

CATEGORICAL EXCLUSION

PROPOSED DIRECT CONNECTORS AT STATE HIGHWAY 99/ INTERSTATE HIGHWAY 10 INTERCHANGE

HARRIS COUNTY, TEXAS

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ACRONYMS AND ABBREVIATIONS

ADT	Average Daily Traffic
APE	Area of Potential Effect
BG	Block Group
BMP	Best Management Practices
BRNFD	Brownfield
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CORRACT	Corrective Action
CT	Census Tracts
CWA	Clean Water Act
DC	Direct Connector
DR	Drive
E	East
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EOID	Element Occurrence Record
ERNS	Emergency Response Notification System
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
IOP	Innocent Owner/Operator Program
IRUST	Indian Reservation Underground Storage Tank
H-GAC	Houston-Galveston Area Council
HHS	Department of Health and Human Services
IH	Interstate Highway
LEP	Limited English Proficiency
LF	TCEQ Solid Waste Facilities
LFUN	Unauthorized and Unpermitted Landfill Sites
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
Mph	miles per hour
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NDD	Natural Diversity Database
NFRAP	No Further Remedial Action Planned

NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
OSHM	Official State Historical Markers
PALM	Potential Archeological Liability Map
PA-TU	Programmatic Agreement for Transportation Undertakings
ROW	Right of Way
RCRA – G	Resource Conservation and Recovery Information System – Generator
RCRA TSD	Resource Conservation and Recovery Information System – Treatment, Storage, or Disposal
RRC	Railroad Commission
RSA	Resource Study Area
RTHL	Recorded Texas Historic Landmarks
RTP	Regional Transportation Plan
SAL	State Archeological Landmark
SH	State Highway
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SPILL	Spills List
SOC	Species of Concern
SSF	State Superfund
SW	Southwest
SWPPP	Storm Water Pollution Prevention Plan
TAQA	Traffic Air Quality Analysis
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSARP	Tropical Storm Allison Recovery Project
TxDOT	Texas Department of Transportation
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VPD	vehicles per day
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

The proposed project is located on State Highway (SH) 99 at Interstate Highway (IH) 10 West in Harris County, Texas (Exhibit A and Exhibit B). These two high-speed facilities intersect at a grade separated interchange. The current configuration utilizes existing frontage roads to provide northbound and southbound movements along SH 99 from IH 10 and westbound and eastbound movements along IH 10 from SH 99. The proposed interchange described in this document would provide fully directional direct connectors (DCs) between these two facilities and conform to other planned projects in this area (SH 99 and IH 10). The right-of-way (ROW) for the DCs has been evaluated in previous environmental documents prepared for other area transportation projects including:

- Environmental Assessment (EA) for the Grand Parkway (SH 99) from Franz Road to US 59 in Harris and Fort Bend Counties (October 1987) (state document)
- EA Reevaluation for the Grand Parkway (SH 99) from Franz Road to US 59 in Harris and Fort Bend Counties (February 2008) (state document)
- IH 10 West from Taylor Street to FM 1489 Environmental Impact Statement (EIS) (May 2001) (federal document)
- Grand Parkway Segment E from Interstate Highway 10 to United States 290 EIS (November 2007) (federal document)

The purpose of this Categorical Exclusion (CE) is to cover all elements of the fully directional interchange which have not been previously approved by any of the federal or state-published environmental documents listed above. By obtaining the Federal Highway Administration's (FHWA) approval, the Texas Department of Transportation (TxDOT) can advance the proposed project with available federal funding sources. The total project cost is estimated to be \$137,906,110 and has a scheduled letting date of July 1, 2010. It is anticipated that the project would be constructed with Category 10 funds.

Six of the proposed DCs are currently listed in the Houston-Galveston Area Council (H-GAC) 2035 Regional Transportation Plan (RTP) and the 2008-2011 Transportation Improvement Program (TIP). The project will be consistent with the fiscally constrained RTP and TIP when the plan is updated to include the two remaining DCs and ultimately adopted. The current RTP and TIP were found to conform to the State Implementation Plan (SIP) on November 9, 2007 (Appendix A).

2.0 NEED AND PURPOSE FOR THE PROPOSED PROJECT

2.1 Need for the Proposed Action

Currently, there is no direct access between SH 99 and IH 10. As such, motorists must utilize the existing frontage road system to make this connection. Utilizing the frontage roads causes travel time delay, since motorists are required to travel through an at grade signalized intersection to connect between these two facilities. It is anticipated that the existing signalized intersection that connects the two frontage road systems will be insufficient to cycle the anticipated volume of traffic utilizing these travel corridors. Such bottlenecks can also impede emergency access. This delay and interrupted connection reduces local and regional transportation system mobility.

In addition, the utilization of the frontage roads to make the connection between these high-speed facilities does not meet driver expectations. A motorist driving on a high-speed facility may not expect or be prepared to exit onto a local roadway network and encounter a congested intersection (requiring a reduction in speed) to immediately enter another high-speed facility. As a result, the mixing of local thru traffic with exiting and entering high-speed traffic could cause traffic conflicts.

2.2 Purpose of the Proposed Action

The purpose of the proposed action is supported by the identified project needs. The purpose of the project is to improve access and mobility by providing a modern transportation facility that enhances transportation continuity regionally and locally.

3.0 TRAFFIC

The 2035 Average Daily Traffic (ADT) projections for the proposed DCs at the SH 99/IH 10 Interchange range from 1,980 to 22,400 23,450 average daily traffic (ADT). Specific traffic projections for the DCs and existing frontage roads are provided in Table 1.

Table 1
SH 99/IH 10 Interchange
Average Daily Traffic Projections

Facility	2019 ADT	2035 ADT
DC A	2,315	3,035
DC B	1,980	2,620
DC C	2,315	3,035
DC D	1,980	2,620
DC E	10,505	13,945
DC F	10,505	13,945
DC G	17,850	23,450
DC H	17,850	23,450

Note: See Exhibit D for the location of the proposed DCs.
Source: TxDOT-TPP, 2009

It is anticipated that temporary lane closures within the immediate construction area along SH 99 and IH 10 would be necessary. The lane closures would be limited to one or two lanes, and traffic would be allowed to utilize the remaining lane(s) for travel. Furthermore, lane closures would be temporary and limited to times of the day that are not considered “peak travel periods”. Detours are not anticipated for this project as a means of traffic control. All business and residential access adjacent to the project area would remain open during construction. All traffic control measures would conform to Part VI (Traffic Controls for Street and Highway Construction and Maintenance Operations) of the *Texas Manual on Uniform Traffic Control Devices*.

4.0 DESIGN

4.1 Existing Facility

The existing intersection of these two facilities is a grade separated interchange, which utilizes existing frontage roads to provide northbound and southbound movements along SH 99 from IH 10 and westbound and eastbound movements along IH 10 from SH 99. The connections include the use of a signalized intersection to regulate traffic flow between these facilities. See Appendix B- Site Photograph for pictures of the existing interchange.

4.2 Proposed Facility

TxDOT proposes to build a five-level fully directional interchange by constructing eight (8) DCs, which would provide full directional traffic movements at the SH 99 to IH 10 Interchange (See Exhibits C and D). The existing frontage road system would remain in place. All of the DCs have a typical section of a 14-foot lane with 8-foot outside and 4-foot inside shoulders. The double lane portion of the DC would consist of two 12-foot lanes with 8-foot outside and 4-foot

inside shoulders. Table 2 provides more information on the DC directions, traffic volumes, and special comments.

During the original EIS process for the IH 10 West from Taylor Street to FM 1489 project, the proposed DCs were developed in accordance with the *TxDOT Roadway Design Manual (2009)* guidelines for ramps and DCs. The guidelines state that ramps and DCs should be designed to a minimum of 50 percent of the connecting roadway's (IH 10 and SH 99) design speed of 70 mph. The DC radii and super elevations were designed for a speed of 50 mph based on Table 2-6 of the *TxDOT Roadway Design Manual (2009)*. A DC speed of 50 mph meets and exceeds the District's ramp and connector design minimum of 35 mph equal to 50 percent of 70 mph on the connecting mainlanes. Following this preliminary design, the ROW was purchased to accommodate the eight DCs at a future date.

Upon additional review of the DCs, the horizontal design was further evaluated for stopping sight distance criteria, which is illustrated in Figure 2-5 of the *TxDOT Roadway Design Manual (2009)*. The middle ordinate for the typical DC section is 11 feet (from centerline of travel lane to inside edge of curve) based on a 14 foot lane, a 4 foot inside shoulder, and an 8 foot outside shoulder. The curve data on Figure 2-5 dictates a design speed of 35 mph based on the radius of curvature for each DC and the middle ordinate 11 feet. However when the shoulders are reversed and the section is striped as a 14 foot lane, an 8 foot inside shoulder, and a 4 foot outside shoulder, the middle ordinate is 15 feet (from centerline of travel lane to inside edge of curve) which accommodates a design speed of 40 mph based on the curve data in Figure 2-5. For a middle ordinate of 15', the stopping sight distance for a design speed of 40 mph and radius of curvature of less than 1100' ranges between 305 linear feet to 360 linear feet depending on the horizontal curve. After reviewing the stopping sight distance, it was determined that the DCs fulfill the requirements for a 40 mph design speed. This remains well within the design limitation of 35 mph, as stated previously.

DC "A" and DC "B" connect to a tolled section of SH 99. Motorists would need to make a decision regarding paying a toll prior to exiting on the northbound DC. Signage would be provided along IH 10 to inform the motorist of this toll. In addition, the motorist could still make a free connection between these two facilities by utilizing the existing frontage road system.

No other alternatives were considered or evaluated.

Table 2
Direct Connector Information

Direct Connector	Connects Facilities		Comments
	From	To	
A	Westbound IH 10	Northbound SH 99	This DC connects to a tolled section of SH 99.
B	Eastbound IH 10	Northbound SH 99	This DC connects to a tolled section of SH 99.
C	Southbound SH 99	Eastbound IH 10	
D	Southbound SH 99	Westbound IH 10	
E	Eastbound IH 10	Southbound SH 99	
F	Northbound SH 99	Westbound IH 10	
G	Westbound IH 10	Southbound SH 99	
H	Northbound SH 99	Eastbound IH 10	

5.0 RIGHT-OF-WAY/DISPLACEMENTS

The existing ROW is owned by TxDOT and was environmentally approved and purchased following the FHWA decision on the IH 10 West from Taylor Street to FM 1489 EIS in May 2001. The proposed project would not require any additional ROW; therefore, no residential displacements or commercial displacements are anticipated as a result of this project. There is a temporary TxDOT sand/gravel/concrete operation located on SH 99 ROW, north of IH 10 between the IH 10 frontage road and Merchantile Parkway, which would require removal prior to construction. Since it is in the existing ROW and is a temporary facility, this operation was not considered as a displacement. Utility adjustments may be required.

6.0 COMMUNITY IMPACTS

The project area for community impacts was from Colonial Parkway to the north, Ernstes Road along IH 10 to the west, East (E) Fernhurst Drive (Dr) along IH 10 to the east, and Fernhurst Dr. to the south. The proposed project is located entirely within existing ROW and would not require any displacements or relocations. In addition, there is limited residential development, and no change to access for existing commercial establishments adjacent to the project area are anticipated; therefore, impacts to economic, environmental, and social attributes resulting from the proposed project are expected to be minimal. Data obtained from the Census Bureau and Department of Health and Human Services was used to provide race/ethnicity, income and language characteristics of the project area. Local and regional economic growth will be the determining factors of future development in this area. No social impacts are anticipated because the project does not alter travel patterns or bisect any communities that are not already bisected by the existing roadway network (Exhibit E).

6.1 Community Cohesion

No change to population characteristics, neighborhood or community cohesion, or travel patterns are expected as a result of the proposed project. There is only one neighborhood (Governors Place) within or adjacent to the project area. There are no schools, day care facilities, or churches within the project area. Access to the Governors Place subdivision would remain along E Fernhurst Drive Dr. and E. Fernhurst Dr. would continue to have access from IH 10 and SH 99 frontage roads (Exhibit E).

6.2 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 part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations.” The FHWA has identified three fundamental principles of environmental justice:

- 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;
- To ensure full and fair participation by all potentially affected communities in the transportation decision-making process;
- 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:

- Are predominately borne by a minority population and/or a low-income population or
- 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 nonminority population and/or non-low- income population.

The project area is located in census tracts (CT) 4552, 4553, 5425, and 5426. Nine blocks comprise the project area; however, there are no populations associated with eight of the nine blocks. Only CT 4552 block 3000 has an associated population of 136. Additionally, because of

the limited residential development adjacent to the project area, CT and Block Group (BG) data are the same for three of the four CTs. The City of Houston is included for reference. See Table 3, Race/Ethnicity and Income Characteristics, for the breakdown by CT and BG.

As defined by the Council on Environmental Quality (CEQ), a minority population is defined as either: (a) the minority population of the affected area exceeds 50 percent, or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population, or other appropriate geographical analysis. For this analysis, the project area population is identified by blocks and is compared to project area BG's for ethnic and racial data. Table 3 shows the population living within the project area is primarily comprised of White persons (70.6 percent), with 14.7 percent Hispanic or Latino persons. The total project area is 29.4 percent minority and CT 4552 BG 3 total is 22.8 percent minority. While potential Environmental Justice populations may be located within or adjacent to the project area, impacts to these populations are not anticipated since there are no ROW or displacements; access within the project area does not change; and existing travel patterns will be maintained. Therefore, the proposed project does not disproportionately impact minority populations.

The FHWA Order 6640.23 defines "low-income" as a person whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines. The 2009 HHS poverty guideline for a family of four is \$22,050/year (HHS, 2009). Per capita income is the mean income computed for every man, woman, and child within a geographic area. It is derived by dividing the total income of all people 15 years old and over in a geographic area by the total population in that area; therefore, is lower than median household income which is the sum of money income received in the calendar year by all household members 15 years old and over. Block level data is not available for income data; therefore, BG income data was provided. As shown in Table 3, the median household incomes for the project area block groups range from \$50,341 to \$91,361 and are above the HHS poverty guideline; therefore, the project area is not considered a low-income population.

Although the project would not be a toll road, "DC A" and "DC B" would provide a direct connection to a portion of SH 99 that is tolled. The impact of tolling was considered for SH 99. However, motorists would need to make a decision regarding paying a toll prior to exiting on the DC. Signage would be provided along IH 10 to inform the motorist of this toll. In addition, they would have the alternative of utilizing the existing non-tolled transportation network which exists today and includes the use of existing SH 99 and IH 10 frontage roads to make the connections among these two facilities.

Table 3
Race/Ethnicity and Income Characteristics

Census Geography	Total Pop.	Number White	Percent White (%)	Number African American	Percent African American (%)	Number Asian	Percent Asian (%)	Number Hispanic or Latino	Percent Hispanic or Latino (%)	Number Other ¹	Percent Other ¹ (%)	Per Capita Income	Median Household Income	Percent Below Poverty
CT 4552	4,783	3,732	78.0	131	2.7	97	2.0	739	15.5	16	1.8	\$24,439	\$70,187	5.1
CT 4552 BG 3	1,317	1,052	79.9	41	3.1	57	4.3	149	11.3	2	1.4	\$24,624	\$87,668	7.5
CT 4552 BG 3 Block 3000	136	96	70.6	9	6.6	11	8.1	20	14.7	0	0.0	-	-	-
CT 4553	53	42	79.2	0	0.0	0	0.0	11	20.8	0	0.0	-	-	-
CT 4553 BG 1	53	42	79.2	0	0.0	0	0.0	11	20.8	0	0.0	-	-	-
CT 4553 BG 1 Block 1000 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT 4553 BG 1 Block 1001 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT 5425	2,387	2,122	88.9	46	1.9	48	2.0	144	6.0	5	1.2	\$29,853	\$91,361	4.6
CT 5425 BG 1	2,387	2,122	88.9	46	1.9	48	2.0	144	6.0	5	1.2	\$29,853	\$91,361	4.6
CT 5425 BG 1 Block 1005 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT 5425 BG 1 Block 1006 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT 5426	1,579	902	57.1	86	5.4	27	1.7	545	34.5	2	1.3	\$17,567	\$50,341	13.7
CT 5426 BG 1	1,579	902	57.1	86	5.4	27	1.7	545	34.5	2	1.3	\$17,567	\$50,341	13.7
CT 5426 BG 1 Block 1008 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT 5426 BG 1 Block 1014 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT 5426 BG 1 Block 1015 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT 5426 BG 1 Block 1016 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: U.S. Census Bureau, 2000a,b.

- 1 Other includes American Indian, Alaska Native, Native Hawaiian and other Pacific Islander.
- 2 Non-reporting (N/R) block, no data.
- 3 The Project Area described in the table is the reporting block 3000.

6.3 Limited English Proficiency

EO 13166 "Improving Access to Services for Persons with Limited English Proficiency" requires agencies to examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so that LEP persons can have meaningful access to them.

Public involvement is not required for this project. Should public involvement opportunities be provided, TxDOT will ensure Limited English Proficiency persons can effectively participate in these opportunities. Additionally, no indicators (billboards, signs, advertisements in a non-English language) of LEP populations were observed during field investigations conducted on July 1, 2009.

7.0 LAND USE

Based on site reconnaissance conducted July 1, 2009, land use within the project area consists of primarily undeveloped land, with the exception of the temporary TxDOT sand/gravel/concrete establishment as previously mentioned. Land use adjacent to the project area consists of commercial properties and medical facilities. Traveling north of IH 10 on the east side of SH 99 are commercial properties: Cinemark movie theatre, La Madeline restaurant, and a JC Penney department store (located within the West Grand Promenade shopping center). A Shell Food Mart and Sonic are located at the intersection of SH 99 and Colonial Parkway. To the west of the existing SH 99 and Merchantile Parkway intersection is the Katy Medical Arts Center. Traveling along SH 99, south of the interchange, at the intersection of SH 99 and W. Fernhurst Dr. is Times Square Plaza. The Spring Field Plaza is located at the SH 99 /E. Fernhurst Dr. intersection. Residential development, Governors Place subdivision, is located along E. Fernhurst Dr. behind the Spring Field Plaza. Within the project area, all of the land along IH 10 is largely undeveloped with the exception of Memorial Hermann Hospital and Cinemark theatre which are all located north of the existing ROW and Academy sports store and Westside Chevrolet car dealership located south of the existing ROW. The proposed project would not change the existing land use.

8.0 SOILS

According to the Soil Survey of Harris County, Texas (Natural Resources Conservation Service [NRCS], 1976), two mapped soil units occur within the project area, Gessner loam (Ge) and Katy fine sandy loam (Kf). Gessner loam is a nearly level soil and is poorly drained (NRCS, 2008). The soil surface layer is a dark grayish brown loam about 7 inches thick. The upper part of the subsoil, to a depth of 9 inches, is grayish brown loam. The next layer, which is about 18 inches thick, is slightly more clayey. The next layer, which is 19 inches thick, consists of

moderately alkaline, light brownish gray loam. The lower portion, to a depth of 84 inches, is light gray sandy clay loam. Gessner loam has a high water table and is considered hydric, according to the National Hydric Soils List (NRCS, 2008).

Katy fine sandy loam is a nearly level soil that is moderately well drained and found near the coastal prairie (NRCS 2008). This soil has a surface layer that is a dark grayish brown fine sandy loam about 10 inches thick. The layer below that is a brown fine sandy loam that extends to a depth of about 28 inches. The lower portion, to a depth of 65 inches, is a loam mottled with gray, red, and yellowish brown. Katy fine sandy loam is rarely flooded and is considered to be a hydric soil according to the National Hydric Soils List (NRCS, 2008). See Table 4 for a summary of these soil types.

Table 4
Soil Description of the Project Area

Soil Description	Drainage Class	Hydric	Slope
Gessner loam	Poorly drained	Yes	0-1%
Katy fine sandy loam	Moderately well drained	Yes	0-1%

No major impacts to soils within the project area are anticipated from the proposed project. Construction impacts resulting from the proposed project include potential erosion of soils, which would be both short-term and manageable by using best management practices (BMP) and implementing a Storm Water Pollution Prevention Plan (SWPPP). Examples of BMPs are included in the Texas Pollutant Discharge Elimination System Section in Section 19.2.

8.1 Farmland Policy Protection Act

Although the project area contains prime farmland soils, federally-funded projects are exempt under the Farmland Protection Policy Act (FPPA) when no additional ROW is necessary or the proposed ROW is developed, urbanized, or zoned for urban use. The proposed project would be developed within the existing ROW of SH 99 and IH 10 and is therefore considered exempt under the FPPA.

9.0 VEGETATION

According to *The Ecoregions of Texas* (Texas Parks and Wildlife Department [TPWD], 2002), the project area is located within the Texas Gulf Prairies and Marshes Ecoregion. The project area lies entirely within the Gulf Prairies, a nearly flat plain that extends approximately 30 to 80 miles inland from the Gulf Marshes. The Gulf Prairies are characterized by nearly level topography with undissected plains of slow surface drainage. Elevation extends from near sea

level along the coast up to 200 feet above mean sea level. Annual precipitation averages 50.59 inches, and the mean annual temperature is typically 70° Fahrenheit.

According to *The Vegetation Types of Texas* (TPWD, 1984), the vegetation within the project area is classified as (44) Crops. Commonly associated plants that occur in this vegetation type include cultivated cover crops or row crops providing food and/or fiber for either man or domestic animals. This type may also portray grassland associated with crop rotations. This particular vegetation was not observed within the ROW.

A total of 49 acres of vegetation is located within the ROW of the project area. Within the ROW, 32 acres of the vegetation consists of maintained and mowed grassland. The dominant herbaceous species is bermuda grass (*Cynodon dactylon*). Minor herbaceous species include short-point flatsedge (*Cyperus acuminatus*), annual ragweed (*Ambrosia artemisiifolia*), and yellow bluestem (*Bothriochloa ischaemum*). An additional 13 acres of the maintained ROW also contains several species of pine, oak and elm trees planted for ornamental purposes. Finally, there are 4 acres of woody vegetation within the project area which consists of 20 American elm and various other species of pine and oak trees. This woody vegetation is located within the median of Grand Parkway, north of IH 10 (Exhibit E and Appendix B – Site Photographs).

The potential direct impact/removal acreages described are based on preliminary design information and field investigations. Table 5 identifies the approximate aerial extent of vegetation communities within the proposed ROW that could potentially be impacted as a result of the Build Alternative.

Table 5
Impacts to Vegetative Communities

Vegetative Community	Acreage
Grassland	0.475
Maintained ROW Impacts	0.312
Forested Impacts	0.028
Total Vegetation Impacts	0.815

Due to construction of the proposed project, removal of some existing vegetation within the ROW is unavoidable. Impacts would be minimized where possible and complete vegetation removal would not be required.

