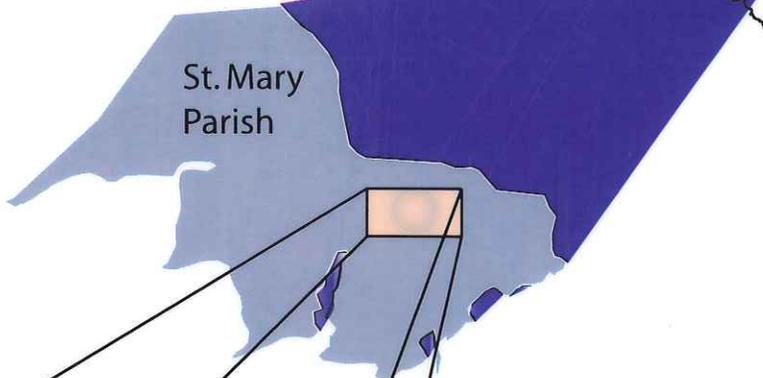


# Final Environmental Impact Statement I-49 South Route US 90



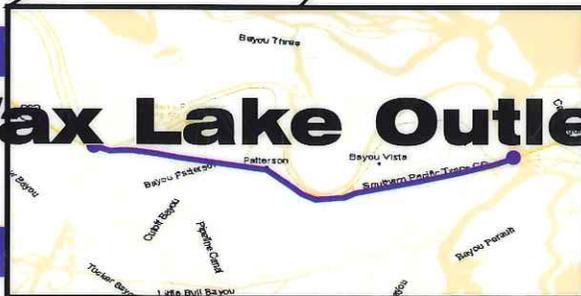
September, 2006



St. Mary Parish

Prepared For:  
The Louisiana Department of  
Transportation and Development

## Wax Lake Outlet to Berwick



Cooperating Agencies:  
U.S. Army Corps of Engineers  
U.S. Fish and Wildlife Service

FHWA-LA-EIS-06-01-D  
State Project No. 700-99-0230  
Federal Aid Project No. I-49-1(057)  
St. Mary Parish

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I-49 South  
Wax Lake Outlet to Berwick  
Route US 90  
St. Mary Parish, Louisiana

**FINAL ENVIRONMENTAL IMPACT STATEMENT**

Submitted pursuant to 42 USC 4332(2)(c), 23 CFR 711,  
and CEQ regulation (40 CFR 1500-1508)

by the

U.S. Department of Transportation  
Federal Highway Administration (FHWA)

and the

Louisiana Department of Transportation and Development (LDOTD)

Cooperating agencies:

U.S. Army Corps of Engineers, New Orleans District (USACE)  
U.S. Fish and Wildlife Service (USFWS)

9/25/06  
\_\_\_\_\_  
Date of Approval

*Noel Ardoin*  
\_\_\_\_\_  
For LDOTD

9/25/06  
\_\_\_\_\_  
Date of Approval

*[Signature]*  
\_\_\_\_\_  
For FHWA

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This Final EIS proposes the upgrade of US 90 on its existing alignment to a four-lane control of access freeway meeting interstate standards. Depending on location, frontage roads are provided utilizing either one-way or two-way frontage road systems. Also included in the project is a new two-lane crossing of Wax Lake Outlet on LA 182. Proceeding west to east, interchanges are provided with Red Cypress Road, Tiffany Street/Lipari Street, Southwest Boulevard, and Berwick South Road/Thorguson Road.

Comments on this Final EIS are due by Monday, November 27, 2006, and should be sent to Ms. Noel Ardoin at the above address.



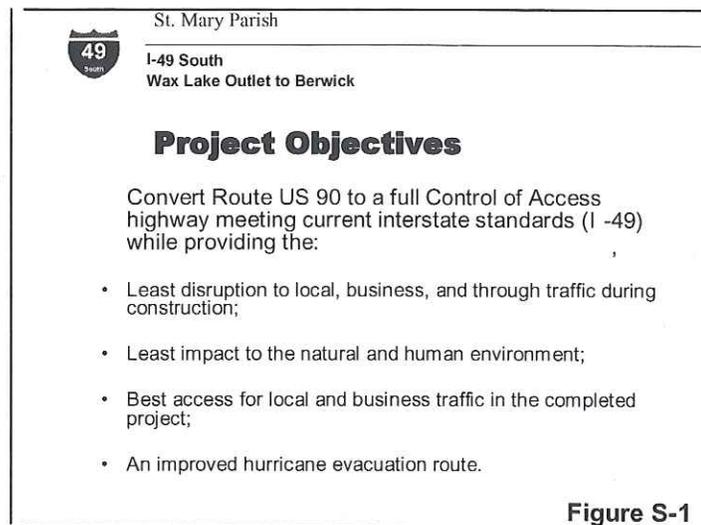




## S.0 Summary

### S.1 Description of the Proposed Action

The Louisiana Department of Transportation and Development (LDOTD), in cooperation with the Federal Highway Administration (FHWA), proposes to upgrade US 90 in St. Mary Parish to a full control of access facility meeting interstate highway design standards as a segment of Future I-49 South. The project would upgrade US 90 to a four-lane control of access highway, having ramps to frontage roads. The frontage roads would provide access to grade-separated major connecting roads and to local destinations. This roadway section would separate through traffic from slower moving local traffic. To the extent possible, project activity would take place within the existing US 90 right-of-way in conformance with the objectives stated in Figure S-1.



The proposed action that is the subject of this Final Environmental Impact Statement (FEIS), known herein as “the project,” is a segment of Future I-49 South that extends approximately from Wax Lake Outlet to the approach to the bridge over the Lower Atchafalaya River and an intersection with LA 182 in the Town of Berwick, a distance of 9.3 miles. The project also includes the upgrade of a segment of LA 182 with a crossing of Wax Lake Outlet for a distance of 1.1 miles. Exhibit S-1 provides a view of the project area. As shown in the Project Atlas, connecting roadways served by entrances and exits include:

- Red Cypress Road,
- Lipari Street/Tiffany Street,
- Southeast Boulevard, and
- Thorguson Drive/Berwick Road South.

The project limits were defined on the merits of two complementary purposes, namely to further the development of Future I-49, and to address local traffic demand and safety issues on a discrete section of US 90. As described in Section 1.2.1.2, the

project would connect two adjacent pieces of Future I-49, one extending from LA 88 to Wax Lake Outlet, the other extending from the Lower Atchafalaya River to Bayou Lafourche. The roadway between the Lower Atchafalaya River and Bayou Lafourche has already been upgraded to interstate standards. West of Wax Lake Outlet, as part of the overall upgrade of US 90 to interstate standards, a new overpass is being planned as a separate project at LA 182 Access Road West.

However, regardless of the Future I-49 initiatives, the project limits have been defined by traffic issues that are, in part, the result of local area growth, existing and future capacity concerns, conflicting cross-street movements, and a need to enhance hurricane evacuation capabilities. The localized traffic demand and safety issues, described in Sections 1.2.1.3, 1.2.3, 1.2.4 and 1.2.5 affirm the project's logical termini and demonstrate the independent utility of the project.

## **S.2 Need for the Project**

US 90 is an integral component of the federal highway network, serving as an element of the National Highway System (NHS). US 90 serves an important role by linking local and regional transportation networks. However, the portion of existing US 90 in the project area does not provide the geometry or infrastructure to adequately accommodate local and regional transportation demand in the safest manner possible, both now and in the future. Conversion of US 90 to Future I-49 as herein described in the purpose and need, Chapter 1.0, and the alternatives analysis, Chapter 2.0, would provide demonstrated benefits as follows:

- System Linkage – Via Future I-49 the State of Louisiana would continue to implement a major transportation system linkage improvement serving a substantial portion of the State's population and economy. The improvement is consistent with federal, state, and local planning efforts.
- Hurricane Evacuation - The State would upgrade a critical corridor utilized for hurricane evacuation.
- Safety – The existing US 90 corridor currently experiences safety issues consequent to intersection conflicts, high traffic volumes, and the existing geometry. This project would convert existing US 90, operating as an urban roadway, to Future I-49 operating as a control of access facility. The change in roadway geometry would reduce the potential for future accidents.

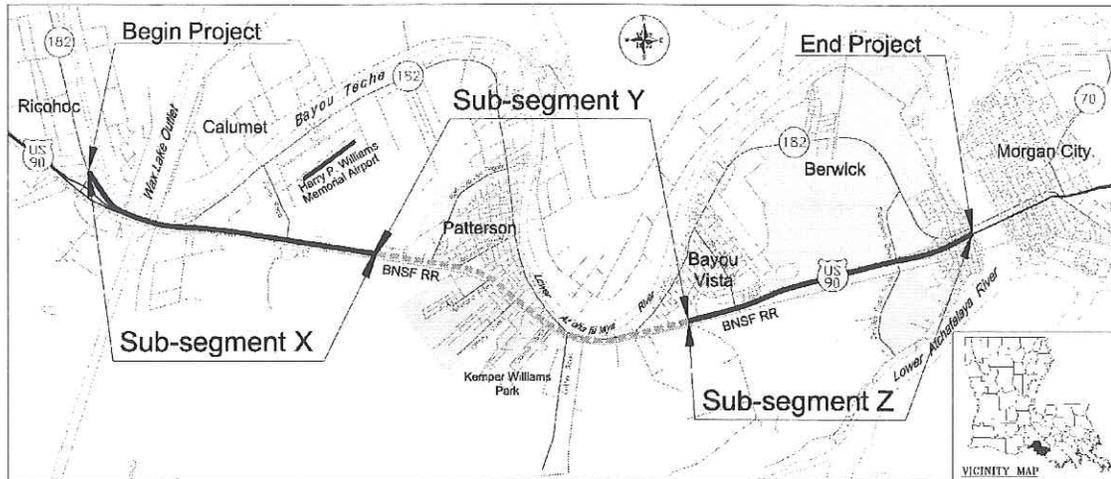
## **S.3 Analysis of Alternatives**

Several build alternates have been examined during the preparation of this FEIS, as well as the no-build alternate. This FEIS describes the conceptual engineering and environmental aspects of the alternates, and their impacts on the natural and human environments. Only the existing US 90 corridor was considered for upgrade.

For planning purposes, the project corridor was divided into three subsegments that have been designated X, Y, and Z as noted on Exhibit S-1. Subsegment X extends from the connection of LA 182 Access Road West across Wax Lake Outlet via the new bridge over Wax Lake Outlet, on to Future I-49 at the LA 182 Access Road East to a point 5,300 feet east of Zenor Road. Subsegment Y extends from the terminus of Subsegment X to a point 2400 feet west of Southeast Boulevard. Subsegment Z

extends from the terminus of Subsegment Y to the Lower Atchafalaya River Bridge Approach in Berwick.

