Co\100011402\geo\figs\env\_map\EMSTEMST\_original\_aerial\_vr6.mxd

Datum: NAD 1983  
 Projection: UTM 15 N  
 Units: Meter  
 Aerials: Bing Maps Aerial

0 150 300 600 Feet





EMST Classification	
	4702, Columbia Bottomlands: Live Oak Forest and Woodland
	4704, Columbia Bottomlands: Hardwood Forest and Woodland
	4705, Columbia Bottomlands: Evergreen Shrubland
	4707, Columbia Bottomlands: Grassland
	4714, Columbia Bottomlands: Riparian Hardwood Forest and Woodland
	4727, Columbia Bottomlands: Riparian Grassland
	5207, Gulf Coast: Coastal Prairie
	5307, Gulf Coast: Coastal Prairie Pondshore
	9116, Native Invasive: Baccharis Shrubland
	9124, Native Invasive: Huisache Woodland or Shrubland
	9307, Row Crops
	9410, Urban High Intensity
	9411, Urban Low Intensity

bing™



- Proposed ROW of Project Area
- Existing ROW
- Survey Corridor

Datum: NAD 1983  
 Projection: UTM 15 N  
 Units: Meter  
 Aerials: Bing Maps Aerial

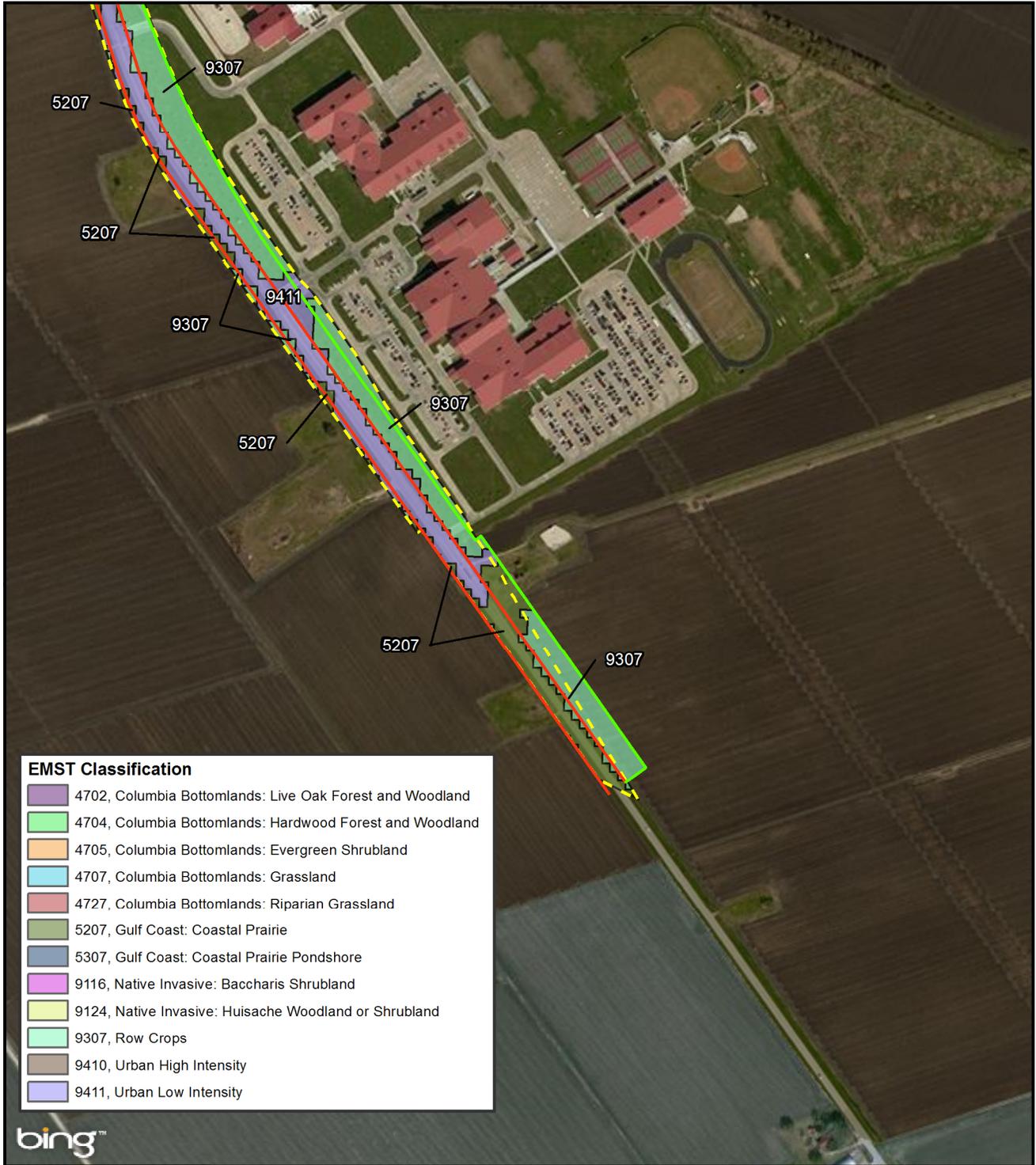


# ATKINS

Figure 3-2b  
 Habitat Types Within Survey Corridor Based on  
 Ecological Mapping Systems of Texas (EMST)  
**Fort Bend County**  
 Crabb River Road Project  
 Sugar Land Quadrangle  
 Fort Bend County, Texas  
 Sheet 3 of 4

Prepared By: Atkins/WHIT6392	Scale: 1" = 600'
Job No.: 100011402	Date: Feb 29, 2016

File: N:\E\_FF\_Bend\_Co\100011402\geo\figs\env\_map\EMST\EMST\_original\_aerial\_vr6.mxd



**EMST Classification**

	4702, Columbia Bottomlands: Live Oak Forest and Woodland
	4704, Columbia Bottomlands: Hardwood Forest and Woodland
	4705, Columbia Bottomlands: Evergreen Shrubland
	4707, Columbia Bottomlands: Grassland
	4727, Columbia Bottomlands: Riparian Grassland
	5207, Gulf Coast: Coastal Prairie
	5307, Gulf Coast: Coastal Prairie Pondshore
	9116, Native Invasive: Baccharis Shrubland
	9124, Native Invasive: Huisache Woodland or Shrubland
	9307, Row Crops
	9410, Urban High Intensity
	9411, Urban Low Intensity

bing™



- Proposed ROW of Project Area
- Existing ROW
- Survey Corridor

# ATKINS

Figure 3-2b  
Habitat Types Within Survey Corridor Based on  
Ecological Mapping Systems of Texas (EMST)

**Fort Bend County**  
Crabb River Road Project  
Sugar Land Quadrangle  
Fort Bend County, Texas  
Sheet 4 of 4

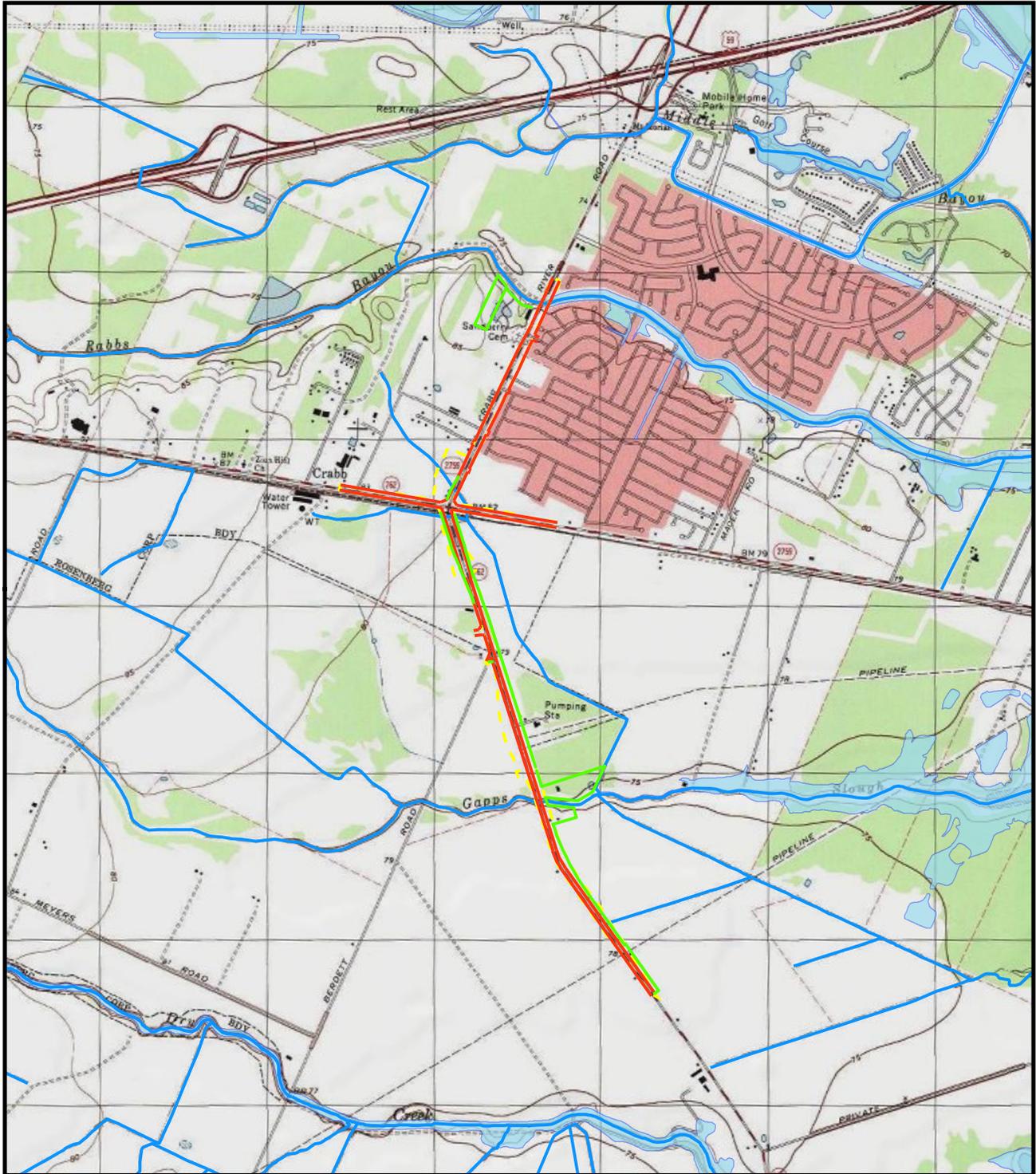
Prepared By: Atkins/WHIT6392	Scale: 1" = 600'
Job No.: 100011402	Date: Feb 29, 2016

File: N:\E\_FF\_Bend\_Co\100011402\geo\figs\env\_map\EMSTEMST\_original\_aerial\_vr6.mxd

Datum: NAD 1983  
Projection: UTM 15 N  
Units: Meter  
Aerials: Bing Maps Aerial

0 150 300 600  
Feet





- Proposed ROW
- Existing ROW
- Stream \ Canal \ Ditch
- Survey Corridor
- 1-Percent Flood Risk Zones (FEMA)

## ATKINS

Figure 3-3  
Floodplain Map  
**Fort Bend County**  
Crabb River Road Project

Fort Bend County, Texas

Prepared By: Atkins/WHIT6392

Scale: 1" = 3,000'

Job No.: 100011402

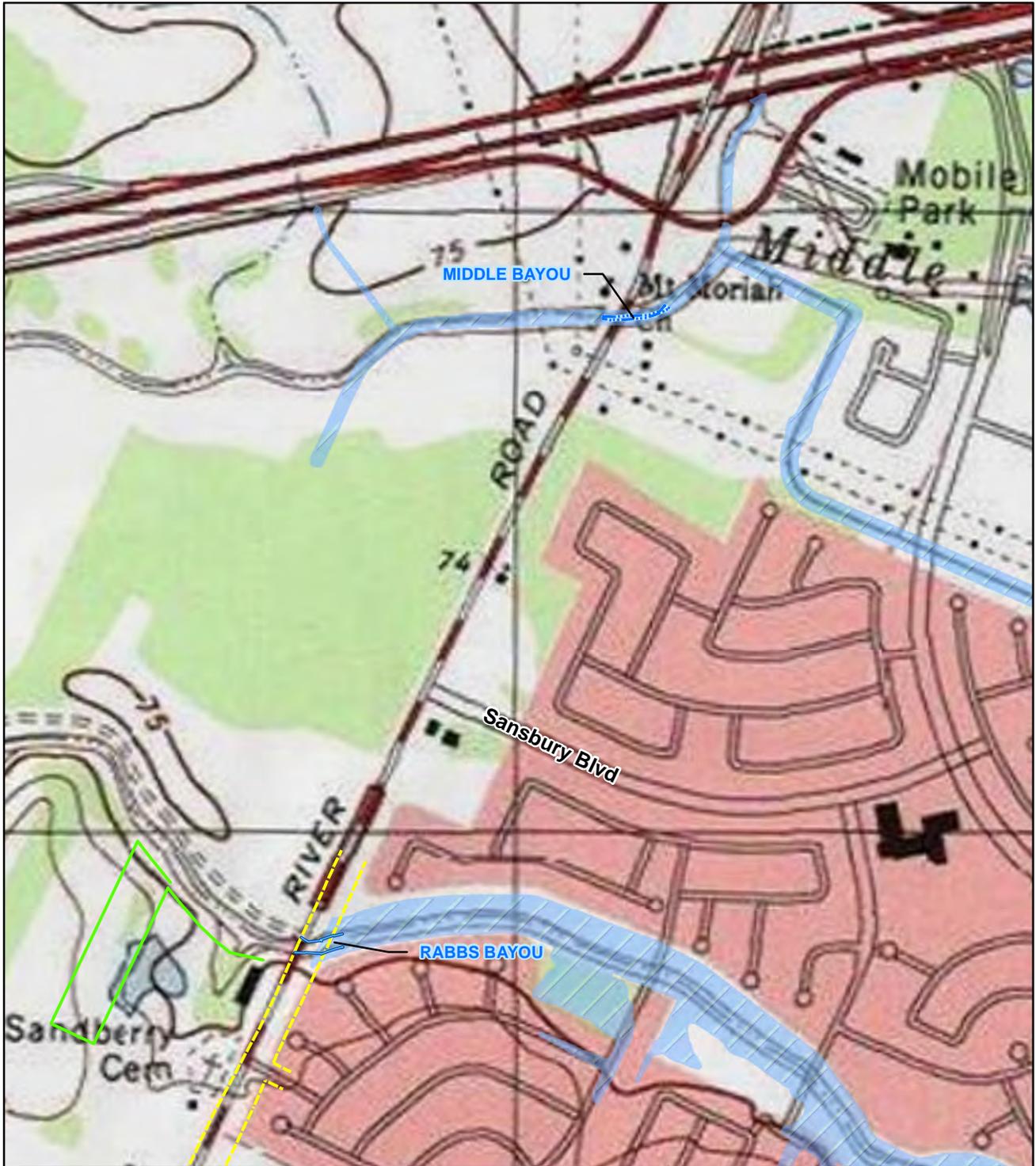
Date: Feb 29, 2016

File: N:\E\_F\Fl\_Bend\_Co\100011402\geotiffs\env\_map\EMST\EMST\_Floodplain\_Map\_vr4.mxd

