ENVIRONMENTAL ASSESSMENT

US 59 from Spur 10 to State Highway 99 (FM 2759)

Fort Bend County, Texas

CSJ No. 0027-12-097, 0027-12-105, 0027-12-106, and 0027-12-114

PREPARED BY

U.S. DEPARTMENT OF TRANSPORTATION
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ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway Transportation Officials
ACHP	Advisory Council on Historic Preservation
AOI	Area of Influence
APE	Area of Potential Effect
ASCE	American Society of Civil Engineers
BG	Block Group
BMP	Best Management Practices
CAA	Clean Air Act
CCTV	Closed-Circuit Television
CEQ	Council on Environmental Quality
CFR	Code of Final Rule
CMAQ	Congestion Management for Air Quality
CMP	Congestion Management Process
CMS	Congestion Management System
CO	Carbon Monoxide
CT	Census Tract
CWA	Clean Water Act
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
EM	Executive Memorandum
EO	Executive Order
EOR	Element of Occurrence Record
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ETJ	Extra-Territorial Jurisdiction
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FM	Farm-to-Market Road
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GIS	Geographic Information System
H-GAC	Houston-Galveston Area Council
HHS	U.S. Department of Health and Human Services
HOV	High Occupancy Vehicle
HPA	High Probability Areas
IRIS	EPA Integrated Risk Information System
ISTEA	Intermodal Surface Transportation Efficiency Act
ISD	Independent School District
ITS	Intelligent Transportation System
LCISD	Lamar Consolidated Independent School District
LEP	Limited English Proficiency
LID	Levee Improvement District
LOS	Level of Service
LPST	Leaking Petroleum Storage Tank
MBTA	Migratory Bird Treaty Act
MIS	Major Investment Study
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSAT	Mobile Sources Air Toxics
NAAQS	National Ambient Air Quality Standards
NAFTA	North American Free Trade Act
NATA	National Air Toxics Assessment
NCHRP	National Cooperative Highway Research Program
NDD	Natural Diversity Database
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLEV	National Low Emissions Vehicle Standards
NMFS	National Marine Fisheries Service
NMHC	Non-Methane Hydrocarbons
NOI	Notice of Intent
NO_X	Nitrous Oxides
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP-14	Nationwide Permit 14 (for Linear Transportation Projects)
O_3	Ozone
O&M	Operation and Maintenance
ONRW	Outstanding National Resource Waters
PA	Programmatic Agreement
PA-TU	Programmatic Agreement for Transportation Undertakings
PALM	Potential Archaeological Liabilities Map
PCN	Pre-Construction Notification
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter less than 2.5 Microns
PM_{10}	Particulate Matter less than 10 Microns
PMSA	Primary Metropolitan Statistical Area
PST	Petroleum Storage Tank
RAZ	Regional Analysis Zone
RFG	Reformulated Gasoline Program

ROW	Right-of-Way
RSA	Resource Study Area
RTHL	Recorded Texas Historical Landmarks
RTP	Regional Transportation Plan
SAL	State Archaeological Library
SH 6	Texas State Highway 6
SH 36	Texas State Highway 36
SH 99	Texas State Highway 99
SHPO	State Historic Preservation Officer
SIP	Statewide Implementation Plan
SOV	Single Occupancy Vehicle
SUL	Special Use Lane
SW3P	Storm Water Pollution Prevention Plan
TAC	Texas Antiquities Code
TAQA	Transportation Air Quality Analysis
TARL	Texas Archaeological Research Laboratory
TCEQ	Texas Commission of Environmental Quality
TCWA	Texas Clean Water Act
THC	Texas Historical Commission
THSI	Texas Historic Sites Inventory
TIP	Transportation Improvement Plan
TIRZ	Tax Increment Reinvestment Zone
TMA	Transportation Management Area
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSM/TDM	Traffic Supply Management/ Transportation Demand Management
TSS	Total Suspended Solids
TxDOT	Texas Department of Transportation
U.S.	United States
US 59	United States Highway 59
USACE	U.S. Army Corps of Engineers
USBEA	U.S. Bureau of Economic Analysis
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDOT	Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	Vehicle Miles Travelled
VOC	Volatile Organic Compounds
VPD	Vehicles per Day

1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared in accordance with *National Environmental Policy Act* (NEPA), Title 23 of the *Code of Federal Regulations* (23 CFR) §771.105, 23 CFR §771.119, and the regulations detailed by the Council on Environmental Quality (CEQ) (40 CFR §1502), and provides sufficient information to allow the Federal Highway Administration (FHWA) to determine whether an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI) is appropriate. This EA has been prepared utilizing the FHWA *Technical Advisory T6640.8A* and the Texas Department of Transportation (TxDOT) *TxDOT Environmental Manual (2004)* as guidance (see **Appendix A** for additional guidance documents).

The TxDOT Houston District is proposing to improve a 12-mile section of United States Highway 59 (US 59) from Spur 10/Hartledge Road (hereinafter referred to as Spur 10) to west of State Highway 99 (Grand Parkway)/Farm to Market Road (FM) 2759 (Crabb River Road) (hereinafter referred to as SH 99) in Fort Bend County, Texas, as shown in **Exhibit 1**.

All projects in the Houston–Galveston Area Council's (H-GAC's) 2011-2014 Transportation Improvement Programs (TIP) that are proposed for federal or state funds are consistent with federal guidelines in Section 450 of Title 23, CFR and Section 613.200, Subpart B of Title 49. The proposed project is located within Fort Bend County in the planning area of the H-GAC, which is its Metropolitan Planning Organization (MPO), and the Houston-Galveston Transportation Management Area (TMA). The proposed project is listed in the 2011-2014 TIP in *Appendix D: Projects Undergoing Environmental Assessment*, under CSJs 0027-12-097, 0027-12-105, 0027-12-106, and 0027-12-114 (see **Appendix B: RTP and TIP Documentation**).

The proposed project is consistent with the H-GAC's financially constrained 2035 Regional Transportation Plan (RTP) Update, which was found to conform to the State Implementation Plan (SIP) by the U.S. DOT (FHWA/FTA) on January 25, 2011. The total cost of the proposed project would be approximately $588,143,958 and would be funded from 80 percent federal and 20 percent state sources. The estimated costs and completion dates for the segments as provided in the 2035 RTP Update (as of April 27, 2012) are as follows:

- West of Spur 10 to west of SH 36 – $285,238,958; 2035
- West of SH 36 to west of Farm-to-Market Road (FM) 762 – $173,254,000; 2025
- West of FM 2759 to west of FM 762 – $117,386,000; 2025
- West of FM 762 to west of FM 2759 – construct two one-way high occupancy vehicle (HOV) lanes – $12,265,000; 2025

1.1 Description of Project

The project is described in the 2011-2014 TIP, as amended, and in the 2035 RTP Update in the following terms:

- 0027-12-106: West of Spur 10 to west of State Highway 36: Widen to 6-lane rural freeway, frontage roads, Intelligent Transportation System (ITS) and Transportation Systems Management (TSM);

- 0027-12-105: West of State Highway 36 to west of FM 762: Widen to 6-lane rural freeway, frontage roads, ITS & TSM with grade separation;
- 0027-12-097: West of FM 762 to west of FM 2759: Widen to 8 main lanes, frontage roads, ITS & TSM; and
- 0027-12-114: West of FM 762 to west of FM 2759: Construct 2-way HOV lanes (one one-way HOV lane in each direction).

Therefore, at the north terminus, the proposed project would match the cross-section of a recent US 59 expansion project, while at the south terminus the proposed project would match the cross-section of a future US 59 expansion project. **Exhibit 2** provides **Typical Sections**.

The proposed project is divided into two segments. The first extends from Spur 10 to FM 762. In this segment the proposed project would include six single occupancy vehicle (SOV) lanes (three in each direction) and a two-lane frontage road in each direction. The second segment extends from FM 762 to SH 99 (Grand Parkway/Crabb River Road/FM 2759). In this segment the proposed project would include eight SOV lanes (four in each direction), two HOV lanes (one in each direction), and four to six continuous one-way frontage lanes (two to three in each direction); the segment would also have expansion room for a second HOV lane in each direction.

In segment one, directions of travel would be separated by a depressed grassy median. In segment two, directions of travel would be separated by a continuous reinforced concrete barrier.

1.2 Project History, Major Investment Study, and Public Involvement

In June 1999 the TxDOT Houston District completed a US 59 South Major Investment Study (MIS). Under the regulations implementing the 1991 Federal Intermodal Surface Transportation Efficiency Act (ISTEA), an MIS is required before significant, federally funded urban transportation improvements can be constructed. The MIS analyzed the potential improvements to US 59 in Fort Bend County from SH 6 to Fort Bend/Wharton County Line. In the MIS, the US 59 study area was divided into four distinct segments:

- Segment 1 extended from SH 6 to SH 99
- Segment 2 extended from SH 99 to FM 762
- Segment 3 extended from FM 762 to Spur 10; and
- Segment 4 extended from Spur 10 to the Fort Bend/Wharton County Line.

The proposed project includes Segments 2 and 3.

During the MIS process, public involvement was initiated. A series of public meetings were held between May 1998 and February 1999 in order to establish the participation of community-based organizations, environmental interest groups, concerned citizens, neighborhood associations, and others. During these meetings, discussions were held with the public to determine the corridor needs along US 59 and to provide the attendees with different alternatives. Each meeting provided the public an opportunity to comment on the proposed improvements. A more detailed description of the initial public involvement process can be found in the MIS, which is under separate cover at the TxDOT Houston District Office at 7600 Washington Avenue, Houston, Texas, 77007.

On April 26, 2000, a Public Meeting was held at Dickinson Elementary School in Greatwood, to discuss the proposed projects on US 59 between Spur 10 and SH 99 and between SH 99 and SH 6. Seventy-six (76) members of the public and four (4) public officials attended the meeting; no media representatives were present.

During this meeting, the public was presented with a recommended alignment. After the public was given the opportunity to comment, it was determined that the public had particular concerns for:

- Control of access;
- Frontage roads;
- Lack of access to US 59 North from the Greatwood planned community due to excess morning traffic on Crabb River Road; and
- Noise barriers

The public also indicated that the recommended alignment was acceptable; it was determined that no further public involvement would need to take place before completion of the EA. Upon the completion of this EA, notices affording an opportunity for a public hearing will be published in the local newspapers. The public will have 30 days to submit a written request for a public hearing on the EA. A second ad will run ten days before the request for submittal deadline.

1.3 Land Use/Surrounding Area

The start of the US 59 project corridor, just south of Spur 10 at Station 950, is a mix of commercial, residential, agricultural, and undeveloped properties. From Spur 10 to south of Cottonwood School Road, the primary land use appears to be agricultural. Pasture and cotton production are the major agriculture uses. Commercial/industrial uses are scattered along this section and one small residential area is developed along Leon Street.

Within the City of Rosenberg, between Cottonwood School Road and FM 762, the land use is dominated by commercial/industrial and residential land uses. Some areas adjacent to the proposed project are currently commercial properties. The density of commercial properties increases near the City of Rosenberg. Most of the businesses along this section as well as the northern section are of recent construction by commercial chains such as discount stores, restaurants, auto dealers, and gas stations. Industrial land uses include distribution related businesses located along Reading Road. Residential land uses are found closer to the core of the City of Rosenberg. Public uses along this section include the Greenlawn Memorial Cemetery and the Rosenberg Masonic Lodge.

Existing land use in the northern segment of the project is experiencing rapid development. The master planned residential communities of Canyon Gate and Greatwood, commercial development, and public uses are concentrated along SH 99 at the US 59 interchange. The remaining land uses along US 59 between SH 99 and FM 762 are agricultural or forested, with the exception of the master planned communities of River Park West and Sovereign Shores near Williams Way.

Overall, the southwest segment of the proposed project (Spur 10 to SH 36) is broadly defined as predominantly rural elements such as farmland, pasture, and open space, with some incursions of residential and commercial development. The northeast segment of the proposed project (SH 36 to SH 99) is broadly defined as predominantly rural elements with spreading areas of rapid residential and commercial development.

Fort Bend County as a whole is currently undergoing rapid growth and development. Residential and commercial development reflects this growth pattern primarily in the northern section of the study area. The residence types in these communities consist primarily of large single-family homes with mainly brick exteriors as well as recent development of luxury executive-style apartment and condominium complexes. Shopping centers and other commercial properties are located within or around these residential areas, and continue to be planned for development.

Based on historic analysis of growth trends and projected growth, the conversion of undeveloped lands for commercial and residential development is anticipated to continue in both the No-Build and Build Alternatives. In the Recommended Build Alternative, the addition of continuous frontage roads on both sides of US 59 between SH 99 and FM 762 would encourage a mix of retail and office development along US 59 associated with the expansion of River Pointe West, Canyon Gate, and other master planned communities. The more limited access in the No-Build Alternative would likely result in a stunting of commercial development and requiring it longer to take root; at first commercial development would likely only occur at major intersections such as at SH 99 and FM 762. However, as seen further southwest along the corridor with the Brazos Town Center development project, developers would eventually include municipal roadways as part of their internal traffic circulation system. It would not have the same efficiency of mobility that a Recommended Build Alternative frontage road would have, but it would enable traffic and access. Land use from Spur 10 north to FM 762 should also expect to become more developed by residential as well as commercial development. Continuous frontage roads along the planned facility would provide easier and safer access to new development. It is anticipated that land use south of FM 762 would continue the growth trend that is currently developing between FM 762 and SH 99.

Presently there are no additional local or regional land use plans or regulations (i.e., zoning) applicable to the US 59 project corridor from Spur 10 to SH 99. However, the City of Rosenberg and Fort Bend County do require building permits be issued through the Departments of Code Enforcement or Engineering.

1.3.1 Schools

The project area is located within the Lamar Consolidated Independent School District (LCISD). Schools within the LCISD serving students along the project corridor include:

- **Elementary schools** – Beasley, Bowie, Dickinson, Hutchison, Meyer, Travis, and Williams
- **Middle schools** – Navarro, Reading, and Wessendorff
- **Junior High schools** – George, Lamar, and Reading
- **High schools** – George Ranch, Lamar, and Terry

Additionally, there are at least two private schools located in the City of Rosenberg, as well as numerous daycares, preschools, and preparatory schools. The two private schools are the Holy Rosary Catholic School and the Living Water Christian School. Although school busses travel along US 59, none of the schools mentioned are located adjacent to the existing US 59. There is no anticipated impact to schools from this proposed project (School busing is discussed in **Section 12.1.3: Notable Features** (pages 98-99) of the **Indirect Impacts Analysis**).

2.0 NEED AND PURPOSE

2.1 Need

The need for the proposed project is to reduce existing and projected congestion, update US 59 to current design and safety standards, and rectify identified operational deficiencies. This need is based on current and projected population and economic growth. Population growth in the vicinity of the project area is currently among the fastest in the state, and long term projections anticipate much of the growth over the next 20 years of the Houston metropolitan region to occur in and around this area. Fort Bend County itself has seen a 57 percent increase in population since 1990. The City of Rosenberg has also seen a four percent increase in this same time period.

The results of TxDOT's 1999 US 59 MIS concluded that the current demand approaches or exceeds capacity during the peak hour (daily commute) periods, and that due to growth trends projected year 2028 would experience severe congestion at various key points throughout the study area. H-GAC likewise studied the region and found similar important trends.

East central Fort Bend County, including the proposed project area, is experiencing very strong growth in population (see **Table 1**) that is exceeding the County's overall growth rate. Growth in population and employment create demands on the existing local and regional transportation network. Continued growth and urbanization in the Houston-Galveston region, specifically near the proposed project in southern Fort Bend County, has resulted in the need for more efficient transportation systems to reduce existing congestion, accommodate future traffic demands, and thus improve mobility. As land use development in outer areas of the US 59 corridor continue and traffic loads on US 59 increase, US 59 is steadily failing to provide adequate mobility, and this is becoming more frequent for longer periods of the day and with greater severity at increasingly earlier points in the peak travel periods. The situation has now reached the point that motorists find using two-lane country and minor roads to be much quicker. This is both unsafe and undesirable because of the risks it presents when unaware motorists suddenly come upon slow moving farm vehicles or stray livestock. In some areas it also means travelling through new neighborhoods, a safety risk for children.

Table 1: Regional and Community Growth

Area	Year 2000[A]	Year 2009[A]	% Increase 2000-2009[A]	Year 2035 (Projected)[B]	% Increase 2005-2035[B]
City of Richmond	11,700	15,028	15.6	12,719	55.7
City of Rosenberg	24,234	35,834	40	69,624	153.9
Fort Bend County	358,759	556,870	55.2	935,102	113.9

Source: A = H-GAC: http://www.h-gac.com/community/socioeconomic/census/documents/Estimates_Total_Cities_Census.xls
B = H-GAC: http://www.h-gac.com/community/socioeconomic/forecasts/archive/2035.aspx

H-GAC has completed its forecasts of population, households, and employment for areas referred to as Regional Analysis Zones (RAZ), single or groups of census tracts within the region. According to RAZ data (**Table 2**), population and employment opportunities within the project corridor are expected to grow. The project is located within the Cities of Richmond and Rosenberg, in the ETJs of Richmond, Rosenberg, and Sugar Land, and Fort Bend County (Regions 148-150 and 154 and 156). As shown in the

data, the growth anticipated throughout the combined regions is very strong. In fact the growth is projected to far surpass the state's growth which is anticipated to be approximately 38.9 percent. With a household growth rate that in some areas reaches nearly 300 percent, it is important to provide capacity to support the demands for mobility that will soon be realized. Furthermore, although job growth through 2035 appears to be strong, in some areas approximately 55 percent of the population will still be leaving the area to attend work.

Table 2: RAZ Information

	2010	2035	Change (%)	2010	2035	Change (%)	2010	2035	Change (%)
	Households			Household Population			Employment		
148	3,466	13,528	290.3	9,476	35,046	269.8	4,381	10,801	146.5
149	14,533	24,158	66.2	41,650	67,033	60.9	27,045	45,230	67.2
150	8,896	18,456	107.5	27,005	49,952	85.0	7,181	12,431	73.1
154	18,712	29,021	55.1	56,589	83,099	46.8	10,185	17,735	74.1
156	10,032	21,762	116.9	25,948	53,947	107.9	4,195	8,272	97.2

Source: H-GAC: http://www.h-gac.com/community/socioeconomic/forecasts/archive/documents/regional_analysis_zones.xls

Figure 1 presents a map illustrating the major highway grid for the H-GAC region. The white bands outlining these roadways represent a four-mile diameter. It is anticipated that 85 percent of regional residents will be living within these four-mile diameters by 2035. Approximately 92 percent of jobs will be within these bands. The companion figure (**Exhibit 3**) illustrates that the proposed project is located within an area that will see the greatest amount of growth by 2035 (approximately 44 percent). A further pair of graphics (**Exhibit 4**) shows that the Rosenberg area is anticipated to grow substantially in both residences and jobs. By 2035 the number of persons living in this area will be between 15 and 20 thousand people per square mile, roughly double or triple the current population. Employment is anticipated to quadruple.

Source: H-GAC

Figure 1: Population Corridors

The MIS study revealed that the geometric design of the facility does not meet current TxDOT design standards, and the existing overall condition of the lanes is deficient. Improvements are needed at various locations:

- The curve along Spur 529 at the southwest-bound entrance ramp to US 59 does not meet minimum design criteria. Although this curve has been modified to reduce risk, it remains substandard.
- All overpasses, with the exception of the Union Pacific Railroad crossing, are substandard; they no longer meet the stopping-

sight-distance requirements due to changes in design speed vs. current speed.

- The vertical clearances at FM 2218 and SH 36 exceed minimum requirements, but do not meet the desirable requirements.
- US 59 is part of the Texas Highway Trunk System, a network of rural divided highways that complements and includes elements of the Interstate Highway System. The system was conceived as a principal connector for all Texas cities with over 20,000 population as well as major ports and points of entry, and implemented in 1988 as an economic development engine for recession-impacted small communities. The minimal design criteria for this network specify that each highway should be at least a four-lane divided facility without at-grade intersections with other trunk routes, intersecting roadways, and railroad crossings.
- The existing pavement along US 59 is deteriorating and will be in worse condition by the time any construction takes place from five to ten years from now. Additionally, US 59 has been designated by Congress as Interstate 69 (a North American Free Trade Agreement (NAFTA) Highway) which could utilize most of the length of the US 59 study corridor. Due to the age and condition of the existing pavement, it will have to be replaced to accommodate this traffic.

2.2 Purpose

The purpose of the proposed project is to improve overall driving conditions within the corridor through standardization of the facility. Improvements would include added capacity on through-lanes, enhanced mobility on feeder and turn-lanes, increases in quantity and widths of lanes and shoulders, highway system design continuity, and improved air quality through congestion reductions. Creation of continuous frontage roads would provide alternate lanes to remove farm vehicles from highway main lanes. The proposed project would also provide continuity to the regional highway design and network.

2.3 Traffic

TxDOT Modeling indicated that at the peak hour in 2008 US 59 carried approximately 45,100 vehicles per day (vpd) annual average daily traffic (AADT). When modelers do not have accurate data they use 10 percent as a rule-of-thumb for how many of those vehicles were on the facility during the peak hour. In this case, the rule-of-thumb was approximately 4,510. It is anticipated that by 2028 US 59 will have an AADT of approximately 74,900 vpd. The peak hour traffic would increase to 7,490 vehicles, representing an increase of approximately 66 percent. During the current peak hour, the approximate mix of vehicles on the highway consists of automobiles (86.7%), light trucks (3.2%), and heavy trucks (10.1%). In order to meet this increased population, the proposed project would accommodate a projected increased traffic capacity correlated to this growth rate.

The traffic capacity of a roadway, or the level of service/level of mobility (LOS), is one consideration when evaluating the need associated with a proposed project. The LOS is a qualitative measure describing the operating conditions within a traffic stream, based on service measures such as speed, travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. The measure ranges from LOS A to LOS F with the former being the best and the latter being the worst traffic condition. LOS A represents free flow operations at the highest speeds where there is ample freedom to maneuver and localized incidents do not affect traffic flows. LOS F represents a complete breakdown in traffic flows with large queues, where the capacity of a facility can be temporarily reduced by the in-flow traffic.

Roadways, where possible, are designed to accommodate LOS C in the design year. LOS C provides for free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted.

Capacity/LOS analyses were conducted for US 59 to determine existing traffic operations along the study corridor during peak periods. In its current configuration and alignment, during the peak travel time the project area registered an LOS of C or D. It is anticipated through modeling by TxDOT that, if not expanded for more capacity, by 2028 the LOS throughout the project area would be LOS E or F.

Table 3 was initially provided for the 1999 US 59 MIS. The MIS had an initial universe of 14 alternatives. This table lists only the alternatives that succeeded the initial analysis and would be plausible (a more comprehensive explanation of all alternatives presented in the MIS is provided in Section 4.0 of this EA). **Table 3** shows that a moderate amount of discomfort using the facility during peak times is the best that can be done under current circumstances of technology and commuter preference. Still, it shows very clearly that a No-Build and Intelligent Transportation System/ Transportation Systems Management/Travel Demand Management (ITS/TSM/TDM) alternative alone would not meet the needs of this facility.

Table 3: Year 2020 Level-of-Service/Level of Mobility on US S9 Fort Bend County, Texas

Alternative	AM Peak Period (6:30 AM - 8:30 AM)		AM Peak Period (3:30 PM - 6:30 PM)	
	Spur 10 to FM 762	FM 762 to SH 99	Spur 10 to FM 762	FM 762 to SH 99
1 (No-Build)	LOS E/F Moderate/Serious	LOS E/F Moderate/Serious	LOS E/F Moderate/Serious	LOS F Serious
2 (ITS/TSM/ TDM)	LOS E/F Moderate/Serious	LOS E/F Moderate/Serious	LOS E/F Moderate/Serious	LOS F Serious
3A	LOS D/F Tolerable/Serious	LOS E/F Moderate/Serious	LOS D/F Tol/Mod/Ser	LOS F Serious
3C	LOS C Tolerable	LOS D Tolerable	LOS C Tolerable	LOS C Tolerable
3D	LOS C/D Tolerable	LOS C/D Tolerable	LOS C/D Tolerable	LOS D Tolerable
4	LOS C Tolerable	LOS C Tolerable	LOS C Tolerable	LOS D Tolerable
5B	LOS C/D Tolerable	LOS D Tolerable	LOS C/D Tolerable	LOS D Tolerable
6B	LOS C/D Tolerable	LOS E/F Moderate/Serious	LOS C/D Tolerable	LOS E/F Moderate/Serious
7	LOS C Tolerable	LOS C Tolerable	LOS C Tolerable	LOS D Tolerable
Preferred Alt	LOS C Tolerable	LOS C Tolerable	LOS C Tolerable	LOS D Tolerable

Source: US 59 Major Investment Study, Fort Bend County, Texas (June 30, 1999) TxDOT

2.3.1 Type of Users

US 59 serves both local and through traffic. Local traffic includes local residents, business employees and patrons, and students on school busses. Through traffic includes commuters or visitors to the greater Houston area. According to 2000 Census data, over 95 percent of all workers within the seven tracts included in the study area use a car, truck, or van to travel to work. Depending on their travel route, it is

likely that a portion of these commuters use US 59 wholly or partially through the project corridor. Non-motorized use of the main lanes of US 59 is not permitted and bicycle and pedestrian travel patterns are limited throughout the area based on land use and personal preference. Less than one percent of workers walk or bike to work within the study area (U.S. Census Bureau (USCB), 2000).

Due to the current lane configuration of US 59 with discontinuous frontage roads, a small but important user of the main lanes is farm vehicles. For the most part, these vehicles stay within shoulder areas; however, continuous frontage roads such as those provided in the Recommended Build Alternative would eliminate the risk of collision with them for SOVs and HOVs.

Interstate 69 (currently US 59 in the study area) was designated by Congress as a high priority corridor, linking the industrial centers of Mexico, the United States, and Canada. The 1,600-mile corridor traverses nine states, extending from Michigan and Illinois south through Indiana, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana and terminating at the termini of US 77 and US 281 in the Rio Grande Valley of Texas.

Interstate 69 would be the shortest route between the industrial northeast and the South Texas border with Mexico and has potential for spurring regional economic growth; it is likely to increase commerce transportation throughout the Houston metropolitan region. Under the Interstate 69 proposed project, the build-up of heavy truck traffic in the study area would intensify as commercial land use would cater to increased demand for lay-over and maintenance facilities. According to the 1999 US 59 MIS, which closely examined the long-term effects of the Interstate 69 NAFTA project, truck traffic is projected to increase from approximately 5,000 to 12,000 trucks per day by year 2020. The MIS indicated approximately 2,000 trucks per day over the 1999 levels could be anticipated as a result of the highway's effect on international trade and travel. This would be roughly equivalent to approximately 100 trucks in the peak direction during the peak hour.

3.0 PROJECT DESIGN

3.1 Existing Design

Segments 2 and 3 of the US 59 MIS make up the study area for this EA. Existing design characteristics of both segments are shown in **Exhibit 2** and **Exhibit 9**.

The south segment of the project (Segment 3) starts at Spur 10 and continues north to just south of FM 762. The existing characteristics of the segment include:

- Two SOV lanes in each direction;
- Five grade separations at Spur 10, SH 36, FM 2218, Kroesche Road, and Reading Road;
- Two at-grade intersections at Cottonwood Church Road and Spur 529;
- A substandard curve on Spur 529 at the US 59 southwest-bound entrance ramp;
- Limited discontinuous frontage roads; and
- Multiple intersections of the discontinuous frontage roads with city and local streets and driveways.

The north section of the project (Segment 2) begins south of FM 762 and ends just south of SH 99. The existing characteristics of the segment consist of the following:

- Two SOV lanes in each direction;
- Two grade separated interchanges at FM 762 and Williams Way; and
- Discontinuous frontage roads on both sides of the freeway.

Throughout the project area, there are several crossroad structures consisting of secondary road crossings, stream crossings, rail lines, utilities and pipelines. Major stream crossings within the project area are bridged. Existing bridge structures are located at Coon Creek, Seabourne Creek, Dry Creek, Rabbs Bayou, and an unnamed tributary to Rabbs Bayou. Tributaries to these creeks and bayous, as well as man-made ditches, cross the existing roadway via box culverts. Several underground pipelines including petroleum, sewer, and water cross US 59. The sewer and water line crossings are found predominantly near the SH 36 intersection within the City of Rosenberg.

Major intersections along the existing facility include:

- **Cottonwood Church Road**, a two-lane facility with an at-grade intersection with US 59 and a frontage road on the east side;
- **Spur 10**, a recently completed grade separated without expansion of US 59 crossing over US 59;
- **Spur 529**, a two-lane facility that intersects US 59 south of Rosenberg with an at-grade intersection;
- **Kroesche Road**, a two-lane facility with a grade separated crossing at US 59, with no direct access to this crossing from the existing US 59 facility;
- **SH 36**, a two-lane rural facility, becoming a four-lane facility where it crosses US 59 with a grade separated crossing;
- **FM 2218**, a two-lane facility with a grade separated crossing over US 59;
- **FM 762**, a four-lane facility with a grade separated crossing over US 59; and
- **Williams Way**, a four-lane facility with a grade separated crossing over US 59; extending only to the north and providing access to new subdivisions.

3.2 Proposed Design

Again, for the purpose of this study, US 59 is divided into the two segments defined in the MIS. These segments each have different proposed designs, as described in detail below in **Table 4** and as shown in **Exhibit 5**.

From Spur 10 to FM 762 (MIS Segment 3) the proposed project would widen the existing divided highway from four lanes (two each way) to six lanes (three each way). The completed facility would be a six-lane rural freeway with depressed grassy medians and 12-foot shoulders. All travel lanes would be 12 feet wide. The proposed segment would also include continuous two-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads. Frontage lanes would be 12 feet wide with 8- to 10-foot shoulders. Grade separation/interchange improvements would be performed at Cottonwood Church Road, Kroesche Road, FM 2218, and SH 36 (in addition to the committed improvements to the Spur 10 and Reading Road interchanges). The curve of US 59 at Spur 529 would be replaced with a new interchange. Upgrades to rural freeway cross-sections (opposing travel lanes separated by a wide, grassy median) and upgrades to freeway/interstate highway standards south of Spur 529 are also included.

From FM 762 to SH 99 (MIS Segment 2), the proposed project would widen the existing divided highway from four lanes (two each way) to eight lanes (four each way) and add two additional 12-foot HOV lanes, one in each direction, with 15-foot inside shoulders. All travel lanes would be 12 feet wide. A concrete median barrier would separate the opposing travel lanes. The completed facility would be a 10-lane urban freeway with 12-foot outside shoulders. The segment would also include continuous three-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads, as well as urban freeway cross sections. Frontage lanes would be 12 feet wide with 8- to 10-foot shoulders.

In accordance with the U.S. DOT Policy Statement on Bicycle and Pedestrian Accommodations (signed on March 11, 2010), TxDOT considered such accommodations. The 8- to 10-foot wide shoulders on the frontage roads could accommodate bicyclists. The facility is in a predominantly rural setting, with some sporadic, or scattered, development and no substantial pedestrian destinations. No footpaths exist to indicate pedestrian use of this area. However, compliant with the Americans with Disabilities Act (ADA), the signalized intersections would include painted crosswalks, curb ramps, and ramp landings as well as raised paved islands and 14-foot wide outside curb lane for shared use that would allow for safe crossing of the US 59 corridor by bicyclists and pedestrians. The landings would also serve as tie-ins for future sidewalks along US 59.

Table 4: Comparison of Existing Facility and Proposed Project

Intersection		Existing Facility (Lanes)			Proposed Project (Lanes)		
From	**To**	**SOV**	**HOV**	**Frontage**	**SOV**	**HOV**	**Frontage**
Spur 10	Spur 529	2	0	2(1)	3	0	2
Spur 529	Walsh	2	0	0	3	0	2
Walsh	FM 2218	2	0	2	3	0	2
FM 2218	FM 762	2	0	2	3	0	2
FM 762	Williams Way	2	0	0	4	1	3(2)
Williams Way	SH 99	2	0	2	4	1	3

Source: Study Team

Notes: (1) Only northbound frontage roads are present in this section. (2) Two- lane frontage road at Rabb's Bayou.

4.0 ALTERNATIVES ANALYSIS

A total of 14 transportation improvements, including the No-Build and the Transportation System Management/Travel Demand Management (TSM/TDM) alternatives, were developed for further study as part of the MIS process. The alternatives represent a variety of modal components that were classified into different categories including 1) Low Single Occupancy Vehicle (SOV)/Moderate Transit, 2) Moderate SOV, Moderate Transit, 3) High Emphasis on SOV, 4) High Emphasis on Transit, and 5) High SOV/High Transit. The following is a description accompanied by a conceptual plan for each of these alternatives (**Note:** elements of alternatives that do not fit within the logical termini of the expansion of US 59 between Spur 10 and SH 99 are removed from discussion. Note also that in the MIS the limits of the study are reversed to that of the limits of the current EA document):

4.1 No-Build Alternatives

Two No-Build Alternatives were presented.

4.1.1 Alternative 1 (No-Build)

The first No-Build Alternative utilized a "do-nothing" approach along US 59 that would leave the existing facility as is. The No-Build Alternative was the basis for comparing Build Alternatives, and consisted of continuing operation and maintenance (O&M) activities to maintain the existing US 59 transportation corridor in operating condition; all other pending, previously authorized actions would proceed as long as they do not require additional travel lanes. O&M activities could include pavement replacement and bridge rehabilitation programs. US 59 would remain a highway facility with four main lanes and two-lane discontinuous frontage roads.

4.1.2 Alternative 2 (TSM/TDM)

In addition to the existing facility and committed improvements included in the No-Build Alternative, the TSM/TDM alternative inc1uded low cost traffic management programs. The traffic management programs are designed to improve mobility in the study corridor without major capital investment. Some of the TSM/TDM improvements include the following:

- Improvements to at-grade intersections
- Ramp metering
- Accident investigation sites at major intersections.
- Intelligent Transportation System (ITS) elements
- Addition of park & ride facilities

These short-range improvements, requiring low cost capital investments, are designed to enhance the efficiency of facilities.

4.2 Build Alternatives

4.2.1 Alternative 3A (HOV with Interchange Improvements)

This alternative consisted of adding one reversible HOV lane along US 59 from FM 762 to SH 99 including potential park & pool facilities as described in the TSM/TDM alternative. In addition to the HOV lanes, this alternative also included improvements to existing interchanges along US 59 between Spur 529 and SH 99

4.2.2 Alternative 3B (HOV with Frontage Roads)

This alternative used the an HOV configuration similar to that described in Alternative 3A, and also included construction of continuous frontage roads on both sides of US 59 between FM 762 and SH 99.

4.2.3 Alternative 3C (LOW SUL)

The special use lane (SUL) for this alternative is defined as a non-barrier (diamond) HOV lane restricted to buses and carpools during peak periods only (open to all traffic during non-peak periods).

4.2.4 Alternative 3D (Vision 2020 - SOV, HOV)

The Vision 2020 Plan consisted of adding one SOV lane in each direction and one reversible HOV lane from FM 762 to SH 99, one SOV lane in each direction from Spur 10 to FM 762 with HOV/bus priority treatment, and one SOV lane in each direction from Spur 10 to the Fort Bend/Wharton County Line.

4.2.5 Alternative 4 (Moderate SOV/Moderate HOV)

This alternative consisted of adding two SOV lanes in each direction to the existing four-lane roadway from Spur 10 to SH 99. This alternative also consisted of one reversible HOV lane and continuous frontage roads (on both sides of US 59) from FM 762 to SH 99 as described in Alternative 3B.

4.2.6 Alternative 5A (Low SOV)

This alternative consisted of adding one SOV lane in each direction to the existing four-lane roadway from Spur 10 to SH 99. The additional lanes would be located within the existing median.

4.2.7 Alternative 5B (Moderate SOV)

This alternative consisted of adding one SOV lane in each direction from Spur 10 to SH 99.

4.2.8 Alternative 5C (Moderate SOV)

This alternative consisted of adding two SOV lanes in each direction to the existing four-lane roadway facility from Spur 10 to SH 99.

4.2.9 Alternative 5D (HIGH SOV)

This alternative consisted of adding two SOV lanes in each direction from Spur 10 to SH 99.

4.2.10 Alternative 6A (Fixed Guideway)

This alternative consisted of construction of a commuter rail line along the existing Union Pacific Railroad (UPRR) corridor that parallels US 90A from Rosenberg to Houston. Park and pool facilities would be provided at all stations with connections to bus services.

4.2.11 Alternative 6B (High SUL)

This alternative consisted of adding two SUL lanes (barrier-separated express lanes for through traffic) in each direction to the existing four-lane facility from FM 762 to SH 99 and one SUL (barrier-separated express lane for through traffic) in each direction from Spur 10 to FM 762.

4.2.12 Alternative 7 (High SOV/High HOV)

This alternative added one HOV lane in each direction from FM 762 to SH 99, connecting to a reversible HOV lane from Spur 10 to FM 762. This alternative also consisted of adding two SOV lanes in each direction from Spur 10 to SH 99. One additional SOV lane from FM 762 to SH 99 would be located between the mainlanes and frontage roads.

4.3 Alternatives Analysis

The alternatives analysis for the proposed project was a two-stage process that covered four main topics: traffic/mobility, engineering factors, environmental impacts and economics (**Table 5**). Scoring of the alternatives was done on a qualitative basis: low, medium, and high (**Table 6** shows the initial screening process as it applies to the various factors). For example, low meant that the alternative would have little or no impacts on the given factor. Conversely, a score of high meant the alternative would have substantial direct impacts, and therefore was not a favorable alternative. Economic scoring was not performed in this analysis because the primary concern was eliminating alternatives that had constructability difficulties.

Table 5: Initial Screening and Detailed Evaluation Criteria		
Analysis Category & Element	**Initial Screening**	**Detailed Evaluation**
Traffic/Mobility		
Traffic Efficiency	Needs and Concerns	Changes in: • LOS (v/c, speed) • Average Travel Times
Safety	Typical Accident Frequency Comparison	Potential Changes in Accident Frequency
Multimodal	Likely to Increase or Decrease Traffic Volumes	Changes in: • Modal Split • VHT (vehicle hours traveled) • VMT (vehicle miles traveled)
Cyclists and Pedestrians	Not Assessed	General Assessment
Engineering		
ROW Required	General Area Affected	Location and Amount Required
Constructability	General Concerns and Extent of Existing Facility Utilization	Generalized Costs and Feasibility
Costs	High/Medium/Low	Approximate Amount
Conformity with Design Standards	Yes/No	Extent and Location of Non-conformity
Utilities	Affected/Not Affected	Extent and Location
Drainage Areas/Stormwater Runoff	High/Medium/Low	Extent and Location
Environmental		
Residential/Business	Potential Areas Affected	Number of Relocations
Public Facilities/Sensitive Land Uses	Potential Areas Affected	Number of Facilities Affected
Air Quality	Increase or Decrease	Changes in Regional Air Quality
Noise	Potential Areas Affected	Extent and Location
Parkland	Potential Areas Affected	Extent and Location
Cultural Resources	Potential Areas Affected	Extent and Location
Water Quality	Potential Areas Affected	Extent and Location
Floodplains	Potential Areas Affected	Extent and Location
Wetlands	Potential Areas Affected	Extent and Location
Aesthetics	Potential Areas Affected	Extent and Location
Hazardous Materials Sites	Potential Areas Affected	Extent and Location
Environmental Justice	Potential Areas Affected	Extent and Location
Biological Resources	Potential Areas Affected	Extent and Location
Public/Community	Potential Areas Affected	Extent, Location, and Groups
Economic		
Regional Economics	General Affects	Economic Development Benefits
Travel Efficiency	Not Assessed	B/C Ratio

Source: US 59 Major Investment Study, Fort Bend County, Texas (June 30, 1999) TxDOT

Table 6: Summary of Initial Screening of Alternatives
Fort Bend County, Texas

Selected	Alternative	Mobil.	Eng.	Environ.
☑	Alt 1 (No-Build)	H	L	L
☑	Alt 2 (TSM/IDM)	M	L	L
☑	Alt 3A (Low SOV/Mod Transit)	M	M	L
	Alt 3B (Low SOV/Mod Transit)	H	M	L
☑	Alt 3C (Low SOV/Mod Transit)	L	M	L
☑	Alt 3D (Low SOV/Mod Transit)	L	M	L
☑	Alt 4 (Mod SOV/Mod Transit)	M	H	L
	Ait 5A (High emphasis on SOV)	M	L	L
☑	Alt 5B (High emphasis on SOV)	M	L	L
	Alt 5C (High emphasis on SOV)	M	M	L
	Alt 5D (High emphasis on SOV)	M	M	L
	Alt 6A (High emphasis on transit)	M	H	L
☑	Alt 6B (High emphasis on transit)	M	L	L
☑	Alt 7 (High SOV/High transit)	M	H	L

Source: US 59 Major Investment Study, Fort Bend County, Texas (June 30, 1999) TxDOT

L	=	Low Impact (Best Option)	H	=	High Impact (Worst Option)
M	=	Moderate Impact	☑	=	Carried Forward

4.3.1 Environmental Alternatives Analysis

The process of Alternatives Analysis for Environmental Impacts was the same as for all other considerations. This process only dealt with direct impacts. For example, the potential of the project to result in farmland losses because of induced residential or commercial development or downstream water quality depletion was not considered.

The overall study area was broken into four distinct segments. Each alternative was examined for its performance against the criteria for each element of analysis in each segment. For each segment, the environmental impact categories were scored using the following numerical system:

a. 0 = Low, neutral or negligible negative impacts;
b. 1 = Moderate negative impacts; and,
c. 2 = High negative impacts.

After each element was assessed for each segment, the scores were added and compiled. A total of 8 points could be assigned for each element. This data was then transferred to an overall matrix which showed how the whole alternative did across all the elements of analysis.

Next, the scores for each of the fifteen environmental categories were summed to obtain a total score for each alternative. Because it was possible to achieve eight points per element per alternative, and because there were 15 elements in total, each alternative could achieve a maximum point value of 120. Therefore, the gross values of each alternative were grouped into “low”, “medium”, and “high” ranges. The following grid shows the point spread for each range. **Table 7** illustrates the outcome of the initial screening for environmental direct impacts.

- 0-39 = Low, neutral or negligible impacts.

- 40-80 = Moderate negative impacts.
- 81-120 = High negative impacts.

Table 7: Preliminary Environmental Screening of Alternatives

Environmental Impact Element	Alternatives													
	1	**2**	**3A**	**3B**	**3C**	**3D**	**4**	**5A**	**5B**	**5C**	**5D**	**6A**	**6B**	**7**
Aesthetics	0	0	4	4	4	4	4	4	4	4	4	4	4	4
Air Quality	0	0	0	4	6	0	6	0	2	6	6	0	4	6
Biological Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cultural Resources	0	0	3	3	3	3	3	2	2	3	3	4	3	3
Environmental Justice	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Farmlands	0	0	0	2	0	0	2	0	0	0	0	3	0	2
Floodplains	0	0	3	2	3	3	3	2	2	3	3	3	3	3
Hazardous Materials	0	0	3	3	3	3	3	3	3	3	3	3	3	3
Neighborhood Cohesion/Quality	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Noise	0	0	0	2	3	0	3	0	1	3	3	3	2	3
Parklands [Section4(f)]	0	0	0	2	0	0	2	0	0	0	0	3	0	2
Public Land Use	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Residential/Business Displacem'nts	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Water Quality	0	0	2	2	4	4	4	3	3	4	4	4	4	4
Wetlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Score	*0*	*0*	*15*	*24*	*26*	*17*	*30*	*14*	*17*	*26*	*26*	*38*	*23*	*30*
Env. Impact Ranking	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**

Source: US 59 Major Investment Study, Fort Bend County, Texas (June 30, 1999) TxDOT

The initial analysis resulted in the selection of nine candidate alternatives that had enough merit to be carried forward. The list included seven build alternatives and the No-Build and TSM/TDM alternatives. The rationale for carrying alternatives forward was as follows:

- Alternative 1 and 2 were carried forward as a requirement of any alternatives analysis.
- Alternative 3A was carried forward because it was the lowest cost build alternative, and consisted of interchange improvements and adding a reversible HOV lane which essentially represents a high end cost alternative of the TSM/TDM category.
- Alternatives 4 and 7 were carried forward due to their relatively high increases in capacity and public input requesting to examine the addition of frontage roads and also because they were the only ones in their respective categories.
- Alternatives 3C, 3D, 5B and 6B were brought forward because they had scored low in two of the three categories analyzed.

4.4 Determination of Preferred Alternative

During the MIS process several strategies were identified to meet the existing and future travel needs within the corridor. Based on the adopted goals and objectives, ranges of conceptual alternatives were developed to meet the needs of the corridor. These conceptual alternatives ranged in scope and focus from a No-Build Alternative to Build Alternatives that represented various levels of investment. Combinations of planning concepts were identified, resulting in 14 initial improvement alternatives, including a No-Build Alternative, a Transportation Systems Management/Travel Demand Management

(TSM/TDM) Alternative, and 12 Build Alternatives. The initial screening process narrowed these 14 alternatives down to nine alternatives considered to be viable for the corridor.

The steering committee, comprised of individuals from TxDOT, FHWA, H-GAC, Metropolitan Transit Authority of Harris County, Fort Bend County, and Texas Commission on Environmental Quality (TCEQ), selected a Preferred Alternative after careful analysis and consideration of public input. In order to select the Recommended Preferred Alternative, the steering committee evaluated the nine alternatives, including the No Build and TSM/TDM Alternatives, for engineering feasibility, potential environmental and community impacts, financial feasibility, and the ability of each alternative to meet the goals and objectives of the community.

The detailed evaluation process demonstrated that no single alternative in its entirety effectively addressed the transportation needs and other issues within the study area. While it was found that one segment of an alternative adequately addressed a majority of the issues, other segments of the same alternative did not. A combination of segments from different alternatives was assembled to develop the Proposed, or Build, Alternative.

This Alternative recognizes future NAFTA impacts and is compatible with the planned improvements on US 59 south of SH 99. This Alternative is both economically feasible and provides improvements to traffic and safety along US 59, minimizing environmental and engineering impacts. The Recommended Build Alternative was selected based on the detailed evaluation of candidate alternatives, as well as public and agency input.

The Recommended Build Alternative for US 59 is generally described as a total of three SOV lanes in each direction between Spur 10 and FM 762; a total of three general purpose SOV lanes and one non-barrier separated HOV lane in each direction between FM 762 and SH 99; and two to three-lane continuous frontage roads on both sides of US 59 between Spur 10 and SH 99.

The ability of the Proposed Alternative to achieve the project objectives is supported by the following:

- A peak hour LOS of C/D (Tolerable) would be achieved in year 2028.
- Projected year 2028 capacity would meet anticipated demand during the peak hour periods.
- The geometric design of the facility would meet current TxDOT design standards and provide improvements at the following locations:
    - A substandard curve on Spur 529 at the US 59 southwest-bound entrance ramp would be improved to meet minimum design criteria. It is noted that between when this environment review began and the present time, TxDOT has performed a spot location upgrade to improve, but not solve, the condition of the curve.
    - All overpasses would meet minimum design criteria.
    - The vertical clearances at FM 2218 and SH 36 would meet minimum requirements and meet the desirable requirements.
- US 59, as part of the Texas Trunk System, would have main lanes elevated over intersections.

The Proposed Alternative would comply with all Federal and State environmental laws and regulations. All required permits would be attained before proceeding with this project.

4.4.1 Other Recommendations

The 1999 MIS made several recommendations to the design process.

- Ramp metering
- Additional Park & Ride lots
- Traffic Signal Optimization
- Corporate car-pooling programs
- Congestion pricing/High Occupancy Tolling

These recommendations pertain to achieving regional goals such as using Intelligent Transportation System/Transportation Systems Management/Travel Demand Management (ITS/TSM/TDM) advances throughout the US 59 corridor. The MIS further concluded that such improvements are cost-effective measures that make maximum use of the existing transportation system and reduce travel demands in the area.

Many of these efforts are already in service in other portions of the overall US 59 corridor. Construction of the proposed project would include these measures.

4.5 Right-of-Way and Displacements and Relocations

4.5.1 Right-of-Way

The existing right-of-way (ROW) width varies throughout the length of the project corridor. The minimum width is 320 feet, located between Spur 10 and Cottonwood School Road. The maximum width is 635 feet located between SH 99 and FM 762. Between FM 762 and SH 36, the average ROW width is approximately 430 feet.

<u>Environmental Consequences of Implementing the No-Build Alternative</u>

Implementation of the No-Build Alternative would not require additional ROW

<u>Environmental Consequences of Implementing the Recommended Build Alternative</u>

The implementation of the Recommended Build Alternative would result in moderate additional ROW acquisition in five different areas of the project corridor, a total of approximately 54.95 acres.

Sixty feet of additional ROW would be acquired on either side of US 59 for a section 3,500 feet east of Williams Way to 1,750 feet west of Reading Road. West of FM 2218, 45 feet would be acquired for a 3,800-foot segment on the north side of US 59, and thirty feet would be acquired for a 2,050-foot segment on the south side. These acquisitions would expand the maximum ROW width for each of these areas to 420 feet. Fifty feet of ROW would be acquired on the south side of US 59 in between SH 36 and Cottonwood School Road, expanding the maximum ROW width to 415 feet. Forty-five feet of additional ROW would be acquired on both sides of the project corridor from Klauke Road to approximately 1,800 feet west of Kroeshe Road, expanding the maximum ROW width for this area to 420 feet. Forty-five feet would be acquired for a 1,600-foot long section along the south side of US 59 west of Leon Road, expanding the maximum ROW width to 400 feet.

4.5.2 Displacements

Exhibit 9 includes several images captured edges of current and proposed ROWs. These depict structures that would be affected by ROW acquisition. The images also include a key illustrating where and in which direction the images were captured.

Environmental Consequences of Implementing the No-Build Alternative

Implementation of the No-Build Alternative would not require additional ROW. Therefore, no acquisition of ROW would be conducted and no businesses or residences would be displaced.

Environmental Consequences of Implementing the Recommended Build Alternative

First, it is noted the proposed project would not cause residential displacements.

Table 8 lists the details of the properties where ROW would be acquired that would cause displacements of land uses. Of the five structures that would be displaced, two are restaurants, one is a tire and automotive repair store, one is a barn, and one is a cistern (presumed not to be in use). Commercial displacements are limited to the Brazos Town Center.

Gringo's Mexican Kitchen

Type:	Restaurant: TexMex
Clientele:	Families, young adult singles/couples
Format:	Full service table and bar service, take-out
Business:	Regional chain
ROW loss:	Dining and kitchen areas, mechanical (i.e., HVAC system, cold storage, etc.)
Displacement:	Complete displacement
Nearest Similar	Business: La Casona (3806 Avenue I, #11, Rosenberg, TX) 2.3 miles northwest.

Texas Roadhouse

Type:	Restaurant: Steak and ribs
Clientele:	Young adult singles/couples
Format:	Full service table and bar service
Business:	National chain
ROW loss:	Dining and kitchen areas; mechanical; parking (16 spaces (14% of supply))
Displacement:	Complete displacement
Nearest Similar	Business: Sizzler (6945 Industrial Parkway, Rosenberg, TX) 0.62 miles southwest.

Firestone Tires

Type:	Automotive repair
Clientele:	General
Format:	Service bays, showroom
Business:	National chain
ROW loss:	Shop and storage areas; mechanical; parking (27 spaces (36.9% of supply))
Displacement:	Complete displacement
Nearest Similar	Business: National Tire and Battery (6504 Reading Road, Rosenberg, TX) 0.66 miles southwest

The socioeconomic impacts to the community and business personnel would vary, depending on various matters. First, the restaurants likely employ minimum to medium wage work staff, and their customers would generally be local and regional. Both restaurants are corporate-owned so no franchisee would be impacted, though there would be impacts to other restaurant management personnel.

Second, the tire store likely employs medium to skilled labor wage employees, and their clients would also generally be local and regional. This is also a corporate-owned location so the same types of impacts to management would be experienced.

Third, the displacement of the barn and cistern would probably not terminate any employment. The barn is old and in the process of decay. The apparent use is for storage of equipment and temporary shelter for horses.

It is unknown at this time if other displacements and corresponding job losses would occur. There are still several sites that are vacant, and factors such as scale and design would determine how far, if at all, they would extend into proposed ROW areas. It is unknown what kind of commercial activity they would be, though restaurant seems likely; but it is also unknown the type and number of employees that would be hired. Finally, it is unknown if, when the displacements occur, the displaced leasable space will be filled; one of the structures has recently become approximately 50 percent vacant while another vacant space has recently become filled.

In accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended, property owners would be compensated for the loss or relocation of their structures.

Table 8: Summary of Project Area Impacted Structures

Location	CT BG Block	EJ	Type	Original Parcel Area (sq.ft.)	Area TBA[1] (sq.ft.)	% of Original Parcel	Avg. Width (ft.)
North	6751-4-4023	No	Commercial	74,650	2,955	4.0	15
North	6751-4-4023	No	Commercial	401,906	63,825	15.9	72
North	6751-4-4023	No	Commercial	71,685	24,121	33.6	97
North	6751-4-4023	No	Commercial	81,942	22,442	27.4	107
North	6747-2-2013	No	Agricultural	8,648, 751	269,742	3.0	65
Total North				**9,278,934**	**383,085**	**4.0**	
South	6755-2-2020	No	Commercial	885,305	1,290	0.1	73
Total South				**885,305**	**1,290**	**0.1**	
Total All				**10,164,239**	**384,375**	**4.1**	

Source: Study Team

4.5.3 Non-Displaced Businesses/Land Uses

In addition to Brazos Town Center having structures that may become displaced, the developer has also constructed several large plaza marquis (**Exhibit 9**) and has allowed businesses to place their signs and structures (approximately six) in areas that would become new ROW. Furthermore, there is a

[1] To be Acquired.

considerable amount of parking area that would be displaced by new ROW acquisition. Finally, many of the adjacent lands are fenced properties.

Environmental Consequences of Implementing the No-Build Alternative

Implementation of the No-Build Alternative would not require additional ROW. Therefore, no acquisition of ROW would be conducted and no businesses would lose parking supply or space for any marquis, signboards, or other media for publicity. Also, because no space for marquis, signboards, or other media for publicity would be lost, none of the businesses or their landlords would need to locate other space for marquis, signboards, or other media for publicity. Also, no acquisition of ROW would mean that the owners of the agricultural outbuildings would not need to lose their barn or the concrete cistern. Finally, the No-Build Alternative means no fence-line relocation.

Environmental Consequences of Implementing the Recommended Build Alternative

Implementation of the Recommended Build Alternative would result in displacements of several marquis, signboards, and other media for publicity. As well, the supply of parking for several businesses would be reduced. Businesses experiencing a loss of parking supply would include a bank, three restaurants and several other retailers (**Table 8** provides details). However, there is ample supply of parking within close proximity of these businesses so it would be unlikely they would become noncompliant with local ordinances.

Multi-tenant Structure (two tenants: Five Guys Burgers; Sport Clips for Men – two vacant)

Type:	Burgers; Hair care
Clientele:	Families; Young, sports enthusiast males
Format:	Cafeteria-style, take-out; Styling and grooming
Business:	National chain
ROW loss:	Parking (32 spaces (25% of supply))
Displacement:	Dependent on municipal parking ordinance and design guidelines
Nearest Similar Business(es):	Joe's Bar and Grill (FM 2759/Crabb River Road) 3.2 miles southeast; Sport Clips (US 59/SW Freeway) 4.3 miles northeast

Chase Bank

Type:	Financial
Clientele:	General
Format:	Full service and drive-through
Business:	National chain
ROW loss:	Parking (41 spaces (36% of supply)) and drive-through bank lanes (minimum 2)
Displacement:	Dependent on municipal set-back ordinance, design guidelines, internal corporate operational policy (if setbacks are enforced the bank would lose its drive-through)
Nearest Similar Business:	Whitney National Bank (24706 Southwest Freeway Rosenberg, TX) 0.42 miles southwest

Arby's

Type:	Restaurant: Deli sandwiches
Clientele:	General
Format:	Fast food dine-in, take out, drive-through

Business: National chain
ROW loss: Parking (7 spaces (15% of supply)), drive-through menu and order kiosks
Displacement: Dependent on municipal set-back ordinance, design guidelines, internal corporate operational policy (if setbacks are enforced the establishment would lose its drive-through and possibly the entire structure)
Nearest Similar Business: Burger King (across the street) 0.08 miles northwest

Sonic Burgers
Type: Restaurant: Burgers
Clientele: General
Format: Car-hop, fast food dine-in, take-out, outdoor picnic, drive-through
Business: National chain
ROW loss: Parking (13 spaces (34% of supply)), car hop (20 car stands (100% of stands), 4 outdoor tables (100% of seating), some dine-in area (~10%))
Displacement: Dependent on municipal set-back ordinance, design guidelines, internal corporate operational policy (if setbacks are enforced the establishment would lose most or all of its car stands)
Nearest Similar Business: McDonald's (24501 SW Freeway, Rosenberg, TX) 0.33 miles southwest

Cracker Barrel
Type: Restaurant: Home cooking/Family
Clientele: Families
Format: Full service table, take-out, gift shop
Business: National chain
ROW: Parking (15 spaces (44% of supply))
Displacement: Dependent on municipal parking ordinance and design guidelines
Nearest Similar Business: Denny's (1422 State Highway 6 S. Sugar Land, TX) 7.9 miles northeast[2]

Other impacts from ROW acquisition include displacement of a billboard and property loss to a church camp and a private home; the loss of land would be a minimal strip currently unusable due to its proximity to the existing highway ROW.

In accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended, property owners, and in some cases individual businesses, would be compensated for the loss or relocation of their structures.

4.5.4 Detours

Environmental Consequences of Implementing the No-Build Alternative

Implementation of the No-Build Alternative would not require any detours of traffic. The exception to this is when normal maintenance or repair work may occur and temporary detours may be implemented.

[2] **Note:** It is difficult to locate a restaurant the same or similar to Cracker Barrel, as it is the only chain that has a full service general store that functions independent of the dining area, is located exclusively along interstate-level highways, and attracts a unique clientele, and serves "homestyle" southern fare.

Environmental Consequences of Implementing the Recommended Build Alternative

If the Recommended Build Alternative were implemented, work on US 59 would be phased in such a manner to allow at least one lane in each direction to remain open during construction. TxDOT has recently developed a system of building highways without eliminating existing capacity; when closure is required it is performed typically during late night weekend temporary closures. By constructing frontage roads first, full highway closures in the recent expansion of US 59 between SH 6 and SH 99 did not occur except during overnight dismantling of the overpasses at First Colony Boulevard and University Boulevard.

One of the aspects of highway expansion is that highways are already limited access facilities. Thus, direct access to businesses and residences is not an issue. However, reconstruction of the facility would require temporary closures and relocations of exit and entrance ramps. Detours caused by such closures and/or relocations could cause inconveniences to the motoring public. Throughout the course of construction there would be periodic requirements for some motorists to experience out-of-direction travel.

4.5.5 Utilities and Pipelines

Several utilities that might require relocation and adjustment are located throughout the US 59 ROW. These utilities include pipelines, buried and aerial telephone cables, buried fiber-optic cables, and electric distribution lines. Parallel utility corridors also exist on both sides of the freeway. The utilities in the parallel corridors consist of below and aboveground power, telephone, and fiber-optic transmission lines. Local utilities such as city water, gas, and electric delivery lines cross at each intersection (Spur 529, Bamore Road, SH 36, FM 2218, Reading Road, and FM 762) within the City of Rosenberg.

There are numerous pipeline easement crossings. In the vicinity of Spur 10 there is one HVL and one gas transmission line. Near Spur 529 there is one of each Non-HVL, crude gathering, crude transmission, gas gathering, and gas transmission lines. Near Klauke Road there is one HVL and one LPG line. Near SH 36 is a gas transmission line. This list of easements should not be considered the extent of pipeline crossings of US 59.

During the most recent highway expansion project for this segment of US 59, the State constructed a power transformer box within ROW at US 59 and FM 762 to service the electrical needs of the interchange. This box is approximately 225 square feet. It is built from reinforced concrete and is located within a fenced compound. The compound is also equipped with a propane tank, in case electric power is temporarily lost. The box and compound would need to be moved in order to construct the proposed project.

Environmental Consequences of Implementing the No-Build Alternative

Under the No-Build Alternative, no new ROW would be acquired, thus it would not be necessary to relocate any utilities.

Environmental Consequences of Implementing the Recommended Build Alternative

Utilities such as water lines, sewer lines, gas lines, telephone cables, electrical lines, the power transformer box and other subterranean and aerial utilities would require adjustment. Aerial and underground utilities would be adjusted, and the required adjustments may or may not be provided for by

the affected utility. Coordination with the affected utilities would be needed during the design phase and before any construction begins. Plans for relocating utilities would be provided by the appropriate utility company.

4.5.6 Airway-Highway Clearance

The proposed project corridor is approximately 5.13 miles southwest of the Sugar Land Municipal Airport. There is also one landing strip located approximately 0.5 miles south of the highway at FM 2218; there are no other commercial airports within a similar radius of the proposed project.

Environmental Consequences of Implementing the No-Build Alternative

Under the No-Build Alternative, no roadway construction would occur and there would be no conflicts with aircraft clearance.

Environmental Consequences of Implementing the Recommended Build Alternative

Aircraft clearance would not be in conflict with the proposed Recommended Build Alternative.

5.0 SOCIOECONOMICS

Socioeconomic analysis is an assessment of social and economic conditions in a region, as well as the economic impacts of the proposed project. Such analysis includes population and income statistics, poverty rates, availability of public services, investment, etc.

5.1 Demographics and Social Conditions

5.1.1 Population Growth

The U.S. Census Bureau provides population characteristics for various geographic levels, including counties, CTs, Blocks Groups (BGs) and Census Blocks (blocks). CTs subdivide counties, BGs subdivide CTs, and blocks subdivide BGs. The project corridor is located within 151 blocks in 12 BGs and eight CTs. An area consisting of those Blocks within a 400-foot radius of the project alignment was used as the demographic study area. **Table 9** and **Appendix C** illustrate the demographic study area. Of the 151 blocks in the study area, 119 had no reported population count. The blocks not included are in presented in a footnote to **Table 9**.

The project corridor has become an important growth area in Fort Bend County and the region as a whole. Based on U.S. Census data, between 1990 and 2010 the population of Fort Bend County grew from 225,421 to 585,375 (a 159.7% increase). During the same time period, the populations of Richmond and Rosenberg grew from 9,801 to 11,679 (19.2% increase) and 20,183 to 30,618 (51.7% increase), respectively, while Sugar Land grew from 24,529 (http://www.sugarlandtx.gov/sugarland/press_room/quick_facts/population_history.asp) to 78,817 (221.3% increase).

5.1.2 Race and Ethnicity

Demographic characteristics of the proposed project area are presented in **Table 9**. **Table 9** is an analysis of Hispanic or Latino and non-Hispanic or Latino races. While Hispanic or Latino is considered a visible minority group, it is not considered by the U.S. Census Bureau to be a race. Hispanic or Latino is a cultural affiliation that can be joined by members of any recognized race. Therefore, when calculating for

demographic characteristics, the population is divided between Hispanic or Latino races and non-Hispanic or Latino races. After this division is made all those who claim to be Hispanic or Latino and all those who do not claim Hispanic or Latino, but are of a distinguished visible minority are grouped together to show the total minorities.

Data indicate that minority populations live in the project area. In **Table 9**, bold font indicates block-level populations reporting 50 percent or higher as minority. Based on the data, seven of the eight CTs and 11 of the 12 BGs report a minority population. Additionally, 22 Blocks within the study area registered minority populations in 2010.

Table 9: Demographic Characteristics of the Project Study Area, 2010 Census

Census 2010 Geography	Total Population	Not Hispanic (%)							Hispanic or Latino (%)	Total Minorities (%)
		White	Black	Indian	Asian	Islander	Other	Two		
Richmond	11,679	25.3	17.3	0.3	1.0	0.0	0.1	0.6	55.4	74.7
Rosenberg	30,618	24.8	12.7	0.1	1.0	0.0	0.2	0.8	60.3	75.5
Sugar Land	78,817	44.4	7.3	0.2	35.1	0.0	0.2	2.2	10.6	55.6
Fort Bend County	585,375	36.2	21.1	0.2	16.9	0.0	0.2	1.7	23.7	63.8
CT 674601	3,762	72.8	6.7	0.3	10.2	0.0	0.0	1.9	8.1	27.2
BG 2	1,241	76.2	4.6	0.6	7.8	0.0	0.1	1.5	9.3	23.8
CT 674604	4,607	24.3	33.2	0.1	20.4	0.0	0.2	2.3	19.6	75.7
BG 1	4,607	24.3	33.2	0.1	20.4	0.0	0.2	2.3	19.6	75.7
Block 1005	7	57.1	0.0	0.0	14.3	0.0	0.0	14.3	14.3	42.9
Block 1006	**1,028**	**20.7**	**37.6**	**0.3**	**27.5**	**0.0**	**0.4**	**1.4**	**12.1**	**79.3**
Block 1028	**1,105**	**26.7**	**28.4**	**0.2**	**16.3**	**0.1**	**0.0**	**3.2**	**25.2**	**73.3**
CT 674700	11,165	31.8	26.7	0.2	19.6	0.0	0.1	1.7	19.8	68.2
BG 1	4,272	20.2	27.9	0.3	35.2	0.0	0.1	2.9	13.4	79.8
BG 3	6,151	40.7	27.4	0.2	11.0	0.0	0.1	1.1	19.5	59.3
Block 3073	**203**	**38.9**	**32.0**	**0.0**	**7.4**	**0.0**	**0.5**	**1.0**	**20.2**	**61.1**
Block 3075	**38**	**10.5**	**76.3**	**0.0**	**13.2**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**
Block 3085	**1,176**	**32.5**	**25.9**	**0.0**	**21.5**	**0.2**	**0.2**	**1.5**	**18.3**	**67.5**
Block 3088	**102**	**16.7**	**42.2**	**1.0**	**29.4**	**0.0**	**0.0**	**2.0**	**8.8**	**83.3**
Block 3089	**742**	**38.1**	**26.7**	**0.1**	**10.4**	**0.0**	**0.0**	**2.4**	**22.2**	**61.9**
CT 675100	9,099	30.0	15.5	0.1	1.1	0.0	0.2	0.8	52.2	70.0
BG 4	5,425	26.2	20.7	0.2	1.8	0.0	0.2	1.1	49.8	73.8
Block 4042	**73**	**47.9**	**0.0**	**0.0**	**1.4**	**0.0**	**0.0**	**1.4**	**49.3**	**52.1**
Block 4052	**38**	**34.2**	**15.8**	**0.0**	**2.6**	**0.0**	**0.0**	**0.0**	**47.4**	**65.8**
CT 675200	5,623	27.7	5.4	0.1	0.3	0.1	0.1	0.7	65.5	72.3
BG 4	690	48.0	4.3	0.1	1.0	0.0	0.0	0.6	45.9	52.0
Block 4006	4	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Block 4014	18	88.9	0.0	0.0	0.0	0.0	0.0	0.0	11.1	11.1
CT 675300	6,679	22.7	6.2	0.1	0.2	0.0	0.1	0.7	70.0	77.3
BG 2	1,501	48.3	3.7	0.1	0.4	0.0	0.1	1.2	46.2	51.7
Block 2016	41	85.4	0.0	0.0	0.0	0.0	0.0	0.0	14.6	14.6
Block 2020	7	57.1	0.0	0.0	0.0	0.0	0.0	0.0	42.9	42.9
Block 2021	**15**	**40.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**60.0**	**60.0**
Block 2022	**21**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**
BG 4	2,638	8.6	5.8	0.1	0.3	0.0	0.2	0.9	84.1	91.4
Block 4016	**16**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**

Table 9: Demographic Characteristics of the Project Study Area, 2010 Census

Census 2010 Geography	Total Population	Not Hispanic (%)							Hispanic or Latino (%)	Total Minorities (%)
		White	Black	Indian	Asian	Islander	Other	Two		
CT 675400	6,298	38.5	5.3	0.1	0.7	0.0	0.2	0.8	54.4	61.5
BG 1	2,088	32.2	4.0	0.0	0.5	0.0	0.1	0.6	62.5	67.8
Block 1092	**39**	**33.3**	**0.0**	**0.0**	**15.4**	**0.0**	**0.0**	**0.0**	**51.3**	**66.7**
Block 1120	**172**	**11.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**88.4**	**88.4**
BG 2	4,210	41.6	5.9	0.1	0.8	0.0	0.2	0.9	50.5	58.4
Block 2010	**4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**
Block 2015	**183**	**42.6**	**19.1**	**0.5**	**0.0**	**0.0**	**0.0**	**1.6**	**36.1**	**57.4**
Block 2018	**412**	**28.4**	**16.7**	**0.0**	**0.2**	**0.0**	**0.0**	**2.4**	**52.2**	**71.6**
Block 2026	3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Block 2028	**6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**
Block 2046	**61**	**39.3**	**9.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**50.8**	**60.7**
Block 2049	1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CT 675500	11,151	36.1	19.9	0.1	6.1	0.0	0.4	1.6	35.7	63.9
BG 1	7,080	40.3	21.3	0.2	8.6	0.0	0.4	1.7	27.5	59.7
Block 1093	**29**	**37.9**	**24.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**37.9**	**62.1**
Block 1099	58	60.3	12.1	0.0	0.0	0.0	0.0	0.0	27.6	39.7
Block 1102	108	57.4	12.0	0.0	7.4	0.0	0.0	3.7	19.4	42.6
BG 2	4,071	28.8	17.4	0.1	1.9	0.0	0.4	1.4	50.1	71.2
Block 2002	15	66.7	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3
Block 2007	**14**	**21.4**	**0.0**	**0.0**	**14.3**	**0.0**	**0.0**	**0.0**	**64.3**	**78.6**
Block 2018	**443**	**33.2**	**29.6**	**0.0**	**1.6**	**0.0**	**0.0**	**2.0**	**33.6**	**66.8**

Source: 2010 Census Summary File 1—Texas[machine-readable data files]/prepared by the U.S. Census Bureau, 2011. Table P9. The data includes block within a 400-foot radius of the project alignment.

* The complete Census race descriptions are as follows: White alone; Black or African American alone; American Indian and Alaska Native alone; Asian alone; Native Hawaiian and Other Pacific Islander alone; Some Other Race alone; and Two or More Races. The U.S. Census does not recognize "Hispanic" or "Latino" as racial designations. "Hispanic" or "Latino," as well as "Spanish," are considered origins, which can mean heritage, nationality group, lineage, or country of birth of the person or the person's parents or ancestors before their arrival in the United States. Therefore, people who identify their origin as Spanish, Hispanic, or Latino may be of any race. "Total Minority" is calculated by adding all "Non-Hispanic" racial minorities and "Hispanic or Latino."

Due to rounding, race percentages may not sum to 100%.

Bold Block numbers indicate a minority population (>50% total minority, either by race or ethnicity).

CT Census Tract

BG Block Group

Blocks not included in Table 9, due to no population:

CT 674601, BG 2, Blocks: 2000 and 2001

CT 674604, BG 1, Blocks: 1000, 1001, 1002, 1003, 1004, 1016, 1020, 1021, 1022, 1023, 1029, 1050, and 1051

CT 674700, BG1, Blocks: 1031 and 1048

CT 674700, BG 3, Blocks: 3071, 3072, 3077, 3078, 3079, 3080, 3081, 3084, 3098, 3100, 3101, 3109, and 3110

CT 675100, BG 4, Blocks: 4019, 4020, 4049, 4050, 4051, 4053, 4054, and 4055

CT 675200, BG 4, Blocks: 4007, 4011, 4016, 4023, 4031, 4032, and 4033

CT 675300, BG 2, Blocks: 2017, 2023, and 2024

CT 675300, BG 4, Blocks: 4018, 4019, 4020, 4021, 4043, 4052, 4061, and 4062

CT 675400, BG 1, Blocks: 1129, 1130, 1131, 1135, 1137, 1138, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1150, and 1173

CT 675400, BG 2, Blocks: 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2011, 2012, 2013, 2016, 2017, 2025, 2027, 2048, 2050, 2051, 2052, 2053, 2055, 2063, and 2064

CT 675500, BG 1, Blocks: 1047, 1048, 1049, 1050, 1051, 1092, 1094, 1095, 1096, 1097, 1098, and 1100

CT 675500, BG 2, Blocks: 2000, 2001, 2003, 2010, 2011, 2012, 2013, 2014, 2022, and 2025

5.1.3 Incomes

In 2000, the estimated average median household income was $47,705 for BGs adjacent to the project corridor; $57,790 for the CTs that comprised the study area, and $34,888, $35,510, and $81,767 for Richmond, Rosenberg, and, Sugar Land respectively. Fort Bend County's median household income was $63,831.

By 2010, the estimated average median household income was $67,850 for BGs along the project corridor and $69,800 for the CTs that comprised the study area. It is noted that there were changes in the BG and CT boundaries between the two census data sets. However, while they are not exactly directly comparable, they do cover very similar areas. The Cities of Richmond, Rosenberg, and Sugar Land had median household incomes of $40,114, $43,120, and $101,611, respectively, while Fort Bend County's was $79,845. The data indicate that incomes are higher in the eastern portion of the project corridor (east of FM 762, towards Sugar Land). Greatwood, a master-planned community included within CT 674601, exemplifies this difference with a reported median household income of $120,417 (2006-2010 ACS), up from $107,917 in 2000.

Poverty levels of the CTs, the lowest level for which this data is available, within the urbanized areas of Richmond and Rosenberg were similar to or approached those of their respective cities. The lowest poverty rate was in CT 674601 (6.9%), which includes the community of Greatwood. The highest poverty rates were found in CT 675300 (18.5%) and CT 675400 (18.2%), which correspond to areas on the east side of Rosenberg and some rural areas further south of US 59.

Between 2000 and 2010, there was a tremendous amount of growth throughout the BGs and CTs that comprise the study area, but primarily in areas that are in extraterritorial jurisdictions (ETJs) that are outside the cities of Richmond and Rosenberg. Some of these new communities are priced at rates that allow new earners to get into the real estate marketplace, but all of the homes in these new communities are priced for at least middle-income earning households; there is no low-income housing planned for outside the urbanized areas of Richmond or Rosenberg.

A large proportion of those who continue to move into the study area are young families with dual income households of traditionally middle to upper income professions (i.e., medical, engineering, consulting, etc.). Data from the LCISD shows that the district as a whole is seeing an increase in children coming from households at or below the poverty level (economically disadvantaged). "Economically disadvantaged" means that without some outside regulatory or other agency intervention they would not qualify for the new developing areas; thus it is likely that over time there will become an increasing disparity between those household incomes within currently urbanized areas and those outside.

Table 10 indicates the economic statistics of the population living within the proposed project area.

Table 10: Household Income Data of the Proposed Project Area

Census Geography	Total Households	% of Households with Annual Incomes				Median Household Income ($USD)	Total Population for whom Poverty Status is Determined	Population with Income in the past 12 months below poverty level	
		Less than $14,999	Between $15,000 - $19,999	Between $20,000 - $59,999	Greater than $60,000			#	%
Fort Bend County	167,620	6.0	3.0	28.2	62.8	79,845	535,467	42,631	8.0
Richmond	3,334	15.9	7.3	45.4	31.4	40,114	10,354	2,737	26.4
Rosenberg	9,542	13.7	8.5	43.3	34.5	43,120	29,164	5,122	17.6
Sugar Land	24,785	4.7	2.2	20.4	72.7	101,611	75,592	3,980	5.3
CT 674601	1,418	2.0	1.8	29.8	66.5	115,417	3,603	47	1.3
BG 2	426	3.3	0	39.9	56.8	68,864	-	-	
CT 674604	1,331	2.1	0	19.8	78.1	98,285	4,469	306	6.9
BG 1	1,331	2.1	0	19.8	78.1	98,285	-	-	
CT 674700	2,763	5.1	7.4	24.3	63.2	81,691	8,737	836	9.6
BG 1	1,121	1.2	4.8	11.3	82.7	114,954	-	-	
BG 3	1,323	3.5	10.8	29.3	56.5	73,675	-	-	
CT 675100	3,024	8.2	9.3	32.3	50.2	60,515	9,225	1,148	12.4
BG 4	1,690	6.8	9.4	30.4	53.4	63,973	-	-	
CT 675200	1,924	14.8	5.7	46.1	33.4	40,641	5,850	934	16.0
BG 4	252	11.5	3.2	38.5	46.8	56,875	-	-	
CT 675300	2,077	9.2	8.3	59.4	23.2	41,482	6,649	1,229	18.5
BG 2	685	3.1	2.0	47.9	47.0	59,223	-	-	
BG 4	795	10.3	12.7	65.3	11.7	38,491	-	-	
CT 675400	1,616	13.3	4.6	40.5	41.7	50,075	4,972	906	18.2
BG 1	495	11.9	1.8	50.3	36.0	39,701	-	-	
BG 2	1,121	13.9	5.8	36.1	44.2	52,917	-	-	
CT 675500	2,580	6.6	1.0	35.7	57.3	70,321	7,992	869	10.9
BG 1	1,592	5.5	0.9	21.0	72.6	101,833	-	-	
BG 2	988	8.3	1.1	58.0	32.6	45,405	-	-	

Source: U.S. Census Bureau, 2006-2010 American Community Survey (ACS), Tables B11001, B17001 and B19013.
ACS data are estimates; they are not counts. Income data is provided in 2010 inflation adjusted dollars.
Due to rounding, race percentages may not sum to 100%.
- Data available only to the CT level.

The BG data in **Table 10** indicate that the median household income in 2010 for all block groups is greater than the 2012 U.S. Department of Health and Human Services (HHS) poverty guideline of $23,050. The information provided also indicates that median household incomes of the block groups of the project corridor range from a low of $38,491 to a high of $114,954; therefore, the data show that in two BGs (CT 675300, BG 4 and CT 575400 BG1), the median household income is less than for the Cities of Richmond ($40,114), Rosenberg ($43,120). Only two BGs (CT 674700, BG 1 and CT 575500 BG1) approach or exceed Sugar Land's ($101,611). In some cases, the median household income for a BG is higher than that of its respective CT, and in some cases it is lower.

Further discussion regarding impacts to minority and low-income populations is provided in **Section 5.1.5**.

5.1.4 Community Cohesion and Impacts

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

Community cohesion is a measure of how well members of a community interact with each other. Members of the community include residents, businesses, public service organizations, and people or organizations that provide assistance to other community members. Community cohesion can be affected by highway construction projects. A new highway can potentially divide communities, displace critical services, disrupt mobility and circulation routes, and deprive people of opportunities to socialize.

Various religious, educational, medical, and recreational facilities are located in the local community (see **Table 11**).

Table 12 is a matrix of the factors that can impact community cohesion. Many of these factors have the potential to seriously deplete community cohesion. However, the proposed project is an expansion of the capacity (primarily within existing ROW) of a facility that has been an integral part of the historic growth of both Richmond and Rosenberg, and is likely continue this role long into the future.

Reconnaissance for the purpose of qualifying community cohesion was conducted in August and September of 2009, and in August and September of 2010. The area was characterized overall as having positive, but not continuous cohesiveness; there are substantial areas where no sign of cohesion was identified. Cohesion was particularly noted near the southwest end of the project, where a small settlement of homes has developed strong sense of community, in the Cottonwood Estates neighborhood, and in the newer tract housing projects of Greatwood, Canyon Gate at the Brazos, and River Park.

Most of the project corridor does not have established neighborhoods; therefore, strong community cohesion is not wide-spread. However, strong cohesion has developed in several of the tract housing projects. For example, the residents of Greatwood generally feel very close to their neighbors. Greatwood comprises approximately 3.89 square miles (approximately 2,489.6 acres) and had a population of approximately 11,538 in 2010.

Although the community appeals to a full range of ages, ethnicities, and walks of life, it is a strongly young family-oriented place, and it is very common to see block parties and other social activities in progress. Neighbors share festive seasons, and many have been around to see their kids grow up and move away. Greatwood residents typically relocate within Greatwood, and home values have remained stable and increasing through the recent economic crisis. The spirit of the community is shown in its reaction to the recent opening of the George Ranch/Antoinette Reading High/Junior High School campus. Many of the Greatwood residents have adopted the facility as a community rallying post. There is also a strong sense of helping one another out. During a recent wind storm that toppled numerous trees already weakened by Hurricane Ike, it was uncommon to drive down a street and not see neighbors helping each other clean up. Other master-planned communities along US 59 have similar cohesiveness, but this type of cohesion is fairly common in the newer developments.

One other indicator of cohesion is longevity of residence or the phenomena of "aging in place". The LCISD commented on what this longevity means to district planning.

> Perhaps the most interesting analysis is of changes in student population in the Master Planned Communities. Over the past year, virtually all of the Master Planned Communities gained students, but only a portion of that growth was due to families buying new houses. … Greatwood gained about 110 new students, but they all resulted from the aging phenomenon (the incoming younger classes are larger than the outgoing older grades). … This trend of increasing density in these Master Planned Communities is an important factor in the modeling effort for projecting future student population in these areas.

The areas where poor cohesiveness has resulted are attributed to several factors. Overall, the area has been a predominantly rural area for most of its history; the few homes and businesses along the corridor have existed in isolation. Moreover, the few homes and businesses along the corridor have been situated such that cohesion is difficult to establish. Also, the businesses that have occupied space along the corridor are not the type to foster cohesiveness (warehouses, beer distribution centers, gas stations, hotels, etc.). New businesses to the area are not associated with fostering cohesiveness (i.e., big box retail). This is not to say that certain businesses cannot contribute to cohesion. For example, the Home Depot and Texas Roadhouse within the project area have long been strong supporters of the Fort Bend County Fair, and have also sponsored various community events and little league teams of various sports. However, the majority of new businesses are typically retail chain outlets that have little to no connection with the community.

Table 11: Public Facilities and Services

Facility Type	Facility Name	Location	Distance from Proposed ROW
Church	Grace Baptist Church	US 59 at Spur 10	Adjacent
Cemetery	Cottonwood Cemetery	Cottonwood Church Road at Klosterhoff Road	0.69 mile
Park	Garcia Memorial Park	Blume Road at Klauke Road	0.5 mile
School	Bowie Elementary School	Wilburn Street and Bamore Road	0.75 mile
Church	Templo La Hermosa Latino Americo	3rd Street at Mons Avenue	0.5 mile
Church	Jehovah's Witness Kingdom Hall	West Fairgrounds Road	0.65 mile
Fairgrounds	Fort Bend County Fairgrounds	Fairgrounds Road	0.75 mile
School	Gingerbread House Daycare Center	4th Street and Leaman Avenue	0.62 mile
Civic Center	Rosenberg Civic and Convention Center	SH 36	0.41 mile
Park	Seabourne Park	SH 36	0.41 mile
Church	Calvary Baptist Church	Airport Avenue at Graeber Road	0.67 mile
Church	Graeber Road Church of Christ	Graeber Road at Avenue N	0.9 mile
Church	Resurrection Christian Fellowship Church	Airport Avenue at Graeber Road	0.61 mile
School	George Junior High School	Airport Avenue at Graeber Road	0.61 mile
Church	Church of Living Waters	Airport Avenue at Graeber Road	0.5 mile

Table 11: Public Facilities and Services			
Facility Type	**Facility Name**	**Location**	**Distance from Proposed ROW**
School	Living Water College Preparatory	Airport Avenue at Graeber Road	0.5 mile
School	B.F. Terry High School	Avenue N and B.F. Terry Boulevard (FM 2218)	0.75 mile
School	Nevarro Middle School	Avenue N and B.F. Terry Boulevard (FM 2218)	0.75 mile
Park	Greenlawn Memorial Park	US 59 at FM 2218	Adjacent
Cemetery	Davis Greenlawn	US 59 at FM 2218	Adjacent
Church	Grace Baptist Church	FM 2977 at Bryan Road	0.94 mile
Cemetery	Jones Cemetery	FM 762 at US 59	Adjacent
School	Williams Elementary School	FM 762 at Benton Road	0.86 mile
School	Imaginare	FM 2759/Crabb River Road at Greatwood Knoll Drive	0.82 mile
Cemetery	Sandberry Cemetery	FM 2759/Crabb River Road at Greatwood Knoll Drive	0.82 mile
Church	Mount Moriah Baptist Church	FM 2759/Crabb River Road at US 59	Adjacent
School	Primrose School of Greatwood	Greatwood Parkway at Riverpark Drive	0.25 mile
School	Greatwood Montessori School	Greatwood Parkway at Riverpark Drive	0.25 mile
Church	Pilgrim Journey Baptist Church	Williams Way at US 59	0.52 mile
Church	River Pointe Community Church	Ransom Road at US 59	0.17 mile
Hospital	Memorial Hermann Sugar Land	SH 99/Grand Parkway at US 59	0.1 mile
Hospital	Oak Bend Hospital	US 59 at Williams Way	Adjacent
School	Memorial Montessori School	SH 99/Grand Parkway at River Falls Drive	0.36 mile
School	Kids-R-Kids Preschool	FM 2759/Crabb River Road at Sansbury Road	0.62 mile
School	The Goddard School	Sansbury Road at FM 2759/Crabb River Road	0.62 mile
Learning Disabilities Center	Kumon Tutorial Service	Sansbury Road at FM 2759/Crabb River Road	0.62 mile
Community Outreach	Goodwill Industries Donation Collection Center	Sansbury Road at FM 2759/Crabb River Road	0.62 mile
Fire Station	Fort Bend County Emergency Response	Sansbury Road at FM 2759/Crabb River Road	0.6 mile

Source: Study Team

Note: This is a partial list of nearby public facilities and services and may include facilities and services that have moved out of the area. Alternatively, since this list was prepared additional facilities and services may have come into the area.

Environmental Consequences of Implementing the No-Build Alternative

With the implementation of the No-Build Alternative, land use changes would occur as they would without the project, and there would be no displacements. However, it would result in the continual worsening of congestion on US 59, and this would continue to encourage growing numbers of motorists to use "short-cuts" through the growing number of residential developments. The No-Build Alternative would not provide increased accessibility or provide a more efficient facility.

One aspect of community life that builds cohesion is children playing with other children in the street or in front yards. This is a feature that young parents seek when selecting a neighborhood in which to raise their kids. To make it easier for families to build this sense of neighborhood cohesion, roads are built to allow the maximum level of seclusion and quietness.

Most tract housing projects are designed with broad main arteries, branching collector roads and further-branching neighborhood streets. These roads are designed to provide residents a maximum level of efficiency for access and circulation. In most cases this design feature plus the fact the master-planned communities are generally self-contained with few if any linkages with other master-planned communities makes "short-cutting" difficult, but not impossible. In fact, most often the center arteries are so imbedded in the community that by the time a non-community driver finds one the benefits of short-cutting have been lost to time delays.

However, in older neighborhoods where the road system is a grid, short-cutting is feasible for motorists. As congestion from the highway increases, short-cutting is anticipated to worsen first in these older neighborhoods before gradually becoming problematic in newer developments. The end result would be a correlating decrease of community cohesion as more parents keep their children from outdoor play without direct supervision.

Environmental Consequences of Implementing the Recommended Build Alternative

The proposed project would not bisect or divide any community not already bisected or divided by US 59. Furthermore, none of the potential displacements or losses of parking supply are of businesses or services critical to the support and enrichment of community cohesion. **Table 12** provides an analysis of the elements that make up solid community cohesion, and how those elements are impacted by the proposed project.

The Proposed Alterative would somewhat enhance community cohesion by improving local circulation between residents, commercial establishments, and community facilities (i.e., cemeteries, Masonic Lodge, River Pointe Community Church, Rosenberg Civic and Convention Center, and Seabourne Park). **Table 12** lays out numerous issues that contribute to the level of cohesion a community develops and how those issues can be impacted by construction of a transportation facility.

Abatement of increased traffic noise associated with the proposed facility may be warranted for the homes adjacent to US 59. More discussion regarding traffic noise impacts is included within **Section 10.2** and **Appendix I**.

Finally, while it is unlikely that the Recommended Build Alternative by itself would cause strong cohesion among residents, under the No-Build Alternative the number of "short-cutters" would

undoubtedly undermine any sense of peace and quiet. This would dissuade parents from letting their children play out-of-doors and this could in turn limit the growth of community cohesion.

The reduction in cut-through traffic within outlying neighborhoods and communities as a result of increased mobility due to the expansion of US 59 would increase the safety for children and the elderly. Reduced "short-cutting" traffic would also make it easier for community cohesion to grow. This would also strengthen longevity of homeownership among recent residents. High transition rates often discourage people who would provide stability to the neighborhood. Reduced "short-cutting" would support a more peaceful and quiet area, and may allow the area to attract young families who would remain and age in place. This would furthermore benefit the area and the City by improving property values.

Table 12: Community Cohesion Impacts

Element	Concern	Explanation	Result
Social Stability			
Social and Psychological Aspects	Changes in Population	Will the project cause redistribution of the populations or an influx or loss of population?	Not more so than the current rate of land development.
	Community Cohesion and Interaction	How will the project affect interaction among persons and groups? How will it change social relationships and patterns?	No changes anticipated.
	Isolation	Will certain people be separated or set apart from others?	Separation of people not anticipated.
	Social Values	Will the project cause a change in social values?	Changes in social values not anticipated.
	Quality of Life	What is the perceived impact on quality of life?	No negative impacts perceived; better mobility/safety.
Physical Aspects	Barrier Effect	Is a wall or barrier effect created (such as from noise walls or fencing)?	No wall or barrier effect created.
	Sounds	Will noise or vibration increase?	Noise and vibration anticipated to increase regardless of Build or No-Build Alternative.
	Other Physical Intrusions	Will dust or odor increase? Will there be a shadowing effect on property?	Dust and odor not anticipated to increase; shadow effect not anticipated.
Visual Env.	Aesthetics	Will the community's aesthetic character be changed?	Changes in aesthetic character not anticipated.
	Compatibility with Plans	Is the project compatible with community goals? Has aesthetics surfaced as a community concern?	Project compatible with community and regional goals; aesthetics not surfaced as a community concern.
Economic Stability			
Land Use	Land-Use Patterns	Will there be loss of farmland? Does it open new areas for development? Will it induce changes in land use and density? What changes might be expected?	Loss of prime farmland not anticipated; does not open new developable land; for induced changes in land use and density refer to Indirect Impacts and Cumulative Effects sections
	Compatibility with Plans	Is the project consistent with local land use plans and zoning?	Project compatible with local land use plans and zoning.
Economic Conditions	Business and Employment Impacts	Will the proposed action encourage businesses to move to the area, relocate to other locations within the area, close, or move outside the area?	There would be displacement of several commercial structures and loss of parking supply by several businesses. If this causes unsuitable conditions for compliance with ordinances then some businesses may move out of the area.
	Short-term Impacts	How is the local economy affected by construction activities? Are there both positive (jobs generated) and negative (detours and loss of access) impacts?	Economic benefits from work crews anticipated; some detours and partial lane and driveway closures anticipated.
	Business Visibility	Will the proposed action alter business visibility to traffic-based businesses? How will visibility and access changes alter business activity?	No change to visibility anticipated.
	Tax Base	What is the effect on the tax base (from taxable property removed from base, changes in property values, and changes in business activity)?	No direct impact to tax base anticipated from project; project area already experiencing rapid urban growth.
	Property Values	What is the likely effect on property values caused by relocations or change in land use?	No residential relocations anticipated because of project but some commercial; property values may increase because of expanded facility; relocations would not effect property values.
Mobility and Access	Pedestrian and Bicycle Access	How does the project affect non-motorist access to businesses, public services, schools, and other facilities? Does the project impede or enhance access between residences and community facilities and businesses? Does it shift traffic?	No changes to pedestrian and bicycle access anticipated.
	Public Transportation	How does the project affect access to public transportation?	No changes to public transit anticipated.

Table 12: Community Cohesion Impacts

Element	Concern	Explanation	Result
	Vehicular Access	How does the project affect short- and long-term vehicular access to businesses, public services, and other facilities? Does it affect parking availability?	No changes to vehicular access anticipated.
Environmental Stability			
Provision of Public Services	Use of Public Facilities	Will the proposed action lead to or help alleviate overcrowding of public facilities (i.e., schools and recreation facilities)?	No alleviation of overcrowded public facilities anticipated.
	Displacement of Public Facilities	Will the project result in relocation or displacement of public facilities or community centers (e.g., places of worship)?	No relocations or displacements anticipated.
Safety	Pedestrian and Bicycle Safety	Will the proposed action increase or decrease the likelihood of accidents for non-motorists?	The project is not anticipated to increase non-motorized mobility or the likelihood of accidents for non-motorists.
	Crime	Will the proposed action increase or decrease crime?	No change to crime levels anticipated.
	Emergency Response	Will there be changes in emergency response time (fire, police, and emergency medical)?	Emergency response time anticipated to decrease.
Displacement	Effect on Neighborhoods	What are the effects on the neighborhood from which people move and into which people are related?	Project not anticipated to effect neighborhoods.
	Residential Displacements	How many residences will be displaced? What type(s): multi-unit homes, single family, rural residential, others? Are there residents with special needs (disabled, minority, or elderly residents)?	Residential displacements not anticipated.
	Business and Farm Displacement	How many businesses and farms will be displaced? What type(s)? Do they have unique characteristics, such as specialty products or a unique customer base?	• Two confirmed displacements are anticipated and there are several more with strong potential for displacement. Confirmed – 2 table service restaurants Potential – 1 table service, 1 fast food, and 1 drive-in restaurants, 1 bank, 1 tire store Loss of parking supply – 1 fast food restaurant, 2 general purpose • One of the confirmed displacements is a Mexican food restaurant; the other is a steak house. • There are numerous marquis and billboards that would also be displaced • One farm displacement would occur. It is an active barn in need of extensive repair; a concrete cistern is also within proposed ROW.
	Relocation Sites	Are there available sites to accommodate those displaced?	Undeveloped commercial properties are readily available within close proximity and many more are anticipated to become available as the corridor commercializes.

Source: Study Team

5.1.5 Environmental Justice

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

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

Disproportionately high and adverse human health or environmental effects are defined by FHWA as adverse effects that:

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

In accordance with Title VI of the *Civil Rights Act of 1964,* EO 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, data on the presence of, and effects to, minority and low-income populations have been analyzed for the proposed project. Minority populations include racial minorities (i.e., Black, Native American, Asian) or an ethnic minority (i.e., Hispanic, regardless of race). Low-income populations include populations whose household income is at or below the annually issued HHS poverty guidelines.

The identification of minority populations was based on the CEQ guidance document *Environmental Justice Guidance under the National Environmental Policy Act*. Based on this guidance, minority populations should be identified when either: (a) the minority population of the affected area exceeds 50 percent, or (b) the minority population percentage of the affected area (i.e., block) is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (i.e., block group).