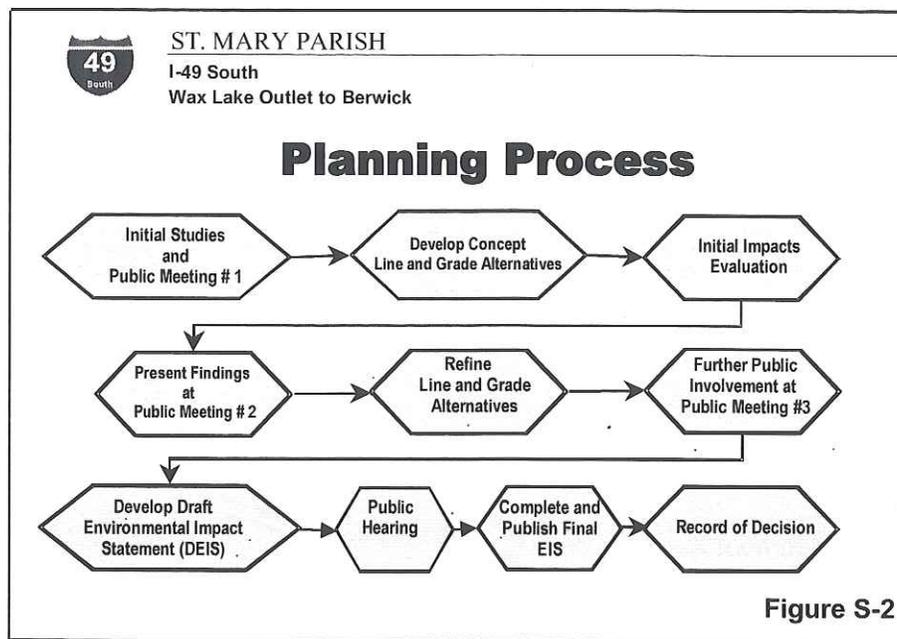
### Exhibit S-1 Project Location



The terms "segment" and "subsegment" have been utilized throughout this EIS and the public involvement process to identify discrete portions of the project corridor. Each of the three subsegments was defined by specific sets of traffic, land use, and environmental issues that distinguish one portion from another. This approach enabled the alternatives analysis to have a high degree of flexibility to focus on specific corridor issues. Alternates could be developed, refined, or eliminated in one subsegment while not affecting the same process in another subsegment. Further discussion of these terms is provided in Section 2.5. The terms segment and subsegment have no relation to the NEPA concept of "segmentation," which is the arbitrary division of a very large project into smaller component projects without regard for logical termini or independent utility.

Within a structured public participation program, the development and examination of project alternates was undertaken as part of an iterative process which:

- Identified engineering concepts, which could be applied to meet the project purpose and need.
- Developed engineering line and grade alignments in conformance with appropriate design criteria.
- Modified line and grade alternates in response to environmental constraints and public comment.



The planning process followed to undertake the Future I-49 South project is presented in Figure S-2.

The alternates developed during the planning process, including the selected alternative, are fully discussed in Chapter 2.0. The Project Atlas presents details of the selected alternative and associated environmental features. The selected alternative for the Wax Lake Outlet to Berwick corridor consists of the alternates for each Subsegment that were combined. The selected alternative includes:

- Alternate X-2
- Alternate Y-4
- Alternate Z-1

#### **S.4 Right-of-Way Acquisition**

The Project Atlas notes areas where additional right-of-way may be acquired. The entire project would include the acquisition of approximately 6.74 acres of right-of-way.

#### **S.5 Project Costs**

Costs have been developed for the entire route for construction, right-of-way acquisition and mitigation. The construction costs include the cost of at-grade roadway and roadway on structure with associated drainage improvements and utility relocations. The right-of-way acquisition costs include the cost of the land, the value of associated improvements and relocation costs. Mitigation costs include the cost of wetlands mitigation and the cost associated with the construction of noise mitigation barriers. Anticipated project costs are summarized in Table S-1.

**TABLE S-1  
COST ESTIMATES IN THOUSANDS OF 2006 DOLLARS**

	<b>X-2, Y-4, and Z-1</b>
Design	13,700
Right-of-Way Costs	400
Utility Relocations	2,000
Total Construction Costs*	275,400
Mitigation Costs	2,000
<b>TOTAL COSTS</b>	<b>293,500</b>

\* Costs include 15% contingency.

## **S.6 Project Impacts**

Chapter 4.0 presents a detailed analysis of the Environmental Consequences associated with the selected alternative. The key issues identified in Chapter 4.0 are reviewed below.

### **S.6.1 Relocation and Control of Access Impacts**

There are no residential, business, or public facility relocations associated with right-of-way (ROW) acquisition.

Control of access locations are indicated on the Project Atlas Plates, which are included as part of Chapter 2. Control of access restrictions occur throughout the project limits. (Table 2-5). No residential properties are affected. The only business occupancy affected by control of access restriction is the Wal-Mart Super Store Center located at 973 Highway 90 east, in Bayou Vista (Plate 7) resulting in the need to relocate an existing driveway. Other properties affected by control of access are currently vacant.

Compensation would be provided under the Uniform Relocation Assistance and Real Property Acquisition Policies Act and LDOTD's Acquisition of Right of Way and Relocation Assistance Policy.

### **S.6.2 Impacts to Wetlands**

The anticipated wetland impact by the selected alternative would be subject to obtaining a United States Army Corps of Engineers (USACE) Section 404 permit.

The preliminary wetland delineation performed indicates that there are potentially 18.02 acres of wetlands that would be impacted. The USACE has not verified this delineation and could determine the occurrence of more or less jurisdictional wetlands. Potential mitigation measures to offset unavoidable wetland impacts would be considered on an as needed basis during the permitting process.

**TABLE S-2  
CLASSIFICATIONS OF WETLANDS IMPACTED**

<b>Wetland Classification</b>	<b>Acres</b>	<b>Percentage</b>
Vegetated Wet Ditches *	4.37	24.3
Forested Wetlands	9.62	53.4
Scrub/Shrub Wetlands	4.03	22.4
<b>Totals</b>	<b>18.02</b>	<b>100.0</b>
Other Waters **	2.85	

\* Does not include mowed and maintained highway ditches.

\*\* Temporary impacts. No compensatory mitigation anticipated.

The selected alternative avoids wetland impacts to the greatest extent practicable. Where unavoidable, project impacts on wetlands have been minimized and are subject to Section 404 permitting including mitigation as required. As a consequence, the project is compliant with the implementing regulations of Executive Order No. 11990 which prescribe the protection and enhancement of wetlands.

### **S.6.3 Traffic Noise Impacts**

The FHWA Noise Abatement Criteria (NAC) and LDOTD Highway Traffic Noise Policy were used to analyze potential project-related noise impacts. 174 residences (including apartment units) would be impacted in the 2030 build alternate.

An evaluation of potential noise mitigation strategies was undertaken in relation to the impacted noise receptors. Noise barriers were determined to be both reasonable and feasible in the following three locations:

1. On the north side along the edge of the right-of-way between Station 182+00 and Station 189+00, there would be a barrier 12' high.
2. On the north side along the edge of the right-of-way between Station 236+00 and Station 259+00, there would be a barrier constructed in three sections to permit access from Todd and Grandwood Streets to the frontage road. The first barrier structure begins at Station 259+00 and ends at Grandwood Street near Station 253+70. For the first 100 feet and for the last 130 feet of its length, this first barrier is 10 feet in height, and for the 300 feet between these segments, it is 16 feet in height. The second barrier begins at Grandwood Street near Station 253+20 and ends at Todd Street, and the third begins across Todd Street near and ends at Station 236+00. Both of these barriers are 10 feet in height.
3. On the north side along the edge of pavement between Station 299+00 and Station 322+00, there would be a barrier constructed in two sections to accommodate an entrance ramp. The first barrier begins at Station 322+00 on an elevated portion of the mainline roadway and ends at Station 312+00, which is at grade just east of the entrance ramp from the frontage road. For the first 200 feet, it is 8 feet in height from the roadway, for the next 200 feet, it is 12 feet in height, and for the remainder of its length it is 14 feet in height. The second barrier begins at Station 314+00 and ends at Station 299+00.

#### **S.6.4 Air Quality Impacts**

The primary pollutants from motor vehicles are carbon monoxide (CO), volatile organic compounds (VOCs), and nitrogen oxides (NOx). VOCs and NOx are pollutants of regional concern that are analyzed by the regional air quality planning agency to determine conformity with the State Implementation Plan (SIP) for air quality. CO is a pollutant of concern near roadways and intersections. Traffic congestion and low operating speeds, as can occur during peak traffic periods; tend to result in elevated CO emissions. Conversely, roadway improvements that relieve traffic congestion and improve intersection operations tend to reduce CO emissions. St. Mary Parish is designated by the U.S. Environmental Protection Agency (USEPA) as an attainment area with limited maintenance under the current 1-hour standard.

##### **S.6.4.1 Transportation Conformity**

The project is located entirely within St. Mary Parish, which is in attainment of all National Ambient Air Quality Standards. Therefore, project conformity standards do not apply under either the transportation conformity or general conformity regulations as transportation conformity applies to maintenance areas. St. Mary Parish was previously designated as a Limited Maintenance Area under the 1-hour ozone standard, but this standard was revoked by USEPA on June 15, 2005.

##### **S.6.4.2 Intersection Analysis**

An analysis of the potential for localized air quality impacts due to the project was undertaken using US Environmental Protection Agency Guideline for Modeling Carbon Monoxide from Roadway Intersections.

Comparison of the modeling results for the selected alternative and the no-build alternate indicates that the selected alternative would reduce CO emissions concentrations substantially by accommodating traffic growth, improving level of service (LOS), and eliminating points of congestion. Mitigation is not required.

#### **S.6.5 Impacts to Cultural Resources**

An intensive level cultural resources survey, including architectural history and archaeology, was conducted within the Area of Potential Effect (APE) of the project. This survey adhered to the requirements and procedures set forth in 36 CFR 800, the implementing regulations of the National Historic Preservation Act of 1969, and the Archaeological Resources Code of Louisiana. Briefly, the survey involved the following tasks:

- background research,
- contact with persons knowledgeable about local historical resources,
- intensive pedestrian survey and shovel testing within the existing right-of-way, as well as proposed right-of-way acquisition areas (March and June 2001),
- architectural survey of structures greater than 50 years old within the area of potential effect (APE), and
- application of National Register nomination criteria (36 CFR Part 63) to evaluate each identified cultural property, and
- application of the criteria of adverse effect to each eligible property.

The impact assessment is discussed in Section 4.15.2. In consultation with the Louisiana State Historic Preservation Office (SHPO), the project APE for the purpose of standing structures was determined to be one eighth of a mile in width centered on the Future I-49 South centerline. The project APE for the purpose of archaeology was determined to be the project right-of-way.

A total of 33 buildings and one structure greater than 50 years old were identified within the APE. One of these, the Idlewild Plantation House, is currently listed on the National Register of Historic Places (NRHP). The eligibility of site 16SMY84 is undetermined per SHPO's letter dated March 22, 2004. Site 16SMY86 is eligible for NRHP listing.

The SHPO in a letter dated May 4, 2005, concurred with the FHWA's Finding of No Adverse Affect on the Idlewild Plantation House. The archaeological sites are outside the currently proposed right-of-way of the project. Unless the right-of-way is relocated to include these sites, the project will have no affect on these sites.

#### **S.6.6 Threatened and Endangered Species**

The Endangered Species Act of 1973 protects federally listed threatened and endangered species (16 USC 1531 et seq.). Any act that could jeopardize the continued existence or adversely modify the habitat of any federally listed species, requires review and consultation with the appropriate Federal and State resource agencies under Sec. 1536, Interagency Cooperation.

The U.S. Fish & Wildlife Service (USFWS) was contacted regarding the project study area. They reviewed the project area and commented via letter in accordance with the Endangered Species Act (16 USC 1531 et seq). Consultation with the USFWS, and discussions with the Natural Heritage Program (NHP) of the Louisiana Department Wildlife and Fisheries (LDWF), identified the bald eagle (*Haliaeetus leucocephalus*) and the Louisiana black bear (*Ursus americanus luteolus*) as threatened species known to occur in the region surrounding the project area.

A bald eagle nest was identified in an area adjacent to the project study area. However, because of noise levels currently associated with US 90 and the surrounding area and because of the distance of the nest from the right-of-way, the proposed project would not affect the bald eagle nest adversely. Should the proposed project encroach within 3,000 feet of any active bald eagle nest during the nesting season, further consultation with the USFWS would be necessary.

The USFWS has identified northern and southern populations of Louisiana black bears in the Atchafalaya River Basin that are geographically separated by the existing US 90, urban development, and agricultural areas in St. Mary Parish.

The USFWS issued a Biological Opinion on October 19, 2004. The Biological Opinion determined that the project as proposed is not likely to result in jeopardy of the species or adverse modification of proposed critical habitat.