Datum: NAD 1983  
Projection: UTM 15 N  
Units: Meters  
Floodplains: FEMA  
Topos: ESRI USA Topo Map

0      1,500      3,000  
Feet





- Proposed ROW
- Existing ROW
- ▨ 100 Year Floodplain
- PSS Wetland
- - - - DITCH
- · - · - Intermittent Stream
- Perennial Stream
- PUB

# ATKINS

Figure 4  
Topographic Wetland Delineation Map  
Fort Bend County  
Crabb River Road Project

Sugar Land Quadrangle  
Fort Bend County, Texas  
Sheet 1 of 4

Datum: NAD 1983  
Projection: UTM 15 N  
Floodplain: FEMA NFHL, 2014  
Topos: ESRI USA Topo Maps

0 200 400 800  
Feet



Prepared By: Atkins/WHIT6392	Scale: 1" = 800'
Job No.: 100011402	Date: Feb 29, 2016

File: N:\E\_F\Ft\_Bend\_Co\100011402\geo\fig\stsv\_map\WDR\WDR\_map\_topo\_v6.mxd



- Proposed ROW
- - - Existing ROW
- ▨ 100 Year Floodplain
- ▨ PSS Wetland
- - - DITCH
- · - · - Intermittent Stream
- Perennial Stream
- PUB

# ATKINS

Figure 4  
Topographic Wetland Delineation Map  
**Fort Bend County**  
Crabb River Road Project

Sugar Land Quadrangle  
Fort Bend County, Texas  
Sheet 2 of 4

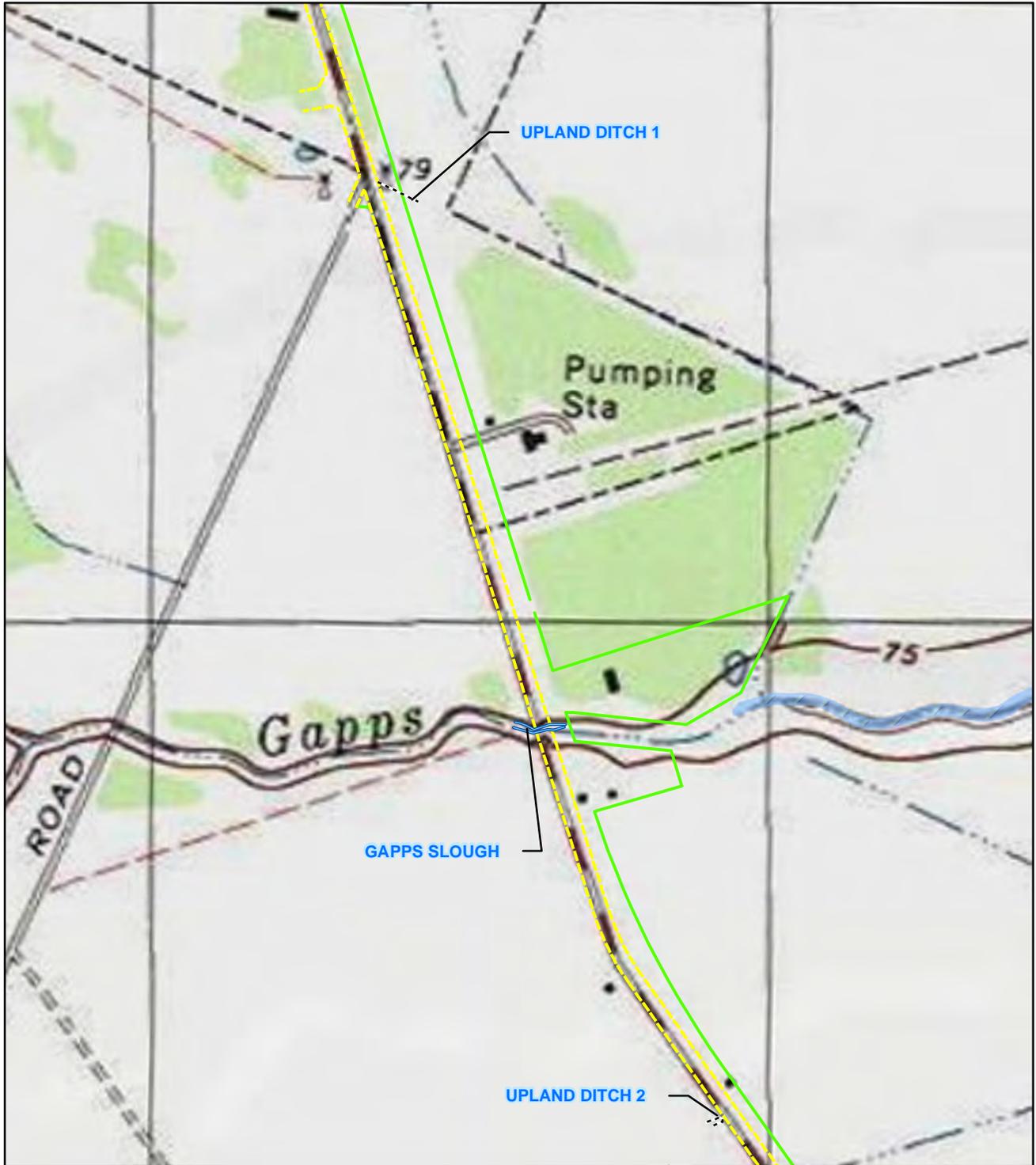
Datum: NAD 1983  
Projection: UTM 15 N  
Floodplain: FEMA NFHL, 2014  
Topos: ESRI USA Topo Maps

0 200 400 800  
Feet



Prepared By: Atkins/WHIT6392	Scale: 1" = 800'
Job No.: 100011402	Date: Jul 07, 2016

File: N:\Clients\E\_FFT\_Bend\_Co\100011402\geotiffs\env\_map\WDR\WDR\_map\_topo\_v7.mxd



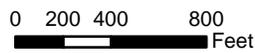
- Proposed ROW
- - - Existing ROW
- ▨ 100 Year Floodplain
- PSS Wetland
- - - - DITCH
- · - · - Intermittent Stream
- Perennial Stream
- PUB

# ATKINS

Figure 4  
Topographic Wetland Delineation Map  
Fort Bend County  
Crabb River Road Project

Sugar Land Quadrangle  
Fort Bend County, Texas  
Sheet 3 of 4

Datum: NAD 1983  
Projection: UTM 15 N  
Floodplain: FEMA NFHL, 2014  
Topos: ESRI USA Topo Maps



Prepared By: Atkins/WHIT6392	Scale: 1" = 800'
Job No.: 100011402	Date: Feb 29, 2016

File: N:\E\_F\Ft\_Bend\_Co\100011402\geo\fig\serv\_map\WDR\WDR\_map\_topo\_v6.mxd



- Proposed ROW
- - - Existing ROW
- ▨ 100 Year Floodplain
- ▨ PSS Wetland
- - - - DITCH
- · - · - Intermittent Stream
- Perennial Stream
- PUB

# ATKINS

Figure 4  
Topographic Wetland Delineation Map  
Fort Bend County  
Crabb River Road Project

Sugar Land Quadrangle  
Fort Bend County, Texas  
Sheet 4 of 4

Datum: NAD 1983  
Projection: UTM 15 N  
Floodplain: FEMA NFHL, 2014  
Topos: ESRI USA Topo Maps

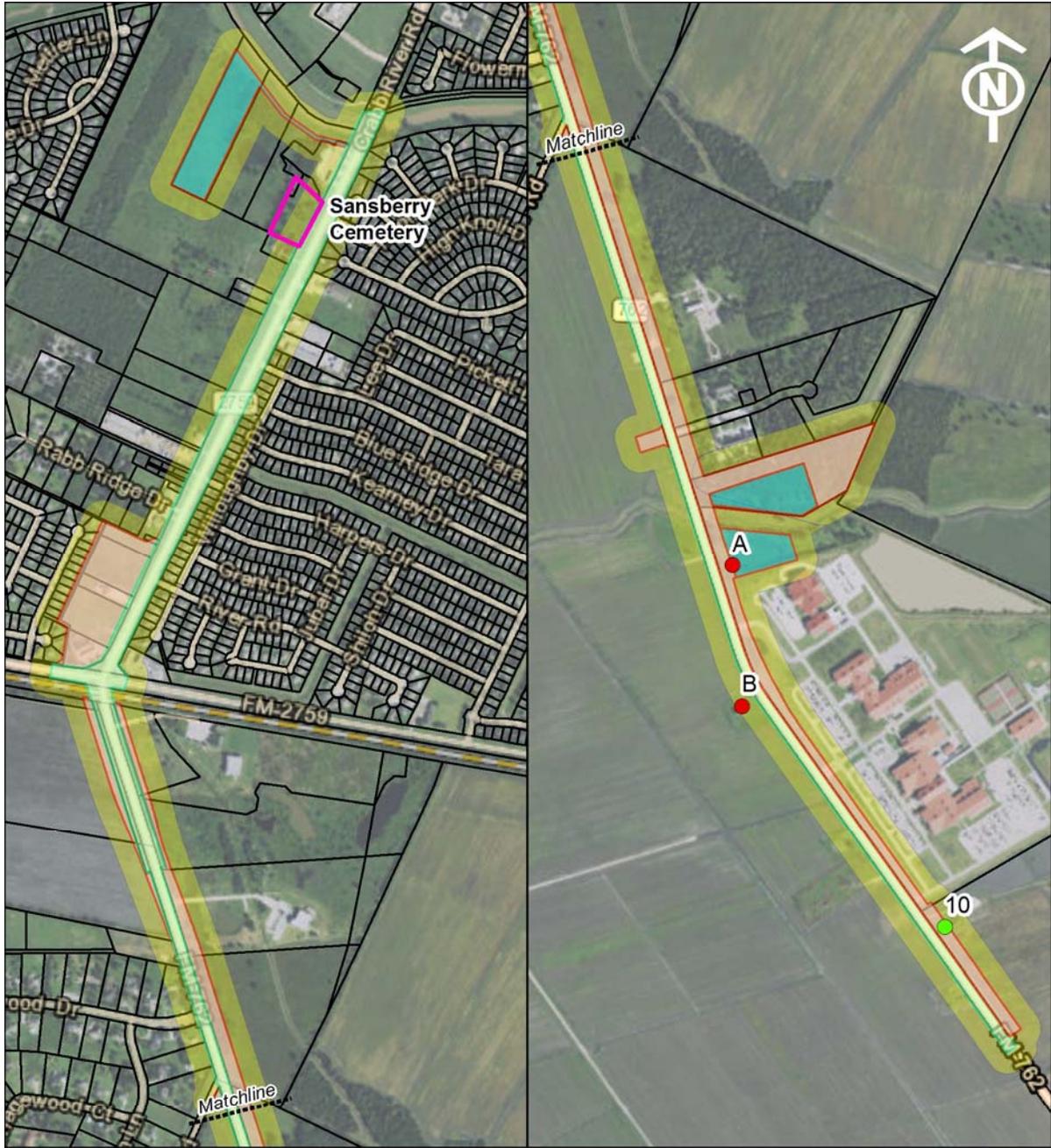
0 200 400 800  
Feet



Prepared By: Atkins/WHIT6392	Scale: 1" = 800'
Job No.: 100011402	Date: Feb 29, 2016

File: N:\E\_F\Ft\_Bend\_Co\100011402\geo\fig\serv\_map\WDR\WDR\_map\_topo\_v6.mxd

**EXHIBIT 10**  
**Historic Resource APE Map and Correspondence/Coordination**



Proposed Detention Pond

Proposed ROW

Existing ROW

● Previously Removed Resource (2015)

● Previously Removed Resource (prior to 2006)

APE

Cemetery

Parcel Boundary

**AmaTerra**  
ENVIRONMENTAL, INC.

0 1,000 2,000 Feet

Document Path: S:\EComm\Projects\122 Parsons Brinckerhoff (PB World)\122-007 Crabb River Road Redux\GIS\_Data\projects\Hist APE.mxd

Date: 3/21/2016

**Fort Bend County  
Historical  
Commission**

Michael R. Moore, Chairman

Tim Cummings, Vice-Chairman

Bert E. Bleil, Secretary

Rhonda Boyer  
Senior Environmental Planning Manager  
Park Ten Place  
Suite 400  
Houston, Tx 77084

Subject: Fort Bend County  
CSJ: 1415-03-010  
FM2759/FM762 Widening  
From: US 59  
To: South of LCISD New HS/JHS Site

Ms. Boyer:

This letter is in response to your recent request for an opinion from the Fort Bend County Historical Commission regarding the proposed widening of Crabb River Road. A survey has been conducted along the entire length of the project by a member of the Cultural and Historical Resources Committee of the Fort Bend County Historical Commission. There are no known historical or cultural resources within the bounds of the proposed construction project.

