

HOUMA-THIBODAUX TO LA 3127 CONNECTION DRAFT ENVIRONMENTAL IMPACT STATEMENT



State Project No. H.005257
FAP No. H.005257



Houma – Thibodaux to LA 3127 Connection
Terrebonne, Lafourche, St. James, and St. John the Baptist
Parishes, Louisiana

Draft Environmental Impact Statement

Submitted Pursuant to 42 U.S.C. 4332(2)(c)

by the
U.S. Department of Transportation, Federal Highway Administration (FHWA)
and the
Louisiana Department of Transportation and Development (LADOTD)

Cooperating Agency:
U.S. Army Corps of Engineers

7/15/15
Date of Approval

N. Ardoin
Louisiana Department of Transportation and Development

7-14-15
Date of Approval

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This project proposes to construct a new four-lane divided, limited access roadway between US Highway 90 (US 90) and Louisiana Highway 3127. The purpose of this project is to improve north-south system linkage between the Houma-Thibodaux area and the Mississippi River corridor and improve emergency and hurricane evacuation within Louisiana's bayou region through the establishment of a functional north-south transportation facility. The proposed freeway would be approximately 22 to 28 miles in length. The study area is located between US 90 and LA 3127 within the part of Louisiana known as the Bayou Region. Four alternatives were evaluated against the purpose and need of the project along with the associated environmental consequences using screening criteria, and documented within the DEIS.

Comments on this draft EIS are due
by
September 14, 2015 and should be
sent to

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EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

Federal Highway Administration

Administrative Action – Environmental Impact Statement (EIS)

Draft EIS Final EIS

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ES.1 DESCRIPTION OF THE PROJECT

The Louisiana Department of Transportation and Development (LADOTD), in cooperation with the Federal Highway Administration (FHWA) have prepared this Draft Environmental Impact Statement (DEIS) to address the environmental impacts of the proposed construction of the approximately 22 to 28 miles of new roadway, from U.S. Highway 90 (US 90) to Louisiana Highway 3127 (LA 3127).

ES.2 HISTORY OF THE HOUMA-THIBODAU TO LA 3127 PROJECT

Since March 1996, the Louisiana Statewide Intermodal Transportation Plan placed the Houma-Thibodaux to Interstate 10 (I-10) Connection in the Tier 3 funding level of projects to pursue. The Tier 3 funding level refers to projects that rely entirely on additional (dedicated) revenues as their source of funding. Existing funding sources, such as State Budgets, and existing transportation revenue sources cannot be used to finance a Tier 3 project.

In 1998, Congress, in the Transportation Equity Act for the 21st Century (TEA-21) noted that their intent for this project (listed as High Priority Project Item 202, LA 024) was to "Construct Houma-Thibodaux to I-10 connector from Gramercy to Houma."

The December 2003 Louisiana Statewide Transportation Plan (LSTP) continued to identify this regional linkage to be of statewide importance, including emphasis on the additional facilitation of moving people during hurricane evacuation that such linkage and improvement to the transportation system would provide. In April 2004, the LADOTD, in cooperation with the FHWA, began the process of developing an EIS with the objective of providing an improved north-south hurricane evacuation route from the Houma-Thibodaux area to I-10 via LA 3127.





ES.3 PROJECT PURPOSE AND NEED

The purpose of the proposed Houma-Thibodaux to LA 3127 connection is to improve north-south system linkage between the Houma-Thibodaux area and the Mississippi River corridor and improve emergency and hurricane evacuation within Louisiana's bayou region through the establishment of a functional north-south transportation facility. The project is proposed to accomplish the following objectives:

- Improve north-south connectivity and mobility between US 90 and LA 3127 through an increase in the number of north-south links;
- Provide north-south system redundancy by identifying alternatives that enable additional options for north-south travel when LA 20 fails;
- Provide improved north-south highway network capacity in the project area;
- Provide a direct, limited access route between the Houma-Thibodaux area and the Mississippi River corridor to improve access to and from the Houma-Thibodaux area; and
- Maximize the efficient use and operation of hurricane evacuation routes by improving system redundancy; decreasing travel time; and providing facility access, capacity, and balanced distribution of evacuation traffic among critical Mississippi River crossings.

The need for the proposed project is based on removal of the following deficiencies.

Inadequate north-south transportation system linkage:

- Existing north-south system linkage between the Houma-Thibodaux area and the Mississippi River corridor is limited to LA 20—a narrow, winding arterial without access management.

Inadequate capacity in the roadway network in the Thibodaux area due to existing unmet travel demand in the north-south direction:

- Existing roadway network has current peak-period congestion and Level of Service (LOS) deficiencies.
- Portions of existing LA 20 show a LOS of E, which is characterized by very poor service, during both peak hours, along with three additional primary roadways (LA 308, LA 1, and LA 70) that have sections currently operating at LOS D, which is characterized by poor service.

Lack of a north-south emergency evacuation route and north-south rerouting opportunities in the Thibodaux area:

- In times of evacuation, the traffic volumes push the roadways far beyond their capacity.

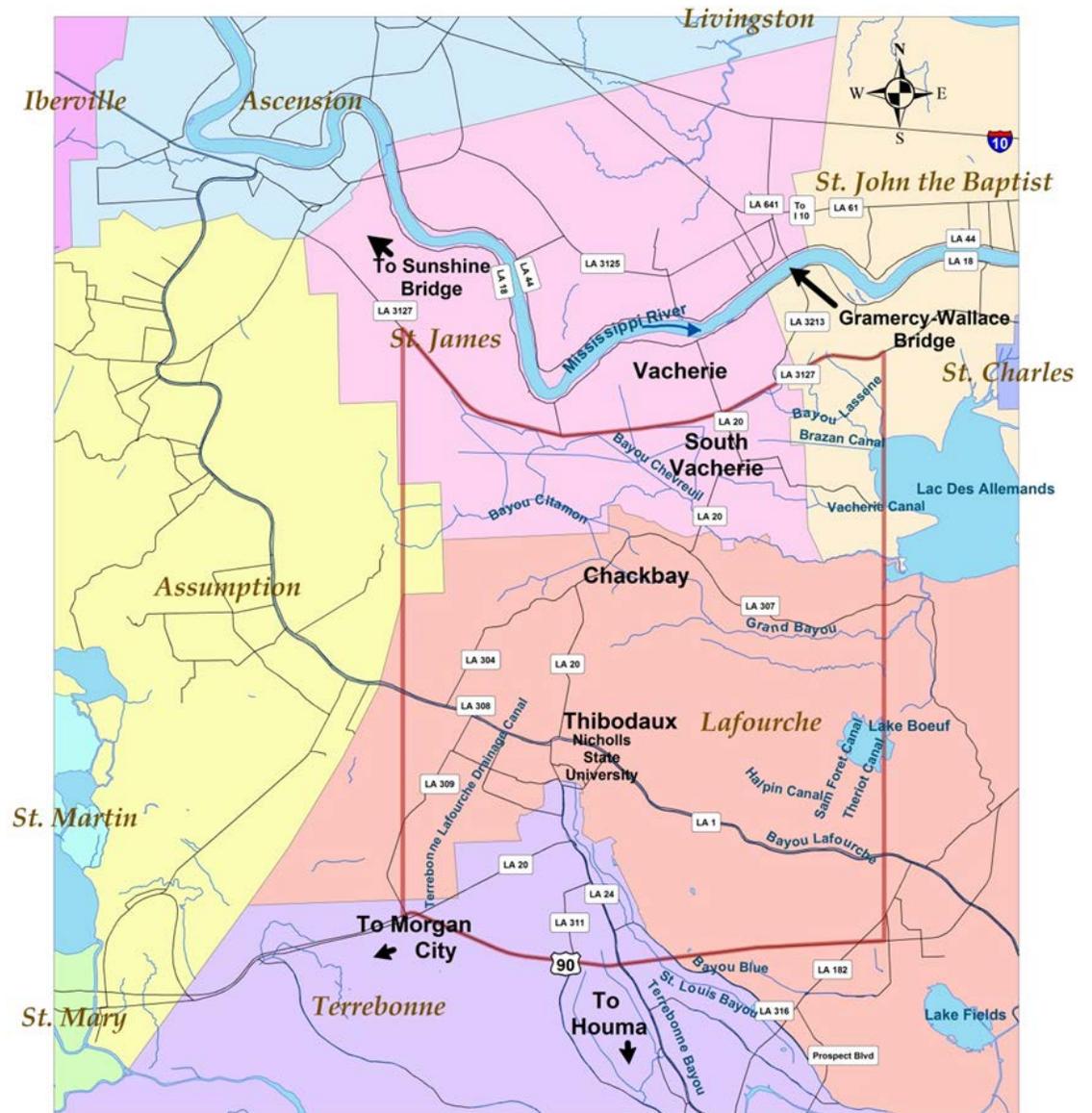
ES.4 AREA OF STUDY FOR THE PROPOSED PROJECT

The study area is located between US 90 and LA 3127 within the part of Louisiana known as the Bayou Region (see **Figure ES-1**). This region is known for its abundance of natural features such as coastal wetlands, bayous, and both natural and man-made waterways. Due to the unique geography of this area, past and present development has mainly occurred near higher elevations and natural ridges. As a result, the roadway network within the study area is very limited and the existing transportation network provides better east-west connectivity than north-south connectivity.

The City of Thibodaux is located at the core of the study area and provides several commercial facilities, residential developments, a major university, and other amenities.



Figure ES-1
Study Area





ES.5 ALTERNATIVES CONSIDERED

The four alternatives selected as the reasonable Build Alternatives are as follows:

Alternative 1 (Western Alignment + North Alignment "A")

Alternative 1 (Western Alignment + North Alignment "A") proposes to connect US 90 and LA 3127 by incorporating existing alignment along LA 311 (Western Alignment as described in Section 3.7.1.1) and LA 20 (Segment North A as described in Section 3.7.1.1) as well as construction on a new location, resulting in a 26.6-mile, four-lane divided roadway. The northern terminus of *Alternative 1 (Western Alignment + North Alignment "A")* will be the intersection of LA 20 and LA 3127 and the southern terminus will be the intersection of LA 311 and US 90.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "B") proposes to connect US 90 and LA 3127 by incorporating existing alignment along LA 311 (Western Alignment as described in Section 3.7.1.1), but will not utilize segment North A as in *Alternative 1 (Western Alignment + North Alignment "A")* to reach LA 3127. Instead, *Alternative 2 (Western Alignment + North Alignment "B")* connects the Western alignment with Segment North B (as described in Section 3.7.1.2) resulting in a 28.8-mile four-lane, divided roadway.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") proposes to connect US 90 and LA 3127 by incorporating existing alignment along LA 316 (Central Alignment as described in Section 3.7.1.3) and LA 20 (Segment North A as described in Section 3.7.1.1) as well as construction on a new location, resulting in a 22.6-mile, four-lane divided roadway. The northern terminus of *Alternative 3 (Central Alignment + North Alignment "A")* will be the intersection of LA 3213 and LA 3127 and the southern terminus will be the intersection of US 90 and LA 316.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") will begin with the Central Alignment (as fully described in Section 3.7.1.3) and connect to segment North B (as fully described in Section 3.7.1.2). The connection of the Central Alignment and segment North B will result in a 24.8-mile, four-lane divided roadway.

Following the evaluation of the reasonable build alternatives against the purpose and need and environmental criteria, selecting a single preferred alternative is the next step. The selection of the recommended preferred alternative will not occur until after public and agency comments on this Draft EIS are fully considered. All four reasonable build alternatives will be presented in public and agency meetings to allow for input from the aforementioned entities. The public and cooperating agencies will be asked to select their desired alternative. Once all the comments, concerns, and suggestions for the preferred alternative have been compiled from the public and cooperating agencies, the reasonable build alternatives will be reevaluated using this input as the basis for any further modifications or adjustments. At this point, the recommended preferred alternative will be selected and brought forward in the Final Environmental Impact Statement.

ES.6 IMPACTS TO THE ENVIRONMENT

Land Use

The predominant land use in all four build alternatives is agricultural use. *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")* are developed along 5 percent of their alignments, with the remaining areas undeveloped as either bottomland or cypress forest. The alignments of *Alternative 3 (Central Alignment + North*



Alignment "A") and *Alternative 4 (Central Alignment + North Alignment "B")* are predominantly undeveloped as bottomland or cypress forest with approximately 10 and 12 percent of land use considered developed, respectively. Percentages for the existing land use of the Build Alternatives are detailed in **Table ES.1**.

**Table ES.1
Percent of Land Use Along Build Alternatives**

Land Use	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Agricultural	52.6%	44.8%	44.0%	42.2%
Bottomland	<1%	<1%	0%	<1%
Cypress Forest	36.3%	52.3%	46.8%	44.9%
Developed	10.4%	3.1%	10.3%	12.2%

As the longest alternative, *Alternative 2 (Western Alignment + North Alignment "B")* has the greatest amount of land and therefore has the potential to have the largest direct impact to land use.

Environmental Justice

Upon completing the environmental justice analysis, the project team determined there is no disproportionately high and adverse human health or environmental impacts on minorities and/or low income populations with any of the new location alternatives. Impacts from any alternative would be similar for all groups regardless of demographic or socioeconomic characteristics of the community.

None of the build alternatives would directly impact any low-income or other protected population groups.

Relocations

Relocations occur when a new location alternative directly impacts a home or business. All of the Reasonable Alternatives for the Houma-Thibodaux to LA 3127 project would directly impact homes and businesses in the study area.

The proposed project will be mostly new alignment through uninhabited areas, with the exception of widening some portions of existing roadways with surrounding residential developments. An effort to minimize required relocations was made during the development of each alternative.

Alternative 1 (Western Alignment + North Alignment "A") could result in the most commercial and residential relocations among all of the alternatives, with a total of 39. This alternative could require 8 commercial and 31 residential relocations.

Alternative 2 (Western Alignment + North Alignment "B") is estimated to lead to the second highest number of relocations, both commercial and residential, among the alternatives, with a total of 36. This alternative could require 7 commercial and 29 residential relocations.

Alternative 3 (Central Alignment + North Alignment "A") could result in 27 commercial and residential relocations. This alternative could require 3 commercial and 24 residential relocations.



Alternative 4 (Central Alignment + North Alignment "B") could result in the fewest number of commercial and residential relocations among the alternatives, with a total of 24. This alternative could require 2 commercial and 22 residential relocations.

These numbers are preliminary and will be verified when the preferred alternative is identified in the Final Environmental Impact Statement (FEIS).

Recreation

There are numerous public parks and recreational facilities located throughout the study area, including 22 publicly-accessible boat ramps accessing the many bayous and canals present in the area. Recreational facilities within the study area that have received Land and Water Conservation Fund (LWCF) grants to date are the Thibodaux City Parks (various) and the Thibodaux Water Reservoir.

No Section 4(f) resources would be impacted or Section 6(f) impacts are anticipated by the implementation of *Alternative 1 (Western Alignment + North Alignment "A")*.

No Section 4(f) resources would be impacted or Section 6(f) impacts are anticipated by the implementation of *Alternative 2 (Western Alignment + North Alignment "B")*.

Alternative 3 (Central Alignment + North Alignment "A") would impact one property that meets the criteria for Section 4(f): Schriever Gym, located in Schriever, La. Schriever, La is located just south of Thibodaux along La 24. Neither the Thibodaux City Parks nor the Thibodaux Water Reservoir is located within or adjacent to the right-of-way (ROW) of this alternative; therefore, no Section 6(f) impacts are anticipated.

Alternative 4 (Central Alignment + North Alignment "B") would, like Alternative 3, impact one property that meets the criteria for Section 4(f): Schriever Gym. Neither the Thibodaux City Parks nor the Thibodaux Water Reservoir is located within or adjacent to the ROW of this alternative; therefore, no Section 6(f) impacts are anticipated.

Historic and Archaeological Resources

In order to refine the data in relation to the four reasonable alternatives, a one-mile buffer was established around each alternative. Research at the Louisiana Division of Historic Preservation concluded that there are six National Register of Historic Places (NRHP) properties within the study area. In addition, some 134 buildings greater than 50 years of age have been recorded previously. In addition, 21 archaeological sites have been recorded in the buffer area.

Alternative 1 (Western Alignment + North Alignment "A") would impact four previously recorded sites (16TR93, 16TR95, 16TR96, and 16LF268) located adjacent to the proposed Alternative 1. Magnolia Plantation (16TR93) is listed on the NRHP. The NRHP eligibility of 16TR95 and 16TR96 has not been determined. Site 16LF268 is considered ineligible for the NRHP. In addition, thirteen buildings greater than 50 years of age have been recorded adjacent to this alternative.

Alternative 2 (Western Alignment + North Alignment "B") would impact four previously recorded sites (16TR93, 16TR95, 16TR96, and 16LF268) located adjacent to the proposed Alternative 1. Magnolia Plantation (16TR93) is listed on the NRHP. The NRHP eligibility of 16TR95 and 16TR96 has not been determined. Site 16LF268 is considered ineligible for the NRHP. In addition, thirteen buildings greater than 50 years of age have been recorded adjacent to this alternative.

Alternative 3 (Central Alignment + North Alignment "A") would impact one site (16TR162) is adjacent to the proposed Alternative. The NRHP eligibility of the site is undetermined. There are also ten buildings greater than 50 years of age recorded adjacent to the alternative.



Alternative 4 (Central Alignment + North Alignment "B") would impact one site (16TR162) is adjacent to the proposed Alternative. The NRHP eligibility of the site is undetermined. There are also ten buildings greater than 50 years of age recorded adjacent to the alternative.

Hazardous Materials

An assessment was performed to identify hazardous material and waste sites that are adjacent to or within the ROW of each new location alternative. No superfund sites are located within the study area. Within the study area the following hazardous materials were identified:

- 1,240 potential regulated sites;
- Four brownfield sites;
- 1,320 oil and gas wells;
- 23 oil fields;
- 256 "Pit Study" sites; and
- 19 petroleum pipelines

A total of 33 regulated sites and other potential contamination sources were identified within or adjacent to the proposed ROW for *Alternative 1 (Western Alignment + North Alignment "A")*. The project area was also studied for sites/facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database but may handle petroleum products. In reviewing the project aerial photography, four gas stations were identified along the alignment. Two of these were listed in the underground storage tank (UST) databases—Hill City Oil Co. and Shop Rite #42 at the intersection of Park Road and LA 20. This alternative was also estimated to impact one petroleum waste pit site and five oil and gas wells.

A total of 25 regulated sites and other potential contamination sources were identified within or adjacent to the proposed ROW for *Alternative 2 (Western Alignment + North Alignment "B")*. The project area was also studied for sites/facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database but may handle petroleum products. In reviewing the project aerial photography and UST databases, two gas stations were identified along the alignment—Hill City Oil Co. and Shop Rite #42 at the intersection of Park Road and LA 20. It was also estimated that this alternative would impact one petroleum waste pit site and four oil and gas wells.

A total of 19 regulated sites and other potential contamination sources were identified within or adjacent to the proposed ROW for *Alternative 3 (Central Alignment + North Alignment "A")*. The project area was also studied for sites and facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database, but may handle petroleum products. In reviewing the project aerial photography, two gas stations were identified as being impacted. These locations were not listed in the UST databases. It was estimated that this alternative would also impact one petroleum waste pit site and five oil and gas wells.

A total of 11 regulated sites and other potential contamination sources were identified within or adjacent to the proposed ROW for *Alternative 4 (Central Alignment + North Alignment "B")*. The project area was also studied for sites/facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database, but may handle petroleum products. It was estimated that this alternative would impact one petroleum waste pit site and four oil and gas wells.

Mitigation of hazardous waste sites impacted by the proposed preferred alignment will vary depending on the type, size, and location of hazardous material sites. Each site would have to be



assessed and if necessary, mitigation would have to be determined according to the issues associated with each site.

Noise

A noise analysis was performed for the study area and completed in accordance to FHWA's 23 CFR 772.15 Procedures for Abatement of Highway Traffic Noise and Construction Noise and LADOTD Highway Traffic Noise Policy. The traffic forecast volumes for the proposed alternatives including major roadways within the study area were taken from the updated *Traffic Analysis (2013) Houma-Thibodaux to I-10 Connection, North-South Corridor, Hurricane Evacuation* (Appendix F). The model was used to forecast the 2032 No-build traffic and 2032 Build traffic for each of the alternatives.

For the 2032 No-build condition, the noise would increase by approximately 1 to 3 A-weighted decibels (dBA) on all sections except LA 20 from US 90 to LA 24, which suggests a 1 dBA decrease. None of these changes reach the impact criterion of an increase of 10 dBA. Hence, the No-build Alternative would result in no adverse impacts.

For *Alternative 1 (Western Alignment + North Alignment "A")* 2032 noise levels may potentially impact four noise receptors to experience noise impacts.

For *Alternative 2 (Western Alignment + North Alignment "B")* 2032 noise levels may potentially impact two noise receptors to experience noise impacts.

For *Alternative 3 (Central Alignment + North Alignment "A")* 2032 noise levels may potentially impact five noise receptors and would definitely impact one noise receptor, to experience noise impacts.

For *Alternative 4 (Central Alignment + North Alignment "B")* 2032 noise levels may potentially impact three noise receptors and would definitely impact one noise receptor, to experience noise impacts.

Air Quality

The project is located in an area that is below the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants; therefore, since the project is located in an attainment area, it is not subject to transportation conformity.

This DEIS includes a basic analysis of the likely Mobile Source Air Toxic (MSAT) emission impacts of the proposed project. The design year Annual Average Daily Traffic (AADT) is projected to be less than 140,000 to 150,000 vehicles per day, which is the FHWA criterion for a qualitative analysis; the project is expected to have low potential MSAT effects. Emissions will likely be lower than present levels in the design year as a result of the U.S. Environmental Protection Agency's (EPA's) national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turn over, Vehicle Miles of Travel (VMT) growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great, even after accounting for VMT growth, that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Farmland

The No-build Alternative would have no effect on farming operations since existing conditions would remain unchanged. Construction of any of the new location alternatives would result in the



direct conversion of farmland to a transportation facility. No farmlands, besides those acquired for ROW, should be rendered un-farmable.

Alternative 1 (Western Alignment + North Alignment "A") would result in the complete loss of 127.07 acres of prime farmland soils from at-grade construction and the partial loss of 34.21 acres of prime farmland soils from the elevated portion of the proposed alternative.

Alternative 2 (Western Alignment + North Alignment "B") would result in the loss of 139.86 acres of prime farmland soils from at-grade construction. Approximately 37.85 acres of prime farmland soils will be partially lost to the elevated portion of the proposed alternative.

Alternative 3 (Central Alignment + North Alignment "A") would result in the complete loss of 52.84 acres of prime farmland soils and the partial loss of 33.44 acres of prime farmland soils.

Alternative 4 (Central Alignment + North Alignment "B") would result in the loss of 65.63 acres of prime farmland soils from at-grade construction. Approximately 37.08 acres of prime farmland soils would be partially lost to the elevated portion of this alternative.

Wetlands

Wetland habitat types observed in the study area include cypress-tupelo swamps, freshwater marsh, shrub-scrub, bottomland hardwoods, agricultural wetlands, and other waters of the U.S. It is anticipated that wetland impacts will result from any of the build alternatives. These impacts will be associated with clearing (all portions), filling (at-grade portions), and shading (elevated portions). Forested wetlands are the most abundant wetland type within the proposed Alternatives. For estimated impacts to wetlands, please see **Table ES.2**.

Table ES.2
Estimated Wetland Impact Types by Alternative

Impact Type	Potential Impacts Per Alternative (acres)			
	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Clearing/Shading - Forested	199.25	238.60	252.81	260.25
Shading - Open Water	1.57	1.58	0.98	0.98
Fill - Forested	0.56	2.64	6.67	8.75
Fill - Open Water	1.97	1.97	0.0	0.0
Total	203.35	244.79	260.46	269.98

Streams

Several streams will be crossed by the proposed project. None of these streams are considered a regulatory floodway.

- *Alternative 1 (Western Alignment + North Alignment "A")* would cross three streams
- *Alternative 2 (Western Alignment + North Alignment "B")* would cross four streams
- *Alternative 3 (Central Alignment + North Alignment "A")* would cross eight streams
- *Alternative 4 (Central Alignment + North Alignment "B")* would cross nine streams



Floodplains

More than 13 miles of the total 26.1 miles of *Alternative 1 (Western Alignment + North Alignment "A")* would be located within the 100-year floodplain, approximately 84 percent of which will have elevated construction.

Nearly 16 miles of the total 28.2 miles of *Alternative 2 (Western Alignment + North Alignment "B")* would be located within the 100-year floodplain, a majority of which (83 percent) will have elevated construction. This alternative would have the most 100-year floodplain acreage (nearly 347 acres) as well as the most at-grade construction (60 acres).

More than 13 miles of the total 22.7 miles of *Alternative 3 (Central Alignment + North Alignment "A")* would be located within the 100-year floodplain, 91 percent of which will have elevated construction. This alternative would have the fewest total acres within the 100-year floodplain, as well as having the fewest at-grade impacts. Only 27.6 acres of 100-year floodplain would be filled by at-grade construction of this alternative.

Almost 16 miles of the total 24.9 miles of *Alternative 4 (Central Alignment + North Alignment "B")* would be located within the 100-year floodplain, 88 percent of which will have elevated construction.

Water Quality and Water Resources

Surface Waters

Surface waters are abundant in the study area and are composed of rivers, lakes, bayous, swamps, fresh marsh, and canals (irrigation, service, and drainage). The predominant water bodies in the study area consist of Bayou Chevreuil, Grand Bayou, Bayou Lafourche, Lac Des Allemands, Lake Boeuf, and Bayou Terrebonne.

Each of the alternatives will have similar impacts on water quality within the study area. The more significant water quality impacts would be temporary and occur during the construction phase of the project. For surface water impacts, see **Table ES.3**.

Table ES.3
Alternatives – Ranking Table*

	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Distance to Impaired Water Body (miles)	0.42(4)	0.42(4)	2.66(1)	2.66(1)
Runoff Volume based on 25-Year 24-Hour Storm Event (gallons)	18,173,258(3)	19,715,038(4)	16,024,686(1)	17,602,375(2)
Potential Relocated National Pollutant Discharge Elimination System (NPDES)	10(4)	9(3)	3(1)	3(1)
Overall Ranking	3.67	3.67	1.00	1.33

* Rankings are in parentheses and based on each route versus the other routes. The rankings are 1 through 4, with 1 representing the highest rank and 4 representing the lowest rank. All three of the individual rankings were averaged to get the Overall Ranking for each build alternative.



Groundwater

There are six wells total within a 150-foot buffer of the four build alternative centerlines. There are two active and three plugged and abandoned wells located within the western portion of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")*; there is one active well located within the northern portion of all four alternatives.

Endangered, Threatened, and other Listed Species

A search of the U.S. Fish and Wildlife Service (USFWS) Threatened and Endangered Species System database¹ provided existing information concerning the potential occurrence of threatened and endangered species, federal species of concern, and candidate species within the study area. As of January 2010, this database identified 11 federally threatened or endangered species that are known to occur or have formerly occurred in the study area (USFWS 2010).

No critical listed species habitat has been identified within the four reasonable alternatives; therefore, this alternative is not anticipated to impact endangered, threatened, or other listed species.

ES.7 COMPARISON OF IMPACTS FOR THE REASONABLE ALTERNATIVES

Table ES.4 on the following page summarizes the benefits and impacts of the Reasonable Alternatives, and provides a comparison of the impacts that each of the Reasonable Alternatives would have on the human and natural environments.

ES.8 REQUIRED GOVERNMENT ACTIONS

The following governmental agencies are involved in review of this project: LADOTD, FHWA, U.S. Army Corps of Engineers (USACE), EPA, U.S. Department of Interior, USFWS, National Oceanic and Atmospheric Administration-National Marine Fisheries Service, U.S. Coast Guard (USCG), U.S. Department of Agriculture, and U.S. Department of Agriculture's Natural Resource Conservation Service. The following types of actions have been, or will be, needed for the proposed project:

- Final EIS preparation, review, and approval by LADOTD and FHWA;
- Section 7 (Endangered Species Act of 1973, as amended) compliance;
- Section 402 (Clean Water Act of 1972, as amended) NPDES permit;
- Section 404 Department of the Army wetland and stream impact permit;
- Coastal Zone Management Act Consistency Determination;
- Section 9 of the Rivers and Harbors Act of 1899 coordination with the USCG; and
- Section 10 of the Rivers and Harbors Act of 1899 compliance.

¹ http://ecos.fws.gov/tess_public/



**Table ES.4
North-South Connector Affected Environment**

	No build	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Length	NA	26.6 miles	28.8 miles	22.6 miles	24.8 miles
Elevated	NA	13	14.6	14.3	15.9
At Grade	NA	13.1	13.6	8.4	9
Total Acreage	NA	1,105.0	1,167.0	975.0	1,038.0
Cost	NA	\$759,692,088	\$842,017,218	\$735,166,806	\$817,317,558
Natural Environment					
Water Quality					
Distance to Impaired Water Body	no add'l impacts	0.42 miles	0.42 miles	2.66 miles	2.66 miles
Runoff Volume based on 25-year 24-hour storm event (gallons)	no add'l impacts	18,173,258	19,715,038	16,024,686	17,602,375
Potential Relocated NPDES Facilities	no add'l impacts	10	9	3	3
Impaired Water Bodies	no add'l impacts	3	3	3	3
Prime Farmland					
Complete Loss	no add'l impacts	127.07 acres	139.86 acres	52.84 acres	65.63 acres
Partial Loss	no add'l impacts	34.21 acres	37.85 acres	33.44 acres	37.08 acres
Agricultural	no add'l impacts	251.06 acres	284.99 acres	163.59 acres	197.52 acres
Vegetation and Habitat					
Built on existing roads	no add'l impacts	6.1 miles	4.8 miles	3.1 miles	4.4 miles
Elevated over forested wetland	no add'l impacts	W-3.9 miles; NA-3.7 miles	W-4 miles; NB-5.4 miles	NA-5.4 miles	NB - 5.4
Built over farmlands	no add'l impacts	no data	NB-2.5 miles	NA-2.5 miles	no data
Invasive Species	no add'l impacts	no ant. impacts	no ant. impacts	no ant. impacts	no ant. impacts
Wild and Scenic Rivers	none	none	none	none	none
Listed Species	none	none	none	none	none
Essential Fish Habitat	none	none	none	none	none
100-yr Floodplain Acreage	no add'l impacts	294.6	346.8	293.5	345.7
Coastal Zone Impacts	no add'l impacts	-	-	-	-
Wetlands (acreage)	no add'l impacts	203.3	244.8	260.5	301.9
Cypress-tupelo swamps	no add'l impacts	88.5	118.6	135.5	165.6
Cypress	no add'l impacts	21.7	21.7	31.9	31.9
Freshwater marsh	no add'l impacts	-	-	-	-
Shrub-scrub	no add'l impacts	0.4	5.9	28.7	34.2
Riverine	no add'l impacts	0.9	1.0	1.0	1.0
Bottomland hardwoods	no add'l impacts	89.2	95.1	63.3	69.3
Farmed wetlands	no add'l impacts	0.6	0.6	N/A	N/A
Lake	no add'l impacts	2.0	2.0	N/A	N/A
Non-Wetland Acreage	no add'l impacts	596.5	615.6	414.5	443.7
Wetland Percentage	no add'l impacts	25.4%	28.5%	38.6%	41.0%
Protected Lands	no add'l impacts	1	1	N/A	N/A
Human Environment					
Relocations	no add'l impacts	39	36	27	24
Commercial	no add'l impacts	8	7	3	2
Residential	no add'l impacts	31	29	24	22
4(f) Properties	no add'l impacts	0	0	1	1
Noise					
Definite	no add'l impacts	0	0	1	1
Potential	no add'l impacts	4	2	5	3
Hazardous Materials Total					
Hazardous Waste Sites	no add'l impacts	23	18	11	6
USTs	no add'l impacts	4	2	2	0
Waste Pits	no add'l impacts	1	1	1	1
Oil and Gas Wells	no add'l impacts	5	4	5	4



ES.9 ENVIRONMENTAL COMMITMENTS

The project team will seek to reduce or limit the negative effects of the project. This will include the development of measures to compensate for environmental damage through replacement or restoration of resources where possible. Environmental commitments will be further developed and refined after the Public Hearing on this DEIS and will be included in the FEIS. As of now, the following environmental commitments have been identified for the project:

Commitments that will be implemented to offset adverse effects of the preferred build alternative would include, but are not limited to, the following:

- Implementation of BMPs during construction of the facility.
- Temporary impacts to jurisdictional wetlands from construction staging areas will be managed by the contractor, who will be required to restore the ground to its natural contour allowing for one complete growing season for natural restoration of vegetation.
- Purchase of wetland banking credits, wetland conservation easements, enhancement, restoration and/or creation of wetlands, or a combination thereof based on USACE, Louisiana, and Arkansas specifications during the Section 404 permit process.
- Another mitigation option to consider would be the possible establishment of wetlands for habitat in the location where both recommended Alternatives parallel LA 20 on an elevated structure. Wetlands could potentially be reestablished after removing part of the LA 20 embankment. However, the viability of this option and limits would need to be investigated further to determine practicability due to potential 4(f) issues along a section of the route.
- Mitigation of adverse stream effects based on the Section 404 permit process.
- An approved compensatory mitigation plan to offset losses of wetland acres will be developed.
- Avoidance of construction during the nesting season of bald eagles should individual nests be sighted within 1,500 feet of the alternative chosen for construction.
- Re-investigation and survey of areas considered potentially suitable habitat for federally-protected species within one year of letting the construction contract for the project.
- Acquisition of ROW will be handled in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Secretary's Policy and Procedure Memorandum No. 48: UST and Contaminated Site Policy.
- All waterway closure requirements are to be coordinated with the Marine Safety Office.
- Warning signs visible to vessel operators will be posted prior to and during all water-related activities.

ES.10 PROJECT COSTS

A preliminary cost estimate was prepared for the purpose of the DEIS. The construction costs were estimated by using projects of a comparable scale as a guide. Since the estimates are only meant to evaluate the alternatives against each other, the values listed within the estimates should be considered as rough estimates. **Table ES.5** outlines the preliminary costs associated with the four reasonable build alternatives.



Table ES.5
Cost Estimate of the Four Reasonable Alternatives

Project	Alternative 1 Cost	Alternative 2 Cost	Alternative 3 Cost	Alternative 4 Cost
Construction Cost	\$581,042,088	\$655,277,218	\$568,186,806	\$641,997,558
Required Right-of-Way	\$110,500,000	\$116,700,000	\$97,500,000	\$103,800,000
Wetlands Mitigation	\$12,750,000	\$14,940,000	\$13,830,000	\$16,170,000
Relocation	\$5,400,000	\$5,100,000	\$5,650,000	\$5,350,000
Design	\$50,000,000	\$50,000,000	\$50,000,000	\$50,000,000
TOTAL COST	\$759,692,088	\$842,017,218	\$735,166,806	\$817,317,558

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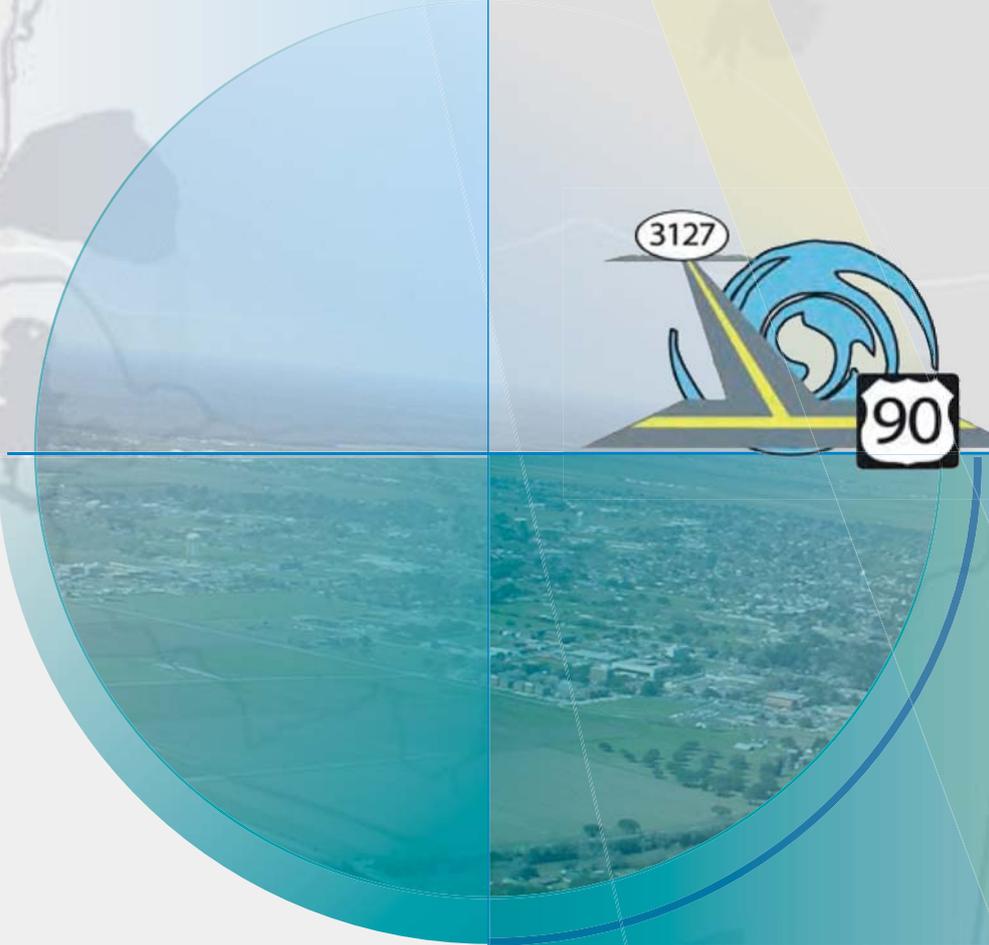


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- Appendix K: Conceptual Relocation Report
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- Appendix M: Wetlands Technical Memorandum
- Appendix N: Agency Involvement
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- Appendix P: Project Newsletters
- Appendix Q: 1999 Hurricane Evacuation Corridor Study

CHAPTER 1. INTRODUCTION



CHAPTER 1. INTRODUCTION

1.1 DESCRIPTION OF THIS DOCUMENT

The Louisiana Department of Transportation and Development (LADOTD), in cooperation with the Federal Highway Administration (FHWA), has prepared this Draft Environmental Impact Statement (DEIS) in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), and FHWA's Environmental Impact and Related Procedures (23 CFR 771).

The Houma-Thibodaux to Louisiana Highway 3127 (LA 3127) DEIS was written in a "reader-friendly" format. This format differs from the traditional Environmental Impact Statement (EIS) format and attempts to meet the needs of professionals, decision-makers, and the public by "telling the story" of the project development process. This document will attempt to engage the reader through the use of question and answer headings, defined terms, and visuals in an easy-to-follow format. Blue call-out boxes can be found throughout the document. These call-out boxes provide the reader with additional information, define words, and/or bring attention to important terms found within the DEIS. The reader will find call out boxes throughout this document that provide additional information, definitions, or important terms in this document.

1.2 PROJECT BACKGROUND

1.2.1 What is the history of the project?

Parish leaders of Lafourche, St. James and Terrebonne along with South Central Planning and Development Commission (SCPDC) met with LADOTD to discuss a new north-south route for their region. Subsequently, the March 1996 Louisiana Statewide Intermodal Transportation Plan placed the Houma-Thibodaux to Interstate 10 (I-10) connection in the Tier 3 funding level of projects to pursue. This proposed project, identified as one of 11 projects throughout the state in this tier, was one of the few projects in the entire plan not consisting of a proposed existing interstate improvement. The plan noted that this facility would provide "vastly improved north-south access and enhanced evacuation capabilities." The plan also noted that, "The major obstacle to this link (i.e., the Mississippi River) has already been overcome through the completion of a new bridge between Gramercy and Wallace."

In 1998, Congress, in the Transportation Equity Act for the 21st Century (TEA-21) noted that their intent for this project (listed as High Priority Project item 202, LA 024) was to "Construct Houma-Thibodaux to I-10 connector from Gramercy to Houma." It is noted that the connection from I-10 via LA 641, and the Gramercy Bridge is in place, and the proposed connection from the Gramercy Bridge to LA 3127 has also been constructed. Because of the above existing infrastructure, the Purpose and Need for this effort is to connect the Houma-

Tier 1 Funding Level relies partially on existing funding sources and partially on additional (dedicated) revenues.

Tier 2 Funding Level relies partially on existing transportation revenue sources but mostly on additional (dedicated) revenues.

Tier 3 Funding Level relies almost entirely on additional (dedicated) revenues.





Thibodaux area north to LA 3127 and the communities of the Mississippi River corridor (including Vacherie) south to the Houma-Thibodaux area.

The December 2003 Louisiana Statewide Transportation Plan (LSTP) continued to identify this regional linkage to be of statewide importance, including emphasis on the additional facilitation of moving people during hurricane evacuation that such linkage and improvement to the transportation system would provide.

In the 2003 LSTP, the implementation of the first two lanes of the proposed Houma-Thibodaux to LA 3127 four-lane facility was classified as a Priority A mega project in funding Scenario 2. According to the Plan, "Priority A mega projects, which scored and ranked high in both the quantitative (travel demand model results) and qualitative (plan goals and objectives) evaluation, were considered highest priority and included in funding Scenario 2." It should be noted that funding Scenario 1 in the LSTP is a status quo scenario in which no new major projects could be constructed with regular trust fund revenue. Only projects earmarked by Congress as High Priority Projects, with additional federal-aid funds provided, such as this project, could be undertaken by LADOTD.

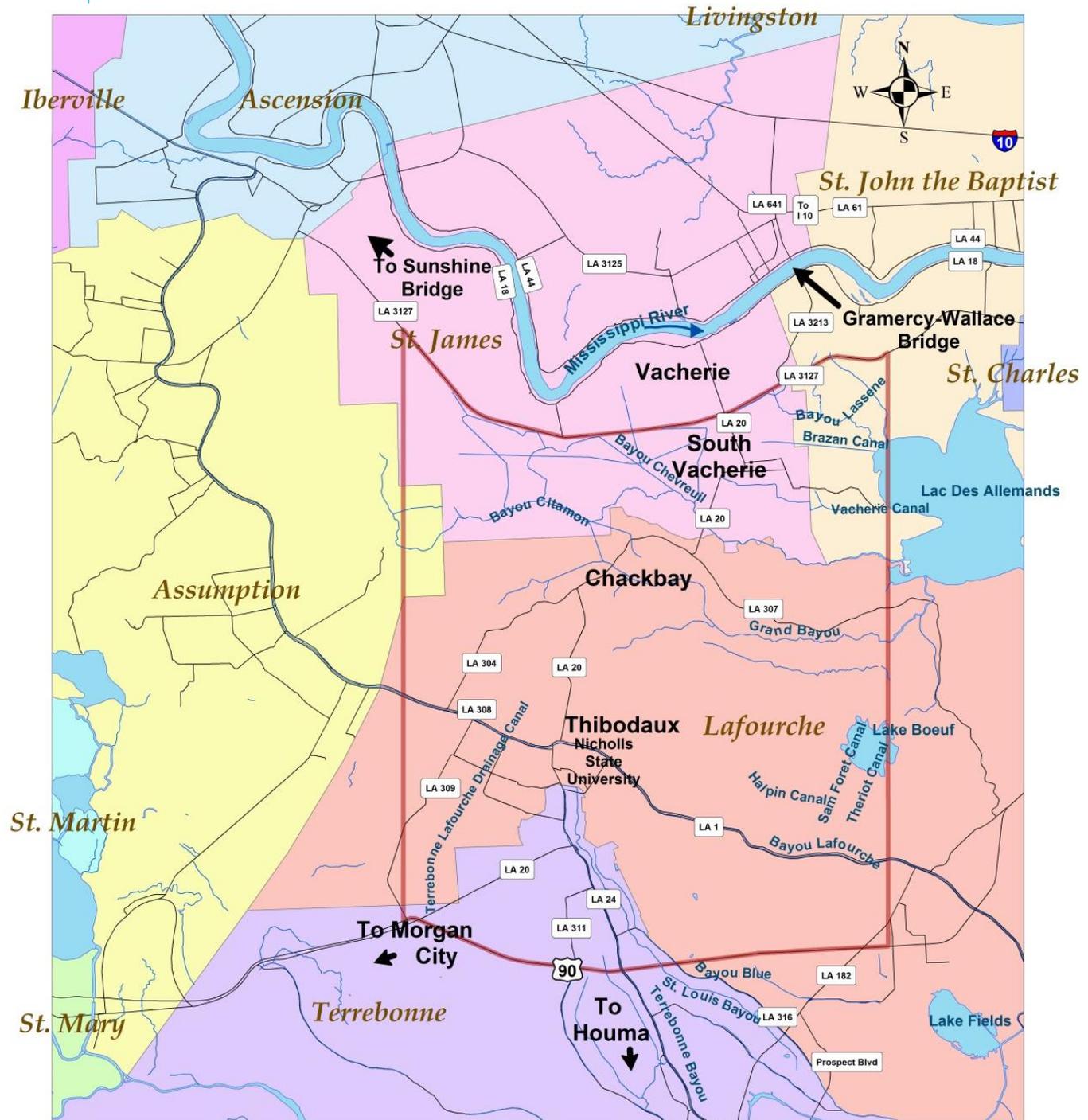
In April 2004, the LADOTD, in cooperation with the FHWA, began the process of developing an EIS with the objective of providing an improved north-south hurricane evacuation route from the Houma-Thibodaux area to I-10 via LA 3127¹, as shown in **Figure 1-1**. This new facility would serve the following Southeastern Louisiana parishes:

- Assumption;
- Lafourche;
- St. Charles;
- St. James;
- St. John the Baptist;
- St. Mary; and
- Terrebonne.

¹ "Houma-Thibodaux to LA 3127 Connection: North-South Hurricane Evacuation Corridor."



Figure 1-1
Overview Map (location of study area in broader sense)





1.2.2 Why was the project initiated?

This DEIS was initiated following the results of a study conducted in June 1999, by URS Greiner Woodward Clyde for LADOTD titled *Hurricane Evacuation Corridor Study to Connect Relocated US 90 to LA 3127 (SPN 700-99-0132)*. To view this study, please see Appendix Q. The primary objective of the study was to identify environmental issues for consideration and to develop reasonable and feasible alternatives for improving hurricane evacuation efficiency while avoiding where possible, impacts to sensitive resources and ambient standards². As a result, both reasonable and feasible alternative corridors worthy of further consideration were identified to meet the Purpose and Need.

Based on the study's primary Purpose and Need of improving hurricane evacuation efficiency, three alternative corridors were selected as Reasonable Alternatives. These alternative corridors were selected due to the following reasons:

- Meeting the stated Purpose and Need;
- Providing a relatively uniform distribution of hurricane evacuation traffic demand;
- Utilizing the upland natural ridge system within the study area to minimize impacts to wetland areas;
- Minimizing impacts to community and cultural resources by developing the proposed alternatives on sparse and undeveloped land;
- Access to population centers;
- Access options to hurricane evacuation shelter zones and routes north of the study area; and
- Providing the opportunity for a phased implementation approach in which defined interim alternatives could be developed that could potentially provide significant hurricane evacuation benefits while greatly minimizing initial costs.³

Early opportunities for public involvement enabled input from local officials and residents regarding the corridors to be incorporated into the EIS process. From this public involvement process other benefits, such as economic development generated from the proposed north-south corridor, were identified to support the development of a reasonable north-south route. However, the public comments reinforced the position that the project purpose of hurricane evacuation not be changed and that the criterions of providing the best hurricane evacuation route continue to be the only criterion for selection.

Based on the Purpose and Need and all other supporting data, all necessary funding for identifying a reliable north-south route were included in the 2003 and the interim 2008 LADOTD Capital Highway Improvement Program and the future Transportation Improvement Program (TIP).

² URS Greiner Woodward Clyde. *Hurricane Evacuation Corridor Study*. Metairie, LA: June 1999.

³ URS Greiner Woodward Clyde. *Hurricane Evacuation Corridor Study*. Metairie, LA: June 1999.



1.2.3 What are the roles of LADOTD and FHWA?

LADOTD and FHWA operate as project administrators as well as decision-makers. In addition, these agencies are responsible for project oversight and management tasks specified under the Louisiana Federal-Aid Highway Program Stewardship Agreement. This agreement clarifies the roles and responsibilities of both the FHWA and LADOTD in implementing the federal aid highway program.

1.2.4 What is the study area?

The study area is located in the Bayou Region of Louisiana between U.S. Highway 90 (US 90) and LA 3127. This portion of the state provides an abundance of natural and agricultural resources such as wetlands, waterways, floodplains, forested areas, bayous, and farmlands. This natural environment supports several plant and animal species that are indigenous to the area. The City of Thibodaux is located at the core of the study area and provides several commercial facilities, residential developments, a major university, and other amenities. The City of Houma is located to the south of the study area and also provides commercial facilities, residential developments, and other amenities to serve the inhabitants of the proposed study area.

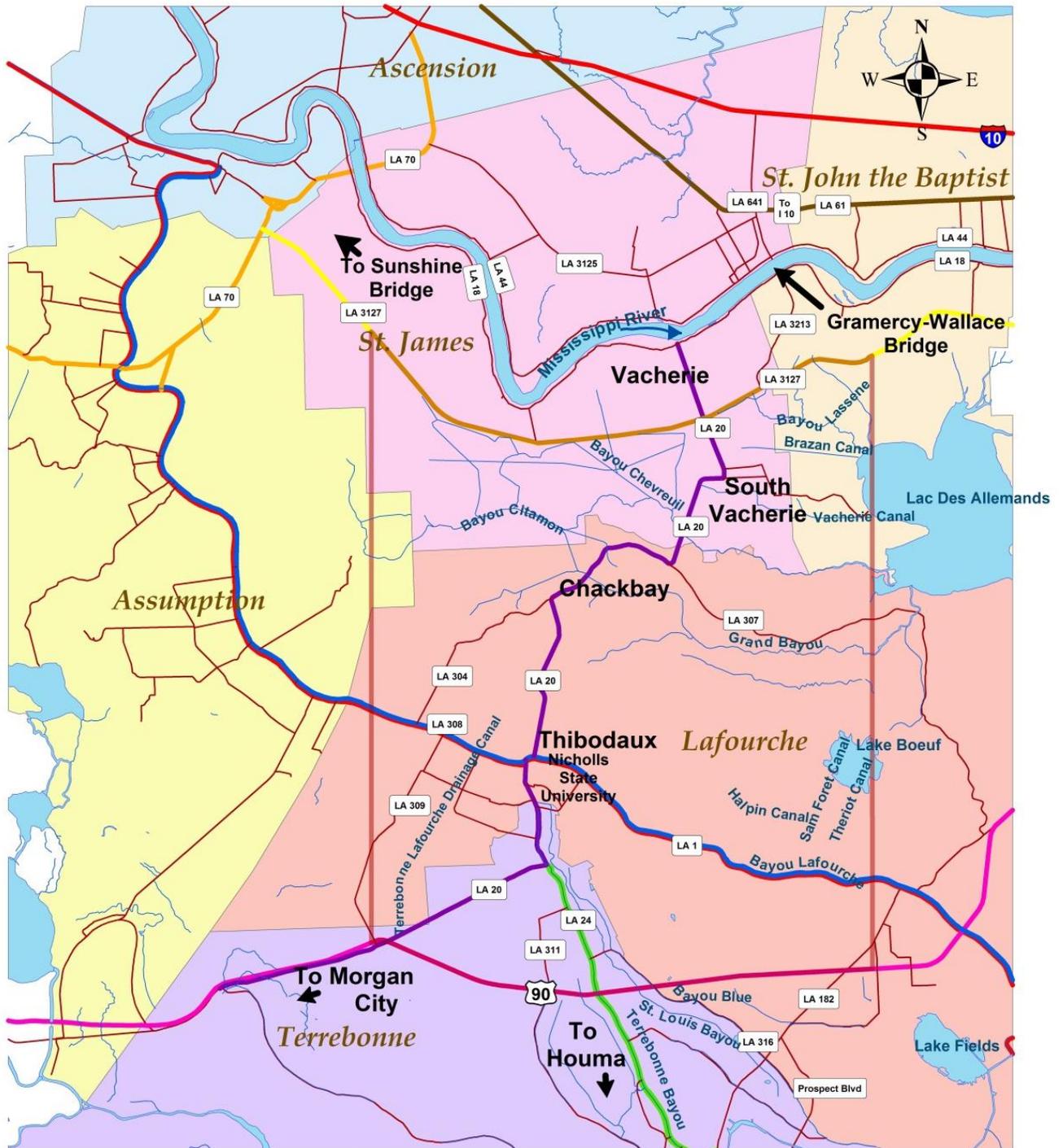
The majority of the existing transportation network consists of two-lane roadways that are better suited for east-west travel. Some of the existing facilities have been designated as hurricane evacuation routes. Each parish within the study area designates several U.S. and Louisiana highways to be utilized as hurricane evacuation routes. The following is a list of the existing hurricane evacuation routes by parish within the study area (see **Figure 1-2** on the following page):

- Assumption – LA 1, LA 308, LA 70
- Lafourche – US 90, LA 308, LA 1
- St. James – LA 3127, LA 70
- St. John the Baptist – I-10, US 61
- Terrebonne – US 90, LA 20, LA 24, LA 3052

US 90 and I-10 provide access-controlled facilities with at least four lanes of traffic. However, the majority of the designated highways are two-lane, east-west facilities with no control of access or access management.



Figure 1-2
Study Area





1.3 THE NEPA PROCESS

1.3.1 What is NEPA?

Signed into law on January 1, 1970, the National Environmental Policy Act of 1969 established a national environmental policy and a framework for considering the environment in decision-making for federal actions. NEPA applies to federal government activities and it requires all federal agencies to:

- Assess the environmental impacts of major federal projects or decisions such as issuing permits, spending federal money, or affecting federal lands;
- Consider the environmental impacts when making decisions; and
- Disclose the environmental impacts to the public.

NEPA also established the Council on Environmental Quality, which oversees NEPA for all federal agencies. CEQ developed regulations for implementing the law (Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act [40 CFR 1500-1508]). These regulations require all federal agencies to write their own regulations for implementing NEPA.

The principle objective of NEPA and the CEQ regulations is for the federal government, and those regulated by federal agencies, to design, locate, and operate projects in ways that reduce adverse impacts and increase beneficial environmental impacts for existing and succeeding generations.⁴

More information on NEPA can be found through the CEQ publication "A Citizen's Guide to NEPA," an informational guide that provides an explanation of NEPA, how it is implemented, and how the public can participate in the assessment of environmental impacts conducted by federal agencies.⁵

1.3.2 How does FHWA implement the NEPA process?

In accordance with the CEQ regulations, FHWA implemented regulations specific to transportation projects, Environmental Impact and Related Procedures (23 CFR 771). This requires FHWA and other transportation agencies to consider potential impacts to the social and natural environment, while taking into account the public's need for safe and efficient transportation.

In addition to evaluating potential impacts, NEPA established requirements for documentation of the decisions resulting from that process. According to FHWA, the essential elements of NEPA decision-making include:

- Assessment of the social, economic, and environmental impacts of a proposed action or project;
- Analysis of a range of reasonable alternatives to the proposed project, based on the applicant's defined Purpose and Need for the project;
- Consideration of appropriate impact mitigation: avoidance, minimization, and compensation;

⁴ USEPA <http://www.epa.gov/region2/spmm/r2nepa.htm> (Accessed 10/29/2009)

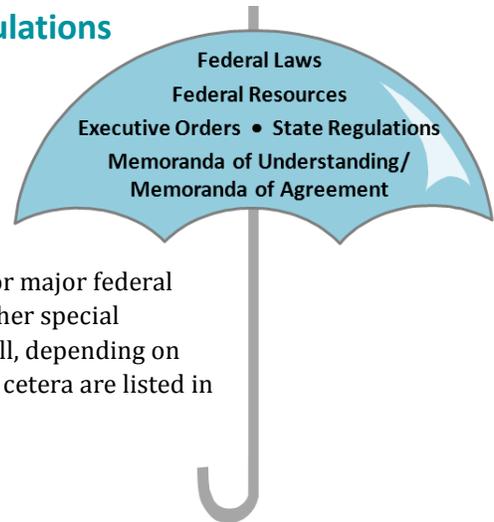
⁵ CEQ, http://ceq.hss.doe.gov/publications/citizens_guide_to_nepa.html.



- Interagency participation: coordination and consultation;
- Public involvement including opportunities to participate and comment; and
- Documentation and disclosure.⁶

1.3.3 What other environmental regulations must be considered?

Many different federal and state laws, regulations, memoranda of agreement, and executive orders govern environmental review of federal transportation projects. FHWA established an "umbrella" process⁷ for coordinating compliance with each law through the preparation of an EIS for major federal actions significantly affecting the environment. Other special purpose statutes and procedures may apply as well, depending on specific circumstances. These laws, regulations, et cetera are listed in Appendix A.



1.3.4 What is addressed in this DEIS?

This DEIS includes:

- The Purpose and Need of the project;
- The Reasonable Alternatives and the process by which the alternatives were developed;
- The impacts of the Reasonable Alternatives on the human and natural environment; and
- A description of the agency and public involvement that has occurred.

This document considered a design year of 2032. Conceptual designs have been prepared for each of the alignments to allow equal comparison of the alternatives at each stage of project development. The negative and beneficial impacts of all alternatives were evaluated and are presented and compared in Chapter 3. The DEIS also documents involvement and input from state and federal resource and regulatory agencies, as well as project stakeholders and the public in Chapter 5.

1.3.5 What type of impacts are evaluated in this DEIS?

Both negative and beneficial impacts can occur as a result of implementing a transportation project. "The CEQ regulations (40 CFR 1508.7 and 1508.8) define the impacts and effects that must be addressed and considered by federal agencies in satisfying the requirements of the NEPA process, which includes direct, indirect, and cumulative impacts."⁸ For the purpose of this DEIS, effects and impacts will be used synonymously.⁹

Direct Impacts

Direct impacts are caused by the action and occur at the same time and place. Impacts may also include those resulting from actions that may have both beneficial and detrimental effects.

⁶ FHWA, <http://www.environment.fhwa.dot.gov/projdev/pd3tdm.asp>, (Accessed 08/24/2009)

⁷ FHWA, <http://www.environment.fhwa.dot.gov/projdev/pd3tdm.asp>

⁸ FHWA, <http://www.environment.fhwa.dot.gov/projdev/tdmimpacts.asp>, Accessed 11/11/09

⁹ 40 CFR 1508.8

Design Year A selected year used to estimate future traffic volumes and produce highway design to ensure a project will meet future traffic needs. For this project, the design year is 2032.



Indirect Impacts

"Indirect impacts are caused by the action and occur later or farther away (off-site) but are still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."¹⁰

Cumulative Impacts

Defined as an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. The impacts of a proposed action can include ecological, aesthetic, historic, cultural, economic, air, noise, social, or health, whether direct, indirect or cumulative.¹¹

1.3.6 What funding has been identified for this project?

The March 1996 Louisiana Statewide Intermodal Transportation Plan placed the Houma-Thibodaux to I-10 connection in the Tier 3 funding level of projects to pursue. This proposed project, identified as one of 11 projects throughout the state in this tier, was one of the few projects in the entire plan not consisting of a proposed existing interstate improvement. The plan noted that this facility would provide "vastly improved north-south access and enhanced evacuation capabilities." The plan also noted that, "The major obstacle to this link (i.e., the Mississippi River) has already been overcome through the completion of a new bridge between Gramercy and Wallace."

In 1998, Congress, in the TEA-21, noted that their intent for this project (listed as High Priority Project item 202, LA 024) was to "Construct Houma-Thibodaux to I-10 connector from Gramercy to Houma." The connection from I-10 (via LA 641) to LA 3127 by way of the Gramercy Bridge has been completed. Because of the above existing infrastructure, the completion of this project will connect LA 3127 to US 90 and thereby fulfill Congress' intent to construct a connector from I-10 to US 90.

The December 2003 LSTP continued to identify this regional project to be of statewide importance, including emphasis on hurricane evacuation, system linkage, and improvement to the transportation system.

In order to allow for multiple funding scenarios, it is recommended that the project implement a phasing plan. Below is the description of the two, proposed phases:

¹⁰ 40 CFR 1508.8(b)

¹¹ 40 CFR 1508.7 and 1508.8



Phase 1

Funding will be secured for the following: acquisition of required rights-of-way, relocations, wetland mitigation costs, engineering design, and construction of two lanes of the proposed, preferred alignment.

Phase 2

Funding will be secured for the construction of the final two lanes of the preferred alignment. This will complete the proposed, four-lane corridor.

The implementation of the first two lanes of the proposed four-lane facility is currently classified as a Priority A mega project in funding Scenario 2 in the LSTP. According to the plan, "Priority A mega projects which scored and ranked high in both the quantitative (travel demand model results) and qualitative (plan goals and objectives) evaluation, were considered highest priority and included in funding Scenario 2." It should be noted that funding Scenario 1 in the LSTP is a status quo scenario in which no new major projects could be constructed with regular trust fund revenue. Only projects earmarked by congress as high priority with additional federal-aid funds provided could be undertaken by LADOTD.

CHAPTER 2. PURPOSE AND NEED



CHAPTER 2. PURPOSE AND NEED

Environmental documents prepared under the National Environmental Policy Act (NEPA) begin with a discussion of the "Purpose and Need" of a proposed action, which provides context and criteria for the development and screening of alternatives to the proposed action. This Purpose and Need statement is essentially the foundation of the NEPA decision-making process. The purpose (solutions) and need (problems) section presents a statement explaining why the proposed action is being considered and influences the rest of the project development process, including the range of alternatives studied and ultimately, the selected preferred alternative. The Purpose and Need serves as an important screening criterion for determining whether alternatives are reasonable. All reasonable alternatives examined in detail must meet the defined project's Purpose and Need.

2.1 WHAT IS THE PURPOSE AND NEED OF THE PROJECT?

The purpose of the proposed Houma-Thibodaux to Louisiana Highway 3127 (LA 3127) Connection is to improve north-south system linkage between the Houma-Thibodaux area and the Mississippi River corridor and improve emergency and hurricane evacuation within Louisiana's bayou region through the establishment of a functional north-south transportation facility. The project is proposed to accomplish the following objectives:

- Improve north-south connectivity and mobility between U.S. Highway 90 (US 90) and LA 3127 through an increase in the number of north-south links;
- Provide north-south system redundancy by identifying alternatives that enable additional options for north-south travel when LA 20 fails;
- Provide improved north-south highway network capacity in the project area;
- Provide a direct, limited access route between the Houma-Thibodaux area and the Mississippi River corridor to improve access to and from the Houma-Thibodaux area; and
- Maximize the efficient use and operation of hurricane evacuation routes by improving system redundancy, decreasing travel time, and providing facility access, capacity, and balanced distribution of evacuation traffic among critical Mississippi River crossings.

The purpose of the Houma Thibodaux to LA 3127 Connection is to improve north south system linkage between the Houma Thibodaux area and the Mississippi River corridor and improve emergency and hurricane evacuation within Louisiana's Bayou Region through the establishment of a functional north south transportation facility.





Traffic congestion occurs when travel demand exceeds the traffic carrying capacity of a roadway.

Peak period the highest volume of traffic on a roadway within a one hour period, typically morning and evening rush hour. This represents the worst traffic conditions on an average day.

Level of Service term used to represent the perspective of drivers and is an indication of the comfort and convenience associated with driving. The LOS of a roadway is also based on the density of vehicles on a road, intersection or at an interchange, which is expressed in passenger cars per mile, per lane. Six levels of service are defined for each type of facility, from A (the best) to F (the worst).

The need for the proposed project is to remove the following deficiencies in the study area:

Inadequate north-south transportation system linkage:

- Existing north-south system linkage between the Houma-Thibodaux area and the Mississippi River corridor is limited to LA 20; a narrow, winding arterial without access management.

Inadequate capacity in the roadway network in the Thibodaux area due to existing unmet travel demand in the north-south direction:

- Existing roadway network has current peak-period congestion and Level of Service (LOS) deficiencies.
- Portions of existing LA 20 show a LOS of E, which is characterized by very poor service, during both peak hours, along with three additional primary roadways (LA 308, LA 1, and LA 70) that have sections currently operating at LOS D, which is characterized by poor service.

Lack of a north-south emergency evacuation route and north-south rerouting opportunities in the Thibodaux area:

- In times of evacuation, the traffic volumes push the roadways far beyond their capacity due to a lack of redundancy in the current network. This lack of redundancy results in hindered mobility, increased evacuation travel time, and system failure in times of emergency.

2.2 WHERE IS THE PROJECT LOCATED?

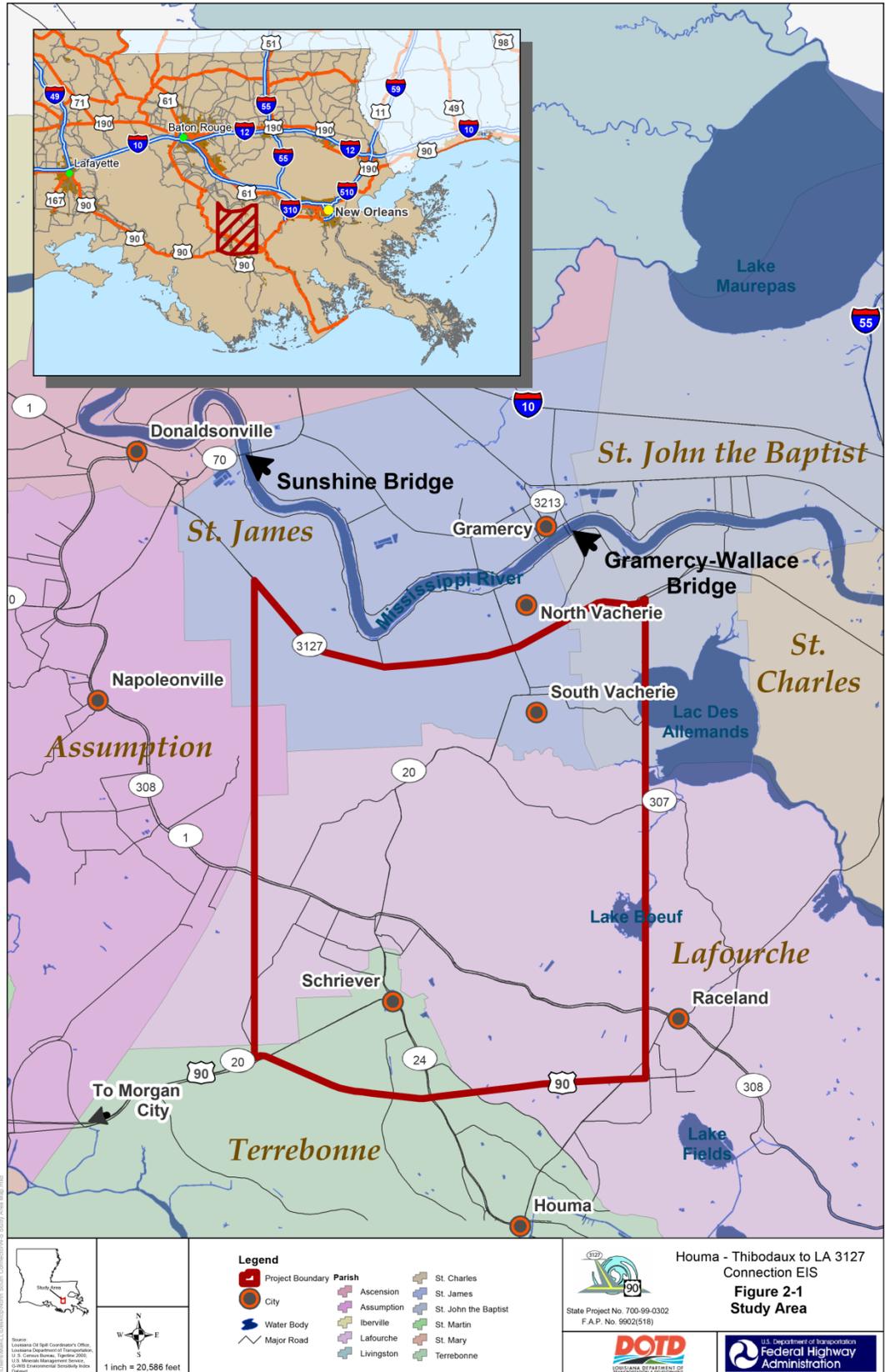
The study area is located within the part of Louisiana known as the Bayou Region (see **Figure 2-1**). This region is known for its abundance of natural features such as coastal wetlands, bayous, and both natural and man-made waterways. Due to the unique geography of this area, past and present development has mainly occurred near higher elevations and natural ridges. As a result, the roadway network within the study area is very limited and the existing transportation network provides better east-west connectivity than north-south connectivity.

2.3 WHY IS THE PROJECT NEEDED?

There are two main needs associated with the proposed action—system linkage and emergency and hurricane evacuation. These needs have been identified by reviewing recent transportation planning initiatives for the region. Providing north-south system linkage would improve connectivity, provide drivers alternative routes, and improve access to Interstate 10 (I-10) and/or future I-49. Presently, east-west roadway facilities comprise the majority of the transportation network, making these roads the main evacuation routes for the area. Because of this, it has been determined that an additional north-south connection and evacuation route is needed for the region. Providing a north-south emergency and hurricane evacuation route would improve overall evacuation times for the region, no matter what path or direction the severe weather follows. In addition it would help uniformly distribute traffic to the Sunshine and Gramercy-Wallace Bridges and maximize the use of current evacuation routes. Due to these facts, a north-south corridor/evacuation route has been identified as a major need within the study area and the region.



Figure 2-1
Study Area





2.3.1 How were these needs identified?

Transportation needs are identified through the transportation planning process. This process enables state and local governments and planning organizations, with the involvement of public and private stakeholders, to establish a vision for a region's future transportation system, define a region's transportation goals and objectives for realizing that vision, decide which needs to address, and determine the timeframe for addressing those needs. Out of the planning process emerge potential projects intended to meet the needs and achieve the vision and objectives of the plan.

The South Central Planning and Development Commission (SCPDC) and the Houma-Thibodaux Metropolitan Planning Organization (HTMPO) are the main regional planning entities that cover the majority of the study area. During the update of the Houma-Thibodaux Metropolitan Transportation Plan (MTP) 2035, adopted on May 13, 2010, an evaluation of current conditions was conducted. Current conditions, which included demographics, travel characteristics, land use, zoning, planning initiatives, and the existing transportation network, indicate that residential and business developments are relocating to northern locations of the Houma-Thibodaux Metropolitan Area. This is attributed in part to the necessity in relocating to areas less prone and less vulnerable to severe weather. The Houma-Thibodaux MTP 2035 also identified that residents living in the northern part of the HTMPO area utilize many services and facilities in Thibodaux, such as Nicholls State University and the Thibodaux Regional Medical Center; as such, better transportation access, connectivity, and services have been identified as a major need for this area. The main issue emphasized in the Houma-Thibodaux MTP 2035 for the Houma-Thibodaux Metropolitan Area was providing the most direct route to I-10. There continues to be a growing traffic demand that is underserved in a north-south direction. The Houma-Thibodaux to LA 3127 connection project would help provide a direct route to I-10.

2.3.2 How is the study area growing?

The study area consists of five parishes—Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne. The study area as a whole experienced an increase in population size between 1990 and 2000, as well as between 2000 and 2010, with the highest growth seen in Terrebonne Parish during both time periods (by approximately 7 percent). Over all, Assumption Parish experienced the smallest growth between 1990 and 2010, having less than a 1 percent growth from 2000 to 2010. The population of the study area as a whole grew by an average of approximately 5.9 percent from 1990 to 2000, with very similar growth (6.2 percent) between 2000 and 2010. The population of Louisiana, however, grew significantly less between 2000 and 2010 (approximately 1 percent) compared to the growth seen between 1990 and 2000 (approximately 6 percent). Population data and growth rates from 1990 to 2010 for the study area are presented in **Table 2.1**. The proposed project lies primarily within Lafourche and Terrebonne Parishes, which are the areas that are experiencing the largest growth. This growth contributes to the increased traffic demand and the need for improved transportation system linkages, particularly in the north-south direction.



Table 2.1
Population in the Study Area

Location	1990	2000	Growth Rate 1990 2000	2010	Growth Rate 2000 2010
Louisiana	4,219,973	4,468,976	5.9%	4,533,372	1.4%
Assumption	22,753	23,388	2.8%	23,421	0.1%
Lafourche	85,860	89,974	4.8%	96,318	7.1%
St. James	20,879	21,216	1.6%	22,102	4.2%
St. John the Baptist	39,996	43,044	7.6%	45,924	6.7%
Terrebonne	96,982	104,503	7.8%	111,860	7.0%
All Study Area Parishes	266,470	282,125	5.9%	299,625	6.2%

Source: US Census Bureau - Census 1990; Census 2000; Census 2010

2.3.3 Where do people work and how do they travel to get there?

Top employers within the study area are clustered in three main areas—the Gramercy-Wallace area, the Thibodaux area, and south of US 90 – the Houma area. **Table 2.2** presents a list of the major employers within the study area. These businesses range from 100 to nearly 2,500 employees. The majority of the major employers are in, or provide support services to, the oil and gas industry. Manufacturing companies, chemical, food, metal, and plastic are also major employers in the area. Locations of some of the top employers are shown in **Figure 2-2**.

Table 2.2
Major Employers within the Study Area

Parish	Employer	Category
Assumption	Assumption Association for Retarded Citizens, Inc.	Non-profit
Assumption	Assumption Parish School Board	Education
Assumption/Lafourche/Terrebonne	Catholic Diocese of Houma-Thibodaux	Religion
Assumption	Heritage Manor of Napoleonville	Healthcare
Assumption	Industrial Electrical	Electrical Contractor
Lafourche	Bollinger Shipyards, Inc.	Marine Transportation
Lafourche	Danos & Curole Marine Contractors	Oil and Gas Technical Services
Lafourche	Edison Chouest Offshore	Marine Transportation
Lafourche	Grand Isle Shipyard, Inc.	Marine Transportation
Lafourche	International Offshore Services, LLC	Marine Transportation
Lafourche	Nicholls State University	Education
Lafourche/Terrebonne	Rouses Supermarkets	Supermarket
Lafourche	Thibodaux Regional Medical Center	Healthcare
Lafourche/Terrebonne	Walmart	Retail
St. James	Louisiana Sugar Refining, LLC	Sugar Refinery
St. James	Mosaic Co.	Chemical Manufacturing
St. James	Motiva Enterprises, LLC	Oil and Gas
St. James	Noranda Alumina, LLC	Metal Manufacturing
St. James	Occidental Chemical Corp.	Chemical Manufacturing
St. James	Zen-Noh Grain Corp.	Grain Elevator
St. John the Baptist	ArcelorMittal La Place, LLC	Metal Manufacturing
St. John the Baptist	Cargill, Inc.	Grain Elevator
St. John the Baptist	Diversified Well Logging, Inc.	Oil and Gas
St. John the Baptist	DuPont Performance Elastomers, LLC	Rubber Manufacturing
St. John the Baptist	Louisiana Machinery, Co.	Equipment and Supplies
St. John the Baptist	Marathon Ashland Petroleum, LLC	Oil and Gas
St. John the Baptist	Nalco Chemical Co.	Chemical Manufacturing
St. John the Baptist	Pinnacle Polymers	Plastics Manufacturing



Table 2.2
Major Employers within the Study Area

Parish	Employer	Category
Terrebonne	Chet Morrison Contractors	Oil and Gas Technical Services
Terrebonne	Gulf Island Fabrication, Inc.	Equipment and Supplies
Terrebonne	Leonard J. Chabert Medical Center	Healthcare
Terrebonne	Performance Energy Services, LLC	Oil and Gas Technical Services
Terrebonne	Seacor Marine, LLC	Marine Transportation
Terrebonne	Terrebonne General Medical Center	Healthcare
Terrebonne	Terrebonne Parish Government	Government
Terrebonne	Terrebonne Parish School Board	Education

Sources: Assumption Parish, "Community Profile" www.assumptionla.com/Community_Profile?view=day&lh=2&d=01&m=07&y=2011; Houma Today "Lafourche's Largest Employers" October 29, 2009; Accessed May 17, 2013: www.houmatoday.com/article/20091029/NEWS0101/910299972; River Region Economic Development Initiative (RREDI) "St James Parish" Accessed May 17, 2013: http://portsl.com/businessdevelopment/docs/StJames_Parish_Profile.pdf; (RREDI) St "St. John Parish" Accessed May 17, 2013: http://portsl.com/businessdevelopment/docs/StJohn_Parish_Profile.pdf; John the Baptist, "Major Employers", Accessed May 17, 2013: http://sjbparish.com/ecodev_demographics.php?id=162; Daily Comet "Terrebonne's Top Employers" November 13, 2012; Accessed May 17, 2013: www.dailycomet.com/article/20121113/ARTICLES/121119874?template=printpicart

Table 2.3 shows the travel mode and average commute time for parishes within the study area. The vast majority of study area residents drive alone to their workplace. Residents within Lafourche Parish are more likely to carpool than residents throughout the study area. One percent or less of study area commuters utilize public transportation. Overall, residents are more likely to work from home than use public transportation. Residents of Terrebonne Parish are more likely to use other means of transportation, such as walking or bicycling, than other study area residents. Four of the five parishes have a commute time greater than 25 minutes, while the fifth has a commute time of 23.8 minutes, which could potentially demonstrate that people in the study area do not live close to where they work.

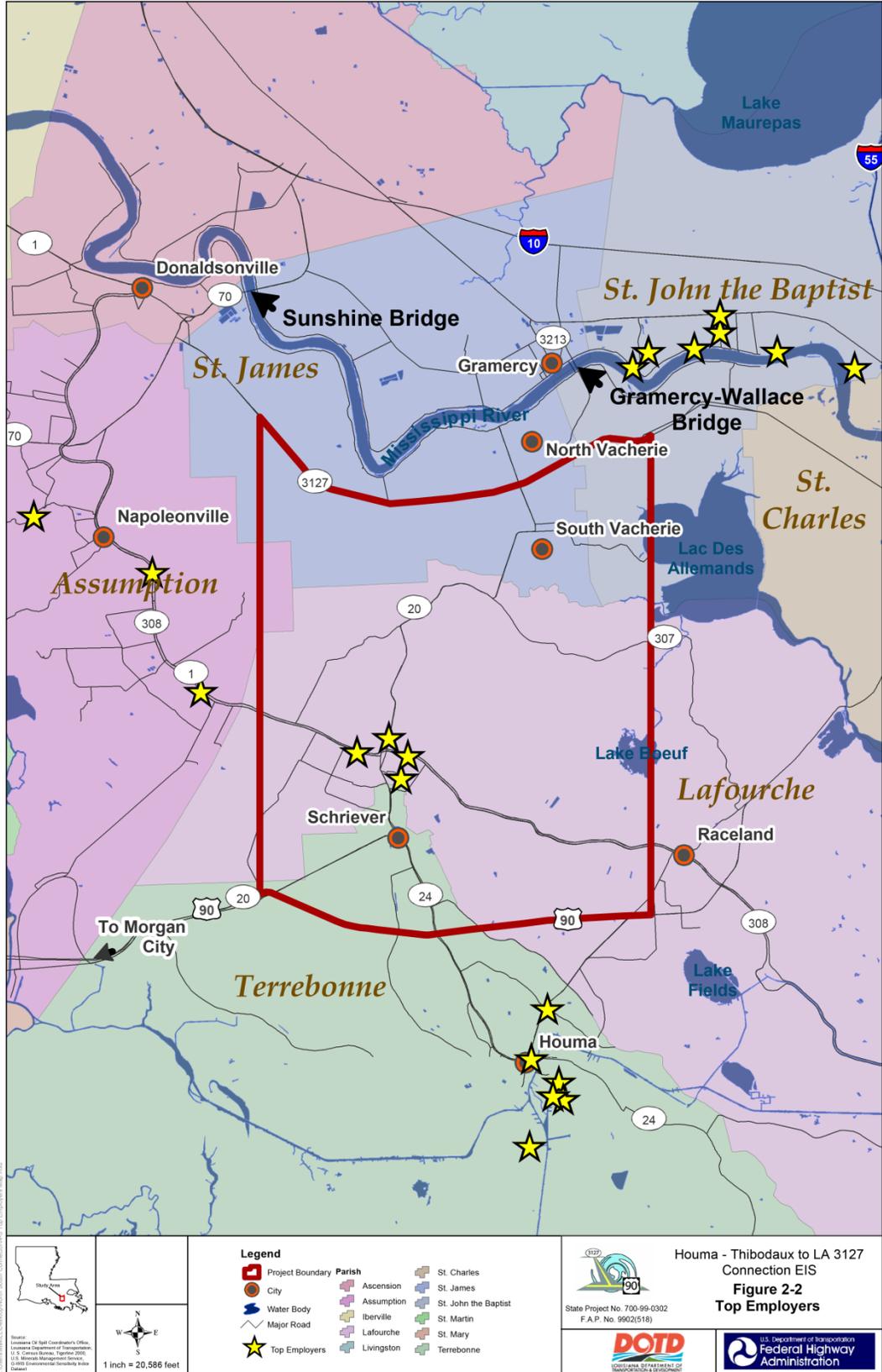
Table 2.3
Travel Time to Work

Location	Drove to Work Alone	Carpooled	Public Transportation	Other Means	Worked at Home	Average Commute Time
Assumption	85%	11%	1%	2%	1%	32.0 min.
Lafourche	79%	14%	1%	5%	2%	25.8 min.
St. James	85%	11%	1%	2%	0.7%	25.7 min.
St. John the Baptist	85%	10%	0.2%	4%	0.7%	27.4 min.
Terrebonne	81%	10%	0.4%	6%	2%	23.8 min.

Source: US Census Bureau - Census 2010



Figure 2-2
Top Employers





2.4 WHY IS NORTH-SOUTH TRANSPORTATION SYSTEM LINKAGE NEEDED?

Existing north-south system linkage in the region between the Houma-Thibodaux area to the south and the Mississippi River corridor area to the north, for approximately a 38-mile east-west stretch, is mainly limited to LA 20. North of Thibodaux, LA 20 is a two-lane winding roadway with narrow shoulders that serves the region as the main roadway linking the Houma-Thibodaux area to the Gramercy, Wallace, North Vacherie, and South Vacherie communities to the north. Within the Thibodaux area, the roadway becomes three and four lanes. The existing LA 20 roadway, which partly follows a narrow winding ridge through wetlands, also functions as the main street for the communities of Chackbay and South-Vacherie. The Houma-Thibodaux area is regionally served by one U.S. route and two state routes all running east and west. The Mississippi River corridor is served by one interstate, one U.S. route, and four state routes, which all run east to west, as shown in Figure 2-2.

In addition to LA 20 being narrow, it has multiple driveways (access points) within these developed areas. These access points increase the number of conflict points (areas having a high potential for accidents) while limiting the efficient movement of people, goods, and services. This is especially the case for hurricane evacuation between the Houma-Thibodaux area and the central Mississippi River Corridor.

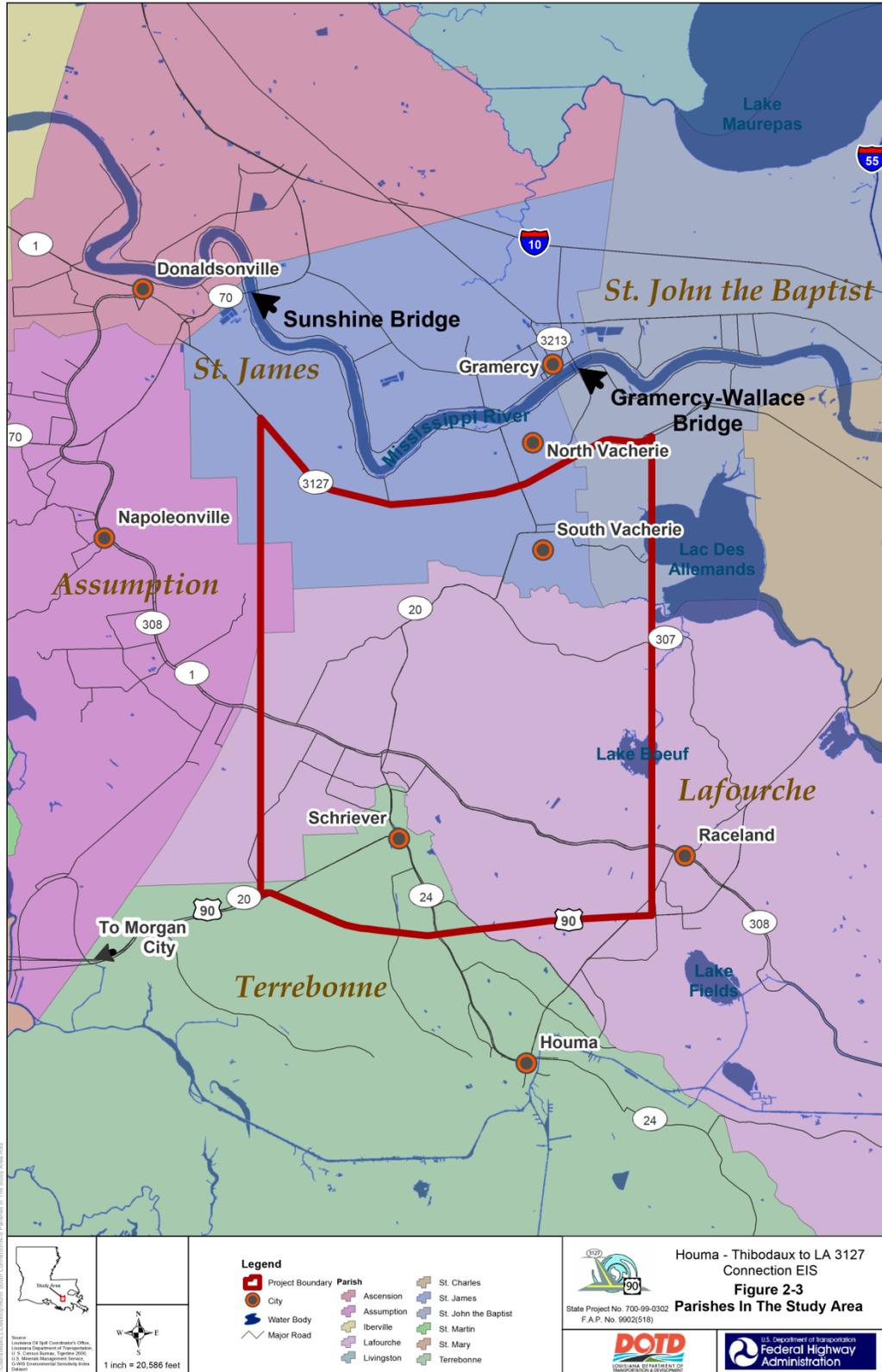
The area's overall transportation system linkage would be improved by the establishment of a functional transportation facility that provides north-south connectivity to the area's existing roadway network. A north-south facility would also improve connectivity and mobility to the established interstate system to the north (I-10), as well as the future I-49 route to the south. These improvements would directly serve the Parishes of Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne, which make up, in part, the South Central Planning and Development District as shown in **Figure 2-3**.

Three main questions were asked regarding system linkage:

- Why is improved north-south connectivity needed?
- Why provide north-south redundancy?
- Why improve access to I-10 and/or future I-49?



Figure 2-3
South Central Planning and Development District Parishes:
Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne





Transportation Connectivity – Transportation connectivity is the ability to travel directly between destinations, while increasing the connections between neighborhoods, communities, and regions.

Transportation Redundancy – Transportation redundancy is where the transportation network connections are duplicated in order to provide alternative routes in case one link in the network fails, reaches its capacity, or is blocked due to crashes, incidents, emergency situations, or maintenance activities.

2.4.1 Why is improved north-south connectivity needed?

Transportation system connectivity refers to the directness of connections and the density of links in the roadway network. A simpler definition would be the ability to travel directly between destinations, while increasing the connection and accessibility between neighborhoods, communities, and/or regions. As shown in **Figure 2-4**, east-west density and system connectivity is well established via LA 18, LA 3127, LA 308, LA 1, and US 90 within the study area.

LA 20 is the only north-south connection within the study area. This arterial roadway consists of three-lane and four-lane roadway sections located in the Thibodaux area. North of Thibodaux, LA 20 consists of a two-lane roadway with no shoulders or emergency lanes. In the event of a stalled vehicle or accident/crash, one or both of the lanes may become blocked with no other options available for north-south travel. LA 20 runs north-south for most of its length through the center of the study area. This is the only continuous north-south corridor that travels from the Thibodaux area to LA 3127.

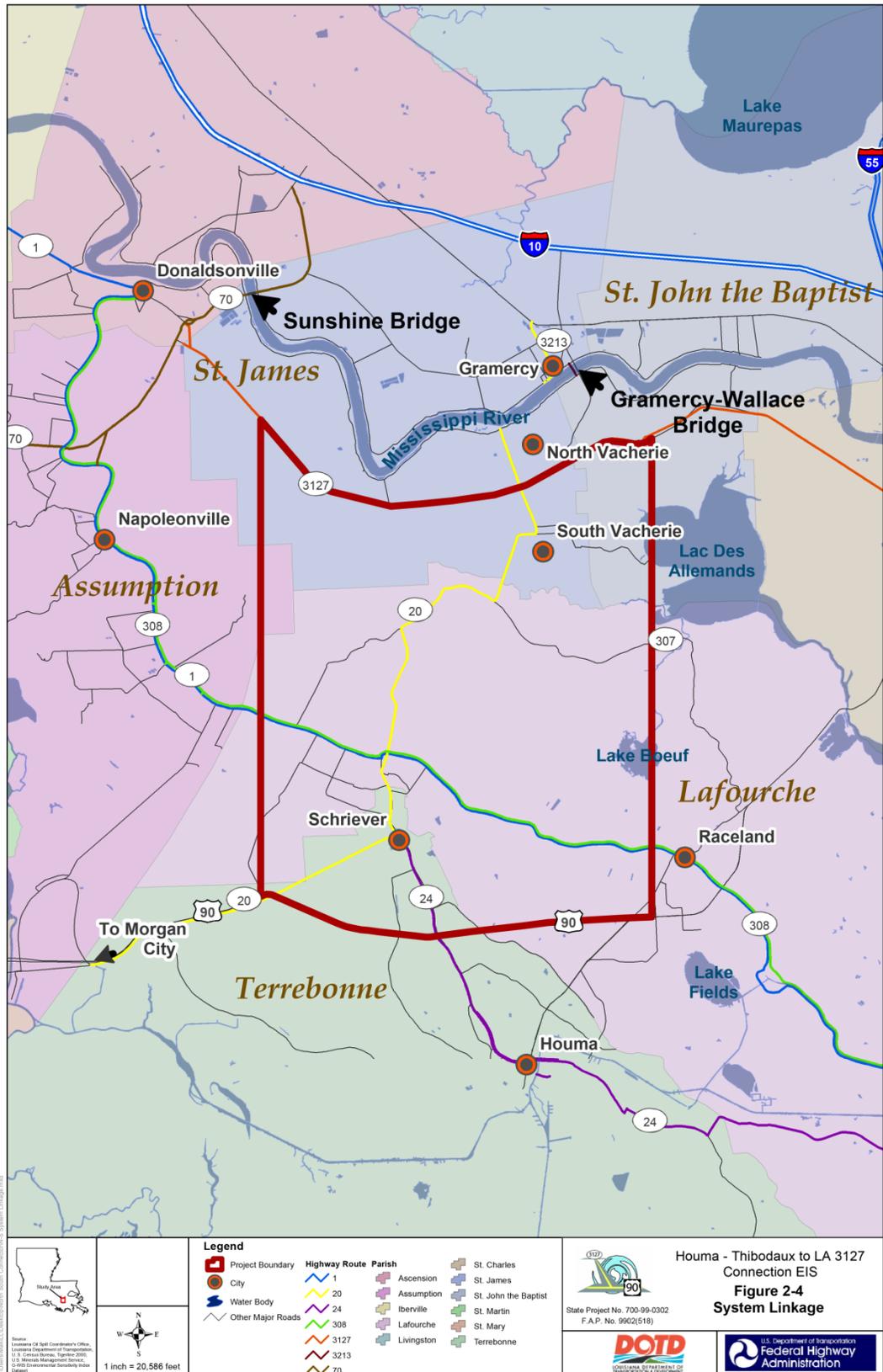
2.4.2 Why provide north-south system redundancy?

Transportation system redundancy is where transportation network connections are duplicated in order to provide alternative routes in case one link in the network fails, reaches its capacity, or is blocked due to crashes, incidents, emergency situations, or maintenance activities. The duplicated or redundant links can accommodate the diverted traffic demand. Redundancy represents flexibility with optional route choices for facility users when a link fails. The roadway network in the study area lacks redundancy in the north-south direction. Therefore, if LA 20 should become closed due to incidents such as those noted above, residents would not have a direct access north to LA 3127 from the Houma-Thibodaux area or south from the South Vacherie-Chackbay area to Houma-Thibodaux. A closure of LA 20 would also result in adverse travel distance for those who regularly use LA 20 for north-south travel.

The existing highway network has redundancy in the east-west direction as previously stated. There is also redundancy with the crossings of the Mississippi River with the Sunshine Bridge to the west of the study area, the Gramercy-Wallace Bridge north of Thibodaux, and the I-310 Bridge outside of the New Orleans area. The Sunshine and I-310 Bridges are accessible from the Houma-Thibodaux area via the existing east-west roadway network. The Gramercy-Wallace Bridge is directly accessible from the Houma-Thibodaux area only by LA 20. Access to the Gramercy-Wallace Bridge from LA 3127 has been improved with the completion of the LA 3213 connector in 2008. However, traffic diverted to this route from the east-west corridors (US 90, LA 1, and LA 308) will be limited without improvements to north-south connectivity.



Figure 2-4
The Six Primary Roadway Facilities within the Study Area
 (US 90, LA 24, LA 20, LA 308, LA 1, and LA 3127)





2.4.3 Why improve access to I-10 and/or future I-49?

The Houma-Thibodaux Metropolitan Area is the only major metropolitan area not directly served by an interstate highway facility in Louisiana. When US 90 is upgraded to interstate standards and designated as I-49, the area will have an additional interstate facility traveling in an east-west direction. However, north-south connectivity to the Houma-Thibodaux area would still remain limited with the only direct access to either interstate (I-10 and future I-49) being LA 20. The lack of a high capacity interstate facility connecting the region to I-10 and/or future I-49 has negative effects in terms of regional connectivity and emergency preparedness, and may adversely affect economic development. A more direct and reliable access to the interstate system is important to industry and residents in the study area. This was a sentiment that was heard through public comments (for more information about Public Involvement, see Chapter 5). This direct access is required in order to provide reliable, timely, and cost-effective movement of goods and services to the area, region, and country. In order to access the area's interstate system to the north (I-10 and I-55), residents, employees, and truckers elect to travel US 90 via the US 90/I-310 interchange rather than traveling along LA 20 or the longer LA 1/LA 308 corridor. Existing travel distances to I-10 for the area range between 40 to 49 miles.

2.5 WHY IS ADDITIONAL NORTH-SOUTH ROADWAY CAPACITY NEEDED?

Although system linkage is a major component of mobility, other key issues need to be factored in when determining, designing, and developing the most efficient and economical transportation facility. Key factors to be included during project development and alternative analysis are issues such as roadway capacity, LOS, and safety.

2.5.1 What is roadway capacity?

The Transportation Research Board's Highway Capacity Manual (2010) defines capacity of a system element as the maximum sustainable hourly flow rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a roadway during a specified time period under typical roadway, environmental, traffic, and control conditions. Capacity can also be described as the maximum traffic flow obtainable on a given roadway using all available lanes.

2.5.2 What are the primary roadways within the study area?

As previously stated, there are six primary roadway facilities that have been identified within the study area. These facilities include US 90, LA 24, LA 20, LA 308, LA 1, and LA 3127 (see Figure 2-4). A summary of the generalized capacities of the six identified primary roadways are listed in **Table 2.4**. These capacity estimates are based on the number of travel lanes and functional classification of each roadway.

Capacity

Capacity can be described as the maximum traffic flow obtainable on a given roadway using all available lanes.



Table 2.4
Generalized Capacities of the Primary Access Roadways

Roadway	Alignment	Facility Type	24 Hour Capacity (vehicles per day)
US 90	East-West	Expressway, 4-lane	32,000
LA 24	North-South	Principal Arterial, 4-lane	27,000
LA 20	North-South	Principal Arterial, 2-Lane	15,000
LA 308	East-West	Minor Arterial, 2-lane	11,000
LA 1	East-West	Principal Arterial, 2-lane	15,000
LA 3127	East-West	Minor Arterial, 2-lane	11,000

Source: Houma-Thibodaux Metropolitan Area Transportation Plan Update and LADOTD Summary Logs Estimates from the Traffic Analysis, which was completed for the Houma-Thibodaux to I-10 Connection.

As shown in Table 2.4 and discussed previously, the primary access corridors within the study area provide mainly east-west capacity. The existing east-west capacity is distributed throughout the study area with US 90 on the south, LA 1 and LA 308 corridors in the middle, and the LA 3127 corridor on the north. In contrast, existing north-south capacity within the study area is limited mainly to the LA 24 corridor in the south, and the LA 20 corridor in both the middle and northern portions. Presently, LA 20 underserves the current transportation demand due to capacity issues and its winding route linking US 90 with LA 3127. In addition, LA 1 and LA 308 are projected to operate at or near capacity under the projected future conditions, which would further reduce capacity within the study area's roadway network.

Results of the traffic analysis for the Houma-Thibodaux area to the LA 3127 connection indicated that the demand for north-south travel is greater than what is represented in the traffic counts on LA 20 and LA 24. The excess demand is represented in traffic counts on US 90 by motorists who elect to travel this route to access the area's interstate system (I-10 and I-55) as discussed above. The combination of current and future conditions identifies roadway capacity as a key element in analyzing system linkage within the area.

2.5.3 How do we measure congestion on our roads?

Traffic congestion occurs when travel demand exceeds the traffic-carrying capacity of a roadway. Transportation planners and engineers use performance standards, volume to capacity ratio (V/C ratio), and LOS to analyze traffic congestion on roadways.

The V/C ratio indicates the percentage of total available roadway capacity that is being used during the peak traffic period. For example, a V/C ratio of 0.80 means that 80 percent of total roadway capacity is being used. A V/C ratio of 1.0 or above means that the capacity has been used up and the facility is congested. Lines of vehicles will form until demand subsides below the available capacity. This performance standard varies according to location, category, and function of the roadway.

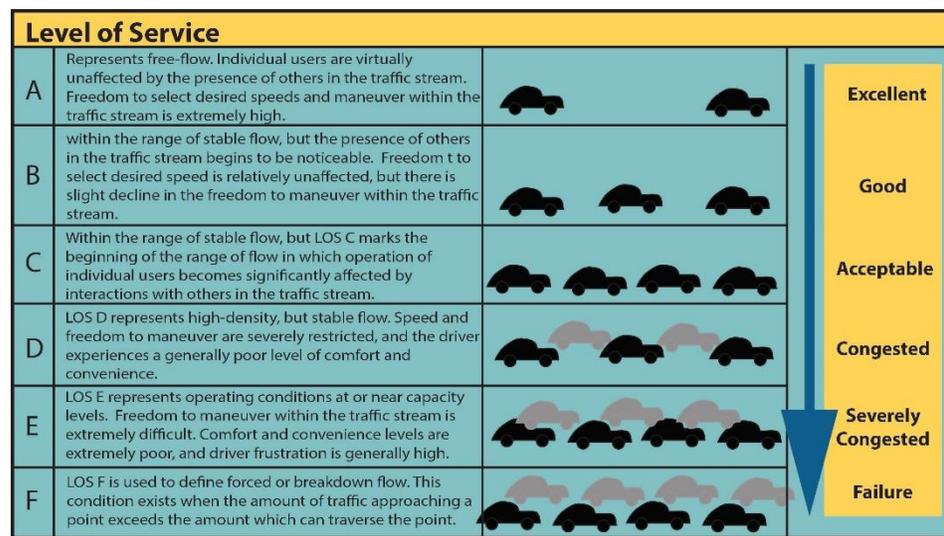
As shown in **Table 2.5**, a V/C ratio of greater than 1.0 relates to a LOS F. LOS is a term used to represent the perspective of drivers and is an indication of the comfort and convenience associated with driving. The LOS of a roadway is also based on the density of vehicles on a road, intersection, or at an interchange, which is expressed in passenger cars per mile, per lane. Six levels of service are defined for each type of facility, from A (the best) to F (the worst), and are described in further detail in **Figure 2-5**. Table 2.5 provides the LOS classifications.



Table 2.5
V/C Ratio Range for LOS

LOS	V/C Ratio
LOS A	<0.60
LOS B	0.61 to 0.70
LOS C	0.71 to 0.80
LOS D	0.81 to 0.90
LOS E	0.91 to 1.00
LOS F	>1.00

Figure 2-5
Level of Service Definitions



Traffic models show that the primary access roadways are currently operating at acceptable levels. However, the northern section of LA 20 shows a LOS of E during both peak hours. There are also two additional primary roadways (LA 308 and LA 1) that have sections currently operating at LOS D, and are projected to operate at LOS E in the year 2032. **Table 2.6** shows both existing and projected year 2032 LOS for the six primary access roadways.

Table 2.6
Generalized Capacities of the Primary Access Roadways

Roadway	Alignment	Facility Type	Existing LOS	2032 LOS
US 90	East-West	Expressway, 4-lane	A	A
LA 24	North-South	Principal Arterial, 4-lane	B	C
LA 20	North-South	Principal Arterial, 2-Lane	E/B	E/B
LA 308	East-West	Minor Arterial, 2-lane	D	E/D
LA 1	East-West	Principal Arterial, 2-lane	C/B/D	D/C/E
LA 3127	East-West	Minor Arterial, 2-lane	C	D

Source: Houma-Thibodaux Metropolitan Area Transportation Plan Update and LADOTD Summary Logs Estimates



2.6 WHY IS EMERGENCY AND HURRICANE EVACUATION NEEDED?

In the early 1990s, states became more active in planning, identifying, and managing hurricane evacuation. Hurricane evacuation plans can be prepared at various levels of state and local governments. The present hurricane evacuation plan for the study area follows the Phased Evacuation described in the *Louisiana Citizen Awareness and Disaster Evacuation Guide* and is divided into three phases related to specific locations for the staging of evacuations. Phase 1, which is located south of the study area, recommends evacuation 50 hours prior to the onset of tropical storm force winds. Phase 2, which consists of the majority of the study area, recommends for evacuation 40 hours prior to the onset of tropical storm force winds. The area north of LA 3127 in the study area is considered Phase 3, which is recommended for evacuation 30 hours prior to the onset of tropical storm force winds.

In addition to the phased evacuation, contra flow is also used to reduce evacuation times. Contra flow is the process where travel lanes are reversed to flow in the opposite direction allowing for an increase in roadway capacity. The use of contra flow is normally used with roadway facilities that are controlled access.