As previously indicated, seven of the eight CTs and 11 of the 12 BGs report a minority population in 2010. Additionally, 22 Blocks within the study area registered minority populations. The minority populations are generally dominated by those of Hispanic ethnicity, followed by those of African American and Asian race. No other general trends are observed in the data; each set of CT/BG/Block data is different with respect to minority population (**Table 10**). However, several observations can be made about the CTs and their corresponding total minorities:

- CT 674601 The BG level minority population (27.2%) is comparable to that of the overall tract level (27.2%); no population was reported for the Blocks in this BG.
- CT 674604 Two of the Blocks (1006 – 79.3% and 1028 – 73.3%) are comparable to the BG and CT levels, which are identical (75.7%).
- CT 674700 All three of the Blocks in BG 3 possess a minority population (61.1% to 89.5%), and all exceed their BG data (59.3%). Some are higher and some are lower than their corresponding CT (68.2%).
- CT 675100 While both Blocks possess a minority population (52.1% and 65.8%), both are less than their corresponding BG (73.8%) and (70.0%) data.
- CT 675200 These two Blocks possess two of the lowest total minorities within the study area (0% and 11.1%), while their BG (52%) and CT (72.3%) possess a minority population.
- CT 675300 This CT has two Blocks that are exclusively minority (100%), which is about 23 percent more than the overall CT (77.3%), while the two BGs have minority populations of 51.7 and 91.4 percent. It is noted that the populations of all five Blocks in the BGs have little population (ranging from 7 to 41 people each).
- CT 675400 All but two Blocks within this CT have a minority population; those two exceptions report 100 white, but with only one and three persons reported per Block. Two Blocks also report 100 percent minority, but with only 4 and 6 persons per Block. Both of the BGs and their CT have similar minority populations, between 58.4 and 67.8 percent.
- CT 675500 Three of the six Blocks possess a minority population (62.1%, 66.8% and 78.6%), and these are similar to their respective BGs (59.7% and 71.2%). These percentages are also similar to that of the CT (63.9%).

As explained, the U.S. Department of Transportation (USDOT) *Order on Environmental Justice (April 1997)* defines "low income" as a person whose median household income is at or below the HHS poverty guidelines. "Low income population" is defined as "any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity." The 2012 HHS poverty guideline for a family or household of four is $23,050. Block group data in **Table 9** show that the median household income in 2010 for all block groups is greater than the 2012 HHS poverty guideline. However, the data indicate that low-income individuals live in the project area.

Environmental Consequences of Implementing the No-Build Alternative

Under the No-Build Alternative, no new ROW would be acquired and the existing US 59 would remain as is; only routine maintenance activities would occur. The No-Build Alternative would not split, isolate or separate any distinct neighborhoods, ethnic groups or other specific groups, nor would it alter the social and economic character of the study area, or restrict access to any EJ communities or businesses. Traffic conditions on US 59 would continue to degrade causing a decrease in mobility and an increase in traffic congestion, noise, air pollution, fuel usage, and potentially accidents from impatient drivers on the highway and those seeking alternate routes through rural areas and newly developing master-planned

community streets. These are determined to be adverse effects to west central Fort Bend County. Although these adverse impacts would occur to minority and low-income populations, they would also occur to non-EJ populations so they would not be disproportionately high and adverse compared to the general population; per EO 12898 regarding EJ, all motorists and residents would experience them.

Environmental Consequences of Implementing the Recommended Build Alternative

Once the areas of the EJ populations were identified, they were compared to the area in which ROW acquisition was proposed to occur. Potential displacements of businesses would be concentrated in the area around FM 762 and between FM 762 and Reading Road. This area is a recently developed commercial strip center, and does not contain EJ persons or any services or businesses which are oriented to providing support for EJ populations. ROW would also be acquired from a farm. Again, this acquisition would not specifically impact EJ persons. Finally, throughout the corridor small amounts of ROW would be required. All land to be acquired would be purchased from large, single-parcel holdings. None of these holdings are either owned by EJ persons or support EJ-oriented businesses or services.

Beneficial and adverse impacts on the overall population and on minority and low-income populations or communities:

- Air Quality: The proposed project would restrain the deterioration of air quality.
- Noise: Impacts would occur throughout the project area, which contains EJ and non-EJ residences, businesses, and services.
- Water Pollution: Water quality would not be directly affected by the proposed project.
- Hazardous Waste: Any waste materials produced on the project site would be removed from the site and transported to a regulated facility. Hazardous wastes are not anticipated to be found or generated.
- Aesthetic Values: Aesthetics applies throughout the project corridor. Vegetation would be removed, some containing mature trees, and converted to a transportation use. It would be impossible to not notice the aesthetic changes, particularly for those who are familiar with the existing facility.

  The proposed project would include the reconstruction of all standing structures, plus the new construction of several additional ones. TxDOT now incorporates aesthetic treatment on concrete for such structures. Exact designs have not yet been finalized, but will be similar to those on other already-completed sections of the facility. Additionally, TxDOT now incorporates landscaping and most cities also use landscaping to soften the aesthetic impact of major transportation projects.
- Community Cohesion: Community cohesion is expected to experience little to no impact. Businesses (i.e., several churches, daycares, auto repair, general merchandise) that do cater to low-income and minority populations also cater to non-EJ populations in the study area. The project would not cause greater separation of existing neighborhoods. Community cohesion is discussed in more detail elsewhere.
- Economic Vitality and Employment: Economic vitality is the capacity of a community to be economically competitive, resilient, and attractive to private and public enterprises. The

proposed project would not change any basic elements of economic viability. Indeed, an economic impacts analysis showed substantial benefit to the cities, the County, and the state with the construction of the proposed project. Economic benefits are also discussed further in **Section 12** of this document.

Quality of life would not change for the majority of area residents, which are both EJ and non-EJ; employment opportunities, provided the business owners relocate within the project area, would not change.

- Displacement of Persons or Businesses and Relocation Impacts: There is a possibility that several businesses and a farm operation would be partially or wholly displaced. The farm operation is not EJ-owned and the structure on the farm that would be displaced is not considered essential to the welfare and well-being of EJ persons. Further, the businesses that have the potential to be wholly or partially displaced by the current design do not comprise EJ-ownership, nor cater specifically to EJ persons. No businesses (i.e., churches, community centers) that provide considerable services to EJ-populations are expected to be displaced.

  The acquisition and payment program for all property acquisition would be conducted in accordance with the *Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970,* as amended and all applicable TxDOT policies.

  Consistent with USDOT policy, as mandated by the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* and the *Uniform Relocation Act Amendments of 1987*, TxDOT provides relocation resources to all persons without discrimination. All owners from whom property is needed are entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property. TxDOT also provides payment and services to aid in moving to a new location through its Relocation Assistance Program.

- Farms: Farmland is located within the project area; however, the impact rating form registered insufficient points for the proposed project to require coordination under the *Farmland Protection Policy Act* (FPPA).
- Accessibility: Accessibility to the area would not change for EJ or non-EJ populations. No obstacle, blockage, fence, gate, or other access control measure is planned for the proposed project, although some lanes and travel directions would be altered on the frontage roads. Furthermore, the project would not directly change economic conditions that would preclude an upstart business (owned by EJ or non-EJ persons) from accessing the local market or being accessed by area residents (EJ or non-EJ persons). The proposed project may contribute to an increase of access for land re/development, but this would be subject to many conditions well outside the realm of responsibility of any public agency (for a more in-depth discussion of the forces pertaining to land re/development, please refer to the indirect impacts and cumulative impacts portion of this report).
- Traffic Congestion: The proposed project is anticipated to diminish traffic congestion in the study area, and this would directly benefit both EJ and non-EJ populations.
- Safety: Increasing safety for drivers, pedestrians and bicyclists would be accomplished in many ways, including engineering design. The roadway would be improved to modern standards for

urban highways, which includes passive protection measures for pedestrians and bicyclists. These elements would benefit all users of the roadway and pedestrian environment, including EJ and non-EJ populations.

- Construction/Temporary Impacts: Impacts would pertain to traffic detours, and lane closures during construction, construction noise at specific locations, and some localized deterioration of air quality. Because these are construction-related they will end when construction is complete, and pre-construction conditions are anticipated to re-establish quickly. They would impact both EJ and non-EJ populations equally. For more discussion on construction impacts, please refer to **Section 11**.

As with the No-Build Alternative, the Recommended Build Alternative would not split, isolate or separate any distinct neighborhoods, ethnic groups or other specific groups, nor would it alter the social and economic character of the study area, or restrict access to any EJ communities or businesses. The proposed project would not have disproportionate positive or negative impacts on any EJ communities or businesses. Furthermore, it would provide for increased mobility within the project area for all users, and would provide similar benefits to users regardless of minority or socioeconomic status. The project would not close, or significantly alter the design of, any highway on-ramp to the extent it would harshly complicate highway access for minority or low income persons, neither would any new highway off-ramps be built that would direct traffic into neighborhoods and reduce the safety for low income or minority populations.

The proposed project would result in the acquisition of the least amount of new ROW required to complete the work. Where acquisition does occur, approximately 83 percent of the vendors are corporations of some kind. Further, when acquisitions were carefully reviewed, 80 percent were less than 10 percent of the original parcel size, with a median proportion of 4.74 percent; but more than half were less than five percent of the original parcel size. Finally, of the properties owned by individuals, the average proportion of parcel to be acquired is 0.02 percent of the original size.

Of the businesses, none could be identified as being EJ-owned or specifically oriented. Moreover none of the businesses that would be displaced or lose parking supply are critical to EJ populations. They do not provide necessary services that cannot be accessed elsewhere, and their displacement (whole or partial) would not represent a barrier to any required service. For the most part, these businesses offer opportunities for discretionary spending of disposable income, and cater to modestly middle to upper income families.

TxDOT has used avoidance, minimization, and mitigation in the design of the project to limit impacts to all groups, including EJ and non-EJ populations. For example, TxDOT has made several design changes throughout the course and length of the project and development process to avoid the maximum amount of impacts to structures of all types. Mitigation is being provided through USDOT policy, as mandated by the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* and the *Uniform Relocation Act Amendments of 1987*.

In light of the distribution of impacts between EJ and non-EJ populations and the avoidance, minimization, and mitigation efforts demonstrated in this examination of impacts, there would be no disproportionate impacts to low-income and minority populations. Whole and partial displacements of

businesses and farm structures can be adverse, regardless of the need or the compensation offered. However, there are substantial off-setting benefits for the entire corridor, region, and state, as well as for the cities of Richmond and Rosenberg. This project is needed for important purposes and needs that are relevant to the protection of all persons (EJ or otherwise) using the roadways. Furthermore, as shown, there are no disproportionately high and adverse effects, and the requirements of EO 12898 are met. Based on the above discussion and analysis, the Recommended Build Alternative would not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding EJ.

The proposed project would not cause isolation of any EJ population from needed community and social services. Although some of the proposed partial and complete displacements provide valuable community and social services, there are other providers of the same, or similar, services within relatively close proximity of the proposed project. The project also would not impact public transit services; no routes or bus stops would be moved, realigned, or altered. Finally, residents and businesses established would benefit from the improved mobility and safety provided by this alternative. For these reasons, the project is not anticipated to cause disproportionately high and adverse human health and environmental effects to EJ populations.

5.1.6 Limited English Proficiency

EO 13166 *Improving Access to Services for Persons with Limited English Proficiency* requires all recipients of federal funds to provide meaningful access to persons who are limited in their English proficiency (LEP). The U.S. Department of Justice defines LEP individuals as those "who do not speak English as their primary language and who have a limited ability to read, write, speak, or understand English" (67 FR 41459). Data about LEP populations was gathered in the U.S. Census 2010.

Within area BGs, Census data record the presence of persons who describe their ability to speak English as “Less than Very Well." **Table 13** shows the percentages of adults who speak English less than "Very Well" by language category. Census data indicate the presence of LEP populations.

Table 13: Percent of Adult Speakers Who Speak English Less than Very Well

Census Geographies	Population 5 years & over	Percent of Adult Speakers Who Speak English Less than Very Well (%)			
		Spanish Language Speakers	Other Indo European Language Speakers	Asian and Pacific Island Language Speakers	Other Language Speakers
Fort Bend County	500,711	7.1	1.7	3.8	0.4
Richmond	10,676	21.1	0.5	0.3	0.0
Rosenberg	26,519	18.4	0.1	0.0	0.0
Sugar Land	71,449	2.1	3.1	7.9	0.9
CT 674601	3,495	24	9	17	0.0
BG 2	1,135	0.0	0.0	0.0	0.0
CT 674604	4,170	2.4	0.5	3.1	0.0
BG 1	4,170	2.4	0.5	3.1	0.0
CT 674700	9,218	4.7	2.2	2.9	0.0
BG 1	3,642	2.2	5.5	3.5	0.0

Table 13: Percent of Adult Speakers Who Speak English Less than Very Well

Census Geographies	Population 5 years & over	Percent of Adult Speakers Who Speak English Less than Very Well (%)			
		Spanish Language Speakers	Other Indo European Language Speakers	Asian and Pacific Island Language Speakers	Other Language Speakers
BG 3	4,464	5.2	0.0	3.2	0.0
CT 675100	8,659	12.9	0.0	0.0	0.0
BG 4	4,610	9.4	0.0	0.0	0.0
CT 675200	5,296	25.8	0.1	0.0	0.0
BG 4	743	28.9	0.0	0.0	0.0
CT 675300	5,879	18.5	0.3	0.0	0.0
BG 2	1,700	6.5	0.0	0.0	0.0
BG 4	2,579	30.7	0.7	0.0	0.0
CT 675400	4,739	13.6	0.3	0.9	0.0
BG 1	1,493	14.1	1.0	1.4	0.0
BG 2	3,246	13.3	0.0	0.7	0.0
CT 675500	7,366	7.7	0.1	2.1	19
BG 1	4,529	7.1	0.2	3.5	0.4
BG 2	2,837	8.7	0.0	0.0	0.0

Source: U.S. Census Bureau, 2006-2010 American Community Survey (ACS); Table B16004
ACS data are estimates; they are not counts.

Since LEP is partially defined as a limited ability to read and write English, literacy data were also consulted. Indirect literacy estimates for adults were calculated by the National Center for Education Statistics based on 2003 survey data for states and counties (the most recent data available from the agency). The percentage of adults who lack basic prose literacy skills for Fort Bend County and Texas are 24 percent and 19 percent, respectively[3]. Since literacy estimates do not differentiate between low literate English speakers and low literate LEP populations, literacy data should be considered along with other LEP indicators in determining how to best provide access to LEP populations.

To supplement Census and literacy data, area school district (ISD) data were consulted for indicators of LEP populations. School districts collect data on the number of English Language Learners as defined by each state's Department of Education and migrant students as defined in 34 CFR 200.81(d). For school year 2005-06, LCISD reported 11.5 percent of students as English Language Learners and an unknown percent as migrant students. In conclusion, the data indicate the likelihood of LEP populations in the area.

To determine the languages of the LEP populations, Census data were consulted for project area CTs and BGs. **Table 14** details the top languages spoken by the total adult population in each census geography.

[3] See http://nces.ed.gov/naal/estimates/Cautions.aspx for general cautions about indirect literacy estimates.

Table 14: Languages Spoken at Home

Census Geographies	Population 5 Years & Over	English Only (%)	Spanish (%)	Other Indo-European (%)	Asian & Pacific Islander (%)	Other (%)
Fort Bend County	500,711	63.0	18.9	6.8	9.4	2.0
Richmond	10,676	50.4	47.8	1.2	0.4	0.2
Rosenberg	26,519	55.7	43.6	0.7	0.0	0.0
Sugar Land	71,449	58.3	7.5	12.6	19.1	2.5
CT 674601	3,495	78.2	3.8	7.8	6.5	3.7
BG 2	1,135	94.4	0.3	2.6	2.6	0.0
CT 674604	4,170	60.6	16.2	11.2	7.6	4.3
BG 1	4,170	60.6	16.2	11.2	7.6	4.3
CT 674700	9,218	64.7	18.3	7.8	7.9	1.3
BG 1	3,642	61.3	7.5	19.2	10.7	1.3
BG 3	4,464	71.6	18.7	0.5	7.6	1.6
CT 675100	8,659	66.0	33.1	0.9	0.0	0.0
BG 4	4,610	71.3	27.3	1.4	0.0	0.0
CT 675200	5,296	49.4	50.1	0.4	0.2	0.0
BG 4	743	67.3	32.7	0.0	0.0	0.0
CT 675300	5,879	49.7	49.8	0.4	0.0	0.0
BG 2	1,700	75.1	24.9	0.0	0.0	0.0
BG 4	2,579	31.6	67.7	0.7	0.0	0.0
CT 675400	4,739	61.7	36.1	0.7	1.3	0.2
BG 1	1,493	64.5	30.9	1.2	2.7	0.7
BG 2	3,246	60.4	38.5	0.4	0.7	0.0
CT 675500	7,366	67.1	24.0	2.3	6.0	0.6
BG 1	4,529	71.5	14.1	3.7	9.8	1.0
BG 2	2,837	60.1	39.9	0.0	0.0	0.0

Source: U.S. Census Bureau, 2006-2010 American Community Survey Table B16004.
ACS data are estimates; they are not counts.

Based on the data presented in **Table 13** and **Table 14**, the presence of a Spanish language group exceeds the Department of Justice's Safe Harbor threshold of 5 percent or 1,000 persons. In accordance with the Safe Harbor provisions, written translations of vital documents will be provided for the LEP language group in addition to other measures assuring meaningful access.

It is unclear at this time if the current requirements of EO 13166 have been satisfied by past public involvement processes. As previously stated, between when the MIS was approved and this EA submittal, many regulatory changes have come that have increased the anticipated level and scrutiny of LEP involvement. Data to support past efforts is unavailable. In the absence of such data it must be assumed that public meetings held to date were not advertised in any other languages, did not provide handouts in other languages, and were not staffed by translators. However, in accordance with EO 13166, accommodations to the level of current expectations would be made for any identified LEP persons during all subsequent public involvement activities.

Information was gathered regarding potential EJ populations during site visits and through local coordination with government and civic organizations. If a Public Hearing is required, all Public Hearing

materials would be provided in both English and Spanish, and translators would be present at all associated public events.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not result in changes to the existing facility and would require no ROW; therefore, it would have no effect on LEP persons.

Environmental Consequences of Implementing the Recommended Build Alternative

Census data indicate the presence of LEP populations. The data indicates the presence of Spanish language groups in all BGs (**Table 13**). Generally, the proportion of Spanish speakers, which ranges from 2.2 to 30.7 percent at the BG level, exceeds the other language speakers. However, in two BGs (CT 674604, BG 1 and CT 674700, BG1) is the Spanish speaker proportion exceeded by another language. the most diversity of languages spoken at home at the BG level is in these two BGs, while Sugar Land has the most diversity at the city level. The population of Spanish Speaking persons in every BG, except CT 674601, BG 2 (0.3%), exceeds the Department of Justice's Safe Harbor threshold of 5 percent or 1,000 persons.

In accordance with the Safe Harbor provisions, any LEP populations encountered would not be discriminated against as a result of the proposed project. A number of regulations and policies have changed at various levels of governance between the present time and the initial planning of this project. Although it may not have occurred in the past (accurate data on measures taken to ensure full LEP involvement is incomplete) any future public process would include bilingual (Spanish and English) notices, fliers and fact sheets, as well as translators; these efforts would be repeated if a public hearing is held. Special requests for translation of other languages would also be accommodated. TxDOT would encourage LEP populations meaningful access to proposed project plans, such as design schematics and recommended alternatives. Therefore, the requirement of EO 13166 would be satisfied.

5.2 Effects on Business

Environmental Consequences of Implementing the No-Build Alternative

Implementation of the No-Build Alternative would not require any additional ROW; therefore, the alternative would have no direct effect on business or businesses in the project area.

Environmental Consequences of Implementing the Recommended Build Alternative

Under the Recommended Build Alternative several businesses would be completely displaced while others would lose some parking capacity, signage, and other elements. This would affect their revenues in varying degrees.

According to the U.S. Bureau of Economic Analysis – 2000 (USBEA), the major employment sectors in Fort Bend County were services (30%), trade (21%), and government (13%). Although there would be some business displacements, these would not substantially alter nor have a direct effect on the local economy. First, the displaced businesses could relocate within close proximity of their current locations. The businesses are not considered high wage employers, and there are numerous similar businesses within close proximity of the displaced businesses. A minimal amount of land would be removed from

the local tax base. Highway-related businesses (gas stations, fast food restaurants, and hotels) along US 59 would be the most sensitive to temporary construction impacts. These impacts may include temporary changes in access that would make the business less convenient for through traffic.

In the event that the potential commercial displacements were to occur, the impact would be a loss of tax revenue; however, all of these businesses could relocate elsewhere within the same general vicinity so that the businesses would not necessarily be lost; some businesses could begin construction before leaving existing space, thereby not losing any revenue stream.

The project would encourage development along the frontage roads and could promote economic development throughout the corridor. Within the City of Rosenberg, it is likely that this development would be retail or industrial and would provide additional jobs and tax revenues. These types of commercial development are consistent with the goals identified by the Economic Development Department of the City of Rosenberg, the City of Sugar Land, and the Greater Fort Bend Economic Development Council. While this economic growth is likely to occur for either the No-Build or Recommended Build Alternatives, the improved or new frontage roads associated with the Recommended Build Alternative would make this area more attractive and would likely speed the rate of development.

The proposed project is not expected to alter travel patterns along the project corridor. However, the improvements to US 59 would improve local and regional circulation and provide additional capacity. The additional travel lanes would reduce traffic congestion and the continuous frontage roads would minimize the interaction between local and regional traffic.

6.0 BIOLOGICAL RESOURCES

6.1 Geology and Soils

6.1.1 Geology

The study area is located within the Gulf Coastal Plains physiographic province, and more specifically within the Coastal Prairies Sub-province. The Coastal Prairies sub-province is characterized as a "flat, featureless, almost treeless plain" (Sellards 1932) that parallels the Gulf Coast and is approximately 40 miles wide (Wermund 1996). The topography is gently sloping toward the Gulf of Mexico at less than one foot per mile. Trees are scarce, usually only occupying riparian habitats near streams or lakes. In the study area, the dominant landforms are the upland prairies and bottomlands/floodplains.

According to the *Texas Water Development Board Major Aquifers in Texas* map, dated January 1994, the underlying aquifer is the regional Gulf Coast aquifer that includes nine geologic formations. The two major groundwater aquifers in the project corridor area include the Chicot and Evangeline aquifers. The Chicot aquifer overlies the Evangeline aquifer. These aquifers are Pliocene and Pleistocene in age and generally consist of sand layers interbedded with clays and gravels. These aquifer zones can be found near the surface and continue to a depth in excess of 1,200 feet. Average water level altitudes in Fort Bend County for the Chicot Aquifer were recorded by the U.S. Geological Survey (USGS) in January 2003 at an average depth of 200 feet below sea level.

The Beaumont Formation underlies the project area (Barnes 1982). This feature, approximately 700 feet thick, is made up of unconsolidated and loose sediments. The typically level surface of this region is broken up by ridges and depressions wherein sediments and clays are found, respectively. It is these areas that become the basis for area soils.

The unconsolidated nature of the sediments provides good soil for crops, but also causes the area to be a high risk for subsidence. Partially natural and partially human-induced subsidence occurs when the aquifers and salt domes are depleted of water and oil and gas, respectively, or in natural terms when the sediments, clays, and muds compress layers of soil. When oil and gas is depleted from a salt dome there is no way to recharge it. However, aquifers can be recharged, and the current trend of converting cities locally from ground water is an attempt to reduce the rate of subsidence in the project area.

6.2 Soils

The *Soil Survey of Fort Bend County, Texas* (1955) was reviewed to identify the soil associations and mapping units within the project area. This area of Fort Bend County has six soil associations; all are represented in the corridor, and listed here in order of occurrence (**Table 15**):

Table 75: US 59 Corridor Soil Associations

Soil Association	Description
Lake Charles-Bernard	Nearly level upland prairie soils, clay to clay loam, Lake Charles dominates the association at 75% with Bernard making up about 10%.
Beaumont-Lake Charles	Upland prairie soils, very clayey, Beaumont dominates with 80% and Lake Charles makes up only 15%.
Edna-Bernard	Upland prairie soils, fine sandy loam to clay loam, Edna comprises 65% of the association, and Bernard 15%.
Katy-Waller-Edna	Upland prairie soils, fine sandy loam to loam, Katy dominates at 40%, of the association, and Waller and Edna soils both comprise about 20% each.
Brazoria(Miller)-Pledger	Bottomland floodplain soils, very clayey, Brazoria makes up 60%, Pledger about 25%.
Norwood-Brazoria-Asa	Bottomland floodplain soils, silt loam to clay, Norwood dominates with 40%, Brazoria makes up 20%, and Asa makes up 15%.

Source: Study Team

Exhibit 6 shows the soil map from the U.S. Department of Agriculture (USDA) as an overlay on the 2008 aerial photos of the project area; **Table 16** describes the soil types that comprise the associations of the Study Area.

Table 16: US 59 Corridor Soil Types

Soil Type	Description	Soil Association	Hydric (Y/N)	Farm (Y/N)
Asa-Pledger complex (Ac)	Dominant soil is the Asa silty clay loam, Pledger occupies the swales in the landscape, slowly to moderately permeable, and infrequently flooded.	Brazoria-Pledger Norwood-Brazoria-Asa	N	Y prime

Table 16: US 59 Corridor Soil Types

Soil Type	Description	Soil Association	Hydric (Y/N)	Farm (Y/N)
Bernard clay loam (Bb)	Dark, moderately fertile, and productive soils, occupying level to sloping uplands, slowly permeable, and slowly drained, best rice soils in the county. Moderate shrink swell potential.	Lake Charles-Bernard Brazoria-Pledger Edna-Bernard	N	Y prime
Bernard-Edna clay loam (Bc)	1-4% slopes, 60-70% Bernard soils, slowly permeable, best use is for pasture given the slope and potential erosion problems.	Lake Charles-Bernard Brazoria-Pledger	N	Y prime
Bernard-Edna clay loam (Bd)	4-8% slopes, 50% Bernard, other 50% a mix, slowly permeable, low fertility, susceptible to erosion, poor for crops because droughty, best for pasture.	Brazoria-Pledger Edna-Bernard	N	Y prime
Bernard-Edna complex (Be)	Equal mix of the two, Edna occupies slight mounds and ridges, Bernard slightly depressed areas. Nearly level, very slow surface drainage, moderate to low productivity, erosion no problem.	Beaumont-Lake Charles Lake Charles-Bernard Edna-Bernard Katy-Waller-Edna	N	Y prime
Edna fine sandy loam (Ea)	Nearly level upland soils, sandy and crusty, very slowly permeable, moderate to low productivity, moderate fertility, droughty. Low to moderate shrink swell potential.	Lake Charles-Bernard Brazoria-Pledger Beaumont-Lake Charles Edna-Bernard Katy-Waller-Edna	N	N
Edna fine sandy loam (Eb)	1-4% sloping upland soils, susceptible to erosion, low productivity, droughty, very slowly permeable, best suited to pasture. Low to moderate shrink swell potential.	Lake Charles-Bernard Brazoria-Pledger Edna-Bernard	N	N
Hockley loamy fine sand (Ha)	1-4% sloping uplands, very slow to moderate permeability, well drained, low productivity, most is in pasture. Low shrink swell potential.	Brazoria-Pledger	N	N
Katy fine sandy loam (Ka)	Level to nearly level upland soils, 70% Edna fine sandy loam, Edna soils on slightly higher mounded surfaces and surround depressions filled with Waller, poorly drained-numerous low wet areas, very slow permeability, row crops not successful, needs artificial drainage.	Edna-Bernard Katy-Waller-Edna	N	Y prime
Kaufman clay (Kd)	1-4% sloping uplands, very slow to moderate permeability, well drained, low productivity, most is in pasture. Low shrink swell potential.	Brazoria-Pledger	Y	N
Lake Charles clay (La)	Nearly level on prairies (uplands), most extensive soils in the county, surface has a gilgai micro-relief or "hog-wallowed", slow permeability, best in county for rice cultivation. Very high shrink-swell potential.	Lake Charles-Bernard Beaumont-Lake Charles Edna-Bernard	N	Y prime
Brazoria clay (formerly Miller) (Ma)	Level to nearly level floodplains, most extensive bottomland soil in the county, productive and drought resistant, slowly permeable, infrequently flooded, moderately well drained (sometimes needs help with artificial drainage in wet season). High shrink swell potential.	Brazoria-Pledger Norwood-Brazoria-Asa	N	Y prime
Brazoria silt loam (Mc)	Productive floodplain soil, occupies natural levees along present and abandoned channels of the Brazos River, slow to moderate permeability, infrequently flooded. Moderate to high shrink swell potential.	Brazoria-Pledger Norwood- Brazoria-Asa	N	Y prime

Table 16: US 59 Corridor Soil Types				
Soil Type	**Description**	**Soil Association**	**Hydric (Y/N)**	**Farm (Y/N)**
Brazoria silty clay loam (Md)	Productive floodplain soil, slow to moderate permeability, infrequently flooded. Moderate to high shrink swell potential.	Norwood- Brazoria-Asa	N	Y prime
Pledger clay (Pa)	Dark clay soils, occupy level to nearly level flood plains of Brazos and lower San Bernard Rivers, slowly permeable, infrequently flooded, moderately when drained but helped with artificial drainage in wet season. Very high shrink swell potential.	Norwood-Brazoria-Asa	N	Y prime
Sloping alluvial land (Sb)	Old abandoned stream channels or sloughs and the sloping banks on the sides of channels throughout the Brazos River floodplain. Long and narrow areas, slopes range from 2-20%, avg. slope 8%, unsuitable for cultivation, best suited for pasture.	Norwood-Brazoria-Asa	N	N
Water (W)	Water	N/A	N/A	N/A

Source: Study Team

Environmental Consequences of Implementing the No-Build Alternative

Implementation of the No-Build Alternative would not require additional ROW and would not result in impacts to soils through movement and possible removal.

Environmental Consequences of Implementing the Recommended Build Alternative

Implementation of the Recommended Build Alternative would result in the acquisition of additional ROW and would result in impacts to soils through movement and possible removal. Also, compaction of soils from various construction activities would degrade their nutrient content, and contribute somewhat to area subsidence.

6.3 Farmlands

In Texas, farmland is classified as either "prime" farmland or "farmland of State importance". Additionally, farmland is also given a "Land Capability Classification" that identifies the best types of agricultural practice, dependent on various factors. Any soil that has a Land Capability Classification of I, II, III, or IV may be subject to the FPPA. All soil types within the proposed project are classed I, II, or IV.

The FPPA requires that federal agencies identify and take into account the adverse effects of their programs on the preservation of farmlands; consider alternative actions, as appropriate, that could lessen adverse effects; and ensure that the project is compatible with state and local programs and policies to protect farmlands (7 CFR Part 658). Coordination with the Natural Resource Conservation Service (NRCS) was completed to meet these requirements. Form CPA-106 was completed in consultation with NRCS staff and is included in **Appendix D. Table 17** presents the list of prime farmland soils affected by the proposed project.

Table 17: Prime Farmland Soils	
Soil Name	**Soil Symbol**
Prime Farmland Soils	
Asa-Pledger Complex	Ac
Bernard Clay Loam, 0 to 1 Percent Slopes	Bb
Bernard-Edna Clay Loams, 4 to 8 percent slopes	Bd
Bernard-Edna Complex, 0 to 1 percent slopes	Be
Lake Charles Clay, 0 to 1 percent slopes	La
Miller Clay (Brazoria)	Ma
Pledger Clay	Pa
Statewide Important Farmland Soils	
Edna Fine Sandy Loam, 0 to 1 percent slopes	Ea
Edna Fine Sandy Loam, 1 to 4 percent slopes	Eb
Hockley (Monaville) Loamy Fine Sand, 0 to 1 percent slopes	Ha

Source: Study Team

Environmental Consequences of Implementing the No-Build Alternative

Implementation of the No-Build Alternative would not require additional ROW nor result in impacts to farmlands. Therefore, coordination with the NRCS would not be required.

Environmental Consequences of Implementing the Recommended Build Alternative

The Recommended Build Alternative is estimated to directly convert approximately 38 acres of prime farmland soils and approximately 13 acres of statewide important farmland of State importance. Out of a possible 260 points, the farmland conversion impact rating for the Proposed Project is 133. Because the score is less than 160, further consideration for protection and further evaluation and coordination with the NRCS is not necessary (7 CFR §658.4(c)(2)).

6.4 Beneficial Landscape Practices

In accordance with the *Executive Memorandum on Landscaping Practices* issued on August 10, 1995, all agencies shall comply with the NEPA as it relates to vegetation management and landscape practices for all federally assisted projects. The EM directs that where cost-effective and to the extent practicable, agencies would (1) use regionally native plants for landscaping; (2) design, use, or promote construction practices that minimize adverse effects on the natural habitat; (3) seed to prevent pollution by, among other things, reducing fertilizer and pesticide use; (4) implement water-efficient and runoff reduction practices; and (5) create demonstration projects employing these practices. Landscaping included with this project would comply with the EM and the guidelines for environmentally and economically beneficial landscape practices.

6.5 Invasive Species

On February 3, 1999, the President issued *Executive Order 13112 Invasive Species* to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts. In accordance with *Executive Order 13112* on invasive species, native plant species would be used in the landscaping and in the seed mixes where practicable.

Environmental Consequences of Implementing the No-Build Alternative

If the No-Build alternative were implemented, the existing facility and the clear zones would continue to be mowed and maintained at the current maintenance intervals. No additional landscaping or seeding would be required.

Environmental Consequences of Implementing the Recommended Build Alternative

If the Recommended Build Alternative were implemented, in accordance with EO 13112 on *Invasive Species*, native plant species would be used in the landscaping and in the seed mixes where practicable.

6.6 Vegetation and Wildlife Habitat

The project is located within the Gulf Coast Prairies and Marshes region of Texas. The *Vegetation Types of Texas* (1984) classifies the project area within Type 44-Crops. Type 44 includes cultivated cover crops or row crops that provide food and/or fiber for either man or domestic animals. Type 44 may also portray grassland associated with crop rotations. The existing ROW is not consistent with these regions because it is has been cleared and is regularly maintained. The vegetation on the adjacent properties is consistent with the above-referenced regions except in areas of un-maintained vegetation, or urban development.

In accordance with the 1998 Provision (4) (A) (ii) of the TxDOT and Texas Parks and Wildlife Department (TPWD) *Memorandum of Understanding* (MOU), non-regulatory compensatory mitigation for vegetation and habitat impacts were evaluated. A pedestrian survey of the project corridor was conducted on September 10th, 11th, and 12th, 2003. The results are included in **Appendix E** (**Biological Resources Technical Report**) in **Tables E1 – E7**[4], along with any potential impacts associated with the implementation of the Recommended Build Alternative. **Table E1** identifies and describes un-maintained open vegetation areas along the project corridor. Un-maintained wooded vegetation areas along the project corridor are listed in **Table E2**. **Table E3** identifies and describes fence line vegetation along the project corridor. Vegetation within islands/stands is present along the project corridor, with their locations, descriptions, and impacts resulting from the implementation of the Recommended Build Alternative listed in **Table E4**. Water bodies noted along the project corridor consist of one landscaping pond and several streams. The locations of these water bodies along with their descriptions, and any potential impacts resulting from the implementation of the Recommended Build Alternative are listed in **Table E5**. Trees unusually larger than other trees in the area were noted along the project corridor. **Table E6** lists the tree locations, descriptions, and possible impacts resulting from the implementation of Recommended Build Alternative. Tree removal would be avoided when ever possible.

Table 18 (of this document**)** summarizes the total estimated acres of impacts associated with the Recommended Build Alternative.

Environmental Consequences of Implementing the No-Build Alternative

If the No-Build Alternative were implemented, the existing facility would continue to be mowed and maintained (where applicable) at the current maintenance intervals. The habitat in the unmaintained

[4] **Tables 1** through **7** in **Section 6.6** that have been referenced appear in the Biological Resources Technical Report that is located in **Appendix E**.

sections of the proposed ROW would change with normal biological succession. The No-Build Alternative would not result in any conversion of vegetated land to transportation use.

Environmental Consequences of Implementing the Recommended Build Alternative

Channel impacts are expected to be minimal. Existing culverts may be replaced in order to bring the roadway facility up to current standards. Bridge and culvert replacement design files were not available at the time of this report. **Table 18** below discusses the impacts for stream channels based on the current design plans.

Throughout the project area, vegetation consists primarily of weedy and perennial grasses, typical of what is found in mowed and maintained roadway ROWs. Because of previous land use activities adjacent to US 59 such as farming, cattle grazing, and commercial development, vegetation types are those typical of row crops, fallow farmland, some maintained properties, and sporadic wooded areas. Some fence-line vegetation would be displaced in the process of relocating fences of properties partially acquired for additional ROW. The project area has approximately 14,275 linear feet of fence-line vegetation. Approximately 7,011 linear feet (49.1%) would be within new ROW and would be impacted through displacement.

Areas along the project consist of approximately 31 percent agricultural land, 28 percent upland un-maintained wooded vegetation, 25 percent upland maintained open vegetation, 14 percent upland urban land with maintained vegetation, and 2 percent open bottomland vegetation.

Over time the project corridor area has been progressively converted through various human uses. As a result, few natural areas of vegetation occur within the project corridor. Aquatic habitats do occur but are primarily associated with seasonal streams, impoundments, and depressed areas. Most sensitive plant species and plant communities are associated with undisturbed soil surfaces. Only activities in jurisdictional areas permitted under Section 404 of the Clean Water Act (CWA) would require mitigation (see **Section 9.0**).

Table 18: Acres of Estimated Impacts Associated with the Recommended Build Alternative

Vegetation Types	Acres of Estimated Impacts	
	Temporary	Permanent
Mowed and Maintained Exist ROW	296.7	158.8
Woody Vegetation Prop ROW	-	8.0
Crops Prop ROW	-	5.7
Pasture Prop ROW	-	26.9
Grassland Prop ROW	7.9	2.5
Total Acres of Impacts	**304.6**	**201.8**

Source: Study Team

6.7 Threatened and Endangered Species

The *Endangered Species Act* (ESA) requires consideration of potential influence attributed to proposed project activities upon federally protected species. The proposed project is located in a semi-urbanized area and no threatened or endangered species were observed during pedestrian surveys of the project area.

Table 19 lists the state and federal threatened (T) and endangered (E) species indigenous to Fort Bend County and whether their habitat was observed.

Table 19: Fort Bend County: State and Federal Threatened and Endangered Species and Species of Concern

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present
AMPHIBIANS					
Houston Toad	*Bufo houstonensis*	E	E†	Sandy soil, breeds in ephemeral pools	No
BIRDS					
American Peregrine Falcon	*Falco peregrinus anatum*	T	DM†	Potential migrant	No
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	SOC	DM†	Potential migrant	No
Attwater's Greater Prairie-chicken	*Tympanuchus cupido attwateri*	E	E†	Thick 1-3' tall grass from 0'-200' above sea level along coast	No
Bald Eagle (Nesting)	*Haliaeetus leucocephalus*	T	DM	Near water areas, in tall trees	Yes
Henslow Sparrow (wintering)	*Ammodramus henslowii*	SOC	*	Weedy fields, fields with bunch grass, vines, and brambles, need bare ground	No
Interior Least Tern	*Sterna antillarum athalassos*	E	*	Nests along sand and gravel bars within streams and rivers, only listed when 50 miles inland	No
Western Burrowing Owl	*Athene cunicularia hypugaea*	SOC	*	Open grasslands, prairie, plains, and savannahs	Yes
White-faced Ibis	*Plegadis chihi*	T	†	Freshwater marshes, but some brackish or salt marshes	No
White-tailed Hawk	*Buteo albicaudatus*	T	*	Coastal Prairies	Yes
Whooping Crane	*Grus americana*	E	E, EXPN	Winters in Aransas NWR	Yes
Wood Stork	*Mycteria americana*	T	E†	Prairie ponds and flooded pastures	Yes
FISHES					
American eel	*Anguilla rostrata*	SOC	*	Coastal waterways below reservoirs to gulf	No
Sharpnose shiner	*Notropis oxyrhynchus*	SOC	C	Large turbid river, sand, gravel, and clay-mud bottom	No
MAMMALS					
Louisiana black bear	*Ursus americanus luteolus*	T	T†	Bottomland hardwoods; large, undisturbed forested areas	No
Plains spotted skunk	*Spilogale putoria interrupta*	SOC	†	Open fields, prairies, croplands, fence rows, farm yards, brushy areas, and tall grass prairies	No
Red wolf	*Canis rufus*	E	E†	Extirpated, brushy, forested areas, coastal prairies	No
MOLLUSKS					
False spike mussel	*Quincuncina mitchelli*	T	*	Cobble and mud substrate with water lilies present	Yes
Pistolgrip	*Tritogonia verrucosa*	SOC	*	Rock, hard mud, silt, and soft bottoms, often buried deeply	Yes
Rock pocketbook	*Arcidens confragosus*	SOC	*	Mud, sand, and gravel substrates, in standing or slow flowing water	Yes
Smooth pimpleback	*Quadrula houstonensis*	T	*	Mixed mud, sand, and fine gravel, tolerates slow to moderate flow rates.	Yes
Texas fawnsfoot	*Truncilla macrodon*	T	*	Possibly sand, gravel, and perhaps sandy-mud in moderate flows.	Yes

Table 19: Fort Bend County: State and Federal Threatened and Endangered Species and Species of Concern					
Common Name	**Scientific Name**	**State Status**	**Federal Status**	**Habitat Description**	**Habitat Present**
REPTILES					
Alligator snapping turtle	*Macrochelys temminckii*	T	*	Water bodies with mud bottom and abundant vegetation	No
Texas horned lizard	*Phrynosoma cornutum*	T	†	Open, semi-arid regions, with bunch grass	No
Timber/canebrake rattlesnake	*Crotalus horridus*	T	*	Swamps/floodplains of hardwood/upland pine	No
VASCULAR PLANTS					
Texas prairie dawn	*Hymenoxys texana*	E	E	Poorly drained areas in open grasslands; pimple mounds	No
Threeflower broomweed	*Thurovia triflora*	SOC	*	Low vegetation, on light colored silt or fine sand over saline clay.	No

Source: TPWD

* These species occur on the State listing of threatened or endangered species; however, they are not federally listed at this time by the U.S. Fish and Wildlife Service (2010).

† These species are listed by the U.S. Wildlife Service, however, they are not listed to occur within this county by the Clear Lake office of the U.S. Fish and Wildlife Service (2010).

-- Not listed for Texas Parks and Wildlife for this county (4/7/10).

E = endangered T = threatened H = historical occurrence I = introduced population C = candidate species SOC = species of concern DM = delisted taxon, recovered, being monitored first five years AD = proposed delisting SAT = similarity of appearance to a threatened taxon, D = delisted taxon

Each listed species' determination of habitat presence, based on records research and May and June 2010 site reconnaissance, is addressed below:

6.7.1 Amphibians

- **Houston Toad** (*Bufo houstonensis*) – Project area does not contain the sandy soils preferred by this species; suitable habitat not present.

6.7.2 Birds

- **American Peregrine Falcon** (*Falco peregrinus anatum*) and **Arctic Peregrine Falcon** (*Falco peregrinus tundrius*) – Peregrine Falcons are migrating birds who pass throughout Texas; however, stopovers are at leading landscape edges such as lake shores, coastlines, and barrier islands, which are not located within the project area or immediate vicinity. Furthermore, there are no tall buildings or other nesting sites within the project vicinity. A lack of food sources would also discourage these birds from occupying the project area.
- **Attwater's Prairie Chicken** (*Tympanuchus cupido attwateri)* – The tall grass coastal prairies that are essential to the survival of this species do not exist in the project area or in adjacent areas.
- **Bald Eagle** (Nesting) (*Haliaeetus leucocephalus*) – No suitable water bodies (rivers, lakes) are present near the project area. The area is close to the Brazos River, and nesting along the banks could occur. However, no work would be performed in this area and the species is easily able to avoid impacts.

- **Henslow's Sparrow** (wintering) (*Ammodramus henslowii*) – Preferred fields are not present within project ROW or vicinity.
- **Interior Least Tern** (*Sterna antillarum athalassos*) – Neither the project corridor nor surrounding area has the habitat this species prefers. Bare or sparsely vegetated sand, shell and gravel beaches, sandbars, islands, and salt flats are not associated with the Brazos River, which is the nearest large enough habitat area. Furthermore, the vegetation along the Brazos River is thick and the beaches are very narrow if they exist at all. The river is also very prone to flooding at the time when breeding occurs.
- **Western Burrowing Owl** (*Athene cunicularia hypugaea*) – A number of the elements (i.e. Open, dry, treeless areas on grasslands; short vegetation, high percentages of bare ground; Dried manure from cows, horses, or bison) needed for habitat of this species are in abundant supply in area farms and fields. However, the project would not be going into these areas and therefore they are not at risk because of the proposed project.
- **White-tailed Hawk** (*Buteo albicaudatus*) – Inland habitat includes prairies, mesquite and oak savannas, and mixed savanna-chaparral. The drainage area of existing facility is remotely similar to this habitat, and there are numerous open fields in the vicinity that contain this habitat. However, the species is able to easily and quickly escape any harm. Therefore the project is anticipated to have no effect/impact on this species.
- **Whooping Crane** (*Grus Americana*) – The project corridor does not contain the required habitat. The fields that flood do not provide the preferred habitat of large coastal marshes and swamps, typically tidally influenced. Secondary habitat would be in agricultural fields. However, the proposed project does not include any work in these fields and the species is able to escape any harm. Therefore the project is anticipated to have no effect/impact on this species.
- **Wood Stork** (*Mycteria Americana*) – The project corridor does not contain habitat for this species. It is neither close to any coastal area, nor close to tidally-influenced waters. Its main preferred habitat is the "Gulf Coast, where it nested in the treetops of cypress swamps" (Tveten, 1993). However, in the vicinity of the project are large open farms and pastures which flood during rainy periods and maintain standing water. Therefore, there is habitat (albeit marginal because of the lack of nesting trees) adjacent the project area. However, the proposed project does not include any work in these fields, the species is able to easily and quickly escape any harm, and it has rarely been spotted in this area. Therefore the project is anticipated to have no effect/impact on this species.

6.7.3 Fish

- **American eel** (*Anguilla rostrata*) – No water bodies are present within the project ROW that are of sufficient size for this species, nor are they coastal waters.
- **Sharpnose shiner** (*Notropis oxyrhynchus*) – Although it is native to the Brazos River, during periods of elevated discharge, which is becoming very frequent with the volumes of runoff from urban development, the species prefers calmer currents and shallower water than the reach associated with the project provides.

6.7.4 Mammals

- **Louisiana black bear** (*Ursus americanus luteolus*) – Project area does not contain large, undisturbed forested tracts.
- **Plains spotted skunk (***Spilogale putorius interrupta***) –** Plains spotted skunk live in open tallgrass prairies, forests, bushy areas and cultivated land. Wild habitat is generally associated with streams or rivers, but will also live in areas of human habitation including barns and brush piles. The project area is existing mowed & maintained ROW, wooded tract (not distinctly brushy), and pastureland; therefore, the project corridor does not contain preferred habitat. These features are not present in the project corridor or in surrounding areas.
- **Red wolf** (*Canis rufus*) – Wooded areas along the project ROW are not particularly brushy as desired by the species. Furthermoe, *The Mammals of Texas* (online) reports: "It appears that in Texas, red wolves are now extinct."

6.7.5 Mollusks

- **Pistolgrip** (*Tritogonia verrucosa*) and **Rock pocketbook** (*Arcidens confragosus*) – Since the preferred water size, flow and substrate have a wide range, they generally fit the conditions of the waters within the project area. Therefore, there is the potential for the project area to contain these two species of concern. Impacts to waters within the project area are anticipated to be minimal. Therefore, the project is anticipated to have no impact on these species.
- **False spike mussel** (*Quincuncina mitchelli*) – The species is believed to be extinct and has not been identified in any stream in Texas since 1970. However, when it was prevalent it probably inhabited substrates varying from mud through mixtures of sand, gravel and cobble. Since sites are still being surveyed, and since all of the streams meet these habitat criteria, it is possible that the species is in or near the project area. Impacts to waters within the project area are anticipated to be minimal. Therefore, the project is anticipated to have no impact on these species.
- **Smooth pimpleback** (*Quadrula houstonensis*) and **Texas fawnsfoot** (*Truncilla macrodon*) – These species have been studied and found to be endemic to the Brazos and Colorado rivers of Central Texas (Howells et al. 1996; Howells et al.1997). The **Smooth pimpleback** was identified in the in five water bodies of the Brazos River Basin in 2008. The species inhabits substrate that consist of mixed mud, sand, and fine gravel" (Randklev, Kennedy, and Lundeen, 2009). Since these materials describe the streambeds of all streams in the project study area, it is possible that the species is in or near the project area. Impacts to waters within the project area are anticipated to be minimal. Therefore, the project is anticipated to have no impact on these species.

6.7.6 Reptiles

- **Alligator snapping turtle** (*Macrochelys temminckii*) – No suitable water bodies or vegetation are present within the project ROW.
- **Texas horned lizard** (*Phrynosoma cornutum*) – No open bunch-grass areas are present within project ROW or vicinity.
- **Timber/canebrake rattlesnake (***Crotalus horridus***) –** Timber rattlesnakes prefer moist lowland forests and hilly woodlands or thickets near permanent water sources such as rivers, lakes, ponds,

streams and swamps where tree stumps, logs and branches provide refuge. This habitat exists in some of the stream crossings, but in very limited supply and not enough to provide constant habitat. However, since some of the preferred habitat exists within the project area there is a possibility of the species in the project area. The project is anticipated to have no effect/impact on this species because the areas wherein the work would be conducted do not contain enough of the preferred habitat to induce the specie's habitation.

6.7.7 Plants

- **Texas prairie dawn** (*Hymenoxys texana*) – Surveys for the Texas prairie dawn (*Hymoenoxys texana*) were performed in April 2003, October 2005, May 2007, and May-June 2010 for the proposed project. Results from the four surveys indicate that suitable habitat (pimple mounds) for the Texas prairie dawn does not exist within the ROW for the existing roadway section or within the proposed ROW for the new location alignment. Therefore the project is anticipated to have no effect/impact on this species.
- **Threeflower broomweed** (*Thurovia triflora*) – This project contained very few areas of low or spare vegetation with light-colored silt or fine sand over saline clay within pasture; these were surveyed for this species. The areas containing primary habitat were surrounded by invasive and non-native Texas grasses. Although soil color and texture may suggest the species preference, the threeflower broomweed is typically found along drier upper margins of ecotone between salty prairie and tidal flats; these habitats were not found within the project ROW or vicinity. Therefore the project is anticipated to have no effect/impact on this species.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not require any construction work within the existing ROW or any proposed ROW, and would have no effect on any federally-listed species, their habitats, or designated critical habitat; therefore, coordination with the US Fish and Wildlife Service (USFWS) is not required. Furthermore, it has been determined that the No-Build Alternative would have no impact on any state-listed species.

Environmental Consequences of Implementing the Recommended Build Alternative

The National Marine Fisheries Service (NMFS) was contacted for information regarding federally listed threatened or endangered species. According to the NMFS, the proposed project would not impact living marine resources under NMFS jurisdiction.

Appendix E presents a detailed analysis of all biological resources along the project. Also, field surveys and a search of TPWD's Natural Diversity Database (NDD) show no records of potential habitat for any species listed on the *State and Federal Threatened and Endangered Species and Species of Concern of Fort Bend County* in the project area (see **Table 19**). TxDOT Houston environmental staff has made a finding of "no effect" on federally listed threatened or endangered species in the subject project area; therefore, coordination with USFWS is not necessary. The TPWD was contacted for information regarding threatened and endangered species in the project area. They responded with the list of special species that occur in Fort Bend County. This list is included in **Appendix F**.

An updated NDD check was performed in November of 2007. The NDD showed that there have been no sightings of any federally or state listed species within close proximity of the proposed project area. However, it should be noted that an absence of data for a particular species does not mean an absence of occurrence for Threatened, Endangered, and Rare species. Agency correspondence letters can be found in **Appendix F**.

A subsequent check of the TPWD's "MIMIC" version of the Natural Diversity Database (NDD) in conjunction with Geographic Information System (GIS) was obtained on September 1, 2010. The NDD search found no element of occurrence record (EOR) for any listed threatened and/or endangered species within a 1.5-mile radius of the proposed project. An EOR is a spatial and tabular record of an area of land and/or water in which a species, natural community or other substantial feature of natural diversity is or was present. An EOR may be a single contiguous area or may be comprised of discrete patches or subpopulations. There have been no other recorded sightings of any federally- or state-listed species within close proximity of the proposed project area. Again, it should be noted that an absence of data for a particular species does not mean an absence of occurrence for threatened, endangered, and rare species.

6.8 Migratory Bird Treaty Act

The *Migratory Bird Treaty Act of 1918* (MBTA) states it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, or egg in part or in whole, without a federal permit issued in accordance with the Act's policies and regulations.

A cursory nest survey was conducted during environmental investigations in February, June and October 2009, and April, July, and August of 2010. Field reconnaissance over that period identified the presence of nests and nesting habitat for bird species such as Chimney Swift (*Chaetura pelagica*), English or House Sparrow (*Passer domesticus*), and various flycatchers and swallows beneath the bridges at Dry Creek, Coon Creek, and Seabourne Creek within the proposed project limits.

<u>Environmental Consequences of Implementing the No-Build Alternative</u>

Implementation of the No-Build Alternative would not require the movement, demolition, or construction of any standing structure, including bridges, overpasses, and culverts; therefore, it would result in no impacts to migratory birds, their nests, or their young.

<u>Environmental Consequences of Implementing the Recommended Build Alternative</u>

The migration patterns of bird species would not be affected by this project. In accordance with the MBTA, measures would be taken prior to bridge, overpass, and culvert reconstruction that would avoid harm to these species. No vegetation would be removed containing nests, eggs, or young should they occur on the project site during the nesting and breeding season (March 1 through August 31). Implementing the Recommended Build Alternative would have no effect on migratory birds, their nests, or their young.

6.9 Essential Fish Habitat

The *Magnuson-Stevens Fishery Conservation and Management Act, as amended on October 11, 1996*, requires all federal agencies whose actions would impact essential fish habitat (EFH) to consult with the

NMFS regarding potential adverse effects. This means that any project that receives federal funding must address potential impacts to EFH.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not require any activities within tidally influenced waters; therefore, there would be no impacts to EFH.

Environmental Consequences of Implementing the Recommended Build Alternative

There are no tidally influenced waters in the project area. Therefore, EFH would not be impacted and coordination with the NMFS is not required.

6.10 Fish and Wildlife Coordination Act

The *Fish and Wildlife Coordination Act* was enacted to protect fish and wildlife when federal actions result in a modification of a natural stream or other body of water. If a modification to a natural stream or water body is expected, coordination with the USFWS is required.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not impound, divert, or otherwise control or modify any water bodies. Coordination with the USFWS per the *Fish and Wildlife Coordination Act* would not be required.

Environmental Consequences of Implementing the Recommended Build Alternative

Although the proposed project would not modify any channels, it would result in the reconstruction of all bridge and culvert crossings. Furthermore, stream channelization is not anticipated. Therefore, coordination with the USFWS per the *Fish and Wildlife Coordination Act* is required.

6.11 Bald and Golden Eagle Protection Act

The *Bald and Golden Eagle Protection Act of 1940*, (16 U.S.C. 668-668c), which has been amended several times since then, prohibits anyone without a permit issued by the Secretary of the Interior from "taking" Bald Eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, offer to purchase or barter, transport, export or import, at any time or any manner, any Bald Eagle ... [or any Golden Eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

The Bald Eagle (*Haliaeetus leucocephalus*), a Federally- and State-listed threatened species, is an uncommon to rare migrant and winter resident throughout Texas (TOS, 1995). It is generally found in coastal areas and around large bodies of water such as reservoirs, lakes, and rivers. Nesting in Texas is largely restricted to the eastern one-third of the state and to the coastal prairies region. In Texas, wintering and migrating Bald Eagles frequently stop over along the shores and large rivers, which provide the eagle with the bulk of its dietary requirements (TPWD, 2002). Field reconnaissance and available records did not reveal any specimens, nests, or primary habitat of the Bald Eagle within the proposed ROW. The project area does not appear to contain the Eagle's preferred habitat; however, nearby areas may contain possible habitat for a Bald Eagle. According to a review of the NDD, the study area is not mapped as a Bald Eagle management zone.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not cause any interaction with Bald and/or Golden Eagle nests or individuals.

Environmental Consequences of Implementing the Recommended Build Alternative

First the Bald Eagle is a bird of prey that mainly hunts fish and water fowl, and because the nearest water body that could support them is well outside the project limits, construction of the Recommended Build Alternative would not cause workers to encounter or harm individuals of the species. Second, though the Golden Eagle hunts small mammals, birds, and reptiles, it lives in mountainous areas, prairie coulees, and other places where rugged terrain creates abundant updrafts. This type of habitat is not available in the study area or in the vicinity of the study area.

6.12 General Wildlife and Habitat

Soils in the project area provide ideal habitat for a variety of wildlife. Quail and dove are common in grassy areas where thick weeds provide cover and also act as a food source. Wooded areas could and may support fox, squirrel, small furbearing animals, various species of songbird, spiders and insects, and reptiles. White-tailed deer find good cover in these wooded areas, but require open grassy areas for food, so daily migration is common.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not require any construction work within the existing ROW or any proposed ROW, and therefore would have no effect on any wildlife.

Environmental Consequences of Implementing the Recommended Build Alternative

The Recommended Build Alternative would require construction work within the existing ROW and would require additional ROW; however, the habitat within existing and proposed ROW is not unique to Fort Bend County, to this area of the county, or rare in the county, is not special, and any wildlife living therein is likely to move to other areas of the same habitat and similar habitat value; therefore, no adverse impact to wildlife is anticipated with the proposed project.

6.13 Wild and Scenic Rivers

The *National Wild and Scenic Rivers System* was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.

Environmental Consequences of Implementing the No-Build Alternative

Implementation of the No-Build Alternative would not have impacts on any present, proposed, or potential unit of the National Wild and Scenic River System.

Environmental Consequences of Implementing the Recommended Build Alternative

There are no water bodies within the proposed project area that are designated to be within the National Wild and Scenic River System. Therefore, the Recommended Build Alternative would have no impacts on present, proposed, or potential units of the National Wild and Scenic River System.

6.14 Significant Stream Segments

The Texas legislature may designate a river or stream segment of unique ecological value and thus a "Significant Stream Segment" following the recommendations of a regional water planning group. As per 16.051 (f) of the Texas Water Code, this designation solely means that a state agency or political subdivision of the State may not finance the actual construction of a reservoir in a specific river or stream segment designated by the legislature under this subsection. The following criteria are used when recommending a river or stream segment as being of unique ecological value: biological or hydrologic function, riparian conservation areas, high water quality/exceptional aquatic life/high aesthetic value, or threatened or endangered species/unique communities.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not involve construction of a reservoir in any water body designated as a Significant Stream Segment.

Environmental Consequences of Implementing the Recommended Build Alternative

In accordance with 16.051 (f) of the Texas Water Code, the project would not involve construction of a reservoir in any water body designated as a Significant Stream Segment.

7.0 CULTURAL RESOURCES

NEPA requires consideration of important historic, cultural, and natural aspects of our national heritage. Important aspects of our national heritage that may be present in the project corridor have been considered under Section 106 of the *National Historic Preservation Act of 1966* (NHPA), as amended. This act requires federal agencies to "take into account" the "effect" that an undertaking will have on "historic properties." Historic properties are those included in or are eligible for inclusion in the National Register of Historic Places (NRHP) and may include structures, buildings/districts, objects, cemeteries, and archaeological sites. In accordance with the Advisory Council on Historic Preservation (ACHP) regulations pertaining to the protection of historic properties (36 CFR 800), federal agencies are required to locate, evaluate and assess the effects that the undertaking will have on such properties. These steps have been completed under terms of the *First Amended Programmatic Agreement for Transportation Undertakings* (PA-TU) between TxDOT, the State Historic Preservation Officer (SHPO), FHWA, and the ACHP. The identification of potential historic properties has been undertaken for structures, buildings/districts, objects, cemeteries, and archaeological sites found within the project corridor.

This project also falls under the purview of the Texas Antiquities Code (TAC), because it may involve "lands owned or controlled by the State of Texas or any city, county, or local municipality thereof." As the project will involve state purchase of ROW, or lands belonging to local municipalities and of counties, under jurisdiction of the TAC, historic properties will also be considered under provisions of the MOU between the SHPO and TxDOT. The TAC allows for all such properties to be considered as State Archaeological Landmarks (SALs), and requires that each be examined in terms of possible "significance." Significance standards for the code are clearly outlined under Chapter 26 of the Texas Historical Commission's (THC's) *Rules of Practice under Procedure for the TAC* and closely follow those of the Secretary of Interior's Standards and Guidelines.

7.1 Historical Resources Impacts

7.1.1 Project Description

The TxDOT Houston District is proposing to improve a 12-mile section of US 59 from Spur 10/Hartiedge Road to west of SH 99 (Grand Parkway)/ FM 2759 (Crabb River Road) in Fort Bend County, Texas. From Spur 10 to FM 762, the proposed project would widen the existing divided highway from four lanes to six lanes. The completed facility would be a six-lane rural freeway with depressed grassy medians and 12-foot shoulders. All new travel lanes would be 12 feet wide. The proposed segment would also include continuous two-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads. Grade separation/interchange improvements would be performed at FM 2218, SH 36, Kroesche Road and Cottonwood Church Road. The curve at US 59 at Spur 529 would be replaced with a new interchange. Upgrades to rural freeway cross-sections and upgrades to freeway/interstate highway standards south of Spur 529 are also included.

From FM 762 to SH 99, the proposed project would widen the existing divided highway from four lanes to eight lanes and add two additional 12 foot HOV lanes, with 15-foot shoulders. All new travel lanes would be 12 feet wide. A concrete median barrier would separate the opposing travel lanes. The completed facility would be a 10-Iane urban freeway with 12-foot outside shoulders. The segment would also include continuous three-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads, as well as urban freeway cross sections. Approximately 55.2 acres of new ROW would be required.

7.1.2 Previous Coordination

This project was previously coordinated in February 2004 in which TxDOT Historians determined that 30 historic-age resources (built prior to 1960) were located within the 150-foot Area of Potential Effects (APE) for the proposed project. In a letter dated 12 August 2004, Texas SHPO concurred with TxDOT's determinations that the 30 identified resources were not eligible for inclusion within the National Register of Historic Places (NRHP). Additional coordination was done in May 2008 due to proposed design changes that revealed the presence of an additional historic-age resource that was not previously documented. This resource was also determined to be not eligible for NRHP listing.

This addendum addresses the need to update the 2004 survey using a new cut-off date of 1970, based on a current let-date of 2015. This addendum serves only to evaluate any additional historic-age resources not previously identified in the 2004 report and not to re-evaluate the entire project.

7.1.3 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 feet from the existing and proposed ROW. A reconnaissance survey undertaken by TxDOT personnel in February 2011 revealed that there are six (6) previously undocumented historic-age resources (constructed between 1960 and 1970) in the project APE. In addition seven (7) previously identified resources from the 2004 survey were found to be no longer

extant. Furthermore, an additional three (3) previously undocumented resources were found to be located on the parcel for Resource #2 from the 2004 survey. Consequently, the total number of historic-age resources within the APE is 33.

7.1.4 Identification of Historic Age Resources

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 determined that they are not eligible for inclusion in the NRHP, either individually or as a district. These resources 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 type, period, method of construction, work of a master, or high artistic value to qualify as eligible under Criterion C. Additionally, the properties evidence unsympathetic alterations that have compromised their integrity.

7.1.5 Conclusions

Pursuant to Stipulation VI "Undertakings with Potential to Cause Effects," Appendix 4 (2) of the Programmatic Agreement for Transportation Undertakings, (PATU) between the Federal Highway Administration (FHWA), the Texas State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and the Texas Department of Transportation (TxDOT) and the Memorandum of Understanding (MOU), TxDOT Historians determined that no historic properties are present within the proposed project's APE and individual project coordination with SHPO is not required.

For additional information on historic resources in the project APE, the *Historic Resources Survey Report* is attached as **Appendix G**, as is a brief summary of previous Historical Resources coordination.

<u>Environmental Consequences of Implementing the No-Build Alternative</u>

Under the No-Build alternative no construction would occur within the existing or proposed ROW; therefore, there would be no effect on historic resources.

<u>Environmental Consequences of Implementing the Recommended Build Alternative</u>

In accordance with the PA among the FHWA, the THC, the ACHP, and the TxDOT and the MOU among TxDOT and THC, and TxDOT has determined that the proposed project activities do not have the potential to affect historic resources.

7.2 Archaeological Resources Impacts

A literature and record review of the project corridor was conducted prior to field survey to determine the locations of recorded sites and properties currently listed on the NRHP. Records housed at the Texas Archaeological Research Laboratory (TARL) and the THC were examined along with the Texas Archaeological Sites Atlas. One recorded site, 41FB291 (US 59 & FM762), was found to be located within the project corridor boundaries. This multi-component site was sampled by a local archaeological society during the spring of 2003. This site overlooks Rabbs Bayou and was found to exhibit late prehistoric lithics and pottery mixed with modern nails and glass fragments.

Background environmental data was also reviewed for the project corridor area to provide insight as to the availability of natural resources for human activity and the natural factors and processes affecting the preservation of cultural material. The project corridor is located in the Western Gulf Coastal Plain

physiographic province. This area is relatively young in geological terms and is comprised of belt-like strips that roughly parallel the modern Gulf of Mexico shoreline. The subsurface strata dips seaward at a somewhat steeper angle than the present surface causing the more resistant strata to break the terrain with low, landward-facing escarpments that deflect the stream courses of Rabbs Bayou, Dry Creek, and Seabourne Creek in an easterly to southeasterly direction. Soils in the project corridor are predominately clay soils, attributed to the Brazos River flood plain.

In accordance with the *Archaeological Survey Standards for Texas* as established by the THC in consultation with the Council of Texas Archaeologists and TAC, an intensive pedestrian survey was conducted within the proposed new ROW for the project. The survey and resulting report was done by Michael Baker, Jr., Inc. A total of 39.6 acres of archaeological high probability areas (HPAs), as predicted following the Potential Archaeological Liability Mapping of the Houston District (Houston-PALM), were identified for the project corridor (**Exhibit 7**). With landowner permission, 92 percent of these HPAs were inspected through a combination of intensive pedestrian survey and deep reconnaissance. The survey for the project corridor was conducted in late September 2003 was performed under the *Texas Antiquities Permit #3218*.

Results of the pedestrian survey and deep reconnaissance revealed no previously unrecorded site localities or buried cultural horizons within the conceptual design of the Project. Three lithic flakes were recorded in association with known site 41FB291. This site was not found to be associated with any structures or foundations. Further work at this site was not recommended based on the lack of archaeological materials encountered and the site recommendations made on State archaeological records state that further investigations would not add greatly to the understanding of the region's prehistory. A report describing this work was prepared and submitted to TxDOT and THC for review. Coordination with THC resulted in concurrence with TxDOT recommendation that no further archaeological investigations were warranted and the proposed project should be allowed to proceed to construction as of September 02, 2004. See **Appendix F** for a copy of the consultation letter with THC concurrence.

Environmental Consequences of Implementing the No-Build Alternative

Under the No-Build alternative, no construction would occur within the existing or proposed ROW; therefore, there would be no effect on archaeological resources.

Environmental Consequences of Implementing the Recommended Build Alternative

In accordance with the PA among the FHWA, the THC, the ACHP, and the TxDOT and the MOU among TxDOT and THC, TxDOT has determined that the proposed project activities do not have the potential to affect historic resources.

7.3 Section 4(f) Properties

Section 4(f) of the *U.S. Department of Transportation Act of 1966* [49 U.S.C. 3039c)] and 23 CFR 774 requires that the proposed use of any land from a significant publicly owned park or recreation area, wildlife refuge, or historic site that is listed in or is eligible for listing in the NRHP be given particular attention. Final action requiring the acquisition of such land must document that there are no feasible and prudent alternates to its use. Additionally, a full evaluation of measures to minimize harm to that resource must be made and documented.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not require the use of, or ROW from, publicly owned land from historic sites of national, state or local significance. Therefore, there would be no impact to ant Section 4(f) property; a *U.S. Department of Transportation Act of 1966*, Section 4(f) statement is not required.

Environmental Consequences of Implementing the Recommended Build Alternative

The proposed project would not require the use of, nor substantially impair the purposes of any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands, or historic sites of national, state, or local significance, therefore, a *U.S. Department of Transportation Act of 1966*, Section 4(f) statement is not required. There are no publicly owned lands or *Land and Water Conservation Fund Act* funded properties in the project vicinity that would require protection under Section 4(f) or 6(f) of this Act.

8.0 WATER QUALITY

8.1 Surface Water

The surface water resources study involved reviewing available maps and literature, and limited onsite investigations to identify study corridor water bodies. The corridor is traversed by two rivers and several creeks and bayous. There are also several unnamed ditches, gullies and stormwater drainage crossings along the corridor which contain water during storm events. The study corridor's waterways are discussed below from south to north as they cross US 59.

The subject corridor lies within the coastal plain of the Lower Brazos River watershed. The Brazos River watershed is located predominantly in the state of Texas and extends from eastern New Mexico to the Gulf of Mexico. It encompasses a total area of 44,620 square miles. The portion of the watershed located in New Mexico and northwest Texas on the Caprock Escarpment in the vicinity of Lubbock, Texas, rarely contributes to the stream flow of the Brazos River. The Brazos River Authority administers the waters of Brazos River watershed.

Several creeks and drainage systems traverse the corridor. Coon Creek, an unnamed tributary to Coon Creek, Seabourne Creek, an unnamed tributary to Seabourne Creek, Dry Creek, Rabbs Bayou, an unnamed tributary to Rabbs Bayou and Middle Bayou are streams located in the Brazos River drainage basin.

Seabourne Creek and Coon Creek both drain directly into Big Creek east of US 59. Dry Creek feeds into Smithers Lake and eventually drains into Big Creek. Dry Creek crosses US 59 0.3 miles north of the FM 2218 interchange, flowing roughly north to south. Seabourne Creek crosses US 59 0.75 miles south of the SH 36 interchange. Coon Creek crosses US 59 west of Rosenberg, 1.0 mile and 3.0 miles south of Spur 529.

Middle Bayou and Rabbs Bayou are located within the natural 100-year floodplain of the Brazos River. As such are highly sinuous due to the high clay content of the overbank sediments. Middle Bayou feeds directly into the Brazos River and crosses US 59 once approximately 1.5 miles north of the FM 762 interchange. Rabbs Bayou crosses under the US 59 roadway 0.325 miles north of the FM 762

interchange and flows along the western boundary of the natural 100-year floodplain of the Brazos River. Both Rabbs and Middle Bayous are small streams that are highly modified as they pass through the Greatwood master-planned community east of Crabb River Road; elsewhere they follow their natural courses to the Brazos River and Smithers Lake, respectively. Rabbs Bayou first feeds into Smithers Lake before continuing on and eventually joining Big Creek, which joins the Brazos River.

No designated Outstanding National Resource Waters (ONRW) are located within the US 59 project corridor from Spur 10 to SH 99. In addition, no water bodies within the corridor have previously been or are presently proposed for designation as ONRW.

The water quality of the water bodies within the project area is generally considered fair to satisfactory. The streams within the project area provide an assortment of habitats for small fish, various frogs, turtles and other reptile species, insects, and birds.

No long-term impacts to the area surface water quality are expected to occur as a result of the proposed project. Existing rainfall drainage patterns would not be significantly altered by the proposed project. The area's water supply treatment facilities and distribution system would not be impacted by the proposed project. Since the proposed project does not involve the need for subsurface water, no effect on groundwater or the water table is anticipated.

8.1.1 Impaired Waters-Section 303 (d) List

None of the named streams within the project area are listed as impaired on the State of Texas Clean Water Act (TCWA) Section 303(d) *List of Impaired Waters (2008)*, maintained by the TCEQ. In addition, the proposed project is not located within five miles upstream of any water listed as threatened or impaired on the list. Further coordination with the TCEQ is not required.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not change any of the flow characteristics of any of the streams that cross US 59; however as discussed previously in **Section 2.3.1**, water quality of these streams would eventually degrade.

Environmental Consequences of Implementing the Recommended Build Alternative

The Recommended Build Alternative, like the No-Build Alternative, would not alter any of the streams. Furthermore, just like the No-Build Alternative, the Recommended Build Alternative would contribute to decreased water quality in intersecting streams. Where it would be different is that with the No-Build the initial flush of the roadway during any storm event would contribute a much more concentrated pollutant load than a wider highway would.

8.2 Floodplains

The northern boundary of the subject corridor is dominated by the influence of the Brazos River. The natural 100-year floodplain of the Brazos River stretches from north of SH 6 (outside this EA area) to just south of Rabbs Bayou. Several levees north of and outside the project area influence the designated 100-year floodplain. The 100-year floodplain, as delineated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), is located between Fort Bend County Levee Improvement District (LID) No.2 levee and LID No. 10 levee, approximately 750 feet west of the Brazos River bridge.

All other areas in the natural 100-year floodplain that are protected by these levees are shown within the 500-year floodplain.

According to FIRM Nos. 48157C0200 J, 48157C0215 J, 48157C0220 J, 48157C0230 J, 48157C0240 J, 48157C0245 J, and 48157C0350 J of Fort Bend County, Texas (**Exhibit 8**), areas within the proposed project are located within the designated 100- and 500-year floodplains of Coon Creek, Seabourne Creek, Dry Creek, and Rabbs and Middle Bayous, as well as the 500-year floodplain of the Brazos River.

Areas in the subject corridor that cross the 100-year floodplains are located at the various stream crossings. These areas range from 120 feet to 3,100 feet across, with the largest of these being the floodplains of Coon Creek and Seabourne Creek, both of which are tributaries of the Brazos River.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would only do maintenance and improvements already committed, funded, and scheduled to be completed by the year 2020. Maintenance activities could include pavement replacement and bridge rehabilitation programs. Typical maintenance activities under this alternative would include:

- Inspections of roadway and bridges;
- Minor rehabilitations;
- Pavement edge repair;
- Seal coats and overlays; and
- Other activities such as striping, signing, and patchwork.

Therefore, the No-Build Alternative would not interfere with any floodplain or cause any changes to floodplain hydrology.

Environmental Consequences of Implementing the Recommended Build Alternative

The hydraulic design of the proposed roadway improvements would be in accordance with the current TxDOT and FHWA policy standards. The facility would permit conveyance of the design-year flood levels, but the roadway would be designed to prevent inundation at recurrence intervals of at least 100 years. Inundation of the roadway would be acceptable, without causing significant damage to the roadway, stream, or property. EO 11988, Floodplain Management, requires that federal agencies avoid activities which directly or indirectly result in the development of floodplain areas. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. All appropriate coordination with the local Floodplain Administrator would be performed prior to construction. Fort Bend County is a participant in the National Flood Insurance Program.

8.3 Storm Water

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not change any of the flow characteristics of any of the streams that cross US 59; however as discussed previously in **Section 2.3.1**, water quality of these streams would eventually degrade.

Environmental Consequences of Implementing the Recommended Build Alternative

Storm water in the corridor project area from Spur 10 to SH 99 would drain into several watercourses throughout the subject corridor. These watercourses range from small, unnamed ephemeral, intermittent, and perennial streambeds to named streambeds. To minimize impacts to surface water quality during construction, the proposed project would utilize temporary erosion and sedimentation control practices (i.e. silt fence, rock berm, and drainage swales) from the Department's manual *Standard Specifications for the Construction of Highways, Streets, and Bridges.*

8.4 Wetlands

In response to correspondence requesting a Jurisdictional Determination, the U.S. Army Corps of Engineers (USACE) identified Coon Creek, Seabourne Creek, an unnamed tributary to Seabourne Creek, Dry Creek, Rabbs Bayou, and an unnamed tributary to Rabbs Bayou as jurisdictional waters, as they eventually flow into the Brazos River, a navigable water of the United States. East tributary to Coon Creek, east tributary to Dry Creek, and Beasley Branch were identified and subsequently investigated along with the sites identified by the USACE. Although Coon Creek is within the project boundaries, impacts at the site were included in a previous project to improve the Spur 10/US 59 South interchange and no additional improvements are required at the crossing of Coon Creek. Middle Bayou, while within the project corridor, is not crossed by the US 59 ROW and was not surveyed for wetlands.

Field surveys for wetlands were conducted according to the guidelines set forth in the USACE *1987 Wetlands Delineation Manual*. According to the Manual and Section 404 of the CWA, an area must meet criteria for hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a wetland.

Following field investigation and review of historical aerial photographs and topographic maps, neither the east tributary to Coon Creek nor the east tributary to Dry Creek were determined to be jurisdictional. Beasley Branch is anticipated to be considered jurisdictional.

Based upon the delineations completed for this project, approximately 0.159 acres of wetlands are present within the existing and proposed ROW. A summary of acreages for each area identified is shown in **Table 20**. See **Appendix E** for detailed descriptions of vegetation within wetland areas.

Table 80: Potential Jurisdictional Areas within the Existing and Proposed ROW

Location	Wetland Area (acres)
Coon Creek	0.00
Seabourne Creek	0.00
Tributary to Seabourne Creek	0.016
Beasley Branch	0.030
Dry Creek	0.074
Rabbs Bayou	0.00
East Tributary to Rabbs Bayou	0.039
Middle Bayou	N/A
Total	**0.159**

Source: Study Team

It is noted that Middle Bayou is not considered jurisdictional; therefore, no delineation was performed at this site.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would have no effect on jurisdictional waters, including wetlands, within the project area.

Environmental Consequences of Implementing the Recommended Build Alternative

The Recommended Build Alternative is estimated to directly impact approximately 0.159 acres of wetlands, which would be mitigated. The complete *Wetland Delineation Report* is available as a separate document on file at the TxDOT-Houston District office. The wetland data forms completed for the project are included in **Appendix H**. A request for verification has been submitted to the USACE (see **Appendix F** for coordination letters).

The discharge of dredged or fill material into jurisdictional waters, including adjacent wetlands, is subject to Section 404 of the CWA. (For details of the permitting process see **Section 9.1**)

9.0 PERMITS

9.1 U.S. Army Corps of Engineers (USACE)

9.1.1 Clean Water Act, Section 404

The USACE, under CWA authority, regulates fill within waters of the U.S. through general and individual permits. *Executive Order 11990, Protection of Wetlands*, directs federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands on federal lands. A summary of the impacts which are anticipated to result from implementation of the Recommended Build Alternative is presented in **Table 21**. The proposed project would include new bridge and culvert construction, new outfalls, and new pavement within the proposed ROW.

Four potential waters of the U.S. within the project area would require permitting prior to construction. A combination of temporary and permanent impacts would occur at these locations during construction. The exact acreage and type of impacts (i.e. bridge replacements, rip-rap, etc.) to each stream is not known at this time.

Any impacts to jurisdictional areas are expected to be permitted under Nationwide Permit 14—Linear Transportation Crossings (NWP 14). To qualify for NWP 14, impacts must be less than one-half of an acre at each stream crossing since all the streams are non-tidal waters. If the impacts are permitted under NWP 14, a Pre-Construction Notification (PCN) would be required (since the project would impact a special aquatic site). The PCN must include mitigation for impacts to special aquatic sites, an on-site alternatives analysis, and a description of how temporary impacts would be minimized. Should the impacts to any stream exceed one-half of an acre, an Individual Permit under Section 404 would be necessary.

Compensatory mitigation would be addressed through the utilization of credits from the Coastal Bottomland Mitigation Bank.

Table 21: Anticipated Impacts to Waters of the U.S. (Including Wetlands)

Name of Water Body or Wetland (Map Panel #)	Existing Structure	Proposed Work or Structure	Permanent Fill		Temporary Fill		NWP?	PCN?
			Waters (acres; LF)	Wetlands (acres)	Waters (acres; LF)	Wetlands (acres)		
Coon Creek[1]	150' parallel ML bridges *	150' parallel ML bridges*	0.001	0.000	0.000	0.000	**14**	**No**
Seabourne Creek[2]	90' parallel bridges	670' parallel ML bridges; 100' FR bridges***	0.000	0.000	0.000	0.000	**No**	**No**
Tributary to Seabourne Creek[3]	open ditch at southwest corner of SH 36	open ditch at southwest corner of SH 36	0.000	0.000	0.000	0.016	**14**	**Yes**
Beasley Branch[4]	75' parallel ML bridges; 75' FR bridges**	75' parallel ML bridges **	0.000	0.000	0.000	0.000	**No**	**No**
Dry Creek[5]	123' parallel ML bridges; 123' FR bridges	125' parallel ML bridges; 124' NBFR bridge; 127' SBFR bridge	0.001	0.002	0.000	0.072	**14**	**Yes**
Rabbs Bayou[6]	208' parallel ML bridges	210' ML bridge; 210' FR bridges	0.000	0.000	0.000	0.000	**No**	**No**
Unnamed Tributary to Rabbs Bayou[7]	216' box culvert	408' box culvert	0.061	0.037	0.071	0.002	**14**	**Yes**
Middle Bayou	Box culvert	Box culvert	N/A	N/A	N/A	N/A	N/A	N/A
Total Impacts	**N/A**	**N/A**	**0.064**	**0.039**	**0.071**	**0.090**	**N/A**	**N/A**

Source: Study Team

Notes:

Bridge and culvert details (i.e., bent locations, column # and sizes, riprap, culvert extensions, culvert replacements, end treatments, channel improvements, etc.) were NOT provided. Assumptions listed. At this time, acreages and linear footages of impact are conservative estimates based on the schematics presented in Appendix A.

* Existing bridges at Coon Creek are 38' wide; proposed bridges will be at least 60' wide

** Existing bridges at Beasley Branch are min. 43' wide; proposed bridges will be at least 60' wide

*** The proposed bridge structure overpasses Seabourne Creek and Bamore Road

[1] 3-50' spans; 2 interior bents in OHWM limits

[2] Possible to span across water with interior bents outside of OHWM

[3] No bridge structure proposed for this location

[4] One span bridge; no interior bents; wetlands at FR bridge where no work is proposed

[5] PERM: approx. 24 columns in wetlands; approx. 16 columns in waters; TEMP: remaining acreage of wetlands

[6] 3-70' spans; 2 interior bents could avoid waters

[7] Proposed culvert work extended 10' beyond FR EOP at each end; TEMP: within existing culvert limits and beyond 10' FR EOP to ROW lines; PERM; remaining waters and wetlands in new culvert areas

FR – Frontage road
LF – Linear feet
ML – Main lane
NB – Northbound
SB – Southbound

It is noted that Middle Bayou is not considered jurisdictional; therefore, no delineation was performed at this site.

9.1.2 U.S. Coast Guard (River and Harbors Act of 1899, Section 10)

Environmental Consequences of Implementing the No-Build or Recommended Build Alternative

The proposed project does not cross a navigable waterway. Navigational clearance under the *General Bridge Act of 1946* and Section 9 of the *Rivers and Harbors Act of 1899* (administered by the U.S. Coast Guard (USCG) and Section 10 of the *Rivers and Harbors Act of 1899,* (administered by the USACE) is not applicable. Coordination with the USCG (for Section 9 and the *Bridge Act*) and the USACE (for Section 10) would not be required for either the No-Build or Recommended Build Alternative.

9.2 Texas Commission on Environmental Quality

9.2.1 Clean Water Act, Section 401 Certification

The *Clean Water Act* (CWA) of 1977 (33 U.S.C. s/s 1251 et seq.), established the basic structure for regulating discharges of pollutants to waters of the U.S. Pursuant to Section 401 of the CWA, a certification must be obtained from the state before any activity that may result in a pollution discharge into waters of the U.S. can be permitted by a federal agency. The TCEQ issues 401 certifications for TxDOT activities.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would have no impacts on waters of the U.S.; therefore, Section 401 certification is not applicable.

Environmental Consequences of Implementing the Recommended Build Alternative

The proposed project would impact jurisdictional waters; therefore, a general permit would be required for the proposed project.

It is anticipated that the proposed project would meet the TCEQ's Section 401 Water Quality Certification Tier I (Small Projects), because it would impact less than 3 acres of Waters of the U.S. including wetlands (or 1,500 linear feet of stream). According to the TCEQ's Tier I Checklist, all projects must implement at least one of the best management practices (BMPs) specified by TCEQ from each of the three BMP categories: erosion control, sedimentation control, and post-construction total suspended solids (TSS) control. The Tier I Checklist would be completed by TxDOT and submitted for approval through the USACE during the Section 404 permitting process.

The proposed project would incorporate the following BMPs at appropriate stages during construction. For erosion control, seeding of embankments and sodding of areas more susceptible to erosion would be conducted. These methods would be maintained throughout construction. For sedimentation, a combination of silt fence along the ROW, hay bales within the roadside ditches, and rock filter dams at the outfall locations would be utilized and remain in place until project completion. For post-construction TSS control, vegetative filter strips (in the roadside ditches) would be utilized to control total suspended solids after construction. If more extensive areas are needed, areas within the interchanges could be utilized.

9.2.2 TPDES, NOI, SW3P

The *Clean Water Act* Section 402 makes it unlawful to discharge storm water from construction sites to waters of the U.S. unless authorized by the TCEQ's Texas Pollutant Discharge Elimination System (TPDES) General Permit. If more than five acres of ROW are disturbed at one time during construction, a Notice of Intent (NOI) must be filed with the TCEQ.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would not result in the disturbance of any ROW; therefore, Section 402 is not applicable.

Environmental Consequences of Implementing the Recommended Build Alternative

Because the proposed project would disturb more than five acres (approximately 80 acres), TxDOT is required to comply with the TCEQ's TPDES General Permit for Construction Storm Water Runoff. An NOI, stating that a Storm Water Pollution Prevention Plan (SW3P) would be developed and filed with the TCEQ in accordance with TxDOT policies. Pollution from storm water would be minimized through adherence to measures in the project's SW3P. Construction of the proposed action would include temporary erosion control measures to minimize impacts to water quality during construction as specified in the TxDOT manual Storm Water Management and Guidelines for Construction Activities. These measures may include the use of silt fencing, inlet protection barriers, hay bales, 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. When construction is completed, disturbed areas would be restored and reseeded according to the TxDOT specification *Seeding for Erosion Control*.

9.2.3 Coastal Zone Management Plan

As of January 1997, the State of Texas has an approved *Coastal Zone Management Plan*.

Environmental Consequences of Implementing the No-Build or Recommended Build Alternative

The project area is not within the jurisdictional boundaries of the Texas Coastal Management Program; therefore, neither the proposed project nor the No-Build Alternative is subject to the guidelines of the plan. It is not expected that either alternative would have any direct adverse effect on any coastal natural resource areas. Coordination with the Texas General Land Office's Coast Coordination Council is not required.

10.0 REGULATORY

10.1 Air Quality

All projects in H-GAC's 2011-2014 TIP that are proposed for federal or state funds are consistent with federal guidelines in Section 450 of Title 23, CFR and Section 613.200, Subpart B of Title 49. The proposed project is located within Fort Bend County in the planning area of the H-GAC, which is its MPO, and the Houston-Galveston TMA. The proposed project is covered in the 2011-2014 TIP in

Appendix D: Projects Undergoing Environmental Assessment, under CSJs 0027-12-097, 0027-12-105, 0027-12-106, and 0027-12-114 (see **Appendix B: RTP and TIP Data**). The total cost of the proposed project would be approximately $276,206,219 and would be funded from 80 percent federal and 20 percent state sources. The estimated cost for the segments is provided in the 2011-2014 TIP (as of June 30, 2010) as:

- West of Spur 10 to west of SH 36 – approximately $112.3 million;
- West of SH 36 to west of Farm-to-Market Road (FM) 762 – approximately $66.4 million;
- West of FM 2759 to west of FM 762 – approximately $89,406,219; and
- West of FM 762 to west of FM 2759 – construct two one-way high occupancy vehicle (HOV) lanes – approximately $8.1 million.

The proposed project is consistent with the H-GAC's financially constrained 2035 RTP Update (see **Appendix B**), which was found to conform to the SIP by the U.S. DOT (FHWA/FTA) on January 25, 2011.

10.1.1 Traffic Air Quality Analysis (TAQA)

The proposed project is located within Fort Bend County. Fort Bend County is a designated severe 8-hour ozone non-attainment area; therefore, the transportation conformity rules do apply.

The traffic data used in the analysis was obtained from the TxDOT TPP Division. 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 AADT below 140,000 vpd. The AADT projections for the project do not exceed 140,000 vpd. Traffic counts for the existing year 2011 are estimated to be 49,600 vpd and 78,900 vpd for the design year 2031. Therefore, a Traffic Air Quality Analysis (TAQA) is not required because previous analyses of similar projects did not result in a violation of National Ambient Air Quality Standards (NAAQS).

10.1.2 Congestion Management Process (CMP)

The congestion management process (CMP) is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The project was developed from H-GAC's operational CMP, which meets all requirements of CFR 500.109. The CMP was adopted by H-GAC in September of 2009.

Operational improvements and travel demand reduction strategies are commitments made by the region at two levels: program level and project level implementation. Program level commitments are inventoried in the regional CMP, which was adopted by H-GAC; they are included in the financially constrained RTP, and future resources are reserved for their implementation.

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

Committed congestion reduction strategies and operational improvements within Fort Bend County will consist of signalization and intersection improvements, public transit and rideshare projects, and construction of bicycle and pedestrian facilities. Individual CMP projects within or adjacent to the project area were not noted on the 2011-2014 or 2008-2011 TIPs, as amended.

In an effort to reduce congestion and the need for SOV lanes in the region, TxDOT and H-GAC will continue to promote appropriate congestion reduction strategies through the Congestion Management for Air Quality (CMAQ) program, the CMP, and the RTP. The congestion reduction strategies considered for Fort Bend County would help alleviate congestion in the SOV study boundary, but would not eliminate it.

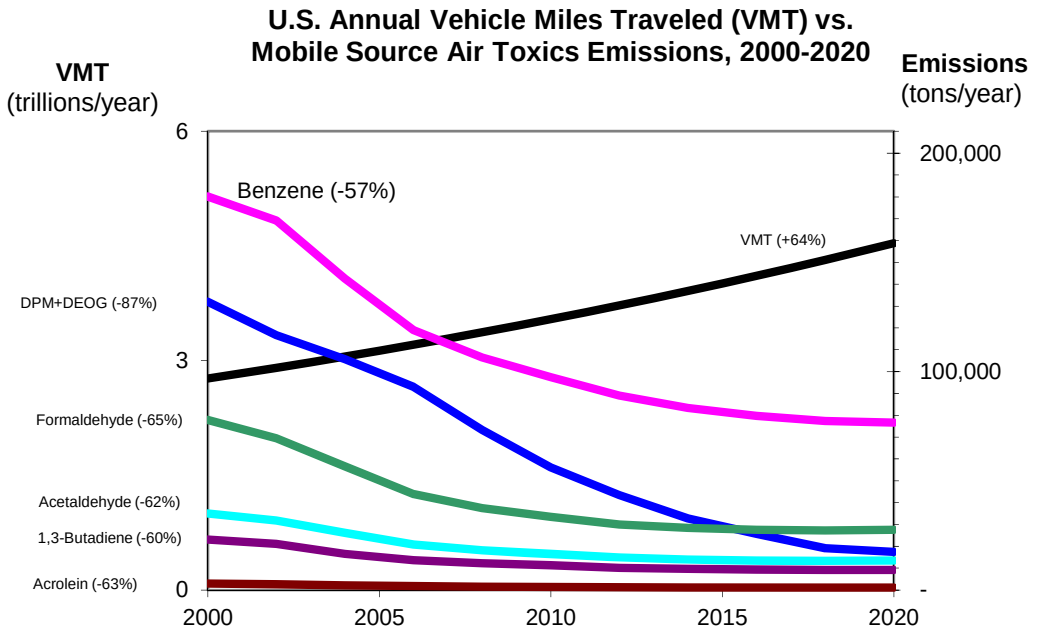
Therefore, the proposed project is justified. The CMP analysis for added SOV capacity projects in the TMA is on file and available for review at H-GAC.

10.1.3 Mobile Source Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the *Clean Air Act* (CAA). The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The Environmental Protection Agency (EPA) is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. EPA issued a *Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources* (66 FR 217229, March 29, 2001). This rule was issued under the authority in Section 202 of the CAA. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 to 65 percent, and will reduce on-highway diesel particulate matter (PM) emissions by 87 percent, as shown in the following graph. As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs.



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: *Highway Statistics 2000*, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.

In an ongoing review of MSATs, the EPA finalized additional rules under authority of CAA Section 202(l) to further reduce MSAT emissions that are not reflected in the above graph. The EPA issued *Final Rules on Control of Hazardous Air Pollutants from Mobile Sources* (72 FR 8427, February 26, 2007) under Title 40 Code of Federal Regulations Parts 59, 80, 85 and 86. The rule changes are effective on April 27, 2007. As a result of this review, EPA adopted the following new requirements to substantially lower emissions of benzene and the other MSATs by: (1) lowering the benzene content in gasoline; (2) reducing evaporative emissions that permeate through portable fuel containers; and (3) reducing non-methane hydrocarbon (NMHC) exhaust emissions from passenger vehicles operated at cold temperatures (under 75 degrees Fahrenheit).

Beginning in 2011, petroleum refiners must meet an annual average gasoline benzene content standard of 0.62 percent by volume, for both reformulated and conventional gasoline, nationwide. This would be a 38 percent reduction from 2007. EPA standards to reduce NMHC exhaust emissions from new gasoline-fueled passenger vehicles will become effective in phases. Standards for light-duty vehicles and trucks (≤ 6000 pounds [lbs]) become effective during the period of 2010 to 2013, and standards for heavy light-duty trucks (6,000 to 8,000 lbs) and medium-duty passenger vehicles (up to 10,000 lbs) become effective during the period of 2012 to 2015. Evaporative requirements for portable gas containers become effective with containers manufactured in 2009. Evaporative emissions must be limited to 0.3 grams of hydrocarbons per gallon per day.

EPA has also adopted more stringent evaporative emission standards (equivalent to current California standards) for new passenger vehicles. The new standards become effective in 2009 for light vehicles and in 2010 for heavy vehicles. In addition to the reductions from the 2001 rule, the new rules will

substantially reduce annual national MSAT emissions. The EPA estimates that emissions in the year 2030, when compared to emissions in the base year prior to the rule, will show a reduction of 330,000 tons of MSATs (including 61,000 tons of benzene), more than one million tons of volatile organic compounds, and more than 19,000 tons of $PM_{2.5}$.