While we are pleased to assist you in the identification and preservation of cultural and historical resources within Fort Bend County, this constitutes an informal review by the local historical commission. As you may know, we cannot grant regulatory approval. This can be done only by the Texas Historical Commission.

We do respectfully request that should any historical or cultural resources be discovered during the course of the proposed road construction project that the Fort Bend County Historical Commission be notified of such discovery.

Should you require further information please contact the Chairman of the Fort Bend County Historical Commission, Mr. Bert Bleil, or myself, Randal M. Glenn, Cultural and Historical Resources Committee Chairman. I can be reached by mail at 5819 Highway 6 South, Suite 230, Missouri City, Texas 77459 or by email at [randamark@aol.com](mailto:randamark@aol.com).

Sincerely,



Randal M. Glenn  
Chairman, Cultural and Historical Resources Committee  
Fort Bend County Historical Commission



**Parsons  
Brinckerhoff**

16285 Park Ten Place  
Suite 400  
Houston, TX 77084  
Main: 281-589-5900  
Fax: 281-759-5164

22 October 2009

Letter No.: 102209.3

Internal File No.: 31131A

Mr. Bert Bleil, Chairman  
Fort Bend County Historical Commission  
301 Jackson Street  
Richmond, Texas 77469

Subject: Fort Bend County  
CSJ: 1415-03-010  
FM2759/FM762 (Crabb River Road) Widening  
From: US59 (SW Freeway)  
To: South of LCISD New HS/JHS Site

Dear Mr. Bleil:

Parson Brinckerhoff Americas, Inc. (PB) has been retained by Fort Bend County to prepare an Environmental Assessment (EA) document for the above-referenced project. Fort Bend County is proposing to widen Crabb River Road from US 59 (Southwest Freeway) to just south of the new Lamar Consolidated Independent School District (LCISD) High School/Junior High School/Middle School Complex, a distance of approximately 3.8 miles. Attached is a map of the area with the proposed roadway improvement project highlighted.

The proposed improvement and widening project would replace the existing two to three lane road with a concrete 4-lane divided curb and gutter roadway. The improvements would double the capacity of the roadway and provide for safer traffic operations for vehicles to turn on to the roadway from connecting driveways and intersections. There will also be lane space for left turning movements at selected intersections. The improvements are necessary to alleviate traffic congestion and to provide a safe roadway for students and faculty traveling to and from the new high school.

The proposed project would require the acquisition of a small amount of additional right-of-way from either side of the existing right-of-way. The historic George Ranch is adjacent to the roadway, but every attempt would be made to avoid the use of George Ranch property for the widening project. A preliminary windshield survey observed that no historic structures would be impacted by the project. PB is currently conducting a historic resources review to confirm this observation. A Historic Structures Survey report will be prepared for submittal to the Texas Historical Commission.

On behalf of Fort Bend County, PB is requesting written documentation regarding compliance with the National Historic Preservation Act of 1966 and as amended in 1974. If upon review you agree that the proposed project as described above will have no



adverse impacts to historic or archeological resources, please sign the concurrence portion of this letter and return, indicating your approval and Fort Bend County's compliance with the National Historic Preservation Act.

We appreciate your timely review of this project. If you have any questions or need additional information, please contact Rhonda Boyer at (281) 589-5863.

Sincerely,  
Parsons Brinckerhoff

*Rhonda Boyer*

Rhonda Boyer  
Senior Environmental Planning Manager

Enclosure

Cc:

CONCURRENCE:

FORT BEND COUNTY HISTORICAL COMMISSION

*Randal M. Glen*

Authorized Signature

*Chair, Cultural and Historical Resources*

Title

*Fort Bend County Historical Commission*

Attachment: Constraints Map  
Topographic Map

cc: Project Files (31131A)



SCANNED  
10/15/10 DP

# Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

October 07, 2010

Section 106/Antiquities Code of Texas: Archeological Review and Comments  
Crabb River Road: US Highway 59 to Lamar CISD Secondary School Complex (Permit #5511)  
Houston District; Fort Bend County (CSJ: 1415-03-010 and 0543-03-067)

Dr. James E. Bruseth  
Department of Antiquities Protection  
Texas Historical Commission  
P.O. Box 12276  
Austin, Texas 78711

Dear Dr. Bruseth:

The proposed project would be undertaken with Federal funding. In accordance with Section 106 (and the Programmatic Agreement among the TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC) and the Antiquities Code of Texas (and the Memorandum of Understanding between TxDOT and the THC), this letter initiates consultation for the proposed undertaking.

Proposed project would widen Crabb River Road between United States Highway (US) 59 and Lamar Consolidated Independent School District Secondary School Complex. The proposed project is 3.8 miles in length and would widen the existing roadway from two-lanes to four-lanes. The proposed project would include a grade-separation (underpass) at Sansbury Boulevard, and bridges at Middle Bayou and Crabb Bayou. The existing right-of-way (ROW) is approximately 120-feet (ft) in width. The proposed ROW is between 10-ft and 26-ft in width. The area of potential effect (APE) is defined as the project length, the width of the existing and proposed ROW, and the depth of construction impacts (approximately 90-ft deep).

Fort Bend County retained the services of PBS&J to perform the archeological assessment of the APE. PBS&J conducted an intensive pedestrian survey January 2010 and August 2010 under Texas Antiquities Permit #5511. The pedestrian survey and shovel-testing did not encounter any archeological materials. The intensive survey also included mechanical scraping for unmarked graves within the existing ROW adjacent to the Sansbury Cemetery, none were encountered. PBS&J recommended that, as the project is currently designed, the proposed undertaking has already been extensively impacted by the construction of the existing roadway and surrounding urban development and has no potential to affect any archeological properties, no further

THE TEXAS PLAN  
REDUCE CONGESTION • ENHANCE SAFETY • EXPAND ECONOMIC OPPORTUNITY • IMPROVE AIR QUALITY  
INCREASE THE VALUE OF OUR TRANSPORTATION ASSETS

An Equal Opportunity Employer

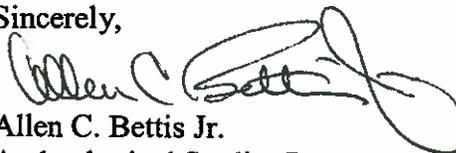
archeological investigation is warranted, and the proposed project should be allowed to proceed to construction. TxDOT agreed with the PBS&J recommendation.

TxDOT has concluded that, based on the above archeological inventory to evaluate properties within the APE pursuant to Stipulation VI.A.7, no historic properties are present within the APE and has documented this conclusion pursuant to Stipulation IX.D.6.a of the First Amended Programmatic Agreement among TxDOT, TSHPO, FHWA, and the Advisory Council on Historic Preservation. Under this stipulation, no consultation with TSHPO is necessary for archeological historic properties.

Please find attached for your review and comments the PBS&J draft report; *Intensive Archeological Survey of the Crabb River Road Widening Project, Fort Bend County, Texas*. TxDOT recommends that the report is satisfactory and acceptable. If you have no objections to or comments on this report and find it acceptable, please sign below to indicate your concurrence and stamp the draft cover as acceptable.

Thank you for your consideration in this matter. If you have any questions or further need of assistance, please contact Allen Bettis of the TxDOT Archeological Studies Program at (512) 416-2747.

Sincerely,



Allen C. Bettis Jr.  
Archeological Studies Program  
Environmental Affairs Division

cc w/o attachments: Karla Cordova – PBS&J, Houston  
Susan Theiss – Houston District APD  
ACB DGN ENV-ARCH Project File



Concurrence by:  
for Mark S. Wolfe, State Historic Preservation Officer

10-8-10

Date:

Document No. 100021  
PBS&J Job No. 100011402

**INTENSIVE ARCHEOLOGICAL SURVEY  
OF THE CRABB RIVER ROAD WIDENING PROJECT  
FORT BEND COUNTY, TEXAS**

**TEXAS ANTIQUITIES PERMIT No. 5511**  
**CSJ Nos. 1415-03-010**  
0543-03-067 *ACE*

Prepared for:

Fort Bend County  
301 Jackson Street  
Richmond, Texas 77469

Prepared by:

PBS&J  
1250 Wood Branch Park Dr  
Suite 300  
Houston, Texas 77079

<b>DRAFT REPORT ACCEPTABLE</b>
by <i>Mark Wolfe</i>
for Mark Wolfe Executive Director, THC
Date <i>10-8-10</i>
Track#

Principal Investigator:  
Karla J. Córdova

Authors:  
Rebecca M. Sager  
Karla J. Córdova

With Contributions by:  
Nesta Anderson  
Michael A. Nash

September 2010



# MEMORANDUM

**TO:** Project Management 850 File  
**District:** Houston  
**County:** Fort Bend  
**CSJ#:** 0543-03-067  
**Highways:** Crabb River Road  
**Limits:** From 0.08 miles S of US 59 to 0.09 miles S of George Ranch High School  
**Project Description:** HIST: Stipulation VI, Appendix 4. Widen to 4-lane divided. 18.3 acres new ROW required. No adverse effect to NRHP-eligible resources.  
**FROM:** Shonda Mace **DATE:** October 21, 2010  
**SUBJECT:** Internal review under the Programmatic Agreement for Transportation Undertakings among the Federal Highway Administration, Texas State Historic Preservation Officer, Advisory Council on Historic Preservation, and the Texas Department of Transportation; and the Memorandum of Understanding (MOU) between the Texas Historical Commission and the Texas Department of Transportation.

---

## PROJECT DESCRIPTION

The Texas Department of Transportation (TxDOT) Houston District proposes widening of and improvements to a 3.8-mile portion of Crabb River Road (FM 2759/FM 762) from just south of US Highway 59 (US 59) to just south of George Ranch High School in Fort Bend County, Texas. Currently, Crabb River Road is a two-lane undivided roadway with open drainage ditches serving as a primary thoroughfare for the area. The proposed facility would consist of a four-lane divided roadway with curb and gutters and subterranean storm drainage. In addition, the proposed project would include new bridges at Middle Bayou and Rabbs Bayou, an undercrossing at Sansbury Boulevard, and elimination of an at-grade crossing at the Burlington Northern Santa Fe Railroad (BNSF) tracks. Approximately 18.3 acres would be required for additional right-of-way (ROW).

## STATEMENT OF METHODS

A review of the National Register of Historic Places (NRHP), the list of State Archeological Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL) indicated that no historically significant resources have been previously documented within the area of potential effects (APE). It has been determined through consultation with the State Historic Preservation Officer (SHPO) that the APE for the proposed project is 150-ft from the existing and proposed ROW. A reconnaissance survey undertaken in April 2010 revealed that there are 29 historic-age resources (built prior to 1966) on eleven legally distinct parcels located within the project APE (see attached Historic Resources Survey Report). The survey cut-off date is based on the current let date of 2011.

## DETERMINATIONS OF NATIONAL REGISTER ELIGIBILITY

TxDOT Historians have evaluated the historic-age resources through application of the Criteria of Eligibility for listing in the National Register of Historic Places, and concur with the attached survey report that resource #s 1 and 3-9 are **not eligible** for inclusion in the NRHP, either individually or as a whole. They do not have associations with significant historical figures or events to qualify for eligibility under Criteria A or B. They also represent common vernacular types that do not clearly reflect the distinctive characteristic of a type, period, method of construction, work of a master, or high artistic value to qualify as eligible under Criterion C.

The attached survey report recommends Resource # 2 as individually eligible for NRHP-listing. TxDOT historians have reevaluated this recommendation and have determined that it is *not eligible* for reasons outlined later in this memo.

### NOT-ELIGIBLE RESOURCES

Resource #s 1, 3, and 4 were previously determined **not eligible** for NRHP-listing in 2000 as part of the Grand Parkway Segment C evaluation in a letter dated March 22, 2000. THC concurrence was received on March 28, 2000.

Resource #2 is the Sandberry (or Sansbury) Cemetery located west side of Crabb River Road, 600 feet southwest of Rabbs Bayou. The cemetery, which dates to c. 1895, has been historically African American; however, research did not reveal a connection to any specific African American settlement, Freedmantown, or African American persons of transcendent importance. Additionally, the cemetery does not yield important and significant information on the African American culture in Fort Bend County. Pertaining to African American burial traits, there are handmade tombstones and markers, but no evidence of graves scattered with shells, or broken objects (or "offerings") on top of the graves. Graves marked using plants (such as yuccas), objects (such as pieces of pipe), and apparent mounding that are demonstrative of the socioeconomic status of the families who used the cemetery, and certain folk practices with regard to burials are not found at the cemetery. Finally, the cemetery does not possess great age as the majority of the interments occurred in the 1950s.

The Sandberry Cemetery does not meet Criteria Consideration D: Cemeteries and is therefore **not eligible** for listing in the NRHP. Additionally, it is not associated with an important historic event, trend, or pattern of development; nor does it have graves of persons of transcendent importance. Distinctive design values of an African American cemetery are also not widely evident and it does not possess great age because the majority of the interments occurred in the latter half of the 20<sup>th</sup> century with the most recent dating to 1957. In addition, no new ROW or easements are required from the cemetery.

Resource #9 is a 1940 concrete bridge-class culvert (#120800054303002). In compliance with Section 110 of the National Historic Preservation Act and the Memorandum of Understanding between TxDOT and the Texas Historical Commission, TxDOT historians evaluated the bridge to establish its historical significance. In accordance with Section 110 of the National Historic Preservation Act the bridge was determined not eligible for the National Register during the 1999 survey of non-truss structures. The bridge does not possess sufficient design or engineering significance to meet National Register eligibility under Criterion C: Engineering at the state level of significance.

Because the bridge may have local or regional significance TxDOT consulted with the county historical commission (CHC) concerning the historic significance of the bridge. Consultation with the Fort Bend County Historical Commission revealed no local or regional historic significance with respect to the bridge. A copy of the letter is attached. Therefore, this bridge is determined not eligible for listing in the National Register of Historic Places under Criteria A or B.