2.6.1 What are the current evacuation routes in the study area?

Designated evacuation routes within the study area include US 90, LA 1, LA 20, LA 308, LA 24, and LA 3127. These designated hurricane evacuation routes are the region's six primary access routes, with the majority of the routes providing east-west connectivity. Also, these roadways, with the exception of US 90, are not controlled access facilities and are not used as contra flow during hurricane evacuation. These roadways have numerous driveways, signalized intersections, and a wide range of industrial, commercial, and residential developments that can increase evacuation times. Although sections of US 90 within the study area are controlled access, the majority of the roadway facility is not.

Three main questions were considered when deciding to designate a route as an emergency and hurricane evacuation route:

- Why does the region need improved hurricane evacuation routes?
- Why does traffic need to be distributed to both the Sunshine and Gramercy-Wallace Bridges?
- How can a north-south route help the efficiency of current evacuation routes?

2.6.1.1 Why does the region need improved hurricane evacuation routes?

The Houma-Thibodaux region has experienced an increase in population despite the limited transportation routes in the area. The roadway network is susceptible to flooding during heavy rain, high tides, and storm surges due to the low elevation of the area. These factors result in frequent roadway flooding and traffic congestion along the limited number of hurricane evacuation routes. Public sentiment gathered from project information meetings reinforces the need for an improved hurricane evacuation route that does not flood, has sufficient capacity, and can accommodate contra flow traffic.

2.6.1.2 Why does traffic need to be distributed to both the Sunshine and Gramercy-Wallace Bridges?

The Sunshine and Gramercy-Wallace Bridges are identified as two critical transportation links that provide ability to cross the Mississippi River and provide a connection to the interstate system of roads to the north. These links provide northbound hurricane evacuation options for residents of the Houma-Thibodaux area. Currently, the east-west roads of the existing network

Contra Flow

Contra flow is the process where travel lanes are reversed to flow in the opposite direction allowing for an increase in roadway capacity.

Controlled Access

Controlled access roadways have specific locations where vehicles can enter and exit the roadway, typically at an interchange or intersection with another roadway.



provide good access to the Sunshine Bridge. Due to limited north-south system connectivity, the Gramercy-Wallace Bridge is currently under-utilized. Access to the Gramercy-Wallace Bridge from LA 3127 has recently been improved with the completion of the LA 3213 connector. However, traffic diverted to this route from the east-west corridors (US 90, LA 1, and LA 308) will be limited without improvements to north-south connectivity. Because the critical links in a transportation network control the amount of time it takes to evacuate the area, the best alternatives for hurricane evacuation are those that are able to provide a more balanced distribution of traffic. This reduces the overall time it takes to evacuate an area.

2.6.1.3 How can a north-south route help improve efficiency of current evacuation?

The only designated hurricane evacuation routes for the residents of the study area are LA 1, LA 20, LA 24, LA 3127, LA 308, and US 90. No roads within the study area use contra flow during a hurricane evacuation. In addition, the study area does not have a continuous designated north-south hurricane evacuation route.

The six available routes mainly provide east-west access; none travel directly northward. US 90 is the evacuation route with the most capacity. Extending east to New Orleans, it intersects with I-310 and I-10, which, in turn, provides access to northern routes such as I-55 and I-59. In the westward direction, US 90 extends due west before turning northward towards New Iberia and eventually to I-10 in Lafayette. The future I-49 corridor will increase the capacity for hurricane evacuation traffic in this direction.

Since the current roadway network provides a majority of east-west connectivity and lacks north-south routes, the addition of a controlled access facility to service northward travel for evacuations would greatly increase the number of residents who can and will evacuate and reduce their travel times, getting them to safety using a more efficient and faster route.

2.6.2 What happened during the evacuation related to Hurricane Gustav?

After Hurricane Katrina, the Lafourche Parish Hurricane Needs Assessments (as part of the Louisiana Speaks Program) indicated that a north-south evacuation route to I-10 was identified as a priority issue to be addressed for the Houma-Thibodaux area to recover and prepare for future emergency situations.

Prior to Hurricane Gustav making landfall in August of 2008, the SCPDC placed traffic counters in locations that would best measure any traffic that evacuated the region. Traffic counters were placed on evacuation routes, such as US 90, LA 20, LA 1, and LA 308. The recorded traffic numbers show that a significant amount of vehicles were heading in the northern direction.

Traffic numbers recorded on August 30, 2008 show that on LA 20 just south of LA 3127 in South-Vacherie, a total of 12,497 vehicles were recorded; while on LA 1 north of Thibodaux, a total of 6,530 vehicles were recorded; and on LA 308 just north of Thibodaux, a total of 5,686 vehicles were recorded headed toward LA 70. In comparison, a total of 16,895 vehicles were recorded as traveling east/west on US 90.

Table 2.7 shows existing traffic volumes and corresponding LOS for five of the six primary roadways in the study area. No data was collected for LA 24. This data is from the Traffic Analysis, which was completed for the Houma-Thibodaux to I-10 Connection. It shows existing traffic volumes along with corresponding LOS and also shows the traffic volumes under evacuation conditions on August 30, 2008. While there are no corresponding LOS assignments for the evacuation traffic volumes, clearly the volumes of traffic push the roadways beyond their capacity.

The study area lacks a north south route that would reduce the amount of time it takes for residents to relocate to areas of safety.



**Table 2.7
Generalized Capacities of the Primary Access Roadways**

Roadway (segment)	Alignment	Facility Type	Existing Traffic Volume and LOS	Evacuation Traffic Volumes (August 30, 2008)
US 90	East-West	Expressway, 4-lane	6,425 LOS A	16,895
LA 20 (South of LA 3127)	North-South	Principal Arterial, 2-Lane	4,153 LOS E	12,497
LA 308 (North of Thibodaux)	East-West	Minor Arterial, 2-lane	2,550 LOS D	5,686
LA 1 (North of Thibodaux)	East-West	Principal Arterial, 2-lane	4,420 LOS C	6,530
LA 3127 (East of LA 20)	East-West	Minor Arterial, 2-lane	2,412 LOS C	11,288

Source: South Central Planning and Development Commission, Traffic Count Stations Studied During Hurricane Gustav

The addition of a controlled access northbound route for evacuations could greatly increase the number of residents who can/will evacuate and reduce their travel times, getting them to safety in a faster and more effective manner.



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CHAPTER 3. DEVELOPMENT OF ALTERNATIVES



CHAPTER 3. DEVELOPMENT OF ALTERNATIVES

This chapter presents the development and screening process of alternatives for the Houma-Thibodaux to Louisiana Highway 3127 (LA 3127) Connection Draft Environmental Impact Statement (DEIS). Alternatives that failed to meet the Purpose and Need of the project were eliminated from further consideration. The alternatives were also scored against human and environmental screening criteria. Alternatives that were identified as reasonable were further evaluated and refined.

3.1 INTRODUCTION

In conjunction with the Louisiana Department of Transportation and Development (LADOTD) and the Federal Highway Administration (FHWA), the project team developed guidelines for the engineering design criteria used in developing the alternatives for the Houma-Thibodaux to LA 3127 Connection. The LADOTD Roadway Design Procedures and Details (2009) and the American Association of State Highway and Transportation Officials (AASHTO) "Green Book" (2001) were used to establish engineering design criteria that complies with state and federal guidelines for vehicle safety and mobility. For the purpose of developing the preliminary alternatives, it was assumed that all new location alternatives would be a four-lane divided, limited-access (freeway) with a corridor width of 300 feet. This assumption for the need of a corridor width of 300 feet was confirmed through traffic forecasts and modeling. Models used were Houma transportation model (TRANPLAN) and LADOTD statewide model.

The development of alternatives for the Houma-Thibodaux to LA 3127 Connection DEIS used a three-phase evaluation process. The first phase involved defining the study area, compiling screening criteria and constraints data, and using Quantm™ Alignment Optimization Software (Quantm™) to develop conceptual routes. The second phase presented the potential routes to the various agencies and the public to obtain feedback associated with the routes. During this phase, the study area was expanded and additional routes were developed based on the feedback and comments provided by the resource agencies. The third phase reviewed the recommended routes against the Purpose and Need, to define the routes that would be further analyzed within the DEIS.

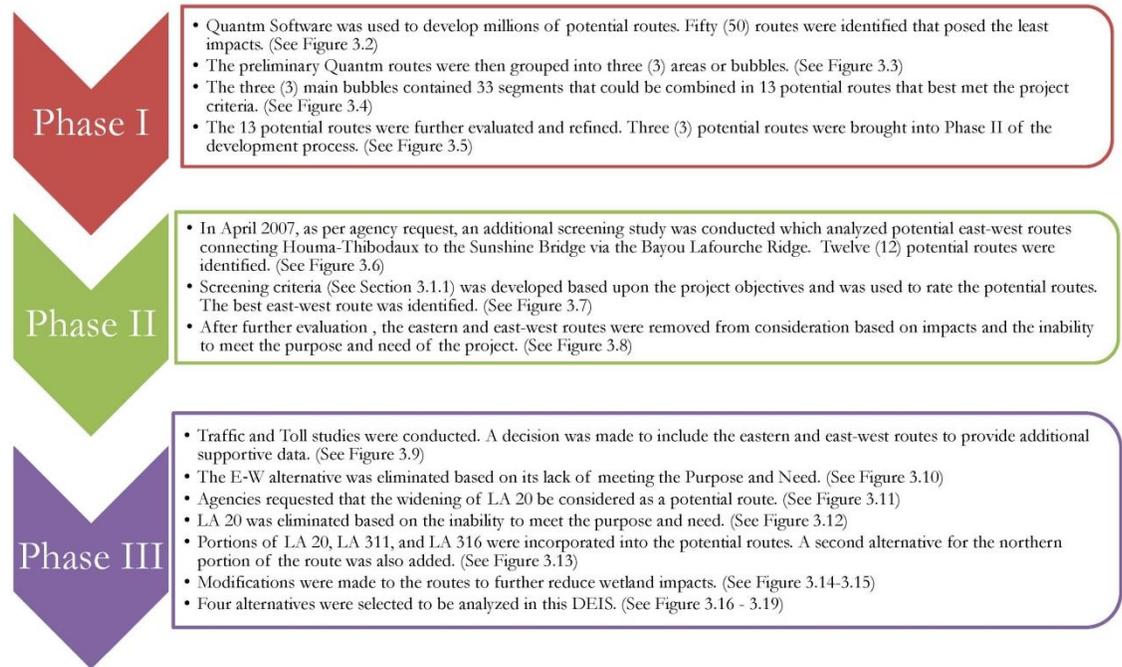
3.2 HOW WERE THE ALTERNATIVES DEVELOPED?

The development of the Reasonable Alternatives was broken up into three phases. **Figure 3-1** illustrates the development process, while outlining the major decisions of each phase. For a full history of the alternative development process, see the *Alternative Development History Technical Memorandum* in Appendix D.





Figure 3-1
Alternative Development History



3.2.1 How were the alternatives evaluated?

In order to evaluate the alternatives against the Purpose and Need of the project and to identify the associated environmental consequences, screening criteria was developed and considered based upon the project objectives. Alignments were evaluated against screening criteria categories and ranked on a scale of high, medium, and low. Throughout the development process, routes that were identified as potential alternatives were assessed through this criteria. Potential alternatives that scored poorly against the screening criteria were eliminated from further consideration. Alternatives that were identified as reasonable were further evaluated and refined. The screening criteria used are listed in **Section 3.2.4.1**. See the *Alternative Development History Tech Memo* for more detailed information on the evaluation and elimination process used to arrive at the reasonable build alternatives.

3.2.2 Phase I

The first phase involved defining the study area, compiling screening criteria and constraints data, and using Quantum™ Alignment Optimization Software to develop conceptual routes.

During 2005, the project team collected data and developed maps to describe the existing conditions of the study area. Preliminary scopes for evaluating existing traffic and preliminary toll studies were also developed.¹

The project used Quantum™ as the starting point in developing conceptual routes within the study area. Quantum™ is a route optimization tool that allows users to test numerous corridors and segments within a defined set of constraints and design criteria.

Quantum™ is a geographic information system (GIS) platform used as a planning analysis tool, which generates possible alignments between two fixed points. The software navigates routes

¹ Houma-Thibodaux to LA 3127 Connection: Environmental Impact Statement-Project Update. August 2009



through a geographical area using a digital terrain model (having x, y, and z coordinates), unit costs, engineering design criteria (e.g., side slopes, maximum/minimum grades), and user defined constraints. Quantm™ generated numerous alternative alignment segments that allowed engineers, planners, and environmental scientists the opportunity to balance potential environmental and social impacts against project costs and engineering factors. Since Quantm™ is a GIS-based platform, numerous state, federal, and local agencies were contacted and provided their GIS data to the project team. Aerial photography was also obtained for the study area. This photography along with the GIS data served as the base data for the alternatives development process.

Quantm™ utilized two sets of criteria, engineering and environmental, to identify preliminary corridors. Establishing this criterion allowed the tool to generate potential alignment segments for the Houma-Thibodaux to LA 3127 Connection.

Engineering Criteria

The first set of criteria consisted of items such as design speed, horizontal and vertical geometry, typical sections, and right-of-way (ROW) widths (see **Table 3.1**). Quantm™ can also approximate the construction cost of each alignment. By supplying Quantm™ with cost data such as pavement costs, cut and fill costs, bridging costs, and overpass costs, a methodology can be achieved that allows consistent analysis of construction costs among the various alignment segments.

Table 3.1
Louisiana Department of Transportation and Development Design Standards for F3 Freeway

Item No.	Item	F 3
1	Design Speed (mph)	70
2	Level of Service	B3
3	Number of Travel Lanes (minimum)	4
4	Width of Travel Lanes (feet)	12
	Width of Shoulders (where used) (feet)	
5	(A) Outside	10
	(B) Inside	6
6	Type of Shoulders	Paved
	Width of Median (feet)	
7	(A) Depressed	60-90
	(B) Continuous Barrier (4 lane)	14
	Continuous Barrier (6 lane)	26
8	Foreslope Ratio	6:1
9	Back Slope Ratio	4:1
10	Pavement Cross Slope (feet per foot [ft/ft])	0.025
11	Stopping Sight Distance (feet)	625-850
12	Maximum Superelevation (ft/ft)	0.10
13	Maximum Horizontal Curvature (w/Superelevation)	3^00'
14	Maximum Grade (%)	3
15	Minimum Vertical Clearance (feet)	16
	Width ROW (feet)	
16	(A) Depressed Median)	300
	(B) Median Barrier	As Needed
	(C) Minimum Fro Edge of Bridge Structure	15-20
17	Bridge Design Load	HS-20
18	Width of Bridges (feet) (minimum) (face-to-face bridge rail)	40
19	Guardrail Required at Bridge Ends	Yes
	Horizontal Clearance (feet) (from edge of travel lane)	
20	(A) 4:1 Foreslope	N/A
	(B) 6:1 Foreslope	34



Environmental Criteria

Environmental data such as National Wetland Inventory, National Historic Registered sites, communities, and protected lands were also used by the tool. These data sets can be used as constraints (areas that would be avoided by the tool) to generate the potential alignments.

Data used as constraints:

- Lakes, rivers, stream, and reservoirs;
- National Wetland Inventory Quadrangle maps;
- Primary and secondary highways;
- Places (city and towns);
- Railroads, airports (controlled and uncontrolled);
- Landfills;
- Mines and quarries;
- Dams;
- Major utilities (i.e., pipelines, electrical transmission lines, etc.);
- Managed lands;
- Forested areas;
- Churches, schools, and cemeteries;
- Historic and archaeological sites; and
- Indian reservations and tribal land.

3.2.3 What were the Quantm™ results?

- Quantum Software was used to develop millions of potential routes. Fifty routes were identified that posed the least impacts upon environmental resources (see **Figure 3-2**).
- The project team used Quantm™ to develop costing data and assumptions to create maps that reflect the preliminary Quantm™ routes were then grouped into three areas or bubbles—the Western, Central, and Eastern alignments (see **Figure 3-3**).
- The three main bubbles contained 33 segments that could be combined in 13 potential routes that best met the project criteria (see **Figure 3-4**. Note that the letters on the figure correspond to the beginning/end points of the aforementioned segments).
- The 13 potential routes were further evaluated and refined. Three potential routes were brought forward into Phase II of the alternative development process (see **Figure 3-5**).

On May 2, 2006, a resource agency meeting was held at South Central Planning and Development Commission (SCPDC) to present the methodology used for selecting corridors and the corresponding traffic and toll studies. Following the May 2006 meeting, agencies were provided the opportunity to review and comment on the corridor and alignment selections. Out of the agency review process came considerable agency concern that corridors traversing what is known as the Bayou Lafourche Ridge connecting Houma-Thibodaux to the Sunshine Bridge were not given due consideration as viable alternatives meeting the project's Purpose and Need. As a result, in July 2006 LADOTD stopped work on the environmental impact statement (EIS) in order to address the issue.



Figure 3-2
Quantm™ Outputs

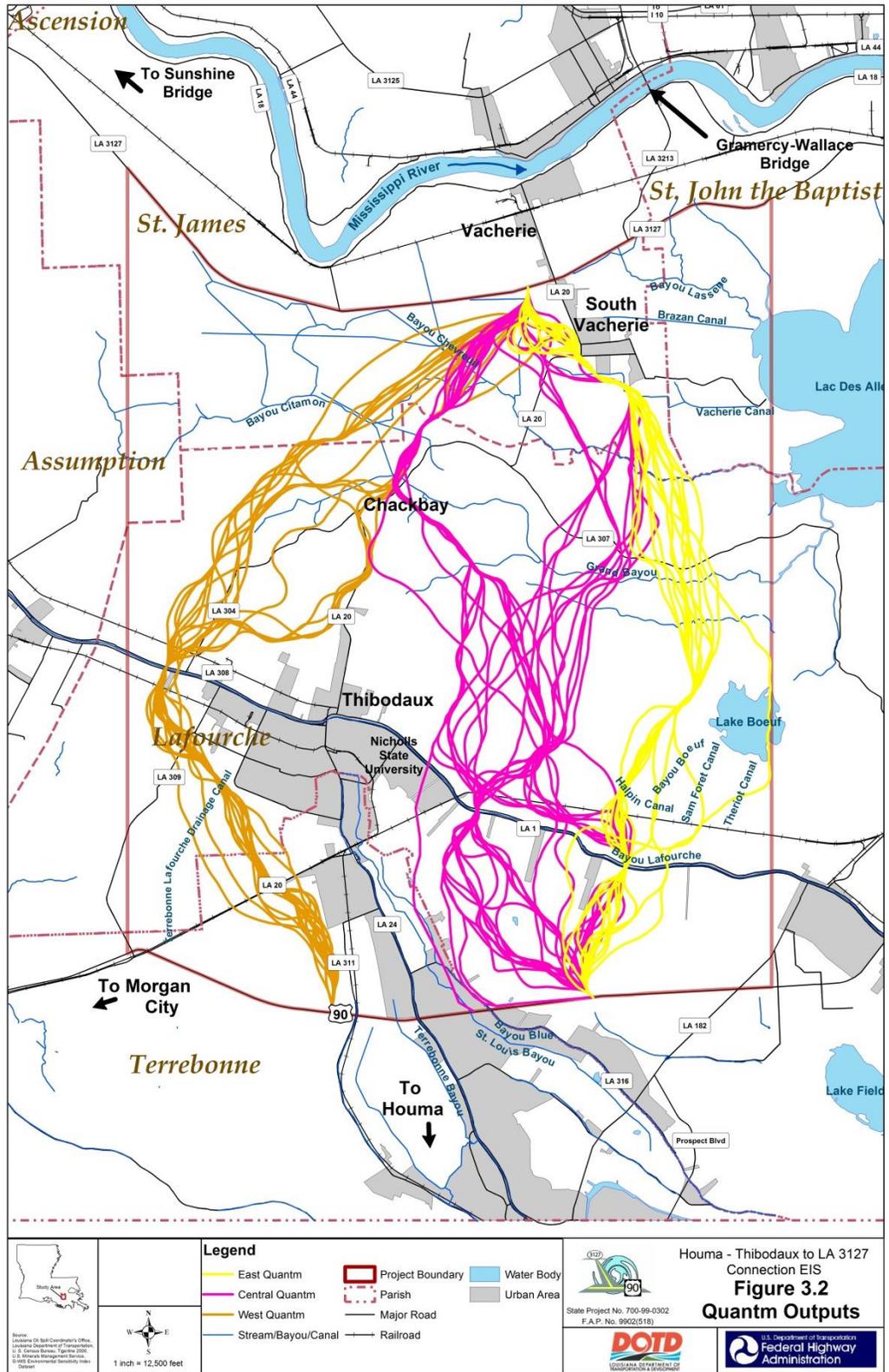




Figure 3-3
Quantm™ Bubbles

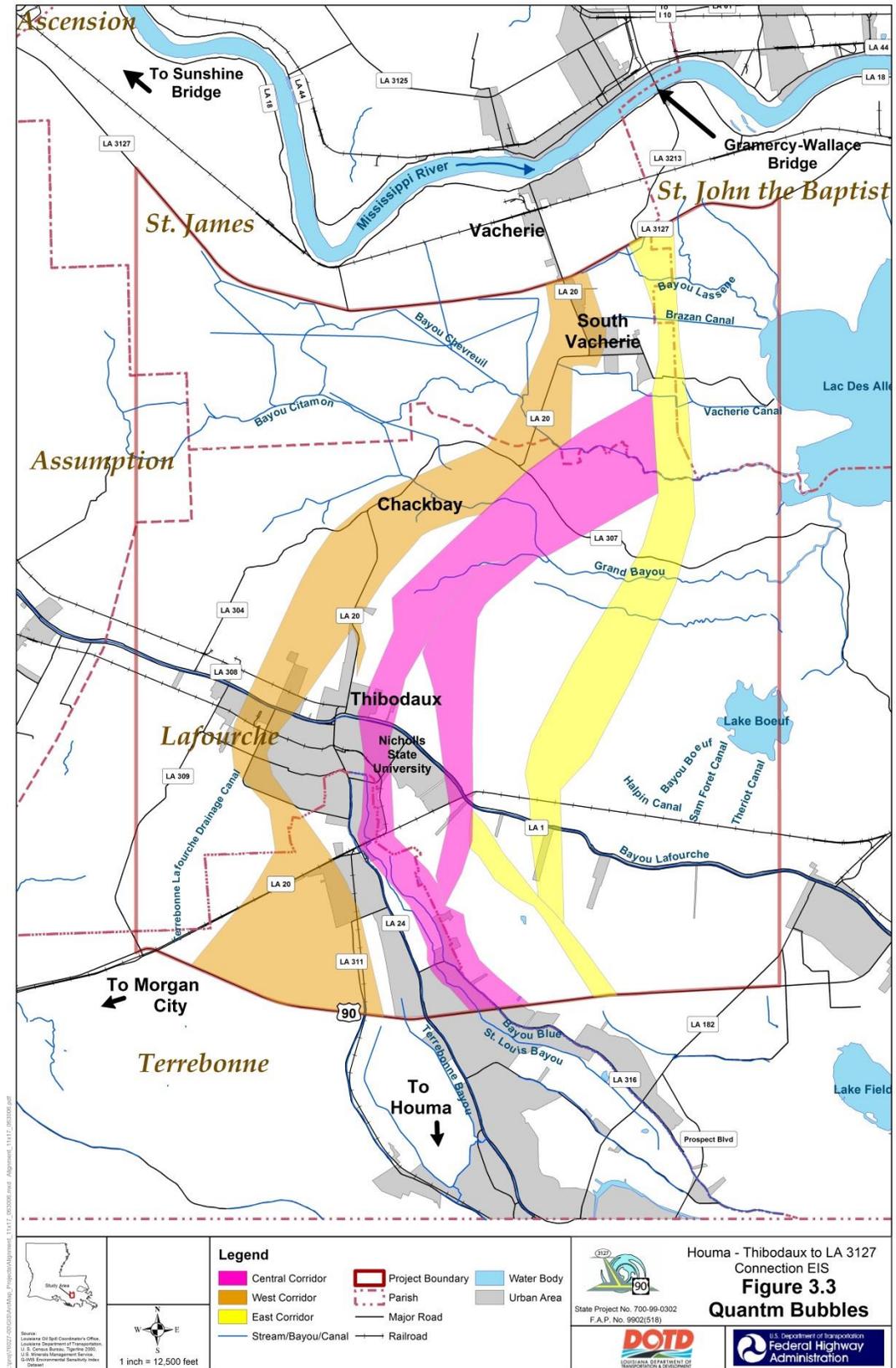




Figure 3-4
Quantm™ Potential Routes

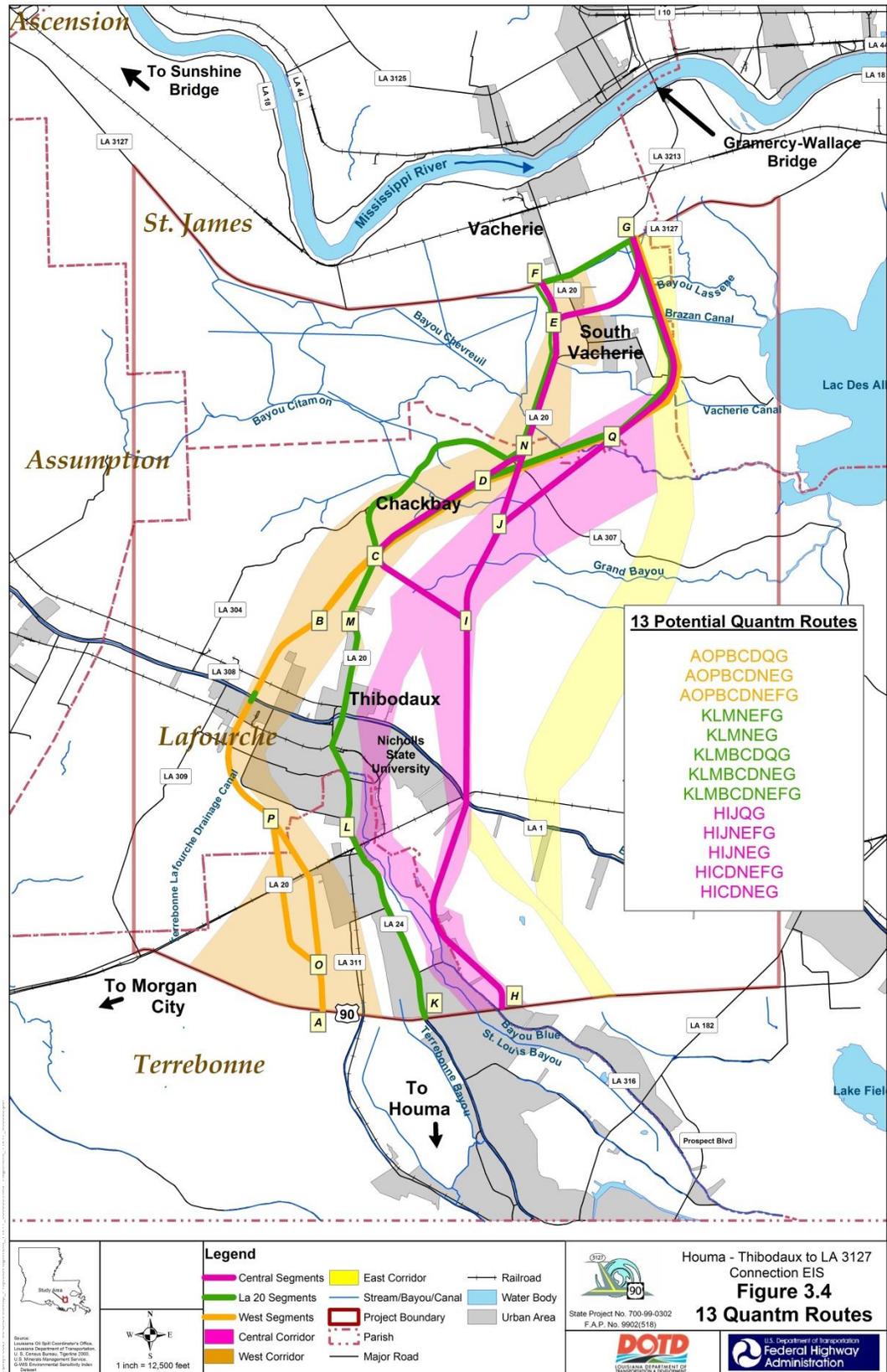
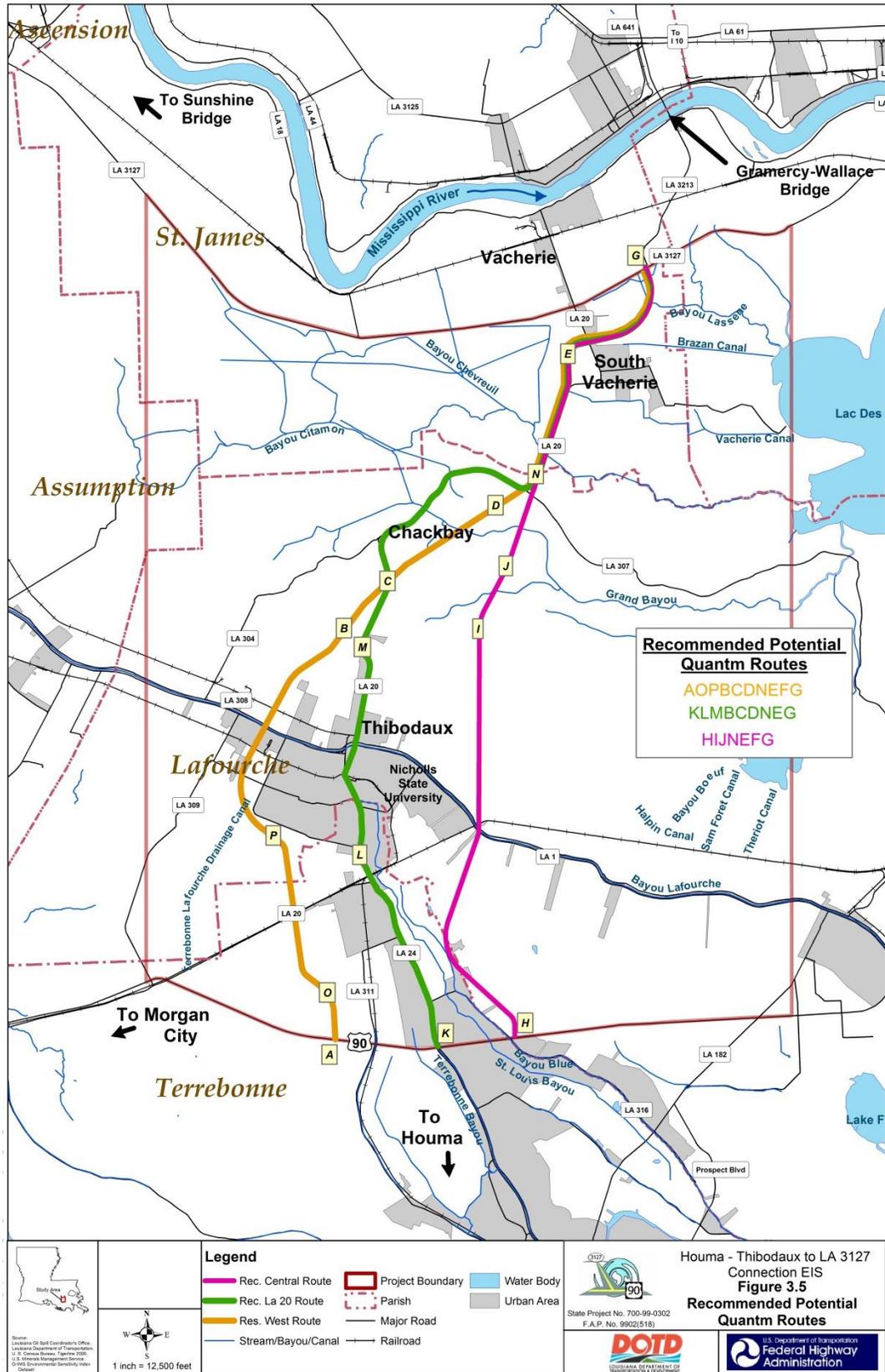




Figure 3-5
Recommended Potential Quantm Routes





3.2.4 Phase 2

LADOTD asked for a preliminary screening study in April 2007 (see Appendix E, *Final Screening Report, Preliminary Alternatives Screening Study for an East-West Corridor from Houma-Thibodaux to the Sunshine Bridge, March 2009*) to evaluate east-west alternatives that connected Houma-Thibodaux to the Sunshine Bridge via Bayou Lafourche Ridge. This study described the process employed in developing the alternative corridors, the screening criteria, and the methodology used for evaluating the corridors. Based on the Purpose and Need presented in 2006, two additional factors, North-South System Linkage and Hurricane Evacuation, were taken into consideration during the analysis. Twelve potential east-west routes were evaluated in this study (see **Figure 3-6**).

During this phase, the study area was expanded to include the area known as the Bayou Lafourche Ridge from Houma-Thibodaux area northwest to the Sunshine Bridge (see **Figure 3-7**). In addition to Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne parishes, the broadened study area included the parishes of Ascension, Assumption, and Lafourche. As a result of this study, additional routes were developed based on the feedback and comments provided by the resource agencies. This effort, which focused on minimizing impacts to cultural, agricultural, and environmental resources, resulted in four potential east-west corridors being identified. Two of the four corridors were expansions of existing facilities: LA 1 and LA 308. The remaining two corridors were placed along the ridges separating prime farmland and the environmentally protected wetlands along the northern and southern boundaries of the ridge. The four alternatives were limited access corridors with widths of 300 feet each.

The screening criteria used (see Section 3.2.4.1) to screen the east-west corridors, from which the best east-west route was identified (see **Figure 3-8**). In addition, the various segments that resulted from the Phase 1 process were also screened using these criteria. Using the developed criteria, engineers, planners, and environmental scientists were able to generate the best segment combinations for contiguous alignments in order to create a range of east-west alternatives.

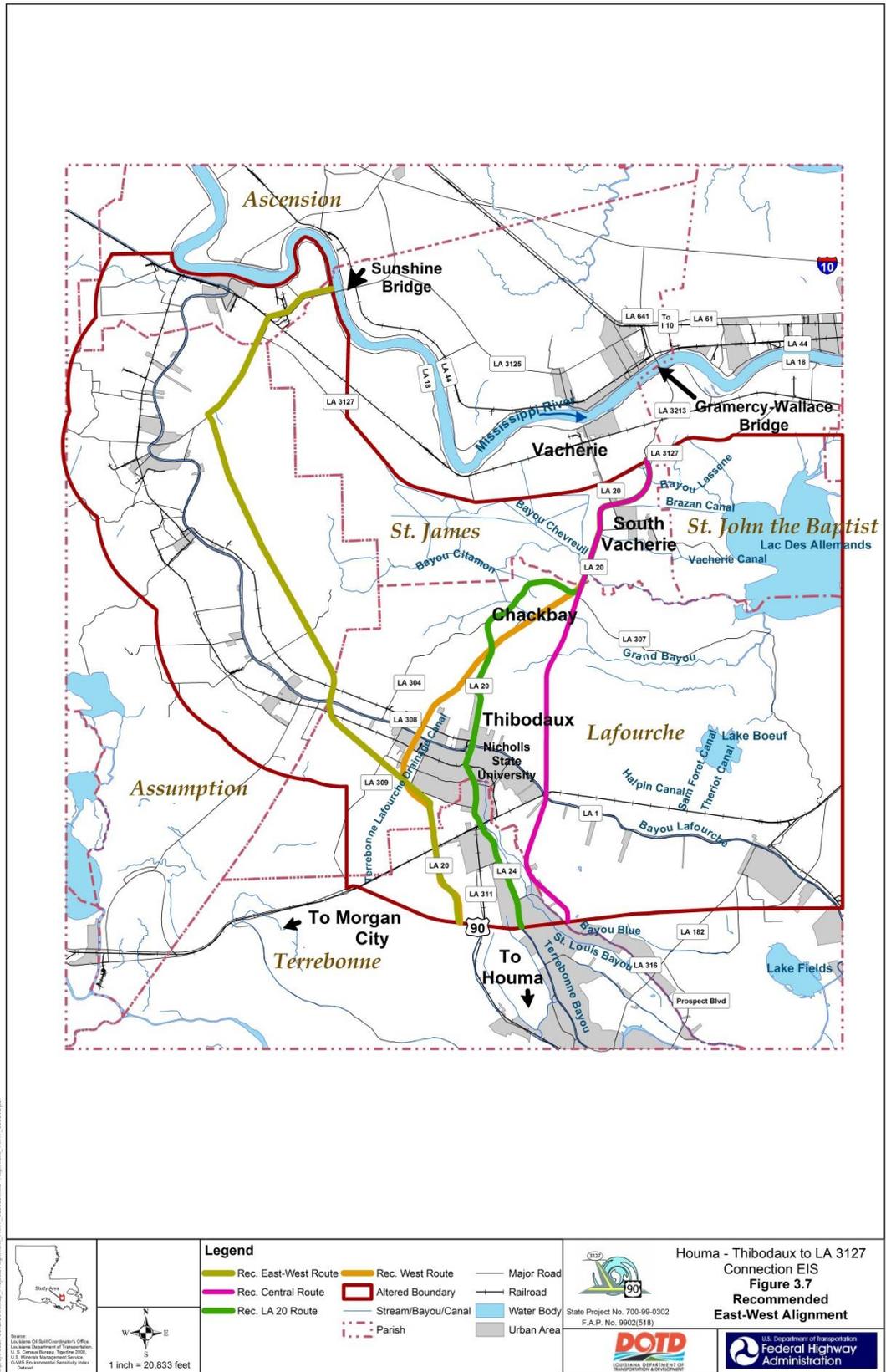
Comments received during the April 2008 agency meeting resulted in requesting an additional study comparing the effectiveness of a north-south alternative versus an east-west alternative at moving traffic in the north direction (January 2009 Traffic Study, see Appendix F). This study evaluated forecasted traffic conditions for a north-south and east-west alternative utilizing the statewide travel demand model. Results from the study indicated the ability of an east-west alternative to divert traffic from the north-south corridor and thus alleviate present capacity issues, in addition to facilitating regional trips to as far north as Baton Rouge.²

Given the relative performance of the east-west corridor compared to the north-south corridor with respect to travel demand, and its ability to reasonably achieve the project's stated Purpose and Need, it was recommended that the northernmost east-west alternative be carried forward to a more detailed level of analysis in the DEIS.

² "Houma-Thibodaux to LA 3127 Connection: Environmental Impact Statement-Project Update." August 2009



Figure 3-7
Recommended East-West Alignment





3.2.4.1 What screening criteria and constraints data were developed?

In order to evaluate the alternatives against the Purpose and Need of the project and to identify the environmental consequences associated, screening criteria was developed and considered based upon the project objectives. The screening criteria have been arranged under the headings of "Purpose and Need" and "Environmental." The Purpose and Need heading was divided into two principle elements: system linkage and hurricane evacuation. Likewise, the Environmental heading was divided into two principle elements: human environment and natural environment.

Purpose and Need

System Linkage:

- Improves north-south connectivity;
- Provides north-south system redundancy;
- Provides improved north-south highway network capacity; and
- Provides a direct, limited access route between the Houma-Thibodaux area and the Mississippi River corridor.

Hurricane Evacuation:

- Improves hurricane evacuation routes within the study area;
- Uniformly distributes traffic between the Sunshine and Gramercy-Wallace Bridges; and
- Maximizes efficient use and operation of hurricane evacuation routes and the transportation network.

Environmental

Human Environment:

- Minimizes the impacts on the surrounding community;
- Minimizes the amount of relocations;
- Minimizes the impacts on agricultural and farmland;
- Minimizes the impacts on cultural resources;
- Minimizes noise impacts;
- Minimizes the impacts on hazardous materials sites, pipelines, and wells; and
- Minimizes the impacts on protected lands.

Natural Environment:

- Minimizes impacts on invasive species;
- Minimizes impacts on Wild and Scenic Rivers;
- Minimizes impacts on threatened and endangered species;
- Minimizes impacts on essential fish habitats;
- Minimizes impacts on water quality;
- Minimizes impacts on floodplains; and
- Minimizes impacts on wetlands.

Every effort to lessen environmental impacts was priority in the development process, specifically impacts to surrounding wetlands. In areas where avoidance is not possible, a mitigation plan will be implemented for the Preferred Alternative, which will be determined in the FEIS.



3.2.5 Phase 3

The third phase evaluated the recommended routes against the Purpose and Need to define the routes that would be carried through and analyzed in the DEIS. In November 2009, the revised Notice of Intent (see **Appendix B**) was issued to restart the DEIS project work with the expanded study area boundary (as shown in Figure 3-6) and the new northernmost east-west alternative. An agency coordination meeting was held in March 2010 to discuss the results of the supplemental screening study along with future agency and public coordination.

Following the March 2010 agency meeting, existing traffic and toll studies were revised to reflect the expanded study area boundary; see **Appendix F and G**, respectively. The northernmost east-west route was included to provide additional supportive data (see **Figure 3-9**). The results of the revised traffic study determined that the east-west alternative had an insignificant impact on projected north-south travel through the region.

In addition, the revised toll study demonstrated that tolling would still be an unfeasible option since projected toll revenues would not provide adequate funding for the project as a whole.

Based on the results of the revised traffic study, the project Purpose and Need was refined in an effort to better define north-south connectivity, which was then presented at the agency coordination meeting held in November 2010.³ During this meeting, it was recommended that the eastern and east-west alternatives be eliminated from further consideration based on the results of the revised traffic study (see Figure 3-8).

In January 2011, additional Purpose and Need information was presented to agencies for comment. In a response to the agency comments, the project team maintained the position to eliminate the east-west alternative from further consideration based on its inability to meet the Purpose and Need. Based on agency comments, it was also decided that the proposed project should utilize existing routes as much as possible along portions of the remaining alternatives.

- The east-west alternatives were eliminated again based on their lack of meeting the Purpose and Need (see **Figure 3-10**).
- Agencies requested that the widening of LA 20 be considered as a potential route (see **Figure 3-11**).
- LA 20 was eliminated from study based on the inability to meet the Purpose and Need (see **Figure 3-12**).
- Portions of LA 20, LA 311, and LA 316 were incorporated into the potential routes. A second alternative for the northern portion of the route was also added (see **Figure 3-13**).

In May 2011, the Western, Central, North A, and North B Alternatives were presented to LADOTD for comment. In August 2011, a meeting with LADOTD was held to discuss comments submitted by LADOTD and FHWA regarding the alternatives. Based on the submitted comments, the Western, Central, and Northern alternatives were revised submitted to LADOTD in September 2011.

³ "Houma-Thibodaux to I-10 Connection: EIS-Project Update" (HTMPO Policy Committee). April 2011.



Figure 3-9
Traffic/Toll Evaluation on Four Alignments

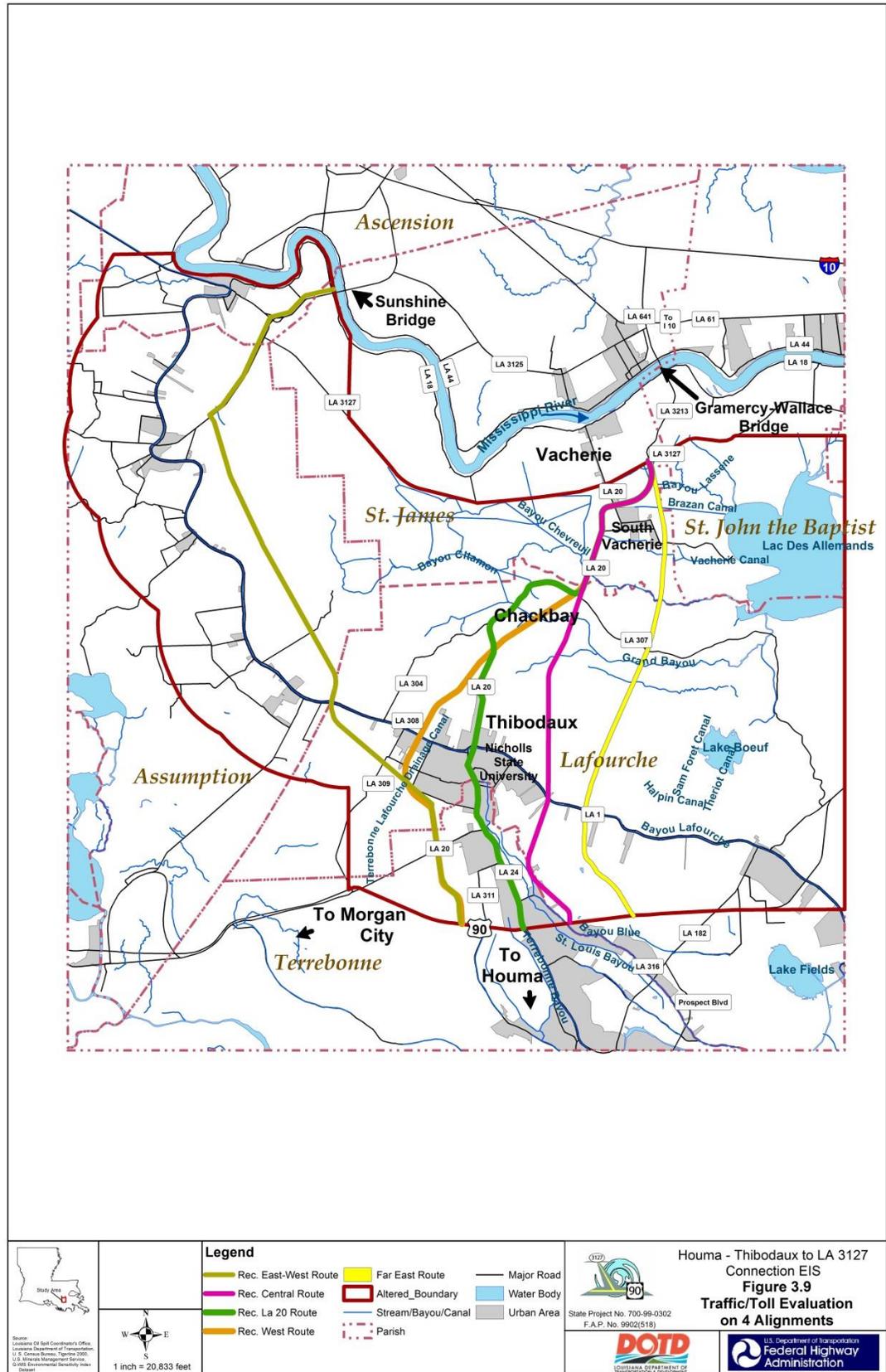




Figure 3-10
Screening No. 2

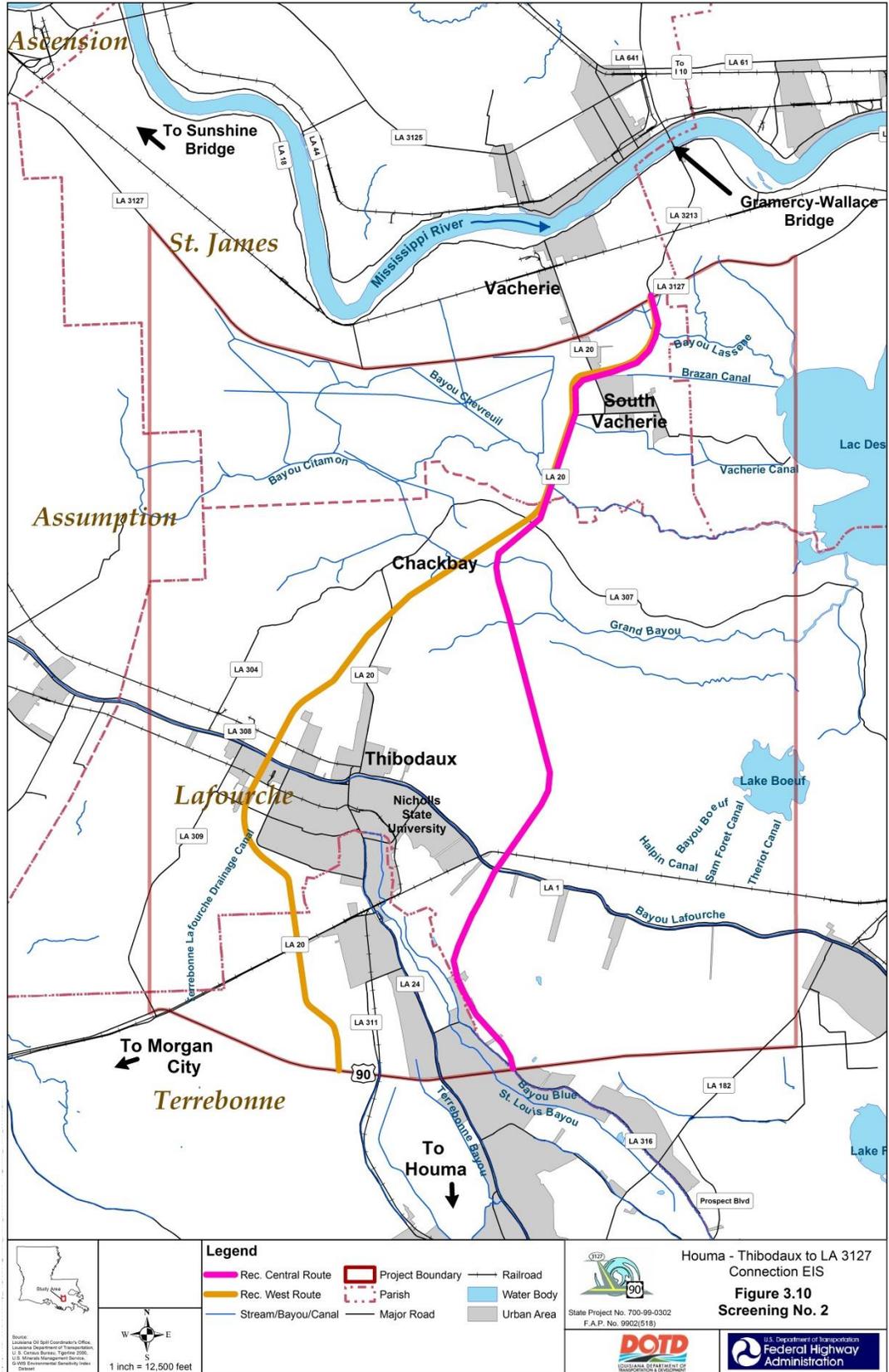




Figure 3-11
Additional Consideration and Refinement of Previous Alignments

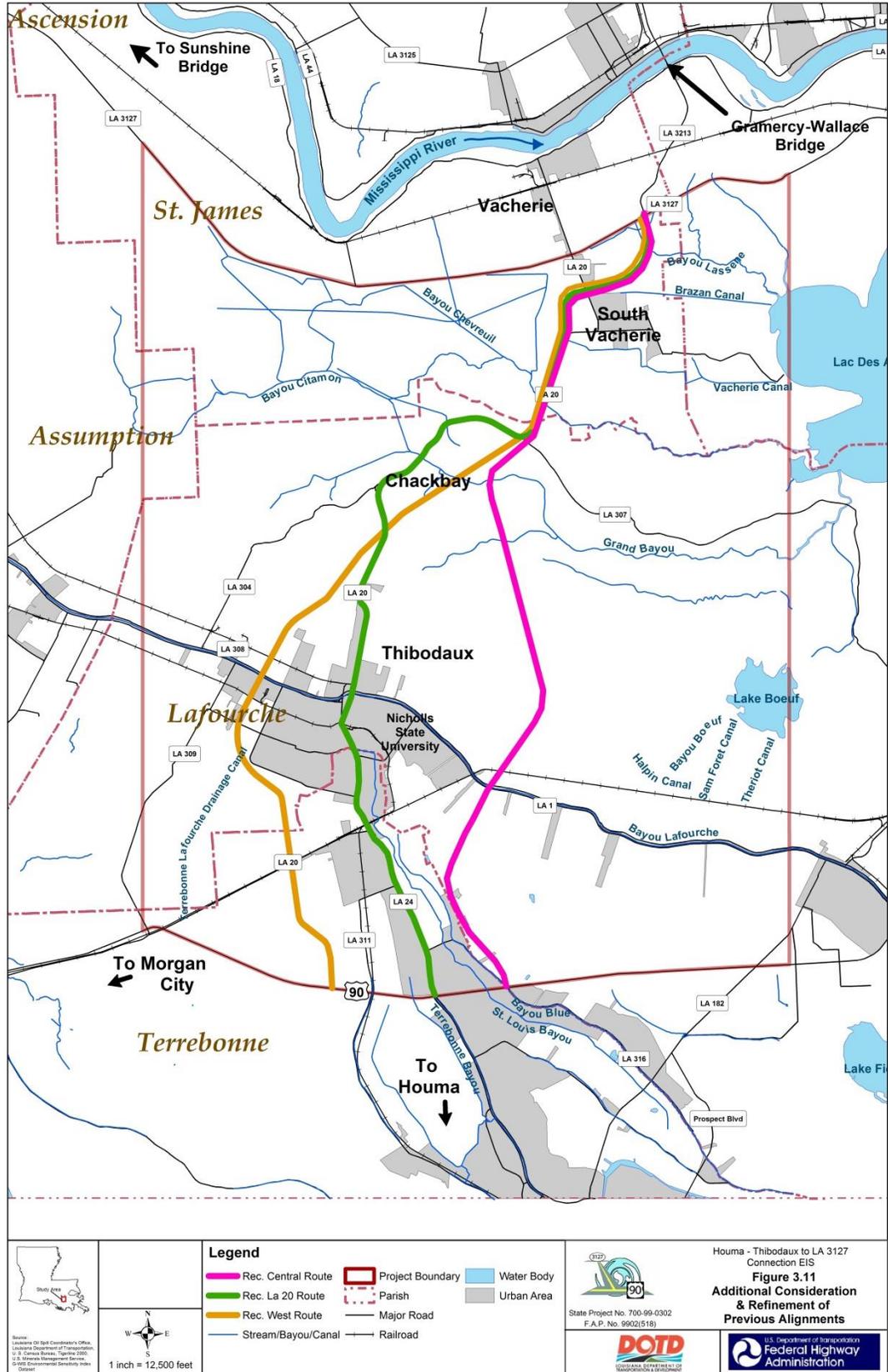
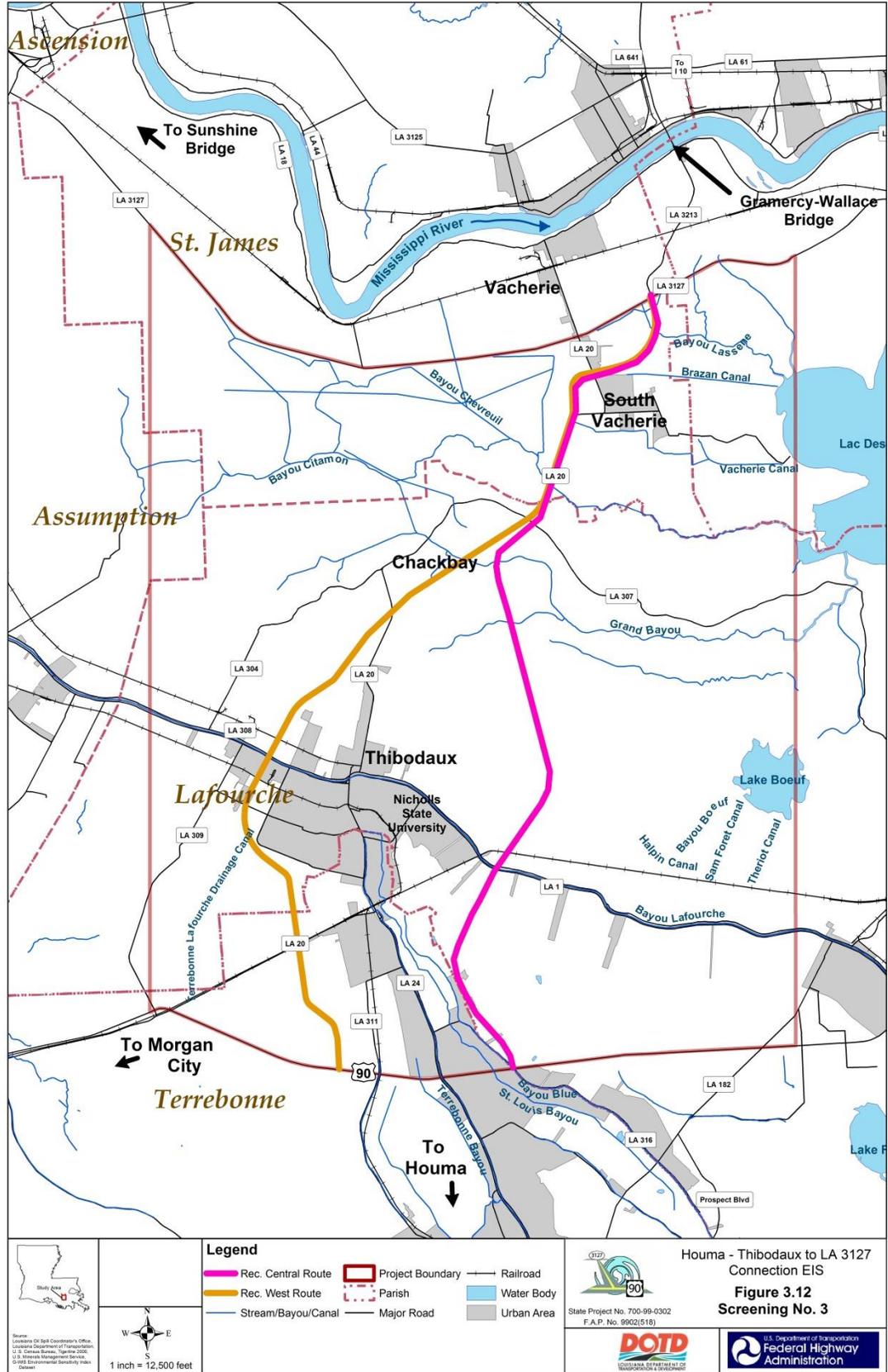




Figure 3-12
Screening No. 3





A meeting with LADOTD and FHWA was held in March 2012 to discuss the Reasonable Alternatives. Components of the preliminary costs estimates for ROW, relocations, mitigations, and construction were discussed to obtain comments and suggestions from agencies for adjustments to the alternatives. In addition, consideration was given to the ability of each alternative to meet the Purpose and Need, impacts to the human and natural environments, traffic demands, and current and future development of the study area. Subsequently, LADOTD and FHWA made the decision to carry forward the Western and North A alternatives to the agency meeting for additional input.

- The study area was reduced again because the additional east-west routes were eliminated based on feedback and comments provided by the resource agencies.

The Agency Coordination Meeting was held at the SCPDC in late March 2012. During this meeting, an overview of the project's history and current standing in regards to the National Environmental Policy Act of 1969 (NEPA) process was presented and discussed. This meeting represented Coordination Point 3, which is the final agency coordination prior to the DEIS (for more information see Chapter 5). The meeting's overall objective was to discuss the results of the alternative screening and the selection of the Reasonable Alternatives.

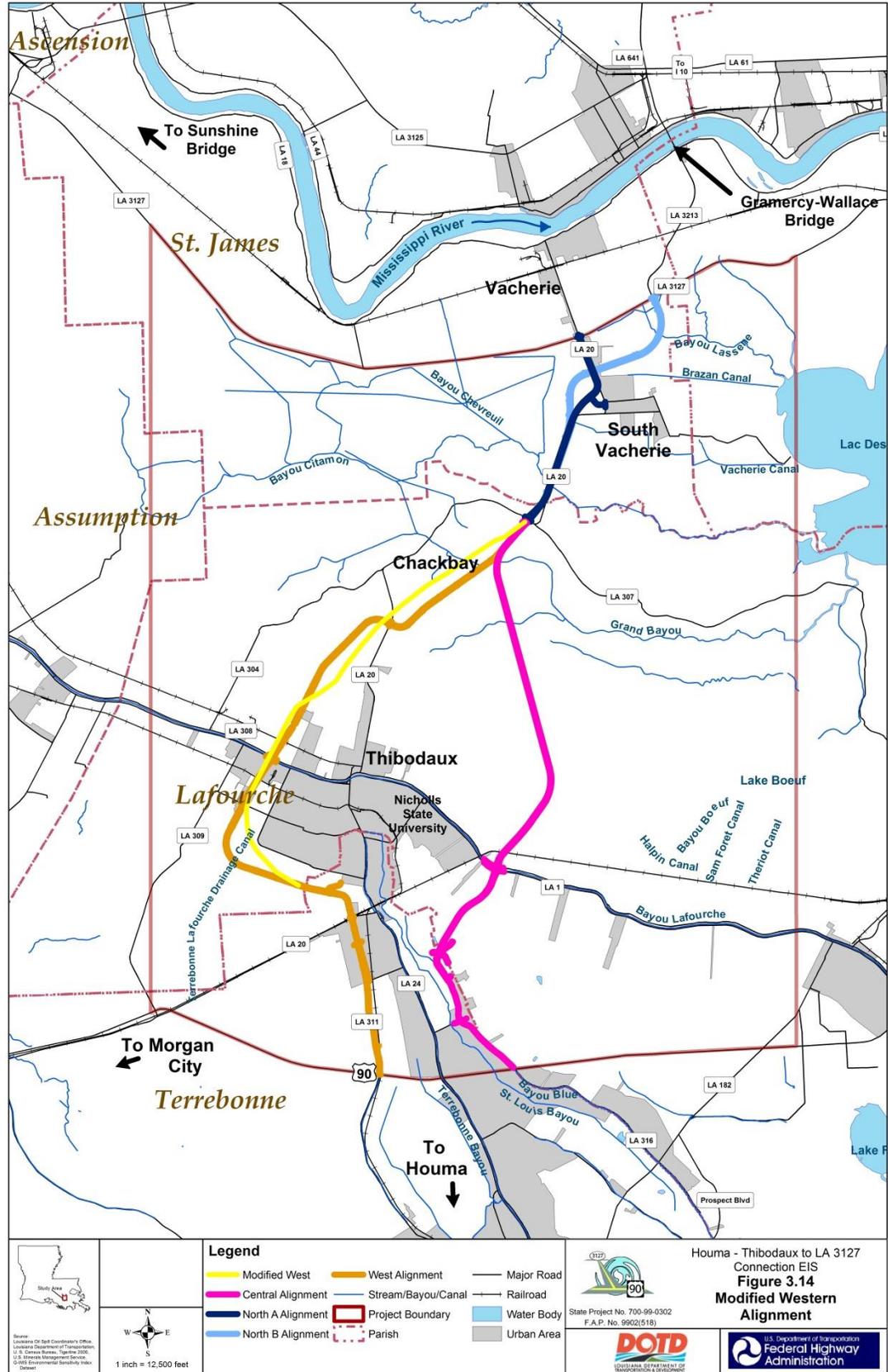
Based on comments provided from U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service (USFWS), agencies were more supportive of the Western Alternative over the Eastern Alternative; however, some adjustments would need to be made to the alignment to avoid additional impacts and to provide an interchange in the intersection with LA 20. Further modifications to the routes were made to reduce wetland impacts (see **Figure 3-14**). As a result of the agency comments, minor adjustments were made to the alignment for the Western Alternative. The updated Western Alternative was presented to LADOTD in July 2012. LADOTD also provided a response to USACE meeting comments in August 2012.

The four alternatives being taken into detailed study for this DEIS are as follows:

- **Alternative 1 (Western Alignment + North Alignment "A")** proposes to connect US 90 and LA 3127 by incorporating the existing alignment along LA 311 (Western Alignment) with LA 20 (Segment North A) as well as new construction, resulting in a 26.6-mile, four-lane divided roadway. The northern terminus of *Alternative 1 (Western Alignment + North Alignment "A")* will be the intersection of LA 20 and LA 3127 and the southern terminus will be the intersection of LA 311 and US 90 (see **Figure 3-15**).
- **Alternative 2 (Western Alignment + North Alignment "B")** proposes to connect US 90 and LA 3127 by incorporating the existing alignment along LA 311, but will not utilize segment North A as in *Alternative 1 (Western Alignment + North Alignment "A")* to reach LA 3127. Instead, *Alternative 2 (Western Alignment + North Alignment "B")* connects the Western Alignment with Segment North B resulting in a 28.8-mile four-lane, divided roadway (see **Figure 3-15**).



Figure 3-14
Modified Western Alignment





- **Alternative 3 (Central Alignment + North Alignment "A")** proposes to connect US 90 and LA 3127 by incorporating the existing alignment along LA 316 (Central Alignment) and LA 20 (Segment North A) as well as construction on a new location, resulting in a 22.6-mile, four-lane divided roadway. The northern terminus of *Alternative 3 (Central Alignment + North Alignment "A")* will be the intersection of LA 20 and LA 3127 and the southern terminus will be the intersection of US 90 and LA 316 (see **Figure 3-15**).
- **Alternative 4 (Central Alignment + North Alignment "B")** proposes to connect US 90 and LA 3127 by incorporating the existing alignment along LA 316 (Central Alignment) and connect to segment North B. The connection of the Central Alignment and segment North B will result in a 24.8-mile four-lane, divided roadway (see **Figure 3-15**).

For a full history of the alternative development process, see the Alternative Development History Technical Memorandum in Appendix D.

3.3 THE PRELIMINARY ALTERNATIVES

3.3.1 What alternatives were considered but eliminated?

Eastern Alignment

During the initial Quantm™ trials of Phase I, the potential for an eastern alignment was identified. Over the course of Phase I, screening criteria were refined multiple times (final screening criteria can be found in Section 3.2.4.1) in order to ensure that the alignment alternatives would pose the least possible impact. Through this process, it was determined that an eastern alignment failed to meet the Purpose and Need for the project. To ensure there were no additional benefits to the existing transportation network from an alignment located within the eastern part of the study area (from a traffic standpoint), an eastern alignment was included in a toll feasibility study (see Appendix G). Following the results of the toll feasibility study, the eastern alignment was removed from further study not only due to environmental impacts, but due to poor performance in the traffic analysis as well.

At the end of Phase II, it was determined to revise and update both the tolling and traffic studies due to the time that had elapsed and changes that may have occurred within the study area. The eastern alignment was included in the updates to the tolling and traffic studies. The tolling and traffic analyses remained consistent. Again, the eastern alignment was removed due to its poor performance from a traffic perspective and was not further studied.

East-West Alignment

Out of the review process following Phase I of the screening study came considerable agency concern that corridors traversing what is known as the Bayou Lafourche Ridge connecting Houma-Thibodaux to the Sunshine Bridge (east-west connections) were not given due consideration as viable options to meet the project's Purpose and Need. As a result, the agencies requested that east-west alignments be considered. In April 2007, an additional screening study was conducted that analyzed potential corridors connecting Houma-Thibodaux to the Sunshine Bridge via the Bayou Lafourche Ridge. A total of 12 potential routes were developed that met the project criteria. It was determined that a viable east-west alignment exists that would connect Houma-Thibodaux to the Sunshine Bridge. The northernmost east-west alignment (N1) provided additional capacity between US 90 and I-10; however, its inability to provide north-south system redundancy and improved connectivity to the underutilized Gramercy-Wallace Bridge makes it less effective than a direct north-south route at achieving the project's stated Purpose and Need. The east-west alignment was also brought into Phase III of the screening study despite concerns about the alternatives ability to meet the Purpose and Need of the project. Ultimately, the east-



west alignment was removed from further consideration due to its inability to meet the Purpose and Need of the project.

Widening of LA 20

During Phase III of the screening process, through comments provided by USFWS and USACE, the idea arose that the widening of LA 20 could serve as a stand-alone alternative. After consideration, it was determined that the widening of LA 20 as a stand-alone alternative would result in significant residential and commercial relocations and did not meet the Purpose and Need and was therefore removed from further consideration. However, portions of existing alignment (LA 20, LA 311, and LA 316) were incorporated into the four remaining alignments to provide greater connectivity and upgrades to existing infrastructure.

3.3.2 TSM, ITS, and mass transit alternatives

Traffic Systems Management

FHWA guidance requires the analysis of Transportation System Management (TSM) for the purposes of completing an EIS. TSM can be defined as improvements to an existing transportation facility or facilities that improve the flow of traffic. A TSM Alternative would feature limited, lower cost construction activities designed to maximize the efficiency and capacity of the existing highway system. These types of improvements include, but are not limited to, optimization of signal timing, intersection improvements, turning lanes, and grade separation. While these modifications would improve the current north-south highway network capacity and efficiency, the TSM Alternative fails to provide north-south system redundancy and improve overall capacity. This alternative failed to meet critical objectives from the Purpose and Need of the project; therefore, a TSM Alternative was not considered as a Reasonable Alternative.

ITS

Intelligent Transport Systems (ITS) feature advance applications and technologies to provide innovation in the area of transportation and traffic engineering. Examples of such technologies include speed limit and red light cameras, variable speed limits, and travel time notifications. In 2001, U.S. Department of Transportation (USDOT) published *The FHWA's Final Rule on the National ITS Architecture* and *The FHWA's Policy on the National ITS Architecture*. The purpose of these two documents was to encourage the use of and provide guidelines for future developments to incorporate ITS technologies through the implementation of Regional ITS Systems. While the addition of ITS alone does not meet the Purpose and Need of the project, every effort will be taken to include innovation through the use of ITS in the Reasonable Alternatives.

Mass Transit Alternative

A mass transit alternative, such as a bus or rail system, is generally only considered in urban areas with a population of over 200,000 (USDOT 1987), or where concentrated trip origins or destinations make mass transit a Reasonable Alternative. Mass transit would not be a Reasonable Alternative because of failure to meet the project's Purpose and Need to provide north-south system redundancy for automobile traffic, provide improved north-south network capacity, or to maximize the efficient use and operation of hurricane evacuation routes.



3.4 THE NO-ACTION ALTERNATIVE

Council of Environmental Quality (CEQ) regulations require that an agency "include the alternative of no-action" as one of the alternatives considered in an EIS (40 CFR 1502.14[d]). FHWA guidance states that a no-build alternative "may be a Reasonable Alternative, especially where the impacts are high and the need is relatively minor." The no-build alternative allows the evaluation of the study area in its current condition without potential impacts related to construction of the proposed project. The no-build alternative establishes a baseline of traffic, environmental, and human conditions to which the build alternatives can be compared.

3.4.1 No-build alternative

The No-build Alternative consists of the anticipated roadway network and forecast land use in 2032 without the completion of a build alternative. The LA 20 corridor currently provides north-south connectivity, but is a narrow, winding arterial road without access management. Portions of existing LA 20 show a Level of Service (LOS) E during both peak hours⁴. LOS E represents operating conditions at or near capacity levels. Freedom to maneuver within the traffic stream is extremely difficult. Comfort and convenience levels are extremely poor, and driver frustration is generally high. In the 2032 design year, due in part to continued economic growth, portions of LA 20 will continue to exhibit LOS E during peak hours, thus failing to meet the capacity needs of future users. **Table 3.2** on the following page shows the projected 2032 traffic conditions for the no-build alternative. In the future the roadway also fails as it cannot handle the capacity of a wide-scale evacuation in times of emergency, such as hurricanes. In recent years, contraflow has not been initiated on LA 20 during hurricane evacuations due to the absence of controlled access⁵, but LA 20 must still handle the majority of the traffic volume. This causes severe bottle necking and delays. In order to improve LA 20, in terms of access management and capacity, significant widening and lack of ROW would cause the relocation of numerous businesses and residences. As you will see later, this was considered but it was eliminated based on its inability to meet the Purpose and Need of the project. Selection of a No-build Alternative would ultimately avoid major expenditure and impacts to the surrounding areas, but fails to meet the Purpose and Need of the project. Throughout the alternative screening process, the no-build alternative is included as a potential alternative to new construction.

⁴ Houma-Thibodaux Metropolitan Area Transportation Plan Update and LADOTD Summary Logs Estimates

⁵ "Purpose and Need" Chapter 2. Houma-Thibodaux to LA 3127 Connection Draft Environmental Impact Statement.



**Table 3.2
No-build Traffic Conditions**

Roadway	Limits	Direction	Measurement	Existing 2010	Projected 2032		
LA 311	US 90 to LA 24	Northbound	LOS (AM/PM)	D/D	E/E		
			ADT	4400	7100		
		Southbound	LOS (AM/PM)	D/D	E/E		
			ADT	4300	7000		
LA 24	US 90 to LA 311	Northbound	LOS (AM/PM)	A/B	B/C		
			ADT	11100	18600		
		Southbound	LOS (AM/PM)	A/A	B/B		
			ADT	11300	19400		
	LA 311 to LA 20	Northbound	LOS (AM/PM)	B/B	C/C		
		Southbound	LOS (AM/PM)	B/B	C/C		
LA 316	US 90 to LA 24	Eastbound	LOS (AM/PM)	B/B	C/C		
			ADT	700	3700		
		Westbound	LOS (AM/PM)	B/B	C/C		
			ADT	700	3700		
		LA 648	LA 20 to LA 1	Northbound	LOS (AM/PM)	D/D, B/C	E/E, C/D
					ADT	6700, 2800	12400, 5400
Southbound	LOS (AM/PM)			D/D, B/C	E/E, C/D		
	ADT			6400, 2800	11800, 5200		
LA 3185	LA 20 to LA 1	Northbound	LOS (AM/PM)	C/C	D/E		
			ADT	3700	7400		
		Southbound	LOS (AM/PM)	C/C	D/E		
			ADT	3600	7400		
		LA 20	US 90 to LA 24	Northbound	LOS (AM/PM)	B/B	A/B
					ADT	2200	1900
Southbound	LOS (AM/PM)			B/B	A/B		
	ADT			2100	1800		
LA 308 to LA 304	Northbound			LOS (AM/PM)	A/A, E/E	B/B, E/E	
				ADT	9000, 5800	15000, 8100	
	Southbound		LOS (AM/PM)	A/B, E/E	C/C, E/E		
			ADT	10700, 2700	17900, 8000		
LA 304 to LA 307	LA 304 to LA 307		Northbound	LOS (AM/PM)	E/E	E/E	
				ADT	4300	5200	
			Southbound	LOS (AM/PM)	E/E	E/E	
				ADT	4300	5200	
	LA 307 to LA 643	Northbound	LOS (AM/PM)	E/E	E/E		
			ADT	3300	5100		
		Southbound	LOS (AM/PM)	E/E	E/E		
			ADT	3300	5100		
LA 643 to LA 3127	LA 643 to LA 3127	Northbound	LOS (AM/PM)	E/E	E/E		
			ADT	5300	6400		
		Southbound	LOS (AM/PM)	E/E	E/E		
			ADT	5300	6300		
		LA 3127	LA 20 to LA 3213	Eastbound	LOS (AM/PM)	D/C	D/D
					ADT	2000	3000
Westbound	LOS (AM/PM)			D/C	D/D		
	ADT			2100	3000		

LOS = Level of Service
ADT = Average Daily Traffic



3.5 HOW WAS THE PUBLIC INVOLVED IN DEVELOPMENT OF THE ALTERNATIVES?

The first public meeting was held at 7:00 p.m. on Thursday, July 15, 2004. The purpose of the meeting was to inform the general public on the progress and schedule of the studies currently underway, present and explain the project overview including Purpose and Need, and to solicit input from the public. The comments directed to the federal and state officials, and the consultant team for consideration, paraphrased and broadly summarized, included:

- A route that would take motorists north into the St. James Parish area, because some of the stretches of I-10 east of the Gramercy-Wallace Bridge are vulnerable to flooding should be considered.
- The southern boundary of the project area, US 90, does not extend to the south enough to allow the residents of Terrebonne Parish ready access to the evacuation route.

On November 18, 2004 the second public involvement meeting was held in order to provide information on the progress of the project and to receive input from the public. Following a presentation by Buchart Horn, comments and questions were taken from those in attendance and included:

- Attendees felt that the scope of work for the project should be extended to include I-10.
- Multiple attendees indicated that a direct route to the Gramercy-Wallace Bridge was the most desirable.

On November 27, 2007, a public meeting was held to present the East-West Alignment alternatives. Maps were presented of the potential alternative routes to give the public a visual representation of the project. Some comments and questions addressed by the public included:

- Great concern was shown for the amount of wetlands that would be affected by the construction of any of the proposed routes.
- Some attendees showed interest in a northern terminus that would be equidistant between the Sunshine Bridge and the Gramercy-Wallace Bridge in order to obtain an even capacity distribution, while others wanted to only focus on the Gramercy-Wallace Bridge.

On March 9, 2010, a meeting was held to provide the public with an update on the current phase of the project, coordination efforts to date, upcoming public involvement opportunities, and to illicit comments on the alternatives presented. Some comments and questions addressed by the public included:

- Attendees showed concern for potential impacts to wetlands.
- Attendees continued support for routes that would provide greater access to the Gramercy-Wallace Bridge.
- Attendees showed continued support for the project and voiced what ways they felt the project would benefit the area.



3.6 HOW WERE THE AGENCIES INVOLVED IN THE DEVELOPMENT OF THE ALTERNATIVES?

On July 13, 2004 a formal interagency scoping meeting was held in the offices of the SCPDC followed by a field visit. A PowerPoint presentation was made to outline the scope of the project. Areas that were addressed and comments and concerns raised by the agencies during this meeting include:

- USACE and EPA raised concerns regarding the conclusions reached in a prior 1999 URS report, particularly regarding the elimination of the Gramercy-Wallace connection.
- USACE stated that avoidance of all major impacts is necessary (such as wetlands, cultural areas, endangered species, etc.). It was noted that the 1999 URS report would be used to address avoidance.
- USACE suggested that consideration be given to the evacuation route running along the Bayou Lafourche Ridge and the expansion of the study area to accommodate traffic south of US 90.
- USACE concluded their comments stating that they feel that LADOTD has eliminated alternatives that should be considered in the NEPA process. EPA asked if the URS study could be summed up so they can see why some of the alternatives were ruled out, i.e., Bayou Lafourche Ridge Alternative. It was also noted that I-49 future developments and the Donaldsonville to the Gulf study recommendations, to name just a few of the other projects in the area, need to be addressed.
- USFWS suggested strong consideration of using elevated structures through the wetland areas because fill would have significant immediate and long-term impacts both from a biologic and hydrologic standpoint. It was noted that access to the facility must be controlled regardless, and elevation of the roadway is the best way to provide that access control.

On November 18, 2004, an agency coordination meeting was held at the SCPDC. Specific focus was placed on outlining design criteria and identifying known constraints.

- USACE pushed for a route that would follow the Bayou Lafourche Ridge. The route would extend beyond the project area, but following the west side of the Mississippi River would allow for the avoidance of Baton Rouge for increased efficiency in times of evacuation.
- USACE stated that a transportation link should be the primary purpose of this project since the corridor will be used as such a majority of the time. Defining the purpose of the project as a hurricane evacuation route is too broad and allows for too many alternatives.
- USACE also voiced great concern regarding the potential impact to wetlands that the project could incur. USACE stated that they were revising the methods of wetland mitigation and requested that direct and indirect impacts be considered.

On May 2, 2006 a resource agency meeting was held at the SCPDC. The methodology used to select the three north-south corridors in addition to the traffic analysis and toll study were presented to the agencies at this meeting. Out of the review process came considerable agency concern that corridors traversing what is known as the Bayou Lafourche Ridge connecting Houma-Thibodaux to the Sunshine Bridge (east-west connections) were not given due consideration as viable options to meet the project's Purpose and Need. As a result, the agencies requested that east-west alignments be considered for the proposed project.



On November 18, 2010, an Agency Coordination Meeting was held at the SCPDC. The purpose of this coordination meeting was to present the results of a revised traffic analysis. Also presented at this coordination meeting was a refined project Purpose and Need, prepared in response to the updated traffic results, and the alternatives recommended to be carried into the DEIS.

On March 27, 2012, LADOTD and FHWA staff, local officials, agency representatives, and the project consultant participated in a coordination meeting for the project. Based on this meeting, USACE presented comments (March 30 and May 9, 2012) related to the project and the environmental process. Modifications to the western project alignment were made to address comments presented during the agency meeting (Figure 3.14). The alignment shown in yellow displays the improvements of the original western alignment. The improvements allow for the minimization of impacts along the western alignment.

3.7 THE REASONABLE ALTERNATIVES

3.7.1 Which alternatives were designated as the reasonable build alternatives?

The four alternatives selected as the reasonable build alternatives are described in the following sections. Please refer to **Figure 3-20** and **Figure 3-21** at the end of this chapter for typical sections based on the design roadway classifications.

3.7.1.1 Alternative 1 (Design, Traffic, and Cost)

Design

Alternative 1 (Western Alignment + North Alignment "A") proposes to connect US 90 and LA 3127 by incorporating the existing alignment along LA 311 (Western Alignment) with LA 20 (Segment North A) as well as new construction, resulting in a 26.6-mile, four-lane divided roadway. The northern terminus of *Alternative 1 (Western Alignment + North Alignment "A")* will be the intersection of LA 20 and LA 3127 and the southern terminus will be the intersection of LA 311 and US 90 (see **Figure 3-16**).

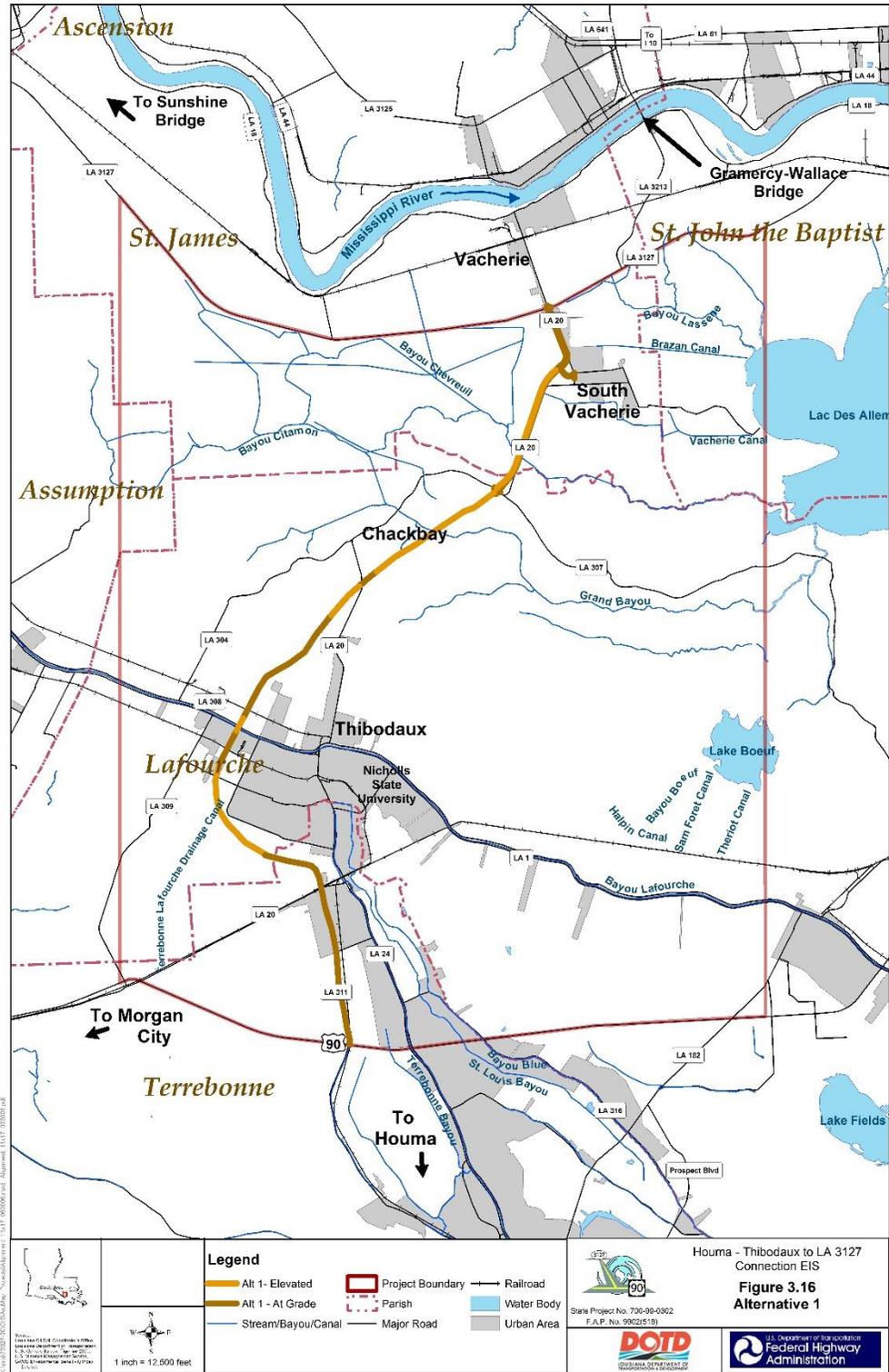
Western Alignment

Beginning at the southern terminus, *Alternative 1 (Western Alignment + North Alignment "A")* will maintain the existing interchange and will move in a generally northern direction along LA 311. North of the interchange, the raised grass median transitions from the existing 28-foot width to 16-foot in width, remaining within the range deemed acceptable by LADOTD UA-2 design criteria.

The alignment will continue in a generally northern direction for 4.3 miles before intersecting with LA 20 and Amtrak Rail before shifting westward and transitioning to a UA-4 design. Under the guidance of LADOTD UA-4 design criteria, the median will transition from a 16-foot raised, grass median to a 53-foot depressed, grass median and will maintain four lanes. Shortly after the transition to a UA-4 roadway, the alignment will move onto a proposed bridge structure. Potential wetlands have been identified in this area, so to minimize impact it is suggested that the alignment be elevated. The elevated alignment will continue in the westerly direction for 3 miles before reaching the end of the bridge structure, where the alignment will transition back to the previously described UA-4 design, and shifting to a northeasterly direction.



Figure 3-16
Alternative 1 (Western Alignment + North Alignment "A")





The alignment will continue in the northeasterly direction, overpassing LA 1, Bayou Lafourche, and LA 308 with a proposed bridge structure. Shortly after the interchange, the alignment will leave the bridge structure and promptly transition to a RA-2 roadway classification, with the median remaining a 53-foot depressed, grass median. The alignment will then continue in the northeasterly direction for approximately 2 miles before again moving onto a proposed bridge structure. Again, elevation of the roadway is suggested in this area to minimize impacts to potential wetlands. The alignment will continue on the bridge structure until reaching LA 20, where it will transition back to at-grade roadway.

Shortly after the intersection with LA 20, the alignment will move onto a proposed bridge structure to accommodate for more potential wetlands. The elevated alignment will continue in the northeasterly direction, eventually crossing Bayou Boeuf, and will come to a proposed diamond interchange with LA 20 for a second time. This second intersection of LA 20 marks the end of the Western Alignment portion of *Alternative 1 (Western Alignment + North Alignment "A")* and begins the North A portion of *Alternative 1 (Western Alignment + North Alignment "A")*.

Segment North A

The alignment will continue in a northeasterly direction on the bridge structures, crossing Chevreuril Bayou, and will shift slightly to run parallel with the existing LA 20 corridor. The alignment running parallel to the existing LA 20 allows for continued access throughout construction, with the intention of using the new alignment to replace portions of LA 20 once complete. Approximately 2 miles after crossing Chevreuril Bayou, the alignment will stray from the existing LA 20 corridor for approximately 1 mile. Within this section, proposed, intersecting roadways will allow for access to existing properties, and the alignment will transition from the bridge structure to at-grade roadway before reconnecting to the existing LA 20 corridor. The alignment will continue along the existing LA 20 corridor for approximately 1.5 miles before reaching its northern terminus at the current intersection of LA 20 and LA 3127.

Traffic

Alternative 1 (Western Alignment + North Alignment "A") is projected to operate at a LOS A in the 2032 design year. See **Table 3.3** on the following page for information on the projected 2032 LOS and ADT. With the 2032 *Alternative 1*, an improved LOS can be expected on LA 311 from the projected 'No-Build' conditions. LA 20 is still expected to operate at LOS E in the northern portion of the study area. However, a reduction in the delay is expected as the volumes were reduced along the corridor with the addition of the Western Alignment. See **Appendix F** for further information on projected traffic conditions.



Table 3.3
Alternative 1 Future Traffic Conditions

Limits	Direction	Measurement	Projected 2032
US 90 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4100
	Southbound	LOS (AM/PM)	A/A
		ADT	4700
LA 20 to LA 1/LA 308	Northbound	LOS (AM/PM)	A/A
		ADT	3400
	Southbound	LOS (AM/PM)	A/A
		ADT	4600
LA 1/LA 308 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	1800
	Southbound	LOS (AM/PM)	A/A
		ADT	2500
LA 20 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4800
	Southbound	LOS (AM/PM)	A/A
		ADT	5600
LA 20 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4600
	Southbound	LOS (AM/PM)	A/A
		ADT	5400

Cost

A preliminary cost estimate was prepared for the purpose of this DEIS. The construction costs were estimated by using projects of a comparable scale as a guide. **Table 3.4** below outlines the preliminary costs associated with *Alternative 1 (Western Alignment + North Alignment "A")*.

Table 3.4
Alternative 1 Cost Estimate

Project	Cost
Construction Cost	\$581,042,088
Required Right-of-Way	\$110,500,000
Wetlands Mitigation	\$12,750,000
Relocation	\$5,400,000
Design	\$50,000,000
TOTAL COST	\$759,692,088

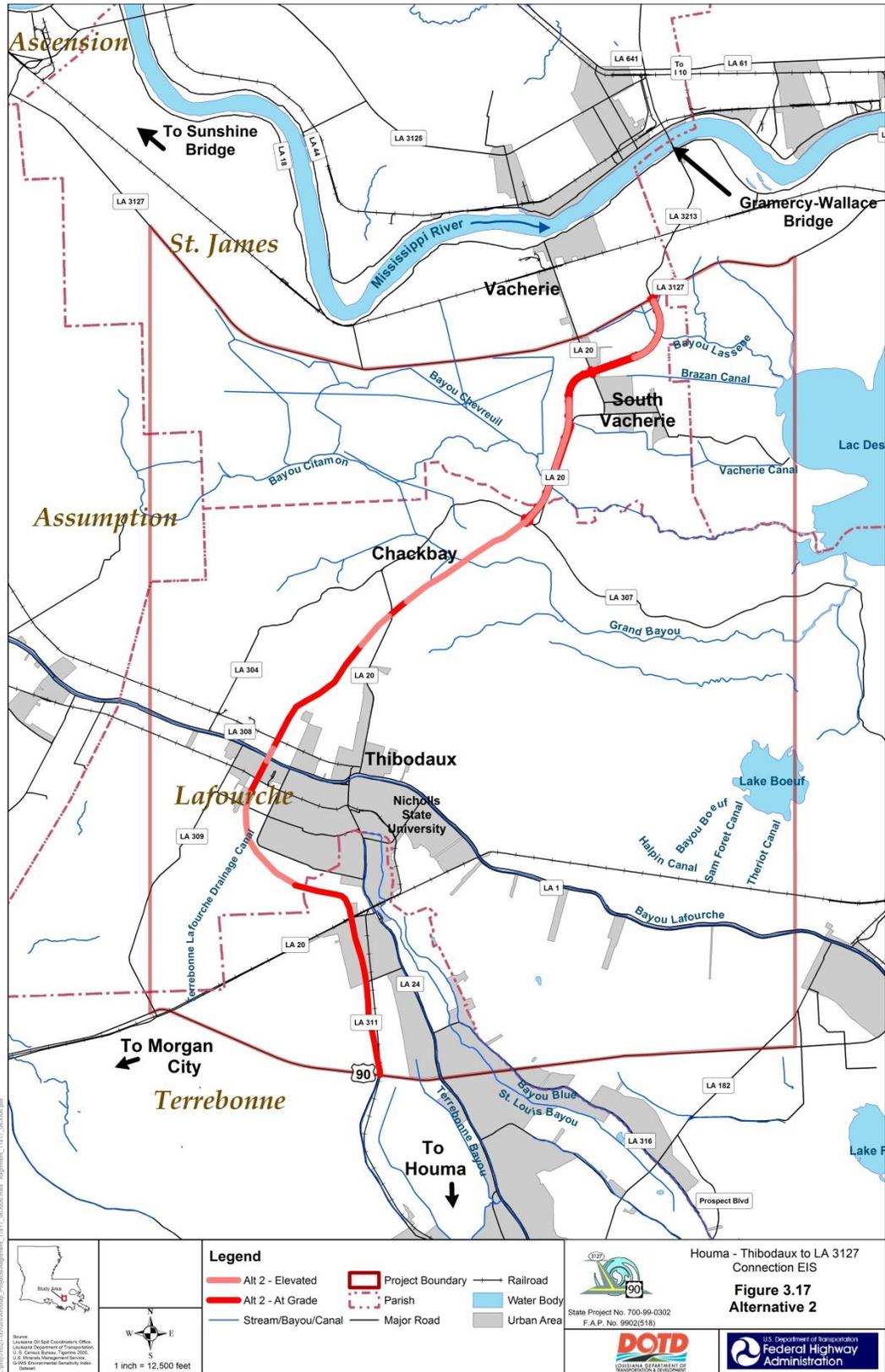
3.7.1.2 Alternative 2 (Design, Traffic, and Cost)

Design

Alternative 2 (Western Alignment + North Alignment "B") proposes to connect US 90 and LA 3127 by incorporating the existing alignment along LA 311 (Western Alignment as described in **Section 3.7.1.1, Design**), but will not utilize segment North A as in *Alternative 1 (Western Alignment + North Alignment "A")* to reach LA 3127. Instead, *Alternative 2 (Western Alignment + North Alignment "B")* connects the Western Alignment with Segment North B resulting in a 28.8-mile four-lane, divided roadway (see **Figure 3-17**).



Figure 3-17
Alternative 2 (Western Alignment + North Alignment "B")





Segment North B

Arriving at the end of the Western Alignment (as fully described in **Section 3.7.1.1, Design**), *Alternative 2 (Western Alignment + North Alignment "B")* will now connect to segment North B for the remainder of the alignment. Similar to segment North A, the alignment will continue in a northeasterly direction on the bridge structures, crossing Chevreuil Bayou, and will shift slightly to run parallel with the existing LA 20 corridor. The alignment running parallel to the existing LA 20 allows for continued access throughout construction, with the intention of using the new alignment to replace portions of LA 20 once complete. Approximately 2 miles after crossing Chevreuil Bayou, the alignment will stray from the existing LA 20 corridor for approximately 1 mile. Within this section, proposed, intersecting roadways will allow for access to existing properties, and the alignment will transition from the bridge structure to at-grade roadway before momentarily reconnecting to LA 20. The alignment will then leave the LA 20 corridor and shift easterly as at-grade roadway on a new location. The alignment will soon move onto bridge structures in order to minimize impact to potential wetlands. The alignment will remain elevated as it shifts northerly and continues until it reaches its northern terminus at the intersection of LA 3127 and LA 3213.

Traffic

Alternative 2 (Western Alignment + North Alignment "B") is projected to operate at a LOS A in the 2032 design year. See **Table 3.5** for information on the projected 2032 LOS and ADT. With the 2032 *Alternative 2 (Western Alignment + North Alignment "B")*, an improved LOS can be expected on LA 311 from the projected 'No-Build' conditions. LA 20 is still expected to operate at LOS E in the northern portion of the study area; however, a reduction in the delay is expected as the volumes were reduced along the corridor with the addition of the Western Alignment and segment North B. *Alternative 2 (Western Alignment + North Alignment "B")* will further alleviate congestion on the northern portion of LA 20 since segment North B does not incorporate LA 20. See Appendix F for further information on projected traffic conditions.

Table 3.5
Alternative 2 Future Traffic Conditions

Limits	Direction	Measurement	Projected 2032
US 90 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4100
	Southbound	LOS (AM/PM)	A/A
		ADT	4700
LA 20 to LA 1/LA 308	Northbound	LOS (AM/PM)	A/A
		ADT	3400
	Southbound	LOS (AM/PM)	A/A
		ADT	4600
LA 1/LA 308 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	1800
	Southbound	LOS (AM/PM)	A/A
		ADT	2500
LA 20 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4800
	Southbound	LOS (AM/PM)	A/A
		ADT	5600
LA 20 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4600
	Southbound	LOS (AM/PM)	A/A
		ADT	5400
LA 20 to LA 3127	Northbound	LOS (AM/PM)	A/A
		ADT	4000
	Southbound	LOS (AM/PM)	A/A
		ADT	4600



Cost

A preliminary cost estimate was prepared for the purpose of this DEIS. The construction costs were estimated by using projects of a comparable scale as a guide. **Table 3.6** below outlines the preliminary costs associated with *Alternative 2 (Western Alignment + North Alignment "B")*.

Table 3.6
Alternative 2 Cost Estimate

Project	Cost
Construction Cost	\$655,277,218
Required Right-of-Way	\$116,700,000
Wetlands Mitigation	\$14,940,000
Relocation	\$5,100,000
Design	\$50,000,000
TOTAL COST	\$842,017,218

3.7.1.3 Alternative 3 (Design, Traffic, and Cost)

Design

Alternative 3 (Central Alignment + North Alignment "A") proposes to connect US 90 and LA 3127 by incorporating the existing alignment along LA 316 (Central Alignment) and LA 20 (Segment North A as described in **Section 3.7.1.1, Design**) as well as construction on a new location, resulting in a 22.6-mile, four-lane divided roadway. The northern terminus of *Alternative 3 (Central Alignment + North Alignment "A")* will be the intersection of LA 3213 and LA 3127 and the southern terminus will be the intersection of US 90 and LA 316 (**Figure 3-18**).

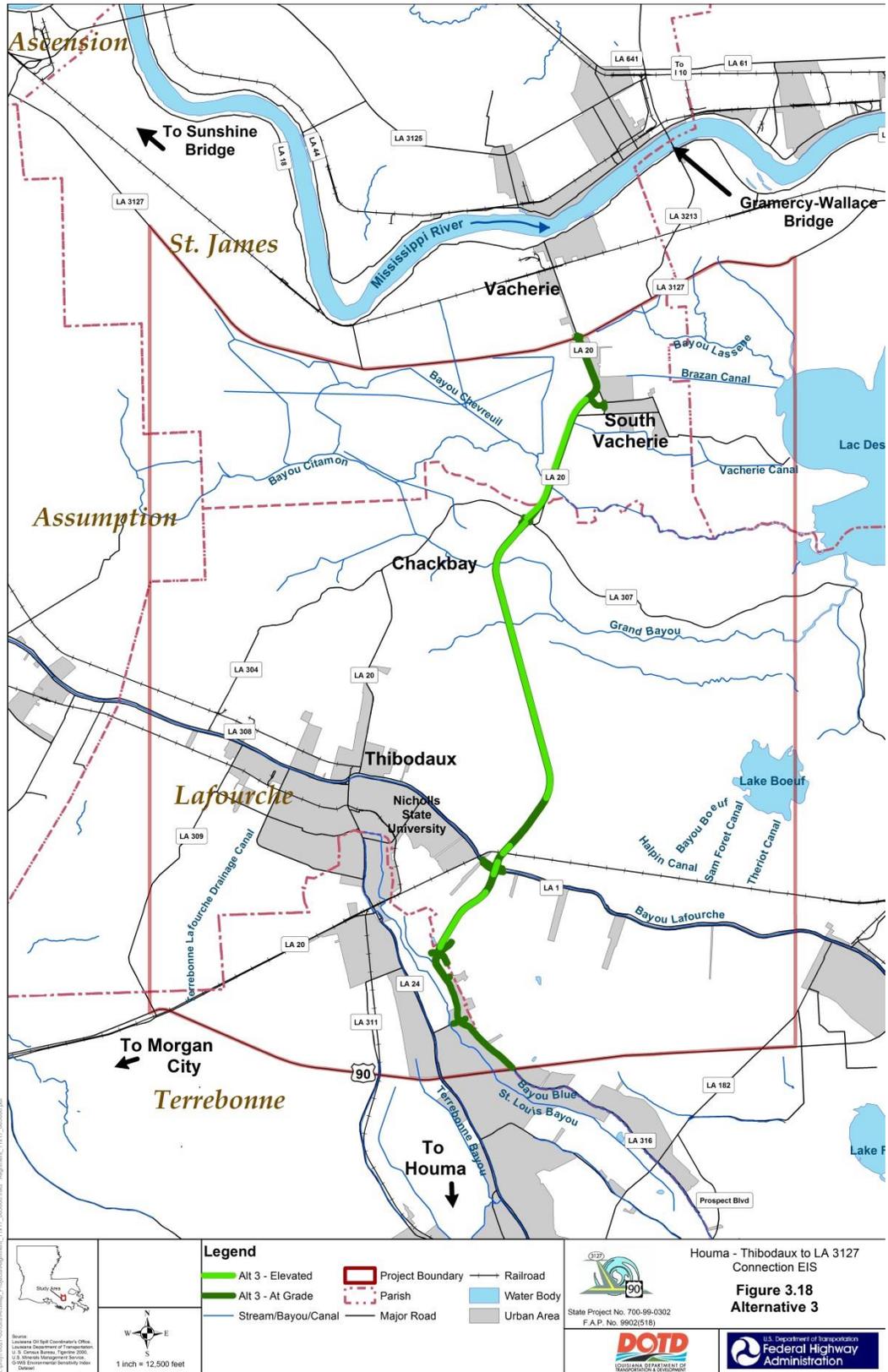
Central Alignment

Beginning at the southern terminus, *Alternative 3 (Central Alignment + North Alignment "A")* will maintain the existing interchange and will move in a northwesterly direction along LA 316. North of the interchange, the raised grass median transitions from 28 feet to 16 feet in width, remaining within the range deemed acceptable by LADOTD UA-2 design criteria. For this portion of the Central Alignment a lane width of 11 feet has been proposed in order to minimize impact to surrounding properties.

The alignment will continue in a northwesterly direction along the existing LA 316 corridor for approximately 2 miles before arriving at the intersection of LA 316 and Bayou Blue Bypass Road, leaving the LA 316 corridor and following Bayou Blue Bypass Road. At this point the median will decrease to 6 feet to minimize impact to surrounding properties. The alignment will follow the existing Bayou Blue Bypass Road for approximately 1.2 miles before departing to at-grade roadway on a new location in order to continue in the northwesterly direction. Shortly after this departure, the median will transition to a 45-foot depressed, grass median and the alignment will shift to the northeasterly direction.



Figure 3-18
Alternative 3 (Central Alignment + North Alignment "A")



Houma - Thibodaux to LA 3127 Connection EIS

Figure 3.18
Alternative 3

State Project No. 700-99-0302
F.A.P. No. 9902(518)





Continuing in the northeasterly direction, in approximately 0.5 miles, the alignment will come to a signalized intersection with Waterplant Road. Shortly after this intersection, the alignment will elevate onto proposed bridge structures in order to overpass Grand Coteau Bayou and Burma Road and to minimize impacts to potential wetlands. The alignment's classification will also transition to a UA-4 design. The alignment will continue on bridge structures in the northeasterly direction for approximately 2 miles before transitioning back to at-grade roadway on a new location, still with a UA-4 classification with a 45-foot depressed, grass median.