## **S.7 Summary of Permits, Mitigation, and Commitments**

### **S.7.1 Permits and Approvals**

#### **S.7.1.1 Federal Permit Requirements**

The USACE, New Orleans District issues permits under the Authority of 33 USC 403, Section 10, and 33 USC 1344, Section 404. If the USACE takes jurisdiction over any or all of the wetlands within the project study area, permits and certifications would be required for unavoidable impacts to the wetlands. Specifically, any dredge or fill activity that would impact jurisdictional wetlands, directly or indirectly, would require a Section 404 permit from the USACE. A permit under Section 10 of the Rivers and Harbors Act of 1899 would be required to regulate the placement of structures in Waters of the United States, and any work that alters navigable waters. In this project, construction of a new crossing of the Wax Lake Outlet would require a Section 10 permit.

Under 33 CFR 114, the US Coast Guard is invested with the authority to review, approve, and permit the construction of bridges over the navigable waters of the United States. A US Coast Guard Bridge permit would be required regarding the construction of a new bridge over Wax Lake Outlet, as proposed in the selected alternative. Both the profile and the pier placement associated with the new bridge match the existing US 90 spans. Consequently, no changes are anticipated in the horizontal or vertical navigation clearances (See Exhibit 4-2 Bridge Plan Profile).

#### **S.7.1.2 State of Louisiana Department of Environmental Quality**

Commensurate with the USACE permitting, a Water Quality Certification will be required under the authority contained in the Louisiana Revised Statutes of 1950, Title 30, Chapter 11, Part IV, Section 2074 A(3) and provisions of Section 401 of the Clean Water Act (PL 95 217).

#### **S.7.1.3 State of Louisiana, Louisiana Department of Natural Resources, Coastal Management Division**

The selected alternative would require a Coastal Use Permit (CUP) pursuant to the State and Local Coastal Resources Management Act (SLCRMA) of 1978, Act 261 of 1978 as amended, R.S. 49:214.21 – 214.40. The regulated portion of the selected alternative is located south of the eastbound US 90 travel lanes. Impacts include earth movement activities and wetlands disturbance to construct the roadway.

#### **S.7.1.4 Parish of St. Mary**

Regarding floodplain impacts, a letter of "No Objection" will be requested for the proposed project under the authority of Parish Ordinances.

## **S.7.2 Mitigation Measures and Commitments**

### **S.7.2.1 Community Disruption**

#### **S.7.2.1.1 Wax Lake Outlet Crossing**

Farmers indicated an ongoing requirement to move “slow-moving” farm equipment from one side of Wax Lake Outlet to the other.

If the existing US 90/LA 182 bridge crossing of Wax Lake Outlet is designated for use as part of Future I-49, farmers would be prohibited from using that route to move their equipment, except by permit.

Based on this concern, the project limit on the west was extended to include a new bridge crossing over Wax Lake Outlet to the current connection of LA 182 Access Road West and US 90. Future I-49 would use the existing Wax Lake Outlet crossing and LA 182 would be re-routed across the proposed Wax Lake Outlet bridge.

#### **S.7.2.1.2 Access to Industrial Plants located south of the BNSF Railroad**

Operators of the gas plants located to the south of the BNSF Railroad expressed concern regarding the access/egress provided by initial plans as presented in Alternate X-1. The operators documented their need to maintain for safety purposes the existing access/egress flow characteristics to/from the gas plants located south of Zenor Road.

The Alternate X-2 geometry, which is part of the selected alternative, was developed in response to these concerns. The selected alternative maintains the current access/egress flow characteristics to the plants.

#### **S.7.2.1.3 Clearance Under the Mainline Future I-49 Structure at LA 182 Access Road East**

At the June 2001 Public Meeting a concern was expressed relating to the proposed vertical clearance associated with the mainline Future I-49 structure, which passes over the LA 182 Access Road East. The proposed vertical clearance was 16.5'. Farmers requested that the clearance be raised to 18' so that their farm equipment could pass unimpeded under the mainline roadway.

In response to this request, the LDOTD established a 17' vertical clearance over LA 182 Access Road East for the mainline structure. The Department further agreed to provide a bypass route under the mainline structure with a clearance of 18' to accommodate the movement of farm equipment. Exhibit 2-4 in Chapter 2 depicts the proposed bypass.

#### **S.7.2.1.4 Access Throughout Patterson and Bayou Vista**

Patterson is principally a residential community, which already experiences traffic circulation problems associated with local roadway crossings of the BNSF Railroad. There are also commercial areas along US 90, which must be served. North/south traffic circulation may be further affected by the conversion of US 90 to Future I-49.

Actions taken as part of the selected alternative to mitigate potential community disruption impact include:

- Elevation of the Future I-49 mainline roadway – The mainline of Future I-49 is elevated throughout Patterson to allow for a continuous connection between local north/south roadways. The length of the mainline structure was extended during the planning process in response to local concerns.
- Boulevard roadway in the vicinity of the Idlewild area – In the Idlewild area, the alignment of the elevated mainline roadway is shifted to the southern edge of the existing right-of-way. The frontage road in both directions shifts to the northern edge of the right-of-way and incorporates LA 182 as the westbound frontage road. This shift in alignment creates a separation between the mainline structure and the developed areas and creates an urban boulevard in scale with adjacent properties.

#### **S.7.2.1.5 Access Between the Town of Berwick and the Bayou Vista Community**

Chapter 2.0 identifies two alternates for considered in Subsegment Z, which would connect the Town of Berwick with the Bayou Vista community. These alternates were modified throughout the planning process to address community access concerns. The selected alternative, Z-1, provides auxiliary travel lanes in each direction on the Future I-49 mainline between Bayou Vista and Berwick. This auxiliary lane allows trips between Berwick and Bayou Vista to be accomplished without requiring that vehicles enter onto the mainline traffic stream (Exhibit 2-9).

#### **S.7.2.2 Noise**

Noise barriers were found to be reasonable and feasible to mitigate noise impacts of the selected alternative at the following locations:

- 3N-North right-of-way,
- 4N right-of-way, and
- 7N North edge-of-pavement.

#### **S.7.2.3 Water Quality, Surface Waters**

Wherever possible, the project would utilize a rural roadway section with swale drainage for at-grade roadways. This design would enable storm water runoff to flow through vegetated areas prior to discharge to surface waters. Use of this design would enable waterborne contaminants to be filtered from the runoff prior to discharge. The vegetated areas would slow the rate of runoff flow, thereby minimizing the effects of erosion.

#### **S.7.2.4 Wetlands**

Total wetland impacts by the selected alternative would be 18.02 acres. Potential mitigation measures to offset unavoidable wetland impacts will be considered on an as needed basis in the permitting process. The potential mitigation measures include restoration, creation, or purchase of replacement wetlands through an approved mitigation bank. The United States Army Corps of Engineers (USACE) will make the final determination on jurisdiction. To avoid impacts to navigation, the proposed crossing of Wax Lake Outlet would be supported by piers that are in line with those of the adjacent existing crossings of US 90 that would become the mainline of I-49.

### **S.7.2.5 Threatened and Endangered Species**

Regarding bald eagles, should the proposed project encroach within 3,000 feet of any active bald eagle nest during the nesting season, further consultation with the USFWS would be necessary.

Regarding potential impacts to the Louisiana black bear, FHWA and LDOTD will implement the following non-discretionary Terms and Conditions of the Biological Opinion:

1. Install at least six bear crossing signs (three in each direction) on the facility immediately following the completion of construction.
2. Exhibit a graphic display advising and educating motorists of the presence of Louisiana black bears and the potential for collision for at least one month (November) each year for at least the first five years following the completion of the facility.
3. Consider, in consultation with USFWS, during the design phase of the project, the installation of fences and reducing posted speed limits for at-grade portions of the facility.
4. Contact the USFWS Lafayette Field Office at least once per year following the completion of the facility to obtain information about bear mortality rates due to collisions. This bear mortality monitoring will occur for at least nineteen years after the completion of the project.
5. Consult USFWS to evaluate habitat restoration efforts and determine the need and potential for additional bear conservation measures before initiating the design phase of the project.

Further regarding the Louisiana black bear, FHWA and LDOTD will consider the following discretionary Conservation Recommendations in consultation with USFWS:

1. The installation of large mammal/bear crossings where there is the probability of the persistence of suitable bear habitat and landowner and public acceptance.
2. If crossings are installed, fences directing bear movements to the crossings should be installed.
3. Replace suitable bear habitat lost by direct project impact at a ratio of restored to lost acreage of not less than 1 to 1.

Finally, FHWA and LDOTD will undertake public involvement during the design phase regarding bear crossings.

### **S.7.2.6 Geology, Topography and Soils**

Cut and fill operations would be minimized to meet grade and level requirements set forth by FHWA and LDOTD. Best Management Practices including temporary control measures, permanent control measures, and low-impact land use practices would be utilized during design and construction to prevent future soil erosion.

### **S.7.2.7 Hazardous Waste Sites**

Two sites were identified for further review:

Circle K Store # 870 – This site has been completely cleared of all buildings and structures. The records indicate that the Underground Storage Tanks (USTs) were removed in 1996. BTEX contamination was found in the groundwater and an active remediation effort persists at the site. As conditions relating to hazards contamination mitigate over time, a further review of the site conditions is recommended prior to roadway design and construction.

The Patterson Bait Shop - A field investigation indicated the apparent removal of USTs at the site. As the records search could not verify the regulatory status of the removal, further review of records is recommended prior to design and construction.

Finally, the LDOTD policies and procedures relating to hazards mitigation will be followed throughout the implementation of the selected alternative.

#### **S.7.2.8 Aesthetics**

Landscaping would be included where feasible in accord with LDOTD design standards contingent upon a local entity assuming responsibility for maintenance.

#### **S.7.2.9 Cultural Resources**

If the currently proposed right-of-way is relocated, and

- If it includes Site 16SMY84, additional investigation to determine the nature and extent of cultural remains should be undertaken, and
- If it includes 16SMY86, Locus I, archaeological data recovery must be undertaken.

During construction, if cultural remains are discovered, work must cease at that location pending consultation with the SHPO.

Mitigation for unavoidable adverse effects to cultural resources would be identified in a Memorandum of Agreement between the LDOTD, the FHWA, the SHPO, and the Advisory Council on Historic Preservation.

#### **S.7.2.10 Impacts to Transportation Patterns**

##### **S.7.2.10.1 Vehicular Access to Businesses and Residences**

Properties impacted by control of access will be compensated in accord with LDOTD policies and procedures.

##### **S.7.2.10.2 Bicycle and Pedestrian Facilities**

The development of a joint use bicycle and pedestrian path meeting ADA standards from Main Street (LA 182) in Patterson to Kemper Williams Park would be constructed contingent upon a local entity assuming responsibility to compensate the BNSF Railroad for annual maintenance costs and to exempt the railroad from liability associated with the crossing. (see Exhibits 4-3A and 4-3B).

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## **S.7.2.11 Construction Impacts**

### **S.7.2.11.1 Traffic and Circulation Impacts**

Construction sequence, traffic maintenance criteria, and plans will be developed as part of final design to coordinate construction activities and ensure continued access to all properties. Needs for special considerations will be identified and addressed. If mitigation measures are warranted regarding traffic and circulation impacts they will be included in the construction plans and specifications.

### **S.7.2.11.2 Air Quality**

To mitigate the minor, short-term impacts anticipated during construction, standard erosion control strategies as described in the Louisiana Standard Specifications for Roads and Bridges will be followed to minimize airborne particulate matter. Any burning of material would be undertaken according to local laws and ordinances. Traffic control plans may be developed to limit localized concentrations of emissions during construction.