### ELIGIBLE RESOURCES

Resource #s 10 and 11 consist of two surviving tenant houses associated with the George Ranch Tenant Farm House Historic District. These resources were previously determined **eligible** for NRHP-listing in 2000. This eligibility was reconfirmed in a THC-letter dated December 6, 2006. A copy of the letter is attached.

### ASSESSMENT OF EFFECTS

TxDOT Historians assessed the effects of project implementation to the tenant houses and determined that the proposed project poses no adverse effect to the properties.

Physical destruction of or damage to part of the properties would not occur. No right-of-way or temporary easements are required within the NRHP-eligible boundaries. The existing road is currently 25 feet from the property line of Resource #10 and the proposed roadway will be moving only 10 feet closer. Resource #11 falls outside of the 150 ft APE; however is evaluated in this report due to its association with Resource #10.

Project implementation would not result in a change in the character of the physical features within the properties' setting that contribute to their historic significance. Implementation of the proposed project would not impact any architectural components of the resources that contribute to their National Register eligibility.

Project implementation would not result in the introduction of visual or audible elements that would diminish the integrity of the properties' significant historic characteristics or features. The distance from the existing right-of-way to the properties' NRHP eligible boundaries would not change. The proposed project is not on new location, would not cause physical alteration of the existing roadway that would substantially change either horizontal or vertical alignment, and would not increase the number of through-traffic lanes. Furthermore, there would be no change in entrance or exit patterns at the location of the properties that might affect their future use.

For these reasons, TxDOT Historians have determined that project implementation would not affect or diminish the qualities and/or characteristics that contribute to the significance of the properties and that implementation also poses no foreseeable indirect or cumulative adverse effects to these NRHP-eligible properties.

CONCLUSION

Pursuant to Stipulation VI "Undertakings with Potential to Cause Effects," Appendix 4 of the PA-TU and MOU, TxDOT Historians have determined that the proposed action has no potential to affect historic properties and that individual project coordination with SHPO is not required.

Approved by  for TxDOT 11-08-10  
Bruce Jensen Date

Lead Reviewer  for TxDOT 10-25-10  
Lead Reviewer's Initials Date

SRM  
Attachment  
Cc w/out attachment: David Najvar, Houston District; ENV Reading File;  
Cc w/ attachment: THC; ENV-HIST



# MEMO

January 26, 2016

**TO:** Administrative File  
**From:** Renee Benn

**District:** Houston  
**County:** Fort Bend  
**CSJ#:** 0543-03-067  
**Highway:** FM 762 (Crabb River Rd)  
**Let Date:** September 2016

**Project Limits:** 0.25 mile south of Sansbury Blvd to George Ranch High School (2.9 miles)  
**Project Description:** Stipulation IX, Appendix 6. Widen from 2-3 lanes to 4 with divided median. 46.2 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 762 (Crabb River Rd) consists of two travel lanes plus a center turn lane within an 80' ROW.

### Proposed Project:

The proposed project would modify FM 762 to a four-lane (two lanes in each direction) facility with a divided median. The project would be implemented in two phases—an interim phase (Phase I) and a final build-out phase (Phase II). Phase I has at-grade railroad crossings; while in Phase II, grade separated crossings are proposed. Most of the improvements would occur within existing ROW, although 46.2 acres of new ROW would be acquired.

### 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) and TxDOT files indicated one property previously determined eligible for NRHP-listing by TxDOT in concurrence with THC, the George Ranch Tenant Farm House Historic District (GRTFHHD). It has been determined through consultation with the State Historic Preservation Officer (SHPO) that the APE for the proposed project is 150' from the ROW.

### OUR GOALS

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

*An Equal Opportunity Employer*

CSJ: 0534-03-067, 1415-03-010  
FM 762 Crabb River Rd  
HOU Fort Bend

The GRTFHHD was identified as eligible in 2000 as part of the Grand Parkway Segment C: From SH 288 to Fort Bend County Line project (CSJ 3510-02-002). The district was composed of five properties: four tenant farm houses and one barn. The boundaries were defined as their immediate lots and all outbuildings. Of these five properties, three are within the APE of the current project. All of the standing structures have been removed from these three properties by the property owner (two prior to 2006 and one in 2015). The property owner's justification letter for the 2015 removal is attached. TxDOT is not in violation of the "anticipatory demolition" clause of the National Historic Preservation Act Section 306113 which states- "Each Federal agency shall ensure that the agency will not grant a loan, loan guarantee, permit, license, or other assistance to an applicant that, with intent to avoid the requirements of section 306108 of this title, has intentionally significantly adversely affected a historic property to which the grant would relate, or having legal power to prevent it, has allowed the significant adverse effect to occur, unless the agency, after consultation with the Council, determines that circumstances justify granting the assistance despite the adverse effect created or permitted by the applicant."

After the removal of the resources on two parcels prior to 2006, it was determined that those parcels were no longer eligible but that the remaining three retained their integrity and were still a district. With the removal of the third property in 2015, all that remains of the GRTFHHD is two properties south of the current project limits.

The two properties south of the current project limits are also located within the larger George Ranch Historical Park District, which is located south of the current project boundaries. Figure 3 of the 2015 addendum shows the location of all the original properties within the GRTFHHD and the location of the George Ranch Historical Park District. TxDOT historians determined that the GRTFHHD has lost more than 50% of its resources and that the remaining two historic resources are within the larger George Ranch Historical Park District, and remain eligible as contributing resources within that district.

Due to the loss of three of the five farm sites, including all resources (fences, outbuildings, vegetation, circulation patterns, work/domestic zones) within their boundaries (house and immediate surrounding farm lot, as determined in 2000) the GRTFHHD is **no longer eligible** for NRHP-listing under any criteria. The GRTFHHD does not include historic lands associated with the George Ranch property; an intensive survey conducted in 2006 revealed that no historic rural landscape was present in the project area. (see attached correspondence). Setting has been recently further disrupted by construction of the George Ranch high school.

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

Lead Reviewer Rebekah Dobrasko for TxDOT 2/1/2016  
Rebekah Dobrasko Date  
Approved by Bruce Jensen for TxDOT 2-03-16  
Bruce Jensen Date



December 15, 2015

Mr. Richard Stolleis, P.E., Fort Bend County Engineer  
301 Jackson, 4<sup>th</sup> Floor  
Richmond, TX 77469

Dear Mr. Stolleis:

The George Foundation recently moved a tenant house located on Foundation property adjacent to FM762 and George Ranch High School as the vacant house was a safety and liability concern to the Foundation due to its close proximity to the campus. Additionally, upon inspection, the house was determined to be infested with termites so was no longer financially salvageable. Therefore, we made the decision to move the house off of our property.

We are also currently in the process of moving another house located along FM762 adjacent to our maintenance shop that will be relocated and refurbished in order to be used as an Event & Sales Office in the future. While both of these are older tenant homes, they do not have any known historical significance to The George Foundation or to the George Ranch Historical Park.