Project Specific MSAT Information

Numerous technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project (see "Unavailable Information for Project Specific MSAT Impact Analysis" at the end of this section for more information). However, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative assessment cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled "A Methodology for Evaluating Mobile Source Air Toxic Emissions among Transportation Project Alternatives," found at:

www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

The VMT estimated for the Recommended Build Alternative is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Regardless of the construction of the Recommended Build Alternative, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The roadway expansion contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes and businesses; therefore, there may be localized areas where ambient concentrations of MSATs could be higher under the Recommended Build Alternative than under the No-Build Alternative. However, as discussed previously, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when an expanded roadway is constructed and, as a result, moves traffic closer to receptors, the localized level of MSAT emissions for the Recommended Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions).

Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations coupled with fleet turnover will cause region-wide MSAT levels to be significantly lower than today in almost all cases.

Sensitive Receptor Assessment

There may be localized areas where ambient concentrations of MSATs are slightly higher in any build scenario than in the No-Build scenario. Dispersion studies have shown that the "roadway" air toxics start to drop off at about 100 meters. By 500 meters, most studies have found it very difficult to distinguish the roadway from background toxic concentrations in any given area. An assessment of some potential sensitive receptors within both 100 and 500 meters should be conducted. Sensitive receptors include those facilities most likely to contain large concentrations of sensitive population (hospitals, schools, licensed day cares, and elder care facilities).

An assessment for sensitive receptors located within both 100 and 500 meters of the project area was conducted. The assessment revealed La Petite Academy and Primrose School of Greatwood (both day care centers) and the Greatwood Retirement Center, all located approximately 500 meters east of the northern terminus of the proposed project in Sugar Land (see **Table 22**). **Appendix I** contains a map showing sensitive receptor locations.

Table 22: Schools, Licensed Day Care Centers, Hospitals, and Nursing Homes near the Project Corridor

Facility	Address	Distance from ROW
La Petite Academy	6633 Greatwood Parkway, Sugarland, TX	~500 Meters
Primrose School of Greatwood	6550 Greatwood Parkway, Sugarland, TX	~500 Meters
Lavida Communities Greatwood	7001 Riverbrook Dr, Sugarland, TX	~500 Meters

Source: Study Team

Unavailable Information for Project Specific MSAT Impact Analysis

This document includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable the prediction of project-specific health impacts of the emission changes associated with the alternatives in this project. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination or health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. Emissions: The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While

MOBILE6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE6.2 is a trip-based model-emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations. However, MOBILE6.2 is currently the only available tool for use by FHWA/TxDOT and may function adequately for larger scale projects for comparison of alternatives.

2. Dispersion: The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

3. Exposure Levels and Health Effects: Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the

results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken from the IRIS database "Weight of Evidence Characterization" summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- **Acrolein**: The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust (DE)** is likely to be carcinogenic to humans by inhalation from environmental exposures. DE as reviewed in this document is the combination of diesel particulate matter and DE organic gases. DE also represents chronic respiratory effects, possibly the primary non-cancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of

mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information

While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impact on the human environment."

In this document, a qualitative assessment has been provided relative to the various alternatives of MSAT emissions and has acknowledged that the Recommended Build Alternative for the proposed project 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.

10.2 Traffic Noise Analysis

The traffic noise analysis indicated the proposed project would result in traffic noise impacts and a noise barrier was determined to be feasible and reasonable for single-family homes southwest of the US 59/SH99 intersection and, therefore, is proposed for incorporation into the project. The results of the traffic noise analyses are located in **Appendix I**; noise receiver locations are also shown in **Exhibit 5** (**Project Layout**).

10.3 Hazardous Materials

A preliminary investigation was conducted to identify potential sites within the project study area that are at risk of environmental contamination by hazardous wastes and/or substances. The scope of the hazardous materials investigation consisted of a review of the TxDOT-specified compliant federal and state environmental databases; the performance of a site visit to confirm the information obtained from the databases and note additional field observations; and the review of facility-specific information as per TxDOT's request. A database corridor report was obtained in September 2003. The purpose of the environmental database search/report is to obtain information in regards to hazardous materials facilities that have been recorded in the databases maintained by the state and federal government regulatory agencies. The databases that were searched and the corresponding search distances from the project corridor are listed below in **Table 23**.

Table 23: Federal and State Environmental Record Sources	
Database	**Search Radius**
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list	0.5 mile
Federal National Priority List (NPL)	1.0 mile
Federal Resource Conservation Recovery Act (RCRA) Corrective Action Report (CORRACTS) Treatment, Storage, and Disposal (TSD) facilities list	1.0 mile
Federal Resource Conservation and Recovery Information System (RCRIS) (Violations) list	0.25 mile
Federal Emergency Response Notification System (ERNS) list	0.25 mile
Federal Toxic Chemical Release Inventory System (TRIS) list	0.25 mile
State-equivalent CERCLIS	0.5 mile
State-equivalent NPL/State Superfund list	1.0 mile
State landfill and/or solid waste disposal site list	1.0 mile
State Registered Storage Tank (RST)	0.25 mile
State Leaking Registered Storage Tank (LRST)	0.5 mile
State Spills list	0.25 mile
Texas Voluntary Compliance Program (VCP) list	0.5 mile

Source: Study Team

The Environmental Record Search is detailed in the *Hazardous Materials Technical Report* included in **Appendix J**. It includes sites/properties where conditions exist that may pose environmental risks to construction related activities. The environmentally adverse conditions are identified based on the environmental records research review of state and federal databases and on visual inspection of the project segments along the west frontage (map direction north) and along the east frontage (map direction south). A site is characterized as "high-risk" if that site is considered likely to be contaminated and there is an elevated potential for contamination within the proposed ROW. An example of a high-risk site is a landfill or a leaking petroleum storage tank (LPST). A site is categorized as "low-risk" if available information indicates a potential for contamination, but the site is not likely to pose a contamination problem to highway construction. Some sites require category "moderate risk". Efforts are made to distinguish the high-risk sites from those with moderate to high risk and moderate risk.

The environmental record research identified 30 regulated facilities within the project area, with some of the facilities listed under multiple databases. The hazardous material analysis identified 20 sites that pose potential environmental concerns due to close proximity of the sites to the ROW and/or construction activities associated with the proposed project. Five sites were identified as moderate to high risk based on their adjacent location to the ROW and listing as either a petroleum storage tank (PST) or LPST. Five LPST sites that received closure status from the TCEQ had no impacts in the first water-bearing zone and were listed as a moderate risk. Three PST sites adjacent to the ROW were listed as a moderate risk. A detailed discussion of the 30 regulated facilities is provided in **Appendix J**.

Fifteen (15) sites/facilities of possible concern that were not indicated on the data base records were observed during the field reconnaissance for this project. These facilities are identified in Table G-4 of the *Hazardous Materials Technical Report* located in **Appendix J** of this document. Also observed as areas of possible concern are sites on the north side of the proposed project area owned by Reliant Energy, a natural gas pipeline that appears to run adjacent to the ROW, at least beyond SH 36. At some places, it appears to be within 10-15 feet of the ROW. One such place is at the junction of

US 59 and FM 2218 N. The same pipeline further east appears to be owned by Houston Pipeline. Petroleum pipelines are present on the south side of the project area where they appear to traverse the project alignment. The south side also has buried cable lines running adjacent to the ROW up to FM 762.

Two railroad tracks were also observed in the project area. The first is an abandoned Southern Pacific railroad crossing just west of Bamore Road. The proposed project would remove this overpass. The second crossing is a Union Pacific crossing approximately 200 feet west of FM 762.

Railroad crossings are considered to be a source of low risk since potential exists for spills of chemicals that may have been transported along the trains or the use of pesticides to keep the tracks clear of weeds and unwanted vegetation.

Based upon the data reviewed, current status, and proximity of the sites to the proposed project, it is recommended that any site with a listing of moderate or higher should be further reviewed. The extent of review would require at minimum further regulatory investigation and additional site reconnaissance. The additional assessment would attempt to determine whether specific sites pose a risk to impact and warrant higher level investigations (Limited and Full Phase II Environmental Site Assessments).

The proposed project includes the demolition and/or relocation of building structures. The buildings may contain asbestos-containing materials. Asbestos inspections, specification, notification, license, accreditation, abatement, and disposal, as applicable, would be in compliance with federal and state regulations. Asbestos issues would be addressed during the ROW acquisition process prior to construction.

During any construction activity, there exists some potential to encounter contaminated soil or water. Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable state and federal regulations and TxDOT standard specifications.

11.0 CONSTRUCTION IMPACTS

As a result of impacts to jurisdictional waters associated with the construction of this project, Tier I Erosion Control, Post-Construction TSS Control and Sedimentation Control devices would be required under the TCEQ Section 401. At least one Erosion Control device would be implemented and maintained until construction is complete. Erosion Control devices which may be used include temporary vegetation, blankets/matting, mulch, sod, interceptor swales, and diversion dikes. Also, at least one Post-Construction TSS Control device would be implemented upon completion of the project. Post-Construction TSS Control devices which may be used include retention/irrigation, extended detention basins, vegetative filter strips, constructed wetlands, wet basins, vegetation lined drainage ditches, grassy swales, and sand filter systems. In addition, at least one Sedimentation Control device would be maintained and remain in place until completion of the project. Sedimentation Control devices which may be used include sand bag berms, silt fences, triangular filter dikes, rock berms, hay bale dikes, brush berms, stone outlet sediment traps, or sediment basins.

Section 401 *Water Quality Certification Conditions* would be met under the jurisdictional waters classified in Section 404 of the CWA. Since the proposed project would disturb more than one acre (approximately 80 acres), TxDOT would be required to comply with the TCEQ) Phase II TPDES

construction general permit. This would be accomplished by filing a Notice of Intent (NOI) stating that TxDOT would have a SW3P in place and implemented during construction of the project.

Compliance with Section 401 requires the use of BMPs to manage water quality on construction sites. The SW3P would include at least one BMP from the Section 401 Water Quality Certification Conditions for NWPs as published by the TCEQ, April 12, 2002. These BMPs would address each of the following categories: Category I Erosion Controls; Category II Sedimentation Control; and Category III Post-Construction Total Suspended Solids Control.

Category I would be addressed by applying temporary reseeding (native vegetation) and mulch to disturbed areas. Category II would be addressed by installing silt fences combined with rock berms. Category III would be addressed by planting permanent native vegetation to create grass-lined ditches. The ditches would accept roadway runoff as sheet flow and filter it along the front slopes of the ditches as well as the bottom of the ditch. These measures would minimize potential adverse affects to water quality. With the implementation of these measures, no long-term water quality effects are expected because of the Proposed Project. Due to their distance from US 59, no anticipated affects to sensitive aquifer or surface water features, including wellhead protection areas, would occur as a result of the proposed improvements.

Construction associated with improvements/expansion to US 59 from Spur 10 to SH 99 would involve removing the existing pavement, clearing/grading the surface, preparing a new roadbed, paving the roadway and shoulders, installing new overpasses, bridges, culverts, fencing, and re-vegetating and restoring portions of the ROW. The use of construction machinery would temporarily increase dust, emit other air pollutants, raise ambient noise levels, generate silty runoff water, and add to indirect and cumulative impacts. Traffic control measures would conform to Part VI (*Traffic Control for Street and Highway Construction and Maintenance Operations*) of the *Texas Manual of Uniform Traffic Control Devices*

Contractors would be required to follow applicable federal, state, and local regulations and ordinances to ensure minimal construction effects in the project area. The contractor would take appropriate measures to prevent, minimize, and control hazardous materials spills in the construction staging area, so that a potential spill would not impact water quality. All materials being removed or disposed of by the contractor would be done in accordance with applicable State and Federal laws, and so as not to degrade ambient water quality. All of these measures would be enforced under appropriate specifications in the plans, specification, and estimate stage of project development.

The following measures would mitigate construction effects along the proposed project area:

- Where appropriate, these temporary erosion and sedimentation control structures would be in place prior to the initiation of construction and would be maintained throughout the duration of the construction;
- Clearing of vegetation would be limited and/or phased in order to maintain a natural water quality buffer and minimize the amount of earth that could be exposed to erosion at any one time;
- Placing silt fences around construction areas would reduce the amount of silt-laden water from entering waterways;

- The use of construction equipment within the stream channel would be minimized (or not necessary). If work within a watercourse or wetland is unavoidable, heavy equipment shall be placed on mats, to protect the substrate from gouging and rutting. All construction equipment and materials used within the stream channel and immediate vicinity would be removed as soon as the work schedule permits and/or when not in use and shall be stored in an area protected from run-on and run-off;
- The contractor would take appropriate measures to prevent, minimize and control the spill of fuels, lubricants, and hazardous materials in the construction staging area. All spills, including those of less than twenty-five (25) gallons shall be cleaned immediately and any contaminated soil shall be immediately removed from the site and be disposed of properly. Designated areas shall be identified for spoil disposal and materials storage. These areas shall be protected from run-on and run-off;
- Complying with TCEQ regulations would reduce air pollution from construction sites;
- Watering exposed surfaces would control dust in construction and layover areas when necessary;
- Limit unnecessary idling of construction vehicles. Construction vehicles that are not in use should be shut down to reduce both noise and air pollution; and
- Posting construction signs well in advance to minimize travel delays and provide alternative access to affected residences and businesses in the area. Work on US 59 would be phased in such a manner that that would allow the roadway to remain open to two-way traffic during construction.

12.0 INDIRECT IMPACTS AND CUMULATIVE IMPACTS

12.1 Indirect Impacts

This section analyzes and discusses the potential indirect impacts of the reconstruction and expansion of US 59 from Spur 10/SH 36 Bypass to SH 99/Grand Parkway, in Fort Bend County, Texas.

The Council on Environmental Quality (CEQ) defines indirect impacts as those "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR Section 1508.8). Indirect impacts differ from the direct impacts associated with the construction and operation of the proposed project and are caused by another action or actions that have an established relationship or connection to the proposed project. These induced actions are those that would not or could not occur except for the implementation of the proposed project.

According to TxDOT's June 2009 *Guidance on Preparing Indirect and Cumulative Impact Analyses* (TxDOT's June 2009 Guidance), which is adapted from The National Cooperative Highway Research Program (NCHRP) *Report 466, Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects (NCHRP Report 466)*, there are three general categories of indirect effects:

- Category 1 - Encroachment-Alteration Effects
- Category 2 - Access-Alteration Effects

- Category 3 - Effects Related to Project-Influenced Development, or Induced Growth-Related Effects

These impact types are described in more detail in **Step 5** of the **Indirect Impacts** section of this report.

For transportation projects, Category 1 impacts include project impacts such as fragmentation of habitat by a roadway or dispersal of pollutants onto adjacent lands. Indirect impacts from Categories 2 and 3 are typically encountered outside of the project ROW, and may result from actions taken by other parties, such as private land developers not directly associated with the project. Indirect impacts are therefore subject to some level of conjecture as to the extent of changes which might be expected in the project corridor, with and without the project in place. There are various guidance documents published by FHWA and others on this subject, including the *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process* (FHWA, 2003). The CEQ regulation cited above states that the NEPA document must identify all the indirect impacts that are known, and make a good faith effort to explain the impacts that are not known but which are "reasonably foreseeable." CEQ has issued guidance that further explains "reasonably foreseeable" as events that must be "probable," even though there is some uncertainty about them (*Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 46 FR 18031, 1981*).

The stepwise process presented in TxDOT's June 2009 *Guidance on Preparing Indirect and Cumulative Impact Analyses* includes the following seven steps to assess indirect impacts:

1. Scoping
2. Identify the Study Area's Goals and Trends
3. Inventory the Study Area's Notable Features
4. Identify Impact-Causing Activities of the Proposed Project and Alternatives
5. Identify Potentially Substantial Indirect Effects for Analysis
6. Analyze Indirect Effects and Evaluate Results
7. Assess Consequences and Consider/Develop Mitigation

These seven steps have been followed regarding the proposed interchange and are outlined below.

12.1.1 Step 1: Scoping

Approach

The initial step in this analysis examines the attributes of the proposed project and the surrounding area to focus the analytical approach and identify an appropriate area for analysis of indirect impacts. The immediate project area is currently a mixture of areas that are still very rural in nature, areas that are partially urbanized, and areas that are fully urbanized. It is anticipated that the entire area will eventually undergo notable development, particularly residential and commercial.

A variety of quantitative and qualitative methods were used to determine possible indirect impacts that may occur with implementation of the proposed project. In addition to mapping and quantitative computations using ArcMap GIS, qualitative and quantitative information was obtained via interviews with officials of the Cities of Richmond and Rosenberg, environmental conservancy groups, as well as reviews of regional and city land use plans (e.g., H-GAC's *Mobility 2035*), guidance sources such as CEQ, NEPA, TxDOT, and FHWA guidance papers and regulations, and this EA.

According to TxDOT (June 2009) *Guidance on Preparing Indirect and Cumulative Impact Analyses* (TxDOT's June 2009 Guidance), which is adapted from The National Cooperative Highway Research Program (NCHRP) *Report 466, Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects (NCHRP Report 466)*, as projects increase in size and complexity the Indirect Impacts Area of Influence (AOI) increases as well. This project's level of complexity is not enough to warrant an EIS document, but it does impact numerous environmental as well as economic issues and concerns, and it does include displacements. Still, the proposed project would stay predominantly within existing ROW, does not involve the construction of major new interchanges or substantial changes to circulation, and most of the direct environment impacts are minimal. Therefore, the nature of the proposed project would place it with a moderate level of complexity.

The analysis in this indirect impacts section pertains to the segment of US 59 from Spur 10 to SH 99. This approximately 12-mile corridor is currently a four-lane, grassy median-separated highway.

As mentioned, the need for the proposed project is to reduce existing and projected congestion, update US 59 to current design and safety standards, and rectify identified operational deficiencies. Improvements would include added capacity on through-lanes and enhanced mobility on feeder and turn-lanes, increases in quantity and widths of lanes and shoulder widths, highway system design continuity, and air quality through congestion reductions. Creation of continuous frontage roads would provide alternate lanes to remove farm vehicles from highway main lanes. The proposed project would also provide continuity to the regional highway design and network. Finally, increased safety of the existing facility is needed. While not a specific need of the project, the widening of US 59 would also improve the emergency (e.g., hurricane) evacuation network in this area by adding travel lanes.

The most probable types of indirect impacts would be the conversion of land that is currently undeveloped land to a range of uses such as residential, commercial and light industrial; water quality, wetlands, vegetation, and air quality would also be impacted.

Geographic Boundaries of the Indirect Impacts Area of Influence (AOI)

Area of Influence (AOI) boundaries are generally formed by natural features or major land uses that provide a distinct barrier to other possible influence (i.e., major roadways such as expressways or arterial roadways). Defining the AOI in this manner is one of several acceptable methods identified in the NCHRP Report 466. TxDOT's *Guidance on Preparing Indirect and Cumulative Impact Analyses (June 2009)* suggests combining several methods for determining an appropriate AOI.

Establishing AOI boundaries for indirect impacts requires specific consideration of various factors, including land ownership, urban settlement, surrounding natural topographic features, and land uses.

First, the majority of the project corridor (approximately 75%) passes through an area that is experiencing suburbanization, and a large amount of this land is within the cities and extra-territorial jurisdictions (ETJs) of Richmond, Rosenberg, and Sugar Land (see **Exhibit 10**).

Much of the land development set back on the north side of the highway through Richmond and Rosenberg is historic. Because of the urban nature of this built-up area, it is likely that any influence on this area by expansion of the highway would probably occur late in the land redevelopment process. Further, development on the south side and directly adjacent the north side of the highway has begun

without consideration for or assistance from the proposed project, though it is likely that a forthcoming expansion of the facility is known by area developers and new developments may have been partially driven by knowledge of previous US 59 expansion projects. General demand for housing is increasing in Fort Bend County and the low cost of land is attracting many first-time home buyers to formerly rural areas. Large parcels of land are already under development; any project already platted, unless in suspension awaiting better economic conditions, would be exempt from the influences of highway expansion.

At this time, much of the land on the south and west side of US 59 is rural. However, because all land east and north of SH 99/Grand Parkway is already either developed or planned for development, there is a high degree of probability that land development will extend deep into existing rural areas without the influence of US 59. It is reasonable to expect that several of the small and mid-sized developments located near existing roadway intersections with US 59 will be nearing or at full build-out at or before the time the proposed project is complete. Therefore, while the expansion project is seen as a welcome modification of an existing feature, it is not a requirement of successful land development. Nevertheless, there is a good possibility that when construction is complete several of the larger adjacent parcels will begin to develop as a result of better travel times and less congestion.

An analysis of the Fort Bend County roadway system in the area of the proposed project reveals a multi-layered network. Older areas of Richmond and Rosenberg have been settled in grid pattern typically parallel features such as railroad tracks. Most major roadways in the rural areas are on a 45-degree offset grid, following agricultural practices of aligning roads with edges of fields. Others do not follow a grid pattern and may originate with pioneer or cattle drive routes. Newer and recent roadways conform to the curvilinear patterns associated with suburban-style development.

There are several alignment and landscape elements that prevent the use of parallel roads and other typical features as analysis boundaries. First, US 59 does not carve a direct and straight course through the area. It enters and exits the study area on diagonals and there are numerous bends in its approximate 12-mile length. Second, although the communities of Richmond and Rosenberg were surveyed and platted in the late 1800s on grid planes, there are numerous roads that intersect and skirt US 59 diagonally along traditional rural lines. Third, contemporary suburban development incorporates irregular, curvilinear street design.

Finally, in some cases the use of railway lines is considered a reasonable AOI boundary. However, the rail line parallels US 59 for approximately 1.25 miles (approximately 10%) of the project length. The rest of the project corridor is distant from the railway line (almost 3 miles at its most distant), or intersects with it (i.e., the Atcheson Topeka – now Burlington Northern – Santa Fe Rail crossing at FM 762).

For regional projects TxDOT's *Guidance on Preparing Indirect and Cumulative Impact Analyses (June 2009)* recommends using a commuteshed approach to setting an AOI. The Journey-to-Work County Flow Files from the U.S. Census Bureau indicate that approximately 99 percent of persons 16 years of age and older currently active within the workforce of Fort Bend County also work either in a neighboring county or within the 8-county area of H-GAC, and in 2000 approximately 60 percent worked in Harris County (which was down approximately 2.5 percent from 1990). The 2000 Census furthermore indicated that an average of approximately 95 percent of those living in census block groups adjacent the

US 59 corridor worked in the same primary metropolitan statistical area (PMSA) where they lived. It was therefore determined that the area that comprises the eight adjacent census block groups (**Table 24**) should be the basis for the AOI.

However, because of how the CTs are drawn, such an AOI would be much larger than all the guidance would recommend. Therefore, a second layer is placed over the CTs. During an interview[5], the Director of the Rosenberg Economic Development Department (EDD) was asked if the proposed project could have indirect impacts beyond two miles. The Director indicated that it was his belief that impacts from the proposed project could occur within Rosenberg's traditional downtown. This was also expressed by the Assistant City Manager of Richmond, as well as the Executive Director of the Historic Richmond Association. The Director of Rosenberg's EDD also anticipated it could have effects on land south of the US 59 corridor by up to two miles. For these reasons the AOI boundaries were set as a one mile radius along the US 59 corridors, except where it passes through urbanized areas of Richmond and Rosenberg. In these areas it extends north to include the Traditional Downtowns of these communities (**Exhibit 11**).

Table 24: Block Groups Comprising the Basis of the Area of Influence

County	Census Tracts and Block Groups
Fort Bend	CT 6746, BG 1; CT 6747, BG 2; CT 6751, BG 4; CT 6752, BG 4; CT 6753, BG 4; CT 6754, BG 1; CT 6754, BG 2; CT 6755, BG 2.

Source: Study Team

In setting the temporal limit, the end date of 2035 was chosen because it coincides with the horizon year of the current RTP.

The entire AOI has an area of approximately 36.2 miles (approximately 23,139 acres). Of this land, approximately 54 percent (approximately 12,620 acres) has already been developed or is already dedicated to platted land development projects (**Exhibit 10**).

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

The 2035 H-GAC RTP Update defines transportation systems and services in the area containing the boundaries of the AOI. The RTP Update 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 this plan.

Purpose

The focus of this step is assembling information regarding general trends and goals within the study area. The trends and goals in question are independent of the proposed transportation project and typically concern social, economic, ecological, and/or growth-related issues.

Empirical evidence indicates that transportation investments result in land use changes only in the presence of other factors. These factors include, but are not limited to, supportive local land use policies, local development incentives, availability of developable land, and a good investment climate (a more in-

[5] The Director of Rosenberg's Economic Development Department was interviewed on August 23, 2010, at Rosenberg City Hall.

depth discussion of the decision-making process for land development and ultimate home purchase is found in **Step 4**).

An understanding, therefore, of community goals, combined with a thorough knowledge of demographic, economic, social, and ecological trends is essential to understanding the dynamics of project-influenced changes in development location.

Goals

For the US 59 project, the Indirect Impacts Analysis has been developed in part based on the existing and proposed future land use plans of Richmond, Rosenberg, and Sugar Land (through which the corridor passes) and discussions with City Officials. As recommended in TxDOT's 2009 guidance document, "plans and policies generally spell out the goals for the area," and maps for development and land use designations and land use documents were examined in interpreting the goals of the City. The discussion of goals is broken into three parts (in the order of the cities through which the corridor passes): Rosenberg, Richmond, Sugar Land, and unincorporated Fort Bend County.

Rosenberg

Rosenberg identifies itself as "a progressive city which embraces the changing needs and expectations of our community."

The Rosenberg Development Corporation (RDC) was created by election in 1995. This RDC is a "Type B" economic development corporation, and is funded through sales tax revenues, and State law authorizes the RDC to engage in projects related to primary job creation. There have been a number of projects in which the RDC has participated in order to make it easier and more effective to do business in Rosenberg and to fulfill their mandate of creating jobs that infuse new dollars into the local economy. The list of infrastructure projects within the AOI that have been completed and directly impact the desirability of establishing business operations along the highway corridor (a goal stated in interview) includes the construction of U.S. Highway 59 Frontage Roads, the construction of the Rosenberg Civic and Convention Center, the Reading Road/US 59 Interchange, the extension of Reading Road, and infrastructure improvements for the Brazos Town Center.

The Director of the Economic Development Department (which oversees the RDC), as well as the Director of the Planning Department were interviewed to understand the City's various goals for development and growth. Officials stated that the most recent Comprehensive Plan was adopted in 1995 (officials indicated need but did not indicate any plans to update their Comprehensive Plan); this plan is now too far out-of-date to be used as a guidance document. Nevertheless, the City relies on its RDC to achieve the community and economic conditions that make its goals for social, economic, ecological, and growth attainable. Moreover, where the City has concentrated its efforts is in revitalization of the traditional downtown. The City would welcome growth and desires such; future development in the traditional downtown would likely be consistent with general City interests.

In terms of overall social and environmental goals, recent RDC agenda minutes list a number of corporation projects (i.e. landscaped gateways – mowing, litter pick-up, and weed control and the installation of landscaping along US 59 at SH 36 and F. 2218 – infrastructure, expenditures, asset accumulation) required or suitable for amateur sports, athletic, entertainment, tourist, convention, and

public park purposes and events including ball parks (i.e., installation of lights at the new athletic fields located in Seabourne Creek Park Sports Complex; three baseball fields, one softball field, and one football/soccer field), parks and park facilities (i.e., replacement of fencing, demolition of unused buildings, uniform painting of existing buildings, and the installation of benches and gazebos), and open space improvements, and related roads, water and sewer facilities and other related improvements that enhance any of those items. In terms of overall economic development goals, these agenda minutes also list various projects necessary for the development, retention, or expansion of manufacturing and industrial, research and development, transportation, recycling, distribution small warehouse, and regional and corporate facilities.

Richmond

The City of Richmond is found north of the US 59 corridor, but its ETJ extends well south and straddles the corridor between Rosenberg and Sugar Land. Of the three cities, Richmond is the smallest. The City's Assistant City Manager was interviewed regarding the goals the City had established. One of the difficulties facing Richmond is its distance from US 59. At its closest point, the City is slightly more than a mile from corridor. With the exception of a few mid-sized residential developments, the entire ETJ is rural, whereas neighboring Rosenberg has a dominant shopping area directly adjacent the highway. Consequently, the impression that is given is that Richmond does not have much to offer. The interview with the Assistant City Manager revealed that, like Rosenberg, the City of Richmond does not have an active pursuit of goals. Furthermore, the City does not see the expansion of the highway being a traffic generator for downtown business, but does see it as something that would distract consumers from visiting the traditional downtown.

Nevertheless, the City sees downtown revitalization as a goal it wishes to pursue. Two organizations have been formed to achieve this goal. Richmond City Commissioners created the Richmond Historic District on July 12, 1999 by approving an Ordinance that also establishes a six-member Richmond Historic District Commission. The Commission reviews future construction plans and building improvements within the district (a map of the district appears in **Exhibit 11**). The Historic Richmond Association was formed shortly thereafter as a 501c3 non-profit that represents the business owners along the Morton Street corridor in Richmond. The Association assists with retaining businesses, business development, marketing the town for events and hosts an annual Christmas town celebration "Miracle on Morton Street". In the years following the Association's formation it has been working on several fronts, including assisting in the preservation and creation of several historic structures and special places, including historic Moore home, the Richmond Police Department, the Fort Bend Museum Complex, the Fort Bend County Courthouse, Decker Park, and the downtown business district. The association sees its purpose as supporting historic Richmond's businesses and the community through historic preservation, community improvement and the promotion of the City of Richmond, Fort Bend County, Texas. The long term goal of the Association and the Commission is to pursue Certified Local Government Status with the Texas Historical Commission and then apply for Main Street status for the City of Richmond. The time-table for this goal is 3-5 years.

Sugar Land

Only a small portion of the AOI extends into Sugar Land. The proposed project terminates at SH 99 (Grand Parkway)/FM 2759 (Crabb River Road), which is the approximate western boundary of Sugar Land and its ETJ. However, the City has several goals that apply to this area.

For example, the goal of the City's comprehensive plan regarding Parks, Recreation, Leisure, and Open Space is to "Provide a park system that meets the total recreation and leisure needs of the community" (Sugar Land (2005) Comprehensive Plan). To this end, the 2005 Parks, Recreation, & Open Space Master Plan dedicated between approximately $10.73 million to approximately $15 million for construction of new picnic areas, playgrounds, and open/natural spaces, including areas along the Brazos River Corridor. Additional spending is also allotted to the Brazos River Corridor for amphitheater space, event hosting space, and water playgrounds.

Another goal of the City that affects the Sugar Land portion of the ETJ is transportation. This is an important concern as FM 2759/Crabb River Road is operating well beyond capacity during a.m. and p.m. peak periods and there are very few routes that allow access to and from US 59. To alleviate some of the congestion, the City's Major Roadway Plan proposes a route out of the Greatwood master-planned community across the Brazos River to connect with Commonwealth Boulevard on the south edge of the municipal boundary. (This is a proposed concept that is currently under feasibility review by the Fort Bend County Toll Road Authority.)

Sugar Land's ETJ comprises all of the land in the Sugar Land segment of the AOI. Most of this land has already been developed, but there are still areas where developable land is available. Much of the available land is at Thompson's Landing, which is along FM 762 just outside the eastern boundary of the AOI. Lamar CISD qualified the effect of development at Thompson's Landing in their 2010 Demographic Update report.

> "Thompsons will have major residential and other development with the advent of the Fort Bend Tollway and the Grand Parkway's completion in that part of Fort Bend County. The George Foundation will provide upper middle socioeconomic development that is oriented to single-family communities. However, this impact will be felt after the ten-year projection period on which this study is based."

And

> "The Booth Trust and Booth Foundation have received a Legislatively-created [fort Bend] County MUD #192, which will spawn the development of that large assemblage north off Thompsons (FM 762). Also, there is one more bridge planned (across the Brazos River, and in Sugar Land's ETJ) – at an as-yet-unknown location – that will spawn significant increases in development in this sector of the School District."

The City's goal for a safe and beautiful city states that the "City should strive for development and redevelopment to occur in an aesthetically pleasing manner within the ETJ" (Sugar Land (2005) Comprehensive Plan). The plan recommends regulations that deal with signage, landscaping, and architectural controls. While the majority of the ETJ is exempted from the need for regulations by three of the four master-planned communities that comprise the bulk of the ETJ, there are lesser developments and undeveloped areas where these regulations would still apply.

Unincorporated Fort Bend County

There are four County departments that have a direct influence in the well-being of residents in the AOI. These departments are: Community Development, Parks and Recreation, Engineering, and Road and Bridge (Road and Bridge is essentially subsumed by Engineering). Of these four, the Engineering Department carries most of the responsibility for keeping the county operational. Fort Bend County adopted its most recent comprehensive plan in December 1998; the plan is now slightly more than 10 years old. In the overall County-wide goals of the plan, the first operational goal is to "Provide the necessary support for mobility and transportation needs in the county" (Fort Bend County (December 1998) Fort Bend County Comprehensive Plan).

Mobility in Fort Bend County is an important concern, as Fort Bend has maintained its position for more than 10 years as one of the fastest growing counties in the state. Therefore, in the Capital Improvement Program, "major projects include widening, lane construction, intersections, bridges, enhancements and park and ride lots [that] will require participation by the county for right-of-way and utility relocation. Projects currently under consideration are US 59, US 90A, SH 6, SH 36, SH 99, SH 122, FMs 762, 2977, 2218. Complete details are in the Mobility Plan Update" (Fort Bend County (December 1998) Fort Bend County Comprehensive Plan).

The goals of the Engineering Department reflect this concern, and multiple strategies are being used to improve mobility in the ever-expanding urbanized areas of the county.

Goal 5: Promote efforts to improve mobility in Fort Bend County.

Objective 1 Educate the public on existing mobility needs and future mobility demands.

Objective 2 Work to facilitate the county's highest priority mobility projects.

The H-GAC 2035 RTP Update defines transportation systems and services in the area containing the boundaries of the AOI. The RTP Update 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 this plan. The 2011-2014 TIP (and its predecessor the 2008-2011 TIP, as amended) list projects that would implement the RTP Update.

The County is addressing its need to strengthen the transportation network, particularly in the AOI. Analysis of the 2007 Major Thoroughfare Plan shows numerous rural roadway projects. However, most of these are not truly new location roadways, but roadway expansion and extension/connection projects.

The proposed project is entirely within Precinct 1, which is under Commissioner Morrison's responsibility. One of the roadway expansion projects that Commissioner Morrison has been working toward implementing is Crabb River Road/FM 2759 and FM 762 at the eastern edge of the AOI. The application for project funding includes a description of need that, due to future land development, will fairly accurately represent the coming transportation conditions for many of the roadways throughout the AOI.

> "This 2-lane roadway is severely over capacity due to growth in the County as well as impediments associated with physical barriers such as the Brazos River to the East, and the BNSF Railroad crossing to the South. Additionally, the road is the primary point of access to US 59 and the Grand Parkway, for area attractions and Houston destinations within a 5-mile area. (Thus, the traveling public either drives on Crabb River Road, or is required to drive up to 10 miles around to access the same point as this road improvement provides.) The road currently exists as a two-lane, open-ditch, narrow facility carrying nearly 24,000 vehicles per day."

The other departments that provide important services to residents of the AOI are Community Development, and Parks and Recreation.

The Community Development Department is important to the AOI because of the number of persons who live in some form of low income.

> The overall goal of the community planning and development programs covered by the Consolidated Plan is to develop viable urban communities by providing decent housing and a suitable living environment and expanding economic opportunities principally for low- and moderate-income persons. (*Fort Bend County, Texas FY 2010 – 2015 Consolidated Plan Executive Summary*)

The goals of this department are important to the AOI for two reasons. First, if redevelopment occurs within urbanized areas of the AOI (i.e., Rosenberg and Richmond) there is a very strong possibility that displaced persons would include low-income. Second, businesses that support low-income populations would be displaced by other businesses if the AOI experiences an increase of mid- to upper-income housing developments. Therefore the goals of community development reflect the conditions and trends that could emerge after the proposed project is constructed.

- Goal 1: Increasing the supply of affordable housing to extremely low-income, low-income and moderate-income households
- Goal 3: Provide assistance to individuals, neighborhoods and businesses through the utilization of human resources, such as education and job training and business assistance programs to extremely low-income, low-income and moderate-income families and groups.

Parks and Recreation is the last department that has a direct involvement in the success of the AOI after the proposed project is constructed.

- Goal 3: Acquire and develop parkland as regional level parks to complement, not compete, with the parks already provided by other entities in the County, to meet the passive and active recreational needs of the increasing population.
- Goal 4: Work with the cities to jointly develop regional size parks that meet the larger needs of the area. Develop a "Shared Vision" of Parks and Recreation Facilities that provides for a hierarchy of facilities to be provided throughout the County.
- Goal 5: Work with the cities, landowners and interested organizations along the Brazos River and other waterways to develop "Corridors" along the rivers to protect the natural environment, provide access to the river in the floodway and floodplain.

- Goal 6: Support and encourage the continuance of and development of recreation activities for youth and senior citizens.
- Goal 7: Develop partnerships with youth and adult sports associations to provide land to develop ball fields.
- Goal 8: Consider the provision of land for specialized recreational sports facilities as desired by the citizens of the County.
- Goal 9: Provide protection, conservation, and enhancement of woodlands, waterways, historical sites and other natural resources.

The success of the County in meeting these goals will have a large impact on the form that development takes after the construction of the proposed project. Parks and recreation facilities create much of the atmosphere of a community. If the County can develop high quality assets it is more likely that the types of communities that are built in the AOI will be of similar quality that will hold their values.

Trends

TxDOT's 2009 guidance advises "looking at recent and historical data to identify population growth, development trends, and trends in industry and the regional economy," and the same planning documents and maps as in interpreting goals were consulted. Thus, based on current and projected trends within the corridor, much of the future development would most likely be residential and commercial (i.e., a Harley Davidson dealership and hotel, Brazos Towne Center Phase II). These trends are based on social and economic factors.

First, the AOI has become a popular location for settlement of families and businesses. In an interview the Director of the Economic Development Department indicated that so much land is being developed and consumed by home buyers because the area is well priced for people who either want to move to the Sugar Land area and are unable (either because of prevailing economic conditions or simply station in life) due to land costs, or for people who already work in this area (personal interview, August 23, 2010). In 2000, the population of Richmond, Rosenberg, and Sugar Land (only in the AOI) was estimated at approximately 70,654 and was projected to be approximately 98,189 by 2010, representing approximately 39 percent growth over ten years. Furthermore, according to the Texas Data Center, which derives all its findings from the U.S. Census Bureau, by 2035 Fort Bend County's population will be approximately 737,203, while the tri-cities (Richmond, Rosenberg, Sugar Land) population within the AOI will be approximately 129,285.

Second, there are strong incentives that are driving the trend of development in the AOI. Raw land (approximately 10,519 acres, or approximately 45.5% of the AOI), or land with minimal structures is available, and it is relatively easy and very cost effective to develop. This is even more the case when it is cleared agricultural land. Also, land in the AOI is noted for being large single parcel croplands so that land consolidation is unnecessary except in a very large development project. Since the parcels are so large, designing and constructing services such as water, power, and sewer is simple and does not require adapting to existing City services. In the same way, developing an internal traffic circulation system does not require adapting to an existing City roadway grid. All of these factors mean that homes and leasable commercial space can be constructed and supplied to the market for very low cost, which is very appealing to first-time home-buyers and small businesses.

Many of these incentives also work for commercial and industrial development, where extensive land use is needed. Moreover, there are other incentives to starting operations in the AOI. Dixon (Sept 2009) reports that "in the most recent Annual Corporate Survey conducted by Area Development proximity to major markets and proximity to suppliers were ranked below highway accessibility, labor costs, and corporate tax rates" ("Making a Proximal Location Decision." AreaDevelopmentOnline. Aug/Sep 09. www.areadevelopment.com/logisticsInfrastructure/august09/proximal-corporate-location-decision005.shtml). Highway accessibility is already strong, and would improve with the proposed project. While labor costs in Fort Bend County are higher than the state average, in the Richmond/Rosenberg area they are at or below the state average; furthermore, the area has a workforce population that contains strong elements of a range from senior managerial to common unskilled labor. Finally, both of the cities of Richmond and Rosenberg have very progressive tax programs to encourage commercial and industrial investment.

West of Rosenberg the trends indicate that development is likely to be more industrial than residential, though there is likely to be some mix of the two. Rosenberg's Director of Planning indicated two areas where industrial development is likely to occur. The first area is between SH 36 and the former Southern Pacific Railroad crossing. This area has attracted at least two companies that are interested in opening major operations. Because the City does not have a zoning bylaw it cannot guarantee industrial development; however, the area has advantages that suggest a strong possibility. The next area that is likely for industrial development is west/southwest of the intersection of Spur 529 and US 59, in an area generally referred to as the Triple Fork Industrial Site (TFIS), where development is occurring already. Slightly less than one half (2,000 acres) of the land is owned by UPRR, and the company is planning for a container port facility, similar to the CenterPoint Intermodal Center-Houston Metro (CIC-HM) hub, which is a joint project with Kansas City Southern Railroad (KCSR) to create a distribution center for cargo carried on the rehabilitated main line between Victoria and Rosenberg.

The economies of Richmond and Rosenberg are in transition from rural agricultural to urban secondary and tertiary. For Richmond and Rosenberg, this means that businesses catering to machinery and specialty machining, specialty foods, packaging, logistics and distribution, pharmaceuticals and medical products, and business services are becoming more important as economic driving forces and agriculture is becoming a niche market. One of the reasons for this transition is self-evident in the type of land use development that the Cities are pursuing. A number of major housing and commercial projects are underway. Recent development maps (**Exhibit 12**) that highlight properties over 50 acres include approximately 381 acres of commercial and approximately 2,062 acres of residential that has already been approved and platted. The Existing and Future Land Use Maps suggest how the cities foresee the growth of development. Significant areas of new development in fiscal year 2009-10 are expected to be Brazos Town Center Phase II, the Kansas City Southern/CenterPoint Properties intermodal facility, the expansion of the Biotics Research Center facility, and the National Oilwell Downhole Tools expansion of existing operations.

Richmond and Rosenberg form the greater concentration of new suburban (residential and commercial) development in Fort Bend County, but the Cities' neighboring communities are also strong attractors for economic investment and growth. Both Katy and Sugar Land have become successful in attracting high profile health and wellness (i.e., Memorial Hermann, Methodist, St. Luke's hospitals, Christus hospitals, Oak Bend hospitals (Richmond)), as well as other strong economic engines (i.e., Coca Cola Minute Maid,

Flour Daniel, University of Houston). Over time it is possible that more major corporations will move into the area.

According to the Rosenberg Development Corporation Fiscal Year 2008-09 Annual Report, the City has made strides to revitalize and redevelop its traditional downtown, which lies at the north edge of the AOI. The work was a pedestrian environment upgrade that included sidewalks, paving stones, planters, landscaping, and pedestrian-level heritage lighting. Additionally, the City pursued grant opportunities[6] to upgrade the conditions of the pedestrian environment along the Avenue H and Avenue I corridors.

While peripheral areas enjoy lucrative incentives for development, there are several strong incentives for land use development in the downtown area as well. At this time there is interest by an investor to construct on several of the vacant and currently occupied lots. Rosenberg has also developed a task force and a Tax Increment Investment Zone (TIRZ) to upgrade infrastructure and aesthetic conditions to enhance development in the Downtown. There are also several large vacant commercial structures within the eastern half of the downtown portion of the AOI that the Economic Development Department is confident will experience new life, and just outside the east edge of the AOI is land that has been planned for a gas station, a small strip center, and a mini storage facility.

The City's Director of the EDD identified a desire of the City for activity to occur in the Downtown. To assist in development of the Downtown, the City has developed a Downtown District. This district comprises all of the area that was the original Downtown area. The City could see their interest in the downtown pay off. Trends indicate that while many people prefer the in-and-out ease of shopping at power centers such as Brazos Towne Center, there is a growing number of people who also enjoy the nostalgia of shopping in traditional downtowns where the pace is considerably slower. An electronic interview with a historic/archaeological consultant emphasized trends occurring in nearby areas of Sugar Land. "Developers are using the historic angle more and more often to promote a certain quality of life… At the Imperial Sugar complex in Sugar Land the plan is to use adaptive re-use for some of the sugar refinery buildings; … the Houston Museum of Natural Science is using the old Central State Prison dormitory as its Sugar Land museum location" (Electronic interview, 09/02/10).

12.1.3 Step 3: Inventory of Study Area's Notable Features

This step involves conducting an inventory of notable environmental features, including socioeconomics, to identify specific environmental issues by which to assess the project. The indirect impact-causing activities of the proposed project and alternatives are then detailed. The outcome is identification of potentially significant indirect impacts for further analysis (it is noted that indirect impacts to a resource might occur even in the absence of direct impacts (e.g., water quality may not be a direct impact of a transportation project but subsequent development spurred by the transportation improvement may result in impacts to water quality). Qualitative and quantitative techniques (where and when available), including analysis of GIS data, would then be employed to estimate the magnitude of the potentially significant effects. Finally, strategies that avoid or lessen any effects found to be unacceptable are reported, if warranted.

[6] A grant program was once again recommended to the City Council, utilizing Chapter 380 to assist owners of businesses along Avenue H and Avenue I with improvements to the buildings, including the façade, landscaping, and signage. The recommendation was deferred due to budgetary limitations.

As prescribed in TxDOT's 2009 guidance, "the primary objective of **Step 3** is to inventory the base-line environmental conditions of the project area by following three sub-steps:

1. Inventory Ecosystem Conditions,
2. Inventory Socioeconomic Conditions, and
3. Inventory Notable Features.

While the first two of these are generally conducted as part of establishing the existing conditions for analysis of direct effects (presented in the previous chapter of this EA), the third sub-step is unique to the indirect impacts analysis and involves assessment of "features" listed below (brief descriptions are also provided):

- **Sensitive Species and Habitats** – ecologically valuable species and habitat, and/or those that are vulnerable to impacts. State and Federally-listed threatened and endangered species and their habitats are included. The TxDOT-TPWD MOA outlines a list of unique and unusual landscape features that have been identified as special habitat features which warrant special consideration. Also included are species which occur on the state listing of threatened or endangered species; however are not federally listed at this time by the USFWS.
- **Valued Environmental Components** – characteristics or attributes of the environment that society seeks to use, protect, or enhance (i.e., they are important to the community).
- **Relative Uniqueness, Recovery Time, and Unusual Landscape Features** – measure the value of specific landscape elements according to several factors. Relative uniqueness refers to how many comparable examples of the element exist at different levels of scale. Recovery time refers to how long it would take to replace the landscape element if it were disturbed or destroyed. Unusual landscape features are those that occur once, or only a few times, across a landscape. These features are valuable, and may represent particular activity centers. A list of unique and unusual landscape features identified as special habitat features and those warranting special consideration are included in the TxDOT-TPWD MOA.
- **Vulnerable Elements of the Population** – may include the elderly, children, persons with disabilities, minority groups, or low-income groups. These populations may be more susceptible to environmental conditions, more dependent on non-vehicular forms of transportation, or underrepresented in the decision-making process. These factors may also lead to these populations being less able to bear impacts and recover from them than the general population.

Perspective and setting play a considerable role in defining notable features within any specific AOI. A feature that is notable to one group may not be notable to another. Identifying notable features is important in determining what indirect impacts may be notably substantial. Notable features are generally more vulnerable or more highly valued, and less able to bear impacts. The absence of notable features does not indicate an absence of indirect impacts; it simply means that those impacts are less likely to be substantial.

Sensitive Species and Habitats

The project area was surveyed for "special habitat features" such as native prairie, ponds, springs, snags, water bodies (e.g., creeks and streams), bird or bat colonies, or S1-S2-S3 plant communities. The habitat was not found to be unique in the region.

Native prairie is a complex and diverse ecosystem comprised of native grasses and flowering plants (forbs). The ecosystem is supported by wildlife, soils, geology, and fire. Although several of the parcels within the AOI have early indicators of prairie conditions, none of it has developed to the point that it can be classified "native."

Other special habitat features are mainly water bodies of various classifications. Several creeks and drainage systems traverse the corridor. Cottonwood Creek, an unnamed tributary to Cottonwood Creek, Big Creek, an unnamed tributary to Big Creek, Coon Creek, an unnamed tributary to Coon Creek, Seabourne Creek, an unnamed tributary to Seabourne Creek, Dry Creek, Rabbs Bayou, an unnamed tributary to Rabbs Bayou and Middle Bayou are streams located in the Brazos River drainage basin. The majority of watercourses within the project area, including Dry Creek and Rabbs Bayou, are typically ephemeral, semi-ephemeral, intermittent, and perennial type streams. Collectively, these streams and other water bodies amount to approximately 691 acres of the AOI (approximately 3.0%).

The AOI was examined for bird and bat communities and it was determined that such features were not found in the AOI.

S1-S2-S3 plant communities are communities of rare vegetation that also locally provides habitat for a state-listed species. After a review of data and Vegetation Types of Texas, it was determined that no S1-S2-S3 plant communities are found within the AOI.

A check of the TPWD NDD determined that the AOI is known as having sightings of the Bald Eagle (*Haliaeetus leucocephalus*). However, very little (less than 2%) of the area of sightings (14,612 acres) is within the AOI. Less than two percent of the sighting area is within the AOI, and the sighting area is approximately 14,612.03 acres. Nevertheless, there are several tracts of unmaintained vegetation at the west/southwest edge of the AOI and at the north/northeast edge that could support the Bald Eagle. In some cases, these are parcels left over after clearing for agriculture was complete. The size of these parcels range from less than one acre to more than 55 acres. However, at the north/northeast edge and along creeks and bayous the unmaintained vegetation is predominantly remnant riparian corridor.

An electronic interview with field biologists for Ducks Unlimited indicated a concern over water bird habitat. It was explained that continued decline in rice agricultural over the past 20 years has substantially affected wintering water bird numbers in this region. Rice is still grown in the AOI, and the method of production means habitat for migratory water birds. With the conversion of agricultural land within the AOI to residential comes the potential for a reduction in rice farming, and this could have negative effects for migratory water bird habitat.

Valued Environmental Components

There are no features that achieve these criteria.

Relative Uniqueness, Recovery Time, and Unusual Landscape Features

An electronic interview with the Executive Director of the Historic Richmond Association revealed several notable features in this category.

The Executive Director identified the Brazos River as having a strong presence to Richmond. "At present there are discussions to create a boat launch at Hwy 90A at the Brazos River. This discussion is being

facilitated between Houston Wilderness Organization, Fort Bend County and the City of Richmond." Furthermore, the Executive Director identified that there are two cemeteries located within Richmond. The first is "the Morton Cemetery and one other that I cannot recall at this time [San Gabriel][7]. It has been told that there are confederate soldiers buried on a portion of the cemetery but there are no historical markers or designations are in place." The reference to the importance of Morton Cemetery to this area was echoed by the General Manager for the Davis-Greenlawn Cemetery.

For the 2008/09 school year (the most recent school year for which data is available) the total number of students in the Lamar CISD was 22,867. The schools that service the AOI are:

- Elementary (K-5): Beasley, Bowie, Campbell, Dickinson, Hutchison, Meyer, Thomas, Travis, Velasquez, Williams
- Middle (6): Navarro, Reading, Wessendorff
- Junior (7–8): George, Lamar, Reading
- High School (9–12): George Ranch, Lamar, Terry

The Supervisor of Routing and Scheduling for the Lamar CISD was contacted on September 7, 2010 and asked about the order of magnitude for impacts that the proposed project could have. Of the approximate 561 routes (morning and afternoon) approximately 420 at some point of the commute are found within the AOI. Of the 420 routes that at some part of their run are within the AOI, approximately 240 (51%) intersect with US 59. Morning use of these roads is between 5:30 a.m. and 8:15 a.m., while afternoon use is between 2:00 p.m. and 6:30 p.m.

This is not the total number of routes that Lamar CISD busses service. For example, busses also operate in off-peak periods for field trips, band and sporting events, and other special functions. There are also special needs routes for children who suffer handicaps and cannot ride on the regular busses. Finally, the district also has positioning routes (routes that are taken by the drivers to quickly get to or from the location of the first/last pick up/drop off) when the bus is out-of-service and empty.

According to the same interview, rescheduling routes would be a relatively easy task, and would not require extensive notice from and coordination with TxDOT, although the district would prefer ample notice. There is only one location in the routing network that would create considerable complications. The majority of routes pass through the intersection of FM 2218 and US 59. It is therefore imperative that the district receive advanced notice of any work being done at this location.

The project also would not have any impact to public transit services. Neither the Cities of Rosenberg or Richmond has a scheduled bus service. Fort Bend County officially formed a Public Transportation Department in June 2005 to provide residents with safe and efficient public transportation services that operates on a demand response basis.

Notable features also include places of public use. For example, the George Memorial Library is located in Richmond on FM 762 in the AOI, and the communities of Richmond and Rosenberg combine for a total of more than 77 churches. Also, between Richmond, Rosenberg, and the County there are approximately 32 parks, community centers, and other recreational areas.

[7] Name of cemetery inserted after interview.

Vulnerable Elements of the Population

Since the AOI was developed using 2000 U.S. Census geographies, it was evaluated through the 2000 U.S. Census data to determine if it contained vulnerable elements of the population (for consistency). Portions of eight Block Groups (BGs) combine to define the limits of the AOI. As a group, the AOI has an average minority proportion of approximately 71.5 percent. There are 79 census Blocks that make up the AOI; 21 had no population. The average percentage of each Block's minorities was approximately 67 with 18 blocks having a 90 percent or greater minority population, and 42 having minority populations of 50 percent or higher. Approximately a quarter of the AOI population was 14 years of age or younger, while approximately 18 percent was 55 years of age or older.

LEP and linguistic isolation were substantial (approximately 25.6% and 15%, respectively). Approximately 26 percent reported a disability in 2000. Of those, approximately 20 percent were between 16 and 64, and approximately five percent were 65 years of age and older. Approximately 21.2 percent fell below the poverty line.

2010 Census data was also examined. Geography boundaries have changed since the 2000 Census, and the AOI now contains well over 500 census Blocks. Therefore, the data was evaluated at the BG level. Portions of 39 BGs are now included in the AOI. In 2010, the AOI BGs' total minority proportions ranged from 23.8 to 97.9 percent; the average BG minority proportion was approximately 66.7 percent. Approximately 17.3 percent of the AOI population was under 10 years of age, while approximately 12.8 percent was 60 years of age or older.

LEP was still notable in the AOI: approximately 13.7 percent of the population ages 5 and over (at the BG level) reported speaking English "less than very well". Approximately 13.3 percent of the total population fell below the poverty level (at the census tract (CT) level; BG data is not available). 2010 disability data is not yet available at the CT, BG or Block level.

12.1.4 Step 4: Identify Impact-Causing Activities of the Proposed Improvements

Impact-causing activities include all of the activities involved in a project, from clearing to maintenance of vegetation once the project is finished. These activities are typically relevant to encroachment-alteration effects and access-alteration effects. There are 10 general categories of impact-causing activities identified in TxDOT's 2009 guidance. These are listed below, with examples of each:

- Modification of regime – alteration of habitat, flora, hydrology, etc.
- Land transformation and construction – construction methods, design features, ancillary elements (i.e., parking lots, transit shelters, etc.)
- Resource extraction – excavation, dredging
- Processing – Storage of construction materials
- Land alteration – erosion control, landscaping, fill
- Resource renewal activities – revegetation, remediation activities
- Changes in traffic – traffic patterns on project and adjoining facilities
- Waste Emplacement – landfill, waste discharge
- Chemical treatment – fertilization, herbicide application, deicing
- Accidents – inadvertent mishaps occurring because of, during, or on the project and/or project site

The proposed project would include the construction of SOV main lanes, HOV lanes, and frontage roads, and the reconstruction of several interchanges with minor and major roadways. The project would incorporate new ROW as well as use existing roadway. The reconstructed interchanges would include overhead standing structures. Impact-causing activities are described by type. The impact-causing activities for the proposed project are presented in **Table 25**.

Table 25: Impact-Causing Activities

Type of Activity	Project-Specific Activity	Relevant Details (Location, Size, Type, and Longevity)
Modification of Regime	Reconstruction of eight interchanges, construction and reconstruction of frontage roads, and construction of one additional SOV lane and one HOV lane in each direction.	The proposed project would replace vegetated areas with pavement and other transportation-related elements. Additional noise and vibration would occur before, during, and after construction of the proposed project. The impacts would occur through the duration of the project and would continue afterward through prolonged use of the facility. These impacts would also occur throughout the length of the proposed project.
Land Transformation and Construction	Reconstruction of an existing transportation facility/alignment, removal of some land uses, construction of new transportation facilities.	The proposed project would replace vegetated areas and existing land uses with pavement and other transportation-related elements. Additional noise and vibration would occur before, during, and after construction of the proposed project. The impacts would occur through the duration of the project and would continue afterward through prolonged use of the facility. These impacts would also occur throughout the length of the proposed project. The project would also bring numerous workers to the corridor and many local businesses would benefit from purchases of gas, meals, sundries, etc.
Resource Extraction	Excavation for new interchanges, frontage roads, and traffic lanes.	The proposed project would involve excavation for roadbed and drainage construction as well as drilling for column placement. These impacts would occur during the initial earthworks of the proposed project. These impacts would occur throughout the length of the proposed project.
Processing	Product/project storage/staging (construction materials and equipment)	It would be the responsibility of the contractor to locate a project office compound. The compound would contain construction trailers as well as storage for items such as temporary lane barriers, lighting, and heavy equipment and road construction materials. Given the length of the project, the contractor may choose to have several storage areas. A potential site near the SH 99 interchange is a former weigh station with extensive hard surface, and use of this site would reduce impacts to natural resources. If the contractor chooses to use undeveloped land for material storage, impacts to natural resources may increase. These impacts would end with completion of the project, and any disturbed land would be graded and seeded for restoration.

Table 25: Impact-Causing Activities

Type of Activity	Project-Specific Activity	Relevant Details (Location, Size, Type, and Longevity)
Land Alteration	• Filling of Waters of the U.S. (including wetlands) • Impacts to vegetation	• Approximately 0.159 acres of wetlands are anticipated to be impacted by the proposed project. • The table below indicates the approximately area of impact for each type of vegetation. **Vegetation Types** / **Est. Acres Impacts** Mowed and Maintained Exist ROW: 455.5 Woody Vegetation Prop ROW: 8.0 Crops Prop ROW: 5.7 Pasture Prop ROW: 26.9 Grassland Prop ROW: 10.3 **Total Acres of Impacted: 506.4**
Resource Renewal	• Vegetation regrowth • Reuse of debris materials	• Some ROW vegetation would return within the median, between the frontage roads and main lanes, and within drainage areas. • Excavated pavement and rubble from dismantled standing structures removed from the project area would be recycled for use as riprap material, recycled hot mix, or other products, in accordance with local policy. Ground removed during excavation in one area would be used for fill in another. Structures and other improvements displaced for roadway construction would be recycled where feasible and reasonable and taken to a registered landfill where not. • See also "Waste Emplacement and Treatment." • Excavation of pavement and removal of standing structures would be throughout the length of the project, would be phased, and could occur throughout the duration of the proposed project until site preparation work is complete. All impacts would cease with completion of the proposed project.
Changes in Traffic Patterns and Access Alteration	Expanded transportation facility, extensions of frontage roads and changes in frontage road directions, and changes to access ramps.	The proposed project would expand capacity by constructing new main lanes and frontage roads, thus making travel easier and more efficient for users. The proposed project would also reconstruct several interchanges. The intersection of Spur 529 at US 59 would be reconstructed to make highway cross traffic safer. The reconstruction would close the last uncontrolled crossing of a minor road across the highway. A new crossing at Bamore would allow traffic from the Cottonwood residential development to cross the highway and would provide a U-turn route for highway traffic. The reconstruction of the crossings at Kroesche Road, FM 2218, and Williams Way would provide U-turn routes for highway traffic. Traffic, especially at Spur 529 and Williams Way, would require some adjustment, but drivers should find it easier and safer to maneuver through the new alignments. These impacts would occur throughout the length of the proposed project.

Table 25: Impact-Causing Activities		
Type of Activity	**Project-Specific Activity**	**Relevant Details (Location, Size, Type, and Longevity)**
Waste Emplacement and Treatment	Landfill/By-products	Excess soil excavated from the project area is not anticipated in great quantity and may not occur at all. Much of the soil excavated from one area can be used for embankments and abutments of overpasses. However, any excess soil would likely be stockpiled for use on another project or sold for other uses, depending upon the results of soil testing. The contractor may choose to provide portable sanitary facilities for employees at the field office and throughout the project corridor. No other sanitary waste discharge is anticipated. Packing materials, office waste, and other products would be disposed of in a landfill by a certified contractor or sent to recycling. Personal waste, such as food wrappers, soda cans, and other by-products would be discarded into waste collection receptacles or sent to recycling.
Chemical treatment	Fertilization, herbicide application	No use of fertilizer is anticipated during re-vegetation. None of the slopes which would be re-vegetated are steeper than 3:1 in grade, therefore, no chemical binders would be needed. Periodic applications of weed and pest control would occur during the maintenance phase of the project. The impacts would occur through the duration of the project and would continue afterward through prolonged use of the expanded facility. These impacts would also occur throughout the length of the proposed project.
Accidents	Spills, leaks, and operational failures	The contractor would take all reasonable precautions to ensure that spills and leaks do not occur during the construction of the proposed project. However, regardless of how well the job site and equipment and materials are maintained there is a chance that an accidental release of a substance could occur. There is no way to determine when, where, why, or how such an accident could occur, but the contractor would ensure that proper quarantine equipment and materials are available throughout the project area to quickly arrest, to best of his ability, the spread of impact.

Source: Study Team

12.1.5 Step 5: Identify Potentially Substantial Indirect Effects for Analysis

The TxDOT 2009 Guidance explains that "The objective of this step, which is essentially a screening step, is to compare the list of project impact-causing activities with the goals and notable features to explore potential cause-effect relationships and establish which effects are potentially substantial and merit subsequent detailed analysis (or conversely, which effects are not potentially substantial and require no further assessment)."

The context of the AOI and the intensity of the impact should be considered when determining if an impact may be substantial. Each type of indirect effect should be considered for relevance to the project. As previously described, types of indirect effects include: (1) encroachment-alteration effects, (2) induced growth effects (also called access-alteration or project-influenced effects), and (3) effects related to induced growth. Each is discussed further below.

According to TxDOT's June 2009 *Guidance on Preparing Indirect and Cumulative Impact Analyses* (TxDOT's June 2009 Guidance), which is adapted from The National Cooperative Highway Research Program (NCHRP) *Report 466, Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects (NCHRP Report 466)*, there are three general categories of indirect effects:

Category 1 - Encroachment-Alteration Effects are those that alter the behavior and functioning of the physical (including biological and chemical) environment. These are related to project design features, but are separated from the project by time and/or distance. An example is subsequent increased levels of impacts to wildlife due to increased levels of animal/vehicle collisions or disruptions of wildlife travel corridors.

Category 2 - Access-Alteration Effects are also known as Project-Influenced Effects (i.e., the Land Use Effect). Changes in traffic, access, and mobility can result in changes in land use. Highway projects may promote development, or influence an increase in the rate of development. These effects are Access-Alteration Effects, and are often referred to as "induced growth". An example would be development made possible by the access provided by a new-location roadway.

Category 3 - Effects Related to Project-Influenced Development, or **Induced Growth-Related Effects**, are those effects that are attributable to the induced growth itself. Category 3 effects are created by a third party. For example, if a new development is an indirect result of a highway project, the removal of vegetation associated with that development is an effect related to project-influenced development. Category 3 effects occur only if Category 2 effects occur.

Encroachment-Alteration Effects

These effects may occur in two categories: socioeconomic effects and ecological effects. They are project design-related because they alter the behavior and functioning of the physical environment. These effects are linked to the impact-causing activities identified in **Step 4**.

Ecological Effects

The selection of ecological resources and issues for indirect impact analysis is dependent upon identifying the resources or issues that are substantially impacted. In terms of direct impacts, issues that are eliminated from indirect impacts analysis are those that are not substantially affected. Most issues that are carried forward for further study involve substantial effects.

Potential indirect impacts would occur to water quality and the stability of ecosystems. At this time, the water quality of bodies within the AOI is generally considered unimpaired. There are seven named and numerous unnamed streams in the AOI. These are: Cottonwood Creek, Coon Creek, Dry Creek, Big Creek, Rabbs Bayou, Middle Bayou, Gapps Bayou, and their various unnamed tributaries. None of these streams appear on the approved 2008 or draft 2010 TCEQ 303(d) list. As explained earlier in **Section 8.0**, the streams within the project area provide an assortment of habitats.

The hierarchical arrangement of ecosystems means that an influence in one area will cause effects elsewhere in the system. For example, the expansion of US 59 over Rabbs Bayou would result in an approximate 173 percent increase of surface area. This increase of bridge deck surface area would cause surface change for stream bank areas. The result (depending on whether concrete is used for bank stabilization) would be a loss of approximately 23,366 square feet of vegetation habitat. This would

substantially reduce populations of herbivorous and carnivorous insects, resulting in similar losses of bird and eventually small mammal species. The additional lanes would also result in greater build-up of pollutants. Thus, a wider surface of sheet flow, with more pollutant load is discharged into the stream, elevating levels of turbidity and total suspended solids. The point and downstream erosion caused by high velocity runoff into the stream would contribute to the elimination of grasses and other plant species downstream of the new facility. However, while the erosion effects could substantially degrade in-stream fish habitat, the pollutant load could change the water chemistry so that it is oxygen depleted to the point it is unable to support aquatic populations.

From Spur 10 to SH 99 there are six channels where this could occur: Coon Creek, Seabourne Creek, Dry Creek, Rabbs Bayou, an unnamed tributary to Rabbs Bayou, and Middle Bayou.

In spite of these potential impacts, no water flow patterns would be permanently impacted. Water quality impacts from construction would be temporary and minimized by the implementation of BMPs and a SW3P; however, additional traffic on the alignment would result in more pollutants being washed into drainage facilities, and this could reduce overall water quality. Also, any additional hard surfaces, (i.e., subdivision roads, rooftops, driveways, off-street parking areas) and manicured lawns are likely, at some point, to increase the volume of household chemicals (i.e., fertilizers, herbicides, pesticides, household cleaners and detergents) and automotive products (i.e., oils, solvents, waxes) entering ground and surface water reserves.

While development because of the proposed project may not occur in the near-term, as parcels within the corridor become more valuable due to increased access and regional mobility, there is a likely possibility for water quality impacts. Moreover, even the occasional home construction would still contribute over time to water quality issues. For these reason, this issue is studied in greater depth.

Waters of the U.S. (including wetlands and floodplains) do flow through the AOI. As just discussed, it is anticipated that the proposed project could result in some of these waters being contaminated by storm water runoff. The most substantial indirect impact to waters of the U.S. would be fill. Minor amounts could be permitted under a Clean Water Act Section 404 nationwide permit. Amounts typical for a development project may require individual permitting.

Another resource that is likely to be indirectly impacted by the proposed project is vegetation and habitat (please refer to the discussion of this resource in the **Section 6.6** section of this EA). Habitat fragmentation and degradation are two measures of impacts that can already be seen on the landscape. First, a lot of damage to habitat has already occurred, originally by settlement and agricultural practices, then by oil and gas exploration, and finally by continued land development. As a result, few natural areas of vegetation occur within the project corridor. Aquatic habitats do occur but are primarily associated with seasonal streams, impoundments, and depressed areas. Most sensitive plant species and plant communities are associated with undisturbed soil surfaces, which have progressively become smaller over time. If the proposed expansion of US 59 is successful at attracting development (which is anticipated and favored), and certainly as development naturally progresses, remaining areas protected by unmaintained vegetation will become susceptible to loss as land around them is cleared.

Furthermore, removing existing vegetation and disturbing soils typically encourages germination of weed seeds; the spread of roots and weed seeds may result in impacts to adjacent lands. Also, the decrease in

vegetated land may cause increases in aeolian (wind-driven), hydro-, and mechanical erosion where alternating conditions of strong winds, storm water, and drought conditions strip away topsoil. This would increase storm water runoff and decrease water quality; at times of heavy rainfall the potential of downstream flooding would increase.

A third area of potential indirect impacts is the reduction of biodiversity and the increase of species competition. Because of previous land use activities such as farming, cattle grazing, and commercial development in the AOI, vegetation types have gradually degraded to engineered crops and lower order vegetation profiles consisting primarily of weedy and perennial grasses (typical of what is found in mowed and maintained roadway ROWs). Generally speaking, as the diversity of vegetation lessens and migratory corridors between habitat areas weaken or disappear, species that require higher orders of diversity of habitat would become isolated or relocate to areas with more abundant diversity.

The analysis of indirect ecosystem effects must also consider the ability of that ecosystem to respond to change. This involves two elements: the ecosystem's inertia, or resistance, and its resilience, or recovery. Inertia refers to the ability of the ecosystem to resist variation imposed by disturbance. Resilience refers to the ability of the ecosystem to respond after being changed. The inertia and resilience of an overall ecosystem is a function of the interactions among the inertia and resilience of the components that make up the ecosystem. This interaction determines the carrying capacity of the ecosystem, or the maximum number of individuals of a specific species that can be supported sustainably. Nevertheless, there has been enough damage in the AOI that only concerted effort from many sources can restore the resilience of the impacted ecosystems.

Regardless, a team of biologists and ecologists have determined that ecological encroachment-alteration effects have little potential to be substantial. First, much of the vegetation throughout the AOI consists of mowed and maintained grasses and relic landscape and fencerow plantings (now mature trees and shrubs); many of these are not native to the area. Second, while vegetation loss is inevitable with the proposed project, most loss would occur along the boundaries of habitat already fragmented by the original construction in the mid 1970s of US 59, construction of surrounding subdivisions, and the establishment of row crops, farms, and pastureland. Third, existing areas of habitat are too small, too widely separated, not connected enough by migration corridors, and not provided with enough nutrients or suitable cover to sustain an ecosystem that would involve many of the threatened and endangered species of the area. The project area is not utilized by any listed threatened or endangered species, and no notable wildlife habitat would be degraded or fragmented.

The AOI is part of the EPA designated eight-county nonattainment area for O_3. The AOI is currently in attainment for all other NAAQS pollutants, including CO (please refer to the Regulatory Section for previous air quality section). 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 be anticipated to cause indirect air quality impacts in the AOI. Development would likely result in localized negative impacts to air quality from temporary emission (including MSAT) increases related to construction activities. In some situations, when traffic is moved closer to receptors from the addition or expansion of roadways within the AOI, the potential exists for localized increase of mobile source emissions (including MSATs). As the proposed project is anticipated to result in indirect air quality impacts, further evaluation and discussion of air quality and MSATs is necessary in **Steps 6-7**.

Socioeconomic Effects

There are two major types of direct encroachment effects that transportation projects may have on a neighborhood or community: (1) changes in travel patterns and access; and (2) direct relocation or alteration of homes, businesses, or public facilities/community centers. These direct impacts may lead to indirect effects on neighborhood cohesion, neighborhood stability, travel patterns, changes in the local economy, changes in access to specific services or products, recreation patterns at public facilities, pedestrian dependency and mobility, perceived quality of the natural environment, personal safety and privacy, and aesthetic and cultural values. Changes in access may include driveway changes, relocation of ramps, introduction of raised medians, or alterations of intersections that restrict access to local streets. These may result in changes in travel patterns throughout an area.

In the case of the proposed project, both of the types of encroachment are anticipated. First, the proposed project would relocate certain access ramps, and alter, for safety purposes, various intersections of the highway and minor roadways. This may cause some access to become easier and other access to become more challenging; however, such changes would be minor and would not change or diminish the overall function of the facility. Second, the proposed project would be displacing certain businesses and business signage, such as the marquis for Brazos Towne Center. In some cases the displacements would be partial while in other cases the loss would be to parking and circulation. It is unclear at this time exactly how much impact would be caused to the businesses because negotiations between various parties would occur long before impacts are actually felt, and building code variances and other mechanisms, as well as final highway design, could have roles in deciding the magnitude of impacts.

Determination of Impact Severity

Determination of when an environmental impact should be considered significant is guided by CEQ regulations. Significance within NEPA includes both context and intensity:

- Context—the significance of an action must be broadly analyzed in the context of its impacts (i.e., within society, site specific, locally, or regionally etc.), as significance varies with setting.
- Intensity—the severity of the impact. Decisions on severity may vary among agencies. CEQ regulations list 10 factors used to evaluate intensity.
    1. Impacts that may be both beneficial and adverse.
    2. The degree to which the proposed action affects public health or safety.
    3. Unique characteristics of the geographic area.
    4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.
    5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
    6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
    7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP or may cause loss or destruction of significant scientific, cultural, or historical resources.
9. The degree to which the action may adversely affect an endangered or threatened species or its habitat.
10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The severity of the indirect impacts from the proposed project was derived from two evaluations.

The first analysis (**Table 26**) was conducted according to the CEQ guidance on context and intensity. A matrix was generated wherein the X-axis pertains to the elements of context and intensity, while the Y-axis pertains to the direct impacts and impact-causing activities of the proposed project. The matrix uses three measurements. Impacts that are neutral or positive are rated at "0." Impacts that are minor to moderate are rated "1." Impacts that are severe are rated "2." Therefore, the greater the total the more likely that sever impacts would be experienced.

Furthermore, the matrix gives subtotals for context and intensity. An impact or impact-causing activity can be severe for one and not for the other. Moreover, totals are given for the aspect of impact. It is possible to have one aspect severely impacted while another experiences little or no impact. Therefore, there are various thresholds for severity. On balance, however, the proposed project would have no severe impacts, neither would there be severely impacting activities. Moderate impacts would be experienced by wetlands; land alteration and accidents would be moderate impact-causing activities. It is noted that, as an impact-causing activity, accidents are the only ones that are potential. This means that with careful attention to safety and machinery maintenance the project could be constructed without impact.

Table 26: Severity Rating

Impact Causing Activity	Context (Setting)					Intensity											Total
	Societal	Site Specific	Local	Regional	**Context Subtotal Total (Out of 8)**	Beneficial vs. Adverse	Human Health and Safety	Unique Geography	Risk of Litigation/Controversial	Human Risk	Precedence Setting	Single and Complete vs. Dependent	Cultural Resource Impacts	T&E Impacts	Conformance	**Intensity Total (Out of 20)**	**Grand Total (out of 28)**
Impact-Causing Activities																	
Modification of Regime	2	2	2	1	**7**	1	1	0	1	1	1	2	0	1	0	**8**	**15**
Land Use Transformation and Construction	2	2	2	0	**6**	2	1	0	2	0	1	2	0	0	0	**8**	**14**
Resource Extraction	0	0	0	0	**0**	1	0	0	0	0	0	0	0	2	0	**3**	**3**
Processing	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	**1**	**1**
Land Alteration	0	2	2	2	**6**	2	0	2	0	0	2	0	0	2	0	**8**	**14**
Resource Renewal	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Changes in Traffic	0	0	1	1	**2**	0	1	0	0	0	0	0	0	1	0	**2**	**4**
Waste Emplacement and Treatment	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Chemical Treatment	0	1	1	0	**2**	1	1	0	0	0	0	0	0	2	0	**4**	**6**
Accidents	0	2	2	0	**4**	2	2	0	1	1	0	0	0	2	2	**10**	**14**
Impact-Causing Activities (Out of 20)	**4**	**9**	**10**	**4**		**9**	**6**	**2**	**4**	**2**	**4**	**4**	**0**	**11**	**2**		

Source: Study Team

The second analysis of severity of indirect impacts (**Table 27**) was examining impact-causing activities for their potential to influence goals and notable features. In this analysis, the impact-causing activities were broken down into the specific type of impact (i.e., Modification of Regime includes Adjustment to new travel patterns, Alteration of ground cover, Alteration of Drainage, Surface or paving, and Noise and vibration). Each of these types was then identified for their occurrence (i.e., when they would be felt through the course and life of the proposed project; either during or as a result). Finally, the analysis sought to determine the nature of the cause-effect relationship between the goals and notable features and the potential indirect impacts. The analysis examined three levels of potential indirect impacts: Beneficial, Adverse, and Unknown. The indirect impacts that were of unknown potential were to resources that require post-project monitoring analysis to determine the degree of impact.

Table 27: Impact-Causing Activities – Potential For Influence

Impact Causing Activity	Impacts		Effect of Impact					
	Type of Impact	Occurrence	Goals	Cause/ Effect	Potential	Notable Features	Cause/ Effect	Potential
Modification of Regime	Adjustment to new travel patterns	Outcome	Meets	Positive	Beneficial	Population	Neutral	Unknown
	Alteration of ground cover	Project/ Outcome	Non-Goal	Neutral	Adverse	H/S	Negative	Adverse
	Alteration of drainage	Outcome	Meets	Positive	Beneficial	H/S	Unknown	Unknown
	Surface or paving	Project	Meets	Positive	Beneficial	Non-NF	Neutral	Unknown
	Noise and vibration	Project/ Outcome	Contradicts	Negative	Adverse	Population	Negative	Adverse
Land Use Transformation and Construction	Displacements of homes	Project	Contradicts	Negative	Adverse	Population	Negative	Adverse
	Displacements of business	Project	Contradicts	Negative	Adverse	Population	Negative	Adverse
Resource Extraction	Surface excavation	Project	Non-Goal	Neutral	Unknown	H/S	Negative	Adverse
Processing	Project staging/storage of construction materials and equipment	Project	Meets	Positive	Unknown	H/S	Neutral	Unknown
Land Alteration	Wetland impacts	Outcome	Contradicts	Negative	Adverse	Streams	Negative	Adverse
Resource Renewal	Waste recycling	Project	Meets	Positive	Beneficial	Non-NF	Positive	Beneficial
	Vegetation regrowth	Project	Meets	Positive	Beneficial	H/S	Positive	Beneficial
Changes in Traffic	Automobile	Outcome	Meets	Positive	Beneficial	Non-NF	Negative	Adverse
	Trucking	Outcome	Meets	Positive	Beneficial	Non-NF	Negative	Adverse
Waste Emplacement and Treatment	Landfill/by-products	Project	Meets	Positive	Beneficial	Non-NF	Positive	Beneficial
Chemical Treatment	Fertilization	Project	Non-Goal	Neutral	Beneficial	W/Q	Unknown	Unknown
	Weed control	Project	Non-Goal	Neutral	Beneficial	W/Q	Unknown	Unknown
	Insect control (pesticides)	Project	Non-Goal	Neutral	Beneficial	W/Q	Unknown	Unknown
	Chemical stabilization of soil	Project	Non-Goal	Neutral	Beneficial	W/Q	Unknown	Unknown
Accidents	Spills and leaks	Project	Non-Goal	Neutral	Adverse	W/Q	Negative	Adverse
	Operational failure	Project	Non-Goal	Neutral	Adverse	Non-NF	Neutral	Unknown

Source: Study Team

H/S = Habitat/Species
Non-NF = Not a Notable Feature
W/Q = Water Quality
Occurrence: Pertains to impacts due to **project** construction vs. **outcome** of the completed project.

Severity Rating

Impact-Causing Activities: TxDOT guidance specifies 10 types of impact-causing activities, and they range from pre-project planning to post-project operations. Again, there were three that were substantial enough to have severity that approximated a moderate level. These activities were Land Use Transformation and Construction, Land Alteration, and Accidents. Similar to direct impacts, these activities approach a severe level.

The table indicates that certain resources would experience low to moderate levels of severity. A low level of severity would result when the mitigation, compensation, or benefit provided by the activity and impact substantially exceed the loss from the same activity and impact. For example, the facility is currently in need of resurfacing and paving. The activity may inconvenience area residents and current users of the facility, but the final product would be of a benefit great enough to offset the temporary inconvenience.

A moderate level of severity has somewhat more consequence. In this case, there is still overall a better final condition but the influence causes measurable amounts of difficulty. For example, the reconstruction of the road to meet current design standards would generally improve mobility within the AOI; however, for those living adjacent to the project the additional noise and other traffic-related effects may decrease the residents' comfort.

The third level of severity is high. An impact that reaches severe is one that is nearly impossible to mitigate. Such an impact would have a permanent effect on the resource that would experience it, or the impact would so traumatize the receiver that recovery would never fully occur. No resource or issue experienced a severe impact.

The results of the matrix are used to qualify the severity of the potential for impacts to goals and notable features.

Impact-Causing Activities – Potential for Influence

Almost all of the impact-causing activities are known to have some potential to have an influence on the goals and notable features of the AOI. Any potential for indirect impact that was beneficial or unknown was not analyzed for indirect impacts.

Modification of Regime – This impact-causing activity was broken into several subgroups (Adjustment to new travel patterns, Alteration of ground cover, Alteration of drainage, Surface or paving, Noise and vibration). Two of these subgroups (Alteration of ground cover and Noise and vibration) would have a negative cause/effect relationship and are considered adverse.

First, Alteration of ground cover pertains to the transition of surface from vegetative to impervious. Approximately 508.16 acres of vegetative cover would experience modification; the proposed project is anticipated to generate approximately 175.4 acres of new impervious cover, approximately 90.5 percent of which would be within existing ROW. Vegetation types would include mostly mowed and maintained ROW, as well as grassy areas outside the ROW, agricultural land, and woody vegetation. However, approximately 60 percent of the vegetation (97% of which would be ROW grasses) would be restored to pre-construction conditions.

Noise and vibration pertains to the results of construction and would increase during construction work; future use of the facility would also result in the increase of noise and vibration. During construction, the movement of equipment and materials is the most common cause of noise and vibration and it is impossible to eliminate such things from a construction work site or predict of how and where such movements are made, except that it would be throughout the length of the proposed project corridor.

After construction is complete, the expansion would increase capacity of US 59, attracting additional drivers and increasing traffic noise along the corridor. A large proportion of the new traffic is anticipated to be heavy truck traffic (Port Freeport anticipates 8,000 trucks per week using SH 36, which intersects with US 59, the KCS container port is projected to contribute substantially to the vehicle mix).

Wildlife species able to relocate that are sensitive to such disturbances would likely move out of the project area, but would probably return once the project is completed. As stated, the proposed project would permanently alter approximately 506.41 acres of vegetation, the majority of which is grasses, which are not highly diverse ecological zones. Trained biologists suggest that species dependent on this type of habitat include field mice, moles, snakes, and ground nesting songbirds. These species would also relocate to other areas until construction is complete.

These indirect impacts would have ample severity in terms of context, and it would be impossible to reside in or pass through the project corridor without being impacted in some way, before, during, and after the proposed project is complete. The intensity of the activities also ranks moderately, and in terms of occurrence both would be experienced during and after completion of the project.

The severity of these two activities was considered high enough that further discussion is warranted.

The other three activities have positive cause/effect relationships and beneficial influence potentials for goals, but neutral or unknown cause/effect relationships and influence potentials for notable features; they are not discussed further.

Land Transformation and Construction – This pertains to the displacement, for construction of the proposed project, of five commercial structures plus a variety of business signs, and one barn and several out structures associated with a farm. These impacts would have a negative cause/effect relationship for both goals and notable features, and would be adverse for both, but have been found to have only a moderate level of severity for businesses and a low level of severity for residences; only business displacements are discussed further.

Resource Extraction – This impact pertains to surface excavation in order to construct roadbed and standing structures. Resource extraction would be limited to surface excavation. The proposed project would excavate approximately three to four feet of surface materials to build up the roadbed for the roadway reconstruction. Species that would find habitat in this band of soil profile would include numerous species of salamanders, earthworms, nematodes, insect larvae, fungi, and other small invertebrates. Burrowing mammals, birds, and reptiles may also be found in these areas. Species able to relocate would.

Resource extraction is anticipated to have minimal impact to goals, except for fugitive dust that would cease when construction is complete. This impact-causing activity would have a neutral cause/effect

relationship for goals and negative relationship for notable features; moreover, it would only be adverse for notable features and would be a low level of severity; it is not discussed further.

Processing – Staging/storage of construction materials and equipment pertains to construction offices and where the materials and equipment will be kept during the construction phase. Generally, a site is selected that is relatively central to the project, as material and equipment needs to be at-hand for construction need. Because the proposed project consists of considerable length and has several areas where intensive construction is needed, it is likely that the contractor will stockpile at several locations while maintaining one expansive yard for field office needs. This may present an unsightly image during construction; however, such installments are customary for major construction projects, and the public is typically not bothered by it.

The most impactful activity in processing would be limited to the storage and staging of materials and equipment. The contractor is likely to stage construction materials at the construction nodes and this would compact soils. Long-term storage of materials (such as concrete barricades, culverts, and concrete forms) would also provide habitat for species such as rodents, insects, and invertebrates. The habitat value would be destroyed as soon as the construction process requires the use of stored materials. However, the same type of habitat could re-establish elsewhere under similar conditions.

Processing is considered to have a positive cause/effect relationship for goals and a neutral relationship for notable features. The potential is unknown, and would have a low level of severity; it is not discussed further.

Land Alteration – Land alteration pertains to the filling of wetlands. For both goals and notable features, this activity would have a negative cause/effect relationship and is considered an adverse impact; it has a moderate level of severity. However, the scope of impact to wetlands is slightly more than one acre, and this is spread over several wetland areas; therefore it is not discussed further.

Resource Renewal – This influence-causing impact involves waste recycling and plant regrowth. Recycling would be a decision of the contractor and would have no impact on area residents and businesses.

The most substantial influence would come as a result of vegetation regrowth. On February 3, 1999, the President issued EO 13112 to prevent the introduction of invasive species and provide for their control, and to minimize economic, ecological, and human health impacts. In accordance with EO 13112 on invasive species, native plant species would be used in the landscaping and in seed mixes where practicable. Please see **Chemical Treatment** below for further details.

Both of these activities would have positive cause/effect relationships and both would have beneficial potential; severity is zero for this activity. Therefore, it is not discussed further.

Changes in Traffic – Changes in traffic would involve automobiles and trucks. Volumes of traffic are not expected to increase sharply, though a steady increase of truck traffic is anticipated (see Modification of Regime). One area where changes to traffic would be most noticeable is at the intersection of US 59 and Spur 529, where the existing intersection is complex and requires crossing freeway main lanes. This location has been modified previously but remains a dangerous intersection, particularly with slow

moving truck cross traffic. Additionally, an RV park is located nearby which adds an additional element of danger.

Although this activity has a positive cause/effect relationship for goals, it has a negative relationship for notable features. Changes in traffic would be related to the combination of SOVs and heavy and construction trucks during and after construction. With increased lanes and increased traffic it is likely that more animals (opossums, raccoons, armadillos, household pets) would be struck by vehicles; the rate of animal mortality is likely to increase (no evidence of wildlife trails was found during field surveys). However, the severity of this impact is anticipated to be low; it is not discussed further.

Waste Emplacement and Treatment – This type of impact is similar to resource renewal, in that it addresses refuse caused by the project either directly (i.e., refuse paving materials, etc.) or indirectly (i.e., personal and project litter). Some refuse caused by the project directly would be stockpiled or re-used at other projects. Steel reinforcement can be re-smelted for other projects and concrete can be remilled for aggregates. Structural waste from displaced businesses would be recycled when possible and, when not possible or feasible, taken to a landfill, as would construction site waste and lunchtime trash that is not recyclable. Human waste from portable latrines would be taken away for sanitary sewage treatment. This activity would have a positive cause/effect relationship for both goals and notable features. Since these effects would not impact adjacent land uses their severity would be low and are not discussed further.

Chemical Treatment – These impacts pertain to soil stabilization, fertilizer, and weed and insect control. These activities would include various applications. There would be a neutral cause/effect relationship for goals and a beneficial influence on the AOI.

Fertilizers, herbicides, and pesticides reduce, limit, and control ecological diversity and artificially allow some species to succeed over others. Ultimately the ecosystem is unable to support a diverse range of species. Soil stabilization, such as lime, removes moisture content from soil and prevents certain species from growing. Again, this could lead to depletion of the ecosystem and biodiversity. However, none of the species or biodiversity that would be threatened by chemical treatment are rare or listed on the TPWD Threatened and Endangered Species lists, and many would require constant application of chemicals to permanently eradicate. Furthermore, five of the species occurring in the Project Area are listed as invasive or non-native species by the TPWD and U.S. Department of Agriculture including:

- Bahiagrass (*Paspalum notatum*),
- Bermudagrass (*Cynodon dactylon*),
- Black willow (*Salix nigra*),
- Chinese tallow (*Sapium sebiferum*), and
- Common greenbrier (*Smilax rotundifolia*)

In Texas there are a number of laws and regulations for the removal and control of invasive plant species. There are also Federal laws and regulations to help eradicate invasive species. Because removal of plant life would help eradicate invasive species, and because none of the species in the project area are threatened or endangered under either Federal or State lists, chemical treatment would be considered to have a low level of severity and is not discussed further.

Chemical treatment is a complex discussion because there are many unknowns in their long-term effects to both the natural environment and humans. Therefore, for notable features neither the relationship not the influence potential is known. However, as far as long-term effects are known, the context and intensity of severity is minimal. This activity is not discussed further.

Accidents – Accidents would include spills and leaks and operational failures. Regardless of how careful workers are to keep a work site safe and clean, there is always the chance for an accidental spill or leak. This could be as innocent as overfilling a fuel tank. The contractor would also make efforts to keep construction equipment in good operating condition. However, a broken hydraulic line or some other operational failure could cause contaminants to escape into the soil. Since they would all be project location specific they would have little opportunity to influence adjacent land uses, residents, or businesses. For goals, while the potential is adverse, the cause/effect relationship is neutral because this is only a potential activity and can be prevented through proper adherence to maintenance and safety protocols (the contractor must file a maintenance program). For notable features the relationship is negative because a large accident could have very adverse impacts. Consequently, the severity is moderate. However, because this is only a potential activity of unknown substances it cannot be quantified and therefore it is not discussed further.

Access-Alteration Effects

Access-alteration (or induced growth) effects pertain to changes in how people move through and within an area, and can dictate where homes and businesses are constructed. Transportation projects may provide new or improved access to adjacent land, or may reduce the time-cost of travel, which increases the attractiveness of the surrounding land to developers and consumers.

The project AOI does include undeveloped land, and there are several large development projects either under way or about to begin; therefore, both of the Cities anticipate that the proposed project could have a meaningful causal effect on land development trends within the AOI, though the influence would probably be more in terms of advancing agendas to build rather than introducing not-before-considered development. This is for several reasons.

One of the most important reasons that the proposed project is likely to cause the former type of development over the latter is the proposed project would not open any land not already open for development, and known to have good development prospect. The majority of large vacant lands throughout the corridor are on the market, being promoted by either development firms or real estate companies. Some of the signs advertising land for development are old enough that they show signs of advanced weathering and vandalism. In other cases the signs have been in place long enough that complete neglect has set in.

This reason is also partially linked to the need and purpose statement for the proposed project. The statement identifies three issues: congestion, standards, and operational deficiencies. The current alignment of US 59 was constructed in the mid-1970s. The American Society of Civil Engineers (ASCE) suggests that reinforced concrete structures (including highways and bridges) built in the 1970s are now beyond, at, or near the end of their usable lifespan. Additionally, the American Association of State Highway Transportation Officials (AASHTO) has updated their standards for highways and highway construction several times since the facility was completed. Therefore, the proposed project is more

about providing adequate and safe transportation for an existing demand than about providing capacity for a future demand.

One argument used to suggest the proposed project would cause development is improved access via new continuous one-way frontage roads. However, most of the lands available for development at this time already have frontage road access. For these lands the proposed project would only make some of the parcels slightly more accessible; indeed, the fact that frontage roads would all become one-way suggests it would be more inconvenient to develop the land in a post-construction environment.

Another strong reason to discount the proposed project causing development is that development is already occurring throughout the AOI. Indeed, the most expansive and successful commercial development is more than 50 percent built out, and areas not already built are already fully serviced, including roadway access. In terms of residential development, one of the most successful projects is quite distant from the highway, suggesting that highway access is not a priority for residents. The project comprises almost 450 acres and consists of nearly 500 home sites.

Another project showing no need for the proposed project is Del Webb's 500 acre, 1,520-home project[8], which is expected to open for initial move-ins in 2011[9]. In 2009 continuation of the project for active adults (residents age 55 and older who are looking for a resort-style community) was put on hold until the economy brightened. In June 2010 the project resumed. While demand for the product remained strong locally, and was not the cause of the delay, a near 50 percent cancellation rate elsewhere in the country for product of the parent corporation Pulte Homes, caused management to halt the generation of more inventory until existing inventory levels were sufficiently reduced.

Naturally, it is not possible to say that the proposed project could not and would not result in some new construction, and there is a possibility that after the highway expansion is open for use and people have noticed the improved mobility and growing selection of commercial activity at various levels that new home construction in the AOI could noticeably strengthen. Both NCHRP 466 and the TxDOT 2009 Guidance observe that any transportation-related project is going to affect some development and this "link between transportation improvements and developments cannot be ignored" (TxDOT, June 2009). To that end, near interchanges the proposed project is likely to attract complementary highway-oriented businesses, such as gas stations, restaurants, and motels. This is already the case at Spur 529 where recent commercial development includes a truck stop with fast-food restaurant and service station, and several other service businesses in a neighboring retail strip center. It is furthermore likely that once the project is complete other small businesses as well as the previously-mentioned container ports will gradually populate the corridor.

However it is noted that prevailing economic conditions are most likely to determine when and what type of development occurs. The City of Rosenberg's Director of Economic Development returned to this concept several times during his interview on August 23, 2010. This is also a theme repeated in the

[8] Teresa Burney. (February 27, 2009) Pulte's Houston Del Webb Community is Mothballed. BUILDER 2009 Accessed 09/01/10 at: http://www.builderonline.com/economic-conditions/pultes-houston-del-webb-community-is-mothballed.aspx.

[9] HoustonNewComerGuides.com. (Monday, 28 June 2010) Highly-Anticipated Del Webb Community In Houston To Begin Construction In Early Fall Accessed 09/01/10: http://www.houstonnewcomerguides.com/news/54-news-fort-bend-houston/1074-highly-anticipated-del-webb-community-in-houston-to-begin-construction-in-early-fall-.

guidance. The construction or expansion of a highway facility is likely to make it more appealing to invest in land development, but in the absence of positive economic conditions a new or expanded facility will generate very little, if any, action. The Director made it very clear he did not expect any development to occur until the economy improved substantially.

Notable Features

Working from the perspective that the proposed project could have Access-Alteration Effects, there is one group of the population that could be influenced more than any other by the proposed project: Vulnerable Elements of the Population. A review of Census 2000 data at the Block level showed high concentrations of EJ populations in the Rosenberg City Limits portions of the AOI. Some of the blocks showed concentrations of 100 percent; the overall average of EJ populations was close to 61 percent. The data also indicated several Blocks where concentrations of retired persons were much higher than the place averages of approximately 14 to 17 percent for Richmond, Rosenberg, and Sugar Land. Census 2010 data at the BG level also showed high concentrations of EJ populations in the Rosenberg City Limits portions of the AOI, ranging from 52.0 to 96.5 percent; every BG exceeded 50 percent minority.