The existing vegetation within the project area was reviewed based on the criteria for non-regulatory mitigation in accordance with Provision (4)(A)(ii) of the Memorandum of Understanding (MOU) between TxDOT and TPWD. The project area does not include rare

vegetation series, bottomland hardwoods, native prairies, or riparian sites. The project area does not include critical habitat for any federal candidate species; for additional information refer to the Threatened and Endangered Species section.

9.1 Invasive Species

Executive Order 13112 was issued to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts. Any landscaping plans included with the proposed project would include native species in the seed mixes where practicable according to TxDOT Standard Specifications.

9.2 Beneficial Landscaping Practices

In accordance with the Executive Memorandum issued August 10, 1995, all agencies shall comply with the National Environmental Policy Act of 1969 as it relates to vegetation management and landscape practices for all federally assisted projects. The Executive Memorandum directs that where cost-effective and to the extent practicable, agencies shall (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, reduce fertilizer and pesticide use; (4) implement water efficient and runoff reduction practices; and (5) create demonstration projects employing these practices. Any landscaping plans associated with this project would be in compliance with the Executive Memorandum.

10.0 WILDLIFE

Wildlife in Harris County includes eastern gray and fox squirrels, various species of bats and skunks, and small herbivores such as gophers, mice, rabbits, and armadillos, as well as raccoons and opossums. Alligators, frogs, toads, and numerous snake species, including the poisonous copperhead, cottonmouth, coral, and rattlesnake, may also be found within the County. A wide variety of birds, including mockingbirds, cardinals, doves, quail, bluejays, and roadrunners, are also native to the area (Rappole, 1994; Schmidy, 1994).

Based on site reconnaissance, wildlife in the vicinity of the project area is similar to that identified in the County. Typical wildlife species inhabiting this area may include squirrels, rabbits, raccoons, skunks, opossums, frogs, toads, turtles, snakes, and a variety of birds because the project is located within maintained ROW in a growing urbanized area. The proposed project is not expected to fragment or otherwise alter any existing wildlife habitats within the project limits. Any impacts to wildlife associated with the proposed project are expected to be temporary.

11.0 MIGRATORY BIRDS

The project would be implemented in full compliance with all provisions and regulations outlined in and pursuant to the Migratory Bird Treaty Act (MBTA) (16 USC 703-711). It is recommended that construction methods and designs to help ensure compliance with the MBTA be implemented; for example, seasonal restrictions on vegetation clearing during the nesting season from March 1 through September 1, marking transmission lines or wires, and the use of down-shielding lighting. Impacts to the nesting habitat of bird species are expected to be temporary and would be allowed to naturally revegetate after completion of construction activities. Migratory bird nests were not observed within the project area during the July 2009 field investigation. A cursory nest survey was conducted on July 6, 2009 and August 3, 2009. No nests were observed during the surveys. In accordance with the Migratory Bird Treaty Act, no nests will be removed during the breeding season.

12.0 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act requires consideration of potential influence attributed to the proposed project activities upon federally protected species. This section contains a list of the state and federal threatened and endangered species for Harris County along with habitat and site survey information for these species (Table 6). In addition, the state listed species of concern (SOC) that are indigenous to Harris County, habitat and site survey information is also included (Table 6).

TPWD's Natural Diversity Database (NDD) was received from TPWD and reviewed on October 15, 2009. GIS review of the NDD indicated one element occurrence record (EOID) approximately 1.1 miles from the proposed project limits, EOID 3006 of the Plains spotted skunk (*Spilogale putorius interrupta*). Habitat for the plains spotted skunk includes open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands. Preferred habitat includes wooded, brushy areas and tallgrass prairie (TPWD, 2009). The proposed project is located within existing ROW and there is no preferred habitat within the project area. Therefore, there is no potential to affect the Plains spotted skunk from the proposed project. Field investigations confirmed the absence of state and federal threatened and endangered species and species of concern or preferred habitat within the proposed project limits. As a result, the proposed project would have no effect on any federally listed species, their habitat, or designated critical habitat; and no impact to any state listed species.

Table 6
State and Federal Threatened and Endangered Species, Harris County

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present
AMPHIBIANS					
Houston toad	<i>Bufo houstonensis</i>	E	E†	Sandy soil, breeds in ephemeral pools	No
BIRDS					
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	T	DM†	Potential migrant, nest in west Texas	No
Arctic Peregrine Falcon	<i>Falco peregrinus tundrius</i>	T	DM†	Potential migrant	No
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	D	Near water areas, in tall trees	No
Black Rail	<i>Laterallus jamaicensis</i>	SOC	NA	Marshes, pond borders, wet meadows, and grassy swamps	No
Brown Pelican	<i>Pelecanus occidentalis</i>	E	E†, PDL	Island near coastal areas	No
Henslow's Sparrow	<i>Ammodramus henslowii</i>	SOC	NA	Weedy fields where bunch grasses occur with vines and brambles	No
Mountain Plover	<i>Charadrius montanus</i>	SOC	NA	Nests in high plains or shortgrass prairie, forages in shortgrass plains and plowed fields	No
Red-cockaded Woodpecker	<i>Picoides borealis</i>	E	E†	Nest in 60+ year pine, forages in 30+ pine	No
Snowy Plover	<i>Charadrius alexandrinus</i>	SOC	NA	Potential migrant; winter along coast	No
Southeastern Snowy Plover	<i>Charadrius alexandrinus tenuirostris</i>	SOC	NA	Wintering migrant, beaches and bayside mud or salt flats	No
White-faced Ibis	<i>Plegadis chihi</i>	T	*	Freshwater marshes, but some brackish or salt marshes	No
White-tailed Hawk	<i>Buteo albicaudatus</i>	T	*	Coastal Prairies	No
Whooping Crane	<i>Grus americana</i>	E	E†	Winters in Aransas NWR	No
Wood Stork	<i>Mycteria americana</i>	T	*	Prairie ponds and flooded pastures	No
FISHES					
American eel	<i>Anguilla rostrata</i>	SOC	NA	Coastal waterways	No
Creek chubsucker	<i>Erimyzon oblongus</i>	T	*	Variety of small rivers and creeks, prefers headwaters	No
Smalltooth sawfish	<i>Pristis pectinata</i>	E	E†	Sheltered bays and shallow banks	No
MAMMALS					
Louisiana black bear	<i>Ursus americanus luteolus</i>	T	T†	Bottomland hardwoods; large, undisturbed forested areas	No
Plains spotted skunk	<i>Spilogale putorius interrupta</i>	SOC	NA	Prefers wooded, bushy areas and tall grass prairie	No
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	T	*	Cavity trees in hardwood forest, concrete culverts, abandon buildings	No
Red wolf	<i>Canis rufus</i>	E	E†	Extirpated, brushy, forested areas, coastal prairies	No
Southeastern myotis bat	<i>Myotis austroriparius</i>	SOC	NA	Roosts in cavity trees of bottomland hardwoods	No
MOLLUSKS					
Little spectaclecase	<i>Villosa lienosa</i>	SOC	NA	Creeks, rivers, reservoirs, and sandy substrate in slight to moderate current	No
Louisiana pigtoe	<i>Pleurobema riddellii</i>	SOC	NA	Streams and moderate-size rivers	No
Pistolgrip	<i>Tritogonia verrucosa</i>	SOC	NA	Stable substrate, rock, hard mud, silt and soft bottoms	No
Rock pocketbook	<i>Arcidens confragosus</i>	SOC	NA	Mud, sand, and gravel of medium to large rivers	No
Sandbank pocketbook	<i>Lampsilis satura</i>	SOC	NA	Small to large rivers with moderate flow	No
Texas pigtoe	<i>Fusconaia askewi</i>	SOC	NA	Rivers with mixed mud, sand, and fine gravel	No

Table 6 (continued)
State and Federal Threatened and Endangered Species, Harris County

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present
MOLLUSKS (continued)					
Wabash pigtoe	<i>Fusconaia flava</i>	SOC	NA	Creeks to large rivers on mud, sand, and gravel	No
REPTILES					
Alligator snapping turtle	<i>Macrocllemys temminckii</i>	T	*	Deep water of rivers and canals	No
Green sea turtle	<i>Chelonia mydas</i>	T	T†	Gulf and bay system	No
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	E	E†	Gulf and bay system	No
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E	E†	Gulf and bay system	No
Loggerhead sea turtle	<i>Caretta caretta</i>	T	T†	Gulf and bay system	No
Smooth green snake	<i>Liochlorophis vernalis</i>	T	*	Gulf coastal prairies, prefers dense vegetation	No
Texas horned lizard	<i>Phrynosoma cornutum</i>	T	*	Open, semi-arid regions, with bunch grass	No
Timber/Canebrake rattlesnake	<i>Crotalus horridus</i>	T	*	Swamps/floodplains of hardwood/upland pine	No
PLANTS					
Coastal gay-feather	<i>Liatris bracteata</i>	SOC	NA	Coastal prairie grasslands of various types	No
Giant sharpstem umbrella-sedge	<i>Cyperus cephalanthus</i>	SOC	NA	Nearly level fringes of deep prairie depressions	No
Houston daisy	<i>Rayjacksonia aurea</i>	SOC	NA	Coastal prairies	No
Texas meadow-rue	<i>Thalictrum texanum</i>	SOC	NA	Woodlands and woodland margins	No
Texas prairie dawn	<i>Hymenoxys texana</i>	E	E	Poorly drained areas in open grasslands; pimple mounds	No
Texas windmill-grass	<i>Chloris texensis</i>	SOC	NA	Coastal prairie grassland remnants	No
Threeflower broomweed	<i>Thurovia triflora</i>	SOC	NA	Near coast in sparse, low vegetation	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 (2009).
 † 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 (2009).
 -- Not listed for Texas Parks and Wildlife for this county
 NA Not Applicable
 E = endangered T = threatened H = historical occurrence I = introduced population C = candidate species SOC = species of concern (SOC) DM = delisted taxon, recovered, being monitored first five years SAT = similarity of appearance to a threatened taxon, D = delisted taxon, PDL= proposed delisting
 Source: TPWD, 2009.

13.0 SECTION 4(f)

The proposed project would not require the use of any publicly-owned parklands, recreation areas, wildlife or waterfowl refuges, or historic sites of national, state, or local significance as determined by federal, state, or local officials having jurisdiction. Coordination would not be necessary under Section 4(f) of the 1966 Department of Transportation Act, as amended.

14.0 FLOODPLAINS

Based on review of the Federal Emergency Management Agency (FEMA) Tropical Storm Allison Recovery Project (TSARP) floodplain map for Harris County, a portion of the proposed project, approximately 11 acres, is located within a designated 100-year floodplain (Exhibit E). The hydraulic design for this project would be in accordance with current FHWA and TxDOT

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

15.0 COASTAL ZONE MANAGEMENT PLAN

The proposed project is not located within the designated Texas Coastal Management Zone; therefore, coordination with the Coastal Coordination Council is not required.

16.0 ESSENTIAL FISH HABITAT

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

17.0 WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act (Public Law 90-542, as amended) declares "...certain selected rivers of the nation which, with their immediate environments possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." No wild, scenic, or recreational river areas are located within the project area.

18.0 WATERS OF THE U.S., INCLUDING WETLANDS

According to the USGS 7.5-minute topographic map for Katy, Texas, there is a potential jurisdictional Waters of the U.S. within the project area, a ditch located north of IH 10 (see Exhibit E). This ditch is identified as an intermittent stream on the topographic map. Based on the USFWS National Wetland Inventory (NWI) map for Harris County, no wetlands are mapped within the project area.

Based on review of the TSARP floodplain data for Harris County, a portion of the proposed project is located within the 100-year floodplain. The ditch identified on the topographic map is located within the 100-year floodplain.

In August and October 2009, a wetland determination was conducted within the project area to determine the possible location of any Waters of the U.S., including wetlands, subject to U.S. Army Corps of Engineers (USACE) jurisdiction under Section 404 of the Clean Water Act

(CWA) and/or Section 10 of the Rivers and Harbors Act. Four data points were taken to determine hydrology, soils, and vegetation within the project area. Ditch 1 was identified north of IH 10 within the project area. A data point was taken within Ditch 1 which indicated wetland hydrology, hydric soils, and hydrophytic vegetation. The Ordinary High Water Mark (OHWM) was mapped and approximately 2.58 acres of Ditch 1 are located within the project area (see Exhibit E). No indicators of hydric soils, hydrophytic vegetation, or hydrology indicators were observed at the additional data points. Data forms associated with each data point are included in Appendix D and locations are identified on Exhibit E. No tidally influenced waters were identified; therefore there are no Section 10 waters within the project area.

Ditch 1 is identified on the topographic map as an intermittent stream. Ditch 1 also has a hydrologic surface connection to Mason Creek, a Water of the U.S., and it is located within the floodplain of Mason Creek. Per the USACE Regional Supplement Delineation Manual: Atlantic and Gulf Coastal Plain, Ditch 1 could provide a significant nexus to Waters of the U.S., and is therefore potentially jurisdictional. However, a final jurisdictional determination regarding the presence of any Waters of the U.S. within the project area can only be issued by the USACE. See Exhibit E for the location of this identified potential Waters of the U.S. Ditch 1 will be spanned and impacts to this potential jurisdictional feature will be avoided.

19.0 WATER QUALITY

19.1 Impaired Waters

Runoff from this project would discharge within five stream miles upstream of Segment 1014L of Mason Creek, which is listed as threatened/impaired for bacteria and nutrients on the 2008 303(d) list. This project is not expected to contribute the constituents of concern to the impaired water body.

This project is located within the boundaries of the Phase I, TxDOT Municipal Separate Storm Sewer System (MS4), and would comply with the applicable MS4 requirements.

No adverse long-term water quality impacts are expected as a result of the proposed project. Subsurface water would not be required for this project; therefore, no adverse effects to groundwater are expected to occur. The proposed project is not expected to alter stormwater drainage patterns of affected watersheds, contaminate or otherwise adversely affect the public water supply, water treatment facilities, or water distribution systems. Construction phase impacts may occur, but BMP would be implemented throughout the duration of the project.

19.2 Texas Pollutant Discharge Elimination System

According to the Clean Water Act, it is unlawful to discharge stormwater from construction sites to waters of the U.S., unless authorized by the TCEQ's Texas Pollutant Discharge Elimination System (TPDES). Projects that disturb more than five acres of land and are authorized under the general permit must file a Notice of Intent (NOI). However, the proposed project would disturb less than five acres of land; therefore, an NOI would not be required to be filed with TCEQ.

In accordance with TxDOT policies, a SWPPP would be prepared before performing construction activities. Pollution from stormwater would be minimized through adherence to measures in the project's SWPPP. Construction of the proposed project would include temporary erosion control measures to minimize impacts to water quality during construction as specified in the TxDOT manual *Storm Water Management & Guidelines for Construction Activities*. Temporary BMP's include rock filter dams, vegetation and sod for erosion control, and silt fencing for sedimentation control. Permanent BMP's include revegetation-lined drainage ditches for post-construction total suspended solids control. 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 seeded according to the *TxDOT Specification Seeding for Erosion Control*.

20.0 HAZARDOUS MATERIALS

20.1 Regulatory Records Review

Regulatory agency database records were reviewed to identify any listed sites that would potentially impact the proposed project. This regulatory records review was conducted to current ASTM E152700 standards. Additionally, unmapped sites were reviewed for the approximate minimum search distances noted and included in the discussion, if applicable. Table 7 lists the databases reviewed.

Table 7
Regulatory Database Records Review

Standard Federal Database	Acronym	Distance Searched (miles)
National Priority List	NPL	1.0
Comprehensive Environmental Response, Compensation, and Liability Information System	CERCLIS	0.5
No Further Remedial Action Planned	NFRAP	0.5
Resource Conservation and Recovery Information System - Treatment, Storage, or Disposal	RCRA TSD	1.0
Corrective Action	CORRACT	1.0
Resource Conservation and Recovery Information System – Generators	RCRA-G	0.25
Emergency Response Notification System	ERNS	0.25
Voluntary Cleanup Program	VCP	0.5
Innocent Owner/Operator Program	IOP	0.5
State Superfund	SSF	1.0
TCEQ Solid Waste Facilities	LF	1.0
Unauthorized and Unpermitted Landfill Sites	LFUN	0.5
Leaking Underground Storage Tanks	LUST	0.5
Underground Storage Tanks	UST	0.25
Above Ground Storage Tanks	AST	0.25
Spills List	SPILL	0.25
Brownfield	BRNFD	0.5
Dry Cleaners	DRYCLEANERS	0.5
Indian Reservation Underground Storage Tanks	IRUST	0.25

Table 8 identifies each listed site, facility type, map identification (Exhibit E) and approximate distance from the project area.

Table 8
Listed Hazardous Materials Sites

Site Name	Address (Houston, TX)	Facility Type	Approximate Distance from Project Area (miles)	Map Identification Number
Westside Chevrolet, Inc.	23001 Katy Freeway	AST, UST	0.01	2
Cinco Ranch Shell	23255 Kingsland Blvd.	UST	0.01	3
Centerpoint Energy Electric	Grand Parkway at IH-10	ERNS	Within ROW	6
Handi Stop 109	1414 West Grand Parkway North	UST	0.01	7
Exxon RS 60473	550 W. Grand Parkway South	UST	0.07	5
Dick Simon Trucking	23623 Colonial Parkway	ERNS	0.25	1
Albertsons	23623 Colonial Parkway	AST, SPILL	0.25	1
Peek Road Jobsite	23495 Katy Freeway	AST	0.25	4

Source: TelAll 2009.

NA – these sites are beyond the limits of the environmental constraints mapping.

The following is a brief discussion of the sites located adjacent to the proposed project limits.

- Westside Chevrolet (AST and UST), approximately 0.01 mile south of the project area – One 8,000 gallon gasoline UST was reported removed from the ground and two (4,000 and 8,000 gallon) gasoline ASTs were installed in April 16, 2004; therefore, this facility poses no more than minimal risk to the construction of the proposed project.
- Cinco Ranch Shell (UST), approximately 0.01 mile southeast of the project area – Two 20,000 gallon gasoline and diesel USTs were reportedly installed on June 15, 1998; therefore, this facility poses no more than minimal risk to the construction of the proposed project.
- Centerpoint Energy Electric (ERNS), approximately 0.01 mile south of the project area - Reportedly had a mobile spill of hydraulic oil (unknown amount) in September 2004. Type of medium affected was land with no apparent threats or impacts to receptors reported; therefore, this facility does not pose a risk to construction of the proposed project.
- Handi Stop 109 (UST), approximately 0.01 mile east of the project area – Two 20,000 gallon gasoline and diesel USTs were reportedly installed on October 12, 2008; therefore this facility poses no more than minimal risk to construction of the proposed project.

- Exxon RS 60473 (UST), approximately 0.07 mile southwest of the project area – Four gasoline and diesel USTs (2 – 15,000 gal, 1 – 12,000 gal, and 1 – 8,000 gal) were reportedly installed on July 24, 2002; therefore, this facility poses no more than minimal risk to construction of the proposed project.
- Dick Simon Trucking (ERNS), approximately 0.25 mile west of the project area – Reportedly had a release of 50 gallons No. 2 fuel oil from a fuel pump nozzle on February 2000 because of operator error. It is assumed that the fuel oil spill was cleaned up as it was reported as an ERNS site. In addition, the spill was low volume and is sufficiently outside of the proposed ROW; therefore, this site poses no more than minimal risk to construction of the proposed project.
- Albertsons (AST and SPILL), approximately 0.25 mile west of the project area – One 12,000 gallon AST of unknown content was reported removed from the ground. A 50 gallon spill of low sulfur diesel was reported on February 15, 2000; however the cleanup status is complete. Therefore, this facility poses no more than minimal risk to construction of the proposed project.
- Peek Road Jobsite (AST), approximately 0.25 mile west of the project area – One 10,000 gallon AST of unknown content was reported removed from the ground; therefore, this facility poses no more than minimal risk to construction of the proposed project.

Mapping (topographic and 2004 aerial) indicated the presence of two (2) buried pipeline easements that intersect the project area. One (southwest-northeast) easement crosses approximately 750 feet south of Colonial Parkway/SH 99 intersection and a second (west-east) easement approximately 1,200 feet north of IH 10/SH 99 intersection. The two pipelines reportedly contain natural gas (30-inch diameter) and crude oil (12.75-inch diameter) which are operated by Transcontinental Gas Pipeline Company and Teppco Crude Pipeline, respectively (TelAll 2009).

There is a third pipeline that intersects the project area in two locations approximately 500 feet north of Colonial Parkway/SH 99 intersection and 300 feet west of Buckeye Drive/IH-10 intersection. This pipeline (16-inch diameter) reportedly contains natural gas operated by Monument Pipeline, LP (RRC 2009).

Based on Railroad Commission (RRC) reported conditions, the buried pipelines do not appear to pose an environmental concern to the project. Additionally, no surface evidence of potential environmental concern was observed within the project limits during the July 2009 site

reconnaissance. The operators of these pipelines should be notified prior to project construction.

Based on the current status of the listed sites, none of these facilities pose more than a minimal risk to the proposed project.

20.2 Visual Observation

A visual observation of the project area was conducted on July 1, 2009, to identify the presence of potentially hazardous materials or substances that would impact the proposed project and to identify any sites that were not listed on the hazardous materials database search. The field investigation confirmed there are no hazardous material sites in the proposed ROW.

In the event that unanticipated hazardous materials are encountered during construction of this project, they would be removed in compliance with applicable federal, state, and local laws. No dewatering is anticipated; however, additional investigation may be undertaken if dewatering is required during construction. Hazardous materials that require special handling would be removed only by certified abatement contractors having documentation of prior acceptable abatement work.

21.0 AIR QUALITY

All projects in the H-GAC TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450 of Title 23 Code of Federal Regulations (CFR) and Section 613.200, Subpart B, of Title 49 CFR. Energy, environment, air quality, cost, and mobility considerations are addressed in the programming of the TIP.

Six of the proposed DCs are currently listed in the H-GAC 2035 RTP and the 2008-2011 TIP. The project will be consistent with the fiscally constrained RTP and TIP when the plan is updated to include the two remaining DCs and ultimately adopted. The current RTP and TIP were found to conform to the SIP on November 9, 2007 (Appendix A). The total project cost is estimated to be \$137,906,110.

21.1 National Ambient Air Quality Standards (NAAQS)

The proposed project is located in Harris County, Texas which is designated a severe non-attainment area for the 8-hour ozone National Ambient Air Quality Standards (NAAQS). As a result, transportation conformity rules do apply. This project is not adding single-occupant vehicle capacity and is therefore exempt from a congestion management system analysis.

21.2 Carbon Monoxide (CO) Traffic Air Quality Analysis (TAQA)

Generally, intersection improvement projects are considered exempt from a TAQA because they are intended to enhance traffic safety and improve traffic flow. The proposed action would not add capacity to an existing facility. Current and future emissions should continue to follow existing trends not being affected by this project. Due to the nature of this project, further carbon monoxide analysis was not deemed necessary.