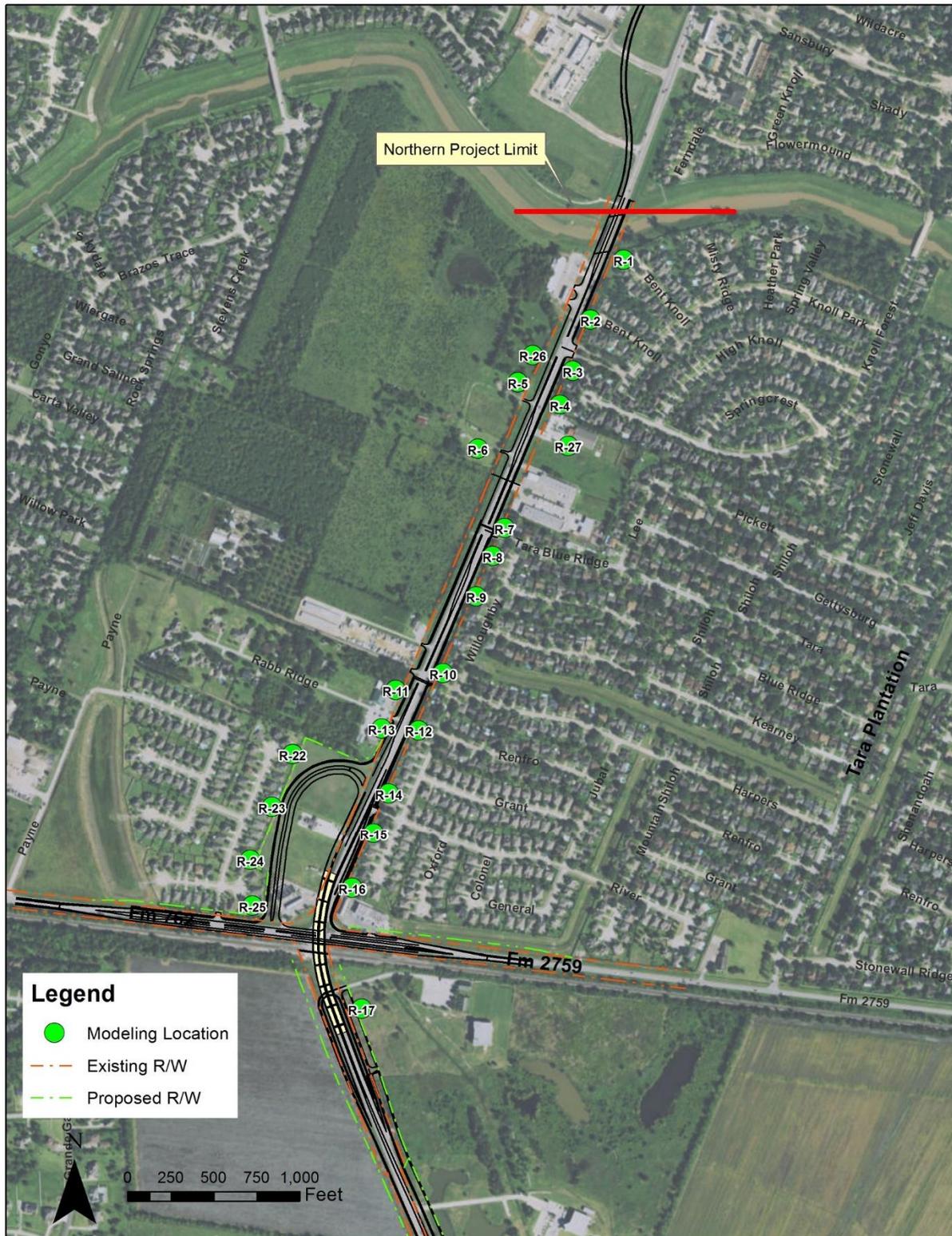
Regards,



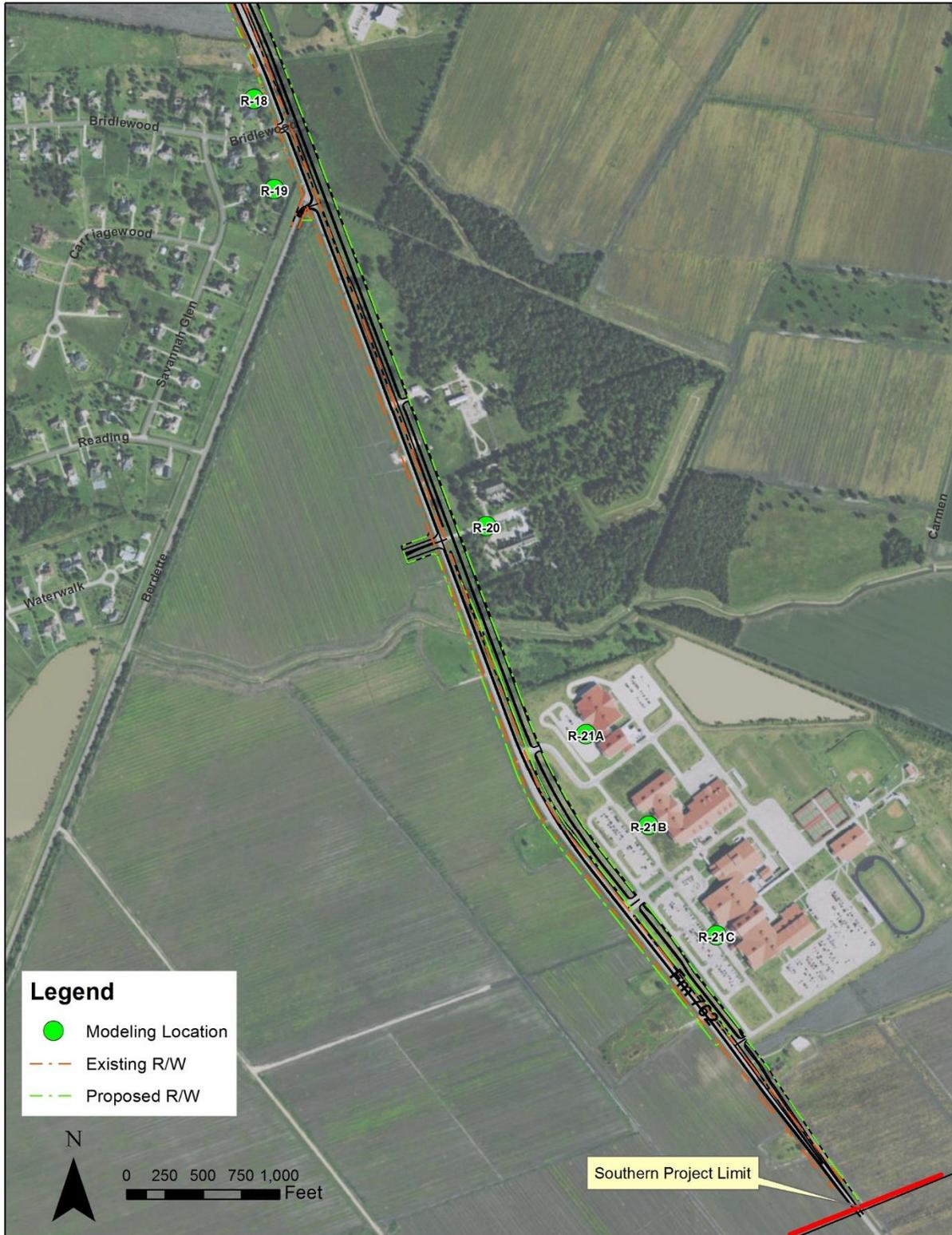
Roger Adamson  
Chief Executive Officer

**EXHIBIT 11**  
**Noise Receiver Map**

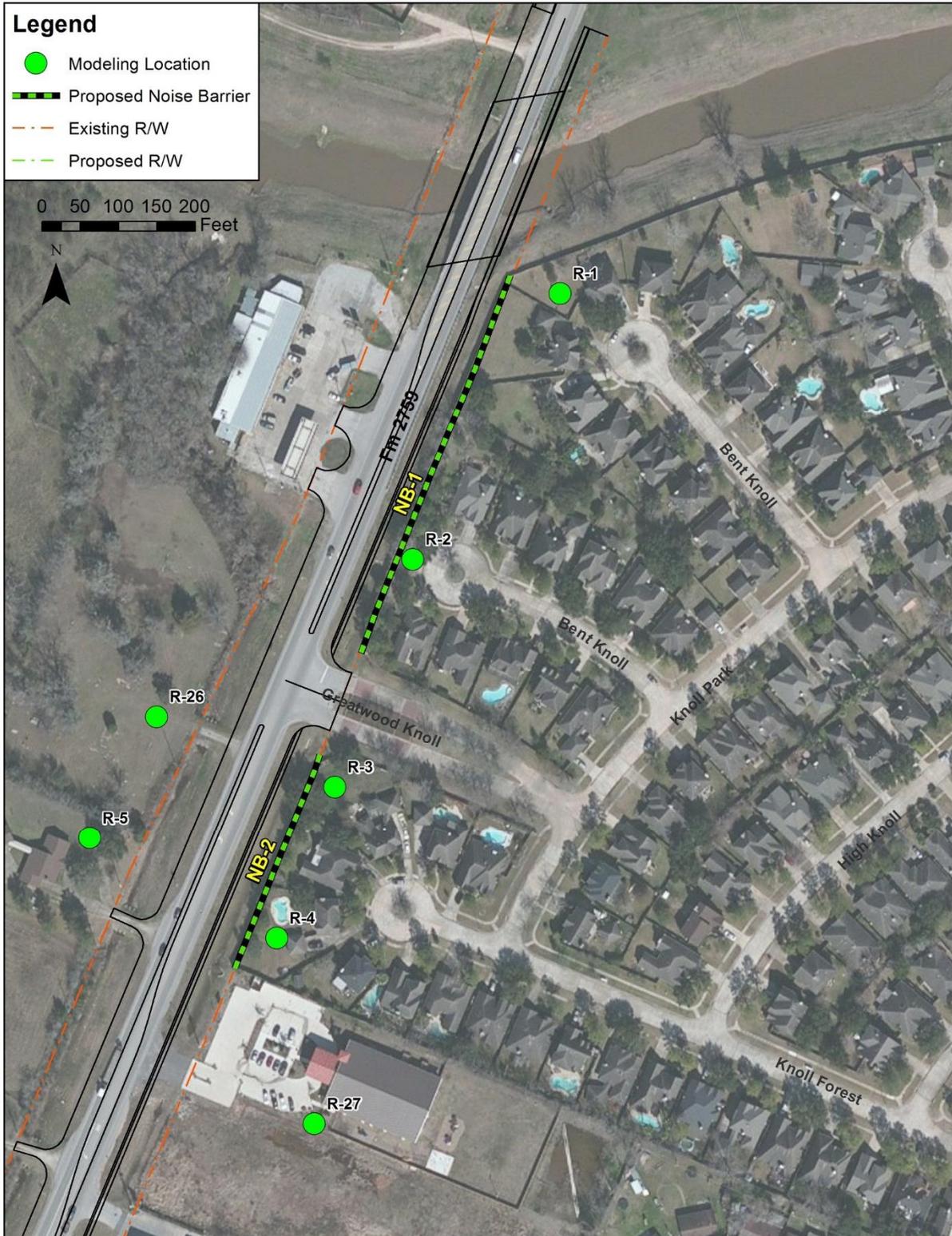
### Noise Modeling Locations



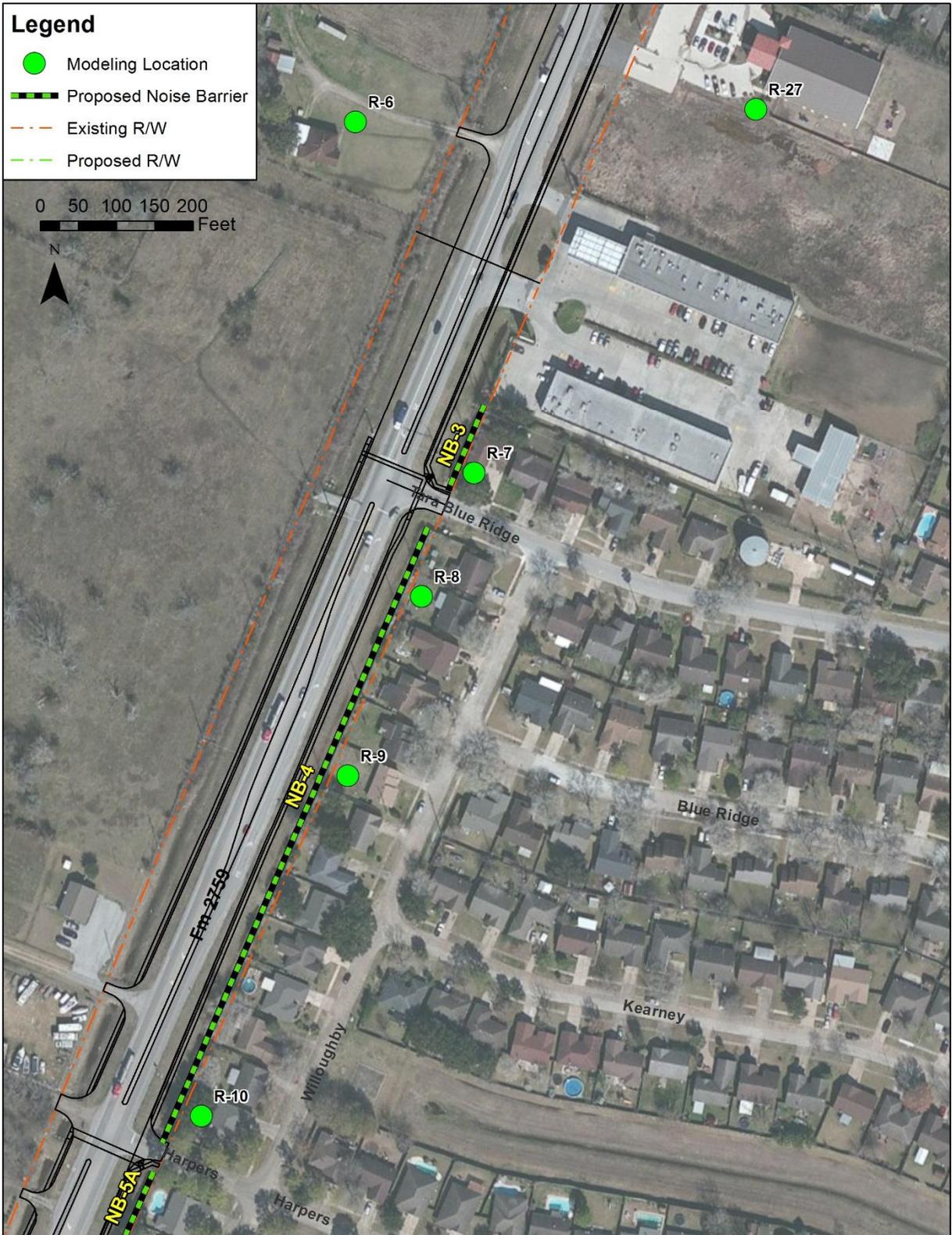
### Noise Modeling Locations



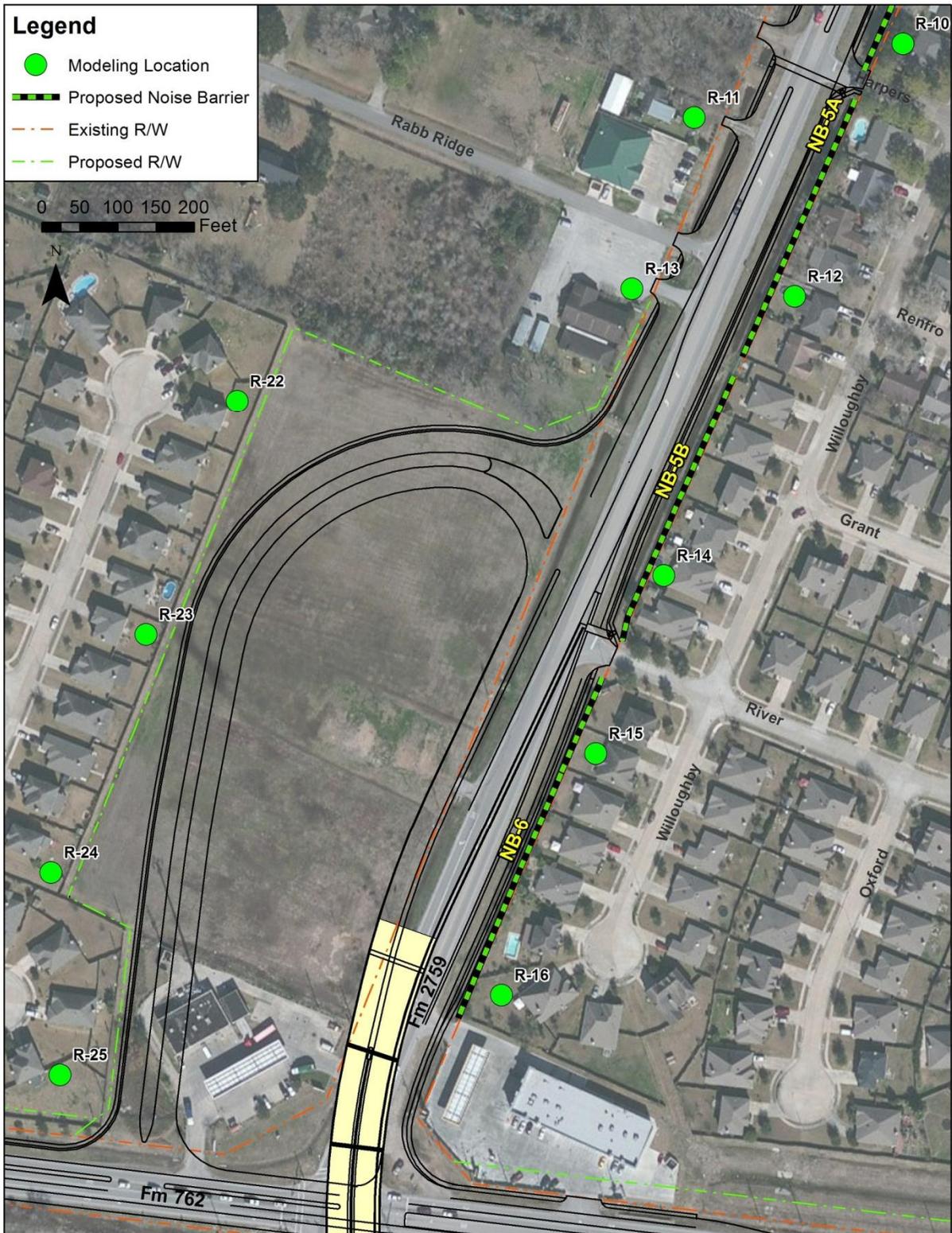
### Proposed Noise Barrier Locations



### Proposed Noise Barrier Locations

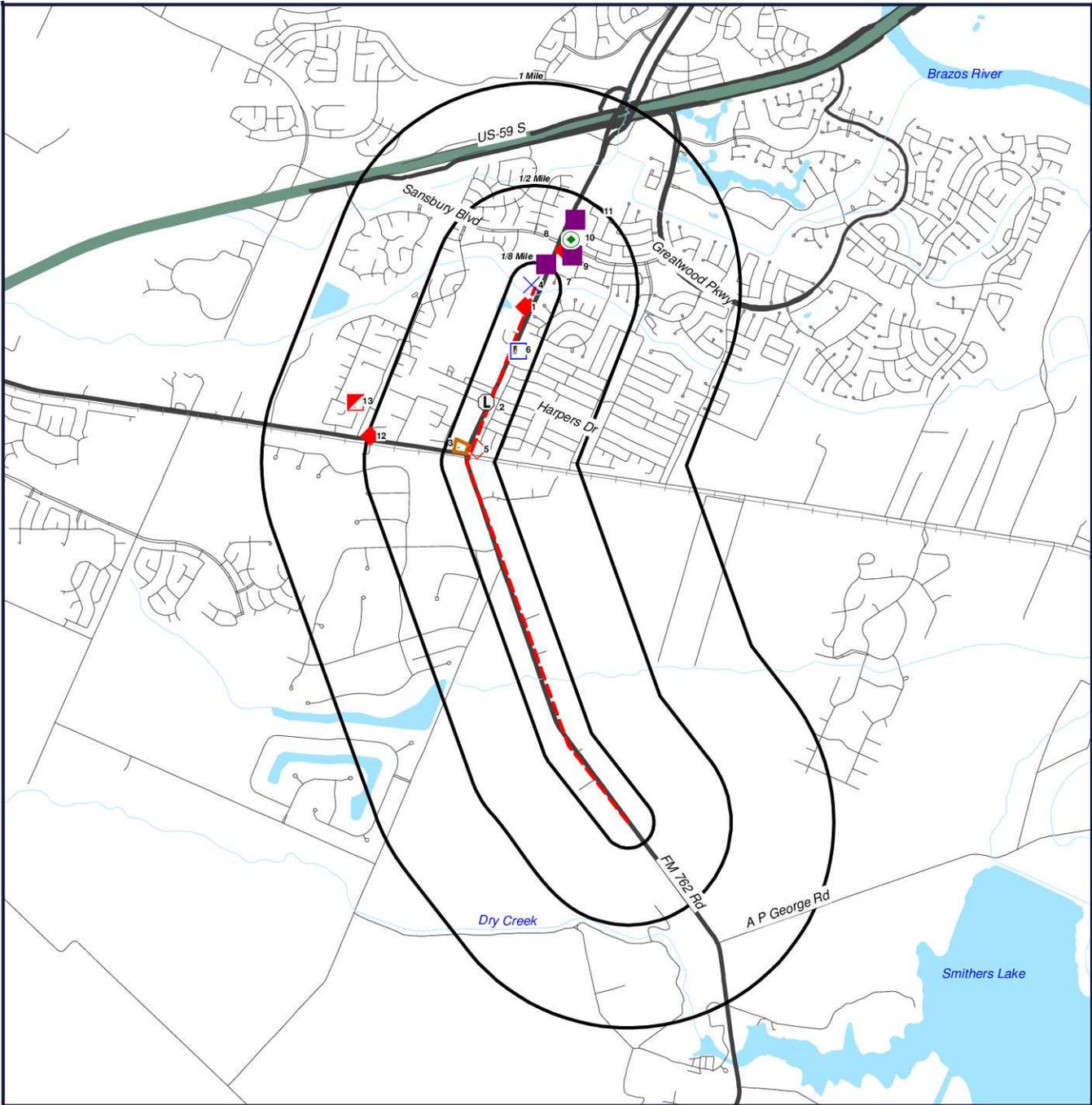


### Proposed Noise Barrier Locations



**EXHIBIT 12**  
**Hazardous Materials Site Location Map**

# Radius Map 1



- - - Target Property (TP)