The alignment will continue in the northeasterly direction for approximately 0.5 miles before overpassing LA 1, Bayou Lafourche, and LA 308 with a proposed bridge structure. Shortly after leaving this bridge structure, the alignment will continue in the northeasterly direction and enter a short bridge structure in order to overpass the Southern Pacific Railroad before again returning to at-grade roadway on a new location with a 45-foot depressed, grass median. The alignment will continue on for approximately 1.7 miles before entering another bridge structure and promptly transitioning to a RA-2 classification. In order to minimize impacts to the wetlands in the area, the alignment will continue in a northerly direction for approximately 8 miles, overpassing Lepeans Canal and Choctaw Road within that span, before reaching a proposed diamond interchange with LA 20. This intersection marks the end of the Central Alignment portion of *Alternative 3 (Central Alignment + North Alignment "A")* and the beginning of the Segment North A portion of *Alternative 3 (Central Alignment + North Alignment "A")*.

Segment North A

Refer to **Section 3.7.1.1, Design** for a full description of Segment North A. *Alternative 3 (Central Alignment + North Alignment "A")* will reach its northern terminus at the intersection of LA 20 and LA 3127.

Traffic

Alternative 3 (Central Alignment + North Alignment "A") is projected to operate at a LOS A in the 2032 design year. See **Table 3.7** below for information on the projected 2032 LOS and ADT. With the 2032 *Alternative 3 (Central Alignment + North Alignment "A")*, improvements in LOS can be expected along LA 20 southbound north of LA 308. Although LA 20 in the northern portion of the study area is expected to operate at a LOS E for both peaks, reductions in delay can be expected as the traffic volumes in this section were reduced with the introduction of this alignment. LA 316 and LA 648 are still expected to operate at the same LOS as the No Build condition. However, a reduction in the delay is expected as the volumes were reduced along the corridor with the addition of the central alignment. See Appendix F for further information on projected traffic conditions.

**Table 3.7
Alternative 3 Future Traffic Conditions**

Limits	Direction	Measurement	Projected 2032
LA 316 to LA 308/LA 1	Northbound	LOS (AM/PM)	A/A
		ADT	3900
	Southbound	LOS (AM/PM)	A/A
		ADT	3800
LA 308/LA 1 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4600
	Southbound	LOS (AM/PM)	A/A
		ADT	4600
LA 20 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4200
	Southbound	LOS (AM/PM)	A/A
		ADT	4700



Cost

A preliminary cost estimate was prepared for the purpose of this DEIS. The construction costs were estimated by using projects of a comparable scale as a guide. **Table 3.8** below outlines the preliminary costs associated with Alternative 3.

**Table 3.8
Alternative 3 Cost Estimate**

Project	Cost
Construction Cost	\$568,186,806
Required Right-of-Way	\$97,500,000
Wetlands Mitigation	\$13,830,000
Relocation	\$5,650,000
Design	\$50,000,000
TOTAL COST	\$735,166,806

3.7.1.4 Alternative 4 (Design, Traffic, and Cost)

Design

Alternative 4 (Central Alignment + North Alignment "B") will begin with the Central Alignment (as fully described in **Section 3.7.1.3, Design**) and connect to segment North B (as fully described in **Section 3.7.1.2, Design**). The connection of the Central Alignment and segment North B will result in a 24.8-mile four-lane, divided roadway (see **Figure 3-19**).

Traffic

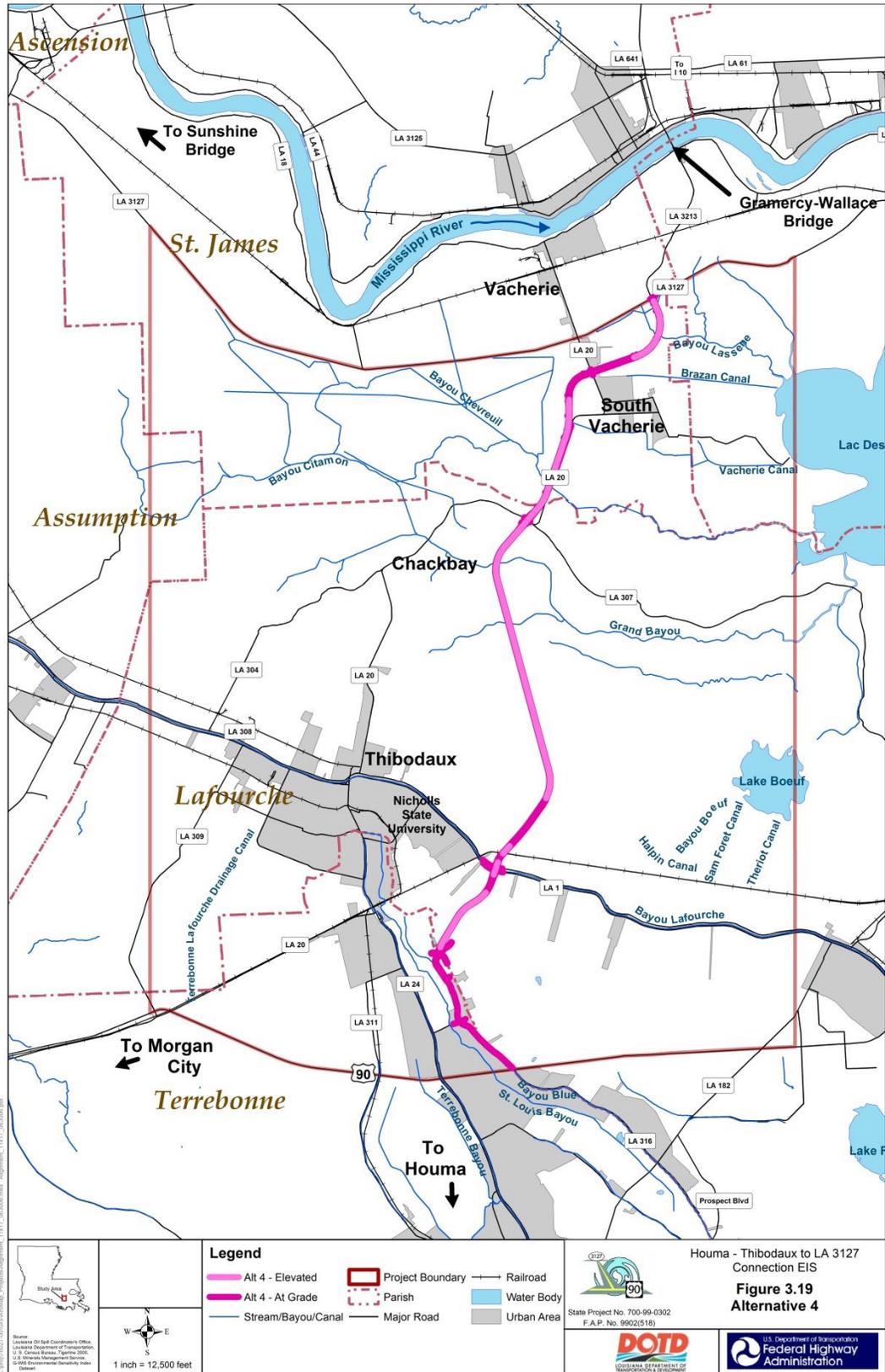
Alternative 4 (Central Alignment + North Alignment "B") is projected to operate at a LOS A in the 2032 design year. See **Table 3.9** below for information on the projected 2032 LOS and ADT. With the 2032 *Alternative 4 (Central Alignment + North Alignment "B")*, improvements in LOS can be expected along LA 20 southbound north of LA 308. Although LA 20 in the northern portion of the study area is expected to operate at a LOS E for both peaks, reductions in delay can be expected as the traffic volumes in this section were reduced with the introduction of this alignment. LA 316 and LA 648 are still expected to operate at the same LOS as the No Build condition. However, a reduction in the delay is expected as the volumes were reduced along the corridor with the addition of the central alignment. *Alternative 4 (Central Alignment + North Alignment "B")* will further alleviate congestion on the northern portion of LA 20 since segment North B does not incorporate LA 20. See **Appendix F** for further information on projected traffic conditions.

**Table 3.9
Alternative 4 Future Traffic Conditions**

Limits	Direction	Measurement	Projected 2032
LA 316 to LA 308/LA 1	Northbound	LOS (AM/PM)	A/A
		ADT	3900
	Southbound	LOS (AM/PM)	A/A
		ADT	3800
LA 308/LA 1 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	4600
	Southbound	LOS (AM/PM)	A/A
		ADT	4600
LA 20 to LA 20	Northbound	LOS (AM/PM)	A/A
		ADT	5300
	Southbound	LOS (AM/PM)	A/A
		ADT	5200
LA 20 to LA 3127	Northbound	LOS (AM/PM)	A/A
		ADT	4100
	Southbound	LOS (AM/PM)	A/A
		ADT	4400



Figure 3-19
Alternative 4 (Central Alignment + North Alignment "B")





Cost

A preliminary cost estimate was prepared for the purpose of this DEIS. The construction costs were estimated by using projects of a comparable scale as a guide. **Table 3.10** below outlines the preliminary costs associated with *Alternative 4 (Central Alignment + North Alignment "B")*.

**Table 3.10
Alternative 4 Cost Estimate**

Project	Cost
Construction Cost	\$641,997,558
Required Right-of-Way	\$103,800,000
Wetlands Mitigation	\$16,170,000
Relocation	\$5,350,000
Design	\$50,000,000
TOTAL COST	\$817,317,558

3.7.2 How do the reasonable build alternatives meet the Purpose and Need?

In order to facilitate in the selection of the preferred build alternative, the four alternatives that were deemed the reasonable build alternatives were again evaluated against the screening criteria listed in **Section 3.2.4.1**. This allowed for the evaluation of the alternatives' ability to fulfill the Purpose and Need of the project. Each criterion was evaluated as high, medium, or low impacts with high meaning best fulfills the criteria and low meaning worst fulfills the criteria. **Table 3.11** outlines the results of this evaluation.

**Table 3.11
Summary of Purpose and Need**

Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4
System Linkage				
Improves north-south connectivity	High	High	High	High
Provides north-south system redundancy	Medium	High	Medium	High
Provides improved north-south highway network capacity	Medium	High	Medium	High
Provides a direct, limited access route between the Houma-Thibodaux area and the Mississippi River Corridor	High	High	High	High
Hurricane Evacuation				
Improves hurricane evacuation routes within the study area	High	High	High	High
Uniformly distributes traffic between the Sunshine and Gramercy-Wallace Bridges	High	Medium	High	Medium
Maximizes efficient use and operation of hurricane evacuation routes and the transportation network	High	Medium	High	Medium

Since all four alternatives meet the Purpose and Need criteria set forth by the screening process, the environmental criteria should be heavily weighted when choosing a preferred build alternative. The selection of the Preferred Alternative should be based upon which alternative poses the least impact to the surrounding human and natural environment.



Figure 3-20 and Figure 3-21 depict typical sections based on the design roadway classifications.

Figure 3-20
US-2 Roadway Classification Typical Section

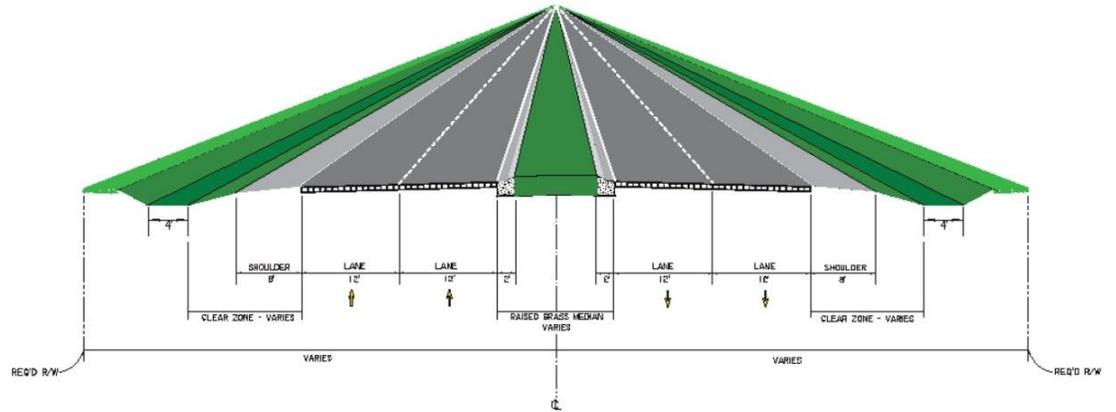
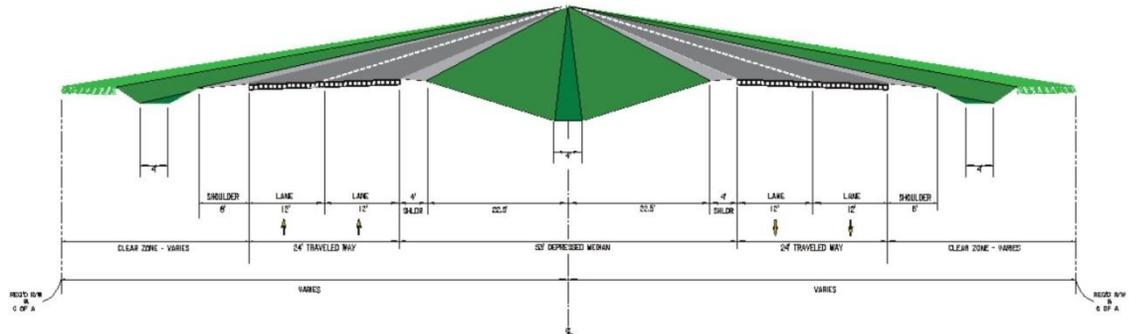


Figure 3-21
UA-4 and RA-2 Roadway Classification Typical Section





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CHAPTER 4. EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES



CHAPTER 4. EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

The National Environmental Policy Act (NEPA) requires federal agencies to evaluate many categories of potential social, economic, and natural impacts for all Reasonable alternatives under considerations for a proposed project. The purpose of the NEPA process and the Draft Environmental Impact Statement (DEIS) is to provide the decision-makers with the best available information to make an informed decision about the project.

4.1 INTRODUCTION

This chapter provides a description of the current conditions in the study area and a description of impacts that could be expected for the human and natural environment, with and without the proposed project. Both negative and beneficial impacts can occur as a result of implementing transportation improvements. Various conditions are studied to determine the effects that may occur on both people and the environment as a result of the implementation of the proposed Reasonable Alternatives. After all environmental impacts associated with each alternative have been identified and evaluated, a Preferred Alternative can be recommended.

Three types of potential impacts were evaluated for each Reasonable Alternative—direct, indirect, and cumulative impacts.

4.1.1 What are direct impacts?

Direct impacts are those that are caused by the action/project and occur at the same time and place. Impacts from any actions may be both beneficial and detrimental.

4.1.2 What are indirect impacts?

Indirect impacts are caused by the action/project and occur later or farther away (off-site), but are still reasonably foreseeable. Indirect effects may include effects related to changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems, including ecosystems.

4.1.3 What are cumulative impacts?

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

Direct Impacts are caused by the project and occur at the same time and place.

Indirect impacts are caused by the project and occur later in time or are farther removed in distance than direct impacts, but are still "reasonably foreseeable."

Cumulative impacts are impacts on the environment resulting from the incremental impact of the project when added to other past, present, and reasonably foreseeable future projects regardless of what agency or person undertakes them.





4.1.4 How were indirect and cumulative effects evaluated?

The analysis of indirect and cumulative impacts was conducted in accordance with guidance established in the *National Cooperative Highway Research Program (NCHRP) Report 466, Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects*. This report lays out eight steps for scoping, identifying the direction and goals of the study area, gathering data on the study area's notable features, identifying impact-causing activities of the proposed project, identifying and analyzing indirect effects, and assessing the consequences of those effects.¹

4.1.5 Where is the project located?

The study area is located within the part of Louisiana known as the Bayou Region (see **Figure 4-1**). This region is known for its abundance of natural features such as coastal wetlands, bayous, and natural and man-made waterways. Due to the unique geography of this area, past and present development has mainly occurred near higher elevations and natural ridges. As a result, the roadway network within the study area is very limited and the existing transportation network provides better east-west connectivity than north-south connectivity.

4.1.6 What is the human environment?

The Council on Environmental Quality (CEQ) states that the "human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment" (40 CFR 1508.14). Evaluation of the human environment includes assessments of existing land use, socioeconomic characteristics and communities, and potential changes as a result of the proposed project.

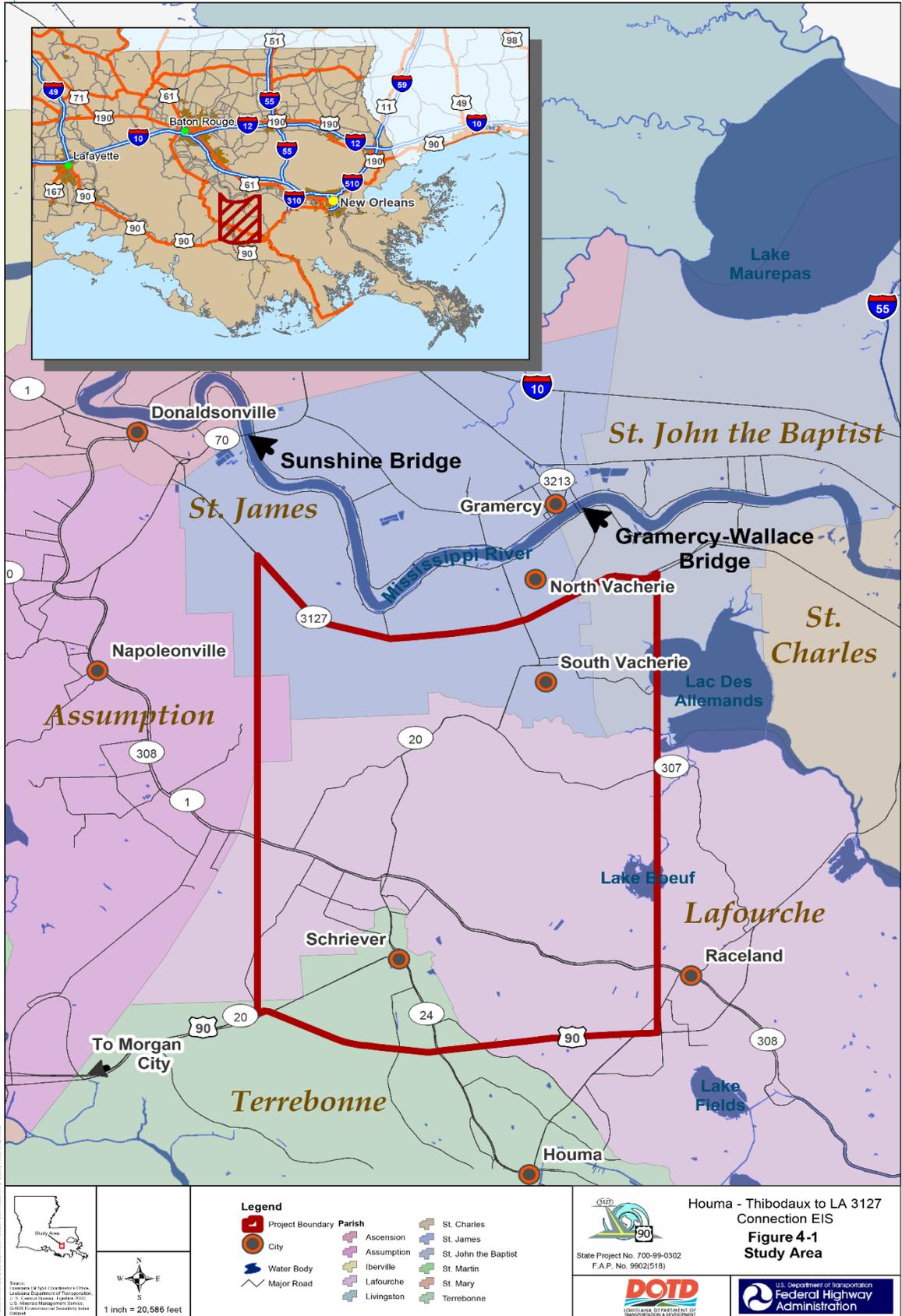
The efforts of transportation agencies—planning, project development, implementation, operation, and maintenance—affect communities. The consideration of social impacts help decision-makers understand how proposed activities will likely affect communities and provides opportunities for public input. When public agencies and officials understand how decisions affect their constituents, they can more easily avoid or minimize negative impacts and promote positive impacts.²

¹ NCHRP Report 466, Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects.

² The CIA Website http://www.ciatrains.net/cia_faq.html, last accessed 11/20/13



Figure 4-1





4.2 LAND USE

4.2.1 What local planning and development agencies contribute to land use planning within the study area?

Land Use can be defined as human activities such as agriculture, forestry, and building construction that alter land surface. Social scientists and land managers define land use more broadly to include the social and economic purposes and contexts for and within which lands are managed (or left unmanaged), such as subsistence versus commercial agriculture; rented versus owned; or private versus public land.

The State of Louisiana is geographically made up of eight regional planning and development districts that are responsible for improving the physical and social needs of its regional district. Each district is governed by a board that is comprised of community leaders from the public and private sectors. The South Central Planning and Development Commission (SCPDC) is the main regional planning entity that covers the majority of the study area. The six-parish region of SCPDC includes representatives from Assumption, Lafourche, St. Charles, St. James, St. John the Baptist, and Terrebonne Parishes.

The majority of the study area is also located within the jurisdiction of the Houma-Thibodaux Metropolitan Planning Organization (HTMPO). An MPO is a federally-mandated entity that oversees planning for federally-funded transportation projects and programs. In addition to the planning and development district and the HTMPO, various parishes that are located in the study area also provide localized oversight for future growth and development within their respective parishes. This oversight is usually guided through a comprehensive plan and implemented through land use controls, such as subdivision ordinances and zoning.

4.2.1.1 South Central Planning and Development Commission

The SCPDC's mission has been defined as, "simply to help member parishes and municipalities plan for the future."³ In doing so, SCPDC provides services consisting of economic development, building code enforcement, transportation planning, and community planning services within its region. SCPDC is also the Economic Development District (EDD) for the region, which enables it to receive economic development assistance from the U.S. Department of Commerce, Economic Development Administration (EDA). As part of this assistance, EDA requires the development of a "Comprehensive Economic Development Strategy" (CEDS) that is the result of strategic economic development planning among collaborating public and private sector partners.

According to the CEDS, the six-parish region of SCPDC "continues to be part of one of the world's most productive industrial corridors, with the largest concentration of oil, natural gas, and chemical production in the country." Historically, the regional economy has been based on the area's natural resources, agriculture, and natural and built waterways. The region was also involved in the development of mechanized sugar cane harvesting and offshore oil exploration and production techniques.⁴

The 2012 CEDS estimated an overall growth rate of about 6 percent from 2000 to 2009 for the six-parish district. Broken down further, Terrebonne and St. Charles experienced the most growth, while Lafourche and St. John the Baptist experienced a relatively similar increase in growth. Assumption and St. James had the least growth by gaining less than 1 percent in population during this same time period. However, the number of new subdivisions and building permits indicate that Assumption and St. James may have been undercounted. Lafourche and

³ South Central Planning and Development Commission, Mission Statement. http://www.scpdc.org/?page_id=260. Last accessed May 7, 2013.

⁴ South Central Planning Development Commission. Comprehensive Economic and Development Strategy 2012. Page 3. http://www.scpdc.org/wp-content/uploads/CEDS_2009_Final.pdf. Last accessed May, 7, 2013.



Terrebonne experienced a moderate gain in population relative to the four other parishes in the CEDS.⁵

In regard to the effects of the 2005 hurricane season on the SCPDC region, population growth since 2005 seemed to accelerate in Lafourche and Terrebonne Parishes, while development also occurred in Assumption and St. James Parishes that previously had little or no growth. Key factors in this growth appear to be the affordable cost of land and construction in the areas compared to other areas of the state. This is probably due to population increases, as well as upgrades in utilities and other infrastructure after the 2005 storms.⁶

Additionally, just like the rest of the country, the SCPDC region experienced an increase in unemployment due to the global recession, but estimates show that the parishes of Lafourche and Terrebonne had the lowest unemployment rates, with numbers around 6 and 5 percent, respectively, for the parishes in March of 2012 (see **Table 4.1**). The parishes of St. James and Assumption had the highest unemployment rates, with St. James having above the national average of 8.4 percent in March of 2012.⁷

Table 4.1
Unemployment Rates in the Study Area

Location	Jan. 2009	Dec. 2009	Jan. 2010	Dec. 2010	Jan. 2011	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012
Louisiana	7.1%	9.4%	11.4%	10.8%	13.3%	9.4%	11.5%	10.4%	10.1%
Assumption	3.6%	5.2%	6.0%	4.9%	6.3%	4.2%	5.3%	4.9%	5.9%
Lafourche	5.0%	6.7%	7.7%	6.3%	8.0%	6.0%	6.7%	6.1%	6.2%
St. James	9.3%	10.1%	11.7%	11.4%	13.6%	10.4%	11.9%	11.0%	10.9%
St. John the Baptist	6.7%	9.3%	10.7%	9.4%	11.1%	7.7%	8.9%	8.2%	8.2%
Terrebonne	3.8%	5.5%	6.5%	5.3%	6.4%	4.3%	5.3%	5.0%	5.0%
SCPDC Average	5.9%	7.7%	9.0%	8.0%	9.8%	7.0%	8.3%	7.6%	7.72%
Louisiana	5.7%	7.2%	8.2%	7.2%	8.6%	6.4%	7.5%	7.1%	7.0%
United States	8.5%	9.7%	10.6%	9.1%	9.5%	8.3%	8.8%	8.7%	8.4%

Source: LA Works. Note: January increases reflect post-Christmas seasonal drop in employment.

SPDPC has also outlined goals and objectives in its CEDS to further its regional economy and ensure the most efficient and sustainable land development patterns. The goals include the following:

- Goal 1: Improve the region's public infrastructure in order to support and sustain a viable economy and environment;
- Goal 2: Create and retain quality jobs and foster a more diversified economy;
- Goal 3: Improve the region's overall capacity to make efficient land use decisions;
- Goal 4: Improve the region's overall capacity to make economic development decisions;

⁵ South Central Planning Development Commission. Comprehensive Economic and Development Strategy 2012. Page 7. http://www.scpdc.org/wp-content/uploads/CEDS_2009_Final.pdf. Last accessed May, 7, 2013.

⁶ *ibid.*

⁷ South Central Planning Development Commission. Comprehensive Economic and Development Strategy 2012. Page 7-9. http://www.scpdc.org/wp-content/uploads/CEDS_2012_Final.pdf. Last accessed May 5, 2013.



- Goal 5: Improve the fiscal capacity of local government to make the region financially attractive for economic development;
- Goal 6: Protect and conserve the region's natural resources and promote more equitable use of these resources for business and recreation;
- Goal 7: Pre-plan to improve the region's emergency operations and recovery systems.

Besides defining these goals and objectives, SCPDC collaborated with member parishes and municipalities in updating or developing their comprehensive plans and land use controls, as well as supporting programs that encourage development near existing centers of business and industry.

4.2.1.2 Houma-Thibodaux Metropolitan Planning Organization

In regards to transportation planning, SCPDC houses the region's metropolitan planning organization, which is the federally-mandated organization designated specifically for the planning and administration of federally-funded transportation projects and programs in an urban region consisting of 50,000 or more people. The HTMPO consists of representatives from local government jurisdictions in Assumption, Lafourche, and Terrebonne Parishes, as well as representatives from the Federal Highway Administration (FHWA), Federal Transit Association (FTA), and the Louisiana Department of Transportation (LADOT).

Like every MPO, HTMPO is guided by its long-range, metropolitan transportation plan (MTP). The MTP is a comprehensive, long-range planning document that guides the implementation of projects and programs for all modes of transportation in the HTMPO region over a 25-year period. The most recent planning process began with an assessment of current conditions in late 2008, including demographic information, travel characteristics, land use and zoning, and existing transportation systems.

The assessment also gave insight into recent land use and growth trends in the aftermath of the 2008 hurricane season. The study indicated that residential and business development has relocated to northern locations in the HTMPO area, which are located in the southern region of the state, inland from the bayou (e.g., near the cities of Houma and Thibodaux) that are less prone to the vulnerability of severe weather. It also found that residents living in Assumption Parish, the northern part of the HTMPO study area, utilized many services and facilities in Thibodaux, such as Nicholls State University and the hospital; as such, better transportation access, connectivity, and services are needed. Representatives from Lafourche Parish emphasized the issues of poor connectivity north-south through Thibodaux and the need for a route between Thibodaux and the Mississippi River corridor. These are views that are expressed by many residents of the affected communities.⁸

4.2.2 What is a Comprehensive Plan?

Typically for rural communities and counties, planning for land use and future growth is limited. Land use planning in the study area has been achieved through a larger initiative, the development of a comprehensive plan, and/or through the implementation of local land use controls.

A comprehensive plan guides the creation of the planning and land development regulations into the future. It is essentially a long-range plan for a jurisdictional area that considers all factors related to development and infrastructure (e.g., land uses, housing, transportation, environmental

⁸ Houma-Thibodaux MTP 2035. Chapter 2: Regional Visioning Process. Adopted May 13, 2010. http://www.htmpto.org/2035MTPUpdate/FinalReport/04_Chapter2.pdf, Last accessed September 7, 2013.

Comprehensive Plan A document used by local, county, and regional bodies in the land planning process that contains a statement of objectives, projections, and short and long term planning strategies and goals.



considerations, and public infrastructure) to accommodate future populations in the most efficient and effective manner. The comprehensive plan looks at existing conditions, identifies trends and issues, and identifies a vision, goals, and objectives to guide future growth based on the communities' values.

On the other hand, land use controls provide for regulations and standards that must be upheld for both existing and proposed development. This can include any number of directives, such as subdivision regulations, zoning laws, historical preservation guidelines, and building codes, in order to properly limit development in certain areas while encouraging development in other areas.

The following sections provide the overall characteristics and existing land uses that have been established within each of the parishes overlapping the study area. Where a long-range plan or comprehensive plan exists, key parts are identified in order to illuminate land use issues and trends.

4.2.3 What are the overall characteristics and existing land uses for each parish within the study area?

4.2.3.1 Assumption Parish

Assumption Parish, located just northwest of Lafourche and Terrebonne Parishes, consists of a total area of 365 square miles. The parish begins just south of Ascension Parish and the Mississippi River and is distinguished by Bayou Lafourche, which essentially bisects the parish in a north-south direction. Similar to Lafourche Parish, Assumption Parish grew up along the Bayou Lafourche Ridge, with the higher elevations of land proving most suitable for agriculture and housing. According to the U.S. Census Bureau, the population of Assumption Parish was 23,421 in 2010 and estimated at 23,026 in 2012. In keeping with its French, Spanish, and Roman Catholic heritage, Assumption Parish was named for the Festival of the Assumption of the Blessed Virgin Mary.⁹

The economy of Assumption is primarily based on agriculture, with the growth of sugar cane being the principal crop grown. Today, Assumption Parish not only employs people in the agricultural industry, but also in manufacturing, health care and social assistance, retail, and construction/mining.

To control present and future land uses and development, Assumption Parish has standard building and construction regulations, floodplain management, and subdivision ordinances. However, Assumption Parish does not presently have any zoning regulations, but does have a recent comprehensive plan that was completed in 2008 that calls for the development of zoning regulations to guide future development. As its vision attests, Assumption Parish desires future growth to remain consistent with its rural character.

As part of the analysis for the comprehensive plan, land uses and development trends were identified. Specifically, commercial uses are dispersed along Bayou Lafourche and the freeway frontages of LA 1 and LA 308 at major highway intersections, especially in Labadieville, Napoleonville, and Plattenville. Industrial uses, on the other hand, are concentrated towards the southern tip near U.S. Highway 90 (US 90).

Identified in the comprehensive plan, future land use includes a continued focus on residential land uses along LA 1 and LA 308, the development of commercial corridors along LA 70, LA 1, and LA 308 just north of LA 999 (should a new airport be placed in the northern extent of the parish),

⁹ Assumption Parish. Comprehensive Plan. Page 14-17. 2008.



and also the development of recreational areas along Lake Verret and Bayou Lafourche. Mixed-use nodes of development were also identified in Bayou L'Ourse, Labadieville, Supreme, Napoleonville, Pierre Part, the intersection of LA 1 and LA Spur 70, and the intersection of LA 1 and LA 70.¹⁰

4.2.3.2 Houma

Located just south of US 90 and the study area, Houma is centrally located at LA 24 and LA 182 about 15 miles south of Thibodaux. As the parish seat of Terrebonne, Houma is the largest principal city in the Houma-Bayou Cane-Thibodaux Metropolitan Statistical Area (MSA). Houma is located outside of the study area.

4.2.3.3 Houma-Thibodaux Metropolitan Area

The greater Houma–Bayou Cane-Thibodaux MSA is often referred to as the Houma-Thibodaux area. In relation to the study area, the principal, incorporated cities of the Houma-Bayou Cane-Thibodaux MSA, including Thibodaux and Houma, are important to consider as they act as a core for social and economic integration.

4.2.3.4 Lafourche Parish

Lafourche Parish, located in southeastern Louisiana encompassing a total area of 1,469 square miles, was named after Bayou Lafourche (Lafourche is French for "the fork"), which diverges from the Mississippi River in Ascension Parish, forming a river fork, and runs the length of the parish into the Gulf of Mexico.¹¹ According to the U.S. Census Bureau, the population of Lafourche Parish was 96,318 in 2010 and was estimated at 97,029 in 2012.¹²

The history of Bayou Lafourche spans back to the time when French, Spanish, and German families settled on its banks in the early 1700s. These early settlers explored the descending fork of the Mississippi that was named "LaFourche Des Chetimachas" by mapmakers. This distributary bayou, whose name was shortened to "Lafourche," had many uses for the early settlers including serving as a means of communication, a method of transportation, and a source of fresh water. An influx of settlers was triggered by two 19th Century events along the bayou. The first event was the discovery of the sugar milling process, which allowed the cultivation of sugar as a cash crop in south Louisiana. Secondly, the Louisiana Purchase, or the transaction of the state from France to the United States in 1803, opened the area to American and Protestant settlers. A larger market for the sugar cane crop was generated from Louisiana's entrance into the union, which in turn created an increase in settlers, sugar plantations, and markets along the bayou.

Because of the concentrated settlement along Bayou Lafourche, with its 77 continuous miles of densely spaced houses, Bayou Lafourche is known as the "Longest Street in the World."¹³ Laws to control land development required that each landowner be responsible for the construction and upkeep of a bayou levee fronting their land due to the frequent bayou overflows that occurred during early settlement. As such, land grants for farms and plantations were established with a width of less than 600 feet, but with a depth of approximately a mile and a half, essentially giving each landowner access to the bayou and less amount of levee to maintain.¹⁴

Primary sectors of Lafourche's economic base, which contain the greatest amount of employment, are retail trade, healthcare, and social assistance.

¹⁰ *ibid.*

¹¹ Lafourche Parish Government. <http://www.lafourchegov.org/AboutLafourche.aspx>, Last accessed May 10, 2013.

¹² U.S. Census Bureau, 2012 Population Estimates, Census 2010.

¹³ Houma Today, Terrebonne Parish Louisiana, "Bayou Lafourche, "The longest Main Street in the world" <http://www.houmatoday.com/article/20100215/LIVING03/100219554> Last accessed May 7, 2013.

¹⁴ Lafourche Parish Government. <http://www.lafourchegov.org/AboutLafourche.aspx>, Last accessed May 10, 2013.



Presently, Lafourche Parish is based on a natural resources and agricultural economy. In particular, Lafourche includes the major industries of oil and gas production, sugar refinery, shipbuilding, and commercial fishing.¹⁵ According to the 2010 Census, the primary sectors of Lafourche's economic base, which contain the greatest amount of employment, are retail trade, healthcare, and social assistance. The next largest sector is transportation and warehousing. There are a total of 1,923 establishments for all sectors of Lafourche Parish's economy. This translates into 27,330 paid employees.¹⁶

Lafourche land use controls include building and construction regulations, as well as direction for floodplain development. The planning and zoning chapter of the code of ordinances for Lafourche Parish include provisions for airport hazard zoning, subdivision regulations, coastal zone management, mobile home park regulations, construction of pipelines and canals, seismic activities, and recreational vehicle (RV) parks. The code stipulates that the "Commission shall prepare a master developmental plan for a physical development of and provision of services to the Parish of Lafourche," and after approval by the governing authority, "be administered by the Lafourche Parish Planning Commission."¹⁷ Along with a master development plan, the code also cites that a long-term goal for the Planning Commission is to have a zoning plan and ordinance. However, no zoning or master development plan (or comprehensive plan) currently exists. According to the SCPDC *Comprehensive Economic and Development Strategy*, one of SCPDC's objectives is to explore a possible land use master plan for Lafourche Parish. This Land Use Plan, known as "Plan LaFourche Comprehensive Resiliency Plan," is presently under development and receiving public input.¹⁸

4.2.3.5 St. James Parish

St. James Parish, bisected by the Mississippi River, is just west of Ascension and Assumption Parishes and approximately 258 square miles midway between New Orleans and Baton Rouge. St. James, like the other river parishes, grew along the Mississippi River, where higher elevations exist for more suitable development. The parish seat is a community called Convent on the north side of the Mississippi River. According to the U.S. Census Bureau, the population of St. James Parish was 22,102 in 2010 and estimated to be 21,722 in 2012.

St. James is predominantly rural, with small concentrations of population centered in the municipalities of Gramercy, Lutcher, St. James, Vacherie, Convent, Hester, Paulina, and Uncle Sam. Previously, the parish was considered a part of the New Orleans MSA; however, St. James Parish is now one of the state's non-MSA parishes. The City of Gramercy had a population of 3,563 in 2012, while the neighboring City of Lutcher had a population of 3,588.

Historically, St. James has been driven by the agricultural industry and service-related employment; however, multiple oil refineries, petroleum facilities, and agricultural industries have relocated within the parish, which is part of the petrochemical and industrial corridor along the Mississippi River. In fact, most of the local employment exists in farm-based and industrial jobs, which are subjected to seasonal and temporary employment opportunities, low wages, and a vulnerability to price pressures internationally.

¹⁵ South Central Planning and Development Commission. http://www.scpdc.org/index.php?page_id=133, Last access May 7, 2013.

¹⁶ Lafourche Parish Government. <http://www.lafourchegov.org/AboutLafourche.aspx>, Last accessed May 7, 2013.

¹⁷ U.S Census Bureau, 6.U.S Economic Census County Business Patterns, Geography Area Series: 2010 BusinessPatterns,NAICScodeshttp://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=BP_2010_00A1&prodType=table Last accessed May 7, 2013.

¹⁸ South Central Planning Development Commission. *Comprehensive Economic and Development Strategy 2012* Page 31. Last accessed May 7, 2013.



In 2011, St. James Parish completed their comprehensive planning process in cooperation with SCPDC.¹⁹ The study team has evaluated existing conditions such as land uses and demographics and has put together a steering committee to help guide the further development of the comprehensive plan. St. James presently incorporates traditional land use control mechanisms, such as floodplain management regulations, subdivision ordinances, and state building codes.

According to the St. James Existing Land Use Map that was developed for the comprehensive planning efforts, the most suitable land for development exists along the Mississippi River and in the communities of North Vacherie and South Vacherie along LA 20 and LA 643.²⁰

4.2.3.6 St. John the Baptist

St. John the Baptist Parish is located just east of St. James Parish along the Mississippi River, and consists of approximately 348 square miles. The settlement within the present-day parish was one of the earliest, established by a group of Germans in the 1720s, leading to the name "La Cote des Allemands" or "The German Coast."²¹

According to the U.S. Census Bureau, the population of St. John the Baptist Parish was 45,924 in 2010 and was estimated at 46,310 in 2012.²² The populations of St. John the Baptist are concentrated along the east bank of the Mississippi River. St. John the Baptist has an agricultural based economy, which is heavy in commercial, industrial, and light manufacturing based jobs.²³ Industrial facilities include a chemical plant, sugar refinery, grain elevators, and an oil refinery.²⁴

St. John the Baptist has established zoning regulations and presently incorporates other land use control mechanisms, such as floodplain management regulations, subdivision ordinances, and state building codes. Additionally, St. John presently has a future land use report, which is focused on the planning for future land uses based on existing land use and development trends. The land use report is the first step in developing a comprehensive plan for the parish, which will address all elements pertinent to the growth of the parish (e.g., land uses, housing, transportation, environmental considerations, and public infrastructure.)

4.2.3.7 Terrebonne Parish

Terrebonne Parish is located just west of Lafourche Parish and encompasses approximately 2,080 square miles. According to the U.S. Census Bureau, the population of Terrebonne Parish was 111,860 in 2010 and was estimated at 111,893 in 2012.²⁵ Terrebonne shares a very similar cultural and societal influence as Lafourche. Originally settled by primarily French, Acadian, and French-Canadian, like Lafourche Parish, an influx of American colonists followed to populate the area after the Louisiana Purchase in 1803. When the parishes were first delineated, this area was part of Lafourche Parish. Terrebonne Parish was formed after the division of this area in 1822.

Houma, the parish seat, was founded in 1834. The seafood and timber industry dominated in the 19th Century followed by a dependence on the oil and gas industry until the bust of the 1980s, at

¹⁹ St. James Parish Comprehensive Plan http://www.scpdc.org/?page_id=313, last accessed December 5, 2013

²⁰ St. James Parish Comprehensive Plan- Vision 2030. South Central Planning & Development Commission. Pages 4-27.

²¹ St. John the Baptist Parish. History. http://www.sjbparish.com/about_history.asp, Last accessed August 6, 2010.

²² U.S. Census Bureau, 2012 Population Estimates, Census 2010.

²³ St. John the Baptist Parish. Land Use Plan. Last access May 9, 2013.

²⁴ St. John the Baptist Parish. History. http://www.sjbparish.com/visitors_general.php?id=81, Last accessed November 25, 2013.

²⁵ U.S. Census Bureau, 2012 Population Estimates, Census 2010. <http://www.tpcg.org/view.php?f=main&p=history>, Last accessed August 25, 2010.



Primary sectors of Terrebonne's economic base, which contain the greatest amount of employment, are retail trade, healthcare, and social assistance. The next largest sector is professional, scientific, and technical services.

which point its economy became more diversified. Terrebonne Parish accounts for 20 percent of Louisiana's seafood and tourism has become a large part of its economic base. According to the 2010 Census, the primary sectors of Terrebonne's economic base, which contain the greatest amount of employment, are retail trade, healthcare, and social assistance. The next largest sector is professional, scientific, and technical services. There are a total number of 2,910 establishments for all sectors of Terrebonne Parish's economy. This translates into 48,991 paid employees. The Acadian culture, diverse environment and wildlife, plantation homes, excellent food, and close proximity to New Orleans, Baton Rouge, and Lafayette make this area an excellent central location for the visitor who wishes to see all the sights and sounds of southern Louisiana.²⁶

Like Lafourche Parish, Terrebonne Parish has standard building and construction regulations, as well as direction for floodplain development. Other regulations include standards for subdivision development, coastal zone management, and zoning regulations within the City of Houma. Overall, the land use controls and subdivision ordinances are guided by Terrebonne Parish's comprehensive plan, which was completed between 2001 and 2003. An update of Terrebonne Parish's Comprehensive Master Plan, Vision 2030 has since been adopted in February 2013. The goals pertaining to land use in this update include using available land in an efficient manner, effective land use controls in places with the greatest need, and locating appropriately sized shopping opportunities that are convenient to neighborhoods to reduce the number of automobile trips taken for such reasons. Additionally, in regard to land use, the comprehensive plan includes an inventory and projection effort done at both the parish level and the "development zone" level, which was based on population projections, topography, potential for flooding, existing and proposed infrastructure, developable land, and development trends.²⁷

The development zones of Terrebonne Parish are based on 18 unique areas of development or communities that "originated as a result of its vast and intricate system of waterways, topography, natural resources, and economic base."²⁸ In particular, portions of the zones delineated as zone 9 (Schriever and Gray), zone 12 (State Highway 311), and zone 13 (Chacahoula) fall within the Houma-Thibodaux to LA 3127 study area.

Development zone 9 includes the unincorporated communities of Schriever and Gray, between Thibodaux and Houma, and consists primarily of land at higher elevations. In particular, this area is predicted to experience residential and commercial growth along US 90. An increase in commercial development is predicted for the area surrounding the intersection of LA 24 and US 90.

²⁶ Vision 2030 - Terrebonne Parish Comprehensive Plan Update, Chapter 12: Action Plan. Adopted February 2013. <http://www.tpcg.org/view.php?f=planning&p=vision2030>. Last access May 6, 2013

²⁷ Code of Ordinances. Parish of Terrebonne, Louisiana- Chapter 28 , Zoning , Article III, Districts <http://library.municode.com/index.aspx?clientId=10737> Last accessed May 9, 2013.

²⁸ Code of Ordinances. Parish of Terrebonne, Louisiana- Chapter 28 , Zoning , Article III, Districts <http://library.municode.com/index.aspx?clientId=10737> Last accessed May 9, 2013.



Development zone 12, which exists along LA 311, has the most open and developable land in Terrebonne Parish and is projected to increase in population by 50 percent with subsequent increases in development, including residential subdivisions along LA 311 and commercial uses at major intersections. As population increases in this area, LA 311 is anticipated to be widened to four lanes providing easy access to US 90 and the commercial center of Houma. Land use in the area surrounding the intersection of US 90 and LA 311 are controlled by a single land owner who developed a master plan that eluded towards commercial development at this intersection within the next 20 years. The majority of property on LA 311 through Houma is subject to Terrebonne Parish's zoning regulations for R-1 single family residential, C-2 general commercial, and I-1 light industrial districts.²⁹

Development zone 13 consists of areas surrounding the Chacahoula Ridge and Bull Run Road. This area is more remote and rural and there are no significant infrastructure projects that may affect land use under consideration. A slight increase in single family residential development and mobile homes is projected to result from the area's proximity to jobs in nearby Morgan City, which is a short car ride away on US 90.³⁰

4.2.3.8 Thibodaux

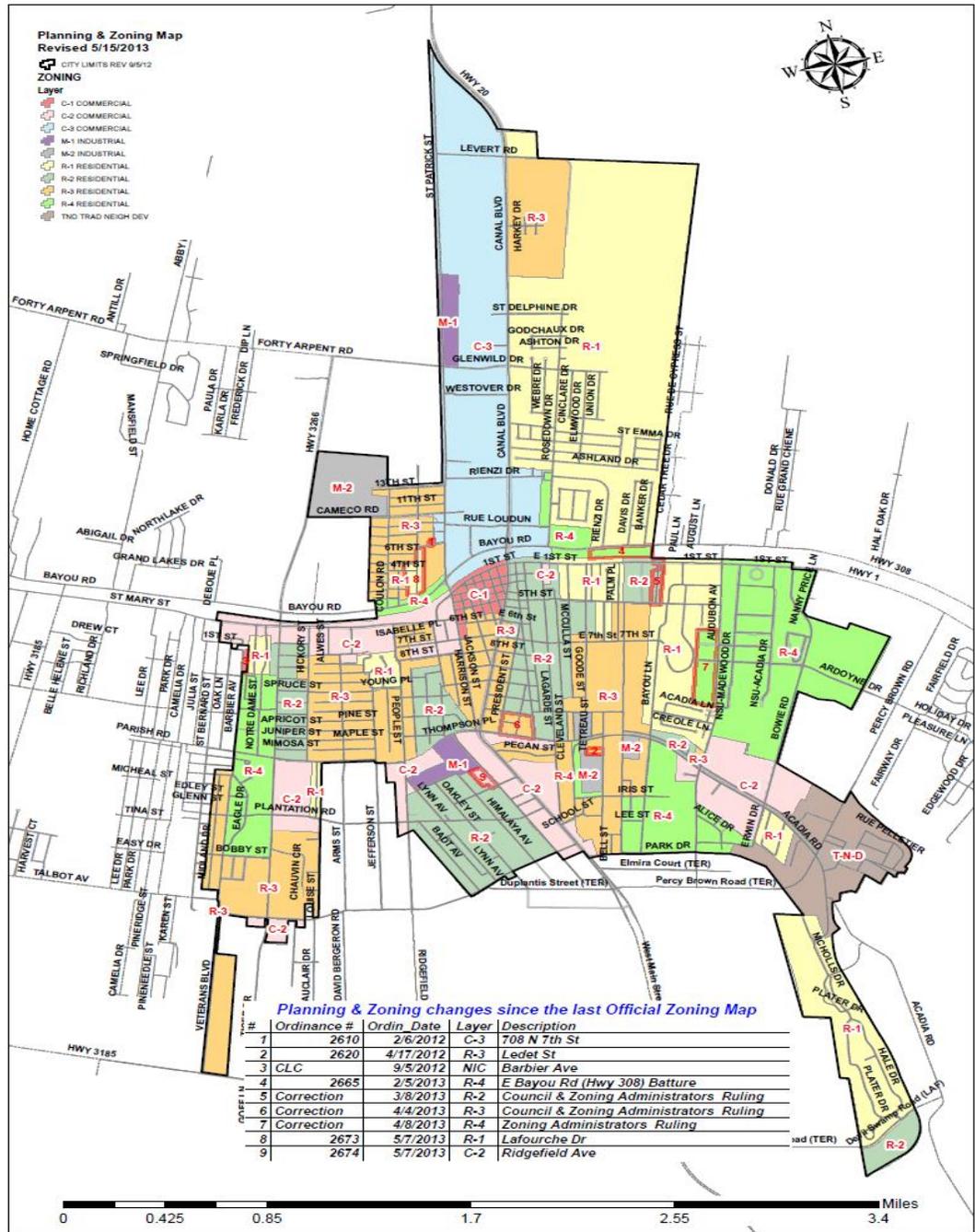
Thibodaux is an incorporated city located at the crossroads of LA 1, LA 208, and LA 20 within the study area in the northwestern portion of Lafourche Parish bordering Terrebonne Parish. Although the City of Thibodaux does not appear to have a comprehensive plan, it has established zoning districts that are defined in the city's zoning ordinance. As shown in **Figure 4-2**, which is the City of Thibodaux's zoning map reflecting the various zoning districts, commercial land uses are generally located along major thoroughfares, such as LA 1 and LA 308, LA 20, and LA 648. A designated historic district, which is the historic central business district and includes the parish courthouse, is identified as "C-1" south of 1st Street to roughly 6th Street and bordered west to east by Jackson Street and Canal Boulevard. The other land uses exist in an eclectic mix throughout the municipal boundaries.

²⁹ Terrebonne Comprehensive Master Plan. Volume 1: Action Plan. Chapter 2: Action Plan. Pages 7-8. October 2013.

³⁰ Vision 2030-Terrebonne Comprehensive Master Plan. Volume 1: Action Plan. Chapter 12: Action Plan. Pages 44-59. October 2013.



Figure 4-2
City of Thibodaux Zoning Map





4.2.4 What portion of each parish is located within the study area?

As stated previously, the study area for the Houma-Thibodaux to LA 3127 encompasses approximately 163,560 acres in southeastern Louisiana, including parts of Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne parishes. **Table 4.2** summarizes the total number of acres and relative proportion for each parish that comprise the study area. As shown, the parishes of Lafourche and St. James together make up the vast majority of the study area.

Table 4.2
Parishes in the Study Area

Parish	Acreage	Percent of Study Area
Assumption	3,641	1.6%
Lafourche	142,867	64.6%
St. James	40,360	18.3%
St. John the Baptist	13,316	6.0%
Terrebonne	20,858	9.4%
Study Area Total:	221,042	100.0%

4.2.5 What are the land use classifications within the study area?

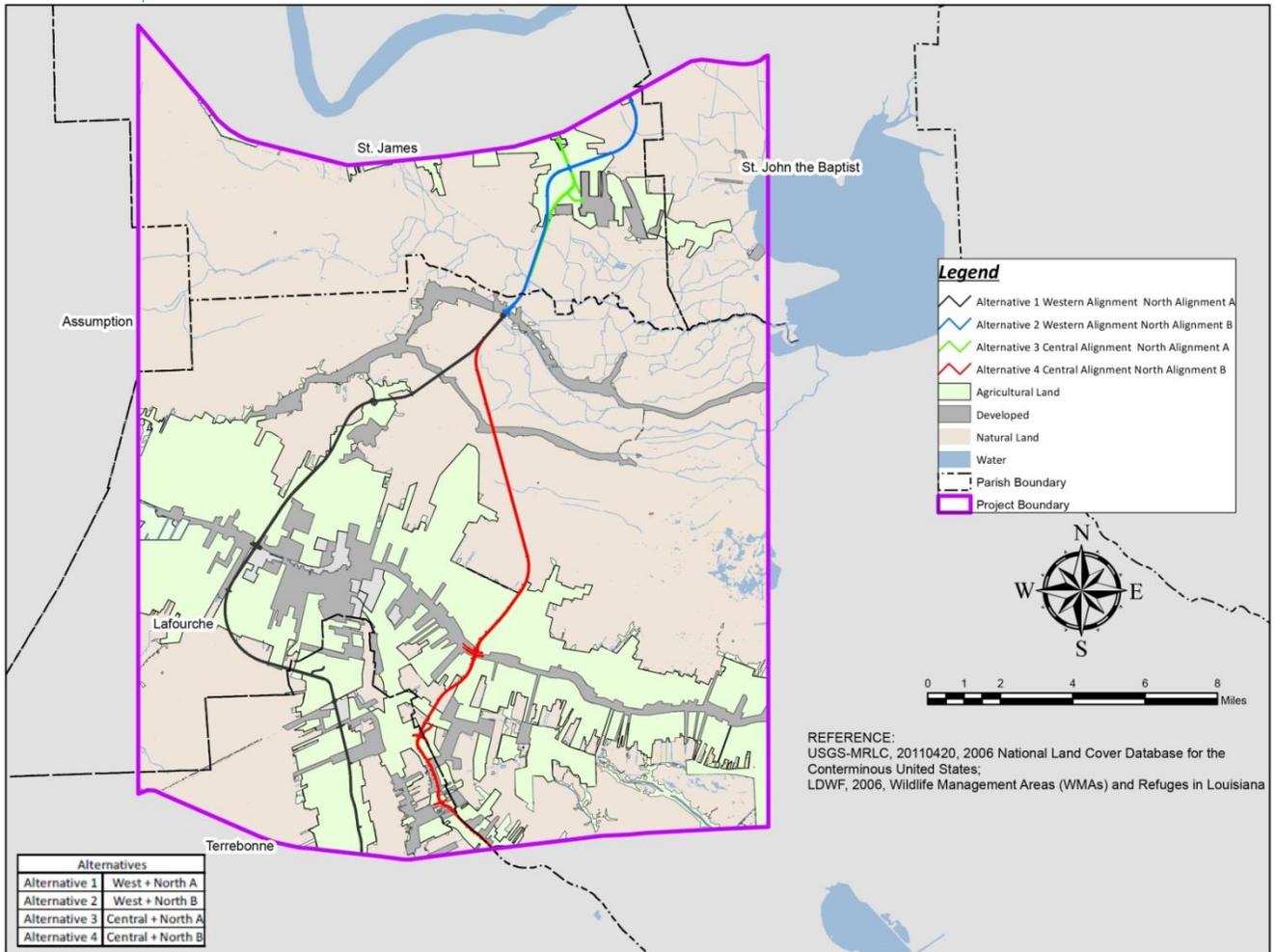
Based on land coverage data maintained by the National Oceanic and Atmospheric Administration (NOAA) through the Coastal Change Analysis Program (C-CAP), land use can be divided into three broad categories—agricultural land, developed land, and natural land. The approximate acreages and broad percentages that are located within the study area are shown in **Table 4.3**. Also, **Figure 4-3** displays the land coverage information, showing the general areas of agricultural land, developed land, and natural areas.

Table 4.3
Broad Land Use Classifications within the Study Area

Land Cover Class	Acreage		
Agriculture - Cropland - Grassland	4,247.69	Agricultural Land	approx. 57,219 total acres or 26% of the study area
Agriculture or Cropland	52,971.45		
Vegetated Urban	703.18	Developed Land	approx. 17,670 total acres or 8% of the study area
Industrial	16.24		
Multifamily Residential	66.08		
Non - Vegetated Urban	25.38		
Parks or Open Space	143.89		
Single-Family Residential	15,267.97		
Civic or Institutional	295.17		
Commercial	1,152.60	Natural Land	approx. 146,184 total acres or 66% of the study area
Fresh Marsh	11,961.51		
Upland Barren	10.22		
Upland Forest - Deciduous	244.87		
Upland Forest - Mixed	85.74		
Upland Scrub/Shrub - Mixed	77.61		
Water	5,439.78		
Wetland Forest -Deciduous	126,721.11		
Wetland Scrub/Shrub - Deciduous	995.71		
Wetland Scrub/Shrub - Evergreen	640.16		
Wetland Scrub/Shrub - Mixed	7.89		
Total Acres within Study Area:	221,042		



Figure 4-3
Agricultural, Developed, and Natural Lands in the Study Area





4.2.5.1 Agricultural Land

The most suitable land for agriculture occurs in proximity to the naturally elevated lands adjacent to the waterways. Roughly 26 percent of the study area is used for cultivating crops or as grazing land. Sugar cane is the prevailing crop grown in this area, with a tradition dating back to colonial times. The production of sugar cane is still vital to this area and continues to contribute significantly to its economic structure.

4.2.5.2 Developed Land

From its colonial beginnings, generations of people have traditionally settled along the Bayou Lafourche Ridge serving past populations as a major water thoroughfare for transportation purposes. Today, the major highways of LA 1 and LA 308 run parallel to Bayou Lafourche on each side, providing the major north-south transportation link from Interstate 10 (I-10) to US 90.

Land within the study area is still primarily rural, with most development concentrated in small communities and the larger city of Thibodaux. Developed land consists of only about 8 percent of the study area, with the predominant proportion consisting of low-intensity development, as defined by NOAA. Most medium-to-high intensity development occurs adjacent to the major roadway thoroughfares, while the lower intensity development occurs on rural streets feeding into the major roadways.

4.2.5.3 Natural Areas

Due to its proximity to the Gulf, as well as the construction of man-made access canals for past oil and gas exploration,³¹ the study area is comprised of almost 146,184 acres of natural areas. This is roughly 66 percent of the study area. The majority of the natural areas consist of forested wetland.³²

As noted in Table 4.3 above, the study area also contains approximately 5,439 acres (or about 2.5 percent of the study area) of open water, including Bayou Lafourche that traverses the study area from the Mississippi River in the north past US 90 to the southeast and the large lake of Lac Des Allemands northeast of the study area. The bayous and larger watershed systems deriving from the Mississippi River are particularly important, as the waterways have historically provided the natural sediment deposits that created the higher elevations in the region.³³ These higher elevations along the fingerlike ridges, in turn, provide the most suitable land for urban and agricultural land uses.

4.2.6 What are the impacts to land use?

Existing land uses were identified using geographic information system (GIS) files provided by Buchart-Horn. Land use in the area was defined as one of four types—agricultural, bottomland, cypress forest, and developed. Because of the level of detail of available land use data in the area, additional information on land cover was gathered from the United States Geological Survey's (USGS) Multi-Resolution Land Characteristics data. Direct effects to land use were assessed with GIS by evaluating types of land uses and land cover located under build alternatives. Indirect effects were assessed by evaluating past land use trends of the region in conjunction with both the

³¹ Terrebonne Parish: Appeal of FEMA's 2009 Preliminary DFIRMS. September 2009. Chapter 2 page 1. <http://www.tpcg.org/view.php?f=planning>, Last accessed August 5, 2010.

³² NOAA.C-CAPLandCoverClassificationScheme. http://www.csc.noaa.gov/digitalcoast/data/ccapregional/pdf/ccap_class_scheme.pdf. Last accessed August 11, 2010.

³³ Terrebonne Parish: Appeal of FEMA's 2009 Preliminary DFIRMS. September 2009. Chapter 2 page 1. <http://www.tpcg.org/view.php?f=planning>, Last accessed August 5, 2010.



type and probability of planned developments and type and intensity of induced development resulting from the build alternatives and other regional projects.

4.2.7 What are the impacts to land use as a result of the No-build Alternative?

No changes to land use would occur as a result of the No-build Alternative.

4.2.8 What are the impacts to land use as a result of the Build Alternatives?

The predominant land use along all four build alternatives is agricultural use. Alternatives 1 and 2 are developed along 5 percent of their alignments, with the remaining areas undeveloped as either bottomland or cypress forest. The alignments of *Alternative 3 (Central Alignment + North Alignment "A")* and *Alternative 4 (Central Alignment + North Alignment "B")* are predominantly undeveloped as bottomland or cypress forest with approximately 10 and 12 percent of land use considered developed, respectively. Percentages for the existing land use of the build alternatives are detailed in **Table 4.4**.

Table 4.4
Percent of Land Use Along Build Alternatives

Land Use	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Agricultural	52.6%	44.8%	44.0%	42.2%
Bottomland	<1%	<1%	0%	<1%
Cypress Forest	36.3%	52.3%	46.8%	44.9%
Developed	10.4%	3.1%	10.3%	12.2%

Existing land cover information provides a more detailed look at the types of land use in the areas of the build alternatives. Percentages for the existing land cover of the build alternatives are detailed in **Table 4.5** on the following page.

Alternative 1 (Western Alignment + North Alignment "A")

Alternative 1 (Western Alignment + North Alignment "A") has the highest percentage of undeveloped lands with approximately 53 percent agricultural, and 36 percent cypress forest. The remaining land cover is single-family residential and commercial where the route crosses through downtown Thibodaux and Schriever. Single-family residential land uses in the community of Chackbay, Lafourche Parish are also intersected by this alternative.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "B") has a comparable proportion to *Alternative 3 (Central Alignment + North Alignment "A")* of agricultural land with 45 percent. The remainder of *Alternative 2 (Western Alignment + North Alignment "B")* is nearly 3 percent developed and 52 percent undeveloped cypress forest.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") is predominantly undeveloped with approximately 47 percent considered cypress forest. The remainder of *Alternative 3 (Central Alignment + North Alignment "A")* is 44 percent agricultural and approximately 10 percent developed.



Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") has the smallest percentage of undeveloped area of all of the build alternatives with 45 percent cypress forest. With more than 12 percent of the alternative considered developed, Alternative 4 (Central Alignment + North Alignment "B") has the highest percentage of developed land cover. The remaining land cover, approximately 42 percent, is agricultural land.

**Table 4.5
Percent Land Cover Along Build Alternatives**

Land Use	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Open Water	<1%	<1%	<1%	<1%
Developed, Open Space	0%	<1%	<1%	<1%
Developed, Single-Family Residential	4.4%	3.1%	4.7%	12.2%
Developed, Multi-Family Residential	0%	0%	0%	0%
Developed, Commercial	6.0%	0%	5.6%	0%
Developed, Civic or Institutional	0%	0%	0%	0%
Deciduous Forest	0%	0%	0%	0%
Evergreen Forest	0%	0%	0%	0%
Mixed Forest	<1%	0%	0%	<1%
Shrub/Scrub	<1%	0%	<1%	0%
Grassland/Herbaceous	0%	0%	0%	0%
Pasture Hay	3.6%	3.7%	6.6%	1.3%
Cultivated Crops	49.0%	41.0%	35.0%	40.8%
Woody Wetlands	36.3%	52.3%	46.8%	44.9%
Emergent Herbaceous Wetlands	0%	0%	0%	0%

Construction of a new transportation corridor would result in the direct conversion from existing use to transportation use. As the longest alternative, Alternative 2 (Western Alignment + North Alignment "B") has the greatest amount of land and therefore has the potential to have the largest direct impact to land use.

4.2.9 What indirect and cumulative impacts are anticipated?

The controlled access of the proposed Houma-Thibodaux to LA 3127 may adversely affect access in some areas and provide new, beneficial access to other areas that currently have none. These access changes may change travel patterns and affect growth concentrated at access points to the Houma-Thibodaux to LA 3127. It is likely that retail services (e.g., fueling stations and restaurants) will be the first development projects followed by additional residential development in non-wetland areas that are attractive to north-south commuters. Any development project will have to be approved by city or parish planning agencies to ensure the development is compatible with the surrounding land uses.



Adverse impacts are truly a concern in Terrebonne Parish as 90 percent of land area is considered environmentally sensitive. According to Terrebonne Parish's Vision 2030 Plan, the City of Houma's increased economic development opportunities are predicted to rebound the post-storm related lagging population levels that were apparent pre-2010. The influx of population growth will create demand for housing in this area of the parish. The population cohort that is predicted to drive the most, and thereby have the greatest implications for land use over the next 20 years, is that of senior citizens. It is thought that the desired communities of this "Baby Boomer" population are those that provide walkability and convenience. The parish also intends to utilize much of its environmentally sensitive areas as recreational space. Residential, commercial, and industrial developments are predicted to outpace agricultural development and take the form of traditional growth patterns on higher elevations.

The build alternatives for the Houma-Thibodaux to LA 3127 will serve as a reliever route to the LA 20 route. As such, it is possible that development along the build alternatives could be similar. Existing development along LA 20 either consists of single-family residential with frontage directly onto LA 20, or, in the lower areas, does not currently have development. The developed lots generally consist of small plots of pasture or cultivated crops with one to few buildings. However, with the limited access designed for the Houma-Thibodaux to LA 3127, it is less likely that a similar level of development will occur along the Houma-Thibodaux to LA 3127.

4.3 TRAVEL PATTERNS

4.3.1 What are the existing primary corridors within the study area?

The existing transportation network in the study area has limited traffic facilities due to the regions' low topography with numerous bayous and coastal wetland areas. Land development is concentrated along higher elevated natural ridges, which results in circuitous routes for the area. **Figure 4-4** below lists the six primary corridors located within the project area: LA 3127, US 90, LA 1, LA 308, LA 24, and LA 20.

LA 3127 is an east-west corridor located along the northern boundary of the study area. It is a two-lane roadway that begins at LA 70 and terminates at US 90, roughly following the Mississippi River.

US 90 is an east-west corridor located along the southern boundary of the study area. It is a four-lane divided roadway and the only controlled access facility within the study area. Connecting New Orleans and Lafayette, US 90 is also the most heavily traveled route.

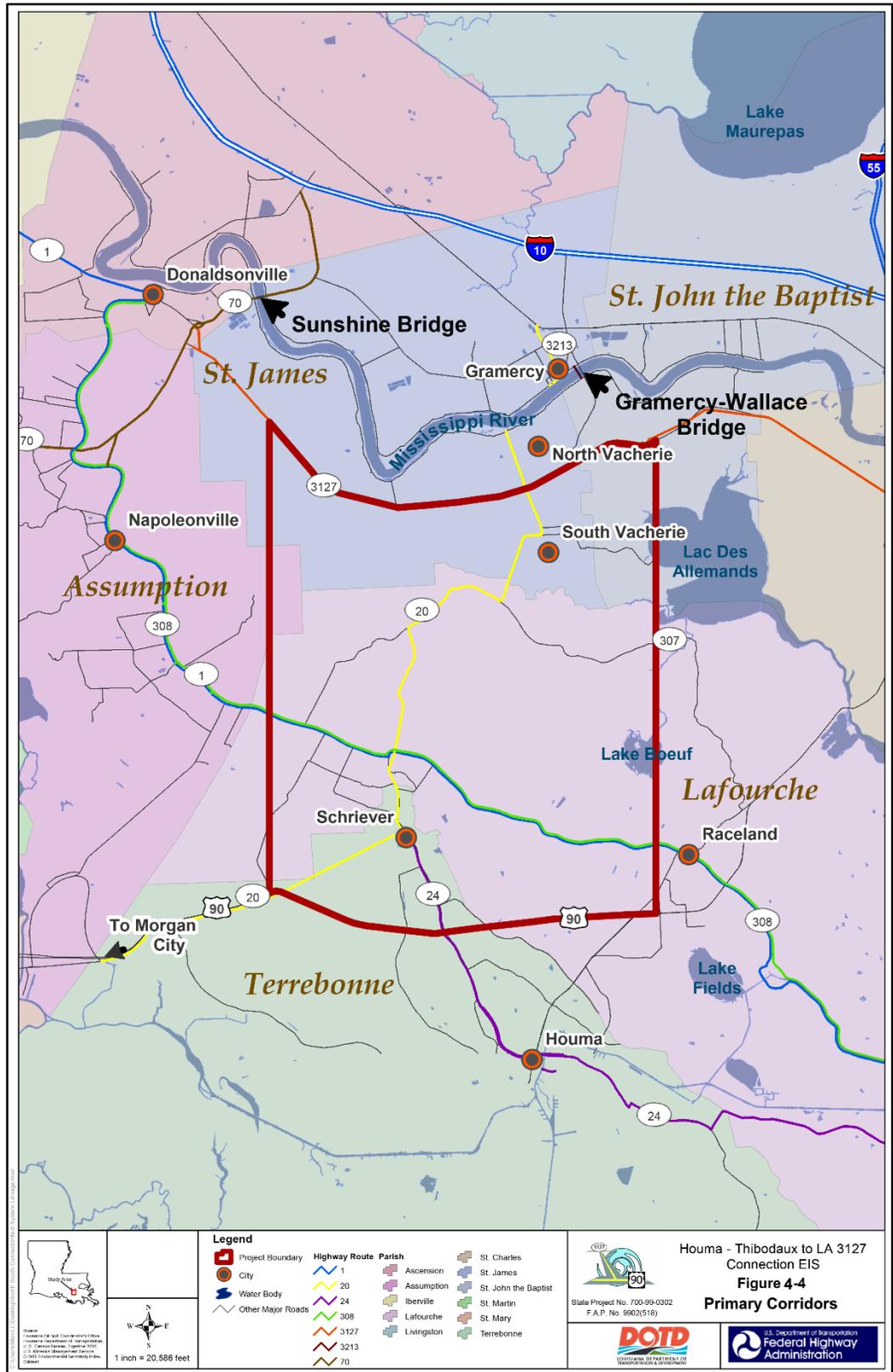
LA 1 and LA 308 are two-lane roadways that parallel the east and west banks of Bayou Lafourche. These roadways bisect the study area in a northwestern-to-southeastern direction. LA 1 and LA 308 travel through Thibodaux connecting US 90 and LA 70.

LA 24 is a four-lane, north-south roadway that starts with an interchange at US 90 as it enters the study area and terminates at LA 20. LA 24 is divided by the Bayou Terrebonne into two one-way segments.

LA 20 is generally a north-south roadway that travels through the center of the study area. Within the study area, LA 20 operates as a two-lane, three-lane, and four-lane highway. LA 20 begins with an interchange at US 90 and then is a two-lane facility until the intersection with LA 24 where it becomes a four-lane facility through Thibodaux. LA 20 transitions to a three-lane facility before intersecting with LA 304 and transitioning back to a four-lane facility. Finally, LA 20 becomes a two-lane facility through Chackbay and South Vacherie before exiting the study area. LA 20 is the only route through the low areas between Thibodaux and South Vacherie within the study area.



Figure 4-4



Existing Primary Corridors in the Study Area

Facility type and 24-hour capacity of these primary corridors are listed in Table 4.6.



**Table 4.6
Generalized Capacities of the Primary Access Roadways**

Roadway	Alignment	Facility Type	24 Hour Capacity (vehicles per day)
US 90	East-West	Expressway, 4-lane	32,000
LA 24	North-South	Principal Arterial, 4-lane	27,000
LA 20	North-South	Principal Arterial, 2-Lane	15,000
LA 308	East-West	Minor Arterial, 2-lane	11,000
LA 1	East-West	Principal Arterial, 2-lane	15,000
LA 3127	East-West	Minor Arterial, 2-lane	11,000

Source: Houma-Thibodaux Metropolitan Area Transportation Plan Update and LADOTD Summary Logs Estimates from the Traffic Analysis, which was completed for the Houma-Thibodaux to I 10 Connection.

Existing conditions for the year 2010 were determined by collecting new traffic counts along key roadways within the study area combined with data provided by SCPDC. This data was used to determine Levels of Service (LOS) for various roadways. In general, traffic volume demand is highest in the southern and middle portions of the study area and the lowest in the northern portion of the study area where there is less development and fewer transportation corridors.

Review of LOS in the study area indicates that most of the primary corridors are operating with an acceptable LOS (a LOS D or better) with the exception of the two-lane portion of LA 20, which operates at a LOS E during peak hours. Traffic models show that several of the primary corridors (LA 20, LA 308, LA 1, and LA 70) will be operating at a LOS E in the future year of 2032. Existing and 2032 LOS for all of the primary corridors in the region are shown in **Table 4.7**.

**Table 4.7
Generalized Capacities of the Primary Access Roadways**

Roadway	Alignment	Facility Type	Existing LOS	2032 LOS
US 90	East-West	Expressway, 4-lane	A	A
LA 24	North-South	Principal Arterial, 4-lane	B	C
LA 20	North-South	Principal Arterial, 2-Lane	E/B	E/B
LA 308	East-West	Minor Arterial, 2-lane	D	E/D
LA 1	East-West	Principal Arterial, 2-lane	C/B/D	D/C/E
LA 3127	East-West	Minor Arterial, 2-lane	C	D

Source: Houma-Thibodaux Metropolitan Area Transportation Plan Update and LADOTD Summary Logs Estimates

LA 20 is currently the only north-south route between Houma-Thibodaux and the Mississippi River/Vacherie areas. Presently, LA 20 underserves the transportation demand due to capacity issues and a circuitous route linking US 90 and LA 3127. The demand for north-south travel is likely greater than the existing traffic volumes suggest for LA 20. This additional demand is represented by motorists who elect to use US 90 to I-10 or I-55 rather than using the existing circuitous, two-lane corridor of LA 20.

4.3.2 What changes to travel patterns would occur as a result of the project?

Travel patterns in the study area are affected by their proximity to a city or town, but are characterized as longer-distance trips than what would be expected in more urbanized areas.



Residents in rural regions travel to local municipalities for shopping, school, services, and social events. Common regional destinations in the project area include Houma, Schriever, and Thibodaux to the south and the developed regions along the Mississippi River including North Vacherie, Garyville, Laplace, Reserve, and Donaldsonville to the north. Traffic volumes will peak in and around these areas.

Because of the rural character of the study area, modes of travel other than private vehicle are much less prominent. Bicycle lanes are not provided on primary routes and the rural character and longer trips minimize the potential of pedestrian travel.

The implementation of any of the four proposed alternatives would result in minimal congestion. As anticipated, north-south connectivity and mobility between US 90 and LA 3127 would improve through an additional north-south link. Access between the Thibodaux-Houma area and the Mississippi River Corridor would be enhanced by a direct, limited access route. The existing north-south system linkage (LA 20)—a winding, narrow arterial with no access management—is inadequate. The majority of the areas surrounding the alternatives consist of pastoral or forested land. Additionally, should the need to evacuate due to a hurricane occur, any of the alternatives would cause traffic to operate with greater efficiency through decreased travel time, greater access to facilities, increased roadway capacity, and balanced distribution of evacuation traffic among the critical Mississippi River crossings.

The implementation of any of the four proposed alternatives would result in minimal congestion.

4.3.3 What are the impacts to travel patterns as a result of the No-build Alternative?

No changes to travel patterns would occur as a result of the No-build Alternative.

4.3.4 What are the impacts to travel patterns as a result of the Build Alternatives?

Overall, traffic patterns concerning each alternative are likely to be improved with the additional north-south linkage. The anticipated changes to traffic patterns to each alternative are as follows:

Alternative 1 (Western Alignment + North Alignment "A")

Alternative 1 (Western Alignment + North Alignment "A") would cross LA 20 at Schriever before diverting west to where it passes through the outskirts of downtown Thibodaux. Since this is the most developed portion of the alignment, the majority of traffic is anticipated to be experienced in this area. At the US 90 portion or the southern termini of this alternative, traffic would be diverted through rural or slightly developed areas.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "B") begins in the outskirts of South Vacherie at the intersection of LA 644. This alternative would be a slightly longer route to LA 3127 than *Alternative 3 (Central Alignment + North Alignment "A")*, further removed from development and primarily surrounded by pastoral and forested land. Utilizing this northern alternative as opposed to *Alternative 3 (Central Alignment + North Alignment "A")* may result in a slightly greater alleviation of traffic on LA 20 due to the diversion through pastoral and forested land from the intersection of LA 20 on the outskirts of South Vacherie.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A"), like *Alternative 2 (Western Alignment + North Alignment "B")*, begins just outside of South Vacherie at the intersection of LA 644. At this point, traffic would take a more direct or shorter course to LA 3127, which provides access to three bridge crossings of the Mississippi River; from east to west, these are the Luling Bridge in



St. Charles Parish, the Gramercy-Wallace Bridge in St. John Parish, and the Sunshine Bridge in Ascension Parish. The surroundings of this route would primarily consist of pastoral land with limited development. As such, any increase in through traffic from this north-south alignment should not cause congestion or differ much from what is already experienced on LA 20.

Alternative 4 (Central Alignment + North Alignment "B")

As mentioned in Section 4.2.8, *Alternative 4 (Central Alignment + North Alignment "B")* has the smallest proportion of undeveloped land of all the build alternatives with approximately 45 percent woodland. The southern termini of this alignment are at the intersection of LA 90 and LA 316. This alignment may experience an increase of north-south bound traffic through Gray before taking an eastern turn into Lafourche Parish. The remainder of this alignment crosses through pastoral and wooded land until it reaches the outskirts of Schriever where it would transition into either the northern portion of either *Alternative 2 (Western Alignment + North Alignment "B")* or *Alternative 3 (Central Alignment + North Alignment "A")* of the proposed Houma-Thibodaux to LA 3127 connection. Overall, more traffic would be diverted from LA 20 through lesser populated surroundings as opposed to that of *Alternative 1 (Western Alignment + North Alignment "A")*. Given the remote surroundings of *Alternative 4 (Central Alignment + North Alignment "B")* very little impact traffic is anticipated to this southern portion of the proposed Houma-Thibodaux to LA 3127 connection.

The controlled access of the proposed Houma-Thibodaux to LA 3127 connector may adversely affect access in some areas and provide new, beneficial access to other areas that currently have none. These access changes may change travel patterns locally as crossroad termination is proposed on low-volume roads where local service and local access exists with alternate routes. This direct effect will inconvenience the fewest number of residents in the study area based on roadway volume. However, some of the effects on residents could be substantial depending on the proximity and length of an alternate route. These changes are related to short trips and generally don't contribute much to the overall travel patterns of an area that are characterized by longer trips.

Some intersecting roadways with sufficient volume will be provided access to the project. Most of these access points will occur with a controlled intersection, meaning a traffic light will be installed. The three largest volume areas will be provided access through ramps as part of diamond interchanges (US 90, LA 1/LA 308, and LA 20). Other roadways with sufficient volume will be grade separated. These roadways will not have access to the project and will not be terminated or rerouted. Rerouting of existing roadways will be considered when adjacent crossroads are within a reasonable distance. Major intersections are listed in **Table 4.8**.



**Table 4.8
Major Intersections along Proposed Alternatives**

Roadway	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
US 90	Interchange	Interchange	Interchange	Interchange
LA 311	Intersection	Intersection	—	—
St. George Road	Controlled Intersection	Controlled Intersection	—	—
LA 20 (at Broadway Avenue)	Controlled Intersection	Controlled Intersection	—	—
Main Project Road (Relocated)	Controlled Intersection	Controlled Intersection	—	—
Talbot Avenue	Controlled	Controlled	—	—
LA 316	—	—	Controlled Intersection	Controlled Intersection
Bayou Blue Bypass Road	—	—	Intersection	Intersection
Waterplant Road (Relocated)	—	—	Controlled Intersection	Controlled Intersection
Burma Road	—	—	Grade-Separated	Grade-Separated
LA 1/LA 308	Interchange	Interchange	—	—
LA 20 (at Woodland Drive)	Controlled Intersection	Controlled Intersection	—	—
Southern Pacific Railroad	—	—	Grade-Separated	Grade-Separated
Choctaw Road	Grade-Separated	Grade-Separated	Grade-Separated	Grade-Separated
LA 20 (at Uncle Bebe Lane)	Interchange	Interchange	Interchange	Interchange
LA 20 (Relocated at LA 644)	Intersection	—	Intersection	—
LA 3127	Controlled Intersection	Controlled Intersection	Controlled Intersection	Controlled Intersection

Traffic volume growth was modeled between 2010 and 2032 and a 2032 build condition volume was determined for the build alternatives. With the introduction of the build alternatives, the traffic volume on the existing roadway network were generally reduced as traffic was redistributed to the proposed corridor. With the build alternatives offering an additional north-south route, volumes on the heavily-traveled LA 20 corridor are expected to result in the largest reduction in volumes.

All four build alternatives are expected to operate at a LOS A for the build conditions. It is anticipated that *Alternative 3 (Central Alignment + North Alignment "A")* and *Alternative 4 (Central Alignment + North Alignment "B")* would also result in improvements in the LOS of LA 316 and LA 648 as well as LA 20 north of LA 308. It is anticipated that *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")* would also result in the improvements in the LOS of LA 311 and LA 316.

Under all build alternatives, it is expected that LA 20 in the most northern portion of the project would still operate as a LOS E. However, reduction in delays is expected as traffic volumes in this area are expected to go down.



4.3.5 What indirect and cumulative impacts are anticipated?

Indirect effects to travel patterns should be minor and beneficial as new roadways with uncontrolled access are constructed to meet local demand. Cumulative effects to travel patterns when compared to the No-build Alternative should be beneficial as the project will provide improved mobility in the project area, particularly in the north-south direction, which is lacking under current conditions. Additionally, induced development and roadway development should also improve access for local residents and businesses. Details on roadway terminations, intersections, and specific changes to travel patterns will be evaluated for the Preferred Alternative.

4.4 COMMUNITIES

4.4.1 What are the community characteristics of the study area?

The study area is located in southeastern Louisiana, south of the Mississippi River between Baton Rouge and New Orleans, and includes portions of five parishes—Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne Parishes. The study area is roughly bounded by US 90 to the south, LA 3127 and the Mississippi River to the north, LA 1/LA 308 and Bayou Lafourche to the west/southwest, and LA 307 and Lac des Allemands to the east.

The Mississippi River bisects Ascension, St. Charles, St. James, and St. John the Baptist Parishes, the four parishes known as the "River Parishes," two of which, St. James and St. John the Baptist, comprise the northern portion of the study area along the river between Baton Rouge and New Orleans. Bayou Lafourche, paralleled by LA 1 to its west and LA 308 to its east, flows through parts of Ascension, Assumption, and Lafourche Parishes. Development is concentrated along the study area's peripheral roadways, including residential, commercial, mixed-use development within the city and town limits, surrounded by cultivated agricultural fields. The Mississippi River corridor supports industrial development in the northern portion of the study area. The center and the eastern/southeastern fringe of the study area consist primarily of undeveloped woody wetlands.

4.4.1.1 Assumption Parish

Assumption Parish is located west of the Mississippi River and the adjacent industrial corridor between Baton Rouge and New Orleans. The parish is predominantly agriculture-based, with some related industrial activity, such as sugar processing and refining. Napoleonville is the parish seat and the only incorporated community in the parish. Napoleonville village and several other small unincorporated communities, including Belle Rose, Labadieville, Paincourtville, and Supreme, are located in the study area along the banks of Bayou Lafourche.

4.4.1.2 Lafourche Parish

Lafourche (French for "the fork") Parish is named after Bayou Lafourche, which forms a fork where it flows out of the Mississippi River in Ascension Parish and runs the length of Lafourche Parish into the Gulf of Mexico. Bayou Lafourche is nicknamed the "Longest Street in the World" because of the many continuous miles of closely spaced homes along the bayou. There are three incorporated municipalities in Lafourche Parish, one of which is located within the study area. Thibodaux, the parish seat, is located along the banks of Bayou Lafourche in the northwestern part of the parish.

4.4.1.3 St. James Parish

St. James Parish is one of the four "river parishes" located between New Orleans and Baton Rouge and bisected by the Mississippi River. The western portion of the parish, below LA 3127, is located within the study area, including the unincorporated town of South Vacherie. The unincorporated community of Convent is the parish seat.



4.4.1.4 St. John the Baptist Parish

St. John the Baptist Parish is located between St. Charles and St. James Parishes, and is also one of the four "river parishes" bisected by the Mississippi River. Though the river actually separates the parish into northern and southern parts, the former is referred to as the "east bank" and the latter as the "west bank." Eight communities comprise St. John Parish, none of which are located in the study area.

4.4.1.5 Terrebonne Parish

Terrebonne Parish is one of the largest and one of the southernmost Louisiana parishes. Houma, the parish seat, is the only incorporated city in Terrebonne Parish. The northernmost portion of the parish, north of US 90 and the Houma city limits, is within the study area boundary.

4.4.2 How is the study area growing?

Population data and growth rates from 1990 to 2010 for the study area are presented in **Table 4.9**. All of the study area parishes experienced an increase in population size between 1990 and 2000, as well as between 2000 and 2010, with the highest growth seen in Terrebonne Parish during both time periods (by approximately 8 percent and 7 percent, respectively). St. James Parish experienced the smallest growth between 1990 and 2000 (approximately 2 percent), while Assumption Parish grew the least from 2000 to 2010 (less than 1 percent). The population of the study area parishes as a whole grew by an average of approximately 6 percent from 1990 to 2000, with very similar growth (6.2 percent) between 2000 and 2010. The population of Louisiana, however, grew less between 2000 and 2010 (approximately 1 percent) compared to the growth seen between 1990 and 2000 (approximately 6 percent).

Table 4.9
Population Data for the Study Area

Location	1990	2000	Growth Rate 1990 2000	2010	Growth Rate 2000 2010
Louisiana	4,219,973	4,468,976	5.9%	4,533,372	1.4%
Assumption	22,753	23,388	2.8%	23,421	0.1%
Lafourche	85,860	89,974	4.8%	96,318	7.1%
St. James	20,879	21,216	1.6%	22,102	4.2%
St. John the Baptist	39,996	43,044	7.6%	45,924	6.7%
Terrebonne	96,982	104,503	7.8%	111,860	7.0%
All Study Area Parishes	266,470	282,125	5.9%	299,625	6.2%

Source: US Census Bureau - Census 1990; Census 2000; Census 2010

4.4.3 What is the ethnic make-up of the study area?

Racial characteristics of the study area parishes are presented in **Table 4.10**. Based on U.S. Census 2000 and 2010 data, the population of the study area parishes as a whole is predominantly white, with minority races comprising an average of approximately 24 percent of the population in 2000 and approximately 25 percent in 2010. The minority percentage of the population in the study area increased slightly from 2000 to 2010, with the largest increase seen in St. John the Baptist Parish. While St. John the Baptist and St. James Parishes have minority populations greater than the statewide average of approximately 32 percent, the study area as a whole remains below the statewide average. Lafourche Parish has the smallest minority population, and St. John the Baptist Parish has the largest minority population.



Table 4.10
Racial Characteristics of the Study Area

Location	2000				2010			
	Total Population	White	Black/African American	Other Races	Total Population	White	Black/African American	Other Races
Louisiana	4,468,976	63.9%	32.5%	3.6%	4,533,372	62.6%	32.0%	5.4%
Assumption	23,388	67.2%	31.5%	1.3%	23,421	66.8%	30.5%	2.8%
Lafourche	89,974	82.9%	12.6%	4.5%	96,318	79.4%	13.2%	7.4%
St. James	21,216	50.0%	49.4%	0.6%	22,102	48.0%	50.6%	1.4%
St. John the Baptist	43,044	52.6%	44.8%	2.7%	45,924	42.5%	53.5%	4.0%
Terrebonne	104,503	74.1%	17.8%	8.1%	111,860	70.3%	18.9%	10.8%
All Study Area Parishes	282,125	71.2%	23.7%	5.1%	299,625	69.1%	25.4%	5.3%

Source: US Census Bureau - Census 1990; Census 2000; Census 2010

Ethnicity and ancestry characteristics of the study area parishes are presented in **Table 4.11**. The study area, which is located in the Acadian region of Louisiana and considered the heart of "Cajun Country," has a significant Cajun population. Cajuns are an ethnic group mainly living in Louisiana and consisting of the descendants of the Acadian exiles. The Acadians were French-speaking people evicted by the British in the period 1755 to 1763 because of the French and Indian War. Acadia consisted of present-day Nova Scotia, parts of eastern Quebec, other Canadian maritime provinces (New Brunswick and Prince Edward Island), and modern day Maine.

Table 4.11
Ethnicity and Ancestry Characteristics of the Study Area

Location	2000						2010		
	Total Population	Acadian/Cajun Population ¹		Hispanic/Latino Population		Total Population	Hispanic/Latino Population		
		Population	Percent	Population	Percent		Population	Percent	
Louisiana	4,468,976	44,960	1.0%	107,738	2.4%	4,533,372	193,988	4.2%	
Assumption	23,388	763	3.3%	284	1.2%	23,421	146	0.6%	
Lafourche	89,974	3,773	4.2%	1,284	1.4%	96,318	3,709	3.8%	
St. James	21,216	213	1.0%	130	0.6%	22,102	264	1.1%	
St. John the Baptist	43,044	--	--	1,230	2.9%	45,924	2,191	4.7%	
Terrebonne	104,503	2,132	2.0%	1,631	1.6%	111,860	4,470	3.9%	
All Study Area Parishes	282,125	6,881	2.4%	4,559	1.6%	299,625	10,780	3.5%	

Source: US Census Bureau - Census 1990; Census 2000; Census 2010

¹The population threshold on the Summary File 4 data set is 100. Data is not available for some geographic areas because the population of the selected race or ethnic group, or ancestry group, is less than the threshold. The SF4 data set for Census 2010 is not available (as of May 2013).

Cajuns are recognized by the U.S. government as an official ethnic group, defined as a group of people classed according to common racial, national, tribal, religious, linguistic, or cultural origin or background. Cajun ethnicity was officially recognized by the U.S. government in 1980 per a discrimination lawsuit filed in federal district court (Roach v. Dresser Industries Valve and



Instrument Division [494 F.Supp. 215, D.C. La., 1980]), and it is protected by Title VII's ban on national origin discrimination. Unfortunately, the Cajun population in the area is likely under-represented in the Census statistics. Unlike other ethnicities, there is not a Census ethnicity option to check for Acadian/Cajun American. Many Cajuns consider themselves as white Americans which can lead to some statistical inaccuracies when it relates to Cajuns.

As shown in Table 4.11, approximately 2 percent of the population of the study area parishes as a whole is of Acadian/Cajun ancestry. Assumption and Lafourche Parishes had the largest Cajun populations, at approximately 3 and 4 percent, respectively. St James and St. John the Baptist Parishes had the smallest Cajun populations, with percentages less than the Census thresholds of available data. Ancestry data for the 2010 Census is not yet available (as of May 2013).

Approximately 4 percent of the study area population is Hispanic/Latino, according to the 2010 Census. The Hispanic/Latino population in the study area has more than doubled since the 2000 Census, which is consistent with the statewide average growth during the same period (see Table 4.11).

4.4.4 What are the general housing characteristics of the study area?

General housing characteristics of the study area are presented in **Table 4.12**, and characteristics of the housing market are presented in **Table 4.13**. The majority of the study area parishes as a whole (approximately 86 percent) are comprised of owner-occupied housing, and the percentage of owner-occupied housing in each study area parish is higher than the statewide average. Terrebonne Parish has the highest percentage of renter-occupied housing at approximately 28 percent. Assumption Parish has the highest percentage of vacant housing, approximately 16 percent.

Table 4.12
Study Area General Housing Characteristics

Location	Total Housing Units	Owner Occupied	Renter Occupied	Vacant	Single Family Detached	Mobile Home	Median Value (2000)	Median Value (2008 2010)
Louisiana	1,967,882	67.2%	32.8%	12.0%	65.2%	13.3%	\$77,500	\$137,900
Assumption	10,361	81.6%	18.4%	15.6%	60.5%	30.4%	\$58,400	\$90,700
Lafourche	38,645	75.8%	24.2%	8.0%	70.4%	23.3%	\$71,100	\$126,300
St. James	8,470	83.9%	16.1%	8.7%	73.8%	17.5%	\$69,300	\$124,100
St. John the Baptist	17,522	79.2%	20.8%	8.8%	78.8%	10.2%	\$79,000	\$150,500
Terrebonne	43,914	68.2%	27.8%	8.6%	70.4%	16.7%	\$72,200	\$128,900
All Study Area Parishes	118,912	85.8%	20.8%	10.7%	71.0%	18.4%	—	—

Source: US Census Bureau, Census 2000; 2009- 2011 American Community Survey 3-Year Estimates



Table 4.13
Study Area Housing Market Characteristics

Location	Active Listings	Average Listing Price	Median Listing Price
Assumption	102	\$158,166	\$49,000
Lafourche	554	\$186,808	\$125,000
St. James	65	\$124,487	\$109,500
St. John the Baptist	344	\$183,794	\$149,000
Terrebonne	678	\$224,008	\$152,500

Source: US Census Bureau - Census 2010. Population for whom poverty status is determined.

Most homes in the study area parishes are located in rural areas (with some suburban), are moderately valued, and are single-family detached homes built between 1950 and 1990.

According to Census 2000 data, median owner-occupied home values for the study area parishes were between \$58,400 (Assumption) and \$79,000 (St. John the Baptist), with a statewide average of \$77,500. The Census 2009-2011 American Community Survey 3-Year Estimates report median owner-occupied home values ranging from \$90,700 (Assumption) to \$150,500 (St. John the Baptist) and a statewide average of \$137,900.

Real estate listings were reviewed to determine the availability and estimated market value of homes in the study area, as shown in Table 4.13. There were approximately 1,743 active listings of one- to five-bedroom homes throughout the study area parishes in August 2010, with average listing prices by parish ranging from \$124,487 to \$224,008. Median listing prices by parish range from \$49,000 to \$152,500.

4.4.5 How would communities be impacted by the project?

Community impacts were evaluated using GIS, aerial photography, and field reconnaissance. A GIS dataset was created for the project to inventory, map, and analyze the various community resources and constraints throughout the study area (e.g., residential structures, community facilities, demographic data, etc.), and to avoid or minimize impacts to the communities during development of the build alternative alignments.

Beyond the direct effects of required relocations, community impacts are typically considered in the context of the effect a project has on community cohesion. Community cohesion is a measure of the level and quality of interaction among the people of a community, generally indicated by the degree that people know and care about their neighbors and by their participation in community activities. The more interaction, the more cohesive the social relationships and patterns usually are.

4.4.6 What are the impacts to communities as a result of the No-build Alternative?

No communities would be impacted by the No-build Alternative.

4.4.7 What are the impacts to communities as a result of the Build Alternatives?

The build alternatives pass through a predominantly rural landscape, with development concentrated along major roadways, primarily within city and town limits, surrounded by

Community cohesion is a measure of the level and quality of interaction among the people of a community, generally indicated by the degree that people know and care about their neighbors and by their participation in community activities.



cultivated agricultural fields and undeveloped, wooded wetlands. The build alignments all pass directly through or near Schriever, Thibodeaux, Chackbay, and South Vacherie.

While the majority of the build alternative alignments are on new locations, all of the build alternatives include sections that will widen existing roads (e.g., LA 311, LA 316, and LA 20) and require relocation of residences and businesses. All of the build alternatives do, however, avoid a significant number of impacts by going around the Thibodeaux city limits. New location sections of the build alternatives primarily cross through cultivated fields or undeveloped wetlands, except for some areas where existing roads will be crossed (e.g., LA 20, LA 308/1). While clusters of residences have been avoided by the build alternatives, some relocations will be required at some of the new intersections. For more information about relocations, please see Section 4.9.

With the exception of inside the Thibodeaux city limits, where the road network is on a grid, the majority of the neighborhoods in the study area are comprised of single, dead-end streets accessed from major routes and collector roads; connectivity between the residential streets is limited, with few to no interconnected roads or sidewalks.

The build alternatives could impact community cohesion if the alignments separate residents, block access or mobility patterns, or set certain areas of neighborhoods apart from others. Due to the general lack of interconnectivity between residential streets and limited north-south connectivity that currently exists in the study area, there is the potential for significant impacts to community cohesion. The type and severity of the impacts will primarily depend on whether or not tie-ins to local side roads and drives are provided and how they are configured, which will be determined during detailed design of the Preferred Alternative. The areas with the greatest potential for impact are the neighborhoods with single access points off of the existing sections of the proposed Central and Western alignments. However, mitigation measures would be incorporated into the design to address any significant impacts that are identified.

4.4.8 What indirect and cumulative impacts are anticipated?

Indirect and cumulative impacts consider the effects to residences and communities that may result from induced development from the project, and will be directly proportional to anticipated changes in land use induced from the build alternatives. Local governments have the ability to manage growth through land use and development policies that promote quality, compatible growth and a balanced land use mix, and the ability to travel directly between destinations, with access to services that are currently absent or only distantly available, is expected to benefit the residents in the study area communities overall.

4.5 PUBLIC FACILITIES AND SERVICES

4.5.1 What type of community services and facilities are located within the study area?

Community services and facilities include resources such as hospitals, schools, government facilities, public service and safety providers, recreational resources, churches, and cemeteries. These types of local resources are typically considered very important in terms of a community's culture and quality of life. Most of the community facilities in the study area are located within city and town limits. Recreational resources are more scattered throughout the study area.

4.5.2 What healthcare services are located within the study area?

Limited primary healthcare needs are provided for directly within the study area. Major and emergency medical care is available at a total of 16 hospitals located throughout the five study area parishes, several of which are within the study area boundaries including Assumption Community Hospital in Napoleonville, Thibodaux Regional Medical Center, and Ochsner St. Anne



General Hospital in Raceland, Lafourche Parish. Just outside the study area boundaries are Terrebonne General Medical Center in Houma, and St. James Parish Hospital, River Parishes Hospital (St. John the Baptist) on the east bank of the Mississippi River.

4.5.3 What educational facilities are located within the study area?

Primary and secondary education is provided by each of the five parish public school districts, as well as several private schools throughout the study area. The parish school districts also operate various alternative schools, adult education centers, and vocational schools in the study area. Post-secondary/higher education is offered at the Lafourche Campus of Louisiana Technical College and Nicholls State University in Thibodaux. The majority of schools and other educational facilities in the study area are located within city and town limits.

4.5.3.1 What educational facilities are located within Assumption Parish, within the study area?

Eight educational facilities are located within the portion of Assumption Parish that is within the study area—Belle Rose Primary School, Labadieville Primary School, Napoleonville Primary School, St. Elizabeth School, Belle Rose Middle School, Labadieville Middle School, Napoleonville Middle School, and Assumption High School.

4.5.3.2 What educational facilities are located within Lafourche Parish, within the study area?

Fourteen educational facilities are located within the portion of Lafourche Parish that is within the study area—St. Genevieve School, Lafourche Juvenile Justice Center, Thibodaux High School, St. Charles Elementary, Nicholls State University, St. Mary's School, Raceland Middle School, Raceland Upper Elementary, Raceland Lower Elementary, Bayou Boeuf Elementary School, Bayou Lafourche Marine Institute, Central Lafourche High School, Sixth Ward Middle School, and Chackbay Elementary.

4.5.3.3 What educational facilities are located within St. James Parish, within the study area?

Five educational facilities are located within the portion of St. James Parish that is within the study area—Fifth Ward Elementary School, Sixth Ward Elementary School, Vacherie Elementary School, Vacherie Primary School, and St. James High School.

4.5.3.4 What educational facilities are located within St. John the Baptist Parish, within the study area?

No schools within St. John the Baptist Parish are located within the study area boundary. The study area is within the attendance zone for West St. John Elementary School, which includes the entire portion of the parish located on the west bank.

4.5.3.5 What educational facilities are located within Terrebonne Parish, within the study area?

Three educational facilities are located within the portion of Terrebonne Parish located within the study area—Andrew Price Alternative School, Schriever Elementary School, and Caldwell Middle School. Additional schools are located just outside the study area boundary, including H.L. Bourgeois High School, Evergreen Junior High School, and Coteau Bayou Blue Elementary.

4.5.4 What public safety services are located within the study area?

Law enforcement and protection in the study area is provided by the five parish sheriff's departments, as well as local police departments in Napoleonville, Thibodaux, and Houma. Fire protection is provided by the Napoleonville Volunteer Fire Department in Assumption Parish,



North Vacherie and South Vacherie Volunteer Fire Departments in St. James Parish, West Bank Volunteer Fire Department in St. John the Baptist Parish, and Schriever Volunteer Fire Department in Terrebonne Parish. Local 911 service for police and fire is available, and paramedics are provided by Acadian Ambulance Service throughout the study area.

4.5.5 What recreational resources are located within the study area?

Many types of outdoor and indoor recreational resources are available throughout the study area. The Assumption Parish Agricultural Complex and Arena is located in Napoleonville, and its facilities include Grande Arena, Petite Arena, and a concession stand. Thibodaux community parks include Andolsek Park, Adley Landry Water Reservoir, Daigle Park, Eagle Drive Park, Midland Park, Edwin H. Chiasson Memorial Park, Martin Luther King Park, and Peltier Park.

Most of the study area is made up of bayous, lakes, and rivers of the Atchafalaya Basin, which offer boating, fishing, camping, wildlife viewing, and other outdoor recreational opportunities year round. Public boat launching facilities are located on Bayou Lafourche, Lac des Allemands, and the Bonnet Carré Spillway.

4.5.6 What sensitive community and cultural resources are located within the study area?

Several hundred churches of various denominations are located throughout the study area. Notable cultural resources in the study area include the Oak Alley Plantation in St. James Parish. Oak Alley Plantation, a National Historic Landmark, is a historic plantation located on the west bank of the Mississippi River in the Vacherie community. It is named after its distinguishing feature, a canopied path created by a double row of live oaks about 800 feet long, which was planted in the early 18th Century, leading towards the Mississippi River.

4.5.7 What community services and facilities would be impacted by the project?

Impacts to community services and facilities were evaluated using GIS, aerial photography, and field reconnaissance. A GIS dataset was created for the project to inventory, map, and analyze the various community resources and constraints throughout the study area, and to avoid or minimize impacts during development of the build alternative alignments.

4.5.8 What are the impacts to community services as a result of the No-build Alternative?

No community services or facilities would be impacted by the No-build Alternative.

4.5.9 What are the impacts to community services as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

One community child care facility, Ms. Patti's Playhouse on Playhouse Court in Schriever, would be relocated by *Alternative 1 (Western Alignment + North Alignment "A")*.

Alternative 2 (Western Alignment + North Alignment "B")

One community child care facility, Ms. Patti's Playhouse on Playhouse Court in Schriever, would also be relocated by *Alternative 2 (Western Alignment + North Alignment "B")*

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") would not impact any community services or facilities.



Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") would not impact any community services or facilities.

4.5.10 What indirect and cumulative impacts are anticipated?

Indirect and cumulative effects from induced development will be directly proportional to anticipated changes in land use induced from the build alternatives. Land use changes that would affect any community services or facilities are not anticipated. The controlled access of the proposed Houma-Thibodaux to LA 3127 may adversely affect access in some areas and provide new, beneficial access to other areas that currently have none. These access changes may change travel patterns and affect growth concentrated at access points to the Houma-Thibodaux to LA 3127.

4.6 ECONOMICS

4.6.1 What is the economic make-up of the study area?

The study area is located within portions of Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne Parishes. According to the 2010 Census, approximately 16 percent of the study area parishes as a whole have incomes below the poverty level, which is less than the statewide average of approximately 19 percent. Lafourche Parish has the lowest percentage at approximately 14 percent, which is significantly lower than the statewide average, while Terrebonne Parish has the highest percentage at approximately 18 percent, which is comparable to the statewide average. St. James Parish has the highest median household income of study area parishes, while Assumption Parish has the lowest, yet still has a median household income above the statewide average. Poverty and income characteristics of the study area, based on 2010 Census data, are presented in **Table 4.14**.