### **S.7.2.11.3 Noise**

Construction equipment that is operated with internal combustion engines will be properly muffled to minimize noise production. Shielding of stationary noise sources such as generators with temporary barriers will occur. As appropriate, construction noise abatement measures referenced in Section 107.15 of the Louisiana Standard Specifications for Roads and Bridges, and the FHWA Technical Advisory T 6160 2, dated March 13, 1984, will be utilized.

### **S.7.2.11.4 Utilities**

Specific relocation plans will be developed during the final design phase of the selected alternative and will be completed prior to construction of the improvements. Responsibility will be determined by LDOTD policies and procedures.

### **S.7.2.11.5 Navigation**

The closures of the Wax Lake Outlet channel would be coordinated with the USCG and disclosed in the permit processes with the USCG and the USACE during final design and incorporated in the construction documents.

### **S.7.2.12 Cumulative Impacts**

The area south of the ROW is habitat of the coastal Louisiana black bear sub-population, and in Subsegments X and Y of this project, the ROW is the northern boundary of the sub-population habitat. To minimize potential cumulative impacts to black bear habitat, the LDOTD will consider the discretionary Conservation Recommendations of Section 7 consultation presented in Section S.7.2.5.

## **S.8 Public Comment**

The Notice of Availability of the DEIS was published in the *Federal Register* on April 7, 2006. Following this, a comment period extended until May 31, 2006. During the comment period, a public hearing was held on May 2, 2006, to give the public an opportunity to comment on the proposed alternatives as described in the DEIS. Written comments and every comment made on the record at the hearing have been considered and addressed. These comments and responses are found in Chapter 5 of this FEIS.

At the conclusion of the planning process, the Federal Highway Administration may issue a Record of Decision on the FEIS. The Record of Decision would allow the LDOTD to continue to be eligible for Federal funding assistance and to proceed with the engineering and construction of this segment of I-49 South.

## **S.9 Report Organization**

This Final Environmental Impact Statement is organized as follows:

- **Chapter 1.0** documents the purpose and need for the selected alternative.
- **Chapter 2.0** presents an analysis of the alternatives considered in the development of the selected alternative.
- **Chapter 3.0** presents an inventory of the existing natural and human environmental conditions in the area of the project.
- **Chapter 4.0** presents a detailed analysis of the environmental consequences associated with the selected alternative.
- **Chapter 5.0** documents the coordination efforts undertaken as part of the planning for the selected alternative.
- **Chapter 6.0** presents a listing of the preparers of the document.
- **Chapter 7.0** presents the Implementation Plan for the project.

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## **1.0 Purpose and Need for the Proposed Action**

### **1.1 Description of the Proposed Action**

The Louisiana Department of Transportation and Development (LDOTD), in cooperation with the Federal Highway Administration (FHWA), proposes to upgrade US 90 in St. Mary Parish to a full control of access facility meeting interstate highway design standards as a segment of Future I-49 South. The project would upgrade US 90 to a four-lane control of access highway, having ramps to frontage roads. The frontage roads would provide access to grade-separated major connecting roads and to local destinations. This roadway section would separate through traffic from slower moving local traffic. To the extent possible, project activity would take place within the existing US 90 right-of-way.

The development of Future I-49 is a multi-state effort to provide a continuous interstate highway corridor between New Orleans, the central United States, and central Canada. Future I-49 South would connect the interchange of Future I-49 and I-10 in Lafayette, Louisiana, with I-10 in New Orleans, Louisiana, by upgrading the existing US 90 corridor. The distance from I-10 in Lafayette to the Westbank Expressway in Jefferson Parish is 140 miles. From that point to I-10 in New Orleans, the US 90 corridor is completed to interstate standards. Exhibit 1-1 locates Future I-49 South and its various segments within the interstate highway system in Louisiana. Existing US 90/Future I-49 South is, and would continue to be, maintained and operated by the LDOTD.

The proposed action that is the subject of this Final Environmental Impact Statement (FEIS), known herein as “the project,” is a segment of Future I-49 South that extends approximately from Wax Lake Outlet to the approach to the bridge over the Lower Atchafalaya River and an intersection with LA 182 in the Town of Berwick, a distance of 9.3 miles (Exhibit 1-2). The project also includes the upgrade of a segment of LA 182 with a crossing of Wax Lake Outlet for a distance of 1.1 miles.

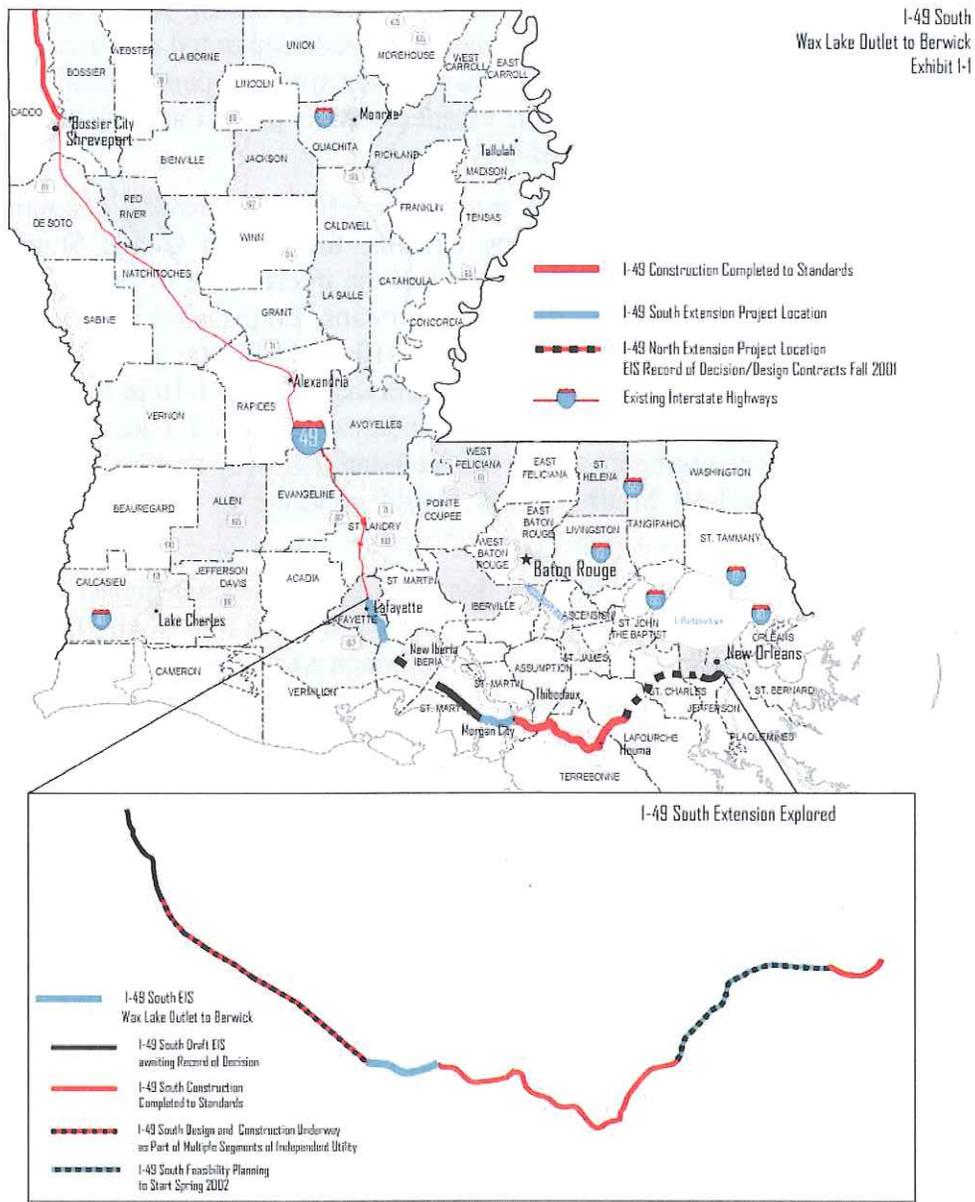
Several build alternates were examined during the preparation of this FEIS, as well as the no-build alternate. The alternates are fully discussed in Chapter 2.0, which also includes a Project Atlas. The Project Atlas presents details of the selected alternative and associated environmental features. This FEIS describes the conceptual engineering and environmental aspects of the selected alternative, and its impacts on the natural and human environments.

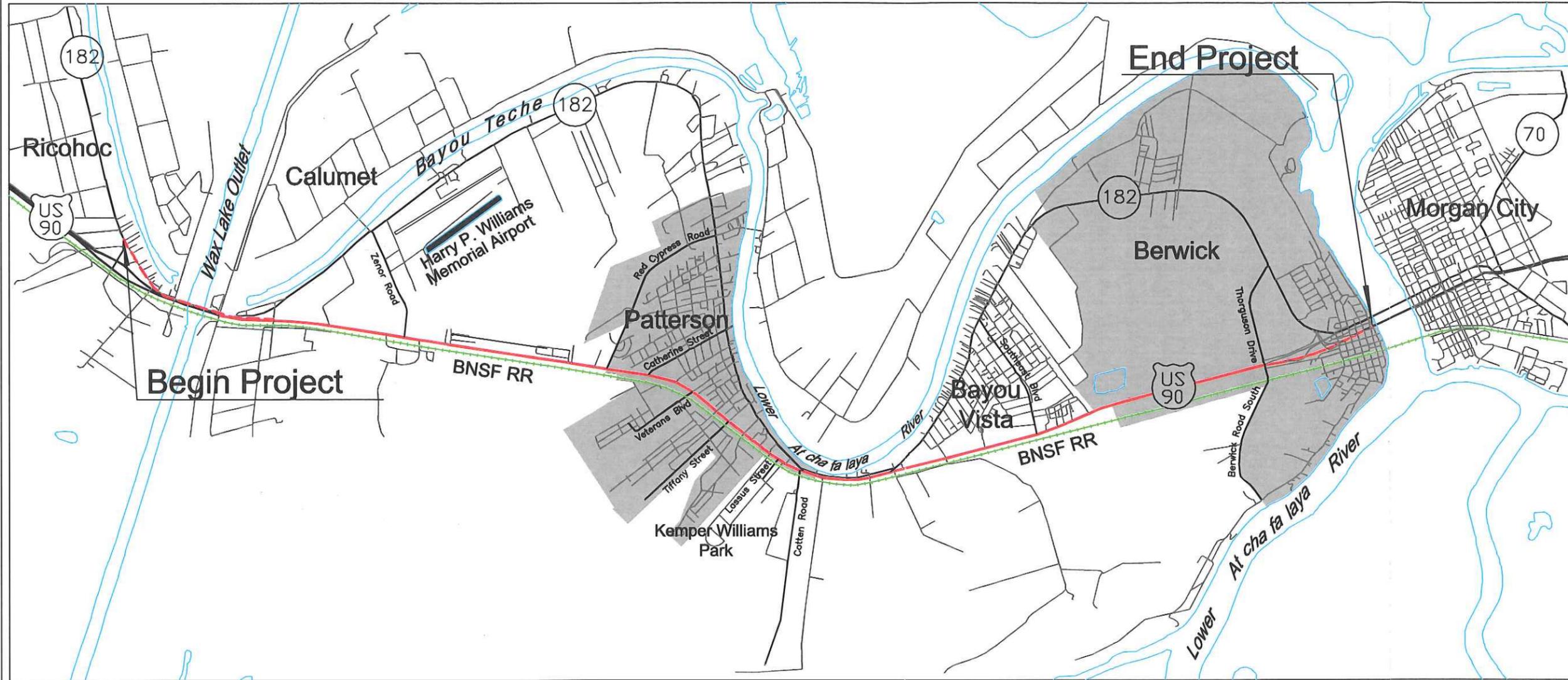
The project limits were defined on the merits of two complementary purposes, namely to further the development of Future I-49, and to address local traffic demand and safety issues on a discrete and rapidly growing suburban section of US 90. As described in Section 1.2.1.2, the project would connect two adjacent pieces of Future I-49, one extending from LA 88 to Wax Lake Outlet, the other extending from the Lower Atchafalaya River to Bayou Lafourche. The former is currently under construction, while the latter has already been completed.