21.3 Mobile Source Air Toxics (MSAT)

The proposed project is to construct eight (8) DCs within the existing SH 99/IH 10 intersection ROW. This project would not result in any meaningful changes in traffic volumes, vehicle mix, location of existing roadways, or other facilities that would cause an increase in emissions impacts relative to the No Build Alternative. As such, this project would generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this project is exempt from a MSAT analysis.

The EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. Even after accounting for a 64 percent increase in vehicle miles traveled (VMT), the FHWA predicts MSAT will decline in the range of 57 percent to 87 percent from 2000 to 2020 based on regulations now in effect, even with a projected 64 percent increase in VMT. This will reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

22.0 NOISE

This analysis was accomplished in accordance with TxDOT's (FHWA approved) Guidelines for Analysis and Abatement of Highway Traffic Noise.

Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. It is commonly measured in decibels and is expressed as "dB." Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dBA." Table 9 provides examples of common sound/noise levels and their associated dBA.

Also, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "Leq."

Table 9
Common Sound/Noise Levels

Outdoor	dBA	Indoor
Pneumatic hammer	100	Subway Train
Gas lawn mower at 3 feet		
	90	Food blender at 3 feet
Downtown (large city)	80	Garbage disposal at 3 feet
Lawn mower at 100 feet	70	Vacuum cleaner at 10 feet
		Normal speech at 3 feet
Air conditioning unit	60	Clothes dryer at 3 feet
Babbling brook		Large business office
Quiet urban (daytime)	50	Dishwasher (next room)
Quiet urban (nighttime)	40	Library

Source: TxDOT, 1997.

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

The FHWA has established the following Noise Abatement Criteria (NAC) for various land use activity areas (Table 10).

Table 10
FHWA Noise Abatement Criteria

Activity Category	dBA Leq	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries and hospitals.
C	72 (exterior)	Developed lands, properties or activities not included in categories A or B above.
D	--	Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

NOTE: primary consideration is given to exterior areas (Category A, B or C) where frequent human activity occurs. However, interior areas (Category E) 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.

All land use activity areas within or adjacent to the ROW are currently undeveloped land or non-residential. Also, no new residential development is currently planned, designed or programmed in these areas. Therefore, the project would not result in any noise impacts. However, to avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs should ensure, to the maximum extent possible, no new activities are planned or constructed along or within the following predicted (2035) noise impact contours. Predicted future traffic data was used for the year 2035 because it is the design planning year for the proposed project.

LAND USE	IMPACT CONTOUR	DISTANCE from RIGHT of WAY
NE section of ROW		
Residential	66 dBA	884 feet
Commercial	71 dBA	337 feet
NW section of ROW		
Residential	66 dBA	800 feet
Commercial	71 dBA	226 feet
SW section of ROW		
Residential	66 dBA	758 feet
Commercial	71 dBA	105 feet
SE section of ROW		
Residential	66 dBA	695 feet
Commercial	71 dBA	63 feet

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures, such as work-hour controls and proper maintenance of muffler systems. A copy of this traffic noise analysis will be made available to local officials to assist in future land use planning. 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.

23.0 CULTURAL RESOURCES

Because this project includes federal and state funding, the project must comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA), its implementing regulations of 36 CFR Part 800, and the Texas Antiquities Code. TxDOT meets the requirements of Section 106 by complying with the terms and conditions of the First Amended Programmatic Agreement for Transportation Undertakings (PA-TU) among the FHWA, the TxDOT, the Texas State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation. TxDOT also satisfies the requirements of the Texas Antiquities Code by

following the stipulations of the MOU between TxDOT and the Texas Historical Commission (THC).

The following discussion documents the results of TxDOT's assessments of cultural resources (archeological and non-archeological) for the current project area. These assessments were performed during TxDOT's 2008 reevaluation of the larger SH 99 Segment D project area (CSJ 3510-04-022) and its 2007 evaluation of improvements to IH 10 (CSJ 0271-07-242). The current SH 99/IH 10 intersection improvement project is located near the north end of Segment D of SH 99, where it intersects IH 10. Segment D of SH 99 extends north of IH 10 to Franz Road in Harris County, just north of the current project limits. SH 99 also extends approximately 20 miles south of IH 10 to its intersection with US 59 in Fort Bend County. The current project would occur completely within existing TxDOT right-of-way at the SH 99/IH 10 intersection.

Relevant documents include TxDOT's determination in 2007 that improvements to IH 10 did not warrant further archeological survey (Pletka 2007) and two technical studies that evaluated cultural resource impacts by 12 grade separation (overpass) connectors and approach main lanes along SH 99 Segment D. These studies included an evaluation of the currently proposed grade separation and approach main lanes at SH 99 and IH 10. The archeological study performed in 2008 (Rose and Worrell 2008) found that no historically significant archeological resources are located within the current project area of potential effect (APE). An additional study of non-archeological resources by a TxDOT historian (Barron 2008) found that no significant historic-age non-archeological resources are located within the APE of the SH 99/IH 10 intersection.

23.1 Historic Structures

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 SHPO that the APE for the proposed project is 150 ft from the existing ROW. A site visit, conducted in August 2008 by a TxDOT certified historian for Segment D of the Grand Parkway (CSJ 3510-04-022), revealed that there are no historic-age resources (built prior to 1965) within this project's APE. No Official State Historical Markers (OSHM) are located within the project APE.

Pursuant to Stipulation VI "Undertakings with Potential to Cause Effects," Appendix 4 (2) of the PA-TU, between the FHWA, the SHPO, the Advisory Council on Historic Preservation, and the TxDOT and the MOU, TxDOT Historians have determined that no historic-age resources are present within the proposed project's APE. Individual project coordination with SHPO is not required.

23.2 Archeological Resources

As specified in the PA-TU and MOU, the archeological APE should comprise existing and new ROW and any other areas impacted by the proposed project. For this project, the project is located only within existing ROW and occurs within areas evaluated for geoarcheological sensitivity by TxDOT (Abbott 2001). This information, also known as the Potential Archeological Liability Map (PALM), is represented in Exhibit F. As a result of the APE, TxDOT's Archeological Studies program has determined that no archeological deposits are located within the APE and no further archeological survey is warranted. TxDOT coordination with the SHPO and other consulting parties as required under the provisions of the PA-TU and MOU, as well as its consultation with federally recognized tribes for the project area, is demonstrated through coordination memos and letters provided in Appendix C of this CE. In the unlikely event that archeological deposits are encountered during construction, work in the area of discovery would cease and post-review discovery procedures would be implemented in accordance with the provisions of the PA-TU and MOU.

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

24.0 CONSTRUCTION IMPACTS

The proposed project would not adversely impact traffic during construction. All construction impacts would be temporary and access to adjacent properties would be maintained during construction. Construction may temporarily degrade air quality through dust and exhaust gases associated with construction equipment. Measures to control dust would be considered and incorporated into the final design and construction specifications. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction area. The use of construction equipment within sensitive areas should be minimized or eliminated entirely. All construction materials used for this project should be removed as soon as work schedules permit. Should any leaks or spills occur, they would be handled according to applicable state and federal regulations and TxDOT standard specifications.

25.0 INDIRECT IMPACTS

Federal law defines indirect effect as effects *"which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to indirect changes in the pattern of*

land use, population density or growth rated, and related effects on air and water and other natural systems , including ecosystems” (40 CFR 1508.8).

TxDOT's *Guidance on Preparing Indirect and Cumulative Impact Analyses* (June 2009) was used as a guide for preparing this section. The following seven-step process provides the methodology used to assess the potential indirect impacts of the proposed SH 99/IH 10 Interchange.

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

25.1 Step 1 – Scoping

Area of Influence (AOI)

The proposed project presents a unique case for evaluating indirect effects and identifying an Area of Influence (AOI). The goal of the proposed project is to improve mobility between two limited access transportation facilities. The nature of the proposed project minimizes the potential for indirect effects that the project would have on the surrounding community, since it does not provide for access to the local roadway network. Furthermore, any indirect effects in the immediate interchange area would not be attributed to this project but would be a result of other projects such as the Grand Parkway Segment D project or IH 10 rehabilitation (Evaluated under separate environmental documents) which provide access between SH 99 and IH 10 with the local roadway network (See Appendix D for a copy of the indirect effects analysis portion of the Grand Parkway Segment D project). As a result, the AOI for the proposed DC project is limited to the ROW between SH 99 and IH 10 (Exhibit D). This delineation was determined when considering the nature of the proposed project and surrounding project area since the proposed project does not improve or deny access to the already well-developed, transportation network within an urbanizing, metropolitan setting.

Trends

The proposed project area is suburban in nature but is rapidly urbanizing. Between 1996 and 2009, land development increased 89 percent.

25.2 Step 2 - Identify the Study Area's Goals and Trends

Indirect effects are commonly related to changes in access and land use. When a transportation project is constructed, an indirect impact may occur when the project induces other types of land development as a result of increased or new access. New development can alter the landscape, increase impervious cover, modify species composition of any remaining habitats, and introduce fertilizers and anthropogenic chemicals into the biotic system.

According to the US Census, from 1990 to 2000, Harris County's and Fort Bend County's populations increased nearly 21 percent and 57 percent, respectively. The population of Harris County and Fort Bend County is expected to increase 54 percent and 93 percent by 2030. With this population growth in mind, expansion of current residential, commercial, and community developments are anticipated. Currently, portions of the AOI are undeveloped, the majority being owned by a development corporation. Since, this area has no land use plans or zoning, a review of historical trends based on aerial photographs for the area was conducted. Based on this evaluation continued development would be expected within the project area.

25.3 Step 3 - Inventory the Study Area's Notable Features

Notable features are described as sensitive species or habitats, valued environmental components that we seek to use, protect, or enhance, unique or unusual resources, or vulnerable elements of the human population, such as elderly, children, disable, low-income, or minority populations (NCHRP, 2002).

Previous sections of this CE provide the baseline of the project area socioeconomic, natural and cultural resources. The AOI consists largely of undeveloped land and transportation uses. Adjacent to the project area there are commercial properties, medical facilities, and limited residential areas; however, indirect impacts to these sites are not anticipated as a result of this project. Therefore, there are limited notable features within the AOI. Specifically, there are no unique and/or unusual landscape features identified as sensitive species and habitats, as defined in the MOA between TxDOT and TPWD, within the AOI. In addition, no valued environmental components or vulnerable elements of the population exist within the AOI.

The proposed project lies within an unincorporated area of Harris County. There are no comprehensive plans or zoning ordinances for which project area goals could be established. Historically, the area surrounding the IH 10 corridor has been developing with large commercial and office complexes.

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

Steps 2 and 3 of the indirect effects assessment have focused on the identification of trends, goals, and notable features. The next steps involve identification and assessment of impacts that may come into conflict with these goals and features. This step consists of listing the impact-causing actions of the project. The general types of impact-causing activities and a description as to how they relate to the project (Table 11).

Table 11
Indirect Impact Summary

Type of Activity	Project Specific Activity	Relevant Details
Modification of Regime	Alteration of Ground Cover	Ground cover adjacent to the proposed project would be temporarily disturbed because of construction activities. BMPs would be in place to control soil erosion. When construction is complete, ground cover would be reestablished according to EO 13116 – Invasive Species.
Modification of Regime	Modification of Habitat	A direct impact to 49 acres (32 acres is maintained/mowed grassland, 13 acres is maintained/mowed grassland with some trees species, and four acres of woody vegetation exists), of vegetation is located within the existing project ROW. Any potential for effects would be minimized through BMPs to control erosion and pollutant discharge and EO 13112 would ensure no invasive species is used to establish vegetation within the ROW. Vegetation clearing would occur outside breeding season in compliance with MBTA.
Land Transformation and Construction	New or Expanded Transportation Facility	The proposed project would be within existing ROW and is not used for non-transportation purposes.

25.5 Step 5 - Identify Potentially Substantial Indirect Effects for Analysis

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

The proposed project would not substantially alter the physical environment as a result, there would be no encroachment-alteration impacts. Since the proposed project does not provide access to the local roadway network but simply improves mobility between two limited access

transportation facilities, there would be no induced growth effects directly attributed to the proposed project.

In addition, the project does not change the existing access between SH 99, IH 10, and the local roadway network. As a result, the only access alteration effect resulting from the project is to minimize the volume of traffic that would utilize the existing exit ramp and frontage road system to connect to the local roadway network. This reduction in traffic could slow the growth predicted in the Grand Parkway Segment D environmental document within the existing interchange area. In addition, by improving the mobility between these two facilities, air quality may be slightly improved since vehicles will be constantly moving and not be forced to stop at signalized intersections along the existing frontage road system to make the connection between SH 99 and IH 10.

Step 5 identified no substantial indirect effects on notable features of the AOI that would result from the proposed project. Therefore, no issues will be carried forward for further analysis in Steps 6 through 8.

26.0 CUMULATIVE IMPACTS

Cumulative effects are defined as effects “on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time” (NEPA, Section 1508.7).

While direct and indirect effects are discussed in terms of the impact the proposed project has on specific resources, cumulative effects are analyzed in terms of what the effect means from the perspective of the specific resource being affected. The goal is to determine whether the proposed action’s direct and indirect effects, in combination with other past, present, and reasonably foreseeable future actions, would result in substantial degradation of the resource.

This section discusses the resources analyzed for cumulative effects according to TxDOT’s eight-step process (TxDOT, 2009). These steps include:

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

Although the proposed project would not have substantial direct or indirect effects, a cumulative impact analysis is being done since the project area lies within an area of Harris County that has seen great development and land use changes over the last several decades, and the actions of others could cause substantial impacts on at risk resources. The *Grand Parkway Segment D Environmental Assessment Reevaluation* is being used as a basis for this analysis. The Resource Study Area for this document is being modified from the one presented in the Grand Parkway Segment D EA to evaluate a more refined area to assess the cumulative impacts for the resources at risk. In addition, the resources identified in the Grand Parkway Segment D EA are the resources which will be considered in this cumulative analysis.

26.1 Step 1 - Identify The Resources To Consider In The Analysis

A cumulative effects analysis should focus on: “(1) the resources substantially impacted by the project, and (2) the resources currently in poor or declining health or at risk, even if the project impacts are relatively small” (TxDOT, 2009). According to TxDOT guidance, if a project does not cause direct or indirect impacts on a resource, it would not contribute to a cumulative impact on that resource. However the guidance further states that even if a project’s direct and indirect impacts are minor, but the actions of others could cause substantial impacts on an at risk resource, a cumulative analysis for that resource should be conducted.

Vegetation and Waters of the U.S. were the only resources that would have direct impacts as a result of the proposed project. However, none of these impacts are considered substantial impacts. In order to fully consider the potential for cumulative impacts on resources in the project area resulting from the actions taken by TxDOT and others on area projects, all of the resources evaluated in this document were considered for further investigations but only those resources identified in the Grand Parkway Segment D EA are considered in this cumulative analysis. As presented in Table 12, only land use, vegetation, and Waters of the U.S. (wetlands) were considered to be in poor or declining health and were evaluated in this cumulative impact analysis.

26.2 Step 2 - Define The Study Area For Each Affected Resource

The Resource Study Area (RSA) for each resource was chosen based on the determination of the potential direct impacts and indirect impacts arising primarily from the proposed project and Grand Parkway Segment D. In addition, development patterns changes between 1996 and 2009 were also considered when delineating the RSA. The RSA encompasses 4,396 acres.

The geographic resource study area (RSA) was based on the temporal changes in the land use surrounding the project since 1994. An analysis of aerial photographs was conducted to determine the existing development and build out conditions in 1996, which signifies the general timeframe for which the Grand Parkway Segment D project was opened to traffic (1994), and

Table 12
Resource Impact Summary

Resource	Direct Impacts	Indirect Impacts	Analyzed for Cumulative Effects	Reason for conducting or not conducting a cumulative effects analysis
Land Use	No impacts to land use or changes to existing development patterns are anticipated.	No indirect impacts to land use are anticipated as a result of this project since it would not contribute to induced development.	Yes	A cumulative effects analysis was conducted even though the project's direct and indirect impacts are minor. However, the actions of others could cause substantial impacts on an at risk resource, a cumulative analysis for that resource should be conducted.
Community	There are no direct impacts to community cohesion, environmental justice. In addition, there are not displacements as a result of this project.	There are no indirect impacts to community cohesion, environmental justice. The potential exists for scheduled in the SH 99/IH 10 interchange area for previously identified development to be slightly delayed, since the project removes traffic from the frontage roads.	No	No impacts to resource. Resource not at risk.
Vegetation	A direct impact to 0.815 acres of which 0.475 acres are grassland, 0.312 acres are maintained ROW, and 0.028 acres are forested.	No indirect impacts to vegetation are anticipated as a result of this project since it would not contribute to induced development.	Yes	A cumulative effects analysis was conducted even though the project's direct and indirect impacts are minor. However, the actions of others could cause substantial impacts on an at risk resource, a cumulative analysis for that resource should be conducted.
Wildlife (including Threatened and Endangered Species)	No effects to federally-listed threatened or endangered species are anticipated. No impact to state-listed threatened or endangered species are anticipated.	No indirect impacts are anticipated.	No	Impacts not substantial; resource not at risk.

Table 12 con't
Resource Impact Summary

Resource	Direct Impacts	Indirect Impacts	Analyzed for Cumulative Effects	Reason for conducting or not conducting a cumulative effects analysis
Floodplains	Approximately, 11 acres of the project area is within the 100 year floodplain for Mason Creek.	No indirect impacts to floodplains are anticipated as a result of this project since it would not contribute to induced development.	No	The proposed DCs would not increase the base flood elevation to a level that would violate floodplain regulations.
Waters of the U.S.	Approximately 2.58 acres of a ditch, Ditch 1, was located within the project area that has a hydrologic surface connection to Mason Creek, a Waters of the U.S., It is also located within the floodplain of Mason Creek. Ditch 1 could provide a significant nexus to Waters of the U.S., and is therefore potentially jurisdictional. There are no NWI wetlands within the project area.	No indirect impacts to Waters of the U.S. are anticipated as a result of this project since it would not contribute to induced development.	Yes	A cumulative effects analysis was conducted even though the project's direct and indirect impacts are minor. However, the actions of others could cause substantial impacts on an at risk resource, a cumulative analysis for that resource should be conducted.
Historic Resources	No NRHP properties would be impacted by the proposed project	No indirect impacts to historic resources are anticipated as a result of this project since it would not contribute to induced development.	No	No impacts to resource. Resource not at risk.
Archeological Resources	No archeological sites within ROW.	No indirect impacts to archeological resources are anticipated as a result of this project since it would not contribute to induced development.	No	No impacts to resource. Resource not at risk
Air Quality	Projected traffic volumes do not require TAQA.	There may be localized areas where MSATs would increase and other areas where MSATs would decrease. However, on a regional basis, the EPA's vehicle and fuel regulation coupled with fleet turnover will cause region-wide MSAT levels to be substantially lower than today in almost all cases. In addition, the potential exists to have an improvement to air quality since traffic will be operating in a free flow condition rather than stop and go at signalized intersections. No additional indirect impacts to air quality are anticipated.	No	Under the Build Alternative in the design year, it is expected there would be reduced MSAT emissions in the immediate area of the proposed project, relative to the No-Build Alternative.

compare those to the changes which have occurred. The RSA would represent the geographic area for cumulative impacts to the identified resources (Exhibit G). The RSAs are used to characterize the health condition and trend for each resource and to determine the potential cumulative effects on a resource when quantitative information was not available.

26.3 Step 3 - Describe The Current Health And Historical Context For Each Resource

Land Use

In 2003, the Texas A&M University System, in cooperation with American Farmland Trust, published, *Texas Rural Lands: Trends and Conservation Implication for the 21st Century*. The 2003 Texas Rural Land study found that Texas leads all other states in the loss of rural farming and ranching lands. According to the study, "...if the trend continues at the same rate for the next two decades, much more of the land in south, central, and east-central portion of the state will become fragmented." As previously discussed, land use adjacent to the study area consists largely of a mixture of commercial properties, medical facilities, and undeveloped lands. Existing land uses in the RSA include residential, industrial, commercial/office, and medical facilities. The prevailing land uses in the RSA consists of densely populated residential tracts, decreasing rural development, commercial/office complexes and medical facilities. Tracts of undeveloped land are present throughout the RSA; however, those tracts are being converted to commercial and residential uses at a fairly rapid rate. Based on 2009 aerial photographs, nearly 868 acres are developed within in the RSA or nearly 20 percent of the RSA.

The 2003 Texas Rural Lands study evaluated historic, current, and future trends in rural land use within the State of Texas. The study found that rural land, including farmlands, in Texas is increasing being developed, with 2.2 million acres of rural land in Texas converted to urban use between 1992 and 1997.

Review of the aerial photographs dated 1952 and 1972 showed that farmland and associated single-family farmhouses dominated the land use within the RSA. The RSA remained largely undeveloped through the early 1970's. As the 1970s progressed and IH 10 was constructed, development began to extend from Houston westward. Development in the 1970s was concentrated in the eastern section of the RSA just south of IH 10 and Westgreen Boulevard. Subdivisions were starting to develop in this area.

In the 1980s, the RSA began to develop more rapidly with large master planned communities. During the early 1980s, the City of Katy, (just west of the RSA) began to expand north of IH 10 and other developments started to expand along IH 10 in this area.

The mid to late 1980s development continued along IH 10 and the SH 99 Grand Parkway Segment D project was approved in 1987. Planning for development along the SH 99 Grand Parkway Segment D project began with new roadways at street intersections. In addition,

Governor's Place began in 1985 along the planned SH 99 corridor at Kingsland Boulevard. The Cinco Ranch master-planned community began developing plans to construct a residential community east of SH 99 between IH 10 and FM 1093. As the 1990s continued, retail centers were constructed. By 1996, nearly 10 percent of the RSA was developed.

In the 2000s, development pressure continued within the RSA. Specific new development includes medical facilities north of IH 10 (Katy Medical Arts Center and Memorial Herman Hospital), along with new retail development in the West Grand Promenade shopping center. Development also occurred south of IH 10 along SH 99 with the addition of Time Square Plaza, Park Plaza, and Spring Field Plaza. Residential developments which began in the 1990s were completely built out in the 2000s. By 2009, nearly 20 percent of the RSA is developed. Additionally, the land north of IH 10 and east and west of SH 99 is owned by a developer and identified as future commercial sites.

Waters of the U.S. (Wetlands) and Vegetation

Wetlands and natural vegetation have decreased in Harris and Fort Bend Counties since the 1950s. Continued urbanization and industrialization of Houston area will cause continued pressure on remaining wetlands. The 1996 developed acreages in the RSA were 460 acres and in 2009 the developed acreage was 868 acres. This constitutes an 89 percent increase over a ten year period.

26.4 Step 4 - Identify Direct And Indirect Impacts Of The Proposed Action

Land Use

There are no direct or indirect impact changes to land use.

Vegetation

Vegetative impacts from the proposed project include 0.815 acres. There are no indirect effects to vegetation.