**Table 4.14
Poverty and Income Characteristics of the Study Area (for the year 2010)**

Location	Total Population	Persons Below Poverty Level		Median Household Income
		Population	Percent	
Louisiana	4,533,372	824,906	18.7 %	\$43,484
Assumption	23,421	3,951	17.1%	\$44,583
Lafourche	96,318	13,584	14.4%	\$48,398
St. James	22,102	3,310	15.3%	\$58,128
St. John the Baptist	45,924	6,976	15.5%	\$50,736
Terrebonne	111,860	19,848	18.0%	\$47,859
All Study Area Parishes	299,625	47,669	15.9%	—

Source: US Census Bureau - Census 2010.

¹ Population for whom poverty status is determined.

4.6.2 What are the economic conditions of the study area?

Within the five study area parishes, there are more than 130,000 employed individuals. As shown in **Table 4.15**, the greatest proportion of employed residents work within the educational services, health care and social assistance industries, followed by the retail trade and manufacturing industries. A higher proportion of study area residents are employed in the manufacturing, agriculture, forestry, fishing and hunting, and mining industries than state residents overall.



Table 4.15
Proportion of the Study Area Population by Industry as Compared to the State Overall

Industry	Study Area	Louisiana
Civilian employed population 16 years and over	130,302	1,978,701
Educational services, and health care and social assistance	19.0%	23.6%
Retail trade	12.3%	11.8%
Manufacturing	11.4%	8.0%
Construction	9.9%	8.3%
Agriculture, forestry, fishing and hunting, and mining	8.4%	4.4%
Arts, entertainment, and recreation, and accommodation and food services	8.1%	10.0%
Transportation and warehousing, and utilities	7.0%	5.2%
Professional, scientific, and management, and administrative and waste management services	6.3%	8.3%
Other services, except public administration	5.9%	5.2%
Finance and insurance, and real estate and rental and leasing	4.3%	5.3%
Public administration	3.6%	5.8%
Wholesale trade	2.8%	2.8%
Information	1.2%	1.5%

Source: US Census Bureau, 2009-2011 American Community Survey, 3-Year Estimates, S2403

There are nearly 28,000 businesses within the five parish study area, approximately 78 percent of which are "non-employer businesses," which are mostly self-employed individuals with no paid employees. **Table 4.16** demonstrates that nearly 72 percent of all businesses in the study area are located within just two parishes—Lafourche and Terrebonne.

Table 4.16
Number of Business Establishments within the Study Area

Parish	Employer Establishments	Non employer Establishments*	Total
Assumption	251	1,490	1,741
Lafourche	1,923	6,930	8,853
St. James	317	1,312	1,629
St. John the Baptist	733	3,728	4,461
Terrebonne	2,910	8,211	11,121
Total	6,134	21,671	27,805

*A non-employer business is one that has no paid employees, has annual business receipts of \$1,000 or more (\$1 or more in construction industries), and is subject to federal income taxes. Most non-employers are self-employed individuals operating very small unincorporated businesses. (U.S. Census Bureau, www.census.gov/epcd/nonemployer/view/define.html)

Sources: U.S. Census Bureau, 2010 County Business Patterns; U.S. Census Bureau, 2010 Non-employer Statistics

Approximately 97 percent of the more than 6,100 employer establishments within the study area have less than 100 employees. According to the U.S. Census Bureau, Terrebonne Parish accounts for almost half of the major employers within the study area. **Table 4.17** below provides the number of major employers by parish.



Table 4.17
Number of Business Establishments within the Study Area with at least 100 Employees

Parish	100 to 499 Employees	500 to 999 Employees	≥1,000 Employees	Total
Assumption	4	0	0	4
Lafourche	37	2	0	39
St. James	16	2	0	18
St. John the Baptist	22	2	0	24
Terrebonne	75	4	3	82
Total	154	10	3	167

Source: US Census Bureau, 2010 County Business Patterns

Table 4.18 presents a list of the largest employers within the study area. These businesses range from 100 to nearly 2,500 employees. Most of these businesses are in, or provide support services to, the oil and gas industry. Manufacturing companies, chemical, food, metal, and plastic are also major employers in the area.

Top employers within the study area are clustered in three main areas—the Gramercy/Wallace area, the Thibodaux area, and south of US 90, the Houma area.



Table 4.18
Major Employers within the Study Area

Parish	Employer	Category
Assumption	Assumption Association for Retarded Citizens, Inc.	Non-profit
Assumption	Assumption Parish School Board	Education
Assumption/Lafourche/Terrebonne	Catholic Diocese of Houma-Thibodaux	Religion
Assumption	Heritage Manor of Napoleonville	Healthcare
Assumption	Industrial Electrical	Electrical Contractor
Lafourche	Bollinger Shipyards, Inc.	Marine Transportation
Lafourche	Danos & Curole Marine Contractors	Oil and Gas Technical Services
Lafourche	Edison Chouest Offshore	Marine Transportation
Lafourche	Grand Isle Shipyard, Inc.	Marine Transportation
Lafourche	International Offshore Services, LLC	Marine Transportation
Lafourche	Nicholls State University	Education
Lafourche/Terrebonne	Rouses Supermarkets	Supermarket
Lafourche	Thibodaux Regional Medical Center	Healthcare
Lafourche/Terrebonne	Walmart	Retail
St. James	Louisiana Sugar Refining, LLC	Sugar Refinery
St. James	Mosaic Co.	Chemical Manufacturing
St. James	Motiva Enterprises, LLC	Oil and Gas
St. James	Noranda Alumina, LLC	Metal Manufacturing
St. James	Occidental Chemical Corp.	Chemical Manufacturing
St. James	Zen-Noh Grain Corp.	Grain Elevator
St. John the Baptist	ArcelorMittal La Place, LLC	Metal Manufacturing
St. John the Baptist	Cargill, Inc.	Grain Elevator
St. John the Baptist	Diversified Well Logging, Inc.	Oil and Gas
St. John the Baptist	DuPont Performance Elastomers, LLC	Rubber Manufacturing
St. John the Baptist	Louisiana Machinery, Co.	Equipment and Supplies
St. John the Baptist	Marathon Ashland Petroleum, LLC	Oil and Gas
St. John the Baptist	Nalco Chemical Co.	Chemical Manufacturing
St. John the Baptist	Pinnacle Polymers	Plastics Manufacturing
Terrebonne	Chet Morrison Contractors	Oil and Gas Technical Services
Terrebonne	Gulf Island Fabrication, Inc.	Equipment and Supplies
Terrebonne	Leonard J. Chabert Medical Center	Healthcare
Terrebonne	Performance Energy Services, LLC	Oil and Gas Technical Services
Terrebonne	Seacor Marine, LLC	Marine Transportation
Terrebonne	Terrebonne General Medical Center	Healthcare
Terrebonne	Terrebonne Parish Government	Government
Terrebonne	Terrebonne Parish School Board	Education

Sources: Assumption Parish, "Community Profile"

www.assumptionla.com/Community_Profile?view=day&lh=2&d=01&m=07&y=2011; Houma Today "Lafourche's Largest Employers" October 29, 2009; Accessed May 17, 2013: www.houmatoday.com/article/20091029/NEWS0101/910299972; River Region Economic Development Initiative (RREDI) "St James Parish" Accessed May 17, 2013: http://portsl.com/businessdevelopment/docs/StJames_Parish_Profile.pdf; (RREDI) St "St. John Parish" Accessed May 17, 2013: http://portsl.com/businessdevelopment/docs/StJohn_Parish_Profile.pdf; John the Baptist, "Major Employers", Accessed May 17, 2013: http://sjbparish.com/ecodev_demographics.php?id=162; Daily Comet "Terrebonne's Top Employers" November 13, 2012; Accessed May 17, 2013: www.dailycomet.com/article/20121113/ARTICLES/121119874?template=printpicart

4.6.3 What are the economic development agencies and plans within the study area?

Each of the five parishes within the study area is a member of the South Central Planning and Development Commission, a regional planning and economic district. The SCPDC annually prepares a Comprehensive Economic Development Strategies (CEDs) report to aid in the coordination of economic development efforts.



Two regional economic development agencies support economic growth in the study area—South Louisiana Economic Council (SLEC) and the Greater New Orleans, Inc. (GNO, Inc.). SLEC serves the Bayou Region, which includes three of the parishes within the study area (Assumption, Lafourche, and Terrebonne). GNO, Inc. serves southeastern Louisiana; its 10-parish region includes St. James and St. John the Baptist Parishes. These agencies provide technical assistance and business incentive programs.

In 2002, Terrebonne Parish developed "A Strategic Plan for Economic Development." In addition, Assumption, St. James, St. John the Baptist, and Terrebonne Parishes have developed, and Lafourche Parish is in the process of developing, comprehensive plans or land use plans that incorporate economic development, transportation, and land use considerations and goals.

4.6.4 What are the impacts to economics as a result of the No-build Alternative?

The No-build Alternative would not impact the existing economic conditions of the study area.

4.6.5 What are the impacts to economics as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

Under *Alternative 1 (Western Alignment + North Alignment "A")*, approximately 32,451 linear feet of roadway would be expanded, and approximately 109,211 linear feet of roadway would be built. The right-of-way (ROW) acquisition could result in business displacement of an estimated eight commercial establishments (as explained in Section 4.9). Relocation would be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended. Existing businesses along the alignment may experience temporary construction impacts such as noise, dust generation, and impeded vehicular access due to detours.

Alternative 2 (Western Alignment + North Alignment "B")

Under *Alternative 2 (Western Alignment + North Alignment "B")*, approximately 25,301 linear feet of roadway would be expanded, and approximately 127,819 linear feet of roadway would be built. The ROW acquisition could result in business displacement of approximately seven commercial establishments (as described in Section 4.9). Relocation would be completed in accordance with the Uniform Act, as amended. Existing businesses along the alignment may experience temporary construction impacts such as noise, dust generation, and impeded vehicular access due to detours.

Alternative 3 (Central Alignment + North Alignment "A")

Under *Alternative 3 (Central Alignment + North Alignment "A")*, approximately 34,150 linear feet of roadway would be expanded, and approximately 85,336 linear feet of roadway would be built. The ROW acquisition could result in business displacement of an estimated three commercial establishments (as explained in Section 4.9). Relocation would be completed in accordance with the Uniform Act, as amended. Existing businesses along the alignment may experience temporary construction impacts such as noise, dust generation, and impeded vehicular access due to detours.

Alternative 4 (Central Alignment + North Alignment "B")

Under *Alternative 4 (Central Alignment + North Alignment "B")*, approximately 27,000 linear square feet of roadway would be expanded, and approximately 104,155 linear feet of roadway would be built. The ROW acquisition could result in business displacement of approximately two commercial establishments, the lowest number of potential relocations among the build alternatives (Section 4.9). Relocation would be completed in accordance with the Uniform Act, as



amended. Existing businesses along the alignment may experience temporary construction impacts such as noise, dust generation, and impeded vehicular access due to detours.

4.6.6 What indirect and cumulative impacts are anticipated?

The build alternatives would serve to improve connectivity and capacity within and through the study area, easing commutes for employees and shortening travel times for shipping and trucking companies, as well as potential customers. The indirect effects of the build alternatives could include bringing more people to the area and attracting new development along the proposed alignment. New development could entail the construction of new businesses, or the relocation of existing businesses, so as to take advantage of the changes in traffic patterns.

4.7 NONDISCRIMINATION - TITLE VI AND ENVIRONMENTAL JUSTICE

Many of the impacts of early transportation projects adversely affected minority and low-income populations in greater ways than other races and economic groups. This was partly due to low-income populations and neighborhoods being located near downtowns and other common destinations, which could be ideal locations for transportation projects. These were typically minority neighborhoods with a perceived lack of political power and representation. As a result, low income and minority populations and neighborhoods were adversely impacted more often than other populations and neighborhoods. FHWA, in an attempt to address discrimination in the development and implementation of transportation projects, has developed a nondiscrimination program based on federal statutes, regulations, and Executive Orders.

4.7.1 What is Title VI of the Civil Rights Act of 1964?

The cornerstone of the United States' nondiscrimination law is Title VI of the Civil Rights Act of 1964. The act states that "No person in the United States, shall on the ground of race, color, or national origin, be excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving Federal financial assistance" (42 USC 2000d). FHWA, in an effort to prevent discrimination, has developed a program called the, Title VI Compliance Program (Program). The Program is based on Title VI of the 1964 Civil Rights Act. However, FHWA's Program is not limited to just the prohibitions of Title VI. It includes other civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance (23 CFR 200.5(p)). These other statutes, regulations, and Executive Orders have expanded the Program to include other civil rights:

- The Federal-Aid Highway Act of 1973 (23 USC 324) prohibits discrimination based on sex (gender);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601) prohibits unfair and inequitable treatment of persons displaced or property to be acquired;
- Section 504 of the Rehabilitation Act of 1973 (29 USC 24) prohibits discrimination on the basis of disability as does the Americans with Disabilities Act of 1990 (ADA);
- The Age Discrimination Act of 1975 prohibits age discrimination; and
- Civil Rights Restoration Act of 1987 clarified the intent of Title VI to include all programs and activities of federal-aid recipients and contractors whether those programs and activities are federally-funded or not.

Title VII of the Civil Rights Act of 1964, for employers with 15 or more employees, prohibits any employment decision, including recruitment, hiring, and firing or layoffs, based on national origin, race and color as well as sex, or religion, stereotypes and assumptions about abilities, traits, or the performance of individuals of certain racial groups.



Minority and Low Income Populations

Minority Black, Hispanic, Asian, American Indian, and Alaskan Native.

Minority Population Any readily identifiable groups of minority persons living in geographical proximity, and geographically dispersed/transient person similarly affected by a proposed Federal program, policy or activity.

Low Income Person whose household income (community or group, whose average household income) is at or below U.S. Department of Health and Human Services poverty guidelines.

The Implementation Regulations (49 CFR 21 and 23 CFR 200) provide guidelines for implementing the Program under Title VI of the Civil Rights Act of 1964 and related civil rights laws and regulations, and conducting Title VI program compliance reviews relative to the federal-aid highway program. The Program includes Executive Orders 12898 and 13166. The 1994 Executive Order 12898 mandates the need to address equity and fairness, Environmental Justice, toward low-income and minority persons and populations; the 2000 Executive Order 13166 directs federal agencies to ensure people who have Limited English Proficiency (LEP) have meaningful access to services.

Recent memorandums from Loretta King, Acting Assistant Attorney General for Civil Rights, U.S. Department of Justice, have reinforced the need to strengthen the enforcement of Title VI and ensure that activities associated with the American Recovery and Reinvestment Act of 2009 are in compliance.

In summary, the FHWA's Title VI Program assures nondiscrimination on the basis of race, color, national origin, disability/handicap, sex, age, and (low) income status in programs or activities receiving financial assistance, whether those programs or activities are FHWA funded or not. The goal of the program is to promote nondiscrimination in federally-assisted programs and activities. This is based on:

- The fundamental principle that all human beings are created equal;
- The constitutional guarantee that all persons are entitled to equal protection of the laws; and
- The need to involve impacted persons in the decision-making process.

**Table 4.19
Title VI: The Law versus FHWA's Program**

Title VI of Civil Rights Act of 1964	FHWA Title VI Program
Race	Race
Color	Color
National Origin (<i>includes Limited English Proficiency</i>)	National Origin (<i>includes Limited English Proficiency</i>)
	Sex (Gender)
	Displaced Persons or Property
	Handicap/Disability
	Age
	Low-Income & Minorities

4.7.2 What is environmental justice?

As described above, Environmental Justice, as identified in the 1994 Executive Order 12898, mandates the need to address equity and fairness toward low-income and minority persons and populations and is a part of FHWA's Title VI Program. The President directed all federal agencies to make Environmental Justice part of their missions and to identify and address the effects of their programs, policies, and activities on minority and low-income populations. "Environmental Justice as identified in Executive Order 12898 is an attempt to address disproportionately high and adverse human health or environmental impacts that projects funded by the federal government may have on minority and low-income populations." Environmental Justice is a policy that has three major parts:



1. Avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects of the project, on minority populations and low-income populations.
2. Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. Ensure minority and low-income populations receive their equal share of the benefits from the project.

FHWA defines minority and low-income populations as the following:

"Minority means a person who is:

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

Low-income means: a household income at or below the U.S. Department of Health and Human Services (DHHS) poverty guidelines.

Census 2000 and 2010 data were used to identify the minority and low-income composition of the study area parishes, as shown in **Tables 4.20 through 4.22**. In 2000 and 2010, Lafourche Parish had the smallest proportion of minority persons at approximately 17 percent and 21 percent, respectively. St. James Parish had the largest proportion of minorities in 2000, at approximately 50 percent, while St. John the Baptist Parish had the largest minority proportion in 2010, at approximately 58 percent. In 2010, Lafourche Parish population had the lowest percentage of people living below the poverty level, at approximately 14 percent, while Terrebonne Parish had the highest percentage at approximately 18 percent. Similarly, St. James Parish had the highest median household income of study area parishes, and Assumption Parish had the lowest.

Simple justice requires that public funds, to which all taxpayers of all races [colors, and national origins] contribute, not be spent in any fashion which encourages, entrenches, subsidizes or results in racial [color or national origin] discrimination.
President John F. Kennedy, 1963



Table 4.20
Comparison of Parish and Block Group Minority Populations (for the year 2010)¹

Census 2010 Geography ²	Total Population	Minority Race Population	Hispanic or Latino ³ Population
Lafourche Parish	96,318	20.6%	3.8%
Census Tract 207.02			
Block Group 1	1,624	37.3%	3.7%
Block Group 2	1,512	14.4%	1.1%
Census Tract 207.04			
Block Group 1 ^a	1,875	3.5%	1.2%
Block Group 2 ^b	2,166	10.4%	1.0%
Block Group 3 ^c	1,211	13.8%	2.1%
Census Tract 208			
Block Group 2	1,653	3.8%	1.6%
Block Group 3	1,286	3.2%	0.5%
Census Tract 209, Block Group 1	928	8.6%	2.5%
Census Tract 219.01, Block Group 2 ^d	4,513	13.7%	2.8%
Census Tract 219.02			
Block Group 2 ^e	1,318	12.3%	1.6%
Block Group 3 ^f	1,513	17.3%	4.9%
St. James Parish	22,102	52.0%	1.2%
Census Tract 405, Block Group 1 ^g	726	77.5%	6.5%
Census Tract 406, Block Group 2	1,212	71.1%	3.4%
Census Tract 407, Block Group 3	1,523	29.4%	0.9%
Terrebonne Parish	111,860	29.7%	4.0%
Census Tract 1.01			
Block Group 1	1,302	54.1%	3.5%
Block Group 2	2,395	33.5%	3.8%
Block Group 3 ^h	1,666	18.5%	3.1%
Block Group 4 ^h	1,121	11.9%	2.3%
Census Tract 1.02, Block Group 2	1,560	37.5%	1.8%
Census Tract 17, Block Group 1	1,507	23.0%	2.6%

Source: US Census Bureau, Census 2010

- ¹ Census tract percentages that are five percent or more above representative parish percentages are denoted by bold text, indicating a relatively high proportion of minority persons in that block group.
- ² Some census tract and block group boundaries and/or numbers have changed due to redistricting since the 2000 Census:
 - ^a Former Block Group 5, Census Tract 207.01
 - ^b Former Block Group 4, Census Tract 207.01
 - ^c Former Block Group 1, Census Tract 207.01
 - ^d Portion of former Block Group 5, Census Tract 219
 - ^e Portion split from former Block Group 5, Census Tract 219 merged with former Block Group 2, Census Tract 219
 - ^f Former Block Group 1, Census Tract 219
 - ^g Former Block Group 2, Census Tract 405
 - ^h Former Block Group 3, Census Tract 1.01 was split into two block groups (3 and 4)
- ³ Hispanic/Latino populations are an ethnic group and are not considered a single racial group. Hispanics may be of any race.



Table 4.21
Comparison of Parish and Census Tract Low-Income Populations (for the year 2010)¹

Census 2010 Geography	Total Households	Household Incomes Below Poverty Guidelines ²
Lafourche Parish	34,474	28%
Census Tract 202.02	1,112	13.4%
Census Tract 204	763	43.6%
Census Tract 205	2,136	33.5%
Census Tract 207.02	1,209	28.4%
Census Tract 207.03	1,647	19%
Census Tract 207.04	2,167	25.5%
Census Tract 208	1,705	28.4%
Census Tract 209	758	43.5%
Census Tract 210	1,101	34.1%
Census Tract 219.01	2,003	23.5%
Census Tract 219.02	1,567	20.8%
St. James Parish	7,578	25.4%
Census Tract 405	725	38.1%
Census Tract 406	889	24.4%
Census Tract 407	1,362	16.5%
Terrebonne Parish	39,040	26.3%
Census Tract 1.01	2,148	16.9%
Census Tract 1.02	1,255	34.9%
Census Tract 17	3,230	10.1%

Source: US Census Bureau, ACS 5-Year Estimates 2007-2011

¹ Census Tract percentages that are five percent or more above representative parish percentages are denoted by bold text, indicating a relatively high proportion of low-income persons in that block group.

² DHHS poverty guidelines for a three-person household in 2010 were \$18,310

Table 4.22
Other Title VI Protected Populations (for the year 2010)¹

Census 2010 Geography	65 Years and Over	Disabled ²	Limited Ability to Speak English ³
Lafourche Parish	8.5%	15.1%	4.0%
Census Tract 202.02	6.0%	—	0.9%
Census Tract 204	13.6%	—	0%
Census Tract 205	8.9%	—	1.8%
Census Tract 207.02	2.5%	—	4.6%
Census Tract 207.03	6.8%	—	4.5%
Census Tract 207.04	3.8%	—	1.4%
Census Tract 208	6.6%	—	3.1%
Census Tract 209	5.0%	—	0.1%
Census Tract 210	9.8%	—	1.5%
Census Tract 219.01	6.4%	—	4.9%
Census Tract 219.02	6.3%	—	1.5%
St. James Parish	10.1 %	13.6%	1.5%
Census Tract 405	4.8%	—	0.3%
Census Tract 406	11.7%	—	3.6%
Census Tract 407	6.0%	—	2.2%
Terrebonne Parish	8.1%	16.7%	2.4%
Census Tract 1.01	7.0%	—	2.5%
Census Tract 1.02	4.3%	—	1.5%
Census Tract 17	6.3%	—	1.8%

¹ Source: US Census Bureau, American Community Survey 2009-2011 3-Year Estimates

² Percentage of the population 5 years and over with a disability.

³ Percentage of the population 5 years and over who speak English "not well" or "not at all."

— Denotes data disability data not available at the Census Tract level for 2010.



4.7.3 What minority, low-income, or other protected population groups would be impacted by the project?

Block group level data was used to determine the presence of minority and low-income populations in proximity to the build alternatives to determine populations that may be affected by the proposed project. A block group is the smallest geographic unit for which demographic data is readily available.

The block group data were compared to data for the study area parishes as reference populations. The percentage of persons classified as minority in each block group were calculated and compared to the county percentage to determine if a block group contained a high proportion of minority persons. Likewise, the percentage of households in each block group with incomes at or below the DHHS poverty guidelines were calculated and compared to the parish percentage to determine if the block group contained a high proportion of low-income persons. Block groups that had percentages more than 5 percent higher than the parish averages were considered to have relatively high minority and/or low-income proportions.

Census 2010 data on race and ethnicity was used in the analysis of potential impacts to minority populations. Income and poverty data from the 2010 Census was used to analyze potential impacts to low-income populations. The 2010 Census reported the income levels of households in 2010. The average household size in the study area parishes and block groups is three persons. The DHHS poverty guidelines for a three-person household in 2010 were \$18,310. Therefore, the household incomes listed in the "Less than \$10,000," "\$10,000 to \$14,999," and "\$15,000 to \$24,000" categories in 2010 Census were used in the analysis.

The proposed build alternative alignments pass through three parishes—Lafourche, St. James, and Terrebonne. Potential environmental justice impacts for minority populations were analyzed for 20 block groups (based on Census 2010 geographies) traversed by the alternative alignments; potential environmental justice impacts for low-income populations were analyzed for 18 block groups traversed by the alignments (based on Census 2010 geographies). The data used in the analyses are summarized in **Tables 4.20** and **4.22**, which indicate there are five block groups with relatively high minority populations, one of which also has a relatively high low-income population (Block Group 1, Census Tract 1.01, Terrebonne Parish), that are crossed by the build alternatives.

Census tract level data was also used to identify the presence of other Title VI protected groups (e.g., the elderly, disabled, etc.) that may be impacted by the proposed project. The 17 Census Tracts with 2010 geographies traversed by the alignments were analyzed using available data summarized in **Table 4.23**. A relatively high proportion of disabled persons were identified in Terrebonne Parish. St James Parish has a high proportion of minorities with approximately 77 percent in Census Tract 405, Block Group 1 and 71 percent in Census Tract 406, Block Group 2. No other high proportions of population groups protected under Title VI were identified.

4.7.4 What are the impacts to Title VI and Environmental Justice populations as a result of the No-build Alternative?

No minority, low-income, or other protected population groups would be directly or indirectly impacted by the No-build Alternative.



4.7.5 What are the impacts to Title VI and Environmental Justice populations as a result of the Build Alternatives?

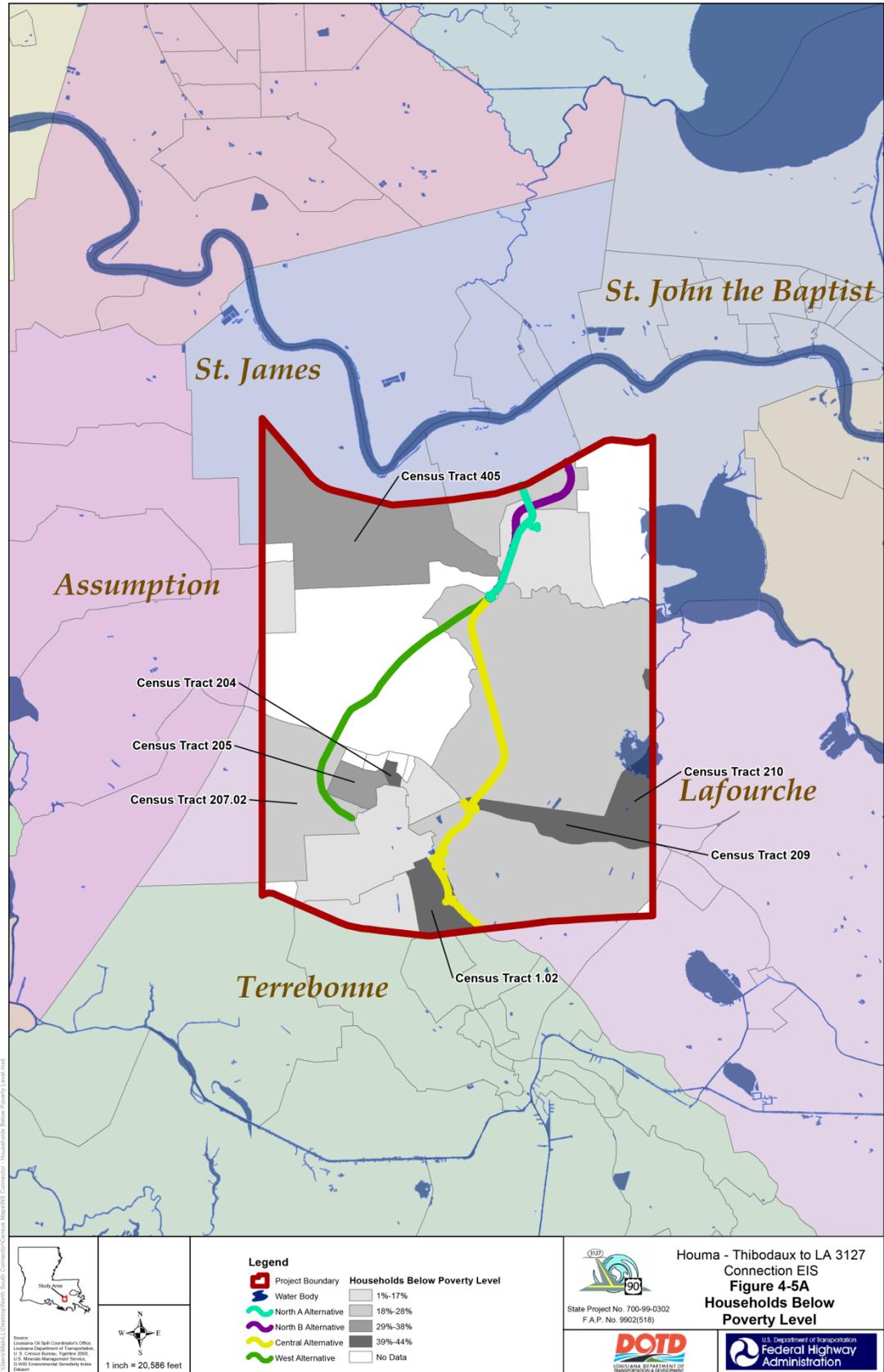
Each alternative was evaluated to determine the proximity of any individuals in these protected population groups relative to the alignment, and whether there were any impacts that the individuals could potentially bear in greater numbers or intensity than other population groups (e.g., relocations and community effects, travel pattern changes, noise and air quality, etc.). Five block groups were identified that have high proportions of minority, low-income, and/or disabled persons. **Table 4.23** describes the potential for impact within the five block groups for each build alternative. **Figure 4-5** shows the socioeconomic and minority status of the study area based on 2010 Census information.

Table 4.23
Potential for Environmental Justice and Title VI Impacts by the Alternative Alignments

Census Tract/ Population	North A Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
207.02, 1 Lafourche Minority	—	—	—	New location through cultivated fields and woody wetlands around the western edge of Thibodaux, parallel to the W. Thibodaux Bypass/LA 3185; short segment just south of Bayou Lafourche is adjacent to residential areas.
405.00, 1/2 St. James Minority	Very small new location section through woody wetland in easternmost tip of the block group.	Very small new location section through woody wetland in easternmost tip of the block group.	—	—
406.00, 2 St. James Minority & Disabled	Short section along existing LA 20 with cultivated fields on both sides; several businesses are located at LA 3127 intersection at the northern terminus.	Small new location section through cultivated fields and marshland.	—	—
1.01, 1 Terrebonne Minority & Low-Income	—	—	Very small new location section in cultivated field at southernmost tip of block group.	—
1.02, 2 Terrebonne Minority	—	—	Primarily along existing LA 316/ Bayou Blue Bypass Rd, with dense residential development on both sides, with short new location section through cultivated fields at north end of the block group.	—



Figure 4-5a
Households Below the Poverty Level within the Study Area



**Alternative 1 (Western Alignment + North Alignment "A")**

Alternative 1 (Western Alignment + North Alignment "A") crosses three of the five block groups that have high proportions of minority, low-income, and/or disabled persons. *Alternative 1 (Western Alignment + North Alignment "A")* would directly impact one minority population (Census Tract 1.02, Block Group 2 in Terrebonne Parish). Direct impacts include increased vehicular traffic and noise from the new roadway adjacent to the residential areas; potential changes in access or travel patterns; and potential effects on community cohesion. Increased traffic and noise impacts are not concentrated in any one community, but rather are distributed throughout the alignment. Impacts to access, travel patterns, and community cohesion would vary along the alignment, and will depend on whether tie-ins to local side roads and drives are provided and how they are configured, which will be determined during detailed design of the Preferred Alternative. Avoidance and minimization measures would be incorporated into the design to address any significant impacts that are identified. Thus, no disproportionate adverse impacts to this minority population are anticipated from this alternative.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "B") also crosses three of the five identified block groups. *Alternative 2 (Western Alignment + North Alignment "B")* would also directly impact one minority population (Census Tract 1.02, Block Group 2 in Terrebonne Parish). Direct impacts include increased vehicular traffic and noise from the new roadway adjacent to the residential areas; potential changes in access or travel patterns; and potential effects on community cohesion. Increased traffic and noise impacts are not concentrated in any one community, but rather are distributed throughout the alignment. Impacts to access, travel patterns, and community cohesion would vary along the alignment, and will depend on whether tie-ins to local side roads and drives are provided and how they are configured, which will be determined during detailed design of the Preferred Alternative. Avoidance and minimization measures would be incorporated into the design to address any significant impacts that are identified. Thus, no disproportionate adverse impacts to this minority population are anticipated from this alternative.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") crosses four of the five identified block groups. *Alternative 3 (Central Alignment + North Alignment "A")* would directly impact one minority population (Census Tract 207.02, Block Group 1 in Lafourche Parish). Direct impacts include residential displacement and relocation; increased vehicular traffic and noise; potential changes in access or travel patterns; and potential effects on community cohesion. Relocations and increased traffic and noise impacts are not concentrated in anyone community, but rather are distributed throughout the alignment. Impacts to access, travel patterns, and community cohesion would vary along the alignment, and will depend on whether tie-ins to local side roads and drives are provided and how they are configured, which will be determined during detailed design of the Preferred Alternative. Avoidance and minimization measures would be incorporated into the design to address any significant impacts that are identified. Thus, no disproportionate adverse impacts to this minority population are anticipated from this alternative.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") also crosses four of the five identified block groups. *Alternative 4 (Central Alignment + North Alignment "B")*, like *Alternative 3 (Central Alignment + North Alignment "A")*, would directly impact one minority population (Census Tract 207.02, Block Group 1 in Lafourche Parish). Direct impacts include residential displacement and relocation; increased vehicular traffic and noise; potential changes in access or travel patterns; and potential effects on community cohesion. Relocations and increased traffic and noise impacts are not concentrated in any one community, but rather are distributed throughout the alignment.



Impacts to access, travel patterns, and community cohesion would vary along the alignment, and will depend on whether tie-ins to local side roads and drives are provided and how they are configured, which will be determined during detailed design of the Preferred Alternative. Avoidance and minimization measures would be incorporated into the design to address any significant impacts that are identified. Thus, no disproportionate adverse impacts to this minority population are anticipated from this alternative.

None of the build alternatives would directly impact any low-income or other protected population groups.

4.7.6 What indirect and cumulative impacts are anticipated?

Indirect effects to minority and low-income populations will depend on the type and intensity of development that may be induced in the study area after the project is constructed. The improved access and connectivity the project will provide could lead to increased commercial and residential development in the study area; however, the minority and low-income populations are located in portions of the study area where development potential is limited either by existing development or the presence of large, wooded wetlands. Additionally, the new roadway will be limited-access, which would limit development and the resulting indirect impacts by concentrating the location of new establishments around intersections and new interchanges.

The ability to travel directly between destinations, with access to services that are currently absent or only distantly available, may be improved for residents of these communities, along with potential increased connections between neighborhoods and communities. Cumulative effects to the rural nature of the study area could result if substantial additional development occurs in the area, but are not anticipated, given the existing limiting factors for development.

4.8 PEDESTRIAN AND BICYCLE FACILITIES

4.8.1 What existing pedestrian and bicycle facilities exist within the study area?

No bicycle routes or walking trails are found within the study area. The existing road system consists of primary and secondary rural roadways that have limited or no shoulders, making it difficult to accommodate pedestrians or bicyclists.

Although there are no comprehensive or master plans specifically for bicycles or pedestrians in the study area, there is acknowledgement of their needs through the "complete streets movement" in some of the recently adopted comprehensive plan updates for parishes within the study area. A complete street is one that takes into consideration all travel modes—automobile, transit, bicycle, and pedestrian. As an example, Terrebonne Parish has incorporated complete street provisions into the transportation element of their Vision 2030 plan. The ability to provide transportation choice is a trademark of an effective community. One aspect is to accommodate cyclists and pedestrians through incorporating safety improvements designed to reduce vehicular and pedestrian conflicts, such as raised medians and the redesign of intersections and sidewalks. There are trends to suggest that the amount riders, or those who have access to a car but choose to utilize alternate means such as walking or biking, will increase. St James Parish is also taking into account the future needs of cyclists and pedestrians by making recommendations to have more facilities through the preparation of a bicycle and pedestrian plan.

The HTMPO released a Metropolitan Transportation Plan in 2010 that contains a bicycle and pedestrian element. At the time of the adoption of this plan, the pedestrian and bicycle objectives were to establish a vision and goal statement, conduct an assessment of current conditions and needs while identifying activities required to meet the visions and goals, and to implement bicycle



and pedestrian elements in the statewide and MPO transportation plan and transportation improvement program. Achieving these objectives would be accomplished through evaluating progress and involving the public. This plan element intends to lay the groundwork for a more comprehensive bicycle and pedestrian plan, as well as include non-motorized transportation goals in the overall transportation process. To further achieve these non-motorized transportation goals the Houma-Thibodaux area aims to:

- Create a bicycle and pedestrian advisory panel;
- Include bicycle and pedestrian facilities in all street projects;
- Build ADA-compliant pedestrian facilities;
- Connect existing pedestrian infrastructure;
- Evaluate current regulations that pertain to bicyclists, pedestrians, and bicycle/ pedestrian; and
- Build infrastructure and update as needed.

By undertaking these actions in the Houma-Thibodaux region, the presence of pedestrian and bicycle facilities in the study area is very probable via the occurrence of future infrastructure improvements.

4.8.2 What are the impacts to pedestrian and bicycle facilities as a result of the No-build Alternative?

The No-build Alternative would have no effect on pedestrian or bicycle facilities in the study area.

4.8.3 What are the impacts to pedestrian and bicycle facilities as a result of the Build Alternatives?

The four build alternatives would have little to no effect on pedestrian or bicycle facilities in the study area. These proposed build alternatives may have the following implications given the context of the surrounding land use:

Alternative 1 (Western Alignment + North Alignment "A")

Alternative 1 (Western Alignment + North Alignment "A") is likely to provide an increase of traffic through Thibodaux. There will inevitably be more demand for bicycle and pedestrian facilities in the developed areas. Thibodaux does not presently have plans for bicycle and pedestrian infrastructure along this route. Given the presence of commercial and residential uses in this segment of the corridor, and as suggested by recent population and demographic trends, alternative means of transportation should be considered. The majority of this alignment in the study area bisects agricultural and pastoral land through Lafourche and Terrebonne Parishes, and terminates near the St. James Parish boundary. The greatest feasibility for bicycle and pedestrian infrastructure will occur in developed areas surrounding this alignment.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "B") is surrounded primarily by dense woodland until it reaches South Vacherie. At this point in the alignment, the land uses transition to cropland with some instances of single family residential. Given the rural context of this alignment, the likelihood of implementing bicycle and pedestrian facilities is improbable.



Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") most likely will not have implications for bicycle and pedestrian infrastructure as the majority of the alignment crosses through rural areas consisting of forested and pastoral land. Very few commercial or civic entities exist along this route; therefore, it is highly unlikely that bicycle and pedestrian facilities will surface.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") would be mostly surrounded by single-family residential uses and some urban parks in areas where it crosses downtown Houma. A few pockets of single-family or low-density development also occur along this alignment outside of Thibodaux. Given the rural context of the majority of this alignment, it is highly unlikely that there would be any implications toward bicycle and pedestrian infrastructure.

4.8.4 What indirect and cumulative impacts are anticipated?

Indirect and cumulative impacts consider the effects to pedestrian and bicycle facilities that may result from induced development from the project, and will be directly proportional to anticipated changes in land use induced from the build alternatives. Local governments have the ability to manage growth through land use and development policies that promote quality, compatible growth, and a balanced land use mix. The ability to travel directly between destinations, providing access to services for non-motorized transportation that are currently absent or only distantly available, is expected to benefit pedestrians and cyclists in the study area communities overall. As a result of controlled land use and increased economic development, greater demand for bicycle and pedestrian facilities will arise. Infrastructure improvements as an indirect result of growth will have to accommodate cyclists and pedestrians where feasible. Thus, with anticipated growth, the demand and supply of bicycle and pedestrian facilities will increase in the study area.

4.9 RELOCATIONS

4.9.1 What are the relocation impacts?

All relocation activities follow the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, which ensures that decent, safe, and sanitary replacement housing will be provided for all displaced residents. In general, relocation is considered to be necessary when a) a residence or business would be directly in the required ROW of a proposed project, b) access would be eliminated, or c) when the project would cause a change or reduction in use of the property significant enough to cause a considerable loss of value of the property. Relocation programs available through LADOTD to displaced residents include relocation assistance, relocation moving payments, and relocation replacement housing payments or rent supplement. Comparable housing will be provided for all displaced residents.

Based on the preliminary review of the housing inventory and market data, there appears to be a large and adequate supply of replacement housing available for potential displacements. Relocation programs available through LADOTD to displaced residents include relocation assistance, relocation moving payments, and relocation replacement housing payments or rent supplement. Comparable housing will be provided for all displaced residents.

During ROW acquisition, each property that will be required for purchase will be assigned a relocation officer from LADOTD, who will be the point of contact for the resident during transition from existing to new housing. No person or family will be displaced until comparable replacement housing has been offered or provided to the displaced resident within a reasonable time prior to displacement. In the event comparable replacement housing is not available, or when unavailable within the displaced resident's financial means, the Last Resort Housing Program may be used by LADOTD to help provide housing. This program provides states flexibility in implementing



relocation programs in order to ensure all displaced residents will be provided decent, safe, and sanitary housing.

4.9.2 What are the relocation impacts as a result of the No-build Alternative?

The No-build Alternative would not result in any immediate relocations; however, to provide for the rising travel demand in the area, future widening improvements could require relocations.

4.9.3 What are the relocation impacts as a result of the Build Alternatives?

The proposed project will be mostly new alignment over uninhabited areas, with the exception of widening some portions of existing roadways with surrounding residential developments. It is not expected that the project will have any major disruptive effect on the surrounding human environment, with the exception of some residential and commercial relocations. An effort was made to minimize relocations during the development of each alternative. **Table 4.24** lists the number of relocations for each alternative. These numbers are preliminary and will be verified when the Preferred Alternative is identified in the Final EIS.

**Table 4.24
Potential Relocations**

Roadway	No build Alternative	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Commercial	0	8	7	3	2
Residential	0	31	29	24	22
Total	0	39	36	27	24

Alternative 1 (Western Alignment + North Alignment "A")

Alternative 1 (Western Alignment + North Alignment "A") could result in the most commercial and residential relocations among all of the alternatives, with a total of 39.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "B") is estimated to lead to the second highest number of relocations, both commercial and residential, among the alternatives, with a total of 36.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") could result in 27 commercial and residential relocations.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") is projected to result in the fewest number of commercial and residential relocations among the alternatives, with a total of 24.

Details on the types of properties that will be potentially relocated can be found in the Conceptual Stage Relocation Plan Tech Memo. Further steps will be taken to minimize potential impacts as the project progresses to the final phases.



4.9.4 What indirect and cumulative impacts are anticipated?

Potential indirect and cumulative impacts associated with relocations could be present in the event that additional infrastructure projects are initiated in the area. If other improvement projects fall within this study area, those relocation needs would potentially affect the available housing for this project's relocations. Relocations would have to be coordinated between the projects to ensure that all displaced residential and commercial owners are provided with fair and comparable relocation housing. Future industrial growth is anticipated along Alternatives 1 and 2 within the rural, farmlands. Recent activity near the intersection of US 90 and LA 311 suggests continued growth along the corridor which could become additional relocations in the future. At this time though, there appears to be no other major improvement projects that fall within the study area. Therefore, there is currently no concern for the occurrence of these potential indirect and cumulative impacts.



4.10 AGRICULTURAL AND FARMLAND

4.10.1 What are the existing agricultural and farmland characteristics of the study area?

The National Agricultural Land Study of 1980 determined that millions of acres of farmland were being converted to non-agricultural uses and federal programs were responsible for a large percentage of this conversion. In 1981, Congress enacted the Agriculture and Food Act of 1981 (PL 97-98), containing the Farmland Protection Policy Act (FPPA), to address this problem. The goal of the FPPA is to minimize the unnecessary and irreversible conversion of agricultural lands to non-agricultural uses.³³

The Louisiana Department of Agriculture and Forestry was contacted during the Solicitation of Views in a letter dated July 29, 2004 and did not provide comments. However, Form AD-1006 (Farmland Conversion Impact Rating), which assesses non-soil related criteria such as the potential for impact on the local agricultural economy if the land is converted to non-farm use and compatibility with existing agricultural use, will be completed for the Preferred Alternative once selected and submitted to the State Soil Scientist with the Natural Resources Conservation Service (NRCS). The completed form from the State Soil Scientist will be included in the Final EIS.

As defined in the FPPA, farmland means prime or unique farmlands; however, it does not include land that is committed to urban development or water storage or land that lies within an urbanized area.

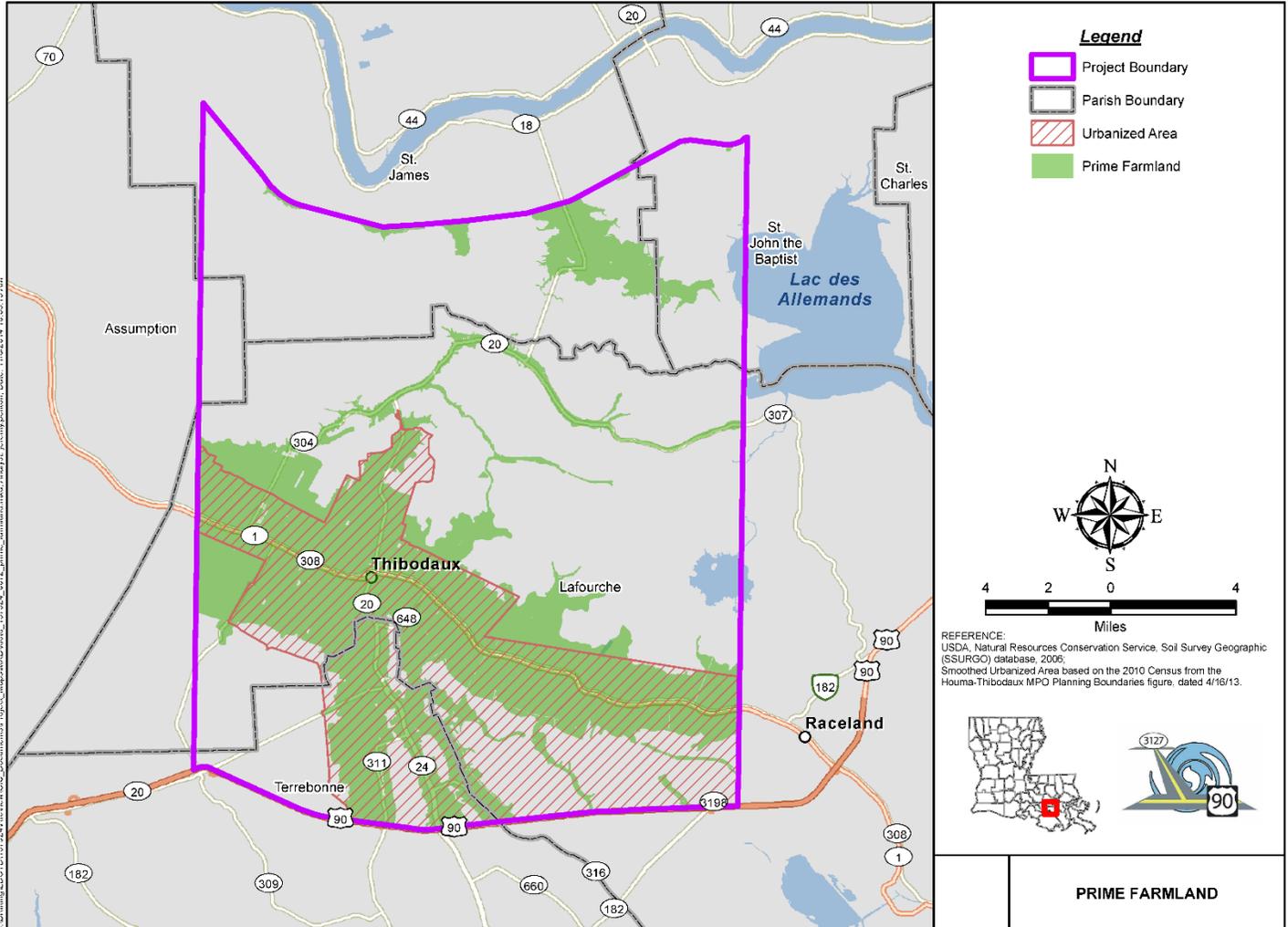
When considering impacts to farmland, prime farmland is of primary concern. Prime farmland is land with high quality soil having the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor.³⁴ **Figure 4-6** shows the location of prime farmland within the study area. The figure also depicts the urbanized boundary as defined by the HTMPO based on 2010 Census data.

³³U.S. Department of Agriculture-Natural Resources Conservation Service. (2013). Farmland Policy Protection Act. Retrieved from http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/fppa/?cid=nrcs143_008275. Last accessed October 24, 2013.

³⁴Carver, A.D. and Yahner, J.E. (1997). Defining Prime Agricultural Land and Methods of Protection. Retrieved from <http://www.extension.purdue.edu/extmedia/AY/AY-283.pdf>. Last accessed October 24, 2013.



Figure 4-6
Prime Farmland





Historically, the land located within the boundaries of the study area has been used for agricultural purposes including cropland, woodland for timber, and pasture for livestock.³⁵ Today, the area continues to benefit from highly productive farmlands that support a variety of agricultural enterprises. The primary crop within the study area is sugarcane, with over 110,000 acres in production for the five parishes in the study area.³⁶ Sugarcane is also the number one plant commodity in the entire State of Louisiana.³⁷ In 2013, the total value of Louisiana sugarcane was \$770.7 million. The gross farm value in 2013 for sugarcane in Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne Parishes was \$107,648,827.³⁸ **Figure 4-7** details the location of land under cultivation within the study area. Not all agricultural lands are used to grow crops. **Table 4.25** displays agricultural subsets of farms for each of the five parishes in the study area.

Table 4.25
Percent Distribution of Agricultural Land in Farms by Parish

Parish	Cropland (%)	Woodland (%)	Pasture (%)	Other Uses (%)
Assumption	80.9	12.3	N/A	6.8
Lafourche	59.4	7.1	23.8	9.70
St. James	77.7	N/A	7.1	15.1
St. John the Baptist	71.4	N/A	N/A	N/A
Terrebonne	12.4	N/A	6.66	80.92

N/A: Not Available

Source: National Agricultural Statistics Service

4.10.2 What are the impacts to agricultural and farmland as a result of the No-build Alternative?

The No-build Alternative would result in no loss of prime farmland soils or other agricultural resources.

4.10.3 What are the impacts to agricultural and farmland as a result of the Build Alternatives?

At-grade construction would result in the loss of agricultural lands within the ROW, segregation of farmlands, and unusable residual farming properties. Elevated portions of the build alternatives would result in the loss of agricultural lands immediately under the alignment, but could allow for the continued use of the agricultural land within the ROW. **Figure 4-8** shows the location of prime farmland that would be converted to non-agricultural use by the proposed project alternatives.

³⁵ Matthews, S.D. (1984). Soil Survey of Lafourche Parish, Louisiana. Washington, D.C.: United States Department of Agriculture, Soil Conservation Service.

³⁶ Louisiana State University Agricultural Center. (2012). Agriculture & natural resources summary. Retrieved from <http://www.lsuagcenter.com/agsummary/home>. Last accessed October 24, 2013.

³⁷ Legendre, B. (2011). Louisiana Sugarcane Burning. Retrieved from http://www.lsuagcenter.com/en/crops_livestock/crops/sugarcane/publications/louisiana+sugarcane+burning.htm. Last accessed October 24, 2013.

³⁸ Louisiana State University Agricultural Center. (2013). Agriculture & natural resources summary. Retrieved from <http://www.lsuagcenter.com/agsummary/home>. Last accessed September 8, 2014.



Figure 4-7
Land Under Cultivation

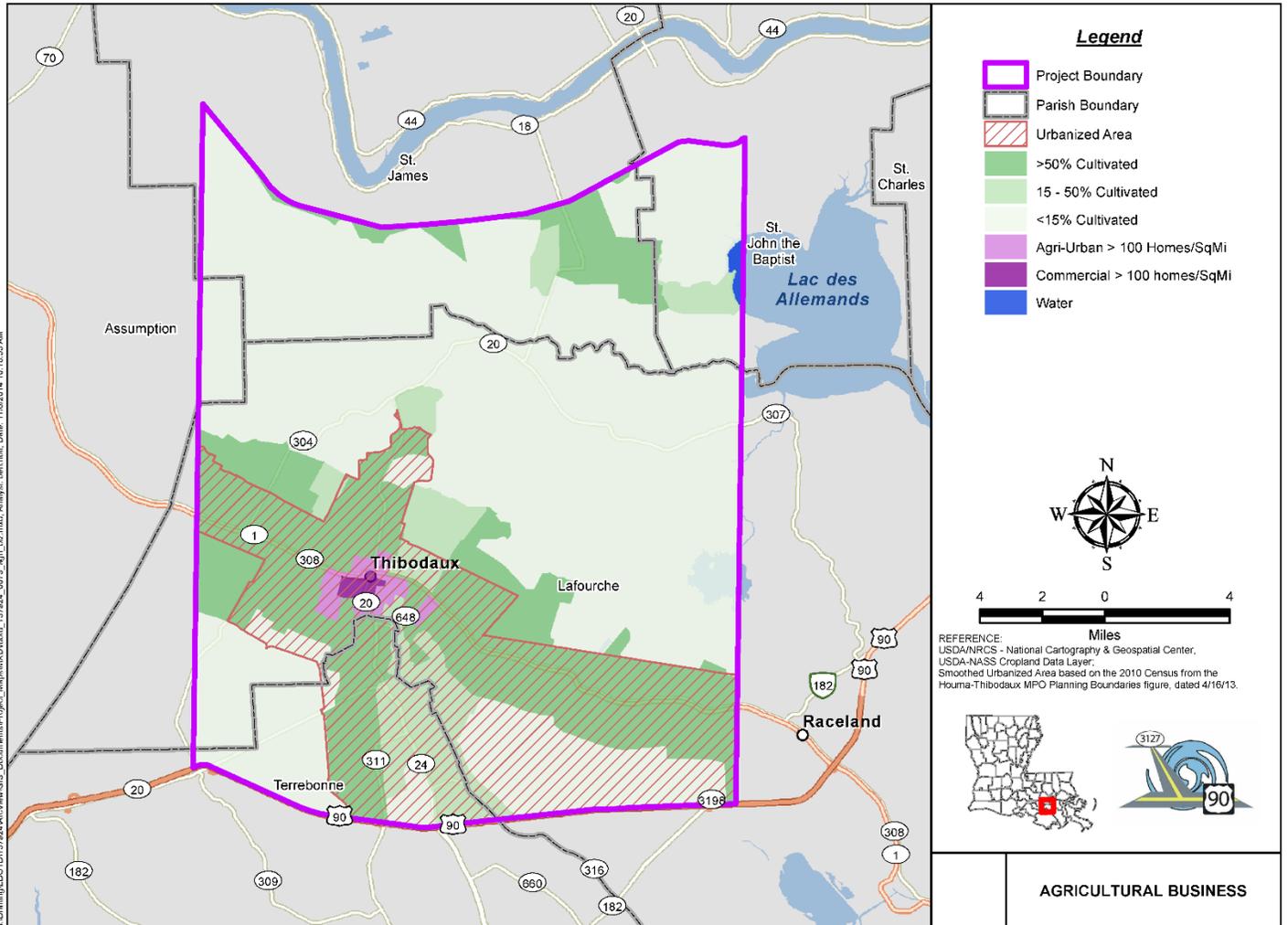
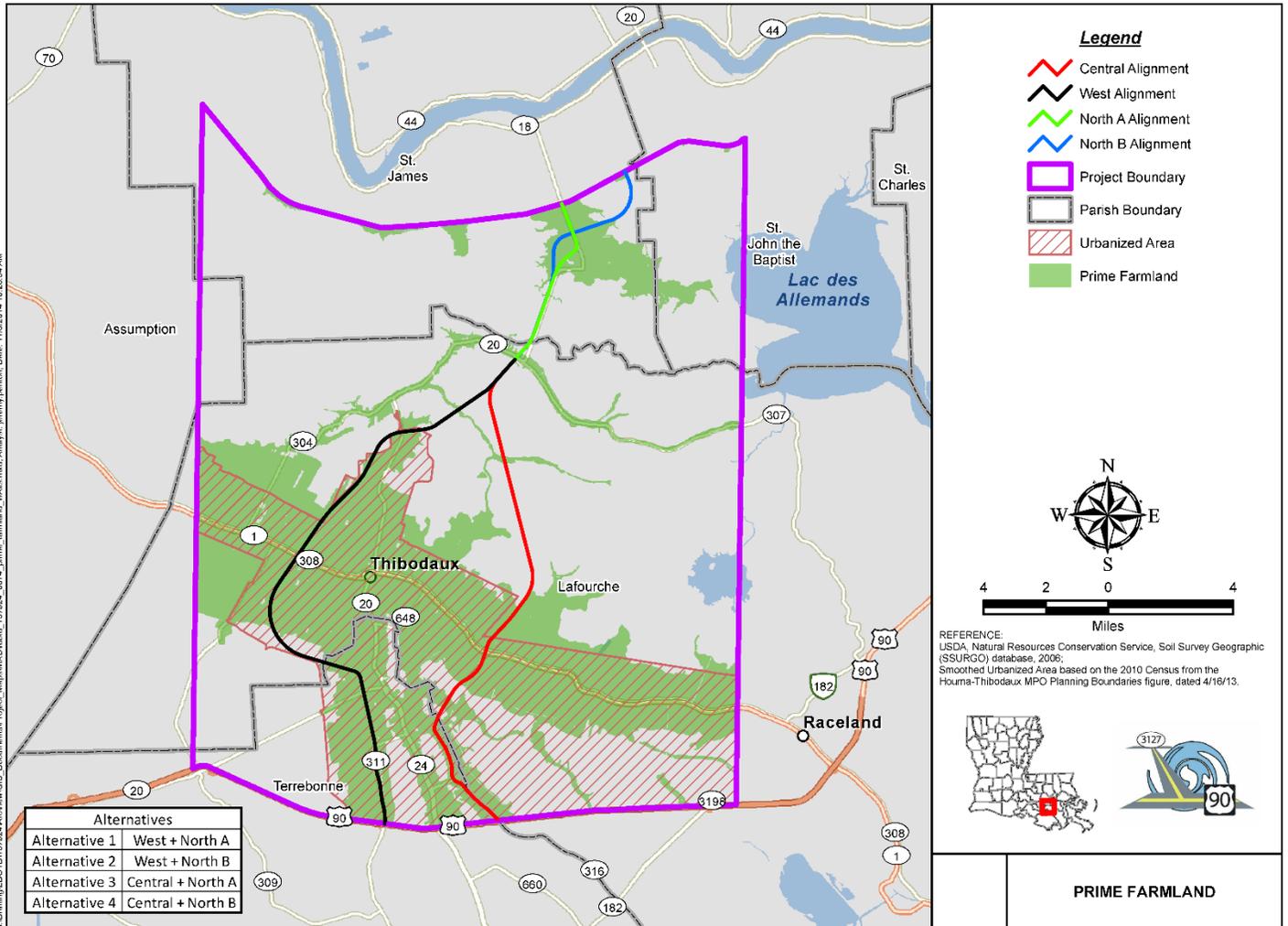




Figure 4-8
Prime Farmland with Alternatives



**Alternative 1 (Western Alignment + North Alignment "A")**

Alternative 1 (Western Alignment + North Alignment "A") would result in the complete loss of 127.07 acres of prime farmland soils from at-grade construction and the partial loss of 34.21 acres of prime farmland soils from the elevated portion of the proposed alternative. Approximately 251.06 acres of agricultural land used to cultivate crops would be lost by construction of this proposed alternative in both urban and rural areas.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "B") would result in the loss of 139.86 acres of prime farmland soils from at-grade construction. Approximately 37.85 acres of prime farmland soils will be partially lost to the elevated portion of the proposed alternative. This alternative would result in the loss of 284.99 acres of agricultural land used to cultivate crops in both urban and rural areas.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") would result in the complete loss of 52.84 acres of prime farmland soils and the partial loss of 33.44 acres of prime farmland soils. This alternative would result in the loss of 163.59 acres of agricultural land used for cultivated crops and pasture in both urban and rural areas.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") would result in the loss of 65.63 acres of prime farmland soils from at-grade construction. Approximately 37.08 acres of prime farmland soils would be partially lost to the elevated portion of this alternative. The proposed alternative would result in the loss of 197.52 acres of agricultural land used for cultivated crops and pasture in both urban and rural areas.

4.10.4 What indirect and cumulative impacts are anticipated?

Agricultural businesses make up a significant portion of the economy in the study area and employ over 1 percent of the workforce within the five parishes.³⁹ Farms within the five parishes generate approximately \$150 million in annual income.⁴⁰ Agricultural businesses consist of farms, farm services, farm equipment/supply retailers, agro-chemical retailers, farm equipment manufacturers/wholesalers, sugar products manufacturers, sugar refiners/mills, lumber companies, agricultural products transporters, and feed dealers. Agricultural commodities produced and sold by farms traditionally fall into three major categories—plant enterprises, animal enterprises, and wildlife and fisheries enterprises. **Table 4.26** describes the agricultural enterprise market value for each of the five parishes located within the study area.

³⁹ Louisiana Department of Economic Development. (2009). Louisiana parish profiles. Retrieved from <http://www.louisianasiteselection.com/SelectProfile.aspx>. Last Accessed October 24, 2013.

⁴⁰ National Agricultural Statistics Service. (2007). 2007 Census of Agriculture. Washington, D.C.: United States Department of Agriculture.



**Table 4.26
Agricultural Enterprise Market Value by Parish in Dollars**

Parish	Plant Enterprise	Animal Enterprise	Wildlife and Fisheries Enterprise	Total
Assumption	\$53,225,333	\$1,137,390	\$3,725,871	\$58,088,594
Lafourche	\$72,072,173	\$14,724,291	\$39,383,712	\$126,180,176
St. James	\$40,545,005	\$278,521	\$1,835,364	\$42,658,890
St. John the Baptist	\$13,804,034	\$437,669	\$311,843	\$14,553,546
Terrebonne	\$22,912,623	\$2,423,770	\$67,371,010	\$92,707,403

Source: Louisiana State University Agricultural Center

The bisection of fields and the change in accessibility of farmlands where at-grade construction would occur could adversely impact these farmlands and result in a decline in the value of those farmlands. At-grade construction of the build alternatives could also alter the drainage within the adjacent fields adversely affecting the productivity of those fields. Therefore, the proposed project may adversely affect the agricultural economy of the study area. The proposed project would allow increased access to the area that would stimulate regional growth and lead to future loss of agricultural lands through urban development.

4.11 CULTURAL RESOURCES

The discussion of cultural resources in this section is based on preliminary data. Detailed cultural resource surveys will be conducted upon the identification of the preferred alternative.

4.11.1 What is the historical background of the study area?

For the purposes of the cultural resources investigations, the study area for the Houma-Thibodaux to LA 3127 connection lies within the Mississippi River deltaic plain. The deltaic plain is composed of numerous and often overlapping delta complexes. The Teche and Lafourche delta complexes are responsible for creating the land in the region of the study area. Based on the age of the Teche complex, the earliest archaeological sites that might be located in the region would date to the end of the middle Archaic period; however, no sites dating earlier than the Marksville period (A.D. 1-400) have been recorded in the study area. **Table 4.27** provides summaries of the prehistoric periods that have been defined in this region of southern Louisiana. Also, general parish histories are provided in **Tables 4.28 through 4.30**. The tabular format was chosen in order to keep this text as concise as possible.

**Table 4.27
Prehistoric Periods in South Louisiana**

Period	Date Range	Culture/Traits
Marksville	A.D. 1	Sedentary groups, hunting and gathering supplemented by local crops; conical burial mounds with exotic grave goods; distinctive pottery types; part of the Hopewellian Interaction Sphere with culture groups in the Ohio and Illinois River Valleys; Issaquena culture during the late Marksville period
Baytown	A.D. 400 - A.D. 700	Troyville culture; large regional mound centers; possible increase in social status differentiation, although no evidence of hierarchy among sites; population growth; distinctive pottery types; hunting and gathering supplemented by local plants
Coles Creek	A.D. 700 - A.D. 1200	Small ceremonial centers surrounded by variously sized villages and hamlets; no evidence of hierarch among sites; mounds flat-topped and pyramidal rather than conical, and mounds supported religious or civic buildings; distinctive pottery types; continued hunting and gathering supplemented with local plants, some evidence for the use of squash and maize
Mississippi	A.D. 1200 - A.D. 1700	Definite evidence of ranked, chiefdom-level political organization; hierarchy among mound sites; palisaded sites; reliance on domesticated food crops such as maize, beans, and squash, supplemented by hunting and fishing; distinctive shell-tempered pottery; Plaquemine culture defined prior to contact with Europeans;



Table 4.27
Prehistoric Periods in South Louisiana

Period	Date Range	Culture/Traits
		Delta-Natchez phase sites include European trade goods

Table 4.28
Summary of Lafourche Parish History

Period	Date Range	Culture/Traits
Colonial 1699-1803	1699	Louisiana founded in 1699. Lafourche Parish is part of the Chawasha Indian homelands. The territory along Bayou Lafourche from Ascension Parish to the Gulf of Mexico was called the Lafourche Settlement; this included the present-day parishes of Assumption, Lafourche, and Terrebonne. The northwest portion of present-day Lafourche Parish saw very little settlement before 1765
	1755-1763	Great Expulsion (<i>le Grand Dérangement</i>) of the French settlers of Acadia (Nova Scotia, New Brunswick, Prince Edward Island, Quebec, and the U.S. state of Maine).
	1763	France transfers Louisiana to Spain under the terms of the Treaty of Paris
	1765	The first of the displaced Acadians began to settle along the west bank of Bayou Lafourche between the modern towns of Donaldsonville and Labadieville. Creoles of French and German descent also migrated to the parish.
	1780s	600 Acadians who had been exiled in France settled along the Lafourche between modern-day Labadieville and Lafourche Crossing.
	1800	Spain returns Louisiana to France
	1803	Louisiana Purchase occurs. Napoleon sells Louisiana to the United States of America
Antebellum 1803-1860	1803	American territory; Anglo-Americans settled on the west bank of Bayou Lafourche; Lafourche Parish concentrated heavily on commercial sugar.
	1807	Louisiana legislature divides Louisiana into 19 parishes. Lafourche County was divided into Assumption Parish and Parish of Lafourche Interior
	1812	Louisiana becomes a state
	1822	Terrebonne Parish created from Lafourche Parish
	1853	Parish of Lafourche Interior was shortened to "Lafourche Parish"
Civil War	1820s-1860s	Lafourche Parish was integrated into the commercial sugar-growing economy of southern Louisiana and experienced great prosperity. On the eve of the Civil War 49 percent of the population was enslaved African-Americans
	1860-1865	The Federal and Confederate forces throughout the war occupied Lafourche Parish. Several skirmishes occurred and Thibodaux (parish seat) sustained heavy damages. Like the rest of Louisiana and the South, Lafourche Parish suffered from the loss of capital invested in slaves, the collapse of land values, the destruction of cultivation and processing equipment, and the disruption of the agricultural labor system.
Late Nineteenth Century	1866-1900	Reconstruction adds social tension and civil unrest to efforts to re-develop the economy of the South; sugarcane agriculture remains important; wage-laborers often live within same plantation quarters used prior to Emancipation; increased mechanization dramatically reduces full-time labor requirements during the latter part of the century; also rise of centralized sugar factories to process cane from numerous growers.
	1889 and 1892	The invention of the pull-boat and the overhead railway skidder enabled industrial logging of swamp cypress timber. The result was revolutionary in the swamp regions with a great impact on the ecosystem and human population of south Louisiana.
Twentieth Century	1901-2000	Large-scale, industrial cypress logging was virtually over in south Louisiana by 1925. After 1945, technological innovations in the cultivation and harvesting of sugar cane largely eliminated the traditional gang labor methods and concentrated dwelling patterns of laborers that had characterized sugar plantations since the Civil War. By the 1920's the economy benefited from cultivating sugar, corn, sweet and Irish potatoes. The parish was also known for



Table 4.28
Summary of Lafourche Parish History

Period	Date Range	Culture/Traits
		its game and fur industry. Industries included sugar factories, a cotton gin, moss factory, sawmills, and oil and gas production.



**Table 4.29
Summary of St. James Parish History**

Period	Date Range	Culture/Traits
Colonial	1699	Louisiana founded in 1699
	1720	The first French grant in the area of St. James Parish had 100 inhabitants. Few Europeans settled in the St. James area for several decades
	1755-1763	Great Expulsion (<i>le Grand Dérangement</i>) of the French settlers of Acadia (Nova Scotia, New Brunswick, Prince Edward Island, Quebec, and the U.S. state of Maine).
	1763	France transfers Louisiana to Spain under the terms of the Treaty of Paris. A small number of immigrants settled in the area prior to the transfer.
	1764	The first group of Acadians arrived in Louisiana and settled in St. James Parish. Due to the density of Acadian settlers, St. James became known as the "First Acadian Coast"
	1785	Another influx of Acadians arrived who had been exiled in France
	1800	Spain returns Louisiana to France
	1803	Louisiana Purchase occurs. Napoleon sells Louisiana to the United States of America
Antebellum 1803-1860	1803	American territory; Anglo-Americans were attracted to the wealth of the area. St. James Parish concentrated heavily on commercial sugar monoculture, in addition to corn, livestock, and copious amounts of assorted lumber.
	1805	Legislative Council of the Territory of Orleans determined that St. James and Ascension parishes be combined into the county of Acadia
	1807	Louisiana legislature divides Louisiana into 19 parishes. St. James and Ascension Parish are reestablished.
	1812	Louisiana becomes a state
Civil War	1820s-1860s	Lafourche Parish was integrated into the commercial sugar-growing economy of southern Louisiana and experienced great prosperity. On the eve of the Civil War 70 percent of the population was enslaved African-Americans.
	1860-1865	The Federal and Confederate forces throughout the war occupied Lafourche Parish. Confederate property was seized and Federal troops at times ransacked private homes and property. Like the rest of Louisiana and the South, St. James Parish suffered from the loss of capital invested in slaves, the collapse of land values, the destruction of cultivation and processing equipment, and the disruption of the agricultural labor system.
Late Nineteenth Century	1866-1900	Reconstruction adds social tension and civil unrest to efforts to re-develop the economy of the South; sugarcane agriculture remains important; wage-laborers often live within same plantation quarters used prior to Emancipation; increased mechanization dramatically reduces full-time labor requirements during the latter part of the century; also rise of centralized sugar factories to process cane from numerous growers. With the construction of railroads the economy diversified.
	1889 and 1892	The invention of the pull-boat and the overhead railway skidder enabled industrial logging of swamp cypress timber. The result was revolutionary in the swamp regions with a great impact on the ecosystem and human population of south Louisiana.
Twentieth Century	1901-2000	Large-scale, industrial cypress logging was virtually over in south Louisiana by 1925. After 1945, technological innovations in the cultivation and harvesting of sugar cane largely eliminated the traditional gang labor methods and concentrated dwelling patterns of laborers that had characterized sugar plantations since the Civil War. St. James Parish was, and is, the only place in the world where perique tobacco is produced. Sugar remained and still is the most important crop and is the second. By 1950, St. James Parish was also a moderate petroleum producer. In recent decades, large petroleum refineries, fertilizer plants, and other chemical and industrial plants have been constructed along the Mississippi River in St. James Parish. In addition truck farming and livestock production contribute to the economy.



Table 4.30
Summary of Terrebonne Parish History

Period	Date Range	Culture/Traits	
Colonial	1699	Louisiana founded in 1699	
	1720	The coastal salt marshes of southern Terrebonne Parish were very lightly inhabited throughout the colonial period because of their unsuitability for agriculture. Land claims were made on the basis of long-lot surveys on alluvial wooded land and prairie.	
	1699-1803	1755-1763	Great Expulsion (<i>le Grand Dérangement</i>) of the French settlers of Acadia (Nova Scotia, New Brunswick, Prince Edward Island, Quebec, and the U.S. state of Maine).
		1765-85	Acadians settled in Terrebonne Parish there until after 1785
	1800	Spain returns Louisiana to France	
	1803	Louisiana Purchase occurs. Napoleon sells Louisiana to the United States of America	
Antebellum 1803-1860	1803	American territory; The crops grown by most planters were rice and sugar, although indigo had once been a popular venture. Sugar, while still a complicated production process, quickly emerged as the economic powerhouse in St. John	
	1807	Louisiana legislature divides Louisiana into 19 parishes.	
	1812	Louisiana becomes a state	
	1822	Terrebonne was separated from Lafourche Parish. The area of Terrebonne Parish is the largest parish in contemporary Louisiana. About 88 percent of the total parish land area is marsh. That year the Parish police jury was authorized to open a canal from Bayou Lafourche westward to Bayou Terrebonne. This began continued canal, waterway, and lock construction to present day.	
	1855	The New Orleans, Opelousas, and Great Western Railway Company line was completed through Terrebonne and was an economic stimulus to the whole parish	
	1820s-1860s	Terrebonne Parish was integrated into the commercial sugar-growing economy of southern Louisiana and was the dominant agricultural activity. On the eve of the Civil War 50 percent of the total Terrebonne population was enslaved African Americans.	
Civil War	1860-1865	Terrebonne was spared major devastation and destruction during the war, Federal troops at times ransacked private homes and property, and the railroad allowed for constant troop movement. Like the rest of Louisiana and the South, Terrebonne Parish suffered from the loss of capital invested in slaves, the collapse of land values, the destruction of cultivation and processing equipment, and the disruption of the agricultural labor system.	
Late Nineteenth Century	1866-1900	Reconstruction adds social tension and civil unrest to efforts to re-develop the economy of the South; sugarcane agriculture remains important; wage-laborers often live within same plantation quarters used prior to Emancipation. Consequently, other crops were also grown in commercial quantities; fishing became more important in Terrebonne; fishermen also harvested quantities of oysters; a shrimp-drying process had been introduced.	
	1889 and 1892	The invention of the pull-boat and the overhead railway skidder enabled industrial logging of swamp cypress timber. The result was revolutionary in the swamp regions with a great impact on the ecosystem and human population of south Louisiana.	
Twentieth Century	1901-2000	The economic profile of Terrebonne Parish has become more diversified, as agriculture has been joined by sizable extractive industries in the economic profile of the parish. These twentieth-century industries have included fishing, seafood canning, trapping, lumbering, ship-and boat building and perhaps most importantly, petroleum production.	



4.11.2 What type of cultural resources are located within the study area?

Earth Search, Inc. (ESI) has undertaken background research to identify and tabulate the cultural resources that have been previously recorded within the study area for the proposed Houma-Thibodaux to LA 3127 connection project. The original overall study area included portions of six parishes—Ascension, Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne. Background research consisted of a comprehensive literature search and records review. This included examination of records on file at the Louisiana Divisions of Archaeology and Historic Preservation, Baton Rouge, Louisiana. Cultural resources reports, site files, and National Register of Historic Places (NRHP) records were reviewed for the study area. Research also included the examination of geomorphological data and maps. Together the research provides a framework for the development of a predictive/probability model for encountering undocumented cultural resources. Some of the parameters considered in the development of the model include landform type and age, known site locations, and distance to natural waterways. Also, the results of the background research were used to develop and refine proposed roadway alternatives that would minimize impacts to the cultural resources.

The initial research for the overall study area revealed that 144 archaeological sites have been recorded within the study area. The vast majority of these have been recorded as a result of systematic cultural resources surveys. There have been at least 63 cultural resources investigations performed in the study area. Research at the Louisiana Division of Historic Preservation concluded that there are 45 NRHP properties and one NRHP district within the study area.

About half of the sites that have been previously recorded have been evaluated in terms of NRHP criteria. The majority of these are not considered eligible for nomination to the NRHP. Only nine of the sites have been listed on the NRHP. Five of the sites are considered eligible for nomination and another ten are potentially eligible. The NRHP eligibility of the remaining sites has not been established.

The vast majority of the sites date to the historic era. These include sites dating from the colonial period through the mid-20th Century. Many sites date to the 19th Century when sugarcane agriculture dominated the study area and are associated with the various plantations and farmsteads that developed along Bayou Lafourche. The prehistoric sites (n=20) appear to date to the Marksville period (A.D. 1-A.D. 400 or 1949 B.P.-1550 B.P.) or later. This is consistent with the current understanding of landform development in the area (Saucier 1994).

As noted above, 45 NRHP properties and one district were identified during the research. The district is the Donaldsonville Historic District. The Donaldsonville Historic District includes 635 structures and has a mixed commercial-residential character. The majority of the buildings date to the period between 1865-1933.

At least 14 of the NRHP properties are plantation houses or associated plantation structures. There are also six churches that have been made NRHP properties. The majority of the NRHP listed properties are residences.

4.11.3 What are the impacts to cultural resources as a result of the No-build Alternative?

There are no impacts to cultural resources as a result of the No-build Alternative.



4.11.4 What are the impacts to cultural resources as a result of the Build Alternatives?

In order to refine the data in relation to the highway alternatives under consideration, a 1-mile (1.6 kilometer [km]) buffer was established around each. Within this reduced area, it was determined that 17 cultural resources surveys have been undertaken previously. In addition, 21 archaeological sites have been recorded in the buffer area. Research at the Louisiana Division of Historic Preservation concluded that there are six NRHP properties within the study area. In addition, some 134 buildings greater than 50 years of age have been recorded previously.

Western Alternative

There are four previously recorded sites (16TR93, 16TR95, 16TR96, and 16LF268) located adjacent to the proposed Modified Western Alternative. Magnolia Plantation (16TR93) listed on the NRHP. The NRHP eligibility of 16TR95 and 16TR96 has not been determined. Site 16LF268 is considered ineligible for the NRHP. In addition, eight buildings greater than 50 years of age have been recorded adjacent to this alternative. Most of these are associated with Magnolia and Minerva (16TR96) plantations.

Central Alternative

One site (16TR162) is adjacent to the proposed Central Alternative. The NRHP eligibility of the site is undetermined. There are also five buildings greater than 50 years of age recorded adjacent to the alternative.

North "A" Alternative

No archaeological sites or NRHP properties have been recorded adjacent to this alternative. There are five buildings, located in the Lower Vacherie area, that have been documented previously adjacent to the proposed alternative.

North "B" Alternative

Like the North A alternative, no archaeological sites or NRHP properties have been recorded adjacent to this alternative. Five buildings, associated with Webre Steib Plantation, have been recorded adjacent to the alternative.

4.11.4.1 Cultural resources survey

As discussed above, the initial cultural resources investigations were limited to background research to determine the existing conditions of previously recorded cultural resources, to define high and low probability areas for undocumented cultural resources, and to develop a research design to guide future investigations. Assessment of impacts to historic resources cannot be determined until survey of the Preferred Alternative is undertaken.

4.11.4.2 Archaeological survey

ESI recommends a Phase I survey of the Preferred Alternative, once such is chosen. This should include pedestrian survey and systematic subsurface testing. Archaeological survey of the Preferred Alternative will consist of an appropriate number of parallel transects. Along each transect, shovel tests will be excavated at 30 meter (m) (98.4 foot) intervals in areas of high probability and at 50 m (164 foot) intervals in areas of low probability. Shovel tests will measure approximately 30 centimeters (cm) by 30 cm (12 inch by 12 inch) and will be excavated to sterile subsoil or to a maximum depth of 50 cm (20 inch). Wherever possible, excavated soils will be screened through 1/4-inch mesh. Very clayey soils will be carefully "trowel-sorted" and examined for artifacts. The soil characteristics and stratigraphic associations of all positive shovel tests and a representative number of negative shovel tests will be recorded. All cultural materials will be collected and returned to the laboratory for analysis and curation. All tests will be backfilled upon



completion. Areas with greater than 80 percent surface visibility will be pedestrian surveyed supplemented with judgmental shovel tests.

Positive shovel tests and any surface scatters of material noted during survey will be flagged and treated as potential sites. Site definition will consist of the excavation of additional shovel tests to determine the vertical and horizontal site extent. A positive transect shovel test or the center of the artifact scatter will be utilized as datum. Additional shovel tests will be excavated at 10 m (33 foot) gridded intervals. Site boundaries will be established by the excavation of two consecutive negative shovel tests along each line. Testing will be restricted to the project corridor.

Systematic surface collections within gridded units will be made at all sites exhibiting surface scatters. If surface scatters are extensive, all diagnostic artifacts will be collected; additionally, a 100 percent collection will be made from a 2 m by 2 m (6.6 foot by 6.6 foot) square area at each site to address artifact density and distribution between sites. Photographs will be taken using a high resolution digital camera. A georeferenced site map will be drafted for each previously unrecorded resource. Site maps will include the locations of all shovel tests, the extent of surface scatter, site limits, and any topographic features or landmarks visible. Global positioning system (GPS) data will be collected with a Trimble GeoExplorer XT Series hand-held unit. Louisiana Site Forms will be completed for each site, and the locations of the sites will be marked on the appropriate U.S. Geological Survey (USGS) 7.5-foot quadrangle. Sites will be evaluated as eligible or ineligible for nomination to the NRHP.

If previously recorded resources lie within the proposed alternative, they will be revisited. Additional testing will be performed as necessary to collect data concerning the current site conditions. This testing will be similar to the site delineation strategy described above. Appropriate Louisiana Site Update Forms will be prepared for each previously recorded resource. The results of the archaeological survey, including evaluation of the NRHP status of the sites and assessment of effects of the Preferred Alternative on any historic properties will be presented in the technical report of investigations.

4.11.4.3 Architectural survey

The Area of Potential Effect (APE) for the purposes of the standing structure will include a 0.25-mile (400 m) buffer of the alternative centerline (0.125-mile [200 m] to either side of the centerline). All standing structures greater than 50 years of age within the APE will be recorded utilizing Louisiana Historic Resources Inventory forms. The structures will be evaluated in terms of NRHP criteria. The results of the architectural survey, including evaluation of the NRHP status of the structures and assessment of effects of the Preferred Alternative on any historic properties, will be presented in the technical report of investigations.

4.11.5 What indirect and cumulative impacts are anticipated?

Indirect and cumulative impacts to historic properties are not anticipated, but they cannot be assessed prior to survey of the Preferred Alternative. These, if any, will be discussed in the technical report.

4.12 AIR QUALITY

4.12.1 What are the traffic patterns within the study area?

The existing roadway network in the study area limits north to south movement, resulting in circuitous routes. The proposed project will add a north-south connector between LA 3127 and US 90 to improve connectivity, especially for emergency evacuation events. The existing (2010) and projected design year 2032 no-build and build Annual Average Daily Traffic (AADT) volumes in the study area is shown in **Table 4.31**. In 2032, traffic volumes are expected to grow from



existing levels. In general, the projected design year volumes show that traffic on currently available north-south corridors would be rerouted to the proposed project. The study area is located within the part of Louisiana known as the Bayou Region (see Figure 4-1). This region is known for its abundance of natural features such as coastal wetlands, bayous, and also includes both natural and man-made waterways. Due to the unique geography of this area, past and present development has mainly occurred near higher elevations and natural ridges. Due to this fact the roadway network within the study area is very limited and the existing transportation network provides better east-west connectivity than north-south connectivity.

**Table 4.31
Annual Average Daily Traffic in the Study Area**

Roadway Segment	Existing (2010)	No Build (2032)	Western Alignments (2032)		Central Alignments (2013)	
	AADT	AADT	AADT	% Change from No Build	AADT	% Change from No Build
East-West Corridors						
LA 3127 (East of LA 20)	4,100	6,000	5,000	-17%	5,000	-17%
LA 308 (East of LA 309)	8,900	10,900	10,700	-2%	10,500	-4%
LA 1 (East of LA 309)	10,400	13,400	13,100	-2%	12,500	-7%
US 90 (West of LA 311)	14,800	25,300	24,900	-2%	25,200	0%
North-South Corridors						
LA 316 (LA 24 to US 90)	5,400	7,400	5,800	-22%	5,800	-22%
LA 648 (East of LA 20)	13,100	24,200	22,700	-6%	20,500	-15%
LA 20 (South of LA 3127)	10,600	12,700	10,500	-17%	10,400	-18%
LA 20 (South of LA 304)	11,500	16,100	11,200	-30%	11,800	-27%
LA 20 (N of LA 308)	19,700	32,900	32,100	-2%	24,100	-27%
LA 20 (US 90 to LA 24)	4,300	3,700	4,200	14%	3,400	-8%
LA 24 (North of LA 311)	22,600	38,200	33,800	-12%	34,200	-10%
LA 311 (US 90 to LA 24)	8,700	14,100	8,300	-41%	13,100	-7%
LA 3185 (South of LA 1)	7,300	14,800	15,100	2%	14,600	-1%
LA 309 (South of LA 1)	2,000	2,800	2,200	-21%	2,800	0%
Project (South of LA 3127)			8,600		8,500	
Project (North of LA 307)			9,200		10,500	
Project (LA 307 to LA 20)			10,200			
Project (LA 20 to LA 308)			4,800		9,200	
Project (LA 1 to LA 20)			8,000			
Project (LA 20 to US 90)			8,800		7,700	

Source: Urban Systems, Inc. 2010.

The proposed project has four alternatives—*Alternative 1 (Western Alignment + North Alignment "A")*, *Alternative 2 (Western Alignment + North Alignment "B")*, *Alternative 3 (Central Alignment + North Alignment "A")*, and *Alternative 4 (Central Alignment + North Alignment "B")*. Alternatives 1 and 2 are variations of the Western Alignment and Alternatives 3 and 4 are variations of the Central Alignment. The variations involve two possible northern alignments between LA 3127 and LA 20. The northern alignment between LA 3127 and LA20 for Alternatives 2 and 4 are slightly longer (by approximately 2 miles) than Alternatives 1 and 3, but they are in the general vicinity of one another near the existing intersection of LA 20 and LA 3127. For the purposes of this analysis, both Western Alignments (Alternatives 1 and 2) were considered similar and both



Central Alignments (Alternatives 3 and 4) were considered similar; therefore, impacts are discussed in terms of Western Alignments and Central Alignments.

4.12.1.1 What is the attainment status of the study area?

The United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six principal air pollutants, which are called "criteria" pollutants. The criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter (PM₁₀ and PM_{2.5}), ozone (O₃), sulfur dioxide (SO₂), and lead. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m³), and micrograms per cubic meter (µg/m³) of air.

The study area is within Assumption, Lafourche, St. James, St. John the Baptist, and Terrebonne Parishes. These five parishes are in attainment and have been determined to comply with the NAAQS; therefore, State Implementation Plans and Transportation Conformity (40 CFR Parts 51 and 93) are not applicable.

4.12.1.2 What are vehicle pollutants found in the study area?

Changing traffic patterns are a primary concern when determining the impact of a new roadway or an existing highway facility. Motor vehicles emit CO, nitrogen oxides (NO_x), hydrocarbons (HC), PM₁₀, PM_{2.5}, SO₂, and lead (listed in order of decreasing emission rate). Motor vehicles are considered to be the major source of CO in the project area.

In addition to the criteria, EPA regulates air toxics that are also monitored by NAAQS. Most air toxics originate from human-made sources including;

- On-road mobile sources (e.g., cars, trucks, and construction equipment);
- Non-road mobile sources (e.g., airplanes);
- Area sources (e.g., dry cleaners); and
- Stationary sources (e.g., factories, refineries, and power plants).

EPA has also recognized emissions of air toxics from mobile sources as a potential environmental and health concern. The interim guidance released by FHWA dated February 2007 requires discussion of Mobile Source Air Toxics (MSATs) in NEPA documents. The guidance was updated in September 2009 and December 2012.

Carbon Monoxide

Motor vehicles are considered the major source of CO in the project area. However, there are no existing violations of CO in the project area.

Ozone and Nitrogen Dioxide

Motor vehicles are regarded as sources of HC and NO_x. HC and NO_x emitted from vehicles are carried into the atmosphere where they react with sunlight to form O₃ and NO₂. Automotive emissions of HC and NO_x are expected to decrease in the future due to the continued installation and maintenance of pollution control devices on new cars. However, regarding area-wide emissions, these technological improvements may be offset by the increasing number of cars in the area.

The photochemical reactions that form O₃ and NO₂ require several hours to occur. For this reason, the peak levels of O₃ generally occur 10 to 20 km (approximately 6 to 12 miles) downwind of the source of HC emissions. Urban areas as a whole are regarded as sources of HC, not individual streets and highways. The emissions of all sources in an urban area mix in the atmosphere, and in the presence of sunlight, this mixture reacts to form O₃, NO₂, and other photochemical oxidants.



Particulate Matter and Sulfur

Motor vehicles are not regarded as significant sources of PM₁₀, PM_{2.5}, and SO₂. Nationwide, highway sources account for less than 7 percent of particulate matter emissions and less than 2 percent of SO₂ emissions. PM₁₀, PM_{2.5}, and SO₂ emissions are predominantly the result of non-highway sources (e.g., industrial, commercial, and agricultural).

Lead

Automobiles without catalytic converters can burn regular gasoline. The burning of regular gasoline emits lead as a result of regular gasoline containing tetraethyl lead, which is added by refineries to increase the octane rating of the fuel. Newer cars with catalytic converters burn unleaded gasoline, thereby eliminating lead emissions. Also, EPA has required the reduction in the lead content of leaded gasoline. The overall average lead content of gasoline in 1974 was approximately 0.53 gram per liter. By 1989, this composite average had dropped to 0.003 gram per liter. The Clean Air Act Amendments of 1990 made the sale, supply, or transport of leaded gasoline or lead additives unlawful after December 31, 1995.

4.12.1.3 What are Mobile Source Air Toxics?

Motor vehicles contribute significantly to emissions of acrolein, benzene, 1,3-butadiene, diesel PM (including diesel exhaust organic gases), formaldehyde, naphthalene, and polycyclic organic matter. Of these compounds, FHWA considers diesel PM as the dominant MSAT of concern.

The current guidance on MSATs is FHWA's *Interim Guidance Update on Air Toxic Analysis in NEPA Documents*, released on December 6, 2012. This guidance advises on when and how to analyze MSATs in the NEPA process for highway projects. This guidance is interim because MSAT science is still evolving. Currently, there are limitations on tools and techniques for evaluating potential project-level health risks from MSAT exposure. FHWA regularly updates the guidance based on new scientific data.

FHWA has developed a tiered approach for analyzing MSATs in NEPA documents, depending on the specific project circumstances:

- No analysis for projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; or
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

MSAT science is still evolving and the available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternative evaluated in the EIS. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22) regarding incomplete or unavailable information.

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

EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. EPA is in the continual process of assessing human health effects,



exposures, and risks posed by air pollutants. Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI).

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts—each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that timeframe, since such information is unavailable. It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways, to determine the portion of time that people are actually exposed at a specific location, and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds and, in particular, for diesel PM.

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

Because of the limitations in the methodologies for forecasting health impacts, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities, plus improved access for emergency response, that are better suited for quantitative analysis.

4.12.2 What are the impacts to air quality as a result of the No-build Alternative?

No impacts to air quality are anticipated if the No-build Alternative is implemented.



4.12.3 What are the impacts to air quality as a result of the Build Alternatives?

The proposed project includes construction of a north-south limited-access primary route to improve connectivity in the north-south directions, especially for emergency evacuation events. As shown previously in Table 4.31, the design year AADT is projected to be less than 140,000 to 150,000 vehicles per day, which is the FHWA criterion for a qualitative analysis; the project is expected to have low potential MSAT effects.

Vehicle mix is not anticipated to change due to this project; therefore, MSATs emitted would be proportional to the vehicle miles traveled (VMT). Although locally along the proposed alignments, MSAT emissions would increase from the addition of motor vehicle traffic, and therefore increased VMT, MSAT emissions along existing corridors are anticipated to decrease due to rerouted trips. Overall, VMT may be reduced for those who, without the project, had to take longer routes to travel north-south. **Table 4.32** shows estimated daily VMT on the proposed build alternatives. Also, speed may increase due to additional capacity increasing the efficiency of the transportation network.

Table 4.32
Estimated Daily Vehicle Miles Traveled on the Build Alternatives

	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Project VMT (mi)	273,360	296,004	237,930	261,030

Emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turn over, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great, even after accounting for VMT growth, that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

However during construction, the localized use of construction equipment has the potential to temporarily adversely impact air quality. Although the potential impact is only temporary during the construction phase, the potential impacts should be addressed with the use of best management practices.

Alternative 1 (Western Alignment + North Alignment "A")

Alternative 1 (Western Alignment + North Alignment "A") is not expected to cause a projected violation of the CO, O₃, NO₂, or lead NAAQS. In addition, because emissions of PM₁₀, PM_{2.5}, and SO₂ from automobiles are very low, the traffic on this alternative will not cause air quality standards for PM₁₀, PM_{2.5}, and SO₂ to exceed the NAAQS. The study area is in attainment for all criteria pollutants; therefore, 40 CFR Parts 51 and 93 are not applicable. *Alternative 1 (Western Alignment + North Alignment "A")* is not anticipated to create any adverse effects on the air quality of this attainment area.

Furthermore, no significant MSAT impacts are anticipated from this alternative. Air toxics analysis is a continuing area of research. At this time, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited.

During construction of this alternative, all materials resulting from clearing and grubbing, demolition, or other operations will be removed from the project, burned, or otherwise disposed of by the contractor. Any burning done will be done in accordance with applicable local laws and



ordinances and regulations of the state. Care will be taken to ensure burning will be done at the greatest distance practical from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Burning will be performed under constant surveillance. Also, during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 (Western Alignment + North Alignment "A"), like *Alternative 1 (Western Alignment + North Alignment "A")*, is not anticipated to cause the NAAQS for CO, O₃, NO₂, lead, PM₁₀, PM_{2.5}, or SO₂ to be exceeded, nor is it anticipated to create any adverse effects on the air quality of this attainment area.

Furthermore, based on the limited existing tools and techniques, no significant MSAT impacts are anticipated from this alternative.

During construction of this alternative, all materials resulting from clearing and grubbing, demolition, or other operations will be removed from the project, burned, or otherwise disposed of by the contractor. Any burning done will be done in accordance with applicable local laws and ordinances and regulations of the state. Care will be taken to ensure burning will be done at the greatest distance practical from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Burning will be performed under constant surveillance. Also, during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents.

Alternative 3 (Central Alignment + North Alignment "A")

Anticipated impacts from the implementation of *Alternative 3 (Central Alignment + North Alignment "A")* are expected to be similar to that of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "A")*.

During construction of this alternative, all materials resulting from clearing and grubbing, demolition, or other operations will be removed from the project, burned, or otherwise disposed of by the contractor. Any burning done will be done in accordance with applicable local laws and ordinances and regulations of the state. Care will be taken to ensure burning will be done at the greatest distance practical from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Burning will be performed under constant surveillance. Also, during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents.

Alternative 4 (Central Alignment + North Alignment "B")

The projected impacts from the implementation of *Alternative 4 (Central Alignment + North Alignment "A")* is expected to be similar to those anticipated from *Alternative 1 (Western Alignment + North Alignment "A")*, *Alternative 2 (Western Alignment + North Alignment "A")*, and *Alternative 3 (Central Alignment + North Alignment "A")*.

During construction of this alternative, all materials resulting from clearing and grubbing, demolition, or other operations will be removed from the project, burned, or otherwise disposed of by the contractor. Any burning done will be done in accordance with applicable local laws and ordinances and regulations of the state. Care will be taken to ensure burning will be done at the greatest distance practical from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Burning will be performed under constant surveillance. Also, during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents.



4.13 NOISE

4.13.1 How is noise measured?

The addition of a new highway brings a redistribution of traffic noise from the existing roads to the new alignment. A highway noise analysis is required to quantify the expected traffic noise levels from the new road and compare them with state and federal traffic noise impact criteria.

Road traffic noise is measured in decibels, which is filtered with an "A-weighting" to replicate the frequency response of the human ear. Therefore, this noise is described in terms of A-weighted sound levels (dBA). The ear can detect sound levels ranging from 0 to over 120 dBA. A change in sound level of 3 dBA is just perceptible, a 6 dBA change is noticeable, and a 10 dBA increase in sound level is perceived as twice as loud. Examples of sound levels commonly associated with various activities are presented in **Table 4.33**.

Table 4.33
Typical Sound Levels

Common Outdoor Activities	Sound Level, dBA	Common Indoor Activities
	---110---	Rock Band
Jet Fly-over at 300 m (1000 ft)		
	---100---	
Gas Lawn Mower at 1 m (3 ft)		
	---90---	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)		Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime		
Gas Lawn Mower, 30 m (100 ft)	---70---	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	---60---	Large Business Office
Quiet Urban Daytime	---50---	Dishwasher Next Room
Quiet Urban Nighttime	---40---	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		
	---30---	Library
Quiet Rural Nighttime		Bedroom at Night
	---20---	Concert Hall (Background) Broadcast/Recording Studio
	---10---	
Lowest Threshold of Human Hearing	---0---	Lowest Threshold of Human Hearing

Source: Engineering – Noise, Air Quality, and Hazardous Waste Management Office, October 1998: Table N-2136.2 – Typical Noise Levels, "Technical Noise Supplement", Rudy Hendricks-Author, Environmental

Since traffic noise varies in level over the space of minutes or hours, the equivalent continuous level of sound (Leq) is used to represent the average sound energy over an appropriate period of interest. For the purposes of this assessment, hourly Leq values for the “design hour” and “peak hours” have been used.



The traffic noise evaluation procedures required for the proposed project are stipulated in the LADOTD Highway Traffic Noise Policy⁴¹ and federal regulations and guidelines. These documents define specific traffic noise assessment requirements and regulate maximum allowable noise levels based on land use and existing sound levels. If the noise criteria are exceeded, noise abatement measures must be considered.

Traffic noise impacts occur when the future (predicted, design year, build condition) noise levels approach or exceed the FHWA Noise Abatement Criteria, or when the future noise levels exceed the existing noise levels at any sensitive receptor by 10 dBA. LADOTD has published their Highway Traffic Noise Policy to comply with the FHWA Noise Regulations found at 23 CFR 772. The Louisiana criteria are shown below in **Table 4.34**.

Table 4.34
LADOTD Highway Noise Policy – Hourly A-Weighted Sound Level Decibels (dBA)

Activity Category	FHWA Activity Leq (H)	Evaluation Location	Activity Description	In Louisiana, impact occurs when Noise Level is equal to or greater than the values below
A	57	Exterior	Lands on which serenity and quiet are of extraordinary 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.	56
B	67	Exterior	Residential (includes undeveloped lands permitted for residential).	66
C	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings. (Includes undeveloped lands permitted for these activities).	66
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.	51
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F. (Includes undeveloped lands permitted for these activities).	71
F	—	—	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.	N/A
G	—	—	Undeveloped lands that are not permitted.	N/A

Source: Highway Traffic Noise Policy (2011). State of Louisiana Department of Transportation and Development
N/A: Not Applicable

4.13.2 What are the noise levels within the study area?

The allowable traffic noise level is a function of both the land use and the existing sound levels. The study area is predominately agricultural land and forested wetlands. The area is dotted with

⁴¹ Highway Traffic Noise Policy (2011). State of Louisiana Department of Transportation and Development.



numerous active and inactive oil and gas wells with communities and residential neighborhoods primarily located along the natural ridges and roads. The proposed alternatives currently under consideration traverse predominantly agricultural land and forested wetlands and avoid the majority of the residential areas.

Thibodaux is the largest community and located at the southern terminus of the study area. The community consists of a downtown commercial center, surrounded by a number of small residential neighborhoods. Its noise sensitive areas also include schools, colleges, churches, parks, a hospital, and a country club. Additionally, there are several smaller communities and residential areas within the study area, as well as individual houses scattered along portions of the proposed alternatives. Alternatives currently under consideration will avoid the most populated areas of the region.

Relative to the Noise Abatement Criteria, the most predominant activity categories in the study area are those defined in Activity Category F, which includes agricultural, wetlands, lakes and bayous, and other undeveloped land, as well as commercial and industrial properties. Activity Category E includes the exterior impact criteria for developed lands that are less sensitive to highway traffic noise. Activity Category B, defined as residential properties and including single-family homes, mobile home parks, and multi-family residences, appears only sporadically within the study area. Category A, the most sensitive of the categories, is not present along the proposed alternatives currently under consideration. Based on the Activity Categories present, Category B becomes the limiting category for noise levels. Therefore, it becomes necessary to evaluate whether future external noise levels at receptors would reach 66 dBA as a minimum condition.

It is also necessary to determine if a future increase of 10 dBA in the road traffic noise will occur. An estimate of the increase in noise along the existing road network can be obtained by comparing existing (2010) and design year (2032) traffic volumes in the Traffic Analysis Technical Appendix prepared by Urban Systems, Inc. For the purpose of calculation, peak hour volume flow/hr. was used to determine the sound level, since these volumes were provided in the data. TNM 2.5 was used to calculate the predicted noise level for a given traffic volume and design speed of the road at a notional distance of 10 m (33 feet) from each road segment. This was repeated for both years. The difference is the 'impact' between the two years for the appropriate road segment, as shown in Table 4.35, below.

This method of assessment is subject to two limitations:

- The noise level at receptors depends on their distance from the road. This will vary along the roads for individual receptors. Therefore the selected calculation distance of 10 meters (33 feet) from the existing roads is only notional, to provide an *indication* of the level of noise encountered at each road. It is of more value for estimating the differences in noise levels for the build and no-build and route alternative conditions, because the differences are less subject to distance.
- Traffic volume and speed of traffic affects the noise level, and although peak hour conditions have been considered (since this data was available from the traffic analysis), it is possible for traffic speed to diminish under some peak hour conditions as congestion arises.

However, this exercise has required a *comparison* of alternatives. For such a purpose, since all conditions have been calculated with the same set of assumptions, the results are believed to provide a reasonable estimate of noise level differences to the nearest decibel, within the accuracy of the available data, for the situations considered.



For determining the impact of the 66 dBA level from the new route alternatives, TNM 2.5 was used to calculate the distance of the 66 dBA noise contour from the road edge. This was carried out on a page-by-page basis from the line and grade document (and after taking into account an amendment to the Western Alignment). Design hour traffic volumes, at design speeds were used, assuming 96% motor vehicles with 4% heavy trucks. The likely residential dwellings falling within this contour (if any) were counted from scrutiny of satellite images along the appropriate route of the road alignment (images on Google Earth and the line and grade document were compared).

The calculation of the distance of the 66 dBA contour is objective, but the estimate of the numbers of dwellings falling within the contour is subjective, because it depends on interpretation of whether a building is residential or has some other use, such as commercial or industrial.

4.13.3 What are the impacts to noise levels as a result of the No-build Alternative?

Table 4.35 shows the anticipated changes in noise level experienced by receptors along existing roads for the no-build condition in 2032. The noise would increase by approximately 1 to 3 dBA on all sections except for LA 308 W of LA 20, which suggests no change, and for LA 20 from US 90 to LA 24, which suggests a 1 dBA decrease. None of these changes reach the impact criterion of a 10 dBA increase. Hence, on this basis it is concluded the no-build condition would result in no adverse impacts.

However, within the limitations of estimating actual noise levels along existing road sections (discussed above), it appears that two locations would be exposed to a level of 66 dBA where they were previously below this level (LA 648 E of LA 20, LA311 N of US 90). This implies an impact may occur for residences along these two road sections.