The AOI is known to have a high proportion of Hispanics and Latinos, as well as the elderly and people living below the poverty line. **Table 28** is a student body breakdown of the 10 elementary schools where children from the AOI would attend: Beasley, Bowie, Campbell, Dickenson, Hutchison, Meyer, Thomas, Travis, Velasquez, and Williams Elementary Schools, which are located throughout the Lamar CISD. The table shows that for the 2008/2009 school year, all indicators of EJ (Race/Ethnicity, Economic, LEP, and At-Risk) were similar to the data for the district and state. However, when looking at the schools where EJ concentrations are generally highest (**Table 29**) (Beasley, Bowie, Meyer, and Travis Elementary Schools), most of the EJ data is substantially greater than the district and state data.

The most critical of these indicators is economic disadvantage, because new suburban-style development is not attainable by this group, which requires low rent areas. If access-alteration does cause development to occur in the AOI it would be natural that land, and therefore tax, values would also increase. This would put pressure on these groups and they could be forced to relocate. More discussion of EJ matters is provided in **Section 5.1.5**.

Table 28: Environmental Justice Indicators of Total EJ/LEP Student Body

		10-School Combined Student Body		Lamar ISD	State
		Count	Percent		
Ethnic Distribution	African American	1,116	18.2%	19.0%	14.2%
	Hispanic	2,653	46.1%	44.7%	47.9%
	White	1,893	28.7%	31.0%	34.0%
	Native American	19	0.3%	0.3%	0.4%
	Asian/Pac. Islander	449	6.8%	4.9%	3.6%
Economically Disadvantaged		2,769	48.1%	56.1%	45.2%
Limited English Proficient (LEP)		1,059	17.9%	19.7%	13.5%
At-Risk		2,373	40.3%	45.3%	42.1%

Source: Study Team

EXHIBITS

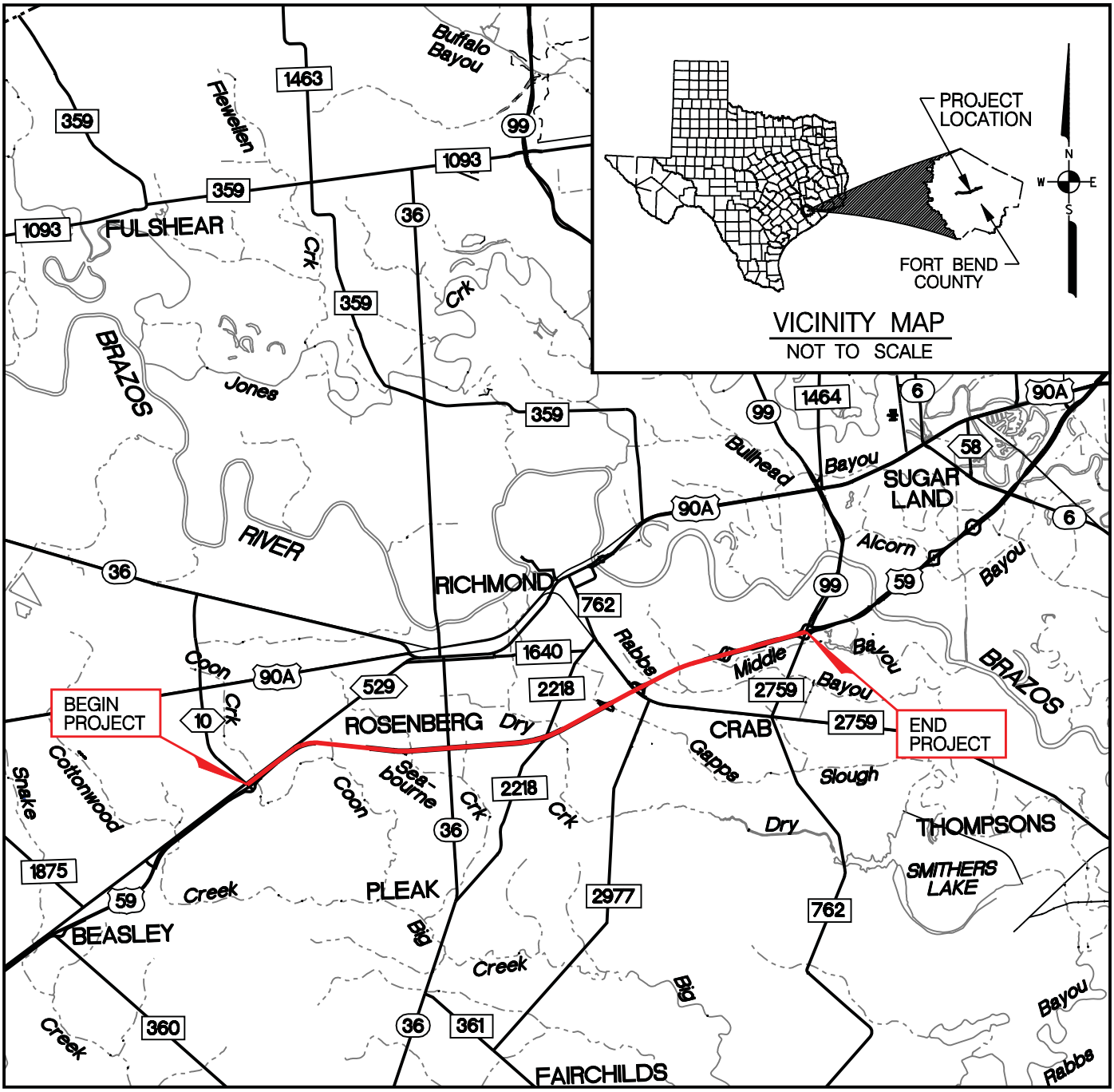
Exhibit 1:	Project Location Map
Exhibit 2:	Existing and Proposed Typical Sections
Exhibit 3:	Projected Growth: H-GAC
Exhibit 4:	Projected Growth: Project Study Vicinity
Exhibit 5:	Project Layout
Exhibit 6:	Soils Map
Exhibit 7:	PALM Map
Exhibit 8:	Geological and FEMA Maps
Exhibit 9:	Site Photos
	9-A: Existing Conditions
	9-B: Approximate Locations of Displacement-Causing ROW Acquisitions
Exhibit 10:	Indirect Impacts Area of Influence Map
Exhibit 11:	Richmond Historical District
Exhibit 12:	City of Rosenberg Development Map
Exhibit 13:	Resource Study Area – Land Use and Vegetation
Exhibit 14:	Resource Study Area – Water Quality and Wetlands
Exhibit 15:	Resource Study Area – Air Quality

EXHIBIT 1: PROJECT LOCATION MAP

US 59 – NORTH SEGMENT

FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)

PROJECT VICINITY AND LOCATION MAP



0 1 1/2 3 6 9 MI.

SCALE

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114
FOR:	TxDOT – HOUSTON DISTRICT
LOCATION:	US 59 – NORTH SEGMENT
	FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
	FORT BEND COUNTY, TX

REVISIONS:
June 17, 2009 by M. E. Rodriguez

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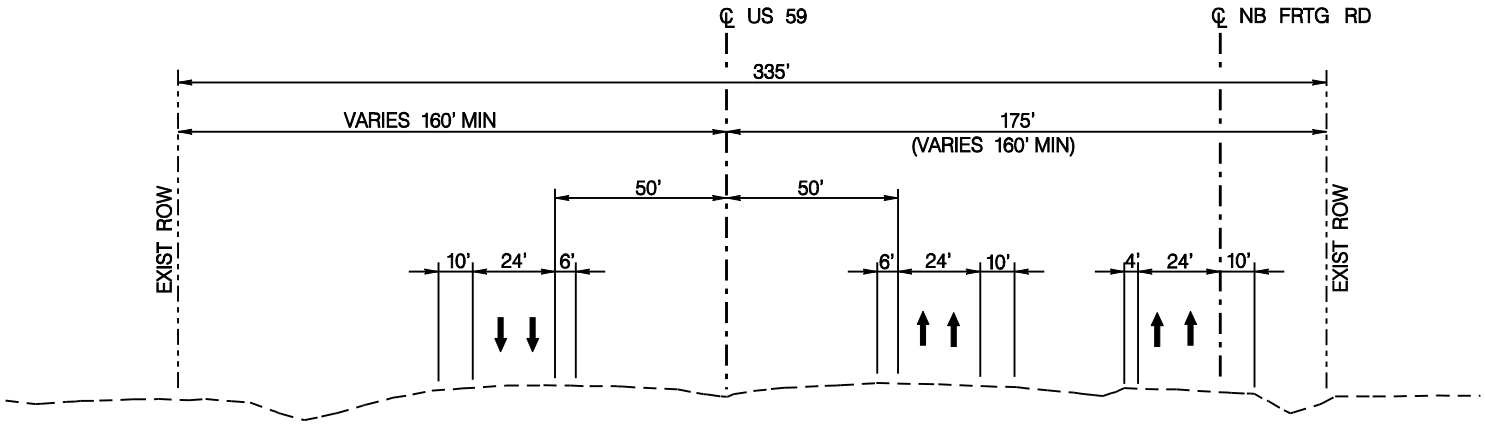
EXHIBIT 2: EXISTING AND PROPOSED TYPICAL SECTIONS

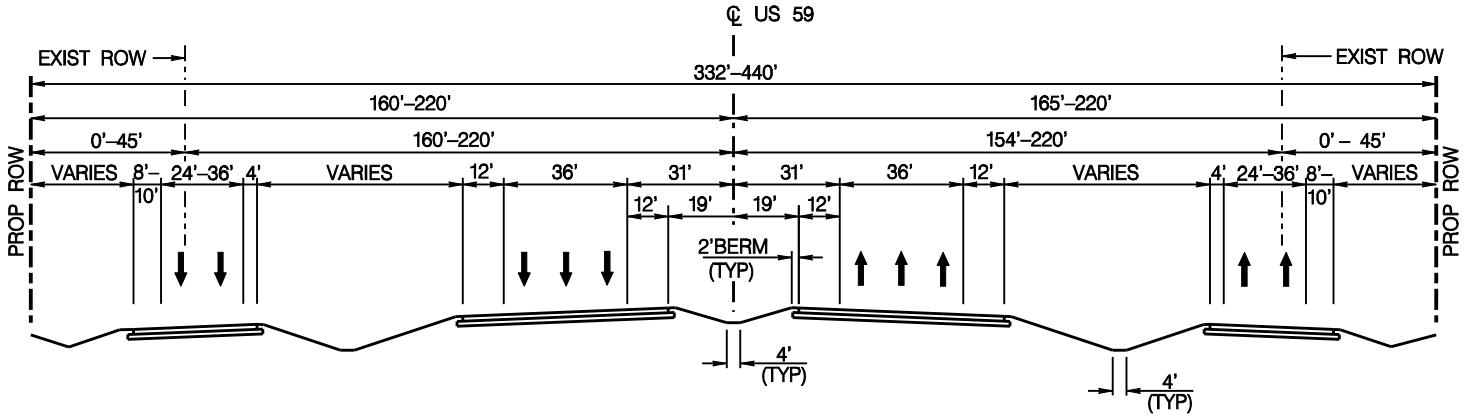
US 59 – NORTH SEGMENT

FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)

EXISTING AND PROPOSED TYPICAL SECTIONS



EXISTING TYPICAL SECTION
From Spur 10 to SH 99 (FM 2759)



PROPOSED TYPICAL SECTION
From Spur 10 to FM 762

US 59 – NORTH SEGMENT

EXISTING AND PROPOSED TYPICAL SECTIONS

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT

FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)

FORT BEND COUNTY, TX

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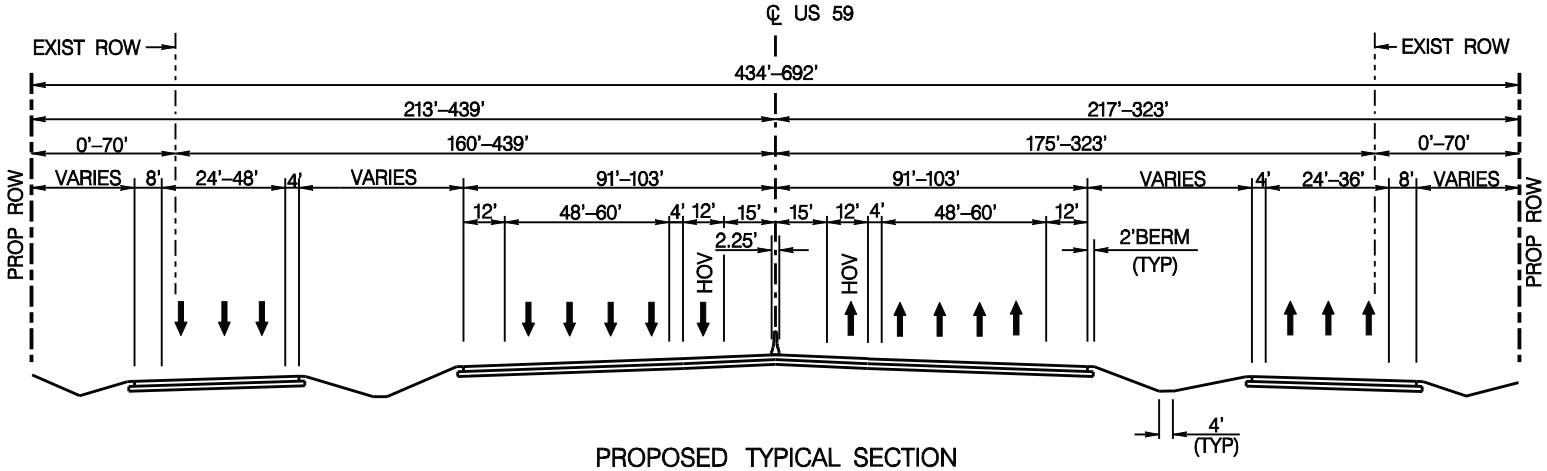
SHEET 1 OF 2

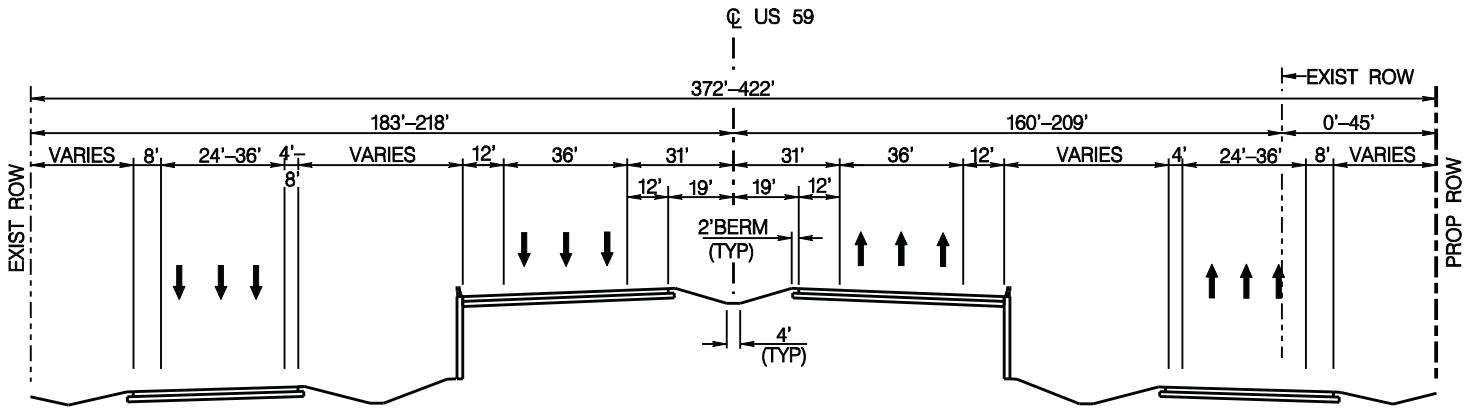
US 59 – NORTH SEGMENT

FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)

EXISTING AND PROPOSED TYPICAL SECTIONS



PROPOSED TYPICAL SECTION
From FM 762 to SH 99 (FM 2759)



PROPOSED TYPICAL SECTION
At Retaining Wall Locations

US 59 – NORTH SEGMENT
EXISTING AND PROPOSED TYPICAL SECTIONS

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114
FOR: TxDOT – HOUSTON DISTRICT
LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

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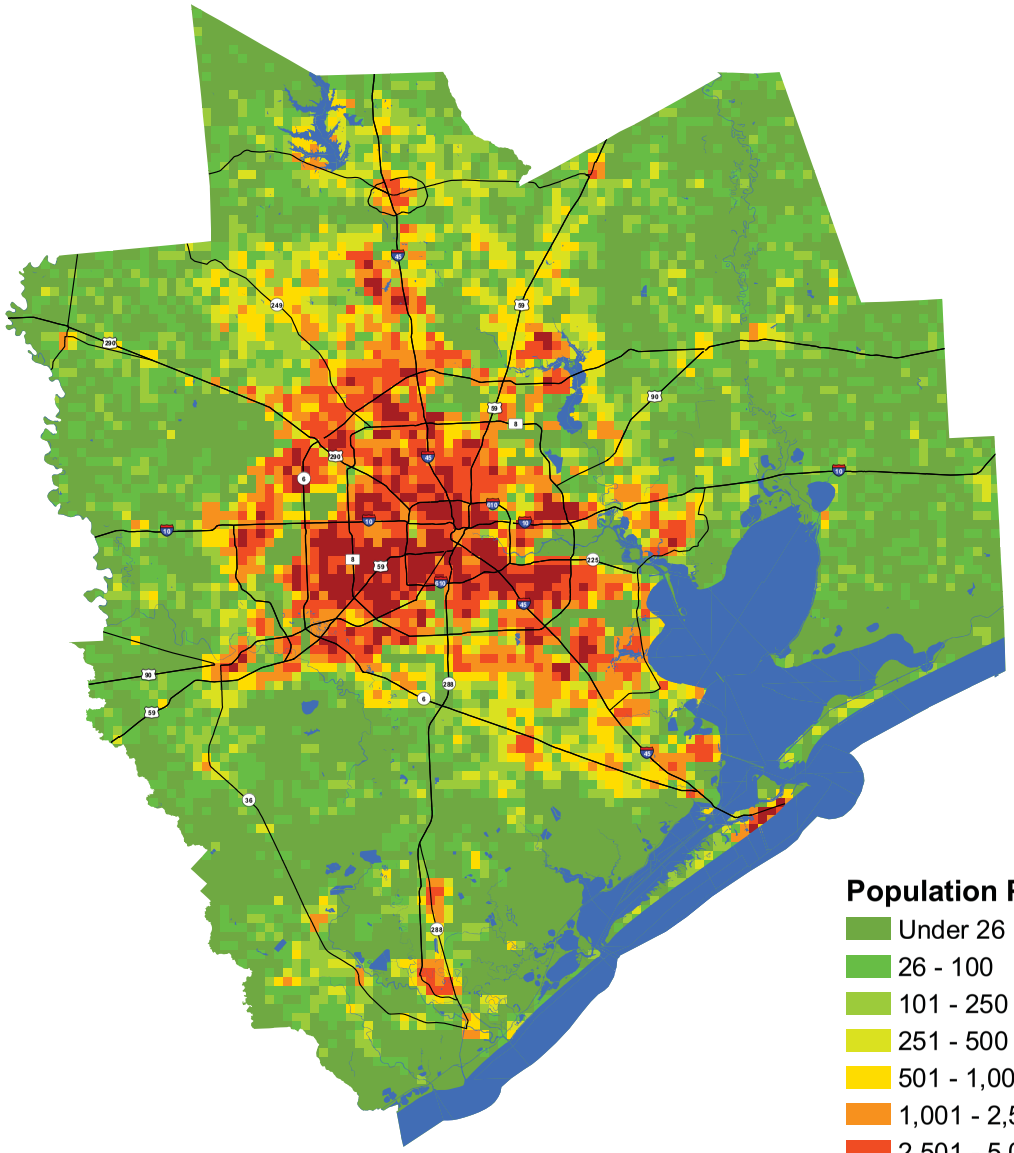
SHEET 2 OF 2

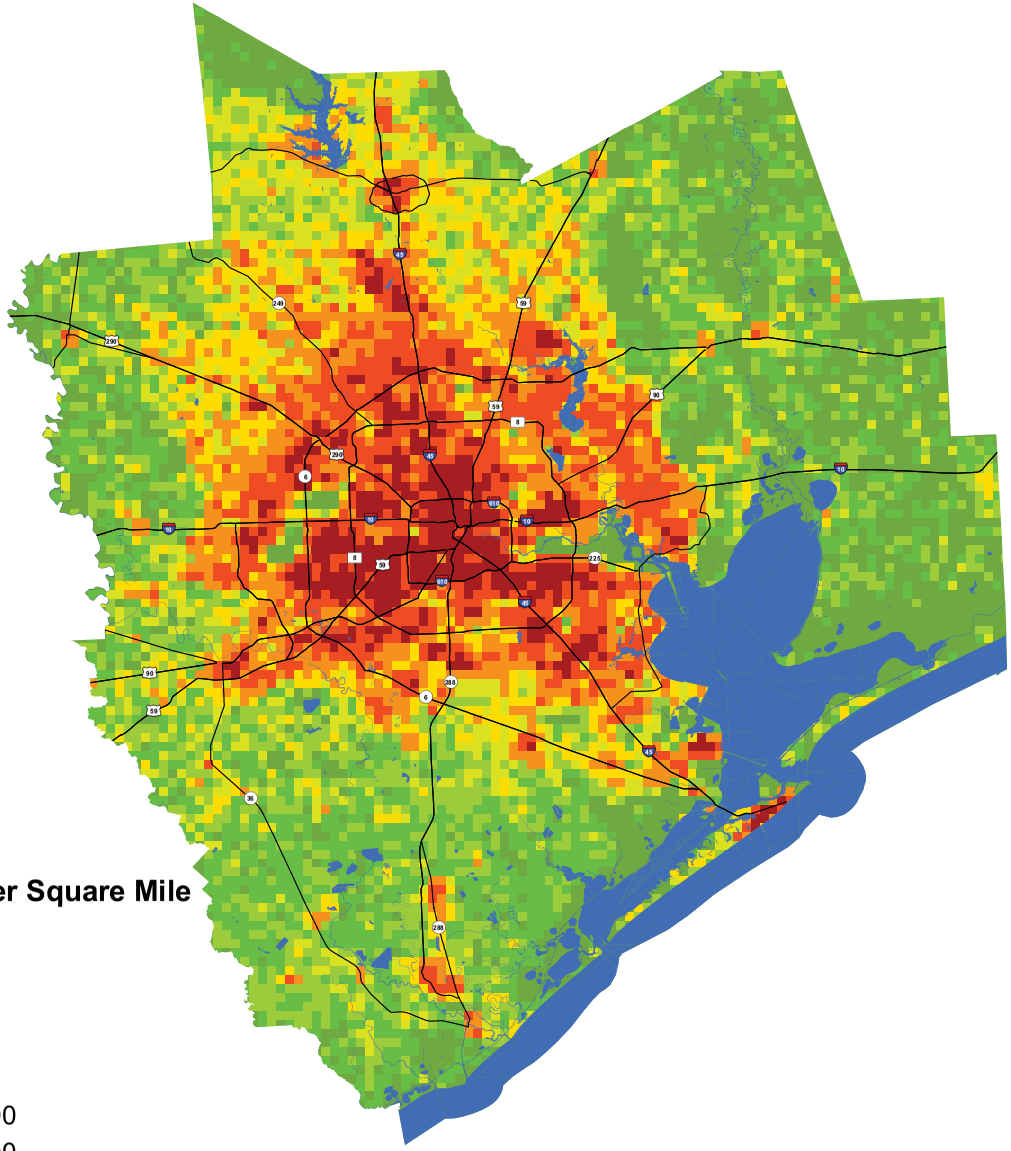
EXHIBIT 3: PROJECTED GROWTH: H-GAC

Population Density

2005



2035



Population Per Square Mile

- Under 26
- 26 - 100
- 101 - 250
- 251 - 500
- 501 - 1,000
- 1,001 - 2,500
- 2,501 - 5,000
- Over 5,000

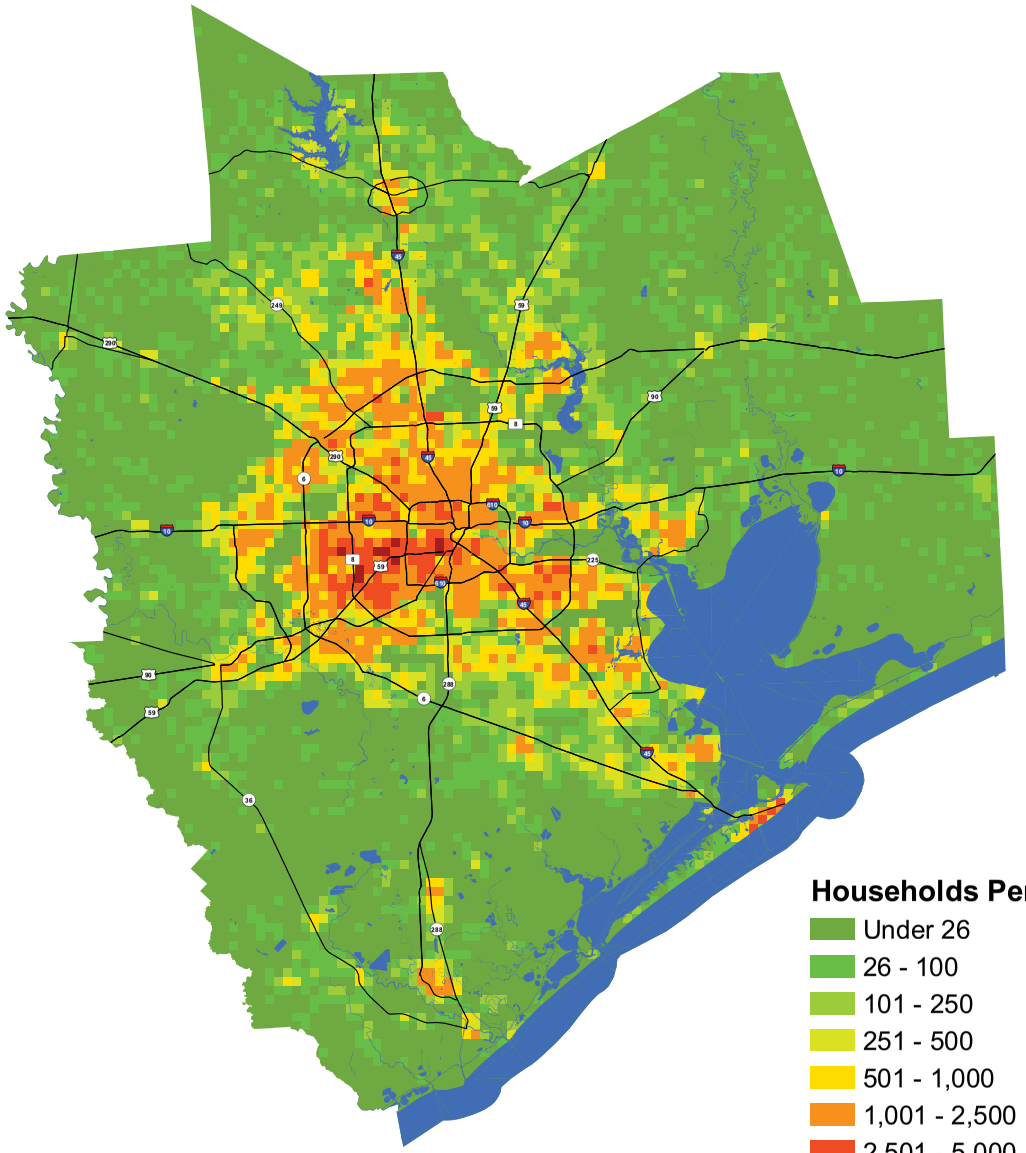
0 5 10 20 30 40 Miles

N W E S

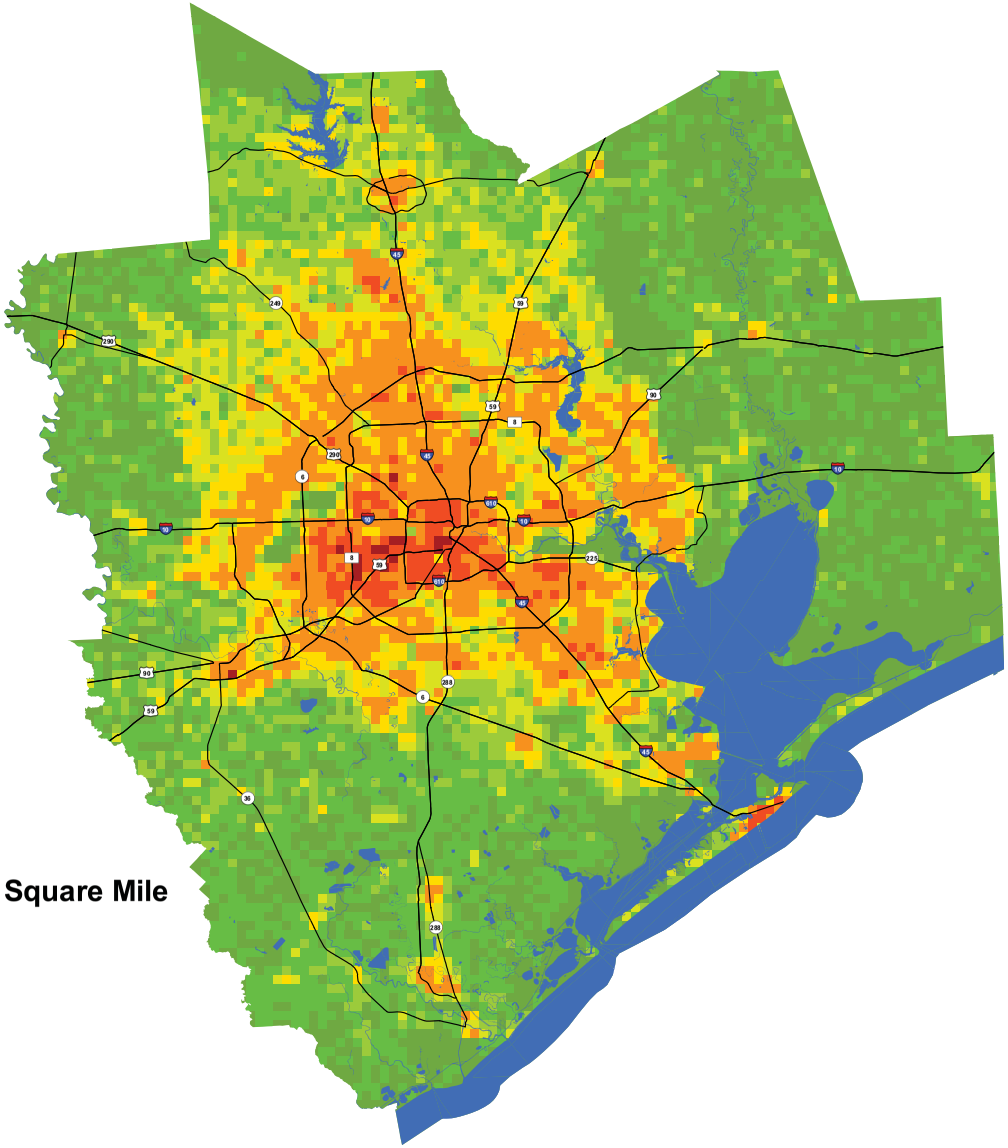
Houston-Galveston Area Council

Household Density

2005



2035



Households Per Square Mile

- Under 26
- 26 - 100
- 101 - 250
- 251 - 500
- 501 - 1,000
- 1,001 - 2,500
- 2,501 - 5,000
- Over 5,000

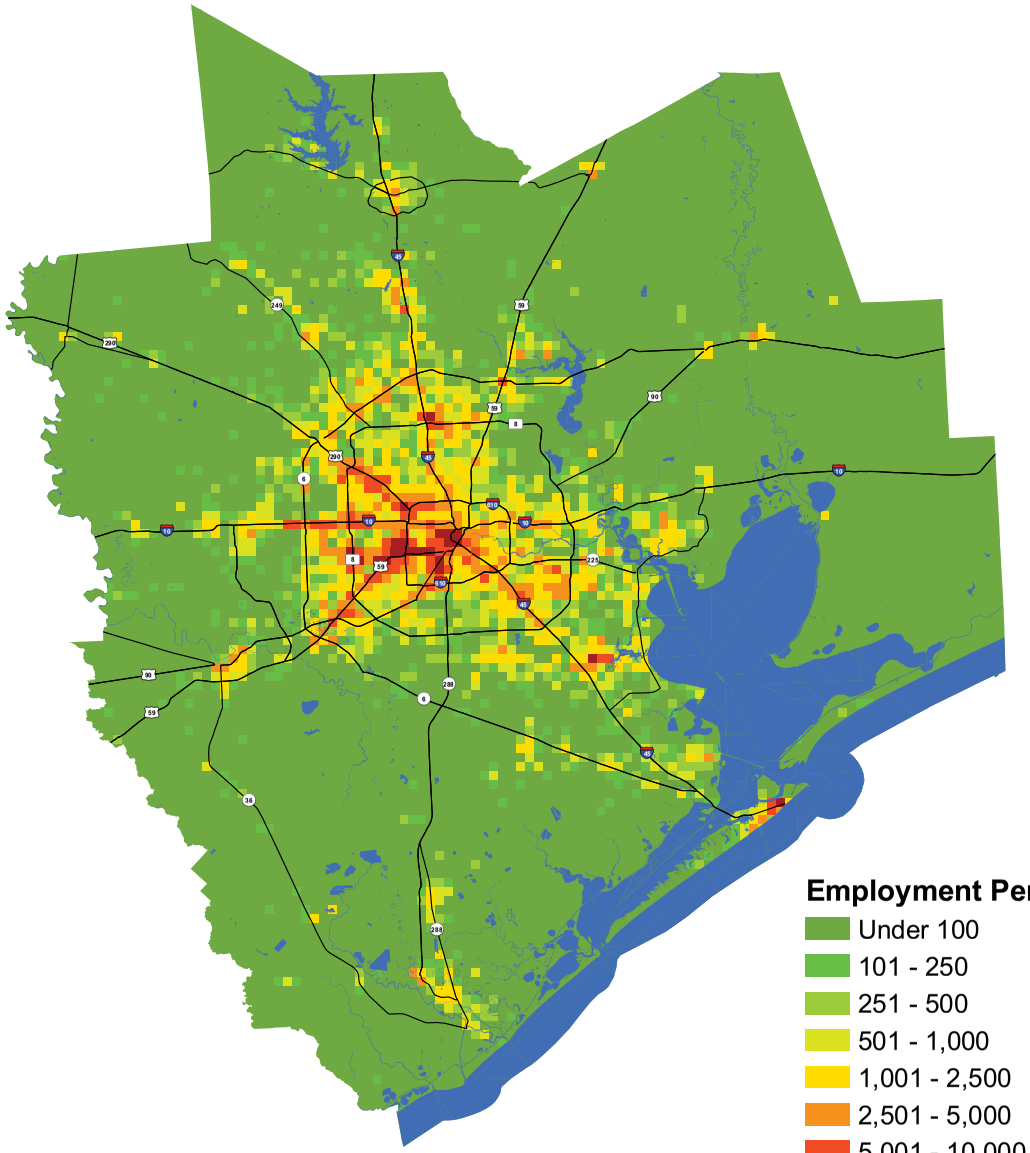
0 5 10 20 30 40 Miles

N W E S

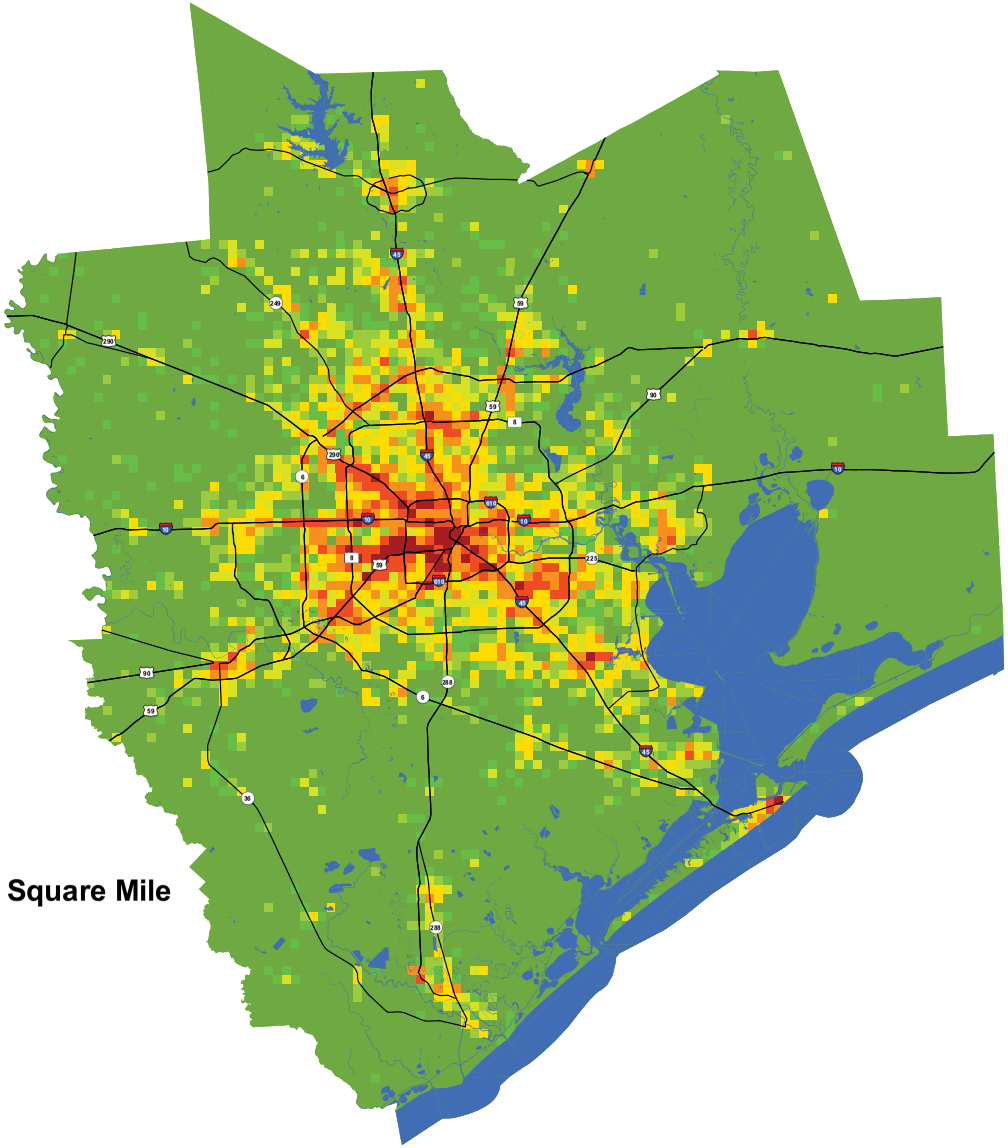
Houston-Galveston Area Council

Employment Density

2005



2035



Employment Per Square Mile

- Under 100
- 101 - 250
- 251 - 500
- 501 - 1,000
- 1,001 - 2,500
- 2,501 - 5,000
- 5,001 - 10,000
- Over 10,000

0 5 10 20 30 40 Miles

N W E S

Houston-Galveston Area Council

EXHIBIT 4: PROJECTED GROWTH: PROJECT STUDY VICINITY

Land Use Classification

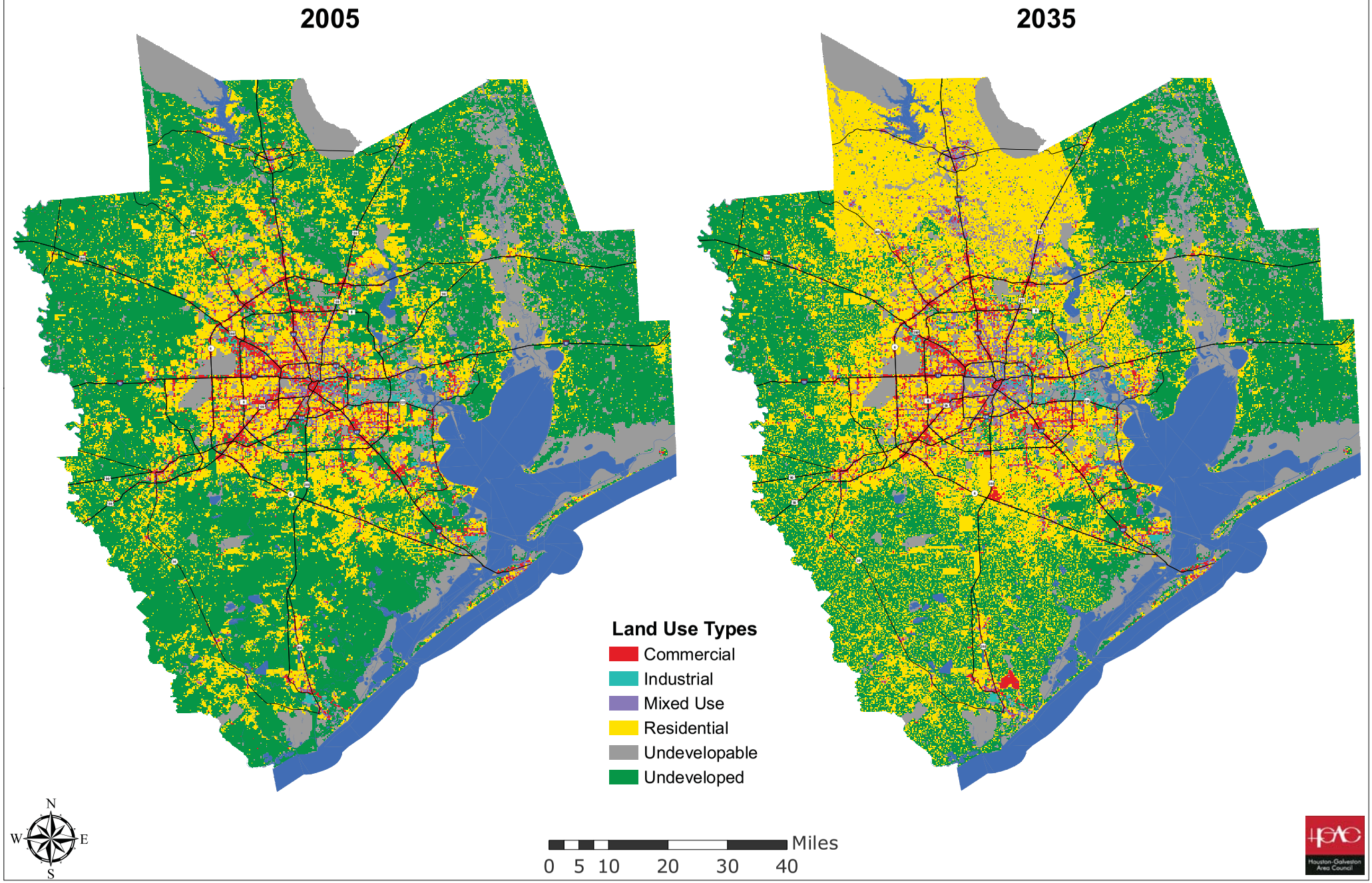


FIGURE 9. MAJOR CORRIDORS 2035

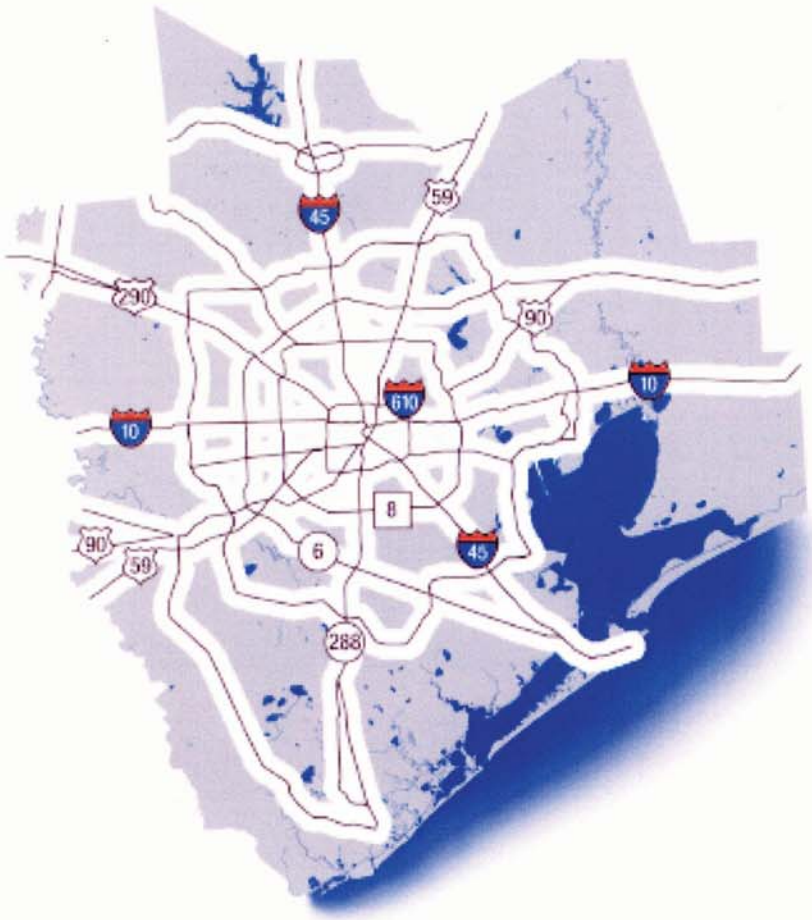
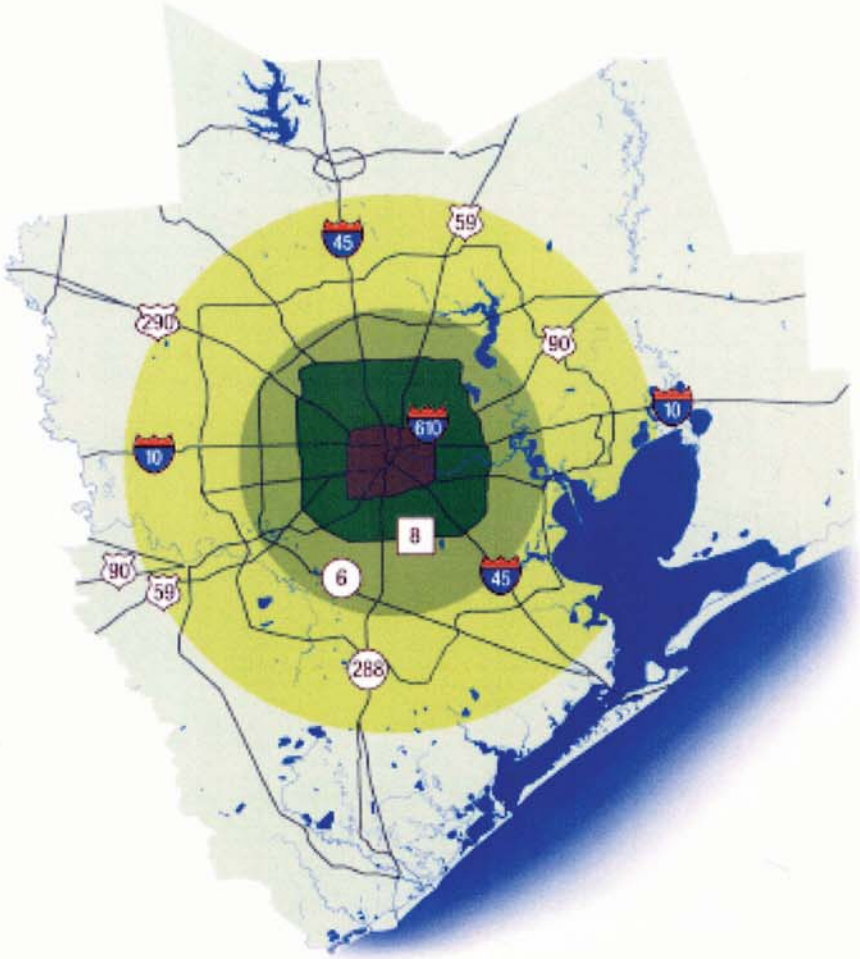


FIGURE 10. RADIAL DEVELOPMENT

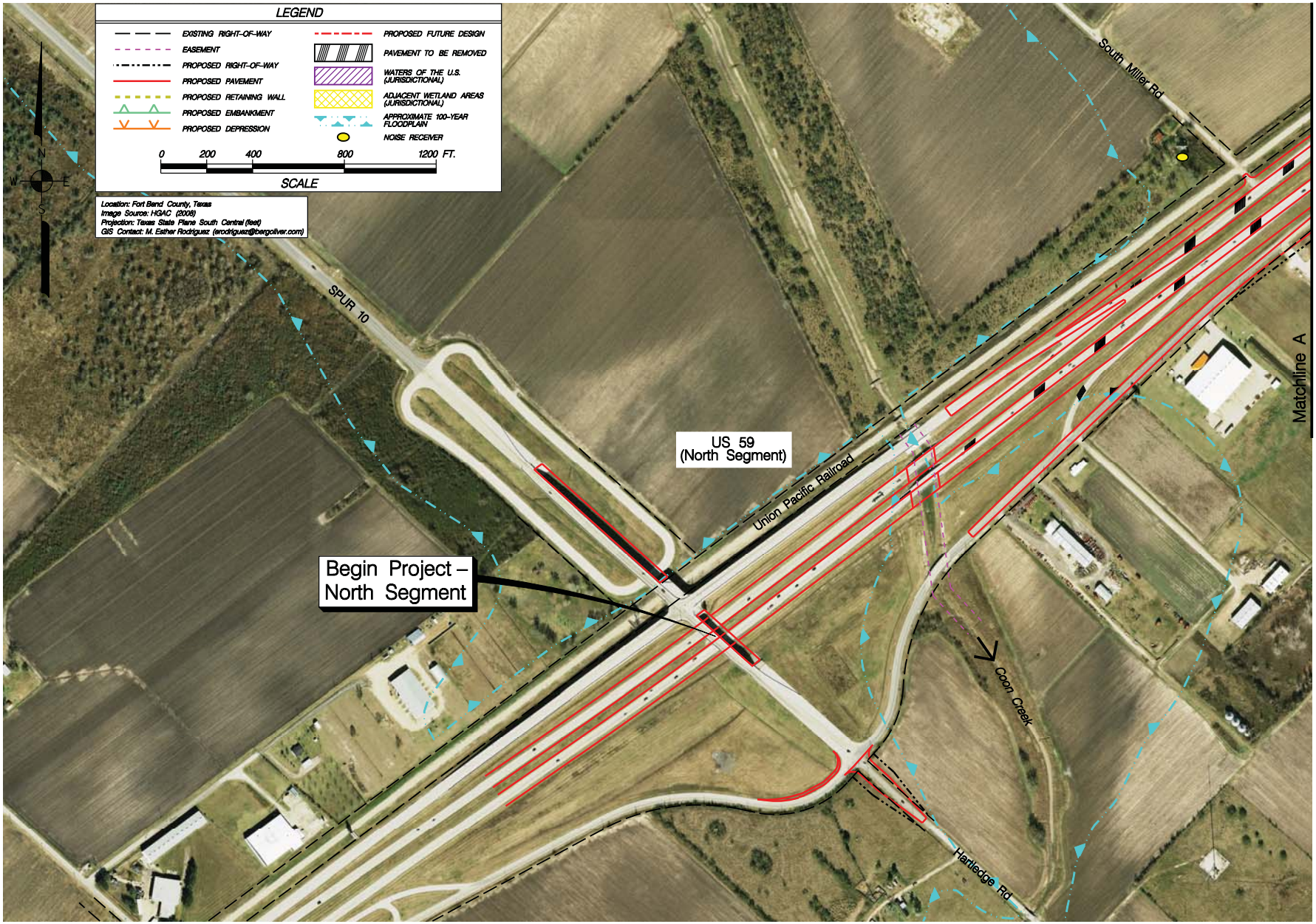


Defined Area	Population (1,000s)		Employment (1,000s)	
	2005	2035	2005	2035
Inside 2-mile buffer	4,373	6,932	2,367	3,730
	84%	80%	93%	92%
Outside 2-mile buffer	841	1,752	175	340
	16%	20%	7%	8%
Total	5,214	8,684	2,542	4,069

Defined Area	Population (1000s)				Employments (1000s)			
	2005	2035	Change	% of Total Change	2005	2035	Change	% of Total Change
Zone 1 - Inner 610 Loop	503	693	191	5%	579	876	297	19%
Zone 2 - 610 Loop to Beltway 8	1,584	1,960	377	11%	834	1,230	396	26%
Zone 3 - Beltway 8 to 20-mile radius	1,294	2,082	788	23%	579	897	318	21%
Zone 4 - 20-mile radius to 35-mile radius	1,308	2,851	1,543	44%	358	719	362	24%
Zone 5 - 35-mile radius to Rest of Region	526	1,097	571	16%	193	348	155	10%
Regional Total	5,214	8,684	3,470	100%	2,542	4,069	1,527	100%

Note: Zones are exclusive of each other

EXHIBIT 5: PROJECT LAYOUT



US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 1 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
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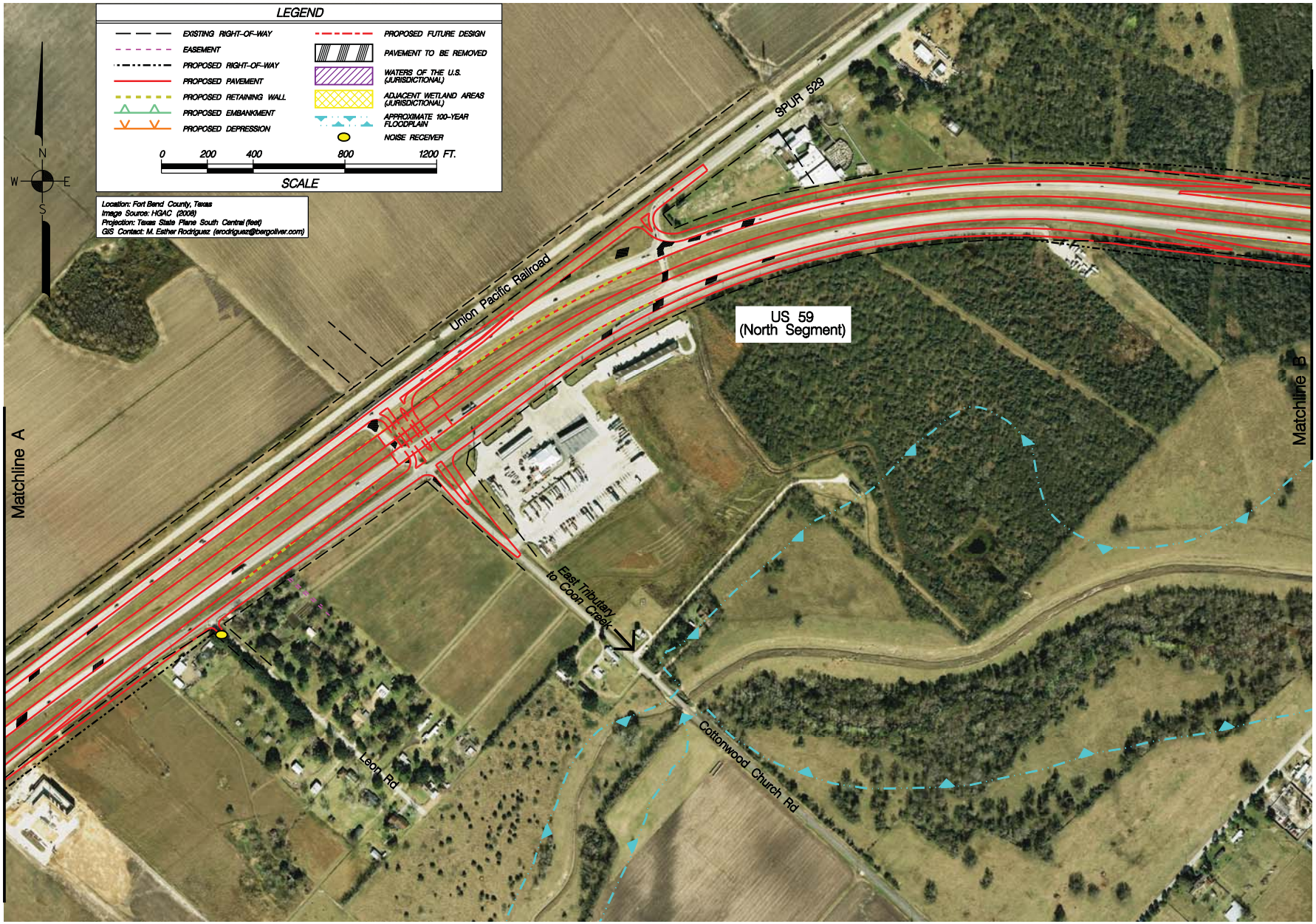

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 2 OF 12

PROJECT #: 3979 – CSJ: 0927-12-097, 0927-12-105, 0927-12-106 & 0927-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

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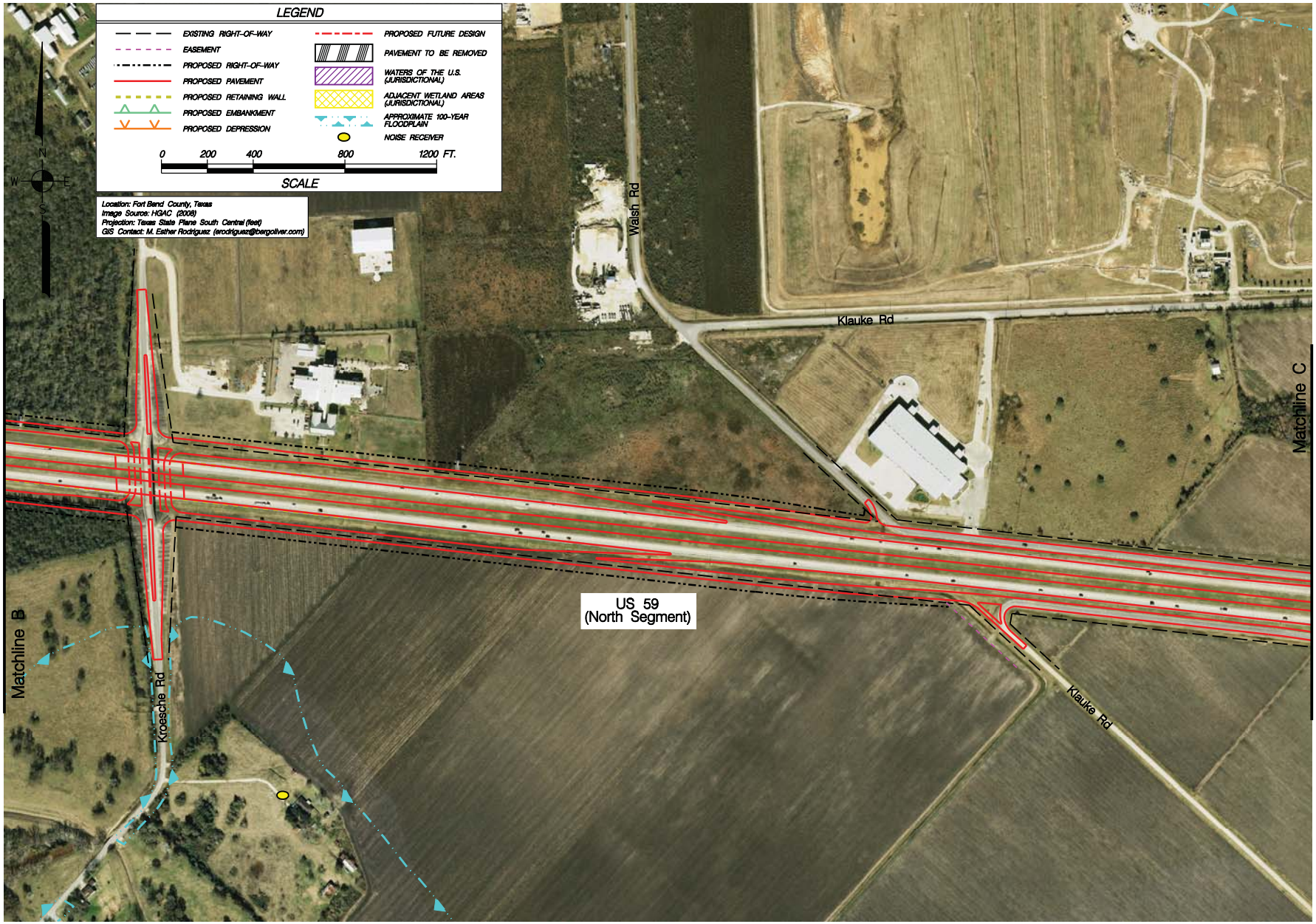

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 3 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT

FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)

FORT BEND COUNTY, TX

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US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-106, 0027-12-108 & 0027-12-114
FOR:	TXDOT – HOUSTON DISTRICT
LOCATION:	US 59 – NORTH SEGMENT FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759) FORT BEND COUNTY, TX

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US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-106, 0027-12-108 & 0027-12-114
FOR:	TXDOT – HOUSTON DISTRICT
LOCATION:	US 59 – NORTH SEGMENT FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759) FORT BEND COUNTY, TX

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SHEET 5 OF 12

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-106, 0027-12-108 & 0027-12-114
FOR:	TXDOT – HOUSTON DISTRICT
LOCATION:	US 59 – NORTH SEGMENT FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759) FORT BEND COUNTY, TX

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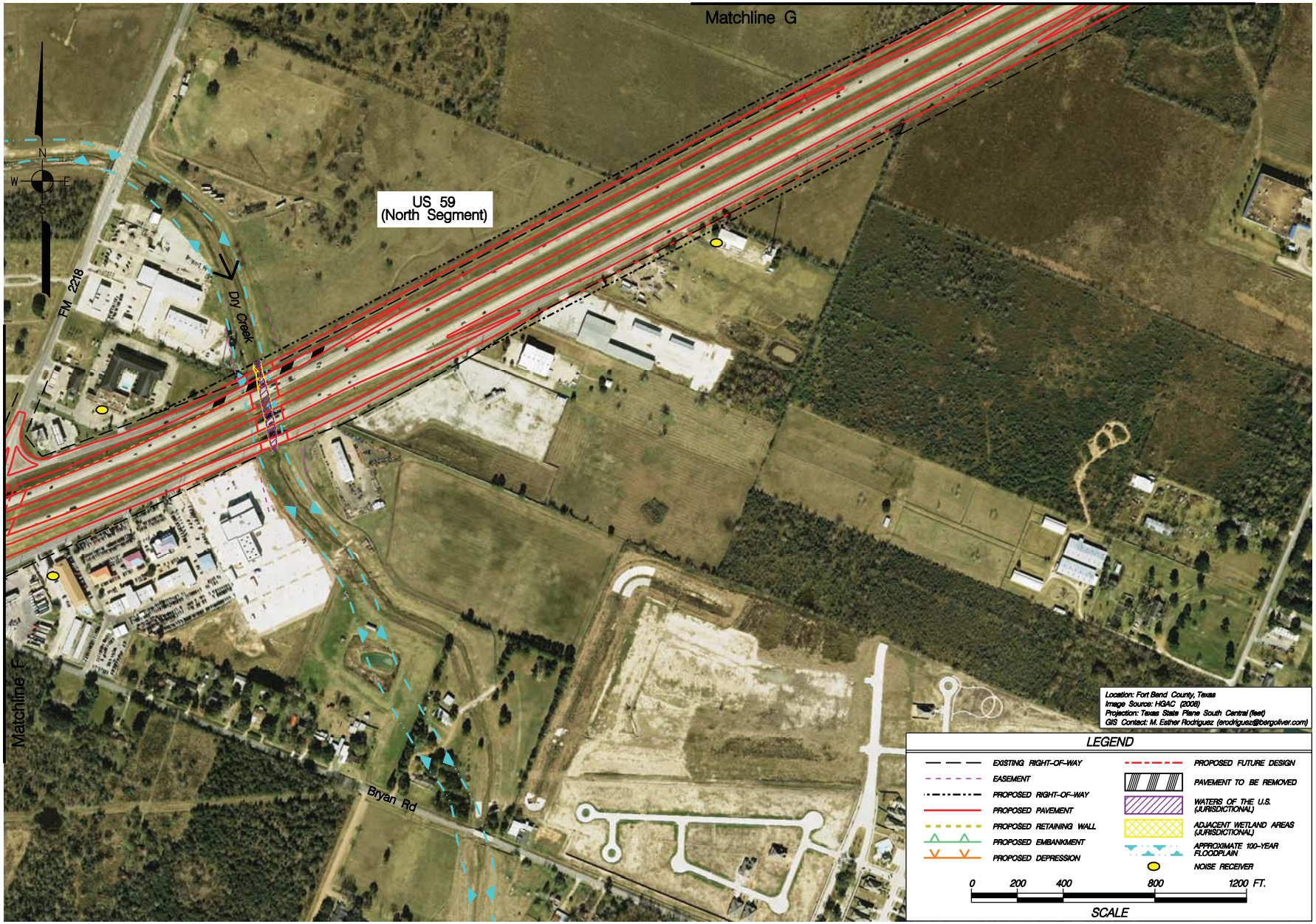

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 7 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

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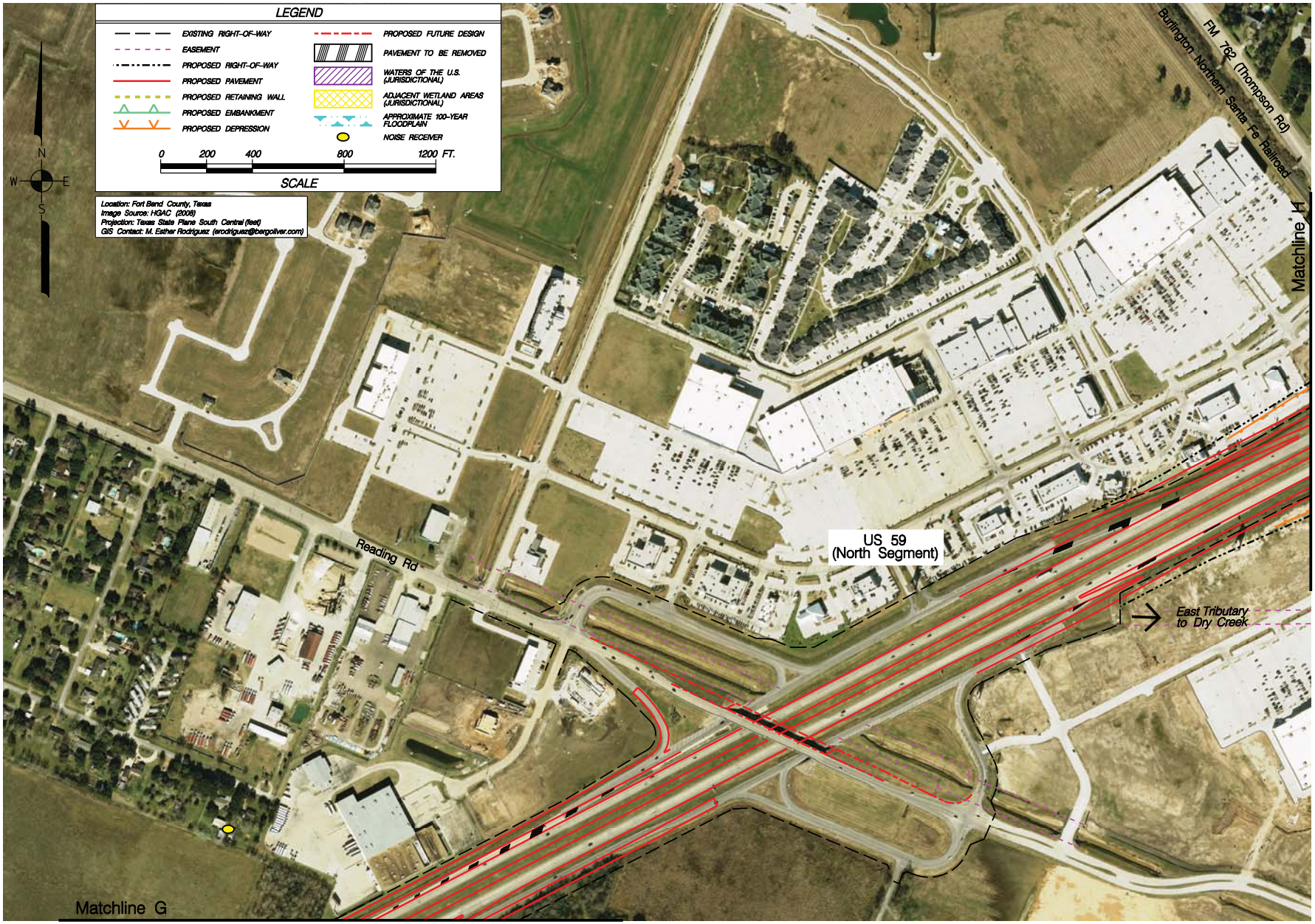

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 8 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
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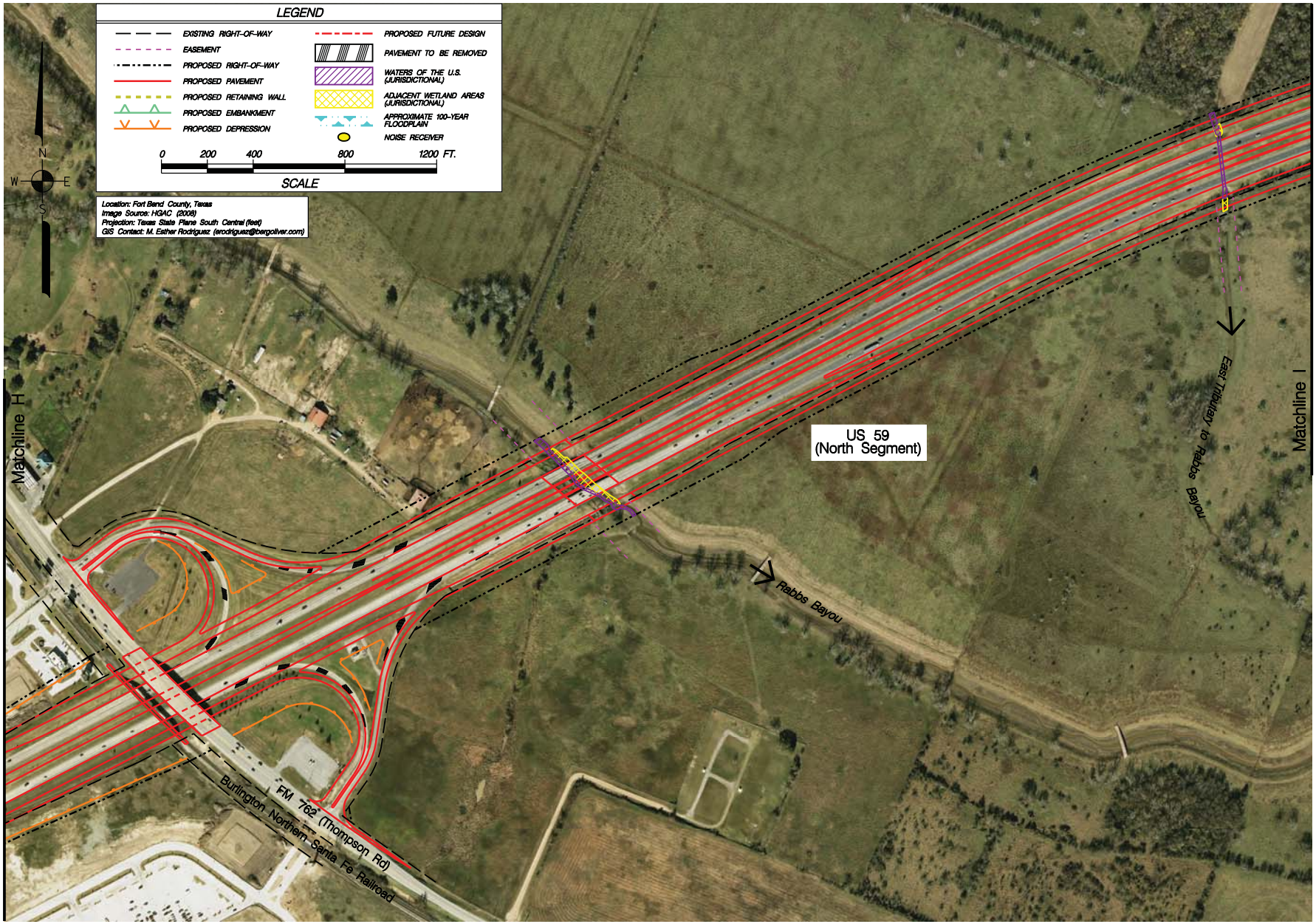

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 9 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114
FOR: TxDOT – HOUSTON DISTRICT
LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

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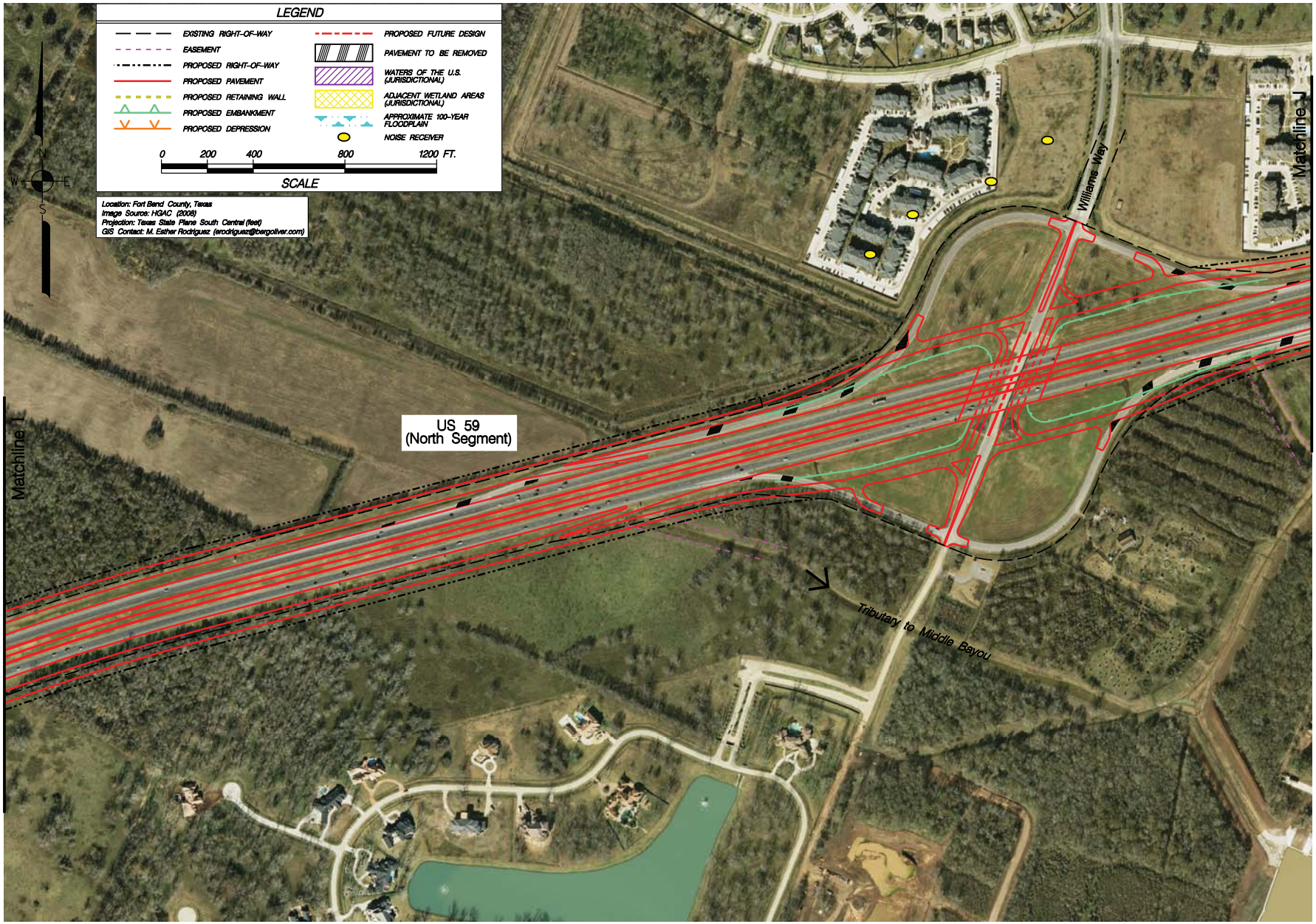

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 10 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

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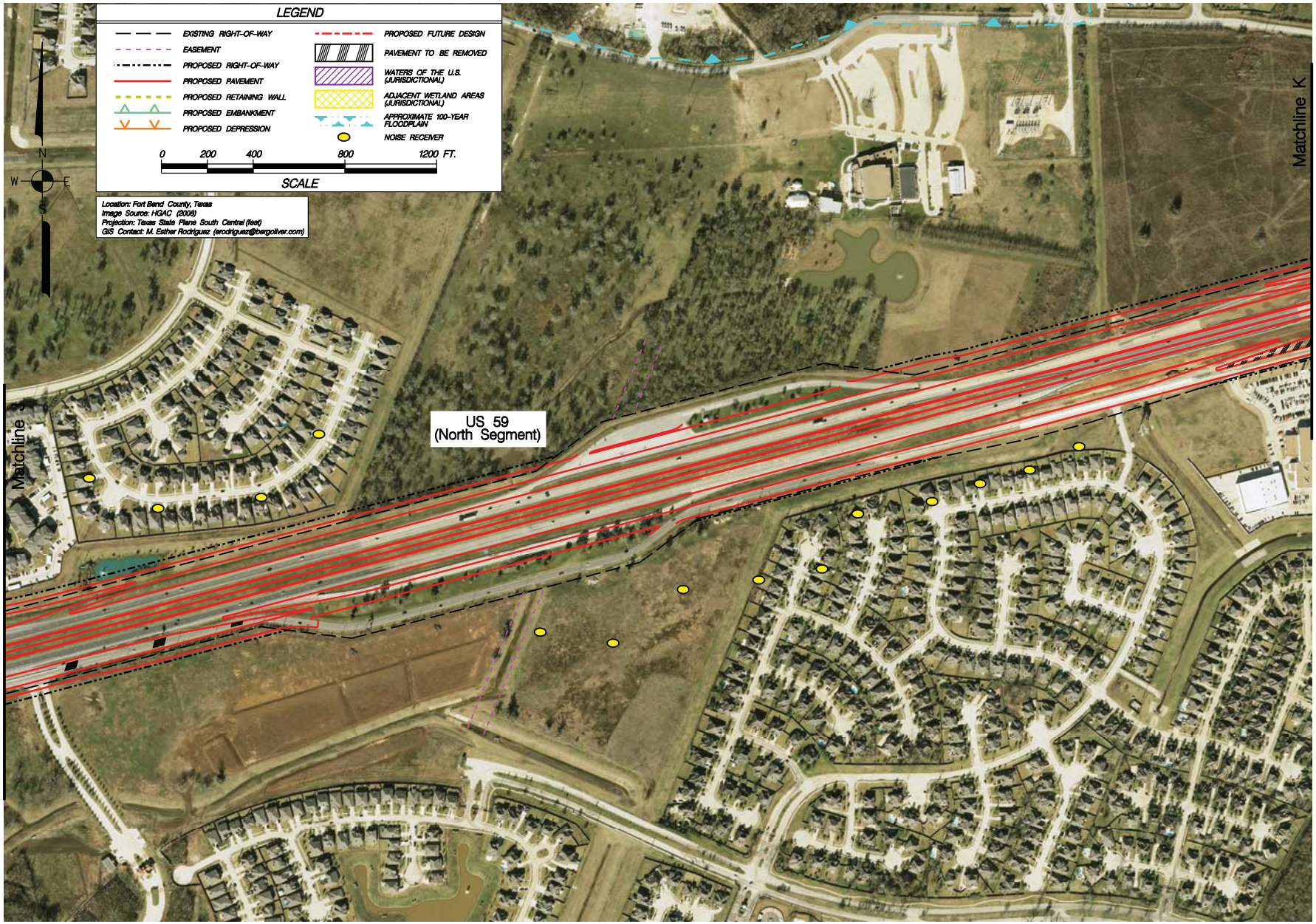

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 11 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
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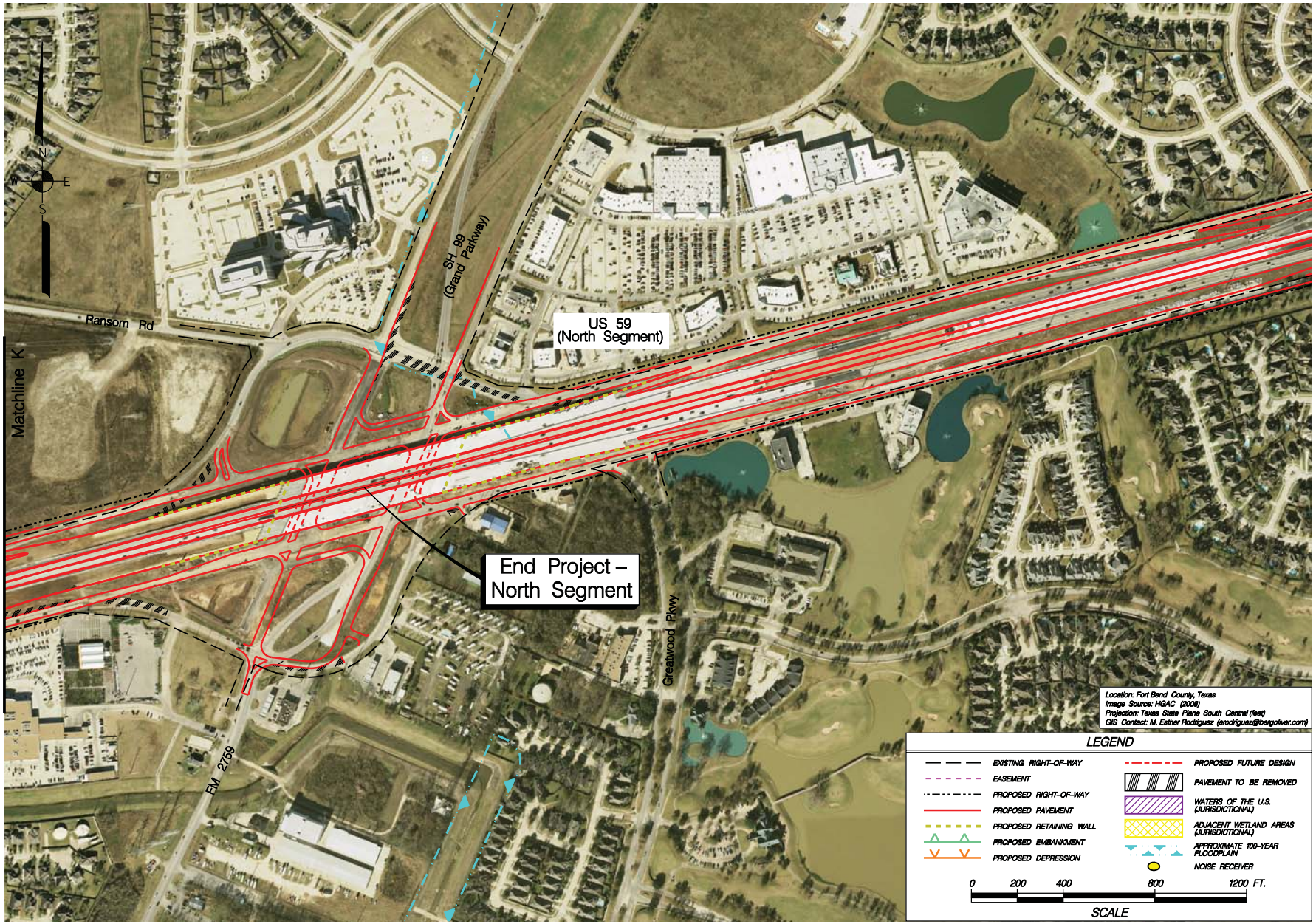

US 59 – NORTH SEGMENT

PROJECT LAYOUT MAP

SHEET 12 OF 12

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
July 16, 2009 by M.E. Rodriguez

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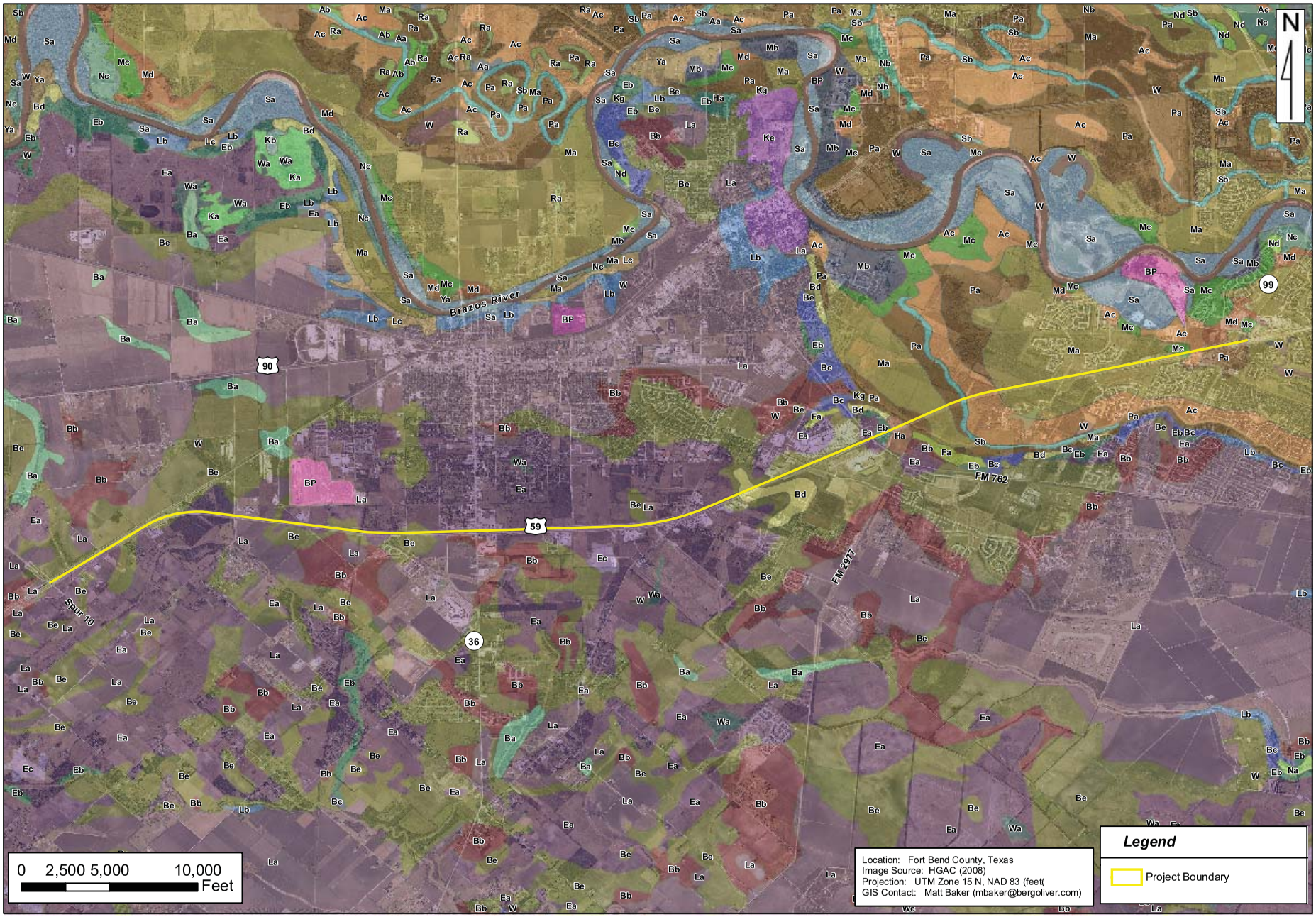
TEXAS DEPARTMENT OF TRANSPORTATION

EXHIBIT 6: SOILS MAP



HGAC 2008 AERIAL
NRCS SOILS MAP

REVISIONS

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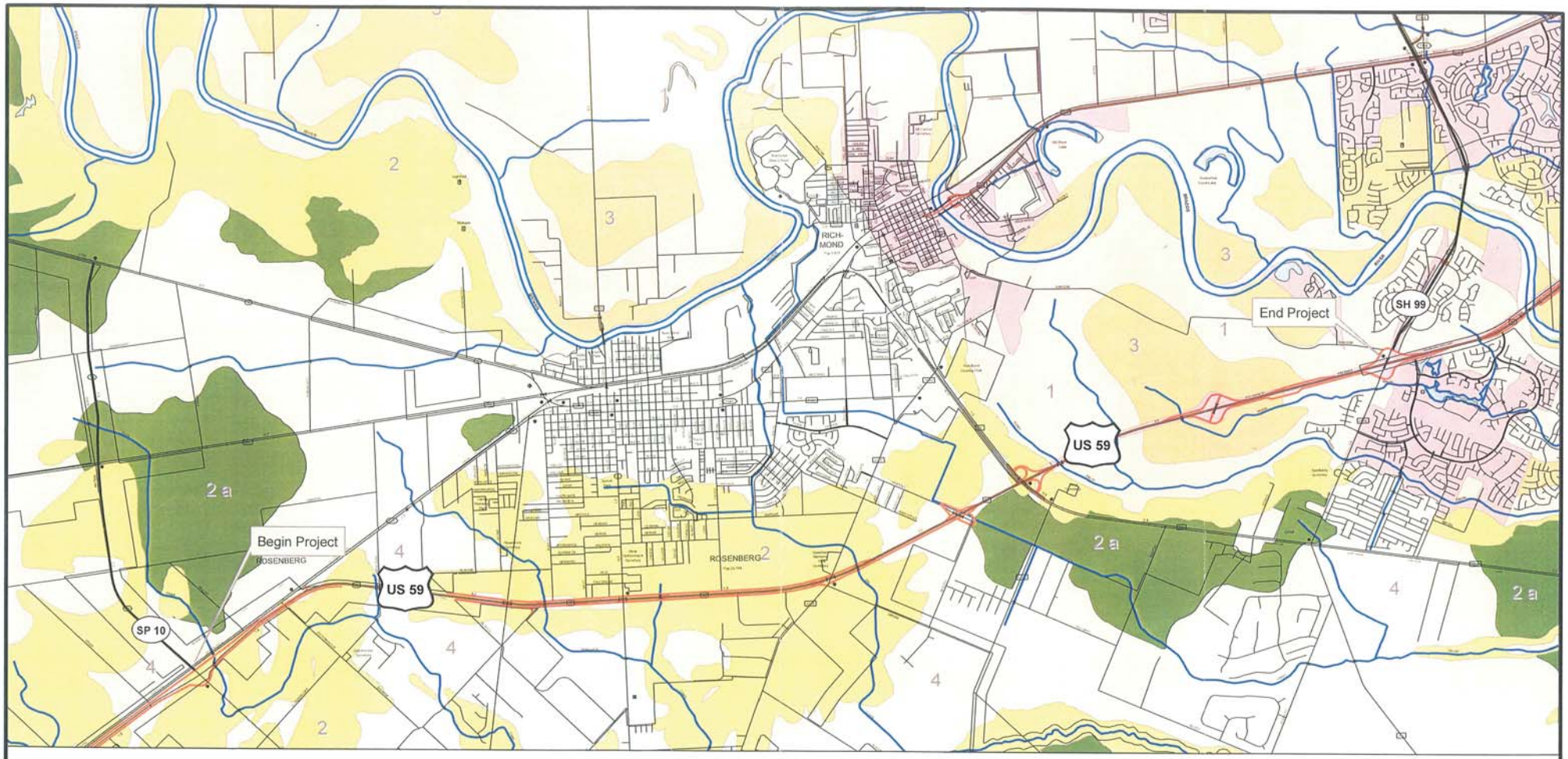
TEXAS DEPARTMENT OF TRANSPORTATION

Project #: 3979
For: TxDOT
Location: US 59 from Spur 10 to SH 99
Fort Bend County, Texas

EXHIBIT 7: PALM MAP



1 0.5 0 1 2 3 4 5 Miles

AREA_VALUE, PALM_CLASS

- 0, 0 - Water. No survey recommended.
- 1, 1 - Surface Survey Recommended, Deep Reconnaissance Recommended if Deep Impacts are Anticipated.
- 2, 2 - Surface Survey Recommended, No Deep Reconnaissance Recommended.
- 2a, 2a - Surface Survey of Mounds Only; No Deep Reconnaissance Recommended.
- 3, 3 - No Surface Survey Recommended, Deep Reconnaissance Recommended if Deep Impacts are Anticipated.
- 3a, 3a - No Surface Survey Recommended, Deep Reconnaissance Recommended only if Severe Deep Impacts are Anticipated.
- 4, 4 - No Survey Recommended.