Waters of the U.S. (Wetlands)

There are no direct or indirect impact changes to wetlands. There is a potential ditch within the project area that could be impacted by the proposed project (2.58 acres). However, no jurisdictional determination on the ditch has been made.

26.5 Step 5 - Identify Other Reasonably Foreseeable Future Actions That May Affect Resources

In addition to the direct and indirect impacts of the proposed project, other actions have affected, or are likely to affect land use, vegetation, and Waters of the U.S. (Wetlands) within the RSAs.

Past Transportation Infrastructure Projects

IH 10 was commissioned in the State of Texas in 1959 and was completed east of San Antonio in 1972. Reconstruction of IH 10 began in 2004 to expand the facility and include managed lanes. In addition, SH 99 Grand Parkway Segment D was opened to traffic in 1994. Following the approval of Grand Parkway Segment D project, the local street network was expanded to link the transportation system.

Future Transportation Projects

A review of HGAC's FYI 2008–2011 TIP, revealed that the only transportation projects within the RSA include the construction of sections of the SH 99 Grand Parkway mainlanes and frontage roads, additional improvements associated with the IH 10 reconstruction. Other items such as noise walls and stormwater management facilities associated with SH 99 and IH 10 were also identified on the plan. No additional transportation projects were identified within the RSA.

Other Reasonably Foreseeable Projects

No additional public developments were identified within the RSA. The only reasonably foreseeable private projects within the RSA is the continued build out of the West Grand Promenade shopping center. The continued infill of existing residential developments in the RSA is also expected to occur.

26.6 Step 6 - Assess Potential Cumulative Effects To Each Resource

Cumulative impacts were evaluated by considering the historical context of each resource, current condition, trend, potential future land uses, and pertinent regulations and standards associated with each resource. These factors capture the influences that have shaped and are shaping the amount and quality of each resource, and which would continue to shape the resources into the future. Several assumptions were made when predicting the future condition of these resources:

- All reasonably foreseeable actions would be completed as planned.
- The relationship and trends between the resources and the human communities that have been identified from past experience would continue.

- The sponsors of the public and private project would follow the appropriate federal, state, and local laws designed to protect resources.
- Impacts are based on a complete build-out scenario of the RSA.

26.7 Step 7- Report The Results

The proposed project, in combination with other past, present, and reasonably foreseeable future actions discussed above, is not expected to adversely contribute to the cumulative impacts on land use, vegetation, and Waters of the U.S. (Wetlands) within the RSA. As Harris County has no land use plan or means of controlling the types of development that are implemented, development would continue as market conditions dictate the need for new land uses based on the current market trends.

Based on NWI mapping, there are 112 acres of wetlands within the RSA. Of the identified wetland, 91 acres are identified within undeveloped portions of the RSA.

Vegetation impacts would occur in the RSA. Vegetation within the RSA is grasslands largely bermuda grass with short-point flatsedge, annual ragweed, and yellow bluestem intermixed. Tree species include pine, oak and elm. The undeveloped portions, nearly 3,528 acres, of the RSA are expected to change to more maintained suburban landscapes as development occurs.

26.8 Step 8 - Assess And Discuss Mitigation Issues For All Adverse Impacts

Unavoidable vegetation impacts would occur from proposed project construction. Vegetation impacts would be partially mitigated through revegetation and landscaping, as appropriate, with tree, shrub, and grass plantings. Landscaping would be in accordance with EO 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping. Habitats given special consideration under the TxDOT-TPWD MOU on non-regulatory mitigation would be avoided to the extent practicable.

Waters of the U.S. are regulated by the USACE under authority of Section 404 of the CWA. Section 404 of the CWA authorized the USACE to issue permits for discharge of dredge or fill materials in Waters of the U.S., including wetlands. The intent of this law is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution, and to restore and maintain their chemical, physical and biological integrity. Any discharge into Waters of the U.S. must be in accordance with Section 404(b)(1) guidelines developed by the EPA in conjunction with the USACE. In the Section 202 permit process. Permit applications are reviewed by the TCEQ for compliance with Section 401 of the CWA.

In 1991, Texas adopted state goals for "no net loss" of acreage or aquatic function of wetlands. These goals reflect the regulatory program in the CWA legislation that prohibits the discharge of

soil into Waters of the U.S. unless authorized by a permit issued under the CWA Section 404. The USACE has authority over such actions and may require the permittee to restore, create, enhance, or preserve nearby aquatic features as compensation to offset unavoidable adverse impacts to the aquatic environmental. This means of compensatory mitigation is intended to comply with the general goals of the CWA and the specific goal of “no net loss” of aquatic functions.

27.0 PERMITS

27.1 U.S. Coast Guard

The proposed project does not cross a navigable waterway; therefore, a U.S. Coast Guard bridge permit is not required.

27.2 U.S. Army Corps of Engineers

Based on the wetland field delineation 2.58 acres of a potential jurisdictional Water of the U.S., Ditch 1, is located within the project area and would be subject to Section 404 jurisdiction. It is anticipated that this potential jurisdictional feature can be spanned and impacts be avoided. However, based on the final design, should any impacts occur, the total impacts to jurisdictional Waters of the U.S. would be calculated and it is anticipated that the impacts would be covered by a Nationwide Permit 14.

28.0 PUBLIC INVOLVEMENT

Since no new ROW is required for this project, public involvement is not required for this project.

29.0 CONCLUSION

In conclusion, the engineering, social, economic, and environmental investigations conducted thus far indicate that no significant environmental impacts would occur as a result of the proposed project. The proposed project would not create significant environmental impacts as described in 23 CFR 771.117(a) and would not involve any unusual circumstances as outlined in 23 CFR 771.117 (b). In conclusion, the anticipated impacts for the proposed project area and surrounding community would not be substantial, thereby qualifying the proposed project as a CE.

30.0 REFERENCES

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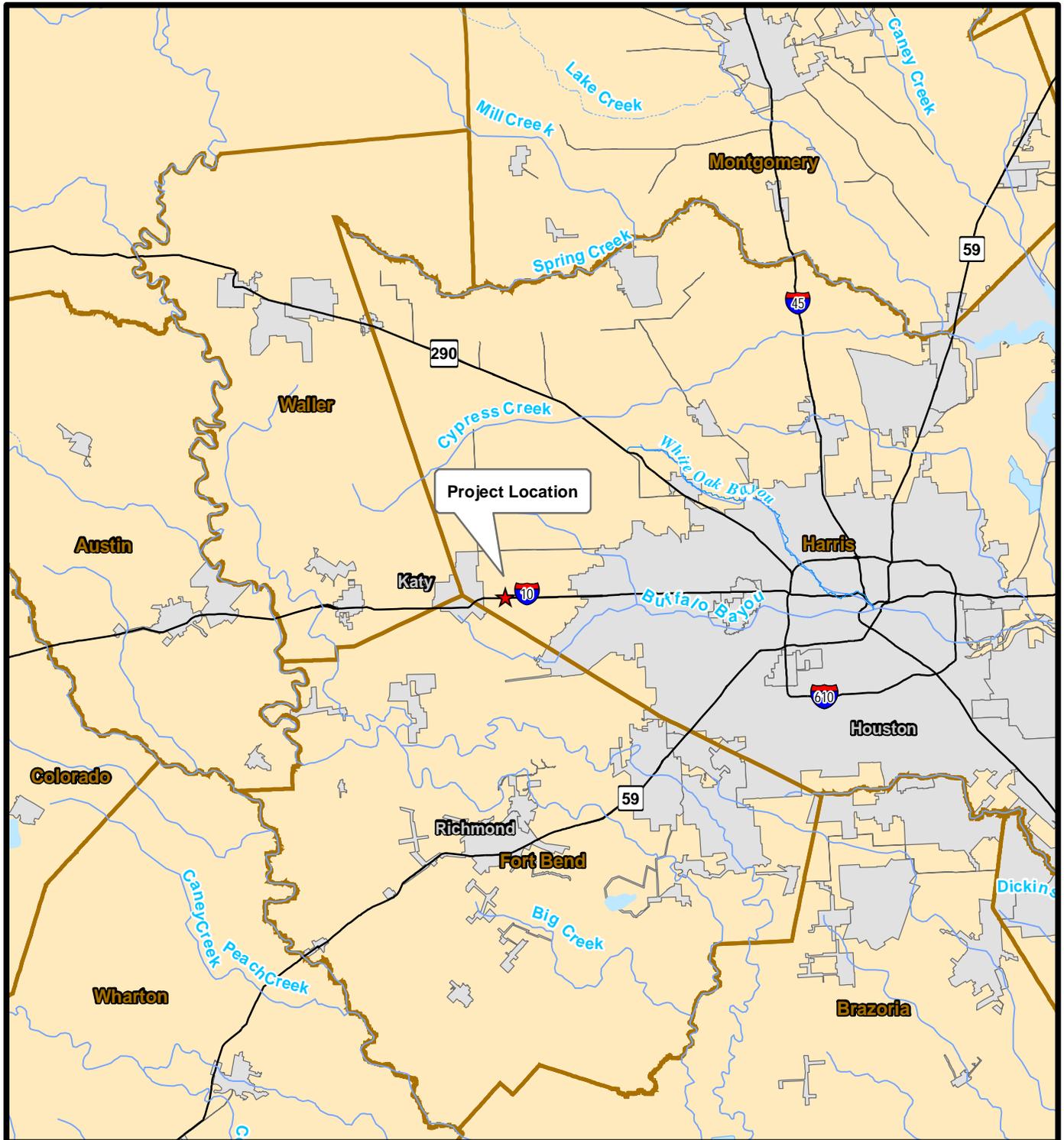
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Exhibit A

Project Vicinity Map



Legend	
	Stream
	City
	Major Road
	County Boundary

1 in = 10 miles



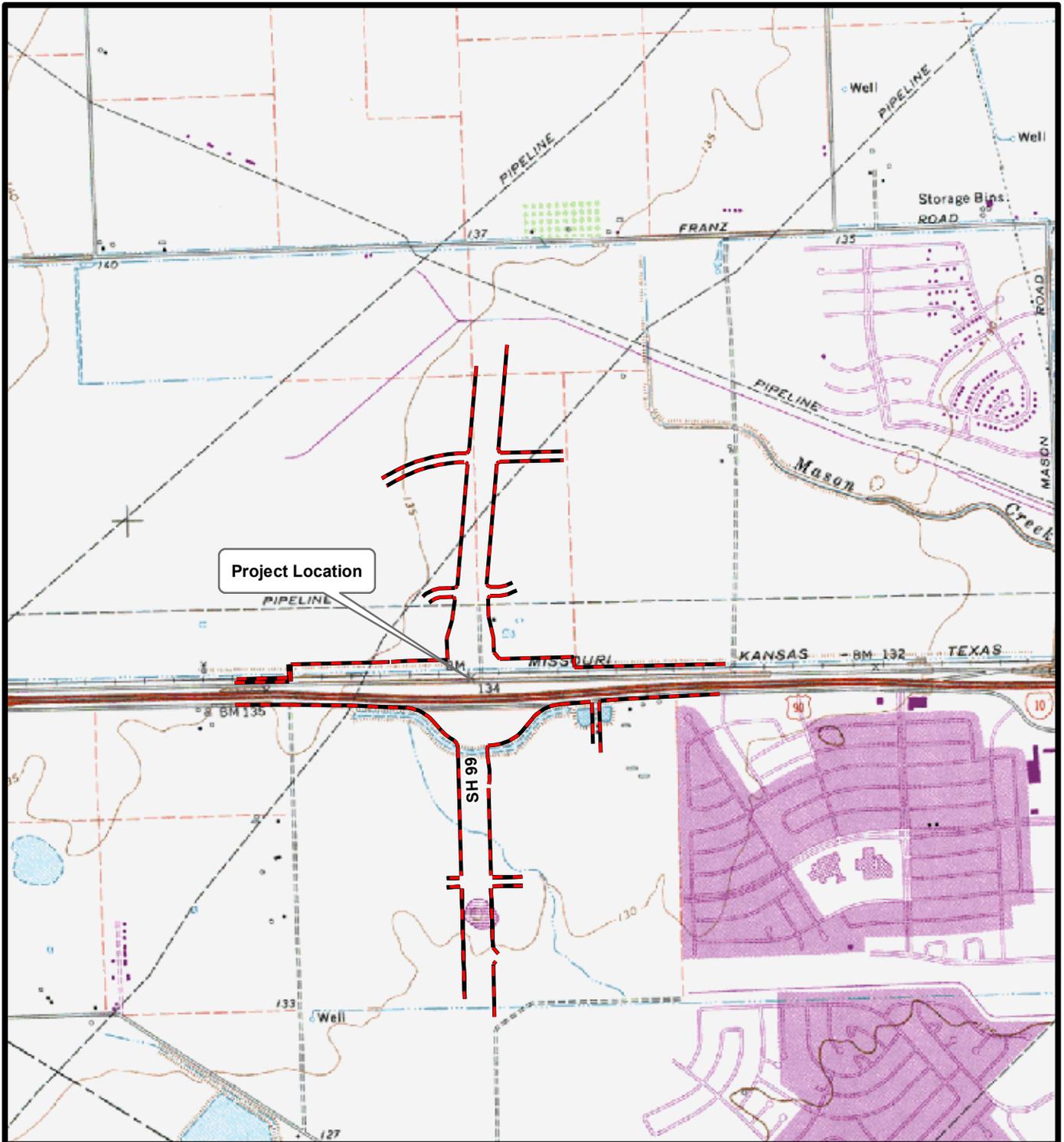
Source: ESRI StreetMap USA



Exhibit A
Project Vicinity Map
Proposed Direct Connectors at State
Highway 99/Interstate Highway 10 Interchange
 CSJ 0271-06-110
 CSJ 3510-05-017
 CSJ 3510-05-018
 Harris County, Texas

Exhibit B

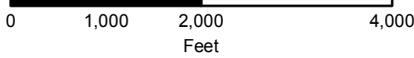
Project Location Map



Legend

— Existing ROW

1 inch = 2,000 feet



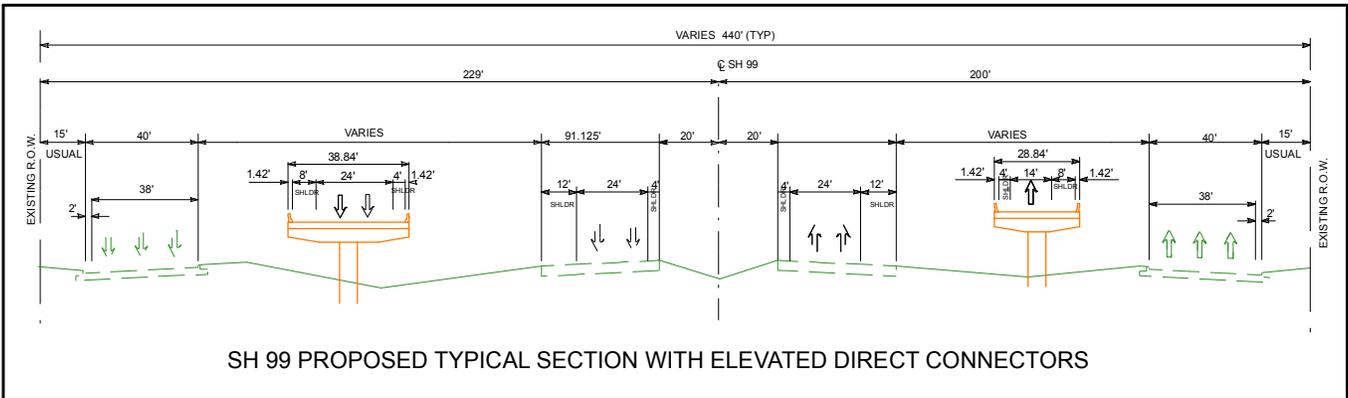
Source: USGS Topo
Katy Quadrangle



Exhibit B
Project Location Map
Proposed Direct Connectors at State
Highway 99/Interstate Highway 10 Interchange
CSJ 0271-06-110
CSJ 3510-05-017
CSJ 3510-05-018
Harris County, Texas

Exhibit C

Proposed Typical Section



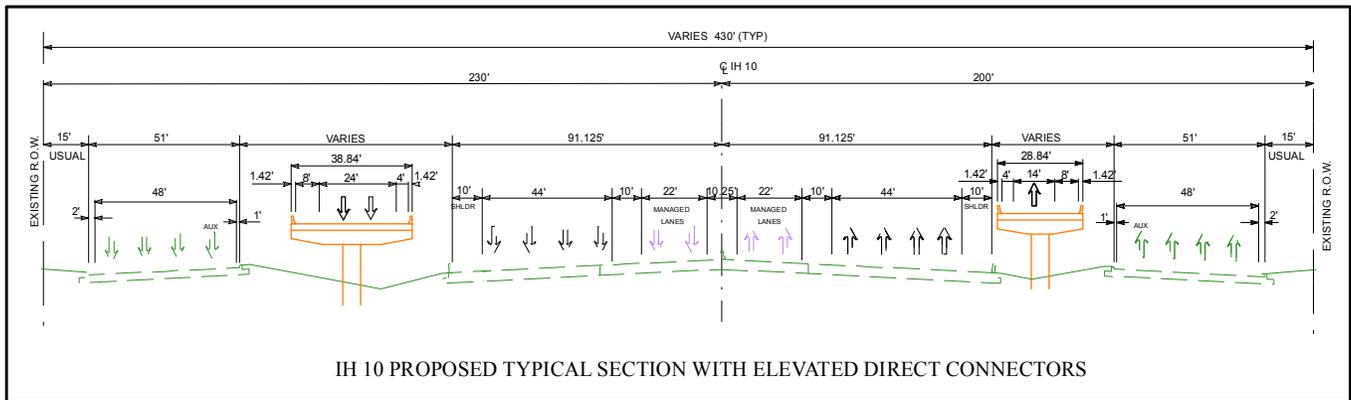
Legend

- SH 99 Proposed Typical Section
- Proposed Direct Connectors Typical Section

* Proposed project is covered under a separate environmental document."



Exhibit C
Proposed Typical Section
Proposed Direct Connectors at State
Highway 99/Interstate Highway 10 Interchange
CSJ 0271-06-110
CSJ 3510-05-017
CSJ 3510-05-018
Harris County, Texas



Legend

- IH 10 Proposed Typical Section
- Proposed Direct Connectors Typical Section

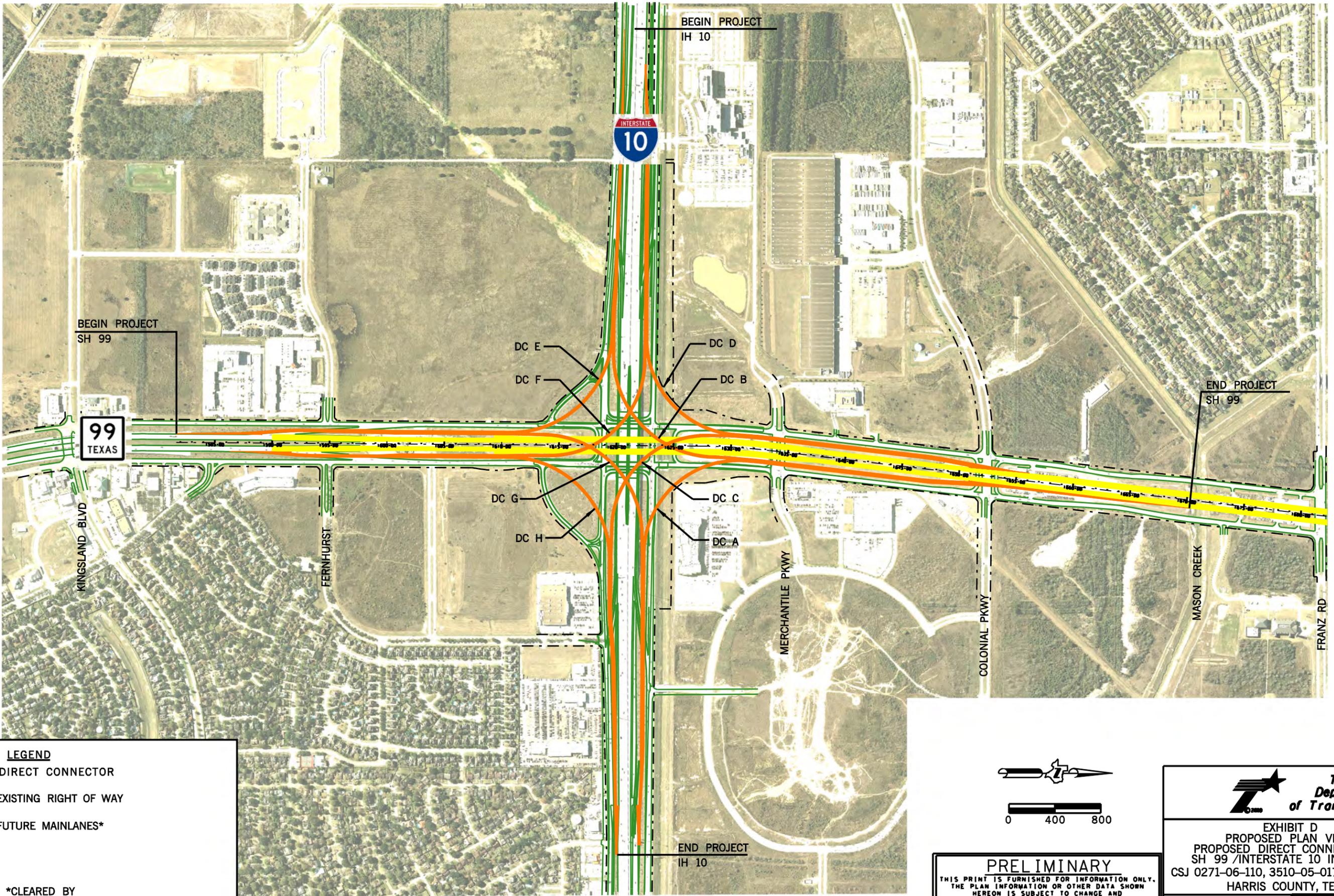


Exhibit C
Proposed Typical Section
Proposed Direct Connectors at State
Highway 99/Interstate Highway 10 Interchange
CSJ 0271-06-110
CSJ 3510-05-017
CSJ 3510-05-018
Harris County, Texas

* Proposed project is covered under a separate environmental document."

Exhibit D

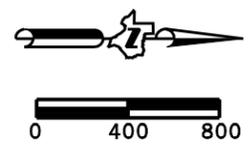
Proposed Plan View



LEGEND

- - DIRECT CONNECTOR
- - EXISTING RIGHT OF WAY
- - FUTURE MAINLANES*

*CLEARED BY
SEPARATE ENVIRONMENTAL DOCUMENT



PRELIMINARY

THIS PRINT IS FURNISHED FOR INFORMATION ONLY.
THE PLAN INFORMATION OR OTHER DATA SHOWN
HEREON IS SUBJECT TO CHANGE AND
MUST NOT BE CONSTRUED AS FINAL.