However, regardless of the Future I-49 initiatives, the project limits have been defined by traffic issues that are, in part, the result of local area growth: existing and future capacity concerns, conflicting cross-street movements, and a need to enhance

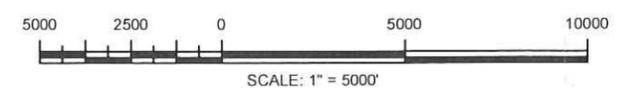
hurricane evacuation capabilities. The localized traffic demand and safety issues, described in Sections 1.2.1.3, 1.2.3, 1.2.4 and 1.2.5 affirm the project's logical termini and demonstrate the independent utility of the project.

**EXHIBIT 1-1**





LEGEND			
	US ROUTE		INCORPORATED AREA
	STATE ROUTE		BNSF RAILROAD
	LOCAL ROAD		LA 182 IMPROVEMENT
			US 90 / I-49 IMPROVEMENT



I-49 SOUTH  
WAX LAKE OUTLET  
TO BERWICK  
**EXHIBIT 1-2**  
PROJECT LOCATION MAP

ENVIRONMENTAL IMPACT STATEMENT  
I-49 SOUTH  
WAX LAKE OUTLET TO BERWICK

## 1.2 Need for the Project

US 90 is an integral component of the federal highway network, serving as an element of the National Highway System (NHS). US 90 serves an important role by linking local and regional transportation networks. However, the portion of existing US 90 in the project area does not provide the geometry or infrastructure to adequately accommodate local and regional transportation demand in the safest manner possible, both now and in the future. Thus, the purpose of the proposed project is to upgrade this highway segment to increase capacity, and to improve safety and efficiency during normal operations as well as during a coastal evacuation event.

### 1.2.1 System Linkage

Upgrading the highway to interstate status would be compatible with national, regional, and local plans for system linkage to increase capacity, and to improve safety and efficiency during normal operations as well as during a coastal evacuation event.

#### 1.2.1.1 National Plans

The Federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) established the NHS, naming 21 corridors including Future I-49. The National Highway System Designation Act of 1995 refined this list by identifying High Priority Corridors (HPC). Future I-49 is known as HPC 37; however, Future I-49 is

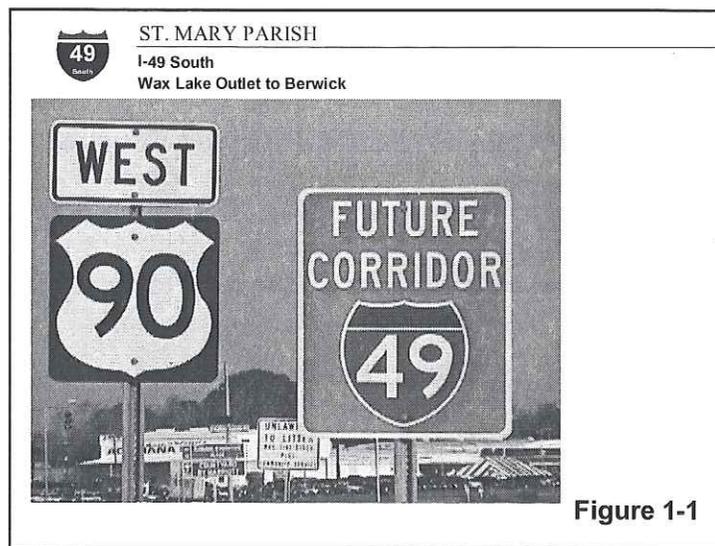


Figure 1-1

ranked first among HPC's as the most important planned corridor in the NHS. Future I-49 would provide a transcontinental highway linking the coastal ports of Louisiana to the entire central United States and central Canada. Future I-49 would augment the Interstate system serving the Midwestern and central states, promoting both trade and tourism, and in Louisiana Future I-49 South would relieve

congestion on I-10 between Lafayette and New Orleans. This would result in the improvement of access throughout the southern area of Louisiana.

Federal highway legislation, passed by the U.S. Congress in 1998, contained in the Transportation Equity Act for the 21st Century (TEA-21), which designated the route of US 90 between Lafayette and New Orleans as "Future I-49." This designation was provided under a stipulated written agreement between the State of Louisiana and the Secretary of the US Department of Transportation, with the understanding that the route would be improved to interstate standards within 12 years of the date of the

agreement. Signs identifying US 90 and the route for "Future I-49" were installed shortly thereafter, in 1998.

Finally, improving the capacity and operation of US 90 is also important to national security. The Future I-49 project would enhance access from the west to several active-duty and National Guard facilities in the New Orleans region, including the Belle Chasse Naval Air Station, which are in close proximity to the eastern terminus of the corridor.

### 1.2.1.2 State Transportation Plans

Future I-49 has widespread support throughout Louisiana. Governor Kathleen Blanco, former Governor M. J. "Mike" Foster, the DOTD, the I-49 South Task Force, the I-49 Congressional Caucus, and local government officials have pledged support and funding to construct "Future I-49" from Lafayette to New Orleans over a 10-year period. The lead state agency is the Louisiana Department of Transportation and Development (LDOTD). To further the effort to meet the deadline for completion of the project, the Governor appointed the I-49 Regional Task Force. Their report, *The I-49 Regional Task Force Report* (LDOTD, 1998) succinctly defines the following justifications for Future I-49 South:

- "The area of Louisiana south of Lafayette to New Orleans has sustained the greatest economic growth in the state within the most recent 25 years;
- "An improved transportation system would stimulate tourism development and additional economic growth for the area;
- "The Louisiana Offshore Oil Platform (LOOP) and other oil-related and marine industries would be more accessible;
- "A more suitable hurricane evacuation route for the coastal regions of Louisiana would be provided;
- [Statistics show that] "US 90 from Lafayette to New Orleans is one of the most dangerous highways to travel on in the State of Louisiana; and
- [Future I-49 would] "increase the accessibility to five major ports in the Louisiana port system, which is one of the largest port systems in the world."

Other interested parties, including state legislators and local elected officials representing jurisdictions served by US 90 and I-10, Metropolitan Planning Organizations (MPO) in Lafayette, Houma, and New Orleans, and the private sector, have come together in the I-49 Coalition to promote the project.

Planning and construction activities are under way for other segments of Future I-49, including other Environmental Studies for:

- The section of Future I-49 between I-220 in Shreveport and the Arkansas state line that has received environmental approval. Engineering and right-of-way acquisition has been undertaken for this section;
- The Evangeline Thruway Corridor in Lafayette (US 167 and US 90) from I-10 to Kaliste Saloom Road, customarily referred to as the Connector has received an environmental approval;
- The Evangeline Thruway Corridor (US 90) in Lafayette, St. Martin, and Iberia Parishes that continues southward from the previous section of Future I-49 also has received an environmental approval;

- Several grade-separations over connecting roadways along the US 90 between LA 88 and Wax Lake Outlet are under environmental study. Construction is ongoing for these grade separations as each receives environmental approval. One of these is an overpass located at the LA 182 Access Road West in Ricohoc; and
- Planning and environmental analyses have been initiated for the portion of Future I-49 South between Bayou Lafourche and the West Bank Expressway.

In July 1999, a 43-mile segment of Future I-49 was opened between Berwick and Bayou Lafourche. The segment that is the subject of this report is immediately west of this completed segment.

Extending Future I-49, according to federal legislation, would greatly increase efficiency in the movement of goods and services at the state level, thereby serving as an economic catalyst for southern Louisiana and the state as a whole. Future I-49 South also is considered vital to alleviating congestion on I-10 between Lafayette and New Orleans.

The project is presently included in the state's master plan for economic development, "Louisiana: Vision 2020" *Application for Fiscal Year 2001 Discretionary Funds Under the National Corridor Planning and Development Program*, LDOTD 2000, and is considered vital to enhancing Louisiana's position in the domestic and international marketplaces, supporting the offshore oil and gas industry in the Gulf of Mexico, and increasing hurricane evacuation capabilities in the south central and southeast regions of the state.

US 90 is a designated State Highway of Significance (SHS) in the *Statewide Intermodal Transportation Plan* (LDOTD, 1995). The project embodies the following goals of the *Statewide Intermodal Transportation Plan* (in italics):

- *To develop and maintain an innovative, balanced, equitable, integrated system of transportation facilities and services.* Future I-49 is intended to be part of a network of interstate, state, and local highways that serve Louisiana and the southern region of the country. Locally, the project focus is on connectivity between localized and regional travel routes and needs.
- *To provide essential passenger-transportation services at reasonable public expense that meet the diverse needs of the people of Louisiana regardless of their geographic location, physical condition, or economic status.* The project has been examined from many engineering and environmental aspects, including cost to ensure reasonable public expenditure while meeting the project purpose and need.
- *To provide a transportation system that fosters diverse economic and job growth, international and domestic commerce, and tourism through prudent investment in facilities and services that improve mobility and access.* The LDOTD recognizes a need to improve vehicular mobility across south-central Louisiana and to provide relief to the congestion on I-10 between Lafayette and New Orleans. Future I-49 South is intended to provide the interstate connectivity required to foster local and regional economic growth and improve mobility.
- *To improve safety in all transportation modes through timely maintenance of existing infrastructure, development of new infrastructure, enhancement of operational controls of both passenger and freight movements, and through*

*expanded public education and awareness.* An element of the project purpose and need is enhanced safety.

- *To develop an efficient transportation system that limits air, water, and noise pollution to acceptable levels as defined by regulatory standards, reduces dependency on foreign energy sources, preserves historic, cultural, and environmentally sensitive sites, and promotes the natural beauty of the state.* As this FEIS is intended to demonstrate, the project would be implemented so as to avoid adverse environmental impacts wherever possible, and minimize those impacts that cannot be avoided.

### **1.2.1.3 Local Plans**

US 90 currently serves as a local travel corridor and has direct connections to the local roadway network. Residents, businesses, schools, and public services rely on US 90 for access. Upgrading US 90 to interstate status necessitates accommodating local access needs. The frontage roads are proposed to serve this purpose.

Businesses serving the oil industry, especially those involved in the building and maintenance of service vessels, are an important sector in the local economy. These businesses require good highway access and generate frequent trips. The US 90 corridor is projected to continue to be an attractive location for this important sector of the regional economy. It provides both available land for development and the best access currently available. However, the success of this sector in the corridor contributes to the need for additional roadway capacity.

The selected alternative would not support the Town of Berwick plan to develop the western area of the town on the north side of the right-of-way as there would be no frontage road on the north side of the right-of-way. However, the selected alternative would not prohibit future construction of a frontage road. The DOTD would commit to constructing the frontage road contingent on:

- The property abutting the right-of-way on the north receiving development rights from the Town and the regulatory agencies;
- The property owners demonstrating the commitment for the development to occur; and
- The frontage road receiving environmental approval from FHWA.

### **1.2.2 Economic Development**

The conversion of US 90 to interstate status is expected to enhance the economy of Louisiana by improving accessibility into, and mobility through, the southern part of the state between Lafayette and New Orleans along both the Future I-49 and I-10 corridors. This is the single most important benefit to the regional economy. As documented in the *I-49 Task Force Report*, the combined Future I-49 and I-10 corridors have the following characteristics:

- 15 water ports (5 deep draft ports, 10 shallow draft ports);
- Nine airports all having fixed base operations, including three with scheduled commercial flights;

The US 90/Future I-49 corridor alone includes the following economic resources:

- Over 36% of the population of Louisiana is served by US 90/Future I-49 South;

- The most important industrial corridor (both in labor and in capital investment) in Louisiana;
- One of the top ten industrial corridors in terms of jobs per capita in the U.S.;
- More navigable water miles than any other region of its size in the U.S.;
- The unique heritage and traditions of Acadiana; and,
- A prime natural resource base for tourism, including some of the finest hunting, fishing, and water recreation to be found anywhere.