N W E S

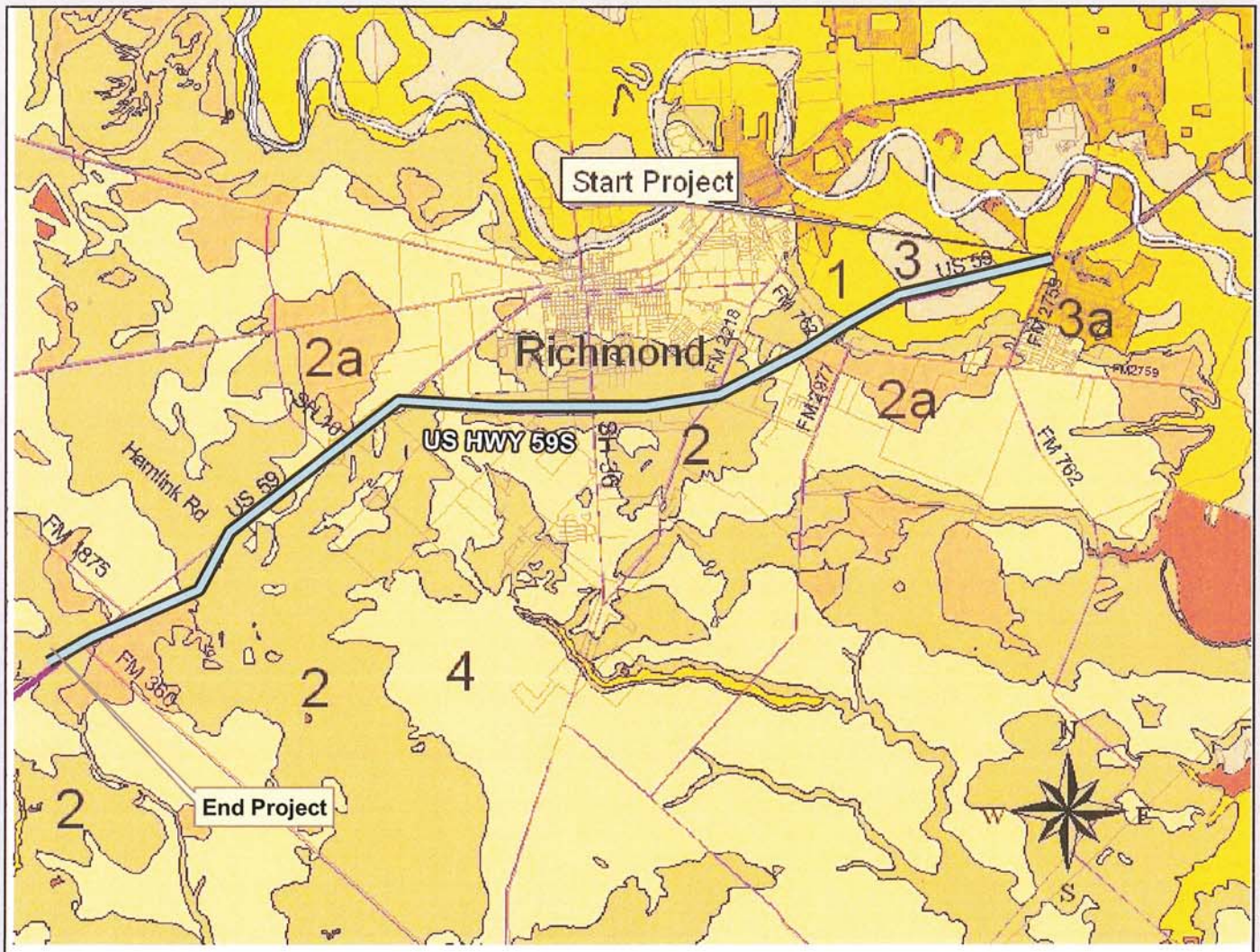
PALM Map

US 59: From SP 10 to SH 99
CSJ 0027-12-097, 0027-12-105
0027-12-106, & 0027-12-114

Exhibit 5:

Houston PALM Map
North Segment EA

US 59S From West of Spur 10 to West of SH 99

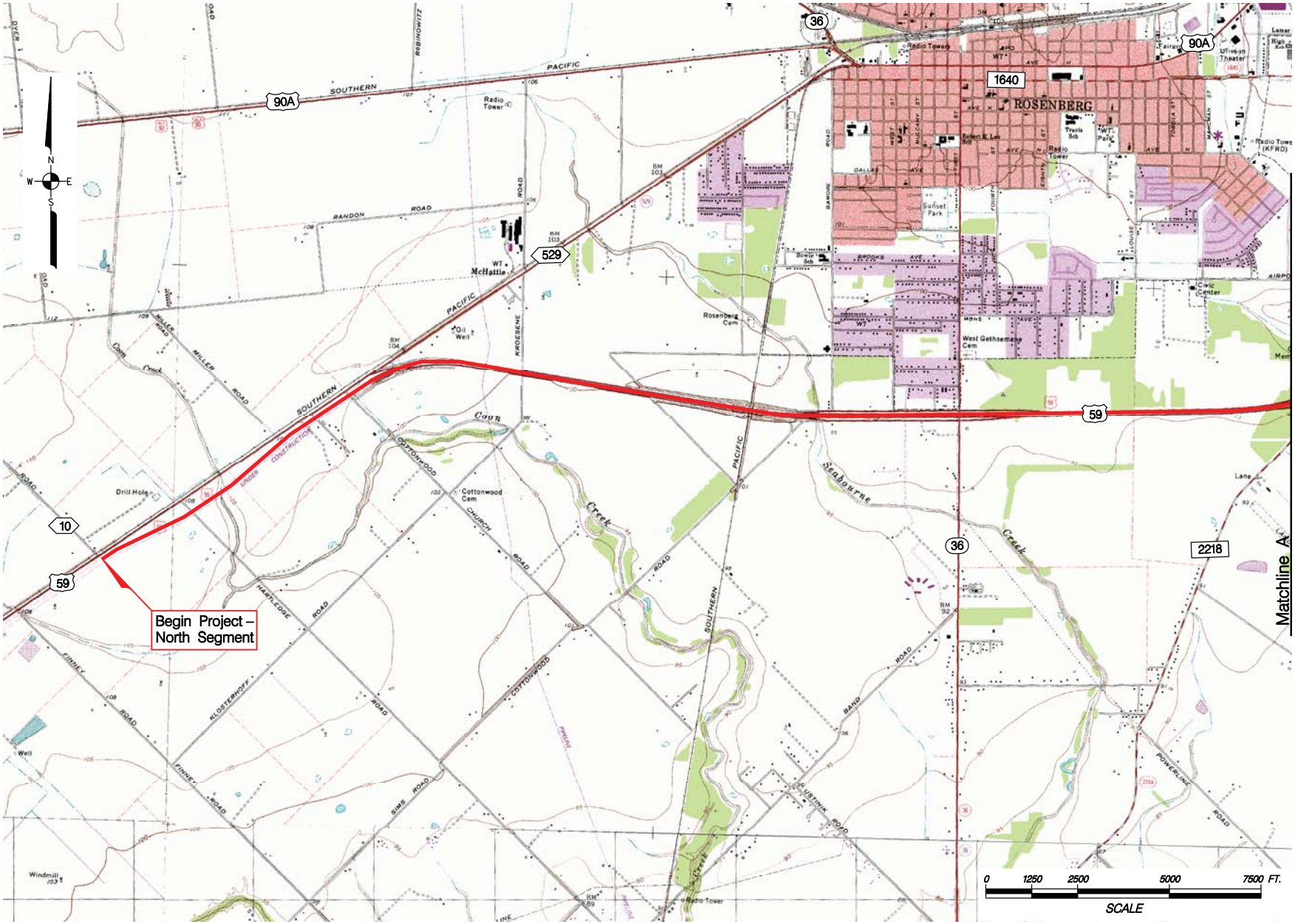


5 0 5 10 Miles

Map Units

- 0 - Water. No surface survey recommended
- 1 - Surface survey recommended, deep reconnaissance recommended if deep impacts are anticipated
- 2 - Surface survey recommended, no deep reconnaissance recommended if deep impacts are anticipated
- 2a - Surface survey of mounds only, no deep reconnaissance recommended
- 3 - No surface survey recommended, deep reconnaissance recommended if deep impacts are anticipated
- 3a - No surface survey recommended, deep reconnaissance recommended only if severe deep impacts are anticipated
- 4 - No survey recommended

EXHIBIT 8: GEOLOGICAL AND FEMA MAPS



US 59 – NORTH SEGMENT

USGS TOPOGRAPHIC MAP

SHEET 1 OF 2

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TEXAS DEPARTMENT OF TRANSPORTATION

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT

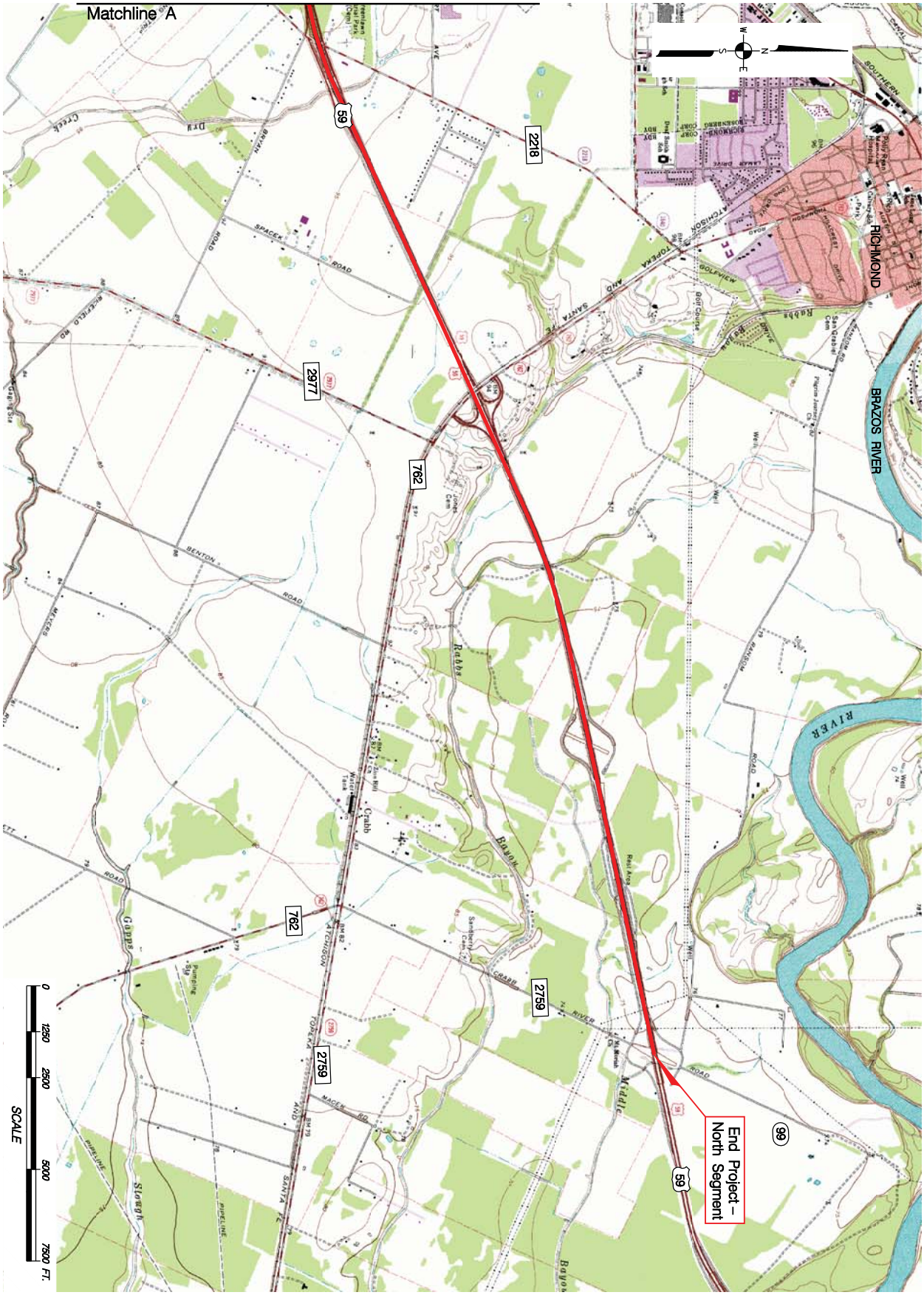
FROM SPUR 10 TO STATE HIGHWAY 90 (FM 2759)

FORT BEND COUNTY, TX

REVISIONS:

April 16, 2007 by M.E. Rodriguez

June 11, 2009 by M.E. Rodriguez



US 59 – NORTH SEGMENT

USGS TOPOGRAPHIC MAP

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114	REVISIONS: April 26, 2007 by M. E. Rodriguez; June 17, 2009 by M. E. Rodriguez
FOR:	TxDOT – HOUSTON DISTRICT	
LOCATION:	US 59 – NORTH SEGMENT FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759) FORT BEND COUNTY, TX	

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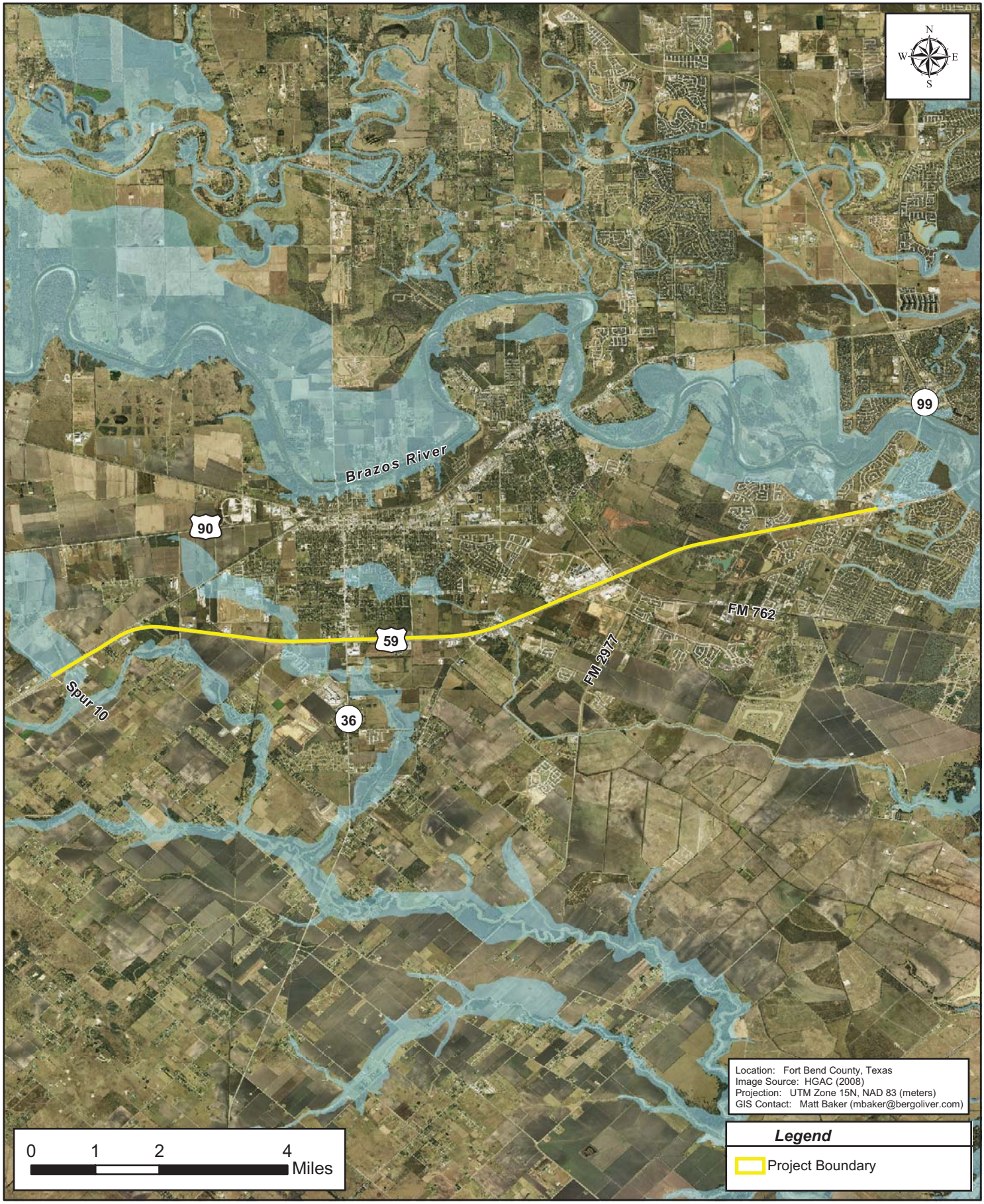
SHEET 2 OF 2

TEXAS DEPARTMENT OF TRANSPORTATION



HGAC 2008 AERIAL
FEMA 100-YEAR FLOODPLAIN MAP

Project #: 3979
For: TxDOT
Location: US 59 from Spur 10 to SH 99
Fort Bend County, Texas

REVISIONS
Oct. 13, 2009 by MDB

BERG◆OLIVER ASSOCIATES, INC.
ENVIRONMENTAL SCIENCE, ENGINEERING
& LAND USE CONSULTANTS
14701 ST. MARY'S LANE, SUITE 400
HOUSTON, TEXAS 77079 PHONE (281)589-0898 http://www.bergoliver.com

EXHIBIT 9: SITE PHOTOS

9-A: EXISTING CONDITIONS

9-B: APPROXIMATE LOCATIONS OF DISPLACEMENT-CAUSING ROW ACQUISITIONS

9-A: EXISTING CONDITIONS

Middle Bayou Crossing

Typical view of proposed frontage road

Southbound at the start of the proposed project

Southbound at closed weigh station

Southbound at Williams Way

Development at Williams Way

Southbound between Williams Way and FM 762

Rabbs Bayou

Southbound at FM 762

Southbound facing north at Brazos Crossing Shopping Plaza (between FM 762 and Reading Road)

Southbound between Reading Road and FM 2218

Dry Creek Crossing

Southbound at FM 2218

Southbound – Davis, Greenlawn Cemetery at FM 2218

Southbound between FM2218 and SH 36

Seabourne Creek Crossing

Southbound between SH 36 an Spur 529

Southbound at Spur 529

Coon Creek Crossing

Southbound between Spur 529 and Spur 10

Northbound at Spur 10

Northbound at Spur 529

Northbound between Spur 529 and SH 36

Northbound at SH 36

Typical land use northbound between SH 36 and Reading Road

Northbound between Reading Road and FM 762

Northbound between Williams Way and SH 99

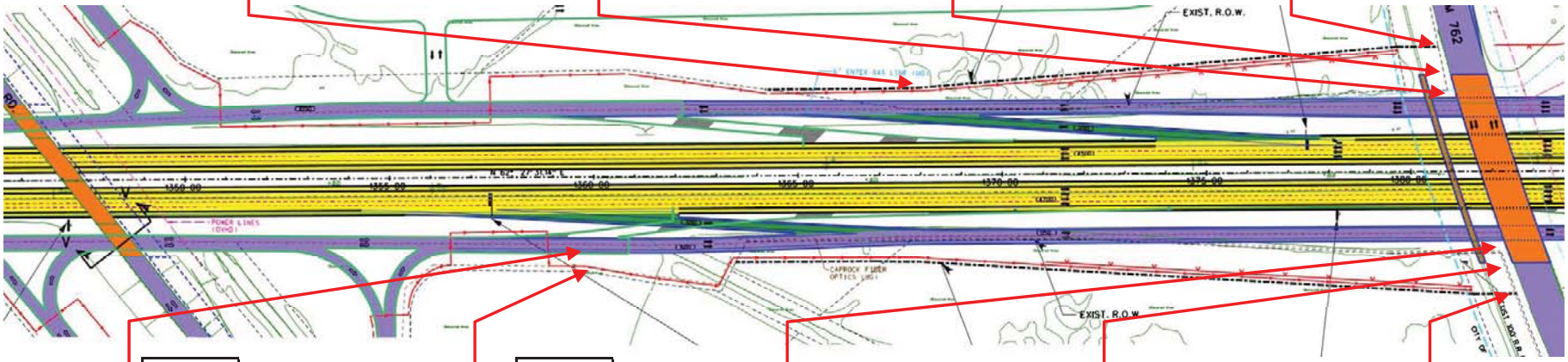
9-B: APPROXIMATE LOCATIONS OF DISPLACEMENT-CAUSING ROW ACQUISITIONS

Facing east at new north ROW

Facing west at existing north ROW

Facing west within existing and new north ROW

Facing west at new north ROW



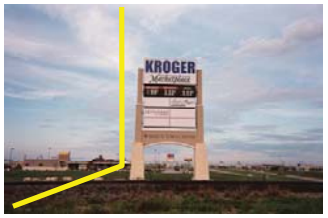
Indicates Existing ROW

Indicates Proposed ROW

Facing east at existing south ROW

Facing east at new south ROW

Facing west at existing south ROW



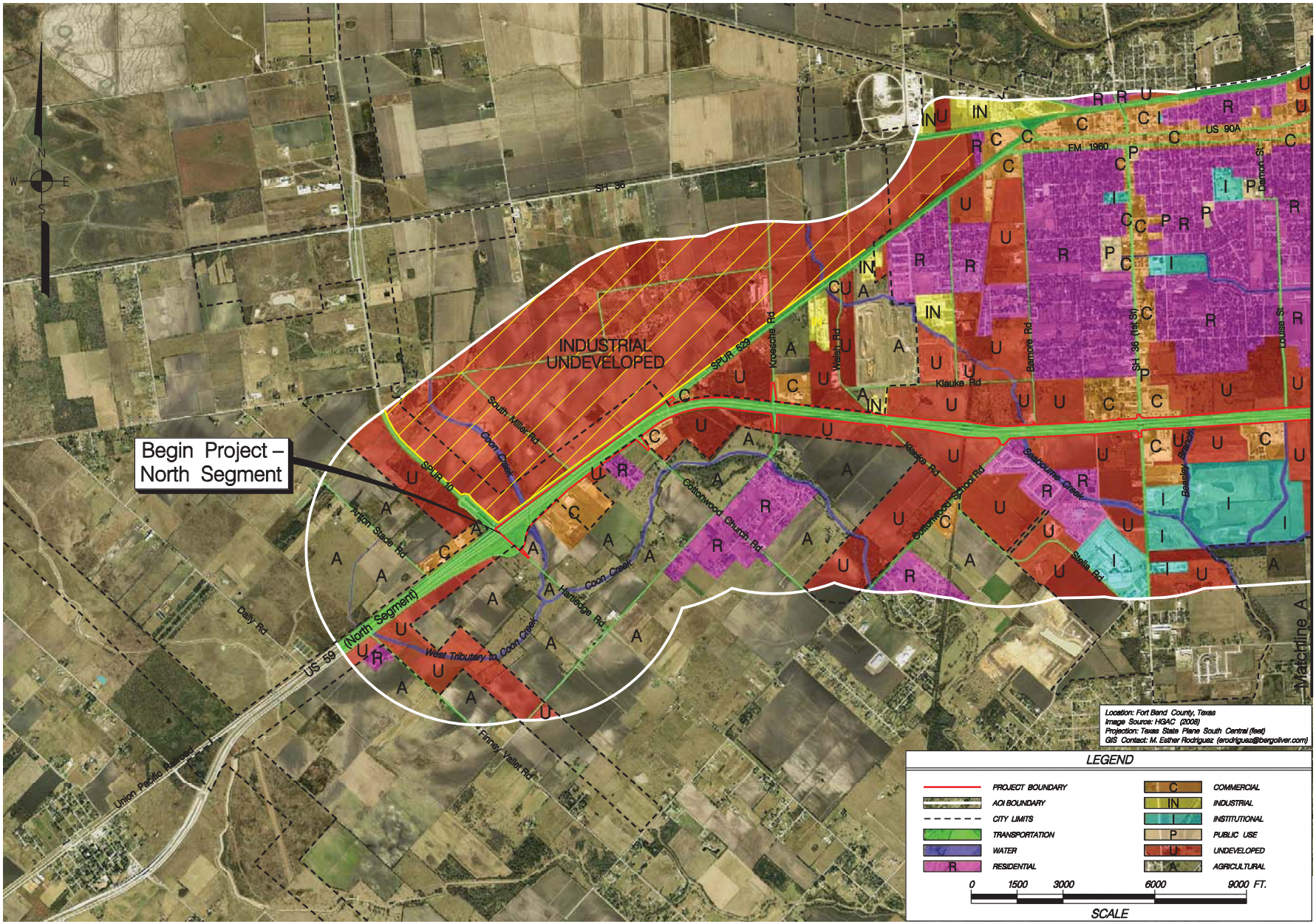
Facing west within existing and new south ROW

Facing west at new south ROW

Residence where land from front yard would be acquired (from yard).

Residence where land from front yard would be acquired (from existing ROW).

EXHIBIT 10: INDIRECT IMPACTS AREA OF INFLUENCE MAP



US 59 – NORTH SEGMENT

INDIRECT IMPACTS AOI

SHEET 1 OF 2

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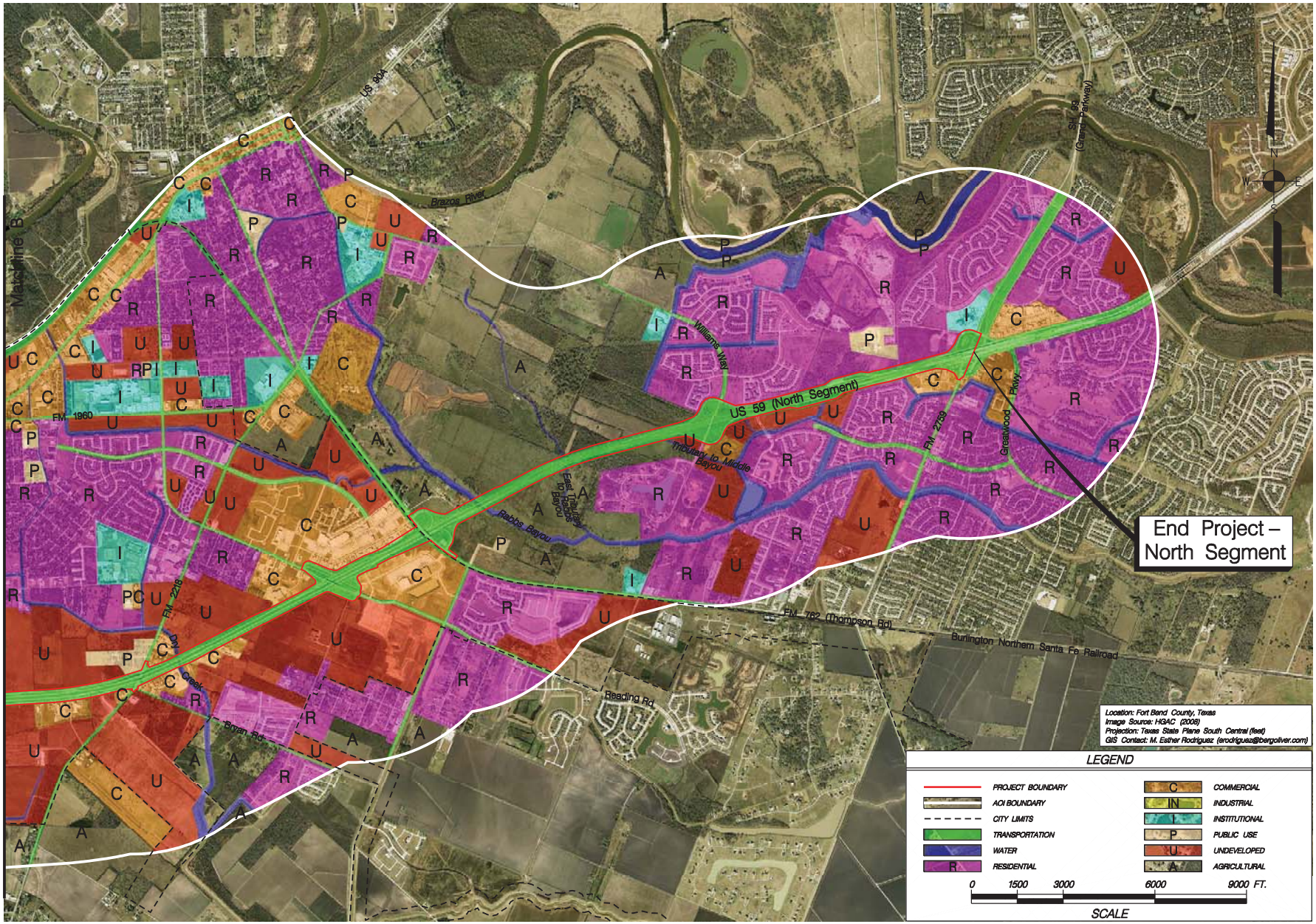
TEXAS DEPARTMENT OF TRANSPORTATION

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
Oct 4, 2010 by M.E. Rodriguez



US 59 – NORTH SEGMENT

INDIRECT IMPACTS AOI

SHEET 2 OF 2

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
Oct 4, 2010 by M. E. Rodriguez

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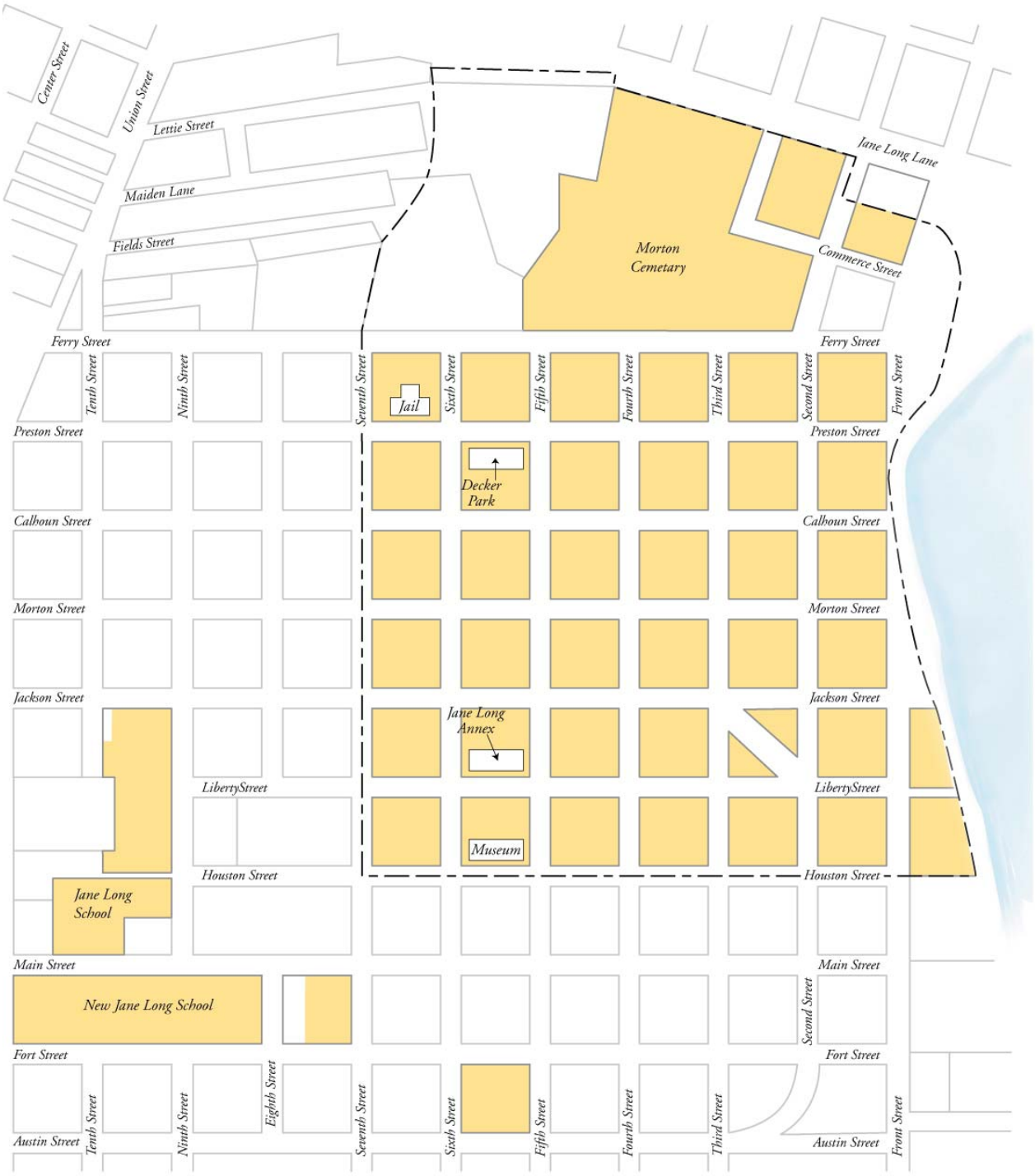
TEXAS DEPARTMENT OF TRANSPORTATION

EXHIBIT 11: RICHMOND HISTORICAL DISTRICT



Richmond Texas Historic District

Indirect Impacts

Project #:	CSJ No. 0027-12-097, 0027-12-105, 0027-12-106, and 0027-12-114	**REVISIONS**	© 2010
For:	TxDOT – HOUSTON DISTRICT	*Oct 27, 2010: TJK*	Texas Department of Transportation
Location:	US 59 SOUTH – NORTH SEGMENT		
	FROM SPUR 10 TO SH 99/FM 2759 (GRAND PARKWAY/CRABB RIVER ROAD)		
	FORT BEND COUNTY, TEXAS		

EXHIBIT 12: CITY OF ROSENBERG DEVELOPMENT MAP

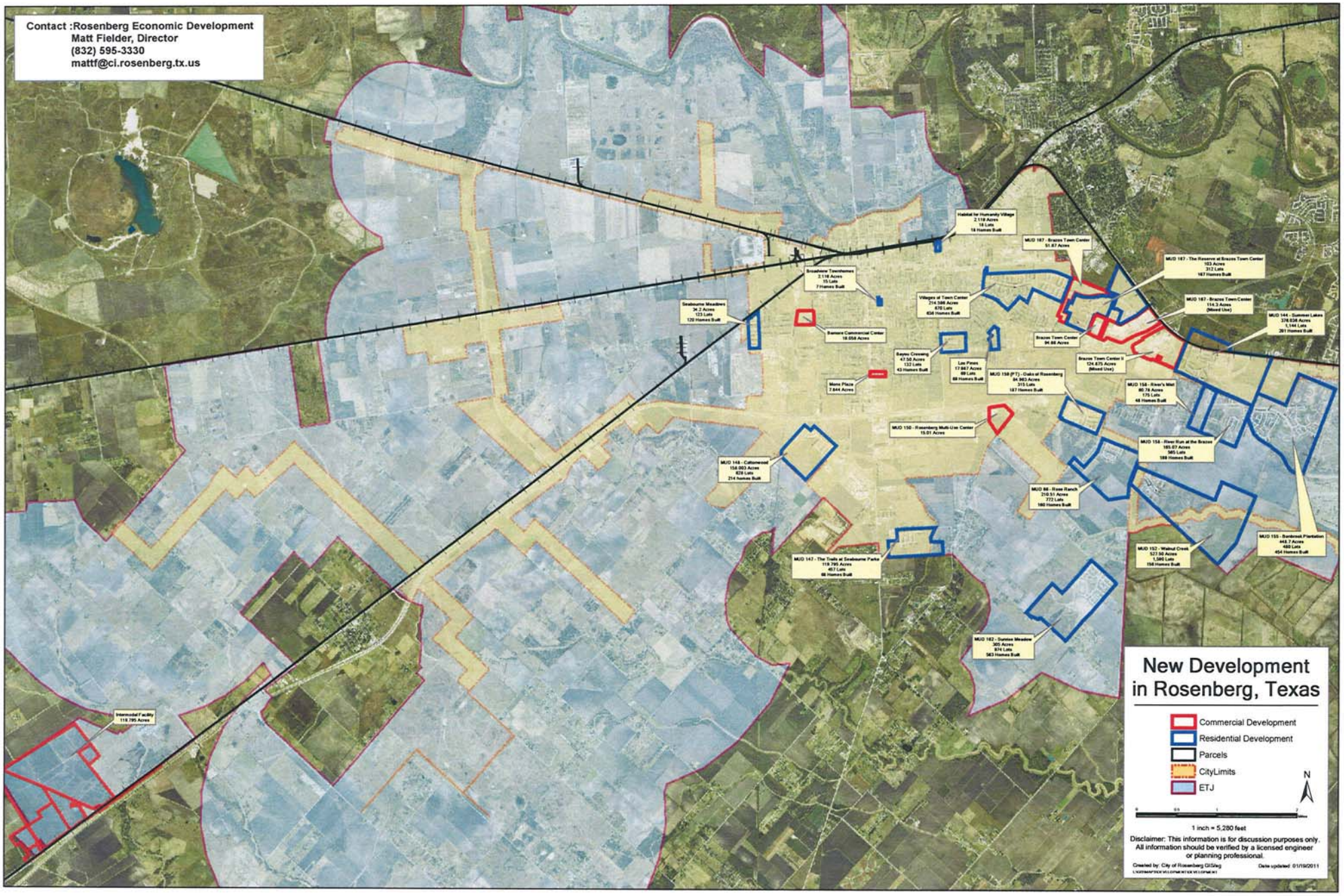
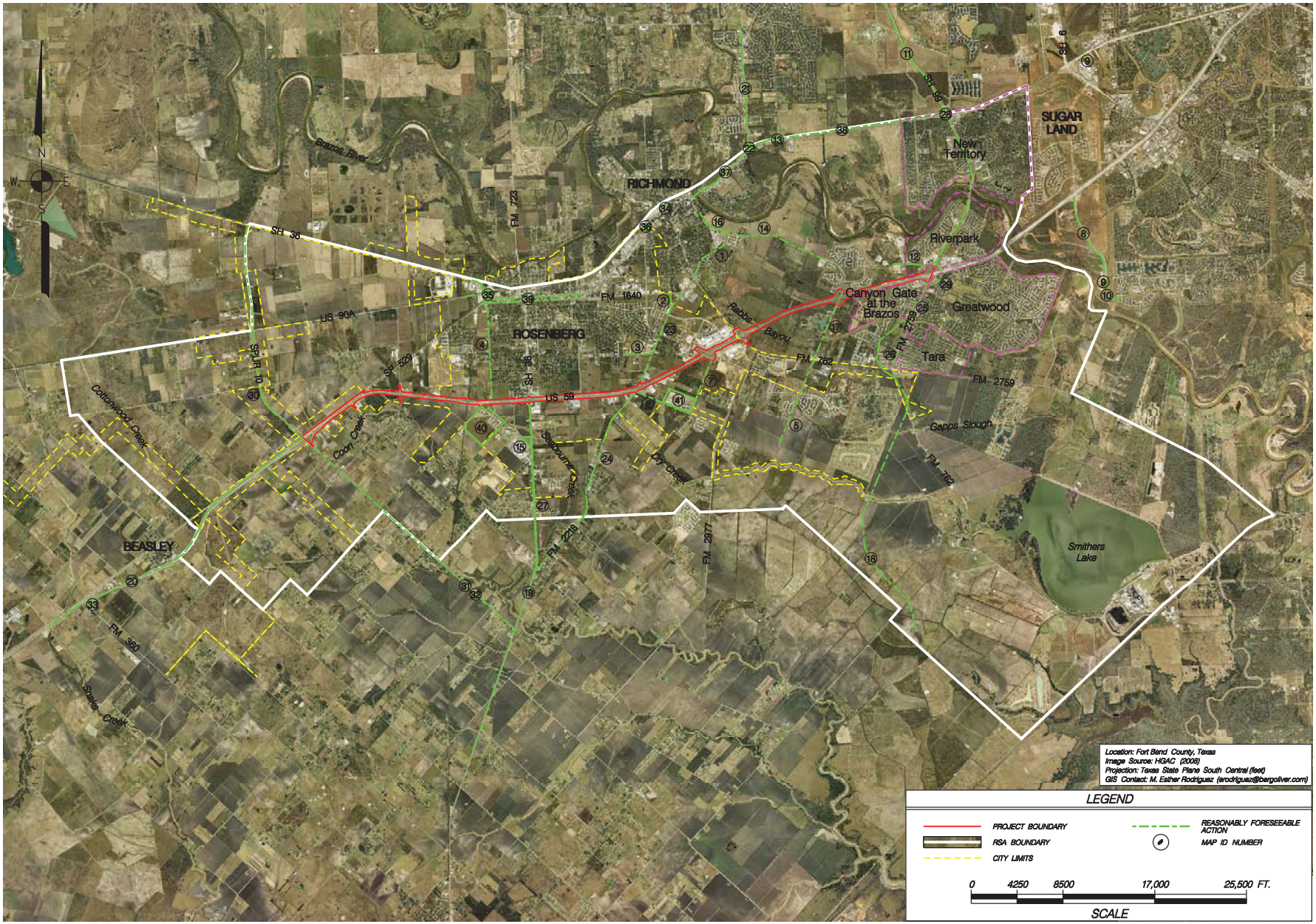

Contact :Rosenberg Economic Development
Matt Fielder, Director
(832) 595-3330
mattf@ci.rosenberg.tx.us
Habitat for Humanity Village
2.118 Acres
16 Lots
16 Homes Built
MUD 167 - Brazos Town Center
51.87 Acres
MUD 147 - The Reserve at Brazos Town Center
103 Acres
312 Lots
187 Homes Built
Broadview Townhomes
2.118 Acres
15 Lots
7 Homes Built
Villages at Town Center
214.586 Acres
670 Lots
636 Homes Built
MUD 167 - Brazos Town Center
114.3 Acres
(Mixed Use)
MUD 144 - Summer Lakes
376.936 Acres
1,144 Lots
281 Homes Built
Seabourne Meadows
34.2 Acres
123 Lots
120 Homes Built
Bamora Commercial Center
18.058 Acres
Brazos Town Center
94.66 Acres
Bayou Crossing
47.50 Acres
132 Lots
43 Homes Built
Los Pinos
17.967 Acres
89 Lots
69 Homes Built
Brazos Town Center II
124.475 Acres
(Mixed Use)
MUD 158 (PT) - Oaks of Rosenberg
84.363 Acres
315 Lots
187 Homes Built
Mono Plaza
7.844 Acres
MUD 154 - River's Mist
80.78 Acres
175 Lots
48 Homes Built
MUD 150 - Rosenberg Multi-Use Center
15.01 Acres
MUD 154 - River Run at the Brazos
185.07 Acres
585 Lots
188 Homes Built
MUD 146 - Cottonwood
158.003 Acres
628 Lots
214 homes Built
MUD 86 - Rose Ranch
210.51 Acres
722 Lots
160 Homes Built
MUD 155 - Sandmark Plantation
448.7 Acres
480 Lots
454 Homes Built
MUD 152 - Walnut Creek
523.50 Acres
1,380 Lots
158 Homes Built
MUD 147 - The Trails at Seabourne Parke
118.795 Acres
457 Lots
66 Homes Built
MUD 162 - Sunrise Meadow
305 Acres
874 Lots
563 Homes Built
Intermodal Facility
118.795 Acres
New Development
in Rosenberg, Texas
Commercial Development
Residential Development
Parcels
CityLimits
ETJ
N
0
0.5
1
2
1 inch = 5,280 feet
Disclaimer: This information is for discussion purposes only.
All information should be verified by a licensed engineer
or planning professional.
Created by: City of Rosenberg GIS/eg
Date updated: 01/19/2011

EXHIBIT 13: RESOURCE STUDY AREA – LAND USE AND VEGETATION



US 59 – NORTH SEGMENT

RSA MAP FOR LAND USE AND VEGETATION RESOURCES

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
Sept. 28, 2010 by M.E. Rodriguez

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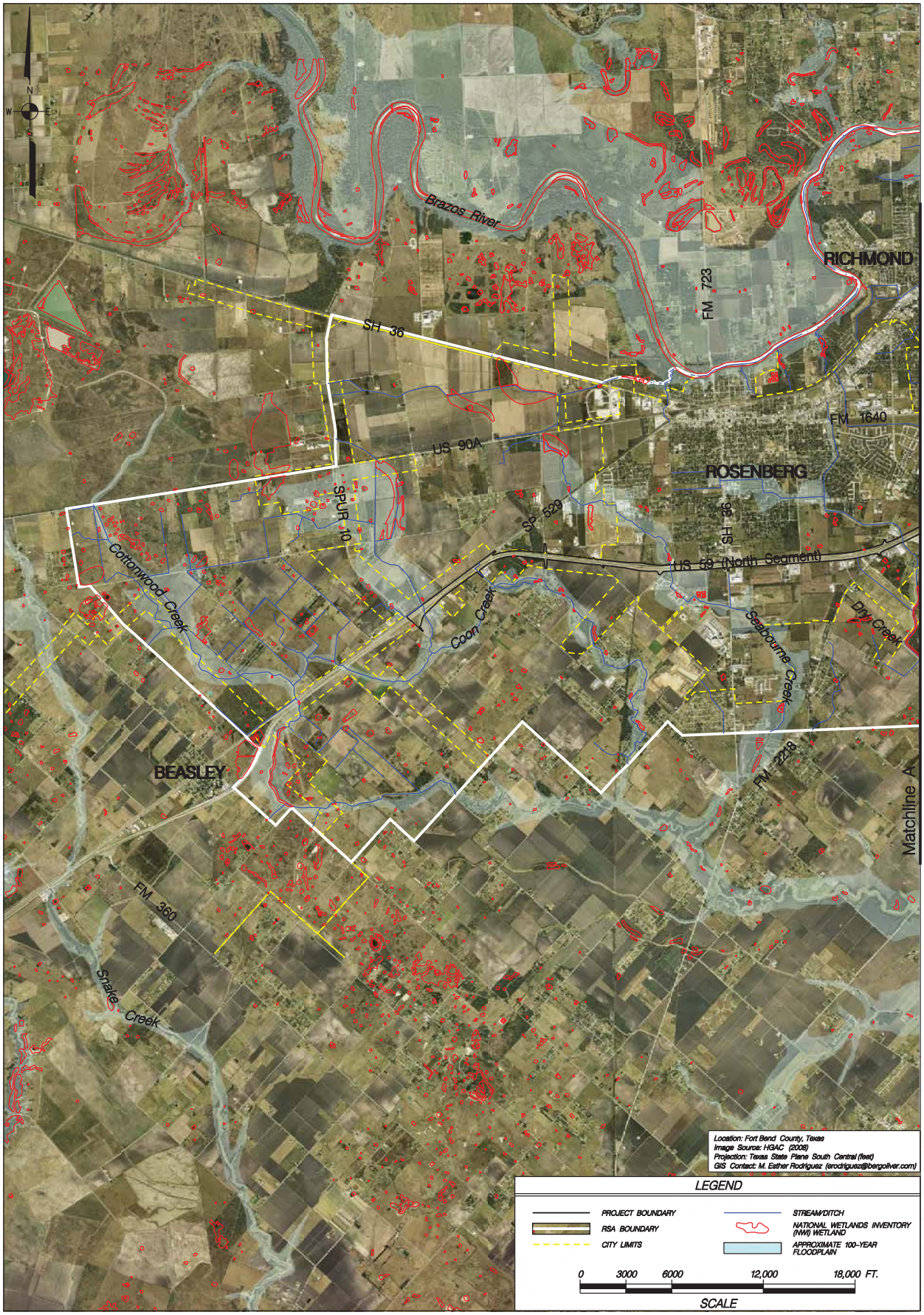
TEXAS DEPARTMENT OF TRANSPORTATION

EXHIBIT 14: RESOURCE STUDY AREA – WATER QUALITY AND WETLANDS



US 59 – NORTH SEGMENT

RSA MAP FOR WATER QUALITY AND WETLAND RESOURCES

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114
FOR:	TxDOT – HOUSTON DISTRICT
LOCATION:	US 59 – NORTH SEGMENT FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759) FORT BEND COUNTY, TX

REVISIONS:
Oct. 4, 2010 by M. E. Rodriguez

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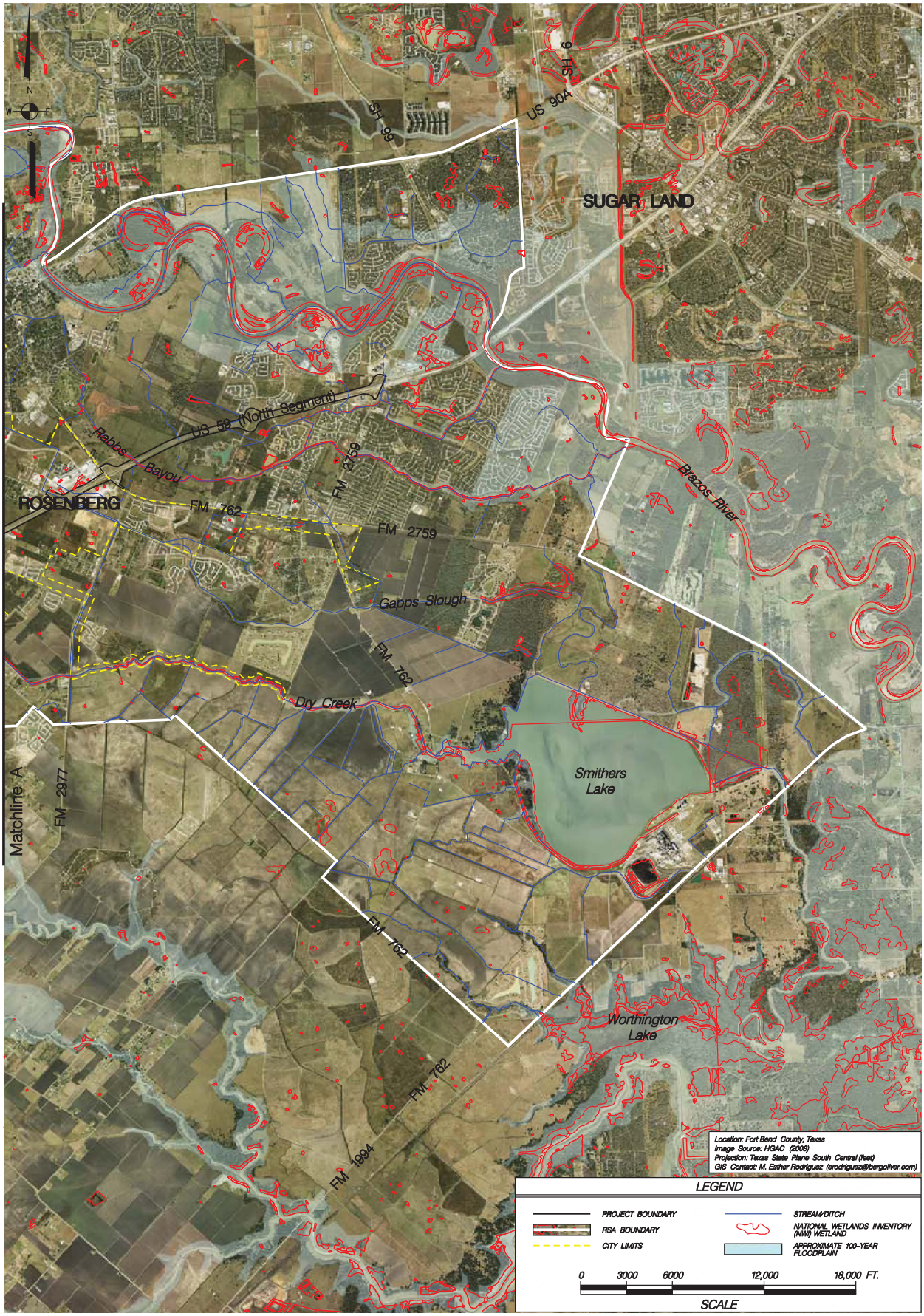
TEXAS DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 2



US 59 – NORTH SEGMENT

RSA MAP FOR WATER QUALITY AND WETLAND RESOURCES

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114
FOR:	TxDOT – HOUSTON DISTRICT
LOCATION:	US 59 – NORTH SEGMENT FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759) FORT BEND COUNTY, TX

REVISIONS:
Oct. 4, 2010 by M. E. Rodriguez

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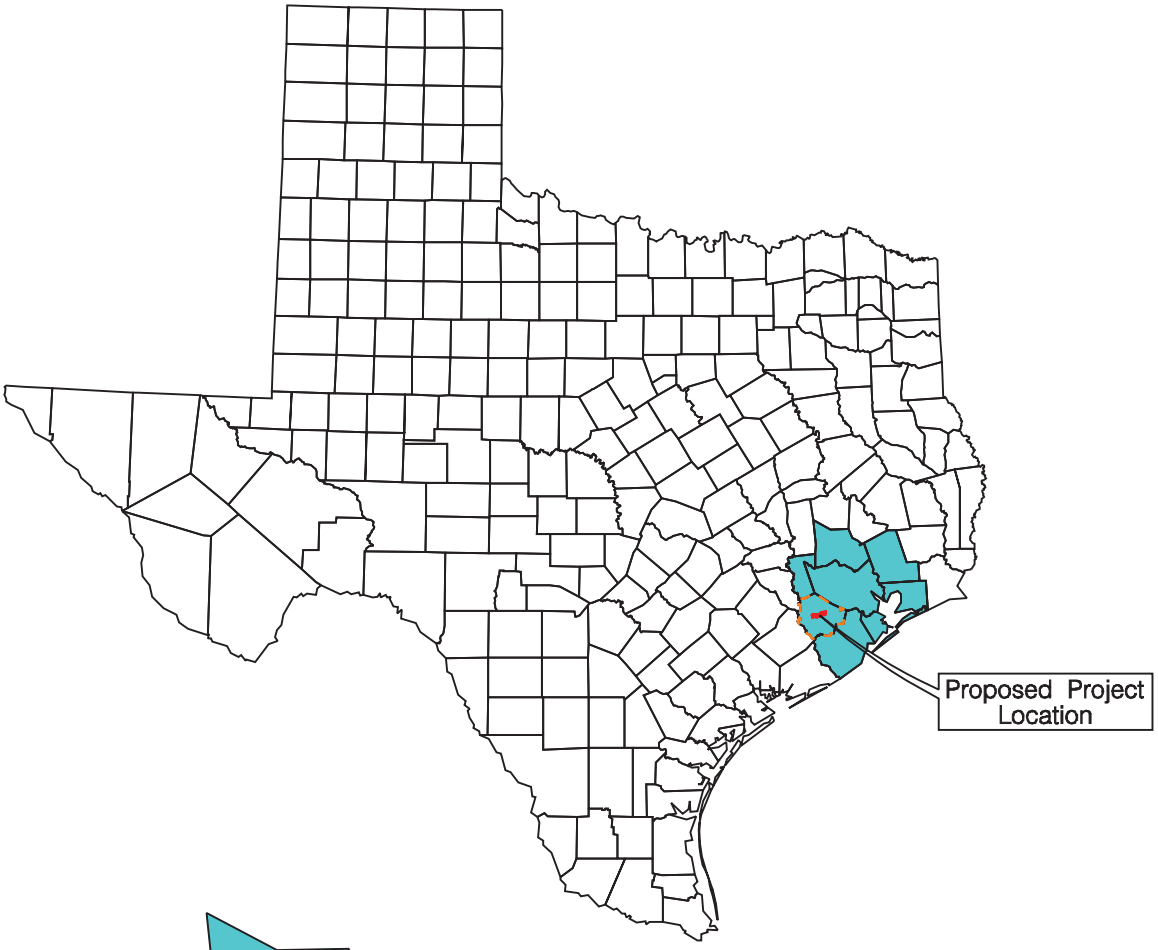
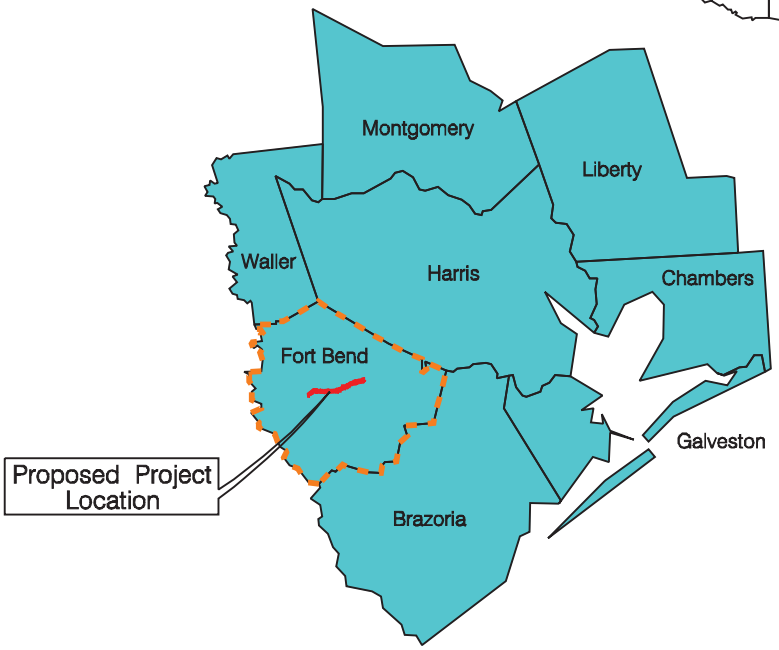
TEXAS DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 2

EXHIBIT 15: RESOURCE STUDY AREA – AIR QUALITY





LEGEND

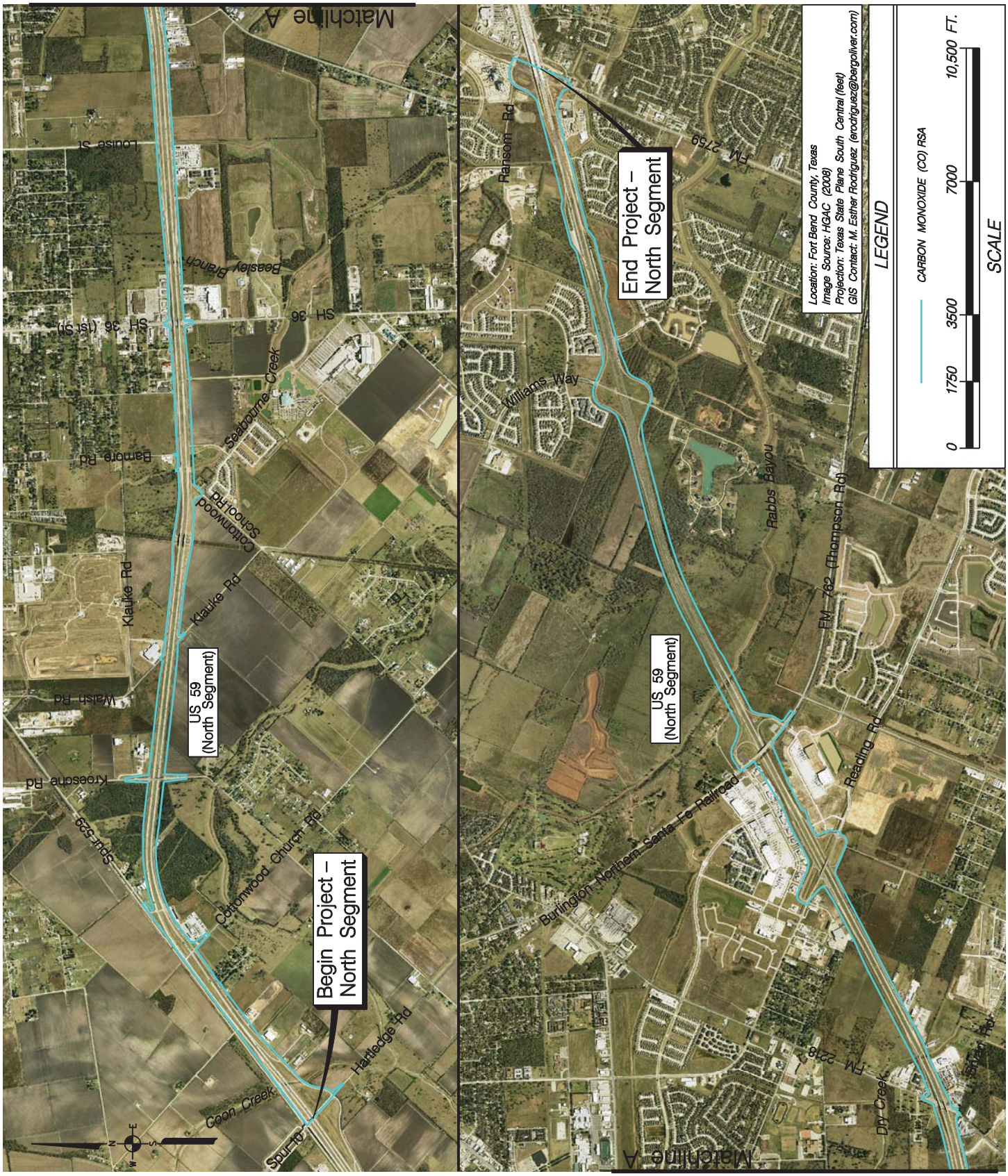
- PROJECT BOUNDARY
- MOBILE SOURCE AIR TOXICS (MSAT) RSA
- OZONE RSA

NOT TO SCALE

US 59 – NORTH SEGMENT

RSA MAP FOR AIR QUALITY IMPACTS

PROJECT #:	3979 – CSJ: 0027–12–097, 0027–12–105, 0027–12–106 & 0027–12–114	REVISIONS:	SHEET 2 OF 2: OZONE (O_3) AND MOBILE SOURCE AIR TOXICS (MSATs)
FOR:	TxDOT – HOUSTON DISTRICT	Sept. 16, 2010 by M. E. Rodriguez	© 2010
LOCATION:	US 59 – NORTH SEGMENT		TEXAS DEPARTMENT OF TRANSPORTATION
	FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)		
	FORT BEND COUNTY, TX		



US 59 – NORTH SEGMENT

RSA MAP FOR AIR QUALITY IMPACTS

PROJECT #:	3979 – CSJ: 0027–12–097, 0027–12–105, 0027–12–106 & 0027–12–114	REVISIONS:	SHEET 1 OF 2: CARBON MONOXIDE (CO)
FOR:	TxDOT – HOUSTON DISTRICT	Sept. 16, 2010 by M. E. Rodriguez	© 2010
LOCATION:	US 59 – NORTH SEGMENT		TEXAS DEPARTMENT OF TRANSPORTATION
	FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)		
	FORT BEND COUNTY, TX		

APPENDIX A: GUIDANCE DOCUMENTS

AGENCY COORDINATION AND APPLICABLE REGULATORY REQUIREMENTS

The following Executive orders, Memoranda of Understanding (MOUs), and regulations directly influence the design, operational, and environmental decisions that must be made concerning the proposed improvements:

- **Archeological Resources Protection Act (ARPA) of 1966:** This Act establishes as federal policy the protection of the historic properties or places and their values in cooperation with other nations and with state and local governments. It establishes a program of grants-in-aid to state governments for historic preservation activities. Subsequent amendments designated the State Historic Preservation Officer or the Tribal Historic Preservation Officer (SHPO) or the Tribal Historic Preservation Officer (THPO) as the individual responsible for administer programs in the states or reservations. The Act also creates the Advisory Council on Historic Preservation (ACHP).
- **Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668c)**. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." This definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.
- **Clean Air Act (CAA) of 1970, as amended (42 USC §§7401-7626):** This act is the comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes the U.S. Environmental Protection Agency to establish National Ambient Air Quality Standards to protect public health and the environment.
- **Clean Water Act (CWA) of 1972:** This act is an amendment to the Federal Pollution Control Act of 1972. It sets the basic structure for regulating discharges of pollutants to waters of the U.S. Section 401 of the CWA requires that an applicant for a federal permit provide a State certification that any discharges from the facility would comply with the Act, including water quality standard requirements. Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) to regulate the discharge of pollutants into waters of the U.S. The State of Texas is regulated under the TCEQ's Texas Pollutant Discharge Elimination System (TPDES). Section 404 of the CWA regulates the discharge of fill material into waters of the U.S., including wetlands. The act authorizes the issuance of permits for such discharges as long as the proposed activity complies with environmental requirements specified in Section 404(b)(1) of the Act.

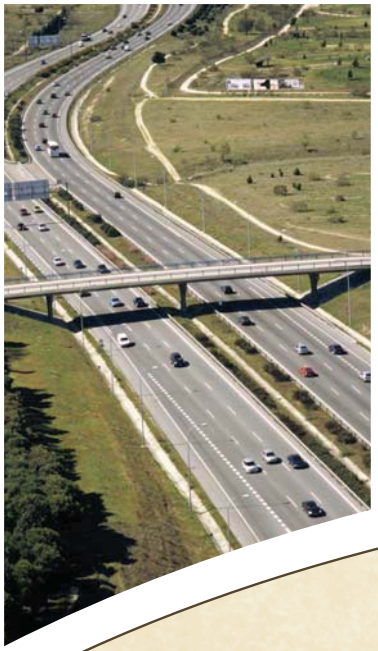
- **Coastal Coordination Act of 1991 (15 CFR §§ 923.31-34 and 31 Texas Administrative Code 501.3):** This act established the Coastal Coordination Council (CCC) to develop policy and oversee implementation of the Texas Coastal Management Program (TCMP). TCMP rules state that actions that may adversely affect coastal natural resource areas must comply with the goals and policies of TCMP. TCMP rules authorize CCC to review actions for consistency (consistency determination) with the goals and policies.
- **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):** This Act providers Federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency release of pollutants and contaminations into the environment. Through the Act, the Environmental Protection Agency (EPA) was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup.
- **Endangered Species Act (ESA) of 1973, as amended (16 USC §§1531-1543):** This law provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found.
- **Executive Memorandum on Environmentally and Economically Beneficial Landscape Practices:** This memorandum requires agencies to (where cost effective and to the extent practicable) use beneficial landscaping practice such as regionally native plants for landscaping and designing and to use or promote construction practices that minimize adverse affects on natural habitat.
- **Executive Order 11988 on Floodplains:** This order requires agencies to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.
- **Executive Order 11990 on Protection of Wetlands:** This order requires agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.
- **Executive Order 12898 on Environmental Justice:** This order requires federal agencies to address environmental justice in minority and low-income populations.
- **Executive Order 13112 on Invasive Species:** This order requires federal agencies to prevent the introduction of invasive species and provide for their control and then minimize the economic, ecological, and human health effects that invasive species cause.
- **Executive Order 13166 on Limited English Proficiency:** This order sets a framework to improve access to federally conducted and federally assisted programs and activities for persons, who as a result of national origin, are limited in their English proficiency.
- **Farmland Protection Policy Act (FPPA – 7 CFR Part 658):** This Act minimizes the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and to assure the federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland.

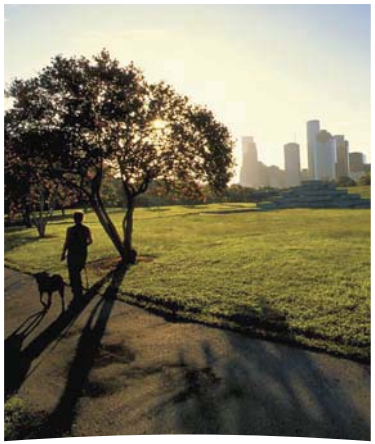
- **Fish and Wildlife Coordination Act (FWCA – 16 USC §661-667e):** This law was enacted to protect fish and wildlife when federal actions result in a modification of a natural stream body of water. If a modification to a natural stream or water body is expected, coordination with the U.S. Fish and Wildlife Service (USFWS) is required.
- **National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347 et seq., P.L. 91-190, January 1, 1970, as amended July and August 1975 and September 1982):** This Act requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed projects and reasonable alternatives to those actions. The Act also to provided for the establishment of a Council on Environmental Quality.
- **National Historic Preservation Act of 1966:** This Act and its implementing regulations (Section 106) have been complied with for this project. The required consultation with the Texas State Historic Preservation Officer (SHPO) occurred according to the stipulations of the Programmatic Agreement among the Texas Historical Commission (THC), the FHWA, TxDOT, and the Advisory Council on Historic Preservation (ACHP). The proposed project also has been coordinated with appropriate federally-recognized Native American Tribes. In the event that archeological materials are discovered during construction, construction in the immediate area shall cease, and the SHPO would be contacted to initiate accidental discovery procedures in accordance of the terms of the Programmatic Agreement among the THC, FHWA, and TxDOT.
- **Native American Graves Protection and Repatriations Act (NAGPRA) Regulations, Final Rule, 1996:** This Act of 1990 sets forth rules for international excavation and removal of Native American cultural items, including human remains and funerary objects, and for inadvertent discovery of such items. The final rule establishes definitions and procedures for lineal descendants, Indian tribes, Native Hawaiian organizations, museums, and federal agencies to carry out the Native American Graves Protection and Repatriations Act of 1990.
- **Pollution Prevention Act (P2) of 1990:** This Act focused industry government, and public attention on reducing the amount of pollution through cost-effective changes in production operation, and raw material use.
- **Protection of Children from Environmental Health Risks and Safety Risks – (Executive Order 13045):** This order requires each federal agency to make it a high priority to identify and assess environmental health risks and safety risk that may disproportionately affect children. It also requires agencies to ensure that policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.
- **Resource Conservation and Recovery Act (RCRA) (42 USC §6901 et seq.):** This Act gives the EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes.
- **Superfund Amendments and Reauthorization Act (SARA) of 1986:** This Act reauthorized CERCLA to continue cleanup activities around the country. Several site-specific amendments, definitions clarifications, and technical requirements were added to the legislation, including additional enforcement authorities. Title III of SARA also authorized the Emergency Planning and Community Right-to-Know Act (EPCRA).

- **Texas Commission of Environmental Quality (TCEQ) Memorandum of Understanding (MOU):** TxDOT must submit environmental documents to the TCEQ for review: if a project encroaches upon or is within five miles upstream of threatened or impaired waters; if a project is located in the recharge zone or contributing zone of the Edwards Aquifer; or if a project requires an individual CWA Section 401 certification. TxDOT must implement best management practices at the discharge points to water bodies to minimize impacts to threatened or impaired waters.
- **Texas Parks and Wildlife Department (TPWD) MOU:** TxDOT provides TPWD with pertinent information regarding potential effects to natural resources and measures to minimize and/or compensate for unavoidable losses of sensitive habitats. TxDOT must coordinate with TPWD to assist with the decision making process.
- **Tier I TPDES Construction General Permit:** The authority for this program has been delegated from the EPA to TCEQ. The system controls what can be discharged into waters of the U.S. Construction activities or facilities with discharges that may affect surface or groundwater quality require TPDES permitting.
- **TPWD Memorandum of Agreement (MOA):** Procedures and methodologies for habitat characterizations and impact descriptions, and criteria for compensatory mitigation are identified in this MOA.
- **Uniform Relocation Assistance and Real Property Acquisitions Policies Act (49 CFR Part 24) and Advisory Circular 150-5100-17:** This title and related advisory circular establishes a uniform policy for the fair and equitable treatment of persons displaced as a direct result of programs or proposals undertaken by a federal agency or with federal financial assistance.

APPENDIX B: RTP/TIP DOCUMENTATION

Bridging OUR COMMUNITIES 2035





The 2035 Houston-Galveston Regional Transportation Plan

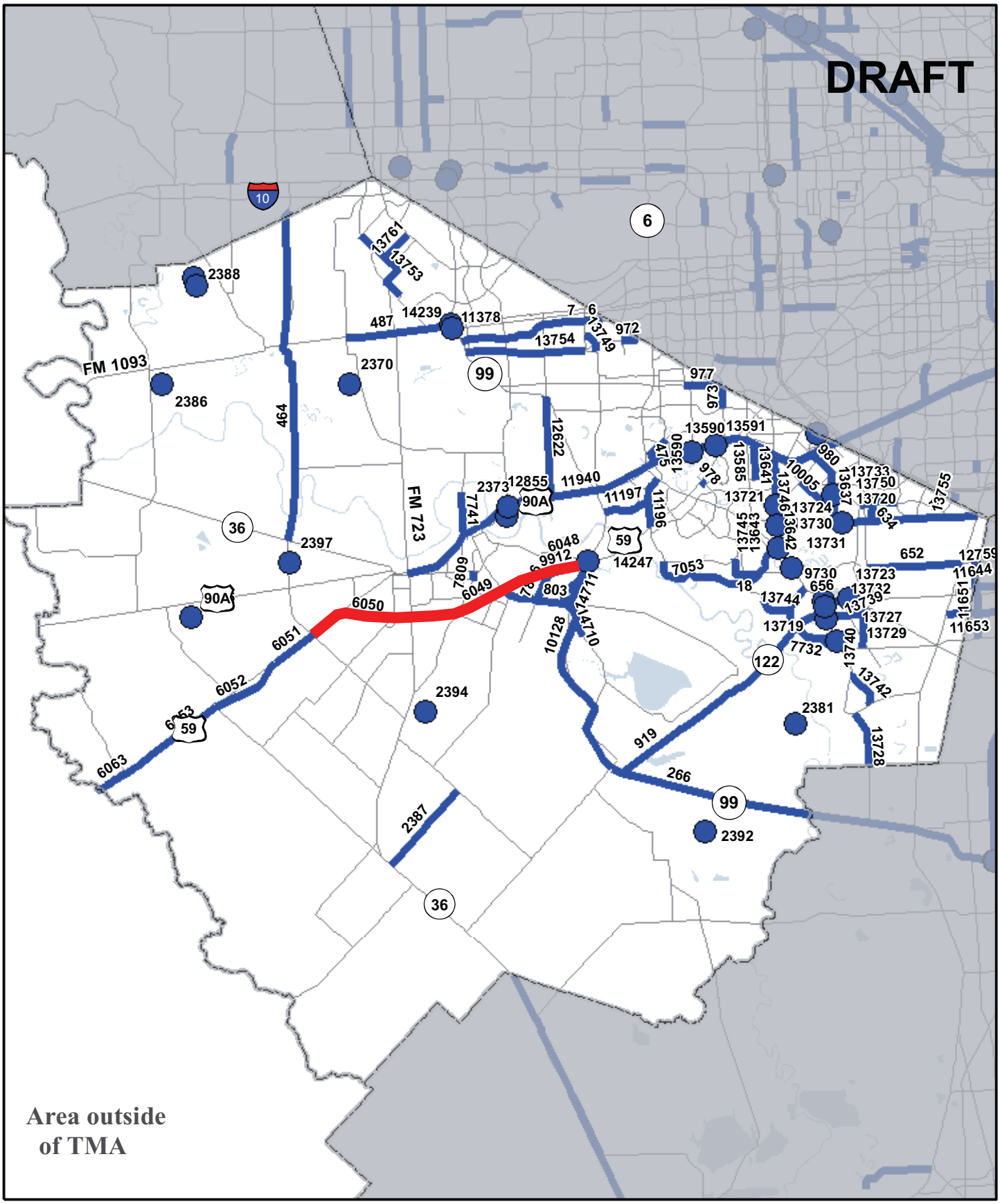
UPDATE

Adopted 10/29/10
Approved 1/25/11

2035 Regional Transportation Plan (RTP) Update

FORT BEND COUNTY

RTP Phase	Project IDs	Sponsor	Street	From Limit	To Limit	Project Description	Fiscal Year	Total Project Cost (Revised)
RTP	13803	CITY OF MISSOURI CITY	UNIVERSITY BLVD	SE CORNER OF BRAZOS LANDING SUBDIVISION	OIL FIELD RD	EXTEND 4-LANE ROADWAY	2015	$ 14,591,259
TIP	7051	CITY OF SUGAR LAND	UNIVERSITY BLVD	US 59	COMMONWEALTH BLVD	PH 2: WIDEN TO 6 & 8-LANE DIVIDED RDWY (IN SECTIONS)	2011	$ 2,694,591
TIP	7052	CITY OF SUGAR LAND	UNIVERSITY BLVD	COMMONWEALTH BLVD	SE CORNER OF BRAZOS LANDING SUBDIVISON	CONSTRUCT NEW 4-LANE CURB & GUTTER SECTION	2011	$ 23,581,900
RTP	7053	CITY OF SUGAR LAND	UNIVERSITY BLVD	COMMONWEALTH BLVD	SH 6	WIDEN TO 5-LANE & 6-LANE (PHASE 2)	2015	$ 5,808,657
TIP	431 0912-34-146	CITY OF SUGAR LAND	UNIVERSITY BLVD	US 90A	CURRENT TERMINUS S OF DITCH-H	CONSTRUCT 4-LANE ROADWAY	2011	$ 4,665,115
TIP	15115 0027-12-133	TXDOT HOUSTON DISTRICT	US 59	1.1 MILES SOUTH OF SH 99	0.4 MILES SOUTH OF SH 99	BASE REPAIR & OVERLAY	2013	$ 2,000,000
TIP	15176 0027-12-134	TXDOT HOUSTON DISTRICT	US 59	SH 6	SH 99	INSTALL CTMS	2014	$ 1,250,000
TIP	15054 0027-12-135	TXDOT HOUSTON DISTRICT	US 59	0.45 MI N OF WILLIAMS WAY	0.85 MI N OF WILLIAMS WAY	REALIGN NB FRONTAGE ROAD	2011	$ 382,000
RTP	6048 0027-12-097	TXDOT HOUSTON DISTRICT	US 59 S	W OF FM 2759	W OF FM 762	WIDEN TO 8 ML, FRONTAGE ROADS, ITS & TMS	2030	$ 221,485,784
RTP	6049 0027-12-105	TXDOT HOUSTON DISTRICT	US 59 S	W OF SH 36	W OF FM 762	WIDEN TO 6-LANE RURAL FREEWAY, FRONTAGE ROADS, ITS & TMS WITH GRADE SEPARATION	2031	$ 168,654,201
RTP	6050 0027-12-106	TXDOT HOUSTON DISTRICT	US 59 S	W OF SP 10	W OF SH 36	WIDEN TO 6-LANE RURAL FREEWAY, FRONTAGE ROADS, ITS & TMS	2031	$ 285,238,958
RTP	9912 0027-12-114	TXDOT HOUSTON DISTRICT	US 59 S	W OF FM 762	W OF FM 2759	CONSTRUCT 2-WAY HOV LANES	2027	$ 18,617,024
RTP	6051 0089-09-058	TXDOT HOUSTON DISTRICT	US 59 S	W OF SP 10	W OF HAMLINK RD	WIDEN TO 6-MAIN LANES, GRADE SEPARATIONS, 2-LANE FRONTAGE ROADS, ITS & TMS	2031	$ 100,582,927
RTP	6052 0089-09-065	TXDOT HOUSTON DISTRICT	US 59 S	W OF FM 360	W OF HAMLINK RD	WIDEN TO 6 MAIN LANES, W/ 2-LANE FRONTAGE ROADS, GRADE SEPARATIONS, ITS & TMS	2032	$ 157,035,324
RTP	6053 0089-09-066	TXDOT HOUSTON DISTRICT	US 59 S	W OF DARST RD	W OF FM 360	WIDEN TO 6-MAINLANE FREEWAY W/ 2-LANE FRONTAGE ROADS, GRADE SEPARATIONS, ITS & TMS	2031	$ 139,952,507
RTP	6063 0089-09-067	TXDOT HOUSTON DISTRICT	US 59 S	CR 227 IN WHARTON COUNTY	W OF DARST RD	WIDEN TO 6-MAIN LANES, W/ 2-LANE FRONTAGE ROADS, GRADE SEPARATIONS, ITS & TMS	2034	$ 216,002,591
TIP	14664 0089-09-079	TXDOT HOUSTON DISTRICT	US 59 S	N OF WHARTON COUNTY LINE	S OF SPUR 10	OVERLAY JOINTED CONCRETE, PLANING, SHOULDERS AND PAVEMENT MARKINGS AND SHOULDER TEXTURE	2011	$ 6,384,980



Legend

Planned

Fort Bend County 2035 RTP Update

0 1.25 2.5 5 7.5 10 Miles

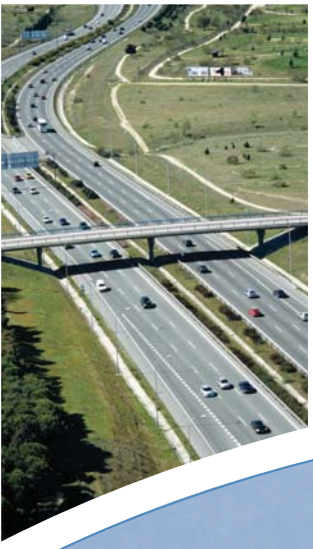
N W E S

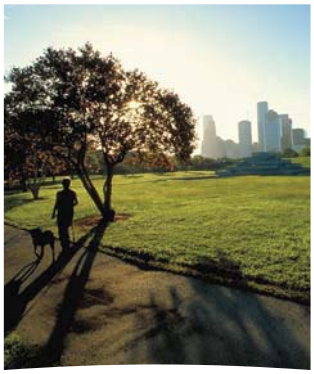
Houston-Galveston Area Council

09/23/2010

Bridging
OUR COMMUNITIES

2011-2014





The 2011-2014 Transportation Improvement Program

Houston-Galveston Area Council

2011-2014 Transportation Improvement Program (TIP)

for the Houston-Galveston Transportation Management Area

PUBLIC MEETING DATE OF THE 2011-2014 TRANSPORTATION IMPROVEMENT PROGRAM:
June 17, 2010

Additional information regarding the public comment period including dates and locations of additional public presentations is available on the H-GAC website:
http://www.h-gac.com/taq/public_info/default.aspx

Adopted By Transportation Policy Council
June 25, 2010

Publication Date
October, 2010*

The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the views or policies of the Federal Highway Administration, the Federal Transit Administration, or the Texas Department of Transportation.

http://www.h-gac.com/taq

*** Anticipated**

FY 2011-2014

STIP

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM

Texas Department of Transportation

HIGHWAY

HOUSTON DISTRICT

FY 2011 - 2014 TIP

7- 2010

Texas Department of Transportation

MEMORANDUM

TO: Mr. Jack Foster, P.E.
Transportation Planning
and Programming Division

DATE: July 1, 2010

Originating Office
Houston District
DTP

FROM: James W. Koch, P.E.

SUBJECT: 2011-2014 Transportation
Improvement Program
Highway STIP Submittal

Please find attached for your information and further handling the 2011-2014 Transportation Improvement Program (STIP) highway transmittal.

Should you have questions regarding this matter, please contact Ms. Carolyn Bednar-Wood at (713) 802-5312, or Ms. Pam Hasker at (713) 802-5307.

James W. Koch P.E.
Director of Transportation
Planning and Development

PCH
Attachments
cc: Ms. Lori Morel
Mr. Alan Clark (H-GAC)
Ms. Pat Waskowiak (H-GAC)
Mr. Rakesh Tripathi, P.E.
Ms. Carolyn Bednar-Wood
Ms. Pam Hasker

HOUSTON-GALVESTON AREA COUNCIL
PO Box 22777 • 3555 Timmons Ln. • Houston, Texas 77227-2777• 713/627-3200

June 29, 2010

Mr. Delvin Dennis, P.E.
Houston District Engineer
Texas Department of Transportation
P.O. Box 1386
Houston, Texas 77251-1386

Re: Transmittal of 2011-2014 Transportation Improvement Program (TIP)

Dear Mr. Dennis:

This letter transmits the 2011-2014 Transportation Improvement Program (TIP) for the Houston-Galveston Transportation Management Area. Attached in electronic format is a pdf version of the TIP including appendices. Also attached are required Excel format project lists and financial summary tables for roadway and transit.

The 2011-2014 TIP was adopted by the Transportation Policy Council at its June 25, 2010 meeting. The 2011-14 TIP is consistent with the currently conforming, fiscally constrained 2035 Regional Transportation Plan (RTP), the long range metropolitan transportation plan for the Houston-Galveston region.

This TIP does not reflect either the potential letting of some FY 2011 projects in FY 2010 nor a pending "exchange" of $7.1 million in Category 5 (CMAQ) FY 2010 letting authority from the Houston District to the Dallas District in exchange for $7.1 million in Cat 5 FY 2011 letting authority from the Dallas District to the Houston District. I anticipate addressing these matters, if necessary, through the normal TIP amendment process following STIP approval.

Thank you for your assistance. Please call me at (713) 993-4585 should you have any questions regarding this transmittal.

Sincerely,

Alan C. Clark
MPO Director

AC/lm

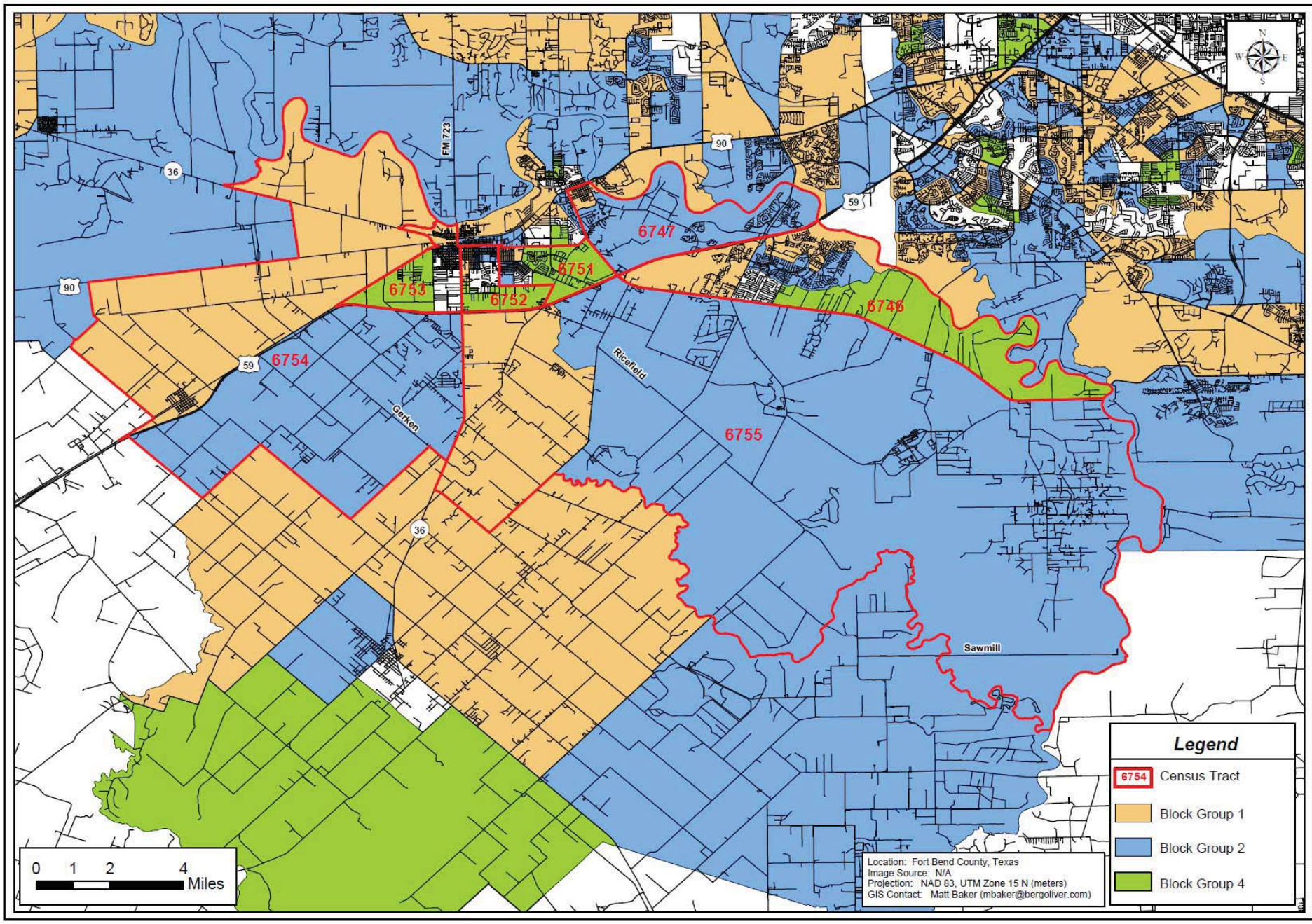
Cc: Mr. Jose Campos, FHWA
Mr. Jack Foster, TxDOT
Ms. Lori Morel, TxDOT
Ms. Karen Dunlap, TxDOT
Mr. Randy Redmond, TxDOT – Beaumont District
Mr. Phillip Lujan, TxDOT – Beaumont District
Mr. James Koch, TxDOT – Houston District
Mr. Rakesh Tripathi, TxDOT – Houston District

HOUSTON-GALVESTON MPO
2011-2014 TRANSPORTATION IMPROVEMENT PROGRAM
PROJECTS UNDERGOING ENVIRONMENTAL ASSESSMENT
TXDOT DISTRICT: HOUSTON

COUNTY MPO ID CSJ NUMBER	SPONSOR STREET FROM LIMIT TO LIMIT PROJECT DESCRIPTION	LENGTH FISCAL YEAR LATEST COST
FORT BEND 7053	CITY OF SUGAR LAND UNIVERSITY BLVD COMMONWEALTH BLVD SH 6 WIDEN TO 5-LANE & 6-LANE (PHASE 2)	4.1 2015 $5,808,657
FORT BEND 11196	CITY OF SUGAR LAND UNIVERSITY BLVD US 59 SH 6 WIDEN 4-LANE TO 6-LANE (PHASE 2)	2 2014 $2,904,328
FORT BEND 13803	CITY OF MISSOURI CITY UNIVERSITY BLVD SE CORNER OF BRAZOS LANDING SUBDIVISION OIL FIELD RD EXTEND 4-LANE ROADWAY	4.5 2014 $14,591,259
FORT BEND 6048 0027-12-097	TXDOT HOUSTON DISTRICT US 59 S W OF FM 2759 W OF FM 762 WIDEN TO 8 ML, FRONTAGE ROADS, ITS & TMS	3.58 2015 $89,406,219
FORT BEND 6049 0027-12-105	TXDOT HOUSTON DISTRICT US 59 S W OF SH 36 W OF FM 762 WIDEN TO 6-LANE RURAL FREEWAY, FRONTAGE ROADS, ITS & TMS WITH GRADE SEPARATION	3.75 2016 $66,400,000
FORT BEND 6050 0027-12-106	TXDOT HOUSTON DISTRICT US 59 S W OF SP 10 W OF SH 36 WIDEN TO 6-LANE RURAL FREEWAY, FRONTAGE ROADS, ITS & TMS	4.37 2016 $112,300,000
FORT BEND 9912 0027-12-114	TXDOT HOUSTON DISTRICT US 59 S W OF FM 762 W OF FM 2759 CONSTRUCT 2-WAY HOV LANES	3.58 2012 $8,100,000
FORT BEND 6051 0089-09-058	TXDOT HOUSTON DISTRICT US 59 S W OF SP 10 W OF HAMLINK RD WIDEN TO 6-MAIN LANES, GRADE SEPARATIONS, 2-LANE FRONTAGE ROADS, ITS & TMS	2 2016 $39,600,000
FORT BEND 6052 0089-09-065	TXDOT HOUSTON DISTRICT US 59 S W OF FM 360 W OF HAMLINK RD WIDEN TO 6 MAIN LANES, W/ 2-LANE FRONTAGE ROADS, GRADE SEPARATIONS, ITS & TMS	2.5 2017 $60,300,000

APPENDIX C: CENSUS TRACT, BLOCK GROUP, AND BLOCK BREAKDOWN

Census Tract, Block Group, and Block Breakdown		
Census Tract	**Block Groups**	**Census Blocks**
Census Tract 6746	Block Group 1	1031; 1032; 1039; 1041
Census Tract 6747	Block Group 2	2013; 2034
Census Tract 6751	Block Group 4	4021; 4023 ; 4026; 4027
Census Tract 6752	Block Group 4	4005 ; 4006
Census Tract 6753	Block Group 4	4012; 4020: 4021; 4022;4023; 4025
Census Tract 6754	Block Group 1	1034; 1060; 1061; 1062; 1063; 1064; 1065 : 1066; 1067
	Block Group 2	2000; 200 1; 2002; 2003: 2004: 2005; 2006; 2007; 2008 ; 2010; 2035; 2036; 2037; 2038: 2039; 2040; 2041
Census Tract 6755	Block Group 1	1000; 1001; 1002; 1003; 1004; 1006
	Block Group 2	2020; 2024; 2025



BLOCK GROUP AND CENSUS TRACT MAP

REVISIONS

© 2009

TEXAS DEPARTMENT OF TRANSPORTATION

Project #: 3979
For: TxDOT
Location: US 59 from Spur 10 to SH 99
Fort Bend County, Texas

APPENDIX D: FORM CPA-106 PRIME FARMLAND SOILS

USDA United States Department of Agriculture

Natural Resources Conservation Service

101 South Main
Temple, Texas
76501-7602

October 3, 2003

Michael Baker Jr., Inc.
16225 Park Ten Place, Suite 420
Houston, Texas 77084-5142

Attention: Jeff Wellman, Environmental Associate

Subject: LNU-Farmland Protection-
SH 59 Highway Improvements
Fort Bend County, Texas

We have reviewed the information provided concerning the proposed U S Highway 59 Improvements in Fort Bend County, Texas as outlined in your letter of September 15, 2003. This is part of a NEPA Environmental Evaluation for this project as required by the Federal Highway Administration (FWHA). We have reviewed the project as required by the Farmland Protection Policy Act (FPPA) and completed the CPA-106 form.

The proposed project does contain Important Farmland as defined by the FPPA and is subject to the Farmland Protection Policy Act (FPPA). We have rated the project using the acreage data in your letter and developed a relative value for the soils in the project area. The soil index in Part V is 77 and the total score in Part VII of the CPA-106 is 133. The FPPA states that sites with a score less than 160 will require no further consideration.

I have attached the completed CPA-106 (Farmland Conversion Impact Rating) form for this project. Thanks for the quality resource materials you submitted to evaluate this project. If you have any questions please call James Greenwade at (254)-742-9960 or Sam Brown at (254)-742-9854, Fax (254)-742-9859.

Thanks,

James M Greenwade

James M. Greenwade
Soil Scientist
Soil Survey Section
USDA-NRCS, Temple, Texas

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 9-15-03	4 Sheet 1 of 1
1. Name of Project US 59 (SH 99 to SPUR 10)	5. Federal Agency Involved Tx. Dept. of Transportation/Federal Highway Administration	
2. Type of Project Highway Expansion	6. County and State Fort Bend, TX	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 9-17-03	2. Person Completing Form James Greenwade
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☒ NO ☐		4. Acres Irrigated 17,039 / Average Farm Size 333
5. Major Crop(s) Grain Sorghum	6. Farmable Land in Government Jurisdiction Acres: 509,848 % 91	7. Amount of Farmland As Defined in FPPA Acres: 506,548 % 90
8. Name Of Land Evaluation System Used LESA	9. Name of Local Site Assessment System NONE	10. Date Land Evaluation Returned by NRCS 10-3-03

PART III *(To be completed by Federal Agency)*		Alternative Corridor For Segment			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		51			
B. Total Acres To Be Converted Indirectly, Or To Receive Services					
C. Total Acres In Corridor		51	0	0	0
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland		38			
B. Total Acres Statewide And Local Important Farmland		13			
C. Percentage Of Farmland in County Or Local Govt Unit To Be Converted		0.001			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		79			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*		77			
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	14			
2. Perimeter in Nonurban Use	10	9			
3. Percent Of Corridor Being Farmed	20	3			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	10			
6. Creation Of Nonfarmable Farmland	25	0			
7. Availablility Of Farm Support Services	5	5			
8. On-Farm Investments	20	15			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	0			
TOTAL CORRIDOR ASSESSMENT POINTS	160	56	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	77			
Total Corridor Assessment (From Part VI above or a local site assessment)	160	56	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	~~56~~ 133	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: | DATE

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

APPENDIX E: BIOLOGICAL RESOURCES TECHNICAL REPORT

Texas Department of Transportation

Biological Resources Technical Report

US 59 from Spur 10 to State Highway 99(FM 2759)

Fort Bend County, Texas

CSJ No. 0027-12-097, 0027-12-105, 0027-12-106, and 0027-12-114

PREPARED BY

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

AND

TEXAS DEPARTMENT OF TRANSPORTATION

March 2004
Revised January 2007

Introduction

The Texas Department of Transportation (TxDOT), Houston District is proposing to improve US 59 from SPUR 10 to SH 99 (or FM 2759) in Fort Bend County, Texas. The proposed project would widen the existing four-lane divided roadway to a six and eight-lane divided facility. The acquisition of new right-of-way (ROW) would be required to accommodate the new facility. To comply with environmental laws, regulations, presidential orders, and memorandums of agreement and understanding, this report will review the existing biological resources within the project area; and quantify the potential impacts to biological resources resulting from the proposed project. This report will include a review of the following:

- Vegetation and Habitat
- Wildlife
- Federal and State Threatened and Endangered Species
- General water features

Vegetation and Habitat

The proposed project area located southwest of Houston through the cities of Richmond and Rosenberg in Fort Bend County lies within the Gulf Coast Prairies and Marshes, Natural Region of Texas. The proposed project area extends between the Brazos River watershed to the east and the San Bernard River watershed to the west. Neither the Brazos nor the San Bernard Rivers are within the proposed project limits; however, they are both just beyond the termini of the project. Prior to settlement, the bottomland hardwood forests associated with these two rivers extended into much of the project area.