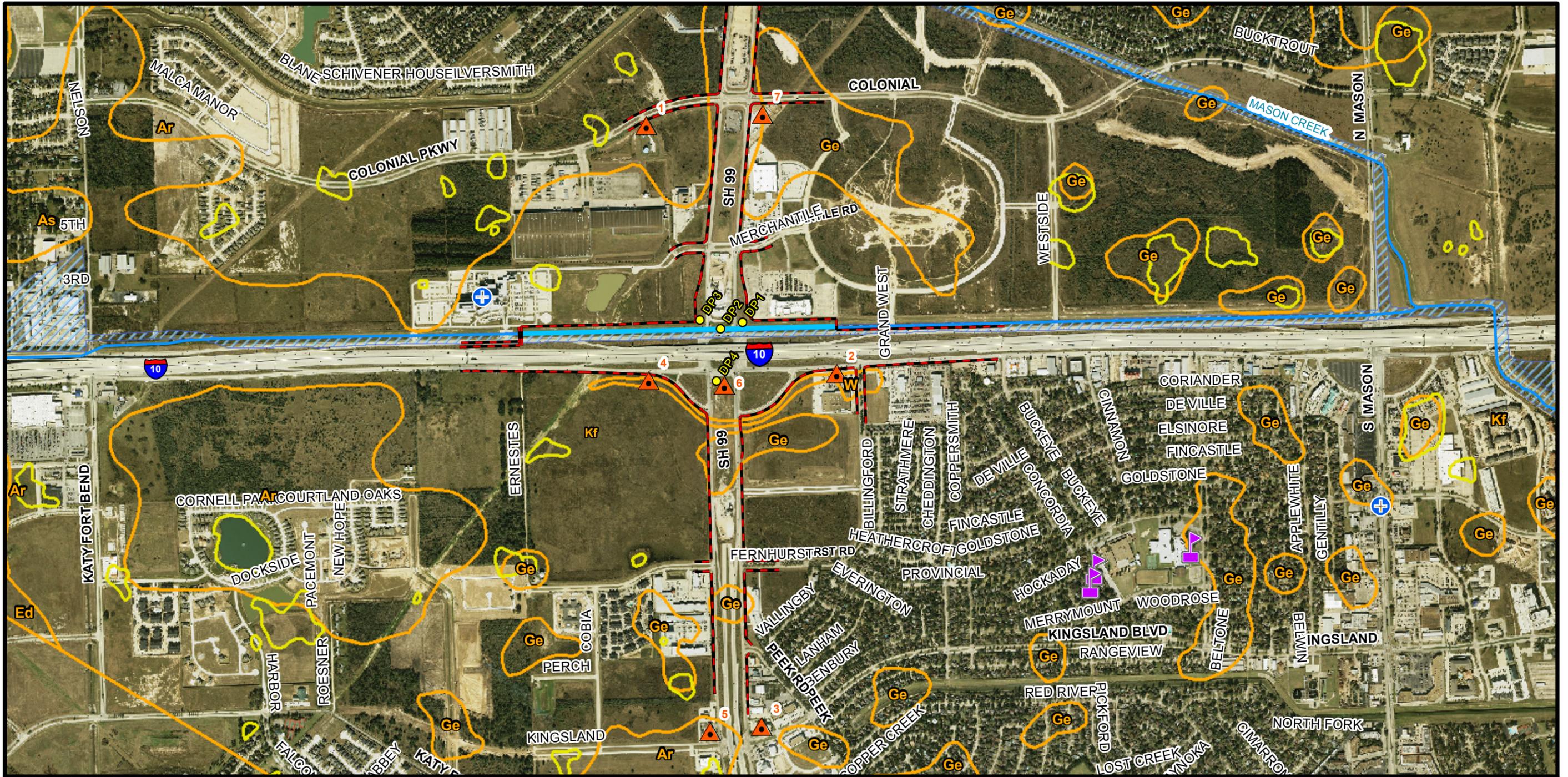
**Texas
Department
of Transportation**

EXHIBIT D
PROPOSED PLAN VIEW
PROPOSED DIRECT CONNECTORS AT
SH 99 /INTERSTATE 10 INTERCHANGE
CSJ 0271-06-110, 3510-05-017, 3510-05-018
HARRIS COUNTY, TEXAS

DATE: 10/14/2009	99_SEG_E_EXHIBIT_LORI.DGN FILE NM:
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Exhibit E

Environmental Constraints Map



Source
 Soil: NRCS, Soil Data Mart, 2008
 NWI: USFWS, 1998
 Floodplain: TSARP, 2000
 Pipeline: TXRRC
 Hazmat: TelALL, 2009
 Waters of the U.S.: PBS&J, 2009
 Aerial: H-GAC, 2008



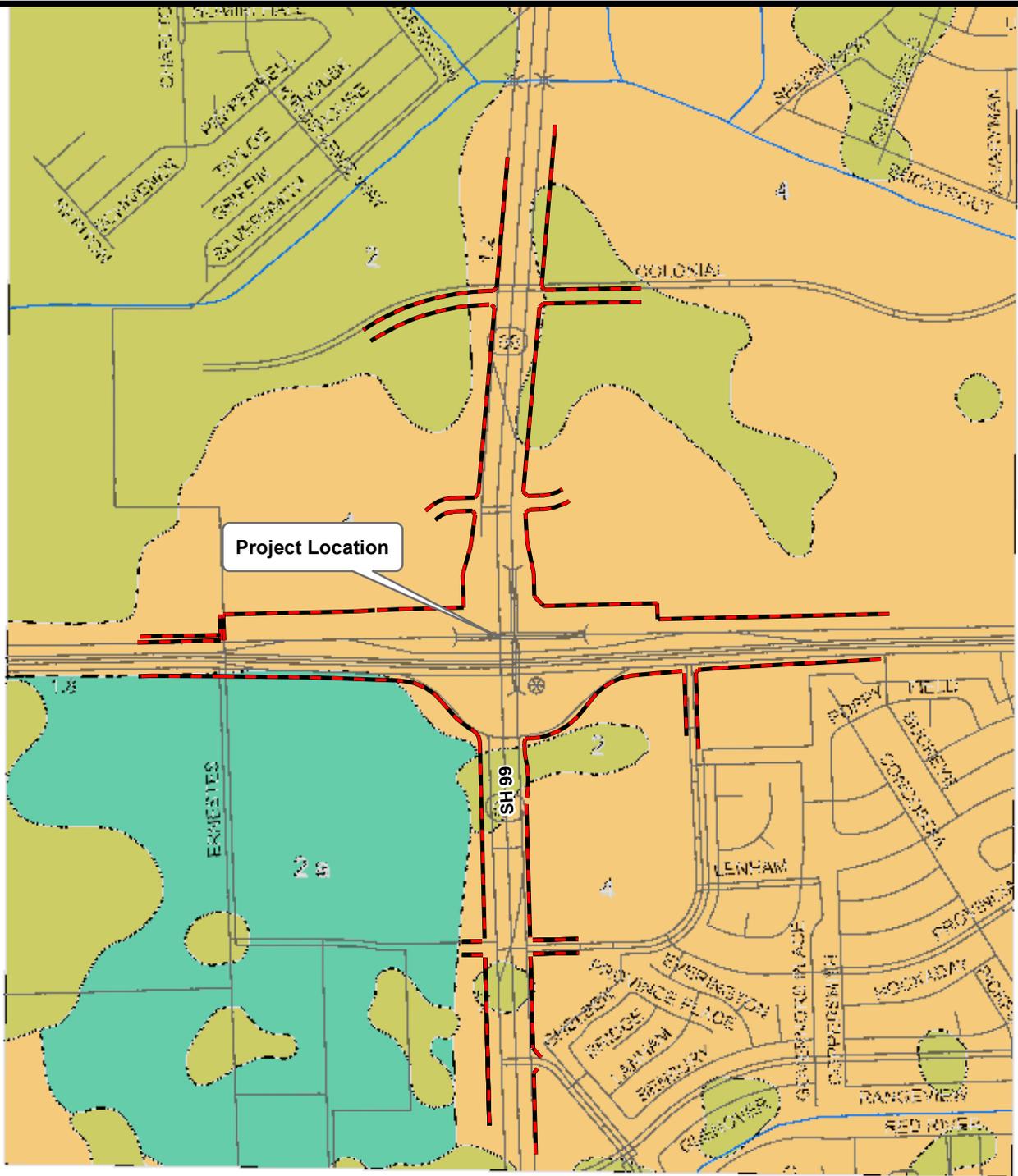
- Existing ROW/Project Area
- ▲ Hazardous Material Site
- Potential Waters of the U.S.
- 🏫 School
- ⊕ Health Care
- Data Point
- ▭ Soils
- ▭ NWI
- ▨ 100-Year Floodplain



Exhibit E
Environmental Constraints Map
 Proposed Direct Connectors at State
 Highway 99/Interstate Highway 10 Interchange
 CSJ 0271-06-110
 CSJ 3510-05-017
 CSJ 3510-05-018
 Harris County, Texas

Prepared By: PBS&J/19955	Scale: 1" = 1,250'
Job No.: 100008595	Date: Oct 16, 2009
File: M:\Trans\100008595\Projects\IB_10_GP_EnvConst	

Exhibit F
PALM Map



Project Location



Legend

-  Existing ROW
- 2** Surface Survey recommended,
No Deep Reconnaissance
- 2a** Surface Survey of Mounds Only,
No Deep Reconnaissance
- 4** No Survey Recommended

1 inch = 1,399 feet

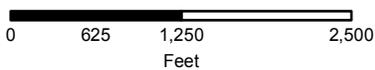
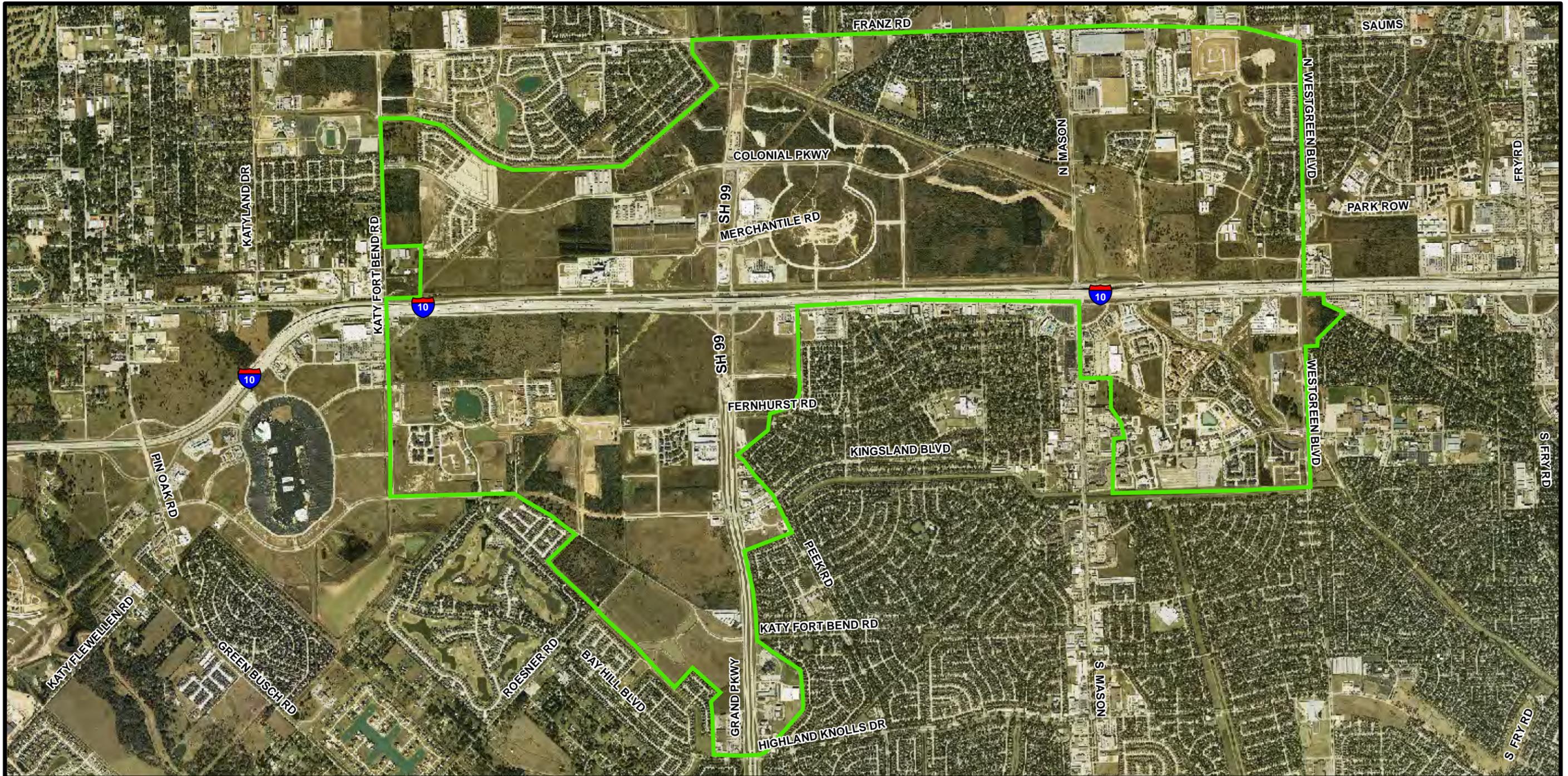


Exhibit F
PALM Map
Proposed Direct Connectors at State
Highway 99/Interstate Highway 10 Interchange
 CSJ 0271-06-110
 CSJ 3510-05-017
 CSJ 3510-05-018
 Harris County, Texas

Exhibit G

Resource Study Area



Source
Aerial: H-GAC, 2008



 Resource Study Area



Exhibit G
Resource Study Area Map
 Proposed Direct Connectors at State
 Highway 99/Interstate Highway 10 Interchange
 CSJ 0271-06-110
 CSJ 3510-05-017
 CSJ 3510-05-018
 Harris County, Texas

Prepared By: PBS&J/19955

Scale: 1" = 2,333'

Job No.: 100008595

Date: Oct 08, 2009

File: M:\Trans\100008595\Projects\B_10_GP_RSA

Appendix A
TIP Amendment

**HOUSTON-GALVESTON MPO
2008-2011 TRANSPORTATION IMPROVEMENT PROGRAM
AMENDMENT #134**

Amendment Type		
<input checked="" type="checkbox"/> Administrative Action	<input type="checkbox"/> TPC Action	<input type="checkbox"/> Emergency
<input checked="" type="checkbox"/> STIP Revision	<input type="checkbox"/> Public Meeting Needed	

Purpose of Amendment:

Split out CSJ 0271-06-110 from CSJ 3510-05-903 (MPO #10591). Fund CSJ 0271-06-110 with earmark funds less rescission and ARRA funds. Move CSJ 3510-05-903 to FY 2011; split out two additional direct connectors into CSJ 3510-05-906 and move to Short Range. Original Economic Stimulus Resolution approved limits on SH 99 from IH 10 to US 290; therefore, change limit of Economic Stimulus project CSJ 3510-05-002 to From IH 10 To US 290.

Approved By:


Alan Clark
MPO Director
Houston-Galveston Area Council

8/28/09
Date


Gabriel Y. Johnson, P.E.
Interim Director of Advanced Transportation Planning
TxDOT, Houston District

8/28/09
Date

AMENDED TABLE

FY 2010 PROJECTS

COUNTY	SPONSOR	PROJECT DESCRIPTION				
CSJ NUMBER	STREET	PROJECT LENGTH				
MPO ID	FROM LIMIT	EMISSIONS BENEFITS (CMAQ PROJECTS ONLY)				
TXDOT DISTRICT	TO LIMIT					
PHASE	LET DATE					
HARRIS	TXDOT HOUSTON DISTRICT	SEG. E: CONSTRUCT 4-LANE TOLLWAY WITH NON-CONTINUOUS				
3510-05-002	SH 99 SEGMENT E	TWO 2-LANE FRONTAGE ROADS AND INTERCHANGES				
328	IH 10					
HOUSTON	US 290					
C	1/1/2010					
Total Project Cost Information:		Year of Expenditure (YOE) Project Cost Information:				
Preliminary Engineering	\$8,869,000	Fund Cat	Federal	State	Local	Total
ROW Purchase:	\$45,250,000	ARRA	\$181,000,000	\$0	\$0	\$181,000,000
Construction Engineering:	\$23,820,000	LOCAL	\$0	\$0	\$216,000,000	\$216,000,000
Construction Cost:	\$397,000,000	YOE Cost: \$181,000,000 \$0 \$216,000,000 \$397,000,000				
Contingencies:	\$27,790,000					
Indirect Costs:	\$6,244,500					
Total Project Cost:	\$508,973,500					
HARRIS	TXDOT HOUSTON DISTRICT	CONSTRUCT 2 DIRECT CONNECTORS (WB-SB, NB-EB)				
0271-06-110	IH 10					
14653	AT SH 99	2.00 MILES				
HOUSTON						
C	3/1/2010					
Total Project Cost Information:		Year of Expenditure (YOE) Project Cost Information:				
Preliminary Engineering	\$196,289	Fund Cat	Federal	State	Local	Total
ROW Purchase:	\$0	10-MISC	\$3,204,720	\$801,180	\$0	\$4,005,900
Construction Engineering:	\$2,040,354	ARRA	\$30,000,000	\$0	\$0	\$30,000,000
Construction Cost:	\$34,005,900	YOE Cost: \$33,204,720 \$801,180 \$0 \$34,005,900				
Contingencies:	\$2,380,413					
Indirect Costs:	\$138,204					
Total Project Cost:	\$38,761,160					

HOUSTON-GALVESTON MPO
2008-2011 TRANSPORTATION IMPROVEMENT PROGRAM
AMENDMENT #134

Amendment Type		
<input checked="" type="checkbox"/> Administrative Action	<input type="checkbox"/> TPC Action	<input type="checkbox"/> Emergency
<input checked="" type="checkbox"/> STIP Revision	<input type="checkbox"/> Public Meeting Needed	

Purpose of Amendment:

Split out CSJ 0271-06-110 from CSJ 3510-05-903 (MPO #10591). Fund CSJ 0271-06-110 with earmark funds less rescission and ARRA funds. Move CSJ 3510-05-903 to FY 2011; split out two additional direct connectors into CSJ 3510-05-906 and move to Short Range. Original Economic Stimulus Resolution approved limits on SH 99 from IH 10 to US 290; therefore, change limit of Economic Stimulus project CSJ 3510-05-002 to From IH 10 To US 290.

Approved By:

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MPO Director
Houston-Galveston Area Council

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Interim Director of Advanced Transportation Planning
TxDOT, Houston District

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AMENDED TABLE

FY 2010 PROJECTS

COUNTY	SPONSOR	PROJECT DESCRIPTION																																									
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HOUSTON-GALVESTON MPO
 2008-2011 TRANSPORTATION IMPROVEMENT PROGRAM
 AMENDMENT #134

AMENDED TABLE		
<i>FY 2011 PROJECTS</i>		
COUNTY	SPONSOR	PROJECT DESCRIPTION
CSJ NUMBER	STREET	PROJECT LENGTH
MPO ID	FROM LIMIT	EMISSIONS BENEFITS (CMAQ PROJECTS ONLY)
TXDOT DISTRICT	TO LIMIT	
PHASE	LET DATE	
HARRIS	TXDOT HOUSTON DISTRICT	SEG. E: CONSTRUCT 4 DIRECT CONNECTORS (TOLL)
3510-05-903	SH 99	
10591	AT IH 10	0.250 MILES
HOUSTON	.	
C	8/1/2011	
Total Project Cost Information:		Year of Expenditure (YOE) Project Cost Information:
Preliminary Engineering	\$1,470,000	<u>Fund Cat</u>
ROW Purchase:	\$0	<u>Federal</u>
Construction Engineering:	\$1,200,000	<u>State</u>
Construction Cost:	\$30,000,000	<u>Local</u>
Contingencies:	\$1,800,000	<u>Total</u>
Indirect Costs:	\$1,035,000	LOCAL
Total Project Cost:	\$35,505,000	\$0
		\$0
		\$30,000,000
		\$30,000,000
		YOE Cost: \$0 \$0 \$30,000,000 \$30,000,000

HOUSTON-GALVESTON MPO
 2008-2011 TRANSPORTATION IMPROVEMENT PROGRAM
 AMENDMENT #134

ORIGINAL TABLE

FY 2010 PROJECTS

COUNTY	SPONSOR	PROJECT DESCRIPTION
CSJ NUMBER	STREET	PROJECT LENGTH
MPO ID	FROM LIMIT	EMISSIONS BENEFITS (CMAQ PROJECTS ONLY)
TXDOT DISTRICT	TO LIMIT	
PHASE	LET DATE	

HARRIS	TXDOT HOUSTON DISTRICT	SEG. E: CONSTRUCT 4-LANE TOLLWAY WITH NON-CONTINUOUS
3510-05-002	SH 99 SEGMENT E	TWO 2-LANE FRONTAGE ROADS AND INTERCHANGES
328	US 290	
HOUSTON	FRANZ RD	
C	1/1/2010	

Total Project Cost Information:		Year of Expenditure (YOE) Project Cost Information:				
Preliminary Engineering	\$8,869,000	<u>Fund Cat</u>	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
ROW Purchase:	\$45,250,000	10-ARRA	\$181,000,000	\$0	\$0	\$181,000,000
Construction Engineering:	\$23,820,000	LOCAL	\$0	\$0	\$216,000,000	\$216,000,000
Construction Cost:	\$397,000,000					
Contingencies:	\$27,790,000					
Indirect Costs:	\$6,244,500					
Total Project Cost:	\$508,973,500	YOE Cost:	\$181,000,000	\$0	\$216,000,000	\$397,000,000

HARRIS	TXDOT HOUSTON DISTRICT	CONSTRUCT 6 DIRECT CONNECTORS
3510-05-903	SH 99	
10591	AT IH 10	0.250 MILES
HOUSTON	.	
C	7/1/2010	

Total Project Cost Information:		Year of Expenditure (YOE) Project Cost Information:				
Preliminary Engineering	\$2,857,190	<u>Fund Cat</u>	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
ROW Purchase:	\$4,656,225	10-MISC	\$4,000,000	\$1,000,000	\$0	\$5,000,000
Construction Engineering:	\$2,332,400	LOCAL	\$0	\$0	\$53,310,000	\$53,310,000
Construction Cost:	\$58,310,000					
Contingencies:	\$3,498,600					
Indirect Costs:	\$2,011,695					
Total Project Cost:	\$73,666,110	YOE Cost:	\$4,000,000	\$1,000,000	\$53,310,000	\$58,310,000

Appendix B

Site Photographs



Photograph 1 - North of IH 10 looking northwest.



Photograph 2 - North of IH 10 looking north.



Photograph 3 - North of IH 10 looking northeast.



Photograph 4 - South of IH 10 looking southeast.