The data also suggests conditions where the 66 dBA levels are already exceeded under peak traffic conditions, and would be further exceeded under the no-build condition in 2032. Again, however, it must be stated that this indication of impact is only a calculation that is very dependent on receptor distances from the roads: many receptors may be at greater distances than the assumption of 10 m (33 feet) and hence are exposed to lower levels of noise.



Table 4.35 Approximate Changes in Road Traffic Volume and Noise by 2032 for No-Build Condition (Positive dBA value in last column implies an increase, negative values a decrease)

Road Section	Current condition (2010)		No Build condition (2032)		Approx. change in level dBA
	Peak hour volume	Level dBA*	Peak hour volume	Level dBA*	
LA 3127 W of LA 3213	129	59	250	62	3
LA 648 E of LA 20	546	65	1008	68	3
LA 316 US 90 to LA 24	225	61	308	63	2
LA 311 N of US 90	363	63	588	66	3
LA 308 W of LA 20	371	64	454	64	0
LA 1 W of LA 24	425	64	558	65	1
LA 309 S of LA 1	83	57	117	58	1
LA 24 N of US 90	933	71	1583	73	2
LA 20 W of LA 307	358	67	433	68	1
LA 20 S of LA 3127	442	68	529	69	1
LA 20 S of LA 304	479	68	671	70	2
LA 20 N of LA 308	821	71	1371	73	2
LA 20 US 90 to LA 24	179	64	154	63	-1
US 90 W of LA 24	617	69	1054	72	3
US 90 E of LA 316	579	69	825	71	2

*At a notional distance of 10 m (33 ft) from the road section (see text).
 Data Source: Technical Appendix: Traffic Analysis (2013). Houma-Thibodaux to I-10 Connection, North-South Corridor, Hurricane Evacuation. Urban Systems, Incorporated.

4.13.4 What are the impacts to noise levels as a result of the Build Alternatives?

As previously described, TNM 2.5 was used to calculate the distance of 66 dBA noise contour from the edge of the route alternatives.

The contour did not extend beyond the road edge in the majority of cases where the road is elevated. Receptors at a lower elevation are protected by the ‘barrier effect’ of the elevated road.

Despite the subjective limitation of judging whether a dwelling lies within the contour (discussed previously), it is clear that both alignments have several sections in the south where population density is higher and dwellings are closer to the proposed roads. The Western Alignment offers the lower number of dwellings likely to fall within the contour, and hence the greater number of impacts, compared with the Central Alignment. No impacts were found for the Northern Alignments.

Table 4.36 shows the number of noise receptors that will *potentially* experience noise impacts from the build alternatives. Locations of these potential impacts are more specifically noted in **Figure 4-9**. Further analysis will be conducted for the Preferred Alternative once selected. Analysis will also include an evaluation to determine whether noise abatement measures are feasible and reasonable in accordance with the LADOTD Noise Policy.

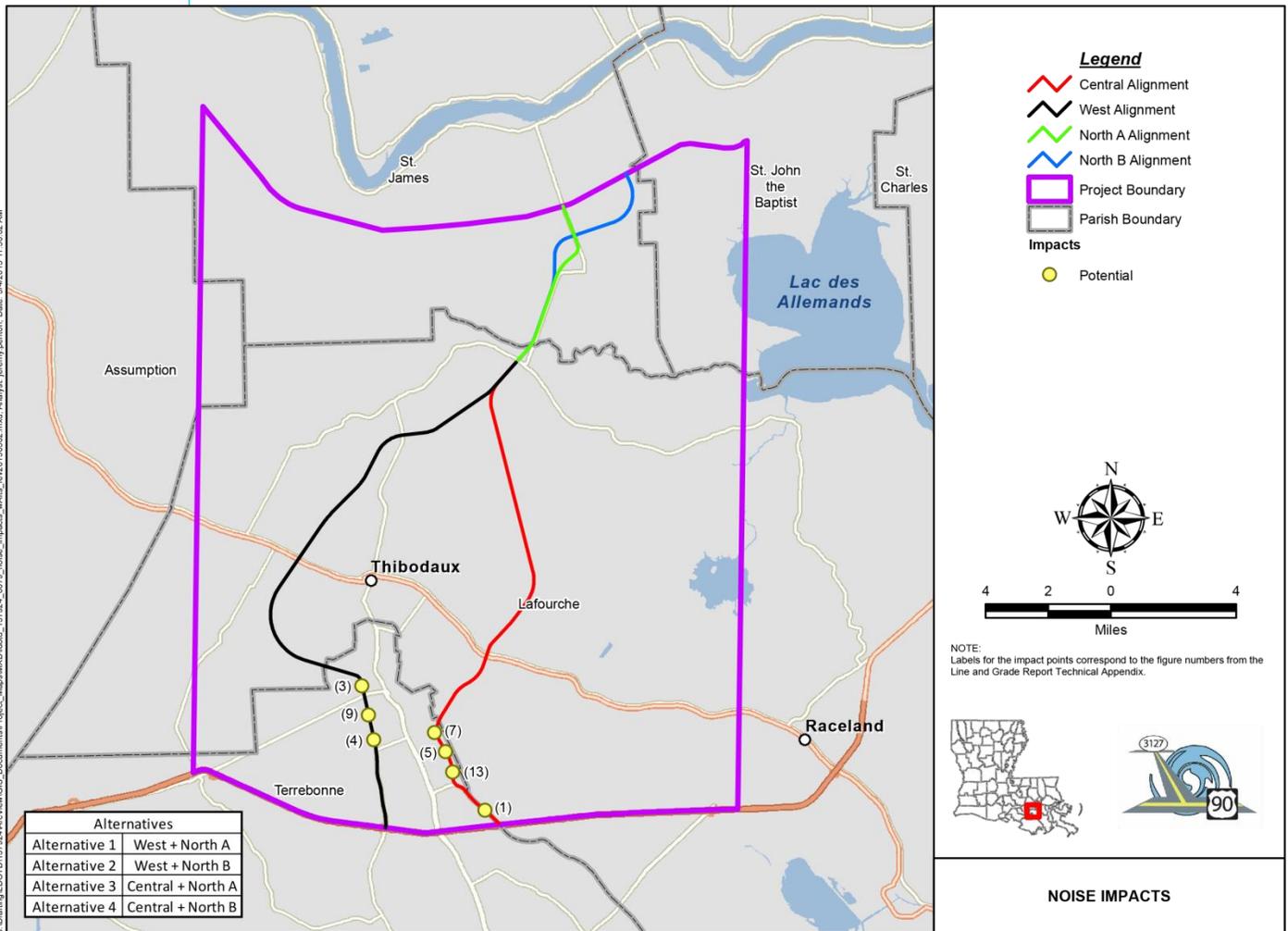


Table 4.36
Predicted Impacts from Noise Contours reaching or exceeding 66 dBA
(total number of affected properties)

Road Section	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Potential Impacts	16	16	26	26



Figure 4-9
Potential Noise Impacts





Alternative 1 (Western Alignment + North Alignment "A") and Alternative 2 (Western Alignment + North Alignment "B")

Table 4.37 shows the anticipated changes in noise level likely to be experienced by receptors along existing roads if either *Alternative 1 (Western Alignment + North Alignment "A")* or *Alternative 2 (Western Alignment + North Alignment "B")* were to be chosen for the design year of 2032, compared with the No-build Alternative. Only one road section is predicted to see an increase in noise level compared with the no-build condition. This is LA 20 from US 90 to LA 24, for which the increase is only 1 dBA. The noise level at a notional distance of 10 m (30 ft) from the road would increase from 64 to 65 dBA (Table 4.36 shows the predicted noise level in 2032 for the no-build condition, to which 1 dBA is added for the Route Alternative). Since the level is less than 66 dBA, an adverse impact is predicted to be unlikely.

All other road sections show either no change or a decrease of 1 to 3 dBA compared to the No-build Alternative. Hence there would be no adverse impacts on these existing roads.

Table 4.37
Approximate Changes in Road Traffic Volume and Noise by 2032 with Alternatives 1 and 2 Compared with the No-build Alternative
(Positive dBA value implies an increase, negative values a decrease)

Road Section	Peak hour volume flow/hr		Approx. change in noise level, dBA
	No build Alternative	Alternative 1 (Western Alignment + North Alignment A) or Alternative 2 (Western Alignment + North Alignment B)	
	2032	2032	
LA 3127 W of LA 3213	250	208	-1
LA 648 E of LA 20	1008	946	0
LA 311 N OF US 90	588	358	-3
LA 308 W of LA 20	454	446	0
LA 1 W of LA 24	558	546	0
LA 309 S of LA 1	117	92	-1
LA 24 N of US 90	1583	1408	-1
LA 20 W of LA 307	433	233	-3
LA 20 S of LA 3127	529	438	-1
LA 20 S of LA 304	671	467	-2
LA 20 N of LA 308	1371	1338	0
LA 20 US 90 to LA 24	154	175	1
US 90 W of LA 24	1054	1038	0
US 90 E of LA 316	825	804	0

Source: Technical Appendix: Traffic Analysis (2013). Houma-Thibodaux to I-10 Connection, North-South Corridor, Hurricane Evacuation. Urban Systems, Incorporated.

*This table includes both Alternatives 1 and 2 as each has a relatively similar effect on the existing northern section of LA 20.

Alternative 3 (Central Alignment + North Alignment "A") and Alternative 4 (Central Alignment + North Alignment "B")

Table 4.38 shows the anticipated changes in noise level likely to be experienced by receptors along existing roads if *Alternative 3 (Central Alignment + North Alignment "A")* or *Alternative 4 (Central Alignment + North Alignment "B")* were to be chosen for the design year of 2032, compared with the No-build Alternative. As with *Alternative 1 (Western Alignment + North*



Alignment "A") and Alternative 2 (Western Alignment + North Alignment "B") only the road section of LA 20 from US 90 to LA 24 is predicted to increase by 1 dBA. The noise level at a notional distance of 10 m (30 ft) from the road would increase from 64 to 65 dBA (as before, see Table 4.36 for predicted noise level in 2032), which is less than 66 dBA and hence would be unlikely to present an adverse impact.

All other road sections show either no change or a decrease of 1 to 3 dBA compared to the No-build Alternative. Hence there would be no adverse impacts on these existing roads.

Table 4.38
Approximate Changes in Road Traffic Volume and Noise by 2032 with Alternatives 3 and 4
Compared with the No-build Alternative
(Positive dBA value implies an increase, negative values a decrease)

Road Section	Peak hour volume flow/hr		Approx. change in noise level, dBA
	No build Alternative	Alternative 3 (Central Alignment + North Alignment "A") or Alternative 4 (Central Alignment + North Alignment "B")	
	2032	2032	
LA 3127 W of LA 3213	250	208	-1
LA 648 E of LA 20	1008	954	0
LA 311 N OF US 90	588	346	-3
LA 308 W of LA 20	454	446	0
LA 1 W of LA 24	558	546	0
LA 309 S of LA 1	117	92	-1
LA 24 N of US 90	1583	1408	-1
LA 20 W of LA 307	433	233	-3
LA 20 S of LA 3127	529	438	-1
LA 20 S of LA 304	671	467	-2
LA 20 N of LA 308	1371	1338	0
LA 20 US 90 to LA 24	154	175	1
US 90 W of LA 24	1054	1038	0
US 90 E of LA 316	825	804	0

Source: Technical Appendix: Traffic Analysis (2013). Houma-Thibodaux to I-10 Connection, North-South Corridor, Hurricane Evacuation. Urban Systems, Incorporated.

*This table includes both Alternatives 3 and 4 as each has a relatively similar effect on the existing northern section of LA 20.

4.13.5 What indirect and cumulative impacts are anticipated?

Indirect Impacts

Table 4.35 (above) shows that by 2032, without the proposed alternatives, the noise on existing roads would increase by approximately 1 to 3 dBA, except for LA 20 from US 90 to LA 24, which would decrease by 1 dBA. There will be no indirect adverse impacts where noise levels increase by 10 dBA. However, two adverse impacts may occur where previous noise levels of less than 66 dBA in 2010 reach or exceed this level in 2032 (LA 648 E of LA 20, LA311 N of US 90).



Cumulative Impacts

Table 4.36 (above) lists from approximately 16 to 26 potential impacts along the proposed alternatives. Whichever alternative is chosen, the noise would be mitigated by design to present no impacts at the appropriate locations. Tables 4.37 and 4.38 (above) show a net nil change or a decrease in noise levels at all nearby roads, except for LA 20 from US 90 to LA 24, which would only see a 1 dBA increase. Since the potential sites where impacts may occur will be mitigated by design, and the changes are much less than an increase of 10 dBA, there will be no cumulative impacts.

4.14 HAZARDOUS MATERIAL SITES

4.14.1 How were existing hazardous material sites determined?

The proposed project consists of a 346-square-mile study area. Due to the size of the study area a GIS model was created to assist in the analysis process. A major benefit of using the GIS model was the capability of reviewing, organizing, and managing large data sets. The GIS model allows for baseline conditions to be established prior to the development of the proposed alternative corridors and to allow the inclusion of additional data during further project development.

State and federal regulatory agency databases containing information on hazardous materials and hazardous waste sites were downloaded and inventoried. These regulated sites have the potential to contain hazardous materials.

4.14.1.1 Determining through databases

EPA is the leading federal agency having regulatory authority over hazardous waste sites. EPA collects and maintains databases for all sites that are subject to environmental regulations. These databases are then combined into one database called the Facility Registry System (FRS). EPA provides the ability to download a file containing all facilities and/or sites within the FRS for a given state or other search criteria. The FRS file for Louisiana was downloaded on March 19, 2015. The following is a list, with descriptions, of some of the main databases within FRS. EPA facilities records were accessed via the NEPAssist database.

- **National Priorities List (NPL)** – Priority sites for cleanup under the federal Superfund program. EPA has determined that these sites pose a threat to human health and remediation is required.
- **Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)** – Listing of Superfund sites that EPA has investigated or is currently investigating for a release or threatened release of hazardous substances. Contains sites that are either on or proposed to be added to the NPL and sites that are in the screening and assessment phase for possible inclusion on the NPL.
- **CERCLIS "No Further Remedial Action Planned" (NFRAP)** – Contains information on sites that have been removed and archived from the inventory of Superfund sites. Archive status indicates that, to the best of EPA's knowledge, federal Superfund assessment of a site is complete and it has been determined that no further steps will be taken to list the site on the NPL.
- **Resource Conservation and Recovery Act Information (RCRAInfo)** – EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database provides information on sites that generate, transport, store, treat, and/or dispose of



hazardous waste (Treatment, Storage, and Disposal Facility [TSDF]). The data also includes information for hazardous waste generators: a conditionally-exempt small quantity generator (CESQG) produces less than 100 kilograms per month of hazardous waste, a small quantity generator (SQG) produces between 100 kilograms and 1,000 kilograms per month of hazardous waste, and a large quantity generator (LQG) produces over 1,000 kilograms per month of hazardous waste.

- **RCRIS Corrective Action (CORRACT)** – Identifies Hazardous Waste Handlers with RCRA Corrective Action Activity.
- **Emergency Response Notification System (ERNS)** – Supports the release notification requirements of Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended; Section 311 of the Clean Water Act (CWA); and Sections 300.51 and 300.65 of the National Oil and Hazardous Substances Contingency Plan. ERNS records and stores information on reported releases of oil and hazardous substances.
- **Toxic Chemical Release Inventory System** – Identifies facilities that release toxic chemicals to the air, water, and land in reportable quantities under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 313.

In addition to the EPA databases, several state sources were identified and data reviewed to be incorporated into the GIS model. These sources include the Louisiana Oil Spill Coordinator's Office (LOSCO) Data Catalog, the Louisiana Statewide GIS (Atlas), and the Louisiana Department of Environmental Quality (LDEQ) Interactive Mapping Application (LIMA). Data retrieved from these sources include:

- UST-TEMPO – The Registered Storage Tank database is a listing of sites with permitted underground storage tanks (USTs).
- LUST – An inventory of reported leaking petroleum storage tank incidents.
- UST – Motor Fuel UST sites that have utilized the UST Trust Fund.
- LDEQ Landfills – Type I Facility is disposal of industrial solid wastes. Type II is used for disposal of residential or commercial solid waste.
- Type II Facility – a facility used for disposing of residential or commercial solid waste. (If the facility is also used for disposing of industrial solid waste, it is also a Type I facility.)

4.14.1.2 Determining regulated sites

After the data had been collected, a GIS base model was created and all known regulated sites were geographically displayed. A 1-mile buffer was placed around the study area boundary and all data within the buffer was collected.

The search located 1,240 potential regulated sites within the study area. **Table 4.39** provides a summary of the regulated sites identified within the various federal and state database sources. Sites may be listed on multiple databases and/or may reflect a change in ownership. There are no superfund sites within the project boundaries. There are four brownfield sites within the project boundaries.



Table 4.39
Regulated Sites within the Study Area Buffer

Databases	Total Sites
EPA's FRS	746
LOSCO*	190
LIMA*	50

* Duplicate sites may occur in EPA's FRS system

GIS spatial data layers of regulated sites were overlaid onto existing mapping of the project area to locate sites associated with the table shown above. Appropriate search distances, as shown in **Table 4.40**, were used for each of the build alternatives. Regulated sites were identified using GIS and spatial data layers. An onsite visit will need to be conducted during the analysis of the Preferred Alternative to verify all locations when preparing the Final EIS.

Table 4.40
Search Distances for Regulated Sites

Federal/State Databases	Search Distance from Project Limits*
NPL	1.6 km (1.0 miles)
CERCLIS	0.8 km (0.5 miles)
RCRA (TSDF)	1.6 km (1.0 miles)
NRC	Project Limits
ERNS	Project Limits
RCRA (Generators)	Project Limits (each alignment or adjacent to ROW)
LUST	0.8 km (0.5 miles)
UST	Project Limits
Landfills	0.8 km (0.5 miles)

4.14.1.3 Determining oil and gas wells

The LOSCO Data Catalog provided a point dataset of oil and gas and injection wells in the State of Louisiana. It contained data from the Department of Natural Resources Office of Conservation database of permitted wells dating back to early as the 1900s. This dataset was processed on January 4, 2007 and downloaded for the project on August 26, 2010. It identified 1,320 oil and gas wells within the study area.

The data catalog also provided GIS layers identifying oil and gas fields. This is also a point dataset of the approximate center point locations of the fields. The oil and gas field dataset was processed on January 31, 2007 and downloaded for the project on August 26, 2010. A total of 23 oil fields were identified within the study area.

Additionally, the data catalog contained spatial layers known as "Pit Study." This point file identified former oil extraction sites that could pose a threat in regards to hazardous waste. These sites could include tank batteries, collection and separation apparatuses, metering stations and wells, and other related items. The Pit Study dataset was downloaded for the project on August 26, 2010. A total of 256 sites were identified within the study area.

4.14.1.4 Determining petroleum pipelines

This region of Louisiana is known for its petroleum-based industries, including numerous oil and gas refineries. There were 19 petroleum pipelines identified within the study area from the database.



4.14.2 What are the impacts to hazardous material sites as a result of the No-build Alternative?

The No-build Alternative would provide no immediate changes within the project area. As area communities continue to grow, the need for available land will also grow, and current land uses and conditions would continue to change over time. Residential, commercial, and industrial growth would also continue within the project area. The number of hazardous material sites such as oil wells, gas stations, and industrial facilities is likely to continue to increase due to urban/population expansion.

4.14.3 What are the impacts to hazardous material sites as a result of the Build Alternatives?

Construction of any of the four build alternatives are anticipated to have a low potential for creating additional hazardous material impacts on the environment. Impacts associated with contaminated media would most likely be identified during construction and would be related to activities on or near existing contaminated sites. These sites may have already been impacted and/or have the potential to impact the environment based on historic conditions, such as remnant USTs. Regulated sites also have the potential of contaminating adjacent sites, creating risk when acquiring properties adjacent to the regulated sites. ROW acquisition will be required for the selected Preferred Alternative alignment. Prior to ROW negotiation and/or acquisition, an American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment would need to be conducted for the Preferred Alternative alignment. Phase II Environmental Site Assessments may also be necessary depending on the findings of the Phase I report. The Phase II Environmental Site Assessment would provide additional testing and sampling of all potential hazardous sites and would provide additional information about the types and extent of contamination, if present. If contaminated media was identified, interim measures or site remediation may be necessary.

Relocation and/or removal of all existing structures in the selected Preferred Alternative alignment would require asbestos and lead-based paint (LBP) surveys to be completed for suspect structures. Asbestos and LBP inspections, specifications, notification, license, accreditation, abatement, and disposal, as applicable, would comply with federal and state regulations. Asbestos and LBP issues would be addressed during the ROW process prior to construction. If suspect material is encountered, a mitigation plan for the removal and disposal of materials containing hazardous materials would need to be developed according to federal, state, and local regulations. Structures that have been identified as being impacted by the alternatives are discussed in Section 4.9 Relocations.

Mitigation of hazardous waste sites impacted by the proposed preferred alignment will vary depending on the type, size, and location of hazardous material sites. Each site would have to be assessed and if necessary, mitigation would have to be determined according to the issues associated with each site.

Alternative 1 (Western Alignment + North Alignment "A")

A total of 33 regulated sites and other potential contamination sources were identified within or adjacent to the ROW for *Alternative 1 (Western Alignment + North Alignment "A")*. The project area was also studied for sites/facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database but may handle petroleum products. In reviewing the project aerial photography, four gas stations were identified along the alignment. Two of these were listed in the UST databases: Hill City Oil Co. and Shop Rite #42 at the intersection of Park Road and LA 20. This alternative was also estimated to impact one petroleum waste pit site and



five oil and gas wells. **Table 4.41** lists the registry ID and type of hazardous waste sites impacted by this alternative.

**Table 4.41
Hazardous Waste Sites – Alternative 1 (Western Alignment + North Alignment "A")**

REGISTRY ID	DATABASE	DESCRIPTION	FED/STATE
110002377071	LA-TEMPO	STATE MASTER	STATE
110002377071	AIRS/AFS	AIR MINOR	FEDERAL
110003260006	RCRAINFO	TRANSPORTER	FEDERAL
110003260006	RCRAINFO	USED OIL PROGRAM	FEDERAL
110003305771	RCRAINFO	CESQG	FEDERAL
110003326115	RCRAINFO	CESQG	FEDERAL
110003331617	RCRAINFO	CESQG	FEDERAL
110003335294	RCRAINFO	CESQG	FEDERAL
110006028011	NPDES	ICIS-NPDES UNPERMITTED	FEDERAL
110006028011	PCS	NPDES NON-MAJOR	FEDERAL
110006028011	RCRAINFO	CESQG	FEDERAL
110008388627	RCRAINFO	UNSPECIFIED UNIVERSE	FEDERAL
110011176574	PCS	NPDES NON-MAJOR	FEDERAL
110011176574	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110020061957	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110020061957	PCS	NPDES NON-MAJOR	FEDERAL
110032939756	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110032939756	PCS	NPDES NON-MAJOR	FEDERAL
110032939756	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110032939756	PCS	NPDES NON-MAJOR	FEDERAL
110037488689	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110037488689	PCS	NPDES NON-MAJOR	FEDERAL
110039154633	ICIS	ENFORCEMENT/COMPLIANCE ACTIVITY	FEDERAL

Alternative 2 (Western Alignment + North Alignment "B")

A total of 25 regulated sites and other potential contamination sources were identified within or adjacent to the ROW for *Alternative 2 (Western Alignment + North Alignment "B")*. The project area was also studied for sites/facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database but may handle petroleum products. In reviewing the project aerial photography and UST databases, two gas stations were identified along the alignment: Hill City Oil Co. and Shop Rite #42 at the intersection of Park Road and LA 20. It was also estimated that this alternative would impact one petroleum waste pit site and four oil and gas wells. **Table 4.42** lists the registry ID and type of hazardous waste sites impacted by this alternative.



**Table 4.42
Hazardous Waste Sites – Alternative 2 (Western Alignment + North Alignment "B")**

REGISTRY ID	DATABASE	DESCRIPTION	FED/STATE
110002377071	LA-TEMPO	STATE MASTER	STATE
110002377071	AIRS/AFS	AIR MINOR	FEDERAL
110003260006	RCRAINFO	TRANSPORTER	FEDERAL
110003260006	RCRAINFO	USED OIL PROGRAM	FEDERAL
110003305771	RCRAINFO	CESQG	FEDERAL
110003326115	RCRAINFO	CESQG	FEDERAL
110003331617	RCRAINFO	CESQG	FEDERAL
110003335294	RCRAINFO	CESQG	FEDERAL
110008388627	RCRAINFO	UNSPECIFIED UNIVERSE	FEDERAL
110020061957	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110020061957	PCS	NPDES NON-MAJOR	FEDERAL
110032939756	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110032939756	PCS	NPDES NON-MAJOR	FEDERAL
110032939756	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110032939756	PCS	NPDES NON-MAJOR	FEDERAL
110037488689	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110037488689	PCS	NPDES NON-MAJOR	FEDERAL
110039154633	ICIS	ENFORCEMENT/COMPLIANCE ACTIVITY	FEDERAL

Alternative 3 (Central Alignment + North Alignment "A")

A total of 19 regulated sites and other potential contamination sources were identified within or adjacent to the ROW for *Alternative 3 (Central Alignment + North Alignment "A")*. The project area was also studied for sites and facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database, but may handle petroleum products. In reviewing the project aerial photography, two gas stations were identified as being impacted. These locations were not listed in the UST databases. It was estimated that this alternative would also impact one petroleum waste pit site and five oil and gas wells. **Table 4.43** lists the registry ID and type of hazardous waste sites impacted by this alternative.

**Table 4.43
Hazardous Waste Sites – Alternative 3 (Central Alignment + North Alignment "A")**

REGISTRY ID	DATABASE	DESCRIPTION	FED/STATE
110006018665	RCRAINFO	CESQG	FEDERAL
110006028011	NPDES	ICIS-NPDES UNPERMITTED	FEDERAL
110006028011	PCS	NPDES NON-MAJOR	FEDERAL
110006028011	RCRAINFO	CESQG	FEDERAL
110006809141	NPDES	ICIS-NPDES UNPERMITTED	FEDERAL
110006809141	PCS	NPDES NON-MAJOR	FEDERAL
110011176574	PCS	NPDES NON-MAJOR	FEDERAL
110011176574	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110027254913	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110027254913	PCS	NPDES NON-MAJOR	FEDERAL
110040088197	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL



Alternative 4 (Central Alignment + North Alignment "B")

A total of 11 regulated sites and other potential contamination sources were identified within or adjacent to the ROW for *Alternative 4 (Central Alignment + North Alignment "B")*. The project area was also studied for sites/facilities located in or adjacent to the proposed ROW that may not show up on a federal or state regulatory database but may handle petroleum products. It was estimated that this alternative would impact one petroleum waste pit site and four and gas wells.

Table 4.44 lists the registry ID and type of hazardous waste sites impacted by this alternative.

**Table 4.44
Hazardous Waste Sites – Alternative 4 (Central Alignment + North Alignment "B")**

REGISTRY ID	DATABASE	DESCRIPTION	FED/STATE
110006018665	RCRAINFO	CESQG	FEDERAL
110006809141	NPDES	ICIS-NPDES UNPERMITTED	FEDERAL
110006809141	PCS	NPDES NON-MAJOR	FEDERAL
110027254913	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL
110027254913	PCS	NPDES NON-MAJOR	FEDERAL
110040088197	NPDES	ICIS-NPDES NON-MAJOR	FEDERAL

4.14.4 What are the potential impacts from the construction of any of the Build Alternatives?

All four build alternatives would have minimal risks for hazardous material impacts on the environment. Impacts would most likely occur on or near existing hazardous material sites. Regulated sites were identified within or near all of the proposed alternatives. These sites create a higher potential for encountering hazardous contamination during construction. A summary of impacts associated with each of the alternatives are shown in **Table 4.45**.

**Table 4.45
Hazardous Waste Sites Impacted by Alternative**

SITE TYPE	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
HAZARDOUS WASTE SITES	23	18	11	6
USTs	4	2	2	0
WASTE PITS	1	1	1	1
OIL AND GAS WELLS	5	4	5	4
TOTAL IMPACTS	33	25	19	11

Records indicate that there are well sites located within or adjacent to the ROW for the build alternatives. During the ROW acquisition and negotiation process, responsible well operators and owners would be contacted to determine appropriate actions to take for each site.

The build alternatives may also impact several petroleum pipeline segments. During further project development, owners and operators of these pipelines would be contacted. Exact locations and depths of the lines would be established. During ROW negotiation, determinations will be required to make necessary adjustments and/or relocations of these pipelines. Location and depth of pipelines that will remain in place would be marked on the ground (in the field) prior to construction activities, in order to prevent damage to the pipelines. If proper precautions are taken, impacts related to petroleum lines within the project area should be minimal.



4.14.5 What indirect and cumulative impacts are anticipated?

Potential development associated with the construction of the proposed Preferred Alternative alignment could have additional impacts on regulated sites. However, risks can be minimized by conducting Environmental Site Assessments according to ASTM standards to identify, avoid, and mitigate hazardous material sites.

4.15 PROTECTED LANDS (SECTION 4(F) RESOURCES AND SECTION 6(F) RESOURCES)

4.15.1 What are the properties of Section 4(f) and Section 6 (f) that impact the existing conditions of the area?

Section 4(f) of the 1966 U.S. Department of Transportation Act (49 U.S.C. 1653, now 49 U.S.C. 303) declared a national policy that special efforts be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation may approve projects that require the use of significant publicly owned parks, recreation areas, or wildlife and waterfowl refuges, or any significant historic site protected under Section 4(f) only if:

- There is no prudent and feasible avoidance alternative to using that land and;
- The program or project includes all possible planning to minimize harm to the resource resulting from such use.

The following recreational facilities and wildlife and waterfowl refuges are located within the study area:

Assumption Parish

- Canal Street Park and St. Mary Park in Napoleonville, offering playgrounds, and several ballparks in Napoleonville, Plattenville, Painscourtville, and Labadieville.

Lafourche Parish

- Various city parks in Thibodaux offer playing fields, jogging paths, picnic and playground areas, and a splash park.
- Miles Memorial Park in South Vacherie is located on LA 20.
- Lake Boeuf Wildlife Management Area is located south of Lake Boeuf with access to LA 308. It contains 800 acres of freshwater marsh and is accessible only by boat.

St. John the Baptist Parish

- Lac des Allemands encompasses most of the southern portion of St. John the Baptist Parish and offers fishing, boating, camping, and hiking.

Terrebonne Parish

- Schriever Gym, which offers tennis courts, gym, and ballpark, and Gray Park, which also offers tennis courts, gym, basketball and ballpark.

Additionally, there are 22 publicly-accessible boat ramps accessing the many bayous and canals present in the area. School playgrounds and playing fields are located throughout the study area. These facilities are typically available to the public after school hours.

The Land and Water Conservation Fund (LWCF) Act of 1965 established funding to provide matching grant assistance to states and local governments for the planning, acquisition, and development of outdoor public recreation sites and facilities.



Section 6(f) of the Act requires that properties using LWCF grants must be maintained as a public recreational facility in perpetuity. Section 6(f) prohibits the conversion of property acquired or developed with these grants to a non-recreational purpose without the approval of the Department of Interior's National Park Service (NPS). Replacement lands of equal fair market value, location, and usefulness must be provided for the facility if land is converted. If LWCF grants were used for a portion of a Section 6(f) property, then replacement applies only to that portion using LWCF grants.

Recreational facilities within the study area that have received LWCF grants to date are the Thibodaux City Parks (various) and the Thibodaux Water Reservoir.

4.15.2 How are Section 4(f) impacts measured?

Section 4(f) of the Department of Transportation Act of 1966 regulates how publicly-owned properties, such as parks, recreational lands, and wildlife and waterfowl refuges, and historic sites (that are on or eligible for inclusion in the NRHP) are used for transportation projects. Section 4(f) takes into account impacts that are a use of the resource, whether it is of a direct, temporary, or constructive nature, defined as following:

- A direct use permanently incorporates property into the transportation project;
- A temporary use occupies property temporarily but is adverse to the property's purpose; and
- A constructive use's proximity impacts severe enough to impair the property's features or activities.

Under SAFETEA-LU, the U.S. Department of Transportation (USDOT) takes into account any avoidance or minimization of impacts along with any mitigation or enhancement measures to determine the extent of the impact to the resource. If the USDOT determines that a transportation project will have a *de minimis* (minimal) impact on a Section 4(f) resource, then the Section 4(f) evaluation process will be completed. The managing agency for a park, recreational land, or wildlife and waterfowl refuges would need to state, in writing, that the project is not likely to "adversely affect the activities, features and attributes" of the Section 4(f) resource. For historic resources, the State Historic Preservation Officer (SHPO) would need to state in writing that the project would have "no historic properties affected" or "no adverse effect" to historic properties.

4.15.3 What are the impacts to Section 4(f) and Section 6(f) resources as a result of the No-build Alternative?

No Section 4(f) resources would be impacted by the No-build Alternative.

No Section 6(f) resources would be impacted by the No-build Alternative.

4.15.4 What are the impacts to Section 4(f) and Section 6(f) resources as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

No Section 4(f) resources would be impacted by the implementation of *Alternative 1 (Western Alignment + North Alignment "A")*.

Neither the Thibodaux City Parks nor the Thibodaux Water Reservoir is located within or adjacent to ROW of this alternative; therefore, no Section 6(f) impacts are anticipated.

Alternative 2 (Western Alignment + North Alignment "B")

No Section 4(f) resources would be impacted by the implementation of *Alternative 2 (Western Alignment + North Alignment "B")*.



Neither the Thibodaux City Parks nor the Thibodaux Water Reservoir is located within or adjacent to ROW of this alternative; therefore, no Section 6(f) impacts are anticipated.

Alternative 3 (Central Alignment + North Alignment "A")

One property that meets the criteria for Section 4(f) of the Department of Transportation Act would be impacted by *Alternative 3 (Central Alignment + North Alignment "A")*; Schriever Gym. The Schriever Gym, which includes a gym, tennis courts, walking trail, and baseball field, is located at 102 Kelsi Drive in Schriever and accessed from Par Road 29. *Alternative 3 (Central Alignment + North Alignment "A")* would widen Par Road 29, which would then require ROW from the recreational facility resulting in a direct use of a Section 4(f) property. Within the proposed ROW are a chain link fence, paved walking trail, and ornamental trees. However, the use of Schriever Gym, by this alternative would not substantially diminish the activities, features, or attributes of the facility; therefore, the use is considered *de minimis* and no further evaluation is needed.

Neither the Thibodaux City Parks nor the Thibodaux Water Reservoir is located within or adjacent to ROW of this alternative; therefore, no Section 6(f) impacts are anticipated.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") would, like *Alternative 3 (Central Alignment + North Alignment "A")*, also impact one Section 4(f) resource; Schriever Gym. This alternative would also widen Par Road 29, which would then require ROW from the recreational facility resulting in a direct use of a Section 4(f) property. Within the proposed ROW are a chain link fence, paved walking trail, and ornamental trees. However, the use of Schriever Gym, by this alternative would not substantially diminish the activities, features, or attributes of the facility; therefore, the use is considered *de minimis* and no further evaluation is needed.

Neither the Thibodaux City Parks nor the Thibodaux Water Reservoir is located within or adjacent to ROW of this alternative; therefore, no Section 6(f) impacts are anticipated.

4.15.5 What indirect and cumulative impacts are anticipated?

Indirect impacts to Section 4(f) resources could include changes in accessibility or increased noise levels. Access would be maintained to Schriever Gym and its parking with *Alternative 3 (Central Alignment + North Alignment "A")* and *Alternative 4 (Central Alignment + North Alignment "B")*. Traffic-related noise may increase; however, the level would be below FHWA's Noise Abatement Criteria. Impacts resulting from construction activities at the Schriever Gym would be temporary in nature and would not disrupt continued usage of the facilities.

A publicly-accessible boat ramp is located on Highway 20 in St. James Parish on its border with Lafourche Parish with access to Bayou Chevreuil. None of the four alignments would require ROW from the boat ramp facility nor affect its intended use or function. The boat ramp is located east of existing LA 20 with access directly from LA 20. The project in this area would be on new location west of existing LA 20. Existing LA 20 north of the boat ramp access would be closed. Access would be maintained to the boat ramp from the south via LA 20. No proximity impacts to the boat ramp or increased noise levels would occur as a result of the proposed project.

No indirect or cumulative impacts are anticipated for the Section 6(f) resources: Thibodaux City Parks or the Thibodaux Water Reservoir.



4.16 VEGETATION AND HABITAT

4.16.1 What are the existing vegetation and habitat located within the study area?

The Endangered Species Act of 1973 requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic Atmospheric Administration, Office of Marine Fisheries (NOAA Fisheries) regarding activities that may affect endangered or threatened species through the destruction or adverse modification of critical habitats. Threatened and endangered species present in the study area are discussed in Section 4.19. The study area does not contain critical habitat for any federally-listed endangered or threatened species. However, impacts to habitats used by endangered and threatened species, even if it is not designated critical habitat, can have an adverse impact on these species. In addition, adverse modification to habitats can result in an impaired species becoming a federal candidate species.

The study area is located in the upper portions of the Barataria-Terrebonne Basin, a highly ecologically and commercially productive intertributary wetland-estuary. The Barataria-Terrebonne Basin contains an extensive array of living resources,⁴³ with over 700 individual species of wildlife and vegetation. A Barataria-Terrebonne National Estuary Program (BTNEP) report was used to identify the common vegetation within the study area⁴⁴.

Through the Solicitation of Views process, correspondence was received from the Louisiana Department of Wildlife and Fisheries (LA WL&F) dated August 4, 2004. LA WL&F identified cypress-tupelo swamp and freshwater marsh natural communities as being present in the study area. Lake Boeuf State Wildlife Management Area (WMA) was also identified by LA WL&F as being within the study area. This 789-acre management area lies south of Lake Boeuf, between the Sam Foret Canal and Theriot Canal. While a portion of this WMA is located within the study area, none of the build alternatives currently under consideration encroach upon the designated area.

Vegetation within the study area is among the most diverse of the Barataria-Terrebonne Basin's habitats. Over 300 vegetation species, none of which are federally or state protected, can be found within the study area, have been identified in the swamp and fresh marsh environments within the Barataria-Terrebonne Basin. The four dominant habitat types are uplands, freshwater marshes, swamps, and bottomland hardwoods. Some common species of vegetation found within the study area are summarized in **Table 4.46**.

⁴³Condry, R. E., Kemp, P., Visser, J. M., Gosselink, J., Linstedt, D., Melancon, E., Peterson, G., & Thompson, B. (1995). *Status, trends, and probable causes of change in living resources in the Barataria and Terrebonne estuarine systems*. (No. 21). Thibodaux, LA: Barataria-Terrebonne National Estuary Program Publication.

⁴⁴Conner, W. H., & Day, J. W. Jr. (Eds.). (1987). *The Ecology of Barataria Basin, Louisiana: An estuarine profile*. U.S. Fish and Wildlife Service Biology Report 85(7.13). Washington, D.C.: National Wetlands Research Center, U.S. Fish and Wildlife Service, U.S. Department of the Interior.



**Table 4.46
Common Vegetation Found in the Study Area by Habitat Type**

Upland Vegetation		Fresh Marsh Vegetation	
Common Name	Scientific Name	Common Name	Scientific Name
Eastern Cottonwood	<i>Populus deltoides</i>	Alligatorweed	<i>Alternanthera philoxeroides</i>
American Sycamore	<i>Platanus occidentalis</i>	Eastern Baccharis	<i>Baccharis halimifolia</i>
Hackberry	<i>Celtis laevigata</i>	Spikerush	<i>Eleocharis spp.</i>
Green Ash	<i>Fraxinus pennsylvanica</i>	Marsh Fern	<i>Dryopteris thelypteris</i>
Nuttall Oak	<i>Quercus texana</i>	Water Hyacinth	<i>Eichhornia crassipes</i>
Water Oak	<i>Quercus nigra</i>	Marsh Pennywort	<i>Hydrocotyle ranunculoides</i>
Bitter Pecan	<i>Carya X lecontei</i>	Common Rush	<i>Juncus effusus</i>
Sweetgum	<i>Liquidambar styraciflua</i>	Duckweed	<i>Lemna spp.</i>
Peppervine	<i>Ampelopsis arborea</i>	Maidencane	<i>Panicum hemitomon</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>	Dotted Smartweed	<i>Polygonum punctatum</i>
American Elm	<i>Ulmus americana</i>	Swamp Smartweed	<i>Polygonum hydropiperoides</i>
Sumac	<i>Rhus spp.</i>	Pickerelweed	<i>Pontederia cordata</i>
Blackberry	<i>Rubus spp.</i>	Bulltongue Arrowhead	<i>Sagittaria lancifolia</i>
Greenbrier	<i>Smilax spp.</i>	Broad-Leaf Cattail	<i>Typha latifolia</i>
Hickory	<i>Carya X ludoviciana</i>	Giant Cutgrass	<i>Zizaniopsis miliacea</i>
Swamp Forest Vegetation		Bottomland Hardwood Vegetation	
Common Name	Scientific Name	Common Name	Scientific Name
Bald Cypress	<i>Taxodium distichum</i>	Boxelder	<i>Acer negundo</i>
Water Tupelo	<i>Nyssa aquatic</i>	Hickory	<i>Carya spp.</i>
Black Willow	<i>Salix nigra</i>	Hackberry	<i>Celtis laevigata</i>
Pumpkin Ash	<i>Fraxinus profunda</i>	Hawthorn	<i>Crataegus spp.</i>
Buttonbush	<i>Cephalanthus occidentalis</i>	Holly/Yaupon	<i>Ilex spp.</i>
Swamp Red Maple	<i>Acer rubrum vr. drummondii</i>	Sweetgum	<i>Liquidambar styraciflua</i>
Dwarf Palmetto	<i>Sabal minor</i>	Wax Myrtle	<i>Morella cerifera</i>
Lizard's Tail	<i>Saururus cernuus</i>	Live Oak	<i>Quercus virginiana</i>
Virginia Willow	<i>Itea virginica</i>	Water Oak	<i>Quercus nigra</i>
		Eastern Poison Ivy	<i>Toxicodendron radicans</i>
		Greenbrier	<i>Smilax spp.</i>

Sources: U.S. Fish and Wildlife Service Biology Report 85, 1987 and BTNEP Publication No. 21, 1995

The study area also includes farmed/pasture and developed areas. Agricultural lands are discussed further in Section 4.10. In developed areas, naturally occurring vegetation has been disturbed and the vegetation community consists of mixed vegetation associated with human communities.

4.16.2 What are the impacts to vegetation and habitat as a result of the No-build Alternative?

The No-build Alternative would result in no impacts to vegetation and habitats within the Barataria-Terrebonne Basin.



4.16.3 What are the impacts to vegetation and habitat as a result of the Build Alternatives?

The build alternatives could result in the loss of vegetation within the highway ROW for at-grade construction. At-grade construction would be primarily through upland habitats. Elevated sections of the build alternatives would be constructed through the wetland habitats. These elevated sections would allow for re-vegetation of the wetland area; however, they could result in shading that may inhibit re-vegetation by woody species. **Table 4.47** shows the mileage for at-grade and elevated sections for each build alternative and **Table 4.48** shows the acreage impact to uplands for each build alternative.

Table 4.47
Alternative Elevation by Miles

	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Elevated	13.0	14.6	14.3	15.9
At-Grade	13.1	13.6	8.4	9.0
Total	26.1	28.2	22.7	24.9

Source: Figure 4-18 Hydric Soils & Elevated/Non-Elevated Roadway Sections

Table 4.48
Impact to Uplands (Acreage)

	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Elevated	62.47	60.15	40.23	37.91
At-Grade	188.59	224.84	123.36	159.61
Total	251.06	284.99	163.59	197.52

Wetland habitat types within the study area consist of cypress-tupelo, freshwater marsh, bottomland hardwood, shrub-scrub, riverine, cypress, farmed wetlands, and lake. These habitats provide basic wetland functions, such as flood attenuation, wildlife habitat, water quality improvement, and sediment retention. **Table 4.49** shows the acreage impact of the build alternatives for wetland habitats.

New roads create linear road-side habitats that may be dominated by disturbance-tolerant species and invasive species may be common, such as, the Chinese tallow tree (*Sapium sebiferum*).⁴⁵ A well designed re-vegetation plan that includes maintenance activities to remove invasive species can help prevent invasive species from becoming dominant in the road ROW.

⁴⁵ Forman, R. T., & Alexander, L. E. (1998). Roads and their major ecological effects. *Annual Review of Ecological Systems*, 29, 207-31.



**Table 4.49
Impact to Wetland Habitats by Type (Acreage)**

Wetland Habitat Type	Alternative 1 (Western Alignment + North Alignment A)		Alternative 2 (Western Alignment + North Alignment B)		Alternative 3 (Central Alignment + North Alignment A)		Alternative 4 (Central Alignment + North Alignment B)	
	Elevated	At Grade						
Swamps	111.15	N/A	141.22	N/A	168.39	N/A	198.45	N/A
Bottomland Hardwood	88.71	0.45	92.58	2.53	60.46	2.86	64.34	4.94
Freshwater Marsh	0.96	2.07	6.38	2.07	24.93	3.81	30.35	3.81
Total	200.82	2.52	240.18	4.60	253.78	6.67	293.14	8.75

N/A - Not Applicable

Source: Figure 4-21 National Wetland Inventory.

Alternative 1 (Western Alignment + North Alignment "A")

Approximately 6.1 miles of *Alternative 1 (Western Alignment + North Alignment "A")* will be built over existing roadways resulting in minimal loss of vegetation and minimal loss of previously disturbed wildlife habitats. Building over roadways decreases the amount of deleterious effects caused by construction to wildlife and causes less disruption to established wildlife corridors and habitat. This approach may also decrease interruption to flood retention capabilities and other factors beneficial to wildlife. Wildlife species within these previously disturbed areas would generally have no difficulty relocating during construction.

The at-grade portions of this alternative would result in the loss of various types of vegetation within the proposed ROW. Once *Alternative 1 (Western Alignment + North Alignment "A")* leaves the existing corridor of LA 311 it will traverse primarily forested (wetlands and uplands) and edges of agricultural farmlands (uplands). North of LA 1, the proposed western section of this alternative will cross large segments of farmlands (uplands), bisecting the farmed areas. The at-grade impacts from the northern part of this alternative will be minimal since nearly all of it will be constructed over existing roadways. The at-grade portions of this alternative will result in the loss of 188.59 acres of vegetation associated with uplands.

North of LA 20, *Alternative 1 (Western Alignment + North Alignment "A")* will be built as elevated sections over bottomland hardwoods for approximately 3.9 miles. Approximately 3.7 miles of the northern portion of this alternative will be elevated over bottomland hardwoods. Following construction, elevating these segments will decrease wetland and wildlife habitat fragmentation and allow for greater flood amelioration. During construction, disruption will occur within naturally occurring systems.

Alternative 2 (Western Alignment + North Alignment "B")

Approximately 4.8 miles of *Alternative 2 (Western Alignment + North Alignment "B")* would be built over existing roadways resulting in minimal loss of vegetation and minimal loss of previously disturbed wildlife habitats. Building over roadways decreases the amount of deleterious effects caused by construction to wildlife and causes less disruption to established wildlife corridors and habitat. This approach may also decrease interruption to flood retention capabilities and other factors beneficial to wildlife. Wildlife species within these previously disturbed areas would generally have no difficulty relocating during construction.



The at-grade portions of this alternative would result in the loss of various types of vegetation within the proposed ROW. Once *Alternative 2 (Western Alignment + North Alignment "B")* leaves the existing corridor of LA 311, it will traverse primarily forested (wetland and upland) and edges of agricultural farmlands (uplands). North of LA 1, the proposed western section of this alternative will cross large segments of uplands, bisecting the farmed areas. The at-grade portions from the northern part of *Alternative 2 (Western Alignment + North Alignment "B")* will be built over uplands for approximately 2.5 miles. Approximately 224.84 acres of uplands will be lost by at-grade construction of this alternative.

North of LA 20, *Alternative 2 (Western Alignment + North Alignment "B")* will be built as elevated sections over swamps and bottomland hardwoods for approximately 4.0 miles. Approximately 5.4 miles of the northern portion of this alternative will be elevated over swamps and bottomland hardwoods. Following construction, elevating these segments will decrease wetland and wildlife habitat fragmentation and allow for greater flood amelioration. During construction, disruption will occur within naturally occurring systems.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") would result in the conversion of uplands, swamps, and bottomland hardwood habitats to road-side habitats. This alternative would be built over approximately 3.1 miles of existing two-lane roadways, which will be all on the central portion of this alternative. Impacts to previously disturbed areas would be minimal.

Alternative 3 (Central Alignment + North Alignment "A") at-grade portions would be primarily through uplands north of LA 316 and LA 1. The at-grade portion of the northern part of *Alternative 3 (Central Alignment + North Alignment "A")* will be built over uplands for approximately 2.5 miles. The at-grade portions of this alternative will result in the loss of 123.36 acres of vegetation associated with uplands.

Elevated portions of *Alternative 3 (Central Alignment + North Alignment "A")* will be built over swamps and bottomland hardwoods starting with a short section after the ROW leaves LA 316, and the majority of the elevated portions of this alternative will be north of LA 1. Approximately 5.4 miles of the northern part of *Alternative 3 (Central Alignment + North Alignment "A")* will be elevated over swamps and bottomland hardwoods. The elevated sections would result in the swamps and bottomland hardwoods becoming freshwater marshes.

Alternative 3 (Central Alignment + North Alignment "A") would be approximately 4.5 miles west of the Lake Boeuf WMA and would be one of the two closest alternatives to the WMA. Due to the distance between the WMA and this alternative, direct impacts to the WMA are not anticipated.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") would result in the conversion of uplands, swamps, and bottomland hardwood habitats to road-side habitats. This alternative would be built over approximately 4.4 miles of existing two-lane roadways. Impacts to previously disturbed areas would be minimal.

The *Alternative 4 (Central Alignment + North Alignment "B")* at-grade portions will be primarily through uplands north of LA 316 and LA 1. The at-grade portions of this alternative will result in the loss of vegetation associated with uplands. The at-grade impacts will be minimal since nearly all of it will be constructed over existing roadways. Approximately 159.61 acres of uplands will be lost by at-grade construction of this alternative.

Elevated portions of this alternative will be built over swamps and bottomland hardwoods starting with a short section after the ROW leaves LA 316, and the majority of the elevated



portions of *Alternative 4 (Central Alignment + North Alignment "B")* will be north of LA 1. Elevated road construction and shading effects would result in the conversion of the swamps and bottomland hardwoods to freshwater marshes.

Alternative 4 (Central Alignment + North Alignment "B") would be approximately 4.5 miles west of the Lake Boeuf WMA and would be one of the two closest alternatives to the WMA. Due to the distance between the WMA and this alternative, direct impacts to the WMA are not anticipated.

4.16.4 What indirect and cumulative impacts are anticipated?

Secondary impacts may include increases in road kill and decreases in plant health due to change in water quality from road run-off.⁴⁶ Secondary development would also occur along the proposed alignment, spreading from existing urban areas into agricultural and forested wetland habitats resulting in the loss of vegetation and habitat as the existing land uses are converted to urban uses. This development would impact upland habitats first then wetlands due to existing federal and state regulations protecting wetlands from development. The increase in capacity created by the proposed project and subsequent secondary development could require future highway development projects to meet growing capacity demand.⁴⁷

4.17 INVASIVE SPECIES

4.17.1 What are the invasive species likely to be found within the study area?

Executive Order 13112 was established in 1999 to prevent the introduction of invasive species, to provide for their control, and to minimize their impacts to the economy, ecology, and human health. The State of Louisiana formed the Louisiana Aquatic Invasive Species Task Force in 2002 under the authority of *Executive Order MJF 02-11*. This task force, led by LA WL&F, prepared a management plan to describe the problems caused by aquatic invasive species and outline a plan to address associated problems.⁴⁸

The LA WL&F management plan specifically identifies transportation corridors as nuisance species pathways of concern. The list of potential aquatic and terrestrial invasive and nuisance species likely to be found within the study area was compiled using Tulane University and LA WL&F occurrence data.⁴⁹

While no quantitative surveys have been conducted, it is reasonable to anticipate that the following nuisance animal and plant species are likely to be found within the study area.

Nutria

Nutria (*Myocastor coypus*) were introduced in Louisiana in the 1930s. A popular theory is that this semi-aquatic species was transported from Argentina, and shortly after escaping from their pen during a storm, they began reproducing at alarming rates. Estimates of nutria population numbers in the 1960s ranged as high as 20 million. The State of Louisiana has implemented a nutria control program in order to reduce the damage caused by this species; however, herbivory

⁴⁶ Trombulak, S. C. & Frissell, C. A. (2000). Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology*, 14(1), 18-30.

⁴⁷ Southerland, M. (1994). *Evaluation of ecological impacts from highway development*. Washington, D.C.: U.S. Environmental Protection Agency.

⁴⁸ Louisiana Department of Wildlife and Fisheries. (2005). State Management Plan for Aquatic Invasive Species in Louisiana.

⁴⁹ Riehl, Christie, Exotic Species in Louisiana, Tulane University (<http://www.tulane.edu/~bfleury/envirobio/enviroweb/ExoticSpecies.htm>). Last Accessed October 24, 2013.



by this animal continues to be a problem in many coastal areas, including both native marsh habitat and agricultural crops. This species has been documented to feed on herbaceous vegetation, as well as trees like bald cypress (*Taxodium distichum*). The LA WL&F Nutria Control Program has documented vegetative damage caused by nutria in at least 11 Coastal Wetlands Planning Protection and Restoration Act project sites in the Barataria and Terrebonne Basins.

Feral Hog

Feral hogs (*Sus scrofa*), which includes European wild hogs and hybrids, are quickly becoming the most serious problem facing land managers and hunters in Louisiana. This species was originally introduced to North America in the 1500s by the Spanish as livestock. Through escape and release, pigs quickly adapted to life in the wild and became feral. Feral hogs are omnivorous, eating anything from vegetation to carrion, though vegetation constitutes the largest portion of their diet.

Feral hogs are plagued by a multitude of diseases that can affect humans, commercial swine operations, and wildlife. The majority of damages caused by feral hogs are a result of their rooting. Excessive rooting can drastically impact crops, golf courses, levees, hayfields, tree farms, and lawns. Much of this damage occurs after rain events or in irrigated areas during periods of drought. Rooting may lead to erosion and excess soil moisture, and, ultimately, conditions in which managers are unable to operate equipment. Excessive soil disturbance associated with rooting can also cause damage to crops and wetlands. Feral hogs are also known to prey upon livestock and wildlife and will directly compete with other wildlife for resources.

Water Hyacinth

Water hyacinth (*Eichhornia crassipes*) was introduced into the United States in the 1880s, and has become one of the most destructive invasive aquatic plants in the southeast United States. Because this species readily multiplies asexually, it can quickly choke off waterbodies and clog drainage structures. Thick mats of this species can also lower dissolved oxygen in waterbodies causing fish kills. Recent developments in biological control methods have helped control the invasion of this species when used in conjunction with herbicide application.

Chinese Privet

Chinese privet (*Ligustrum sinense*) is native to China and was introduced into the United States in 1852 for use as an ornamental shrub. It continues to be widely sold in the nursery and gardening industry. The foliage of Chinese privet is also used for cut-flower arrangements. This species began escaping cultivation in the 1930s. A survey of appropriate herbaria reveals collection records from Georgia as early as 1900. Based on herbarium records, the species became naturalized and widespread in the southeast and eastern United States during the 1950s, 1960s, and 1970s. The fruit of this species has been demonstrated to be toxic to humans and its rapid growth outcompetes native vegetation.

Kudzu

Kudzu (*Pueraria lobata*) is an invasive vine that is widely naturalized throughout the southeastern United States. This species was developed for forage and erosion control in the United States beginning in the 1920s; however, it has quickly become a nuisance throughout its range. The kudzu vine forms large impenetrable masses over woody vegetation that shade out light, eventually killing the underlying tree. Herbicide has proven to be the best method of control for this species.

Cogongrass

Cogongrass (*Imperata cylindrical*) is a grass that spreads via a rhizome root system and is native to Southeast Asia. Cogongrass was introduced into the United States as both packing material and



forage. This species invades disturbed areas, forming dense stands that crowd out native species. This species is particularly hard to control, as its rhizomes easily detach from the main plant, facilitating transport. Control of this species is achieved only through the implementation of management plans that include a combination of herbicides, replanting native species, and burning.

Chinese Tallow Tree

Another abundant exotic plant is the Chinese tallow tree (*Sapium sebiferum*), an Asian tree that escaped cultivation in the United States sometime this century. It is one of the most common trees in Louisiana and is found in densities that average up to nearly four thousand per hectare. It grows fast and flourishes in disturbed areas such as roadsides, suburbs, and drainage ditches. Chinese tallow trees are shade-tolerant and can grow in almost any damp environment. Although individuals of the species are short-lived, the tallow's adaptability and resistance to floods will probably allow it to dominate Louisiana ecosystems.

4.17.2 What are the impacts to invasive species as a result of the No-build Alternative?

The No-build Alternative would result in no changes to existing nuisance and exotic species population levels.

4.17.3 What are the impacts to invasive species as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

While the risk of invasive species distribution along transportation corridors and their associated ROWs is high, it is not likely that *Alternative 1 (Western Alignment + North Alignment "A")* will increase the numbers of existing nuisance species or introduce any new nuisance species. Nuisance species quickly establish themselves in newly disturbed areas, outcompeting early successional native species. Building along an existing corridor may result in no new invasive species, as the area has been previously cleared. Proposed *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")*, which include existing developed land, will generally include higher numbers of established nuisance and exotic species.

Alternative 2 (Western Alignment + North Alignment "B")

It is not anticipated that *Alternative 2 (Western Alignment + North Alignment "B")* will increase existing invasive species or introduce new species to the study area.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") is not expected to increase existing invasive species or introduce new invasive species to the study area.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 (Central Alignment + North Alignment "B") is not anticipated to lead to an increase of existing invasive species occurrences or introduce new invasive species to the study area.

Upon selection of a Preferred Alternative, more detailed population surveys of nuisance and exotic species will be conducted. If necessary, nuisance-species specific management plans should be developed and implemented during the course of construction to eliminate the chance of spreading any species found.



4.18 WILD AND SCENIC RIVERS

4.18.1 What Wild and Scenic Rivers are located within the study area?

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to protect designated rivers and adjacent areas by preventing construction or modification to the area. Wild and Scenic Rivers are those rivers with free-flowing conditions approved by the Secretary of the U.S. Department of Interior being classified, designated, and administered as one of the following:

- **Wild River Areas** – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- **Scenic River Areas** – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- **Recreational River Areas** – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated.

The NPS maintains the nationwide rivers inventory. A review of this NPS database was performed to determine if any wild or scenic rivers are located in the study area. At present, there are no nationally designated Wild and Scenic Rivers within the study area.

Louisiana Scenic Rivers are protected by the *Louisiana Scenic Rivers Act of 1988*, and are managed and regulated by LA WL&F. Based on data from the Louisiana Scenic Rivers State Map, the study area has no state-designated scenic rivers.⁵⁰

4.18.2 What are the impacts to Wild and Scenic Rivers as a result of the No-build Alternative?

No impacts are expected from the No-build Alternative to Wild and Scenic Rivers.

4.18.3 What are the impacts to Wild and Scenic Rivers as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

The study area has no nationally-designated Wild and Scenic Rivers, nor does it contain any Louisiana-designated scenic rivers. Therefore, *Alternative 1 (Western Alignment + North Alignment "A")* will not impact Wild and Scenic Rivers.

Alternative 2 (Western Alignment + North Alignment "B")

No nationally-designated Wild and Scenic Rivers or Louisiana-designated scenic rivers are located within the study area. Therefore, *Alternative 2 (Western Alignment + North Alignment "B")* will not impact Wild and Scenic Rivers.

⁵⁰Louisiana Department of Wildlife and Fisheries. (2012). *Louisiana Scenic Rivers System*. <http://www.wlf.louisiana.gov/louisiana-natural-and-scenic-rivers-descriptions-and-map>. Last accessed October 24, 2013.



Alternative 3 (Central Alignment + North Alignment "A")

Due to no national or state-designated Wild and Scenic Rivers being located within the study area, it is not anticipated that *Alternative 3 (Central Alignment + North Alignment "A")* will impact this resource area.

Alternative 4 (Central Alignment + North Alignment "B")

The study area has no nationally- or state-designated Wild and Scenic Rivers. Thus, *Alternative 4 (Central Alignment + North Alignment "B")* will not impact Wild and Scenic Rivers.

4.18.4 What indirect and cumulative impacts are anticipated?

The study area has no nationally-designated Wild and Scenic Rivers, nor does it contain any Louisiana-designated scenic rivers. Therefore, there are no anticipated secondary or cumulative impacts from the proposed project.

4.19 ENDANGERED, THREATENED, AND OTHER LISTED SPECIES

4.19.1 What endangered, threatened, and other listed species are located within the study area?

Threatened, endangered, and protected species are protected by the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884). The Bald and Golden Eagle Protection Act, enacted in 1940 (16 U.S.C. 668-668c), and the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) are two other pieces of legislation that provide protection for threatened and endangered species. **Table 4.50** shows the threatened and endangered faunal species listed by USFWS for the study area.⁵¹ This table also notes the likelihood of these species being found within the study area, based on habitat availability. Initial consultation has been established with USFWS and the Louisiana Department of Wildlife & Fish, Natural Heritage Program (LA WL&F-NHP) through the Solicitation of Views process in order to determine the presence and location of any protected, threatened, or endangered species, and sensitive biological resources. USFWS and LA WL&F-NHP have responded accordingly, and comments from these agencies were utilized in the analysis of alternatives.

⁵¹ U.S. Department of the Interior, Fish and Wildlife Service. Threatened and Endangered Species of Louisiana. January, 2010



**Table 4.50
Protected Species Potentially Occurring Within the Study Area**

Common Name	Scientific Name	Federal Status	Habitat	Likely Presence in Study Area
West Indian Manatee	<i>Trichechus manatus</i>	E	Lake Pontchartrain & Tributaries	Unlikely
Alabama Heelsplitter	<i>Potamilus inflatus</i>	T	Amite River, possible in Pearl River	Unlikely
Gulf Sturgeon	<i>Acipenser oxyrhynchus desotoi</i>	T	Pearl River & Lake Pontchartrain Tributaries	Unlikely
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	E	Mississippi River & Tributaries	Unlikely
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BGEPA	Conifers near large bodies of water	Likely
Piping Plover	<i>Charadrius melodus</i>	T	Coast	Unlikely
Green Sea Turtle	<i>Chelonia mydas</i>	T	Coastal Waters	Unlikely
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	E	Coastal Waters	Unlikely
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	E	Coastal Waters	Unlikely
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	E	Coastal Waters	Unlikely
Loggerhead Sea Turtle	<i>Caretta caretta</i>	T	Coastal Waters	Unlikely

Sources: USFWS Southeast Region, 2010 and NatureServe Explorer 2010; and, Title 76, ss 317, Louisiana Administrative Code (T = Threatened, E = Endangered, BGEPA = Bald & Golden Eagle Protection Act)
Listed Floral Species

Listed Faunal Species

Several bald eagle (*Haliaeetus leucocephalus*) nesting areas and water bird nesting colonies have been reported within the study area. While the bald eagle was delisted from the Endangered Species Act in June 2007, and federal agencies are no longer required to consult with USFWS for projects affecting this species, it is still afforded protection under the *Bald and Golden Eagle Protection Act* of 1940 (16 U.S.C. 668-668c). Responses to Solicitation of Views from LA WL&F-NHP indicated that locations of bald eagle nests include the western shore of Lac Des Allemands, and in and around Section 59, T12S, and R16E; Sections 34 and 32, T14S and R18E; Section 78, T14S, and R17E. Eagles often utilize the same nesting location year after year; however, they may relocate or choose alternate nest sites after storms, hurricanes, or other disturbances.

Waterbird rookeries are protected during nesting season under the *Migratory Bird Treaty Act* of 1918 (16 U.S.C. 703-711). Locations of nesting colonies are continually changing from one season to the next. Activities may not occur within 300 meters of an active rookery during nesting season, which is March 15 to July 15 in Louisiana. LA WL&F-NHP tracks waterbird rookeries. A review of LA WL&F-NHP records indicates that three parishes within the study area are known to contain waterbird rookeries—Lafourche, St. James, and St. John the Baptist.⁵² A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagle nests during the nesting seasons (i.e., March 15 through July 15 for wading bird colonies and October to mid-May for bald eagles). These surveys should focus on early successional scrub/shrub and forested swamp habitats. In the event that colonies of nest sites are encountered along the chosen alternative, the USFWS Lafayette, Louisiana Field office should be contacted for additional information. **Figure 4-10** represents the locations of potential nesting habitat within the study area.

⁵² Conner, W. H., & Day, J. W. Jr. (Eds.). (1987). *The ecology of Barataria Basin, Louisiana: An estuarine profile*. U.S. Fish and Wildlife Service Biology Report 85(7.13). Washington, D.C.: National Wetlands Research Center, US. Fish and Wildlife Service, U.S. Department of the Interior.



Responses to Solicitation of Views received from LA WL&F-NHP indicate that the following imperiled (S2) and critically imperiled floral species (S1) potentially occur within the study area:

- Swamp milkweed (*Asclepias incarnata*), S2;
- Common water-willow (*Justicia americana*), S2;
- Floating antler fern (*Ceratopteris pteridoides*), S2; and
- Hairy comb fern (*Ctenitis submarginalis*), S1.

No legal protection is afforded these species; however, if any are encountered along the Preferred Alternative, it is recommended that LA WL&F-NHP be notified. Once a Preferred Alternative is chosen, coordination with a plant conservation entity such as Louisiana Native Plant Initiative, McNeese State University, or Nicholls State University should be undertaken and efforts should be made to conserve these species in the event that they are encountered.

Critical Habitat

While no critical habitat for listed species was identified within the study area during the Solicitation of Views process, wetland and aquatic habitats of concern were identified by both USFWS and LA WL&F-NHP. These resources include:

- Unnamed freshwater marsh in and around Section 72, Township 15S, Range 18E;
- Unnamed cypress-tupelo swamps in and around Section 39, Township 13S, Range 16E;
- Unnamed cypress-tupelo swamps in and around Section 84, Township 12S, Range 18E;
- Bayou Chevreuil;
- Bayou Citamon;
- Bayou Cutoff;
- Bayou Grand Coteau;
- Bayou Lafourche;
- Bayou Lassene;
- Grand Bayou; and,
- Rathborne Swamp.

4.19.2 What are the impacts to endangered, threatened, and other listed species as a result of the No-build Alternative?

The No-build Alternative would result in no impacts to threatened and endangered species.

4.19.3 What are the impacts to endangered, threatened, and other listed species as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

No habitat suitable for listed species was identified within *Alternative 1 (Western Alignment + North Alignment "A")*; therefore, this alternative is not anticipated to impact endangered, threatened, or other listed species.

Alternative 2 (Western Alignment + North Alignment "B")

No habitat suitable for listed species was identified within *Alternative 2 (Western Alignment + North Alignment "B")*; therefore, this alternative is not anticipated to impact endangered, threatened, or other listed species.

Alternative 3 (Central Alignment + North Alignment "A")

No habitat suitable for listed species was identified within *Alternative 3 (Central Alignment + North Alignment "A")*; therefore, this alternative is not anticipated to impact endangered, threatened, or other listed species.



Alternative 4 (Central Alignment + North Alignment "B")

No habitat suitable for listed species was identified within *Alternative 4 (Central Alignment + North Alignment "A")*; therefore, this alternative is not anticipated to impact endangered, threatened, or other listed species.

In order to eliminate potential impacts to bald eagles and wading birds, surveys for these species will be conducted along the Preferred Alternative. If nests or potential nesting habitat are found, coordination with USFWS and LA WL&F-NHP will be initiated to obtain additional guidance. If necessary, construction will be sequenced in order to avoid disturbances during the nesting seasons of any species, colonies, or rookeries found.

4.19.4 What indirect and cumulative impacts are anticipated?

No direct impacts to listed species are anticipated; therefore, no secondary and cumulative impacts will occur within the Preferred Alternative.

While potential bird nesting habitats are identified within the study area, no critical or bird nesting habitat has been identified within any of the build alternatives. However, efforts should be made to ensure that the design of the chosen alternative minimizes disruption to wildlife migration and dispersal patterns. Elevation of roadway sections that traverse wetland and aquatic resources of concern is proposed, which will reduce road kills associated with crossings and allow unimpeded migration of both terrestrial and aquatic species.

4.20 ESSENTIAL FISH HABITAT

4.20.1 What essential fish habitat is found within the study area?

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) was passed in 1976, and reauthorized in 1996, in response to fisheries issues facing the nation. A part of the MSFCMA concentrated on fisheries management plans, and description and identification of essential fish habitat (EFH). Essential fish habitat is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. NOAA Fisheries has regulatory oversight for EFH. Through the Solicitation of Views process, NOAA Fisheries has determined that the affected resources within the study area are not the ones for which NOAA Fisheries is responsible.

The NOAA Fisheries ESH Mapper was reviewed to identify EFHs that may be within the study area.⁵³ Lac des Allemands was identified as being ESH for coastal migratory pelagic fishes, red drum, reef fishes, and shrimp.⁵⁴

4.20.2 What are the impacts to essential fish habitat as a result of the No-build Alternative?

The No-build Alternative will result in no impacts to any EFH.

⁵³ National Oceanic and Atmospheric Administration Fisheries. (2012) Essential Fish Habitat Mapper. http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx. Last accessed March 21, 2012.

⁵⁴ Gulf of Mexico Fishery Management Council. (2005) Generic amendment number 3 for addressing essential fish habitat requirements, habitat areas of particular concern, and adverse effects of fishing in the following fishery management plans of the Gulf of Mexico: shrimp fishery of the Gulf of Mexico, United States Waters, red drum fishery of the Gulf of Mexico, reef fish fishery of the Gulf of Mexico, coastal migratory pelagic resources (mackerels) in the Gulf of Mexico and South Atlantic, stone crab fishery of the Gulf of Mexico, spiny lobster in the Gulf of Mexico and South Atlantic, coral and coral reefs of the Gulf of Mexico. Tampa, Florida: Gulf of Mexico Fishery Management Council



4.20.3 What are the impacts to essential fish habitat as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

Lac des Allemands is an EFH for coastal migratory pelagic fishes, red drum, reef fishes, and shrimp. Lac des Allemands is located on the eastern edge of the study area. *Alternative 1 (Western Alignment + North Alignment "A")* is located approximately 5.6 miles from this EFH area. Due to this distance, this alternative is not anticipated to impact EFH.

Alternative 2 (Western Alignment + North Alignment "B")

One EFH, Lac des Allemands, is located within the study area. The northern portion of *Alternative 2 (Western Alignment + North Alignment "B")* is located approximately 3.5 miles to the west of this water body. Due to the distance between the EFH and this alternative, no direct impacts to the EFH are anticipated.

Alternative 3 (Central Alignment + North Alignment "A")

Lac des Allemands, an EFH for coastal migratory pelagic fishes, red drum, reef fishes, and shrimp, is located on the eastern edge of the study area. *Alternative 3 (Central Alignment + North Alignment "A")* is located approximately 5.6 miles from this EFH area. Due to this distance, this alternative is not anticipated to impact EFH.

Alternative 4 (Central Alignment + North Alignment "B")

One EFH, Lac des Allemands, is located within the study area, along the study area's eastern border. The northern portion of *Alternative 4 (Central Alignment + North Alignment "B")* is located approximately 3.5 miles to the west of this water body. Due to the distance between the EFH and this alternative, no direct impacts to the EFH are anticipated.

4.20.4 What indirect and cumulative impacts are anticipated?

Secondary and cumulative impacts to the EFH would be from changes in water quality as a result of the presence of the proposed northern portion of *Alternative 2 (Western Alignment + North Alignment "B")* and *Alternative 4 (Central Alignment + North Alignment "B")*. The northern portion of these two alternatives would be in closer proximity to the EFH and in previously undeveloped areas. Runoff from the northern portion of *Alternative 2* and *Alternative 4* and increased development will increase turbidity and increase nutrient loads in Lac des Allemands. These changes in water quality will adversely affect the health of the EFH. *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 4 (Central Alignment + North Alignment "B")* are not in close proximity and have developed areas between their alignments and the EFH.

4.21 WATER QUALITY

4.21.1 What are the characteristics of surface water within the study area?

Louisiana has multiple surface water quality issues involving pathogens, nutrient transport, pesticides, organic and inorganic chemicals, metals, trace elements, suspended sediment, eutrophication, and hypoxia. LDEQ is authorized to regulate and monitor water quality within the state (LA R.C.33: IX). To meet the requirements of the Clean Water Act of 1977, as amended (CWA), LDEQ has developed and implemented the Louisiana Water Quality Management Plan (LWQMP). LDEQ uses the LWQMP to implement the Surface Water Monitoring Program (SWMP), which collects and analyzes water samples throughout the state for 29 specific water quality parameters and fecal coliforms. In addition to the SWMP, LDEQ integrated a Non-Point Source



Management Plan (NPSMP) and a Total Maximum Daily Load (TMDL) program into the overall LWQMP.⁵⁵

Surface water is an important environmental resource in Louisiana, specifically within the proposed study area where it serves as a drinking water source, primary and secondary recreation, fish and wildlife propagation, and agricultural waters for the area parishes. The surface waters within the proposed project corridor are currently impaired and mitigation of the suspected causes of those impairments is a federal requirement for LDEQ. Section 303(d) of the CWA and the EPA's Water Quality Planning and Management Regulations require states to develop TMDLs of pollutants for water bodies that are not supporting their designated uses (Table 4.51).

Table 4.51
List of Designated Uses for Surface Waters Within the Study Area

Stream Description	Designated Uses
Bayou Lafourche - from Donaldsonville to Intracoastal Waterway at Larose	A - Primary Contact Recreation; B - Secondary Contact Recreation; C - Fish and Wildlife Propagation; D - Drinking Water Supply
Lac Des Allemands	A - Primary Contact Recreation; B - Secondary Contact Recreation; C - Fish and Wildlife Propagation; G - Outstanding Natural Resource Waters
Lake Boeuf	A - Primary Contact Recreation; B - Secondary Contact Recreation; C - Fish and Wildlife Propagation
Bayou Boeuf, Halpin Canal, and Theriot Canal	A - Primary Contact Recreation; B - Secondary Contact Recreation; C - Fish and Wildlife Propagation; F - Agriculture
Bayou Verret, Bayou Chevreuil, Bayou Citamon, and Grand Bayou	A - Primary Contact Recreation; B - Secondary Contact Recreation; C - Fish and Wildlife Propagation; F - Agriculture
Bayou Terrebonne - from Thibodaux to Intracoastal Waterway in Houma	A - Primary Contact Recreation; B - Secondary Contact Recreation; C - Fish and Wildlife Propagation

The citizens of the local parishes also have goals to improve the surface water quality in the area. An example of the state and local interest in mitigation is the Bayou Lafourche Channel Improvement Project that is currently being developed and will help to improve water quality along the northern portion of Bayou Lafourche, in and around Donaldsonville, Louisiana. The Bayou Lafourche Fresh Water District (BLFWD) also organizes cleanup projects of Bayou Lafourche to help improve water quality. BLFWD was created in 1950 and is located in Thibodaux, Louisiana. BLFWD provides potable water to over 250,000 people in four parishes—Ascension, Assumption, Lafourche, and Terrebonne. Another important project was proposed in 2006 for the area parishes and included the construction of a weir system within BLFWD to help minimize saltwater intrusion. The status of the Manage Effluent project has not been determined. For the study area, it is evident that surface water quality is an important factor in evaluating the feasibility of all of the build alternatives being considered.

⁵⁵ LDEQ. <http://www.deq.louisiana.gov/portal/Portals/0/planning/305b/2002/pdf/305b-3.pdf> 2002. Last Accessed October 30, 2013.



During the initial Solicitation of Views, there were not a significant amount of comments from state or federal agencies regarding surface water quality. However, USFWS did express concern about placing fill material along the build alternatives and the potential for short- and long-term impacts to the biology and hydrology in the area. Specific areas of concern were Bayous Chevreuil, Citamon, Cutoff, Grand Coteau, Lafourche, Lassene, Grand, and the Rathborne Swamp.⁵⁶

In 2004, LDEQ referenced the requirement to obtain a "Construction Stormwater General Permit" prior to beginning construction. LDEQ also noted in 2004 that Assumption, Lafourche, St. Charles, St. James, St. John the Baptist, St. Mary, and Terrebonne Parishes are classified as attainment parishes with the NAAQS for all criteria pollutants.⁵⁷ Airborne pollutants can deposit back onto land and water bodies, sometimes at great distances from the source, and can be an important contributor to declining water quality. Pollutants in water bodies that may originate in part from atmospheric sources include nitrogen compounds, sulfur compounds, mercury, pesticides, and other toxics.⁵⁸

A Water Quality Certification from LDEQ will be required during the U.S. Army Corps of Engineers (USACE) 404 permitting process. This permitting process will be implemented for the Preferred Alternative once selected.

The proposed project was originally presented as an additional route for citizens located in the south-central parishes of the state during hurricane evacuation events. The route was to provide a more direct access and connection to the system network servicing I-10 via LA 3127. Since the project was originally proposed, there has been an increased focus on the benefits the route will offer to the population growth in these same parishes.

The growth in the local populations not only provides a greater need for more transportation routes in the parishes, but also a need for additional drinking water sources in the area. Surface water is a critical drinking water source for these same citizens. Growth along new routes within the project corridor can introduce additional point and non-point source pollutants. There are existing permitted discharge point sources within the project corridor. Those point sources may be forced to relocate based on the Preferred Alternative. The majority of the existing point source dischargers within the study area are sanitary wastewater treatment facilities.

Highway runoff also has an impact on the surface water drinking quality within the area parishes and will have to be considered during this evaluation. Understanding and evaluating the surface water quality before and after the proposed project is an important factor for the feasibility of all of the build alternatives within the study area.

⁵⁶ USFWS. United States Department of the Interior, Fish and Wildlife Service, Notice of Intent for Proposal to Construct the North-South Hurricane Evacuation Corridor (ER 04/430), July 2, 2004.

⁵⁷ LDEQ. State Project No. 700-99-0302; BH Project No. 76027-00; Terrebonne, Lafourche, Assumption, St. James, St. John the Baptist, St. Charles, and St. Mary Parishes Proposed Houma-Thibodaux to LA 3127 Connection (North-South Corridor/Hurricane Evacuation) EIS. July 6, 2004.

⁵⁸ EPA, "Air Pollution and Water Quality" http://water.epa.gov/lawsregs/lawguidance/cwa/tmdl/airdeposition_index.cfm. Last Accessed October 30, 2013.



4.21.2 What bodies of surface water are located within the study area?

The majority of the study area is located within the EPA-designated East Central Louisiana Coastal Watershed sub-basin and a small portion of the study area is located in the West Central Louisiana Coastal Watershed sub-basin. Surface waters are abundant in the study area and are composed of rivers, lakes, bayous, swamps, fresh marsh, and canals (irrigation, service, and drainage). The predominant water bodies in the study area consist of Bayou Chevreuil, Grand Bayou, Bayou Lafourche, Lac Des Allemands, Lake Boeuf, and Bayou Terrebonne, see **Figure 4-11**.

The Mississippi River provides the main source of potable water for this area of the state. The water is pumped down Bayou Lafourche, treated, and distributed to the public throughout the surrounding parishes. BLFWD is the responsible agency for providing water to the public in the study area.⁵⁹ Two surface water protection areas are located in BLFWD. Both of the protection areas are located at positions where they can offer the most protection to the water intake systems at the treatment plants.⁶⁰ Protection Area 1 is located in the northern portion of Bayou Lafourche within Thibodaux, Louisiana and Protection Area 2 is located in the southern portion of Bayou Lafourche, in close proximity to Raceland, Louisiana. These protection areas can be seen on Figure 4-11.

A former distributary of the Mississippi River, Bayou Lafourche flows from Donaldsonville, Louisiana to the Gulf of Mexico. Bayou Lafourche was dammed off from the Mississippi River at Donaldsonville, Louisiana in 1904. In 1955, BLFWD began pumping Mississippi River water into Bayou Lafourche to restore flow. The water was necessary for public, commercial, and industrial uses in the surrounding parishes along Bayou Lafourche.

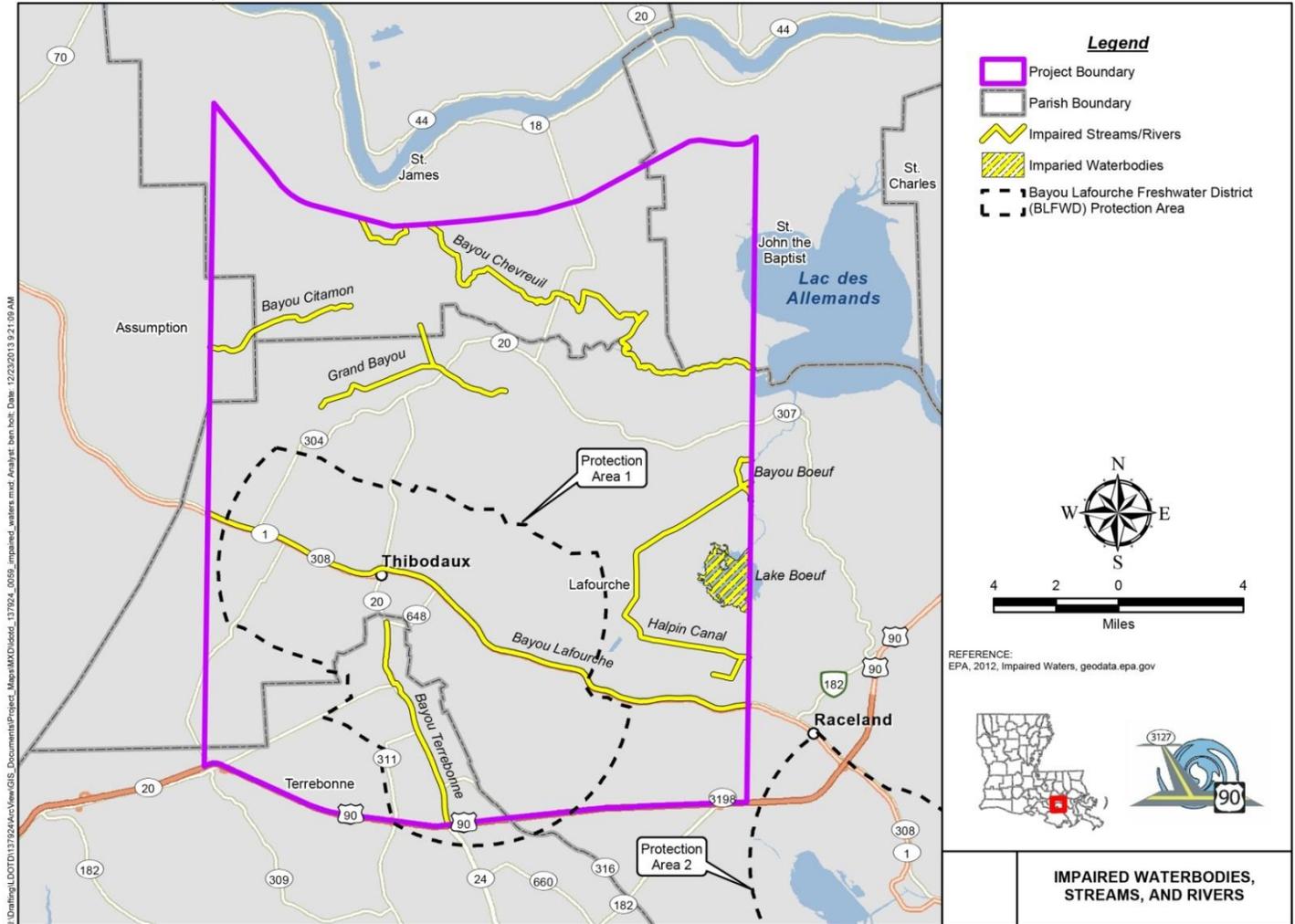
Lac Des Allemands is a 14,720-acre freshwater lake on the northeastern edge of the study area and Lake Boeuf is a 6,100-acre freshwater lake on the southeastern edge. Bayou Terrebonne is the only predominant water body in the proposed study area that is in the West Central Louisiana Coastal Watershed. Other secondary water features within the study area include Bayous Verret, Chevreuil, Citamon, and Grand, and numerous drainage canals.

⁵⁹ The Cadmus Group, Inc. "TMDL Development for Dissolved Oxygen and Nutrient for Bayou Lafourche Subsegment (020401) in the Barataria Basin, Louisiana", 2005.

⁶⁰ Kilgen, Marilyn B. Dr. "Source Water Protection Program Assessment/Planning Project Final Report", September 30, 2009.



Figure 4-11
Impaired Waters



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In accordance with sections 305(b) and 303(d) of the CWA, and EPA regulations, a biennial Integrated Water Quality Inventory Report is published by LDEQ. The Integrated Report consists of a Water Quality Inventory Report, 305(b), and an annual List of Impaired Water Bodies Report, 303(d). The 305(b) report summarizes water quality attainments, water body impairments, and potential sources of water body impairments. The 303(d) report identifies surface waters that are not meeting, or not expected to meet, water quality standards. The 2010 Integrated Water Quality Inventory Report was used to assess and summarize the water quality of water bodies located in the proposed study area. The 303(d) section of the 2010 Integrated Report was partially approved by EPA on November 17, 2011; EPA proposed to disapprove Louisiana's decision not to list three water bodies. Assessments of dissolved oxygen (DO) for three coastal subsegments (LA021102_00, LA070601_00, and LA120806_00) remain in question pending completion of EPA's decision document public notice process. **Table 4.52** describes the suspected impairments and sources of impairments by water body for surface waters within the study area.

Table 4.52
List of Suspected Impairments and Sources of Impairments by Water Body for Surface Waters Within the Study Area

Water Body Name	Suspected Causes of Impairment	Suspected Sources of Impairment
Bayou Lafourche-From Donaldsonville to Intracoastal Waterway at Larose	Non-native Aquatic Plants	Introduction of Non-native Organisms (accidental or intentional)
	Fecal Coliform	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges, and Unpermitted Discharge (Domestic Wastes)
Lac Des Allemands	Non-native Aquatic Plants	Introduction of Non-native Organisms (accidental or intentional)
Lake Boeuf	Nitrate/Nitrite (Nitrite + Nitrate as N)	Non-irrigated Crop Production
	Non-native Aquatic Plants	Introduction of Non-native Organisms (accidental or intentional)
	Dissolved Oxygen	Natural Sources, Non-irrigated Crop Production
	Total Phosphorus	Non-irrigated Crop Production
Bayou Boeuf, Halpin Canal, and Theriot Canal	Nitrate/Nitrite (Nitrite + Nitrate as N)	Industrial Point Source Discharge, Natural Sources, and Non-irrigated Crop Production
	Non-native Aquatic Plants	Introduction of Non-native Organisms (accidental or intentional)
	Dissolved Oxygen	Industrial Point Source Discharge, Non-irrigated Crop Production, Natural Sources
	Total Phosphorus	Industrial Point Source Discharge, Non-irrigated Crop Production, Natural Sources
Bayou Verret, Bayou Chevreuil, Bayou Citamon, and Grand Bayou	Chloride	Changes in Tidal Circulation/Flushing, Drought-related impacts, and Natural Sources
	Nitrate/Nitrite (Nitrite + Nitrate as N)	Natural Sources and Non-irrigated Crop Production
	Non-native Aquatic Plants	Introduction of Non-native Organisms (accidental or intentional)
	Dissolved Oxygen	Non-irrigated Crop Production, Natural Sources
	Total Phosphorus	Natural Sources and Non-irrigated Crop Production



Table 4.52
List of Suspected Impairments and Sources of Impairments by Water Body for Surface Waters
Within the Study Area

Water Body Name	Suspected Causes of Impairment	Suspected Sources of Impairment
Bayou Terrebonne-From Thibodaux to Intracoastal Waterway in Houma	Fecal Coliform	Municipal (Urbanized High Density Area), On-site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges, Sanitary Sewer Overflows (Collection System Failures)
	Nitrate/Nitrite (Nitrite + Nitrate as N)	Municipal Point Source Discharges, On-site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges, Sanitary Sewer Overflows (Collection System Failures)
	Non-native Aquatic Plants	Introduction of Non-native Organisms (accidental or intentional)
	Dissolved Oxygen	Municipal (Urbanized High Density Area), On-site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges, Sanitary Sewer Overflows (Collection System Failures)
	Total Phosphorus	Municipal Point Source Discharges, On-site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges, Sanitary Sewer Overflows (Collection System Failures)

Source: 2010 Louisiana Water Quality Inventory Integrated Report, LDEQ

As indicated in Table 4.52, the suspected sources of impairment of the waterways within the study area do not include highway runoff, specifically. Highway runoff pollutants may include heavy metals, inorganic salts, aromatic hydrocarbons, and suspended solids. Ordinary operations and the wear and tear of our vehicles also result in the dropping of oil, grease, rust, hydrocarbons, rubber particles, and other solid materials on the highway surface.⁶¹ Some of the pollutants found in highway runoff may potentially contribute to the existing causes of impairment to the water bodies within the study area. Best management practices (BMPs) should be used to reduce these potential impacts from highway runoff to the existing impaired water bodies.

Receiving surface water and groundwater are both susceptible to contamination from highway-related contaminants. Surface waters (streams, rivers, ponds, and lakes) are particularly vulnerable because they are directly exposed to contaminants released into the air and to direct discharges from point or non-point sources.⁶² Groundwater is susceptible to these same contaminants over time, based on the depth to groundwater and the composition of the aquitard.

⁶¹ USDOT FHWA, Environmental Technology Brief – FHWA-RD-98-079., <http://www.fhwa.dot.gov/publications/research/infrastructure/structures/98079/runoff.cfm>. June 8, 2011. Online Report Accessed January 23, 2012.

⁶² USDOT FHWA, Environmental Technology Brief – FHWA-RD-98-079., <http://www.fhwa.dot.gov/publications/research/infrastructure/structures/98079/runoff.cfm>. June 8, 2011. Online Report Accessed January 23, 2012.



4.21.3 What are the impacts to surface water as a result of the No-build Alternative?

The No-build Alternative would result in no additional impacts to the surface water quality of the study area.

4.21.4 What are the impacts to surface water as a result of the Build Alternatives?

In order to effectively evaluate the build alternatives, it is necessary to quantify the impacts to surface water quality sensitive areas. For the purpose of this evaluation, surface water quality sensitive areas are water bodies that have been identified by LDEQ as being impaired and those that serve as drinking water sources for the area parishes. Impairments to both sensitive and non-sensitive areas within the proposed study area range from sediment to pathogens, such as from fecal coliform. Some impairments are more relevant to a highway construction project and the future impacts associated with the highway. Those will be the impairments more closely evaluated upon selection of a Preferred Alternative alignment. Bayou Lafourche serves as the main drinking water source for the area parishes; therefore, potential impacts (direct and indirect) to the bayou will also be considered.

Another factor that must be considered in the evaluation is the location of each alternative alignment as they traverse through wetland areas. Each alternative alignment will create certain construction and storm water runoff impacts that must be addressed through BMPs. Construction methods to limit impacts to the wetland area will have to be employed by the contractor; however, storm water runoff will need to be addressed in the design of the project.

Wetlands have a natural filtering system that can aid in removing and assimilating deposits from highway runoff. This filtering system can provide valuable water quality protection for downstream rivers, lakes, and estuaries. However, the quality of the wetlands, as waters of the U.S., must be protected.⁶³ Furthermore, the introduction of storm water runoff into wetlands can actually help preserve or enhance wetland areas by adding freshwater, silts, and nutrients to degrading emergent wetlands in the Barataria-Terrebonne Estuary.⁶⁴ The four different build alternatives have been evaluated to determine the assimilative capacity of these wetland areas and the BMPs that should be used to limit impacts to the wetlands and downstream impaired water bodies.

Each of the alternatives will have similar impacts on water quality within the study area. The more significant water quality impacts would be temporary and occur during the construction phase of the project. An erosion and sediment control plan in accordance with BMPs will be required during construction to limit these impacts as much as practicable. Design of a selected alternative may include features, such as roadside ditches, storm water ponds, and other BMPs to properly manage the long-term impacts from the new highway.

The degree of impact to wetlands is discussed in detail in other sections of the DEIS, but the assimilative capacity of the wetlands for the treatment of runoff from each route must be considered. The greater the area of wetland that runoff could be received in is assumed to equate to a greater assimilative capacity for the area and an overall benefit to the surface water quality for the area parishes. This assumption has not been verified through field collected data, but will

⁶³ EPA. "Wetlands and Runoff", January 12, 2009.

⁶⁴ Landrum, Eddie. "Using Stormwater Discharges for Levee Protection and Wetlands Enhancement in the Barataria-Terrebonne Estuary, Louisiana". <http://nsgl.gso.uri.edu/oresu/oresuc00002/pdffiles/papers/025.pdf>. Last Accessed October 30, 2013.



be used as a preliminary screening tool for the build alternatives. Wetland acreages will not be included in the summary table because they are already discussed in Section 4.24. The total runoff anticipated from each route was considered in order to determine which route will have the potential to contribute more runoff on an annual basis. Also considered will be proximity downstream to the nearest impaired water body that will be associated with each route. Since all of the build alternatives cross Bayou Chevreuil, Grand Bayou, and Bayou Lafourche, the distance to those impaired water bodies will not be considered. **Table 4.53** provides a summary of the ratings for each build alternative, with consideration of the factors presented previously.

Table 4.53
Alternatives – Ranking Table*

	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Distance to Impaired Water Body (Miles)	0.42(4)	0.42(4)	2.66(1)	2.66(1)
Runoff Volume based on 25-Year 24-Hour Storm Event (Gallons)	18,173,258 (3)	19,715,038 (4)	16,024,686 (1)	17,602,375 (2)
Potential Relocated NPDES Facilities	10(4)	9(3)	3(1)	3(1)
Overall Ranking	3.67	3.67	1.00	1.33

* Rankings are in parentheses and based on each route versus the other routes. The rankings are 1 through 4, with 1 representing the highest rank and 4 representing the lowest rank. All three of the individual rankings were averaged to get the Overall Ranking for each build alternative.

Alternative 1 (Western Alignment + North Alignment "A")

The western portion of *Alternative 1 (Western Alignment + North Alignment "A")* would cross through the Barataria and Terrebonne basins, East and West Central Louisiana Coastal watersheds, and multiple named streams and water bodies (**Figure 4-12** and **Figure 4-13**). It also crosses two named water bodies that are recognized as being impaired—Grand Bayou and Bayou Lafourche. Grand Bayou is impaired for nutrients and Bayou Lafourche is impaired for nutrients and pathogens. Although pathogens and nutrients should not be an immediate impact from the proposed project, there is a potential for secondary and cumulative impacts for both. The secondary and cumulative impacts are described in more detail later in this section.

The western portion of this alternative is also directly upstream of Bayou Terrebonne, which is impaired for pathogens and nutrients. This portion follows approximately 6.8 miles of Bayou Terrebonne and is located on the northern section of both the West Central and East Central watersheds. Bayou Terrebonne is not a drinking water source but it does serve as a Primary Contact Recreation, Secondary Contact Recreation, and Fish and Wildlife Propagation designated area. Protection and mitigation of impacts to Bayou Terrebonne should be considered.



The western portion of *Alternative 1 (Western Alignment + North Alignment "A")* is located approximately 6 miles from the USGS coordinates for Rathborne Swamp. Through the Solicitations of Views process, USFWS expressed their concern for impacts to aquatic habitats in Rathborne Swamp. It has been reported that deposition of sediment in water bodies degrades water quality and severely impacts aquatic habitat.⁶⁵ These impacts from sediment would be mitigated by the use of sediment traps, silt fences, and sediment curtains. There is also a greater amount of wetland acreage between the western portion of this alternative and Rathborne Swamp in comparison to the central portion of *Alternative 3 (Central Alignment + North Alignment "A")* and *Alternative 4 (Central Alignment + North Alignment "B")*. As a previously stated assumption for this evaluation, the assimilative capacity of a wetland increases with volume. An increase in volume by depth or length is an understood treatment method for the settling of sediment and solids, typical within runoff.⁶⁶

The northern portion of this alternative crosses one impaired water body: the Bayou Chevreuil. As shown in Table 4.52, Bayou Chevreuil is impaired for nutrients. The northern portion of *Alternative 1 (Western Alignment + North Alignment "A")* will have impacts during construction, but those impacts should not contribute to the existing impairment for Bayou Chevreuil. Following the construction of the northern portion of this alternative, any contribution to nutrient runoff would be small due to a majority of the North A Alignment being elevated. Any nutrient runoff would be more closely associated with a secondary or cumulative as compared to a direct impact.

Storm water runoff associated with the North A portion of this alternative is expected to be more noticeable than from the North B portion of *Alternative 2 (Western Alignment + North Alignment "B")* and *Alternative 4 (Central Alignment + North Alignment "B")* due to the topography of the area, but should not be significantly different from what is currently associated with LA 20. **Figure 4-14** shows that the topography for the area where the North A portion is located ranges from 5 to 15 feet for a majority of the route and the North B portion is predominantly 0 to 5 feet except where it crosses LA 20.

Alternative 2 (Western Alignment + North Alignment "B")

The western portion of *Alternative 2 (Western Alignment + North Alignment "B")* would cause similar impacts as described in *Alternative 1 (Western Alignment + North Alignment "A")*.

The northern portion of *Alternative 2 (Western Alignment + North Alignment "B")* would cross one impaired water body, which is Bayou Chevreuil. As shown in Table 4.52, Bayou Chevreuil is impaired for nutrients. This alternative will have impacts during construction but those impacts should not contribute to the existing impairment for Bayou Chevreuil.

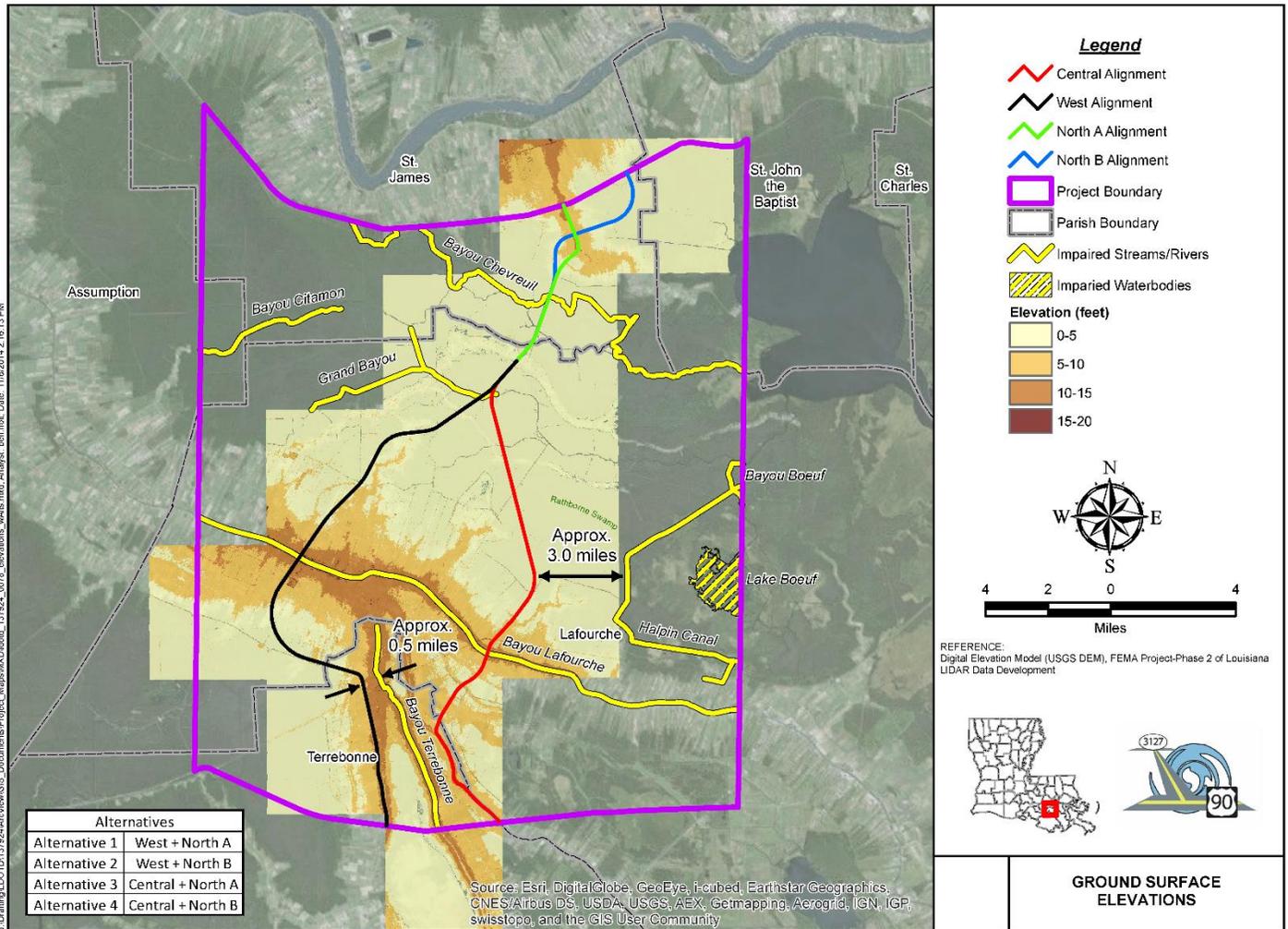
Storm water runoff associated with the northern portion of this alternative is expected to be less noticeable than from the northern portion of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 3 (Central Alignment + North Alignment "A")*, due to the area's topography. Figure 4-14 shows the topography for the area of the two proposed northern alignments (North A and North B).

⁶⁵ WSDOT. Washington Department of Transportation WSDOT, Water Quality, July 2003.

⁶⁶ Metcalf & Eddy. Wastewater Engineering – Treatment and Reuse, 2003.



Figure 4-14
Elevations with Alternatives





The North B alignment will have a more immediate impact on wetlands than the North A alignment. There is an estimated immediate impact to approximately 103 acres of Woody Wetlands with the North B alignment compared to a 62-acre impact to Woody Wetlands with the North A alignment. Both North A and North B are elevated through designated wetland areas. Wetland areas have been shown to provide assimilative qualities for treating runoff. The North B alignment would result in a greater temporary to permanent loss of these wetlands and their assimilative qualities. There would also be additional runoff in an area that was previously receiving none, other than sheet flow coming from Vacherie, Louisiana. It should be noted that natural wetlands are not intended for the treatment of storm water runoff and measures should be in place to mitigate the runoff to wetlands, but their treatment characteristics must be considered.

Alternative 3 (Central Alignment + North Alignment "A")

The central portion of *Alternative 3 (Central Alignment + North Alignment "A")* would cross through the Barataria and Terrebonne Basins, East and West Central Louisiana Coastal watersheds, and multiple named streams and water bodies (Figure 4-14). It also crosses two named water bodies that are recognized as being impaired—Grand Bayou and Bayou Lafourche. Grand Bayou is impaired for nutrients and Bayou Lafourche is impaired for nutrients and pathogens. As previously mentioned with the western portions of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")*, pathogens should not be impacted from the proposed project; however, there is a potential for nutrients to be impacted.