◆ LPST

● IHW

Ⓛ MSWLF

■ IHWCA

▣ PST

▣ DCR

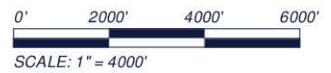
✕ ERNSTX

◇ PST

□ NLRRCRAG

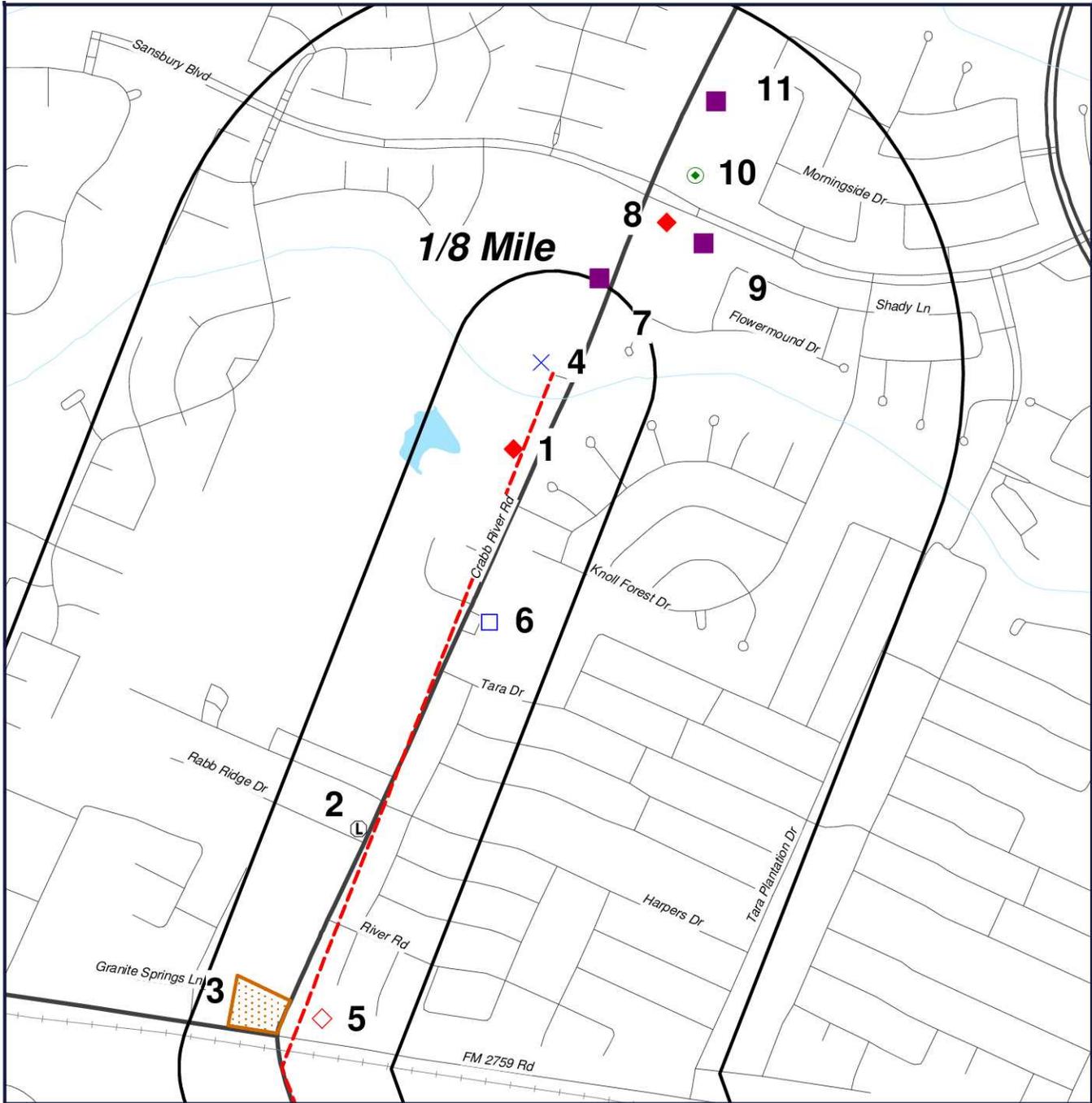
■ DCR

**Crabb River Road  
Crabb River Road  
Richmond, Texas  
77469**



[Click here to access Satellite view](#)

# Radius Map 2



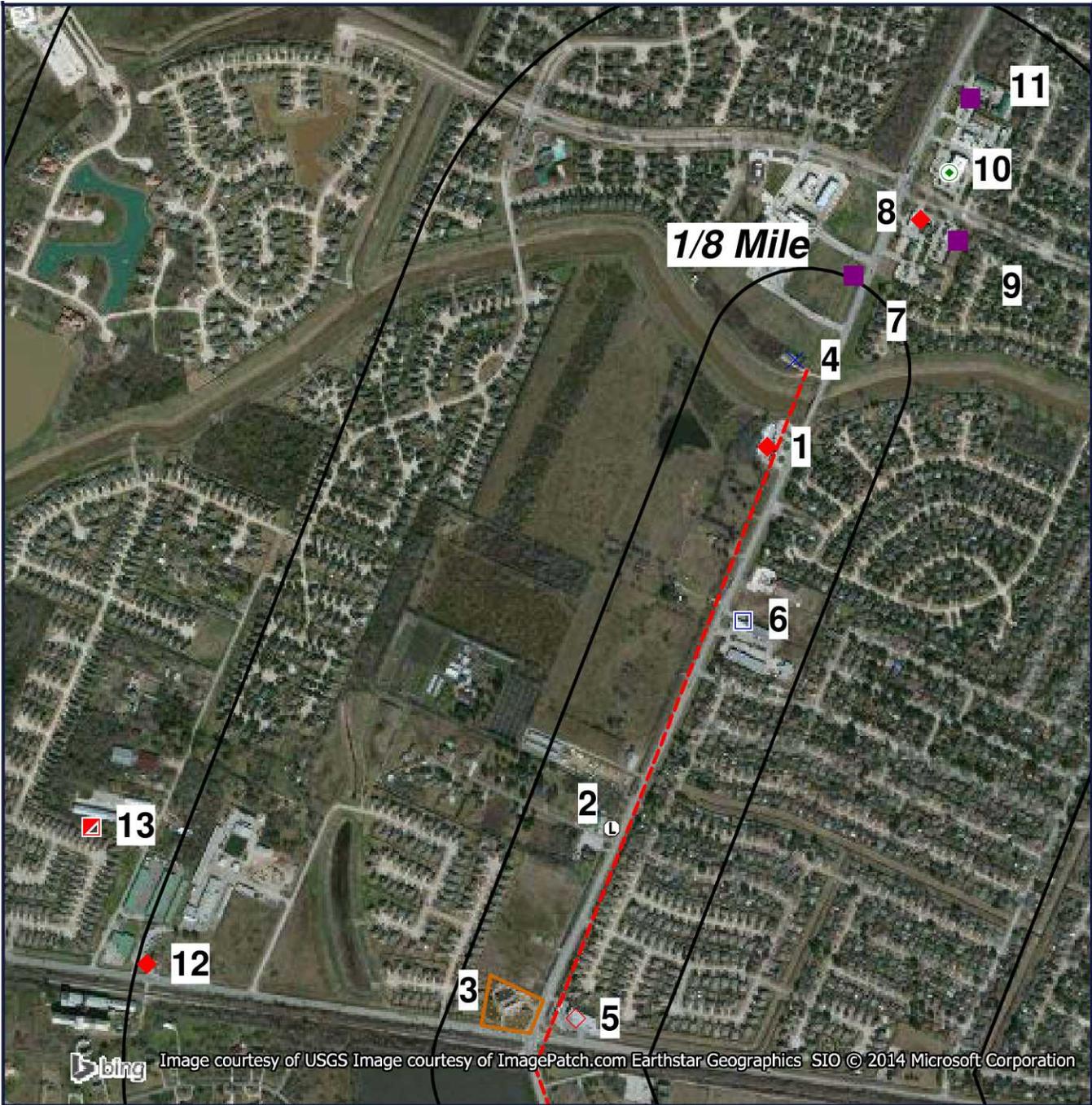
- Target Property (TP)
- LPST
- MSWLF
- PST
- DCR
- ERNSTX
- PST
- NLRRCRAG
- DCR
- IHW
- IHWCA

**Crabb River Road  
Crabb River Road  
Richmond, Texas  
77469**



[Click here to access Satellite view](#)

# Ortho Map



- Target Property (TP)
- LPST
- IHW
- MSWLF
- IHWCA
- PST
- ERNSTX
- PST
- NLRRCRAG
- DCR

**Quadrangle(s): Sugar Land**  
**Crabb River Road**  
**Crabb River Road**  
**Richmond, Texas**  
**77469**

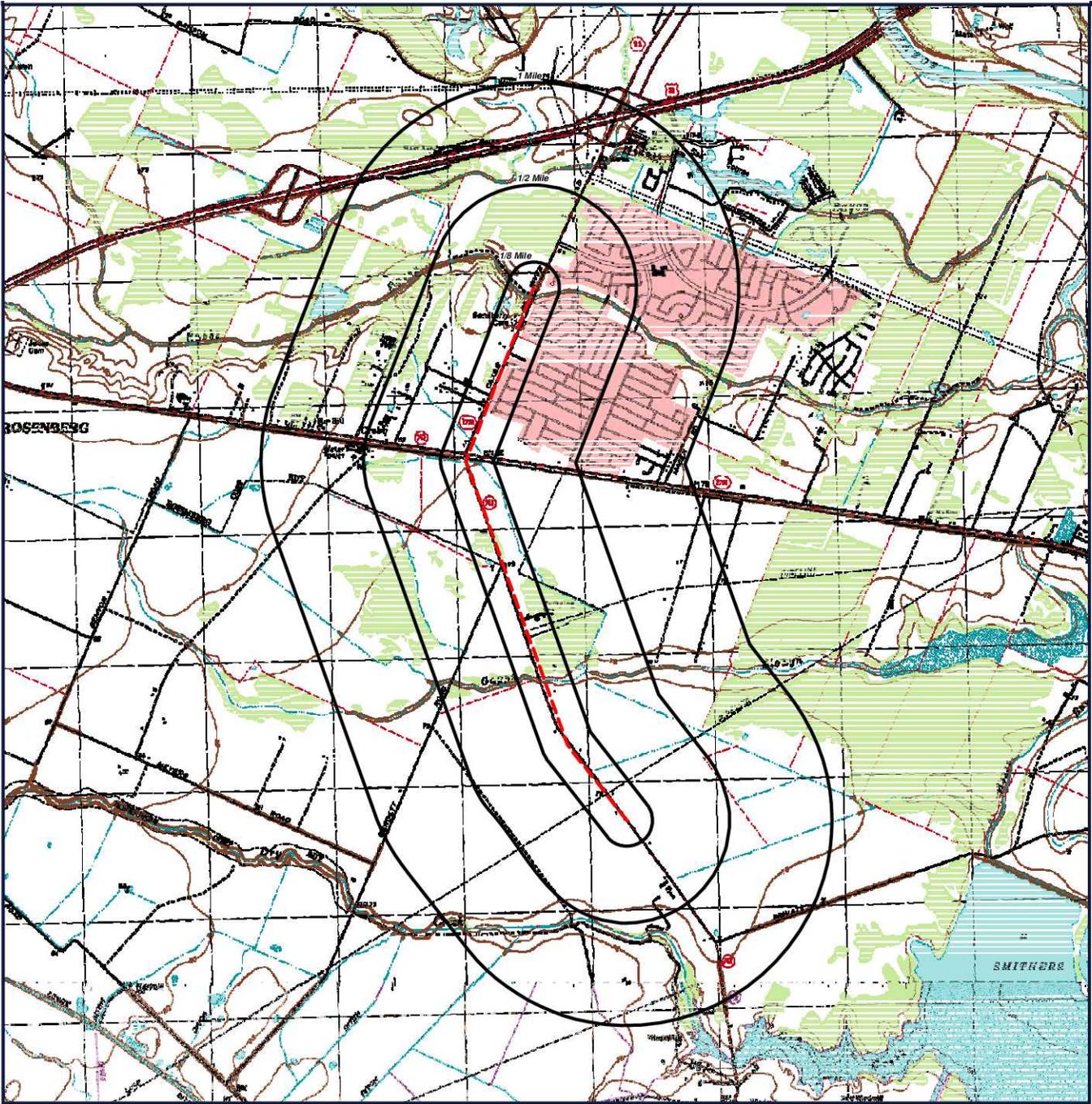


[Click here to access Satellite view](#)