Photograph 5 - South of IH 10 looking south.



Photograph 6 - South of IH 10 looking southwest.



Photograph 7 – View of Ditch facing east.



Photograph 8 – View of Ditch facing west.



Photograph 9 - View of existing interchange looking southwest from north side of IH 10.



Photograph 10 - View of existing interchange looking southeast from north side of IH 10.



Photograph 11 - View of existing interchange looking northeast from south side of IH 10.



Photograph 12 - View of existing interchange looking northwest from south side of IH 10.

Appendix C

Agency Coordination



MEMORANDUM

TO: 850 File, Various Road Projects, Various CSJs, Various Districts

FROM: Scott Pletka

DATE: September 9, 2009

SUBJECT: Internal review under the First Amended Programmatic Agreement Among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU), and internal review under the Memorandum of Understanding (MOU) Between the Texas Historical Commission and the Texas Department of Transportation

Attached is the list of projects reviewed internally by qualified TxDOT archeologists, appropriate district staff, or a designated representative from a project sponsor from 9/03/09 to 9/09/09. These projects have no potential to cause effects on archeological historic properties or State Archeological Landmarks. As provided under the PA-TU, consultation with the Texas State Historic Preservation Officer is not necessary for these undertakings. As provided under the MOU, the projects do not require review by the Texas Historical Commission.

Signature _____
For FHWA and TxDOT

Date 9-9-2009

Attachment

cc: ETS Data Entry; PM; ENV_ARC; PA File;

ETS

ARCHEOLOGICAL COORDINATION

No Coordination, No Further Work Recommended

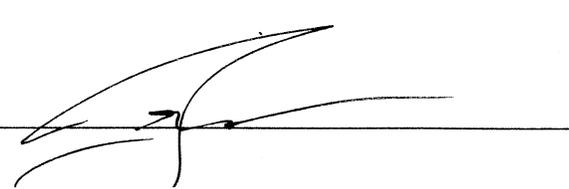
(Section 106 and ANTIQUITIES CODE OF TEXAS)

From : 9/3/2009 To: 9/9/2009

COUNTY	DISTRICT	PROJECT	CSJ	*F30/T20 Concur, no further work	*F10/T10 Unable to Concur
Harris	Houston	SH 99 / IH 10	3510-05-903		
Wharton	Yoakum	FM 2674	2676-01-006		

Number of Projects: 2

Signature
For FHWA and TxDOT



Date 9-9-2009



MEMORANDUM

TO: 850 File, Various Road Projects, Various CSJs, Various Districts

FROM: Scott Pletka, Ph.D.

DATE: September 9, 2009

SUBJECT: Internal review under the First Amended Programmatic Agreement Among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU), and internal review under the Memorandum of Understanding (MOU) Between the Texas Historical Commission and the Texas Department of Transportation

Attached are the lists of projects reviewed internally by qualified TxDOT archeologists from 9/03/09 to 9/09/09. These projects either do not warrant survey as a result of a low probability of encountering archeological historic properties and State Archeological Landmarks, or the projects were inspected by survey or impact evaluation and do not warrant further work. As provided under the PA-TU, consultation with the Texas State Historic Preservation Officer is not necessary for these undertakings. As provided under the MOU, the proposed projects do not require individual coordination with the Texas Historical Commission.

Signature _____
For FHWA and TxDOT

Date 9-9-2009

Attachment

cc: ETS Data Entry; PM; ENV_ARC; PA File;

ETS

ARCHEOLOGICAL COORDINATION

Projects that do not warrant Archeological Survey

(Section 106 and ANTIQUITIES CODE OF TEXAS)

From : 9/3/2009 To: 9/9/2009

COUNTY	DISTRICT	PROJECT	CSJ	*F30/T20 Concur, no further work	*F10/T10 Unable to Concur
Brazos	Bryan	FM 2154 & UPRR	0540-04-062		
Collin	Dallas	SH 289	0091-04-054		
Harris	Houston	SH 146	0389-13-052		
Harris	Houston	North Wayside Drive	0912-72-051		

Number of Projects: 4

Signature _____
For FHWA and TxDOT

Date 9-9-2009



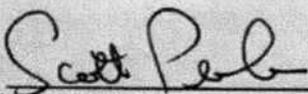
MEMORANDUM

TO: 850 File, Various Road Projects, Various CSJs, Various Districts

FROM: Scott Pletka, Ph. D. **DATE:** Oct. 11, 2007

SUBJECT: Internal review under the Programmatic Agreement (PA) Among the Federal Highway Administration, Texas Historical Commission, 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

Attached are the lists of projects reviewed internally by qualified TxDOT archeologists from 10/4/2007 to 10/10/2007. These projects either do not warrant survey as a result of no potential to affect archeological historic properties or low probability of encountering archeological historic properties, or they were inspected by survey or impact evaluation, and do not warrant further work. As provided under the First Amended Programmatic Agreement Among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings, consultation with SHPO is not necessary for these undertakings.

Signature 
For FHWA and TxDOT

Date 10/11/2007

Attachment

Cc: Project Management; PA File; Archeologists

ETS

ARCHEOLOGICAL COORDINATION

Projects that do not warrant Archeological Survey

(Section 106 and ANTIQUITIES CODE OF TEXAS)

From : 10/4/2007 To: 10/10/2007

COUNTY	DISTRICT	PROJECT	CSJ	*F30/T20 Concur, no further work	*F10/T10 Unable to Concur
Harris	Houston	IH 10	0271-07-242		
Hopkins	Paris	FM 3236	6166-22-001		
Nueces	Corpus Christi	SH 286	0326-01-053		
Victoria	Yoakum	US 59	0088-05-084		
Wharton	Yoakum	FM 2765	2819-01-006		

Number of Projects: 5

Signature Scott Peck
For FHWA and TxDOT

Date 10/11/2007

Attachment

ETS
ARCHEOLOGICAL COORDINATION
Impact Evaluations, No Further Work Recommended
(Section 106 and ANTIQUITIES CODE OF TEXAS)
From : 10/4/2007 To: 10/10/2007

COUNTY	DISTRICT	PROJECT	CSJ	*F30/T20 Concur, no further work	*F10/T10 Unable to Concur
Duval	Laredo	FM 1329	1982-01-950		
Grayson	Paris	FM 120	0202-08-032		
Hopkins	Paris	CR 557-2	0901-28-072		
Walker	Bryan	CR 405 (local Dipping Vat Rd)	0917-27-020		

Number of Projects: 4

Signature Scott Paul
For FHWA and TxDOT

Date 10/11/2007

Attachment

ETS

ARCHEOLOGICAL COORDINATION

Archeological Surveys, No Further Work Recommended

(Section 106 and ANTIQUITIES CODE OF TEXAS)

From : 10/4/2007 To: 10/10/2007

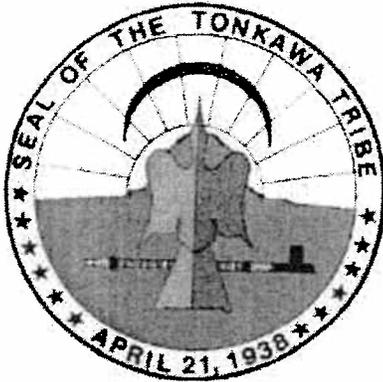
COUNTY	DISTRICT	PROJECT	CSJ	*F30/T20 Concur, no further work	*F10/T10 Unable to Concur
Bexar	San Antonio	US 87	0143-01-049		
Grayson	Paris	FM 120	0202-08-032		
Hopkins	Paris	FM 69	0766-01-022		
Wilbarger	Wichita Falls	US 283	0124-03-052		

Number of Projects: 4

Signature Scott Peck
For FHWA and TxDOT

Date 10/11/2007

Attachment



TONKAWA TRIBE OF OKLAHOMA
**NATIVE AMERICAN GRAVES PROTECTION
AND REPATRIATION ACT**

• 1 RUSH BUFFALO ROAD, TONKAWA, OKLAHOMA 74653 •
• PHONE (580) 628-2561 • FAX: (580) 628-9903 •
WEB SITE: www.tonkawatribe.com



Texas Department of Transportation
Dewitt C. Greer State Highway Bldg.
125 E. 11th Street
Austin Texas 78701-2483

Date: October 2, 2007

Regarding the proposed construction projects listed we submit the following:

Project No. CSJ: 0271-07-292 HOV
Project No. CSJ: 1111-07-008 HOV
Project No. CSJ: 0902-48-708 FTW
Project No. CSJ: 0158-02-060 SJT
Project No. CSJ: 0921-06-190 PHR
Project No. CSJ: 0221-01-058 PAR

Project No. CSJ: 1703-01-011 PHR
Project No. CSJ: 0177-05-108 HOV
Project No. CSJ: 8170-12-001 HOV
Project No. CSJ: 0271-07-242 HOV
Project No. CSJ: 0921-06-189 PHR
Project No. CSJ: 0843-07-012 ATL

Project No. CSJ: 0912-37-131 HOV
Project No. CSJ: 0271-07-281 HOV
Project No. CSJ: 3510-04-022 HOV

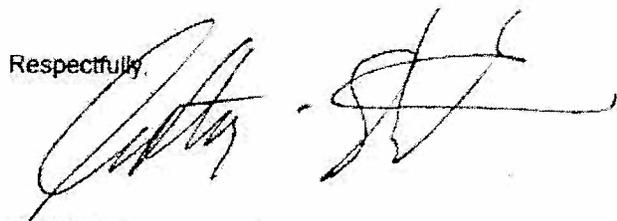
The Tonkawa Tribe has no specifically designated historical or cultural sites identified in any of the above listed project areas. However if any human remains, funerary objects, or other evidence of historical or cultural significance is inadvertently discovered then the Tonkawa Tribe would certainly be interested in proper disposition thereof.

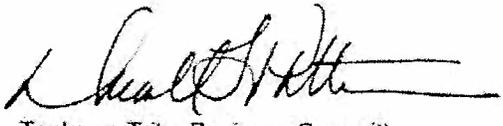
We appreciate notification by your office of the many projects on-going, and as always the Tonkawa Tribe is willing to work with your representatives in any manner to uphold the provisions of NAGPRA to the extent of our capability.

DISTRIBUTION:

Barbara Maley, FHWA ENV Coord
Deanne Simmons, Env Coord, Atlanta District
Judy Anderson, Env Coord, Fort Worth District
Sue Theiss, Env Coord, Houston District
Mike Williams, Env Coord, Paris District
Juan Alcazar, Env Coord, Pharr District
Juan Valera, ENV-PM, Atlanta District
Michelle Skinner, ENV-PM, Fort Worth District
Melissa Neeley, ENV-PM, Houston District
Bryan Phillips, ENV-PM, Paris District
Edd Paradise, ENV-PM, Pharr District
Waldo Troell, ENV-ARCH, Atlanta District
John Arnn, ENV-ARCH, Fort Worth District
Allen Bettis, ENV-ARCH, Houston District
Jason Barrett, ENV-ARCH, Paris District
Scott Pletka, ENV-ARCH, Pharr District
ENV-ARCH Project File
ETS Scan

Respectfully,


NAGPRA Representative


Tonkawa Tribe Business Committee

ence:



Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 462-8585

September 19, 2007

Mr. Ronnie Thomas, Chairperson
Alabama-Coushatta Tribe of Texas
575 State Park Rd 56
Livingston, TX 77351

RE: Texas Department of Transportation Proposed Projects, Houston District:
CSJ: 0271-07-281; Houston Avenue at White Oak Bayou, Bridge Replacement; Harris County
CSJ: 0177-05-108; US 59 at Bens Branch Tributary, Detention Basin; Montgomery County
CSJ: 8170-12-001; Hempstead Highway, Widen and Improve Roadway; Harris County
CSJ: 0271-07-242; IH 10, from IH 610 to Taylor Street, Improve Frontage Roads; Harris County
CSJ: 0912-37-131; Crighton Road, IH 45 to FM 1314, Roadway Widening; Montgomery County
CSJ: 3510-04-022; SH 99, from IH 10 to US 59, Convert to Toll Road; Harris County

Dear Mr. Thomas:

The above referenced transportation projects are being considered for construction by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT). Environmental studies are in the process of being conducted for these projects. The purpose of this letter is to contact you in order to initiate Section 106 consultation with your community pursuant to stipulations of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU). The projects are located in an area that is of interest to your tribe.

CSJ: 0271-07-281; Houston Avenue at White Oak Bayou, Bridge Replacement; Harris County. The proposed project would replace the existing four-lane concrete bridge with another of similar dimensions. The proposed project is approximately 1445 feet in length. The area of potential effects (APE) is the existing 119-foot-wide right of way (ROW). The APE is approximately 3.89 acres in size.

Moore Archeological Consulting, Inc. (MAC), a consultant for the TxDOT Houston District, conducted an intensive survey of the proposed project area. Please find attached for your review and comments the draft report from MAC; A Cultural Resource Survey for a Proposed

THE TEXAS PLAN

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

An Equal Opportunity Employer

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

Bridge Replacement on Harris Avenue at White Oak Bayou, Harris County, Texas. Archival review determined that no previously recorded archeological properties are located within the APE for the proposed project.

The Geologic Atlas of Texas mapped the APE as Pleistocene Beaumont Formation. The Soil Survey of Harris County, Texas depicted the APE within an area mapped as Vamont-Urban land complex. These relict soils have become so inextricably mixed with disturbed urban fill that identification is no longer feasible. The consultant found the APE to be extensively disturbed and no archeological materials were encountered during the intensive survey. Therefore, TxDOT finds that no archeological historic properties (36 CFR 800.16(l)(1)) would be affected by the proposed project and recommends that no further archeological investigation is warranted.

CSJ: 0177-05-108; US 59 at Bens Branch Tributary, Detention Basin; Montgomery County. The proposed project would improve US Highway 59 North (US 59) from Interstate Highway (IH) 45 to State Highway (SH) 105 (Cleveland South Loop) in Montgomery County, Texas, by expanding the existing roadway from four lanes to six lanes and would include constructing grade separations, extending culverts, and replacing main lane bridges and replacing or building frontage road bridges. The proposed project would be approximately 48 miles in length with an existing right of way (ROW) that is typically 360 feet in width.

Since 1988 the proposed project has been subdivided into segments and design changes added. One such segment is between Northpark Road and Farm-to-Market Road (FM) 1314 (CSJ: 0177-05-057) in Montgomery County. This proposed project would widen the roadway, build the southbound frontage roads, ramps, and grade separations. Subsequently split off from this segment was the proposed addition of a detention basin at Bens Branch (CSJ: 0177-05-103). The detention basin is approximately 4.2 acres in size. New ROW would be required for this proposed design change, and was consulted separately under its own Control Section Job number.

Since the time of the most recent consultation, an additional design change has been proposed. A 7.2-acre detention basin has been added to this segment and would be located on the north side of Bens Branch Tributary at US 59 on the east side of the highway. The APE consists of the existing ROW, the proposed ROW, and the depth of construction impact, approximately 30 feet. This particular design change is being coordinated separately under this CSJ number.

The Geologic Atlas of Texas, Beaumont Sheet (Bureau of Economic Geology: 1968, Revised 1992) indicates that the proposed project APE is within an area mapped as Pleistocene Lissie Formation. The Soil Survey of Montgomery County, Texas (USDA-SCS: 1972, Map Sheet 83) indicates that the proposed project APE is within an area mapped as Sorter silt loam and Splendora fine sandy loam. These soils are relict soils originating from the Lissie Formation.

A review of the Texas Archeological Sites Atlas (September 11, 2007) revealed no previously recorded archeological sites, State Archeological Landmarks, State Historic Landmarks, or

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

National Register properties located within or near the proposed project APE. The nearest recorded archeological site is over 1000 meters (3280 feet) beyond the proposed project area.

A review of the Houston Potential Archeological Liability Map (Houston PALM) revealed that the proposed project APE is almost entirely located within an area mapped as Map Unit #4. Houston PALM Map Unit #4 recommends no archeological survey needed. The Houston Historic Overlay has no source maps for this segment on US 59. The 1936 Texas Highway Department Montgomery County Road Map depicts very few or no historic structures in the general area of US 59. At that time, US 59 ran along what is known today as Loop 494, US 59 between Caney Creek and the West Fork of the San Jacinto River is offset today about 0.1 to 0.3 mile west of its former location.

The APE for the detention basin proposed project is located entirely within an area of relict soils, a setting that has very little reasonable probability for intact archeological deposits. Though the design change would require additional ROW, the majority of the existing and proposed ROW is located in settings that have no reasonable probability for archeological deposits. The portion with a probability for the presence of archeological deposits was previously surveyed and no sites were encountered. Therefore, TxDOT recommends that the proposed project does not warrant any further archeological investigation.

CSJ: 8170-12-001; Hempstead Highway, Widen and Improve Roadway; Harris County.
The proposed project would reconstruct and widen Hempstead Highway from Mangum Road to IH 10 in Houston, Harris County, Texas. The project has been divided into three sections: from Mangum Road to 12th Street, from 12th Street to IH 10, and at the Union Pacific Railroad (UPRR) underpass. The proposed project would reconstruct Hempstead Highway from a four-lane undivided arterial to a six-lane arterial with a continuous left-turn lane. The project also includes a pump station, underpass modifications, and a linear detention pond at the UPRR track. Proposed project length is approximately 2.34 miles. New ROW would be required for the proposed project.

The Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology: 1982) indicates that the proposed project APE is mapped as Pleistocene Beaumont Formation. The Soil Survey of Harris County, Texas (USDA-SCS: 1976, Map Sheets 91 & 92) indicates that the proposed project APE is entirely within an area mapped as Urban land.

A check of the Texas Archeological Sites Atlas (September 13, 2007) revealed that no previously recorded archeological sites, State Archeological Landmarks, State Historic Landmarks, or National Register properties are located within the proposed project APE. The closest recorded sites are located along White Oak Bayou to the west of the proposed project APE.

A check of the Houston PALM indicated that the proposed project APE is entirely located within an area mapped as Map Unit #4. Map Unit #4 recommends no archeological survey is necessary.

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

The proposed project APE is located within an area of ancient sediments. The proposed project APE has already been extensively impacted by the construction of the existing roadway, and from extensive residential, and commercial development along the alignment. The soils within the proposed APE have been so heavily impacted by urban development that there is no probability for any intact archeological deposits. Therefore, TxDOT finds that the proposed project would not impact any archeological historic properties (36 CFR 800.16(I)(1)) and recommends that no further archeological investigation is warranted.

CSJ: 0271-07-242; IH 10, from IH 610 to Taylor Street, Improve Frontage Roads; Harris County. The proposed project would extend and reconstruct frontage roads on IH 10 between IH 610 and Taylor Street in Houston, Harris County, Texas. The proposed project also includes construction of a temporary bridge over IH 10 for the UPRR tracks. No new ROW would be acquired for the proposed project; however, a 25-foot temporary construction easement would be needed adjacent to the existing UPRR tracks for the temporary bridge. This temporary easement would extend from the SPCA facility across IH 10 into Memorial Park. The temporary easement in Memorial Park would intentionally remain within a 30-foot-wide CenterPoint Energy aerial easement for high power transmission line towers and the UPRR right of way (ROW). The APE for this undertaking includes the existing ROW, the temporary easement, and the depth of construction impacts, approximately 30 feet.

The Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology: 1982) indicated that the proposed project APE is mapped as Pleistocene Beaumont Formation. The Soil Survey of Harris County, Texas (USDA-SCS: 1976, Map Sheet 91) indicated that the proposed project APE is entirely within an area mapped as Gessner loam and Urban land.

A check of the Texas Archeological Sites Atlas (September 13, 2007) revealed that no previously recorded archeological sites, State Archeological Landmarks, State Historic Landmarks, or National Register properties are located within the proposed project APE. The closest recorded sites are located within Memorial Park (Camp Logan, a World War I [WWI] training installation) approximately 200 meters (656.17 feet) outside the proposed project APE.

A check of the Houston PALM indicated that the proposed project APE is entirely located within an area mapped as Map Unit #2. Map Unit #2 recommends an archeological surface survey is needed.

The proposed project APE is located within an area of ancient sediments. The proposed project APE has been extensively impacted by the construction of the existing roadway and its frontage roads, as well as the extensive amount of urban development in the area. The soils within the existing ROW portion of the APE have been so heavily impacted by urban development that there is no probability for any intact deposits. Although the soil within the temporary easement is not urban land and the Houston PALM recommends a surface survey, this area has also been extensively disturbed by development. The temporary easement area within Memorial Park was cleared during WWI for the construction of Camp Logan, subsequently developed into parkland, and most recently the easement for CenterPoint Energy. The ground surface within the UPRR ROW and the CenterPoint Energy easement has been so extensively disturbed, there is no

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

reasonable probability for intact archeological deposits. Therefore, TxDOT finds that the proposed project has no reasonable potential to affect archeological historic properties (36 CFR 800.16(I)(1)) and recommends that no further archeological investigation is warranted.

CSJ: 0912-37-131; Crighton Road, IH 45 to FM 1314, Roadway Widening; Montgomery County. The proposed project would widen the existing Crighton Road facility from a two-lane undivided roadway to a four-lane divided roadway within a proposed ROW that varies from 120 feet to 265 feet. Existing ROW is 120 feet in width. The proposed project is approximately 2.50 miles in length. The APE consists of the existing ROW, the proposed ROW, and the depth of construction impacts, approximately 30 feet at Stewart's Creek and 3 feet throughout the remainder of the APE.

The Geologic Atlas of Texas (BEG-UT Austin, Beaumont Sheet: 1968, Revised 1992) depicted the APE within an area mapped as Pleistocene Willis Formation and Late Pleistocene Deweyville Formation. The Soil Survey of Montgomery County, Texas (USDA-SCS, Map Sheets 47 & 48: 1972) depicts the proposed project APE within an area mapped as Albany fine sand, Bibb soils, Boy fine sand, Fuquay loamy fine sand, and Splendora fine sandy loam. Minor small areas of Tuckerman loam are associated with the Albany fine sand on stream terraces. These soils perhaps have the best probability for containing archeological historic properties (36 CFR (800.16(I)(1))). A review of the Texas Archeological Sites Atlas (September 17, 2007) revealed no previously recorded archeological sites within or adjacent to the proposed project APE. The Houston PALM depicts the APE as crossing areas mapped as Units #1, #2, and #4. Houston PALM Unit #1 recommends an intensive survey including mechanical trenching. Houston PALM Unit #2 recommends a surface survey only. Houston PALM Unit #4 recommends no survey warranted, and this would involve only a very small area at the easternmost end of the APE. Based on the above information, TxDOT recommends that the proposed project APE warrants an archeological field investigation.