Still present along the bottomlands of the Brazos and San Bernard Rivers through this portion of the state is the vegetation type noted as Pecan-Elm Forests. Due to previous disturbances and severe fragmentation, the Pecan-Elm Forest and the associated species are seen as limited riparian zones along the Brazos and San Bernard Rivers and their tributaries or in small fragmented stands across the landscape between the two rivers.

Much of this area was converted to agricultural production with settlement. Over time farming has been the primary land use beyond the city limits of Richmond and Rosenberg, Texas. Types of farming include but are not limited to row cropping and cover crops for grazing and yielding hay etc. for livestock. Additionally pecan plantations and fruit orchards have been managed in the areas to the north and south of the project location. Ranching and raising livestock has been conducted in conjunction with farming. “The Vegetation Types of Texas”, published by Texas Parks and Wildlife, 1984, depicts the area associated with the project as cropland vegetation (noted as type 44). The commonly associated plants are cover and row crops. This vegetation type may also include grasslands associated with crop rotations. Even though the Pecan-Elm Forest is not described as a vegetation type within the project limits, it is depicted as vegetation type (number 38 in the Vegetation Types of Texas, 1984) to the east along the Brazos River, and in fragmented stands interspersed to the west and along the San Bernard River to west as well.

With the expansion and growth of the cities of Houston, Richmond, and Rosenberg, the current land use along the project corridor consists of approximately 31% agricultural land, 53%

undeveloped land, 14% maintained urban land, and 2% bottomland vegetation. The vegetation observed throughout the project is a combination of types respective of land use including croplands, as listed in the Vegetation Types of Texas. The undeveloped land consisted of both wooded areas and open areas. The more urbanized and disturbed areas consisted of a mix of ornamentals, cultivated native species, introduced species, and invasive species.

Vegetation and habitat features within the project limits were identified in accordance with the TxDOT – Texas Parks and Wildlife (TPWD) Memorandum of Agreement (MOA), along with any potential impacts associated with the implementation of the Build Alternative. Observed vegetation in and adjacent to the proposed project area is shown in photos located in Appendix A – Site Photos. A series of aerial photographs depicting the right of way (ROW) boundaries and areas of vegetation situated within the project limits is located in Appendix B – Vegetation Distribution.

Undeveloped areas consisted of both wooded and open areas. The open areas consisted of few to no trees and included more shrubs and herbaceous vegetation. Wooded areas consisted of an overstory and understory, and as expected included less herbaceous vegetation. In addition, present four vegetation communities were noted and described as follows. Table I-1 identifies and describes un-maintained open vegetation areas along the project corridor. Un-maintained wooded vegetation areas along the project corridor are listed in Table I-2. Table I-3 identifies and describes fence line vegetation along the project corridor. Riparian vegetation consisting of bottomland hardwoods is present along the project corridor in various locations. Their locations, descriptions, and impacts resulting from the implementation of the Build Alternative are listed in Table I-4.

Vegetation within islands/stands is present along the project corridor, with their locations, descriptions, and impacts resulting from the implementation of the Build Alternative listed in Table I-5. Water bodies noted along the project corridor consist of one landscaping pond and several streams. The locations of these water bodies along with their descriptions, and any potential impacts resulting from the implementation of the Build Alternative are listed in Table I-6. Trees unusually larger than other trees in the area were noted along the project corridor. Table I-7 lists the tree locations, descriptions, and impacts resulting from the implementation of Build Alternative.

Aquatic habitats do occur but are primarily associated with seasonal streams, impoundments, and low depression areas.

According to the TxDOT/TPWD MOA, the following areas should be considered for compensatory mitigation:

- Habitat for Federal candidate species
- Rare vegetation series
- Unusual or special habitat features

- Bottomland hardwood, native prairie, and riparian areas
- Locally important habitat

Mitigation for impacts has not been offered because the vegetation impacted by the proposed project is not classified as one of the above listed special habitats to be considered for compensatory mitigation (per MOA). Even though individual species of a coastal prairie may be observed, the area in general is severely disturbed. Excluding the salt marsh, the predominant vegetation which would be impacted as a result of this project is noted as invasive, opportunistic vegetation situated in a maintained, TxDOT ROW.

Table I-1: Un-maintained Open Vegetation Areas Along The Project

Location	Dominant Vegetation
From 0.45 mile to 0.69 mile east of Kroeshe Road along the north US 59 ROW.	Common sunflower (Helianthus annuus), Schaffner acacia (Acacia schaffnerii) saplings, goldenrod (Solidago sp.), Drummond's rattle bush (Sesbania drummondii), wooly croton (Croton capitatus), naked spike ragweed (Ambrosia psilostachya), Rhodes grass (Chloris gayana), Bermuda grass (Cynodon dactylon), frog fruit (Phyla incisa), Johnson grass (Sorghum halepense).
From 0.03 mile to 0.17 mile east of Walsh Road along the north US 59 ROW.	Chinese tallow (Sapium sebiferum), sugarberry (Celtis laevigata), Schaffner acacia saplings, goldenrod, Drummond's rattle bush, wooly croton, naked spike ragweed, Rhodes grass, Bermuda grass, frog fruit, Johnson grass.
From 0.69 mile to 0.85 mile east of Walsh Road along the north US 59 ROW.	Sugarberry, Chinese tallow, Schaffner acacia saplings, gum bumelia (Bumelia lanuginosa), green ash (Fraxinus pennsylvanica), overstory saplings, Chinese privet (Ligustrum sinense), goldenrod, Drummond's rattle bush, wooly croton, naked spike ragweed, Rhodes grass, Bermuda grass, frog fruit.
From 0.24 mile to 0.45 mile east of SH 36 along the north US 59 ROW.	Chinese tallow, gum bumelia, Schaffner acacia saplings, goldenrod, Drummond's rattle bush, wooly croton, naked spike ragweed, Rhodes grass, Bermuda grass, frog fruit, Johnson grass, purple passion flower (Passiflora edulis), pepper vine (Ampelopsis arborea).
From 0.45 mile to 0.89 mile east of SH 36 along the north US 59 ROW.	Chinese tallow saplings, Schaffner acacia saplings, goldenrod, Drummond's rattle bush, wooly croton, naked spike ragweed, Rhodes grass, Bermuda grass, frog fruit.
From 0.56 mile to 0.62 mile east of Hartledge Road along the south US 59 ROW.	Yaupon (Ilex vomitoria), Eastern false willow (Baccharis halimfolia), Rhodes grass, naked spike ragweed, goldenrod, Chinese tallow saplings, Bermuda grass, parsley hawthorn (Crataegus marshallii), Kleberg bluestem (Dichanthium annulatum), knotroot bristlegrass (Setaria geniculata), sensitive briar (Schrankia uncinata).
From 0.11 mile to 0.16 mile east of Tom Grey Road along the south US 59 ROW.	Schaffner acacia saplings, Chinese tallow saplings, goldenrod, giant ragweed (Ambrosia trifida), Lindheimer's guara (Guara lindheimeri), Johnson grass, Bermuda grass.

Table I-2 identifies and describes un-maintained wooded vegetation areas along the project and impacts associated with the implementation of the Build Alternative.

Table I-2: Un-maintained Wooded Vegetation Areas Along The Project

Location	Dominant Overstory	Dominant Understory	Overstory			Trees per Acre*
			Height (ft.)	dbh (in.)	Canopy Cover (%)	
From 0.52 mile to 0.9 mile east of Cottonwood Church Road along the north US 59 ROW.	Approx. 80% Schaffner acacia (Acacia schaffnerii) and 20% sugarberry (Celtis laevigata).	Overstory saplings, naked spike ragweed (Ambrosia psilostachya), pepper vine (Ampelopsis arborea), grapes (Vitis sp.), frog fruit (Phyla incisa), Johnson grass (Sorghum halepense), Rhodes grass (Chloris gayana), Bermuda grass, sensitive briar (Schrankia uncinata), silver bluestem (Bothriochloa saccharoides var. torreyana).	10 to 40 Avg. 20	2 to 6 Avg. 4	30	545
From 0.53 mile to 0.69 mile east of Walsh Road along the north US 59 ROW.	Approx. 70% Schaffner acacia, 20% sugarberry, and 10% Chinese tallow (Sapium sebiferum).	Overstory saplings, Japanese honeysuckle (Lonicera japonica), poison ivy (Toxicodendron radicans), Rhodes grass, pepper vine, Bermuda grass, Hercules club (Zanthoxylum clava-herculis) saplings, wooly croton (Croton capitatus), gum bumelia (Bumelia lanuginosa) saplings, bahiagrass (Paspalum notatum).	12 to 30 Avg. 20	2 to 10 Avg. 4	20	109
From 0.85 mile to 0.88 mile east of Walsh Road along the north US 59 ROW.	Approx. 50% Chinese tallow and 50% sugarberry.	Overstory saplings, Chinese privet (Ligustrum sinense), goldenrod (Solidago sp.), giant ragweed (Ambrosia trifida), Bermuda grass, Johnson grass, pepper vine, cedar elm (Ulmus crassifolia) saplings.	15 to 40 Avg. 25	2 to 12 Avg. 6	40	327
From 0.17 mile to 0.36 mile east of Tom Gray Road along the north US 59 ROW.	Approx. 80% pecan (Carya illinoensis), 10% sugarberry, and 10% Chinese tallow.	Overstory saplings, giant ragweed, Schaffner acacia, common greenbrier (Smilax rotundifolia), saw-tooth greenbrier (Smilax bona-nox), poison ivy, gum bumelia, goldenrod, Bermuda grass, bahiagrass, Rhodes grass.	10 to 40 Avg. 30	2 to 10 Avg. 4	10	109

Location	Dominant Overstory	Dominant Understory	Overstory			Trees per Acre*
			Height (ft.)	dbh (in.)	Canopy Cover (%)	
From 0.82 mile to 0.91 mile east of FM 2218 along the north US 59 ROW.	Approx. 50% Chinese tallow and 50% sugarberry.	Overstory saplings, Eastern false willow (Baccharis halimifolia), yaupon (Ilex vomitoria), naked spike ragweed (Ambrosia psilostachya), goldenrod, Rhodes grass, dallis grass (Paspalum dilatatum), Johnson grass, Kleberg bluestem (Dichanthium annulatum).	12 to 25 Avg. 20	2 to 6 Avg. 4	> 10	109
From 0.93 mile to 1.28 miles east of FM 762 along the north US 59 ROW.	Approx. 70% pecan, 10% sugarberry, 10% parsley hawthorn (Crataegus marshallii), and less than 10% cedar elm, soapberry (Sapindus saponaria), and green ash (Fraxinus pennsylvanica).	Overstory saplings, frog fruit, yaupon, grapes, common greenbrier, deciduous holly (Ilex decidua), Virginia wild rye (Elymus virginicus), pepper vine, trumpet vine (Campsis radicans), giant ragweed, Johnson grass, Bermuda grass.	10 to 60 Avg. 30	2 to 30 Avg. 6	40	654
From 0.12 mile to 0.16 mile east of Hartledge Road along the south US 59 ROW.	Approx. 80% sugarberry and 20% Schaffner acacia.	Overstory saplings, giant ragweed, goldenrod, Johnson grass, Rhodes grass, Bermuda grass.	10 to 15 Avg. 15	2 to 4 Avg. 2	>10	109
From 0.8 mile to 0.88 mile east of Hartledge Road along the south US 59 ROW.	Approx. 30% Chinese tallow, 30% sugarberry, 20% green ash, and 20% pecan.	Overstory saplings, giant ragweed, trumpet vine, Chinese privet, common greenbrier, saw-tooth greenbrier, glossy privet (Ligustrum lucidum), grapes.	10 to 30 Avg. 20	2 to 12 Avg. 4	20	436
From 0.26 mile to 0.56 mile east of Cottonwood Church Road along the south US 59 ROW.	Approx. 100% Schaffner acacia.	Overstory saplings, pepper vine, grapes, frog fruit, wooly croton, morning glory (Ipomoea sp.), knotroot bristlegrass (Setaria geniculata), Rhodes grass, Bermuda grass, Kleberg bluestem (Dichanthium annulatum), sandbur (Cenchrus insertus).	10 to 20 Avg. 15	2 to 6 Avg. 2	10	109
From 0.62 mile to 0.91 mile east of Cottonwood Church Road along the south US 59 ROW.	Approx. 60% Schaffner acacia, 30% sugarberry, and 10% Chinese tallow.	Overstory saplings, Japanese honeysuckle, knotroot bristlegrass, Kleberg bluestem, frog fruit, Rhodes grass, yaupon, grapes.	10 to 35 Avg. 20	2 to 6 Avg. 4	30	654
From 0.3 mile to 0.71 mile east of SH 36 along the south US 59 ROW.	Approx. 40% sugarberry, 30% cedar elm, 20% live oak (Quercus virginiana), and 10% green ash.	Overstory saplings, Chinese privet, poison ivy, Schaffner acacia, common greenbrier, Eastern false willow, goldenrod, Johnson grass, Bermuda grass, giant ragweed, Chinaberry (Melia azedarach) saplings.	10 to 40 Avg. 30	2 to 14 Avg. 6	20	218

Location	Dominant Overstory	Dominant Understory	Overstory			Trees per Acre*
			Height (ft.)	dbh (in.)	Canopy Cover (%)	
From 0.16 mile to 0.27 mile east of Tom Gray Road along the south US 59 ROW.	Approx. 80% Chinese tallow, 10% Schaffner acacia, 10% Chinaberry.	Overstory saplings, goldenrod, Chinese privet, pepper vine, poison ivy, Eastern false willow, Lindheimer's guara (Guara lindheimeri), Johnson grass, Kleberg bluestem, sensitive briar (Schrankia uncinata).	10 to 40 Avg. 25	2 to 12 Avg. 6	40	109
From 1 mile to 1.02 miles east of FM 2218 along the south US 59 ROW.	Approx. 80% sugarberry and 20% Schaffner acacia.	Overstory saplings, Eastern false willow, pepper vine, poison ivy, bahiagrass, Rhodes grass, Kleberg bluestem.	10 to 30 Avg. 20	2 to 8 Avg. 4	>10	109
From 1.06 miles to 1.16 miles east of FM 2218 along the south US 59 ROW.	Approx 90% sugarberry and 10% cedar elm.	Overstory saplings, yaupon, pepper vine, Eastern false willow, giant ragweed, goldenrod, Macartney rose (Rosa bracteata), bahiagrass, frog fruit, sensitive briar, Lindheimer's guara, poison ivy, glossy privet, Schaffner acacia.	10 to 40 Avg. 30	2 to 10 Avg. 6	20	109
From 1.34 miles to 1.37 miles east of FM 2218 along the south US 59 ROW.	Approx. 90% sugarberry and 10% Chinaberry.	Overstory saplings, giant ragweed, goldenrod, poison ivy, Johnson grass.	15 to 40 Avg. 30	2 to 12 Avg. 6	10	109
From 0.16 mile to 0.27 mile east of Reading Road along the south US 59 ROW.	Approx. 90% sugarberry and 10% Chinaberry.	Overstory saplings, Lindheimer's guara, Eastern false willow, pepper vine, poison ivy, naked spike ragweed, Chinese privet, Macartney rose, Johnson grass, bahiagrass, Drummond's rattle bush, Schaffner acacia saplings, yaupon, goldenrod.	10 to 40 Avg. 30	2 to 12 Avg. 6	30	109
From 0.31 mile to 0.64 mile east of Reading Road along the south US 59 ROW.	Approx. 90% Schaffner acacia and 10% sugarberry.	Overstory saplings, Lindheimer's guara, Eastern false willow, pepper vine, poison ivy, naked spike ragweed, Chinese privet, Macartney rose, Johnson grass, bahiagrass, Drummond's rattle bush, Schaffner acacia saplings, yaupon, goldenrod.	10 to 40 Avg. 30	2 to 12 Avg. 6	20	55

Location	Dominant Overstory	Dominant Understory	Overstory			Trees per Acre*
			Height (ft.)	dbh (in.)	Canopy Cover (%)	
From 1.05 miles to 1.33 miles east of FM 762 along the south US 59 ROW.	Approx. 60% pecan, 30% sugarberry, and less than 10% box elder (Acer negundo) and green ash.	Overstory saplings, red mulberry (Morus rubra) saplings, sugarberry saplings, parsley hawthorn saplings, yaupon, poison ivy, Virginia creeper (Parthenocissus quinquefolia), pepper vine, grapes, Alabama supplejack (Berchemia scandens), giant ragweed, Johnson grass, frog fruit, dallis grass, common greenbrier, saw-tooth greenbrier, knot root bristlegrass, yellow passion flower (Passiflora lutea), Cherokee sedge (Carex cherokeensis).	15 to 60 Avg. 40	2 to 48 Avg. 10	40	218
From 1.67 miles to 1.82 miles east of FM 762 along the south US 59 ROW.	Approx. 60% sugarberry, 20% cedar elm, 10% box elder, and 10% pecan.	Overstory saplings, yaupon, rough-leaf dogwood (Cornus drummondii) saplings, Chinese privet, poison ivy, deciduous holly, parsley hawthorn, knotroot bristlegrass, Johnson grass, Rhodes grass.	15 to 40 Avg. 20	2 to 10 Avg. 4	30	327
From 1.82 miles to 1.91 miles east of FM 762 along the south US 59 ROW.	Approx. 50% cedar elm. 30% sugarberry, 10% pecan, and less than 10% gum bumelia and box elder.	Overstory saplings, Chinese privet, yaupon, knotroot bristlegrass, Johnson grass, Rhodes grass.	15 to 40 Avg. 20	2 to 10 Avg. 4	20	108
From 1.97 miles to 2.1 miles east of FM 762 along the south US 59 ROW.	Approx. 80% sugarberry, 10% cedar elm, and 10% pecan.	Overstory saplings, Chinese privet, yaupon, knotroot bristlegrass, Johnson grass, Rhodes grass.	10 to 40 Avg. 30	2 to 12 Avg. 6	30	216
						Total 4,848

Table I-3 identifies and describes fence line vegetation along the project, and impacts associated with the implementation of the Build Alternative.

Table I-3: Fence Line Vegetation Along The Project

Location	Dominant Overstory	Dominant Understory	Overstory			Impacted Trees*
			Height (ft.)	dbh (in.)	Canopy Cover (%)	
From 0 mile to 1.24 miles east of Hartledge Road along the north US 59 ROW.	Approx. 50% sugarberry (Celtis laevigata), 20% cedar elm (Ulmus crassifolia), 10% Chinese tallow (Sapium sebiferum), 10% gum bumelia (Bumelia lanuginosa), and 10% Schaffner acacia (Acacia schaffnerii).	Eastern false willow (Baccharis halimifolia), Drummond's rattle bush (Sesbania drummondii), goldenrod (Solidago sp.), giant ragweed (Ambrosia trifida), naked spike ragweed (Ambrosia psilostachya), Bermuda grass (Cynodon dactylon), common sunflower (Helianthus annuus), pepper vine (Ampelopsis arborea), rough-leaf dogwood (Cornus drummondii).	10 to 40 Avg. 20	2 to 14 Avg. 6	<10	330
From 0.03 mile to 0.17 mile east of Walsh Road along the north US 59 ROW.	Approx 90% Chinese tallow and 10% sugarberry.	Common sunflower, Schaffner acacia, goldenrod, Drummond's rattle bush, wooly croton (Croton capitatus), naked spike ragweed, Rhodes grass (Chloris gayana), Bermuda grass, frog fruit, Johnson grass (Sorghum halepense).	12 to 30 Avg. 15	2 to 8 Avg. 4	< 10	17
From 0.69 mile to 0.85 mile east of Walsh Road along the north US 59 ROW.	Approx. 50% sugarberry, 30% Chinese tallow, 10% Schaffner acacia, and <10% gum bumelia and green ash (Fraxinus pennsylvanica).	Overstory saplings, Chinese privet (Ligustrum sinense), goldenrod, Drummond's rattle bush, wooly croton, naked spike ragweed, Rhodes grass, Bermuda grass, frog fruit.	10 to 30 Avg. 20	2 to 12 Avg. 4	<10	50
From 1.25 miles to 1.26 miles east of SH 36 along the north US 59 ROW.	Approx. 100% Chinese tallow.	Overstory saplings, Eastern false willow, goldenrod, Schaffner acacia saplings, trumpet vine (Campsis radicans), Kleberg bluestem (Dichanthium annulatum).	12 to 20 Avg. 15	2 to 4 Avg. 2	<10	4
From 1.43 miles to 1.44 miles east of SH 36 along the north US 59 ROW.	Approx. 100% sugarberry.	Overstory saplings, yaupon, Rhodes grass, giant ragweed.	12 to 30 Avg. 20	2 to 12 Avg. 6	20	6
From 0.17 mile to 0.22 mile east of Tom Grey Road along the north US 59 ROW.	Approx. 70% Chinese tallow, 20% sugarberry, and 10% Schaffner acacia.	Overstory saplings, goldenrod, barnyard grass (Echinochloa crusgalli).	12 to 25 Avg. 15	2 to 8 Avg. 4	<10	9
From 0.59 mile to 0.6 mile east of FM 2218 along the north US 59 ROW.	Approx. 100% sugarberry.	Overstory saplings, Macartney rose, Johnson grass, Bermuda grass, Kleberg bluestem.	30 Avg. 30	10 Avg. 10	<10	2

Location	Dominant Overstory	Dominant Understory	Overstory			Impacted Trees*
			Height (ft.)	dbh (in.)	Canopy Cover (%)	
From 0.6 mile to 0.82 mile east of FM 2218 along the north US 59 ROW.	Approx. 100% pecan (Carya ilinoensis).	Overstory saplings, wooly croton, trumpet vine, deciduous holly, pepper vine, giant ragweed, poison ivy, saw-tooth greenbrier, Eastern false willow, knotroot bristlegrass, jungle rice (Echinochloa colona), Bermuda grass, frog fruit, yaupon.	10 to 20 Avg. 12	2 to 4 Avg. 2	>10	75
From 1.28 miles to 1.7 miles east of FM 762 along the north US 59 ROW.	Approx. 90% sugarberry, ad less than 10% cedar elm and gum bumelia.	Overstory saplings, trumpet vine, deciduous holly, pepper vine, giant ragweed, poison ivy, saw-tooth greenbrier, Eastern false willow, knotroot bristlegrass, jungle rice, Bermuda grass, frog fruit, yaupon.	5 to 50 Avg. 30	2 to 10 Avg. 4	30	330
From 1.7 miles to 1.83 miles east of FM 762 along the north US 59 ROW.	Approx. 45% sugarberry, 45% cedar elm, and less than 10% gum bumelia, pecan, Schaffner acacia, and back willow (Salix nigra).	Overstory saplings, wooly croton, trumpet vine, deciduous holly, pepper vine, giant ragweed, poison ivy, saw-tooth greenbrier, Eastern false willow, knotroot bristlegrass, jungle rice, Bermuda grass, frog fruit, yaupon.	5 to 40 Avg. 25	2 to 6 Avg. 4	>10	23
From 1.83 miles to 2.01 miles east of FM 762 along the north US 59 ROW.	Approx. 50% sugarberry, 20% gum bumelia, 20% parsley hawthorn (Crataegus marshallii), and 10% cedar elm.	Overstory saplings, poison ivy, goldenrod, giant ragweed, Bermuda grass, dallis grass, Johnson grass.	5 to 40 Avg. 30	2 to 10 Avg. 4	>10	510
From 0.56 mile to 1.02 miles east of SW along the north US 59 ROW.	Approx. 40% cedar elm, 20% gum bumelia, 20% parsley hawthorn, 10% sugarberry, and 10% necklace tree (Sophora affinis).	Overstory saplings, Carolina coral beads (Cocculus carolinus), Virginia creeper, deciduous holly, common greenbrier, goldenrod, giant ragweed, Johnson grass, dallis grass, Bermuda grass.	5 to 50 Avg. 30	2 to 6 Avg. 2	20	120
From 0 mile to 0.16 mile east of Hartledge Road along the south US 59 ROW.	Approx. 100% sugarberry.	Overstory saplings, giant ragweed, goldenrod, Johnson grass, Rhodes grass, Bermuda grass.	10 to 20 Avg. 15	2 to 6 Avg. 2	>10	30
From 0.03 mile to 0.07 mile east of Cottonwood School Road along the south US 59 ROW.	Approx. 100% Schaffner acacia.	Overstory saplings, Johnson grass, naked spike ragweed.	15 to 30 Avg. 20	4 to 6 Avg. 6	10	6
From 0.72 mile to 0.76 mile east of SH 36 along the south US 59 ROW.	Approx. 60% sugarberry, 30% river birch (Betula nigra), 5% water oak (Quercus nigra), and 5% Chinese tallow.	Overstory saplings, goldenrod, Eastern false willow, Chinese privet, Schaffner acacia.	10 to 40 Avg. 30	2 to 16 Avg. 6	>10	36

Location	Dominant Overstory	Dominant Understory	Overstory			Impacted Trees*
			Height (ft.)	dbh (in.)	Canopy Cover (%)	
From 0.16 mile to 0.23 mile east of FM 2218 along the south US 59 ROW.	Approx. 60% sugarberry and 40% pecan.	Overstory saplings, goldenrod, pepper vine, Johnson grass, Bermuda grass.	10 to 25 Avg. 15	2 to 6 Avg. 4	>10	10
From 0.8 mile to 0.83 mile east of FM 2218 along the south US 59 ROW.	Approx. 100% sugarberry.	Overstory saplings, Lindheimer's guara, Eastern false willow, pepper vine, Macartney rose, Brazilian vervain (Verbena brasiliensis), Johnson grass, yaupon.	15 to 30 Avg. 20	2 to 8 Avg. 6	>10	6
From 0.9 mile to 1.05 miles east of FM 762 along the south US 59 ROW.	Approx. 90% sugarberry and 10% pecan.	Overstory saplings, yaupon, grapes, frog fruit, Johnson grass, Kleberg bluestem, morning glory, bahiagrass, pepper vine, Bermuda grass, grapes, poison ivy.	10 to 30 Avg. 15	2 to 8 Avg. 4	>10	52
From 1.33 miles to 1.67 miles east of FM 762 along the south US 59 ROW.	Approx. 90% sugarberry and 10% pecan.	Overstory saplings, poison ivy, giant ragweed, snow on the mountain (Euphorbia marginata).	10 to 40 Avg. 20	2 to 12 Avg. 4	10	270
From 0.04 mile to 0.07 mile east of SW along the south US 59 ROW.	Approx. 100% sugarberry.	Overstory saplings, poison ivy, giant ragweed, gum bumelia saplings, Schaffner acacia saplings, grapes.	15 and 30 NA	4 and 8 NA	>10	2
From 0.2 mile to 0.51 mile east of SW along the south US 59 ROW.	Approx. 100% sugarberry.	Overstory saplings, giant ragweed, privet, yaupon, knotroot bristlegrass, Johnson grass, and Rhodes grass.	10 to 30 Avg. 20	2 to 6 Avg. 4	>10	160
From 0.7 mile to 0.9 mile east of SW along the south US 59 ROW.	Approx. 70% sugarberry, 10% cedar elm, 10% pecan, and less than 10% Schaffner acacia and box elder.	Overstory saplings, trumpet vine, privet, yaupon, knotroot bristlegrass, Johnson grass, and Rhodes grass.	15 to 40 Avg. 20	2 to 10 Avg. 4	>10	50
						Total 2,098

** - Approximate*
NA – Not Applicable

Riparian vegetation consisting of bottomland hardwoods is present along the project. Their locations, descriptions, and impacts resulting from the implementation of the Build Alternative are listed in the following table:

Table I-4: Riparian Vegetation Areas Along The Project

Location and Water Body	Dominant Overstory	Dominant Understory	Overstory			Trees per Acre*	Impacts (Acre)*
			Height (ft.)	dbh (in.)	Canopy Cover (%)		
From 0.21 mile to 0.23 mile east of Hartledge Road along the north US 59 ROW.	NA	Alligator weed (Alternanthera philoxeroides), swamp smartweed (Polygonum hydropiperoides), curly dock (Rumex crispus)	NA	NA	NA	NA	0
From 0.11 mile to 0.12 mile east of Cottonwood School Road along the north US 59 ROW.	NA	Bermuda grass (Cynodon dactylon), Kleberg bluestem (Dichanthium annulatum), False Rhodes-grass (Chloris crinita), Johnson grass (Sorghum halepense)	NA	NA	NA	NA	0
From 0.3 mile to 0.31 mile east of SH 36 along the north US 59 ROW.	Gum bumelia (Bumelia lanuginosa), live oak (Quercus virginiana).	Overstory saplings, pepper vine (Ampelopsis arborea), Virginia creeper (Parthenocissus quinquefolia), Japanese honeysuckle (Lonicera japonica), Southern dewberry (Rubus trivialis).	10 to 30 Avg. 20	2 to 12 Avg. 12	>10	109	0
From 0.26 mile to 0.27 mile east of FM 2218 along the north US 59 ROW.	NA	Bermuda grass, Kleberg bluestem, silver bluestem (Bothriochloa saccharoides var. torreyana).	NA	NA	NA	NA	0
From 0.35 mile to 0.39 mile east of FM 762 along the north US 59 ROW.	NA	Bermuda grass.	NA	NA	NA	NA	0.37
From 0.98 mile to 0.99 mile east of FM 762 along the north US 59 ROW.	Approx. 70% pecan, 10% sugarberry, 10% parsley hawthorn (Crataegus marshallii), and less than 10% cedar elm, soapberry (Sapindus saponaria), and green ash (Fraxinus pennsylvanica)	Overstory saplings, frog fruit (Phyla incisa), yaupon (Ilex vomitoria), grapes (Vitis sp.), common greenbrier (Ilex rotundifolia), deciduous holly (Ilex decidua), Virginia wild rye (Elymus virginicus), pepper vine, trumpet vine (Campsis radicans), giant ragweed (Ambrosia trifida), Bermuda grass.	10 to 40 Avg. 30	2 to 10 Avg. 4	40	654	0.06
From 0.17 mile to 0.2 mile east of Hartledge Road along the south US 59 ROW.	NA	Jungle rice (Echinochloa colona), Rhodes grass (Chloris gayana), Bermuda grass, frog fruit, Johnson grass.	NA	NA	NA	NA	0

Location and Water Body	Dominant Overstory	Dominant Understory	Overstory			Trees per Acre*	Impacts (Acre)*
			Height (ft.)	dbh (in.)	Canopy Cover (%)		
From 0.11 mile to 0.12 mile east of Cottonwood School Road along the south US 59 ROW.	NA	Kleberg bluestem, False Rhodes-grass, Johnson grass	NA	NA	NA	NA	0.08
From 0.27 mile to 0.32 mile east of SH 36 along the south US 59 ROW.	NA	Frog fruit, sand spikerush (Eleocharis montevidensis), Jungle rice, St. Augustine grass (Stenotaphrum secundatum), oppositeleaf spotflower (Acmella oppositifolia)	NA	NA	NA	NA	0
From 0.1 mile to 0.12 mile east of Tom Grey Road along the south US 59 ROW.	NA	Johnson grass, goldenrod (Solidago sp.), Chinese privet (Ligustrum sinense).	NA	NA	NA	NA	0
From 0.24 mile to 0.26 mile east of FM 2218 along the south US 59 ROW.	NA	Alligator weed, Longtom (Paspalum lividum), swamp smartweed, club-head cutgrass (Leersia hexandra)	NA	NA	NA	NA	0
From 0.15 mile to 0.17 mile east of Reading Road along the south US 59 ROW.	NA	Johnson grass, Bermuda grass, naked spike ragweed (Ambrosia psilostachya). See wetland data forms	NA	NA	NA	NA	0
From 0.27 mile to 0.31 mile east of Reading Road along the south US 59 ROW.	NA	oppositeleaf spotflower, green flatsedge (Cyperus virens), sand spikerush, grass-leaf arrowhead (Sagittaria graminea)	NA	NA	NA	NA	0
From 0.37 mile to 0.41 mile east of FM 762 along the south US 59 ROW.	NA	Johnson grass, Jungle rice	NA	NA	NA	NA	0.44
From 0.96 mile to 0.98 mile east of FM 762 along the south US 59 ROW.	NA	Pecan saplings, pepper vine, Johnson grass, Bermuda grass, sensitive briar (Schrankia uncinata).	NA	NA	NA	NA	0.10
From 1.57 miles to 1.61 miles east of FM 762 along the south US 59 ROW.	NA	smartweed sp., Jointed flatsedge (Cyperus articulatus, Black willow (Salix nigra), green flatsedge, upright burrhead (Echinodorus berteroi)	NA	NA	NA	NA	0.18
							Total 1.23
* Approximate							

Vegetation within islands/stands is present along the project. Their locations, descriptions, and impacts resulting from the implementation of the Build Alternative are listed in the following table:

Table I-5: Vegetation Islands/Stands Along The Project

Location	Dominant Overstory	Dominant Understory	Overstory			Trees per Acre*	Impacts (Acre)*
			Height (ft.)	dbh (in.)	Canopy Cover (%)		
From 1.16 miles to 1.18 miles east of SW along the north US 59 ROW.	100% sugarberry	Overstory saplings, goldenrod (Solidago sp.), Johnson grass (Sorghum halepense), Bermuda grass (Cynodon dactylon), and silver bluestem (Bothriochloa saccharoides var. torreyana).	12 to 25 Avg. 15	2 to 12 Avg. 6	20	218	0
From 1.59 miles to 1.62 miles east of SW along the north US 59 ROW.	Approx. 90% sugarberry and 10% cedar elm.	Overstory saplings, coral berry (Symphoricarpos orbiculatus), grapes (Vitis sp.), giant ragweed (Ambrosia trifida), goldenrod (Solidago sp.), trumpet vine (Campsis radicans), dallis grass (Paspalum dilatatum), Johnson grass, and Bermuda grass.	25 to 30 Avg. 30	2 to 12 Avg. 6	40	327	0
From 0.12 mile to 0.16 mile east of Hartledge Road along the south US 59 ROW.	Approx. 80% sugarberry and 20% Schaffner acacia.	Overstory saplings, giant ragweed, goldenrod, Johnson grass, Rhodes grass (Chloris gayana), Bermuda grass.	10 to 15 Avg. 15	2 to 4 Avg. 2	>10	109	0
From 0.16 mile to 0.19 mile east of Cottonwood School Road along the south US 59 ROW.	Approx. 90% Chinese tallow and 10% sugarberry.	Overstory saplings, Schaffner acacia, parsley hawthorn (Crataegus marshallii), soapberry (Sapindus saponaria) saplings, and mowed grass.	10 to 40 Avg. 30	2 to 12 Avg. 6	20	327	0.13
From 0.3 mile to 0.71 mile east of SH 36 along the south US 59 ROW.	Approx. 40% sugarberry, 30% cedar elm, 20% live oak (Quercus virginiana), and 10% green ash.	Overstory saplings, Chinese privet (Ligustrum sinense), poison ivy (Toxicodendron radicans), Schaffner acacia, common greenbrier (Smilax rotundifolia), Eastern false willow (Baccharis halimifolia), goldenrod, Johnson grass, Bermuda grass, giant ragweed, Chinaberry (Melia azedarach) saplings.	10 to 40 Avg. 30	2 to 14 Avg. 6	20	218	0
							Total 0.13

* Approximate

One landscaping pond and several streams are present along the project. The locations, descriptions, and impacts resulting from the implementation of the Build Alternative are listed in the following table:

Table I-6: Water Bodies Along The Project

Location	Description	Impacts (Yes or No)
From 0.21 mile to 0.23 mile east of Hartledge Road along the north US 59 ROW.	Coon Creek	To be Determined

Table I-6: Water Bodies Along The Project

Location	Description	Impacts (Yes or No)
From 0.11 mile to 0.12 mile east of Cottonwood School Road along the north US 59 ROW.	Seabourne Creek	To be Determined
From 0.3 mile to 0.31 mile east of SH 36 along the north US 59 ROW.	Intermittent tributary to Seabourne Creek	To be Determined
From 0.26 mile to 0.27 mile east of FM 2218 along the north US 59 ROW.	Dry Creek	To be Determined
From 0.35 mile to 0.39 mile east of FM 762 along the north US 59 ROW.	Rabbs Bayou	To be Determined
From 0.98 mile to 0.99 mile east of FM 762 along the north US 59 ROW.	Manmade landscaping pond located approximately 30 feet north of the existing ROW. No new ROW is proposed in this area.	To be Determined
From 0.1 mile to 0.12 mile east of Tom Grey Road along the south US 59 ROW.	Unnamed Drainage Ditch	To be Determined
From 0.37 mile to 0.41 mile east of FM 762 along the south US 59 ROW.	Rabbs Bayou	To be Determined
From 0.96 mile to 0.98 mile east of FM 762 along the south US 59 ROW.	Intermittent tributary to Rabbs Bayou	To be Determined
From 1.57 miles to 1.61 miles east of FM 762 along the south US 59 ROW.	Middle Bayou	To be Determined

Trees unusually larger than other trees in the area are present along the project. The locations, descriptions, and impacts resulting from the implementation of the Build Alternative are listed as follows: The reason for removing many of the below listed trees is to create a safety zone for the proposed project. Tree removal will be avoided whenever possible.

Table I-7: Large Trees Along the Project

Location	dbh (in.)	Description	Impacts (Yes or No)
Approximately 0.26 mile east of Cottonwood School Road along the north US 59 ROW.	30	Pecan (*Carya illinoensis*) on vacant maintained land	No
Approximately 0.72 mile east of Cottonwood School Road along the north US 59 ROW.	3- 24	Three live oaks (*Quercus virginiana*) on maintained urban land	No
Approximately 0.35 mile east of SH 36 along the north US 59 ROW.	24	Live oak on vacant maintained land	No
Approximately 0.3 mile east of FM 726 along the north US 59 ROW.	30	Pecan on unmaintained wooded land	Yes
Approximately 0.94 mile east of FM 726 along the north US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 0.98 mile east of FM 726 along the north US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 1.02 miles east of FM 726 along the north US 59 ROW.	30	Pecan on unmaintained wooded land	Yes
Approximately 1.03 miles east of FM 726 along the north US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 1.06 miles east of FM 726 along the north US 59 ROW.	30	Pecan on unmaintained wooded land	Yes
Approximately 1.87 miles east of FM 726 along the north US 59 ROW.	24	Pecan on maintained highway median	Yes

Table I-7: Large Trees Along the Project

Location	dbh (in.)	Description	Impacts (Yes or No)
Approximately 0.06 mile east of SW along the north US 59 ROW.	30	Pecan on maintained highway median	Yes
Approximately 1.06 miles east of FM 726 along the south US 59 ROW.	48	Pecan on unmaintained wooded land	Yes
Approximately 1.09 miles east of FM 726 along the south US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 1.11 miles east of FM 726 along the south US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 1.12 miles east of FM 726 along the south US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 1.14 miles east of FM 726 along the south US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 1.15 miles east of FM 726 along the south US 59 ROW.	24	Pecan on unmaintained wooded land	Yes
Approximately 1.77 miles east of FM 726 along the south US 59 ROW.	24	Pecan on unmaintained wooded land	No
Approximately 0.04 mile east of SW along the south US 59 ROW.	24	Pecan on maintained residential land	Yes

Federal and State Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS) was contacted for information regarding federally listed threatened or endangered species. Have not received a response yet from the USFWS, as to whether the project area is not located within designated critical habitat of any threatened or endangered species.

The Texas Parks and Wildlife Department (TPWD) was contacted for information regarding threatened and endangered species in the project area. The proposed project is located in a semi-urbanized area. No threatened or endangered species were observed during field surveys conducted in the project corridor area. Table I-8 lists the federal and state listed threatened and endangered species that may occur in Fort Bend County, their preferred habitat, and potential impacts from implementation of the Build Alternative.

Table 1-8: State and Federal Threatened and Endangered Species of Fort Bend County

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present
AMPHIBIANS					
Houston Toad	Bufo houstonensis	E	E†	Sandy soil, breeds in ephemeral pools	No
BIRDS					
American Peregrine Falcon	*Falco peregrinus anatum*	T	DM†	Potential migrant	No
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	T	DM†	Potential migrant	No

Attwater's Greater Prairie-chicken	*Tympanuchus cupido attwateri*	E	E†	Thick 1-3' tall grass from 0'-200' above sea level along coast	No
Bald Eagle (Nesting)	*Haliaeetus leucocephalus*	T	T,AD	Near water areas, in tall trees	No
Interior Least Tern	*Sterna antillarum athalassos*	E	*	Nests along sand and gravel bars within streams and rivers, only listed when 50 miles inland	No
White-faced Ibis	*Plegadis chihi*	T	*	Freshwater marshes, but some brackish or salt marshes	No
White-tailed Hawk	*Buteo albicaudatus*	T	*	Coastal Prairies	No
Whooping Crane	*Grus americana*	E	E†	Winters in Aransas NWR	No
American Peregrine Falcon	*Falco peregrinus anatum*	T	DM†	Potential migrant	No
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	T	DM†	Potential migrant	No
FISHES					
Sharpnose Shiner	Notropis oxyrhynchus	--	C	Shallow, open sandy channels: Brazos river basin	No
MAMMALS					
Louisiana Black Bear	Ursus americanus luteolus	T	T†	Bottomland hardwoods; large, undisturbed forested areas	No
Red Wolf	Canis rufus	E	E†	Extirpated, brushy, forested areas, coastal prairies	No
REPTILES					
Alligator Snapping Turtle	Macrochelys temminckii	*	T	Water bodies with mud bottom and abundant vegetation	Yes
Texas Horned Lizard	Phrynosoma cornutum	T	SOC†	Open, semi-arid regions, with bunch grass	No
Timber/Canebrake Rattlesnake	Crotalus horridus	T	SOC†	Swamps/floodplains of hardwood/upland pine	No
VASCULAR PLANTS					
Texas Prairie Dawn	Hymenoxys texana	E	E	Poorly drained areas in open grasslands; pimple mounds	No

* These species occur on the State listing of threatened or endangered species; however, they are not federally listed at this time by the U.S. Fish and Wildlife Service (2006).
† These species are listed by the U.S. Wildlife Service, however, they are not listed to occur within this county by the Clear Lake office of the U.S. Fish and Wildlife Service (2006).
-- Not listed for Texas Parks and Wildlife for this county
E = endangered T = threatened H = historical occurrence I = introduced population C = candidate species SOC = species of concern DM = delisted taxon, recovered, being monitored first five years AD = proposed delisting SAT = similarity of appearance to a threatened taxon

Wetland Data Forms

APPENDIX F: RESOURCE AGENCY CORRESPONDENCE

Texas Department of Transportation

P.O. BOX 1386 • HOUSTON, TEXAS 77251-1386 • (713) 802-5000

May 10, 2007

CONTACT: DPD

CERTIFIED MAIL
7005 1820 0000 9729 4938

Fort Bend & Wharton Counties
Request for Jurisdictional Verification
US 59: CR 227 to SH 99 (Grand Parkway)
Control 0027-12-097, 105, 106, 114
0089-09-058, 065, 066, 067

SCANNED
MAY 14 2007 AA
PROJECT DEVELOPMENT SECTION

Mr. John Davidson, Unit Leader
c/o North Compliance Unit
United States Army Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553

Dear Mr. Davidson:

Please accept this letter and accompanying maps as a request for a Jurisdictional Verification of delineation for the approximate 26-mile (157,979 linear feet) proposed road widening of US 59 from County Road (CR) 227 to SH 99 (Grand Parkway). This project was split into two segments: the North Segment (Spur 10 to Grand Parkway) and the South Segment (CR 227 to Spur 10).

Personnel from Othon, Inc. Consulting Engineers (Othon) conducted a Wetland Delineation in August 2004, September 2004, and January 2005 according to criteria set forth in the 1987 Corps of Engineers Wetland Delineation Manual. The boundaries of the jurisdictional areas were delineated by Othon personnel.

Please contact our office to set up a specific time and meeting location.

If you require further information, please contact Mr. Joe Liggio at (713) 802-5408.

Sincerely,

Gabriel Y. Johnson, P.E.
Director of Transportation
Planning and Development
Houston District

JL:aa
Attachments: Site Location Map, USGS Topographic Map, FEMA Floodplain Maps, Wetland Delineation Maps, Site Photographs, and Routine Wetland Determination Data Forms
cc: Mr. Joe Liggio

bc: Erin Foster, ENV

CC: CRM 10/12/04

Texas Department of Transportation

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

September 22, 2004

Section 106: Archeological Review
Archeological Survey of US 59: Spur 10 to Wharton C/L, Fort Bend County, Texas
Houston District: Fort Bend County (CSJ: 0089-09-058, 065, 066, 067)
TAC Permit #3339

RECEIVED
SEP 23 2004
TEXAS HISTORICAL COMMISSION

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

TxDOT RECEIVED
OCT 19 2004
HOUSTON MAIL OPERATIONS

Dear Dr. Bruseth:

The proposed project will be undertaken with federal assistance. In accord with the Programmatic Agreement (PA) among TxDOT, Federal Highways Administration, the Advisory Council on Historic Preservation, and the Texas Historical Commission (THC), and the Memorandum of Understanding between TxDOT and the THC, we hereby continue Section 106 and Texas Antiquities Code consultation for the proposed undertaking.

A copy of the draft report, *Archeological Investigations Technical Report; US 59: Spur 10 to FM 2919 in Fort Bend County, Texas*, is enclosed for your review. TxDOT concurs with the recommendations made in this report. Archeologists from Michael Baker Jr., Inc. report encountering a single unrecorded site and an isolate within the APE. Neither was determined to be potentially eligible nor warranted any further archeological investigation. The report concluded that no further archeological work is warranted throughout the APE. The consultant recommends that, based on their findings, the proposed undertaking is expected to have no impacts to significant archeological resources and should be allowed to proceed without further investigations. We look forward to receiving your comments and appreciate your time. TxDOT will submit final copies of this report shortly after receipt of your comments. If you have any questions or have further need of information, please contact Allen Bettis of the TxDOT Archeological Studies Program at (512) 416-2747.

DRAFT REPORT ACCEPTABLE
Please submit 20 final report copies
by _____
for F. Lawerence Oaks
State Historic Preservation Officer
Date 10-5-04

Sincerely,

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

Attachment
cc w/o attachments: Susan Mooney, Michael Baker, Jr., Inc. - Austin
Craig Rollins-Houston District JKW ACB

SCANNED ON
OCT 19 2004
MAIL OPERATIONS HOUSTON

Concurrence by: _____ Date: 10-5-04
for F. Lawerence Oaks, State Historic Preservation Officer

OCT 2004

DPD

cc: CRM 9-8-04

Texas Department of Transportation

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

30 August 2004

PROJECT
SEP 0 2004
MANAGEMENT

SECTION 106: DETERMINATION OF NRHP ELIGIBILITY/NO EFFECT

HOU Fort Bend County
CSJ# 0089-09-067

RE: US 59, From Spur 10 to Wharton County Line

Mr. Bob Brinkman
History Programs
Texas Historical Commission
Austin, Texas 78711

Dear Mr. Brinkman

The proposed project will be undertaken with Federal funding. In accordance with the Programmatic Agreement (PA) between TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC, this letter initiates Section 106 consultation for the proposed undertaking. This federally funded project proposes to construct the six main lanes of the roadway and improve the existing frontage roads. The Area of Potential Effects (APE) for this project is 150-feet. No new right-of-way will be acquired. The Historic Resources Survey Report which includes maps, inventory, and photographs is attached.

Field survey efforts identified 845 pre-1960 resources within the 150-foot APE during the historic resources survey. The 84 resources identified included domestic, commercial agricultural and institutional properties. Site numbers 1a through 25 and site numbers 27 through 43 have been determined **not eligible** for the National Register of Historic Places (NRHP). The 83 resources determined not eligible have either been altered or lack historic significance. Deterioration and loss of integrity preclude eligibility for these modest resources. The properties are therefore **not eligible** for NRHP listing.

Site number 26, the Henry and Annie Green House, is a NRHP listed property. But since it is at the outermost edge of the 150-foot APE we have determined that the proposed action will have **No Effect** to any of the features or characteristics that qualifies this property for inclusion in the National Register of Historic Places. Nor would the proposed action significantly diminish the properties' location, design, setting, materials, workmanship, feeling or association. TxDOT also asserts that the proposed undertaking will have no reasonably foreseeable adverse effects that may occur later in time, be farther removed in distance, or be cumulative. Therefore we have determined **there is no effect.**

We request your signed concurrence with this determination of eligibility within 30 days of receiving this letter. If you have any questions or comments about this project, please call me at 416-2619.

Sincerely,

Ralph Newlan
Architectural Historian
Environmental Affairs Division

attachments

CONCUR: DETERMINATION OF ELIGIBILITY/NO EFFECT

NAME: _____ DATE: 7 SEP 2004

for F. Lawerence Oaks, State Historic Preservation Officer

HLL
PTT

Texas Department of Transportation

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

August 12, 2004

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

Dear Dr. Bruseth:

In accordance with Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas, we are forwarding for your information review sheets and accompanying maps and other information for the attached projects reviewed since **August 5, 2004.**

The attached information includes projects that, in our opinion, do not warrant archeological surveys, projects that do not have the potential to affect historic properties, and/or projects where impact evaluations or surveys have been conducted and no archeological sites were found. We respectfully request your concurrence with our recommendations that these projects do not warrant further investigation and will not affect historic properties. Should any cultural remains be identified during construction, construction shall cease in that portion of the project and an archeologist from my staff will conduct an on-site evaluation of the find and consult further with your office.

Thank you for your attention to this matter. If you have any questions, please contact me at 416-2631.

Sincerely,

for Owen Lindauer, Ph.D., Supervisor
Archeological Studies
Environmental Affairs Division

Attachments

cc: FHWA, Project Managers, CRM Archeologists, CRM file copy, Reading file

PROJECT
2004
MANAGEMENT

ETS

ARCHEOLOGICAL COORDINATION

Inbox : 8/6/2004
To: 8/12/2004

Archeological Surveys, No Further Work Recommended

(Section 106 and ANTIQUITIES CODE OF TEXAS)

Date: 8/12/2004

Fort Bend	Houston	US 59	0089-09-067	✓	

Number of Projects: 1

F. Lawerence Oaks
State Historic Preservation Officer and Executive Director

8-12-04
Date

Craig R. JRW

CC: CRM 8-17-04

Texas Department of Transportation

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

2 August 2004

RECEIVED
AUG 04 2004
TEXAS HISTORICAL COMMISSION

SECTION 106: DETERMINATION OF NRHP ELIGIBILITY

HOU Fort Bend County
CSJ# 0027-12-105

RE: US 59, From SH 99 to Spur 10, Construct Main Lanes

Tx DOT RECEIVED
AUG 19 2004
HOUSTON MAIL OPERATIONS

Mr. Bob Brinkman
History Programs
Texas Historical Commission
Austin, Texas 78711

Dear Mr. Brinkman

The proposed project will be undertaken with Federal funding. In accordance with the Programmatic Agreement (PA) between TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC, this letter initiates Section 106 consultation for the proposed undertaking. This federally funded project proposes expand the roadway to six main lanes from its current four-lane divided configuration. Other improvements for the project include: frontage road improvements and various grade separations. The Area of Potential Effects (APE) for this project is 150-feet. New right-of-way will be acquired. The Historic Resources Survey Report is attached.

Field survey efforts identified 30 pre-1960 resources within the 150-foot APE during a historic resources survey. The 30 resources identified a variety of property types. The bridge over Coon Creek (Site # 13) was determined **not eligible** for the National Register of Historic Places (NRHP) per the Historic Bridge Inventory. The remaining properties have undergone alterations or lack significant association with the historic context and therefore have been determined **not eligible** for NRHP listing.

We request your signed concurrence with this determination of eligibility within 30 days of receiving this letter. If you have any questions or comments about this project, please call me at 416-2619.

Sincerely,

Ralph Newlan
Architectural Historian
Environmental Affairs Division

PROJECT
AUG 17 2004
MANAGEMENT

attachments

CONCUR: DETERMINATION OF ELIGIBILITY

NAME: _____ DATE: 12 Aug 2004
for F. Lawerence Oaks, State Historic Preservation Officer

SCANNED ON
AUG 19 2004
MAIL OPERATIONS HOUSTON

DPD

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ROBERT L. COOK
EXECUTIVE DIRECTOR

December 5, 2003

OTHON INC.
DEC 0 8 2003

Ms. Susan Roberts
Othon, Inc.
11111 Wilcrest Green, Suite 128
Houston, TX 77042-4739

RE: Proposed widening of US 59 from SH 99 (Grand Parkway)/FM 2759 to Spur 10, Fort Bend County.

Dear Ms. Roberts:

Thank you for coordinating with this agency in your planning efforts for the project referenced above. Texas Parks and Wildlife Department (TPWD) staff reviewed the map of the project area and offers the following comments concerning this project.

Please find the list of special species that occur in Fort Bend County. More site-specific information from a search of the BCD database and review of potential project impacts to endangered and threatened species can be obtained for a $50 fee. For more information about the BCD or threatened and endangered species in the project area please contact Celeste Brancel at (512) 912-7021.

TPWD would have concerns about potential impacts to habitats associated with wetlands, streams, riparian buffers, and native vegetation communities. For assistance in preparation of the EA document, please find the attachment entitled **TPWD Suggested Guidelines for Preparation of Environmental Assessment Documents**.

The Clean Water Act (CWA) sets the basic regulatory framework for regulating discharges of pollutants to U.S. waters. Section 404 of the CWA establishes a federal program to regulate the discharge of dredge and fill material into waters of the U.S., including wetlands. The U.S. Army Corps of Engineers (COE) and the Environmental Protection Agency (EPA) are primarily responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the CWA. The COE also makes jurisdictional determinations under Section 10 of the Rivers and Harbors Act of 1899. If the proposed construction would impact aquatic resources then the project sponsor should contact the U.S. Army Corp of Engineers (Corpus Christi Regulatory Field Office) for determination of jurisdictional wetlands and for permitting requirements. Compensation may be required for any encroachment into these areas. TxDOT should coordinate all wetland (both jurisdictional and isolated) impacts with TPWD's Resource Protection office in Dickenson prior to submitting the final application to the Corps.

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4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512-389-4800

www.tpwd.state.tx.us

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

In order to protect migratory birds construction activities should occur outside the March – August migratory bird nesting season of each year the project is authorized and lasting for the life of the project. Construction activities include (but are not limited to) removal of nests or nest structures, tree felling as well as vegetation clearing, trampling or maintenance. Additional information regarding the Migratory Bird Treaty Act may be obtained from the U.S. Fish and Wildlife Service Southwest Regional Office (Region 2) at (505) 248-6879.

TPWD would prefer that widening the roadway would utilize existing and/or previously disturbed areas to the greatest extent possible.

We appreciate the opportunity to review and comment on your project. If you have any questions contact me in San Marcos at (512) 396-0050.

Sincerely,

Renée Fields

Renée Fields
Wildlife Habitat Assessment Program
Wildlife Division

/jrf

Attachments

OTHON INC.
MAR 1 5 2004

TEXAS PARKS & WILDLIFE

March 10, 2004

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FORT WORTH

ROBERT L. COOK
EXECUTIVE DIRECTOR

Ms. Susan Roberts
Othon, Inc.
11111 Wilcrest Green, Suite 128
Houston, Texas 77042

Dear Ms. Roberts:

This letter is in response to your review request and supplemental information, dated August 11, 2003, January 13, and March 4, 2004, for rare, threatened, and endangered species within or near the proposed widening of US 59 from SH 99 to SP 10 in Fort Bend County (CSJ # 0027-12-105).

Given the small proportion of public versus private land in Texas, the TPWD Biological and Conservation Data System (BCD) does not include a representative inventory of rare resources in the state. Although it is based on the best data available to TPWD regarding rare species, the data from the BCD do not provide a definitive statement as to the presence, absence, or condition of special species, natural communities, or other significant features within your project area. These data cannot substitute for an on-site evaluation by your qualified biologists. The BCD information is intended to assist you in avoiding harm to species that may occur on your route.

Based on the project description, the following species and natural communities could potentially be impacted by project activities:

Federal and State Listed Endangered
Texas prairie dawn (*Hymenoxys texana*)

State Listed Threatened
Smooth Green Snake (*Liochlorophis vernalis*)

Natural Communities
Little Bluestem-Brownseed Paspalum (*Schizachyrium scoparium-Paspalum plicatulum*) Series

The US Fish and Wildlife Service (FWS) should be contacted for guidance, permitting, and survey protocols for federally listed species. Currently, the BCD has no documented occurrence data for the project route. TPWD recommends a habitat assessment for the listed plant be conducted. Also, please review the entire county list, as other rare species could potentially be present depending upon habitat availability.

ENJOY THE TEXAS OUTDOORS!

Take a kid hunting or fishing

Visit a state park or historic site

Excluding clearing activities during the breeding season for migratory bird species, March through August, will help minimize impacts to this group. The Migratory Bird Treaty Act (MBTA) implicitly prohibits intentional and unintentional take of migratory birds, including their nests and eggs, except when authorized under a US Fish and Wildlife (FWS) permit. Additional information regarding the MBTA may be obtained through the Southwest Regional Office (Region 2) Division of Migratory Birds, FWS, at (505) 248-7882.

This letter does not include a review of habitat impacts for general fish and wildlife from this project. Should you need such a review, please contact the office of Kathy Boydston, (512) 389-4571, TPWD, Wildlife Habitat Assessment Program.

Thank you for the opportunity to comment on this project. Please contact me if you have any questions or need additional assistance (512/912-7021).

Sincerely,

Celeste Brancel, Environmental Review Coordinator
Wildlife Habitat Assessment Program, Wildlife Division
Threatened and Endangered Species

Enclosures (2)

Federal and State Listed Threatened and Endangered Species for Wharton and Fort Bend Counties.

	Habitat	Federal Status	State Status	County	Habitat Present	Species Impacted
AMPHIBIANS						
Houston Toad *Bufo houstonensis*	Endemic to sandy soil and breeds in ephemeral pools		E	FB	No	No
BIRDS						
American Peregrine Falcon *Falco peregrinus anatum*	Potential migrant; nest in west Texas	DL	E	W		No
Arctic Peregrine Falcon *Falco peregrinus tundrius*	Potential migrant.	DL	T	W, FB	No	No
Attwater's Greater Prairie-chicken *Tympanuchus cupido attwateri*	Endemic to thick 1 to 3 foot tall grass from 0 to 200 feet above sea level along coastal areas.		E	W, FB	No	No
Bald Eagle *Haliaeetus leucocephalus*	Near seacoasts, rivers, and large lakes; nests in tall trees or on cliffs near water.	LT-PDL	T	W, FB	No	No
Peregrine Falcon *Falco peregrinus*	Nest along sand and gravel bars within braided streams, rivers; also known to nest in man-made structures.	LE	E	W	No	No
White-faced Ibis *Plegadis chihi*	Habitat includes freshwater marshes and occasionally brackish or salt marshes.		T	W, FB	No	No
White-tailed Hawk *Buteo albicaudatus*	Endemic to coastal prairies.		T	W, FB	No	No
Whooping Crane *Grus Americana*	Potential migrant.	LE	E	W, FB	No	No
Wood Stork *Mycteria americana*	Found in prairie ponds and flooded pastures.		T	W, FB	No	No
MAMMALS						
Black Bear *Ursus americanus*	Common to bottomland hardwood, large, undisturbed forested areas.	T/SA; NL	T	W, FB	No	No
Louisiana Black Bear *Ursus americanus luteolus*	Common to bottomland hardwood, large, undisturbed forested areas.	LT	T	W, FB	No	No
REPTILES						
Alligator Snapping Turtle *Macrochelys temminckii*	Water bodies with mud bottom and abundant vegetation	T	*	FB	No	No
Texas Horned Lizard *Phrynosoma cornutum*	Open, arid and semi-arid regions with sparse vegetation.		T	W, FB	No	No
Timber/Canebrake Rattlesnake *Crotalus horridus*	Swamps, floodplains, woodlands, riparian zones; dense ground cover, (i.e. grapevines or palmetto).		T	W, FB	No	No
VASCULAR PLANTS						
Texas Prairie Dawn *Hymenoxys Texana*	Found in poorly drained areas in open grassland, near pimple mounds	E	E	FB	No	No

Source: TPWD Annotated County List of Rare Species for Wharton (W) and Fort Bend (FB) Counties (Latest Revisions 2007).

Note: Species appearing on these lists do not share the same probability of occurrence. Some species are migrant or wintering residents only, or may be historic or considered extirpated.

LE, LT - Federally Listed Endangered/Threatened

DL, PDL - Federally Delisted/Proposed Delisted

E, T - State Endangered/Threatened

C1 - Federal Candidate, Category 1; information supports proposing to list as endangered/threatened

"blank" - Rare, but with no regulatory listing status

Texas Parks and Wildlife Department Suggested Guidelines for Preparation of Environmental Assessment Documents

Following is an outline of categories of information needed to evaluate a proposed project or action. Every effort should be made to supply quantified data. If subjective data is all that can be supplied, documentation verifying the credentials of the data collector should be provided.

An asterisk notes categories considered essential for adequate biological review by this agency (*). Depending on the complexity and scope of the proposed project or action, or requirements by other agencies, all the items listed below may be required.

Whenever practical, environmental documents should be supported by aerial photography, topographic maps, schematics, charts, tables, etc. with minimum narrative sufficient to describe, quantify, and qualify the data.

A. Project Description

* • Identify who is proposing the project.

* • Identify who is conducting the assessments and provide credentials of this person(s).

* • Describe the purpose of the project.

* • Define the scope of work.

* • Identify the project area and study area (total acres, miles of ROW)

* • Identify the timetable projected for the entire project

* • Describe any required coordination and review for the project.

* • List or describe any required public input.

• Provide historical information significant to the project.

B. Description of the Affected Environment

1. Natural Resources

• Describe the geology within the study area.

* • Describe the soils present and their characteristics.

* • Describe the landform (topography) and the natural processes impacting the present landform.

• Describe the climatic factors affecting the study area.

* • Describe the supply and quality of surface water resources in the study area.

* • Describe the supply and quality of groundwater resources including aquifer recharge zones occurring within the study area.

* • Describe natural hazards affecting the study area, i.e. tidal influences, flood activity, etc.).

• Describe the quality of the air in the study area.

* • Describe the vegetation communities (cover type) specifically impacted by the project to include: dominant plant species, estimated

height of trees, woody shrubs or brush; and estimated canopy coverage of woody vegetation. Total acreage of each cover type disturbed by the project should also be listed.

* • Describe the fauna that would be associated with the dominant vegetation cover types identified above.

* • Identify "sensitive" ecosystems which occur in the study area such as: springs, streams, rivers, floodplains, vegetation corridors, bottomland hardwoods, wetlands, bays, estuaries, native grasslands, etc.

* • Describe the occurrence of threatened/endangered species (or their habitats) and unique or rare natural communities which occur in the study area.

a. On site inspection of the study area for permanent or seasonal occurrence.

b. On site inspection of the study area for occurrence of habitat.

c. Interviews with recognized experts on all species with a potential of occurrence.

d. Literature review of data applicable to a potential occurring species concerning species distribution, habitat needs, and biological requirements.

2. Cultural Resources

* • Identify public use and open space areas in the vicinity of the proposed project such as parks, natural areas, wildlife preserves and management areas.

• Identify previous, present, and proposed land uses within the study area.

• Identify significant archeological features within the study area.

• Identify significant historical features in the study area with special consideration of "National Register of Historic Places" properties.

• Identify rights-of-ways, easements, public utilities, and transportation features within the study area.

• Identify noise pollution sources and current noise levels within the study area.

• Identify existing and proposed public health and hazardous waste facilities that exist in the study area such as land fills, hazardous waste sites, wastewater treatment facilities, septic tanks, etc.

• Identify socioeconomic factors, if applicable.

*C. Project Alternatives

List and describe project alternatives (including "no action") and associated impacts (direct and indirect) to described resources. If the project is potentially large in scope, cumulative effects with other similar projects may be required.

*D. Mitigation

A major responsibility of TPWD is to conserve and protect the state's fish, wildlife, and plant resources. Certain categories of these biotic resources warrant special consideration. These include habitats that are locally and regionally scarce, habitats supporting unique species or communities, stream and river ecosystems, bays, estuaries, wetlands, bottomland hardwoods, and native grasslands. All projects that could adversely affect these resources should be fully evaluated, and where possible, implementation of less damaging alternatives undertaken. If it is determined that a project or action will potentially affect fish, wildlife or plant resources, a process for adverse impact reduction should be initiated. Mitigation measures should be developed and implemented sequentially as follows:

1. AVOIDANCE: Avoiding adverse impacts through changes in project location, design, operation, or maintenance procedures, or through selection of other less damaging alternatives to the project or action.

2. MINIMIZATION: Minimizing impacts and by project modification or rectification to restore or improve impacted habitat to pre-project condition; or through reducing the impacts over time by preservation and maintenance operations during the life of the project or action.

3. COMPENSATION: Compensating for unavoidable impacts by providing replacement or substitute resources (including appropriate management) for losses caused by project construction, operation, or maintenance.

Mitigation should be an integral part of any action or project that adversely affects fish, wildlife, and habitats upon which they depend. Failure to adequately avoid or minimize adverse impacts or to adequately compensate for unavoidable losses of natural resources is a serious deficiency in any project plan and may cause delays in this Department's review and assessment of the adverse impacts upon fish & wildlife resources. In assessing project impacts, reasonable foreseeable secondary and cumulative impacts should be included.

*E. Coordination

Provide copies of pertinent coordination correspondence.

*F. Document Preparers and Their Qualifications

*G. Bibliography

(References: 40 CFR Parts 1500-1508 and various EPA handouts concerning Environmental Assessment documentation.)

U.S. Department
of Transportation

**Federal Highway
Administration**

Texas Division Office
300 E. 8th Street, Rm. 826
Austin, Texas 78701

September 12, 2003

OTHON INC.
SEP 1 7 2003

In Reply Refer To:

HB-TX

Ms. Susan Roberts
Othon, Inc.
11111Wilcrest Green, Suite 128
Houston, Texas 77042

RE: CSJ# 0027-12-105 and 0089-09-058

Dear Ms. Roberts:

We appreciate receiving your letter dated on August 11, 2003, inviting us to be a part of the environmental process for the US 59S projects from SH 99/FM 2759 to Spur 10 and SP 10 to FM 2919. We will be pleased to meet with representatives of your firm and Michael Baker, Jr. to discuss the project. Your primary contact should continue to be the TxDOT Houston Environmental Section.

The Federal Highway Administration's (FHWA) Environmental Impact and Related Procedures (23 CFR 771), the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 CFR 15-1508), FHWA Technical Advisory, Guidance for Preparing and Processing Environmental and Section 4 (F) Documents (T 6640.8A) and other statutes and orders will be of great assistance when completing the environmental studies for the above mentioned projects. A list of the other statutes and orders can be found in Appendix A of Technical Advisory T 6640.8A.

Any further correspondence may be addressed to me. If any additional information is needed, feel free to contact me at (512) 536-5925, or Greg Heitmann, Environmental Coordinator at (512) 536-5941.

Sincerely yours,

Ceneetra Banks
Area Engineer

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, Florida 33702

OTHON INC.
SEP 0 5 2003

September 3, 2003

Ms. Susan Roberts
OTHON, Inc.
11111 Wilcrest Green, Suite 128
Houston, Texas 77042

Dear Ms. Roberts:

The National Marine Fisheries Service (NOAA Fisheries) has reviewed the plans for two highway projects to be constructed in Fort Bend County in the vicinity of Richmond and Rosenberg, Texas, (CSJ#0027-12-105 and CSJ#0089-90-058). The plans were transmitted to NOAA Fisheries by your two letters dated August 11, 2003.

The proposed projects will not impact living marine resources under NOAA Fisheries purview. Therefore, we have no comments to provide on the proposed projects. If we may be of further assistance, please contact Mr. Rusty Swafford of our Galveston Facility at (409) 766-3699.

Sincerely,

for Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

TEXAS HISTORICAL COMMISSION

The State Agency for Historic Preservation

RICK PERRY, GOVERNOR

JOHN L. NAU, III, CHAIRMAN

F. LAWERENCE OAKS, EXECUTIVE DIRECTOR

THON INC.

SEP 0 2 2003

August 28, 2003

Susan Roberts
Othon, Inc.
111 Wilcrest green, Suite 128
Houston, TX 77042

Re: Project review under the Antiquities Code of Texas and National Historic Preservation Act, Two Proposed US 59 Improvement Projects by the Houston District of TxDOT in Fort Bend County (TxDOT)

Dear Ms. Roberts:

Thank you for your correspondences concerning the two above referenced projects. This letter presents the comments of the Executive Director of the Texas Historical Commission (THC), the state agency responsible for administering the Antiquities Code of Texas.

Because the THC has a programmatic agreement with TxDOT and the Federal Highway Administration, and a memorandum of understanding with TxDOT which both provide for cultural resource coordination through the Environmental Division of TxDOT, it is inappropriate for us to respond to you directly concerning potential cultural resources associated with the above referenced proposed highway improvements. Please refer all such inquiries to TxDOT ENV.

Thank you for your assistance in the protection of our State's cultural resources, and **if you have any questions please contact Mark H. Denton of our staff at (512) 463-5711.**

Sincerely,

for
F. Lawerence Oaks
Executive Director

LO/MHD

cc: Owen Lindauer (TxDOT)

P.O. BOX 12276 · AUSTIN, TX 78711-2276 · 512/463-6100 · FAX 512/475-4872 · TDD 1-800/735-2989
www.thc.state.tx.us

OTHON

OTHON, INC.
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Houston, Texas 77042

713 975 8555 TEL
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othoncorp@othon.com E-MAIL
www.othon.com WEBSITE

CONSULTING ENGINEERS
Civil, Transportation, Environmental,
Construction Management

August 11, 2003

Mr. Grady Dillard
Soil and Water Conservation District
1402 Band Road
Suite 200
Rosenberg, Texas 77471

FROM:

OTHON INC.
SEP 0 2 2003

RE: **U.S. Highway 59 South from SH 99 (Grand Parkway)/FM 2759 to SP 10**
Fort Bend County, Texas
Environmental Assessment
CSJ# 0027-12-105

Dear Mr. Dillard:

This letter is to initiate Preliminary Coordination concerning the above-referenced project. The Texas Department of Transportation (TxDOT) has contracted the services the Othon Team, consisting of Othon, Inc. and Michael Baker Jr., Inc., to perform environmental studies required by the National Environmental Policy Act (NEPA) to widen U.S. Highway 59 South (US 59S) from State Highway 99 (SH 99)/Farm-to-Market Road 2759 (FM 2759) to SPUR 10 (SP 10) in Fort Bend County, Texas. The Othon Team will be directly responsible for environmental studies including an environmental assessment (EA), permitting and mitigation planning, and public involvement.

The proposed action is located along an approximate 12.1-mile section of US 59S that begins at SH 99/FM 2759 and ends at SP 10. The studies will address the proposed widening and improvements to US 59S from 4 lanes to 6 lanes; frontage road improvements; and various interchange/grade separation improvements. The proposed improvements are based on the recommendations of the *US 59 South Corridor Major Investment Study* (TxDOT, 1999). A map showing the project limits is attached.

The purpose of this project is to reduce traffic congestion, improve hurricane evacuation, and provide travel options while maintaining minimal impacts to the environment in a cost-effective manner. The Othon Team will perform, among other tasks, the social, economic and environmental studies for the

proposed action and implement coordination of the public and agency involvement program during the study process.

In order to ensure that pertinent environmental issues relating to this project have been adequately addressed, we request your input and concerns, including applicable regulations administered by your agency which may require special attention in the proposed project area. We also request information about current or previous environmental studies in the region that may be relevant to this project. This request is required at your earliest convenience to facilitate timely completion of the project.

The requested input, as well as the name of an appropriate contact within your staff for all future coordination, should be mailed to Othon, Inc. Consulting Engineers at the address on this letterhead. We will forward a copy of your response to Ms. Melba A. Alfred, Environmental Coordinator, TxDOT Houston District, 7721 Washington Avenue, Houston, Texas 77007. If additional information is needed or you have any questions or comments regarding this request, please call Mr. Eddie George at (281) 579-4579, or me at (713) 975-8555.

Sincerely,

Othon, Inc.

Susan Roberts

Susan Roberts
TO → Project Manager, Environmental Services

Attachment

cc: Melba A. Alfred, Environmental Coordinator, TxDOT Houston District

APPENDIX G: HISTORICAL RESOURCES SURVEY REPORT

MEMORANDUM

Texas Department of Transportation

TO:	**Project Management 850 File**
District:	**Houston**
County:	**Fort Bend**
CSJ#:	**0027-12-097, -114, -105, -106**
Highways:	**US 59**
Limits:	**From Spur 10 to State Highway 99 (SH 99)**
Project Description:	**HIST: Stipulation VI, Appendix 4. Widen to 8 main lanes. 55.2 acres new ROW required. No historic properties present.**
FROM:	Shonda Mace **DATE:** February 18, 2011
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 TxDOT Houston District is proposing to improve a 12-mile section of US 59 from Spur 10/Hartledge Road to west of State Highway (SH) 99 (Grand Parkway)/Farm to Market Road (FM) 2759 (Crabb River Road) in Fort Bend County, Texas. From Spur 10 to FM 762, the proposed project would widen the existing divided highway from four lanes to six lanes. The completed facility would be a six-lane rural freeway with depressed grassy medians and 12-ft shoulders. All new travel lanes would be 12-ft wide. The proposed segment would also include continuous two-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads. Grade separation/interchange improvements would be performed at FM 2218, SH 36, Kroesche Road and Cottonwood Church Road. The curve at US 59 at Spur 529 would be replaced with a new interchange. Upgrades to rural freeway cross-sections and upgrades to freeway/interstate highway standards south of Spur 529 are also included.

From FM 762 to SH 99, the proposed project would widen the existing divided highway from four lanes to eight lanes and add two additional 12-ft HOV lanes, with 15-ft shoulders. All new travel lanes would be 12-ft wide. A concrete median barrier would separate the opposing travel lanes. The completed facility would be a 10-lane urban freeway with 12-ft outside shoulders. The segment would also include continuous three-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads, as well as urban freeway cross sections. Approximately 55.2 acres of new right-of-way (ROW) would be required.

PREVIOUS COORDINATION

This project was previously coordinated in February 2004 in which TxDOT Historians determined that 30 historic-age resources (built prior to 1960) were located within the 150 ft Area of Potential Effects (APE) for the proposed project. In a letter dated 12 August 2004, Texas SHPO concurred with TxDOT's determinations that the 30 identified resources were **not eligible** for inclusion within the National Register of Historic Places. Additional coordination was done in May 2008 due to proposed design changes that revealed the presence of an additional historic-age resource that was not previously documented. This resource was also determined to be **not eligible** for NRHP listing.

This addendum addresses the need to update the 2004 survey using a new cut-off date of 1970, based on a current let-date of 2015. *This addendum serves only to evaluate any additional historic-age resources not previously identified in the 2004 report and not to re-evaluate the entire project.*

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 by TxDOT personnel in February 2011 revealed that there are six (6) previously undocumented historic-age resources (constructed between 1960 and 1970) in the project APE. In addition, seven (7) previously identified resources from the 2004 survey were found to be no longer extant. Furthermore, an additional three (3) previously undocumented resources were found to be located on the parcel for Resource #2 from the 2004 survey. Consequently, the* ***total*** *number of historic-age resources within the APE is 33.*

IDENTIFICATION OF HISTORIC AGE RESOURCES

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 determined that they are **not eligible** for inclusion in the NRHP, either individually or as a district. These resources 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 type, period, method of construction, work of a master, or high artistic value to qualify as eligible under Criterion C. Additionally, the properties evidence unsympathetic alterations that have compromised their integrity.

CONCLUSIONS

Pursuant to Stipulation VI "Undertakings with Potential to Cause Effects," Appendix 4 (2) of the Programmatic Agreement for Transportation Undertakings, (PATU) between the Federal Highway Administration (FHWA), the Texas State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and the Texas Department of Transportation (TxDOT) and the Memorandum of Understanding (MOU), TxDOT Historians determined that no historic properties are present within the proposed project's APE and individual project coordination with SHPO is not required.

Approved by _____ for TxDOT 2·18·11
Bruce Jensen — Date

Lead Reviewer MJS for TxDOT 2·18·11
Lead Reviewer's Initials — Date

SRM
Attachment
Cc w/out attachment: Juan Valera-Lema, Houston District; ENV Reading File;
Cc w/ attachment: THC; ENV-HIST

Reconnaissance Survey:

US 59: Spur 10 to State Highway 99 (SH 99)
Fort Bend County, Houston District, Texas

CSJ #s 0027-12-097, -114, -105, -106

Prepared by:
Shonda Mace, TxDOT historian

Contract Type:
ENV HIST

February 2011

PROJECT DESCRIPTION

The TxDOT Houston District is proposing to improve a 12-mile section of US 59 from Spur 10/Hartledge Road to west of State Highway (SH) 99 (Grand Parkway)/Farm to Market Road (FM) 2759 (Crabb River Road) in Fort Bend County, Texas. From Spur 10 to FM 762, the proposed project would widen the existing divided highway from four lanes to six lanes. The completed facility would be a six-lane rural freeway with depressed grassy medians and 12-ft shoulders. All new travel lanes would be 12-ft wide. The proposed segment would also include continuous two-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads. Grade separation/interchange improvements would be performed at FM 2218, SH 36, Kroesche Road and Cottonwood Church Road. The curve at US 59 at Spur 529 would be replaced with a new interchange. Upgrades to rural freeway cross-sections and upgrades to freeway/interstate highway standards south of Spur 529 are also included.

From FM 762 to SH 99, the proposed project would widen the existing divided highway from four lanes to eight lanes and add two additional 12-ft HOV lanes, with 15-ft shoulders. All new travel lanes would be 12-ft wide. A concrete median barrier would separate the opposing travel lanes. The completed facility would be a 10-lane urban freeway with 12-ft outside shoulders. The segment would also include continuous three-lane northbound and southbound frontage roads, where there are currently discontinuous two-lane frontage roads, as well as urban freeway cross sections. Approximately 55.2 acres of new right-of-way (ROW) would be required.

This project was previously coordinated in February 2004 in which TxDOT Historians determined that 30 historic-age resources (built prior to 1960) were located within the 150 ft Area of Potential Effects (APE) for the proposed project. In a letter dated 12 August 2004, Texas SHPO concurred with TxDOT's determinations that the 30 identified resources were **not eligible** for inclusion within the National Register of Historic Places. Additional coordination was done in May 2008 due to proposed design changes that revealed the presence of an additional historic-age resource that was not previously documented. This resource was also determined to be **not eligible** for NRHP listing.

This addendum addresses the need to update the 2004 survey using a new cut-off date of 1970, based on a current let-date of 2015. *This addendum serves only to evaluate any additional historic-age resources not previously identified in the 2004 report and not to re-evaluate the entire project.*

PROJECT SETTING

The project area is dominated by agricultural uses with some residential, commercial, and religious uses. Specifically, commercial buildings that typically date from 1980 to 2003 are at the intersection of US 59 and SH 99, the project's eastern border. As the project area stretches west towards FM 2218 and the city of Rosenberg, it is characterized by large agricultural fields, some with non-historic residences and/or associated auxiliary buildings. The portion of the project that extends through Rosenberg primarily contains commercial buildings with a small residential development along Houston and Kentucky Streets. The majority of residences along this portion of the roadway date from the 1960s and 1980s and are modest single-family detached residences that do not appear to be part of an organized development. Directly outside the city, as the roadway stretches westward towards SP 10, the project's western

terminus, the area again transitions into primarily agricultural uses with scattered commercial and residential development.

METHODOLOGY

Research Methods

At the outset of the project, and prior to any field investigations, TxDOT historians examined the Texas Historic Sites Atlas online, a website maintained by the Texas Historical Commission (THC), to identify any properties within the 1300' study area that had been previously listed in the NRHP, documented as part of the Texas Historic Sites Inventory or other local surveys, designated as Recorded Texas Historic Landmarks (RTHLs), subject of Official Texas Historical Markers (OTHMs), or are designated State Archeological Landmarks (SALs). These sources did not identify any historically significant resources or markers that had previously been documented within the area of potential effects (APE).

In addition to Atlas, TxDOT historians also reviewed the following resources:

- Historic maps obtained through the *Texas Historic Overlay* project, including historic USGS topographic maps;
- *TxDOT Highway Designation Files* (online), which detail the construction history of all tertiary and adjacent roads within the study area;
- *The Handbook of Texas Online* for regional historical information;
- Previous HHM survey reports for US 59, for contextual information and to review previously documented resources

Field Investigations

Reconnaissance-level field survey of the proposed project took place February 10-11, 2011. The field crew was comprised of two qualified historians. During the field investigation, the survey team identified and documented six (6) previously undocumented non –archeological, historic-age resources in the 150 ft APE. The survey team used a digital camera to photograph each resource. The exact physical location of each resource was documented on aerials of the project area. In addition, seven (7) previously identified resources were found to be no longer extant (see table 1 below and attached 2004 survey maps). Furthermore, an additional three (3) previously undocumented resources were found to be located on the parcel for Resource #2 from the 2004 survey (see table 2 below and attached 2004 survey maps). Consequently, the ***total*** number of historic-age resources within the 150' project APE is 33; this includes resources documented in the 2004 survey and resources documented in the current survey.

Table 1: Resources Identified In 2004 Survey That Are No Longer Extant

Resource #	Location	Type/Subtype
1	At US 59, approximately 0.5 miles west of SH 99	AGRICULTURAL/agricultural outbuilding
5	3426 SH 36	DOMESTIC/single dwelling
5a	"	DOMESTIC/secondary structure
5b	"	DOMESTIC/secondary structure
11	At Miller Road, approximately 150' north of US 59	DOMESTIC/single dwelling
12	Over Coon Creek 1250' north of US 59	TRANSPORTATION/railroad bridge

13	Over Coon Creek 1000' north of US 59	TRANSPORTATION/railroad bridge

Table 2: Previously Undocumented Resources for Resource #2 in 2004 Survey

Resource #	Type/Subtype	Date	Style
2e	AGRICULTURE/ agricultural outbuilding	c. 1930	N/A
2f	AGRICULTURE/ agricultural outbuilding	c. 1930	N/A
2g	DOMESTIC/single dwelling	c. 1960	Ranch

NRHP EVALUATION CRITERIA

All newly surveyed resource were evaluated for NRHP eligibility through application of the National Register Criteria for Evaluation, as codified in Title 36 of the Code of Federal Regulations, Chapter 60.4. In addition, surveyed resources were evaluated for designation as SALs, as specified in Title 9 of the Texas Natural Resource Code, Chapter 191 and Title 13 of the Texas Administrative Code, Chapter 26.

To be eligible for inclusion in the NRHP, a property must meet at least one of the National Register Criteria for Evaluation. These criteria are:

A. Associations with events that have made a significant contribution to the broad patterns of our history;
B. Associations with the lives of significant persons;
C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction;
D. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to possessing significance under one or more of the National Register Criteria, a property must also retain sufficient integrity and historic character to convey its significance in order to be considered eligible for inclusion in the NRHP. The National Register Criteria recognize seven aspects that, in various combinations, define integrity. These aspects of integrity are Location, Design, Setting, Materials, Workmanship, Feeling, and Association.

The historic context provides a means of evaluation for the significance of a resource within a local framework. Once a historic context has been developed and historical patterns established, the information serves as a basis for applying the National Register Criteria to the evaluations in this addendum.

CONTEXT

Fort Bend County was initially settled in the early 1820s with the establishment of Fort Bend. By the 1830s, several small communities, including Richmond, had developed near this early settlement. In 1837, the Republic of Texas officially incorporated these communities and several months later established Fort Bend County with Richmond as

its county seat. By the mid-1850s, Fort Bend County had established itself as one of the region's leading producers of agricultural goods. The county continued to grow, and beginning in the 1880s through 1900 it experienced a population boom driven primarily by its highly developed transportation network and its ample fertile farmland. This population influx led to the establishment of a number of new communities, including Rosenburg.

Due to a national recession, flooding on the Brazos, and the Galveston Hurricane, over half of the county's farms, by the end of the first decade of the 20th century, had been forced into tenancy. In 1921, two major oilfields were discovered in Fort Bend County and five years later, the Gulf Oil Company developed a major gas and sulfur deposit in Orchard, in the northwestern part of the county. The discovery of these natural resources during this period led to a sharp population increase in the county's larger, more urban towns such as Richmond and Rosenburg. By the late 1920s and early 1930s, the need to provide reliable transportation routes spurred the construction and improvement of roads within the region. One such road, US Highway 96 was extended through the county in 1927-1929. In 1942, the roadway was improved and redesignated US Highway 59.

At the close of the Great Depression and the concurrent onset of World War II, Fort Bend County's population began to slowly decrease, due primarily to military enlistment and an increasing number of the county's residents moving to urban communities such as Houston in search of better employment opportunities. With the population decrease, the rate of farm tenancy and the number of farms in the county decreased. By the 1960s, growth within the county's industrial and commercial sectors led to a further decline in the number of commercial farms in the county, so much so that by the mid-1970s there were 1,340 farms in the county, down from 3,659 in 1925. Also, during this period, the diversification of the region's economy and accompanying population growth led to the improvement of the county's existing transportation network. In the mid-1970s, much of US 59's mileage within the project area was rebuilt along a new location further south of its original alignment. In the 1980s, growth within Houston and associated suburban development caused a dramatic increase in the county's population.

The periods of significance from Fort Bend County are 1850-1910 (agriculture) and 1921-1939 (industry). The first period of significance coincides with Fort Bend County's establishment as one of the region's leading producers of agricultural goods and ends with the movement of the county's farms into tenancy. The second period of significance begins with the discovery of oil and ends when the county's population climaxes and begins to slowly decrease.

PROPERTY TYPES

Domestic Buildings: The domestic resource (Resource #004) in the project APE is a single-family dwelling located in a rural setting. The documented resource dates to mid-twentieth century and does not have any associated outbuildings. The resource is modestly sized and reflects a popular residential trend in design (i.e. Ranch). Due to a privacy fence that surrounds the structure, the siding, construction type, and any alterations were not able to be documented. However, construction is typically of wood frame construction with pier-and-beam or concrete slab foundations. Common exterior materials are wood siding, brick veneer, or synthetic siding.

Farming and Ranching (Agricultural) Resources: Agricultural resources (Resource #s 002a-b & 003) include a wide variety of buildings and structures designed to facilitate agricultural industry. Due to their utilitarian purpose, these agricultural resources display no architectural detail or ornament. Exterior walls are clad with corrugated metal or wood siding. Barns used to shelter livestock or machinery are the most common agricultural property type within the study area.

Religious Resources: NRHP Criteria Consideration A requires that religious properties require justification on architectural, artistic, or historic grounds to avoid any appearance of judgment by government about the validity of any religion or belief. Historic significance for a religious property cannot be established on the merits of a religious doctrine, but rather, for architectural or artistic values or for important historic or cultural forces that the property represents. A religious property's significance under Criterion A, B, C, or D must be judged in purely secular terms. A religious group may, in some cases, be considered a cultural group whose activities are significant in areas broader than religious history. Religious resources in the project area include Resource #001a-b.

SURVEY RESULTS

The resources in the project area do not meet the criteria for eligibility under Criteria A, B, or C and are **not eligible** for NRHP-listing. They have no known associations with significant historical figures and, with the exception of Resource #001, do not fall within the established periods of significance. In addition, they 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. Furthermore, unsympathetic alterations and neglect have compromised the resources' integrity of materials, design, workmanship, and feeling.

INDIVIDUAL RESOURCE ASSESSMENTS

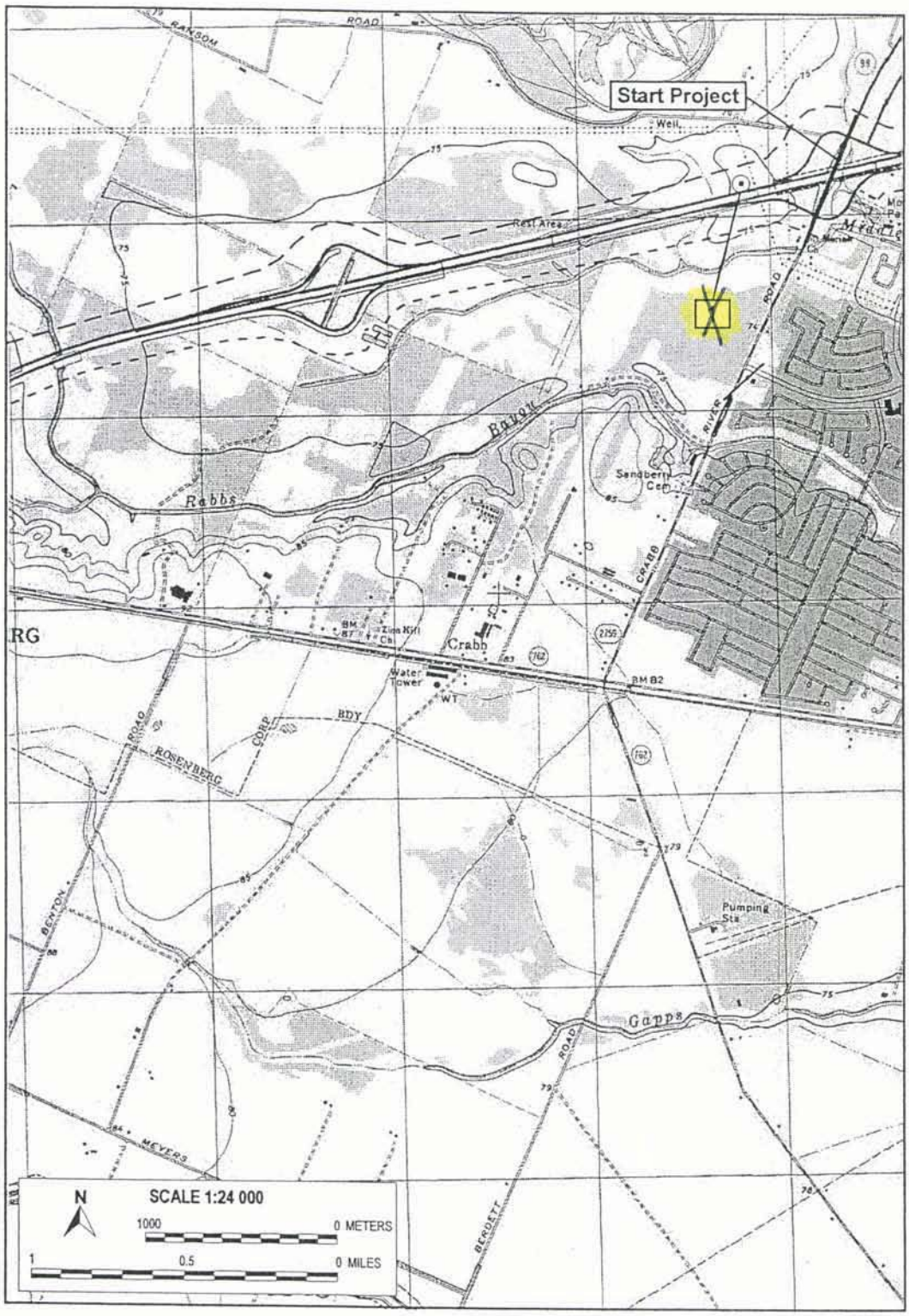
Resource #001a-b consist of a c. 1930 church and associated residence located at 1707 FM 2759. Resource #001a is a one-story church building that features a front-gabled roof and a rear, shed-roof addition. Other alterations include replacement siding, windows, and front door. Resource #001b is a one-story front-gabled building with exposed rafter tails. Alterations include replacement siding, door, windows, and the addition of shutters. These resources do not meet Criteria Consideration A: Religious Properties and are therefore **not eligible** for listing in the NRHP. Additionally, they are not associated with an important historic event, trend, or pattern of development; nor do they have associations with persons of transcendent importance. Furthermore, the alterations negatively affect the resources' integrity of design, materials, workmanship, and feeling.

PROJECT IMPACTS

Based on the above-listed NRHP eligibility recommendations, there are no NRHP-listed or eligible resources within the project study area. Therefore, this project will have no impact to any historic resources.