The central portion of this alternative is not located in proximity to any other impaired water bodies that are downstream of any potential discharges during construction or following completion of the project. The central portion also runs parallel to Bayou Terrebonne for a short distance but it is located downstream of the bayou; therefore, any impacts related to the construction or operation of the central portion should not have an effect on Bayou Terrebonne.

The central portion of *Alternative 3 (Central Alignment + North Alignment "A")* is located approximately 3 miles from the USGS coordinates for Rathborne Swamp. Through the Solicitations of Views process, USFWS expressed their concern for impacts to aquatic habitats in Rathborne Swamp. It has been reported that deposition of sediment in water bodies degrades water quality and severely impacts aquatic habitat.⁶⁷ These impacts from sediment would be mitigated by the use of sediment traps, silt fences, and sediment curtains. The distance between the western portion of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")* and the central portion of *Alternative 3 (Central Alignment + North Alignment "A")* to the Rathborne Swamp does show that the central portion may have more of an impact on the aquatic habitat due to sedimentation caused during construction.

The northern portion of this alternative would cause similar impacts as described in *Alternative 1 (Western Alignment + North Alignment "A")*.

Alternative 4 (Central Alignment + North Alignment "B")

The central portion of *Alternative 4 (Central Alignment + North Alignment "B")* would cause similar impacts as described in *Alternative 3 (Central Alignment + North Alignment "A")*.

The northern portion of *Alternative 4 (Central Alignment + North Alignment "B")* would cause similar impacts as described in *Alternative 2 (Western Alignment + North Alignment "B")*.

⁶⁷ WSDOT. Washington Department of Transportation WSDOT, Water Quality, July 2003.



4.21.5 What indirect and cumulative impacts are anticipated?

Each build alternative will have secondary and cumulative impacts following construction. Examples of secondary and cumulative impacts that may impact the surface water quality for this proposed project include the introduction of roadside herbicides for maintenance of the ROWs, introduction of litter and debris from vehicles, change in the land uses for the area, and population growth impact on water resources. These impacts will be evaluated based on their relevance with each build alternative.

There are measures that can be taken to mitigate the impacts from herbicides as well as decrease litter and debris from vehicles. Specifically, there are BMPs that exist for the application of herbicides and there are user restrictions and penalties that can be enforced against litterers. With herbicides there are specific application techniques that can be utilized to minimize contact with non-target species and bare ground. Training of employees can also be used to improve application techniques of herbicides.

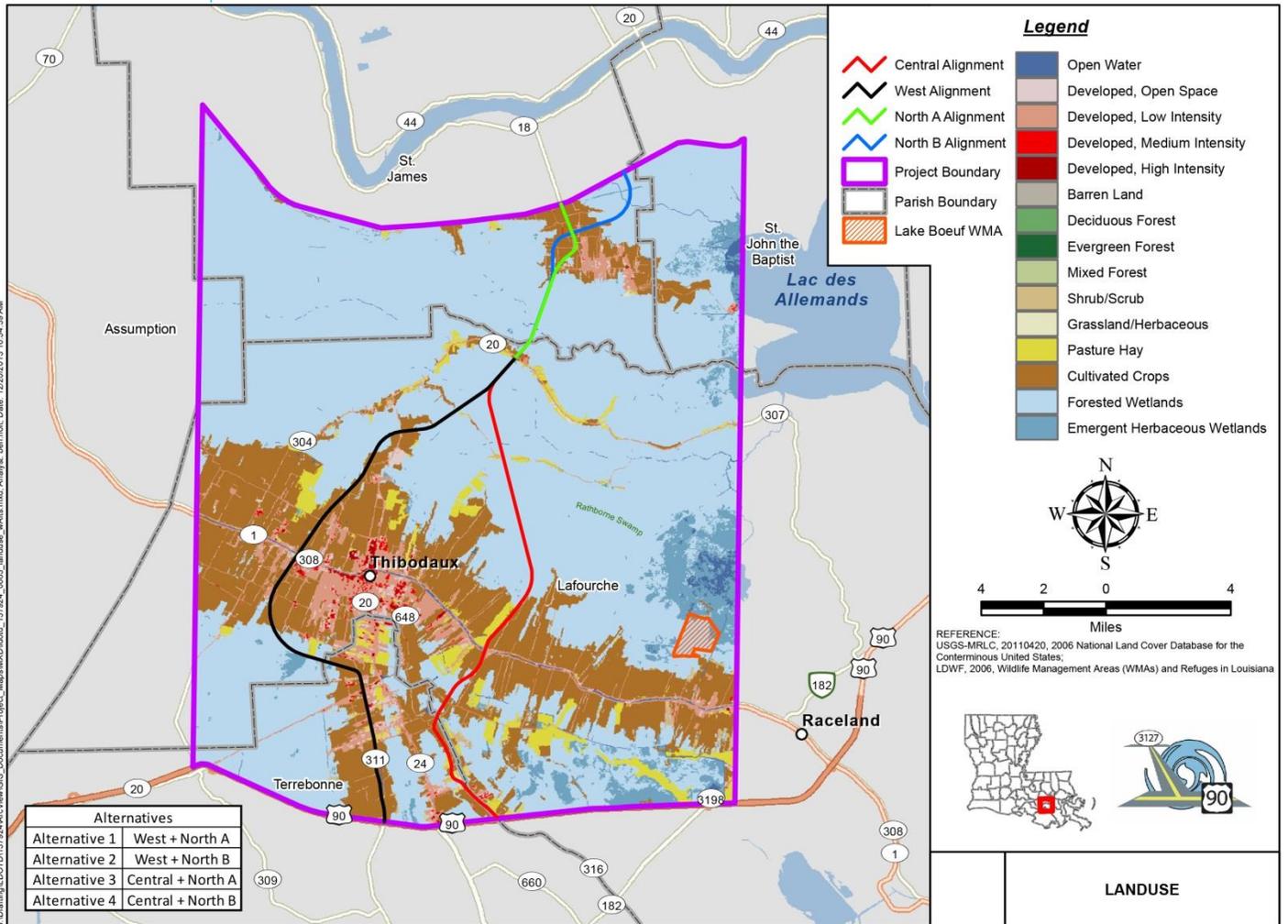
Alternative 1 (Western Alignment + North Alignment "A")

The total mileage of *Alternative 1 (Western Alignment + North Alignment "A")* is approximately 26 miles. Of the 26 miles, approximately half is elevated and the remainder is proposed to be constructed at-grade. The at-grade sections will be constructed with roadside ditches and other amenities that will serve to filter contaminants from highway runoff. Elevated sections over wetlands and bayous could have an impact on those systems. However, it is anticipated that BMPs will be employed to provide treatment of highway runoff from elevated sections and to limit any long-term impacts to the surface water quality.

The predominant land use along *Alternative 1 (Western Alignment + North Alignment "A")* is 35 percent or 209 acres of Forested Wetlands and 41 percent or 244 acres of Cultivated Crops (**Figure 4-15**). The loss of wetlands would indicate a loss of surface water treatment for the area based on the assimilative quality of wetlands. It is assumed that the cultivated crops that would be lost through the selection of this alternative would have an immediate positive water quality impact for the basin sub-segment by the loss of cultivated crop land that introduces nutrients into the basin, which is one of the current impairments for the surrounding water bodies. For the purpose of this evaluation, it is assumed that the cultivated crops that are initially lost would be relocated at some later time and could be potentially moved closer to one of the impaired water bodies within the basin. *Alternative 1 (Western Alignment + North Alignment "A")* would result in the relocation of more cultivated cropland that could potentially introduce additional nutrients within the basin than what is anticipated with *Alternative 3 (Central Alignment + North Alignment "A")*. A summary of the potential impacts to land use that can indirectly impact water quality for the study area are presented in **Table 4.54**.



Figure 4-15
Land Use with Alternatives



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**Table 4.54
Alternatives – Land Use Categories (Acreage)**

Land Use	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Cultivated Crops	244.59	278.51	149.62	183.55
Developed, Low Intensity	108.66	89.05	55.99	36.38
Developed, Medium Intensity	3.22	1.11	2.31	0.20
Developed, High Intensity	2.61	0.98	1.64	N/A
Developed, Open Space	20.96	14.79	16.00	9.83
Open Water	1.19	1.50	2.59	2.89
Pasture/Hay	6.48	6.48	13.97	13.97
Grassland/ Herbaceous	0.2	0.20	0.53	0.53
Shrub/Scrub	0.51	0.49	0.02	N/A
Emergent Herbaceous Wetlands	0.9	1.65	0.87	1.62
Forested Wetlands	209.39	250.29	261.63	302.53
Total	598.71	645.05	505.17	551.50

Alternative 1 (Western Alignment + North Alignment "A") includes approximately 13 miles of highway that are un-elevated and 13 miles that are elevated. This alternative is anticipated to see some growth along the un-elevated portions from residential or commercial development. These new developments can potentially contribute to additional surface water runoff by the addition of nutrients from the fertilizers used on resident's yards, runoff from commercial parking lots, and sanitary discharges from commercial or subdivision package plants.

Population growth and land use changes are not anticipated to be that great for the northern portion of this alternative since the majority of the new route would be following the existing Highway 20. However, the northern portion of this alternative (which is identical to the northern portion of *Alternative 3 (Central Alignment + North Alignment "A")*) is primarily positioned within the highest elevated area when compared with the northern portions of *Alternative 2 (Western Alignment + North Alignment "B")* and *Alternative 4 (Central Alignment + North Alignment "B")*. Therefore, any impacts from construction runoff or operational runoff would be more noticeable over a longer term.

Alternative 2 (Western Alignment + North Alignment "B")

The total mileage of *Alternative 2 (Western Alignment + North Alignment "B")* is approximately 28 miles. Of the 28 miles, there are 13.6 miles that are un-elevated and will require roadside herbicide maintenance. *Alternative 2 (Western Alignment + North Alignment "B")* includes approximately 14.6 miles of elevated highway.

Alternative 2 (Western Alignment + North Alignment "B") is expected to have more of an impact on the hydrology within the study area than *Alternative 4 (Central Alignment + North Alignment "B")* based on a comparison of the elevated portions versus un-elevated portions of each route.

The predominant land use along this alternative is 39 percent or 250 acres of Forested Wetlands and 43 percent or 278 acres of Cultivated Crops (Figure 4-15). When compared with *Alternative 4 (Central Alignment + North Alignment "B")*, the loss of wetlands for *Alternative 2 (Western Alignment + North Alignment "B")* would be less significant and there would be more cultivated cropland relocated as a result of the selection of *Alternative 2 (Western Alignment + North Alignment "B")*, which would have a positive impact on water quality. The impact to Forested Wetlands would be lower with this alternative, so there is expected to be more capacity for surface water runoff treatment through assimilation if this alternative is selected.



Similarly to *Alternative 1 (Western Alignment + North Alignment "A")*, *Alternative 2 (Western Alignment + North Alignment "B")* should see some growth along the un-elevated portions from residential or commercial development. Those new developments will also potentially contribute to the nutrient and pathogen impairments found in the local water bodies. There is more un-elevated highway associated with *Alternative 2 (Western Alignment + North Alignment "B")* when compared to *Alternative 4 (Central Alignment + North Alignment "B")*; therefore, the magnitude of runoff from new developments would be greater.

The northern portion of this alternative (which is identical to the northern portion of *Alternative 4 [Central Alignment + North Alignment "B"]*) is expected to result in greater potential nearby land use changes than the northern portions of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 3 (Central Alignment + North Alignment "A")*. The northern portion of *Alternative 2 (Western Alignment + North Alignment "B")* traverses an area that is currently less populated than the northern portions of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 3 (Central Alignment + North Alignment "B")*, which means that there would be more of a potential for new residential and commercial development along the un-elevated portions of highway for that area, and this will increase the runoff characteristics for the area. Additional discharges would contribute to the nutrient and pathogen impairments within the project area.

Alternative 3 (Central Alignment + North Alignment "A")

The total mileage of *Alternative 3 (Central Alignment + North Alignment "A")* is nearly 23 miles. Of the 23 miles, there are approximately 8.4 miles that are un-elevated and will require roadside herbicide maintenance. *Alternative 3 (Central Alignment + North Alignment "A")* includes approximately 14.3 miles of elevated highway.

When compared to *Alternative 1 (Western Alignment + North Alignment "A")*, *Alternative 3 (Central Alignment + North Alignment "A")* is expected to have less of an impact on the hydrology within the study area based on the amount of elevated portions versus at-grade portions for each route. *Alternative 3 (Central Alignment + North Alignment "A")* has almost 5 miles less of at-grade construction than *Alternative 1 (Western Alignment + North Alignment "A")* and also has the least amount of at-grade construction of all of the four build alternatives.

The predominant land use along *Alternative 3 (Central Alignment + North Alignment "A")* is 52 percent or 262 acres of Forested Wetlands and 29 percent or 150 acres of Cultivated Crops (Figure 4-15). When compared with *Alternative 1 (Western Alignment + North Alignment "A")*, the loss of wetlands for this alternative would be more significant and there would be less cultivated cropland relocated as a result of its selection. The highway will be elevated for each route within the wetland areas, but the initial impact of the construction project would not allow for the Forested Wetlands to completely reestablish following construction. Loss of wetlands and their assimilative water treatment qualities for runoff would be a cumulative impact to water quality for the area over time.

Alternative 3 (Central Alignment + North Alignment "A") is expected to see some growth along the un-elevated portions from residential or commercial development that will potentially contribute to the nutrient and pathogen impairments found in the new local water bodies. However, there is more elevated highway associated with this alternative than with *Alternative 1 (Western Alignment + North Alignment "A")*; therefore, the magnitude of runoff from new developments should be less.

As mentioned already, the northern portion of this alternative will be following the existing Highway 20, and therefore population growth and development is anticipated to be low. In turn, runoff characteristics are also expected to be low. However, the northern portion of this



alternative is at a higher elevation than *Alternative 2 (Western Alignment + North Alignment "B")* and *Alternative 4 (Central Alignment + North Alignment "B")*, and therefore any impacts from construction runoff or operational runoff would be more noticeable over a longer time period.

Alternative 4 (Central Alignment + North Alignment "B")

The total mileage of *Alternative 4 (Central Alignment + North Alignment "B")* is nearly 25 miles. Of the 25 miles, there are approximately 9.0 miles that are un-elevated and will require roadside herbicide maintenance. *Alternative 4 (Central Alignment + North Alignment "B")* includes approximately 15.9 miles of elevated highway.

Alternative 4 (Central Alignment + North Alignment "B") is expected to have less of an impact on the hydrology within the study area than *Alternative 2 (Western Alignment + North Alignment "B")* when comparing the amount of elevated versus un-elevated portions of each route. *Alternative 4 (Central Alignment + North Alignment "B")* has approximately 1 mile more of elevated roadway length and almost 5 miles less of at-grade construction.

The predominant land use along *Alternative 4 (Central Alignment + North Alignment "B")* is 55 percent or 303 acres of Forested Wetlands and 33 percent or 184 acres of Cultivated Crops (Figure 4-15). This alternative has the most impacts to wetlands out of all four build alternatives. However, it also has the longest length of elevated roadway sections. The loss of wetlands would indicate a loss of surface water treatment for the area based on the assimilative quality of wetlands. The impact on water quality would be more positive with *Alternative 2 (Western Alignment + North Alignment "B")* rather than with *Alternative 4 (Central Alignment + North Alignment "B")*, due to the higher number of cultivated cropland relocations.

Some potential new development is expected along the at-grade portions of *Alternative 4 (Central Alignment + North Alignment "B")*, which would increase runoff. The northern portion of *Alternative 4 (Central Alignment + North Alignment "B")* (which is identical to the northern portion of *Alternative 2 (Western Alignment + North Alignment "B")*) is expected to have a high amount of nearby land use changes. More initial wetland areas would be removed with the introduction of the northern portion of this alternative, which would ultimately lead to cumulative impacts to water quality over time due to the loss of wetlands and their assimilative water treatment qualities for runoff.

4.22 GROUNDWATER

4.22.1 What are the groundwater characteristics within the study area?

Groundwater is an important environmental resource in Louisiana. Groundwater is the primary source of drinking water for 61 percent of Louisiana's residents. Of this 61 percent, 12 percent use domestic wells and 49 percent rely on public water supplies. Louisiana has a Groundwater Advisory Group that is comprised of environmental professionals representing private, federal, state, and local agencies dealing with water resources in Louisiana.⁶⁸ However, groundwater is not as critical of a resource in the proposed study area due to saltwater intrusion.

During the Solicitation of Views process, there were no significant state or federal agency comments regarding the groundwater quality within the study area. LDEQ did state that "all precautions should be observed to protect the groundwater of the region."

⁶⁸ LDEQ.

<http://www.deq.louisiana.gov/portal/DIVISIONS/WaterQualityAssessment/AquiferEvaluationandProtection/ProtectingLouisianasGroundWater.aspx>. May 2, 2006. Online Report Accessed January 23, 2012.



A complete groundwater quality assessment is not necessary for this portion of the project. The quality of the surface waters has a more immediate impact on the residences of the area parishes. The general soil types for the study area consist of poorly to very poorly drained loamy and clayey soils near natural levees, swamps, and marshes. The depth to water in the study area ranges from 0.5 to 2 feet.⁶⁹ As long as the surface water quality is adequately evaluated, the groundwater quality should benefit from those same areas of concern. The major difference between the groundwater and surface water in the study area is that the groundwater is not a significant direct drinking water source for the area parishes.

According to the 2005 USGS publication, *Water Use in Louisiana*, groundwater withdrawals amounted to 14.96 million gallons per day (mgd) in Assumption Parish, 13.71 mgd in Lafourche Parish, 22.63 mgd in St. James Parish, 13.31 mgd in St. John the Baptist Parish, and 1.50 mgd in Terrebonne Parish. In 2005, 95 percent of groundwater withdrawals in Assumption Parish and 72 percent of groundwater withdrawals in St. John Parish were for industrial use. Ninety-nine (99) percent of groundwater withdrawals in Lafourche Parish, 87 percent of groundwater withdrawals in St. James Parish, and 82 percent of groundwater withdrawals in Terrebonne Parish were for aquaculture purposes. Twenty-eight (28) percent of groundwater withdrawals in St. John the Baptist were for public supply. Livestock watering, rural domestic purposes, and general irrigation make up remaining measurable groundwater withdrawals in Assumption and Lafourche Parishes.⁷⁰

4.22.2 What groundwater sources are located within the study area?

There are no sole source aquifers located within any of the build alternatives under consideration. The *USGS Ground Water Atlas of the United States* indicates that the only aquifer system in the study area is the Coastal Lowlands aquifer system, which is comprised of five regional aquifers.⁷¹ Deposits of the Coastal Lowland system thicken toward the Gulf of Mexico and are composed of heterogeneous, unconsolidated to poorly consolidated sand, silt, and clay. Recharge to the aquifer system occurs primarily through precipitation and occurs at the greatest volume when the area is topographically high.⁷² Groundwater quality ranges from fresh to saline in the shallow aquifers of Lafourche, St. James, and Terrebonne Parishes. Groundwater does become predominantly saline to the southern part of the study area.

A review of water wells registered with the Louisiana Department of Natural Resources (LDNR), Office of Conservation indicated that there are six wells total within a 150-foot buffer of the build alternative centerlines. There are two active and three plugged and abandoned wells located within the western portion of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")*, as shown in **Figure 4-16** below. There is one active well located within the northern portion of all four alternatives. The water well registration data file contains only wells registered with LDNR or formerly registered with LADOTD, Water Resources Section. It is possible additional wells have been drilled within the study area and have not been registered. Further analysis and field verification will be necessary upon selection of a Preferred Alternative.

⁶⁹ United States Department of Agriculture, "Soil Survey of Lafourche Parish, Louisiana". 1984.

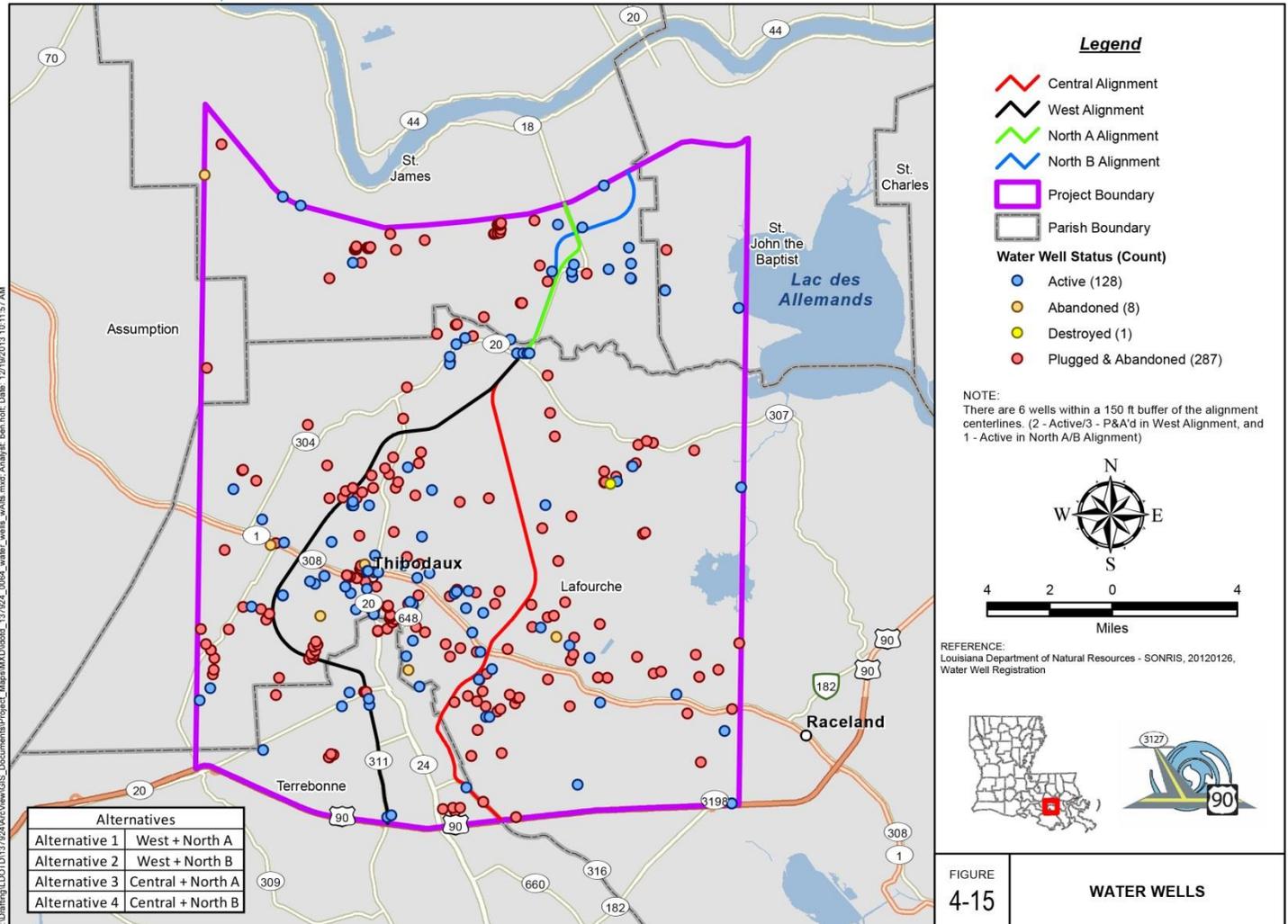
⁷⁰ Sargen, B. Pierre, USGS. "Water Use in Louisiana, 2005", 2007.

⁷¹ USGS. United States Geological Survey, HA 730-F. http://pubs.usgs.gov/ha/ha730/ch_f/index.html. 1998. Last Accessed October 30, 2013.

⁷² Blanchard, C. Troy. "Population Projections of Louisiana Parishes through 2030". 2009.



Figure 4-16
Water Wells with Alternatives





4.22.3 What are the impacts to groundwater as a result of the No-build Alternative?

The No-build Alternative would result in no additional impacts to the surface water quality of the study area.

4.22.4 What are the impacts to groundwater as a result of the Build Alternatives?

Alternative 1 (Western Alignment + North Alignment "A")

As previously indicated in Figure 4-16, there are active wells located within the study area for the western portion of *Alternative 1 (Western Alignment + North Alignment "A")*.

Groundwater is not a primary source of drinkable water for citizens located in Lafourche, St. James, and Terrebonne Parishes; therefore, any groundwater impacts would be insignificant to the feasibility of this alternative. Any immediate impacts to the groundwater quality in the area would be similar in nature to the surface water impacts previously mentioned in Section 4.21.

Alternative 2 (Western Alignment + North Alignment "B")

There are active wells located within the study area for the western portion of *Alternative 2 (Western Alignment + North Alignment "B")*.

Groundwater is not a primary source of drinkable water for citizens located in Lafourche, St. James, and Terrebonne Parishes; therefore, any groundwater impacts would be insignificant to the feasibility of this alternative. Any immediate impacts to the groundwater quality in the area would be similar in nature to the surface water impacts previously discussed in Section 4.21.

Alternative 3 (Central Alignment + North Alignment "A")

There should be no active wells either impacted or displaced as a result of *Alternative 3 (Central Alignment + North Alignment "A")*. Impacts to the groundwater quality in the area would be similar to the potential surface water impacts discussed in Section 4.21.

Alternative 4 (Central Alignment + North Alignment "B")

There should be no active wells either impacted or displaced as a result of *Alternative 4 (Central Alignment + North Alignment "B")*. Impacts to the groundwater quality in the area would be similar to the potential surface water impacts discussed in Section 4.21.

4.22.5 What indirect and cumulative impacts are anticipated?

Any secondary and cumulative impacts to the groundwater quality in the area would be similar in nature to the surface water impacts previously mentioned. Groundwater is typically impacted by storm water runoff in the same way that surface waters would be impacted. Long-term impacts to groundwater would be insignificant. It is anticipated that most storm water runoff associated with each route would move through the project area without much infiltration due to the poorly drained soils that compose a majority of the study area.⁷³

Although the project overlies the Coastal Lowlands aquifer system, there would be minimal noticeable impact to the aquifer from construction or operation of the build alternatives. Groundwater quality ranges from fresh to saline in the shallow aquifers of Lafourche, St. James, and Terrebonne Parishes. Groundwater does become predominantly saline to the southern part of the study area.

⁷³ United States Department of Agriculture, "Soil Survey of Lafourche Parish, Louisiana," 1984.



In areas where the water table is higher, the impacts to groundwater would be more immediate and the build-up over time could be significant to the aquifer. Depth to water in the study area is as shallow as 0.5 feet in some areas of the proposed project. For the areas where the water table is not shallow, the potential contaminants would be deposited in the soil material rather than be conveyed to the underlying aquifer. The proposed route will be predominantly elevated in areas where the water table is high.

Proper maintenance of equipment along with BMPs during construction activities and daily refueling would minimize the possibility of accidental spills of fuels or lubricants. Accidental spills could potentially impact groundwater quality; however, containment and cleanup measures would be implemented immediately if a spill occurs. Any spills of a reportable quantity would be immediately reported to the appropriate authorities to ensure proper cleanup.

The two active water wells identified near the western portion of *Alternative 1 (Western Alignment + North Alignment "A")* and *Alternative 2 (Western Alignment + North Alignment "B")* and the one active water well in the northern portion of all four build alternatives may be impacted by project construction if those routes are selected. A determination of impact and the potential for relocation will be made during the design implementation phase of the project.

4.23 FLOODPLAINS

4.23.1 What is the 100-year floodplain?

A floodplain is an area of level land along the course of a river formed by the deposition of sediment during periodic floods. Floodplains are normally dry but may become inundated when a river or water body overflows its banks because of heavy precipitation from a storm event or from seasonal flooding. Executive Order 11988, issued in 1977, directs federal agencies to "avoid construction or management practices that would adversely affect floodplains unless there are: one, no practical alternatives, and two, the proposed action has been designed or modified to minimize harm to or within the floodplain." Highway projects administered, funded, or approved by FHWA are subject to EO 11988, and to 23 CFR 650; the FHWA regulation that controls the location and hydraulic design of highway encroachments on floodplains.

The National Flood Insurance Act was established in 1968 and created the National Flood Insurance Program (NFIP). The Federal Emergency Management Agency (FEMA) manages the NFIP and produces flood hazard maps as a component of the administration of the NFIP. The Flood Insurance Rate Maps (FIRM) for the study area were obtained from FEMA in GIS format, where available. For example, both St. James and St. John the Baptist Parishes have effective Digital Flood Insurance Rate Maps (DFIRM), which were utilized. Assumption, Lafourche, and Terrebonne Parishes all have Preliminary DFIRMs. Preliminary DFIRMs are presented to a community as part of the production or revision process. The community's comments are taken into consideration when FEMA produces the final product. Preliminary DFIRMs are never used for rating flood insurance, but may be used by the community for regulating development. They are the most up-to-date flood risk information until they are replaced by their Future DFIRM and eventually accepted as an Effective DFIRM.⁷⁴ The Preliminary DFIRM data is only available for viewing and not as individual GIS data. Assumption, Lafourche, and Terrebonne Parishes are currently going through the appeals process with FEMA in regards to their Preliminary DFIRMs. **Table 4.55** shows the FIRM status by Parish.

⁷⁴ Louisiana State University AgCenter Flood Map Portal. 2013. <http://maps.lsuagcenter.com/floodmaps/>. Last accessed on October 11, 2013.



Table 4.55
FIRM Status by Parish

Parish	Effective FIRM Date	Preliminary DFIRM Date	Effective DFIRM Date
Assumption	11/5/1997	7/28/2009	N/A
Lafourche	4/17/1985	7/30/2008	N/A
St. James	N/A	N/A	7/4/2011
St. John the Baptist	N/A	N/A	11/4/2010
Terrebonne	5/1/1985	7/30/2008	N/A

N/A: Not Applicable

Based on the FIRMs, it has been determined that approximately 76 percent (or 167,175 acres) of the study area is located within the 100-year floodplain. Flood events within the study area occur during heavy rainfall events that cause bi-directional flow in the many canals within the study area and ponding of rainwater on the relatively flat topography. Storm surge flooding may also occur during tropical storm events. **Figure 4-17** illustrates the FEMA FIRM for the study area. The Effective DFIRM data was used for St. James and St. John the Baptist Parishes and Effective FIRM GIS data was used to depict the floodplain for Assumption, Lafourche, and Terrebonne Parishes.

LADOTD commented in a letter dated July 7, 2004, as part of the Solicitation of Views process, that parts of the study area are located within a Special Flood Hazard Area (SFHA). This SFHA was established as a result of the Federal Insurance Administrator designating the area as being within the 100-year floodplain. The SFHA is the area where the NFIP's floodplain management regulations must be enforced by the local floodplain managers as a condition of participation in the NFIP and where mandatory purchase of flood insurance is required. LADOTD also advised that the occurrence of base flood inundation be considered during the development of the proposed project.

The FIRMs for the study area indicate that the 100-year floodplain zones that would be crossed by the build alternatives are zoned A and AE. Zone A flood zones do not have a calculated Base Flood Elevation (BFE). According to the FIRMs (Effective DFIRM and Preliminary DFIRM information was used to calculate BFE), BFE range from +2 feet North American Vertical Datum of 1988 (NAVD88) to +11 feet NAVD88 in the study area. Along the alternatives being considered, the maximum BFE for at-grade construction would be +6 feet NAVD88 (which is based upon the assumption of one foot of freeboard for road construction). The elevated portions of the build alternatives will need to be designed to an appropriate elevation that should also be above BFE.

4.23.2 What is the floodway?

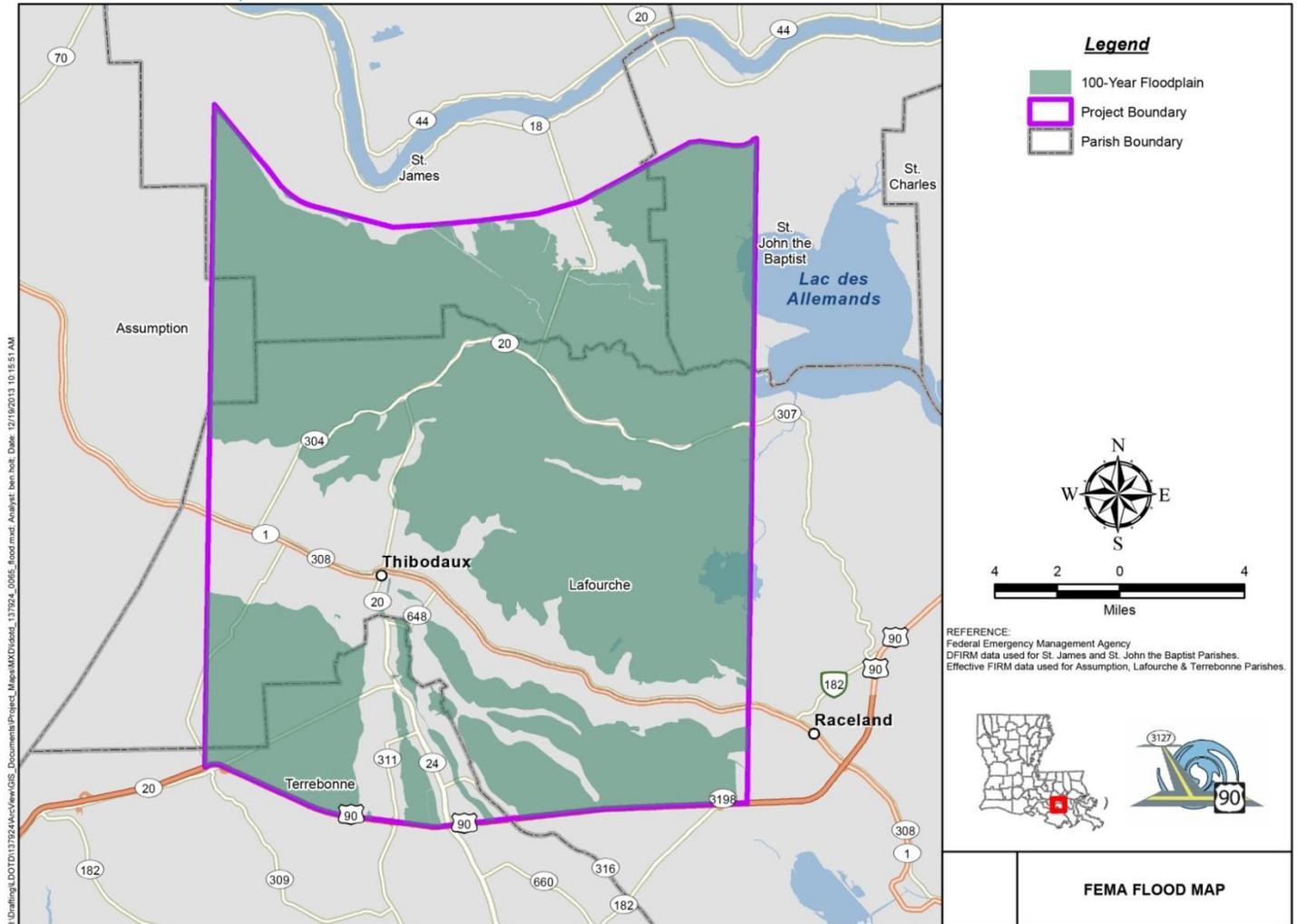
A regulated floodway is defined by FEMA as a watercourse and adjacent land areas that are reserved in order to discharge a base flood without increasing water elevations more than a designated height. A review of the Effective DFIRM and Preliminary DFIRMs indicates that there are no regulatory floodways within the study area.

4.23.3 What are the impacts to the floodplain as a result of the No-build Alternative?

The No-build Alternative would not result in decreasing the 100-year floodplain's capacity to absorb floodwaters. However, as described in the Purpose and Need section of this document, a secondary purpose of this proposed project will be to provide alternative evacuation routes during tropical storms and major flood events in the region.



**Figure 4-17
FEMA Flood Map**





4.23.4 What are the impacts to the floodplain as a result of the Build Alternatives?

Slightly more than half of the length of the build alternatives will be within the 100-year floodplain. **Table 4.56** provides the mileage for the build alternatives within and outside of the 100-year floodplain. **Table 4.57** provides the acreage within and outside the 100-year floodplain that would be crossed by each build alternative and indicates if the roadway would be elevated or at-grade.

Table 4.56
100-Year Floodplain Alternative Mileage

Alternatives	Within 100 Year Floodplain	Outside 100 Year Floodplain	Total Miles
Alternative 1 (Western Alignment + North Alignment "A")	13.3	12.8	26.1
Alternative 2 (Western Alignment + North Alignment "B")	15.6	12.6	28.2
Alternative 3 (Central Alignment + North Alignment "A")	13.4	9.3	22.7
Alternative 4 (Central Alignment + North Alignment "B")	15.8	9.1	24.9

Source: Figure 4-17 - FEMA Flood Map (Effective DFIRM GIS data used for St. James and St. John the Baptist Parishes; Effective FIRM GIS data used for Assumption, Lafourche, and Terrebonne Parishes)

Table 4.57
100-Year Floodplain Acreage

Alternatives	Within 100 Year Floodplain			Outside 100 Year Floodplain		
	Elevated	At Grade	Total	Elevated	At Grade	Total
Alternative 1 (Western Alignment + North Alignment "A")	247.0	47.6	294.6	38.7	264.5	303.2
Alternative 2 (Western Alignment + North Alignment "B")	286.4	60.4	346.8	33.3	265.1	298.4
Alternative 3 (Central Alignment + North Alignment "A")	265.9	27.6	293.5	45.5	165.2	210.7
Alternative 4 (Central Alignment + North Alignment "B")	305.3	40.4	345.7	40.8	165.8	205.9

Source: Figure 4-17 - FEMA Flood Map (Effective DFIRM GIS data used for St. James and St. John the Baptist Parishes; Effective FIRM GIS data used for Assumption, Lafourche and Terrebonne Parishes)

Several streams will be crossed by the proposed project. **Table 4.58** provides a list of named stream crossings proposed for each build alternative. A review of the Effective DFIRMs and Preliminary DFIRMs indicates that none of these streams are considered a regulatory floodway. The study area does not contain a regulated floodway that would be impacted by the proposed project (based upon review of Effective FIRMs, Effective DFIRMs, and Preliminary DFIRMs).



**Table 4.58
Named Stream Crossings**

Stream Name	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Bayou Lafourche	Yes	Yes	Yes	Yes
Bayou Boeuf	Yes	Yes	No	No
Bayou Blue	No	No	Yes	Yes
Grand Bayou	No	No	Yes	Yes
Cutoff Bayou	No	No	Yes	Yes
Hollywood Canal	No	No	Yes	Yes
Lepeans Canal	No	No	Yes	Yes
St. James Canal	No	No	Yes	Yes
Bayou Lassene	No	Yes	No	Yes
Chevreuil Bayou	Yes	Yes	Yes	Yes

Source: Houma-Thibodaux to LA 3127 Connection Preliminary Alternatives Exhibits - Line and Grade and Preliminary DFIRM data

Alternative 1 (Western Alignment + North Alignment "A")

More than 13 miles of the total 26.1 miles of *Alternative 1 (Western Alignment + North Alignment "A")* would be located within the 100-year floodplain, approximately 84 percent of which will have elevated construction.

The hydrology of the floodplain may be altered by the at-grade portions of this alternative. The elevated portions of the alternative will be built above BFE and will be designed to allow sufficient flow of flood waters beneath the proposed project highway.

Alternative 2 (Western Alignment + North Alignment "B")

Nearly 16 miles of the total 28.2 miles of *Alternative 2 (Western Alignment + North Alignment "B")* would be located within the 100-year floodplain, a majority of which (83 percent) will have elevated construction. This alternative would have the most 100-year floodplain acreage (nearly 347 acres) as well as the most at-grade construction (60 acres).

The hydrology of the floodplain may be altered by the at-grade portions of this alternative. The elevated portions of the alternative will be built above BFE and will be designed to allow sufficient flow of flood waters beneath the proposed project highway.

Alternative 3 (Central Alignment + North Alignment "A")

More than 13 miles of the total 22.7 miles of *Alternative 3 (Central Alignment + North Alignment "A")* would be located within the 100-year floodplain, 91 percent of which will have elevated construction. This alternative would have the fewest total acres within the 100-year floodplain, as well as having the fewest at-grade impacts. Only 27.6 acres of 100-year floodplain would be filled by at-grade construction of this alternative.

The hydrology of the floodplain may be altered by the at-grade portions of this alternative. The elevated portions of the alternative will be built above BFE and will be designed to allow sufficient flow of flood waters beneath the proposed project highway.

Alternative 4 (Central Alignment + North Alignment "B")

Almost 16 miles of the total 24.9 miles of *Alternative 4 (Central Alignment + North Alignment "B")* would be located within the 100-year floodplain, 88 percent of which will have elevated construction.



The hydrology of the floodplain may be altered by the at-grade portions of this alternative. The elevated portions of the alternative will be built above BFE and will be designed to allow sufficient flow of flood waters beneath the proposed project highway.

4.23.5 What indirect and cumulative impacts are anticipated?

Secondary development along the build alternatives could further alter the capacity of the 100-year floodplain to absorb major flood events. Secondary development as a result of the proposed project would occur mainly at new interchanges that occur within the 100-year floodplain. Currently, there are three interchanges proposed that meet this criteria. Floodplain managers will need to control and monitor development that would impact the 100-year floodplain and work to require compensatory treatment to mitigate impacts.

4.24 COASTAL ZONE

4.24.1 Is the study area within the Coastal Zone?

The Louisiana Coastal Zone Boundary was established in response to the federal Coastal Zone Management Act of 1972 by Act 361 of the 1978 Regular Session of the Louisiana Legislature. The Coastal Zone is managed by the LDNR, Coastal Management Division (LDNR-CMD) through the Louisiana Coastal Resources Program. LDNR-CMD regulates development activities and manages the resources of the Coastal Zone. Coastal Zone resources include wetlands, fisheries, oil and gas production, wildlife habitats, and coastal crops.⁷⁵ The wetlands within the Coastal Zone provide storm protection and wildlife habitat.⁷⁶ **Figure 4-18** shows that the entire study area is within the Coastal Zone. During the Solicitation of Views process, LDNR-CMD determined that the proposed project is of state concern and assigned the project Coastal Use Permit number P20040911, but authorization for the proposed project will not be granted until a complete application has been submitted to LDNR-CMD.

As mentioned above, the entire study area is within the Coastal Zone. The direct impacts to the coastal zone resource would be the fill or conversion of wetlands. **Table 4.59** shows the acreage of wetlands along the build alternatives.

Table 4.59
Wetland Acreage

Wetland Habitat Type	Alternative 1 (Western Alignment + North Alignment A)		Alternative 2 (Western Alignment + North Alignment B)		Alternative 3 (Central Alignment + North Alignment A)		Alternative 4 (Central Alignment + North Alignment B)	
	Elevated	At Grade						
Freshwater Forested/Shrub Wetland	199.25	0.55	238.60	2.63	252.81	6.67	292.17	8.75
Riverine	0.94	N/A	0.95	N/A	0.97	N/A	0.97	N/A
Freshwater Pond	0.63	N/A	0.63	N/A	N/A	N/A	N/A	N/A
Lake	N/A	1.97	N/A	1.97	N/A	N/A	N/A	N/A
Total	200.82	2.52	240.18	4.60	253.78	6.67	293.14	8.75

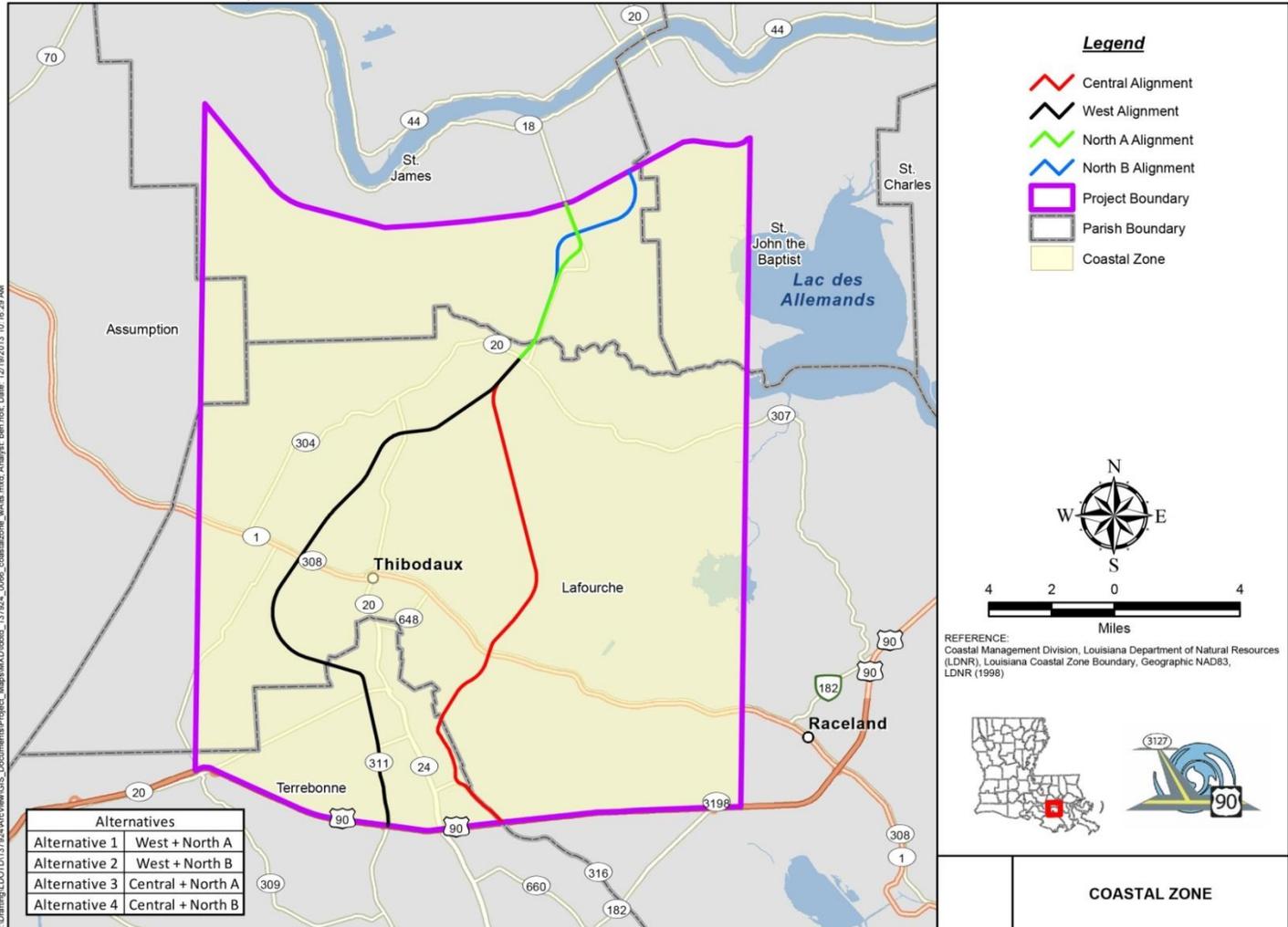
Source: Figure 4-23 - NWI Wetlands

⁷⁵ Louisiana Department of Natural Resources. 2011. *A coastal user's guide to the Louisiana coastal resources program*. Baton Rouge, Louisiana: Louisiana Department of Natural Resources.

⁷⁶ Louisiana Department of Natural Resources Office of Coastal Management. 2010. *Defining Louisiana's coastal zone: a science based evaluation of the Louisiana coastal zone inland boundary*. Baton Rouge, Louisiana: Louisiana Department of Natural Resources.



**Figure 4-18
Coastal Zone**



4.24.2 Environmental consequences

No-build Alternative

The No-build Alternative would result in no wetland impacts.

Build Alternatives

Alternative 1 (Western Alignment + North Alignment "A") would fill over 2 acres of forested wetlands, while *Alternative 2 (Western Alignment + North Alignment "B")* would fill over 4 acres of forested wetlands, *Alternative 3 (Central Alignment + North Alignment "A")* would fill over 6 acres of forested wetlands, and *Alternative 4 (Central Alignment + North Alignment "B")* would fill almost 9 acres of forested wetlands. The elevated sections of the alternatives would convert forested wetlands to emergent wetlands because of shading effects. *Alternative 1 (Western Alignment + North Alignment "A")* would convert the fewest acres of forested wetlands to emergent wetlands, while *Alternative 4 (Central Alignment + North Alignment "B")* would convert the most. A more detailed discussion of the direct impacts to wetlands may be found in Section 4.23.2.



Secondary and cumulative impacts

Secondary and cumulative impacts from the Preferred Alternative would affect wetlands and coastal habitats downstream of the impacted wetlands. Secondary impacts from the Preferred Alternative would be nonpoint pollution from runoff entering wetlands located adjacent to the Preferred Alternative. Highway runoff pollutants may include heavy metals, inorganic salts, aromatic hydrocarbons, and suspended solids. An additional secondary impact would be alteration of hydrology downstream of the impacted wetlands along the Preferred Alternative. The loss of wetlands along the Preferred Alternative could permanently alter or sever the natural hydrology of the remaining wetlands. Cumulative impacts would be from secondary development of land now accessible via the Preferred Alternative.

4.25 WETLANDS

4.25.1 What methodology was used to identify wetlands within the study area?

Wetlands comprise a large portion of the overall study area. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions" (40 CFR 230.3 and 33 CFR 328.3). Executive Order 11990 of May 1977 was enacted to protect and slow the loss of the nation's wetlands.

A preliminary wetland assessment was performed to evaluate the study area based on the guidance provided by the USACE Wetland Delineation Manual and the Atlantic and Gulf Coastal Plain Regional supplement.^{77,78,79} The New Orleans District of the USACE has the sole authority to make the official determinations of wetlands or jurisdiction over property in the various parishes within the study area.

This preliminary assessment used historical aerial and satellite imagery, the National Wetlands Inventory (NWI) maps, individual parish NRCS Soil Surveys, the NRCS Web Soil Survey, USGS 7.5 minute topographical maps, site observations, and local knowledge to aid in the identification of potential jurisdictional wetlands and habitat quality ratings for wetlands.^{80,81,82,83,84} The various habitat quality ratings include: high - undeveloped, relatively undisturbed, medium - disturbed but retaining some wetland function, low - affected by development, and agricultural/urban.

⁷⁷ Federal Interagency Committee for Wetland Delineation. (1989). *Federal Manual for Identifying and Delineating Jurisdictional Wetlands, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Department of Agriculture, Soil Conservation Service, Washington, D.C.

⁷⁸ U.S. Army Corps of Engineers (1987) Corps of Engineers Wetland Delineation Manual. Wetland Research Program Technical Report Y-87-1, Waterways Experiment Station, Environmental Laboratory, Vicksburg, MS, January 1987.

⁷⁹ U.S. Army Corps of Engineers (2008). *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*. Engineer Research and Development Center, Environmental Laboratory, ERDC/EL TR-08-30, Vicksburg, Mississippi, October 2008.

⁸⁰ U.S. Department of Agriculture. (2007). Soil Survey of Assumption Parish, Louisiana.

⁸¹ U.S. Department of Agriculture. (2007). Soil Survey of Lafourche Parish, Louisiana.

⁸² U.S. Department of Agriculture. (2007). Soil Survey of St. James Parish, Louisiana.

⁸³ U.S. Department of Agriculture. (2007). Soil Survey of Terrebonne Parish, Louisiana.

⁸⁴ U.S. Department of Agriculture – Natural Resources Conservation Service (2010). National Cooperative Soil Survey, Web Soil Survey 2.1.



Wetlands within the study area are generally interrelated with geomorphic positioning associated with a riverine distributary depositional environment. The entire study area lies within the floodplain of the Mississippi River. Riverine depositional geomorphic positioning starts with the natural levee, transitions into back slope and backswamp, and ends with swamp/marsh. Soils within the study area correspond with geomorphic positioning and hydric classification.^{85,86} The natural levee soils of the study area are normally considered non-wetland soils. Soils associated with the back slopes, back swamps, and marsh/swamps are typically considered hydric wetland soils and include Allemands, Aquent, Barbary, Carlin, Fausse, Gramercy, Kenner, Larose, Maurepas, Mhoon, Rita, and Schriever, as shown in **Figure 4-19**. Agricultural practices utilized forced drainage to farm the land from the natural ridges to the lowlands adjacent to the cypress-tupelo swamps. Some of the lowlands have become fallow and reverted back to wetlands.

In addition to agriculture, the existing condition of wetlands within the study area has also been affected by the installation of numerous gas wells and gas pipeline infrastructure. **Figure 4-20** and **Figure 4-21** show that approximately 422 miles of pipeline and 907 oil and gas wells are located within the study area.⁸⁷ These pipelines and well sites are usually cleared during their construction, which decreases the overall habitat value of the forested wetland types they are located in. A more precise evaluation of the impact these features have on the existing functional value of wetlands will be conducted on the Preferred Alternative.

Wetland habitat types observed in the study area include cypress-tupelo swamps, freshwater marsh, shrub-scrub, bottomland hardwoods, agricultural wetlands, and other waters of the U.S.

4.25.2 What wetlands are located within the study area?

Cypress-Tupelo (NWI Habitat Mapping Codes PFO1/2C,D,F)

Cypress-tupelo swamps are wetlands dominated by woody vegetation over 20 feet tall. Swamps are characterized by saturated soils during the growing season, and standing water during most of the year. The highly organic soils of swamps form a thick, black, nutrient-rich environment. Cypress (*Taxodium distichum*) and tupelo (*Nyssa aquatica*) trees are the dominant canopy species with black willow (*Salix nigra*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), wax myrtle (*Morella cerifera*), Chinese tallow tree (*Sapium sebiferum*), and buttonbush (*Cephalanthus occidentalis*) dominating the understory.⁸⁸ Herbaceous vegetation species found in bottomland hardwoods and fresh marsh are also common in the cypress-tupelo swamps, often forming floating tussocks.

⁸⁵ Gregtag Macbeth. (2000). *Munsell Soil Color Charts*, New Windsor, New York.

⁸⁶ Natural Resource Conservation Service (1998) *Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils*, Version 4.0. G.W. Hurt, Whited, P.M., and Pringle, R.F. (Eds.). USDA, NRCS, Ft. Worth, TX.

⁸⁷ SONRIS database. <http://dnr.louisiana.gov/crm/coastres/monitoring.asp>. Sites No's 194, 197, and 268. Last accessed October 24, 2013.

⁸⁸ U.S. Fish and Wildlife Service (1988) *National List of Plant Species That Occur in Wetlands: Southeast (Region 2)* USDI Biological Report 88 (26.2), May 1988.



Figure 4-19
Hydric Soils with Alternatives

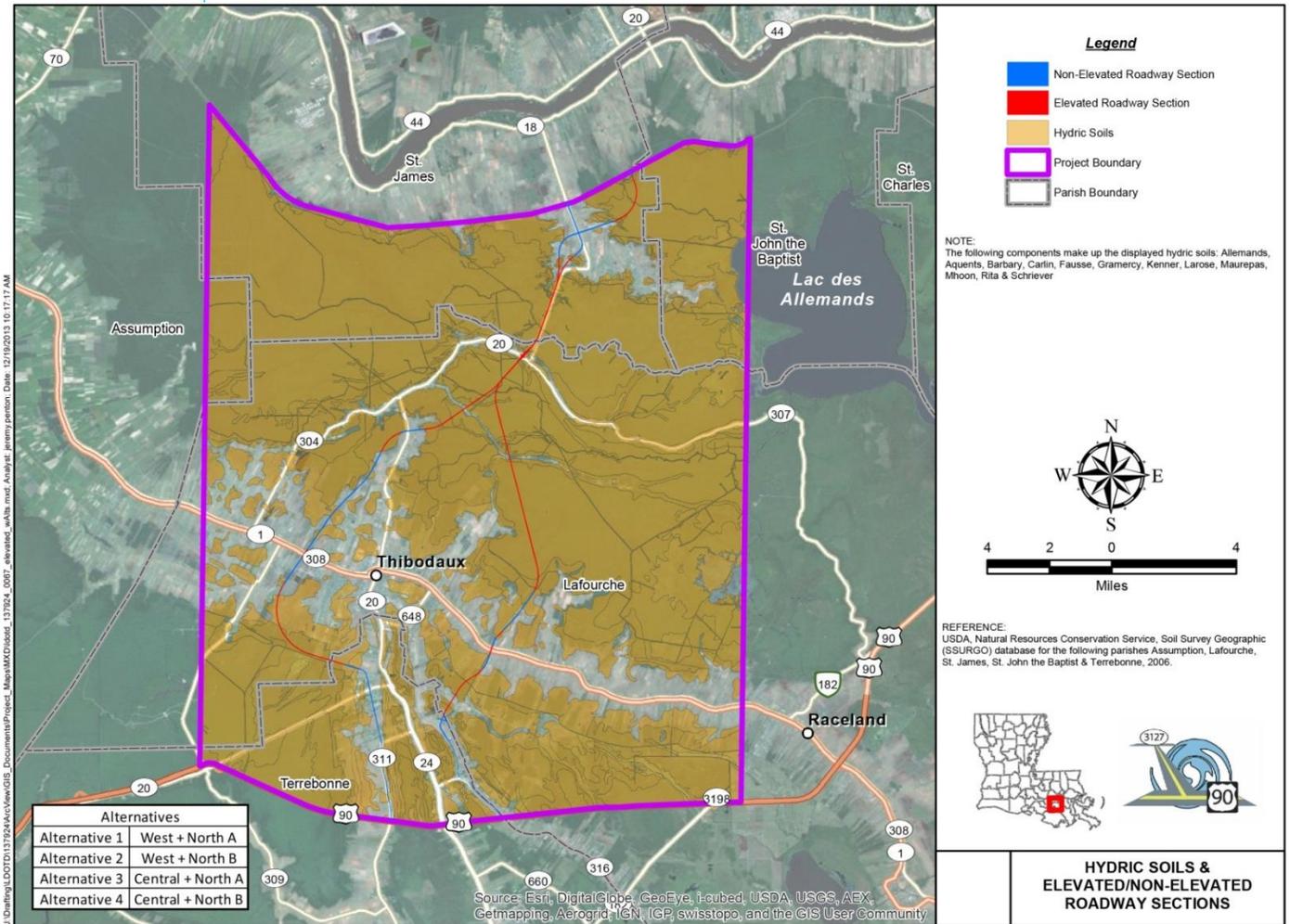




Figure 4-20
Pipelines with Alternatives

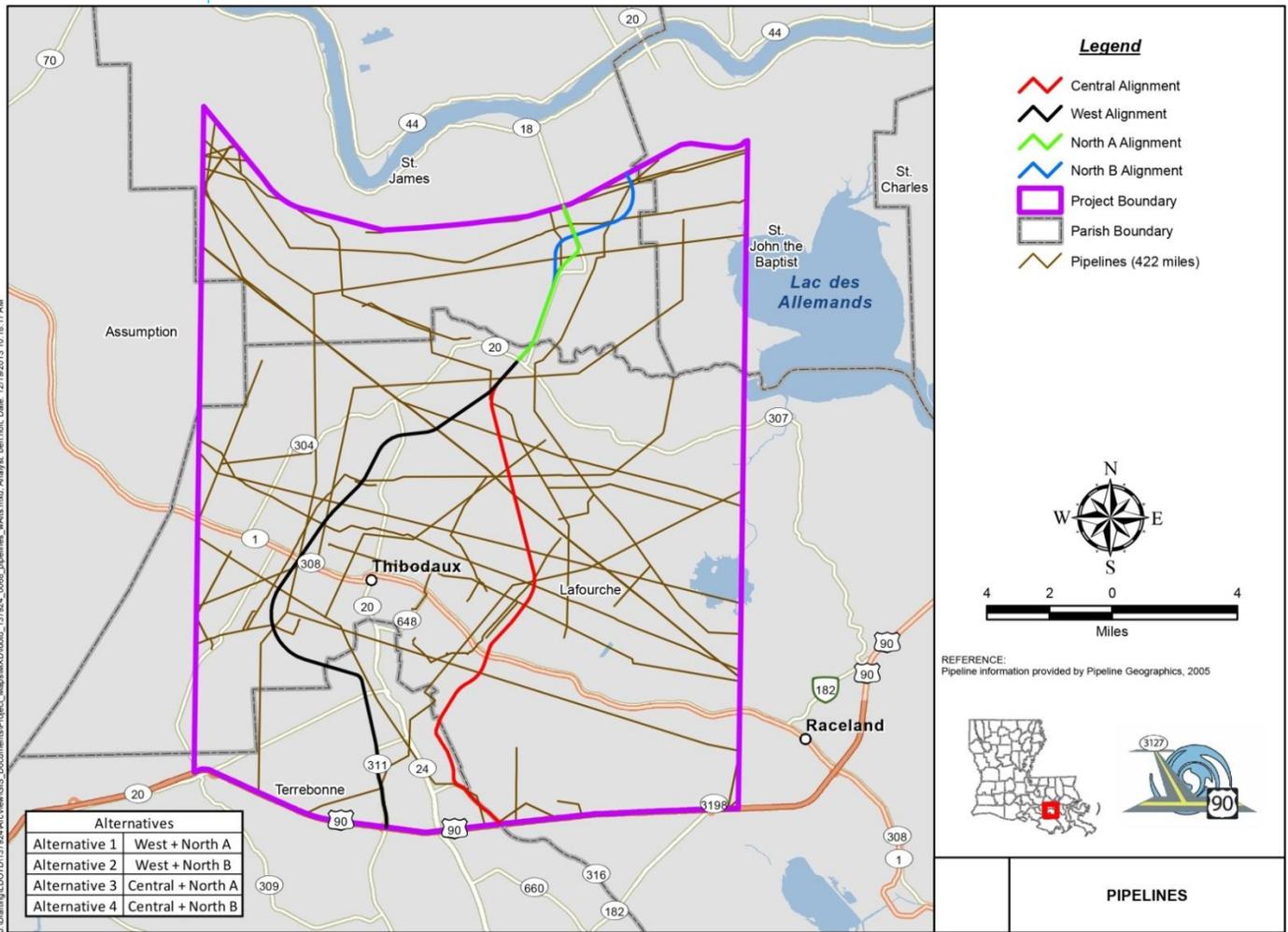
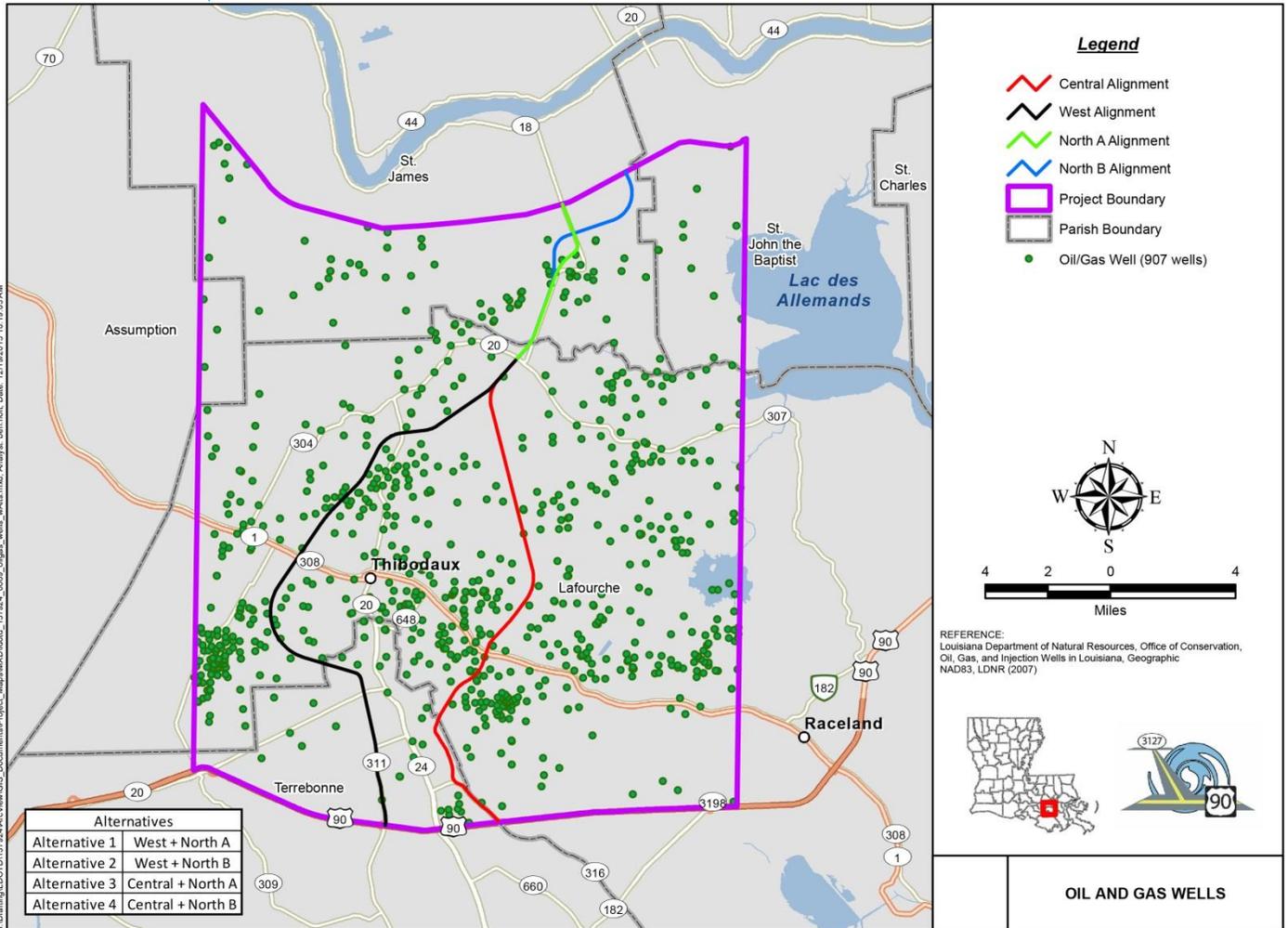




Figure 4-21
Oil and Gas Wells with Alternatives



J:\Drafting\LDOTD\137824\AcView\GIS_Documents\Project_Maps\MKD\0000_137824_0009_oilgas_wells_walls.mxd Analyst: ben.holt Date: 12/19/2013 10:19:03 AM



Freshwater Marsh (NWI Habitat Mapping Codes PEM1C,F)

Freshwater marshes are wetlands frequently or continually inundated with water, characterized by emergent soft-stemmed vegetation adapted to saturated soil conditions. Alligatorweed (*Alternanthera philoxeroides*), bull tongue (*Sagittaria lancifolia*), cattail (*Typha sp.*), needle rush (*Juncus effusus*), maiden cane (*Panicum hemitomon*), pickerelweed (*Pontederia cordata*), marsh fern (*Thelypteris palustris*), giant cutgrass (*Zizaniopsis miliacea*), golden rod (*Solidago stricta*), and smartweed (*Polygonum punctatum*) are the common herbaceous vegetation species. Black willow, red maple, cypress, wax myrtle, and Chinese tallow tree are also common woody species found in freshwater marshes.⁸⁹

Shrub-Scrub (NWI Habitat Mapping Codes PFO1A, PSS)

Shrub-scrub wetlands include areas dominated by woody vegetation less than 6 meters (20 feet) tall. Vegetation includes true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. Typical species include black willow, red maple, wax myrtle, baccharis (*Baccharis halimifolia*), marsh elder (*Iva frutescens*), holly possom-haw (*Ilex decidua*), Chinese tallow tree, and various species of coffeebean type plant (*Sesbania sp.*).^{1,90}

Former lowland agricultural fields and utility transportation corridors, such as pipelines and electrical transmission lines, provide conditions suited to shrub-scrub habitat. Freshwater marsh herbaceous vegetation species can be found mixed with the shrub-scrub vegetation. The study area has abundant pipeline and transmission line ROWs and former agricultural fields, predominantly nearest the cypress-tupelo swamp areas.

Bottomland Hardwoods (NWI Habitat Mapping Codes PFO1C)

Bottomland hardwood forests are found along rivers and streams generally in broad floodplains. They are deciduous forested wetlands. Identifying features of these wetland systems are the fluted or flaring trunks that develop in several species, and the presence of knees, or aerial roots. Hackberry (*Celtis laevigata*), sweet gum (*Liquidambar styraciflua*), water oak (*Quercus nigra*) live oak (*Quercus virginiana*), green ash, american elm (*Ulmus americana*), pumpkin ash (*Fraxinus profunda*), box elder (*Acer negundo*), cypress, honey locust (*Gleditsia triacanthos*), and Chinese tallow tree (*Sapium sebiferum*) are some of the dominant tree species in bottomland hardwood forests (Louisiana Office of Coastal Protection and Restoration, 2010). Sedge (*Carex sp.*), palmetto (*Sabal minor*), lizard-tail (*Saururus cernuus*), trumpet creeper (*Campsis radicans*), dewberry (*Rubus cuneifolius*), greenbrier (*Smilax sp.*), pepper-vine (*Ampelopsis arborea*), fall panic grass (*Phanopyrum gymnocarpon*), climbing hempweed (*Mikania scandens*), and poison ivy (*Toxicodendron radicans*) are some of the dominant herbaceous species in bottomland hardwood forests.⁹¹

Farmed Wetlands (NWI Habitat Mapping Codes PAB/PUB)

Farmed wetlands have been partially drained or altered to produce an agricultural crop or pasture, but still may exhibit some wetland values. These areas may be planted in row crops or pasture grasses. Soil surfaces have been graded and cultivated. Existing drainage networks may utilize ditches and water control structures to make the land suitable for agricultural purposes. Active agriculture lands undergoing a land use change will be subject to a more thorough jurisdictional determination centered on the historical and original landform. Farmed wetlands in the study area are generally located in the lowlands of the natural ridge geomorphic positioning

⁸⁹ Louisiana Office of Coastal Protection and Restoration. (2010). CRMS-Wetlands Monitoring Data.

⁹⁰ U.S. Fish and Wildlife Service (1988) National List of Plant Species That Occur in Wetlands: Southeast (Region 2) USDI Biological Report 88 (26.2), May 1988.

⁹¹ Louisiana Office of Coastal Protection and Restoration. (2010). CRMS-Wetlands Monitoring Data.



adjacent to the swamps. If unable to be maintained in agriculture, the land will go through a vegetation succession of shrub-scrub to bottomland hardwoods or to a marsh/swamp environment depending on drainage. The build alternatives, particularly passing through the lowlands, encounter many areas of varying degrees of wetland habitat.

Other Waters of the U.S. (NWI Habitat Mapping Codes L1/R2)

Waters of the U.S. are partly defined as non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (40 CFR 230.3[s]). Waters of the U.S. do not include prior converted cropland. The study area contains numerous water bodies including lakes, ponds, canals, bayous, and drainage canals. Agricultural drainage networks are among the predominant features throughout the build alternatives.

Wetland vs. Non-Wetland

Agricultural practices utilized forced drainage to farm the land from the natural ridges to the lowlands adjacent to the cypress-tupelo swamps. The natural ridge areas are predominantly non-wetland. Some lowlands have become fallow and transitioned into various types of wetlands, and were included in the wetland category. Agricultural drainage networks in the existing active agricultural lands were not included in the wetland category, as they do not meet the requirements for wetland classification.

4.25.3 What are the impacts to wetlands as a result of the No-build Alternative?

The No-build Alternative would result in no wetland impacts.

4.25.4 What are the impacts to wetlands as a result of the Build Alternatives?

It is anticipated that wetland impacts will result from any of the build alternatives. These impacts will be associated with clearing (all portions), filling (at-grade portions), and shading (elevated portions). Forested wetlands are the most abundant wetland type within the proposed Alternatives. **Table 4.60** and **Table 4.61** present a preliminary wetland assessment quantification based on historical aerial and satellite imagery, the NWI maps, individual parish NRCS Soil Surveys, the NRCS Web Soil Survey, USGS 7.5 minute topographical maps, limited site observations, local knowledge, and best professional judgments. It does not represent an actual amount of wetland acreage affected by the respective alternatives, but rather a general representation. The linear footage was based on scaling from aerial imagery as well as GIS data. A percentage was obtained for wetlands based on the total alignment length and the wetland length. Acreage was calculated by applying the total length of wetlands by the width of the ROW (ROW obtained in GIS format), which ranges from approximately 150 to 250 feet. NWI data for the study area is included in **Figure 4-22**.



Figure 4-22
NWI Land Use with Alternatives

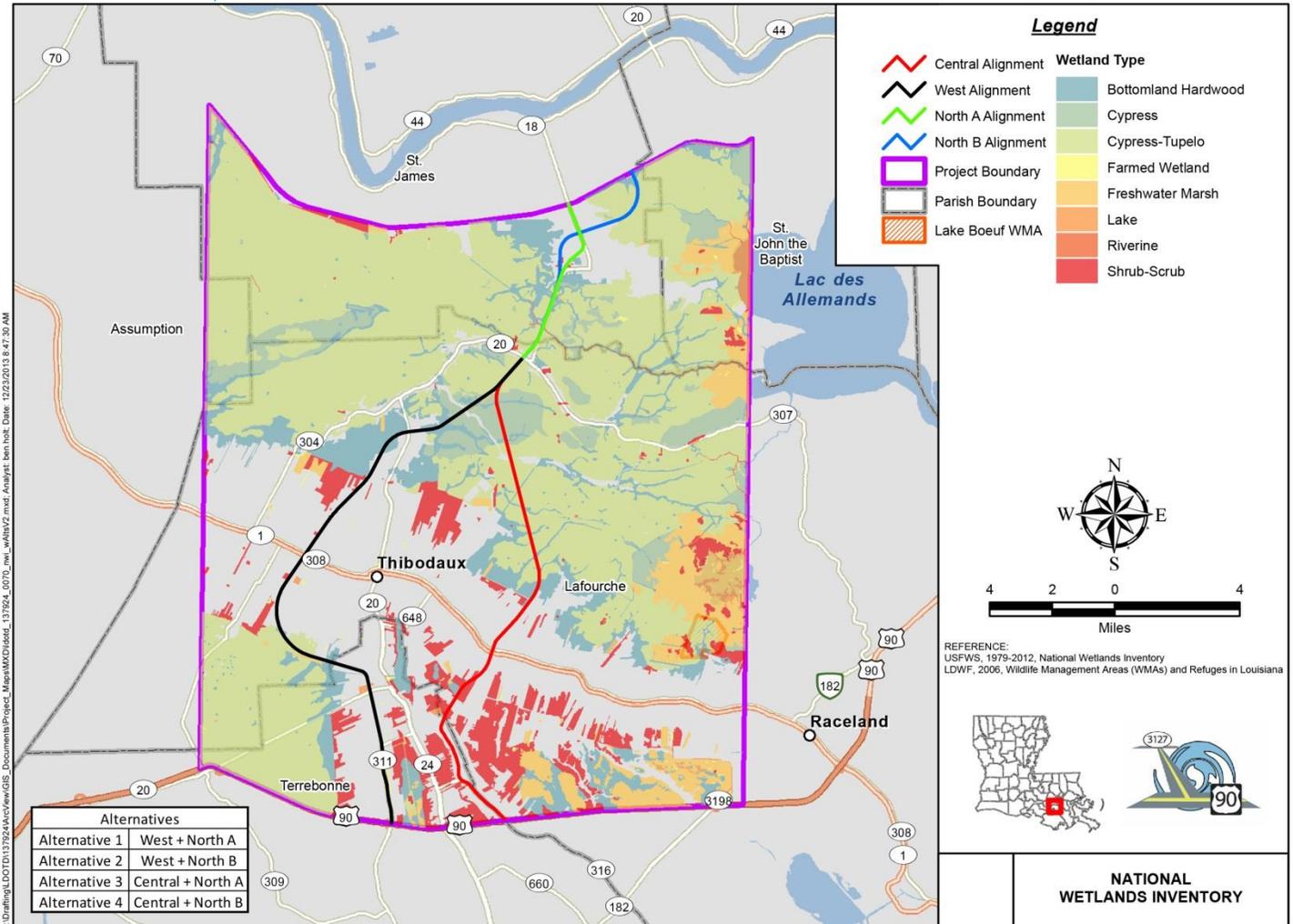




Table 4.60
Alternatives – Wetland and Non-Wetland Acreages

Alternative	Wetland Acreage	Non Wetland Acreage	Wetland Percentage	Total Acreage
Alternative 1 (Western Alignment + North Alignment "A")	203.35	395.36	33.96	598.71
Alternative 2 (Western Alignment + North Alignment "B")	244.79	400.26	37.95	645.05
Alternative 3 (Central Alignment + North Alignment "A")	260.46	244.71	51.56	505.17
Alternative 4 (Central Alignment + North Alignment "B")	301.90	249.60	54.74	551.50

Table 4.61
Estimated Wetland Impact Types by Alternative

Impact Type	Potential Impacts Per Alternative (acres)			
	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Clearing/Shading - Forested	199.25	238.60	252.81	292.17
Shading - Open Water	1.57	1.58	0.98	0.98
Fill - Forested	0.56	2.64	6.67	8.75
Fill - Open Water	1.97	1.97	0.0	0.0
Total	203.35	244.79	260.46	301.90

Elevation of the majority of the Preferred Alternative segments would minimize wetland impacts by eliminating large functional losses associated with fill. While the elevated portions of the build alternatives will still pose some degree of impact in conjunction with shading and clearing during construction, they will still provide a significant portion of their original functionality, such as attenuation, wildlife movement, and nutrient assimilation.

A more in-depth and precise quantification of potential jurisdictional wetlands will be conducted on the Preferred Alternative.

Alternative 1 (Western Alignment + North Alignment "A") would fill 0.56 acres of forested wetlands, while *Alternative 2 (Western Alignment + North Alignment "B")* would fill 2.64 acres of forested wetlands, *Alternative 3 (Central Alignment + North Alignment "A")* would fill 6.67 acres of forested wetlands, and *Alternative 4 (Central Alignment + North Alignment "B")* would fill 8.75 acres of forested wetlands. The elevated sections of the Alternatives would convert forested wetlands to emergent wetlands because of shading effects. *Alternative 1 (Western Alignment + North Alignment "A")* would convert the fewest acres of forested wetlands to emergent wetlands, while *Alternative 4 (Central Alignment + North Alignment "B")* would convert the most.



Alternative 1 (Western Alignment + North Alignment "A")

As Tables 4.60 and 4.61 depict, *Alternative 1 (Western Alignment + North Alignment "A")* appears to pose the least overall impact to wetland systems within the study area (203.35 total acres). *Alternative 1 (Western Alignment + North Alignment "A")* will result in 16.9 percent less wetland impacts when compared with *Alternative 2 (Western Alignment + North Alignment "B")* (244.79 acres), 21.9 percent less impact than *Alternative 3 (Central Alignment + North Alignment "A")* (260.46 acres), and 24.7 percent less impact than *Alternative 4 (Central Alignment + North Alignment "B")* (301.90 acres).

Alternative 1 (Western Alignment + North Alignment "A") also represents the least impact (both fill and shading) to forested wetland systems within the study area. Forested wetlands generally provide a greater functional value than herbaceous and open water type systems; therefore, minimizing impacts to this type of wetland system can reduce the overall mitigation effort required.

Alternative 2 (Western Alignment + North Alignment "B")

Approximately 29 percent of *Alternative 2 (Western Alignment + North Alignment "B")* runs through wetlands, as compared to 25 percent of *Alternative 1 (Western Alignment + North Alignment "A")*. Though *Alternative 2 (Western Alignment + North Alignment "B")* has the greatest total acreage among the build alternatives (860 acres), this alternative has the second lowest overall impact to wetland systems within the study area.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 (Central Alignment + North Alignment "A") has the lowest total acreage among the build alternatives (nearly 675 acres), and has the second highest overall impact to wetland systems within the study area.

Alternative 4 (Central Alignment + North Alignment "B")

More than 41 percent of *Alternative 4 (Central Alignment + North Alignment "B")* runs through wetlands, the highest proportion among the build alternatives. This alternative represents the greatest impact to forested wetland systems (both fill and shading) within the study area.

4.25.5 What indirect and cumulative impacts are anticipated?

Because the build alternatives predominantly fall within existing transportation corridor developed areas and disturbed wetland/agricultural interface zones, secondary and cumulative wetland impacts resulting from the proposed project will be minimal. Efforts will be made to ensure that when the Preferred Alternative spans larger wetlands, it will be constructed in a manner that avoids hydrologic alterations, which would permanently alter the function of the wetland and potentially create smaller wetlands out of a larger wetland thus lessening the value of the wetland.

Both the North A and North B segments of the build alternatives bisect an EPA/Coastal Protection and Restoration Authority river diversion enhancement project. This 5,134-acre project is located northwest of Lac des Allemands in the area of Bayou Chevreuril. This project was approved in 2001 and includes the installation of two siphons to divert water from the Mississippi River along with gapping spoil banks along Bayou Chevreuril, installing culverts along LA 20 between Orange Grove Plantation and South Vacherie, and supplemental planting installation within degraded swamp. In order to ensure that the northern segment of the Preferred Alternative does not cause secondary/cumulative impacts to the ongoing hydrologic restoration efforts, these sections of the roadway are proposed to be elevated.



Conceptual Mitigation Plans

Following minimization and avoidance of impacts to wetlands, the purchase of wetland mitigation bank credits is the USACE preferred method of offsetting wetland impacts (33 CFR 332.3[b]). Mitigation banks are preferred because they are established in advance of the impacts they offset, eliminating potential risks and/or temporal lag associated with stand-alone mitigation efforts. The hydrologic unit code (HUC) in which the potential ROWs occur is a stand-alone HUC with high competition for mitigation credit purchase because of the low availability of credits at only two mitigation banks—Laurel Valley Coastal Mitigation Bank and Enterprise Woodlands. Mitigation bank credits and the associated costs are largely dependent upon supply and demand and can fluctuate dramatically. A present cost per acre estimate is approximately \$35,000.

While mitigation banking is preferred to offset wetland impacts, there may also be opportunities to partner with federal and local governmental agencies by funding additional phases of ongoing restoration efforts within the northwestern Barataria Basin. Contributing in-lieu fees to basin-wide enhancement/restoration efforts may also serve to reduce the proposed project's potential secondary and cumulative impacts.

Another mitigation option to consider would be the possible establishment of wetlands for habitat in the location where both recommended Alternatives parallel LA 20 on an elevated structure. Wetlands could potentially be reestablished after removing part of the LA 20 embankment. However, the viability of this option and limits would need to be investigated further to determine practicability due to potential 4(f) issues along a section of the route.

4.26 MINERAL RESOURCES

Mineral resources information for the study area was developed researching data using LDNR's SONRIS database and USGS publicly available data.

4.26.1 What mineral resources are found within the study area?

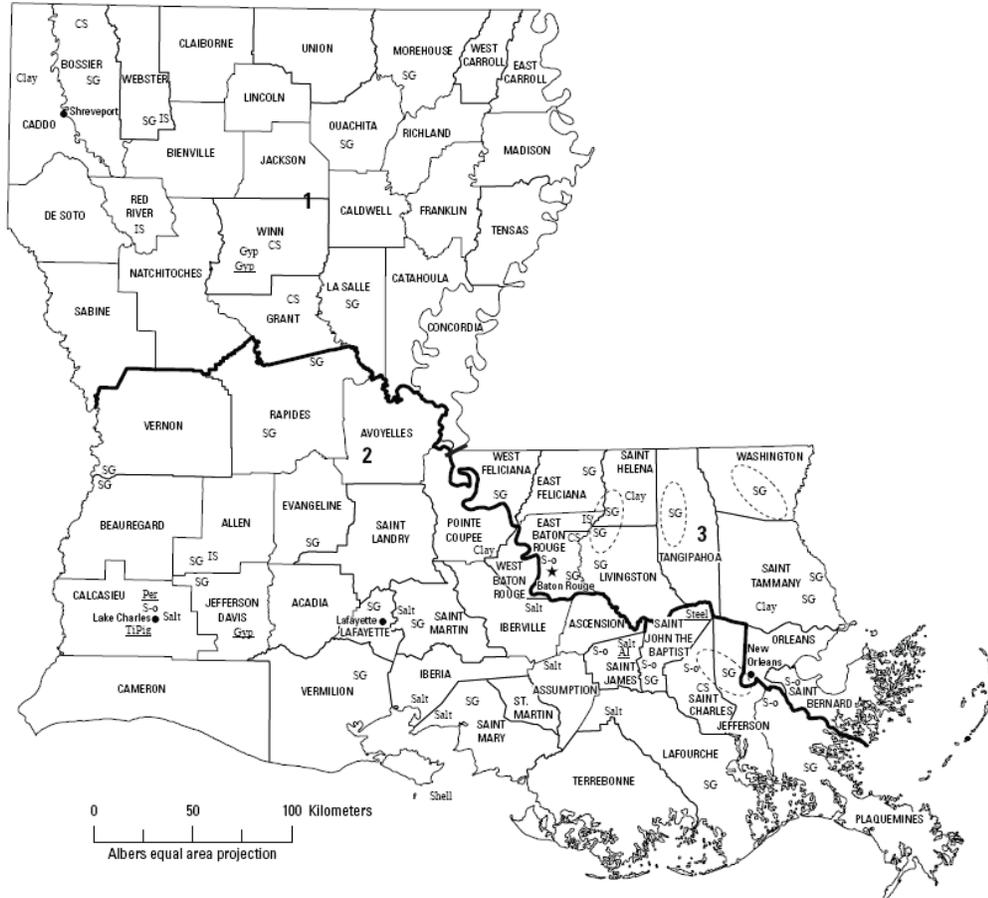
The USGS 2009 Minerals Yearbook for Louisiana⁹² included **Figure 4-23** illustrating principal mineral producing areas. Within the study area, salt was listed as a mineral resource in Lafourche Parish and sand and gravel in St. John the Baptist Parish.

⁹² USGS 2009 Minerals Yearbook for Louisiana (<http://minerals.usgs.gov/minerals/pubs/state/2009/myb2-2009-la.pdf>).



Figure 4-23
Mineral Sources

LOUISIANA



Source: Louisiana Geological Survey/U.S. Geological Survey (2009).



The Chacahoula salt dome is one of the largest on the Gulf Coast and is located along the western boundary of the study area. This dome is located approximately 8 miles southwest of Thibodaux, Louisiana and was one of five considered as a possible candidate for the expansion of the U.S. Strategic Petroleum Reserve. Salt from the Chacahoula salt dome covers an area of approximately 1,800 acres. Oil production has been the main commodity from the southern and eastern sides of the dome; gas production has occurred on the north and west sides. In addition to oil and gas activities, sulfur mining was conducted from 1955 to 1962 in the northeast-central region of the Chacahoula dome⁹³. Although portions of the salt dome lie within the study area, the potential reserve area, three currently active brine caverns, and the historic sulfur mining location are located just outside the study area boundary.

Based on data obtained from LDNR's SONRIS database,⁹⁴ there are approximately 22 oil and gas fields within the study area. **Table 4.62** includes a list of these fields and their parish of location. Oil and gas wells are located throughout the project area with higher concentrations in the southern portion of the study area near the Chacahoula, Melodia, Rosseau, and Thibodaux oil and gas fields. Oil and gas wells are discussed in Section 4.14.1.3 in greater detail.

Table 4.62
Oil and Gas Fields of the Study Area

Filed Name	Parish
Bayou Chevreui	Lafourche
Bayou Citamon	St. James
Burton	St. James
Chacahoula	Lafourche
Chegby	Lafourche
Choctaw School	Lafourche
Cutgrass Coulee	St. James
Kraemer	Lafourche
Lafourche Crossing	Lafourche
Laurel Grove	Lafourche
Lower Vacherie	St. James
Melodia	Lafourche
North Laurel Grove	Lafourche
North Thibodaux	Lafourche
Northwest Lake Boeuf	Lafourche
Rosseau	Lafourche
South Chegby	Lafourche
South Kraemer	Lafourche
Southwest Lake Boeuf	Lafourche
St. John	Lafourche
Terrebonne Bayou	Terrebonne
Thibodaux	Lafourche

⁹³ Lord, Anna Snider, Christopher A. Rautman, and Karl M. Loof. "Geologic Technical Assessment of the Chacahoula Salt Dome, Louisiana, for Potential Expansion of the U.S. Strategic Petroleum Reserve." *Sandia.gov*. Sandia Report SAND2007-0483. Sandia National Laboratories, 2007. Web. 24 Nov. 2013. <<http://prod.sandia.gov/techlib/access-control.cgi/2007/070483.pdf>>.

⁹⁴ (<http://sonris-www.dnr.state.la.us/gis/agsweb/IE/JSViewer/index.html?TemplateID=181>)



Mineral leases in the project study area were researched through SONRIS's active mineral leases GIS layer. This layer is maintained by LDNR's Office of Mineral Resources and is updated monthly. The database consists of all active mineral leases issued by the State Mineral and Energy Board of the State of Louisiana. This board is the entity that grants and administers leases on state-owned lands and water bottoms for the purpose of exploring, prospecting, and/or drilling for and producing oil, gas, and any other liquid or gaseous minerals in solution and produced with oil and gas. Lease terms exclude free sulphur, potash, lignite, sale, and other solid minerals. The seven currently active mineral leases located in the study area are listed in **Table 4.63**⁹⁵.

Table 4.63
Active Mineral Leases Within the Study Area

Filed Name	Parish
A0307	Lafourche
SL16758	Lafourche
SL18930	Lafourche
SL21132	Lafourche and Terrebonne
SL3244	Lafourche
SL4518	Lafourche
SL6123	Lafourche

4.26.2 What are the impacts to mineral resources as a result of the No-build Alternative?

There are no impacts to mineral resources as a result of the No-build alternative.

4.26.3 What are the impacts to mineral resources as a result of the Build Alternatives?

Each alternative was analyzed using LDNR's GIS data obtained from SONRIS to determine the impacts on oil and gas resources. The oil and gas field data obtained from SONRIS does not include area boundaries, only location markers. Oil and gas fields impacted directly by each Build Alternative could not be accurately determined. The impact of each Build Alternative on oil and gas wells was calculated and the serial number and product was identified for each impacted well. Additionally, impacts to mineral leases were calculated for each Build Alternative. The product type and acreage of impact has been provided. Mineral lease impacts are discussed below and summarized in **Table 4.64**.

⁹⁵ LDNR. *SONRIS Interactive Maps – Oil/Gas and Mineral Resources*. LDNR, 2013. Web. 22 Nov. 2013. <<http://sonris-www.dnr.state.la.us/gis/agsweb/IE/JSViewer/index.html?TemplateID=181>>.



Alternative 1 (Western Alignment + North Alignment "A")

Alternative 1 impacts two oil and gas wells in Terrebonne Parish. Well Serial No. 52465 is listed as "Wells Unable to Be Located"; no plugged and abandoned report was found. Well Serial No. 235471 is listed as "PA-35 Temporary Inactive Well to be Omitted from Production Report (Gas&Condensate)". Alternative 1 does not impact any active state mineral leases.

Alternative 2 (Western Alignment + North Alignment "B")

Alternative 2 impacts the same two oil and gas wells as Alternative 1 and does not impact any active state mineral leases.

Alternative 3 (Central Alignment + North Alignment "A")

Alternative 3 impacts two oil and gas wells in Lafourche Parish. Well Serial No. 56182 is a plugged and abandoned condensate producer. Well Serial No. 100135 is a plugged and abandoned dry hole. Additionally, approximately 76.1 acres of State (mineral) Lease 21132 falls within the boundaries of Alternative 3. The product types listed for this mineral lease include oil, gas, and plant products.

Alternative 4 (Central Alignment + North Alignment "B")

Alternative 4 impacts the same two oil and gas wells as Alternative 3 and also affects the mineral lease identified as State Lease 21132. Approximately 75.9 acres of this lease are within the boundaries of Alternative 4.

**Table 4.64
Oil and Gas Fields of the Study Area**

Resource Name	Alternative 1 (Western Alignment + North Alignment A)	Alternative 2 (Western Alignment + North Alignment B)	Alternative 3 (Central Alignment + North Alignment A)	Alternative 4 (Central Alignment + North Alignment B)
Oil and Gas Wells	2	2	2	2
Mineral Lease Acreage	0	0	76.1	75.9

4.26.4 What indirect and cumulative impacts are anticipated?

The Houma-Thibodaux to LA 3127 Connector is designed to provide system linkage and provide an additional route for hurricane evacuation. Portions of the route will have controlled access, limiting the potential for additional development along the selected route. Interchanges would be the primary areas of secondary development. Should any interchanges be located within an active mineral lease, approval by the state would be required. As mineral resources are regulated by the state and managed by the state, private landowners, and publicly-held companies, it would be unlikely that the connector would result in measurable cumulative impacts. It is possible that by providing system linkage, more thorough development of the leases could occur and development may become more efficient, as travel time to processing or end points could be reduced.



4.27 ENERGY

4.27.1 What is the existing energy consumption within the study area?

The existing energy consumption within the study area can be attributed to the diversity of land use and broad variation of vehicles associated with each land use category. Inherent differences among transportation modes in regards to available routes, travel distance, types of vehicles, and other factors greatly affect energy usage. Populated areas like the Houma-Thibodaux metropolitan area have a combination of commercial, residential, and agricultural land uses that generate traffic throughout the existing transportation system. Traffic from rural portions of the project area must utilize existing highway facilities to access major roadways and populated areas. This increases travel time and ultimately energy usage. In addition, traffic from both densely populated and rural areas utilizes the existing transportation system for commuting and evacuation routes. During a storm evacuation, the existing inefficiencies in the transportation system increase energy consumption due to extensive traffic congestion and travel delays.

4.27.2 What are the impacts to energy as a result of the No-build Alternative?

In regards to the No-build Alternative, existing traffic operation inefficiencies, such as congestion and indirect, circuitous routes, cause an inefficient use of energy within the study area. However, this alternative will not expend any additional energy associated with construction except for routine maintenance.

4.27.3 What are the impacts to energy as a result of the Build Alternatives?

The majority of temporary, construction-related energy for the build alternatives is determined by the approximate lane mileage for each proposed alignment. Given that fact, the alternatives ranked from least to most potential energy consumption are as follows: Alternative 3 (22.6 miles), Alternative 4 (24.8 miles), Alternative 1 (26.6 miles), and Alternative 2 (28.8 miles). However, energy consumption would be offset by energy savings with the implementation of the proposed traffic facility improvements. Upon completion, motorists will have shorter, more direct routes to their points of destination. This will result in a reduction in energy consumption because fewer miles are being traveled. The proposed alignments would improve overall traffic operations and efficiency within the study area. The overall improvement in traffic operations will reduce congestion, improve the level of service and facility capacity, and improve vehicle fuel efficiencies within the transportation system, which, therefore, reduces overall energy consumption.

4.27.4 What indirect and cumulative impacts are anticipated?

The secondary and cumulative energy impacts for the No-build Alternative within the study area are present through the continuous energy consumption of existing industrial and oil facilities throughout the area. There is also the potential for additional industrial facilities to be constructed which requires additional energy.

The potential for secondary and cumulative energy impacts from the build alternatives could be caused by future economic growth and development.



4.28 AESTHETICS/VISUAL RESOURCES

4.28.1 What are the existing aesthetic/visual resources within the study area?

The visual resources of the study area support a vast range of natural and agriculturally developed landscape. The study area encompasses a substantial acreage of wetlands, floodplains, forests, and farmland that are visible from existing Louisiana highways in the area. These existing visual resources also support a broad range of animal and plant species that thrive from the natural habitat provided within the study area. This natural landscape, indigenous to the southern region of the country, can be considered a high quality visual resource.

4.28.2 What are the impacts to aesthetics/visual resources as a result of the No-build Alternative?

With no necessary construction, the No-build Alternative would have no apparent effect on existing visual resources and aesthetics within the study area.

4.28.3 What are the impacts to aesthetics/visual resources as a result of the Build Alternatives?

The proposed build alternatives will affect the existing visual resources within the study area. Although a portion of each proposed alternative utilizes existing highways, the majority of the alignments will require new roadways to be constructed on existing farmland, floodplains, and wetlands. In addition, the proposed alignments will require the relocation of some existing residential and commercial properties that may affect the visual aesthetics of the project area.

The viewshed, which is defined as the surface area visible from a given viewpoint or series of viewpoints, would be affected in some areas by the build alternatives. The build alternatives will affect rural portions of the existing visual resources changing from an open viewshed to a roadway. In urban areas, the proposed build alternatives will not strongly contrast with the existing environment or block a large portion of existing views. The newly constructed roadway will blend with existing highway facilities and provide a smooth transition into the existing transportation network. Some adverse visual impacts will be expected during the construction phases and maintenance of the alternatives. However, these negative visual impacts are temporary.

The build alternatives will positively affect the visual aesthetics due to the proposed improvements from the roadway. Green medians will be added along the at-grade roadway sections. In areas with surrounding residential and commercial properties, clean curb lines will be laid. The sections of existing road that will be upgraded will become more aesthetically pleasing. All of these features will offer a clean, updated appearance that the public will undoubtedly appreciate. Routine maintenance will allow for these enhancements to be maintained through the Preferred Alternative's design life. However, a new roadway through a previously open area will result in adverse visual impacts to those viewer of the roadway. The proposed build alternatives will limit the once open visual landscape.

4.28.4 What indirect and cumulative impacts are anticipated?

Under the No-build Alternative, the existing visual environment and its elements will be maintained. Secondary and cumulative impacts that may be expected due to the No-build Alternative stem from the expectation that the area will still experience growth. Continued use of the facilities and development in the area will cause wearing of the roadways and require more frequent maintenance for upkeep.



Secondary and cumulative visual impacts from the build alternatives can be caused by future economic growth and development near the build alternatives that affect the existing visual resources. The economic growth and development can be expected to occur at a higher rate than the No-build Alternative because of the impacts of the new facilities. With increased development, more effort will have to be taken to upkeep the visual aesthetics. In addition, maintenance facilities during and after construction are to also be considered.

4.29 CLIMATE CHANGE

Worldwide, anthropogenic sources of greenhouse gases (GHGs) are widely believed to be linked to global climate change. The CEQ has issued a draft guidance memorandum on the ways in which federal agencies can improve consideration of the effects of GHG emissions and climate change in the evaluation of proposals for federal actions under NEPA. This guidance, entitled "Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions" (February, 2010), elaborates on executive policies requiring federal agencies to take a leadership role in reducing GHGs as prescribed in EO 13514 (74 Federal Register 52117, October 8, 2009). As defined in Section 19(i) of EO 13514, GHGs refers to carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Although CEQ guidance outlines a framework that offers some protocols for estimating GHGs for large direct emitting facilities, the guidance generally defers to individual federal agencies the task of developing policies for addressing GHGs in NEPA documents that are both reasonable and tailored to the agency needs.

To date, no national standards have been established regarding GHGs, nor has the USEPA established criteria or thresholds for GHG emissions. Per the 2010 draft CEQ guidance, "Many agency NEPA analyses to date have found that GHG emissions from an individual agency action have small potential effects. Emissions from many federal actions would not typically be expected to produce an environmental effect that would trigger or otherwise require a detailed discussion in an EIS." Given that climate impacts of carbon dioxide emissions are global in nature, analyzing how alternatives evaluated in an EIS might vary in their relatively small contribution to a global problem is not likely to better inform decisions. Further, due to the interactions between elements of the transportation system as a whole, emissions analyses would be less informative than analyses conducted at regional, state or national levels. Because of these concerns, carbon dioxide emissions cannot be evaluated usefully in this FEIS in the same way that other vehicle emissions are addressed in the discussion of air quality impacts.

Both FHWA and DOTD are actively engaged in the development of strategies to reduce transportation's contribution to GHGs. FHWA is involved in efforts to initiate, collect and disseminate climate change related research and to provide technical assistance to stakeholders. Working with the US DOT Center for Climate Change and Environmental Forecasting, as well as other partners, FHWA is involved in climate change initiatives that not only study GHG reduction strategies, particularly carbon dioxide emissions, but also assess the risks to transportation systems and services from climate change. DOTD is focusing on reducing energy consumption (particularly fossil fuels) by funding Travel Demand Management (TDM) strategies that reduce air pollution and GHGs, and assist in the nation's goal of energy independence. Examples of efforts undertaken by the State are the promotion of flex time, compressed work weeks, telecommuting, ride share and publicizing transit services already available. DOTD may utilize Congestion Mitigation and Air Quality (CMAQ) Improvement Program funds, as available, to convert public fleets (e.g., auto, buses, and school buses) to alternative fuels or replace certain public vehicles with hybrids, and to increase TSM activities that are beneficial to air quality (e.g., intersection improvements, upgrading signal equipment - including using LED signal heads which are more energy efficient, signal coordination, network surveillance and incident management, and work

Greenhouse gases are defined as carbon dioxide, water vapor, methane, nitrous oxide, and halocarbons (hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride). All but the halocarbons are naturally occurring. Man's activities have increased the levels of most of these constituents in the atmosphere. Water vapor is the one constituent thought not to be significantly affected by man's activities. Carbon dioxide increases are primarily due to combustion of fossil fuels. It is estimated that half of the methane levels are due to agricultural activities, combustion of fossil fuels and waste disposal. Nitrous oxides result from agricultural activities, fossil fuel combustion, wastewater treatment and waste combustion; and biomass burning. Halocarbons result primarily from industrial processes.



zone management). DOTD may also use funds for reforestation of highway rights-of-way (outside of the roadside recovery area) to increase absorption of pollutants and carbon dioxide. If funding becomes available, DOTD plans to invest in transit and highway capacity to reduce energy consumption, which is DOTD's common strategy for reducing air pollution, reducing GHGs and helping the nation achieve energy independence.

FHWA and DOTD will continue to pursue these efforts as productive steps to address this important issue. FHWA and DOTD will review and update its approach to climate change at both the project and policy level as more information emerges and as policies and legal requirements change.

4.30 PROJECT COMMITMENTS

Commitments that will be implemented to offset adverse effects of the preferred build alternative would include, but are not limited to, the following:

- Implementation of BMPs during construction of the facility.
- Temporary impacts to jurisdictional wetlands from construction staging areas will be managed by the contractor, who will be required to restore the ground to its natural contour allowing for one complete growing season for natural restoration of vegetation.
- Purchase of wetland banking credits, wetland conservation easements, enhancement, restoration, and/or creation of wetlands or a combination thereof based on USACE and Louisiana specifications during the Section 404 permit process.
- Another mitigation option to consider would be the possible establishment of wetlands for habitat in the location where both recommended Alternatives parallel LA 20 on an elevated structure. Wetlands could potentially be reestablished after removing part of the LA 20 embankment. However, the viability of this option and limits would need to be investigated further to determine practicability due to potential 4(f) issues along a section of the route.
- Mitigation of adverse stream effects based on the Section 404 permit process.
- An approved compensatory mitigation plan to offset losses of wetland acres will be developed.
- Avoidance of construction during the nesting season of bald eagles should individual nests be sighted within 1,500 feet of the alternative chosen for construction.
- Re-investigation and survey of areas considered potentially suitable habitat for federally-protected species within one year of letting the construction contract for the project.
- Acquisition of ROW will be handled in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Secretary's Policy and Procedure Memorandum No. 48: UST and Contaminated Site Policy.
- All waterway closure requirements are to be coordinated with the Marine Safety Office of the US Coast Guard.
- Warning signs visible to vessel operators will be posted prior to and during all water-related activities.