## Report Summary of Locatable Sites

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address	City, Zip Code	PAGE #
<a href="#">1</a>	PST	15464	0.02 SW	KMS KWIK STOP	909 CRABB RIVER RD	RICHMOND, 77469	<a href="#">13</a>
<a href="#">1</a>	LPST	0015464	0.02 SW	KMS KWIK STOP FOOD MART	909 CRABB RIVER RD	RICHMOND, 77469	<a href="#">19</a>
<a href="#">2</a>	MSWLF	2244	0.02 W	RIVER ROAD ANIMAL CLINIC LANDFILL	401 CRABB RIVER RD RICHMOND	RICHMOND, 77469	<a href="#">23</a>
<a href="#">3</a>	PST	74104	0.02 W	CRABB RIVER EXXON	103 CRABB RIVER RD	RICHMOND, 77469	<a href="#">24</a>
<a href="#">3</a>	DCR	RN105065155	0.02 W	COUNTRY CLEANERS	103 CRABB RIVER RD STE B	RICHMOND, 77469	<a href="#">30</a>
<a href="#">4</a>	ERNSTX	581021	0.02 NW		1003 FM 2759	RICHMOND	<a href="#">31</a>
<a href="#">5</a>	PST	79384	0.03 SE	CRABB RIVER SHELL	110 CRABB RIVER RD	RICHMOND, 77469	<a href="#">32</a>
<a href="#">6</a>	IHW	86763	0.04 SE	CRABB RIVER CLEANERS	738 CRABB RIVER RD	RICHMOND, 77469	<a href="#">37</a>
<a href="#">6</a>	PST	68668	0.07 SE	RUNWAY FOOD MART	722 CRABB RIVER RD	RICHMOND, 77469	<a href="#">39</a>
<a href="#">6</a>	NLRRCRAG	TXR000042622	0.04 SE	GREATWOODS CLEANERS INC	738 CRABB RIVER ROAD	RICHMOND, 77469	<a href="#">45</a>
<a href="#">6</a>	DCR	RN100679141	0.04 SE	CRABB RIVER CLEANERS	738 CRABB RIVER RD	RICHMOND, 77469	<a href="#">47</a>
<a href="#">7</a>	DCR	RN106332711	0.14 NE	GREEN CLEAN DISCOUNT CLEANERS	1135 CRABB RIVER RD STE 150	RICHMOND, 77469	<a href="#">49</a>
<a href="#">8</a>	LPST	0066476	0.23 NE	TIMWISE FOOD STORE 3301	1274 CRABB RIVER RD	RICHMOND, 77469	<a href="#">50</a>
<a href="#">9</a>	DCR	RN103954996	0.25 NE	PILGRIM CLEANERS 162	1270 CRABB RIVER RD	RICHMOND, 77469	<a href="#">54</a>
<a href="#">10</a>	IHW	91095	0.3 NE	CVS PHARMACY 3701	1410 CRABB RIVER RD	RICHMOND, 77469	<a href="#">55</a>
<a href="#">11</a>	DCR	RN103962031	0.4 NE	CRYSTAL CLEANERS	1510 CRABB RIVER RD	RICHMOND, 77469	<a href="#">58</a>
<a href="#">12</a>	LPST	0005085	0.5 W	GONYOS SERVICE STATION	6107 THOMPSON	RICHMOND, 77469	<a href="#">60</a>
<a href="#">13</a>	IHWCA	87131	0.61 W	VISUAL SERVICES OF TEXAS	215 GONYO LN	RICHMOND, 77469	<a href="#">63</a>
<a href="#">13</a>	IHW	87131	0.61 W	VISUAL SERVICES OF TEXAS	215 GONYO LN	RICHMOND, 77469	<a href="#">64</a>

# Topographic Map



 Target Property (TP)

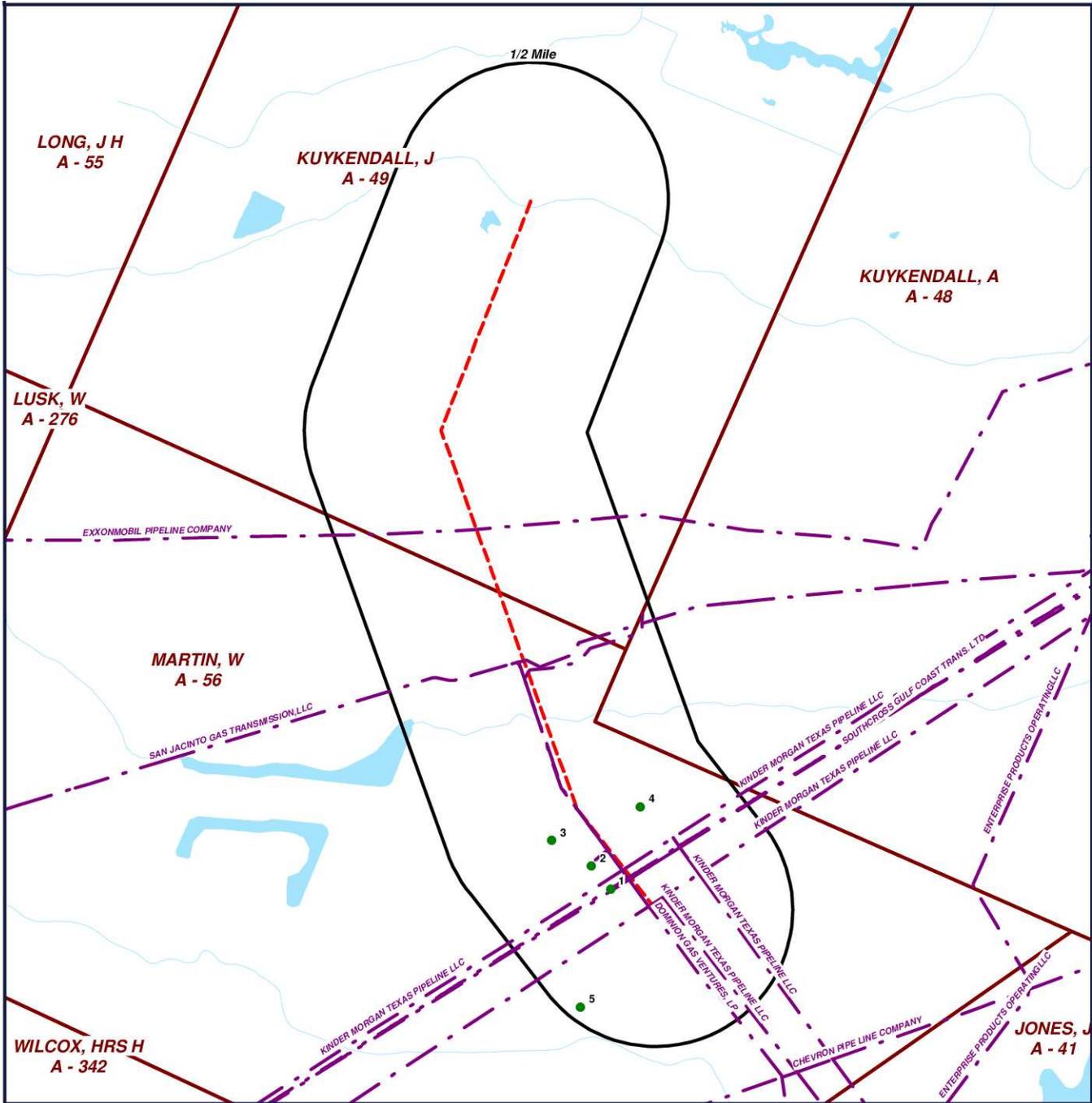
**Quadrangle(s): Sugar Land**  
**Source: USGS, 1982**  
**Crabb River Road**  
**Crabb River Road**  
**Richmond, Texas**  
**77469**



0' 2000' 4000' 6000'  
SCALE: 1" = 4000'

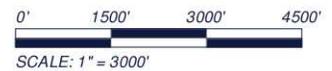
[Click here to access Satellite view](#)

# OGPipeline Map



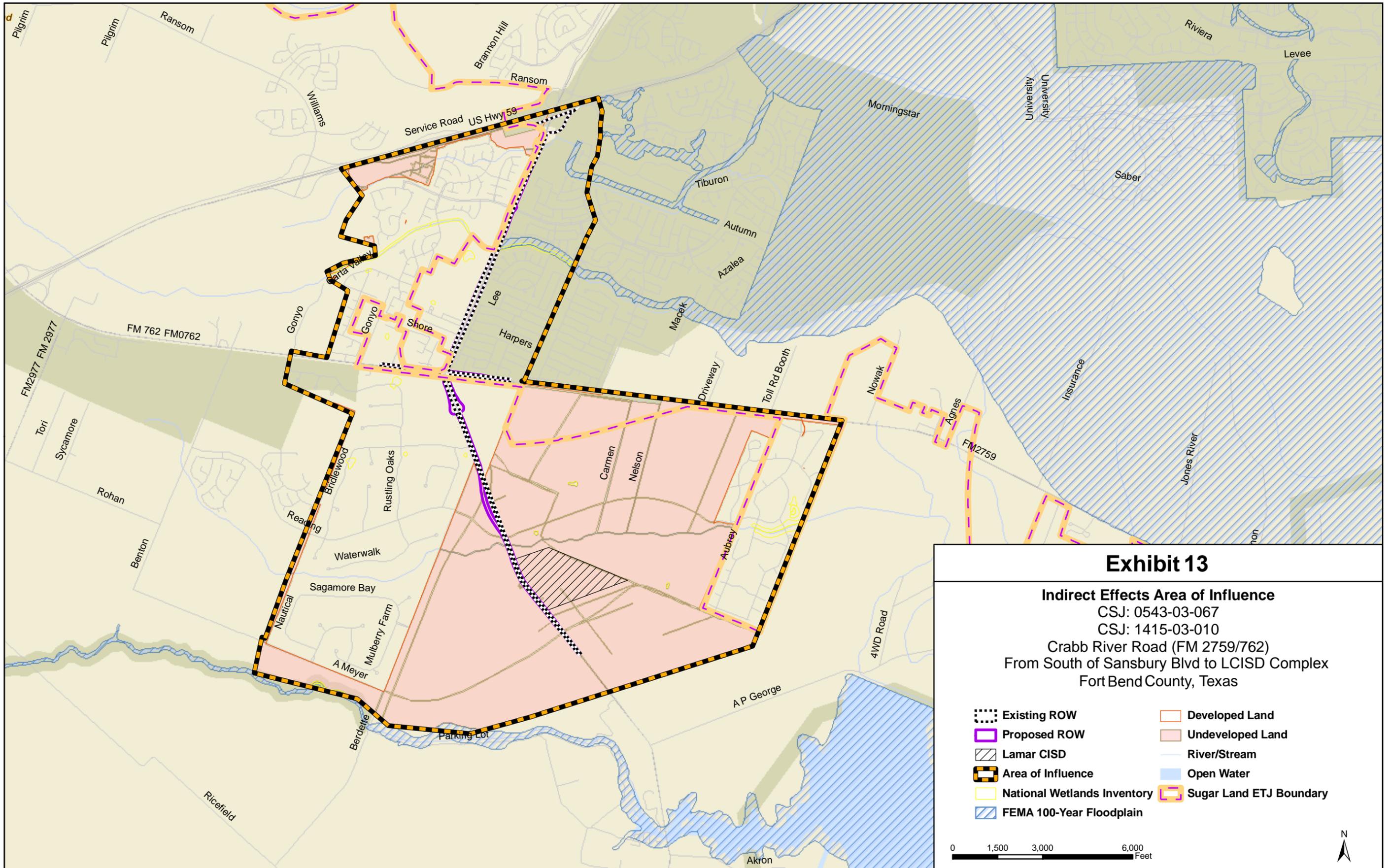
-  Target Property (TP)
-  Surface Location
-  Pipeline
-  Survey Line

**Crabb River Road  
Crabb River Road  
Richmond, Texas  
77469**



[Click here to access Satellite view](#)