Ports and maritime industries are among the state's most important economic engines given Louisiana's geographic location at the Mississippi River delta on the Gulf of Mexico. The Louisiana port system serves as a major gateway to Louisiana and the central area of the United States. The improved system of Future I-49 and I-10 would improve these ports, as well as the other Louisiana port facilities, and serve international cargo movements. The improvement of Future I-49 and I-10 would also create a large economic opportunity in ship servicing, which attracts warehousing and manufacturing activities that use the ports as conduits to acquire raw materials and export finished products. Exhibit 1-3 shows the location of Louisiana water ports in relationship to US 90/Future I-49 and I-10. Table 1-1 tabulates the tonnage throughput of the top 10 US ports. Four of the ports are served by the I-10/Future I-49 corridors.

**TABLE 1-1  
TONNAGE OF TOP 10 U.S. WATER PORTS,  
RANKED BY TOTAL TONS (MILLIONS)**

	1999		1990		% change 1990-99
	Rank	Total tons	Rank	Total tons	
<b>South Louisiana, LA</b>	<b>1</b>	<b>214.2</b>	<b>1</b>	<b>194.2</b>	<b>10.3</b>
Houston, TX	2	158.8	3	126.2	25.9
New York, NY and NJ	3	133.7	2	140.0	-4.5
<b>New Orleans, LA</b>	<b>4</b>	<b>87.5</b>	<b>6</b>	<b>62.7</b>	<b>39.5</b>
Corpus Christi, TX	5	78.1	7	62.0	25.9
Beaumont, TX	6	69.5	23	26.7	160.0
<b>Baton Rouge, LA</b>	<b>7</b>	<b>63.7</b>	<b>5</b>	<b>78.1</b>	<b>-18.5</b>
<b>Plaquemine, LA</b>	<b>8</b>	<b>62.4</b>	<b>8</b>	<b>56.6</b>	<b>10.3</b>
Long Beach, CA	9	60.9	10	52.4	16.2
Valdez, AK	10	53.4	4	96.0	-44.3

Sources:

1990: USACE, *Waterborne Commerce of the United States, Calendar Year 1990, Part 5, National Summaries* (New Orleans, LA :1993), table 5-2 1999: USACE, *Waterborne Commerce of the United States, Calendar Year 1998, Part 5, National Summaries* (New Orleans, LA :2000), tables 1-1 and 5-2.

Many of the shipments within, to, from, and through Louisiana are associated with national and international trade via Louisiana water ports and related shipping industries. While important to Louisiana's economy, these industries contribute significantly to the national economy. Nearly half of the total value of truck shipments utilizing Louisiana's roadways consisted of shipments passing through

Louisiana to other states and/or countries. Improvements to Future I-49 would have a positive effect on the shipping industry at local, state, regional, and national levels. (*Highway Statistics, FHWA, 1993, 1998*).

**TABLE 1-2  
TRUCK MOVEMENTS WITHIN LOUISIANA**

Value of Truck Shipments by State: 1993

(Millions of dollars)

Total	Within	To	From	Through
157,121	26,217	30,427	22,122	78,355

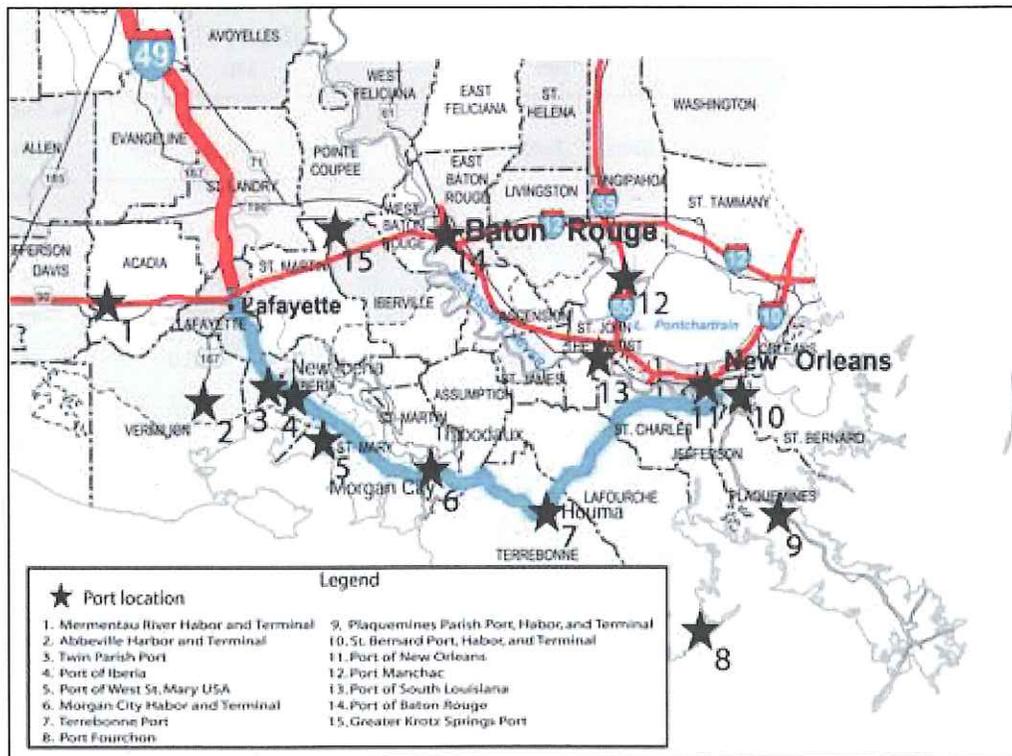
Ton-Miles of Truck Shipments by State: 1993

(In millions)

Total	Within	To	From	Through
15,786	5,393	2,131	2,495	5,767

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, 1997.

**EXHIBIT 1-3  
PORTS SERVED**



Economic development is expected to contribute to traffic growth rates in this Future I-49 corridor. For example, commercial vehicle volumes at Louisiana’s weigh stations at state boundaries increased from approximately 5.2 million in 1993 to over 6.8 million in 1998, an increase of 32 percent. Commercial vehicle traffic on the

arterial highway system within Louisiana is estimated to have increased from 3.76 billion truck-miles traveled in 1993 to 4.64 billion truck-miles traveled in 1998, an increase of over 23 percent. Commercial vehicle volumes at weigh stations throughout the state increased over 27 percent from approximately 9.3 million in 1993 to approximately 11.8 million in 1998. These rates of growth far exceed the forecasts contained in the state's long-range transportation plan (Highway Statistics, FHWA 1993, 1998).

In addition to serving as a transportation route for business and industry, Future I-49 South would facilitate travel through the heart of Acadiana, or "Cajun Country", with its unique food, music, and heritage. Facilitating access and mobility within Acadiana would stimulate the tourism industry in Louisiana.

### 1.2.3 Evacuation Planning

Due to its close proximity to the Gulf of Mexico, Southern Louisiana is vulnerable to the threat of a hurricane strike. The region sustained significant damage in 2005 from Hurricane Katrina, in 1992 from Hurricane Andrew and experienced a brush with Hurricane Georges in 1998. In addition, the region received major impacts from Tropical Storms Danny in 1997, Frances in 1998, and Allison in 2001. Table 1-3 summarizes the hurricane frequency in Louisiana by storm category.

**TABLE 1-3  
HURRICANE FREQUENCY IN LOUISIANA**

	<u>Lake Charles</u>	<u>New Orleans</u>
Category 1 storm	8 years	8 years
Category 2 storm	19 years	19 years
Category 3 storm	35 years	32 years
Category 4 storm	72 years	70 years
Category 5 storm	210 years	180 years

Source: I-49 Task Force Website [i49south.com](http://i49south.com)

The threat of a hurricane is exacerbated by the large population of residents and tourists in the low-lying coastal areas of the region that are susceptible to storm surge inundation and freshwater flooding. Inland urban population centers such as Lafayette also are susceptible to flooding and the affect of hurricane force winds. These communities can suffer considerable impacts well before the system makes landfall and starts to decay. Consequently, the American Red Cross policy is to open shelters only in areas north of Lafayette and not affected by a Category 4 storm surge.

It is imperative that a reliable regional roadway network be available to evacuate these highly vulnerable populations. Unfortunately, due to the topography of the Atchafalaya Basin, evacuees are funneled to only a few northbound escape routes. The vast majority of evacuating vehicles from Terrebonne, St. Mary, Iberia, St. Martin, and Lafayette Parishes must use US 90 as their primary northbound escape route. Moreover, this roadway must support not only the evacuees, but also the non-evacuating public attempting to gather food and supplies for their homes.

The two improvements required to achieve this reliability are the elimination of the threat of flooding and the increase in highway capacity.

### *Flooding*

The construction of this project would provide continuous access during hurricane events as the finished grade of the mainline would be situated above the 100-year flood elevation as defined by the Federal Emergency Management Agency. At present, the evacuation process can be stymied if the US 90 corridor is inundated with rainfall in advance of a storm.

### *Evacuation Planning*

At present the hurricane evacuation capabilities in the existing US 90 corridor between New Orleans and Lafayette are generally limited. Insufficient capacity at critical sections of US 90 results in major bottlenecks that choke efficient traffic flow.

In an effort to improve the hurricane preparedness, the U.S. Army Corps of Engineers (USACE), New Orleans District, recently sponsored a transportation analysis as part of its Southwest Louisiana Hurricane Evacuation Study-2000. The report, *Hurricane Evacuation Transportation Analysis*, (USACE, 2000) identified regional and local critical roadway segments encumbering the efficient movement of evacuating vehicles.

Based on the category of the storm, and the anticipated behavioral responses and participation rate of the population, the study calculated the evacuating vehicles to service volume ratio for each roadway segment by storm category. Segments with the highest ratios were considered critical segments, since these congested areas control the flow of traffic. The report listed US 90 through St. Mary Parish as a critical road segment restraining the flow of evacuating traffic.

The analysis assigned numerous trips from the area immediately to the east of the project area, including Morgan City and Houma, to northbound roadways. Consequently, these northbound routes are critical segments in the evacuation network. As US 90 is essentially an east/west route throughout the project area, the trips assigned to it did not exceed the existing capacity. However, it can be reasonably assumed that upgrading US 90 to interstate standards would increase its attractiveness as an alternative evacuation route for evacuees originating west of Houma. In addition, the Future I-49 corridor would be above the 100-year flood stage and would provide a more efficient route for communities between Berwick and New Iberia that presently have no northbound escape route.

Upgrading US 90 to a full control of access facility meeting interstate standards as proposed for this project would increase capacity both by adding lanes and eliminating intersections. The frontage roads would also provide a separation of local traffic from evacuating vehicles, especially in Category 1 and 2 storm events.

#### **1.2.4 Transportation System Benefits**

The demand on Louisiana's interstate system, similar to national trends, has continued to increase, especially near metropolitan areas. According to the Bureau of Transportation Statistics, between 1993 and 1996, the driving-age population of

Louisiana had increased 4 percent, to approximately 3,326,000 drivers, and the annual vehicle miles traveled increased 11 percent to 40,326,000 VMT. Between 1993 and 1996, the total road and street mileage grew by only 2 percent to 60,747 miles.

#### **1.2.4.1 Existing Conditions**

From Wax Lake Outlet to Berwick, existing US 90 is a four-lane divided roadway section with 12-foot lanes and 6 to 10-foot paved shoulders. US 90 currently has no frontage roads in this segment. LA 182, however, roughly parallels US 90 throughout the project area and shares the same right-of-way for a distance of approximately 4,200 feet in the Idlewild area near Kemper Williams Park between Patterson and Bayou Vista. Also, LA 182 is routed on the US 90 alignment between LA 182 Access Road East in Calumet and LA 182 Access Road West in Ricohoc in order to cross Wax Lake Outlet. Currently, the US 90 corridor is classified as urban from Morgan City, outside the project area to the east across the Lower Atchafalaya River, westward to Red Cypress Road, which is the western boundary of the City of Patterson. In the remainder of the project area US 90 is classified as rural.