CSJ: 3510-04-022; SH 99, from IH 10 to US 59, Convert to Toll Road; Harris County. The proposed project would construct 12 grade separations (overpass) over the length of Segment D of the Grand Parkway, State Highway (SH) 99, outer loop; between IH 10 and US 59 in Harris and Fort Bend Counties. These 12 overpasses would be tolled to fund their construction. The proposed project would also include construction of the main lane approaches for each of these overpasses. The proposed project is approximately 20.2 miles in length. No new ROW would be required. All work would occur within the current ROW. Buried utilities within the ROW are not expected to be relocated. In May 2003, TxDOT coordinated a 2.1 mile section of SH 99, Segment D in Harris and Fort Bend Counties from Kingsland Boulevard to 0.24 miles south of Highland Knolls Boulevard. That project proposed to construct the main lanes for SH 99 between the existing frontage roads and grade separations at Highlands Knoll and Kingsland Boulevards. All construction remained within the existing 300- to 400-foot-wide TxDOT ROW.

The Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology: 1982) indicated that the proposed project APE is within an area mapped as Pleistocene Lissie and Beaumont Formations and Holocene Alluvium. The Lissie and Beaumont surfaces have negligible potential

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

to contain artifacts dating from demonstrated, culturally relevant periods. The Soil Survey of Fort Bend County, Texas (USDA-SCS: 1960) and the Soil Survey of Harris County, Texas (USDA-SCS: 1976) indicated that the proposed project APE is within an area mapped as Asa fine sandy loam, Asa-Pledger complex, Aris-Gessner complex, Bernard clay loam, Clodine fine sandy loam, Gessner loam, Katy fine sandy loam, Katy-Waller complex, Lake Charles clay, Miller soils, Norwood silt loam, Pledger clay, Roebuck clay, Sandy alluvial land, Sloping alluvial land, and Waller-Katy complex. The Asa soils, Miller soils, Pledger clay, and Alluvial soils are all derived from the deposition of Holocene alluvium and have the best probability for the presence of archeological deposits.

The Houston PALM indicated the proposed project crosses all of the map units. Houston PALM Unit #4 recommends no archeological survey needed. Houston PALM Unit #3a recommends deep mechanical trenching in areas that require deep impacts. Houston PALM Unit #3 recommends mechanical trenching, if impacts below 1 meter are anticipated. Houston PALM Unit #2a recommends surface survey of intact pimple mounds only. Houston PALM Unit #2 recommends an archeological surface survey only. Houston PALM Unit #1 recommends an intensive survey with mechanical trenching for deeply buried archeological materials.

A review of the Texas Archeological Sites Atlas revealed approximately 11 previously recorded archeological sites adjacent to or within the proposed project APE. The nearest recorded archeological sites are located approximately 100 meters (328 feet) to either side of the proposed project APE on either side of the Brazos River. There appear to be approximately 38 recorded sites within 2000 meters (6561.68 feet, or 1.24 miles) of the APE and the Brazos River and another six sites where the APE crosses Buffalo Bayou. In 1990, TxDOT coordinated this project with the Texas Historical Commission (THC). At that time, THC concurred with the TxDOT recommendation that no further archeological work was needed. The proposed project is being reevaluated over the entire length of the APE due to the design change to a tolled roadway for the proposed main lanes and overpasses. Ecological Communications Corporation (EComm) conducted an updated archival study of the APE and recommended that archeological surveys be performed at all overpasses south of FM 1093 and mechanical trenching be included at proposed overpasses on either side of the Brazos River.

The project area is located within an area of ancient soils. The ROW has been completely impacted by the construction of the SH 99 frontage roads and the mechanical grading and contouring of the median. Although pimple mounds do occur in the area, those that may at one time have been present in this area have been obliterated by the construction of SH 99 and utility installations. Because design changes have rendered the previous project coordination as no longer valid, TxDOT recommends that additional archeological investigations be conducted.

According to our Programmatic Agreement under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic properties of cultural or religious significance to your tribe that may be affected by the proposed undertakings. Any comments you may have on the TxDOT recommendations should also be provided. Please provide your comments within 30 days of receipt of this letter. Any comments provided after that time will be addressed to the fullest extent possible. If you do not object that the provided

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

recommendations are appropriate, please sign below to indicate your concurrence. In the event that further investigations by our office disclose the presence of archeological deposits, we will contact your tribe to continue consultation.

Thank you for your attention to this matter. If you have questions, please contact Allen Bettis (TxDOT Archeologist) at 512/416-2747 (email: abettis@dot.state.tx.us) or Scott Pletka (TxDOT Archeology Supervisor) at 512/416-2631 (email: spletk@dot.state.tx.us).

Sincerely,



Lisa J. Hart, Director
Cultural Resources Management Section
Environmental Affairs Division

Concurrence by: _____

Date: _____

Attachments

cc w/attachments: Barbara Maley, Environmental Coordinator FHWA; Sue Theiss, TxDOT Houston District Environmental Coordinator; Melissa Neeley, ENV-PM TxDOT; Allen Bettis, ENV-ARCH TxDOT; ENV-ARCH Project File

cc w/o attachments: ETS Scan

The attached letter was sent to the following tribes on September 19, 2007 :

Mr. Ronnie Thomas, Chairperson
Alabama-Coushatta Tribe of Texas
575 State Park Rd 56
Livingston, TX 77351

Mr. Tarpie Yargee, Chief
Alabama-Quassarte Tribal Town
P.O. Box 187
Wetumka, OK 74883

Ms. Ruth Toahty,
NAGPRA Coordinator
Comanche Nation of Oklahoma
P.O. Box 908
Lawton, OK 73502

Mr. Billy Evans Horse, Chairperson
Kiowa Indian Tribe of Oklahoma
P.O. Box 369
Carnegie, OK 73015

Mr. Mark Chino, President
c/o Holly Houghten
Mescalero Apache Tribe
P.O. Box 227
Mescalero, NM 88340

Mr. Anthony Street, President
Tonkawa Tribe of Indians of Oklahoma
1 Rush Buffalo Rd
Tonkawa, OK 74653



US Department
of Transportation
**Federal Highway
Administration**

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



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

September 19, 2007

Mr. Kevin Sickey, Chairperson
Coushatta Tribe of Louisiana
P.O. Box 99
Elton, LA 70532

RE: Texas Department of Transportation Proposed Projects, Houston District:
CSJ: 0271-07-281; Houston Avenue at White Oak Bayou, Bridge Replacement; Harris County
CSJ: 0177-05-108; US 59 at Bens Branch Tributary, Detention Basin; Montgomery County
CSJ: 8170-12-001; Hempstead Highway, Widen and Improve Roadway; Harris County
CSJ: 0271-07-242; IH 10, from IH 610 to Taylor Street, Improve Frontage Roads; Harris County
CSJ: 0912-37-131; Crighton Road, IH 45 to FM 1314, Roadway Widening; Montgomery County
CSJ: 3510-04-022; SH 99, from IH 10 to US 59, Convert to Toll Road; Harris County

Dear Mr. Sickey:

The above referenced transportation projects are being considered for construction by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT). Environmental studies are in the process of being conducted for these projects. The purpose of this letter is to contact you in order to initiate Section 106 consultation with your community pursuant to stipulations of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU). The projects are located in an area that may be of interest to your tribe.

CSJ: 0271-07-281; Houston Avenue at White Oak Bayou, Bridge Replacement; Harris County. The proposed project would replace the existing four-lane concrete bridge with another of similar dimensions. The proposed project is approximately 1445 feet in length. The area of

**MOVING THE
AMERICAN
ECONOMY**

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

potential effects (APE) is the existing 119-foot-wide right of way (ROW). The APE is approximately 3.89 acres in size.

Moore Archeological Consulting, Inc. (MAC), a consultant for the TxDOT Houston District, conducted an intensive survey of the proposed project area. Please find attached for your review and comments the draft report from MAC; A Cultural Resource Survey for a Proposed Bridge Replacement on Harris Avenue at White Oak Bayou, Harris County, Texas. Archival review determined that no previously recorded archeological properties are located within the APE for the proposed project.

The Geologic Atlas of Texas mapped the APE as Pleistocene Beaumont Formation. The Soil Survey of Harris County, Texas depicted the APE within an area mapped as Vamont-Urban land complex. These relict soils have become so inextricably mixed with disturbed urban fill that identification is no longer feasible. The consultant found the APE to be extensively disturbed and no archeological materials were encountered during the intensive survey. Therefore, TxDOT finds that no archeological historic properties (36 CFR 800.16(l)(1)) would be affected by the proposed project and recommends that no further archeological investigation is warranted.

CSJ: 0177-05-108; US 59 at Bens Branch Tributary, Detention Basin; Montgomery County. The proposed project would improve US Highway 59 North (US 59) from Interstate Highway (IH) 45 to State Highway (SH) 105 (Cleveland South Loop) in Montgomery County, Texas, by expanding the existing roadway from four lanes to six lanes and would include constructing grade separations, extending culverts, and replacing main lane bridges and replacing or building frontage road bridges. The proposed project would be approximately 48 miles in length with an existing right of way (ROW) that is typically 360 feet in width.

Since 1988 the proposed project has been subdivided into segments and design changes added. One such segment is between Northpark Road and Farm-to-Market Road (FM) 1314 (CSJ: 0177-05-057) in Montgomery County. This proposed project would widen the roadway, build the southbound frontage roads, ramps, and grade separations. Subsequently split off from this segment was the proposed addition of a detention basin at Bens Branch (CSJ: 0177-05-103). The detention basin is approximately 4.2 acres in size. New ROW would be required for this proposed design change, and was consulted separately under its own Control Section Job number.

Since the time of the most recent consultation, an additional design change has been proposed. A 7.2-acre detention basin has been added to this segment and would be located on the north side of Bens Branch Tributary at US 59 on the east side of the highway. The APE consists of the existing ROW, the proposed ROW, and the depth of construction impact, approximately 30 feet. This particular design change is being coordinated separately under this CSJ number.

The Geologic Atlas of Texas, Beaumont Sheet (Bureau of Economic Geology: 1968, Revised 1992) indicates that the proposed project APE is within an area mapped as Pleistocene Lissie Formation. The Soil Survey of Montgomery County, Texas (USDA-SCS: 1972, Map Sheet 83) indicates that the proposed project APE is within an area mapped as Sorter silt loam and Splendora fine sandy loam. These soils are relict soils originating from the Lissie Formation.

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

A review of the Texas Archeological Sites Atlas (September 11, 2007) revealed no previously recorded archeological sites, State Archeological Landmarks, State Historic Landmarks, or National Register properties located within or near the proposed project APE. The nearest recorded archeological site is over 1000 meters (3280 feet) beyond the proposed project area.

A review of the Houston Potential Archeological Liability Map (Houston PALM) revealed that the proposed project APE is almost entirely located within an area mapped as Map Unit #4. Houston PALM Map Unit #4 recommends no archeological survey needed. The Houston Historic Overlay has no source maps for this segment on US 59. The 1936 Texas Highway Department Montgomery County Road Map depicts very few or no historic structures in the general area of US 59. At that time, US 59 ran along what is known today as Loop 494, US 59 between Caney Creek and the West Fork of the San Jacinto River is offset today about 0.1 to 0.3 mile west of its former location.

The APE for the detention basin proposed project is located entirely within an area of relict soils, a setting that has very little reasonable probability for intact archeological deposits. Though the design change would require additional ROW, the majority of the existing and proposed ROW is located in settings that have no reasonable probability for archeological deposits. The portion with a probability for the presence of archeological deposits was previously surveyed and no sites were encountered. Therefore, TxDOT recommends that the proposed project does not warrant any further archeological investigation.

CSJ: 8170-12-001; Hempstead Highway, Widen and Improve Roadway; Harris County.
The proposed project would reconstruct and widen Hempstead Highway from Mangum Road to IH 10 in Houston, Harris County, Texas. The project has been divided into three sections: from Mangum Road to 12th Street, from 12th Street to IH 10, and at the Union Pacific Railroad (UPRR) underpass. The proposed project would reconstruct Hempstead Highway from a four-lane undivided arterial to a six-lane arterial with a continuous left-turn lane. The project also includes a pump station, underpass modifications, and a linear detention pond at the UPRR track. Proposed project length is approximately 2.34 miles. New ROW would be required for the proposed project.

The Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology: 1982) indicates that the proposed project APE is mapped as Pleistocene Beaumont Formation. The Soil Survey of Harris County, Texas (USDA-SCS: 1976, Map Sheets 91 & 92) indicates that the proposed project APE is entirely within an area mapped as Urban land.

A check of the Texas Archeological Sites Atlas (September 13, 2007) revealed that no previously recorded archeological sites, State Archeological Landmarks, State Historic Landmarks, or National Register properties are located within the proposed project APE. The closest recorded sites are located along White Oak Bayou to the west of the proposed project APE.

A check of the Houston PALM indicated that the proposed project APE is entirely located within an area mapped as Map Unit #4. Map Unit #4 recommends no archeological survey is necessary.

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CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

The proposed project APE is located within an area of ancient sediments. The proposed project APE has already been extensively impacted by the construction of the existing roadway, and from extensive residential, and commercial development along the alignment. The soils within the proposed APE have been so heavily impacted by urban development that there is no probability for any intact archeological deposits. Therefore, TxDOT finds that the proposed project would not impact any archeological historic properties (36 CFR 800.16(I)(1)) and recommends that no further archeological investigation is warranted.

CSJ: 0271-07-242; IH 10, from IH 610 to Taylor Street, Improve Frontage Roads; Harris County. The proposed project would extend and reconstruct frontage roads on IH 10 between IH 610 and Taylor Street in Houston, Harris County, Texas. The proposed project also includes construction of a temporary bridge over IH 10 for the UPRR tracks. No new ROW would be acquired for the proposed project; however, a 25-foot temporary construction easement would be needed adjacent to the existing UPRR tracks for the temporary bridge. This temporary easement would extend from the SPCA facility across IH 10 into Memorial Park. The temporary easement in Memorial Park would intentionally remain within a 30-foot-wide CenterPoint Energy aerial easement for high power transmission line towers and the UPRR right of way (ROW). The APE for this undertaking includes the existing ROW, the temporary easement, and the depth of construction impacts, approximately 30 feet.

The Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology: 1982) indicated that the proposed project APE is mapped as Pleistocene Beaumont Formation. The Soil Survey of Harris County, Texas (USDA-SCS: 1976, Map Sheet 91) indicated that the proposed project APE is entirely within an area mapped as Gessner loam and Urban land.

A check of the Texas Archeological Sites Atlas (September 13, 2007) revealed that no previously recorded archeological sites, State Archeological Landmarks, State Historic Landmarks, or National Register properties are located within the proposed project APE. The closest recorded sites are located within Memorial Park (Camp Logan, a World War I [WWI] training installation) approximately 200 meters (656.17 feet) outside the proposed project APE.

A check of the Houston PALM indicated that the proposed project APE is entirely located within an area mapped as Map Unit #2. Map Unit #2 recommends an archeological surface survey is needed.

The proposed project APE is located within an area of ancient sediments. The proposed project APE has been extensively impacted by the construction of the existing roadway and its frontage roads, as well as the extensive amount of urban development in the area. The soils within the existing ROW portion of the APE have been so heavily impacted by urban development that there is no probability for any intact deposits. Although the soil within the temporary easement is not urban land and the Houston PALM recommends a surface survey, this area has also been extensively disturbed by development. The temporary easement area within Memorial Park was cleared during WWI for the construction of Camp Logan, subsequently developed into parkland, and most recently the easement for CenterPoint Energy. The ground surface within the UPRR ROW and the CenterPoint Energy easement has been so extensively disturbed, there is no reasonable probability for intact archeological deposits. Therefore, TxDOT finds that the

Re: Section 106 Consultation, National Historic Preservation Act;
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CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
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CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

proposed project has no reasonable potential to affect archeological historic properties (36 CFR 800.16(I)(1)) and recommends that no further archeological investigation is warranted.

CSJ: 0912-37-131; Crighton Road, IH 45 to FM 1314, Roadway Widening; Montgomery County. The proposed project would widen the existing Crighton Road facility from a two-lane undivided roadway to a four-lane divided roadway within a proposed ROW that varies from 120 feet to 265 feet. Existing ROW is 120 feet in width. The proposed project is approximately 2.50 miles in length. The APE consists of the existing ROW, the proposed ROW, and the depth of construction impacts, approximately 30 feet at Stewart's Creek and 3 feet throughout the remainder of the APE.

The Geologic Atlas of Texas (BEG-UT Austin, Beaumont Sheet: 1968, Revised 1992) depicted the APE within an area mapped as Pleistocene Willis Formation and Late Pleistocene Deweyville Formation. The Soil Survey of Montgomery County, Texas (USDA-SCS, Map Sheets 47 & 48: 1972) depicts the proposed project APE within an area mapped as Albany fine sand, Bibb soils, Boy fine sand, Fuquay loamy fine sand, and Splendora fine sandy loam. Minor small areas of Tuckerman loam are associated with the Albany fine sand on stream terraces. These soils perhaps have the best probability for containing archeological historic properties (36 CFR (800.16(I)(1))). A review of the Texas Archeological Sites Atlas (September 17, 2007) revealed no previously recorded archeological sites within or adjacent to the proposed project APE. The Houston PALM depicts the APE as crossing areas mapped as Units #1, #2, and #4. Houston PALM Unit #1 recommends an intensive survey including mechanical trenching. Houston PALM Unit #2 recommends a surface survey only. Houston PALM Unit #4 recommends no survey warranted, and this would involve only a very small area at the easternmost end of the APE. Based on the above information, TxDOT recommends that the proposed project APE warrants an archeological field investigation.

CSJ: 3510-04-022; SH 99, from IH 10 to US 59, Convert to Toll Road; Harris County. The proposed project would construct 12 grade separations (overpass) over the length of Segment D of the Grand Parkway, State Highway (SH) 99, outer loop, between IH 10 and US 59 in Harris and Fort Bend Counties. These 12 overpasses would be tolled to fund their construction. The proposed project would also include construction of the main lane approaches for each of these overpasses. The proposed project is approximately 20.2 miles in length. No new ROW would be required. All work would occur within the current ROW. Buried utilities within the ROW are not expected to be relocated. In May 2003, TxDOT coordinated a 2.1 mile section of SH 99, Segment D in Harris and Fort Bend Counties from Kingsland Boulevard to 0.24 miles south of Highland Knolls Boulevard. That project proposed to construct the main lanes for SH 99 between the existing frontage roads and grade separations at Highlands Knoll and Kingsland Boulevards. All construction remained within the existing 300- to 400-foot-wide TxDOT ROW.

The Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology: 1982) indicated that the proposed project APE is within an area mapped as Pleistocene Lissie and Beaumont Formations and Holocene Alluvium. The Lissie and Beaumont surfaces have negligible potential to contain artifacts dating from demonstrated, culturally relevant periods. The Soil Survey of Fort Bend County, Texas (USDA-SCS: 1960) and the Soil Survey of Harris County, Texas (USDA-SCS: 1976) indicated that the proposed project APE is within an area mapped as Asa fine

Re: Section 106 Consultation, National Historic Preservation Act;
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A review of the Texas Archeological Sites Atlas revealed approximately 11 previously recorded archeological sites adjacent to or within the proposed project APE. The nearest recorded archeological sites are located approximately 100 meters (328 feet) to either side of the proposed project APE on either side of the Brazos River. There appear to be approximately 38 recorded sites within 2000 meters (6561.68 feet, or 1.24 miles) of the APE and the Brazos River and another six sites where the APE crosses Buffalo Bayou. In 1990, TxDOT coordinated this project with the Texas Historical Commission (THC). At that time, THC concurred with the TxDOT recommendation that no further archeological work was needed. The proposed project is being reevaluated over the entire length of the APE due to the design change to a tolled roadway for the proposed main lanes and overpasses. Ecological Communications Corporation (EComm) conducted an updated archival study of the APE and recommended that archeological surveys be performed at all overpasses south of FM 1093 and mechanical trenching be included at proposed overpasses on either side of the Brazos River.

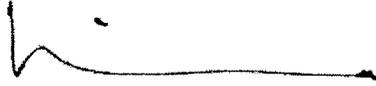
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According to our procedures and at the request of the FHWA under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic properties of cultural or religious significance to your tribe that may be affected by the proposed undertakings. Any comments you may have on the TxDOT recommendations should also be provided. Please provide your comments within 30 days of receipt of this letter. Any comments provided after that time will be addressed to the fullest extent possible. If you do not object that the provided recommendations are appropriate, please sign below to indicate your concurrence. In the event that further investigations by our office disclose the presence of archeological deposits, we will contact your tribe to continue consultation.

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Projects, Houston District
CSJ: 0271-07-281, Harris County; CSJ: 0177-05-108, Montgomery County;
CSJ: 8170-12-001, Harris County; CSJ: 0271-07-242, Harris County;
CSJ: 0912-37-131, Montgomery County; CSJ: 3510-04-022, Harris County

Thank you for your attention to this matter. If you have questions, please contact Allen Bettis (TxDOT Archeologist) at 512/416-2747 (email: abettis@dot.state.tx.us) or Scott Pletka (TxDOT Archeology Supervisor) at 512/416-2631 (email: spletka@dot.state.tx.us).

Sincerely,



Lisa J. Hart, Director
Cultural Resources Management Section
Environmental Affairs Division

Concurrence by: _____

Date: _____

Attachments

cc w/attachments: Barbara Maley, Environmental Coordinator FHWA; Sue Theiss, TxDOT Houston District Environmental Coordinator; Melissa Neeley, ENV-PM TxDOT; Allen Bettis, ENV-ARCH TxDOT; ENV-ARCH Project File

cc w/o attachments: ETS Scan

The attached letter was sent to the following tribes on September 19, 2007 .