BIBLIOGRAPHY

HHM Inc, Historic Resources Survey Report US 59: SH 99 (Grand Parkway) to SP 10, Fort Bend County, Texas (February 2004) 4

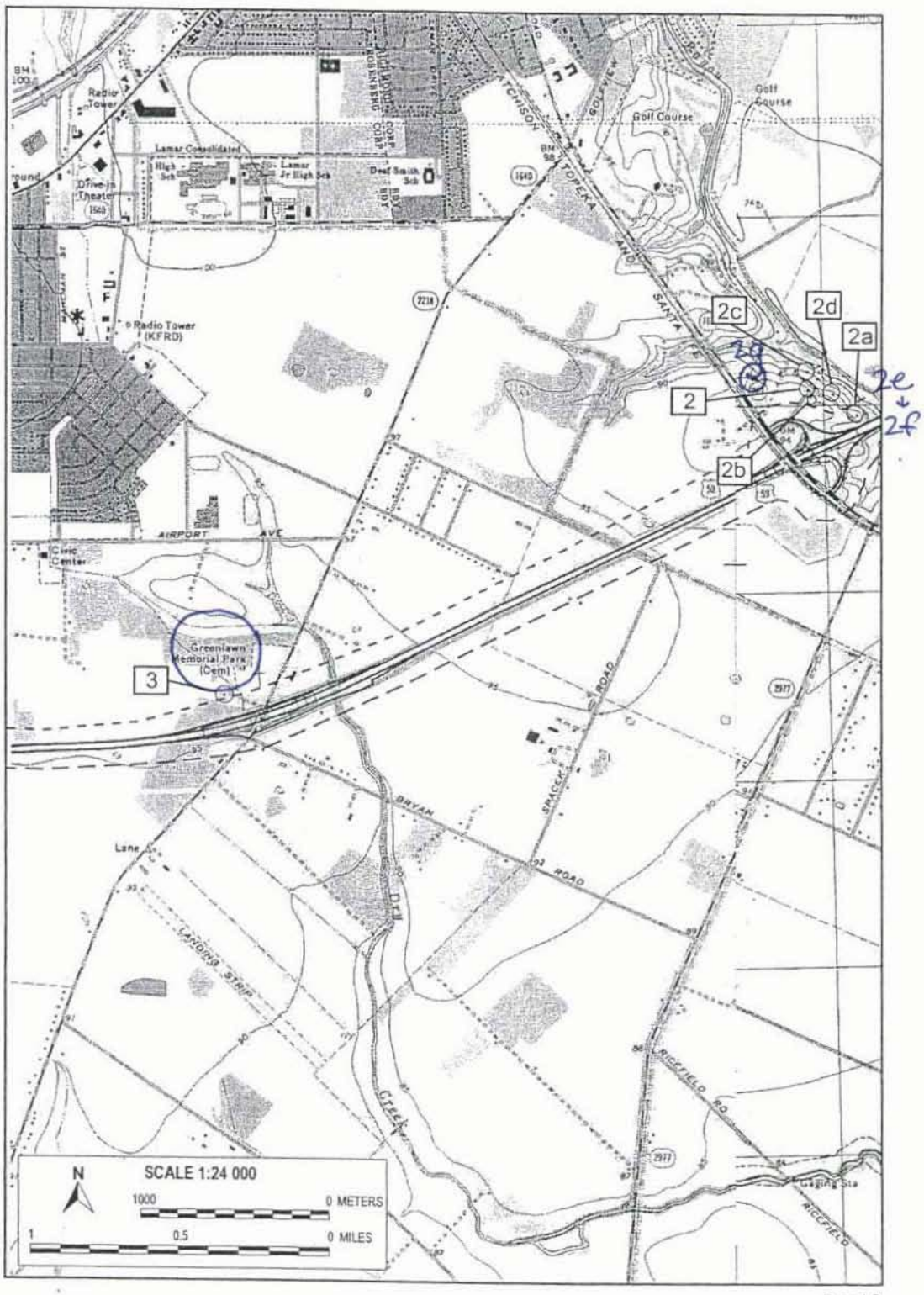


Panel 1

RESOURCE LOCATION MAP
US 59: SH99 GRAND PARKWAY TO SP 10
FORT BEND COUNTY, TEXAS

source: Richmond, TX USGS 7.5" topographic quadrangle (1977)

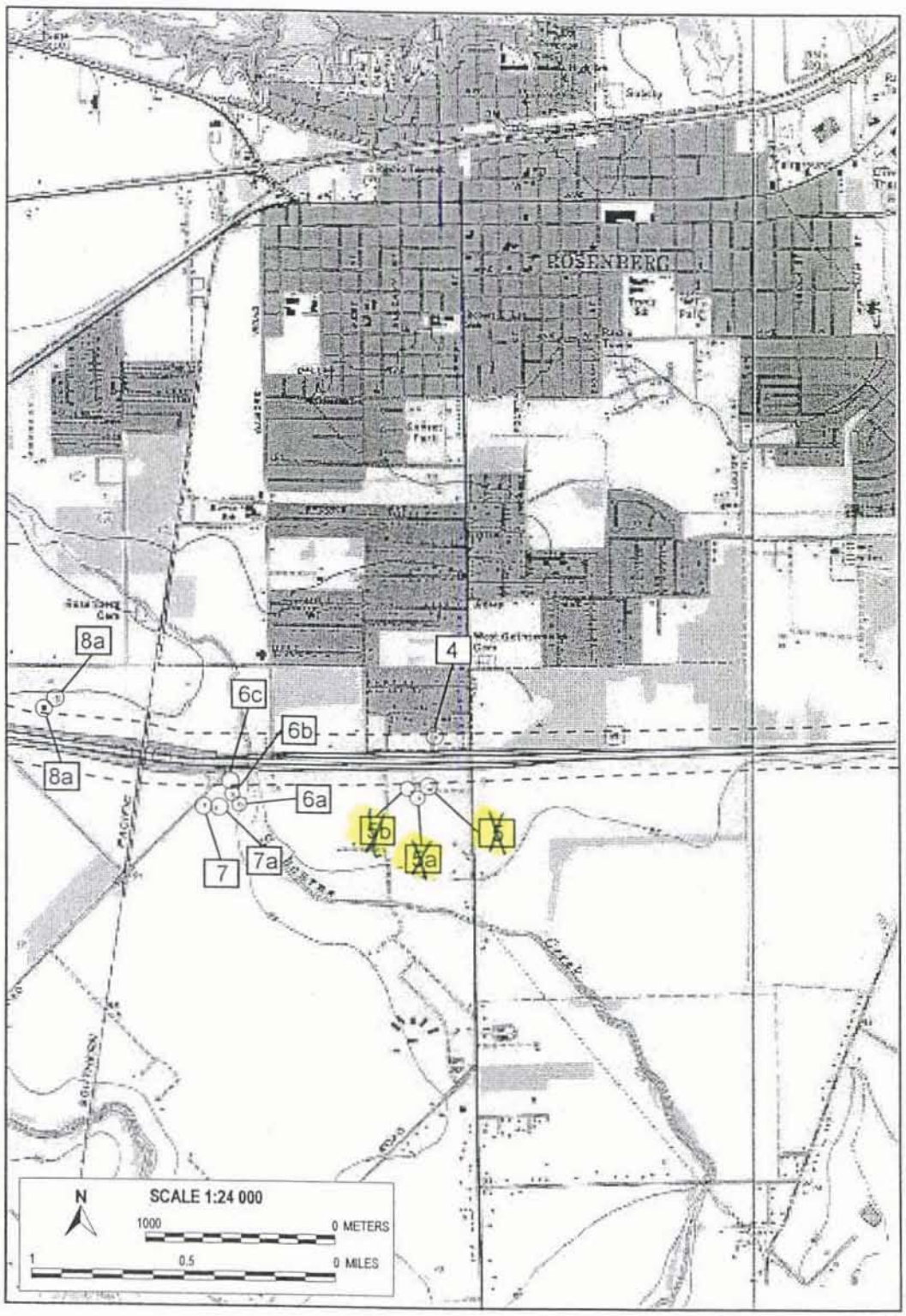
2004 survey maps



Panel 2

RESOURCE LOCATION MAP
US 59: SH99 GRAND PARKWAY TO SP 10
FORT BEND COUNTY, TEXAS

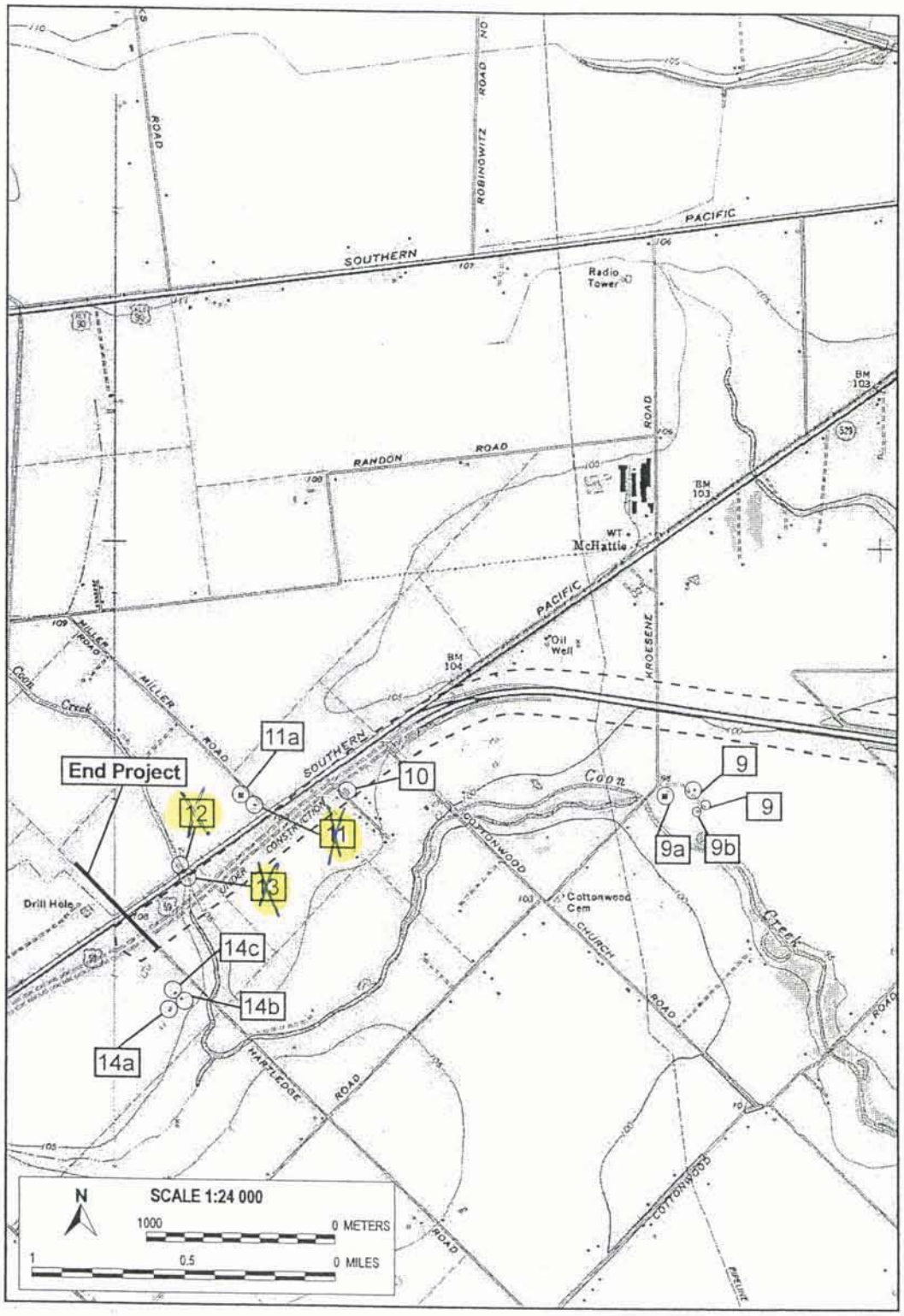
source: Richmond, TX USGS 7.5" topographic quadrangle (1977)



Panel 3

RESOURCE LOCATION MAP
US 59: SH99 GRAND PARKWAY TO SP 10
FORT BEND COUNTY, TEXAS

source: Richmond, TX USGS 7.5" topographic quadrangle (1977)



Panel 4

RESOURCE LOCATION MAP
US 59: SH99 GRAND PARKWAY TO SP 10
FORT BEND COUNTY, TEXAS

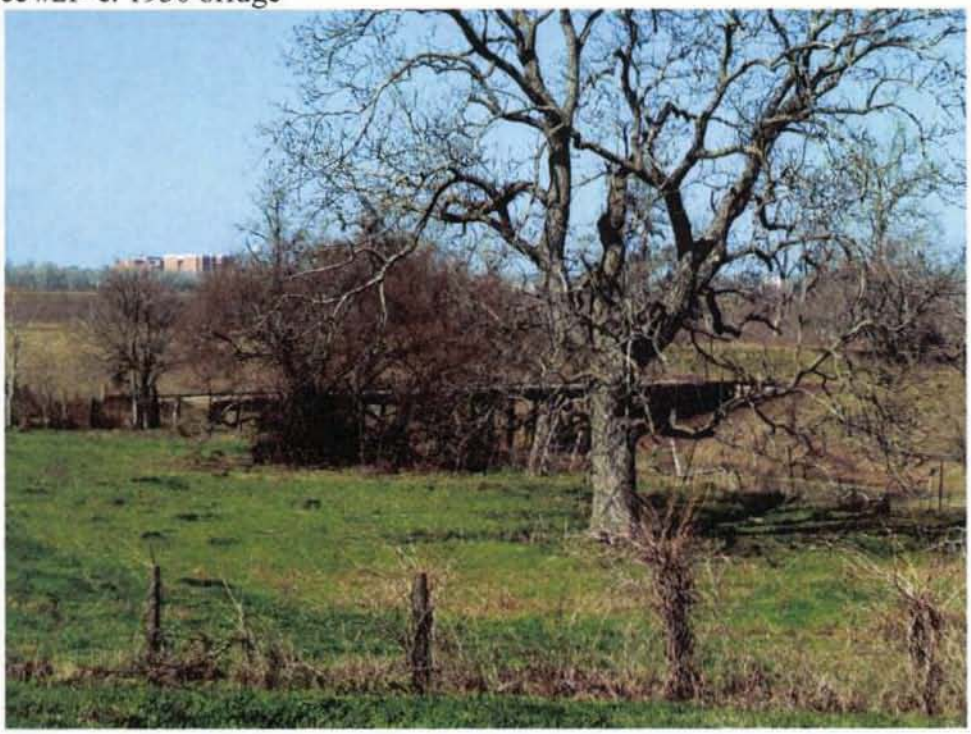
source: Richmond, TX USGS 7.5" topographic quadrangle (1977)

2004 SURVEY

RESOURCE #2 ADDITIONS

Resource #2e- c. 1930 windmill

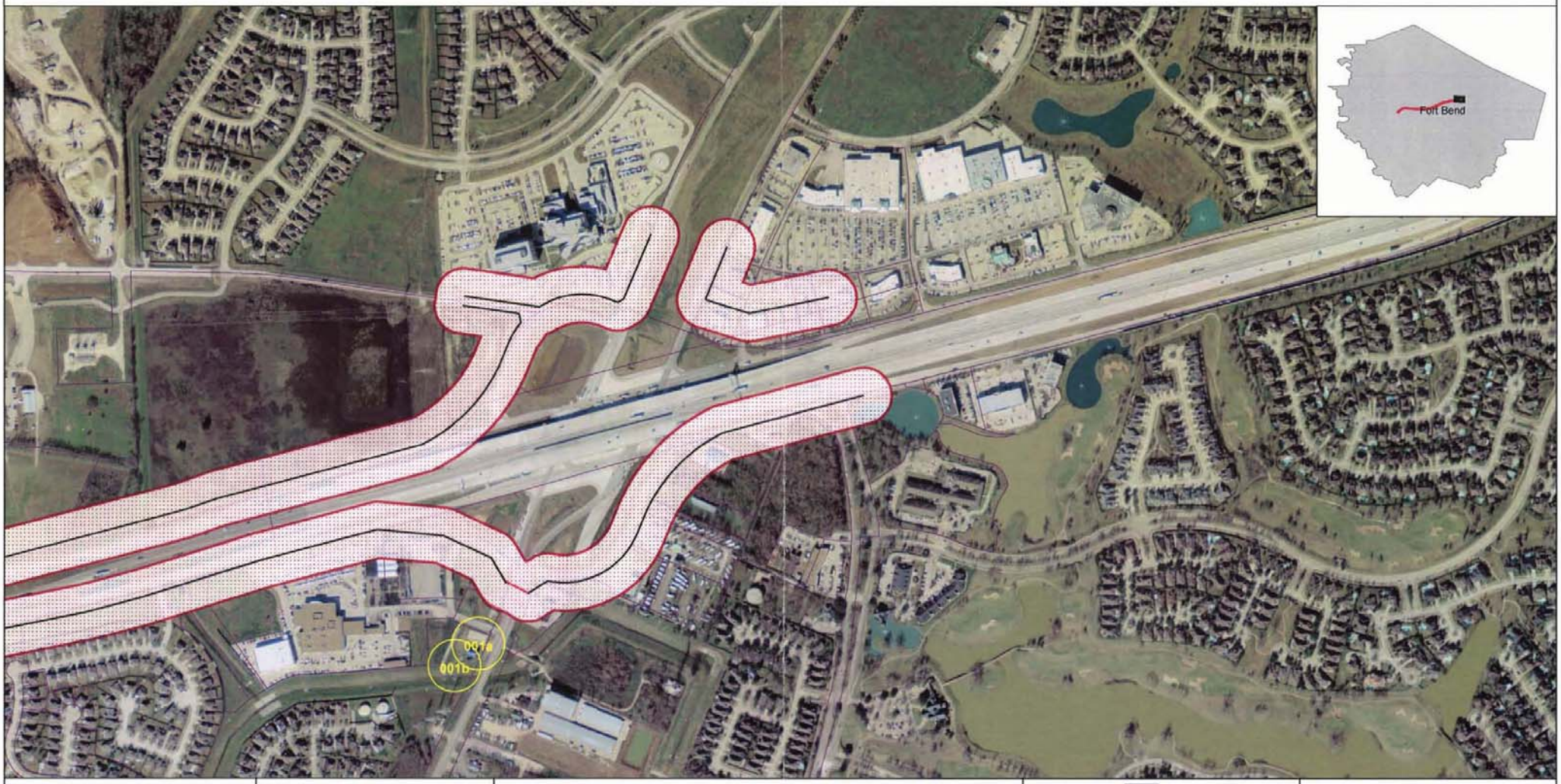
Resource #2f- c. 1930 bridge



Resource #2g- c. 1960 single-family dwelling

Contextual of Resource #2e-f

US 59



Legend

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- Existing_ROW
- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

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Miles

DISCLAIMER:
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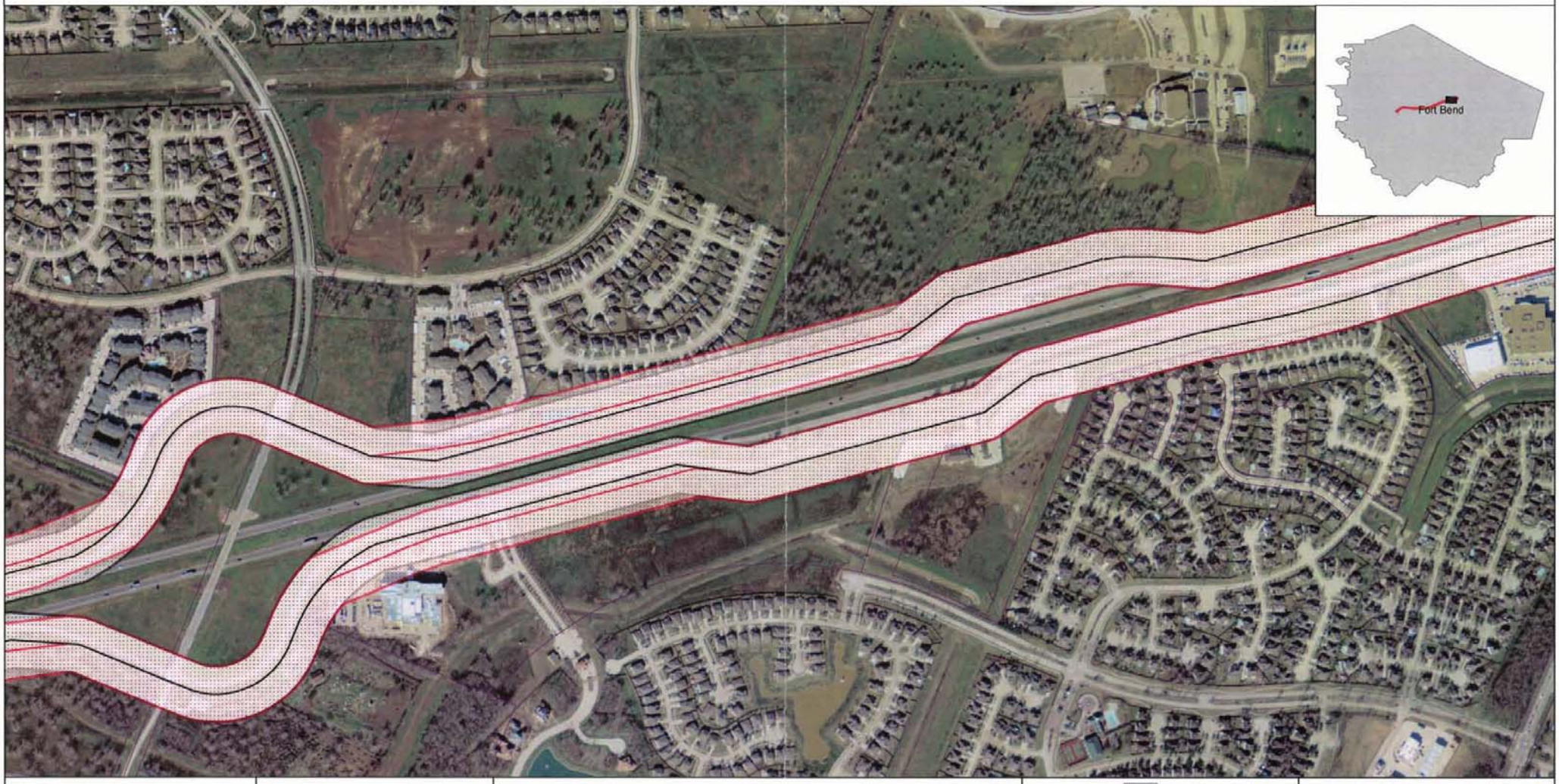
updated survey maps only showing previously undocumented resources

2

US 59



Legend

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- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

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0 0.1 0.2 0.4
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3

US 59

Legend

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- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

N

0 0.1 0.2 0.4
Miles

DISCLAIMER:
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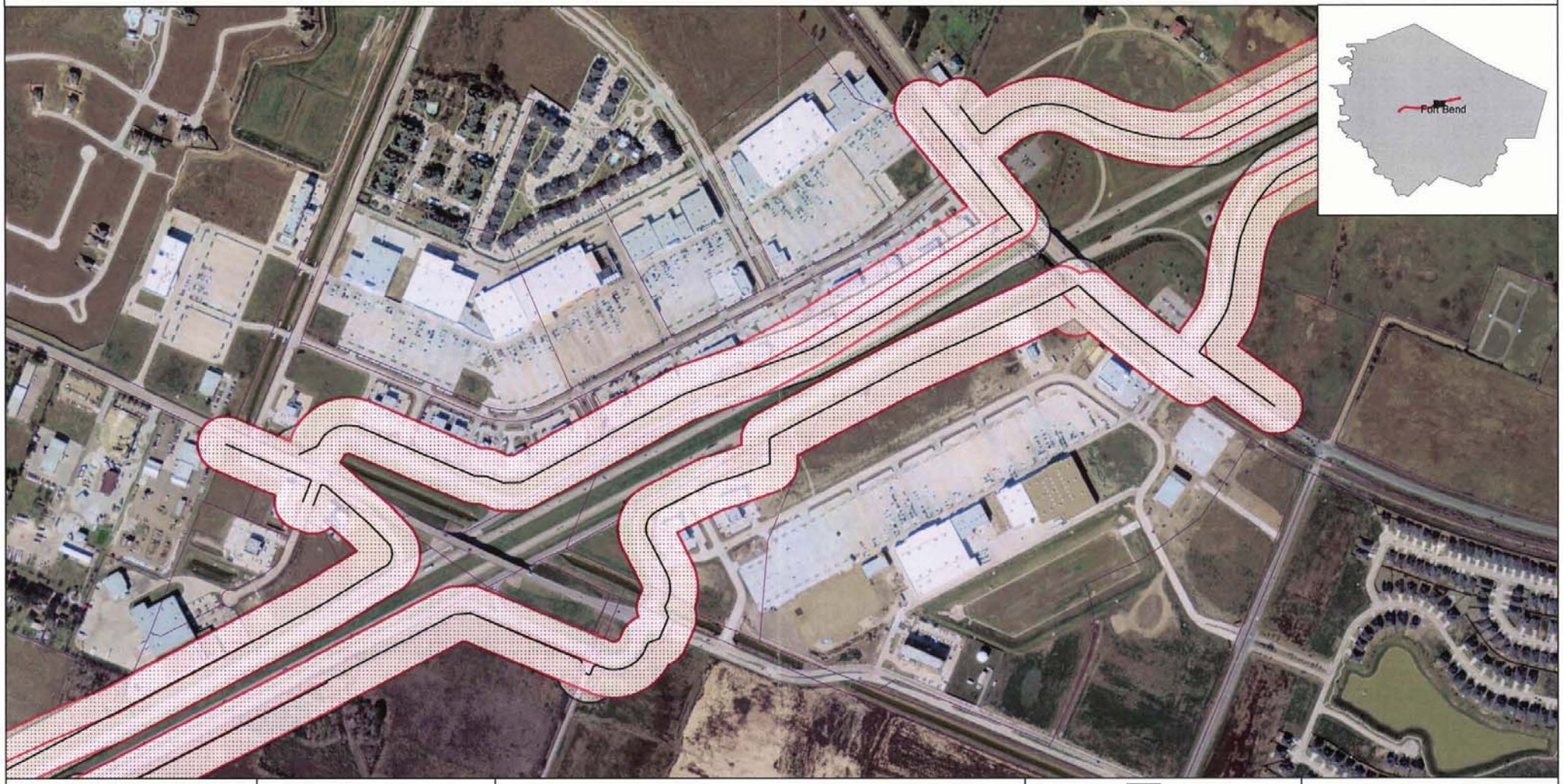
4

US 59



Legend

- Proposed_ROW
- Existing_ROW
- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

N

0 0.1 0.2 0.4
Miles

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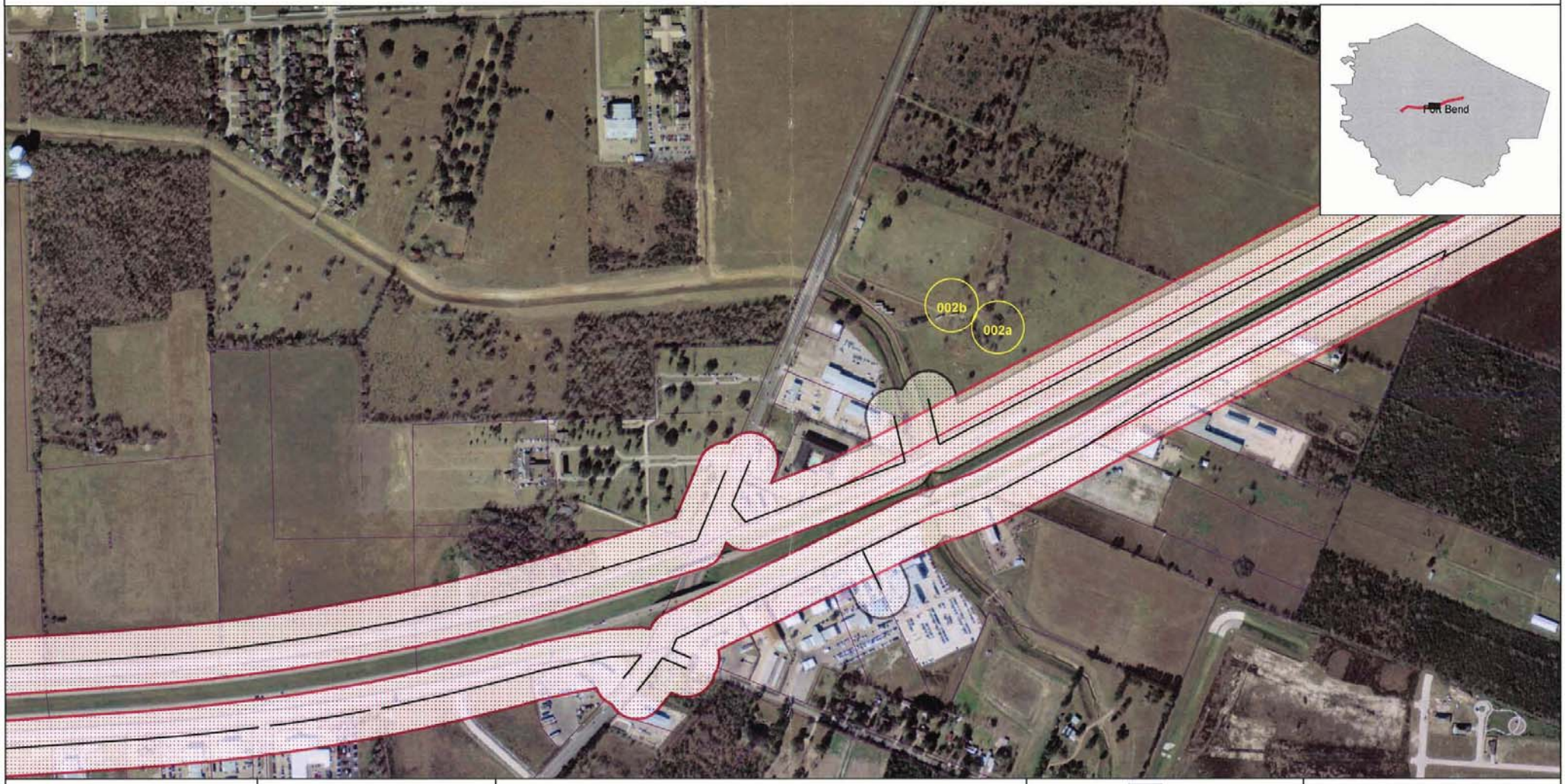
5

US 59



Legend

- Proposed_ROW
- Existing_ROW
- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

N

0 0.1 0.2 0.4
Miles

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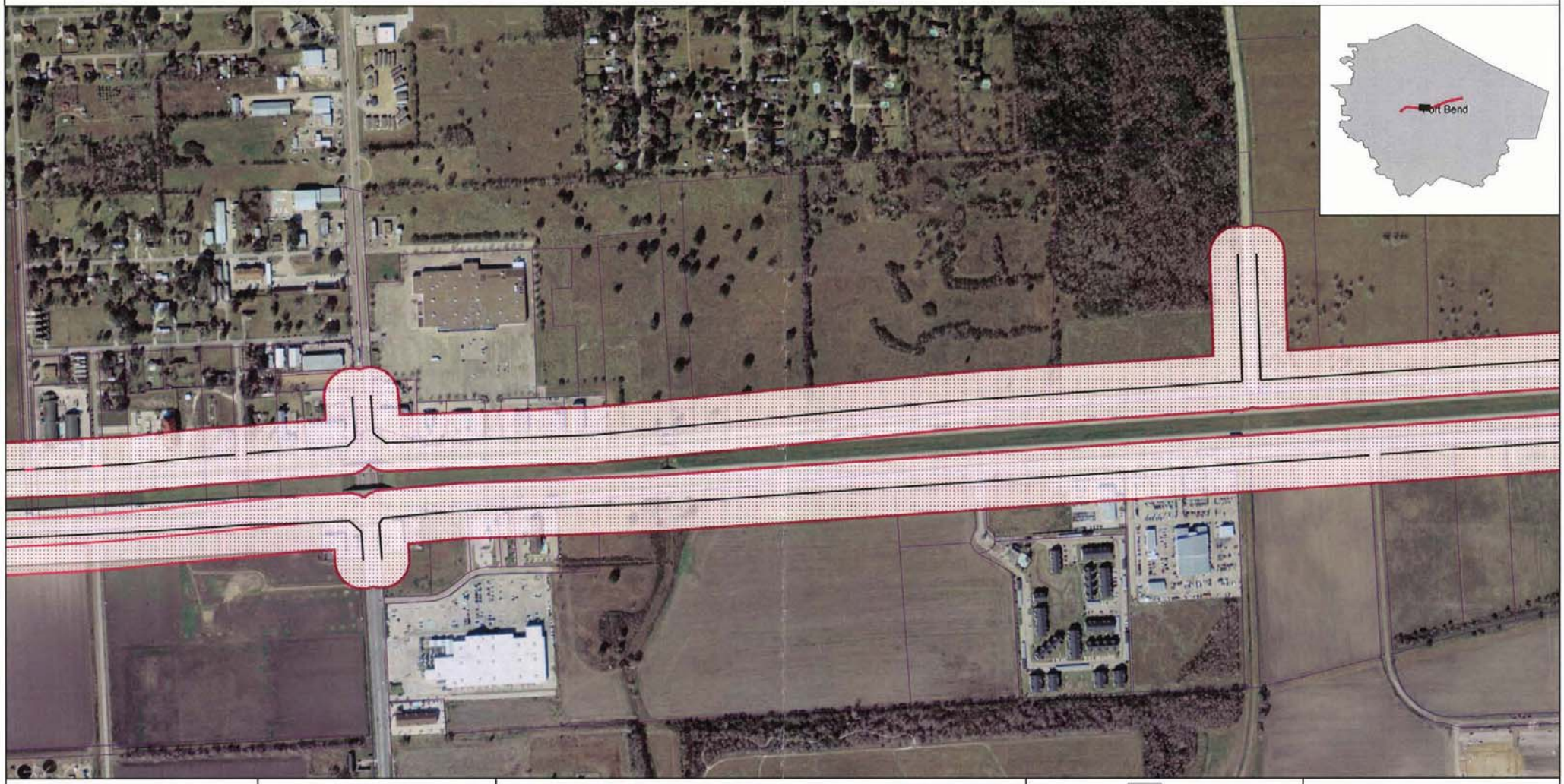
US 59



Legend

- Proposed_ROW
- Existing_ROW
- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

N

0 0.1 0.2 0.4
Miles

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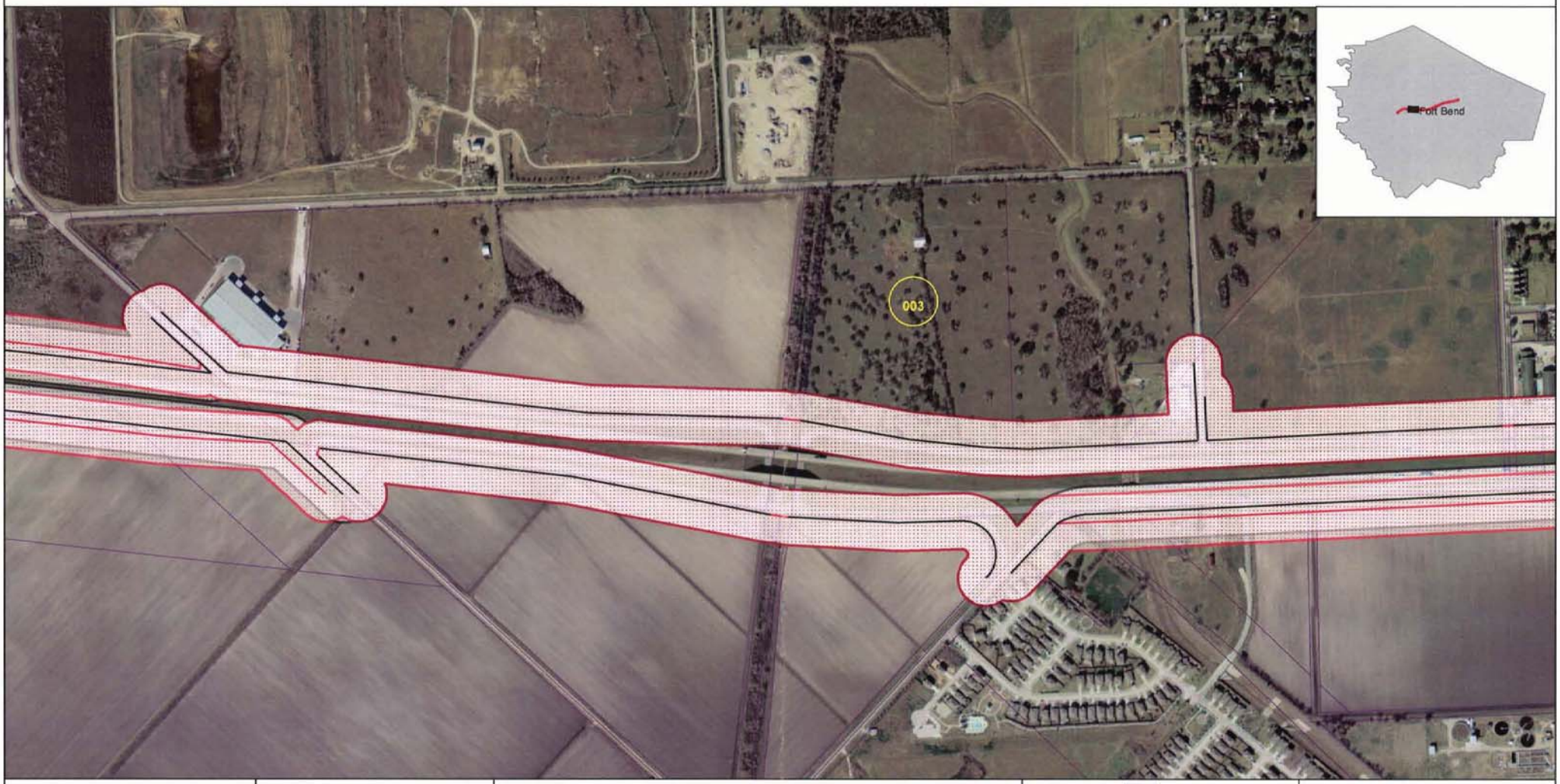
US 59



Legend

- Proposed_ROW
- Existing_ROW
- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

N

0 0.1 0.2 0.4
Miles

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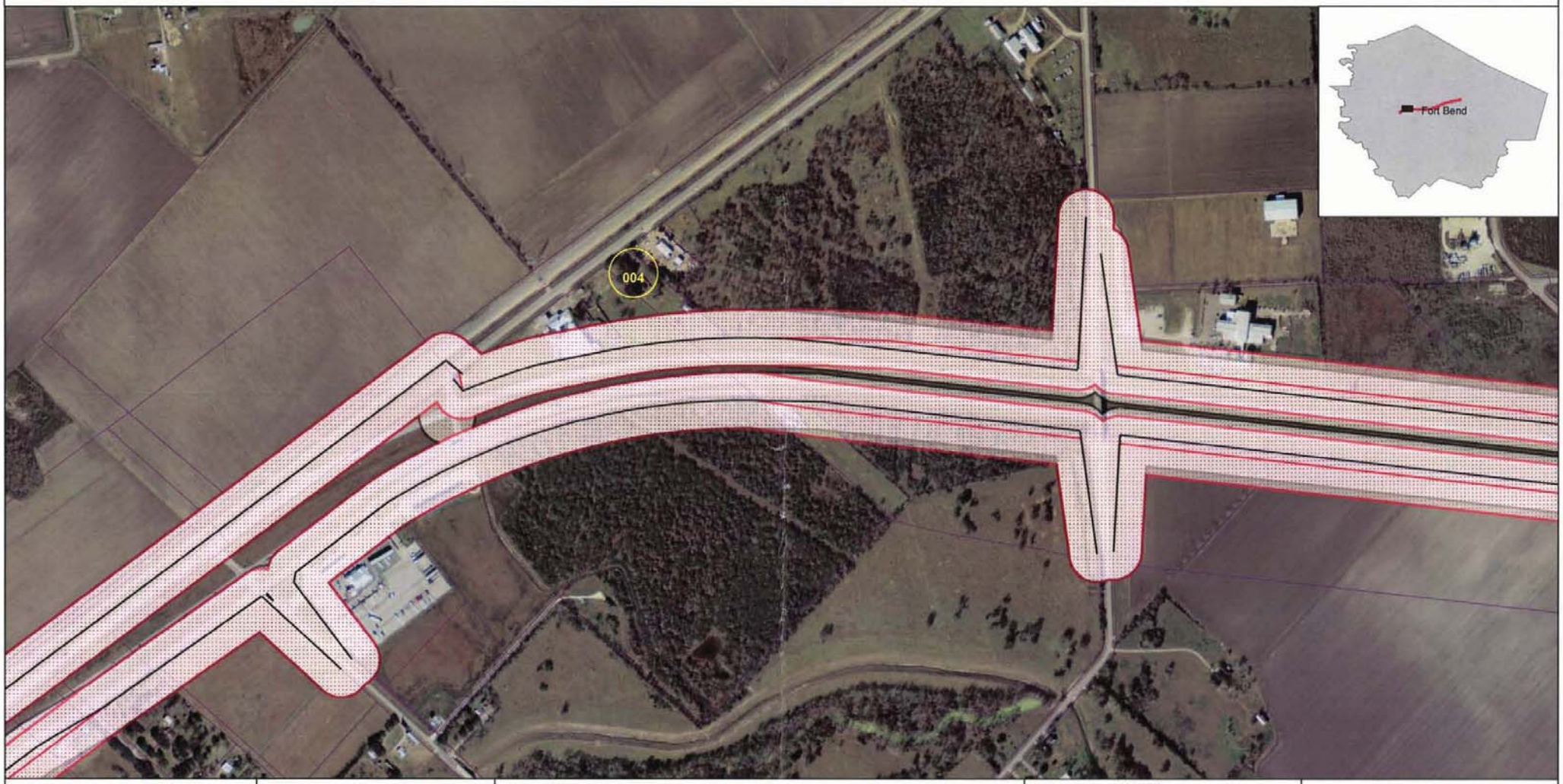
8

US 59



Legend

- Proposed_ROW
- Existing_ROW
- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

N

0 0.1 0.2 0.4
Miles

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9

US 59

Legend

- Proposed_ROW
- Existing_ROW
- Exist/Prop_ROW
- Buffer_of_Proposed_ROW
- Buffer_of_Existing_ROW
- Buffer_of_Exist_Prop_ROW
- Parcel

N

0 0.1 0.2 0.4
Miles

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RESOURCE INVENTORY TABLE
US 59: Spur 10 to State Highway 99 (FM 2759)
Fort Bend County, Houston District, Texas
CSJ 0027-12-097

RESOURCE ID #	LOCATION	PROPERTY TYPE/SUBTYPE	STYLISTIC INFLUENCE	DATE	INTEGRITY	ELIGIBILITY
001a	1707 FM 2759	RELIGION/religious facility	no style	c. 1930	replacement windows, door, & siding; rear addition; handicap ramp	NO
001b	"	RELIGION/church-related residence	no style	c. 1930	replacement siding, door & windows; shutters added	NO
002a	29.31'15.96"N 95.46'17.20"W	AGRICULTURE/ agricultural outbuilding	no style	c. 1945	rear of barn collapsed	NO
002b	"	AGRICULTURE/ agricultural outbuilding	no style	c. 1945	none	NO
003	29.32'7"N 95.49'25.67"W	AGRICULTURE/ agricultural outbuilding	no style	c. 1960	none	NO
004	2511 Spur 529	DOMESTIC/single dwelling	Ranch	c. 1950	fence completely encloses house	NO

HISTORIC RESOURCES SURVEY FORM

Resource #:	1
Resource Name:	Mount Mariah Baptist Church; 001a-church, 001b-office
Location:	1707 FM 2759
Resource Type/Subtype:	Religion / religious facility
Stylistic Influence:	n/a
Construction Date:	c. 1930
Integrity:	
NRHP Recommendation:	Not eligible
View:	façade of 001a, looking W

HISTORIC RESOURCES SURVEY FORM

Resource #: 1

Location: 1707 FM 2759

Integrity:

NRHP Recommendation: Not eligible

Integrity Issues:

- **Fenestration:** n/a
- **Windows/doors:** replacement windows and door
- **Porch modification** n/a
- **Siding:** nonhistoric siding
- **Additions:** nonhistoric addition at rear
- **Other:** missing historic roof composition

2nd View: oblique of 001a, looking SW

HISTORIC RESOURCES SURVEY FORM

Resource #:	1
Location:	1707 FM 2759
NRHP Recommendation:	Not eligible
3rd View	façade of 001b, looking W

HISTORIC RESOURCES SURVEY FORM

Resource #:	1
Location:	1707 FM 2759
NRHP Recommendation:	Not eligible
4th View	oblique of 001b, looking SW

HISTORIC RESOURCES SURVEY FORM

Resource #:	2
Resource Name:	002a-large barn; 002b-small barn; 29.32'15.96" N 95.46'17.20" W
Location:	FM 2218
Resource Type/Subtype:	Agriculture / agricultural outbuilding
Stylistic Influence:	n/a
Construction Date:	c. 1945
Integrity:	
NRHP Recommendation:	Not eligible
View:	contextual of Resource 002a & 002b, looking NW

HISTORIC RESOURCES SURVEY FORM

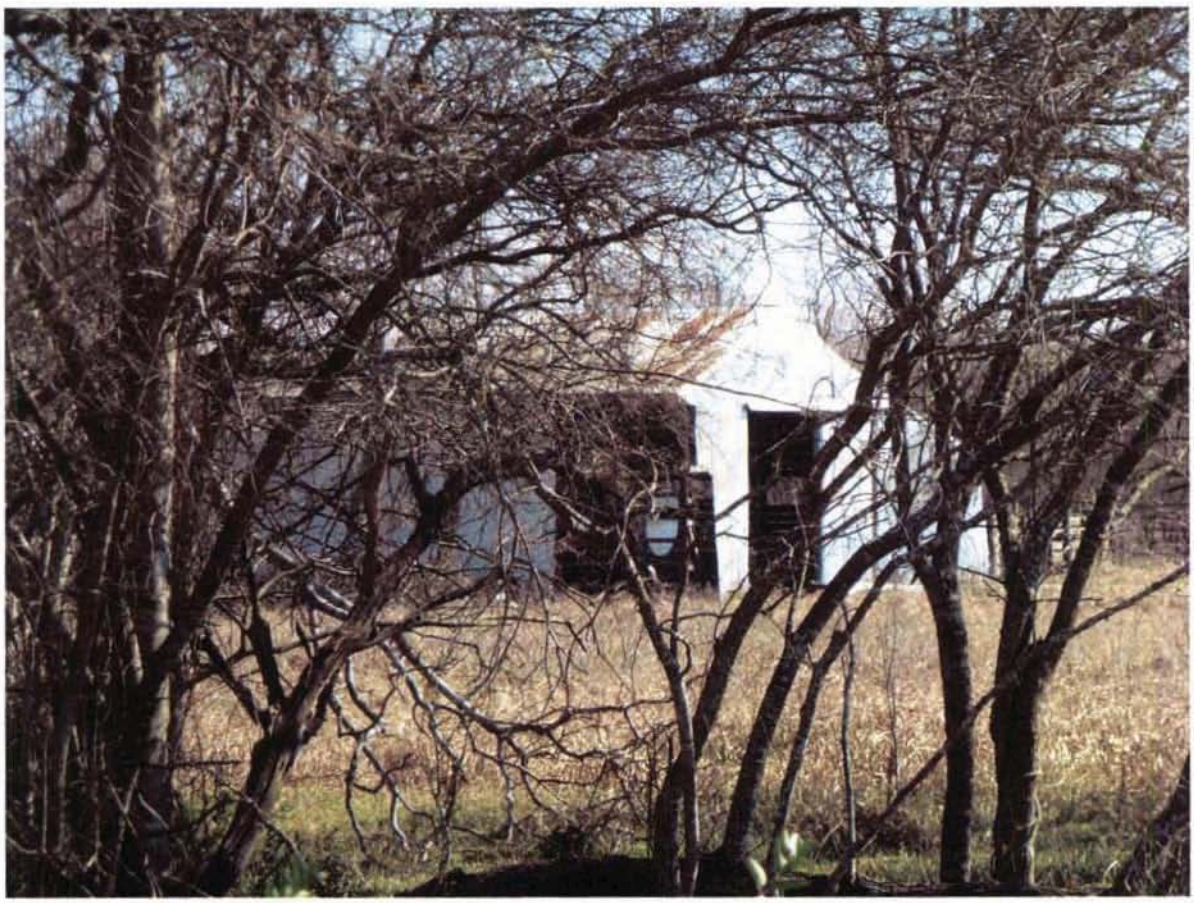
Resource #:	2
Location:	FM 2218
Integrity:	
NRHP Recommendation:	Not eligible
Integrity Issues:	
Fenestration:	n/a
Windows/doors:	n/a
Porch modification	n/a
Siding:	n/a
Additions:	n/a
Other:	poor physical condition
2nd View:	oblique of Resource 002a, looking NW

HISTORIC RESOURCES SURVEY FORM

Resource #:	2
Location:	FM 2218
NRHP Recommendation:	Not eligible
3rd View	oblique of Resource 002b, looking NW

HISTORIC RESOURCES SURVEY FORM

Resource #:	3
Resource Name:	29.32'7.34"N 95.49'25.67"W
Location:	Klauke Rd
Resource Type/Subtype:	Agriculture / agricultural outbuilding
Stylistic Influence:	n/a
Construction Date:	c. 1960
Integrity:	
NRHP Recommendation:	Not eligible
View:	oblique, looking N



HISTORIC RESOURCES SURVEY FORM

Resource #:	4
Resource Name:	
Location:	2511 Spur 529
Resource Type/Subtype:	Domestic / single-family dwelling
Stylistic Influence:	Ranch
Construction Date:	c. 1950
Integrity:	
NRHP Recommendation:	Not eligible
View:	façade, looking S

HISTORIC RESOURCES SURVEY FORM

Resource #: 4

Location: 2511 Spur 529

Integrity:

NRHP Recommendation: Not eligible

Integrity Issues:

- **Fenestration:** n/a
- **Windows/doors:** n/a
- **Porch modification** n/a
- **Siding:** n/a
- **Additions:** n/a
- **Other:** compromised setting

2nd View: oblique, looking SW

SUMMARY OF PREVIOUS RESEARCH FOR IMPACTS TO HISTORICAL RESOURCES

Qualified cultural resource personnel conducted a historic resource survey of the project area on October 25-26, 2003. Qualified cultural resource personnel also reviewed the National Register of Historic Places (NRHP), the list of Recorded Texas Historical Landmarks (RTHL), and Texas Historic Sites Inventory (THSI) to identify previously designated historic resources. The area of potential effect (APE) for the project was determined to extend 150 feet beyond the proposed ROW boundaries. The purpose of the survey was to identify and evaluate all buildings, structures, objects, and potential districts constructed in 1960 or earlier that are located within the APE. In addition, the survey included documentation of historic-age resources located outside the APE but clearly associated with other built resources or agricultural fields within the APE.

The October 2003 field survey identified a total of 27 buildings and three structures constructed in 1960 or earlier within the project APE. Most surveyed buildings were rural residences, barns, and other outbuildings. A few mid-20th century houses were also identified on the southern outskirts of the City of Rosenberg, near the US 59/SH 36 intersection. The surveyed structures consist of a former highway bridge over Coon Creek (constructed 1928-29), a railroad trestle bridge along the former Galveston, Harrisburg, and San Antonio Railroad trackage, and two windmills. All surveyed resources are recommended as not eligible for listing in the NRHP. In accordance with the Programmatic Agreement (PA) between the FHWA, Texas Historical Commission (THC), the Advisory Council on Historic Preservation (ACHP), TxDOT, and the Memorandum of Understanding among TxDOT and THC, TxDOT individually coordinated this project in August 2004 with concurrence that there are no NRHP – eligible properties in the APE dated August 12, 2004.

Within the project limits, existing ROW along US 59 varies from about 320 feet to 635 feet. Log records of TxDOT Houston District US 59 construction projects show that the original ROW, which consisted of 300 feet in width along this section of roadway was acquired in 1958 prior to the establishment of the *Uniform Relocation Assistance and Real Properties Acquisition Act of 1970*. All later ROW acquisitions within the project limits were purchased directly by TxDOT after 1970 and were in accordance with the *Uniform Relocation Assistance and Real Properties Acquisition Act of 1970*.

APPENDIX H: WETLAND DATA FORMS

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Tributary to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S6 OP2 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris verticillata*	H	NL	9.			
2.	*Chloris canterai*	H	NL	10.			
3.	*Paspalum notatum*	H	FACU+	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/4 = 0% FAC Neutral: 0:4

Remarks: Sample point does not meet hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth of Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP2 Upland

Map Unit Name (Series and Phase): Be - Bernard Edna Complex

Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7"		10YR 4/2			Clay
7"-16"		5YR 4/6 (50%)			Clay
		7.5 YR 4/4 (50%)			Clay (appears to be calcareous)

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Mixed matrix. Sample point does not meet Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	No	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Tributary to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: OP6 OP2 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.	*Setaria geniculata*	H	FAC
2.	*Cyperus ochraceus*	H	FACW	10.			
3.	*Cyperus virens*	H	FACW	11.			
4.	*Echinochloa colona*	H	FAC	12.			
5.	*Ipomea trichocarpa*	H	FACU	13.			
6.	*Panicum maximum*	H	FAC-	14.			
7.	*Phyla incisa*	H	FAC	15.			
8.	*Rumex crispus*	H	FACU	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 5/9 = 56% FAC Neutral: 2:3

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
____ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth of Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
X Drift Lines
X Sediment Deposits
____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: Sample point meet meets wetland hydrology criteria.

SOILS Plot ID: S6 OP2 Wet

Map Unit Name (Series and Phase): Be - Bernard Edna Complex

Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"		10YR 4/2 (95%)	10YR 5/8	Common, fine, distinct	Sandy clay
		10YR 5/3 (5%)			Sandy clay
8"-16"		10YR4/2 (80%)	10YR 5/8	Common, fine, distinct	Sandy clay
		10YR 6/3 (15%)			Sandy clay
		10YR 5/3 (5%)			Sandy clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Mixed matrix. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Tributary to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S6 OP3 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris canterai*	H	NL	9.			
2.	*Ipomoea trichocarpa*	H	FACU	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.	*Acacia smallii*	H	FACU	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/5 = 20% FAC Neutral: 0:4

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
___ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth of Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
___ Oxidized Root Channels in Upper 12 inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP3 Upland

Map Unit Name (Series and Phase):	Be - Bernard Edna Complex	Drainage Class:	Very slowly permeable
Taxonomy (Subgroup):	thermic Vertic Argiaquolls	Field Observations Confirmed Mapped Type?	Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"		10YR 3/2 (50%)			Clay
		2.5Y 6/2 (50%)	10YR 5/8	Many, medium, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of wetland hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Tributary to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S6 OP3 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.			
2.	*Cyperus ochraceus*	H	FACW	10.			
3.	*Cyperus virens*	H	FACW	11.			
4.	*Eleocharis montevidensis*	H	FACW	12.			
5.	*Sagittaria graminea*	H	OBL	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 4/5 = 80% FAC Neutral: 4:1

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S6 OP3 Wet

Map Unit Name (Series and Phase):	Be - Bernard Edna Complex	Drainage Class:	Very slowly permeable
Taxonomy (Subgroup):	thermic Vertic Argiaquolls	Field Observations Confirmed Mapped Type?	Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"		10YR 4/2	7.5 YR 4/6	Few, medium, distinct	Clay
5"-16"		5YR 4/6			Clay, road bed material

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Tributary to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S6 OP4 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris canterai*	H	NL	9.			
2.	*Ipomoea trichocarpa*	H	FACU	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.	*Acacia smallii*	H	FACU	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/5 = 20% FAC Neutral: 0:4

Remarks: Wetland vegetation does not exceed 50% or species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
____ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP4 Upland

Map Unit Name (Series and Phase): Be - Bernard Edna Complex

Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16		10YR 3/2 (50%)			Clay
		2.5Y 6/2 (50%)	10YR 5/8	Many, medium, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Very mixed soils, probably side cast from ditch during construction. Existing condition is the new normal condition. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology. Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S6 OP4 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.			
2.	*Cyperus ochraceus*	H	FACW	10.			
3.	*Cyperus virens*	H	FACW	11.			
4.	*Eleocharis montevidensis*	H	FACW	12.			
5.	*Sagittaria graminea*	H	OBL	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 4/5 = 80% FAC Neutral: 4:1

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S6 OP4 Wet

Map Unit Name (Series and Phase):	Be - Bernard Edna Complex	Drainage Class:	Very slowly permeable
Taxonomy (Subgroup):	thermic Vertic Argiaquolls	Field Observations Confirmed Mapped Type?	Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"		10YR 4/2	7.5 YR 4/6	Few, medium, distinct	Clay
5"-16"		5YR 4/6			Clay, road bed material

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S6 OP5 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris canterai*	H	NL	9.			
2.	*Chloris verticillata*	H	NL	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.	*Acacia smallii*	H	FACU	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/5 = 20% FAC Neutral: 0:4

Remarks: Wetland vegetation does not exceed 50% of the species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP5 Upland

Map Unit Name (Series and Phase): Be - Bernard Edna Complex

Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"		10YR 3/2 (50%)			Clay
		2.5Y 6/2 (50%)	10YR 5/8	Many, medium, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Very mixed soils, probably side cast from ditch during construction. Existing condition is the new normal condition. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology. Wetland vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S6 OP5 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.			
2.	*Cyperus ochraceus*	H	FACW	10.			
3.	*Cyperus virens*	H	FACW	11.			
4.	*Eleocharis montevidensis*	H	FACW	12.			
5.	*Sagittaria graminea*	H	OBL	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 4/5 = 80% FAC Neutral: 4:1

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- No Recorded Data Available

Field Observations:

Depth of Surface Water: 1 (in.)

Depth of Free Water in Pit: Surface (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- X Inundated
- X Saturated in Upper 12 Inches
- Water Marks
- X Drift Lines
- X Sediment Deposits
- Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- X FAC-Neutral Test
- Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S6 OP5 Wet

Map Unit Name (Series and Phase):	Be - Bernard Edna Complex	Drainage Class:	Very slowly permeable
Taxonomy (Subgroup):	thermic Vertic Argiaquolls	Field Observations Confirmed Mapped Type?	Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16		10YR 4/1			Silty clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S6 OP6 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris canterai*	H	NL	9.			
2.	*Chloris verticillata*	H	NL	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.	*Acacia smallii*	H	FACU	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/5 = 20% FAC Neutral: 0:4

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP6 Upland

Map Unit Name (Series and Phase):	Be - Bernard Edna Complex	Drainage Class:	Very slowly permeable
Taxonomy (Subgroup):	thermic Vertic Argiaquolls	Field Observations Confirmed Mapped Type?	Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16		10YR 3/2 (50%)			Clay
		2.5Y 6/2 (50%)	10YR 5/8	Many, medium, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology.
Wetland hyrdology does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S6 OP6 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.			
2.	*Cyperus ochraceus*	H	FACW	10.			
3.	*Cyperus virens*	H	FACW	11.			
4.	*Eleocharis montevidensis*	H	FACW	12.			
5.	*Sagittaria graminea*	H	OBL	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 5/5 = 100% FAC Neutral: 5:0

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 1 (in.)

Depth of Free Water in Pit: Surface (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- X Inundated
- X Saturated in Upper 12 Inches
- Water Marks
- X Drift Lines
- X Sediment Deposits
- Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- X FAC-Neutral Test
- Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S6 OP6 Wet

Map Unit Name (Series and Phase): Be - Bernard Edna Complex

Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"		10YR 4/1			Silty clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: Plot ID: S6 OP7 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris canterai*	H	NL	9.			
2.	*Chloris verticillata*	H	NL	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/4 = 25% FAC Neutral: 0:1

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP7 Upland

Map Unit Name	Be - Bernard Edna Complex	Drainage Class:	Very slowly permeable
Taxonomy (Subgroup):	thermic Vertic Argiaquolls	Field Observations Confirmed Mapped Type?	Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"		10YR 3/2 (50%)			Clay
		2.5Y 6/2 (50%)	10YR 5/8	Many, medium, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Very mixed soils, probably side cast from ditch during construction. Existing condition is the new normal condition. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology. Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: Plot ID: S6 OP7 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.			
2.	*Cyperus virens*	H	FACW	10.			
3.	*Eleocharis montevidensis*	H	FACW	11.			
4.	*Sagittaria graminea*	H	OBL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/4 = 75% FAC Neutral: 3:1

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 2 (in.)

Depth of Free Water in Pit: Surface (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- X Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- X Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S6 OP7 Wet

Map Unit Name: Be - Bernard Edna Complex Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"		10YR 4/1			Silty clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: Plot ID: S6 OP8 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris canterai*	H	NL	9.			
2.	*Chloris verticillata*	H	NL	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/4 = 25% FAC Neutral: 0:3

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
___ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
___ Oxidized Root Channels in Upper 12 inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP8 Upland

Map Unit Name: Be - Bernard Edna Complex Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"		10YR 3/2 (50%)			Clay
		2.5Y 6/2 (50%)	10YR 5/8	Many, medium, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Very mixed soils, probably side cast from ditch during construction. Existing condition is the new normal condition. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of wetland hydrology. Hydrophytic vegetation criteria does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Trib to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: Plot ID: S6 OP8 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.			
2.	*Cyperus virens*	H	FACW	10.			
3.	*Eleocharis montevidensis*	H	FACW	11.			
4.	*Sagittaria graminea*	H	OBL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/4 = 75% FAC Neutral: 3:1

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 2 (in.)

Depth of Free Water in Pit: Surface (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- X Inundated
- X Saturated in Upper 12 Inches
- Water Marks
- X Drift Lines
- X Sediment Deposits
- Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- X FAC-Neutral Test
- Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S6 OP8 Wet

Map Unit Name	Be - Bernard Edna Complex	Drainage Class:	Very slowly permeable
Taxonomy (Subgroup):	thermic Vertic Argiaquolls	Field Observations Confirmed Mapped Type?	Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"		10YR 4/1			Silty clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 South, North Segment, Rabbs Bayou, Center of Hwy. Applicant/Owner: TxDOT Investigator: M. Oakley, J. Oakley, K. Benham, D. Feinstein, M. Jessup, R. Morris	Date: 8/31/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S7 OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Sorghum halepense*	H	FACU	9.			
2.	*Echinochloa colona*	H	FAC	10.			
3.	*Commelina erecta*	H	NL	11.			
4.	*Verbena brasiliensis*	S	UPL	12.			
5.	*Rumex crispus*	H	FACW	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/5 = 40% FAC Neutral: 1:3

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S7 OP1 Upland

Map Unit Name: Pa - Pledger

Drainage Class: Moderately well drained

Taxonomy (Subgroup): thermic Vertic Hapludolls

Field Observations Confirmed Mapped Type? Yes ____ No ____

Profile Description: Rabbs Bayou Wetland 1

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0"-2"		-	-	-	1° humus/organic
2"-4"	-	10YR 3/2	-	-	Calcium inclusions, clay, plastic
4"-8"	-	10YR 3/1	5YR 4/6	35%	Calcium concretions, fine to medium, platy clay
8"-16"	-	10YR 3/2	7.5YR 4/6	5%	Calcium concretions, medium to coarse, sandy

Hydric Soil Indicators:

	Histosol	X	Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
	Reducing Conditions		Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of wetland hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US59 South, North Segment, Rabbs Bayou, North Side of 59 Applicant/Owner: TxDOT Investigator: M. Oakley, J. Oakley, K. Benham, D. Feinstein, M. Jessup, R. Morris	Date: 8/31/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S7 OP1 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Sorghum halepense*	H	FACU	9.			
2.	*Alternanthera philoxeroides*	H	OBL	10.			
3.	*Echinochloa colona*	H	FAC	11.			
4.	*Ludwigia peploides*	H	OBL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 75% FAC Neutral: 2:1

Remarks: Sample point meets hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- X Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- X Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S7 OP1 Wet

Map Unit Name: Pa - Pledger

Drainage Class: Moderately well drained

Taxonomy (Subgroup): thermic Vertic Hapludolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0"-1"					1° humus/organic
1"-8"	-	10YR 3/1	7.5YR 4/6	35%	Very plastic clay
8"-12"	-	7.5 YR 4/1	10R 5/8	40%	Calcium concretions, coarse
8"-12"	-	7.5 YR 4/1	2.5Y 2.5/1 Black	Occasional	
12"-16"		10YR 4/1	2.5YR 4/6 2.5Y 2.5/1Black	45% Occasional	Sandy inclusion, crumbly

Hydric Soil Indicators:

___	Histosol	X	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Soil may have some fill mix. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.
Emergent vegetation in the stream; floating & rooting. Water primrose.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, North Segment, Rabbs Bayou Applicant/Owner: TxDOT Investigator: M. Oakley, M. Jessup, J. Oakley	Date: 1/14/05 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain on reverse)? No	Community ID: Upland Transect ID: 2 Plot ID: S7 OP2 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Bothriochloa ischaemum*	H	NL	9.			
2.	*Chloris gayana*	H	NL	10.			
3.	*Sorghum halepense*	H	FACU	11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/3 = 0% FAC Neutral: 0:3

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- X Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: ___ (in.)

Depth of Free Water in Pit: ___ (in.)

Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID:

Map Unit Name: Pa - Pledger clay Drainage Class: Moderately well drained

Taxonomy (Subgroup): Thermic Vertic Hapludolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3/4"		10YR 3/1	7.5YR 5/6	1%	Sandy clay, dark brown/black
¾"-6"		7.5YR 3/1	7.5YR 4/6	10%	Dark brownish gray silty clay
6"-12"		5YR 4/6	7.5YR 3/1	20%	Concretions, clay, primary orange with dark gray mottles
12"-16"		2.5YR 4/4	5YR 5/8, Gley2 4/10.G, 5YR 3/1		Brown mottles, small spots of decomposed organic materials, concretions

Remarks: Soil @ surface (0-3/4"0 looks like soil from lower slope overfill.

Hydric Soil Indicators:

___	Histosol	X	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, North Segment, Rabbs Bayou Applicant/Owner: TxDOT Investigator: M. Oakley, M. Jessup, J. Oakley	Date: 1/14/05 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain on reverse)? No	Community ID: Wetland Transect ID: 2 Plot ID: S7-OP2 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Echinochloa colona*	H	FAC	9.			
2.	*Echinochloa crusgalli*	H	FACU	10.			
3.	*Polygonum hydropiperoides*	H	OBL	11.			
4.	*Ludwigia peploides*	H	OBL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/4 = 75% FAC Neutral: 2:1

Remarks: Sample point meets hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- X Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- X Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S7 OP2 Wet

Map Unit Name: Pa - Pledger clay Drainage Class: Moderately well drained

Taxonomy (Subgroup): Thermic Vertic Hapludolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3/4"		7.5YR 3/1			Silty clay, dark brown, moist
3/4 "– 5"		7.5YR 3/1 7.5YR 3/2	7.5YR 3/1	35%	Clay, reddish brown, moist
5"-9"		5YR 4/6	5YR 2.5/1	25%	Clay, orange with dark mottles, moist
9"-15"		5YR 4/6 5YR 2.5/1	2.5YR 4/8	20% 5%	Clay, orange with bright mottles (orange & black mottles) more moist, concretions
15"-18"		2.5YR 4/8	10R 3/1 10YR 7/1		Clay, orange and light gray, black and bright orange mottles

Remarks:

Hydric Soil Indicators:

___	Histosol	X	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US59 S, N. Segment, E. Tributary to Rabbs Bayou, N. Side Applicant/Owner: TxDOT Investigator: M. Oakley, J. Oakley, K. Benham, D. Feinstein, M. Jessup, R. Morris	Date: 8/31/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S8 OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Cynodon dactylon*	H	FACU	9.			
2.				10.			
3.				11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/1 = 0% FAC Neutral: 0:1

Remarks: Wetland vegetation does not exceed 50% of species composition.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S8 OP1 Upland

Map Unit Name: Ac - Asa Pledger Complex Drainage Class: Moderately well drained

Taxonomy (Subgroup): thermic, Fluventic Haplustolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description: East Trib to Rabbs Bayou North side of US 59

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
1"-1 ½"	A	-	-	-	-
1 ½" –7"		10YR 3/1	-	-	Crumbly
7"-12"		10YR 2/1	7.5YR 4/6	-	Coarse concretions
12"-16"		7.5YR 2.5/1	7.5YR 4/4mixed	-	Appears to be mixed soil, field native
16"		7.5YR 2.5/1	7.5YR 2.5/1 Black		Appears to be mixed soil, native field

Hydric Soil Indicators:

	Histosol	X	Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed in Local Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology.
Hydrophytic vegetation does not exceed 50% or species compostion.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US59 South, North Segment, East Tributary to Rabbs Bayou, N. Side Applicant/Owner: TxDOT Investigator: M. Oakley, J. Oakley, K. Benham, D. Feinstein, M. Jessup, R. Morris	Date: 8/31/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S8 OP1 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Sorghum halepense*	H	FACU	9.			
2.	*Urochloa platyphylla*	H	NL	10.			
3.	*Paspalum sp.*	H	FACW+	11.			
4.	*Mimosa strigillosa*	H	FAC	12.			
5.	*Baccharis halimifolia*	H	FAC	13.			
6.	*Echinochloa colona*	H	FAC	14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 4/6 = 67% FAC Neutral: 1:2

Remarks: Sample pont meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- X Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria. Adjacent to standing water in stream channel.

SOILS Plot ID: S8 OP1 Wet

Map Unit Name: Ac - Asa Pledger Complex Drainage Class: Moderately well drained

Taxonomy (Subgroup): Thermic Fluventic Haplustolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
¾"	A	10YR 2/2	-	-	1 – organic/humus
16"		10YR 2/1	-	-	Granular particles

Hydric Soil Indicators:

___	Histosol	X	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix color. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary To Coon Creek Applicant/Owner: TxDOT Investigator: I. Welch, S. Brown, M. Jessup, D. Feinstein	Date: 8/11/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S1-OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Ampelopsis arborea*	H	FAC	9.			
2.	*Rubus trivialis*	V	FAC	10.			
3.	*Ipomoea purpurea*	H	UPL	11.			
4.	*Campsis radicans*	H	FACU	12.			
5.	*Solidago altissima*	H	FACU	13.			
6.	*Sesbania drummondii*	S	FACW	14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/6 = 50% FAC Neutral: 2:2

Remarks: Wetland vegetation does not exceed 50% of species composition.

HYDROLOGY

X Recorded Data (Describe in Remarks)
___ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
___ Oxidized Root Channels in Upper 12 inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Lacks sufficient indication of inundation or saturation.

SOILS Plot ID: S1 OP1 Up

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR3/2			Clay loam

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Soil sample does not meet Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	No	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Coon Creek Applicant/Owner: TxDOT Investigator: I. Welch, S. Brown, M. Jessup, D. Feinstein	Date: 8/11/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S1-OP1 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Cyperus virens*	H	FACW	9.			
2.	*Ammannia coccinea*	H	FACW+	10.			
3.	*Ludwigia octovalvis*	H	OBL	11.			
4.	*Ludwigia peploides*	H	OBL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 4/4 = 100% FAC Neutral: 4:0

Remarks: Sample point meets hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 2 (in.)

Depth of Free Water in Pit: Surface (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- X Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S1 OP1 Wet

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		10YR4/1			Silty clay, depositional

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria in the upper 4 inches.
Soil pit could not be dug to normal depth because of interlocking concrete blocks located approx. 4 inches below the soil surface.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	YES		
Wetland Hydrology Present?	YES		
Hydric Soils Present?	YES	Is This Sampling Point Within a Wetland?	YES

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Coon Creek Applicant/Owner: TxDOT Investigator: I. Welch, S. Brown, M. Jessup, D. Feinstein	Date: 8/11/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S1-OP2 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Setaria geniculata*	H	FAC	9.			
2.	*Ambrosia psilostachya*	H	FACU-	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Verbena brasiliensis*	H	UPL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/4 = 50% FAC Neutral: 0:2

Remarks: Wetland vegetation does not exceed 50% of species composition.

HYDROLOGY

X Recorded Data (Describe in Remarks)
____ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S1 OP2 Upland

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR4/2	5YR4/6	Few, fine, faint	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets hydric soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Coon Creek Applicant/Owner: TxDOT Investigator: I. Welch, S. Brown, M. Jessup, D. Feinstein	Date: 8/11/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S1-OP2 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Eleocharis montevidensis*	H	FACW	9.			
2.	*Cyperus virens*	H	FACW	10.			
3.	*Paspalum urvillei*	H	FAC	11.			
4.	*Ludwigia octaovalis*	H	OBL	12.			
5.	*Ludwigia peploides*	H	OBL	13.			
6.	*Ammania coccinea*	H	FACW+	14.			
7.	*Cyperus retrorsus*	H	FACU+	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 6/7 = 86% FAC Neutral: 5:1

Remarks: Sample point meet hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- X Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- X FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID:

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes X No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR4/1	5YR4/6	Few, medium, distinct	Silty clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S US 59 S, N. Segment, Tributary to Coon Creek Applicant/Owner: TxDOT Investigator: I. Welch, S. Brown, M. Jessup, D. Feinstein	Date: 8/11/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S1-OP3 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Setaria geniculata*	H	FAC	9.			
2.	*Ambrosia psilostachya*	H	FACU-	10.			
3.	*Paspalum dilatatum*	H	FAC	11.			
4.	*Verbena brasiliensis*	H	UPL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/4 = 50% FAC Neutral: 0:2

Remarks: Wetland vegetation does not exceed 50% of species composition.

HYDROLOGY

X Recorded Data (Describe in Remarks)
____ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S1 OP3 Upland

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR4/2	5YR4/6	Few, fine, faint	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets hydric soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of wetland hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Coon Creek Applicant/Owner: TxDOT Investigator: I. Welch, S. Brown, M. Jessup, D. Feinstein	Date: 8/11/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: Plot ID: S1-OP3 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Eleocharis montevidensis*	H	FACW	9.			
2.	*Cyperus virens*	H	FACW	10.			
3.	*Echinochloa walteri*	H	FACW+	11.			
4.	*Ludwigia octavalis*	H	OBL	12.			
5.	*Ludwigia peploides*	H	OBL	13.			
6.	*Ammania coccinea*	H	FACW+	14.			
7.	*Cyperus retrorsus*	H	FACU+	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 6/7 = 86% FAC Neutral: 6:1

Remarks: Vegetative criteria is met. Dominant vegetation is greater than 50% hydrophytic.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S1 OP3 Wet

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR4/1	5YR4/6	Few, medium, distinct	Silty clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Hydric soil criteria is met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: All three wetland criteria are met.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Seabourne Creek Applicant/Owner: TxDOT Investigator: I. Welch, M. Jessup, D. Feinstein	Date: 8/12/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S2 OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Dichanthium annulatum*	H	NL	9.			
2.	*Chloris crinita*	H	UPL	10.			
3.	*Sorghum halepense*	H	FACU	11.			
4.	*Cynodon dactylon*	H	FACU	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/4 = 0% FAC Neutral: 0:4

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth of Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S2 OP1 Upland

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"		10YR4/2 (50%)			Clay loam
		10YR5/3 (50%)			Clay loam
8"-14"		10YR6/2	7.5YR5/8	Many, medium, distinct	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient wetland hydrology.
Hydrophydic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Seabourne Creek Applicant/Owner: TxDOT Investigator: I. Welch, M. Jessup, D. Feinstein	Date: 8/12/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S2 OP2 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Dichanthium annulatum*	H	NL	9.			
2.	*Chloris crinita*	H	UPL	10.			
3.	*Sorghum halepense*	H	FACU	11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/3 = 0% FAC Neutral: 0:3

Remarks: Wetland vegetation does not ecxeed 50% of species compostition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S2-OP2 Upland

Map Unit Name: Be - Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"		10YR4/2 (50%)			Clay loam
		10YR5/3 (50%)			Clay loam
8"-14"		10YR6/2	7.5YR5/8	Many, medium, distinct	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of wetland hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Seabourne Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/25/04 County: Ft Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain on reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S3 OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Stenotaphrum secundatum*	H	FAC	9.			
2.	*Paspalum notatum*	H	FACU+	10.			
3.	*Cynodon dactylon*	H	FACU	11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/3 = 33% FAC Neutral: 0:2

Remarks: Wetland vegetation does not exceed 50% of all species composition.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- X Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S3 OP1 Upland

Map Unit Name: Bb - Bernard

Drainage Class: Slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		10YR 3/1			Clay
4"-14"		10YR 3/2	7.5YR 5/4		Sandy loam

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Soils with low-chroma matrix and bright mottles.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Seabourne Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/25/04 County: Ft Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain on reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S3 OP1 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Phyla nodiflora*	H	FACW	9.			
2.	*Eleocharis montevidensis.*	H	FACW	10.			
3.	*Echinochloa colona*	H	FAC	11.			
4.	*Stenotaphrum secundatum*	H	FAC	12.			
5.	*Acmella oppositifolia*	H	NL	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 4/5 = 80% FAC Neutral: 2:0

Remarks: Sample point meets hydrophytic vegetation criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- X Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- X FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S3 OP1 Wet

Map Unit Name: Bb - Bernard

Drainage Class: Slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		10YR 3/1			Clay
4"-14"		10YR 4/1	10YR 3/1		Clay, concretions

Hydric Soil Indicators:

___	Histosol	X	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Mixed parent materials. Med.-large gravel & rocks. Note: 7.5 YR 5/6, 10YR 6/3, 10YR 5/3

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Seabourne Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/25/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain on reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S3 OP2 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Stenotaphrum secundatum*	H	FAC	9.			
2.	*Cynodon dactylon*	H	FACU	10.			
3.	*Paspalum notatum*	H	FACU+	11.			
4.	*Paspalum dilatatum*	H	FAC	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/4 = 50% FAC Neutral: 0:2

Remarks: Wetland vegetation does not exceed 50% of speciese composition.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- X Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.
Soils with low-chroma matrix and bright mottles.

SOILS Plot ID: S3 OP2 Upland

Map Unit Name: Bb - Bernard Drainage Class: Slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		10YR 3/1			Clay
4"-14"		10YR 3/2	7.5YR 5/4	10%	Sandy loam

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Tributary to Seabourne Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/25/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain on reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S3 OP2 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Cyperus virens*	H	FACW	9.			
2.	*Eleocharis montevidensis*	H	FACW	10.			
3.	*Diodia virginiana*	H	FACW	11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/3 = 100% FAC Neutral: 3:0

Remarks: Sample point meets hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 2" (in.)

Depth of Free Water in Pit: Surface (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- X Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S3 OP2 Wet

Map Unit Name: Bb - Bernard

Drainage Class: Slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		10YR 2/1			Silty loam
4"-14"		10YR 4/2	10YR 4/1	50%	Coarse sand

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Beasley Branch Applicant/Owner: TxDOT Investigator: I. Welch, M. Jessup, D. Feinstein	Date: 8/12/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S4 OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Sorghum halepense*	H	FACU	9.			
2.	*Ambrosia trifida*	H	FAC	10.			
3.	*Phyla nodiflora*	H	FACW	11.			
4.	*Verbena brasiliensis*	H	UPL	12.			
5.	*Rubus trivialis*	H	FACU	13.			
6.	*Cynodon dactylon*	H	FACU	14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/6 = 33% FAC Neutral: 1:4

Remarks: Wetland vegetation does not exceed 50% of species composition.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S4 OP1 Upland

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"		10YR3/2	10YR4/2	10%	Clay loam
6-14"		10YR6/3	10YR3/2	20%	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of wetland hydrology.
Hydrophytic vegetation does not exceed 50%.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Beasley Branch Applicant/Owner: TxDOT Investigator: I. Welch, M. Jessup, D. Feinstein	Date: 8/12/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S4 OP1 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Cyperus virens*	H	FACW	9.	*Echinicloa colona*	H	FAC
2.	*Echinicloa crusgalli*	H	FACU	10.	*Fraxinus pennsylvanica*	S	FAC
3.	*Ambrosia trifida*	H	FAC	11.			
4.	*Rumex crispus*	H	FACW	12.			
5.	*Cyperus ochraceus*	H	FACW	13.			
6.	*Ludwigia peploides*	H	OBL	14.			
7.	*Polygonum hydropiperoides*	H	OBL	15.			
8.	*Rhynchospora corniculata*	H	OBL	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 9/10 = 90% FAC Neutral: 6:1

Remarks: Sample point meets hydophytic vegetation critieria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- X Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S4 OP1 Wet

Map Unit Name: Be – Bernard Edna Complex Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"		10YR4/1 (50%)	10YR6/6	Few, medium, distinct	Silty clay loam
		10YR4/2 (50%)			
5-14"		10YR7/2 (70%)	10YR4/6	Many, coarse, prominent	Clay
		10YR5/2 (30%)			

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Mixed soils especially from 5" – 14". Sample point meets hydric soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S5 OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Setaria geniculata*	H	FAC	9.			
2.	*Bothriochloa ischaemum*	H	NL	10.			
3.	*Bothriochloa saccharoides*	H	NL	11.			
4.	*Phyla nodiflora*	H	FACW	12.			
5.	*Sorghum halepense*	H	FACU	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/5 = 40% FAC Neutral: 1:3

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S5 OP1 Upland

Map Unit Name: Ea - Edna

Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR5/3 (50%)			Sandy loam
		10YR6/4 (50%)			

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point does not meet Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	No	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S5 OP1 Wetland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Alternanthera philoxeroides*	H	OBL	9.			
2.	*Paspalum lividum*	H	OBL	10.			
3.	*Polygonum hydropiperoides*	H	OBL	11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/3 = 100% FAC Neutral: 3:0

Remarks: Sample point meets hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
___ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: 6 (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
___ Inundated
X Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
___ Oxidized Root Channels in Upper 12 inches
___ Water-Stained Leaves
___ Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S5 OP1 Wet

Map Unit Name: Ea - Edna

Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs

Field Observations Confirmed Mapped Type? Yes X No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"		10YR5/3	10YR5/8	Common, fine, faint	Sandy loam
6"-14"		10YR7/1	10YR5/0	Many, coarse, prominent	Clay

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
X	Reducing Conditions		Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S5 OP2 Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cynodon dactylon*	H	FACU	9.		
2. *Echinochloa colona*	H	FAC	10.		
3. *Verbena brasiliensis*	H	UPL	11.		
4. *Setaria geniculata*	H	FAC	12.		
5. *Axonopus affinis*	H	FAC	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/5 = 60% FAC Neutral: 0:2

Remarks: Sample point meets wetland hydrology criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
____ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S5 Op2 Upland

Map Unit Name: Ea - Edna

Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR5/3 (50%)			Sandy loam
		10YR6/4 (50%)			

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point does not meet Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	No		
Hydric Soils Present?	No	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks sufficient indicators of hydric soils and hydrology.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S5 OP2 Wetland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Alternanthera philoxeroides*	H	OBL	9.			
2.	*Leersia hexandra*	H	OBL	10.			
3.	*Paspalum lividum*	H	OBL	11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/3 = 100% FAC Neutral: 3:0

Remarks: Sample point meets hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth of Free Water in Pit: 6 (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- X Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S5 OP2 Wet

Map Unit Name: Ea – Edna

Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"		10YR5/3	10YR5/8	Common, fine, faint	Sandy loam
6"-14"		10YR7/1	10YR5/8	Many, coarse, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
X	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain on reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S5 OP3 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Setaria geniculata*	H	FAC	9.			
2.	*Echinichloa colona*	H	FAC	10.			
3.	*Cynodon dactylon*	H	FACU	11.			
4.	*Bothriochloa ischaemum*	H	NL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/4 = 50% FAC Neutral: 0:2

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ____ Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Sample point does not meet wetland hydrology criteria.

SOILS Plot ID: S5 OP3 Upland

Map Unit Name: Ea - Edna

Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR5/3			Sandy loam

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point does not meet Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	No	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S5 OP3 Wetland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Alternanthera philoxeroides*	H	OBL	9.			
2.	*Polygonum hydropiperoides*	H	OBL	10.			
3.				11.			
4.				12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/2 = 100% FAC Neutral: 2:0

Remarks: Sample point meets hydrphytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
____ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth of Free Water in Pit: 6 (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
____ Inundated
X Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
X Sediment Deposits
____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S5 OP3 Wet

Map Unit Name: Ea - Edna

Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"		10YR5/3	10YR5/8	Common, fine, faint	Sandy loam
6"-14"		10YR7/1	10YR5/8	Many, coarse, prominent	Clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
X	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S5 OP4 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Setaria geniculata*	H	FAC	9.			
2.	*Echinochloa colona*	H	FAC	10.			
3.	*Cynodon dactylon*	H	FACU	11.			
4.	*Bothriochloa ischaemum*	H	NL	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/4 = 50% FAC Neutral: 0:2

Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: Not Observed (in.)

Depth of Free Water in Pit: Not Observed (in.)

Depth to Saturated Soil: Not Observed (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S5 OP4 Upland

Map Unit Name: Ea - Edna Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"		10YR5/3			Sandy loam

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Sample point does not meet Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	No	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Dry Creek Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 8/13/2004 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S5 OP4 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Equisetum hyemale*	H	FAC+	9.			
2.	*Verbena brasiliensis*	H	UPL	10.			
3.	*Paspalum lividum*	H	OBL	11.			
4.	*Setaria geniculata*	H	FAC	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/4 = 75% FAC Neutral: 1:1

Remarks: Sample point meets hydrophytic vegetation criteria.

HYDROLOGY

X Recorded Data (Describe in Remarks)
___ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth of Free Water in Pit: 6 (in.)

Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators

Primary Indicators
___ Inundated
X Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
___ Oxidized Root Channels in Upper 12 inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S5 OP4 Wet

Map Unit Name: Ea - Edna Drainage Class: Somewhat poorly drained.

Taxonomy (Subgroup): thermic Vertic Albaqualfs Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"		10YR5/3	10YR5/8	Common, fine, faint	Sandy loam
3-14"		10YR4/2	10YR5/8	Common, medium, distinct	Clay loam
		10YR6/2	10YR4/6	Few, medium, distinct	

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes	Is This Sampling Point Within a Wetland?	Yes

Remarks: Sample point meets all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Tributary to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Upland Transect ID: 1 Plot ID: S6 OP1 Upland

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Chloris verticillata*	H	NL	9.			
2.	*Chloris canterai*	H	NL	10.			
3.	*Paspalum notatum*	H	FACU+	11.			
4.	*Sorghum halepense*	H	FACU	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/4 = 0% FAC Neutral: 0:2 = 0%

Remarks: Remarks: Wetland vegetation does not exceed 50% of species composition.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
____ Stream, Lake, or Tide Gauge
X Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth of Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: Lacks sufficient indicators of wetland hydrology.

SOILS Plot ID: S6 OP1 Upland

Map Unit Name: Be - Bernard Edna Complex Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7"		10YR 4/2			Clay
7"-16"		5YR 4/6 (50%)			Clay
		7.5 YR 4/4 (50%)			Clay (appears to be calcareous)

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Road bed material is mixed in 7-16" profile layer. Mixed matrix. Sample point does not meet Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	No		
Wetland Hydrology Present?	No		
Hydric Soils Present?	No	Is This Sampling Point Within a Wetland?	No

Remarks: Sample point lacks all three wetland criteria.

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site: US 59 S, N. Segment, Far West Tributary to Rabbs Bayou Applicant/Owner: TxDOT Investigator: I. Welch, D. Feinstein	Date: 9/9/04 County: Fort Bend State: Texas
Do normal circumstances exist on the site? Yes Is the site significantly disturbed? No Is the area a potential problem area (if needed, explain or reverse)? No	Community ID: Wetland Transect ID: 1 Plot ID: S6 OP1 Wet

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acmella oppositifolia*	H	NL	9.	*Setaria geniculata*	H	FAC
2.	*Cyperus ochraceus*	H	FACW	10.			
3.	*Cyperus virens*	H	FACW	11.			
4.	*Echinochloa colona*	H	FAC	12.			
5.	*Ipomoea trichocarpa*	H	FACU	13.			
6.	*Panicum maximum*	H	FAC-	14.			
7.	*Phyla incisa*	H	FAC	15.			
8.	*Rumex crispus*	H	FACU	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 5/9 = 56% FAC Neutral: 2:3

Remarks: Sample point meets hydrophytic vegetaion criteria.

NL: Not Listed: This species was not listed on the National List of Plant Species that Occur in Wetlands: South Plains (Region 6), therefore, it was included in the calculation of hydrophytic vegetation as an upland species.

HYDROLOGY

X Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other

No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth of Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- X Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sample point meets wetland hydrology criteria.

SOILS Plot ID: S6 OP1 Wet

Map Unit Name (Series and Phase): Be - Bernard Edna Complex

Drainage Class: Very slowly permeable

Taxonomy (Subgroup): thermic Vertic Argiaquolls

Field Observations Confirmed Mapped Type? Yes ___ No ___

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"		10YR 4/2 (95%)	10YR 5/8	Common, fine, distinct	Sandy clay
		10YR 5/3 (5%)			Sandy clay
8"-16"		10YR4/2 (80%)	10YR 5/8	Common, fine, distinct	Sandy clay
		10YR 6/3 (15%)			Sandy clay
		10YR 5/3 (5%)			Sandy clay

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed in Local Hydric Soils List (Ft Bend Cty Soil Survey)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain In Remarks)

Remarks: Mixed matrix. Low chroma matrix colors. Sample point meets Hydric Soils criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes

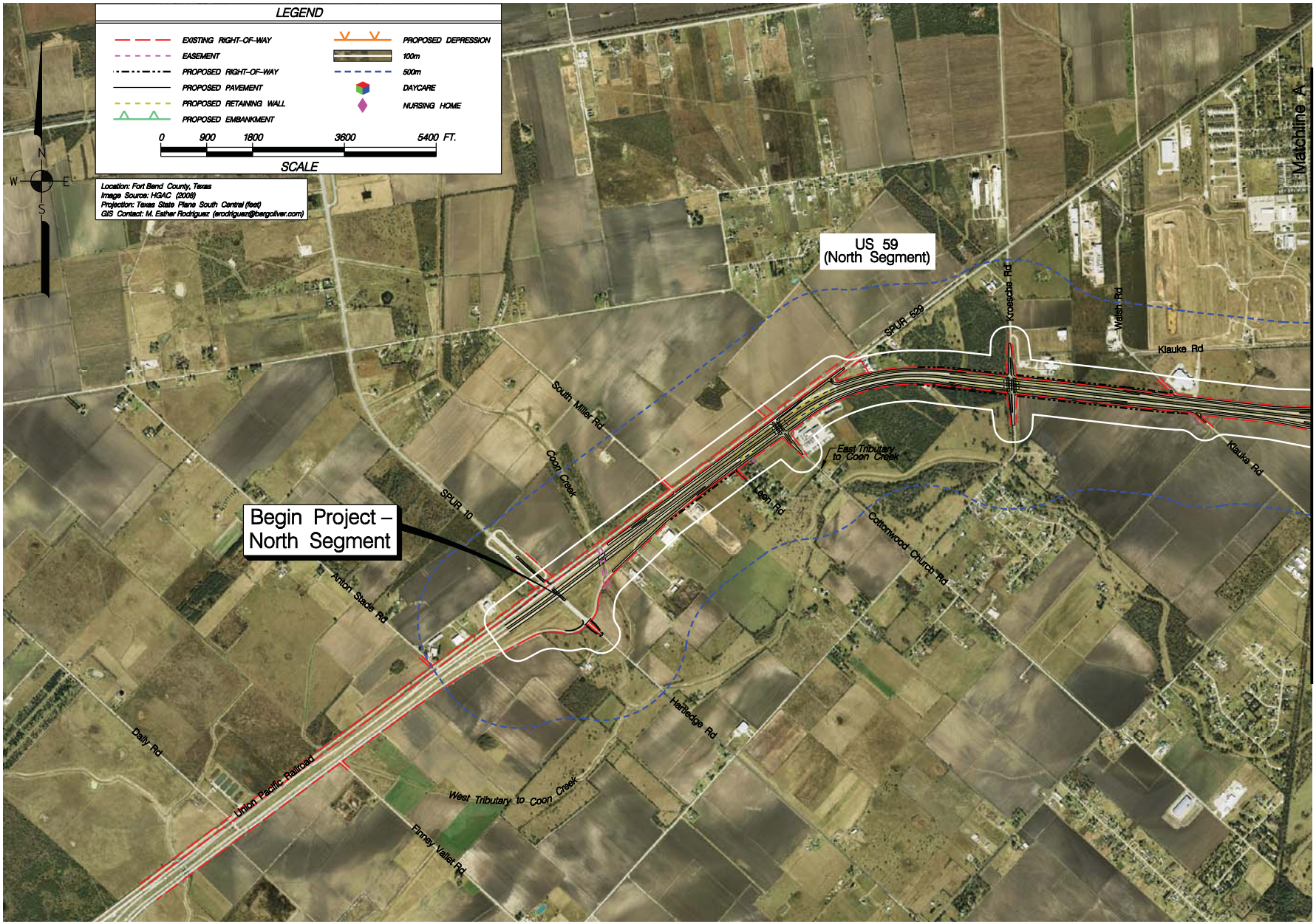
Wetland Hydrology Present? Yes

Hydric Soils Present? Yes

Is This Sampling Point Within a Wetland? Yes

Remarks: Sample point meets all three wetland criteria.
Data point is located at the culvert on the north side of the US 59 frontage road east of the Chili's Restaurant.

APPENDIX I: US 59 TRAFFIC AIR/NOISE DATA



US 59 – NORTH SEGMENT

SENSITIVE RECEPTORS MAP

SHEET 1 OF 3

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
July 16, 2009 by M.E. Rodriguez

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TEXAS DEPARTMENT OF TRANSPORTATION

US 59 – NORTH SEGMENT

SENSITIVE RECEPTORS MAP

PROJECT #:	3979 – CSJ: 0027-12-097, 0027-12-106, 0027-12-108 & 0027-12-114
FOR:	TXDOT – HOUSTON DISTRICT
LOCATION:	US 59 – NORTH SEGMENT FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759) FORT BEND COUNTY, TX
REVISIONS:	July 16, 2009 by M. E Rodriguez

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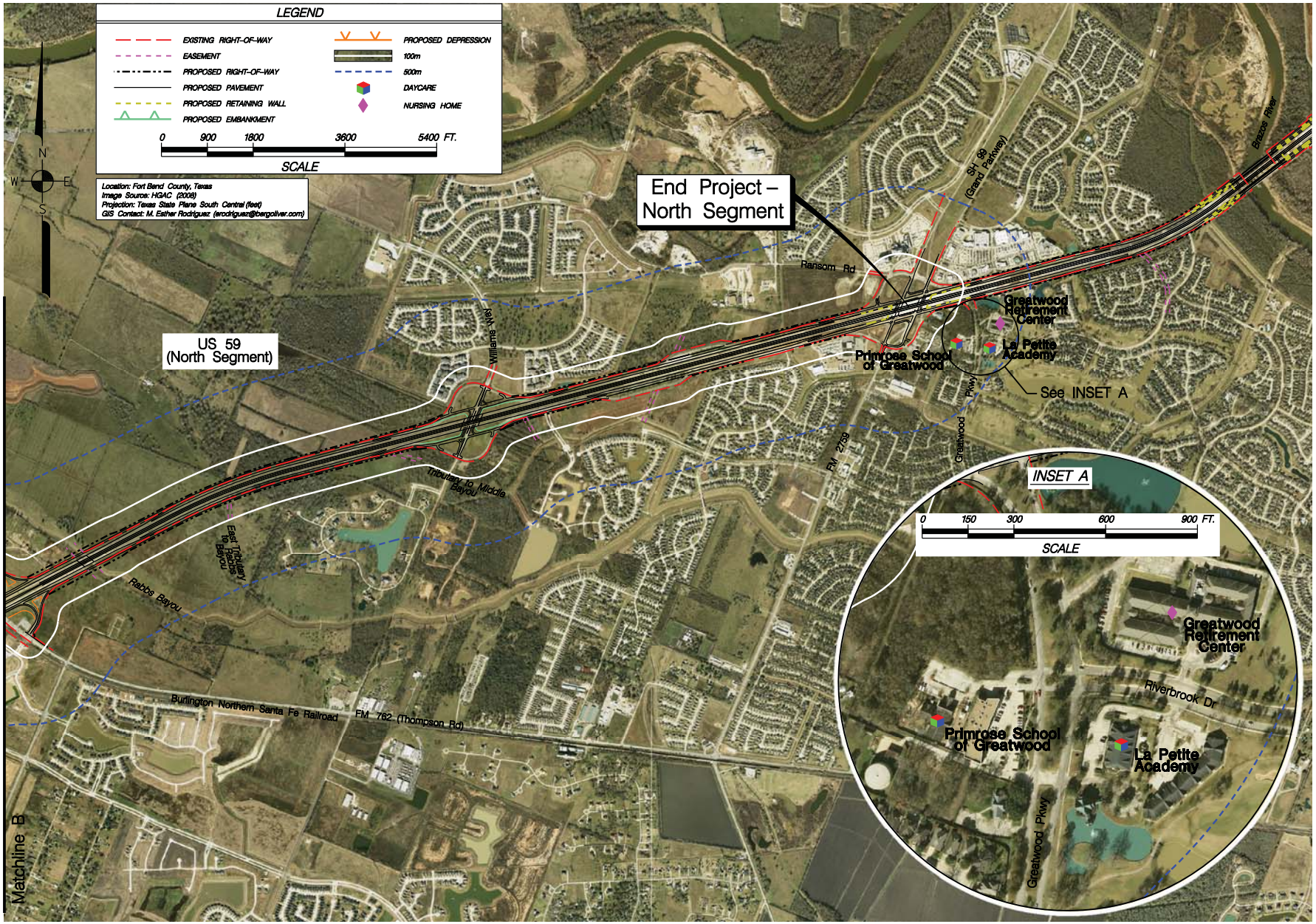
TEXAS DEPARTMENT OF TRANSPORTATION

SHEET 2 OF 3



US 59 – NORTH SEGMENT

SENSITIVE RECEPTORS MAP

SHEET 3 OF 3

PROJECT #: 3979 – CSJ: 0027-12-097, 0027-12-105, 0027-12-106 & 0027-12-114

FOR: TxDOT – HOUSTON DISTRICT

LOCATION: US 59 – NORTH SEGMENT
FROM SPUR 10 TO STATE HIGHWAY 99 (FM 2759)
FORT BEND COUNTY, TX

REVISIONS:
July 16, 2009 by M.E. Rodriguez

© 2009

TEXAS DEPARTMENT OF TRANSPORTATION

Traffic Noise Analysis Technical Report

US 59S – From West of Spur 10 to West of SH 99

Fort Bend County, Texas
CSJ No. 0027-12-097, 0027-12-105, 0027-12-106, and 0027-12-114

PREPARED BY

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

AND

TEXAS DEPARTMENT OF TRANSPORTATION

May 2012

This analysis was accomplished in accordance with TxDOT's (FHWA approved) *Guidelines for Analysis and Abatement of Roadway Traffic Noise* (2011).