Existing connecting roadways include:

- LA 182 Access Road West in Ricohoc
- LA 182 Access Road East in Calumet
- Red Cypress Road
- Railroad Avenue/Veterans Drive
- Lipari Street/Tiffany Street
- Lassus Street
- Cotten Road
- Southeast Boulevard
- Thorguson Drive/Berwick Road South

West of Red Cypress Road, the current average daily traffic (ADT) on US 90 ranges between 18,358 and 24,136 vehicles per day (VPD). In more developed areas of Patterson, Bayou Vista, and Berwick, the current ADT on US 90 ranges from 21,514 to 26,021 VPD. On LA 182 in the project area, the current ADT ranges from 3,946 VPD near Kemper Williams Park to 6,107 VPD at the intersection with the Lower Atchafalaya River Bridge approach in Berwick (See Exhibit 1-4).

The posted speed limit on US 90 varies throughout the corridor. It is posted at 65 mph west of Red Cypress Road and 55 mph east of that intersection

Within the project limits, there are three fully signalized intersections, which are located at Wal-Mart Driveway, Southeast Boulevard, and Thorguson Drive/Berwick South Road. These signals are the semi-actuated isolated type that operate as independent systems with detection devices at the cross streets to provide access to the main highway. Other key intersections are controlled by side street stop signs.

Field observations and discussions with municipal and parish representatives provided insight regarding unique travel characteristics within the project area. The most noteworthy of these features are described below.

- The Burlington Northern Santa Fe (BNSF) Railroad runs parallel to US 90 the entire length of the project. West of Southeast Boulevard, it immediately abuts the US 90 right-of-way on the south. Approximately 20 to 25 trains per day utilize this mainline, and this number is expected to increase in the future. There are three signalized grade crossings at the western end of the project and a total of 15 railroad grade crossings in the project area. The location of the BNSF mainline presents roadway geometry, capacity, and safety issues.
- For several decades, the US 90 corridor between Lafayette and Houma has been an attractive location for businesses related to the oil and gas industry. These land uses generate a substantial number of truck trips.
- The route also serves a large student commuter demand between the communities in the corridor and the University of Louisiana – Lafayette to the west and Nicholls State University in Thibodaux to the east.
- As the relocation of US 90 from the current route of the two-lane LA 182 progressed through the 1970's and 1980's, the communities along the corridor grew out to meet the new four-lane facility. This growth induced many new trips between these areas and the job markets in Morgan City and Houma.
- The US 90 corridor also serves agriculture. It is a primary route for transporting harvested sugar cane from the fields to the processing mills during autumn.

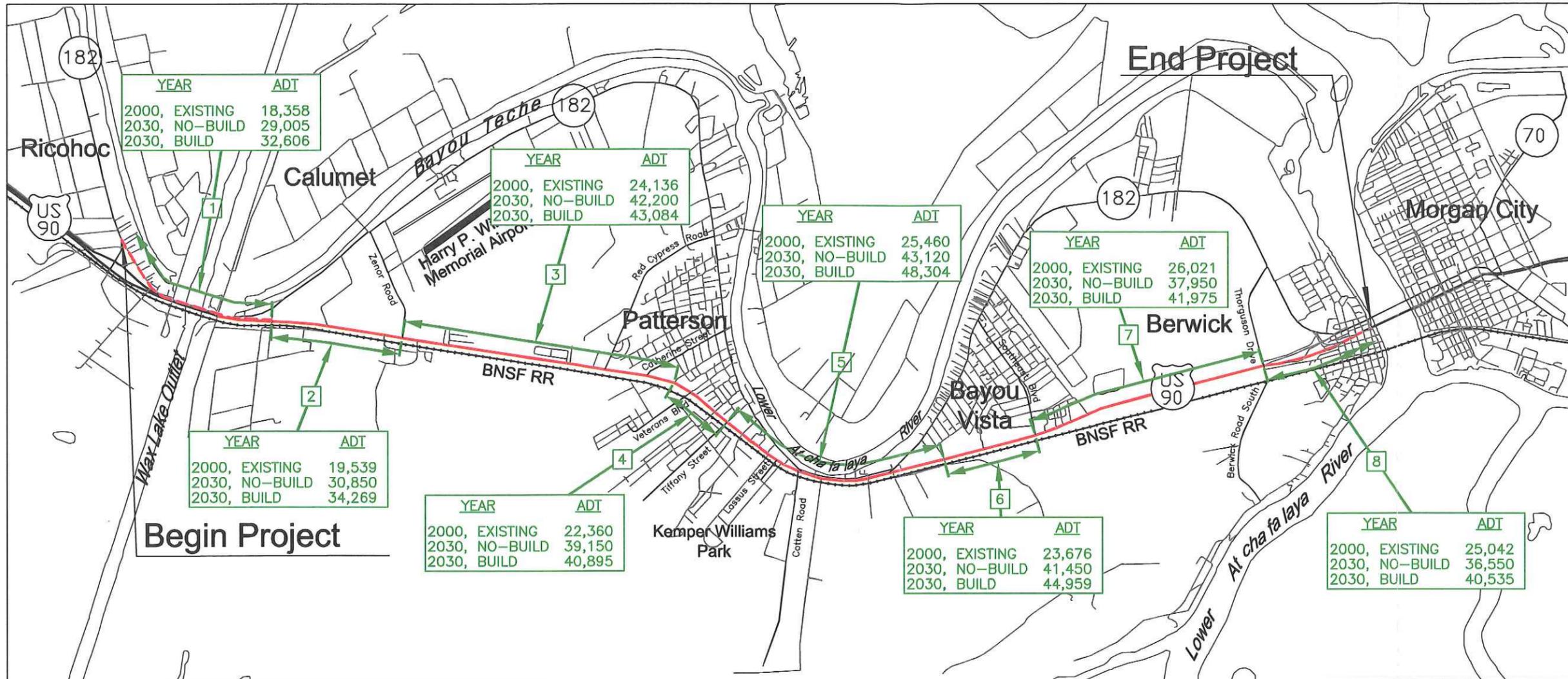
#### **1.2.4.2 Traffic Forecast**

The planning for this project involved the projection of future year traffic volumes. For a proposed highway upgrade of this magnitude, transportation demand is typically a forecast of traffic volumes from a base year condition over a 20-year planning cycle. It is anticipated that this project would require at least a 10-year implementation schedule. Consequently, the base year for this project is determined as 2010 and the forecast design year is projected to be 2030. Both the selected alternative and the no-build alternate, which is defined by the future conditions without the proposed improvements, were forecast for 2010 and 2030.

For no-build, US 90 and LA 182 were assumed to remain in their current configuration. For 2030 build, it was assumed that this project, and Future I-49 to the west of Calumet, were upgraded to interstate standards. A 43 mile segment immediately to the east is already completed.

#### **1.2.5 Volumes Forecasting Methodology**

Twenty-four hour traffic volumes for the year 2000 were collected on US 90, and 2000 AM and PM peak turning movement volumes were collected by at key intersections along US 90 in the study area. Historical traffic count data obtained from LDOTD was utilized to estimate future growth factor rates. These growth factor rates were applied to the year 2000 traffic volumes to forecast the 2010 and 2030

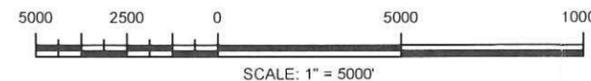


US 90/I-49 MAINLINE

- 1 LA 182 ACCESS ROAD WEST TO LA 182 ACCESS ROAD EAST
- 2 LA 182 ACCESS ROAD EAST TO ZENOR ROAD
- 3 ZENOR ROAD TO CHURCH STREET
- 4 CHURCH STREET TO LIPARI STREET
- 5 LIPARI STREET TO UNIVERSE ROAD
- 6 UNIVERSE ROAD TO SOUTHEAST BLVD.
- 7 SOUTHEAST BLVD. TO THORGUSON DRIVE / BERWICK ROAD SOUTH
- 8 EAST OF THORGUSON DRIVE / BERWICK ROAD SOUTH

**LEGEND**

- US ROUTE
- STATE ROUTE
- LOCAL ROAD
- BNSF RAILROAD
- LA 182 IMPROVEMENT
- US 90 / I-49 IMPROVEMENT



I-49 SOUTH  
WAX LAKE OUTLET  
TO BERWICK  
**EXHIBIT 1-4**  
AVERAGE DAILY TRAFFIC  
US 90/I-49 MAINLINE

ENVIRONMENTAL IMPACT STATEMENT  
I-49 SOUTH  
WAX LAKE OUTLET TO BERWICK

build and no-build traffic volumes. Exhibit 1-4 provides traffic volumes for year 2030 build and no-build conditions.

The following terms will be utilized in the discussion of project benefits:

- **Roadway Capacity** - As presented in the Highway Capacity Manual, roadway capacity is the maximum rate of flow at which persons or vehicles can be reasonably expected to traverse a point or uniform segment of lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions, usually expressed as vehicles per hour or persons per hour.
- **Roadway Level of Service** - Level of Service is a qualitative measure of operating conditions and their perception by motorists. These conditions include travel time, freedom to maneuver, traffic interruption, comfort, convenience, and safety. The six Levels of Service are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. Roadways with a volume to capacity ratio greater than 1 will operate at an LOS F.

### 1.2.5.1 Benefits to the US 90/Future I-49 Corridor

The line and grade engineering developed as part of this project in association with the previously noted traffic forecast has provided a sufficient base of information to support estimates of the level service (LOS) for critical intersections and mainline roadway links.