**EXHIBIT 13**  
**Indirect Effects Area of Influence**



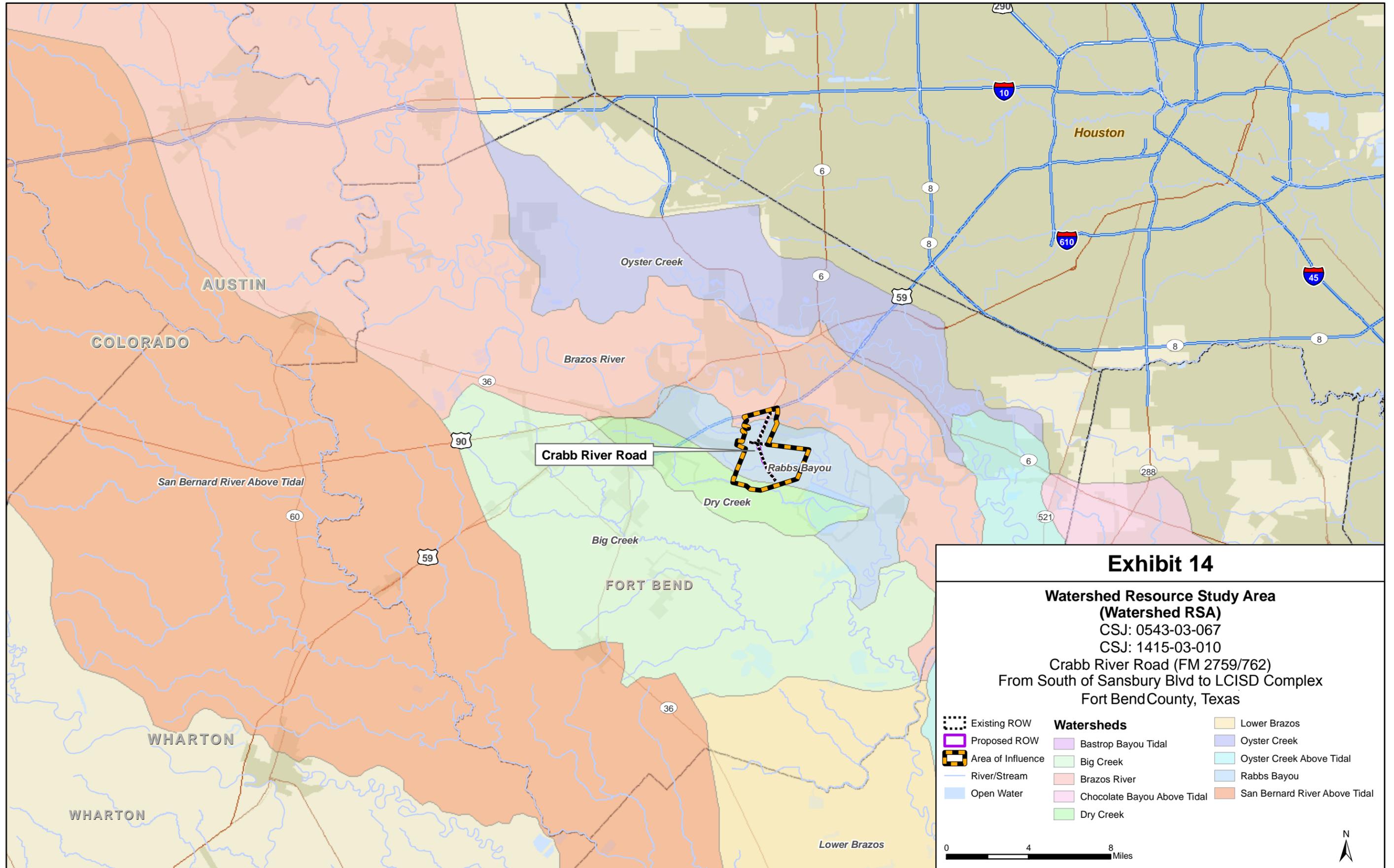
### Exhibit 13

**Indirect Effects Area of Influence**  
 CSJ: 0543-03-067  
 CSJ: 1415-03-010  
 Crabb River Road (FM 2759/762)  
 From South of Sansbury Blvd to LCISD Complex  
 Fort Bend County, Texas

- |                             |                          |
|-----------------------------|--------------------------|
| Existing ROW                | Undeveloped Land         |
| Proposed ROW                | Open Water               |
| Lamar CISD                  | Sugar Land ETJ Boundary  |
| Area of Influence           | FEMA 100-Year Floodplain |
| National Wetlands Inventory |                          |



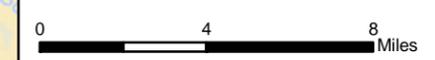
**EXHIBIT 14**  
**Resource Study Area Map**



### Exhibit 14

**Watershed Resource Study Area  
(Watershed RSA)**  
 CSJ: 0543-03-067  
 CSJ: 1415-03-010  
 Crabb River Road (FM 2759/762)  
 From South of Sansbury Blvd to LCISD Complex  
 Fort Bend County, Texas

- |                   |                             |                               |
|-------------------|-----------------------------|-------------------------------|
| Existing ROW      | Bastrop Bayou Tidal         | Lower Brazos                  |
| Proposed ROW      | Big Creek                   | Oyster Creek                  |
| Area of Influence | Brazos River                | Oyster Creek Above Tidal      |
| River/Stream      | Chocolate Bayou Above Tidal | Rabbs Bayou                   |
| Open Water        | Dry Creek                   | San Bernard River Above Tidal |



**EXHIBIT 15**  
**CMP Coordination**



---

**HOUSTON-GALVESTON AREA COUNCIL**

---

**PO Box 22777 • 3555 Timmons Lane • Houston, Texas 77227-2777 • 713/627-3200**

**May 21<sup>st</sup>, 2010**

**Manuel Francisco  
Texas Department of Transportation  
7721 Washington Avenue, Houston, TX 77007**

**Re: Adding Capacity on FM 2759 Between US 59 & FM 762/FM 2759 on Crabb River Road  
Is Justified As Per H-GAC's CMP - CSJ #: 1415-03-010**

**Dear Mr. Francisco:**

The Houston-Galveston Area Council (H-GAC), the designated Metropolitan Planning Organization (MPO) for the region, has received this attached Congestion Mitigation Analysis (CMA) for the above captioned project for review and approval.

Our review suggests that this CMA report and results are consistent with the requirements of H-GAC's Congestion Management Process (CMP).

As per the results, the level of mobility (LOM) for FM 2759 from US 59 till FM 762/FM 2759 on Crabb River Road has already deteriorated enough to justify adding capacity: Therefore, any widening if done on this segment of FM 2759 (Crabb River Road) will be justified in accordance with H-GAC's CMP.

Since this is a major arterial with traffic signals, as per CMP, we do have a Transportation System Management (TSM) option of Regional Computerized Traffic Signal Systems (RCTSS) from our Tool-Box to apply as congestion mitigating factors to this corridor.

As such the implementing agency of this project TxDOT needs to commit to implementing Traffic Signal Re-Timing & Synchronization as part of this overall roadway project by sending H-GAC a Letter of Commitment, specifying the overall project schedule of implementation, so that H-GAC is able to monitor timely implementation of this TSM..

If you have any comments or need additional information, please do not hesitate to contact me at (713) 993-4564.

**Sincerely,**

*I. Lyas Choudry*

**ILyas Choudry**

**Congestion Mitigation Analysis (CMA)**  
**FM 2759 from US 59 till FM 762/FM 2759 on Crabb River Road**  
**CSJ #: 1415-03-010**

**Findings**

Usually the Level of Mobility (LOM) is checked for the existing year and the Regional Transportation Plan (RTP) year. However if LOM in the existing year suggests that the facility is already congested, then future RTP year analysis is not necessary.

The LOM for this added-capacity project along FM 2759 between US 59 and FM 762/FM 2759 on Crabb River Road, has already deteriorated enough in the Year 2010 to justify adding-capacity. Even with the implementation of Transportation System Management (TSM) along this arterial (in this case, Traffic Signal Re-Timing & Synchronization), this TSM project would still not have sufficient impact to impend this added-capacity justification.

It is the opinion of the staff that the widening of FM 2759 from US 59 till FM 762/FM 2759 on Crabb River Road is justified, subject to other Environmental and Right-of-Way issues also met.

**Background**

The original Congestion Management System (CMS) Plan was adopted by the Transportation Policy Council (TPC) in October 1997. H-GAC's implemented the CMS Plan between 1997 and 2009 and over that period of time, CMS Plan has been refined into a Congestion Management Process (CMP - September 2009) and four to six years after September 2009, CMP will be fully integrated into the RTP.

Requirements for the Congestion Mitigation Analysis (CMA) have remained the same in CMP, as they were in the CMS Plan; i.e. the project submittal / implementing agency (TxDOT in this case) and/or their consultant does the data collection & analysis and submit for H-GAC's review & approval.

The CMP Roadway Network; is defined as roadways classified principal (or major) arterials and above in the urban areas and minor arterial and above in the rural area, as defined in the TxDOT Roadway Inventory Log (RI-2) and other roadways designated by the TPC. Added capacity roadway projects, NOT on the CMP network, are not subject to CMA requirements of the CMP. In addition, added capacity projects on the CMP network, which were grand fathered in April 1993 & have current environmental findings (FONSI/ROD) are also exempt from CMA. Current FONSI/ROD should be within the last three years. Also added-capacity projects less than 1-Mile are considered insignificant and usually for filling a gap in the roadway system: As such they are again exempt from CMA. Moreover, any project of the nature of Transportation Demand Management (TDM) or Transportation System Management (TSM) is considered waived from the requirements of CMA, since such project is in fact used for congestion mitigation.

This FM 2759 from US 59 till FM 762/FM 2759 on Crabb River Road is an Urban Principal Arterial and 1.72-Miles long; as such it needs CMA done to qualify for federal funding, for adding capacity from 2-Lanes to 4-Lanes.

**Traffic and Level of Mobility (LOM)**

Four levels of mobility (LOM) used to define congestion were developed by the H-GAC Travel Modeling Committee in 1997 and approved by the Technical Advisory Committee (TAC), they are shown as follows:

LOM	V/C
Tolerable	< 0.85
Moderate	>= 0.85 < 1.00
Serious	>= 1.00 < 1.25
Severe	>= 1.25

It was determined that if V/C is equal to & greater than 0.85, such facility will be considered congested.

Based on the data from Year 2007 & 2008, TxDOT submitted projected result for V/C for Year 2010 for this segment of FM 2759 between US 59 and FM 762/FM 2759 on Crabb River Road. Results for LOM are shown in Table 1 below.

With no improvements to FM 2759 (Crabb River Road), the V/C is 0.93, which suggests that LOM within the project limits is already at MODERATE level in the Year 2010.

**Table 1. LOM for Year 2010 & 2035 Under the No-Build Condition**

	CSJ: 1415-03-010
	FM 2759 from US 59 till FM 762/FM 2759 on Crabb River Road
2010 24-Hour V/C Ratio (Using Adjusted Capacity)	0.93

**Congestion Reduction Strategies**

It is the stated policy of the CMP to apply cost-effective demand and system management measures as the first component of all congestion reduction strategies. Added capacity roadway projects are justified only if cost-effective demand management and system management strategies fail to reduce vehicular congestion to acceptable levels. Where demand or system management projects are feasible and cost-effective, project sponsors, or relevant implementing agencies must commit to their implementation or incorporation into a proposed added-capacity project as a pre-

condition to federal funding assistance. Project design, concept, and scope must also be consistent with any selected management strategies.

Since this is an arterial roadway with traffic signals, Traffic Signal Re-Timing & Synchronization is one of the viable projects that can be applied as the first strategy of congestion mitigation before considering added-capacity to this facility for congestion easing.

**Results**

Based on TSM/TDM Analysis Tool-Box developed by Sierra Research in 1994 for the H-GAC region, the congestion mitigation impacts resulting in effective trip reduction for the Traffic Signal Re-Timing & Synchronization are about 5.00%. The LOM after the implementing of the RCTSS can be found in Table 2.

**Table 2. LOM for Year 2010 & 2035 With the Implementation of Traffic Signal Re-Timing & Synchronization Project**

	<b>CSJ: 1415-03-010</b>
	<b>FM 2759 from US 59 till FM 762/FM 2759 on Crabb River Road</b>
<b>2010 24-Hour V/C Ratio (Using Adjusted Capacity)</b>	<b>0.88</b>

With no added-capacity to FM 2759 (Crabb River Road) and just implementing Traffic Signal Re-Timing & Synchronization, the V/C will come down to 0.88, which suggests that LOM within the project limits will still remain to be MODERATE level in the Year 2010.

It can be seen although the V/C came down, but still not enough to mitigate completely the traffic congestion. As such it is the opinion of the staff that the widening of FM 2759 from US 59 till FM 762/FM 2759 on Crabb River Road is justified and can be further explored.

Now since this Traffic Signal Re-Timing & Synchronization project has an extensive impact on congestion mitigation (more than 1%); as such it is considered "Significant". Under the CMP, it is required by the Federal Highway Administration (FHWA) for the implementing agency to demonstrate their commitment to implementing such "Significant" projects. In other words, a Letter of Commitment (LOC) for Traffic Signal Re-Timing & Synchronization projects will be required from TxDOT. This LOC should include complete time-line of the execution of this project, so that H-GAC is able to monitor timely implementation of this TSM.



---

**HOUSTON-GALVESTON AREA COUNCIL**

---

PO Box 22777 • 3555 Timmons Lane • Houston, Texas 77227-2777 • 713/627-3200

May 21<sup>st</sup>, 2010

**Manuel Francisco  
Texas Department of Transportation  
7721 Washington Avenue, Houston, TX 77007**

**REF. Letter of Waiver of Congestion Mitigation Analysis (CMA) For CSJ 0543-03-067  
FM 762 From FM 762/FM 2759 till South of LCISD School on Crabb River Road**

**Dear Mr. Francisco.**

The original Congestion Management System (CMS) Plan was adopted by the Transportation Policy Council (TPC) in October 1997. H-GAC's implemented the CMS Plan between 1997 and 2009 and over that period of time, CMS Plan has been refined into a Congestion Management Process (CMP - September 2009) and four to six years after September 2009, CMP will be fully integrated into the RTP. The requirements of CMP for added-capacity projects will remain the same as in the CMS Plan. The CMP Roadway Network; is defined as roadways classified principal (or major) arterials and above in the urban areas and minor arterial and above in the rural area, as defined in the TxDOT Roadway Inventory Log (RI-2) and other roadways designated by the TPC. Added capacity roadway projects, NOT on the CMP network, are not subject to CMA requirements of the CMP. In addition, added capacity projects on the CMP network, which were grand fathered in April 1993 & have current environmental findings (FONSI/ROD) are also exempt from CMA. Current FONSI/ROD should be within the last three years. Also added-capacity projects less than 1-Mile are considered insignificant and usually for filling a gap in the roadway system: As such they are again exempt from CMA. Moreover, any project of the nature of Transportation Demand Management (TDM) or Transportation System Management (TSM) is considered waived from the requirements of CMA, since such project is in fact used for congestion mitigation.

**H-GAC is issuing this Letter of Waiver (LOW) of CMA for the above referenced added-capacity project, as it is not on the CMS Plan Network, since it is a major collector in the urban area. Please include this LOW in the Environmental Assessment (EA) document of this project.**

If you have any questions about this CMA waiver and the CMS amendment to CMP, please contact me at (713) 993-4564.

**Sincerely.**

*Ilyas Choudry*

**Ilyas Choudry**  
*Transportation Department H-GAC*