4.31 PERMITS AND MITIGATION

The following section discusses all applicable permits and certifications for the Houma-Thibodaux to LA 3127 Connection Project.

4.31.1 U.S. Coast Guard: Bridge Permit

A Bridge Permit from the USDOT, United States Coast Guard (USCG), and USCG Bridge Administration Program is required for any structures crossing a navigable waterway of the United States. The Bridge Permit Application Guide is available on the USCG Bridge Administration webpage⁹⁶.

4.31.2 U.S. Army Corps of Engineers: Section 404 and Section 10 Permits

Section 404 of the CWA (33 U.S.C. 1344) prohibits the discharge of dredged or fill material into navigable waterways, tributaries to navigable waterways, and jurisdictional wetlands without a permit from USACE. Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) prohibits the obstruction or alteration of navigable waters of the United States without a permit from USACE.

The *Joint Permit Application for Work Within the Louisiana Coastal Zone* was developed to facilitate the state and federal permit application process administered by USACE and the LDNR Office of Coastal Management (OCM) for work in the Louisiana Coastal Zone. The Joint Permit Application is used to apply for a Coastal Use Permit, a Section 404 permit, and a Section 10 permit⁹⁷.

4.31.3 Louisiana Department of Natural Resources-Coastal Management Division: Coastal Use Permit

The entire study area is located within the LDNR-OCM, Coastal Zone Boundary (Figure 4-18). The "Joint Permit Application for Work within the Louisiana Coastal Zone" is to be submitted for the project and is available at the web site.

4.31.4 Louisiana Department of Environmental Quality: Water Quality Certification – Section 401

A Water Quality Certification (WQC) from the LDEQ certifies that placement of fill material into state waters will not have a significant effect on water quality standards. An LDEQ WQC is required for the issuance of the USACE Section 404 permit. A copy of the Joint Permit Application will be sent to LDEQ for WQC by the permitting agency.

4.31.5 U.S. Environmental Protection Agency: NPDES Section 402 Permit

A National Pollutant Discharge Elimination System (NPDES) permit is required from the EPA for any construction project having the potential to discharge storm water into the waters of the United States. This project is considered to be a large scale, greater than 5 acres, construction project. A Notice of Intent (NOI) is required for construction activity to be submitted to EPA in order to obtain permit coverage.

⁹⁶ <http://www.uscg.mil/hq/cg5/cg5411/default.asp>

⁹⁷ The Joint Permit Application Form is available at <http://dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=93>.



4.31.6 Louisiana Department of Environmental Quality: LPDES Permit

The LDEQ has an approved EPA NPDES Program. The LDEQ Louisiana Pollutant Discharge Elimination System (LPDES) meets the EPA criteria and qualifies for the NPDES permit. A LPDES large construction permit (greater than 5 acres), Form CSW-G, from the LDEQ is required for storm water discharges associated with construction activities in Louisiana.⁹⁸ Other LPDES applications or permits also may be required for discharges into state waters.

4.31.7 Louisiana Department of Environmental Quality: Storm Water Pollution Prevention Plan

Operators of regulated construction sites are required to develop and implement storm water pollution prevention plans as part of the NOI for the LPDES permit from LDEQ.

⁹⁸ Form CSW-G is available at <http://www.deq.louisiana.gov/portal/Default.aspx?tabid=245>.

CHAPTER 5. PUBLIC INVOLVEMENT AND AGENCY COORDINATION



CHAPTER 5. PUBLIC INVOLVEMENT AND AGENCY COORDINATION

The National Environmental Policy Act (NEPA) states in its regulations that agencies shall "make diligent efforts to involve the public in preparing and implementing their NEPA procedures."¹ This includes providing public notice of meetings, making environmental documents available to the public, and requesting information from the public. In addition, it is the Federal Highway Administration's (FHWA) policy that public involvement and a systematic interdisciplinary approach be essential parts of the development process for proposed actions.²

For the development of this project, the FHWA and the Louisiana Department of Transportation and Development (LADOTD) have coordinated with three distinct groups to ensure involvement and input. These groups include:

- Federal, state, and local agencies;
- The public; and
- Stakeholders, including elected public officials and other groups with an interest in the project.

5.1 WHAT IS THE PUBLIC INVOLVEMENT PLAN FOR THIS PROJECT?

The Public Involvement Plan (PIP) was developed and submitted to LADOTD. It was revised on February 23, 2010. The purpose of this document is to define the process by which LADOTD will communicate with all involved agencies and the public in regards to the project. The plan was developed in accordance with Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which requires that the lead agencies establish a plan for coordinating public and agency participation and comment during the environmental review process associated with the preparation of an environmental impact statement (EIS).

The following tasks were to be accomplished through the PIP:

- Identify the early coordinating efforts;
- Identify cooperating and participating agencies to be involved in agency coordination;

Effective public involvement and agency coordination is the key to achieving environmentally responsible transportation decisions.

¹ 40 CFR 1506.6(a)

² 23 CFR 771.105





- Establish the timing and form for agency involvement in defining the project's Purpose and Need and study area, the range of alternatives to be investigated, and methodologies, as well as reviewing the preliminary Draft EIS (DEIS);
- Establish the timing and form for public opportunities to be involved in defining the project's Purpose and Need and study area and the range of alternatives to be investigated, providing input on issues of concern and environmental features, and commenting on the findings presented in the DEIS and Final EIS (FEIS); and
- Describe the communication methods that will be implemented to inform the community about the project.

5.2 NOTICE OF INTENT

The original Notice of Intent (NOI) was published in the Federal Register on January 7, 2004. This notice was issued to advise the public and all interested agencies that an EIS was being prepared to evaluate a proposed hurricane evacuation route that would service Assumption, Lafourche, St. Charles, St. James, St. John the Baptist, St. Mary, and Terrebonne Parishes. Contact information and a project description were also provided.

A revised NOI was published in the Federal Register on March 25, 2010. This notice was submitted to notify the public and all agencies of the overall changes to the project scope and environmental review process for the project. Updated contact information and project description were provided.

A copy of the NOI is provided in Appendix B.

5.3 LADOTD SOLICITATION OF VIEWS

The formal solicitation of views (SOV) letter was submitted to local federal and state agencies, organizations, and individuals on June 24, 2004. In addition to the formal letter, all recipients were provided with a study area map and description to summarize the overall project scope. Input in the form of written comments was requested from each agency. The comments and responses that were received assisted in identifying foreseeable economic, social, and environmental issues in regards to the proposed project. Comments relative to the environmental impacts included concerns for the wetlands impact, the nesting season for birds, and impact on native vegetation. Comments relative to the alignments supported the alignment that connected to the Gramercy-Wallace Bridge. Letters received from the agencies in response to the SOV are included in Appendix N.

5.4 WHAT AGENCY INVOLVEMENT AND COORDINATION TOOK PLACE AS PART OF THE PROPOSED PROJECT?

Effective interagency coordination is the key to achieving environmentally responsible transportation decisions.³ To meet this goal, LADOTD and FHWA invited federal, state, and local agencies to be involved in the project as cooperating or participating agencies.

³ FHWA <http://www.environment.fhwa.dot.gov/projdev/tdminterag2.asp>, last accessed 12/4/13



5.4.1 What are cooperating and participating agencies?

The roles and responsibilities of cooperating and participating agencies are similar, but cooperating agencies have a higher degree of authority, responsibility, and involvement in the environmental review process.

Cooperating agencies are those governmental agencies specifically requested by the lead agency to participate during the environmental evaluation process for the project. FHWA's NEPA regulations (23 CFR 771.111(d)) require that those federal agencies with jurisdiction by law (with permitting or land transfer authority) be invited to be cooperating agencies for an EIS. See **Table 5.1** for a list of the cooperating agencies.

Table 5.1
Lead, Cooperating, and Participating Agencies

Agency	Roll
Federal Highway Administration (FHWA)	Lead
Louisiana Department of Transportation and Development (LADOTD)	Joint Lead
The South Central Planning & Development Commission	Participating
U.S. Army Corps of Engineers (USACE)	Cooperating
Environmental Protection Agency (EPA)	Participating
U.S. Fish and Wildlife (USFWS)	Participating
Louisiana Department of Environmental Quality (LDEQ)	
U.S. Coast Guard	
Louisiana Department of Natural Resources (LDNR)	
Federal Aviation Administration	
Louisiana Department of Culture, Recreation and Tourism (DCRT)	
Louisiana Department of Agriculture and Forestry (LDAF)	
Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP)	
U.S. Department of Agriculture and Farm Service Agency	
U.S. Department of Housing and Urban Development	
Indian Nation Tribal Historic Preservation Office	
Louisiana Office of Historic Preservation (LASHPO)	

Participating agencies are federal and non-federal governmental agencies that may have an interest in the project because of their jurisdictional authority, special expertise, and/or statewide interest. Participating agencies are to address specific concerns or issues as related to their area of expertise, exchange information, and provide a methodology for evaluating certain resources of environmental concern. See Table 5.1 for a list of the participating agencies.



5.4.2 How have the agencies been involved in the proposed project?

Once the invitations to become cooperating and participating agencies were accepted, agency roles in the project development process were further defined.

Pursuant to Section 6002 of SAFETEA-LU, participating agencies are responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental, social, or economic impacts that could substantially delay or prevent any agency from granting a permit that is needed for the project. Section 6002 of SAFETEA-LU is intended to ensure that agencies are fully engaged in the scoping of the project and the decisions regarding alternatives to be evaluated in detail in the NEPA analysis. The role of the agencies in the development of the project include the following as they relate to each agency's area of expertise:

- Providing meaningful and early input on defining the need and purpose, determining the range of alternatives to be considered, and the methodologies and level of detail required in alternatives analysis.
- Participating in coordination meetings and joint field reviews, as appropriate.
- Providing timely review and comment on the environmental documents to reflect the views and concerns of the agency on the adequacy of the document, alternatives considered, and the anticipated impacts and mitigation.

5.4.3 What agency coordination meetings were held?

The Formal Interagency Scoping Meeting was held at South Central Planning and Development (SCPDC) in Greysville, Louisiana on July 13, 2004. This meeting provided an introduction of the project team and a detailed overview of the project scope, schedule, discussion of previous studies, and a review of efforts to date.

Invitations to the meeting were sent to all potential cooperating and participating agencies. Representatives from FHWA, LADOTD, USACE, EPA, Louisiana Fish and Wildlife Service (LA FWS), LADNR, South Central Planning, LA Homeland Security, Chitimacha Tribe representatives and officials from the following Parishes: Ascension, Assumption, Lafourche, St. James, and Terrebonne discussed the project Purpose and Need, objective, scope, and methods for identifying feasible alternatives. The agencies were also provided the opportunity to comment on alignments that were being further considered from a previous study conducted in 1999.

Representatives from each agency provided comments and asked questions regarding the information presented. The major concern from most agencies was the conclusions discussed in the *1999 Hurricane Evacuation Corridor Study* (see Appendix Q). This study concluded that considerations for any connection with the Gramercy-Wallace Bridge should be eliminated. Requests were made for copies of the *1999 Hurricane Evacuation Corridor Study* to further evaluate the alternatives considered. At the conclusion of the agency comments, LADOTD noted that the EIS would focus on the three alternative corridors recommended in the *1999 Hurricane Evacuation Corridor Study* and that the team will be developing those three alternatives further, and refining them based on new and updated traffic data and environmental information.

The second agency meeting was held on November 18, 2004. The purpose of this meeting was to provide an update on the hurricane evacuation route and receive input from the agencies. Attending the meeting were representatives from LADOTD, FHWA, SCPDC, and USACE. Topics that were discussed included the Purpose and Need, Alignments, Traffic and Toll Study.



The third agency meeting was held at SCPDC on May 2, 2006. This meeting focused on the revised Purpose and Need, the reduced range of alternatives, the traffic and transportation reports, and the updated toll study.

Invitations to the meeting were sent to all potential cooperating and participating agencies. Representatives from the following agencies attended:

- LADOTD;
- FHWA;
- USACE;
- LADNR;
- USFWS,
- SCPDC;
- State Police;
- EPA;
- LA Homeland Security;
- St. Mary Parish;
- Terrebonne Parish;
- Assumption Parish;
- LaFourche Parish;
- St. James Parish;
- St. Johns Parish; and
- Thibodaux Parish.

Comments were provided during the meeting and were recorded to be included in the meeting minutes and list of action items. Based on input and comments obtained from the meeting, it was agreed that the eastern corridor and the central corridor traveling through Nicholls State University could be eliminated from further consideration.

In July of 2006, work on the EIS was stopped by LADOTD to allow for the resolution of concerns of the various resource agencies, including USACE, EPA, and USFWS. Due to agency concern that not all possible alternatives had been considered, LADOTD decided to supplement the project with an additional study of possible east-west alternative corridors connecting the Houma-Thibodaux area to the Sunshine Bridge via the Bayou Lafourche Ridge. The *Preliminary Alternatives Screening Study for an East-West Corridor from Houma-Thibodaux to Sunshine Bridge* is included in Appendix E.

As a result, the study area was expanded to include the east-west corridors. The supplemental study included a preliminary evaluation of alternatives within the newly expanded study area.

On November 19, 2010, a fourth agency coordination meeting was held to review the project background and status, the updated traffic report, and the screening analysis. Attendees included: LADOTD, FHWA, Louisiana Department of Wildlife and Fisheries (LA WL&F), USACE, USFWS, SCPDC, and EPA. Comments were provided from agencies in regards to the alternatives and other information presented during the meeting. These comments were taken into consideration in the continued evaluation and development of the range of alternatives.

On April 6, 2011, a fifth agency meeting was held at LADOTD. Attending the meeting were representatives from LADOTD and FHWA. Discussed in the meeting were the Central, Western and LA 20 alignments. Following a lengthy discussion it was determined that the LA 20 alternate did not meet the Purpose and Need and therefore was removed from further consideration. The Central and Western alignments were advanced forward for further analysis.



On March 27, 2012, a sixth agency coordination meeting was held at SCPDC. Attendees included: LADOTD, FHWA, Terrebonne Parish, SCPDC, USACE, USEPA, St. James Parish, USFWS, and LA FWS. The objective of the meeting was to provide a project recap, discuss the refined Purpose and Need, the results of the traffic study, and the current status of the project in reference to the NEPA process. In addition, the range of alternatives was discussed and their potential impacts to the human and natural environment. Comments regarding the traffic study, the range of alternatives and associated impacts, the refined Purpose and Need, and other information were provided during the meeting and through formal written documents sent through email. These comments were taken into consideration and incorporated into the revision of the Purpose and Need and range of alternatives.

5.4.4 What Section 7 consultation occurred?

Based on the requirements of Section 7 consultation and the Endangered Species Act (ESA), federal agencies are directed to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. In April 2005, the USFWS expressed concern over the potential construction of a new roadway through wetlands, for the new road could have significant adverse impacts to the wetlands and other wildlife resources (see correspondence in Appendix N).

As a result of the SOV letters, USFWS recommended that the alternatives that improved existing elevated sections be evaluated in an effort to minimize potential adverse environmental impacts. In addition to coordination with USFWS, other alternatives being considered were refined to reduce encroachment on significant natural resources. All further consultation will be documented and included in the FEIS.

5.4.5 What Section 106 consultation occurred?

In an effort to fulfill the requirements of the National Historic Preservation Act of 1966 (NHPA) Section 106 for public involvement, background research was conducted to identify and tabulate the existing cultural resources within the study area. The opportunity for the participation and opinions of interested parties throughout the Section 106 process should also be conducted. Based on the PIP, the following tasks and responsibilities will be fulfilled to meet the NHPA requirements:

- Provide input on the identification of historic resources eligible for the National Register of Historic Places and effects to these resources resulting from the project;
- Identify, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts;
- Assist in the development of measures to avoid, minimize, or mitigate adverse effects to historic resources; and
- Provide meaningful and timely input on unresolved issues.

All Section 106 consultation correspondence will be completed and documented in the FEIS.



5.5 HOW WAS THE PUBLIC INVOLVED IN THE PROPOSED PROJECT?

5.5.1 What public information meetings were held?

In accordance with the PIP and SAFTEA-LU Section 6002 that states that the public will be provided opportunities to provide specific input on the Purpose and Need and the range of alternatives, a series of public informational meetings were held in an effort to include the public with the project development process.

Following the agency scoping meeting on July 13, 2004, the first public informational meeting was held at Nicholls State University's Gouaux Auditorium on July 15, 2004. The overall objective of the meeting was to provide an overview of the project by presenting the Purpose and Need, the NEPA guidelines in which project documents would be prepared, project background and location, and preliminary project scheduling and milestones. Following the presentation, local constituents were given the opportunity to ask questions and provide comments. Attendees were asked to fill out survey questionnaires in an effort to further solicit input from local residents, officials, representatives, and other organizations.

The second public meeting was held on November 18, 2004 at Nicholls State University's Gouaux Auditorium. A summary of efforts since the July 2004 public meeting was presented along with cost assumptions, revised project area maps, and preliminary design criteria for the proposed roadways. All verbal comments were recorded during the meeting and documented in the meeting transcription. All written comments were obtained from the survey questionnaire or responses mailed or emailed to the project team.

The third round of public meetings were held on November 5th and 6th, 2007 in Thibodaux and Napoleonville on the East-West Connector and there was minimal participation. Therefore because of the low attendance, three people total, another meeting was schedule for November 27th.

On November 27, 2007, the fourth public meeting was held at Napoleonville Middle School in Napoleonville, Louisiana. This meeting was held to discuss and obtain public input in regards to the consideration of an alternative that would potentially cross Bayou Lafourche, Louisiana Highway 1 (LA 1), and LA 308. This alternative was analyzed to evaluate the feasibility of an east-west corridor that would connect the Houma-Thibodaux area to the Sunshine Bridge. A detailed description of the efforts that led up to this analysis, the proposed typical sections, and additional exhibits were presented. The public were then given the opportunity to verbally comment on the presented information. These comments were recorded and included in the meeting transcription.

The fifth public informational meeting was held on March 9, 2010 at Nicholls State University's Gouaux Auditorium. The objective of this meeting was to present the revised Purpose and Need, previous project coordination, the status of the project related to the NEPA process, and opportunities for continued public involvement. In addition, the results of the alternative screening study were discussed to update the public on the additional route that was considered in the NEPA document. Based on the information presented, the public provided both verbal and written comments that were documented and considered during the further analysis of alternative routes.



5.5.2 What community/town hall meetings were held for the proposed project?

Following the second public informational meeting, a community information meeting was held on December 9, 2004 at the St. James Parish Westbank Reception Hall. Advertisements for the meeting were published in the local newspaper to ensure that the public was aware of the upcoming meeting. Project informational materials were provided to all attendees at the start of the meeting, which allowed the public to become familiar with the scope of the project prior to the formal presentation and discussion.

At the conclusion of the presentation, the public were provided the opportunity to view exhibits and interact with the project team. Attendees provided their verbal comments that were recorded during the meeting. Survey questionnaires were also distributed amongst the group to further solicit input from local residents and other interested parties to establish areas of concern. All populated questionnaires were compiled and made available upon request.

5.5.3 How did the project team convey information to the public?

5.5.3.1 Project newsletter

As stated in the PIP, a minimum of two newsletters were to be published over the course of the project. Newsletters were prepared and published in the years of 2005 and 2010. Project newsletters were published in print and on the project website for distribution throughout the study area. The purpose of the newsletters was to provide local residents, public officials, schools, local organizations, and other groups with a project overview, description of the efforts achieved since the previously published newsletter, and project schedule.

Copies of the newsletters are included in Appendix P.

Recipients of the newsletters were also provided the opportunity to participate in consultation regarding historic resources pursuant to the Advisory Council on Historic Preservation (ACHP) 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act (NHPA).

5.5.3.2 Project website

The LADOTD Houma-Thibodaux to LA 3127 Connection EIS website was developed to provide general information and updates regarding the project. The public can access the website at www.ht3127eis.com to obtain additional project information, schedule small meetings with the project team, register to be on the mailing list, and view project location maps. The project location maps do not provide sensitive data that is protected by federal and state regulations. The LADOTD Houma-Thibodaux to LA 3127 Connection EIS website will be maintained until the FHWA Record of Decision (ROD) has been published.

5.6 PUBLIC OFFICIALS MEETINGS

All state and local officials were invited to the scoping and public information meeting. Over the course of the EIS process, local interested parties and government officials, such as the South Central Industrial Association (SCIA) and the Houma-Thibodaux Metropolitan Planning Organization (HTMPO), were briefed with updates at project milestones to facilitate the flow of information throughout their respective regions and associated agencies. All briefings were facilitated by members of the project team.

CHAPTER 6. COMMENTS AND RESPONSES



HOUMA-THIBODAU TO LA 3127 DEIS

AGENCY COMMENTS					
No.	Date	Meeting Date	Agency	Comment	Response
1	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	A. Would it be worthwhile running Quantm on <u>all</u> of the 1999 Feasibility Study corridors?	Yes
2	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	B. The Army COE and EPA want "Avoidance" Alternates evaluated.	Comment Noted.
3	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	C. If the 1999 Study did not consider other projects, then that study was not complete.	Comment Noted.
4	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	D. Will we be addressing how traffic is getting to US 90?	Traffic was evaluated for the existing roadway network within the project area.
5	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	E. Will we consider "Non-Build" Alternatives?	Yes.
6	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	F. Culturally...You should consider doing a detailed survey of archaeological resources on selected path.	Comment Noted.
7	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	G. What are plans for improvement to LA 3127?	LA 3127 will be widened to provide 4 lanes of traffic.
8	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	H. Is it wise to be directing Houma-Thibodaux residents to Gramercy-Wallace Bridge? Would this not be sending them into "harm's way"?	The feasibility of using this bridge has been evaluated and discussed in the document.
9	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	I. Would one or the other bridges (Sunshine or Gramercy-Wallace) be more critical than the other to the Houma-Thibodaux population?	The feasibility of using these bridges have been evaluated and discussed in the document.
10	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	J. Study area boundary on the east is logical.	Comment Noted.
11	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	K. The next Agency Meeting will be scheduled for September/October 2004 to look at preliminary range of alternatives. This will be prior to Public Meeting #2, which is targeted for November 2004.	Comment Noted.
12	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	L. Need to revisit, but not dwell on, 1999 study findings.	Comment Noted.
13	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	M. Seems to be conflict regarding US 90's ability to act as a hurricane evacuation route. (This Purpose & Need vs Route 1 Purpose & Need)	Comment Noted.
14	7/13/2004	7/13/2004	FHWA, LADOTD, USACE, Ascension Parish Sheriff, Assumption Office of Emergency Preparedness, Lafourche Parish. St. James Parish, Terrebonne Parish, Chitamacha Tribe of LA, EPA, Dept. of Natural Resources, LA Dept. Wildlife and Fisheries, LA Office of Homeland Security, NOAA Fisheries, SCPDC	N. New construction best if along Lafourche Ridge	Comment Noted.
15	7/13/2004	7/13/2004	Parish of St. James, President	On July 13, 2004 I attended a meeting at South Central Planning and Development Commission's office in Houma, Louisiana which you hosted concerning the North/South Hurricane Evacuation Route. Present with me at this meeting was Mr. Jody Chenier, my Director of Operations and Mr. Gerald Falgoust, my Director of Emergency Preparedness. This meeting we found to be informative; however, we feel that the best route is Alternate #7 which was totally ignored. Thus, from that standpoint we were extremely disappointed, for it felt that Alternate #7 as discussed in Exhibit "A" (enclosed) which is my letter dated May 7, 1999 to Ms. Michele Deshotels presents my detailed position concerning this matter. Please note that attached to my letter is St. James Parish Council Resolution No. 99-65 which was unanimously passed by our council also supporting Alternate #7. Upon reviewing Exhibit "A" it is unconceivable that Alternate #7 would not be the route of choice.	Comment Noted.

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16	6/23/2004	7/13/2004	Gulf South	Not complicate anything, but just to lend further insight into some local concerns and talk that may be a possibility in the Quantm modeling. Locally, in Terrebonne Parish, Valhi Blvd. was recently extended by the Parish. It is currently a 2 lane road, but the corridor (to Hollywood Road) has been set-up as a four lane facility. It currently extends from the Houma Civic Center (usually an evacuation shelter) north to Hollywood Road. It is approximately 1 mile west and parallel to LA 311. Due to the high growth along LA 311 and since LA 311 is currently a 2 lane facility, to relieve traffic-there has been discussion and even a map prepared on possibly extending Valhi Blvd all the way to US 90 and beyond to Schriever and the west bypass road around Thibodaux. Don't know if this fits into any of the master plan thinking but I'll try to get a reduced copy of the map, put it in the mall to you so you can be familiar with it. This could be a factor if any of the options show the N-S corridor passing on the west side of Thibodaux.	Comment Noted.
17	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	A. On July 13, 2004 I attended a meeting at South Central Planning and Development Commission's office in Houma, Louisiana which you hosted concerning the North/South Hurricane Evacuation Route. Although I found this meeting very informative, I feel that the best route, Alternate #7, was totally ignored. Thus, I was very disappointed. In fact the Southeast Louisiana Hurricane Task Force felt strong enough about Alternate #7 that the attached Resolution was unanimously passed by all members present. Your open minded consideration concerning Alternate #7 will be greatly appreciated, for its felt that Alternate #7 is the best possible location for this proposed highway.	Comment Noted.
18	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	B. We are all aware of the significant need for a Hurricane Evacuation Route from the Houma/Thibodaux areas	Comment Noted.
19	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	C. The southeast and south-central section of Louisiana needs immediate relief for evacuation during times of an approaching hurricane, and,	Comment Noted.
20	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	D. Immediate relief would be achieved by the completion of the four-laning from the relocated US 90 to LA 3127, to the Veterans Memorial Bridge, to US 61 and 1-10 via Alternate 7 would provide true hurricane evacuation relief; and,	Comment Noted.
21	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	E. This route would provide a different route for traffic and vehicles traveling south from LA 3127 to Thibodaux and Houma over the present LA 20 which is a sub-standard extremely hazardous highway from Vacherie to Chackbay; and,	Comment Noted.
22	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	F. WHEREAS, Alternate 7 will not involve the relocation of mass residents; and,	Comment Noted.
23	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	G. Alternate 7 will provide immediate relief at less cost (a minimum of \$64.7 million savings) in comparison to other alternatives; and,	Comment Noted.
24	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	H. Alternate 7 will provide greater utilization of the Veterans Memorial Bridge, Sunshine Bridge and the Hale Boggs Bridge; and,	Comment Noted.
25	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	I. Alternate 7 will better serve the populated areas that can feed onto this new highway, the Central and Lower Lafourche area (including the Raceland area) from Highways 90, 3052, 308 and 1, Houma, Gray, Schriever, South Thibodaux, Thibodaux proper (including Thibodaux Regional Medical Center and Nicholls State University), the North Thibodaux area, Choctaw, Chackbay/Choupic, Bayou Beouf/Kra6mer areas (from Highways 304,20 and 307), South Vacherie (from Highway 20) and the remainder of West St. James Parish (from Highways 3127, 18 and 20)	Comment Noted.
26	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	J. Alternate 7 services more populated areas than Alternate 6,6A or 7A.; and, WHEREAS, Alternate 7 provides easier access from the River Parish area to Nicholls State University, Thibodaux Regional Medical Center, Thibodaux/Houma area businesses, catholic schools, etc.	Comment Noted.
27	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	K. Alternate 7 provides easier flow of tourism between the River Parish area and the Lafourche/Terrebonne area; and,	Comment Noted.
28	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	L. Alternate 7 has the least environmental impact.	Comment Noted.
29	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	M. Alternate 7 will also provide a more efficient evacuation of the River Parish area south due to a nuclear power plant issue and/or a hazardous material incident along the river; and,	Comment Noted.
30	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	N. The Southeast Louisiana Hurricane Task Force enthusiastically and wholeheartedly supports Alternate 7 as described in the March 1999 Draft Hurricane Evacuation Corridor Study prepared by URS Greiner Woodward Clyde and submitted by the Louisiana Department of Transportation and Development under State Project No. 700-99-0132	Comment Noted.
31	7/20/2004	7/13/2004	Southeast Louisiana Hurricane Task Force	O. The resolution having been submitted to a vote was enthusiastically endorsed by all members present. There were no dissenting votes.	Comment Noted.
32	7/15/2004	7/15/2004	State Senate-District 20	Thank you, Michelle. First, I think I know about half the people in here, but my name's Reggie Dupre. I'm state senator for District 20. District 20 encompasses about two thirds of Terrebonne Parish, mostly the southern portions and most the city of Houma and about 60 percent of Lafourche Parish. So I am the majority senator for both Lafourche and Terrebonne Parishes. Out of all 144 state legislators, Reggie Dupre lives the furthest south, out of all of them. I live closer to Fidel Castro than anybody else in the state legislature. I'm very pleased the EIS is finally started. Personally, I think the rough study that was done and this EIS has the wrong northern boundary, 3127. I feel it ought to be Interstate 10 because that's our ultimate goal, is to get to Interstate 10. I can tell you down here in South Louisiana I'm not that worried about Al Qaeda and the terrorist attacks. One day we may see thousands of people die in South Louisiana because of a major hurricane. And most occurred two years ago. I did send a written response and it was a short letter and I'd like to read it into the record also for the benefit of those who are here. I am very pleased to hear that DOTD has finally initiated EIS for a north-south hurricane evacuation corridor. I have always been a staunch supporter of this project. I represent approximately 120,000 citizens in Lafourche and Terrebonne Parishes. My district is one of the most vulnerable for hurricane tidal surges. This project will provide safe evacuation to approximately 200,000 of South Louisiana citizens. Two years ago my two parishes were struck by a tropical storm, Isidore, and Hurricane Lili within a two-week period. Had hurricane Lili continued straight for Morgan City as the original Category 4 strength, most of my district would have had to face tidal surges of approximately 14 feet above sea level. And we do have maps from NOLA to prove that a 10:00 p.m. advisory the night of the hurricane showed what would happen. Lafourche and Terrebonne would have been the hardest hit. Considering an average height of the homes and businesses in my district is only about 7 feet above sea level, over 90 percent of the structures in my area would have been under 7 feet of water. I feel that Hurricane Lilly was a wake-up call for those public officials. There are currently no adequate north-south highways to evacuate south-central Louisiana. About two years ago, a rough study was done on this project. I personally preferred an eastern route which would line up the Gramercy-Wallace Bridge to U.S. 90 on the Lafourche-Terrebonne border and the Bayou Blue area. It is obvious that we may have to consider tolls to	Comment Noted.

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				construct this highway. A direct link to the Gramercy-Wallace Bridge would have more traffic to justify tolls, if necessary. Furthermore, the Gramercy-Wallace 3 Bridge connects I-10 closer to I-55 for our citizens to travel north out of harm's way. And I said I will try to participate. I am here tonight. I am participating in this meeting. Yesterday, Senator Jody Amadee, represents St. James and Ascension Parishes, called me. He said, Reggie, was this your idea to build a highway between the two bridges? I said, No, it was not. He said he'd like a direct link also. So does Senator Gautreaux. And I've talked to several other representatives in this area. It seems the consensus is building a direct link would be the best thing for this area. Why? It brings you faster access to Interstate 10. We don't need to send people in the metropolitan areas of New Orleans and Baton Rouge when trying to evacuate. I think we're tied up enough in traffic. I personally feel there's more developable land on the eastern side, especially the eastern side of Thibodaux near Nicholls for right-of-way purposes, and giving Nicholls a direct exit for a four-lane highway would definitely help this university grow and become a more regional facility. The State has just appropriated 27 million dollars to build the spur between the Wallace-Gramercy Bridge and 3127, which is called in this map future 3213. Most of us in the legislative delegation in this area feel that driving south, when you get off the bridge, you ought to be able to keep on straight and come straight towards Thibodaux. How we going to pay these major highways? We need to take that into consideration. The DOTD just recently did a 20-year master plan. In that master plan it states that in 7 years from now, we will stop constructing new highways and capacity projects unless we come up with additional revenue sources. 7 years. This project will not get built unless we have new taxes or tolls, the nasty Ts. It will take one of the two. When you're looking at over \$2.00 a gallon for gasoline, a new tax on gasoline will not pass. That is unacceptable, and you'll never get the votes in the state legislature. It requires two-thirds vote of the house in the legislature. So we're going to have to consider tolls. Just yesterday the Louisiana Transportation Authority approved a resolution to go to the State Bond Commission recommending the building of lower LA-1 and selling and getting over 180,000 for revenue bonds, revenue bonds from tolls that will be done on the Leeville Bridge to pay for that 17-mile stretch of highway. And I know you have concerns about wetlands north of Thibodaux, but even at my very conservative definition of what's a wetland, all of the area between south of Golden Meadow at the end of the hurricane evacuation project to Port Fourchon is all wetlands. So we're building a 17-mile causeway in south Lafourche and we have a record of decision at EIS fixing to go to bid, hopefully within about a year, year and half from now, on portions of that causeway. So don't tell me that we can't address some of the environmental issues on the north side which are comparatively speaking much, much less. And like I said before, a direct route, of course, would prove more traffic for tolls. Because that's how you pay highway patrols, you have to have the traffic to warrant it. A few years ago in 1999 there was a bill to reauthorize the tolls for the Crescent City Connection at a dollar. The Sunshine Bridge was reduced to 50 cents. Well, it was costing 46 cents per car to pay for the toll-takers. So in essence what we had is we had a tax to pay the tax collectors. So I agree with what Secretary Movulsaki (phonetically spelled) did. He said that doesn't make any sense, so he pulled the tolls off and tore down the toll booths. But the original plan was to leave the tolls at \$1.00, bond out the money, and four-lane LA-1 between Whitecastle and Donaldsonville and LA 70 between the Sunshine Bridge and Interstate 10. Then you would have that bigger loop to the south of Baton Rouge, four-lane loop. Unfortunately, the bill passed at 50 cents. But that's the only way. I feel that if we want to build this highway in our lifetime, we have to consider tolls. That's the pure facts of it. That's the only way we will see it done, I think, in the relative near future. Thank you.	
33	8/23/2004	7/15/2004	City Of Thibodaux	Mentioned that the City of Thibodaux preferred an alignment that would go around Thibodaux to the East of the City.	Comment Noted.
34	8/23/2004	7/15/2004	St. James Parish	Questioned why this study would be looking at additional alignments when the URS feasibility study already completed that task	LADOTD answered that the feasibility study was completed in 1999 and now have additional and more recent data that may affect the alternatives.
35	11/18/2004	11/18/2004	Agency Representative	A. It was asked if different starting points on the south end of project would be considered.	In response it was noted that a QUANTM run starting on 90 to the west of LA 24 has already been initiated but the results have not yet been received. A brief review of the QUANTM process regarding how requests for evaluations of new starting points or other modifications was provided.
36	11/18/2004	11/18/2004	USACE	B. The USACE representative asked if "avoid all wetlands" can be entered into the optimization program.	It was noted that, in theory, that was possible. However, regarding total avoidance of wetlands, given the expansive wetland areas, total avoidance of this valuable resource appears to be unlikely. It was noted that the DOTD appreciates the need to try to avoid wetland impacts, and, if impacts cannot be avoided to minimize impacts to wetlands. Finally, whatever impacts cannot be avoided or minimized, impacts need to be mitigated.
37	11/18/2004	11/18/2004	USACE	C. The US Army Corps of Engineers representative noted that they have pushed for an alternative that follows Bayou Lafourche ridge and have not deviated from that position. This route extends beyond the project area. By following the west side of the Mississippi River, the route avoids Baton Rouge. It was noted that the basis for our project is the 1999, Hurricane Evacuation Corridor Study prepared by URS Greiner. The URS study set the project boundaries for the Houma- Thibodaux to LA 3127 Connection, Hurricane Evacuation Route project. The URS study also provides a feasibility study of alternative corridors for hurricane evacuation and was intended to provide the DOTD with recommendations for future study. The URS report will be reviewed and a formal response will be provided to the USACE.	Comment Noted.

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38	11/18/2004	11/18/2004	Agency Representative	D. It was asked if we need an interstate grade highway for evacuation.	In response it was noted that the DOTD sets the criteria for what the roadway will look like including if it will meet interstate standards. The present proposed route is designated as an F-3 highway which is a 4 lane freeway having a right-of-way of 300 ft. wide. The highway and structures are proposed to be at or above storm surge height
39	11/18/2004	11/18/2004	USACE	E. The US Corps of Engineers representative noted that they will assess impacts of height during the permitting process	Comment Noted.
40	11/18/2004	11/18/2004	USACE	F. The US Corps of Engineers representative noted that they are revising methods of wetland mitigation. Direct and indirect impacts will be considered. 3:1 is a better potential reality ratio to use for high quality wetlands. 5 or 6:1 would be a ratio to use for secondary impacts. The Mobile, Alabama District uses a ratio method. No Net Loss is the goal. Bottomland hardwood mitigation bank is approximately \$5000/acre. Almost all wetland sin the project area can be considered high quality.	Comment Noted.
41	11/18/2004	11/18/2004	Agency Representative	G. It was asked if there is a mechanism for recording why people want a certain route when drawing lines on the constraint maps provided for that purpose.	It was noted that the team will note in the margins who drew which line but that the reasons for why would need to be recorded on survey forms or by other means
42	11/18/2004	11/18/2004	Agency Representative	H. Regarding the southern termini, it was asked how the LA. Highway 1 project tied into this project. Does the LA. 1 project have to tie-in to the southern terminus of the North-South project?	It was noted that LA. 1 must link to US 90, not specifically to the North-South project and that each project has independent utility
43	11/18/2004	11/18/2004	USACE	I. The USACE representative noted that here is an existing 200 acre mitigation bank in the direct path of the Prospect Street extension (Gremillion Land Bank). The US Corps of Engineers representative also noted that there are 3 other mitigation banks in the project area;-Lafourche Crossing, Greenwood Plantation and one other. The team requested that the USACE provide details including a map showing the location of these new mitigation banks so they can be incorporated in our constraints mapping	Comment Noted.
44	11/18/2004	11/18/2004	USACE	J. The US Corps of Engineers representative expressed his opinion that a transportation link should be the primary purpose as that is what it will be used for 99% of the time. Hurricane evacuation has too many alternatives	Comment Noted.
45	11/18/2004	11/18/2004	Agency Representative	K. An individual involved with access management asked if sharing gas or oil line right of way was a possibility.	A DOTD representative noted that there regulations say that that is not allowed for lines over 250 psi.
46	11/18/2004	11/18/2004	Agency Representative	L. An individual asked how people in Larose get to the evacuation routes.	It was noted that people in Larose need to get to US 90 and then can access the evacuation route from US 90 by either traveling to the east or west to wherever the evacuation route starts from.
47	11/18/2004	11/18/2004	Agency Representative	A question was raised regarding the use of LA 309 on the west side of the project area as an evacuation route since there is an existing 2-lane road through the wetlands. Can it be included in the study?	In response, it was noted that a full range of alternatives will be considered as part of the process and use of QUANTM route optimization software but that there are no plans to expand the project area to the west.
48	11/18/2004	11/18/2004	Terrebonne Parish Sheriff	Expressed his views that evacuation for the area should remain on the west bank of the Mississippi River generally following a route to Donaldsonville, then Port Allen, then Simmesport, then to Alexandria. He marked this path on a state highway map	Comment Noted.
49	11/18/2004	11/18/2004	State Senate-District 20	My name is Reggie Dupre, State Senator, District 20. I represent about two-thirds of Terrebonne Parish's population and about 60 percent of Lafourche Parish's population, on the coast of both parishes. My district goes from the Atchafalaya River to the Grand Isle line of the beach. You know, we met here in July. Since then we've had a big lesson. We had Hurricane Ivan. Several days after Hurricane Ivan, I was at meeting with Governor Blanco, and I said, Governor, did you learn anything from Hurricane Ivan's evacuation. She said, Yes, I did, Reggie, two things. First of all, not enough of the citizens of this state know the alternate routes. When we chose where the state highway system was built, there were alternate highways out there, and they were not used enough during this evacuation. We need to educate the people on alternate routes. Secondly, she told me she flew over several areas that were backed up on I-10 and U.S. 90, and she says, I learned -- she learned that intersections create problems. Where you had an intersection, traffic was backed up for miles and miles and it was because of the slow-down of intersections. So when we considering hurricane evacuation routes, we need to minimize the number of intersections, especially a "T" intersection, where you got to turn left or route without interstate-style entrance ramp. What I'm asking for is to look at the big picture. Crude oil is running at close to \$50 a barrel, and it was above \$50 a barrel for a while. Gasoline prices are around \$2 a gallon. You're not going to see a new gasoline tax in the near future to fund these major monster projects. What's the alternative? The alternative is tolls. So if we don't consider tolls, we'll never build this project. That's the facts. Now, who is going to pay a toll that goes nowhere? Well, the answer is, not enough people to pay the highway, so you'll never build the project if the highway does not have a good direct transportation link. That's why I'm totally against any routes that go between the Sunshine Bridge and New Orleans-Gramercy Bridge. We have to either link up to one or the other. I think the Gramercy Bridge or the Veterans Memorial Bridge makes a lot more sense, because we got to see what the Sunshine Bridge and what it will become in the future. One day we will see LA Highway 1 between Whitecastle and Donaldsonville a four-lane. One day we will see LA 70 between on the east bank of the Sunshine Bridge to Interstate 10 four-lane. Once that occurs, you will have an alternate route for truck traffic around Baton Rouge. So the Sunshine Bridge traffic will increase considerably. That'll be your alternate loop, south loop around Baton Rouge. The Wallace-Gramercy Bridge or the Veterans Memorial Bridge, on the other hand, has the least amount of traffic counts of any bridge in the United States of America over the Mississippi River. That's from Canada to the Gulf of Mexico. I'm told the average traffic counts barely get to 5,000 cars a day. We got more than 5,000 cars a day that pass right here at Nicholls University than cross the Mississippi River at Gramercy. The capacity of that bridge is over 50,000 cars a day. That is the anchor. The State of Louisiana is fixing to build, and going	Yes.

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				to bid very soon and they're spending close to \$30 million on a road for three miles, linking the bridge, the Wallace-Gramercy Bridge to 3127. In past DOTD hearings, on the road shows, people from Houma, people from Thibodaux, have supported that project, although it's not in our parish. We have always visualized that three-mile link as Phase 1 of the north-south hurricane evacuation corridor. We've always considered it that, and it will be that. Once that three-mile link is built, it will be actually faster for citizens in Thibodaux to go to either New Orleans or Baton Rouge to go north through Highway 20, through Chackbay, because it'll cut out, I'd say, 10 minutes or so. You're not going to have to go on River Road. So let's look at the big picture. Let's look at a more direct route. We start off with a big flaw on this whole system when we did the 1999 raw study. Not one of these maps I see here on the study areas, the shaded areas, goes cross the Mississippi River. If my people are wanting to evacuate for a hurricane, believe me, the people I represent are the most vulnerable, some of the most vulnerable in the State of Louisiana. And I represent Chauvin, Dulac, lower South Lafourche, Leeville, Golden Meadow, Cocodrie, Bayou Du Large, Pointe Aux Chene. If they want to evacuate, they're not going to a sugarcane field on the West Bank of the river in the middle of nowhere, where no one lives in St. James Parish. That's not the purpose of evacuating. The purpose of evacuating is to get across this river. So we got to consider what's the best route and the fastest route across the river. So I'm suggesting and think, in saying that DOTD needs to amend this contract on this project immediately. This EIS is costing \$2 million. It is funded by \$1.6 million of federal transportation dollars and \$400,000 of local, not state, but local dollars. The way we raise those local dollars, the seven parishes that are directly affected in this project has about 400,000 people in it. We raise -- each one of these parishes, and some of them are poor. And Assumption Parish put up their proportionate share, St. James Parish, St. John put up -- and Terrebonne, Lafourche, St. Mary, St. Charles Parish all put up their proportionate share. So basically these local governments put up a dollar a person. One dollar for every person in their parish was put up by the local government. The State has nothing on the line, financially, yet on this project. Now, I know we have a little bitty contingency left in the budget, what was put in the federal budget for this EIS. I suggest we go back, renegotiate the contract. The study area needs to be extended to Interstate 10 to the north. We've got to evacuate to I-10 or I-55, but we've got to go beyond -- we got to get across the river. So that's my -- the suggestions I'm making is, No. 1, extend the study area to Interstate 10, not just 3127. We've got to get across that river. No. 2, extend the purpose and need to not only hurricane evacuation, but also consider a transportation link. And I understand y'all may have done that already.	
50	11/18/2004	11/18/2004	State Senate-District 20	That is crucial. And strongly consider the most direct route. You know, they say the devil's in the details, and this is a summary sheet of 10 -- this one sheet says it all, and you might not think us elected officials read this fine print, but sometimes we do. This is a summary sheet of the 1999 raw study. The three chosen routes are Route 6, 6-A, and Route 7-A. I'm suggesting looking at something which is very, very similar to Alternate 7 which was not considered as one of the routes. Well, let me tell you the differences between them. On mileage, they're very close; all four are very close. The shortest one is 63-1/2. The longest one is Route 7, I'll admit it, it's 65.4 miles. But if you take into consideration that extra 9 or 10 miles between the bridge, in the middle between the two bridges, this is actually the shortest route. That needs to be considered as far as the routes. But let's talk about the project costs. According to this '99 study, Alternate 7, which is not a chosen route, is the cheapest. It is \$144 million cheaper than Alternate 6. It is \$155 million cheaper than Alternate 6-A and \$65 million cheaper than 7-A. So it's at least \$65 million cheaper. Okay. Part of the environmental impact assessment is wetland impacts. Alternate 7 has 360 acres of wetland impacts. The next closest one is Alternate 7-A, which goes to the middle, it's 365 acres. 6-A has 415 acres, and 6 has 400 acres. So what I'm suggesting, we need to seriously consider a direct route, which has been shown on this study to be the cheapest route and the less environmentally sensitive route. Based upon this formation, y'all going to have to convince me why we're not choosing Alternate 7. I mean this young lady must have mentioned the words "common sense" about eight times in her presentation. It's all about common sense, it's all about looking at the big picture, and that's why I think we really need to consider this direct route, the one that does make the most common sense for the future of the State of Louisiana.	Comment Noted.
51	11/18/2004	11/18/2004	State Representative-District 58	Good evening, my name is Roy Quezair. I'm state representative from Donaldsonville. I represent District 58 which encompasses major portions of five parishes, Iberville, Ascension, Assumption, St. James, and all of the West Bank of St. John the Baptist Parish. I'm also very proud to be the chairman of the House of Representatives Transportation Committee. Senator Dupre and I entered the legislature the same year and we've been very good friends and best of colleagues and we've bounced a lot of ideas off of one another. First and foremost, we just concluded what you heard Senator Dupre talk about, the road show. That's, by way of legislative act, law -- the joint transportation committee of the Senate and the House of Representatives, by law is ordered or compelled to travel to all nine of the DOTD districts, the width and breadth of the State of Louisiana. And we have opened public meetings for the folks and citizens to come in and give their views and opinions on the transportation concerns, infrastructure network, and transportation systems, concerns that they have. As you move throughout each quadrant of the State of Louisiana, the needs are different. But in this area, in our area of the state, because of what we have experienced in the past, we need to -- we ought to make sure that the decisions that we make are, first of all, I heard the terminology "common sense," but mostly safe, efficient, and effective. Also, please keep in mind that as we are postured on the West Bank of the Mississippi River, that it is imperative that we take advantage of the various bridges, from Hale Boggs, or the Destrehan-Luling bridge, all the way up to Baton Rouge, and keep in mind that the true Westbank Expressway have been talked about for well over 20 years, which would be the four-lane expressway from Port Allen all the way down the West Bank of the Mississippi River. The only area that it is not four-lane, or have the potential of being four-lane, is just the 10-mile stretch between Donaldsonville and Whitecastle that Senator Dupre talked about. But having a connection, that arterial vein running along the side of the West Bank of the Mississippi River, is very, very important. And it will be the southern loop coming from Baton Rouge, not only for hurricane evacuation and safety and protection of the folks and the citizens, but also for economic development, which is what the direction that this State must head in. Keep in mind also that if, in fact, the proposed international cargo facility comes to fruition, which is also in my district, there will be, automatically, more four-lane and interconnector highways bringing traffic to,	

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				through, and around that particular 25,000 acre site. So we will have some future connectors that will move people safely and efficiently and effectively from one point to another on the West Bank of the Mississippi River. But I will yield -- I will yield to you, the citizens in this area, because my district does not come all the way here, but it stops right there in Assumption Parish. But I will yield to you all and your views and opinions that what you feel is best and then let our experts take it back to the table and then come up with a more sensible decision. Now, Louisiana must, must embrace the toll concept. There's no way for us to get around that. As I travel annually from Donaldsonville to Milwaukee, Wisconsin, I can't wait till I get to Chicago, Illinois and get on the toll highway that'll lead me all the way into Milwaukee, Wisconsin. It's a pleasure to put a coin into the basket or the dollar bills, whatever the toll rate is. But let me tell you something, it's a fast, efficient, safe way of moving people and commerce and trade from Point A to Point B. And once folks get accustomed to doing that, it's a way of life. But we can't get around that. In Oklahoma, my son lives in Tulsa, Oklahoma, when I travel to him, I hit at least three different toll roads, and they've been in existence for quite some time. Those folks have had the foresight and the understanding of what toll roads can do for them. We are, as we speak, as a state, the Louisiana Department of Transportation and Development is experiencing a \$10 billion backlog of work yet to be done. Now, not 10 million, 10 billion. What's the answer? Quite naturally, folks don't want to hear the talk about taxes, but we have to shoulder this responsibility for the generations following us. Toll roads is the way to go. Port Fourchon, I cannot say enough about that wonderful facility, Port Fourchon and what it brings to this nation. We should have had a four-lane superhighway years ago, years ago, leading to that. All of that will give us economic development and also massive evacuation capabilities for now and the future. So I am for it. We will continue, Senator Dupre and I and the rest of the legislative delegation, to educate and sensitize the rest of our colleagues from north, south, east, and west about the importance of this particular corridor that we are talking about, proposed corridor that we are talking about tonight. So we know the job that we have to do, and we're looking forward to rolling up our sleeves and continuing to do work at the state capitol. There's still yet a lot of work to be done. As you see here on the April 26, '04, through April 26, '06, we have two more years of actual planning and getting things on the table and then to move forward with what will be the most sensible thing to do. So let me commend, congratulate, and applaud you all for being here tonight. It's important that, you know, what you think and what you say and what your views and opinions are, as we get them on the record, get back to the department and all of the experts, and then come out with a sensible answer.	
52	11/18/2004	11/18/2004	Houma-Terrebonne Chamber of Commerce	Thank you very much, Ms. Deshotels. My name is Daniel Walker. I'm not a politician. I live in Houma, Louisiana. I'm here representing the Houma-Terrebonne Chamber of Commerce. I've been the chairman of the infrastructure of the chamber for the last year, and prior to that I was in an officer position. I served as chairman of chamber. We have been very involved with the development and watching this project as it unfolds. And I have to tell you that probably - - I don't know if I can say that I was the most outspoken, but I was very outspoken and very much not in favor of what DOTD was doing in the past with respect to this project. I'd like to commend the Department for these public hearings, for amending the statement of purpose and need to include the linkage to the interstate. Senator Dupre said it probably more eloquently than I can say it. I believe that the scope and need of the project needs to be amended to include to encompass taking the route all the way to Interstate 10 via the Gramercy-Wallace Bridge. I believe that the most -- the route that makes the most sense is, I believe, Alternate No. 7, which goes to the east and is the most direct route from our perspective. And I'm grateful for the opportunity to be here. I really just endorse what the senator has said. I think that he expresses what our ultimate goal is here and where we'd like to see this project. And I thank you for the opportunity.	
53	11/18/2004	11/18/2004	Chitamacha Tribe of Louisiana	Good evening, I'm Jason Emery. I'm with the Chitamacha Tribe of Louisiana and I'm here -- actually, that's a very interesting comment. I think it would be very fruitful to potentially extend this to I-10, but that's not actually the purpose of my being here. I wanted to bring, I guess, our perspective, which is that cultural resources are an important aspect of planning and in EIS and they're important to the tribe who has, you know, been here in the State of Louisiana, in South Louisiana, according to tradition since, you know, the world began and documented archeologically, which is what I am, for at least 6,000 years, based upon carbon dating. So they have their -- again, a strong interest in developing this area. They recognize that hurricane evacuation is a primary need for the Houma-Thibodaux area. This project is an exciting opportunity to make that actually happen and there's a subsequent facet of the project reaping economic development along with it. You certainly can't stop progress. But the main point that they want to bring out, I guess, is that in developing a new road, there are a number of archeological sites, prehistoric archeological sites that need to be considered in the development process and, hopefully, not impacted, and that's really all that I have to say. Thank You.	Comment Noted.
54	11/18/2004	11/18/2004	Houma-Terrebonne Chamber of Commerce	Al Badaeux. I'm also with the Houma-Terrebonne Chamber of Commerce. According to the routes that URS Greiner did back in '99, that Senator Dupre reverting to, or made reference to -- in other words, none of those routes, none of those numbers are valid anymore; is that what you're saying?	That study was valid within the constraints of that study. And what we have been directed to do with that study is to look at, solely, the issue of hurricane evacuation. What is exciting about the Quantum method is that this a relatively cutting edge software method that allows us to look at a multitude of alternatives that you could not do by hand the way that that study was done. But the data that that study generated is not invalid data. A lot of that stuff in the conclusions and recommendations made can be pulled in and utilized in the sense of helping to set a base for where we're going with this study. But as far as how the Quantum method works, it doesn't reuse those lines. It goes out and it looks at the constraints that are there. We've updated constraints because it's been five years. We have better information. There's better technology out there. Technology has advanced considerably in the last few years, and we're able

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					to take advantage of that. The State of Louisiana is a leading state in EIS in the nation, and some of the databases we have, other states are envious of where we are in that regard. And we don't always realize how far we've come along in some of these ways, and we're able to take advantage of that new information out there that may not have been available five years ago.
55	11/18/2004	11/18/2004	Houma-Terrebonne Chamber of Commerce	The only reason I say that is because he made reference to that particular study, on that particular route. That's why --	That particular study served its purpose, and what it shows us that it's feasible to take this project to the next step. And I might say with that, that this project is still not what we consider a funded project. This study -- this stage is funded, but we have not identified funding past this stage, and that's why the toll issue is so much an important part of this discussion that we're having.
56	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	A. The SCIA Board of Directors, representing approximately 200 member firms -with over 35,000 employees in the bayou region, unanimously voted in support of Alternate 7 as a preferred route for the :North South Access Highway Project. Logistically, Alternative 7 would provide the best evacuation route for Terrebonne and Lafourche parish residents. This route would provide a direct link from US 90 to the Veteran's Memorial Bridge in Vacherie/Gramercy, thus providing access to Interstate 10 and Interstate 55. We are pleased that alternative alignments will be evaluated in conjunction with financial, environmental and social constraints. It is obvious the LA DOTD is diligently working to provide the best possible solution for the protection of so many lives in south Louisiana. We encourage your continued work and look forward to being informed of the progress you are making regarding the North South Access Highway Project.	Comment Noted.
57	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	B. The South Central Industrial Association (SCIA) representing approximately 200 member firms and 35,000 employees, strongly requests further review by the Louisiana Department of Transportation and Development (LA DOTD) with regards to the North South Access Highway Project	Comment Noted.
58	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	C. The South Central Industrial Association appeals to the LA DOTD to expand and modify the current study for the North South Access Highway Project	Comment Noted.
59	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	D. The South Central Industrial Association requests the purpose and need be expanded to include transportation links	Comment Noted.
60	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	E. The South Central Industrial Association encourages the study of the inclusion of Alternative Route 7, which is the most direct route from LA Highway 90 to the Veterans Memorial Bridge near Vacherie/Gramercy.	Comment Noted.
61	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	F. The South Central Industrial Association believes Alternate 7 is the most cost effective route; WHEREAS, the South Central Industrial Association believes Alternate 7 will provide less wetland impact by construction;	Comment Noted.
62	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	G. The South Central Industrial Association encourages the limits of the study area be expanded to Interstate 10;	Comment Noted.
63	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	H. The long term safety and essential general welfare of the Bayou and River Regions are critically dependent upon future improvements to the transportation system, specifically the most cost effective and direct route of the North South Corridor/Hurricane Evacuation Route to the Interstate-10 system, and	Comment Noted.
64	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	I. The South Central Industrial Association requests the Louisiana Department of Transportation & Development take immediate action to include transportation links and expansion of the limits of study to Interstate-10 for the North South Corridor/Hurricane Evacuation Route project	Comment Noted.
65	11/19/2004	11/18/2004	South Central Industrial Association (SCIA)	J. Therefore, be it further resolved, that the Board of Directors of the South Central Industrial Association on November 16, 2004 unanimously acknowledged, adopted and supported this resolution of transportation links and expansion limits to Interstate-10 for the North South Corridor Hurricane Evacuation Route as set forth above.	Comment Noted.
66	5/7/2006	5/2/2006	LADOTD, FHWA	A. The possibility of making the new LA1 @ US-90 the southern terminus of the project was discussed.	It was determined that point lied outside the study area.
67	5/7/2006	5/2/2006	LADOTD, FHWA	B. The possibility of the study area being too narrow was discussed.	It was proposed that the study area be extended east to the intersection of LA1 & US-90.
68	5/7/2006	5/2/2006	LADOTD, FHWA	C. US Fish and Wildlife voiced reluctance to concur with the stated Purpose and Need on the basis that "linkage" between a population center and a non-population center doesn't provide enough project justification when a significant wetlands impact and an existing north/south route are taken into consideration.	Additional justification for the project would need to be presented in the DEIS to supplement the Purpose and Need in order to obtain concurrence from US Fish.
69	5/7/2006	5/2/2006	LADOTD, FHWA	D. A proposal was made for an elevated section of roadway adjacent to the existing LA-20 north of 307, south of Vacherie. This elevated section would ultimately replace the existing un-developed section of roadway allowing for wetland restoration in that area.	Details of all alternatives considered will be discussed in the DEIS.
70	5/7/2006	5/2/2006	LADOTD, FHWA	E. The DEIS should include justification as to why the use of existing corridors such as LA1/308 are not viable options in achieving the purpose of the project.	Details of all alternatives considered will be discussed in the DEIS.
71	5/7/2006	5/2/2006	LADOTD, FHWA	F. Through input and comment from those in attendance, it was agreed that the eastern corridor and the central corridor traveling through Nicholls State could be eliminated from further consideration.	Comment Noted.
72	2/15/2006	1/26/2006	USFWS	A. The Final Technical Appendix: Traffic Analysis report presents a summary of existing and projected future <i>non-hurricane evacuation</i> traffic conditions, and describes duplications/ revisions to the previously presented project alternatives. That document states that one of the primary needs of the corridor study is the "lack of available corridors that provide north-south movement through the area." Consistent with our April 6, 2005, letter, the Service remains concerned about the potential construction of an entirely new roadway through the Des Allemands wetland complex. As stated in that correspondence, an entirely new roadway constructed through that area could have significant adverse impacts to wetlands (including a site proposed for restoration under the Coastal Wetlands Planning, Protection, and Restoration Act) and other Federal-trust fish and wildlife resources (including migratory birds and federally listed species).	Comment Noted.

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73	2/15/2006	1/26/2006	USFWS	B. While we recognize that an environmental analysis of revised alternatives will be developed in the future, we encourage FEMA and LDOTD to evaluate the alternative of improving and/or elevating existing facilities. Such an alternative may provide a means to improve north-south movement and connectivity within the study area, while avoiding and minimizing potential adverse environmental impacts. Many such improvements are currently being considered as described on page 16, Section 3.1, of the Technical Appendix: Traffic Analysis report. Accordingly, the Service recommends, that feasibility of widening and/or elevating Highway 20 be evaluated in the forthcoming environmental documentation, it can be compared with the currently proposed new alternatives, prior to selecting a preferred alignment.	Comment Noted.
74	2/15/2006	1/26/2006	USFWS	C. We appreciate the opportunity to comment on the above-referenced documents and look forward to participation in the collaborative development and selection of environmentally sound alternatives that would also achieve the project purposes	Comment Noted.
75	11/19/2010	11/18/2010	USACE	A. A combination of the western and central routes appears to be the best option	Comment Noted.
76	11/19/2010	11/18/2010	USACE	B. Disagreed that the identified "East/West" option is not technically a north/south option when looking at the bigger picture	Comment Noted.
77	11/19/2010	11/18/2010	USACE	C. The western and central routes following existing roads but in wetlands	Comment Noted.
78	11/19/2010	11/18/2010	USACE	D. The team needs to better define linkage for the agencies and general public	Comment Noted.
79	11/19/2010	11/18/2010	USACE	E. Doesn't appear a 4-lane route is needed to improve traffic	Comment Noted.
80	11/19/2010	11/18/2010	USACE	F. USACE will recommend/require a 4-lane roadway through the wetlands to be elevated	Comment Noted.
81	11/19/2010	11/18/2010	USACE	G. The purpose and need should show more project need and clearly show purpose.	Comment Noted.
82	11/19/2010	11/18/2010	USACE	H. Better define traffic in the purpose	Comment Noted.
83	11/19/2010	11/18/2010	USACE	I. The project appears to be a LA 20 upgrade	Comment Noted.
84	11/19/2010	11/18/2010	USACE	J. Is the driving force economic development for the road?	Comment Noted.
85	11/19/2010	11/18/2010	USACE	K. The "East/West" is the least damaging alternative	Comment Noted.
86	11/19/2010	11/18/2010	USACE	L. The USACE would review a draft purpose and need statement prior to making comments	Comment Noted.
87	11/19/2010	11/18/2010	USACE	M. Recommendations – tighten up the alignments to minimize impacts, use existing ridges to the extent possible, use existing road	Comment Noted.
88	11/19/2010	11/18/2010	GSE	N. The connection across Gramercy provides more evacuation impacts	Comment Noted.
89	11/19/2010	11/18/2010	USEPA	O. The project was developed by the planning commission years ago and they appear to have a preselected corridor.	Comment Noted.
90	11/19/2010	11/18/2010	FHWA	P. The eastern route can be dropped (concurrent by group)	Comment Noted.
91	11/19/2010	11/18/2010	FHWA	Q. The "East/West" Alignment can be dropped. The USACE did not concur at this time based upon current Purpose and Need.	Comment Noted.
92	2/14/2011	2/9/2011	LA-DNR/ CM	I have reviewed the purpose and need, preliminary screening process and recommended alternatives. Comments at this time would be to avoid and minimize wetland impacts to the maximum extent practicable. Currently, the project is located outside the coastal zone boundary. However, the coastal zone boundary may be altered to include the project at some point. Please continue to include our office on any correspondence concerning changes or updates to the project as we would like the opportunity to comment on any future project developments.	Comment Noted.
93	3/17/2011	11/18/2010	US-EPA	A. The purpose and need statement is so narrowly constructed as to provide selection of only a "north-south" option" and "...the so-called "east-west" alternatives	The project team feels due diligence has been achieved in considering not only several north-south routes developed from dozens of trend lines generated by route optimization software, but also several east-west routes traversing the Bayou Lafourche Ridge tying to the Sunshine Bridge. A supplemental screening study prepared in response to resource agencies' request to independently evaluate routes tying to the Sunshine Bridge resulted in the inclusion of an east-west route in the NEPA document.
94	3/17/2011	11/18/2010	US-EPA	B. Concentrate on alternatives such as widening and elevating the existing LA-20, and improvements to other existing roads	The project team will consult with LADOTD and FHWA to consider evaluating the widening of LA-20 as an alternative to satisfy the project's Purpose and Need. The Central and Western Alternatives will also be evaluated in greater detail in the draft EIS.
95	3/3/2011	11/18/2010	USACE	A. What directions on a compass are Gramercy from Thibodaux or Baton Rouge from Thibodaux?	Due to the unique geography of the region, there are no strictly east-west or north-south roadways. The project team is using these terms in a general sense, which represents the overall direction a particular roadway travels. These terms for describing the direction of travel for the roadways, east-west or north-south, is consistent with the way the previous studies have been documented for this project
96	3/3/2011	11/18/2010	USACE	B. How would a traveler from this area get to Baton Rouge now?	As shown on the maps provided, currently travelers within the study area would be required to use LA 20 to travel in an overall northerly or southerly direction to access LA 1/ LA 308, LA 3127, and/or US 90 to travel to Baton Rouge.

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97	3/3/2011	11/18/2010	USACE	C. A roadway can run east-west for a short distance at some point but this does not mean it's not a north-south connector. Please provide clarification of your meanings and instead of using terms like east-west and north-south offer a definition in terms of destination."	Transportation planning studies typically look at the general direction of transportation corridors as they move vehicles through an area. These movements are described in context as how these corridors function and not necessarily the actual directional changes that occur along the alignment. Detailed directional changes of a roadway facility are normally documented for the alternatives analysis section.
98	3/3/2011	11/18/2010	USACE	D. What is system linkage?	The project team will provide a definition of system linkage in the Purpose and Need chapter.
99	3/3/2011	11/18/2010	USACE	E. Why is improved linkage necessary?	The need for improved linkage is explained throughout the chapter, see the section titled "Why is north-south transportation linkage needed" beginning on page 2-8. This need was identified by the Houma-Thibodaux Metropolitan Planning Organization's long range transportation plan.
100	3/3/2011	11/18/2010	USACE	F. What areas need improved linkage and why?	The Houma-Thibodaux area is the only metropolitan area in Louisiana that is not directly served by an interstate facility. The study area is in need of improved access to the roadway network to provide improved access to LA 3127, which will allow network users more options to other areas.
101	3/3/2011	11/18/2010	USACE	G. Is this a two or four-lane facility?	The proposed roadway is being evaluated as a 4-lane, limited access facility where appropriate.
102	3/3/2011	11/18/2010	USACE	H. "Why the project is needed?", and this discussion is dominated by the need for a north-south emergency and evacuation route. How was this determined?	In the paragraph "Why is the project needed?" on page 2-3, two main needs, system linkage and emergency and hurricane evacuation, are presented. The project team will address this paragraph to make sure the reader understands the primary need is system linkage and the secondary need is improved emergency evacuation. These needs were identified through recent transportation planning initiatives for the region, which are mentioned on page 2-3, in the section titled "How were these needs identified?".
103	3/3/2011	11/18/2010	USACE	I. An adequate description of the project is necessary as it provides the information to define the purpose and identify a need	." A detailed project description, along with the project's history and background will be provided in Chapter 1, the introduction to the draft EIS. This will provide the reader with an overall basic understanding of the project
104	3/3/2011	11/18/2010	USACE	J. The Basic Purpose of this project is to provide for regional transportation needs and as such the proposed project does not require the location to be within a special aquatic site to fulfill its basic purpose.	This comment is acknowledged. As part of the NEPA process a wide range of alternatives are evaluated to ensure that all potential impacts to both the human and natural environments are considered.
105	3/3/2011	11/18/2010	USACE	K. So, what is the overall purpose of the proposed roadway?	The overall project purpose is stated on page 2-1 of the Purpose and Need
106	3/3/2011	11/18/2010	USACE	L. "Discussion is spent on how the study area is growing but focus is on such areas as Larose, Galliano, Ascension, St. Charles and St. John the Baptist which are located outside of the study area. Also businesses in Larose, Golden Meadow, Napoleonville, Metairie, Thibodaux and Houma were presented as being supported by this proposed roadway. If you are including such areas then the tables provided need to be updated and the contributions by such communities located outside the study area may need to be considered through broadening the study area and considering alternatives in these other areas. In expanding the study area, you could elaborate more fully in the "Affected Environment" section the role these developed areas play in supporting the need for the highway.	Portions of Ascension, St Charles and St John the Baptist parishes, although small, are located within the current study area boundary. Larose and Galliano are located outside the study area boundaries but are mentioned to illustrate that the major employers are located generally to the north and south of the study area. The roles of the Parishes and the communities will be discussed in the existing conditions and affected environment sections of the draft EIS.
107	3/3/2011	11/18/2010	USACE	M. The facts that were used to determine/identify the north-south corridor/evacuation route as a major need within the study area and region, as stated on page 2-3 of your document, should be discussed in great detail in the "Alternatives Section" of the EIS	The Alternatives section of the document will expand the discussion of the facts that were used to determine/identify the reasonable alternatives that will be evaluated in the draft EIS.
108	3/3/2011	11/18/2010	USACE	N. "The section titled "Where do people work and how do they travel to get there?" states the businesses in four cities and the number of employees for each. The information is somewhat disconnected as it does not really explain how these people travel and where the majority of these employees live. You should elaborate fully in the discussion of the "Affected Environment."	The project team will reevaluate this section of the document to present the information in a more concise manner.
109	3/3/2011	11/18/2010	USACE	O. Also using descriptive terms such as "Bayou Region" does not adequately describe the area in question	The project team will use the most relevant term to describe the Region.
110	3/3/2011	11/18/2010	USACE	Other questions about the roadway that could be answered in your alternatives discussion are:	
111	3/3/2011	11/18/2010	USACE	P. What would the estimated maximum annual throughput be for this project? What is the estimated maximum annual throughput on the existing roadways?	Throughput represents the number of vehicles processed by the system during a period of time. Traffic volumes used and evaluated were Average Daily Traffic (ADT) and Annual Average Daily Traffic (AADT). These traffic volumes provide information not only for a small window of time but also volumes experienced over a longer period (the entire year). These volumes would be similar to volumes collected for the

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					throughput. We further “translate” these volumes/throughput by dividing traffic volumes by the maximum capacity the roadway facility will handle. This calculation then equates to a scale that is identified as Level of Service as discussed in the Purpose and Need. Findings from the traffic analysis, including actual traffic volumes and roadway capacity, were presented at the November 18th Agency Coordination meeting. A copy of the traffic report can be provided upon request.
112	3/3/2011	11/18/2010	USACE	Q. When would the estimated maximum annual throughput on the existing roadways be exceeded?	According to the traffic study, LA-20, the only existing facility providing direct north/south access to and from the study area has already grossly exceeded its capacity resulting in an unmet travel demand that is forced to use longer, more circuitous routes to get to and from the study area.
113	3/3/2011	11/18/2010	USACE	R. Why can't existing roadways be upgraded?	“ The project team will consult with LADOTD and FHWA to consider evaluating the widening of LA-20 as an alternative to satisfy the project’s Purpose and Need
114	3/3/2011	11/18/2010	USACE	S. How was the information provided in paragraph three of page 2-18 determined	The information on page 2-18 under the section “What happened during the evacuation during Hurricanes Gustav and Katrina?” was obtained from the traffic report referenced above. These traffic numbers were collected by South Central Planning and Development
115	3/3/2011	11/18/2010	USACE	T. Over what time period are these traffic counts and what was the total usage (hourly vs. daily)?”	The traffic volumes shown in Table 2.7 are from August 30, 2008; these volumes are daily. The project team will clarify this in the table
116	3/3/2011	11/18/2010	USACE	U. Also what was the delay time that was recorded?	Delay time was not part of the information collected by South Central Planning and Development.
117	3/3/2011	11/18/2010	USACE	V. Public interest goes much further than the local sentiment; it involves the consideration of the full public interest by balancing the favorable impacts against the detrimental impacts. The Corps has certain processing steps to follow when evaluating a proposed project	The project team understands that USACE has a long list of factors which encompass USACE’s definition of public interest review, per 33 CFR Part320(a)(1), which impact USACE’s decision on whether to issue a permit. This section of the Purpose and Need, “What is the sentiment of the public in relation to the proposed project?” illustrates the public opinion that has been received up to this point of the project as it is relevant to the need of the project. Additional public involvement activities and sentiment will be documented in a separate chapter of the draft EIS. The project team will address the USACE’s public interest review factors to the fullest extent practicable in the draft EIS and if necessary, revisit during the 404 permit process.
118	2/28/2011	11/18/2010	USFWS	A. It appears that the main purpose of the purpose and need of the proposed project is to improve traffic flow during hurricane evacuations.	While the project would improve hurricane evacuations, the primary intent of this project is to improve north/south mobility and connectivity during “everyday” (non-hurricane) conditions. The need to improve hurricane evacuation is secondary to improved traffic conditions in the north/south direction during non-hurricane events. Analysis of existing and forecasted traffic conditions for the “no-build” scenario has indicated inadequate capacity during non-hurricane evacuation scenarios. These unfavorable conditions are further exacerbated during hurricane evacuation conditions. We will review the language presented in the draft Purpose and Need chapter to clarify the primary and secondary needs of the project as indicated above and revise the chapter accordingly.
119	2/28/2011	11/18/2010	USFWS	B. There are declining population trends throughout the study area.	Information presented in the draft purpose and need chapter indicates an overall “reduction in growth” on a per parish level between 2000 and 2009 compared to 1990 and 2000. However, the regional population growth rate (10.7%) has outpaced state population growth rate(0.5%) between 2000 and 2009 by more than twenty times. This trend further supports the need to adequately accommodate growing traffic demand.

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120	2/28/2011	11/18/2010	USFWS	C. Consider the expansion of existing north-south highway facilities	The project team will consult with LADOTD and FHWA to consider evaluating the widening of LA-20 as an alternative to satisfy the project's Purpose and Need. The Central and Western Alternatives will also be evaluated in greater detail in the draft EIS.	
121	3/27/2012	3/27/2012	USACE	How much tweaking of the alternatives remains? Can alternatives move one way or the other? Will there be another meeting?	Some movement in the alternative alignments is possible, but not a new alternative and that this meeting is the last one and materials were provided in advance and the schedule changed to try to allow for maximum attendance.	
122	3/27/2012	3/27/2012	USACE	The western alternative should push to the red line (on the map) to the north toward Chackbay just behind existing development. Maybe there could be a partial interchange. Commentor does not support the road tying in to 3213. Commentor is also not supportive of turning south of Thibodaux after crossing LA 20 where it turns north. Commentor supports the red line.	The routes have been designed to avoid and minimize impacts by moving alternatives as close to existing impacted areas as possible and placing the route on structure.	
123	3/27/2012	3/27/2012	USACE	Commentor said that it would be easier for him to permit the red lines.	The red lines on the map indicated constraints and not alignments; they do not meet Louisiana Department of Transportation and Development's (DOTD) geometric standards for the roadway.	
124	3/27/2012	3/27/2012	USACE	Relative to the northern tie-in, North Option A or B, Commentor is in favor using LA 20 to LA3127 (A) over a tie-in to LA 3213 at LA 3127 (B).	Noted.	
125	3/27/2012	3/27/2012	USEPA	Commentor essentially agreed with all comments from (previous commentor, 1-4).	Noted.	
126	3/27/2012	3/27/2012	USFWS	Commentor also supports comments from (previous commentor, 1-4).	Noted.	
127	3/27/2012	3/27/2012	USACE	Commentor indicated that based on information provided, he is supportive of the western alternative over the central, but he is not sure that the east/west should have been removed.	It was indicated that the contract with the team did not allow for more engineering design (line and grade), which would be necessary for any extensive "tweaking". Team will look into the amount of work requested.	
128	3/27/2012	3/27/2012	SCPC	Commentor offered an observation that it appeared the project was moving backward, is this new information?	The alternatives were refined based on the 2010 meeting and that what had been requested had been done.	
129	3/27/2012	3/27/2012	USACE	Commentor indicated that USACE comments on Purpose and Need were not incorporated and that it is difficult to support as they don't know that enough work has been done to show the alternatives are the least damaging and most practical. Commentor wants reference to Assumption and Ascension Parishes removed and that the Purpose and Need is covering too large an area.	The Purpose and Need had been revised and incorporated USACE comments and was posted on the website in the revised form. The Purpose and Need will be reformatted to a more concise and readable format.	
130	3/27/2012	3/27/2012	USFWS	Commentor asked about the need for evacuation and less time getting to I-10 and I-49 (Lafayette). Why would people want to get to I-10 fast, it's a parking lot and will not solve the problem? He does not feel the project improves overall evacuation.	The primary project purpose is to provide system linkage, the secondary purpose is hurricane evacuation. The project (in the beginning) was primarily supporting hurricane evacuation. Since then, it has become a federal aid project whereby the hurricane evacuation was determined to be of lesser importance. The project improves the overall network and supports future development.	
131	3/27/2012	3/27/2012	USEPA	Commentor stated the USEPA has not provided concurrence on the project Purpose and Need. She also asked why is NEPA pursued before the Section 404 permit, and why is there a decision on federal funding – there should be no funds until the project is permitted?	FHWA must follow their NEPA process prior to seeking funding. There must be a Preferred Alternative in order to provide a permit application to the USACE.	
132	3/27/2012	3/27/2012	USACE	The agencies are involved to ensure the project follows NEPA so that it can receive a permit. The USACE is acting as a "cooperating" agency, which means it is supporting both processes. USACE needs more information before he can agree – he is not entirely satisfied with the Purpose and Need. He sees it as a north/south corridor to connect Houma/Thibodaux to the Gramercy Bridge. LA 1 and US 90 are currently hurricane evacuation routes and are seeing development. Is quicker access to I-10 really getting people where they need to go? Is there travel and time savings? The Purpose should be to build a road to I-10 and the need should be time savings.	Noted.	
133	3/27/2012	3/27/2012	USACE	Commentor stated that of the two alternatives, he supports the western alternative, but with changes. He does not feel all alternatives have been reasonably considered and thinks the east/west remains viable. There may be more tweaking in the permit process.	Noted.	
134	8/31/2012	3/27/2012	USACE	At this point in the process, the Corps is neither an opponent nor proponent of the project and therefore, does not support any alternative. A Department of the Army permit can only be issued for the least damaging practicable alternative. Therefore, any alternative that is considered practicable must be carried through the evaluation until it can be determined that it is (1) not practicable or (2) determined not to be the least damaging through careful evaluation of the environmental consequences. The environmental consequences to be considered are outlined in the 404(b)(1) evaluation (40 CFR 230 Subparts C through F).	As part of the NEPA process, a wide range of alternatives have been evaluated to ensure the reasonable and practical alternatives proposed will limit impacts to both the human and natural environments while still meeting the project's stated purpose and need. The project team believes it has exercised due diligence in its consideration of a reasonable range of practicable alternatives.	
135	8/31/2012	3/27/2012	USACE	While the Western alignment looks better than the others that were discussed at this meeting it is not the only alternative that should be considered in your evaluation to determine the least damaging practicable alternative.	The Western and Central alignment, along with the North A and North B options, will be objectively evaluated and documented in the alternatives section of the Draft EIS. The Draft EIS will identify the project alternatives that were considered, determined not to be practicable, and subsequently eliminated from further evaluation. A comprehensive discussion as to why the eliminated alternatives were not carried forward for further evaluation will be provided in the Draft EIS.	

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136	8/31/2012	3/27/2012	USACE	Tweaking the central alternative as we did the western alternative may result in minimizing impacts to an extent that this alternative may be the least environmentally damaging.	The current alignment of the proposed Central Alignment is due to a number of factors including engineering constraints, safety factors, and to efforts to reduce impacts to both the human and natural environment. Further changes in the proposed alignment would likely would compromise the overall feasibility of the alignment and result in additional impacts. These factors include: (1) The location where the proposed Central Alignment crosses Bayou Lafourche, LA 1 and LA 308 is due to several constraints: - A large mitigation bank north of the Central Alignment at the crossing - A rail line and rail bridge over Bayou Lafourche - Large residential areas (2) To avoid impacting the mitigation bank and to cross Bayou Lafourche west of the currently proposed Central Alignment, the alignment would have to cross LA 1, LA 308 and Bayou Lafourche at a major skew angle. This realignment to the west would cause several displacements along LA 1 and LA 308 and significantly impact the large subdivision just south of LA 1. (3)Continuing north, the realignment would be in close proximity to plantation property where a large historical area and archaeological sites listed on the NRHP are located. (4)Also, the realignment of the Central alternative would impact additional residential areas where the alignment would crosses LA 20. Based on the significance of these factor and the consideration of potential impacts, it was determined more practicable to place this Alternative's crossing at its current location and continue north on the east side of the mitigation bank.
137	8/31/2012	3/27/2012	USACE	One of the issues seems to be how to balance natural, physical and social impacts. Least damaging alternative must balance impacts; it can't be one-sided. You have associated cost with impact. Cost affects the practicability of an alternative and is not considered as an impact.	Although cost does not play a part in an impact analysis, it is considered to determine if an alternative is reasonable and practical to construct. The documentation will provide a full and balanced discussion of all environmental consequences, including natural, physical, social impacts, and associated cost for each alternative.
138	8/31/2012	3/27/2012	USACE	In avoiding impacts you need to focus more clearly on reducing wetland impacts by avoiding and minimizing.	In the development of the alternatives, wetlands were viewed as an important resource and were avoided to the extent possible. As the alternatives evolved, further modifications and adjustments were made to the alternative alignments to minimize potential wetland impacts. Additionally, adjustments were made to the alternative alignments following previous Agency meetings. Some of these modifications include the use of existing roadway corridors in places where it is possible, and the placement of the alternatives in upland agricultural fields for the majority of the alternatives. Furthermore, the portions of alignment in the wetlands be elevated; and a portion of existing at-grade roadway in wetlands will be removed and replaced with elevated structure as a portion of the remaining alignments.
139	8/31/2012	3/27/2012	USACE	Some of the lines shown in red on the KEY MAP would offer less wetland impacts to your proposal.	The red lines shown on the key map reflect an initial effort to generate corridors avoiding a wide range of constraints identified in existing GIS databases. In the process of developing alternatives, the lines were adjusted to comply with DOTD road design guidelines and to take both human and natural impacts into consideration. To further minimize wetland impacts, the project team has adjusted the western alignment to approximate the location of the red lines for a greater portion of the alignment. Please see the attached exhibit.
140	8/31/2012	3/27/2012	USACE	You stated that you focused on the human aspect when looking at impacts. However wetlands provide many benefits to the human population as well as habitat for other species. You need to focus on the importance of the wetland functions to public interest.	In the development of the alternatives, wetlands were viewed as an important resource and were avoided as much as practicable. As required under NEPA, impacts to both the human and natural environments are considered and addressed during the environmental documentation process. To the extent practicable, the project team has developed the alternative alignments to minimize impacts to wetlands and other facets of the human and natural environment.

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141	8/31/2012	3/27/2012	USACE	<p>Our position is purely advisory to assure that the EIS provides sufficient information relative to our jurisdiction (Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act) so as to make an informed permit decision. FHWA has the responsibility of assuring that the NEPA process adequately addresses the needs of the federal cooperating and coordinating agencies including a reasonable Purpose and Need statement. Again, the Corps defines the basic purpose for establishing water dependency and the overall project purpose to evaluate the applicant's needs relative to the public interest. The purpose and need are still not clearly defined in your documentation. The purpose and need should not be defined as one category, but as singular and separate entities. Without a well- established and justified purpose and need statement for your project it makes evaluation of the alternatives as presented difficult. If we are unable to establish the reasonability of these alternatives then it could bring us back to the no-build alternative as a viable alternative. While the need should focus on the transportation problem it should not be so narrowly defined that it constrains the range of reasonable alternatives. What is the purpose of your project? What is the need that drives that purpose? The Purpose and Need statement should:</p> <ul style="list-style-type: none"> - Be concise - Easy to read - Focus on the essential needs and goals of the proposed project such as mobility, capacity, etc. - Include data for justification 	<p>The purpose of the Houma-Thibodaux to LA 3127 Connection is to improve north-south system linkage between the Houma-Thibodaux area and the Mississippi River Corridor and improve emergency and hurricane evacuation within Louisiana's bayou region through the establishment of a functional north-south transportation facility. The project is proposed to accomplish the following objectives: (1) Improve north-south connectivity and mobility between US Highway 90 and LA 3127 through an increase in the number of north-south links; (2) Provide north-south system redundancy by identifying alternatives that provide additional options for north-south travel when LA-20 fails; (3) Provide improved north-south highway network capacity in the project area; (4) Provide a direct, limited access route between the Houma-Thibodaux area and the Mississippi River Corridor to improve access to and from the Houma-Thibodaux area; (5) Maximize the efficient use and operation of hurricane evacuation routes by improving system redundancy; decreasing travel time; and providing facility access, capacity, and balanced distribution of evacuation traffic among critical Mississippi River crossings. The need for the proposed project is to remove the following deficiencies in the Study Area: (1) Inadequate north-south transportation system linkage. Existing north-south system linkage between the Houma-Thibodaux area and the Mississippi River Corridor is limited to LA 20, a narrow, winding arterial without access management. (2) Inadequate capacity in the roadway network in the Thibodaux area due to existing unmet travel demand in the north-south direction. Existing roadway network has current peak-period congestion and Level of Service (LOS) deficiencies. Portions of existing LA 20 show a LOS of E during both peak hours, along with three additional primary roadways (LA 308, LA 1, and LA 70) that have sections currently operating at LOS D. (3) Lack of a north-south emergency evacuation route and north-south rerouting opportunities in the Thibodaux area. In times of evacuation, the traffic volumes push the roadways far beyond their capacity.</p>
142	8/31/2012	3/27/2012	USACE	<p>Consideration of which alternatives are reasonable, prudent and practicable requires a well defined project and need statement. For the Corps the project purpose is used for evaluating practicable alternatives under the Section 404 (b)(1) Guidelines. The Section 404 (b)(1) Guidelines requires the Corps to determine if there are alternatives to first avoid, and then to minimize adverse impacts to aquatic resources, ultimately selecting the least environmentally damaging, practicable alternative.</p>	<p>As part of the NEPA process, a wide range of alternatives are evaluated to ensure potential impacts to both the human and natural environments are appropriately considered. In its identification and evaluation of potential alignments, the project team believes due diligence has been exercised and a thorough consideration of practicable alternatives has been achieved. The Draft EIS will further refine and document the purpose and need. The Draft EIS will provide a detailed accounting of the alternatives development, explaining the processes followed to progress from a tangled collection of many potential alternate routes to the reasonable and practicable alternatives currently considered for inclusion in the Draft EIS.</p>

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1	7/15/2004	7/15/2004	General Public	A. Stated that project area resources were not adequately identified for Assumption Parish.	Comment Noted.
2	7/15/2004	7/15/2004	General Public	B. Stated that the most valued resource in their community was saving lives.	Comment Noted.
3	7/15/2004	7/15/2004	General Public	C. Agreed that the information developed to date, the project's progress and the remaining steps to completion were presented in a clear and timely fashion.	Comment Noted.
4	7/15/2004	7/15/2004	General Public	D. Did not agree that the project displays were helpful to understand the project and the project area.	Comment Noted.
5	7/15/2004	7/15/2004	General Public	E. Stated that the project is important to the region because it would help save lives.	Comment Noted.
6	7/15/2004	7/15/2004	General Public	A. Did not agree that the project resources had been adequately identified and mapped. Expressed concern that property may be affected by the proposed alignments.	Comment Noted.
7	7/15/2004	7/15/2004	General Public	B. Stated that they felt there would be no environmental features to be harmed by the project.	Comment Noted.
8	7/15/2004	7/15/2004	General Public	C. Disagreed that the information developed to date, the project's progress and the remaining steps to project completion had been presented in a clear and timely fashion.	Comment Noted.
9	7/15/2004	7/15/2004	General Public	D. Did not agree that the project displays were helpful to understanding the project and the project area since they were unable to attend the actual meeting.	Comment Noted.
10	7/15/2004	7/15/2004	General Public	E. Stated that the project was important to the region to at least help with evacuation during storm. However, concerns were regard to the project affecting drainage of some property that have no flooding problems currently.	Comment Noted.
11	7/15/2004	7/15/2004	General Public	A. Gramercy/Wallace Mississippi River Bridge	Comment Noted.
12	7/15/2004	7/15/2004	General Public	B. Nicholls State University and the new technology center to be built.	Comment Noted.
13	7/15/2004	7/15/2004	General Public	C. Thibodaux Regional Hospital	Comment Noted.
14	7/15/2004	7/15/2004	General Public	D. Tourism. Oldest working plantation "Laurel Valley", Bayou Lafourche, Jean Lafitte Historical Center, etc.	Comment Noted.
15	7/15/2004	7/15/2004	General Public	E. City of Thibodaux and newly developed suburbs on the north side.	Comment Noted.
16	7/15/2004	7/15/2004	General Public	F. City of Houma and newly developed suburbs and commercial development on the rise.	Comment Noted.
17	7/15/2004	7/15/2004	General Public	G. LA State Hwy 3127 runs from the Sunshine Bridge to Luling Bridge, Wallace Bridge connection would be midway point.	Comment Noted.
18	7/15/2004	7/15/2004	General Public	H. Employment at the plants on the Mississippi River and a large amount from the 6th Ward & Thibodaux area.	Comment Noted.
19	7/15/2004	7/15/2004	General Public	I. Hwy 20, from the river into Thibodaux is in drastic need of a parallel road. Hwy 20 is 2 lanes with no shoulders. The Thibodaux stretch has been turned into a city street with a red light and turning lanes. People commuting from work or school are very frustrated. Contact LA state police concerning wrecks and fatalities on Hwy 20. When this occurs traffic anywhere between Vacherie and Thibodaux must be diverted either to Hwy 307 or the shelled Laurel Valley Road. Contact Laurel Valley Plantation on records concerning the amount of tour buses commuting.	Comment Noted.
20	7/15/2004	7/15/2004	General Public	J. Land in this region is disappearing at a rate of an inch a year. An elevated interstate is extremely necessary. Lives are at stake here. If this road is not built soon, the residents of this region will be trapped. There cannot be evacuation without this road. As it is now there is not enough highway to accommodate the amount of vehicles that would be trying to escape to higher ground.	Comment Noted.
21	7/15/2004	7/15/2004	General Public	A. Suggested that the Alternative 7 be included in the EIS	Comment Noted.
22	7/15/2004	7/15/2004	General Public	B. Stated that as a community, they value all types of natural terrain including wetlands, agriculture, and waterways. However, not to the extent that development should be stopped for a necessary hurricane evacuation.	Comment Noted.
23	7/15/2004	7/15/2004	General Public	C. Stated that he would like to have more discussion about Alternative 7.	Comment Noted.
24	7/15/2004	7/15/2004	General Public	D. Agreed that the project displays were helpful for understanding the project and the project area.	Comment Noted.
25	7/15/2004	7/15/2004	General Public	E. Stated that this project is important for this region in the event of a natural or manmade disaster.	Comment Noted.
26	7/15/2004	7/15/2004	General Public	A. Agreed that the project resources have been adequately identified and mapped so far except for the area south of Hwy 90. At Hwy 311, major expansion of the area occurs there as the population expands. Plan for now and the future however do not side track completion of what you have presently identified.	Comment Noted.
27	7/15/2004	7/15/2004	General Public	B. Stated that the most valued resources in the community is a westerly route along 311 going north to 3127 is the most elevated land. By terminating at St. James along 3127 equal access is obtained to the Sunshine Bridge and the Gramercy Wallace Bridge.	Comment Noted.
28	7/15/2004	7/15/2004	General Public	C. Agreed that the information developed to date was clear and in a timely fashion. Particularly the computer generated routes. A route west of Thibodaux as the east will need much mitigation due to the extreme amount of wetlands.	Comment Noted.
29	7/15/2004	7/15/2004	General Public	D. Agreed that the project displays were helpful for understanding the project and the project area.	Comment Noted.
30	7/15/2004	7/15/2004	General Public	E. Stated that the project was important to the region because with the rate of subsidence, erosion from natural causes (rain) and coastal erosion from wave action and salt water intrusion destroying vegetation, tidal wave height in a category 3, 4 or 5 requires a rapid, adequate exit from the region.	Comment Noted.
31	7/15/2004	7/15/2004	General Public	F. Various business and governmental entities are viewing this more as economic development, not hurricane evacuation. Use common sense, stick to your plan for 'hurevac' and build the N/S evacuation route to the west of Thibodaux.	Comment Noted.
32	7/15/2004	7/15/2004	General Public	A. Agreed that the project area resources were adequately identified and mapped. Believed that the Alternative 7 needed to be included in the study and area resources applicable to Alt 7 needed to be identified and mapped.	Comment Noted.
33	7/15/2004	7/15/2004	General Public	B. Stated that the community valued its wetlands, waterways, and farmlands but not to the point where they would want to impeded on progress, economic development, and hurricane protection and evacuation.	Comment Noted.
34	7/15/2004	7/15/2004	General Public	C. Agreed that project information developed to date, the project's progress and the remaining steps were presented in a clear and timely fashion. Except that Alt 7 was apparently eliminated from consideration without enough public input and awareness although a majority of the speakers at the 1999 public hearing favored Alt 7.	Comment Noted.
35	7/15/2004	7/15/2004	General Public	D. Agreed that the project displays were helpful to understand the project and project area.	Comment Noted.
36	7/15/2004	7/15/2004	General Public	E. Stated that the project was important to this region because it would provide a hurricane evacuation route. It would provide N/S evacuation for nuclear and plants. It would provide economic development and commerce from the gulf to I-10 and vice versa. It would replace sub-standard and dangerous main highway between Thibodaux and Vacherie (LA 20) which is used by thousands of vehicles on a daily basis. It would provide tourism and cultural benefits to entire region. In order to achieve all of the above benefits and at the same time be fiscally responsible with the taxpayer's monies, they felt that Alt 7 was the only reasonable route choice.	Comment Noted.
37	7/15/2004	7/15/2004	General Public	A. Agreed that the project resources have been adequately identified and mapped.	Comment Noted.
38	7/15/2004	7/15/2004	General Public	B. Stated that the most valued resources in the community were many natural and cultural resources that should be preserved.	Comment Noted.
39	7/15/2004	7/15/2004	General Public	C. Stated that not enough advance notice of meeting was provided to the general public,	Comment Noted.
40	7/15/2004	7/15/2004	General Public	D. Agreed that the project displays were helpful to understand the project and the project area.	Comment Noted.
41	7/15/2004	7/15/2004	General Public	E. Stated that evacuation and better roads to and from Thibodaux was why this project was important to this region.	Comment Noted.

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42	7/15/2004	7/15/2004	General Public	F. Stated that this road should enter Hwy 3127 as close to LA 20 in Vacherie as possible. This will be the best route for evacuation and also for the road to be more accessible to as many area residents as possible.	Comment Noted.
43	7/15/2004	7/15/2004	General Public		Comment Noted.
44	7/15/2004	7/15/2004	General Public	A. Agreed that the project area resources have been adequately identified and mapped.	Comment Noted.
45	7/15/2004	7/15/2004	General Public	B. Stated that downtown Thibodaux was a valued resource in the community.	Comment Noted.
46	7/15/2004	7/15/2004	General Public	C. Did not agree that the information developed to date, the project's progress and the remaining steps of the project were presented in a clear and timely fashion. Did not think that the public has enough notice as to what the DOTD has been doing in regards to this project.	Comment Noted.
47	7/15/2004	7/15/2004	General Public	D. Agreed that the project displays were helpful to understand the project and project area.	Comment Noted.
48	7/15/2004	7/15/2004	General Public	E. Stated that the evacuation route to the north (I-10) and helping economic development were why this project was important for the region.	Comment Noted.
49	7/15/2004	7/15/2004	General Public	F. Stated that the best route for this road would be an easterly route, since this is the fastest way to I-10 for the majority of the residents in the area.	Comment Noted.
50	7/27/2004	7/15/2004	General Public	A. Please let this letter be a supplement to and summary of the comments I made at the public hearing held concerning the above-referenced project in Thibodaux on July 15, 2004.	Comment Noted.
51	7/27/2004	7/15/2004	General Public	B. As you may know, I participated in the 1999 public hearing held in Thibodaux concerning the Hurricane Evacuation Study that wa!'; non r1t that time and realize that said study was done strictly for hurricane evacuation purposes. I also realize that the scope of said report only took into consideration utilizing the Veterans Memorial and Sunshine Bridges for hurricane evacuation purposes and not the Hale Boggs Bridge. Under the circumstances and within strictly those parameters, I can understand, but do not agree with, as hereinafter set forth, how the study ultimately recommended Alternates 6, 6-A and 7-A as the optimum hurricane evacuation routes from the Houma-Thibodaux area to Highway 3127 on the west bank of St. James Parish.	Comment Noted.
52	7/27/2004	7/15/2004	General Public	C. Another route, designated as Alternate 7, was also considered. Alternate 7 begins at Highway 3052 near its intersection with Highway 316 north of Houma, then runs in a south to north direction passing just east of the City of Thibodaux, then crosses Bayou Lafourche and continues northerly crossing Highway 307 near its intersection with Highway 20, then follows along Highway 20 north to South Vacherie, where said route continues directly north to intersect with Highway 3127 about a quarter mile or so west of the intersection of Highways 3127 and 20. Unfortunately, as many of us found out for the first time at the public hearing held on July 15, Alternate 7 possibly may not be part of the environmental impact study that your firm is now conducting.	Comment Noted.
53	7/27/2004	7/15/2004	General Public	D. For the reasons hereinafter set forth, I, along with many other people from mv area, including most, if not all, of the public officials from my area, strongly feel that it would be a huge mistake for the State not to seriously consider and ultimately accept Alternate 7 as the preferred route for this new road. Alternate 7 should be chosen as the route for this new road not only because it will serve as a very highly effective route for hurricane evacuation purposes, but also because of all of the ancillary benefits a new road at this location will bring to all of the areas affected thereby, as hereinafter set forth, as compared to Alternates 6, 6A and 7-A.	Comment Noted.
54	7/27/2004	7/15/2004	General Public	E. First of all, Alternate 7 should be considered a very highly effective hurricane evacuation route for the following non-exclusive reasons: Alternate 7 results in a shorter route overall to get across the Mississippi River than Alternates 6, 6-A and 7-A. If the goal is to get evacuees from the Houma-Thibodaux area across the Mississippi River, it is clear that Alternate 7 will get them there quicker and easier.	Comment Noted.
55	7/27/2004	7/15/2004	General Public	F. The initial study done shows that Alternate 7 will cost from \$64.7 million to \$144.0 million less to build than Alternates 6, 6-A and 7-A, thereby resulting in much wiser and better use of our tax dollars.	Comment Noted.
56	7/27/2004	7/15/2004	General Public	G. The Veterans Memorial Bridge will soon be connected to Highway 3127 approximately 2.5 miles east from where Alternate 7 enters Highway 3127. This will allow evacuees quick and easy access across the Mississippi River to Gramercy. From there, evacuees can choose four very reliable routes to continue their evacuation, depending on traffic conditions and the direction from which the hurricane is approaching:• Continue straight to Interstate 10 then continue their evacuation on Interstate 10 in either an easterly or westerly direction. • Take Highway 61 (Airline Highway) north to Interstate 10 or continue on Highway 61 to Baton Rouge and beyond. • Take Highway 61 east to LaPlace then proceed north to Interstate 55. • Take Highway 3125 in Gramercy to Highway 70 and proceed north to Sorrento and Interstate 10 from there.	Comment Noted.
57	7/27/2004	7/15/2004	General Public	H. Alternates 6 & 7-A enter Highway 3127 approximately 7 miles west of where Alternate 7 enters Highway 3127. If Alternate 7 is chosen, in times of hurricane evacuation, traffic entering Highway 3127 on Alternate 7 can easily be diverted westward on Highway 3127 in the direction of the Sunshine Bridge if necessary. Since there are no major streets or roads entering Highway 3127 between where Alternate 7 enters Highway 3127 and where Alternates 6 and 7-A enter Highway 3127 (except for Highway 3219 which enters Highway 3127 near St. James), any hurricane evacuation traffic diverted westward on Highway 3127 from Alternate 7 should not be seriously hindered in efforts to evacuate in a westward direction towards the Sunshine Bridge merely because Alternate 7 enters Highway 3127 a few miles east of where Alternates 6 and 7-A enter Highway 3127. There should be little or no interference with traffic flow in a westerly direction on Highway 3127 from Alternate 7 so as to allow a smooth, continuing flow of traffic west from where Alternate 7 enters Highway 3127.	Comment Noted.
58	7/27/2004	7/15/2004	General Public	I. Alternate 6-A enters Highway 3127 approximately 3 miles further west of where Alternates 6 & 7-A enter Highway 3127. This will encourage evacuees to continue their evacuation west towards Highway 70 leading to a big bottleneck of traffic where Highway 3127 meets Highway 70. Don't forget, this traffic will be competing with traffic coming north on Highway 70 from Highways 1 and 308. Unless Highway 3127 is extended west and north to completely bypass Donaldsonville, or unless a more direct route is built from Highway 3127 to the Sunshine Bridge, I can envision it being very difficult getting across the Sunshine Bridge in times of evacuation. Alternate 7 enters Highway 3127 almost midway between the three Mississippi River crossings that service the River Parishes and Lafourche/Terrebonne Parishes, (the Hale Boggs Bridge, the Veterans Memorial Bridge, and the Sunshine Bridge). Depending on which direction the hurricane is approaching the Louisiana coast, Alternate 7 allows traffic to be diverted over several or all of these river crossings.	Comment Noted.
59	7/27/2004	7/15/2004	General Public	J. If the hurricane is approaching the Houma area from the southeast, traffic can easily be diverted to the Veterans Memorial Bridge and the Sunshine Bridge. If the hurricane is approaching the Houma area from the southwest, then traffic can easily be diverted to the Veterans Memorial Bridge and the Hale Boggs Bridge. If the hurricane is approaching the Houma area directly from the south, then traffic can be directed to all three of these bridges. Alternate 7 thus allows a more efficient use of all three Mississippi River crossings for hurricane evacuation purposes.	Comment Noted.
60	7/27/2004	7/15/2004	General Public	K. Alternate 7, once it leaves Bayou Lafourche, runs nearer to more populated areas than do Alternates 6, 6-A and 7-A, which will allow for better evacuation capabilities of residents living in the following communities: Choctaw - from Choctaw Road. Bayou Boeuf and Kraemer- from Highway 307 and Highway 20. Chackbay and Choupic areas - from Highway 20 and Choctaw Road. South Vacherie- from Highway 20 in South Vacherie.	Comment Noted.