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

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

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

The traffic noise analysis typically includes the following elements:

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

FHWA/TxDOT Criteria

The FHWA has established the following Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur. These land use activity areas are presented in Table 1.

Table 1: Noise Abatement Criteria – Hourly A-Weighted Sound Level – Decibels (dB(A))

Activity Category	FHWA dB(A) Leq	**TxDOT dB(A) Leq**	**Description of Land Use Activity Areas**
A	57 (exterior)	**56 (exterior)**	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	**66 (exterior)**	Residential
C	67 (exterior)	**66 (exterior)**	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools , television studios, trails, and trail crossings
D	52 (interior)	**51 (interior)**	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72 (exterior)	**71 (exterior)**	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	**--**	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.

Table 1: Noise Abatement Criteria – Hourly A-Weighted Sound Level – Decibels (dB(A))			
Activity Category	FHWA dB(A) Leq	**TxDOT dB(A) Leq**	**Description of Land Use Activity Areas**
G	--	--	Undeveloped lands that are not permitted.

Note: Primary consideration is given to exterior areas (Category A, B, C, or E) where frequent human activity occurs. However, interior areas (Category D) are used if exterior areas are physically shielded from the roadway, or if there is little or no human activity in exterior areas adjacent to the roadway.

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

- **Absolute criterion** - the predicted noise level at a receiver approaches, equals, or exceeds the NAC. "Approach" is defined as one dBA below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dBA or above.
- **Relative criterion** - the predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal, or exceed the NAC. "Substantially exceeds" is defined as more than ten dBA. For example: a noise impact would occur at a Category B residence if the existing level is 54 dBA and the predicted level is 65 dB(A).

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

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

Existing and predicted traffic noise levels were modeled at 37 receiver locations (Table 2 and Noise Receivers Map) that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement.

Table 2: TRAFFIC NOISE LEVELS (dBA Leq)						
Representative Receiver	**NAC Category**	**NAC Level**	**Existing**	**Predicted 2028**	**Change (+/-)**	**Noise Impact**
R1 Single Family Home	B	67	56	59	+3	NO
R2 Single Family Home	B	67	63	65	+2	NO
R3 Single Family Homes	B	67	70	73	+3	YES
R4 Single Family Home	B	67	60	61	+1	NO
R5 Single Family Home	B	67	67	70	+3	YES
R6 Single Family Home	B	67	65	70	+5	YES
R7 Regency Suites Hotel	E	72	75	78	+3	YES
R8 Best Value Inn	E	72	69	69	0	NO
R9 Single Family Home	B	67	66	72	+6	YES
R10 Holiday Inn	E	72	71	72	+1	YES
R11 F of R Apt. Office	E	72	63	65	+2	NO
R12 F of R Apartments	B	67	65	65	0	NO

Table 2: TRAFFIC NOISE LEVELS (dBA Leq)						
R13 F of R Apartments	B	67	66	67	+1	YES
R14 Rosenberg Cemetery Building	C	67	62	63	+1	NO
R15 Single Family Home	B	67	68	69	+1	YES
R16 Best Western Hotel	E	72	67	68	+1	NO
R17 Days Inn	E	72	70	72	+2	YES
R18 Rosenberg Masonic Lodge	C	67	68	72	+4	YES
R19 Single Family Homes	B	67	60	63	+3	NO
R20 Single Family Homes	B	67	52	54	+2	NO
R21 Single Family Homes	B	67	52	54	+2	NO
R22 Single Family Homes	B	67	52	54	+2	NO
R23 Single Family Homes	B	67	51	53	+2	NO
R24 Single Family Homes	B	67	53	55	+2	NO
R25 Single Family Homes	B	67	54	56	+2	NO
R26 Single Family Homes	B	67	52	55	+3	NO
R27 Single Family Homes	B	67	50	53	+3	NO
R28 Villas of River Park West	B	67	55	56	+1	NO
R29 Villas of River Park West	B	67	56	58	+2	NO
R30 Villas of River Park West	B	67	54	57	+3	NO
R31 Single Family Homes	B	67	64	67	+3	YES
R32 Single Family Homes	B	67	64	67	+3	YES
R33 Single Family Homes	B	67	66	67	+1	YES
R34 Single Family Homes	B	67	66	67	+1	YES
R35 Single Family Homes	B	67	66	67	+1	YES
R36 Single Family Homes	B	67	66	67	+1	YES
R37 Single Family Homes	B	67	67	68	+1	YES

Source: OTHON, INC. 2004, updated 2007

Mitigation

As indicated in Table 2, the proposed project would result in a traffic noise impact and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers.

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible", the abatement measure must be able to reduce the noise level at greater than 50% of impacted, first row receivers by at least five dB(A); and to be "reasonable," it must not exceed the cost-effectiveness criterion of $25,000 for each receiver that would benefit by a reduction of at least five dB(A) and the abatement measure must be able to reduce the noise level at least one impacted, first row receiver by at least seven dB(A).

Traffic Management

Control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dB(A) per five-mph reduction in speed does not outweigh the associated increase in congestion and

air pollution. Other measures such as time or use restrictions for certain vehicles are prohibited on state highways.

Alteration of Horizontal and/or Vertical Realignments

Any alteration of the existing alignment would displace existing businesses and residences, require additional right of way and not be cost effective/reasonable.

Buffer zone

The acquisition of undeveloped property to act as a buffer zone is designed to avoid rather than abate traffic noise impacts and, therefore, is not feasible.

Noise Barriers

This is the most commonly used noise abatement measure. Noise barriers were evaluated for each of the impacted receiver locations.

Noise barriers would not be feasible and reasonable for any of the following impacted receivers and, therefore, are not proposed for incorporation into the project:

R3, R5, R6, R9, and R15: These receivers are separate, individual residences. Noise barriers that would achieve the minimum feasible reduction of 5 dB(A) at each of these receivers would exceed the reasonable, cost-effectiveness criterion to $25,000.

R7, R10, R13, R17 and R18: These receivers are separate, individual commercial businesses. Noise barriers that would achieve the minimum feasible reduction of 5 dB(A) at each of these receivers would exceed the reasonable, cost-effectiveness criterion to $25,000. Noise barriers also could have a detrimental impact on nearby businesses by restricting views and access by potential customers.

Noise barriers would be feasible and reasonable for the following impacted receivers and, therefore, are proposed for incorporation into the project:

R31-R37: these receivers represent a total of 23 residences. Based on preliminary calculations, a noise barrier 1,609 feet in length and 14 feet in height would reduce noise levels by at least 5 dBA for 18 benefited receivers at a total cost of $337,890 or $18,772 for each benefited receiver. For the single-family residences that lie southwest of the intersection of US 59S and SH 99, a noise barrier meets the guidelines for being both feasible and reasonable. This barrier is proposed for incorporation into the project.

Table 3: Noise Barrier Proposal

Barrier	Representative Receivers	Total # Benefited	Length (feet)	Height (feet)	Total Cost	$/Benefited Receiver
1	R31 thru R37	18	1609	14	$337,890	$18,772

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

Noise Impact Contours

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, no new activities are planned or constructed along or within the following predicted (2028) noise impact contours (Table 3: Land Use Contour For Undeveloped Land).

Table 3: Land Use Contour For Undeveloped Land		
Land Use	**Land Use Contour**	**Distance From Right of Way (Feet)**
Residential	66 dBA	260 Feet
Commercial	71 dBA	110 Feet

Construction Noise

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

Local Officials' Statement

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

Location: Fort Bend County, Texas
Image Source: HGAC (2008)
Projection: UTM NAD83, Zone 15N, Meters
GIS Contact: Esther Rodriguez (erodriguez@bergoliver.com)

US 59 - NORTH SEGMENT

NOISE RECEIVERS MAP

Sheet 1 of 4

REVISIONS
May 8, 2012 by MER

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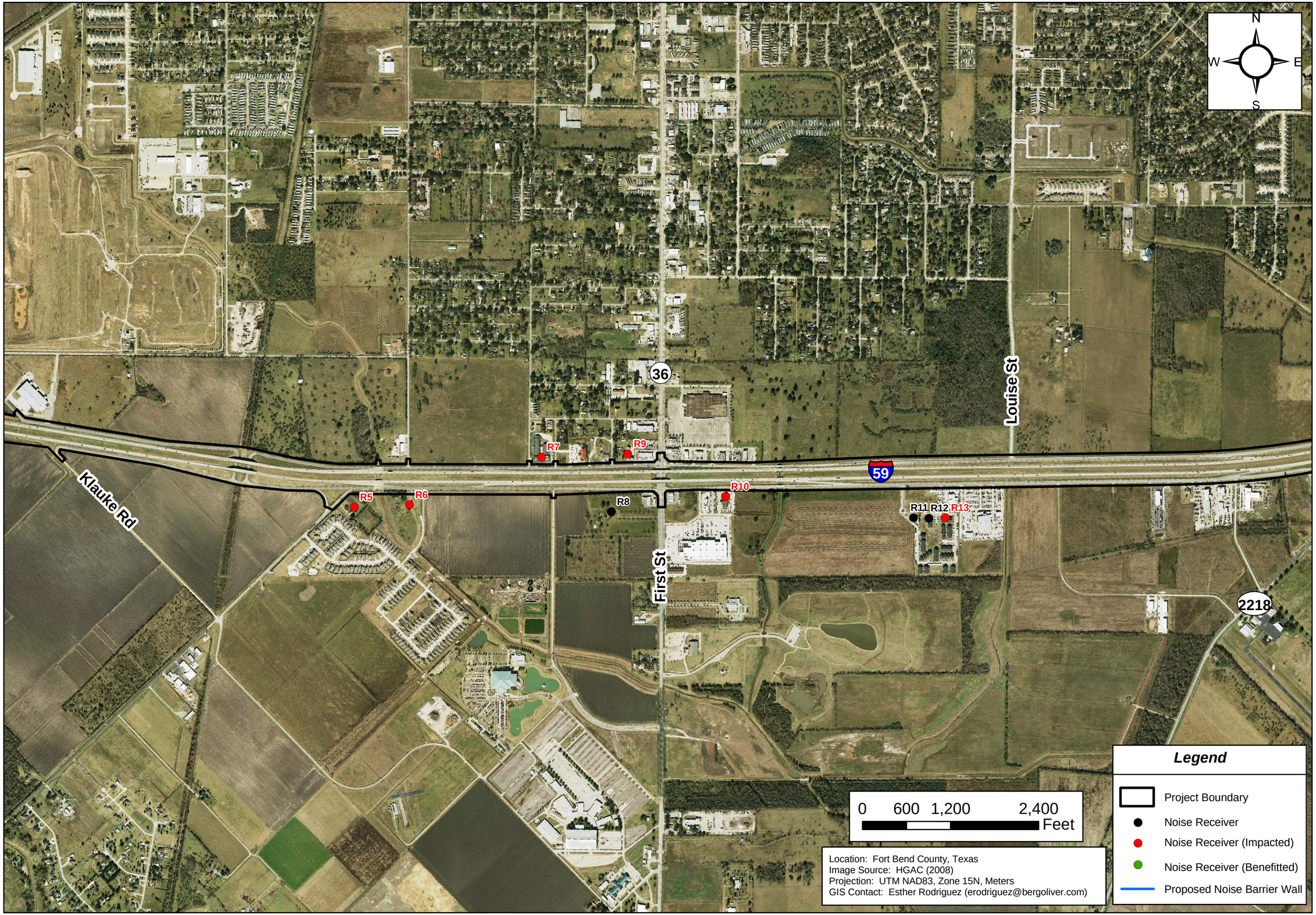
TEXAS DEPARTMENT OF TRANSPORTATION

Project #: 3979 - CSJ: 0027-12-097, -105, -106 and -114
For: TxDOT - Houston District
Location: US 59 from Spur 10 to State Highway 99 (FM 2759)
Fort Bend County, Texas



US 59 - NORTH SEGMENT

NOISE RECEIVERS MAP

Sheet 2 of 4

REVISIONS
May 8, 2012 by MER

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TEXAS DEPARTMENT OF TRANSPORTATION

Project #: 3979 - CSJ: 0027-12-097, -105, -106 and -114
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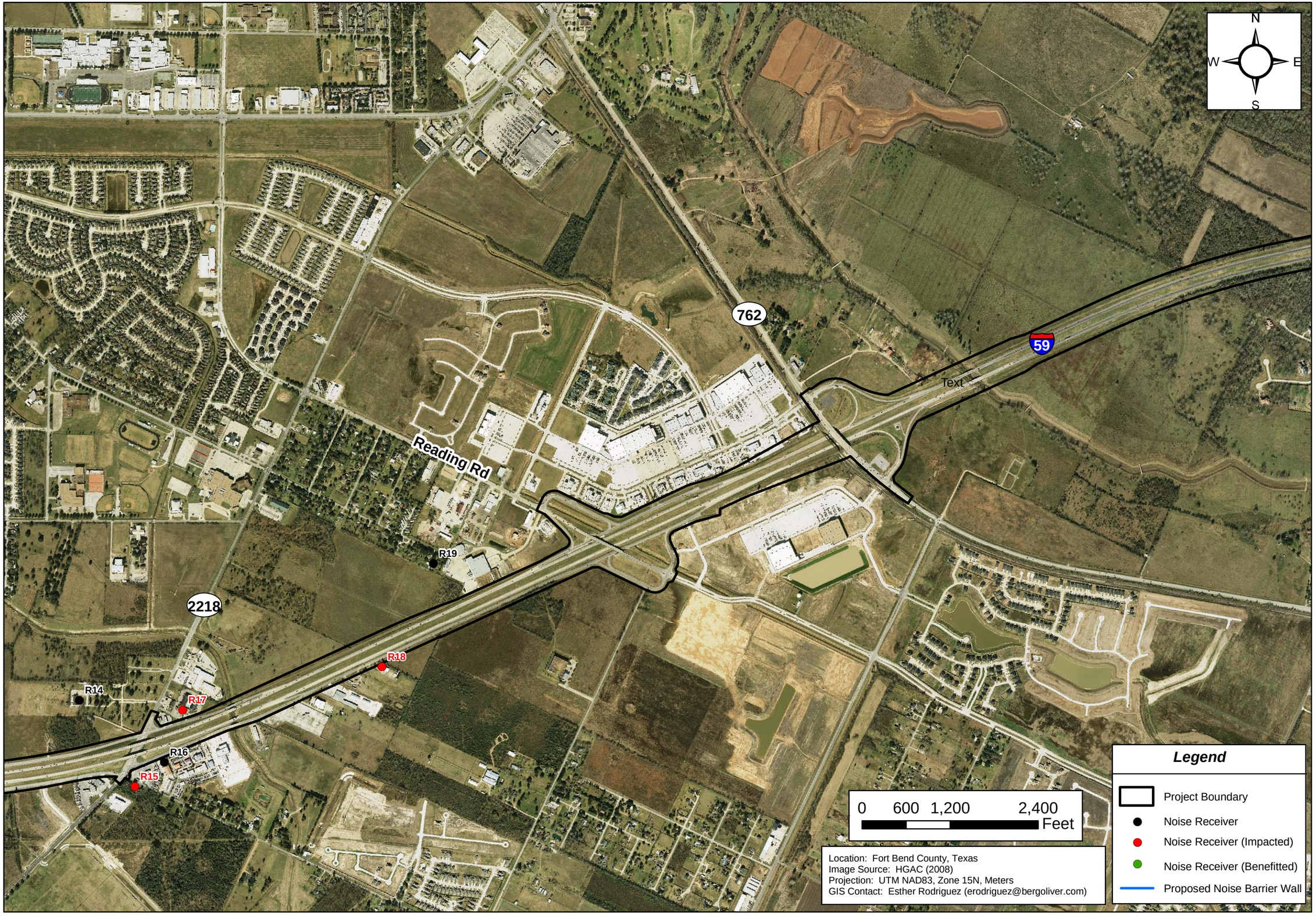

US 59 - NORTH SEGMENT

NOISE RECEIVERS MAP

Sheet 3 of 4

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TEXAS DEPARTMENT OF TRANSPORTATION

Project #: 3979 - CSJ: 0027-12-097, -105, -106 and -114
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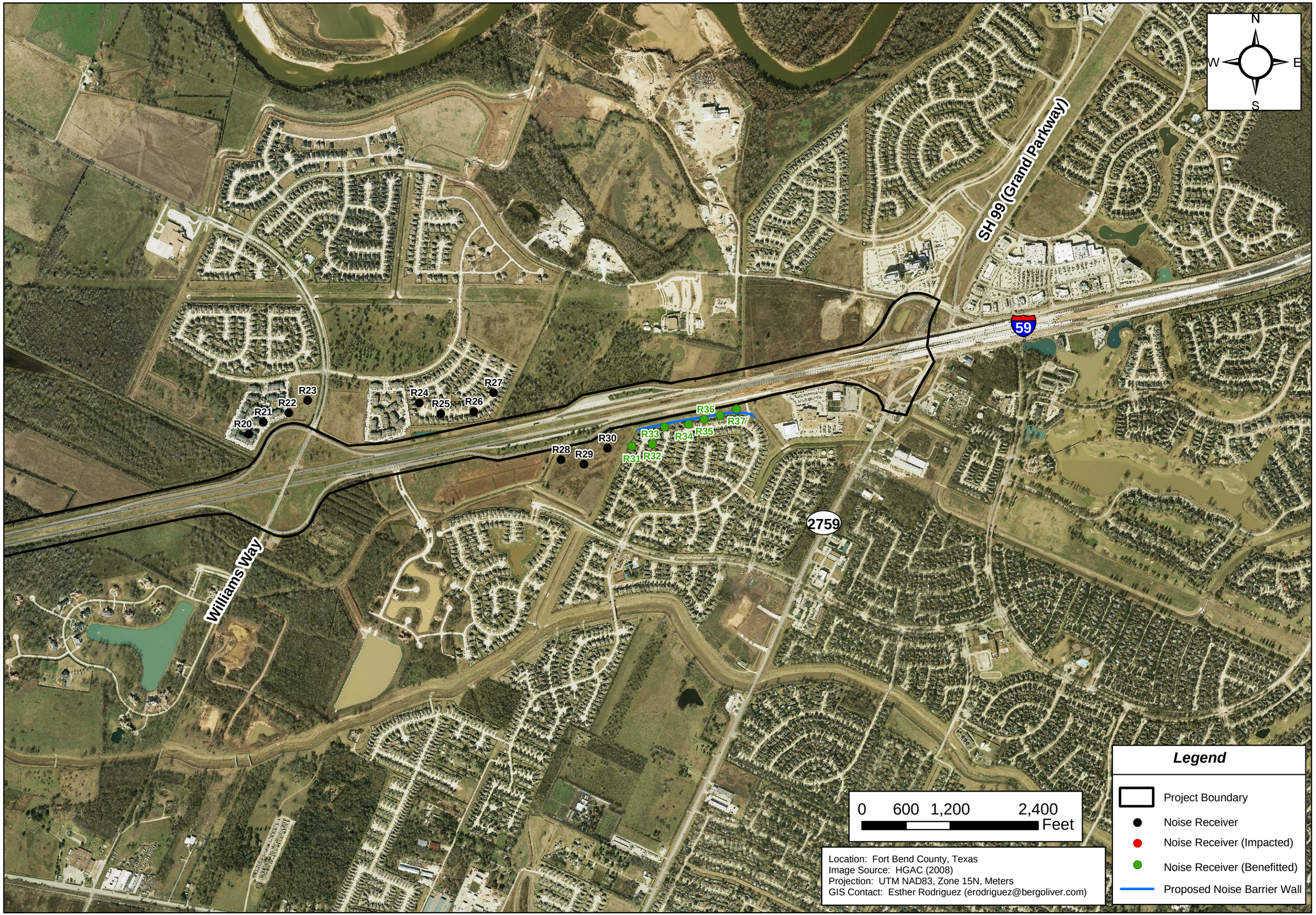
Fort Bend County, Texas



US 59 - NORTH SEGMENT

NOISE RECEIVERS MAP

Sheet 4 of 4

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TEXAS DEPARTMENT OF TRANSPORTATION

Project #: 3979 - CSJ: 0027-12-097, -105, -106 and -114
For: TxDOT - Houston District
Location: US 59 from Spur 10 to State Highway 99 (FM 2759)
Fort Bend County, Texas

APPENDIX J: HAZARDOUS MATERIALS TECHNICAL REPORT

Regulatory Data Report

(ASTM E1527-97)

Property Address:

US 59 (SH 99 to Spur 10)
Fort Bend County, TX

Prepared For:

Susan Roberts
Othon, Inc.
11111 Wilcrest Green Drive, Ste 128
Houston, Texas 77042

510 S. CONGRESS AVE. SUITE 103 • AUSTIN, TEXAS 78704 • 866-396-0042 • TEL. 512-472-9966 • FAX 512-472-9967

WWW.GEO-SEARCH.NET

September 16, 2003

Susan Roberts
Othon, Inc.
11111 Wilcrest Green Drive, Ste 128
Houston, Texas 77042

Ms. Roberts,

GeoSearch has researched the environmental data records for: US 59 (SH 99 to Spur 10) – Fort Bend County, Texas. The following is a listing of sites found.

Records Searched	Sites Mapped	Radius
TXSF	0 sites	1 mile
NPL	0 sites	1 mile
DNPL	0 sites	1 mile
CERCLIS	0 sites	½ mile
NFRAP	1 site	½ mile
RCRIS		
Corracts	1 site	1 mile
TSD	0 sites	1 mile
Generator	9 sites	¼ mile
LPST	10 sites	½ mile
PST	18 sites	¼ mile
ERNS	0 sites	¼ mile
SPILLS	2 sites	¼ mile
LANDFILLS		
Municipal Solid Waste	1 site	1 mile
Closed / Abandoned	2 sites	1 mile
VCP	0 sites	½ mile
TRI	1 site	¼ mile
Total	45 sites	

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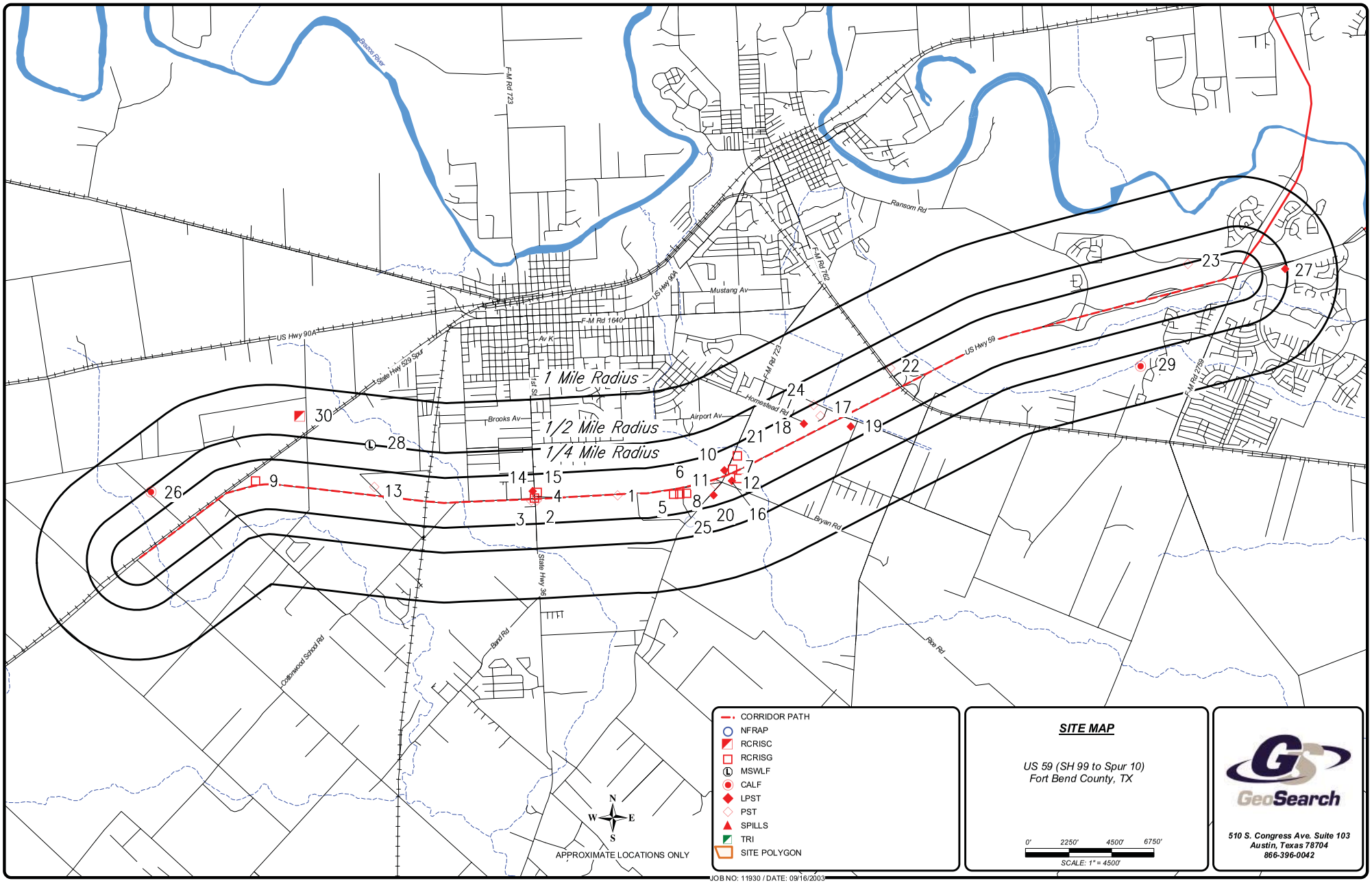
Brazos River
F-M Rd 723
Ransom Rd
US Hwy 90A
State Hwy 529 Spur
F-M Rd 1640
Av K
Mustang Av
US Hwy 90A
F-M Rd 723
US Hwy 59
F-M Rd 2759
1st St
Brooks Av
Airport Av
Homestead Rd
Bryan Rd
State Hwy 36
Bard Rd
Cottonwood Scrbd Rd
Rice Rd
1 Mile Radius
1/2 Mile Radius
1/4 Mile Radius
1
2
3
4
5
6
7
8
9
10
11
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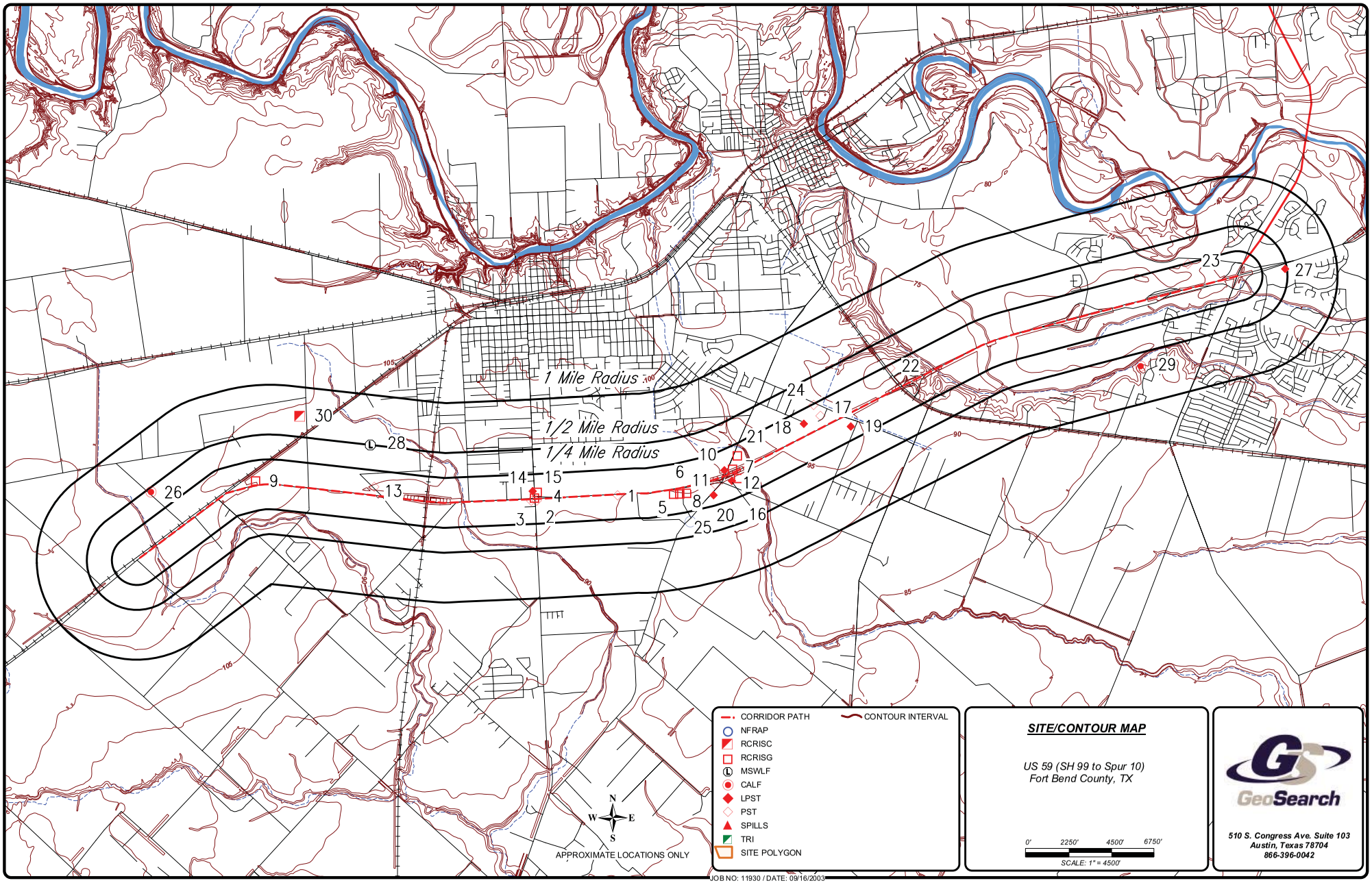
S
APPROXIMATE LOCATIONS ONLY
CORRIDOR PATH
NFRAP
RCRISC
RCRISG
MSWLF
CALF
LPST
PST
SPILLS
TRI
SITE POLYGON
SITE MAP
US 59 (SH 99 to Spur 10)
Fort Bend County, TX
0'
2250'
4500'
6750'
SCALE: 1" = 4500'
GeoSearch
510 S. Congress Ave. Suite 103
Austin, Texas 78704
866-396-0042
JOB NO: 11930 / DATE: 09/16/2003


1 Mile Radius
1/2 Mile Radius
1/4 Mile Radius
CORRIDOR PATH
CONTOUR INTERVAL
NFRAP
RCRISC
RCRISG
MSWLF
CALF
LPST
PST
SPILLS
TRI
SITE POLYGON
APPROXIMATE LOCATIONS ONLY
N
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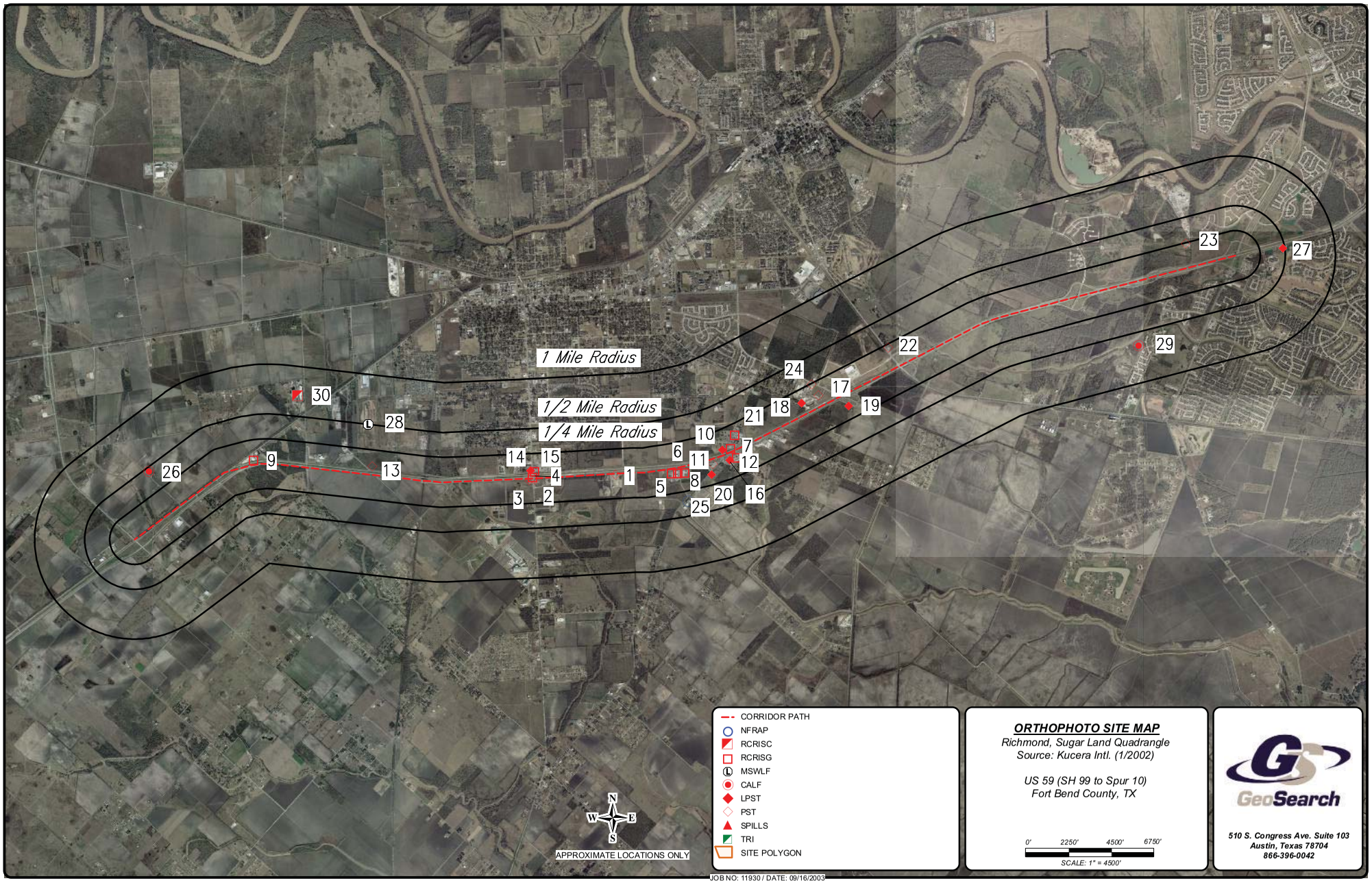
E
S
SITE/CONTOUR MAP
US 59 (SH 99 to Spur 10)
Fort Bend County, TX
0'
2250'
4500'
6750'
SCALE: 1" = 4500'
GeoSearch
510 S. Congress Ave. Suite 103
Austin, Texas 78704
866-396-0042
JOB NO: 11930 / DATE: 09/16/2003


1 Mile Radius
1/2 Mile Radius
1/4 Mile Radius
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CORRIDOR PATH
NFRAP
RCRISC
RCRISG
MSWLF
CALF
LPST
PST
SPILLS
TRI
SITE POLYGON
N
W
E
S
APPROXIMATE LOCATIONS ONLY
ORTHOPHOTO SITE MAP
Richmond, Sugar Land Quadrangle
Source: Kucera Intl. (1/2002)
US 59 (SH 99 to Spur 10)
Fort Bend County, TX
0'
2250'
4500'
6750'
SCALE: 1" = 4500'
GeoSearch
510 S. Congress Ave. Suite 103
Austin, Texas 78704
866-396-0042
JOB NO: 11930 / DATE: 09/16/2003

GeoSearch

Environmental Data Services

REPORT SUMMARY OF LOCATABLE SITES

Appearing on the Location Map, these sites are referenced by Map ID #, Database Name, Site ID#, Site Name, Address, City, Zip Code and Distance from Site (miles).

MAP ID#:	DATABASE TYPE:	SITE ID#:	DISTANCE:	SITE NAME:	ADDRESS:	CITY:	ZIP CODE:
1	PST	0075580	0.02 S	DUBMILLER FORD	27225 US 59 WORTH	ROSENBERG	77471
2	PST	0065524	0.03 SW	SPEEDY STOP 25	28015 SW FREEWAY	ROSENBERG	77471
3	PST	0066797	0.03 SW	SUNMART 125	28111 SW FREEWAY	ROSENBERG	77471
4	RCRISG	TXD086984713	0.03 NW	MARLEY COOLING TOWER COMPANY	US 59 & TEXAS HWY 36	ROSENBERG	77471
5	PST	0062553	0.04 S	BEN RICE PONTIAC CADILLAC GMC	26529 SW FREEWAY	ROSENBERG	77471
5	RCRISG	TXD988061891	0.04 S	BEN RICE PONT & CAD	26529 SW FRWY	ROSENBERG	77471
6	PST	0061882	0.05 S	SUNBELT TOYOTA-SUBARU	26525 HWY 59	ROSENBERG	77471
6	RCRISG	TXD982292484	0.05 S	SUNBELT TOYOTA	26525 HWY 59	ROSENBERG	77471
7	PST	0028568	0.05 NW	CHEVRON FAC 153513	5011 US 59	ROSENBERG	77471
7	RCRISG	TXD988047122	0.05 NW	CHEVRON USA INC #153513	5011 US 59 & FM 2218	ROSENBERG	77471
8	RCRISG	TX0000919720	0.06 S	FORT BEND CHRYSLER JEEP EAGLE	26433 SOUTHWEST FREEWAY	ROSENBERG	77471
9	RCRISG	TXD988050506	0.06 N	GRIFFITH OIL TOOLS/DRECO INC	30444 SW FREEWAY	ROSENBERG	77471
9	TRI	77471GRFFT3044	0.06 N	GRIFFITH OIL TOOL	30444 S.W. FREEWAY	ROSENBERG	77471
10	LPST	094300	0.06 NW	GREENLAWN MEMORIAL PARK	FM 2218	ROSENBERG	77471
10	PST	0049634	0.06 NW	GREENLAWN MEMORIAL PARK	FM 2218 & HWY 59	ROSENBERG	77471
11	PST	0072098	0.07 S	SHELL	26205 HWY 59 @ FM 2218	ROSENBERG	77471
12	LPST	096918	0.07 S	GILLMAN CO	26029 SOUTHWEST FWY	RICHMOND	77469
12	RCRISG	TX0000981324	0.07 S	GILLMAN CO NISSAN HONDA MAZDA	26029 SW FRWY	RICHMOND	77469

GeoSearch

Environmental Data Services

REPORT SUMMARY OF LOCATABLE SITES

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MAP ID#:	DATABASE TYPE:	SITE ID#:	DISTANCE:	SITE NAME:	ADDRESS:	CITY:	ZIP CODE:
13	PST	0052100	0.08 N	LAIDLAW WASTE SYSTEMS	330 KLAUKE	ROSENBERG	77471
14	LPST	111555	0.08 N	OPS ALL 13	3416 1ST ST	ROSENBERG	77471
14	PST	0036212	0.08 N	OPS ALL 13	3416 FIRST	ROSENBERG	77471
15	LPST	103997	0.08 N	TEXACO SERVICE STATION	3417 FIRST ST	ROSENBERG	77471
15	PST	0023157	0.08 N	SHELL	3417 FIRST	ROSENBERG	77471
15	RCRISG	TXD987995586	0.08 N	STAR ENTERPRISE	3417 1ST ST	ROSENBERG	77471
16	LPST	091112	0.08 S	CIRCLE K 2273	26111 SOUTHWEST FWY	ROSENBERG	77471
16	LPST	110738	0.08 S	DRIVERS 413	26111 SOUTHWEST FWY	ROSENBERG	77471
16	PST	0005511	0.08 S	KHATER ENTERPRISES	26111 SOUTHWEST	ROSENBERG	77471
16	SPILLS	7/19/92011	0.08 S	CIRCLE K	LUST SITE US HWY 59 & FM 2218, ROSE	FORT BEND	
16	SPILLS	7/19/92012	0.08 S	CIRCLE K	LUST SITE US HWY 59 & FM 2218, ROSE	FORT BEND	
17	PST	0042287	0.11 NW	SILVER EAGLE DISTRIBUTORS LP	6902 INDUSTRIAL	ROSENBERG	77471
18	LPST	105538	0.12 NW	FORT BEND COUNTY DRAINAGE DISTRICT	6400 HOMESTEAD	ROSENBERG	77471
18	PST	0043052	0.12 NW	FORT BEND COUNTY DRAINAGE DIST	6400 HOMESTEAD	ROSENBERG	77471
19	LPST	102319	0.13 S	ABANDONED WAREHOUSE	6420 READING RD	ROSENBERG	77471
20	LPST	099159	0.15 S	FORT BEND COUNTY PRECINCT 1	2801 FM 2218	ROSENBERG	77471
20	PST	0044332	0.15 S	FORT BEND COUNTY PRCT 1	2801 FM 2218	ROSENBERG	77471
21	RCRISG	TXD039244959	0.15 NW	FT BEND TOYOTA	3501 FM 2218	ROSENBERG	77471
22	PST	0070877	0.21 NW	SHELL	3535 FM 762	RICHMOND	77469

GeoSearch

Environmental Data Services

REPORT SUMMARY OF LOCATABLE SITES

Appearing on the Location Map, these sites are referenced by Map ID #, Database Name, Site ID#, Site Name, Address, City, Zip Code and Distance from Site (miles).

MAP ID#:	DATABASE TYPE:	SITE ID#:	DISTANCE:	SITE NAME:	ADDRESS:	CITY:	ZIP CODE:
23	PST	0075522	0.24 NW	DORSETT BROTHERS CONCRETE SUPPLY INC	5200 RANSOM	RICHMOND	77469
24	PST	0058617	0.24 NW	WENZEL ENTERPRISES	6420 READING	ROSENBERG	77471
25	NFRAP	TXD026988105	0.36 S	LANE AVIATION INC	P.O. BOX 432, FM 2218 3 MI SE	ROSENBURG	77471
26	CALF	2451	0.46 NW	MAUD RICHARDSON DAVIS	16602 MILLER RD. RICHMOND TX	FORT BEND	77471
27	LPST	115738	0.49 E	GREATER OUTPOST SHELL STATION	20333 SOUTHWEST FWY	BELLAIRE	77479
28	MSWLF	1961	0.51 N	FORT BEND COUNTY	2500FT SE SH529,2500FT N US59, ADJA	ROSENBERG	0
29	CALF	2449	0.64 S	LOWEN GARCIA	0.25MI E OF CRABB ON HWY762 0.75MI	FORT BEND	77469
30	RCRISC	TXD000449397	0.72 N	VISION METALS INC	SCOTT ST AT SPUR 529	ROSENBERG	77471

NO FURTHER REMEDIATION PLANNED (NFRAP)

MAPID# 25 **Distance from Property: 0.36 mi. S**

SITE INFORMATION

EPA ID#: **TXD026988105**
NAME: **LANE AVIATION INC**
ADDRESS: **P.O. BOX 432, FM 2218 3 MI SE**
ROSENBURG, TX 77471
CONTACT/ PHONE: **NOT REPORTED**
NON NPL STATUS: **NF - NFRAP**
FEDERAL FACILITY CODE **N - Not a Federal Facility**
OWNERSHIP TYPE CODE: **OH - Other**

SITE DESCRIPTION

NOT REPORTED

ACTIONS

TYPE: **DS - DISCOVERY**
RESPONSIBLE ORGANIZATION: **F - EPA Fund-Financed**
START DATE: **NOT REPORTED**
COMPLETION DATE: **01/01/1985**

TYPE: **PA - PRELIMINARY ASSESSMENT**
RESPONSIBLE ORGANIZATION: **S - State, Fund Financed**
START DATE: **10/01/1985**
COMPLETION DATE: **10/01/1985**

TYPE: **VS - ARCHIVE SITE**
RESPONSIBLE ORGANIZATION: **EP - EPA In-House**
START DATE: **NOT REPORTED**
COMPLETION DATE: **10/01/1985**

MAPID# 30 Distance from Property: 0.72 mi. N

FACILITY INFORMATION

EPA ID#: **TXD000449397**
NAME: **VISION METALS INC**
ADDRESS: **SCOTT ST AT SPUR 529**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **SMALL QUANTITY GENERATOR**
TSD INDICATOR: **TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**

COMPLIANCE, MONITORING AND ENFORCEMENTS

EVALUATIONS

DATE	TYPE
07/14/88	NON-FINANCIAL RECORD REVIEW
11/18/88	COMPLIANCE EVALUATION INSPECTION ON-SITE
10/13/89	OPERATION AND MAINTENANCE INSPECTION
11/08/89	COMPLIANCE EVALUATION INSPECTION ON-SITE
07/31/90	CORRECTIVE ACTION OVERSIGHT
10/26/90	COMPLIANCE EVALUATION INSPECTION ON-SITE
01/28/91	NON-FINANCIAL RECORD REVIEW
04/29/93	CORRECTIVE ACTION OVERSIGHT
04/29/93	COMPLIANCE EVALUATION INSPECTION ON-SITE
06/29/93	NON-FINANCIAL RECORD REVIEW
03/10/94	COMPLIANCE EVALUATION INSPECTION ON-SITE
01/09/95	COMPLIANCE (GW) MONITORING EVALUATION
01/10/95	COMPLIANCE SCHEDULE EVALUATION
12/14/95	COMPLIANCE EVALUATION INSPECTION ON-SITE
02/26/96	NON-FINANCIAL RECORD REVIEW
01/17/99	COMPLIANCE (GW) MONITORING EVALUATION

VIOLATIONS

DATE	TYPE
07/14/88	FORMAL ENFORCEMENT AGREEMENT
11/18/88	TSD-CLOSURE/POST-CLOSURE REQUIREMENTS
11/18/88	TSD-OTHER REQUIREMENTS
11/18/88	
10/13/89	TSD-GOUNDWATER MONITORING REQUIREMENTS
10/13/89	TSD-OTHER REQUIREMENTS
10/13/89	FORMAL ENFORCEMENT AGREEMENT
10/13/89	
11/08/89	TSD-OTHER REQUIREMENTS
11/08/89	
10/26/90	TSD-OTHER REQUIREMENTS
04/29/93	GENERATOR-LAND BAN REQUIREMENTS
04/29/93	GENERATOR-OTHER REQUIREMENTS
04/29/93	
03/10/94	TSD-OTHER REQUIREMENTS
03/10/94	GENERATOR-OTHER REQUIREMENTS
03/10/94	
12/14/95	

ENFORCEMENTS

DATE	TYPE
07/14/88	VERBAL INFORMAL
01/02/89	WRITTEN INFORMAL
12/08/89	WRITTEN INFORMAL
12/15/89	VERBAL INFORMAL
11/20/90	WRITTEN INFORMAL
05/25/93	WRITTEN INFORMAL
03/30/94	WRITTEN INFORMAL
01/12/96	WRITTEN INFORMAL

CORRECTIVE ACTIONS

EVENTS

DATE	TYPE
05/04/87	RFA COMPLETED
05/04/87	DETERMINATION OF NEED FOR A RFI-RFI IS NECESSARY
06/30/87	STABILIZATION MEASURES EVALUATION-FACILITY IS AMENABLE TO STABILIZATION
01/12/88	STABILIZATION MEASURES IMPLEMENTED-GROUNDWATER EXTRACTION & TREATMENT
03/03/88	RFI IMPOSITION
03/13/88	STABILIZATION CONSTRUCTION COMPLETED
03/14/88	RFI IMPOSITION-FOCUSED DATA COLLECTION REQ STAB EVAL
11/23/88	RFI WORKPLAN APPROVED
05/08/90	DATE FOR REMEDY SELECTION (CM IMPOSED)
05/14/90	RFI IMPOSITION-FOCUSED DATA COLLECTION REQ STAB EVAL
08/06/90	RFI WORKPLAN APPROVED
08/06/90	CMI WORKPLAN APPROVED
02/24/92	CA PRIORITIZATION-HIGH CA PRIORITY
05/25/93	STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION
06/11/93	RFI APPROVED
07/21/93	STABILIZATION MEASURES IMPLEMENTED-PRIMARY MEAS IS SOURCE REMOVL &/OR TRT
08/11/93	RFI IMPOSITION-FOCUSED DATA COLLECTION REQ STAB EVAL
09/16/93	CMS WORKPLAN APPROVED
09/16/93	CERTIFICATION OF REMEDY COMPLETION (CMI)
09/16/93	CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE
01/27/94	STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION
11/05/96	CMS APPROVED
02/13/97	CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE
04/15/97	RFI WORKPLAN APPROVED
07/29/97	HUMAN EXPOSURES CONTROLLED DETERMINATION-MORE INFORMATION NEEDED
07/29/97	RELEASE TO GW CONTROLLED DETERMINATION-MORE INFORMATION NEEDED
04/14/98	DATE FOR REMEDY SELECTION (CM IMPOSED)
09/01/98	HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE
09/01/98	RELEASE TO GW CONTROLLED DETERMINATION-NO RELEASE TO GROUNDWATER
01/13/00	HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE
01/13/00	RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE
01/19/00	RFI APPROVED
01/19/00	CMS WORKPLAN APPROVED

01/19/00	CMS APPROVED
01/19/00	CMI WORKPLAN APPROVED
11/03/00	CERTIFICATION OF REMEDY COMPLETION (CMI)
05/22/01	CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE

MAPID# 4 Distance from Property: 0.03 mi. NW

FACILITY INFORMATION

EPA ID#: **TXD086984713**
NAME: **MARLEY COOLING TOWER COMPANY**
ADDRESS: **US 59 & TEXAS HWY 36**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **NOT A GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 5 Distance from Property: 0.04 mi. S

FACILITY INFORMATION

EPA ID#: **TXD988061891**
NAME: **BEN RICE PONT & CAD**
ADDRESS: **26529 SW FRWY**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 6 Distance from Property: 0.05 mi. S

FACILITY INFORMATION

EPA ID#: **TXD982292484**
NAME: **SUNBELT TOYOTA**
ADDRESS: **26525 HWY 59**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **NOT A GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 7 Distance from Property: 0.05 mi. NW

FACILITY INFORMATION

EPA ID#: **TXD988047122**
NAME: **CHEVRON USA INC #153513**
ADDRESS: **5011 US 59 & FM 2218**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **SMALL QUANTITY GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 8 Distance from Property: 0.06 mi. S

FACILITY INFORMATION

EPA ID#: **TX0000919720**
NAME: **FORT BEND CHRYSLER JEEP EAGLE**
ADDRESS: **26433 SOUTHWEST FREEWAY**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **SMALL QUANTITY GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 9 Distance from Property: 0.06 mi. N

FACILITY INFORMATION

EPA ID#: **TXD988050506**
NAME: **GRIFFITH OIL TOOLS/DRECO INC**
ADDRESS: **30444 SW FREEWAY**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **SMALL QUANTITY GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 12 **Distance from Property: 0.07 mi. S**

FACILITY INFORMATION

EPA ID#: **TX0000981324**
NAME: **GILLMAN CO NISSAN HONDA MAZDA**
ADDRESS: **26029 SW FRWY**
RICHMOND, TX 77469

ACTIVITY INFORMATION

GENERATOR TYPE: **SMALL QUANTITY GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 15 **Distance from Property: 0.08 mi. N**

FACILITY INFORMATION

EPA ID#: **TXD987995586**
NAME: **STAR ENTERPRISE**
ADDRESS: **3417 1ST ST**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **SMALL QUANTITY GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

MAPID# 21 **Distance from Property: 0.15 mi. NW**

FACILITY INFORMATION

EPA ID#: **TXD039244959**
NAME: **FT BEND TOYOTA**
ADDRESS: **3501 FM 2218**
ROSENBERG, TX 77471

ACTIVITY INFORMATION

GENERATOR TYPE: **SMALL QUANTITY GENERATOR**
TSD INDICATOR: **NOT A TSD**
TRANSPORTER INDICATOR: **NOT A TRANSPORTER**
VIOLATIONS: **NO VIOLATIONS**

RCRIS – Descriptions

Acronyms

RCRISG – RCRIS GENERATOR/HANDLER
RCRIST – RCRIS TSD
RCRISC – RCRIS CORRECTIVE ACTION

Generator Types

Large Quantity Generators:

- Generate 1,000 kg or more of hazardous waste during any calendar month; or
- Generate more than 1 kg of acutely hazardous waste during any calendar month; or
- Generate more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month; or
- Generate 1 kg or less of acutely hazardous waste during any calendar month, and accumulate more than 1kg of of acutely hazardous waste at any time; or
- Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulated more than 100 kg or that material at any time.

Small Quantity Generators:

- Generate more than 100 and less than 1000 kilograms of hazardous waste during any calendar month and accumulate less than 6000 kg of hazardous waste at any time; or
- Generate 100 kg or less of hazardous waste during any calendar month, and accumulate more than 1000 kg of hazardous waste at any time.

Conditionally Exempt Small Quantity Generators:

- Generate 100 kilograms or less of hazardous waste per calendar month, and accumulate 1000 kg or less of hazardous waste at any time; or
- Generate one kilogram or less of acutely hazardous waste per calendar month, and accumulate at any time:
  - 1 kg or less of acutely hazardous waste; or
  - 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste; or
- Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month, and accumulate at any time:
  - 1 kg or less of acutely hazardous waste; or
  - 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste.

TSD Indicator: Indicates that the handler is engaged in the treatment, storage or disposal of hazardous waste.
Allowed Values: TSD
Not a TSD, Verified
Not a TSD, Unverified

Transporter Indicator: Indicates that the handler is engaged in the transportation of hazardous waste.
Allowed Values: Handler transports wastes for hire (i.e., commercial transport)
Handler transports wastes for self
Handler transports wastes, but commercial status is unknown
Not a transporter, verified
Unverified

MAPID# 10 **Distance from Property: 0.06 mi. NW**

FACILITY INFORMATION

LPST ID#: **094300** FACILITY ID#: **0049634**
REPORTED DATE: **11/14/89**
NAME: **GREENLAWN MEMORIAL PARK**
ADDRESS: **FM 2218**
ROSENBERG TX

PRP INFORMATION

NAME: **MISSION PARKS INTERESTS**
ADDRESS: **1700 SE MILITARY DRIVE**
SAN ANTONIO, TX 78214
CONTACT: **MARY JO HAUSER**
PHONE: **210/924-4242**

PRIORITY CODE: (4A) SOIL CONTAMINATION ONLY, REQUIRES FULL SITE ASSESSMENT & REMEDIAL ACTION PLAN (RAP)
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 12 **Distance from Property: 0.07 mi. S**

FACILITY INFORMATION

LPST ID#: **096918** FACILITY ID#:
REPORTED DATE: **10/4/90**
NAME: **GILLMAN CO**
ADDRESS: **26029 SOUTHWEST FWY**
RICHMOND TX

PRP INFORMATION

NAME: **GILLMAN CO**
ADDRESS: **26029 SOUTHWEST FWY**
RICHMOND, TX 77469
CONTACT: **MITCH CUMMINS**
PHONE: **713/341-2277**

PRIORITY CODE: (4A) SOIL CONTAMINATION ONLY, REQUIRES FULL SITE ASSESSMENT & REMEDIAL ACTION PLAN (RAP)
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 14 **Distance from Property: 0.08 mi. N**

FACILITY INFORMATION

LPST ID#: **111555** FACILITY ID#: **0036212**
REPORTED DATE: **8/22/96**
NAME: **OPS ALL 13**
ADDRESS: **3416 1ST ST**
ROSENBERG TX

PRP INFORMATION

NAME: **FLINTEX OIL CO**
ADDRESS: **16420 PARK TEN PLACE STE**
HOUSTON, TX 77084-5052
CONTACT: **THOMAS ZATOPEK**
PHONE: **281/578-0529**

PRIORITY CODE: (3.1) GROUNDWATER IMPACT, PUBLIC/DOMESTIC WATER SUPPLY WELL W/IN 0.25 -0.5 MILES
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 15 **Distance from Property: 0.08 mi. N**

FACILITY INFORMATION

LPST ID#: **103997** FACILITY ID#: **0023157**
REPORTED DATE: **7/9/92**
NAME: **TEXACO SERVICE STATION**
ADDRESS: **3417 FIRST ST**
ROSENBERG TX

PRP INFORMATION

NAME: **STAR ENTERPRISE**
ADDRESS: **4500 FULLER DR STE 400**
IRVING, TX 75038
CONTACT: **BETH REEVES**
PHONE: **214/719-3305**

PRIORITY CODE: (4.2) NO GROUNDWATER IMPACT, NO APPARENT THREATS OR IMPACTS TO RECEPTORS
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 16 **Distance from Property: 0.08 mi. S**

FACILITY INFORMATION

LPST ID#: **091112** FACILITY ID#: **0005511**
REPORTED DATE: **8/25/86**
NAME: **CIRCLE K 2273**
ADDRESS: **26111 SOUTHWEST FWY**
ROSENBERG TX

PRP INFORMATION

NAME: **CIRCLE K CORP**
ADDRESS: **906 E ANDERSON LN**
AUSTIN, TX 78752
CONTACT: **KEN YOUNGER**
PHONE: **512/339-8836**

PRIORITY CODE: (2.1) CONTAMINATED SOIL EXPOSED & UNSECURED, RECEPTOR W/IN 500 FEET
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 16 **Distance from Property: 0.08 mi. S**

FACILITY INFORMATION

LPST ID#: **110738** FACILITY ID#: **0005511**
REPORTED DATE:
NAME: **DRIVERS 413**
ADDRESS: **26111 SOUTHWEST FWY**
ROSENBERG TX

PRP INFORMATION

NAME: **CIRCLE K STORES INC**
ADDRESS: **PO BOX 52085**
PHOENIX, AZ 85072-2085
CONTACT: **KEN YOUNGER**
PHONE: **713/690-6111**

PRIORITY CODE: (4.2) NO GROUNDWATER IMPACT, NO APPARENT THREATS OR IMPACTS TO RECEPTORS
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 18 **Distance from Property: 0.12 mi. NW**

FACILITY INFORMATION

LPST ID#: **105538** FACILITY ID#: **0043052**
REPORTED DATE: **12/14/92**
NAME: **FORT BEND COUNTY DRAINAGE DISTRICT**
ADDRESS: **6400 HOMESTEAD**
ROSENBERG TX

PRP INFORMATION

NAME: **FORT BEND COUNTY DRAINAGE DIST**
ADDRESS: **PO BOX 1028**
ROSENBERG, TX 77471
CONTACT: **JAMES POHL**
PHONE: **713/342-2863**

PRIORITY CODE: (5) MINOR SOIL CONTAMINATION - DOES NOT REQUIRE A REMEDIAL ACTION PLAN (RAP)
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 19 **Distance from Property: 0.13 mi. S**

FACILITY INFORMATION

LPST ID#: **102319** FACILITY ID#: **0058617**
REPORTED DATE: **3/16/92**
NAME: **ABANDONED WAREHOUSE**
ADDRESS: **6420 READING RD**
ROSENBERG TX

PRP INFORMATION

NAME: **WENZEL ENTERPRISES**
ADDRESS: **RR 1 BOX 718**
RICHMOND, TX 77469
CONTACT: **DONALD WENZEL**
PHONE: **713/343-1027**

PRIORITY CODE: (5) MINOR SOIL CONTAMINATION - DOES NOT REQUIRE A REMEDIAL ACTION PLAN (RAP)
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 20 **Distance from Property: 0.15 mi. S**

FACILITY INFORMATION

LPST ID#: **099159** FACILITY ID#: **0044332**
REPORTED DATE: **11/5/90**
NAME: **FORT BEND COUNTY PRECINCT 1**
ADDRESS: **2801 FM 2218**
ROSENBERG TX

PRP INFORMATION

NAME: **FORT BEND COUNTY PRECINCT 1**
ADDRESS: **PO BOX 148**
RICHMOND, TX 77469
CONTACT: **B L OSHIELES**
PHONE: **713/342-4513**

PRIORITY CODE: (4A) SOIL CONTAMINATION ONLY, REQUIRES FULL SITE ASSESSMENT & REMEDIAL ACTION PLAN (RAP)
STATUS CODE: (6A) FINAL CONCURRENCE ISSUED, CASE CLOSED

MAPID# 27 **Distance from Property: 0.49 mi. E**

FACILITY INFORMATION

LPST ID#: **115738** FACILITY ID#: **0070542**
REPORTED DATE: **4/24/3**
NAME: **GREATER OUTPOST SHELL STATION**
ADDRESS: **20333 SOUTHWEST FWY**
BELLAIRE TX

PRP INFORMATION

NAME: **WEDGEWOOD UNIVERSAL**
ADDRESS: **11919 PALMETTO SHORES DR**
HOUSTON, TX 77065
CONTACT: **BUDDY BELL**
PHONE: **713/661-6394**

PRIORITY CODE: (4.1) GROUNDWATER IMPACTED, NO APPARENT THREATES OR IMPACTS TO RECEPTORS
STATUS CODE: (1) PREASSESSMENT / RELEASE DETERMINATION

PETROLEUM STORAGE TANK (PST)

MAPID# 1 **Distance from Property: 0.02 mi. S**

FACILITY INFORMATION

ID#: **0075580** FACILITY TYPE: **FLEET**
NAME: **DUBMILLER FORD**
ADDRESS: **27225 US 59 WORTH**
ROSENBERG, TX
CONTACT: **CABALLERO**
PHONE: **281/342-5611**

OWNER INFORMATION

NAME: **BAY OIL COMPANY**
ADDRESS:
DICKINSON, TX 77539
CONTACT: **BROOKS SMITH**
PHONE: **281-337-4673**

TANK INFORMATION

TANKID#/TYPE **1/AST** INSTALLED: **12/12/02** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **6000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / DBL WALL STEEL**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / NOT REPORTED**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 2 **Distance from Property: 0.03 mi. SW**

FACILITY INFORMATION

ID#: **0065524** FACILITY TYPE: **RETAIL**
NAME: **SPEEDY STOP 25**
ADDRESS: **28015 SW FREEWAY**
ROSENBERG, TX
CONTACT: **CARLTON LABEFF**
PHONE: **281/239-7205**

OWNER INFORMATION

NAME: **SPEEDY STOP FOOD STORES LTD**
ADDRESS:
VICTORIA, TX 77902
CONTACT: **CARLTON LABEFF**
PHONE: **361-573-7662 x 121**

TANK INFORMATION

TANKID#/TYPE **2/UST** INSTALLED: **11/01/93** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / EXTERNAL DIELECTRIC COATING/LAMINATE/TAPE/WRAP**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **11/01/93** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / EXTERNAL DIELECTRIC COATING/LAMINATE/TAPE/WRAP**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **1/UST** INSTALLED: **11/01/93** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / EXTERNAL DIELECTRIC COATING/LAMINATE/TAPE/WRAP**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

MAPID# 3 **Distance from Property: 0.03 mi. SW**

FACILITY INFORMATION

ID#: **0066797** FACILITY TYPE: **RETAIL**
NAME: **SUNMART 125**
ADDRESS: **28111 SW FREEWAY**
ROSENBERG, TX
CONTACT: **BUTLER**
PHONE: **281/444-2266**

OWNER INFORMATION

NAME: **PETROLEUM WHOLESALE INC**
ADDRESS:
HOUSTON, TX 77210
CONTACT: **CHRISTOPHER R BUTLER**
PHONE: **281-444-2266 x 1276**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **03/19/95** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **20000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **NONMETALLIC FLEXIBLE PIPING / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **SIR (STAT. INVENTORY RECONCILIATION) & INVENTORY / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE / NONMETALLIC FLEXIBLE PIPING**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **2/UST** INSTALLED: **03/19/95** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **20000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **NONMETALLIC FLEXIBLE PIPING / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **SIR (STAT. INVENTORY RECONCILIATION) & INVENTORY / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE / NONMETALLIC FLEXIBLE PIPING**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

MAPID# 5 **Distance from Property: 0.04 mi. S**

FACILITY INFORMATION

ID#: **0062553** FACILITY TYPE: **RETAIL**
NAME: **BEN RICE PONTIAC CADILLAC GMC**
ADDRESS: **26529 SW FREEWAY**
ROSENBERG, TX
CONTACT: **BEN RICE**
PHONE: **713/342-4200**

OWNER INFORMATION

NAME: **WHYBE INC**
ADDRESS: **1709 HAWTHORN**
RICHMOND, TX 77469
CONTACT: **BEN RICE**
PHONE: **7133424200**

TANK INFORMATION

TANKID#/TYPE **2/UST** INSTALLED: **02/01/88** STATUS(DATE): **REMOVED FROM GROUND (03/23/92)**
CAPACITY(gal.): **500** CONTENTS: **USED OIL**
TANK MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **1/UST** INSTALLED: **02/01/88** STATUS(DATE): **REMOVED FROM GROUND (03/23/92)**
CAPACITY(gal.): **500** CONTENTS: **USED OIL**
TANK MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 6 **Distance from Property: 0.05 mi. S**

FACILITY INFORMATION

ID#: **0061882** FACILITY TYPE: **UNIDENTIFIED**
NAME: **SUNBELT TOYOTA-SUBARU**
ADDRESS: **26525 HWY 59**
ROSENBERG, TX
CONTACT: **BOB MICK**
PHONE: **713/342-9318**

OWNER INFORMATION

NAME: **SDC REAL ESTATE**
ADDRESS:
HOUSTON, TX 77252
CONTACT: **JAY DAVIS**
PHONE: **7137999307**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **08/31/87** STATUS(DATE): **PERM. FILLED IN PLACE (08/01/95)**
CAPACITY(gal.): **0** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **TIGHT-FILL FITTING**

MAPID# 7 **Distance from Property: 0.05 mi. NW**

FACILITY INFORMATION

ID#: **0028568** FACILITY TYPE: **RETAIL**
NAME: **CHEVRON FAC 153513**
ADDRESS: **5011 US 59**
ROSENBERG, TX
CONTACT: **STATION MGR**
PHONE: **281/342-2622**

OWNER INFORMATION

NAME: **CHEVRON USA INC**
ADDRESS:
SAN RAMON, CA 94583
CONTACT: **PERMIT DESK**
PHONE: **925-842-9002**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **01/01/82** STATUS(DATE): **REMOVED FROM GROUND (10/31/96)**
CAPACITY(gal.): **12000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **01/01/82** STATUS(DATE): **REMOVED FROM GROUND (10/31/96)**
CAPACITY(gal.): **12000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

PETROLEUM STORAGE TANK (PST)

TANKID#/TYPE **2/UST** INSTALLED: **01/01/82** STATUS(DATE): **REMOVED FROM GROUND (10/31/96)**
CAPACITY(gal.): **12000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **4/UST** INSTALLED: **01/01/82** STATUS(DATE): **REMOVED FROM GROUND (10/31/96)**
CAPACITY(gal.): **12000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **1/UST** INSTALLED: **01/01/97** STATUS(DATE): **TEMPORARILY OUT OF USE (06/28/02)**
CAPACITY(gal.): **11627** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **2/UST** INSTALLED: **01/01/97** STATUS(DATE): **TEMPORARILY OUT OF USE (06/28/02)**
CAPACITY(gal.): **11627** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **01/01/97** STATUS(DATE): **TEMPORARILY OUT OF USE (06/28/02)**
CAPACITY(gal.): **11627** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **INVENTORY CONTROL / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **1A/UST** INSTALLED: **01/01/97** STATUS(DATE): **NOT REPORTED (NOT REPORTED)**
CAPACITY(gal.): **12000** CONTENTS: **NOT REPORTED**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH) / PRESSURIZED**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE)**
SPILL/OVERFILL PROTECTION: **AUTO OVERFILL DEVICE: SHUT-OFF VALVE**

TANKID#/TYPE **2A/UST** INSTALLED: **01/01/97** STATUS(DATE): **NOT REPORTED (NOT REPORTED)**
CAPACITY(gal.): **12000** CONTENTS: **NOT REPORTED**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH) / PRESSURIZED**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE)**
SPILL/OVERFILL PROTECTION: **AUTO OVERFILL DEVICE: SHUT-OFF VALVE**

TANKID#/TYPE **3A/UST** INSTALLED: **01/01/97** STATUS(DATE): **NOT REPORTED (NOT REPORTED)**
CAPACITY(gal.): **12000** CONTENTS: **NOT REPORTED**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH) / PRESSURIZED**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE)**
SPILL/OVERFILL PROTECTION: **AUTO OVERFILL DEVICE: SHUT-OFF VALVE**

MAPID# 10 **Distance from Property: 0.06 mi. NW**

FACILITY INFORMATION

ID#: **0049634** FACILITY TYPE: **UNIDENTIFIED**
NAME: **GREENLAWN MEMORIAL PARK**
ADDRESS: **FM 2218 & HWY 59**
ROSENBERG, TX
CONTACT: **CRAIG ZIMMERMAN**
PHONE: **713/342-3734**

OWNER INFORMATION

NAME: **MISSION-ROSENBERG INC**
ADDRESS: **9023 WETMORE RD**
SAN ANTONIO, TX 78216
CONTACT: **JAMES H. WEST**
PHONE: **5128208500**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **01/01/75** STATUS(DATE): **REMOVED FROM GROUND (11/10/89)**
CAPACITY(gal.): **500** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 11 **Distance from Property: 0.07 mi. S**

FACILITY INFORMATION

ID#: **0072098** FACILITY TYPE: **RETAIL**
NAME: **SHELL**
ADDRESS: **26205 HWY 59 @ FM 2218**
ROSENBERG, TX
CONTACT: **MULKEY**
PHONE: **281/376-2455**

OWNER INFORMATION

NAME: **MOTIVA ENTERPRISES LLC**
ADDRESS: **13258 FM 1960 W**
HOUSTON, TX 77065
CONTACT: **SCOTT HAGGERTON**
PHONE: **817-994-8009**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **12/02/98** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **20000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING & INV. CONTR / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **ISOLATED IN OPEN AREA / ISOLATED IN OPEN AREA**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **2/UST** INSTALLED: **12/02/98** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING & INV. CONTR / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **ISOLATED IN OPEN AREA / ISOLATED IN OPEN AREA**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **12/02/98** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **20000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING & INV. CONTR / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **ISOLATED IN OPEN AREA / ISOLATED IN OPEN AREA**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

MAPID# 13 **Distance from Property: 0.08 mi. N**

FACILITY INFORMATION

ID#: **0052100** FACILITY TYPE: **OTHER**
NAME: **LAIDLAW WASTE SYSTEMS**
ADDRESS: **330 KLAUKE**
ROSENBERG, TX
CONTACT: **WALINE SEBESTA**
PHONE: **713/342-1288**

OWNER INFORMATION

NAME: **MIKE KROLCZYK INC**
ADDRESS:
ROSENBERG, TX 77471
CONTACT: **BOB LIVINGSTON**
PHONE: **281-342-2162**

TANK INFORMATION

TANKID#/TYPE **1/AST** INSTALLED: **01/01/86** STATUS(DATE): **OUT OF USE (11/30/97)**
CAPACITY(gal.): **2000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / NOT REPORTED**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **2/AST** INSTALLED: **01/01/92** STATUS(DATE): **OUT OF USE (11/30/97)**
CAPACITY(gal.): **3000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / NOT REPORTED**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 14 **Distance from Property: 0.08 mi. N**

FACILITY INFORMATION

ID#: **0036212** FACILITY TYPE: **RETAIL**
NAME: **OPS ALL 13**
ADDRESS: **3416 FIRST**
ROSENBERG, TX
CONTACT: **ZATOPEK**
PHONE: **281/578-0529**

OWNER INFORMATION

NAME: **BAYOU HOLDINGS LLC**
ADDRESS:
SEALY, TX 77474
CONTACT: **DAVID MULKEY**
PHONE: **281-376-2455**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **05/01/76** STATUS(DATE): **REMOVED FROM GROUND (02/10/98)**
CAPACITY(gal.): **10000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **EXTERNAL DIELECTRIC COATING/LAMINATE/TAPE/WRAP / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **2/UST** INSTALLED: **05/01/76** STATUS(DATE): **REMOVED FROM GROUND (02/10/98)**
CAPACITY(gal.): **10000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **EXTERNAL DIELECTRIC COATING/LAMINATE/TAPE/WRAP / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **05/01/76** STATUS(DATE): **REMOVED FROM GROUND (02/10/98)**
CAPACITY(gal.): **8000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **EXTERNAL DIELECTRIC COATING/LAMINATE/TAPE/WRAP / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

MAPID# 15 **Distance from Property: 0.08 mi. N**

FACILITY INFORMATION

ID#: **0023157** FACILITY TYPE: **RETAIL**
NAME: **SHELL**
ADDRESS: **3417 FIRST**
ROSENBERG, TX
CONTACT: **DAVID MULKEY**
PHONE: **281/376-2455**

OWNER INFORMATION

NAME: **MOTIVA ENTERPRISES LLC**
ADDRESS: **13258 FM 1960 W**
HOUSTON, TX 77065
CONTACT: **SCOTT HAGGERTON**
PHONE: **817-994-8009**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **01/01/81** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **ISOLATED IN OPEN AREA / ISOLATED IN OPEN AREA**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **4/UST** INSTALLED: **01/01/81** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **ISOLATED IN OPEN AREA / ISOLATED IN OPEN AREA**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **01/01/81** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **ISOLATED IN OPEN AREA / ISOLATED IN OPEN AREA**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **2/UST** INSTALLED: **01/01/81** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **ISOLATED IN OPEN AREA / ISOLATED IN OPEN AREA**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

MAPID# 16 **Distance from Property: 0.08 mi. S**

FACILITY INFORMATION

ID#: **0005511** FACILITY TYPE: **RETAIL**
NAME: **KHATER ENTERPRISES**
ADDRESS: **26111 SOUTHWEST**
ROSENBERG, TX
CONTACT: **BOUKARIM**
PHONE: **832/277-5921**

OWNER INFORMATION

NAME: **JAIS PROPERTIES INC**
ADDRESS:
HOUSTON, TX 77263
CONTACT: **JAMIL BOUKARIM**
PHONE: **832-277-5921**

TANK INFORMATION

TANKID#/TYPE **2/UST** INSTALLED: **04/01/82** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12032** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **SIR (STAT. INVENTORY RECONCILIATION) & INVENTORY / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **CATHODIC PROTECTION - FIELD INSTALLATION / CATHODIC PROTECTION - FIELD INSTALLATION**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **1/UST** INSTALLED: **04/01/82** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12032** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **SIR (STAT. INVENTORY RECONCILIATION) & INVENTORY / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **CATHODIC PROTECTION - FIELD INSTALLATION / CATHODIC PROTECTION - FIELD INSTALLATION**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **5/UST** INSTALLED: **04/01/82** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12032** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **SIR (STAT. INVENTORY RECONCILIATION) & INVENTORY / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **CATHODIC PROTECTION - FIELD INSTALLATION / CATHODIC PROTECTION - FIELD INSTALLATION**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **4/UST** INSTALLED: **04/01/82** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12032** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **SIR (STAT. INVENTORY RECONCILIATION) & INVENTORY / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **CATHODIC PROTECTION - FIELD INSTALLATION / CATHODIC PROTECTION - FIELD INSTALLATION**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **04/01/82** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12032** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **SIR (STAT. INVENTORY RECONCILIATION) & INVENTORY / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **CATHODIC PROTECTION - FIELD INSTALLATION / CATHODIC PROTECTION - FIELD INSTALLATION**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

MAPID# 17 **Distance from Property: 0.11 mi. NW**

FACILITY INFORMATION

ID#: **0042287** FACILITY TYPE: **FLEET**
NAME: **SILVER EAGLE DISTRIBUTORS LP**
ADDRESS: **6902 INDUSTRIAL**
ROSENBERG, TX
CONTACT: **PRITCHARD**
PHONE: **713/867-8109**

OWNER INFORMATION

NAME: **SILVER EAGLE DISTRIBUTORS LP**
ADDRESS:
HOUSTON, TX 77252
CONTACT: **ED PRITCHARD**
PHONE: **713-869-4361**

TANK INFORMATION

TANKID#/TYPE **2/UST** INSTALLED: **11/01/83** STATUS(DATE): **REMOVED FROM GROUND (07/25/01)**
CAPACITY(gal.): **5000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **VAPOR MONITORING / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **1/UST** INSTALLED: **11/01/83** STATUS(DATE): **REMOVED FROM GROUND (07/25/01)**
CAPACITY(gal.): **10000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **VAPOR MONITORING / AUTO. LINE LEAK DETECTOR (3.0 GPH FOR PRESSURE PIPING)**
TANK/PIPE CORROSION PROTECTION: **FRP TANK OR PIPING (NONCORRODIBLE) / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **07/25/01** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **GROUNDWATER MONITORING / NOT REPORTED**
TANK/PIPE CORROSION PROTECTION: **COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

TANKID#/TYPE **4/UST** INSTALLED: **07/25/01** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **GROUNDWATER MONITORING / NOT REPORTED**
TANK/PIPE CORROSION PROTECTION: **COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. FLOW RESTRICTOR VALVE**

MAPID# 18 **Distance from Property: 0.12 mi. NW**

FACILITY INFORMATION

ID#: **0043052** FACILITY TYPE: **UNIDENTIFIED**
NAME: **FORT BEND COUNTY DRAINAGE DIST**
ADDRESS: **6400 HOMESTEAD**
ROSENBERG, TX
CONTACT: **RODNEY WIEGHAT**
PHONE: **713/342-2863**

OWNER INFORMATION

NAME: **FORT BEND COUNTY**
ADDRESS:
ROSENBERG, TX 77471
CONTACT:
PHONE: **713-342-0141**

TANK INFORMATION

TANKID#/TYPE **3/UST** INSTALLED: **01/01/79** STATUS(DATE): **REMOVED FROM GROUND (12/07/92)**
CAPACITY(gal.): **4000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **2/UST** INSTALLED: **01/01/56** STATUS(DATE): **REMOVED FROM GROUND (02/28/90)**
CAPACITY(gal.): **1000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **1/UST** INSTALLED: **01/01/56** STATUS(DATE): **REMOVED FROM GROUND (02/28/90)**
CAPACITY(gal.): **1000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 20 **Distance from Property: 0.15 mi. S**

FACILITY INFORMATION

ID#: **0044332** FACILITY TYPE: **UNIDENTIFIED**
NAME: **FORT BEND COUNTY PRCT 1**
ADDRESS: **2801 FM 2218**
ROSENBERG, TX
CONTACT: **JOHNNIE PUSTKA**
PHONE: **713/342-4513**

OWNER INFORMATION

NAME: **FORT BEND COUNTY**
ADDRESS:
ROSENBERG, TX 77471
CONTACT: **RON DRACHENBERG**
PHONE: **281-342-3039**

TANK INFORMATION

TANKID#/TYPE **2/UST** INSTALLED: **01/01/54** STATUS(DATE): **REMOVED FROM GROUND (01/01/89)**
CAPACITY(gal.): **1000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **1/UST** INSTALLED: **01/01/82** STATUS(DATE): **REMOVED FROM GROUND (01/01/89)**
CAPACITY(gal.): **800** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **4/UST** INSTALLED: **01/01/82** STATUS(DATE): **REMOVED FROM GROUND (01/01/89)**
CAPACITY(gal.): **4000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **3/UST** INSTALLED: **01/01/54** STATUS(DATE): **REMOVED FROM GROUND (01/01/89)**
CAPACITY(gal.): **1000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 22 **Distance from Property: 0.21 mi. NW**

FACILITY INFORMATION

ID#: **0070877** FACILITY TYPE: **RETAIL**
NAME: **SHELL**
ADDRESS: **3535 FM 762**
RICHMOND, TX
CONTACT: **MULKEY**
PHONE: **281/376-2455**

OWNER INFORMATION

NAME: **MOTIVA ENTERPRISES LLC**
ADDRESS: **13258 FM 1960 W**
HOUSTON, TX 77065
CONTACT: **SCOTT HAGGERTON**
PHONE: **817-994-8009**

TANK INFORMATION

TANKID#/TYPE **1/UST** INSTALLED: **04/21/98** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **15000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING & INV. CONTR / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **2/UST** INSTALLED: **04/21/98** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **12000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING & INV. CONTR / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

TANKID#/TYPE **3/UST** INSTALLED: **04/21/98** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **COMPOSITE (STEEL W/FRP CLADDING) / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **FIBERGLASS-REINFORCED PLASTIC (FRP) / DOUBLE WALL**
TANK/PIPE RELEASE DETECTION: **AUTO TANK GAUGING & INV. CONTR / ANNUAL PIPING TIGHTNESS TEST (@ 0.1 GPH)**
TANK/PIPE CORROSION PROTECTION: **COMPOSITE TANK (STEEL W/FRP EXTERNAL LAMINATE / FRP TANK OR PIPING (NONCORRODIBLE)**
SPILL/OVERFILL PROTECTION: **AUTO. DELIVERY SHUT/OFF VALVE**

MAPID# 23 **Distance from Property: 0.24 mi. NW**

FACILITY INFORMATION

ID#: **0075522** FACILITY TYPE: **INDUS**
NAME: **DORSETT BROTHERS CONCRETE SUPPLY**
ADDRESS: **5200 RANSOM**
RICHMOND, TX
CONTACT: **DORSETT**
PHONE: **281/487-0264**

OWNER INFORMATION

NAME: **DORSETT BROTHERS CONCRETE SUPPLY**
ADDRESS:
PASADENA, TX 77508
CONTACT: **MIKE NALL**
PHONE: **281-487-0264**

TANK INFORMATION

TANKID#/TYPE **1/AST** INSTALLED: **01/01/00** STATUS(DATE): **IN USE (NOT REPORTED)**
CAPACITY(gal.): **10000** CONTENTS: **DIESEL**
TANK MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION: **NOT REPORTED / NOT REPORTED**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 24 **Distance from Property: 0.24 mi. NW**

FACILITY INFORMATION

ID#: **0058617** FACILITY TYPE: **FLEET**
NAME: **WENZEL ENTERPRISES**
ADDRESS: **6420 READING**
ROSENBERG, TX
CONTACT: **DONALD WENZEL**
PHONE: **713/343-1027**

OWNER INFORMATION

NAME: **WENZEL ENTERPRISES INC**
ADDRESS:
RICHMOND, TX 77469
CONTACT: **DONALD WENZEL**
PHONE: **7133431027**

TANK INFORMATION

TANKID#/TYPE **3/UST** INSTALLED: **NOT** STATUS(DATE): **REMOVED FROM GROUND (03/04/92)**
CAPACITY(gal.): **10000** CONTENTS: **UNKNOWN**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **1/UST** INSTALLED: **NOT** STATUS(DATE): **REMOVED FROM GROUND (03/04/92)**
CAPACITY(gal.): **6000** CONTENTS: **UNKNOWN**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

PETROLEUM STORAGE TANK (PST)

TANKID#/TYPE **2/UST** INSTALLED: **NOT** STATUS(DATE): **REMOVED FROM GROUND (03/04/92)**
CAPACITY(gal.): **6000** CONTENTS: **UNKNOWN**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

TANKID#/TYPE **4/UST** INSTALLED: **NOT** STATUS(DATE): **REMOVED FROM GROUND (03/04/92)**
CAPACITY(gal.): **10000** CONTENTS: **UNKNOWN**
TANK MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
PIPE MATERIAL/CONTAINMENT: **STEEL / SINGLE WALL**
TANK/PIPE RELEASE DETECTION: **NONE / NONE**
TANK/PIPE CORROSION PROTECTION: **NOT REPORTED / NOT REPORTED**
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

MAPID# 16 **Distance from Property: 0.08 mi. S**

INCIDENT INFORMATION

SPILL DATE: **7/19/92**
RESPONSIBLE PARTY: **CIRCLE K**
2221 RED BLUFF
ROSENBERG, TX
SPILL LOCATION / COUNTY: **LUST SITE US HWY 59 & FM 2218, ROSENBERG / FORT BEND**
MATERIAL SPILLED / AMOUNT: **DIESEL / UNK GAL**
AFFECTED WATERWAY: **DRY CREEK**
BASIN: **UNK**

MAPID# 16 **Distance from Property: 0.08 mi. S**

INCIDENT INFORMATION

SPILL DATE: **7/19/92**
RESPONSIBLE PARTY: **CIRCLE K**
2221 RED BLUFF
ROSENBERG, TX
SPILL LOCATION / COUNTY: **LUST SITE US HWY 59 & FM 2218, ROSENBERG / FORT BEND**
MATERIAL SPILLED / AMOUNT: **DIESEL / UNK GAL**
AFFECTED WATERWAY: **DRY CREEK**
BASIN: **UNK**

MAPID# 28 **Distance from Property: 0.51 mi. N**

FACILITY INFORMATION

PERMIT#: **1961**
STATUS DATE: **10/05/87**
OWNER NAME: **FORT BEND COUNTY**
AREA SERVED:
LOCATION: **2500FT SE SH529,2500FT N US59, ADJACENT TO N SIDE KLAUKE ROAD**
NEAR CITY: **ROSENBERG**
PERMIT STATUS: **APPLICATION WITHDRAWN**
SITE TYPE: **SANITARY LANDFILL, DAILY COVER REQUIRED**
SITE STATUS: **PROPOSED SITE (PERMIT HAS NOT BEEN ISSUED BEFORE FOR THIS SITE)**

MAPID# 26 **Distance from Property: 0.46 mi. NW**

SITE INFORMATION

ID: **2451**
SITE NAME: **MAUD RICHARDSON DAVIS**
LOCATION: **16602 MILLER RD. RICHMOND TX**

DATE OPEN: **1984**
DATE CLOSED: **1984**
SIZE (ACRES): **5**

COMMENTS

TNRCC #30887 19840718 - 19840730

MAPID# 29 **Distance from Property: 0.64 mi. S**

SITE INFORMATION

ID: **2449**
SITE NAME: **LOWEN GARCIA**
LOCATION: **0.25MI E OF CRABB ON HWY762 0.75MI OFF PAYNE LN**

DATE OPEN: **1984**
DATE CLOSED: **1984**
SIZE (ACRES): **1**

COMMENTS

TNRCC #30803 19840227 - 19840430

MAPID# 9 **Distance from Property: 0.06 mi. N**

FACILITY INFORMATION

FACILITY#: **77471GRFFT30444**
NAME: **GRIFFITH OIL TOOL**
ADDRESS: **30444 S.W. FREEWAY**
ROSENBERG, TX

EPA #:: **TXD988050506**
INDUSTRIAL CLASSIFICATION **OIL AND GAS FIELD MACHINERY**

TOTAL AGGREGATE RELEASES OF TRI CHEMICALS TO THE ENVIRONMENT

All release amounts are reported in pounds.
POTWS = Publicly Owned Treatment Works

MEDIA	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987
Air Emissions	0	0	3	12	0	0	0	0	0	0	0	0	0
Surface Water Discharges	0	0	0	0	0	0	0	0	0	0	0	0	0
Releases to Land	0	0	0	0	0	0	0	0	0	0	0	0	0
Underground Injection	0	0	30	0	0	0	0	0	0	0	0	0	0
Transfer to POTWs	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Off-Site Transfers	0	0	7500	1600	0	0	0	0	0	0	0	0	0

GeoSearch

Environmental Data Services

REPORT SUMMARY OF UNLOCATABLE SITES

The list below identifies sites that are found to be unlocatable due to vague or incomplete location information. Sites on this list may or may not be located within the area searched for this report.

DATABASE TYPE	SITE ID#	SITE NAME	ADDRESS	CITY	ZIP CODE
NFRAP	TXD981048887	WESTERN AGRI VENTURE	P.O. BOX 1312	ROSENBURG	77471
RCRISG	TXD980540413	AMERICAN TEL & TEL CO LONG LINES	1.8M W L436860	ROSENBERG	77471
PST	0003122	SCHULZE STORE		RICHMOND	77469
PST	0014114	BOOTH MERCANTILE CO	THOMPSON HWY	BOOTH	77469
PST	0017312	ROSENBERG RS	1 8 MI W OF ROSENBERG	ROSENBERG	77471
PST	0020846	JODIE HAJDIK	RT 2	RICHMOND	77469
MSWLF	48003	FORT BEND COUNTY	SW OF ROSENBERG. NEAR THE SW FWY. 5	ROSENBERG	

CERCLIS	Comprehensive Environmental Response, Compensation & Liability Information System	(8/2003)	ASTM

CERCLIS is the repository for site and non-site specific Superfund information in support of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This database contains an extract of sites that have been investigated or are in the process of being investigated for potential environmental risk.

DNPL	Delisted National Priority List	(8/2003)	ASTM

This database includes U.S. Environmental Protection Agency (EPA) National Priority List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

ERNS	Emergency Response Notification System	(1/2002)	ASTM

This EPA database contains data on reported releases of oil and hazardous substances. The data comes from spill reports made to the EPA, U.S. Coast Guard, the National Response Center and/or the Department of Transportation.

FINDS	Facility Index System	(2/2003)	ASTM Suplemental

FINDS data is a comprehensive listing of facilities regulated under a variety of EPA programs. The FINDS database provides some basic information about each facility and a listing of ID numbers in other EPA databases.

NFRAP	No Further Remedial Action Planned	(8/2003)	ASTM

This database includes sites, which have been determined by the EPA, following preliminary assessment, to no longer pose a significant risk or require further activity under CERCLA. After initial investigation, no contamination was found, contamination was quickly removed or contamination was not serious enough to require Federal Superfund action or NPL consideration.

NPDES	National Pollutant Discharge Elimination System	(2/2003)	ASTM Suplemental

Information in this database is extracted from the (PCS) Water Permit Compliance System database which is used by EPA to track surface water permits issued under the Clean Water Act.

NPL	National Priority List	(8/2003)	ASTM

This database includes U.S. Environmental Protection Agency (EPA) National Priority List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

RCRIS	Resource Conservation & Recovery Act Information System	(2/2003)	ASTM

This databases include Handlers, Generators (Large, Small, and Exempt), Transporters, Violations, Corrective Actions, and Treatment, Storage & Disposal Facilities (TSD) (this database includes selective information on sites which handle, generate, transport, store, treat, or dispose of hazardous wastes).

TRI	Toxic Chemical Release Inventory	(12/2002) ASTM Suplemental

This EPA database includes information about releases and transfers of toxic chemicals from manufacturing facilities.

BSA	Brownfields Site Assessments	(6/2003)	ASTM Suplemental

The BSA database includes relevant information on contaminated Brownfields properties that are being cleaned.

CALF	Closed & Abandoned Landfill Inventory	ASTM

TCEQ, under a contract with Southwest Texas State University, and in cooperation with the 24 regional Council of Governments in the State, has located over 4,000 closed and abandoned municipal solid waste landfills throughout Texas. This listing contains "unauthorized sites". Unauthorized sites have no permit and are considered abandoned. The information available for each site varies in detail.

IHW	Industrial And Hazardous Waste	(9/2003)	ASTM Suplemental

Owner and facility information is included in this database of industrial and hazardous waste sites. Industrial waste is waste that results from or is incidental to operations of industry, manufacturing, mining, or agriculture. Hazardous waste is defined as any solid waste listed as hazardous or possesses one or more hazardous characteristics as defined in federal waste regulations.

IOP	Innocent Owner / Operator	(6/2003)	ASTM Suplemental

Texas Innocent Owner / Operator (IOP) provides a certificate to an innocent owner or operator if their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.

LPST	Leaking Petroleum Storage Tank	(8/2003)	ASTM

The Leaking Underground Storage Tank listing is derived from the Petroleum Storage Tank (LPST) database is maintained by the Texas Commission on Environmental Quality (TCEQ). This database includes facilities with reported leaking petroleum storage tanks.

MSWLF	Municipal Solid Waste Landfill Sites	(3/2003)	ASTM

Sites listed within a solid waste landfill database may include active landfills and inactive landfills, where solid waste is treated or stored.

PST	Petroleum Storage Tank	(8/2003)	ASTM

The Underground Storage Tank listing is derived from the Petroleum Storage Tank database which is administered by the TCEQ (Texas Commission on Environmental Quality). Both Underground storage tanks (USTs) and Aboveground storage tanks (ASTs) are included in this report.

SPILLS	Spills	(10/2002)	ASTM

The Texas Natural Resource Conservation Commission provides this database. Information includes releases of hazardous or potential hazardous chemical/materials into the environment.

TXSF	State Superfund	(5/2003)	ASTM

The state Superfund program mission is to remediate abandoned or inactive sites within the state that pose an unacceptable risk to public health and safety or the environment, but which do not qualify for action under the federal Superfund program (NPL - National Priority Listing). Information in this database includes any recent developments and the anticipated action for these sites.

VCP	Voluntary Cleanup Program	(6/2003)	ASTM Suplemental

The Texas Voluntary Cleanup Program (VCP) provides administrative, technical, and legal incentives to encourage the cleanup of contaminated sites in Texas. Since all non-responsible parties, including future lenders and landowners, receive protection from liability to the state of Texas for cleanup of sites under the VCP, most of the constraints for completing real estate transactions at those sites are eliminated. As a result, many unused or underused properties may be restored to economically productive or community beneficial uses.