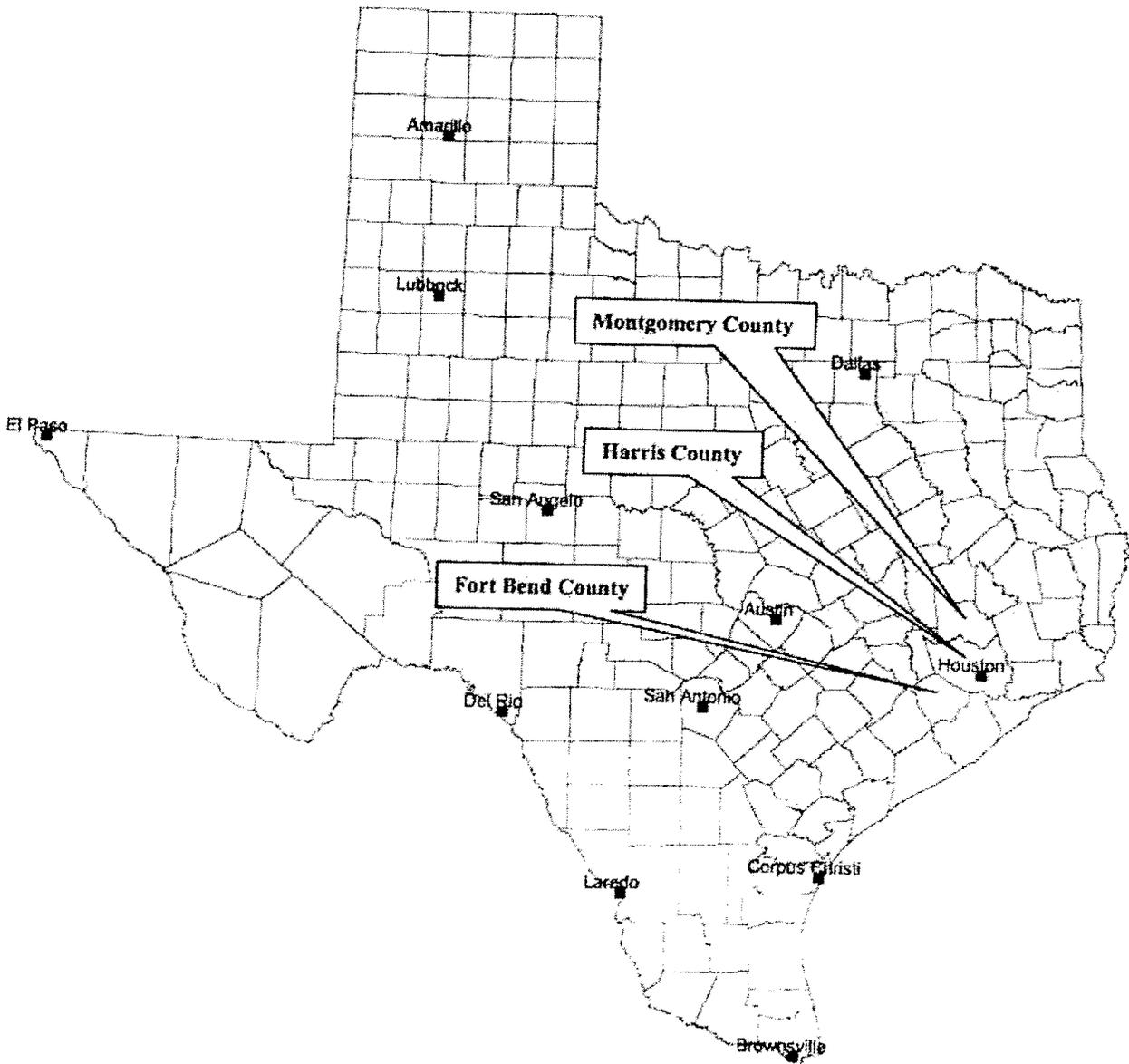
Mr. Kevin Sickey, Chairperson
Coushatta Tribe of Louisiana
P.O. Box 99
Elton, LA 70532

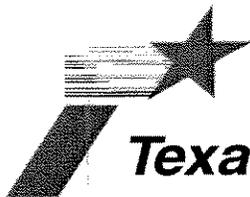
County Location Map

County: Fort Bend, Harris, and Montgomery

Project CSJ: 3510-04-022, 0271-07-281, 0177-05-108, 8170-12-001, 0271-07-242, 0912-37-131

Project Name: SH 99 (Grand Parkway) - Segment D, Houston Avenue @ White Oak Bayou, US 59 at Bens Branch Tributary (detention basin), Hempstead Highway Detention Basin, IH 10: IH 610 to Taylor Street, Crighton Road: IH 45 to FM 1314





Texas Department of Transportation

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

August 19, 2008

Section 106/Antiquities Code of Texas: Review and Comments (Permit #4915)
State Highway (SH) 99 (Segment D) Expansion Project (CSJ: ~~0177-14-001 & 0177-15-003~~)
Houston District; Harris and Fort Bend Counties *3510-04-022*

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

Dear Dr. Bruseth:

The proposed project will be undertaken with Federal funding. In accordance with Section 106 and the First Amended Programmatic Agreement among the Texas Department of Transportation (TxDOT), the Texas State Historical Preservation Officer (TSHPO), the Federal Highway Administration (FHWA), and the Advisory Council on Historic Preservation and the Antiquities Code of Texas and the Memorandum of Understanding between the Texas Historical Commission (THC) and TxDOT, this letter continues consultation for the proposed undertaking.

The proposed project would construct 12 grade separations (overpass) over the length of Segment D of the Grand Parkway, State Highway (SH) 99, outer loop; between Interstate Highway (IH) 10 and US Highway (US) 59 in Harris and Fort Bend Counties. These 12 overpasses would be tolled to fund their construction. Also included is the construction of the mainlane approaches for each of these overpasses. The proposed project is approximately 20.2 miles in length. No new right-of-way (ROW) would be acquired; all work would remain within the current ROW, previously acquired in 1987. Buried utilities within the ROW are not expected to be relocated. Previously, a 2.1 mile section of SH 99, Segment D in Harris and Fort Bend Counties from Kingsland Boulevard to 0.24 miles south of Highland Knolls Boulevard was assessed by TxDOT archeologists. The project proposed was to construct the main-lanes for SH 99 between the existing frontage roads and grade-separations at Highlands Knoll and Kingsland Boulevards. All construction remained within the existing 300-400 ft. wide TxDOT ROW. TxDOT coordinated this 2.1 mile segment in May 2003. SHPO concurred with the TxDOT recommendation for no survey warranted in May 2003.

The Environmental Communications Corporation (EComm), a consultant for the Houston District, conducted a background review and an intensive survey (under Permit #4915) for the proposed project. No archeological historic properties, State Archeological Landmarks, State

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INCREASE THE VALUE OF OUR TRANSPORTATION ASSETS

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Historical Landmarks, nor properties eligible for listing on the National Record of Historic Places have been recorded within the APE of this proposed project. The Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology: 1982) indicates that the proposed project APE is within an area mapped as Pleistocene Lissie and Beaumont Formations and Holocene Alluvium. The Lissie and Beaumont surfaces have negligible potential to contain artifacts dating from demonstrated, culturally relevant periods. The Soil Survey of Fort Bend County, Texas (USDA-SCS: 1960) and the Soil Survey of Harris County, Texas (USDA-SCS: 1976) indicates that the proposed project APE is within an area mapped as Asa fine sandy loam, Asa-Pledger complex, Aris-Gessner complex, Bernard clay loam, Clodine fine sandy loam, Gessner loam, Katy fine sandy loam, Katy-Waller complex, Lake Charles clay, Miller soils, Norwood silt loam, Pledger clay, Roebuck clay, Sandy alluvial land, Sloping alluvial land, and Waller-Katy complex. The Asa soils, Miller soils, Pledger clay, and Alluvial soils are all derived from the deposition of Holocene alluvium and have the best potential to contain prehistoric or historic-age Native American archeological materials.

The Houston Potential Archeological Liability Map (PALM) indicates the proposed project crosses all of the PALM map units. PALM Unit #4, recommended no archeological survey needed. PALM Unit #3a recommended deep mechanical trenching if deep impacts are anticipated. PALM Unit #3 recommended mechanical trenching if impacts below 1 meter are anticipated. PALM Unit #2a recommended surface survey of intact pipe mounds only. PALM Unit #2 recommended an archeological surface survey only. PALM Unit #1 recommended an intensive survey with mechanical trenching for deeply buried archeological materials.

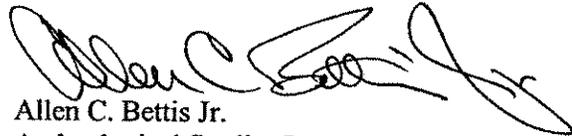
Review of the archeological database on the Texas Historical Commission's Texas Archeological Sites Atlas revealed approximately 11 archeological properties that appear to have been recorded adjacent to or within the proposed project APE. The nearest recorded archeological sites are located approximately 100 meters to either side of the proposed project APE on either side of the Brazos River. There appears to be approximately 38 recorded sites within 2,000 meters of the APE and the Brazos River and another six where the APE crosses Buffalo Bayou. TxDOT previously coordinated this project with THC in 1990. THC concurred with the TxDOT recommendation that no further archeological work is needed. Project is being reevaluated over the entire length of the APE due to the design change to a tolled roadway for the proposed mainlanes and overpasses. Ecological Communications Corporation (EComm) conducted an updated archival study of the APE and recommended that archeological surveys should be performed at all overpasses south of Farm-to-Market Road 1093 and mechanical trenching be included at proposed overpasses on either side of the Brazos River. Based on the on above model, EComm recommended that an archeological survey was warranted. TxDOT agreed with EComm's conclusions and recommended that additional archeological investigations were required.

Please find attached for your review and comments the draft report from EComm; *An Archeological Survey along SH 99 from Franz Road in Katy to US 59 in Sugar Land, Harris and Fort Bend Counties, Texas*. TxDOT recommends that the report is satisfactory and acceptable;

EComm has already responded to TxDOT's comments and have made the appropriate changes for the final report. If you have no objections to or comments on this report and find it acceptable, please sign below to indicate your concurrence and stamp the draft cover as acceptable.

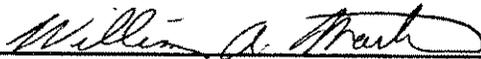
Thank you for your consideration in this matter. If you have any questions or further need of assistance, please contact Allen Bettis of the TxDOT Archeological Studies Program at (512) 416-2747.

Sincerely,



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

cc w/o attachments: Rachel Feit – EComm, Austin
Susan Theiss – Houston District APD
ACB KKC PA File



Concurrence:
for F. Lawrence Oaks, State Historic Preservation Officer

8/21/08
Date/

**AN ARCHEOLOGICAL SURVEY ALONG
SH 99 FROM FRANZ ROAD IN KATY TO US 59
IN SUGAR LAND**

**HARRIS AND FORT BEND COUNTIES, TEXAS
CSJ# 3510-04-022**

Written by:
Daniel J. Rose
D. Emory Worrell

Principal Investigator:
Rachel Feit

Prepared by:
Ecological Communications Corporation

DRAFT REPORT ACCEPTABLE	
Please submit 20 final report copies	
by <u><i>Melissa A. [Signature]</i></u>	Prepared for: TCB, Inc. & TxDOT- Houston District
for F. Lawrence Oaks State Historic Preservation Officer	
Date <u><i>8/21/08</i></u>	
Track# _____	

Antiquities Permit #4915

August 2008



MEMORANDUM

SCANNED

TO: Project Management 850 File
District: Houston
County: Harris and Fort Bend
CSJ#: 3510-04-022
Highways: SH 99
Limits: From IH 10 to US 59
Project Description: Stipulation VI, Appendix 4: Construction of 12 Overpasses; Reevaluation for Tolling; No new ROW required

FROM: Mark Barron
DATE: September 3, 2008
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.

Segment D of Grand Parkway extends 20.0 miles from US 59 in Fort Bend County to Franz Road in Harris County. An EA was completed for Segment D in October 1987. Segment D has been open to the public since 1994. An additional EA was completed in January 2004, which evaluated the construction of previously approved grade separations (overpasses) at Highland Knolls Boulevard and Kingsland Boulevard and the approaching main lanes.

The 12 overpasses that are the subject of the proposed project were not built in 1994 because funding was not available. At-grade frontage roads at fifteen intersections were constructed. Although traffic presents a need for the construction of the 12 overpasses, no funding is available in the foreseeable future for construction. The purpose of tolling the proposed 12 overpasses is to allow a faster way to finance construction, supplement limited highway funds, and address transportation needs sooner. The required ROW for the completion of the proposed 12 overpasses has already been acquired and no further ROW would be required for implementation.

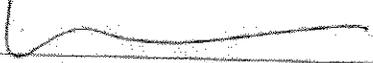
A review of the National Register of Historic Places (NRHP) the list of State Archeological Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL) indicated that no historically significant resources have been previously documented within the area of potential effects (APE). Because the 12 scheduled overpasses would be grade separations, it has been determined through consultation with the State Historic Preservation Officer (SHPO) that the APE for the proposed project is 150 feet beyond the existing ROW boundaries. A site visit conducted by a TxDOT certified historian revealed that there are 2 historic-age resources within the project APE (see attached report). These two historic-age resources are identified as Resources 1A and 1B, a c. 1960 Church with an associated cemetery (c. 1915 to the present) and Resource 2, cluster of mid-twentieth century agricultural buildings. TxDOT Historians have determined the identified resources to be **not eligible** for inclusion within the National Register of Historic Places (NHRP).

These resources do not have associations with significant historical figures or events. Resource 1A is identified as a c. 1960 wood frame Church with a front gable and triangular portico. The Church building represents a common vernacular religious building often seen in rural areas. It does not display significant characteristics of type, period, method of construction, work of a master, or high artistic value. Resource 1B is identified as a cemetery associated with the c. 1960 Church. The cemetery dates to at least 1915 based on an analysis of headstone dates. The cemetery does not meet the eligibility requirements outlined under Special Criterion D. The cemetery does not contain graves of persons of transcendent importance and does not represent the work of a master landscape planner.

September 3, 2008

or designer. Furthermore, the cemetery is not of great age in relation to the surrounding geographical area. Resource #2 is identified as a horse pen, fodder shed, and stable. The agricultural buildings are simple utilitarian structures covered in wood siding and pieces of corrugated metal that lack architectural or engineering significance.

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 have determined no historic properties are present within the proposed project's APE and individual project coordination with SHPO is not required.

Approved by  for TxDOT 9/4/08
Lisa Hart Date

Lead Reviewer  for TxDOT 9-4-08
Lead Reviewer's Initials Date

MAB
Attachment:
Cc w/out attachment: Lance Olenius; Houston District; ENV Reading File;
Cc w/ attachment: THC; ENV-HIST

Appendix D
Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Grand Parkway at IH 10 Direct Connectors City/County: Harris Sampling Date: 10/16/09
 Applicant/Owner: Texas Department of Transportation State: TX Sampling Point: DP 1
 Investigator(s): L. Martinez and A. Orlando Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0-3
 Subregion (LRR or MLRA) LRR - T Lat: 29.786345 Long: -95.776571 Datum: NAD 83
 Soil Map Unit Name: Katy fine sandy loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This data point did not meet the criteria to be considered a wetland. Please refer to Exhibit E for the location of DP 1.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? (includes capillary fringe) Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Wetland hydrology was not observed at this data point.	

VEGETATION – Use scientific names of plants.

Sampling Point: DP 1

<u>Tree Stratum</u> (Plot sizes: <u>30-ft. radius</u>)	<u>Absolute % Cover</u>	<u>Dominant Species</u>	<u>Indicator Status</u>	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
Total Cover: _____				
<u>Sapling Stratum</u> (<u>15-ft. radius</u>)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
6. _____				UPL species _____ x 5 = _____
7. _____				Column Totals: _____ (A) _____ (B)
Total Cover: _____				Prevalence Index = B/A = _____
<u>Shrub Stratum</u> (<u>15-ft. radius</u>)				Hydrophytic Vegetation Indicators:
1. _____				_____ Dominance Test is >50%
2. _____				_____ Prevalence Test is ≤3.0 ¹
3. _____				_____ Problematic Hydrophytic Vegetation ¹ (Explain)
4. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____				
6. _____				
7. _____				
Total Cover: _____				Definitions of Vegetation Strata:
<u>Herb Stratum</u> (<u>5-ft. radius</u>)				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
1. <u>Cynodon dactylon</u>	40	Y	FACU+	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
2. <u>Bothriochloa ischaemum</u>	30	Y	UPL	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
3. <u>Mimosa strigillosa</u>	10	N	FAC	Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
4. _____				Woody vine – All woody vines, regardless of height.
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
Total Cover: <u>80</u>				
<u>Woody Vine Stratum</u> (<u>30-ft. radius</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
Remarks: (If observed, list morphological adaptations below). This data point did not contain a predominance of hydrophytic vegetation.				

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	7.5 YR 4/3	100					C	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5m Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coastal Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (RLRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA, 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distributed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: The soils observed at this data point were not indicative of hydric conditions.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Grand Parkway at IH 10 Direct Connectors City/County: Harris Sampling Date: 10/16/09
 Applicant/Owner: Texas Department of Transportation State: TX Sampling Point: DP 2
 Investigator(s): L. Martinez and A. Orlando Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-5
 Subregion (LRR or MLRA) LRR - T Lat: 29.78621 Long: -95.777483 Datum: NAD 83
 Soil Map Unit Name: Katy fine sandy loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This data point meets the criteria to be considered a wetland. Please refer to Exhibit E for the location of DP 2.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <u> </u> Surface Water (A1) <u> </u> Water-Stained Leaves (B9) <u>X</u> High Water Table (A2) <u> </u> Aquatic Fauna (B13) <u>X</u> Saturation (A3) <u> </u> Marl Deposits (B15) (LRR U) <u> </u> Water Marks (B1) <u> </u> Hydrogen Sulfide Odor (C1) <u> </u> Sediment Deposits (B2) <u> </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Drift Deposits (B3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Algal Mat or Crust (B4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Iron Deposits (B5) <u> </u> Thin Muck Surface (C7) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Other (Explain in Remarks)	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Sparsely Vegetated Concave Surface (B8) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>3</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Wetland hydrology was observed at this data point.	

VEGETATION – Use scientific names of plants.

Sampling Point: DP 2

<u>Tree Stratum</u> (Plot sizes: <u>30-ft. radius</u>)	<u>Absolute % Cover</u>	<u>Dominant Species</u>	<u>Indicator Status</u>	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
Total Cover: _____				
<u>Sapling Stratum</u> (<u>15-ft. radius</u>)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
6. _____				UPL species _____ x 5 = _____
7. _____				Column Totals: _____ (A) _____ (B)
Total Cover: _____				Prevalence Index = B/A = _____
<u>Shrub Stratum</u> (<u>15-ft. radius</u>)				Hydrophytic Vegetation Indicators:
1. _____				<input checked="" type="checkbox"/> Dominance Test is >50%
2. _____				<input type="checkbox"/> Prevalence Test is ≤3.0 ¹
3. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
4. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____				
6. _____				
7. _____				
Total Cover: _____				Definitions of Vegetation Strata:
<u>Herb Stratum</u> (<u>5-ft. radius</u>)				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
1. <u>Acmella oppositifolia</u>	30	N	NI	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
2. <u>Bothriochloa ischaemum</u>	30	Y	UPL	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
3. <u>Alternanthera philoxeroides</u>	20	Y	OBL	Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
4. <u>Typha latifolia</u>	15	Y	OBL	Woody vine – All woody vines, regardless of height.
5. <u>Cyperus virens</u>	5	N	FACW	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
Total Cover: <u>100</u>				
<u>Woody Vine Stratum</u> (<u>30-ft. radius</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
Remarks: (If observed, list morphological adaptations below). This data point did contain a predominance of hydrophytic vegetation.				

SOIL

Sampling Point: DP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 4/1	97	10YR 5/6	3	C	M	CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5m Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coastal Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (RLRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA, 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distributed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks: The soils observed at this data point were indicative of hydric conditions.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Grand Parkway at IH 10 Direct Connectors City/County: Harris Sampling Date: 10/16/09
 Applicant/Owner: Texas Department of Transportation State: TX Sampling Point: DP 3
 Investigator(s): L. Martinez and A. Orlando Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0-3
 Subregion (LRR or MLRA) LRR - T Lat: 29.786351 Long: -95.777969 Datum: NAD 83
 Soil Map Unit Name: Katy fine sandy loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This data point did not meet the criteria to be considered a wetland. Please refer to Exhibit E for the location of DP 3.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Wetland hydrology was not observed at this data point.	

VEGETATION – Use scientific names of plants.

Sampling Point: DP 3

<u>Tree Stratum</u> (Plot sizes: <u>30-ft. radius</u>)	<u>Absolute % Cover</u>	<u>Dominant Species</u>	<u>Indicator Status</u>	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
Total Cover: _____				
<u>Sapling Stratum</u> (<u>15-ft. radius</u>)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
6. _____				UPL species _____ x 5 = _____
7. _____				Column Totals: _____ (A) _____ (B)
Total Cover: _____				Prevalence Index = B/A = _____
<u>Shrub Stratum</u> (<u>15-ft. radius</u>)				Hydrophytic Vegetation Indicators:
1. _____				_____ Dominance Test is >50%
2. _____				_____ Prevalence Test is ≤3.0 ¹
3. _____				_____ Problematic Hydrophytic Vegetation ¹ (Explain)
4. _____				
5. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____				
7. _____				
Total Cover: _____				Definitions of Vegetation Strata:
<u>Herb Stratum</u> (<u>5-ft. radius</u>)				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
1. <u>Cynodon dactylon</u>	60	Y	FACU+	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
2. <u>Bothriochloa ischaemum</u>	20	Y	UPL	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
3. <u>Paspalum notatum</u>	5	N	FAC	Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
4. _____				Woody vine – All woody vines, regardless of height.
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
Total Cover: <u>85</u>				
<u>Woody Vine Stratum</u> (<u>30-ft. radius</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
Remarks: (If observed, list morphological adaptations below). This data point did not contain a predominance of hydrophytic vegetation.				

SOIL

Sampling Point: DP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 4/3	100					CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5m Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coastal Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (RLRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA, 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distributed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: The soils observed at this data point were not indicative of hydric conditions.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Grand Parkway at IH 10 Direct Connectors City/County: Harris Sampling Date: 10/16/09
 Applicant/Owner: Texas Department of Transportation State: TX Sampling Point: DP 4
 Investigator(s): L. Martinez and A. Orlando Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0-3
 Subregion (LRR or MLRA) LRR - T Lat: 29.784412 Long: -95.777424 Datum: NAD 83
 Soil Map Unit Name: Katy fine sandy loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This data point did not meet the criteria to be considered a wetland. Please refer to Exhibit E for the location of DP 4.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? (includes capillary fringe) Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Wetland hydrology was not observed at this data point.	

VEGETATION – Use scientific names of plants.

Sampling Point: DP 4

<u>Tree Stratum</u> (Plot sizes: <u>30-ft. radius</u>)	<u>Absolute % Cover</u>	<u>Dominant Species</u>	<u>Indicator Status</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
Total Cover: _____				Prevalence Index worksheet: <u>Total % Cover of:</u> _____ <u>Multiply by:</u> _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling Stratum</u> (<u>15-ft. radius</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
Total Cover: _____				Hydrophytic Vegetation Indicators: ____ Dominance Test is >50% ____ Prevalence Test is ≤3.0 ¹ ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Shrub Stratum</u> (<u>15-ft. radius</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
Total Cover: _____				Definitions of Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
<u>Herb Stratum</u> (<u>5-ft. radius</u>)				
1. <u>Bothriochloa ischaemum</u>	50	Y	UPL	
2. <u>Cynodon dactylon</u>	30	Y	FACU+	
3. <u>Mimosa strigillosa</u>	10	N	FAC	
4. <u>Paspalum notatum</u>	5	N	FAC	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
Total Cover: <u>95</u>				
<u>Woody Vine Stratum</u> (<u>30-ft. radius</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
Remarks: (If observed, list morphological adaptations below). This data point did not contain a predominance of hydrophytic vegetation.				

SOIL

Sampling Point: DP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10 YR 4/3	100					CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5m Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coastal Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (RLRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA, 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distributed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: The soils observed at this data point were not indicative of hydric conditions.