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61	7/27/2004	7/15/2004	General Public	L. Conversely, upon leaving Bayou Lafourche, Alternates 6, 6-A & 7-A appear only to service mainly the hurricane evacuation needs of the residents of the Choupic area and western Chackbay. The many residents of Bayou Boeuf, Kraemer, eastern Chackbay and South Vacherie may still be required to evacuate to Highway 3127 via Highway 20, which is obviously a very substandard hurricane evacuation route, since said route will be much shorter to Highway 3127 than using Alternates 6, 6-A, & 7-A are chosen over Alternate 7, I'm sure that your traffic studies will indicate that significantly fewer commuters and travelers will use this road on a daily basis, mainly because this road will intersect with Highway 3127 somewhat far away from Vacherie (6 to 9 miles) and the Veterans Memorial Bridge (approximately 8 additional miles), thereby possibly eliminating one of the main viable alternative sources of funding needed for construction of this road (tolls).	Comment Noted.
62	7/27/2004	7/15/2004	General Public	M. Secondly, please take into consideration other ancillary benefits and reasons Alternate 7 has over Alternates 6, 6-A & 7-A, including: Alternate 7 will serve more populated areas for all purposes than Alternates 6, 6-A & 7-A, including North Vacherie, South Vacherie, Chackbay/Choupic, Bayou Boeuf/Kraemer, Choctaw, Raceland and Central and Lower Lafourche, Thibodaux, Schriever, Gray, and Houma, and also including communities on the east bank of St. James and St. John the Baptist Parishes (Lutcher j Gramercy and other East St. James Parish communities, and Reserve, LaPlace and other East St. John the Baptist Parish communities) and the west bank of St. John the Baptist Parish (Wallace, Edgard and Lucy).	Comment Noted.
63	7/27/2004	7/15/2004	General Public	N. Alternate 7 will serve as a better evacuation route from north to south from the River Parishes in times of need for nuclear and/or petro-chemical evacuation purposes.	Comment Noted.
64	7/27/2004	7/15/2004	General Public	O. Alternate 7 provides easier access from the River Parishes area to Nicholls State University, Thibodaux General Hospital, Thibodaux/Houma area businesses, schools, churches, etc., and vice versa.	Comment Noted.
65	7/27/2004	7/15/2004	General Public	P. Alternate 7 allows for easier flow of tourism between the River Parishes area and Lafourche/Terrebonne Parishes.	Comment Noted.
66	7/27/2004	7/15/2004	General Public	Q. Alternate 7 provides the best location for easier flow of traffic between the River Region and the Lafourche/Terrebonne Region which will allow for greatly enhanced economic development of the River Region area and Lafourche/Terrebonne area.	Comment Noted.
67	7/27/2004	7/15/2004	General Public	R. Hundreds and hundreds of commuters and travelers, if not thousands, use Highway 20 between Thibodaux and Vacherie, in both directions, on a daily basis, for employment, healthcare, educational, shopping, social, and other personal needs. Alternate 7 will replace Highway 20 as the main commuter route between Thibodaux and Vacherie, especially the substandard and dangerous section of Highway 20 between Vacherie and Chackbay. Alternate 7 will greatly enhance the already strong economic, social, personal and other ties between the River Parishes and the Lafourche/Terrebonne region. The St. James Parish Council and the St. James Parish President's Office, and many area citizens have publicly endorsed Alternate 7 over Alternates 6, 6-A & 7-A.	Comment Noted.
68	7/27/2004	7/15/2004	General Public	S. Thirdly, please consider the disadvantages of Alternates 6, 6-A & 7-A, including:	Comment Noted.
69	7/27/2004	7/15/2004	General Public	T. These alternates will have a much higher cost, mainly because of the need for more elevated highways on these alternates.	Comment Noted.
70	7/27/2004	7/15/2004	General Public	U. These alternates will possibly cause greater environmental impact, i.e. , possibly will pass through more wetlands.	Comment Noted.
71	7/27/2004	7/15/2004	General Public	V. These alternates do not service as many populated areas as Alternate 7.	Comment Noted.
72	7/27/2004	7/15/2004	General Public	W. These alternates connect to Highway 3127 in a relatively remote area - an area not as prone to economic development as compared to Alternate 7.	Comment Noted.
73	7/27/2004	7/15/2004	General Public	X. The state and federal government will be spending hundreds of millions of dollars on this project. We need to be sure that this new road is built in the best possible location so that this road will serve not only as a very effective hurricane evacuation route, but will also service the future transportation needs for the most number of people in our entire area, both in a south to north direction and in a north to south direction.	Comment Noted.
74	7/27/2004	7/15/2004	General Public	Y. In summary, choosing Alternates 6, 6-A or 7-A over Alternate 7 will result in us having a road that will be very useful for hurricane evacuation purposes, but, in practicality, will not be very useful for hardly any other purposes.	Comment Noted.
75	7/27/2004	7/15/2004	General Public	Z. In light of the above, it is respectfully submitted that Alternate 7 is the best possible location for the new road in question. Please be sure to include Alternate 7 in the environmental assessment study that you are conducting.	Comment Noted.
76	7/15/2004	7/15/2004	General Public	My name is Kermit Kraemer. I represent the mayor of the City of Thibodaux. Certainly I agree with Senator Dupre with respect to this highway being detrimentally needed. Every year we're faced with the same problems of evacuating people, helpless citizens who need to get out of these areas as a result of natural disaster which is encroaching upon their homes and their lives. The City of Thibodaux favors the route to the east side of Thibodaux, crossing bayou Lafourche and then swinging across the northern portion of the City of Thibodaux to the west and then going north from there on the western side. This completes part of the City of Thibodaux's plans with the MPO. There is presently an unfunded loop around the City of Thibodaux which is in that program, and this would enable us not only to complete that loop to some degree, but it would also facilitate the high population densities that occur in the City of Thibodaux during the day at both Nicholls State University and also the hospital. All of those are located on the east side. It would also allow for the traffic which is coming from the south out of the present routes, 308 and LA-1, or the new routes which are proposed as a result of the LA-1 Coalition. They too could join up with this highway to the east. With respect to the people from Houma, it makes little difference whether they pass east or west of the City of Thibodaux. As the roadway would travel north on the eastern side and then make a loop, it will allow the remainder of the citizens of the City of Thibodaux to join in that evacuation on the northern side of the city. By coming across the city, it would also allow those people on the northern portion of Assumption Parish who might want to migrate and take this evacuation route and join on the northern side of Thibodaux before the road actually swung to the north. With respect to the environmental conditions, there is an existing corridor which was once an aqueduct for the City of Thibodaux wherein the City of Thibodaux moved water from the Mississippi River into the city for its drinking water and processed. That is one viable route which could be used. It allows, again, to use existing corridors. There is going to be environmental damage. Certainly the Corps is charged with that responsibility to protect wetlands, but it is not charged with the duty of preventing the use of wetlands. In fact, there is a process known as mitigation, that if we in fact do use the wetlands in one particular area, we are obliged under federal law to mitigate those damages in another place, which means we have to build a wetland in the another area. So the fact that there are wetlands to the north of the City of Thibodaux should not be a hindrance to the actual construction of that highway. We certainly appreciate the opportunity to participate today, and we will participate in the future. Thank you.	Comment Noted.
77	7/15/2004	7/15/2004	General Public	Yes, my name is Jacob Giardina, and I'd like to say that I'm very glad to see what you folks have presented tonight. I give you a little bit of a history that I have been involved with this, just as a private individual. About 12 years ago, South Louisiana Economic Council, which I'm involved in, went up and had a visit with -- then I think it was Governor Edwards, and I think it's about 12 years ago, the first of his last administration. We went up, Dick Lafont, who is manager of SLEC, and myself, resident, and Senator Ron Landry at that time, visited with Governor Edwards. We brought aerial photographs of what we were envisioning in this area, and he sent us over to General Patin, I think, yes, General Patin. And at that time we were able to get, I think, \$300,000 appropriated to start this study going. Right after that, a group of us went to Washington and met with, at that time, Senator Bennett Johnson, Senator Breaux, Billy Tauzin, Representative Livingston, and a few others, and Clifford Smith -- and Clifford had a whole lot of these hurricane drawings just as you've showed here tonight -- and made the presentation of -- well, the group from down the bayou which eventually evolved into Coalition 1 talked about evacuation of the Fourchon, and of course we went up talking about the evacuation route. And I'd like to say at that time they made it extremely clear that to get federal monies, we would have to wear a hat of hurricane evacuation route. If there was any smell of economic development being the prime driver behind it, you could forget any federal monies. There was no federal monies being made available for economic development. So	Comment Noted.

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				that's a little bit of the background. I think some of this should be taken into consideration to make sure that, as Senator Dupre said, you know, the money is just going to be the prime driver back of this. There's a few other points I'd like to bring up. Because of the long involved history in it, we looked at this thing and, you know, there hasn't been a lot of emphasis in the beginning of going to the Gramercy Bridge and dumping the traffic off on I-10. And without going back there with a survey instrument, but looking at water levels on the columns of the highways and all, it was easy to see that, if you go back quite a few years back, I-10 was closed because it was underwater in that portion north of the -- it's a little bit further east of the Gramercy Bridge. So when you look at that, you look at the water level on an every-day basis, you look at the marks on the columns when it came over, it was about a five or six foot differential, which meant your roadways must be somewhere about five feet above elevation, above sea level, in about a 14-mile stretch. So if too much attention is given to getting people through solely the Gramercy Bridge, I think you could wind up with a disaster on the other side, thinking in terms of 10. I am very much in favor of going to the St. James area -- which is that big bend in the river I call the St. James area -- because if you drive that, you find that that point to Gramercy or that point to Donaldsonville is equally distanced. It's right about the same distance. So someone coming up for hurricane evacuation, if the storm is come from the east side, turning counterclockwise, pumping water into the I-10 -- and, likewise, when you go across 55, I think that -- in the lower Ponchatoula area isn't much more than five feet above sea level. You could run into a really bad potential problem aiming the traffic in that direction. I think if you brought it up to that point that is equally distant, a person can make a choice to go toward the Baton Rouge area or toward the 55 area, depending on which side the storm is coming on. You could say, Well, we could raise all these up and get them 10 feet above or 12 feet above, that's more money, and, of course, that's the prime thing. Also, if you decide to go on the west side, when Highway 90 was built, if you go west of Highway 311, there's a high incline in the highway. That was originally intended to be a turn-around right under there. So as far as getting from there, if you take the west side and go north, you'll only have two highways to cross, ultimately, which is 20 and Bayou Lafourche, which is 308 and Highway 1, again, cutting down some of the expense and going through an area that is a lot less environmentally impacted because it's the shortest distance across the swamp so to speak at that point. I know the mention has been made as far as Nicholls, the hospital, and etc. Yes, the substantial developments on the east side of town could help those. But if 2 you wear a hat of hurricane evacuation, which is where we're going with this whole thing, I think coming -- either east or west, but coming up into that Highway 90 -- into that St. James bend in the river would be, to me, the very best for the people who are undergoing the problems of evacuating. But I'm very glad to see that we've gotten this far with the project, and, hopefully, quickly, we'll get a whole lot further. Thank you.	
78	7/15/2004	7/15/2004	General Public	Thank you for the opportunity to speak to the group. My name is Lindy Hoffman, and Jake and I have been working on these projects for a long time. He's pretty much elaborated on everything, and I'm in concurrence with what he says. At my age, I think we're doing this for all of our grandchildren, more than for ourselves. However, I was involved with the rerouting of Highway 90, which predates all of this, and at that particular time, we spoke about a north-south corridor. If you look at where the definition is of your map now, I don't think that you have gone far south enough. I believe that it should include the area that is below where Highway 90 cuts across Terrebonne Parish. It should be down to almost the city limits or the Terrebonne Parish limits so that you are able to take and address the area of Terrebonne that is building up more than any other area in Terrebonne. You look at all of the houses that are being built in that area; look at the big apartment complexes that are being built. These people need a place to get out, and the only way to be able to get out is to come across and get into all of the confusion that is going to be going on in the Houma area itself. The Highway 311, starting at almost its inception, south should be made a corridor going straight north and continuing on to 3127. I believe we need to forget about the idea of extending to Interstate 10. As Jake so adamantly pointed out, this would be the wrong thing to do because that area does flood occasionally. I've traveled it myself in times when there was no hurricane but just very high water, and you had water coming up onto the road. So the most logical route, I feel, would be along the western side, which would address all of the development in the southwestern area of Terrebonne Parish and would allow these people access to a northerly route. If we take and do an easterly route, we're going to have to have all these people go through the Houma area or onto Highway 90 to get to this easterly route and then go north. You would then be competing with the traffic that's coming from the South Lafourche area along Highway 1 and 308, plus you would be competing with the traffic that is going to be coming out of St. James, St. Charles, and so on. And if you have ever been to the area of 610 and Highway 90 during the carnival season, don't ever go that route. Because if you do, you're going to sit there for hours. There was a very minor fender bender at 610 and 10, and it tied up everything from the west. There was nothing moving any of the highways. So I feel that a westerly route would be a whole lot more significant. And as Jake pointed out, you have much less environmental impact by going that way to the bend in the river at St. James from the -- what we would call the Shoepick area. You have high land all the way along this. And if it doesn't literally go along 311, it could go alongside of 311. Agriculture is important, and I heard someone make mention of the fact that the agricultural lands we don't want to disturb. But our agricultural lands are principally sugar. 10 years from now we're going to grow sugar in Cuba, and there won't be sugar here, which is an unfortunate thing, but it's reality. And when you have NAFTA and all of the other world trade -- look, I mean we're getting most of our stuff that we go to Wal-Mart to buy, comes from China. So we must look at this in the light of a global situation and not just a politically motivated situation that will address some of the desires of some of the individuals. We've got to look down the road and think many years in advance. I say that I was involved with the Highway 90 rerouting, and at that particular time, the political influence that were along the route literally delayed this project 30+ years, and it was unconscionable. I mean you really need to decide to do something and get in there and make every effort to do it. Because if we continue the study -- and we studied it back in the '70s, believe it or not, we are only going to be doing studies and having controversy, and we won't get any kind of road built. It is very imperative for us to have this north-south corridor and look at it from the standpoint of being a more useful thing for hurricane evacuation. Forget about any kind of economic development and so on. If we don't address other things as well as the north-south corridor, I'm going to sell my property in Terrebonne for beachfront property. Because with erosion and sinking, you are just not going to get away from it. It's going to keep sinking, and it's going to keep eroding. And it comes closer and closer to the routes that we're talking about. So let's get on the track and really do something. I appreciate what you all are doing, and I hope that you can do it with the most expedient means because this means a lot to our citizens. When you think of a 14-foot or 7-foot tidal surge coming across, you're addressing a tidal surge on almost 200,000 people. And 200,000 people are going to be a whole lot more of a problem if you got to find caskets for them and get them put away. So thank you for your effort, and I hope that you can take my comments into consideration, and certainly those of Jake. Jake made a very fine presentation for what he feels, from his observations, have been occurring in the past. Thank you very much.	Comment Noted.
79	7/15/2004	7/15/2004	General Public	Thank you for the opportunity to speak to the group. My name is Lindy Hoffman, and Jake and I have been working on these projects for a long time. He's pretty much elaborated on everything, and I'm in concurrence with what he says. At my age, I think we're doing this for all of our grandchildren, more than for ourselves. However, I was involved with the rerouting of Highway 90, which predates all of this, and at that particular time, we spoke about a north-south corridor. If you look at where the definition is of your map now, I don't think that you have gone far south enough. I believe that it should include the area that is below where Highway 90 cuts across Terrebonne Parish. It should be down to almost the city limits or the Terrebonne Parish limits so that you are able to take and address the area of Terrebonne that is building up more than any other area in Terrebonne. You look at all of the houses that are being built in that area; look at the big apartment complexes that are being built. These people need a place to get out, and the only way to be able to get out is to come across and get into all of the confusion that is going to be going on in the Houma area itself. The Highway 311, starting at almost its inception, south should be made a corridor going straight north and continuing on to 3127. I believe we need to forget about the idea of extending to Interstate 10. As Jake so adamantly pointed out, this would be the wrong thing to do because that area does flood occasionally. I've traveled it myself in times when there was no hurricane but just very high water, and you had water coming up onto the road. So the most logical	Comment Noted.

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				route, I feel, would be along the western side, which would address all of the development in the southwestern area of Terrebonne Parish and would allow these people access to a northerly route. If we take and do an easterly route, we're going to have to have all these people go through the Houma area or onto Highway 90 to get to this easterly route and then go north. You would then be competing with the traffic that's coming from the South Lafourche area along Highway 1 and 308, plus you would be competing with the traffic that is going to be coming out of St. James, St. Charles, and so on. And if you have ever been to the area of 610 and Highway 90 during the carnival season, don't ever go that route. Because if you do, you're going to sit there for hours. There was a very minor fender bender at 610 and 10, and it tied up everything from the west. There was nothing moving any of the highways. So I feel that a westerly route would be a whole lot more significant. And as Jake pointed out, you have much less environmental impact by going that way to the bend in the river at St. James from the -- what we would call the Shoepick area. You have high land all the way along this. And if it doesn't literally go along 311, it could go alongside of 311. Agriculture is important, and I heard someone make mention of the fact that the agricultural lands we don't want to disturb. But our agricultural lands are principally sugar. 10 years from now we're going to grow sugar in Cuba, and there won't be sugar here, which is an unfortunate thing, but it's reality. And when you have NAFTA and all of the other world trade -- look, I mean we're getting most of our stuff that we go to Wal-Mart to buy, comes from China. So we must look at this in the light of a global situation and not just a politically motivated situation that will address some of the desires of some of the individuals. We've got to look down the road and think many years in advance. I say that I was involved with the Highway 90 rerouting, and at that particular time, the political influence that were along the route literally delayed this project 30+ years, and it was unconscionable. I mean you really need to decide to do something and get in there and make every effort to do it. Because if we continue the study -- and we studied it back in the '70s, believe it or not, we are only going to be doing studies and having controversy, and we won't get any kind of road built. It is very imperative for us to have this north-south corridor and look at it from the standpoint of being a more useful thing for hurricane evacuation. Forget about any kind of economic development and so on. If we don't address other things as well as the north-south corridor, I'm going to sell my property in Terrebonne for beachfront property. Because with erosion and sinking, you are just not going to get away from it. It's going to keep sinking, and it's going to keep eroding. And it comes closer and closer to the routes that we're talking about. So let's get on the track and really do something. I appreciate what you all are doing, and I hope that you can do it with the most expedient means because this means a lot to our citizens. When you think of a 14-foot or 7-foot tidal surge coming across, you're addressing a tidal surge on almost 200,000 people. And 200,000 people are going to be a whole lot more of a problem if you got to find caskets for them and get them put away. So thank you for your effort, and I hope that you can take my comments into consideration, and certainly those of Jake. Jake made a very fine presentation for what he feels, from his observations, have been occurring in the past. Thank you very much.	
80	7/15/2004	7/15/2004	General Public	Thank you for allowing me to address the audience. I'm herb Toups from Thibodaux. I was thinking about what Mr. Giardina just said. Last year we had that hurricane - - and I don't know whether it was Lilly or Bob. But anyway Bob Breck comes on at 10:00 o'clock at night and says, If you people are living in Houma or Thibodaux, he said, I would get out of Dodge immediately. So I was in bed, and I'm telling my wife, I said, Damn, we better get the hell out of here. So I'm thinking, Where am I going to go. I got a motor home, and I tow a car. If I got to get out, where I'm going to do. So if I go through Chackbay and cross the Gramercy Bridge, after you pass 61, you're going through the swamp, and then you catch 10. How you going to go against the traffic to go to I-55? I don't think you can do it. And then when you get on 55, you going to have New Orleans traffic. So I'm thinking, Well, I'm going to go to 90, go to Gray, take 90 west to Lafayette. But when you get on 90 and you go up to the high-rise around Amelia, then it comes down to the ground. What's there? Swamp. So, man, I feel like we're trapped like rats, you know, so, which way to go? So this is wonderful. I think if you go to the river and take a left and go to Donaldsonville and catch the Sunshine Bridge and catch 10 there. But, boy, if you go north, if it's flooding Pontchartrain, it's going to come over I-10, I believe. So it cuts off your route to I-55. So if you go 90 west, you come off the high-rise, you got the Atchafalaya swamp. I hope you guys think it through and find a way for us to get out of here because, like somebody said, we got 200,000 people in Thibodaux, Morgan City, Raceland, Houma, Golden Meadow, all that area. We're trapped like rats. Thank you.	Comment Noted.
81	7/15/2004	7/15/2004	General Public	Good evening, my name is Jude Gravois. I'm from Vacherie in St. James Parish, and I'm very, very familiar with the area where we're talking about, Highway 3127, starting at Highway 20 going west. I was here five years ago. I have the transcript of the testimony, -- I'm sure y'all have it and y'all have studied it -- and I can remember quite a few people coming up and indicating they felt that the route that would have started east of Thibodaux and ended up going through Laurel Valley through the Choctaw community and Chackbay around Mike's and following 20 all the way to go straight to 3127. It seemed like the majority of the comments at that meeting were in favor of that route. That was called Alternate 7. And it seems to be a very, very practical route, all things considered. Are questions allowed at this stage?	Yes, sir.
82	7/15/2004	7/15/2004	General Public	Okay. I noticed in your talk earlier that you mentioned about the different studies, the study that was done earlier, and there were 8 or 9 potential routes that were looked at and studied, and 7 was one of them and 7-A and then 6 and 6-A. And I noticed today in this hearing -- and this is the first thing that I've heard of any of this since the last meeting that we had here at Nicholls five years ago, although I had sent in a request to be notified of any type of public hearings or meetings or receive literature of anything going on -- but I noticed you failed to mention and these drawings did not have any of mention of Alternate 7 as being an alternative route. I'd like to ask has Alternate 7 been taken off the table as far as a route for this?	Alternate 7 did not come through the study as a route to serve hurricane evacuation needs.
83	7/15/2004	7/15/2004	General Public	So are you saying that it has been taken off the table now and it will not even be considered as a potential route for this new road?	Alternate 7 did not come through the study as a route to serve hurricane evacuation needs.
84	7/15/2004	7/15/2004	General Public	My question is, Will Alternate 7 be considered as an alternative for this road that will be built?	This study is taking the recommendations from the previous feasibility study. There were three alternates that were recommended coming out of that study. Now, what this does, what 9 the environmental impact statement will do is it will take those recommendations and it will look at all the new fresh information that is generated, and Alternate 7 did not make that cut. Now, having said that Alternate 7 did not make that cut, I will not say that there is another alternate that might be looked at other than the three that came from the feasibility study. But Alternate 7, as it was in the document, did not make the cut.
85	7/15/2004	7/15/2004	General Public	So it is possible that the use of Alternate 7 could come back into the picture?	I will not say it will not come back in the picture, but it did not come through as serving hurricane evacuation needs in this community. And the reason for that is that if traffic goes directly towards Gramercy-Wallace Bridge and mixes with that traffic coming out of New Orleans, if there is a storm where we must evacuate New Orleans, as everyone in this room is aware of, we cannot evacuate New Orleans in a time period within under three days. And to mix New Orleans traffic with the traffic coming from this area does not serve this area under hurricane evacuation needs -- for some storms. It depends on the direction of the storm.

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86	7/15/2004	7/15/2004	General Public	It seems to me -- and like I said, 'm very familiar with the area. And from a practical standpoint at the location where Alternate 7 -- and I'd like to make a specific point at this time and ask both the consultants and the highway department to very, very seriously consider that as a 1 viable alternative to the other three. And one reason I'm saying that -- and it's not strictly for economic development or whatever, but knowing the area, knowing the people, and I would I would like to invite you to come to Vacherie and listen and I'll bring you around. And we'll have other people from the community and all of our public officials that have sent in comments and came to meetings last time were all in favor of Alternate 7, and now this is the first that we hear that Alternate 7 didn't make14 the cut. We were not notified of that, and, you know, we just want to know why and, if possible, have that be looked at as a viable alternative. The reason I'm saying that I think it's a viable alternative is Highway 3127, you have over 300 feet that was expropriated by the State for use as a four-lane highway. The approximate location where Alternate 7 would have come out on 3127, approximately quarter mile, half mile, maybe even a mile up-river from Highway 20, is only about five, six, or seven miles from where the Alternates 6 and 6-A and 7 actually come out. So it is very, very reasonable that traffic hitting Highway 3127 at that point can very easily still take a left. There's no impediment whatsoever to get to the same exact location where the other alternates come out behind St. James. By doing that, you're servicing the area downstream from Bayou Lafourche. The Raceland area could use that road. The people even in West Houma could jump on Highway 90 and catch the new road and go straight north. You got the evacuation of all the people on this side of Thibodaux and then cross over, Shoepick, the Kraemer-Chackbay area, and I could envision that there will eventually be a route around Thibodaux, especially north Thibodaux where the people on that side of town could just as easily come there. Senator Dupre mentioned tolls. Believe me, if that road is built and coming out back of St. James, there would be no traffic on it. It may be the ultimate hurricane evacuation route, but it's going to be a dead highway because there'll be absolutely no need for anyone traveling north or south to go use that road. So there would be no tolls that could be achieved at that location. So I believe, very seriously, another look should be taken at that as an alternate to come out on Highway 3127. It comes out exactly at the Gramercy-Wallace Bridge. It will be several miles from the entrance road to the bridge. And anyone coming out that location, if it is anywhere west of Highway 20, like I said, can very easily take a left, and that's a four-lane highway traveling, you know, I presume at a good rate of speed at that point, they could still go west towards the Sunshine Bridge very easily. I think the problem is going to be when you get to that other end. It's going to be a mess. And even if you make it come out behind St. James, it's going to be a mess. So there would have to be some significant upgrades made at the intersection of Highway 3127 -- either make that a through-road going all the way up to Port Allen or make it a direct shot into the Sunshine Bridge. But there's no way it's going to do any good -- that's why people don't go that route right now from 70. I guess our goal has to -- one of the questions, and if we're going to be spending hundreds of millions of dollars to build this road, we have to look at the total picture and the big picture. And is our goal simply to build a road that no one 6 will use except for hurricane evacuation? And I think that's the question that has to be looked at carefully, especially with the idea of finance. So I'd like to invite you, at your convenience, and your group to come and visit with us in Vacherie and St. James Parish, and I'll be happy to review that in more detail with you. Thank you.	Comment Noted.
87	7/15/2004	7/15/2004	General Public	As mentioned, I'm Roy Francis. I'm the executive director of the LA-1 Coalition, and I thank you for the opportunity to speak tonight. I just want, on behalf of the LA-1 Coalition, to express my support for this highway. I think it's much needed, and I'm glad to see the environmental impact statement has kicked off. I would ask that, you know, and I'm very in tune to the funding problems as relates to the Department of Transportation and Development in trying to secure dollars to build a road. I would ask that maybe you do mention the potential use of tolls or innovative financing in your document, whether it's tolls or some type of an intermodal district, because DOTD does not have the funding in place to build such mega projects. And I know the Senator did mention the two "T" words, and you've got to pay for what you want to build. And I think that -- and I haven't looked at any other traffic, and I don't think tolls could pay the entire part of it, but it may be one of the tools in the chest that can help leverage other federal and state dollars. That's what we had done with Louisiana Highway 1, and if everything goes right, we should let contract for construction in November or December. And Michelle and the two gentlemen here spearheaded that effort. And so I'm very confident EIS will move along in a timely fashion. The members of the LA-1 Coalition back five years ago were supportive of an eastern alignment further south along the 316 type corridor. Given the fact that if this is in fact a hurricane evacuation route, the majority of the people who are furthest south are the ones actually offshore. We have 13,000 people in the Gulf of Mexico living -- it's like a small city in itself. And, originally, in this study area, the majority of them are on the eastern side. And we also thought that it could link -- if we're spending a half a billion dollars, or actually NOTO, to get from coast to U.S. 90 would be about 730 billion dollars, I think, that we should obviously try to tie these two highways together. And not so much because of the economics of the port, but the growth at the port generates traffic, generates people there, generates workers, and then if ever there is ability to facilitate caner trade at Port Fourchon, there'll be more and more people there needing to get out of harm's way. That port has been the fastest growing port in the country, and not just for the economic, but for the people there working, they bring widgets and gadgets all the time and have to travel north with their equipment that gets on the highway system. So we are supportive of this project, and, obviously, as you mentioned, specifically south of this, but all of this traffic from the south feeds into this system, and that's why we have been supportive of an eastern alignment more-so than the other alternatives	Comment Noted.
88	7/15/2004	7/15/2004	General Public	Good evening. I am Aubrey Gravois. I'm a resident of Vacherie. I'm past chairman of St. James Parish, which I served for 16 years, and at present I serve on the Lafourche Basin Levee District since I've been there since the early '70s. So I'm very familiar with this project. I've been very active on it, been working on it for years and years. We don't want it to happen like what happened with this Gramercy-Wallace Bridge, which took 14 years to build, you know. And so when we start this, we want to build it. Just a couple of months ago we were in Washington, Coalition of Southern Levee Districts. I think Senator Dupre was with us also. And we went -- we met with Mary Landrieu and the legislators from Louisiana, they were all with us. And what we did there, she wanted a comprehensive 4 plan for what we planning for hurricane protection and the levee system. If you look at the future, the levee will start past Gramercy, past the bridge, Gramercy-Wallace Bridge, and will go all around St. John, St. Charles, Orleans, St. Bernard, and Plaquemine, and come all the way to Morganza. So I liked comment that Reggie said to also have the straighter line, because the East bank would also be levied for hurricane protection and for flooding, like some people have mentioned flooding. So, but the basic thing is, you know, I support which ever alignment we have to take, and, like, I'm from Vacherie, I'd like it to help my community as much as possible. And I'm glad to see that y'all have included our projects that the Lafourche Basin Levee District has undertaken in the last few years. One of the big ones is Donaldsonville to the Gulf of Mexico, and this is to surround for drainage. One of our main concepts is drainage and hurricane protection under this particular project. It took us 25 years to get this project going. When Billy Tauzin first won for Congress, we saw the need for it, and we've been working on it in Washington ever since. So right now we finally getting some federal money, and it's going to be a reality one day. But just like this is a reality, I think this project is very, very important. Like I said, we've been working with this for years and years. So we want to offer my cooperation and the Board's cooperation to make this thing a reality. Thank you.	Comment Noted.
89	7/15/2004	7/15/2004	General Public	Lindy Hoffman, again, from Thibodaux area. We are all talking about hurricane evacuation, and I think that we must approach the entire project relative to hurricane evacuation as the principal argument in whatever location we choose. With that thought in mind, there's one thing that was not mentioned. The intermodal transportation system that has been mentioned for the Donaldsonville area to Whitecastle. Now, being a little selfish about going to economic development as opposed to hurricane evacuation, someone mentioned that the road would not be used at all if we did it for hurricane evacuation. I'm sure that ultimately the intermodal transportation is going to be a reality, and when it becomes a reality, that highway system will be greatly used for other than hurricane evacuation. You've all heard the expression, Build it and they will come. Thank you.	Comment Noted.

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90	7/16/2004	7/15/2004	General Public	I'm the only Assumption representative, and I will tell you all that I live in Labadieville. I've been there 49 years. And if there was a major hurricane, I don't think I would travel south to 6 Thibodaux to go through Vacherie when I'm that close to the Sunshine Bridge. Because everybody in Assumption Parish, I think, would just head north to the Sunshine Bridge, and I don't know why Assumption was brought into this. Thank you.	Comment Noted.
91	7/17/2004	7/15/2004	General Public	I'm Herb Toups from Thibodaux. And I mentioned, you know, I was afraid to go to the Sunshine Bridge -- I mean going to Gramercy and all that area because of possible flooding. But if I wanted to go west and go to Lafayette, is there any -- something on the plan to make Highway 90 so you could get out going 90 towards Lafayette? You know, when you get off the high-rise around Amelia, you go down to ground level. Is there any plan to raise that? Man, that would be the way to go, Lafayette, catch I-49 north. But to get from, say, Morgan City and go on past towards Lafayette, you got some low spots. So is there any consideration in that area? I mean raising that land when you come off the high-rise around Amelia, not going towards Morgan City. Thank you.	Comment Noted.
92	11/18/2004	11/18/2004	General Public	A. Agreed that the NEPA process and the process by which we are developing the Environmental Impact Statement has been adequately described. Environment is good but remember this is an evacuation route for people to get out.	Comment Noted.
93	11/18/2004	11/18/2004	General Public	B. Agreed that the Quantm Route Optimization process been explained adequately.	Comment Noted.
94	11/18/2004	11/18/2004	General Public	C. Agreed that the information developed to date, the project's progress and the remaining steps to completion were presented in a clear and timely fashion.	Comment Noted.
95	11/18/2004	11/18/2004	General Public	D. Agreed that the project displays were helpful to understanding the project and the project area.	Comment Noted.
96	11/18/2004	11/18/2004	General Public	A. Agreed that the NEPA process and the process by which we are developing the Environmental Impact Statement has been adequately described. Environment is good but remember this is an evacuation route for people to get out.	Comment Noted.
97	11/18/2004	11/18/2004	General Public	B. Agreed that the Quantm Route Optimization process been explained adequately. An on-site assessment of traffic on Hwy 20 on the weekend would be beneficial.	Comment Noted.
98	11/18/2004	11/18/2004	General Public	C. Agreed that the information developed to date, the project's progress and the remaining steps to completion were presented in a clear and timely fashion.	Comment Noted.
99	11/18/2004	11/18/2004	General Public	D. Agreed that the project displays were helpful to understanding the project and the project area. Please label Parish road 22 which is in alignment with the new highway (large parcel of property owned by the school board). It's called the Choctaw Community and it houses the middle school for all residents of the north Lafourche area north of Bayou Lafourche. Also, traffic bottlenecks on Hwy. 20 midway between Sunshine & Luling Bridge. There's the N/S alignment from I-55 to I-10 to Gramercy/Wallace Bridge south parallel to Hwy 20. New road must go east of Hwy 20. With Houma being the furthest south, head north to Gramercy Bridge to I-55.	Comment Noted.
100	11/18/2004	11/18/2004	General Public	A. Agreed that the NEPA process and the process by which we are developing the Environmental Impact Statement has been adequately described. Environment is good but remember this is an evacuation route for people to get out.	Comment Noted.
101	11/18/2004	11/18/2004	General Public	B. Agreed that the Quantm Route Optimization process been explained adequately. An on-site assessment of traffic on Hwy 20 on the weekend would be beneficial.	Comment Noted.
102	11/18/2004	11/18/2004	General Public	C. Agreed that the information developed to date, the project's progress and the remaining steps to completion were presented in a clear and timely fashion.	Comment Noted.
103	11/18/2004	11/18/2004	General Public	D. Agreed that the project displays were helpful to understanding the project and the project area.	Comment Noted.
104	11/18/2004	11/18/2004	General Public	A. Agreed that the NEPA process and the process by which we are developing the Environmental Impact Statement has been adequately described. Environment is good but remember this is an evacuation route for people to get out.	Comment Noted.
105	11/18/2004	11/18/2004	General Public	B. Agreed that the Quantm Route Optimization process been explained adequately. An on-site assessment of traffic on Hwy 20 on the weekend would be beneficial.	Comment Noted.
106	11/18/2004	11/18/2004	General Public	C. Agreed that the information developed to date, the project's progress and the remaining steps to completion were presented in a clear and timely fashion.	Comment Noted.
107	11/18/2004	11/18/2004	General Public	D. Agreed that the project displays were helpful to understanding the project and the project area.	Comment Noted.
108	11/18/2004	11/18/2004	General Public	A. Agreed that the NEPA process and the process by which we are developing the Environmental Impact Statement has been adequately described. Environment is good but remember this is an evacuation route for people to get out.	Comment Noted.
109	11/18/2004	11/18/2004	General Public	B. Agreed that the Quantm Route Optimization process been explained adequately. An on-site assessment of traffic on Hwy 20 on the weekend would be beneficial.	Comment Noted.
110	11/18/2004	11/18/2004	General Public	C. Agreed that the information developed to date, the project's progress and the remaining steps to completion were presented in a clear and timely fashion.	Comment Noted.
111	11/18/2004	11/18/2004	General Public	I'm Leland Robichaux, and I'm the past president and director of SCIA, South Central Industrial Association. I am also the co-chairman of the infrastructure committee. We just passed a resolution, which is addressed to the DOTD, stating that we would like to see -- we make an appeal to the LADOTD to expand and modify the current study for the north-south access highway project, and that we request that the purpose and need be expanded to include transportation links. And tonight we understand that has been done. And we want to encourage that the study of inclusion of Alternate 7 route, which is the most direct from LA 90 to the Veterans Memorial Bridge near Gramercy, Vacherie, and that we believe Alternate 7 is the most cost effective, and I'll explain a little bit of that when we talk about cost effective. Alternate 7 will provide less wetlands impact by construction and we encourage the limit of the study area to be expanded to I-10. The long-term safety and essentially the general welfare of the bayou and the river regions are critically dependent upon the future improvements of the transportation system. Specifically, the most cost effective and direct route of the north-south corridor, hurricane evacuation route, is to the Interstate 10 system. We request that the Louisiana Department of Transportation and Development take immediate action to include transportation links and expansion of the limits of the study to Interstate 10 for the north-south corridor. Talking about being cost effective, and Senator Dupre made a reference between 6 and 6-A and 7-A, and reference to 7 being the cheapest. And regardless if it has to be elevated all the way and if that highway cost \$400 million, you have to look at how you're going to pay for it. And the only way you can pay for it, as the chairman just mentioned before he left about toll roads. You need traffic to be able to pay the tolls to pay whatever the cost is. So to be cost effective, we believe making it a toll road and connecting to the Veterans Memorial Bridge will certainly give you the length for the traffic. So, again, we thank you for your time. We appreciate the hearings, and I'll give you a copy of this resolution. It's going to be mailed in to the DOTD. Thank you.	Comment Noted.
112	11/18/2004	11/18/2004	General Public	Good evening, my name's Paul Aucoin, I'm an attorney, and my office is right on the St. John/St. James Parish line right on the river. I want to thank y'all for having this little get-together tonight. It's nice to have an opportunity as a citizen to have input into some of these projects. I just hope we don't meet and study this project to death, you know. It's nice to have meetings and studies, but let's just get it off the drawing board and into the working stages. Some of us from the Vacherie area want to point out to you that the connection coming off of the Veterans Memorial Bridge is a little bit off. It actually has been changed to come closer to the west, closer to Highway 20. I'm in favor of some of the comments made by Senator Dupre in that we need the most direct route and it ought to connect directly in some fashion to the Veterans Memorial Bridge. I'm chairman of River Parishes Tourist Commission, and I might say that some of the routes I looked at, I think they might have been drawn up by some of the people on the tourist commission, looks like scenic routes, you know, going through a bayou countryside. I think what we're interested here and I think the drawings that I saw, that people drew, everybody's in favor of some type of a direct route, and I strongly encourage that. Thank you.	Comment Noted.

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113	11/18/2004	11/18/2004	General Public	Thank you. My name is Jude Gravois. I'm also an attorney from Vacherie. Paul and I have about all the business in Vacherie. Anyway, I appreciate the opportunity again to come tonight. I've been involved with this from about '99, and it looks like we are making some serious progress with it. And I also agree with a lot of the comments that were made tonight by Senator Dupre and Mr. Walker and some of the others. The issue of tolls, it looks like will be one of the major issues. And as everyone said, if we're going to look at tolls, we really have to build this road in a location where people are going to use. And I'm talking about using and not just south to north, but really north to south. And, you know, some of us from the Vacherie area, you know, I mean, this is almost a suburb of Thibodaux. We come to school here. We come to college here. Our babies get born here. We come eat out here. And, you know, the Alternate 7 that was originally proposed and is not specifically on these maps now, it seems like it would service the needs more on a north-south route to get to Thibodaux and continuing on to the Houma area. I just wanted to maybe ask a question, and I didn't have an opportunity to study the 1999 project report very carefully, and it looks like there was a lot of very good and important data that came out of that. And I was just wondering if some of that data will be inputted into the work that y'all are doing with the Quantum study to, you know, actually see if those alternatives are also feasible and reasonable considering the purposes and the needs and the constraints that y'all are going to be involved with. Can you answer that?	Well, we're essentially starting with a clean slate from the standpoint of the Quantum process and the Quantum input. And what comes from that, many of them, some of them may well be very close to what some of the alternatives -- and, frankly, I forget the numbers because I'm thinking forward. I'm thinking of our process with the Quantum route optimization and the costing assumptions and the way the software works. I think what you'll probably see is that some of the alternatives that come out of the Quantum route optimization process are going to be pretty close to many of those alternatives, whether it be 6 or 7.
114	11/18/2004	11/18/2004	General Public	Right. I understand. And, obviously, we got all these wavy lines here, but I presume when the road's going to actually be built, this will be more straight lines than what we're looking at. I mean you think the study's going to come out more --	What we'll do from here is we'll gather more information, we'll input that information in Quantum, including some more strict engineering design and criteria, some elevation information. And then we can actually start to narrow those down, and once we get to -- once we start eliminating some of the ones that don't make any common sense, then you will see them start to probably straighten out. But I'm not going to stand here and tell you that we're going have a straight line from 90 to 31 -- to the bridge. I can't tell you that. We've got a lot of issues out there that, you know, just things that we will not be permitted to go through. The agencies won't permit us to make a straight line through cypress swamp, or something like that, if there's another option that we can minimize the impacts. So I can't promise you that, you know, it's going to be perfectly straight, but I also can't tell you that it's going zigzag through the project area either. We really have to gather more information and input that into Quantum, make it -- more constraints, so it's going to force it to follow a more, you know, more direct route.
115	11/18/2004	11/18/2004	General Public	Okay. And then in addition to that, after that study is done and advanced, I presume y'all are going to get down to only a limited number of routes that are going to come out of the study, right?	Yes.
116	11/18/2004	11/18/2004	General Public	Not necessarily just one or two, but maybe several.	Yes, several.
117	11/18/2004	11/18/2004	General Public	Right. Okay. And the limitations on the study that were up on the board about, this doesn't consider traffic information, you know, you got to take a common sense approach and ease of use of the roadway and the public needs and the public wishes and also picking the termination points, you know. Is that done as part of y'all's process, or is that something done after this study is done? Is that all a part of the final determination?	Ongoing. All the same time. It's part of the ongoing process. That's why we really are pleased when you choose to participate in the process and let us know what your considerations are because that way we get to bring it into the decision-making process. So you're being here, making these comments tonight are part of the decision-making process that we are handling.
118	11/18/2004	11/18/2004	General Public	Thank you. Alexis Duval. I'm from Houma. I'm going to be the chairman of Houma-Terrebonne Chamber of Commerce in 2005. I just want to ask a question mainly. The constraints that you've been talking about, that have been fed into the Quantum, are they on the website? Are they visible? And as you add things to your search, you know, is that made available to the public? Because as we all know, the output of any software is only as good as the input. So I mean I would like to see, you know, as time, you know, to be able to access that information.	After we get through this round of public involvement, we're going to put a lot of this updated mapping on the website. Some of the sources came from our sub. We have a sub, Shaw Coastal, that's handling national resource information. They're doing the searches. We did obtain -- some of it is available on-line. The sensitive biological areas are available on-line. Earth search was very diligent in getting our cultural resource information for us, and they may be able to tell a little bit more about the source of that information. But, currently, right now, some of the maps are on our web site, but the actual constraint map, everybody was drawing on it, it had everything on it at one time is not -- we were going to wait till after this meeting. And then we will also be putting up, most likely these three maps, or something similar, on the website, so you will be able to show initial -- to show our efforts. It will continue to be updated. Some of that data is public information and will be very precise, but there's other data, like the locations of archeological resources that is protected. And so while we will have map of cultural resources, it's not going to be able to pinpoint where the information is because that will be a much different scale than more general information. The same with some of the rare species or the protected and threatened species, or rare in location of plants or animals, we're not going to give a precise location of those because we're not permitted to by the agreement we have use of that information. So while we will post a general description because it is a constraint, you're not going to then be able to go out and locate that.
119	11/18/2004	11/18/2004	General Public	No, I understand. We have to be able to understand the constraints that are being considered on everything. And I would also like to add that I think, personally, and speaking on behalf of all of the members of the chamber, that the most direct route to the Veterans Memorial Bridge, or the Gramercy-Wallace, is what we're in favor of, and thank you for your time.	Comment Noted.
120	11/27/2007	11/27/2007	Public	Requested that Madewood Plantation be on constraints maps listed as a historical structure.	Noted.
121	11/27/2007	11/27/2007	LA Department of Economic Development	Asked if this meeting is part of the Environmental Impact Study and when will the study be done.	This meeting is a part of the Environmental Impact Study but the completion date had not been determined at this time.

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122	11/27/2007	11/27/2007	Public	I know the Federal Government is saying to look at this other alternative, this alternate route, is it even a possibility or is this just kind of giving them...	Of course, it is a possibility. Any alternative is possible until you exhausted it. Some of the things we as the regional planning commission found early on as potential issues with this roadway and I will state them is that: One, we have a serious problem with conflicts with high-pressure gas lines and transmission lines that traverse Assumption Parish. So, every time such a roadway would travel across it there will be an increase cost of rectifying that problem. The second thing is that we are very concerned because the main industry in this parish is agriculture. If we would try to require this roadway to be on a ten contour this roadway would come basically equidistant between the bottom hardwoods and the ridge along Bayou Lafourche. If this roadway is on grade it severs that property except for those areas that have an elevated portion or some sort of elevated ramp system that would cross a major roadway. This would be considered a controlled access highway, meaning that the speeds would be upwards of 65 to 70 mph. This road would not allow everybody from their driveways to exit on to it or exit off. It would be a roadway that would have frontage roads and where elevated it would have ramps: on ramps, off ramps to get on or off. The particular red dots or areas of interest which would particularly be areas with ramps and off ramps – access points.
123	11/27/2007	11/27/2007	Public	The Eastern path depicted up to Hwy 70 from a little South of Labadieville to me that would be a very desirable area for this highway. Not only would it be a great evacuation route, it would be a great relief to Hwys 1 and 308 which is really horrible from all aspects. Especially 308, there has been some attempts to straighten out some curbs but there is still a lot of work that needs to be done. Anyway, 308 and LA 1, for a lot of reasons it will be very undesirable because securing the right-aways would be very difficult because of the highly developed residential areas so on and so forth. As far as the western corridor, my impression is that it would have a lot of undesirable features because of the areas it passes through. You know I am no engineer, that's my impression; the western corridor would be a lot more undesirable than the eastern corridor. I will tell you I have some interest in some real estate on the eastern side. Some doesn't touch the proposed highway, some would I think in one area. I think the greatest benefit would be again, it would be for hurricane evacuation. It would be a great relief for Hwy 308 and LA 1 in a very highly congested area. And we don't have, we probably should. Highway 24 to Houma. You know we probably should have directional traffic north on Hwy 308 and south on LA 1. But I don't think that would be feasible at this time. So all-in-all I think the eastern corridor would be a great benefit to the area."	Noted.
124	11/27/2007	11/27/2007	Public	I basically agree with everything that previous commentor said. That the eastern side along 308 would be the most feasible area. I don't want to go into too much; I believe the previous commentor pretty much summed it all up. I agree with his thinking on that completely	Noted.
125	11/27/2007	11/27/2007	Public	I am from the Thibodaux area. You know we've been over this many, many times. I personally think if we are going to look at hurricane evacuations, I personally think, especially with the large amount of people that you have in Terrebonne Parish and the large amount of people you are getting into the Thibodaux area. I really think we have gone over this now since before the last term of the Edwards administration that we have been working on this whole thing. If you go from Thibodaux to the curve in that river which is around St. James and go up to 3127 which is that highway, the majority of the land which you will go through is hardwood swamp, as is shown on that map number 1. Number 2, there is very little conventional wetlands that you have to go through as opposed to where Hwy 20 is now or some of these other proposed routes. Alright, number next, once you get to Hwy 3127 you are equally distant to the Gramercy Bridge and to the Sunshine Bridge. If a hurricane is coming from the east side of you, you have the prerogative to go left to go through the Sunshine Bridge and escape out that way. If a hurricane is coming on your left, it is coming on your left, as did Rita or our left, then it is easy to go up turn right, go to the Gramercy Bridge, up 55 and get out of town. Now, another problem looking solely and only at that Gramercy Bridge is when you get back to I-10, back of Gramercy, Reserve and all that where it's down on level and not an elevated highway, the elevation of that highway is only 5 or 6 feet above sea level. Now I know I have gone through it with the highway people and they have confirmed it. Well, we all know if a Katrina would've come 30 miles further west you could just about imagine the water that would've went through (Lake) Pontchartrain, Maurapas, into the swamp, over the highway, it would do you know good to concentrate all your efforts solely and only to that Gramercy Bridge. In fact there are two things in this whole exercise. I really think there are two things that have to be considered. Number one, would be the hurricane evacuation route in which you could come up from 311, coming up from Houma, come up to Hwy 90, turn left at Hwy 90, go about not even a mile, there is a rise in Hwy 90. There is a reason for that rise; it was built for a turn-around, about a mile from 311. It is already in place, the structure is in place. You then head straight up toward St. James to 3127. The right-aways of 3127 are already intact to four-lane the highway just as it is four-lane from about Edgard or somewhere all the way to Boutte. Now, so that would then be four-laned. You have, no matter which way the hurricane is; again we are wearing the hat of a hurricane evacuation, no matter which way it is coming you have the prerogative of going over one bridge or the other bridge going out east or going out west.	Noted.
126	11/27/2007	11/27/2007	Public	The second thing that really needs to be considered, as well as the north-south corridor, is a road equivalent to a 3127. Equivalent to a 3127 that would start at the Larose Bridge where it crosses over the Intercoastal Canal on the 308 side and go all the way to 3127; just like you've showed it there. Don't cross Bayou Lafourche like you have showed it. You keep on going all the way down to Larose. And in fact the Highway Department put that new bridge and they put it on this side the Intercoastal, if they would've put it on the other side of the Intercoastal. I am sorry if they would've put the bridge across Bayou Lafourche. If it would've been put on the south side of the Intercoastal it would've been in the right place to do this because you already have the bridge built across the Intercoastal. You wouldn't have to build another one. Number next, as you travel along Bayou Lafourche, if you get in an airplane and go along Bayou Lafourche on the south or the west bank of Bayou Lafourche; whatever you want to call it. This is where you have all these little towns; you hit Napoleonville, be it whatever, Thibodaux, Raceland, or Paincourtville. Everybody drops off and there are houses all the way to the woods; whereas, if you fly and get on the 308 side you don't have that problem today. You don't have all that extra high price property to go purchase for the right away. So I think two things are needed. I really think you need for the people in lower Terrebonne, in Terrebonne, and for the people in Lafourche would be that North-South to go right on the west side of Thibodaux straight up to the curve in the river and you have the prerogative to go either way. Number next, would be to go from Spur 70 all the way down to the Intercoastal in Larose – the Intercoastal Bridge. Talking about this, I have said this many of times, from Morgan City to the Harvey Canal you have only two roads today. You have 3127 and you have 90 and the rest is nothing more than a bunch of cow pastures along the bayous and the ridges. That is all it is. That is the only true highways that are in a straight line for any distance is 3127 and what we would call New 90. That is the way I feel about it. These alignments that were made to the east side of Thibodaux, I think to get that through the wetlands, the EPA; whomever you have to fight to get through that swamp – that is a very bad swamp where 20 goes through. If you walk that hunting you are going to be to your waist a lot of times, whereas;	Noted.

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				if you walk that other one from the bottom of St. James to Chackbay it's no big deal. So, that is my suggestion. You should really be looking at two things one is going straight up and one is coming down the bayou.	
127	11/27/2007	11/27/2007	SCIA	I have a letter from SCIA along with the Chamber of Terrebonne. I am not going to read the whole thing the written part was good enough. But I will just read to yall some. First, from SCIA: as a group we continue to be committed to the North-South Interstate Access Highway Project which is a major issue and our highest priority of hurricane evacuation. The feasibility study of 2003 has been completed and alternate routes reviewed and considered. Federal and state funds were appropriated and an Environmental Impact Study of 2004. We continue to believe that the alternate seven is the most cost effective route offering the least amount of wetland impact. We also support the extension from the Gramercy-Wallace Bridge to Interstate 10 as a means of securing a complete evacuation for the bayou region. That is from the SCIA, which is the South Central Industrial Association. The Houma-Terrebonne Chamber, they had a resolution in 2002, saying they wanted it to go the Gramercy-Wallace Bridge and they still support that today.	Noted.
128	11/27/2007	11/27/2007	Public	I have heard both to the west of Thibodaux and ongoing north, I am thinking to the south of LA 1. I think the problem with going on the east side of Thibodaux is wetlands problems. But if it wasn't that problem it seems to be the quickest way out for most people. Most people are not going to go; I call that south I know it is east, south to get away from a hurricane. That is basically the way we would go except here in Napoleonville we would go on up Hwy 1 catch the Sunshine Bridge and get out. But the people from South Lafourche, if you take one of those two paths on either side of Thibodaux they are either headed up before they get to Thibodaux or headed up after they pass through Thibodaux. To me, if everything else being equal the east side seems to make sense for hurricane evacuation. If indeed it is as feasible as the west side, if it is not as feasible because of the wetlands then you have the sense that one out does the other.	Noted.
129	11/27/2007	11/27/2007	Belle Rose Police Jury	Are we just interested in building new interstates or actually evacuation routes? I mean all this leads up to 3127. Without 3127 being developed on the east side of the river everything has to go over the Sunshine Bridge. You are looking at a bottle neck again. You have people evacuating New Orleans trying to get to the interstate; we are trying to get to the interstate. Unless the loop around Baton Rouge is built where 3127 ties in to it where you can go east or west once you hit the loop to go I-12 or to the interstate or to get around Baton Rouge or even some area like that. I don't know what we are trying to get here. I love new roads through our parish, do not get me wrong, especially some corridor or something like that or expressway for economic development purposes would be wonderful. But for basic needs right now and I know no one wants to hear this but LA 1 and 308, you make those one way lanes for evacuation routes trying to get to 3127 for evacuation for parishes south of us would be the best alternative right now. For emergency purposes to get something done for the next big hurricane I believe that is what I am interested in. I think that is what a lot of people are saying for evacuation routes. What are we trying to achieve...	I wasn't going to make it a discussion. But you have raised a question on creating a couplet system basically along Bayou Lafourche where you would have those two lanes converted to one way north and maybe the west side be converted to two lanes south. The problem with that when you create a couplet system like that and you have such a large volume of traffic you now have to worry about conflicts, intersections. So that at every intersection with that roadway you are going to have to have a deputy and it rules it or a signal light. We have contemplated what you just said years and years ago and the existing conflicts it would create far exceed the benefit. You are looking at a roadway, first of all, LA 1 and 308 are typical state highways. They carry approximately on a daily event probably about 13-14,000 cars per day. Their maximum capacity with the existing speed limits because of the geometry of the roadways limits it to very little more. So you are talking at the very most on a very, very good sunny day and bumper-to-bumper traffic with no impediments, no wrecks you might get 25,000 vehicles out a day. When we are talking about an evacuation we are talking about likely in the event of somewhere in the range of about 150,000 vehicles. So if you played it in your mind, where do the majority of those vehicles gravitate to? Where are they going to go to get out of this area? The problem is the State Police has created what they called contra-flow. It imposes some challenges to where they literally direct them; you don't have choices any longer. You have to go where the police tell you to go. Right now our methods of evacuation are to travel down Hwy 90, get on 310, exit via 310 coming back toward Baton Rouge, and exit I-49. That is the only exit for Terrebonne and Lafourche Parish. Now what we talked about before exiting to the west, if you have a westerly type storm that is heading from basically the Galveston area and skirting the coast and coming up you have only one other exit and that is to the east, which now you are congested with the 310/New Orleans people coming out. To answer that question that is what we had thought of.
130	11/27/2007	11/27/2007	Belle Rose Police Jury	What about the bottleneck at the Sunshine Bridge as is presented? During Hurricane Katrina traffic was backed up to Morgan City.	For Hurricane Katrina and Rita traffic counts that were taken by, they weren't literally traffic counts, they were visual accounts. The visual accounts stated that the traffic along Spur 70 was moderate to high. Which meant that roadway probably could've taken about, maybe 13-15,000 more vehicles added to it. That does us no good. We need to have in excess of about 75 to 80 to 100,000 vehicles per day additional. When we talk about the Sunshine Bridge it does have a varied amount of capacity but keep in mind a lot of those people from the St. Mary, Assumption Parish area are trying to get out as well. That is usually a very good exit route for them because they don't want to get on Hwy 90 and go through Lafayette and get backed up in miles and 40 miles of traffic which we have seen. In fact for Hurricane Andrew traffic was backed up from Lafayette passed New Iberia from what I've gathered from some of the statements that were taken. We need a direct linkage in the bayou region to I-10; which is the conduit to get the traffic moving at a very efficient speed and a speed that is controlled access. That is why the alignments we have looked at from basically Thibodaux to Gramercy was the most advantageous.
131	3/9/2010	3/9/2010	Public	Local Business owner. One location was closed due to flooding and inability to raise slab elevation to meet new regulations. Concerned with the project not ever being built. I want the project in order to benefit both evacuation in times of hurricanes, and also, the economy of the area. I have been on numerous boards trying to develop the economy in this area and if we don't diversify and get some other kind of economy going here, we're gonna go down the drain, there's no question about it. You probably read the article in the paper about the lack of attendance in the various hotels and motels in the area. Two more hotels closed up in Thibodaux; Howard Johnsons and Holiday Inn because they just didn't have the occupancy. Now grant it we have two more hotels, but they're just getting by, by the skin of their teeth. My proposal is just a common sense proposal. You've got to forget about so many environmental facts and think about the people in terms of hurricanes and other evacuation. We also never think about the economy, but I want to mention to you. Concern for the loss of land below the Mississippi River. Well anyway, my proposal and it's a plain ole common sense proposal because you could get people out evacuation wise and you can improve the economy and you	Noted.

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				would start in Houma on 311 and improve the 311 area, if, if not the road itself; build one alongside of it and go north toward Lafourche Parish; the northern end of the Parish, if any of you remember where the old Kmart building used to be. That is on the other side of the bayou, Highway 304, and it extends to Shoepick and Shoepick is, if you don't know where it is, its a little community that's close to Chackbay. Ambrose Landry, now deceased, who was a very instrumental person in trying to improve the economy off of this area, and I got together and we interviewed a lot of people. Well we proposed that route 311 to 304 and Ambrose looked to see how much distance there was between Shoepick and 3127 and there's no more than about maybe eight miles of land that you would have to kind of think of environmental and that is five miles of it that you would probably have to have an elevated highway. So, you think about this and you will find that the most common sense approach to alleviate all of the problems that we have with the highways would be to funnel that. When you hit 3127 you can go to the east to the Gramercy Wallace Bridge or you could go to the west to the Sunshine Bridge. If we build a road on this alignment and move people to the Sunshine Bridge you're gonna create a big bottle neck just like you have on highway 90 at the New Orleans, um, Metairie area. If you've ever been caught when a wreck occurs over there you're gonna sit there for three hours sometimes. So, that's all I have to say and I hope a little of it sinks in to some of the people who are in charge and I know that they run a hard Gallo there.	
132	3/9/2010	3/9/2010	Public	I'm president of the Thibodaux City Council and I have some selfish views besides hurricane evacuation and I want to see about the goods and services come into our community. At one time we had money from DOTD to complete the four lane expansion on North Canal Boulevard and because we had opposition from the community the money died and dried up. We had six million dollars committed by DOTD to put a pump in the City of Thibodaux and because of opposition, that money dried up and that project is gone. So, I'm just asking you no matter what alternative, that's an excellent idea and maybe you can answer sir. Why is the shortest route not the chosen route? I agree with (previous speaker) on the route. Now, I originally served and was appointed on the original I-49 commission with the State of Louisiana and when they solicited the funds for the Gramercy Bridge the whole intent at that time is "Hey we want a north-south route. Give us the money for the bridge." Okay? There was no talk of Sunshine at the time, ever. So, the initial intent was Gramercy to start off with. So, I'm in favor of Gramercy. I'm also, I like the previous commentor's idea, but this is the shortest route. When you're talking about this route here then you're talking about a lot more money than this route. It's obviously a longer route and, and, and as long as things take to do on infrastructure at the State of Louisiana.....I would suggest we go to the short route so I'm just asking y'all no matter what route DOTD supports y'all on, don't; don't fight the funding. If the funding's there, let whatever happens, you know, let it come through okay. I'm tired of losing infrastructures to other communities.	There was no chosen route at this point.
133	3/9/2010	3/9/2010	Public	Will these maps be available in the public area libraries and so forth in this area? So that people could have more input, could view the maps, and come up next meeting.	Those maps will be included in the projects newsletters that will be mailed out. Please go on the projects website and put your information on there 'cause we want to send this newsletter out to you guys. All project mapping will be shown on there. All project mapping will be shown on the projects website, on, once we publish the draft Purpose and Need, I'm sorry, the draft EIS. That'll be at your local libraries as well as, you can download from either DOTD's website or on the project's website. So yes, it will be available to the public.
134	3/9/2010	3/9/2010	Public	It beats any of the studies y'all have made so far. Will this road be a controlled of access road?	Depending on which alignment is chosen. If it's out that hadn't been determined just yet. If it's out in the middle of the wetlands we will have controlled access. If it happens to be an expansion of 20, which is one of the routes being considered, obviously we'll be looking at a partial control of access.
135	3/9/2010	3/9/2010	Public	Well I feel it'll be a control of access road because high level road in a swamp area has less of an environmental impact. That's why I would favor the short cut route through the swamps.	Correct. And we will use end-on construction.
136	3/9/2010	3/9/2010	Public	I reside in the city of Thibodaux and when this evacuation route was first proposed in 1996 there were only two routes. One east of Thibodaux one west of Thibodaux and to the people of Houma it didn't really make a difference which way they got around it as long as they got around it. The route the previous speaker is speaking of was the route to the west of Thibodaux; the other route which crosses lower plantation and ends up on LA 20 and its into Vacherie, is y'all other alternative route, that that was proposed at that time, by extending the route through the Assumption Parish area, you've committed that the whole of Terrebonne Parish, to going through Baton Rouge. By using one of the routes east to west of Thibodaux, you at least give the residents of Terrebonne Parish and the folks at the most upper portion of Lafourche Parish and even the lower portion of Lafourche Parish alternatives. They can either go to the Baton Rouge route because once they get to Vacherie they can use 3127 which is already has some right of ways dedicated for four lanes. It would just require the parts surfacing of the additional two lanes going to the Sunshine Bridge. Additionally that same corridor which is already owned by the state could be also utilized to go to the Gramercy Wallace Bridge or the Veterans Memorial Bridge. And would give people an alternative of going to LA, to interstate 55 and going north to the Jackson area by using, utilizing US Highway 61, although they wouldn't be able to use I10 at that point to get access to 55 because the contra flow; or if they wanted to proceed before that they could use I 110 to go to I55 and go north to Jackson. But if you do the route through Assumption Parish the whole of this area would be committed to going through Baton Rouge which is a bottleneck in and of itself during the contra flow situation. The whole purpose of north-south evacuation route is to go north. The way to escape a hurricane is to go north. East and west, is not a viable alternative especially for people who may leave late because you don't know if you're going into the storm or away from it. Hurricanes are not as predictable as we might hope they would be. We never know when they're gonna jog one way or the other. In this particular case it is time to stop the planning. I know this NEPA thing is a new thing; is brought about by a lot of different concerns, but in this particular case, the people south of us now have been very lucky. By lucky I mean that they have not had the situation which would make this road an imperative for them to go north. It is time to stop studying it and start doing it. It's way past time, and I would urge that the remainder of this study be done, but I would urge you to think about the alternatives and as far as purchasing new right of ways to build an alternative route, only going to the west, would be a waste of states and the taxpayers money.	Noted.
137	3/9/2010	3/9/2010	Public	I live in Raceland and I travel to Houma every day and the highway going to the largest city in our area between Raceland and Houma is 182. And it's always backed up in traffic so I was trying to parallel, imagine trying to get out of Houma for a hurricane and this; that's just the city of Houma, this is not everything below Houma to get everybody to highway 311, I think it would be a very huge task. You would have to probably start evacuating four days before the hurricane to get to 311. So what I'm thinking, is a plan that would serve Houma and Thibodaux and it would get the bulk of the people out of where most people live in Houma and South Terrebonne through Lafourche Parish just veering east of Thibodaux right below Lafourche Crossing somewhere around Little Wayne Construction. There's not that much population in that area. They might have to move two houses on both sides of the bayou if they are lucky, but that would be about it, but I don't know if y'all can see this, but this looks like a busy map, but that's the infrastructure that we do have right now. This blue green line right here is US 90 and I was thinking of continuing by Boulevard by Southland Mall and crossing over Koto Road and to Bayou Blue Road and making a new exit on US 90 between Bayou and Raceland which probably would be mile marker 207 and it would b-line from Houma to Vacherie, or Wallace whatever, and it would just skirt east of Thibodaux. Actually still be in the Thibodaux zip code right below Lafourche Crossing and on a sunny day Lafourche Parish would have the ability to utilize the railroad. We can have our; I've heard talk of the city of Thibodaux putting an airport in Lafourche Parish. We have a railway stretching from right outside Thibodaux all the way to Raceland and that could be an industrialized area. What I like about this map right here with the Sunshine Bridge, our friend, Governor Edwards, before he left office, was thinking about putting a	Noted.

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No.	Date	Meeting Date	Agency	Comment	Response
				huge airport right here creating ninety thousand jobs to Assumption, Lafourche, and St. James Parish. If that would be the case, yeah this road would really do well with an airport on a sunny day and it would get people out of here for hurricanes, but if they're not gonna build the airport right here, I don't see the need of going to the Sunshine Bridge. Like the previous speaker's idea getting in the middle between, the Sunshine Bridge and Veteran's Memorial Bridge in Gramercy. We have two of the largest cities in Louisiana in between them which is Baton Rouge and New Orleans, and frankly I would like to see a day when you are traveling I-10 its gonna say Houma – Thibodaux, and it would get the goods, to our area. Another thing you have to consider too is Port Fouchon. If we can get this road to, what we call Prospect Avenue and go through Terrebonne Parish the Lafourche Terrebonne line and probably parallel, LA 24, maybe we can link Port Fouchon to this corridor also, and there's a coalition of people, through LA 1. This would be a way to get our goods from Port Fouchon north to Baton Rouge, but the big picture is to get people out of Terrebonne and Lafourche Parish. They should be looking at going toward Hammond and Hattiesburg. The three H's, Houma, Hammond, and Hattiesburg would probably be about the best route because that's due north of Hammond and Hattiesburg and due north of Houma and I think you know a lot of people say that the Governor of Mississippi doesn't like us to go out there but we do have high land in Washington and Tangipahoa Parish and if we had a highway to get there, our people could go to those places and that's probably where the state's gonna go in the next twenty years.	
138	3/9/2010	3/9/2010	Public	I would like to express my frustration at being involved somewhat in this project many, many years ago and knowing that we are still in the same stage of the process, NEPA process, and trying to define the project. It seems like it's been ten, twelve years that's what we been doing. Always it's been from the community is been desired to build a roadway just like a previous commentor said. Either east or west of Thibodaux trying to get to the Gramercy Wallace Bridge which I would imagine, if you built it today, would be what four hundred, five hundred million dollars? Yet the road doesn't really go anywhere. And the frustrating part is in each and every step of the way there's been a federal agency, the Army Corps of Engineers, who's constantly said that you can't build it because they would never grant you a permit, but that person's never had to, as a government official, federal agency, never had to express his reasoning in writing, but yet he is, or the person with Army Corp of Engineers, is the one who's been pushing for this east – west alignment and I really haven't heard of anyone else through the years make that; make that push other than the gentlemen of the Army Corps and I think it's with no accountability in not even having to provide the technical reasons for that. No matter where you build such a road to this magnitude, you're gonna have environmental problems, but to say that you just can't build it because you can't get a permit, I would think, I think, is stepping way beyond the bounds of his responsibility. I think what we... you know I would support either an east or west alignment to the US 90. I think if we had that determined by good technical justification and good modeling, then I could live with either decision. I think if you look at the MEAN Center Population for the area you would find it probably supports a little more to the eastern alignment. Also which frustrates this project for many years, this boundary is pretty much the limits of what you can determine have your starting point and end point to the roadway. For years we've tried to push just to have this boundary extended slightly below to Prospect Street LA 38 four lane roadway built for good speeds, but yet when you model these projects to determine what has the best utility, what road carries the most traffic. You can't consider LA 3087 the model that exists and also, I-55; the model really doesn't take into account that this is a proximity to the Gramercy Wallace Bridge. Also, you're gonna bring a lot of traffic to the Sunshine Bridge. We're talking about if this road was funded; if we got through this EIS process tomorrow we'd be lucky to have a road near 15 to 20 years from now. Think about the traffic on the Sunshine Bridge today! How many more cars and trucks would be there twenty, twenty five years from now as development continues? It seems like it only makes sense to take a very under-utilized high investment of Gramercy Wallace Bridge and take advantage of that there structure. I think it's not within the desire with what people wanting to see, but yet some federal resource agencies, and I think that should be at the very least, ask for technical justification so people can see why they are being denied good alternatives through this area and that's just my comments.	Noted.
139	3/9/2010	3/9/2010	Public Official	A couple of things I haven't heard today. I live in Vacherie. I live on 20. One thing we've got to realize, if you bring that road through to the west of 20, you're still closer to Baton Rouge going to the Wallace Gramercy Bridge. When I leave home, I go east, take that bridge and go to Baton Rouge and it cuts time off my trip. And when you talk about putting traffic, truck traffic, on 3127 you have to take into two accounts. You're creating a hazard as far as the trucks have to stop and turn and then turn across traffic to go to Gramercy Bridge. Another thing to take into consideration: you adding time to a trip. People that ship goods to and from Houma and Thibodaux across the river to Baton Rouge and New Orleans would be better served if they didn't have to make these turns; didn't have to make these stops. This is not just an evacuation route, this is something that's going to spur the economy, make goods and services move quicker, safer, from one point to another point and that, that would justify going closer to or directly on the Gramercy Bridge. If that route goes to the Gramercy Bridge to get to 3127 you go west, 61 East-West, I-10 East-West, but if you come to the west you got to turn on 3127; if you have to go under the Gramercy Bridge you have to turn across traffic and we want to move these goods as quickly as possible; as safely as possible and save the shippers money and time. So you need to consider this thing	Noted.
140	3/9/2010	3/9/2010	Public	I would like to get additional information before making a remark about which location to use. Please keep me informed.	Noted.
141	3/16/2010	3/9/2010	Public	The route of the new highway should begin at 308, follow Hwy 304 and extend it to 3127. This is the shortest route. It would be most cost effective and have less interruption to the environment.	Noted.
142	3/17/2010	3/9/2010	Public	I would favor a N/S Route linking Hwy. 90 to Hwy. 3127 somewhere near the Grammercy/Wallace Bridge, thus giving traffic 3 options: (1) North - over Grammercy/Wallace Bridge, (2) West - over Sunshine Bridge, (3) East- over Boggs Bridge. This would prevent overload on any one bridge at hurricane evacuation time. Why is hurricane evacuation not priority #1?	Noted.
143	3/18/2010	3/9/2010	Public	Build a four lane highway from Houma to LA 3127 by a Northern direction as much as possible, by-passing Thibodaux, but near enough to Highway LA 20 to help relieve this over capacity need. This road should be a limited access highway with intersections to Hwy 90, 24, 308, 1, 20, 314 only. To meet Corp of Engineer and EPA incremental concerns of least impact, it should be built elevated through the swamp areas. West of Thibodaux would be good, but east would be better. The primary need for this highway is for moving people and goods from north to south and south to north and hurricane evacuation. Land development should play no part. For financing it, it may be required to buy it only 2 lanes first, with the remaining lanes built later, however the entire right of way should be acquired first.	Noted.

LIST OF PREPARERS

3127

90



Name	Primary Responsibility
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FHWA

Bob Mahoney, Project Manager, Environmental Coordinator, MS Civil Engineering, 50 years experience

Mark Stinson, P.E., Major Projects Engineer, BS Civil Engineering, 25 years experience

LADOTD

Noel A. Ardoin, P. E. Environmental Engineer Administrator, Juris Doctorate, BS Chemical Engineering, 21 years experience

Maria Bernard Reid, Environmental Project Manager, MS Agribusiness and Agricultural Economics – Natural Resources Policy, 15 years experience

Buchart Horn

Alan Krouse, P.E., Project Manager, BS Civil Engineering, 38 years experience

Stephanie Phillips, P.E., Assistant Project Manager, BS Civil Engineering, 6 years experience

Marcus Bonton, E.I., Technical Designer and Writer, BS Civil Engineering, 7 years experience

Joseph Barker, E.I., GIS and Writer, BS Civil Engineering, 4 years experience

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Randy Rowson, Planner and Contributing Author, MA Urban and Regional Planning, 21 years experience

Connie Epson, Lead Word Processor, 40 years experience



Name	Primary Responsibility
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Providence Engineering, LLC

Kerry Oriol, Environmental Project Manager, BS Fish and Wildlife Biology, 25 years experience

Monica Herrera, Environmental Project Manager, BS Biological Science, 7 years experience

List of Agencies, Organizations, and Persons to Whom Copies of the DEIS were Sent

Lead Agencies:	Section/Division:	Primary Contact:	Number of Copies:
Federal Highway Administration	Louisiana Division	Robert Mahoney	3
Louisiana Department of Transportation and Development	Environmental	Maria Reid	15
Louisiana Department of Transportation and Development	District 61	Chad Vosburg	5
Louisiana Department of Transportation and Development	District 02	Chris Morvant	5
Cooperating Agencies			
US Army Corps of Engineers - Regulatory Division	New Orleans District	Rob Heffner	1
Participating Agencies			
US Environmental Protection Agency – Regional Office in Dallas, TX	Office of Planning and Coordination	Craig Weeks	2
United States Fish and Wildlife Service	Administration	Cynthia Dohner – Regional Director	1
Houma – Thibodaux MPO	Administration	Leo Maretta - Administrator	3
Other Agencies			
Louisiana Department of Natural Resources	Coastal Management Division	Christine Charrier	1
Louisiana Department of Wildlife and Fisheries	Ecological Investigations	Chris Davis	1
Louisiana Department of Environmental Quality	Southeast Regional Office	Mike Alegro – Regional Manager	1
St. James Parish	Administration	Timmy Roussel – Parish President	1
Lafourche Parish	Administration	Charlotte Randolph – Parish President	1
St. John the Baptist Parish	Administration	Natalie Robotom – Parish President	1
Terrebonne Parish	Administration	Michel Claudet – Parish President	1
Assumption Parish	Administration	Martin Triche – Parish President	1
St. Charles Parish	Administration	V.J. St. Pierre Jr. – Parish President	1
St. Mary Parish	Administration	Paul Naquin Jr. – Parish President	1
City of Thibodaux	Administration	Tommy Eschette - Mayor	1
City of Houma	Administration	Michel Claudet – Mayor/President	1
Louisiana Department of Culture, Recreation, and Tourism	Administration	Kyle Edmiston – Assistant Secretary	1
Louisiana Department of Agriculture and Forestry	Administration	Mike Strain - Commissioner	1
Governor’s Office of Homeland Security and Emergency Preparedness	Administration	Kevin Davis - Director	1
United States Department of Agriculture and Farm Service Agency	Administration	Craig McCain – Executive Director	1
United States Department of Housing and Urban Development	Administration	Earl Randall, III – Field Office Director	1

List of Agencies, Organizations, and Persons to Whom Copies of the DEIS were Sent (continued):

Other Agencies			
Department of the Interior	Headquarters, Washington DC		12
Environmental Protection Agency	Headquarters, Washington DC		1 (electronically filed)
Pontchartrain Levee District	Administration	Monica Salins – Executive Director	1
United States Coast Guard	Administration	David Frank	1
Federal Aviation Administration	Administration	Lacey Spriggs – ADO Manager	1
Indian Nation Tribal Historic Preservation Office	United Houma Nation	Brenda Dardar	1
Indian Nation Tribal Historic Preservation Office	Chitimacha Tribe	Kimberly Walden	1
Louisiana Office of Historic Preservation	Administration	Nicole Hobson-Morris – Executive Director	1
The South Central Planning & Development Commission	Administration	Kevin Belanger – Chief Executive Officer	1
Elected Officials (Federal)			
United States Senate		Bill Cassidy	1
United States Senate		David Vitter	1
US House of Representatives	6 th District	Garrett Graves	1
US House of Representatives	2 nd District	Cedric Richmond	1
US House of Representatives	1 st District	Steve Scalise	1
Elected Officials (State)			
Louisiana House of Representatives	District 51	Joe Harrison	1
Louisiana House of Representatives	District 52	Gordon Dove	1
Louisiana House of Representatives	District 55	Jerome Richard	1
Louisiana House of Representatives	District 56	Gregory Miller	1
Louisiana House of Representatives	District 58	Edward Price	1
Louisiana House of Representatives	District 81	Clay Schexnayder	1
Louisiana State Senate	District 2	Senator Troy Brown	1
Louisiana State Senate	District 18	Senator Jody Amedee	1
Louisiana State Senate	District 19	Senator Gary Smith	1
Louisiana State Senate	District 20	Senator Norby Chabert	1
Louisiana State Senate	District 21	Senator R.L. Bret Allain	1
Libraries			
State Library			20 + digital (pdf) copy
Terrebonne Parish Library	Main Branch		2
St. James Parish Library	Main Branch		2
Lafourche Parish Library	Main Branch		2

LIST OF ACRONYMS



LIST OF ACRONYMS

A

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act of 1990
ADT	average daily traffic
APE	Area of Potential Effect
ASTM	American Society for Testing and Materials

B

BFE	Base Flood Elevation
BLFWD	Bayou Lafourche Fresh Water District
BMPs	best management practices
BTNEP	Barataria-Terrebonne National Estuary Program

C

C-CAP	Coastal Change Analysis Program
CEDS	Comprehensive Economic Development Strategy
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESQG	conditionally-exempt small quantity generator
cm	centimeter
CMD	Coastal Management Division
CO	carbon monoxide
CORRACT	RCRIS Corrective Action
CWA	Clean Water Act of 1977

D

dBA	A-weighted decibels
DCRT	Department of Culture, Recreation and Tourism
DEIS	Draft Environmental Impact Statement
DFIRM	Digital Flood Insurance Rate Maps
DHHS	U.S. Department of Health and Human Services
DO	dissolved oxygen



**E**

EDA	Economic Development Administration
EDD	Economic Development District
EFH	essential fish habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
ESI	Earth Science, Inc.

F

FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FPPA	Farmland Protection Policy Act
FRS	Facility Registry System
ft/ft	feet per feet
FTA	Federal Transit Association

G

GIS	geographic information system
GNO, Inc.	Greater New Orleans, Inc.
GOHSEP	Governor's Office of Homeland Security and Emergency Preparedness
GPS	global positioning system

H

HC	hydrocarbons
HEI	Health Effects Institute
HSWA	Hazardous and Solid Waste Amendments
HTMPO	Houma-Thibodaux Metropolitan Planning Organization
HUC	hydrologic unit code

I

I-10	Interstate 10
ITS	Intelligent Transport Systems

K

km	kilometer
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**L**

LA 1	Louisiana Highway 1
LA 3127	Louisiana Highway 3127
LA FWS	Louisiana Fish and Wildlife Service
LA WL&F	Louisiana Department of Wildlife and Fisheries
LA WL&F-NHP	Louisiana Department of Wildlife & Fish, National Heritage Program
LADOT	Louisiana Department of Transportation
LADOTD	Louisiana Department of Transportation and Development
LASHPO	Louisiana Office of Historic Preservation
LBP	lead-based paint
LDAF	Louisiana Department of Agriculture and Forestry
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LEP	Limited English Proficiency
Leq	equivalent continuous level of sound
LIMA	Louisiana Interactive Mapping Application
LOS	Level of Service
LOSCO	Louisiana Oil Spill Coordinator's Office
LPDES	Louisiana Pollutant Discharge Elimination System
LQG	large quantity generator
LSTP	Louisiana Statewide Transportation Plan
LWCF	Land and Water Conservation Fund
LWQMP	Louisiana Water Quality Management Plan

M

m	meter
mg/m ³	milligrams per cubic meter
µg/m ³	micrograms per cubic meter
mgd	million gallons per day
MSA	Metropolitan Statistical Area
MSAT	Mobile Source Air Toxic
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MTP	Metropolitan Transportation Plan

N

NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act of 1969
NFIP	National Flood Insurance Program
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act of 1966
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic Atmospheric Administration, Office of Marine Fisheries



NOI	Notice of Intent
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NPSMP	Non-Point Source Management Plan
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O	
O ₃	ozone
OCM	Office of Coastal Management
P	
PIP	Public Involvement Plan
PM	particulate matter
ppm	parts per million
Program	Title VI Compliance Program
Q	
Quantm™	Quantm™ Alignment Optimization Software
R	
RCRA	Resource Conservation and Recovery Act
RCRAInfo	Resource Conservation and Recovery Act Information
RCRIS	Resource Conservation and Recovery Information System
ROD	Record of Decision
ROW	right-of-way
RREDI	River Region Economic Development Initiative
RV	recreational vehicle
S	
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SARA	Superfund Amendments and Reauthorization Act
SCIA	South Central Industrial Association
SCPDC	South Central Planning and Development Commission
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SLEC	South Louisiana Economic Counsel
SO ₂	sulfur dioxide
SOV	solicitation of views
SQG	small quantity generator
SWMP	Surface Water Monitoring Plan

**T**

TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Load
TSDF	Treatment, Storage, and Disposal Facility
TSM	Traffic System Management

U

Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
US 90	U.S. Highway 90
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank

V

V/C ratio	volume to capacity ratio
VMT	Vehicle Miles of Travel

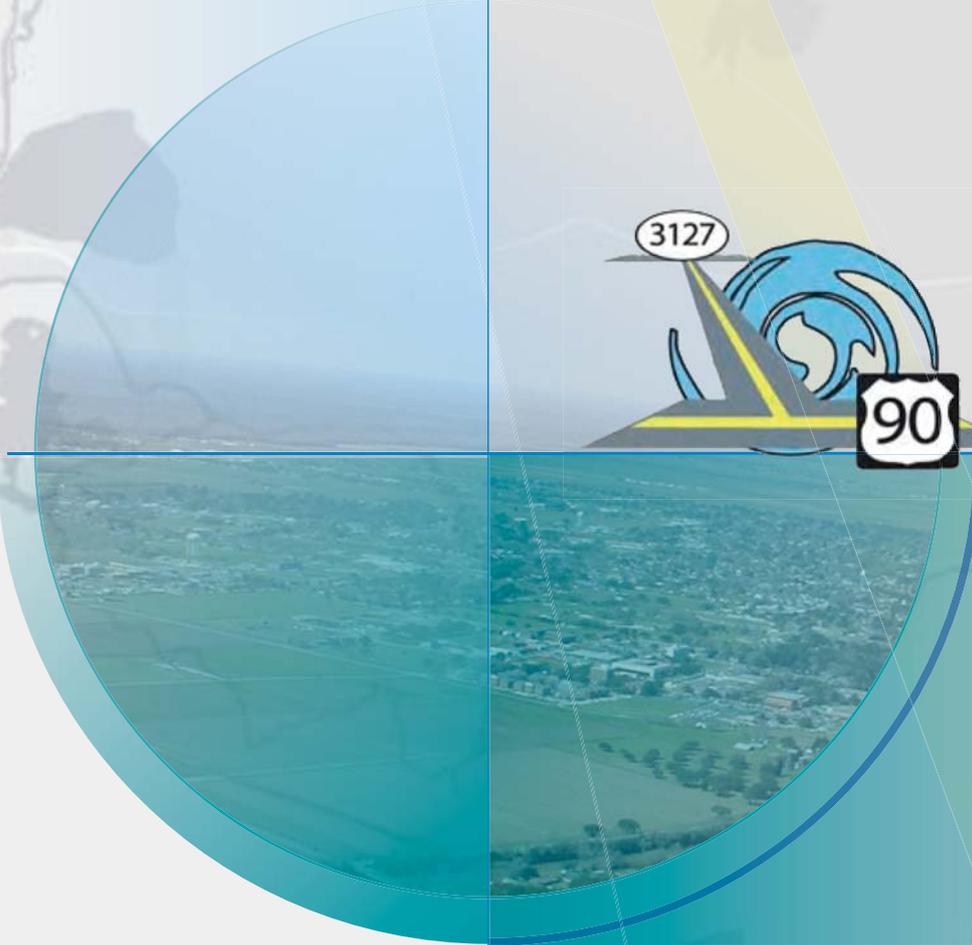
W

WMA	Wildlife Management Area
WQC	Water Quality Certification



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GLOSSARY



GLOSSARY

Alternative: Alternatives are different options under consideration for a project. By evaluating the impacts associated with different Alternatives, a decision can be made as to which one will be the "Preferred Alternative" or "Recommended Alternative." There have been a number of Alternatives considered as part of this project.

American Association of State Highway and Transportation Officials (AASHTO): A non-profit, non-partisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico whose primary goal is to foster the development, operation, and maintenance of an integrated national transportation system.

American Society for Testing and Materials (ASTM): Founded in 1898, ASTM is a non-profit organization providing standards that are accepted and used in research and development, product testing, quality systems, and commercial transactions around the globe. In over 130 varied industry areas, ASTM standards serve as the basis for manufacturing, procurement, and regulatory activities.

Archaeological Site: The location of past cultural activity that could be used to describe and explain the nature and evolution of cultural systems; a defined space with mainly continuous archaeological evidence. Most archaeological resources are below ground level and yield information important in history or pre-history.

Area of Potential Effects (APE): In the context of cultural resources, the APE is the geographic area or areas within which a project may directly or indirectly cause alterations in the character or use of historic or archaeological resources, if any such properties exist. The APE is influenced by the size and nature of a project and may be different for different kinds of effects caused by the project.

Arterial: A class of roads serving major traffic movements (high-speed, high volume) for travel between major points.

Average Daily Traffic (ADT): The average number of vehicles passing a fixed point on a roadway in a 24-hour timeframe. Used as a measure of traffic volume on a roadway. To reflect daily variation over time, annual average daily traffic (AADT) may also be used; this measure averages the daily traffic volumes over the course of a year.

Build Alternatives: A collective description of all Alternatives that include physical construction and therefore are distinct from the No-build Alternative.





Capacity: The maximum hourly rate at which persons or vehicles can reasonably be expected to traverse to a point during a given time period under prevailing roadway and traffic conditions.

Clean Air Act Amendments (CAAA): The CAAA is legislation designed to curb three major threats to the nation's environment and to the health of Americans: acid rain, urban air pollution, and toxic air emissions. It called for establishing a national permits program to make the law more workable, and an improved enforcement program to help ensure better compliance with the Act. The original Clean Air Act of 1970 was last amended in 1990.

Clean Water Act (CWA): The CWA provides for comprehensive federal regulation of all sources of water pollution. It prohibits the discharge of pollutants from non-permitted sources.

Congestion: The level at which transportation system performance is no longer acceptable due to traffic interference. The level of acceptable performance may vary by type of transportation facility, geographic area, and/or time of day.

Collector: A low or moderate-capacity road that is below a highway or arterial road level of service. Collector roads tend to lead traffic from local roads or sections of neighborhoods to activity areas within communities, arterial roads, or (occasionally) directly to expressways or freeways.

Cooperating Agency: According to the Council of Environmental Quality (CEQ) (40 CFR 1508.5), "cooperating agency" means any governmental agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Created in 1980, it is also known unofficially as "Superfund." CERCLA provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. By creating the designation of "Superfund" sites, CERCLA established provisions for the liability, use, and funding for remediation of hazardous waste sites, particularly when no responsible party could be identified.

Comprehensive Plan: A document used by local, county, and regional bodies in the land planning process that contains a statement of objectives, projections, and short- and long-term planning.

Contra Flow: Contra flow is the process where travel lanes are reversed to flow in the opposite direction allowing for an increase in roadway capacity.

Controlled Access: This is the regulated limitation of access into (ingress) and out of (egress) properties abutting a roadway. A controlled access roadway has few (or no) driveways, may be physically separated by a median, and intersections with crossroads are widely spaced. A freeway would have limited access with access to and from the roadway limited to interchange ramps.

Council of Environmental Quality (CEQ): This agency is a division of the Executive Office of the President of the United States that coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental and energy policies. Under the National Environmental Policy Act (NEPA), CEQ works to balance environmental, economic, and social objectives in pursuit of NEPA's goal of "productive harmony" between humans and the natural environment.



Cultural Resources: A location, building, structure, or place with potential historic or archaeological significance.

Cumulative Impacts: The impact on the environment that results from the incremental impact of action(s) when added to other past, present, and reasonably foreseeable future actions.

Delay: Occurs when a vehicle cannot travel at the free flow speed for a segment of roadway because of the density of traffic. Usually measured using a qualitative measure called Level of Service (see definition below).

Design Speed: A speed used to design the curvature and grades of a highway, taking into account the composition and volume of traffic. To ensure safe operations, it is typically desirable for engineers to choose a design speed that equals or exceeds the anticipated posted speed, and complements the highway type, setting, functional classification, traffic volume, and terrain.

Design Year: A selected year used to estimate future traffic volumes and produce highway design to ensure a project will meet future traffic needs. For this project, the design year is 2032.

Disproportionate Impacts: Predominately impacts a minority or low-income population group or, the impact is "more severe" than that experienced by non-minority or non-low income populations.

Direct Impacts: A direct impact is an impact caused by a project that occurs at the same place as the project and at the same time as the project is implemented, i.e., is a direct result of the project.

Diverge: A movement in which a single lane of traffic separates into two lanes without the aid of traffic control devices such as when vehicles exit a freeway.

Draft Environmental Impact Statement (DEIS): See Environmental Impact Statement.

Endangered Species: Endangered Species are any species of animal or plant life that is in danger of extinction throughout all or a significant part of its range. Species can be designated "endangered" by either the U.S. Fish and Wildlife Service or a state's Natural Heritage program. With this designation comes legal protection at the federal level (Endangered Species Act) and/or the state level. Species can also be designated by state or federal government as Threatened Species or Special Concern Species for species with populations that are somewhat less in jeopardy than endangered species.

Environmental Consequences: The Environmental Consequences discussion in an Environmental Assessment (EA) or Environmental Impact Statement (EIS) assesses the anticipated effects of the proposed project alternatives on all possible resources (air quality, wildlife, wetlands, etc.) that may be affected by the project. This discussion compares and contrasts the impacts associated with all alternatives, including the No-build Alternative.

Environmental Impact Statement (EIS): An environmental document that is prepared when it is initially determined that the action/project may cause significant impacts to the environment, when environmental studies and early coordination indicate significant impacts, or when review of a previously prepared environmental assessment indicates that the impacts anticipated to result from the project may be significant.



Draft EIS (DEIS): compares all reasonable alternatives to the proposed project and summarizes the studies, reviews, consultations, and coordination required by legislation and Executive Orders to the extent appropriate at the draft stage in the environmental process.

Final EIS (FEIS): identifies and addresses the social, economic, and environmental impacts of a Recommended Alternative and addresses public comments received during the formal public commenting period as well as the public comments received throughout the NEPA process.

Record of Decision (ROD): After publishing the Draft and Final EIS, the NEPA process concludes with a Record of Decision (ROD). The ROD identifies the selected alternative, presents the basis for the decision, identifies all the alternatives considered, specifies the "environmentally preferable alternative," and provides information on the adopted means to avoid, minimize, and compensate for environmental impacts.

Facility: Any type of transportation infrastructure such as highways, local roads, transit centers, etc. that is used to move people and goods.

Farmland Protection Policy Act (FPPA): The purpose of FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. FPPA ensures, to the maximum extent practicable, that federal programs are administered in a manner that is compatible with state, unit of local government, and private programs to protect farmland.

Farmlands of Local Importance: The Natural Resources Conservation Service defines these farmlands as those lands that are nearly Prime Farmland and that economically produce high yields when treated and managed according to modern farming methods. Some may produce as high a yield as prime farmlands, if conditions are favorable.

Federal Highway Administration (FHWA): Division of the U.S. Department of Transportation that funds highway planning and construction programs and is headquartered in Washington, D.C., with field offices located across the United States. The FHWA provides expertise, resources, and information to continually improve the quality of our nation's highway system and its intermodal connections. The Federal-Aid Highway Program is the main program through which the FHWA performs its mission. The Federal-Aid Highway Program provides federal financial assistance to the states to construct and improve the National Highway System, urban and rural roads, and bridges.

Final Environmental Impact Statement (FEIS): See Environmental Impact Statement.

Floodplain: Any land area susceptible to being inundated by floodwaters from any source.

Freeway: A divided highway for through traffic with controlled access. All crossings of the freeway by other roadways are vertically grade-separated (i.e., bridges carry the freeway above the other roadway or vice versa) and all access to the roadway is provided exclusively by interchange ramps that merge with the freeway traffic.

Gathering Places: Convenient locations to gather, hold special events, and are accessible to public transportation.



Geographic Information System (GIS): GIS captures, stores, analyzes, manages, and presents data that is linked to location. GIS allows us to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts.

Habitat: An area that provides an animal or plant with adequate food, water, shelter, and living space.

Hazardous Materials: Substances or materials capable of posing unreasonable risk to health, safety, and property when transported in commerce, or when encountered in above-ground or below-ground contamination.

Historic Resources: Historic resources are properties that may possess potential historic significance based on age, type, or association with a person(s) or event(s). Such a property may have the distinctive characteristics of a type, period, or method of construction or may represent the works of a master or may possess high artistic values.

Hydric Soils: A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to favor the growth of wetland plants.

Impacts: Effects that occur as a result of implementing a transportation improvement. Direct impacts most commonly occur when proposed right-of-way actually crosses a resource in question such as a residence, business, wetland, or other regulated resources.

Indirect Impacts: Impacts that are caused by the project, but occurring later in time or farther removed in distance than direct impacts. Indirect effects include changes in land use attributable to the project (induced growth) and impacts on environmental resources that occur as a result of the project's influence on land use, such as the effect of habitat fragmentation on species viability over time or changes in wetland functions due to stormwater runoff.

Infrastructure: Term used to describe the physical assets of a society or community including roads, bridges, transit facilities, bikeways, sidewalks, parks, sewer/water systems, communications networks, and other capital facilities.

Invasive Species: Invasive species are non-native plants or animals that are introduced far from their original range, and become more successful at competing with native species for space and resources.

Land Use: The way specific portions of land or the structures on them are used or planned for future use. Land use is typically based on local zoning guidelines and long-term land use plans. Example land uses include commercial, residential, industrial, retail, agricultural, vacant, etc.

Level of Service (LOS): A qualitative assessment of a road's operating conditions. This term refers to a standard measurement used by transportation officials that reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F.

Median: A barrier, often found on multi-lane roadways or freeways, which provides separation distance between opposing traffic movements. A median can consist of either a grass or natural setting typical of a rural cross-section, or a concrete wall or guardrail barrier that is typical of an urban setting.



Mitigation: Actions provided to avoid, minimize, or compensate the negative effects of a project.

Mobile Source Air Toxics (MSAT): Regulated by the U.S. Environmental Protection Agency (EPA), MSATs are known as "hazardous air pollutants." Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

National Ambient Air Quality Standards (NAAQS): Air quality standards set by EPA for pollutants considered harmful to public health and the environment.

National Environmental Policy Act (NEPA): Federal act passed in 1969 that requires the assessment of the social, economic, and environmental impacts that a federally-funded or federally-permitted project might cause. This includes the identification of the purpose of and need for the project, and evaluation of alternatives to minimize resulting impacts.

National Pollutant Discharge Elimination System (NPDES): The national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the Clean Water Act.

National Register of Historic Places (NRHP): The NRHP is the nation's official list of cultural resources worthy of preservation. This list was established under the National Historic Preservation Act of 1966 and is administered by the Department of the Interior.

Natural Resources Conservation Service (NRCS): The federal agency responsible for providing leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment. NRCS was formerly known as the Soil Conservation Service.

Navigable Waters of the United States: Those waters that are subject to the ebb and flow of the tide and/or are presently used or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Network: A transportation system with its many roadways and routes often showed either graphically or mathematically.

No-build Alternative: The No-build Alternative consists of making no improvements in the study area. The "no-build" alternative is always included as a benchmark against which the impacts of other alternatives can be compared.

Participating Agencies: Federal, state, tribal, regional, and local government agencies that may have an interest in the project.

Peak Hour: The 60 minute period in the AM or PM in which the largest volume of travel is generally experienced on a roadway segment (e.g., rush hour).

Preliminary Alternatives: Preliminary concepts developed at the onset of a transportation planning project. Preliminary Alternatives are typically very conceptual by nature and are intended to examine all reasonable alternatives to address the transportation needs of the study area, prior to detailed study to identify their feasibility.



Prime Farmland: The NRCS has designated prime farmland as land that has the best combination of physical and chemical characteristics for producing food, forage, fiber, and oilseed crops. The land could be crop, pasture, range, forest, or other uses, but does not include urban built up land or water bodies since these two are considered irreversible uses. It has the soil quality, growing season, and moisture supply needed to economically produce and sustain high yields when treated and managed according to modern farming methods, including water management.

Principal Arterial: Major streets or highways, many with multi-lane or freeway design, serving high-volume traffic corridor movements that connect major generators of travel.

Reasonable Alternatives: Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense. Reasonable is considered to be any alternative that meets the project's purpose & need and can feasibly be built.

Recommended Preferred Alternative: The Recommended Preferred Alternative is selected from the Reasonable Alternatives after extensive engineering, social, economic, and environmental analysis. It could include components of several Practical Alternatives in any combination found to be the most beneficial.

Record of Decision (ROD): A final environmental document published after a FEIS that identifies the selected alternative. A ROD discusses the alternatives considered and the basis of the decision as well as any mitigation measures for environmental impacts.

Resource Conservation and Recovery Act (RCRA): Passed by Congress in 1976 to provide cradle-to-grave management of hazardous waste. Regulation is enforced by EPA.

Right-of-Way (ROW): Public land reserved for locating infrastructure such as a roadway or a utility line. A road ROW includes area for any required shoulders, drainage ditches, curb, median, barriers, and fences in addition to the roadway.

Section 4(f): This is Section 4(f) of the Department of Transportation Act of 1966 as amended. Section 4(f) states that no highway project should be approved which requires the "use" of any publicly owned land from a public park, recreation area, wildlife and waterfowl refuge, or historic site unless there is no feasible or prudent alternative to the use of such land. In addition, adverse impacts to these 4(f) sites must include all possible planning to minimize harm resulting from such use. In the context of Section 4(f), "use" can be either a direct impact (taking of property), or a "constructive use," which may not actually require acquisition of land, but otherwise impairs the function of the resource through changes in access or surroundings.

Section 6(f): The Land and Water Conservation Fund Act of 1965 established funding to provide matching grant assistance to states and local governments for the planning, acquisition, and development of outdoor public recreation sites and facilities. Section 6(f) of the Act prohibits the conversion of property acquired or developed with these grants to a non-recreational purpose without the approval of the Department of Interior's National Park Service (NPS).

Section 106: Section 106 of the National Historic Preservation Act of 1966 is the main protection that archaeological, historical, and cultural resource sites have against the encroachment of federally-funded programs in the United States. Section 106 requires that the State Historic Preservation Office (SHPO) review all federal actions for any potentially adverse effect on cultural resources.



Sole Source Aquifers: Aquifer that supplies 50 percent or more of the drinking water in a given area.

State Historic Preservation Office (SHPO): The state agency having jurisdiction over protecting archaeological and above ground historic architectural resources (e.g., cultural resources).

Stopping Sight Distance: Stopping sight distance is the sum of two distances: (1) the distance traversed by a vehicle from the instant the driver sights a reason for stopping until the instant the brakes are applied; and (2) the distance needed to stop the vehicle from the instant brake application begins. These are referred to as brake reaction distance and braking distance, respectively.

Superelevation: The slope to which a roadway is banked between the inner-most lane and the outer-most lane. On freeways and other high-speed facilities, curved segments are often superelevated so traffic can safely travel through the curve at higher speeds.

Technical Memorandum: Reports detailing the processes and descriptions of various analyses such as Traffic, Noise, Natural Resources, and others which were used to prepare a Draft and/or Final Environmental Impact Statement.

Temporary Impact: Refers to impacts occurring during construction that cease to exist after construction associated with the project is completed (e.g., dust associated with construction activities).

Threatened Species: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Traffic Count: Mechanical, digital, or photographic means of quantifying the number and type of vehicles at a given location. Counts may be determined from raw base data (axle counts divided by two to give an estimation of passenger vehicles), or by more sophisticated means to quantify vehicle type (passenger, light truck, heavy truck, bus, etc.). Counts typically are performed for an identified peak period (AM - early/"rush hour" morning, PM - late/"rush hour" afternoon, or other industry-determined period) or for a 24-hour period. 24-hour counts may be adjusted for weather, seasonal, and other factors to arrive at a representative annual average daily traffic count (AADT).

Transit: Transportation mode involving buses, trains, and other vehicles that individually move larger numbers of people than do individual automobiles. Also known as mass transit, public transit, public transportation, or urban transit.

Transportation System Management (TSM): An Alternative that includes reasonable small-scale roadway improvements such as traffic signal improvements, turn restrictions, turn lanes, and short distance local road improvements. TSM does not include major construction.

Travel Demand: The counted or projected volume of traffic that is or will be utilizing a roadway in a specified time period (i.e., 24-hours, peak periods, etc.).

Underground Storage Tank Site (UST): Sites containing one or more USTs or those found to show evidence of an existing or removed tank during background research or site visits. Depending on the type, age, and condition of the UST and associated underground piping, sites of this type may present a risk for soil and/or groundwater contamination. If the UST is documented as leaking or shows visible signs of leakage at ground level, it is referred to as a Leaking Underground Storage Tank (LUST).



Unique Farmlands: The NRCS has defined unique farmlands as land other than prime farmland that is used for the production of specific high value food and fiber crops. These lands have a special combination of factors needed to economically produce sustained high quality yields of a specific crop when treated and managed according to modern farm methods. The special factors that make the land unique include soil quality, growing season, temperature, humidity, elevation, moisture supply, or other conditions such as nearness to market that favor growth of a specific crop. Moisture supply is in the form of stored moisture, precipitation, or a developed irrigation system.

United States Army Corps of Engineers (USACE): The federal agency responsible for review of all water crossings of navigable streams. USACE also serves in an advisory role on wetland impacts of Louisiana highway projects.

United States Department of Agriculture (USDA): The federal agency responsible for review of any prime and unique farmland impacts.

United States Environmental Protection Agency (EPA): A federal agency that is charged with protecting the natural resources of the country.

United States Fish and Wildlife Service (USFWS): The federal agency responsible for review of the impacts on any federally listed threatened and endangered species along with other game and non-game species. The USFWS also serves as an advisory agency for many other environmental issues including wetland and habitat impacts.

Upland: An area that is not classified as a wetland.

Vehicle Hours of Travel (VHT): This is the number of vehicle-hours spent by travelers measured on a segment of roadway for a given time.

Vehicle Miles Traveled (VMT): The total number of vehicle miles travelled within a specific geographic area over a given period of time.

Volume to Capacity (V/C) Ratio: The V/C ratio indicates the percentage of total available roadway capacity that is being used during the peak traffic period. A V/C ratio of 1.0 means that all the capacity has been used up and the facility is highly congested. This performance standard for highways varies according to location, category, and function of the highway.

Wetland: Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support plants typically adapted for life in saturated soil conditions. The term "wetland" encompasses many different types of plant communities, and is dependent on the duration and depth of inundation. These different types can include fens, bogs, wet meadows, wooded wetlands, scrub-shrub wetlands, open water wetlands, etc. A "wetland complex" describes a contiguous area composed of more than one type of wetland. An area that is not classified as a wetland is called "upland."

Wetland Delineation: The process used to determine the jurisdictional boundaries of a wetland. Wetland delineations are a function of the soils, hydrology, and vegetation observed.

Wetland Mitigation: Avoidance, minimization, and compensation for the loss of functional values associated with wetlands impacted by an activity. The most common types of compensation include wetland restoration (reestablishing some or all of the values associated with wetland where wetlands have been drained), and wetland creation (establishing new wetland) in an upland or drained area.



Wild and Scenic Rivers: The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to protect designated rivers and adjacent areas by preventing construction or modification to the area. Wild and Scenic Rivers are those rivers with free-flowing conditions approved by the Secretary of the U.S. Department of Interior being classified, designated, and administered as one of the following:

- **Wild River Areas** – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- **Scenic River Areas** – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- **Recreational River Areas** – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.