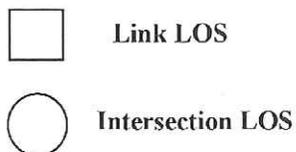
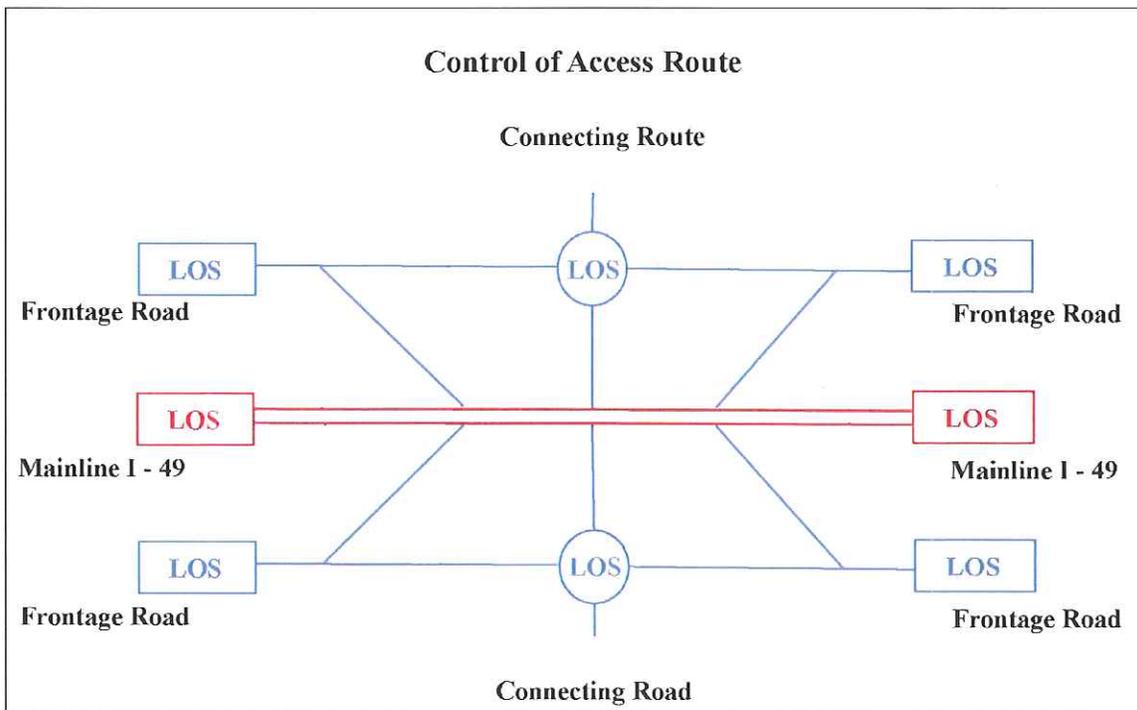
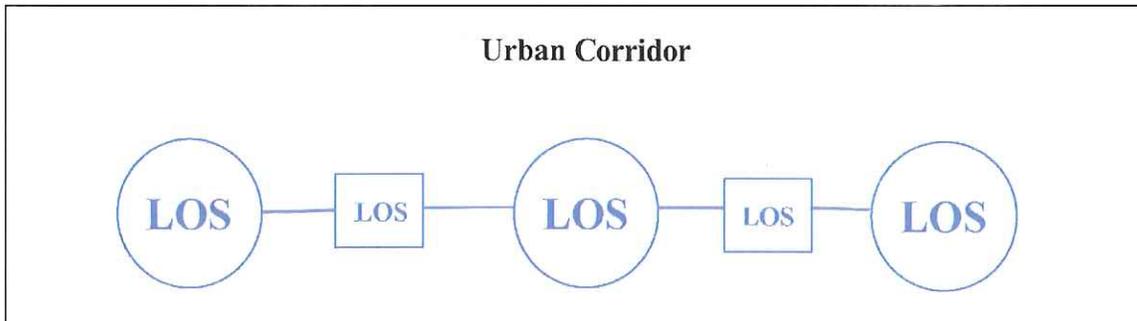
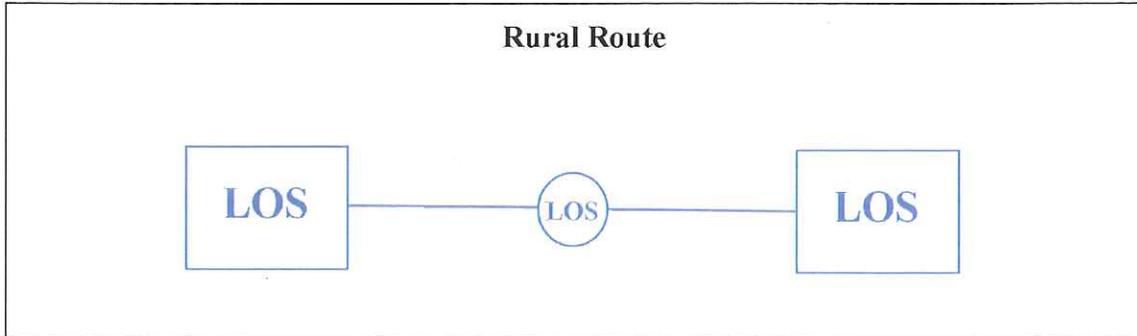
Exhibit 1-5 presents a graphic overview of the relationship between intersection and link level of service (LOS) on rural, urban and controlled access roadway networks.

**Rural Routes** - Along rural routes, because intersections are spread out over substantial distances, there are few stop conditions imposed by intersecting roadways that would limit the overall traffic flow on the mainline roadway. For rural roadway routes, the link LOS is an appropriate measure of roadway performance. If the link LOS of the mainline roadway was C or better, it would be a representative description of roadway performance, even if the LOS at an intersecting roadway was deficient (i.e. LOS E or LOS F). In terms of the US 90 corridor, this view is indicative of US 90 west of Red Cypress Road under existing conditions.

**Urban Corridors** - The second view presents the interrelationship between intersection and link level of service on an urban roadway. Because roadway intersections are located in close proximity along the corridor, the urban roadway is characterized by numerous stop conditions at intersecting roadways. In terms of the US 90 corridor, this view is indicative of US 90 as it traverses Patterson and Bayou Vista. The intersection LOS will influence the performance of the roadway and it is a better indicator of overall roadway performance than the link LOS.

**Control of Access Route** - Under the selected alternative, the project would upgrade US 90 to a four-lane control of access route. Between Red Cypress Road and Southeast Boulevard, in the urbanized portion of the project area, ramps provide access and egress from two-lane one-way frontage roads. In the more rural portions, there are either two-way frontage roads or, in one location, no frontage roads. The frontage roads would provide access to grade-separated major connecting roads and to local destinations. The control of access route differs from both the rural route and

**EXHIBIT 1-5  
NETWORK LEVEL OF SERVICE**



the urban corridor. The mainline roadway functions separately from the network of frontage roads and connecting roads. The frontage roads function in a manner similar to the existing US 90. Under most operating conditions, traffic on the mainline roadway should not be affected by the operation of the frontage roads or connecting roads. Hence, the link LOS of the mainline roadway serves as best indicator of the performance of that roadway.

**Year 2030 Frontage Road Level of Service** - The links of the two-way frontage road west of Red Cypress operate at LOS C or better, and the links of the one-way frontage roads operate at LOS B, or better. The boulevard section of the frontage road between Lassus Street and Universe Road operates at LOS A.

**Year 2030 Intersection Level of Service** - Table 1-4 presents a comparative summary of the projected intersection level of service for year 2030 under no-build and build conditions. Under the build condition for Future I-49 all critical intersections exhibit an operational LOS of B or better. If US 90 remains in operation as presently configured, all intersections, except for the intersections of US 90 with LA 182 Access Road East and Cotten Road would operate at LOS F.

**TABLE 1-4  
YEAR 2030 INTERSECTION LEVEL OF SERVICE**

Connecting Roadway	I-49 Frontage Roads, Build	US 90, No-Build
LA 182 Access Road East	B+	D
Red Cypress Road	B	F
Tiffany/Lipari	B	F
Enterprise/Bernard	B+	F
Lassus	B	F
Cotten	A	E
Southeast	B	F
Thorguson/Berwick South	B	F

**Main Line Level of Service** - Table 1-5 provides a summary of the projected LOS for the Future I-49 mainline in year 2030. West of the Zenor Road in the more rural area, the Future I-49 mainline would operate at LOS B.

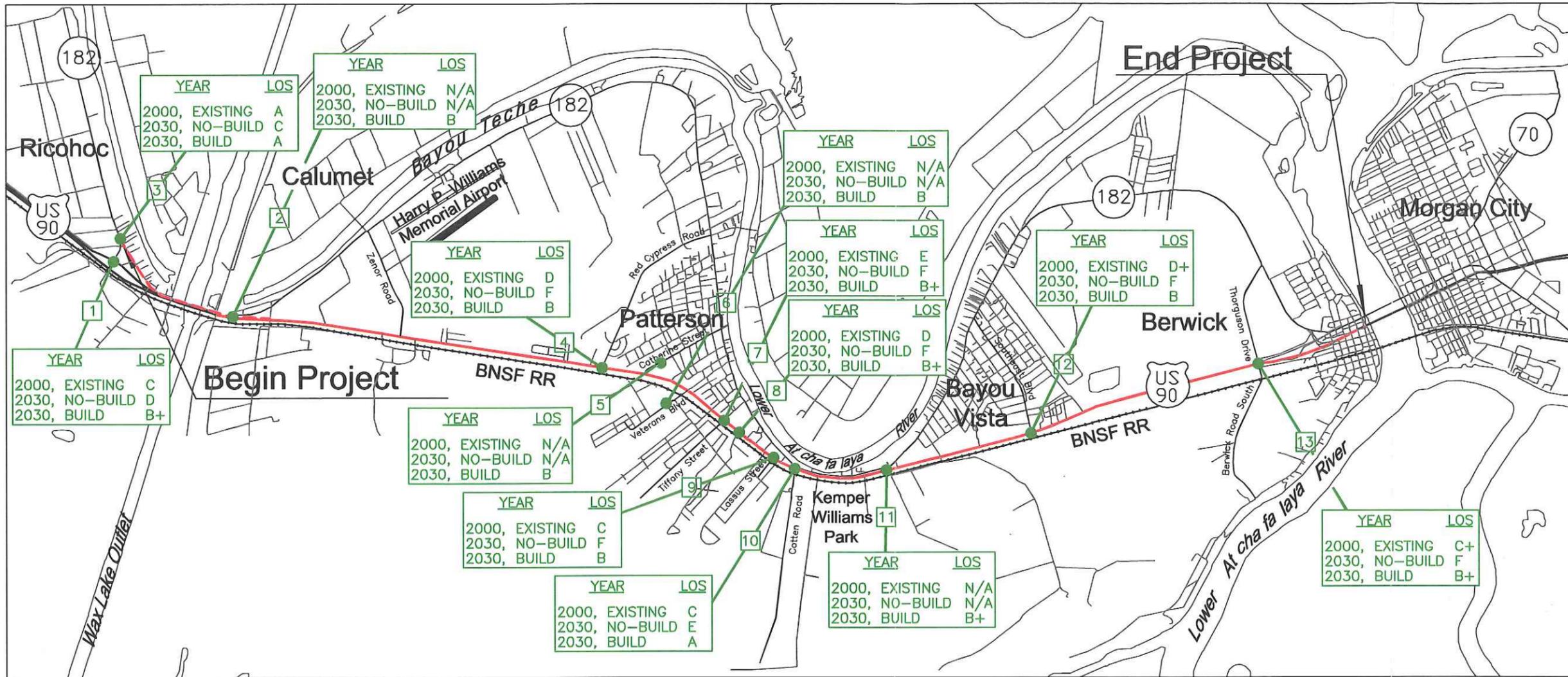
**TABLE 1-5  
FUTURE I-49 YEAR 2030 MAINLINE LEVEL OF SERVICE**

US 90/I-49 Mainline	Build	No-build
Wax Lake Outlet Bridge to Zenor Road	B	B
Zenor Road to Church Street	C	C
Church Street to Lipari	B	C
Lipari to Universe	C	C
Universe to Southeast Boulevard	B	C
Southeast Boulevard to the end of project	C	B

Exhibit 1-6 presents the level of service for critical corridor intersections under existing, 2030 no-build, and 2030 build conditions. Exhibit 1-7 provides levels of service for links along the mainline roadway for the same conditions.

**TABLE 1-6  
DATA FOR EXHIBIT 1-6**

Intersection		Base Year - 2000		Design Year No Build 2030		Design Year - 2030	
Location	Control	LOS	Critical Movement	LOS	Critical Movement	LOS	Critical Movement
U.S. 90 (I-49) at LA 182 (Near Wax Lake Outlet)	Stop	C (AM) B (PM)	NB NB/SB	D (AM) C (PM)	NB NB/SB	B+ (AM) B+ (PM)	Overall Overall
LA 182 at Frontage Road	Stop	N/A	N/A	N/A	N/A	B (AM) B (PM)	WB WB
LA 182 at Old LA 182 (West of Wax Lake Outlet)	Stop	A (Peak)	WB	C (AM) C(AM)	WB WB	A (Peak)	NB
U.S. 90 (I-49) at Red Cypress Rd.	Stop	C (AM) D (PM)	SB SB	F (AM) F (AM)	SB SB	B (AM) B (PM)	Overall Overall
Red Cypress Rd. at Frontage Rd.	Signalized	N/A	N/A	N/A	N/A	B (AM) B (PM)	Overall Overall
U.S. 90 (I-49) at Tiffany St. /Lipari St.	Stop	D (AM) E (PM)	SB SB	F (AM) F (PM)	NB/SB NB/SB	B(AM) B (PM)	Overall Overall
U.S. 90 (I-49) at Enterprise Rd. /Bernard St.	Stop	C (AM) D (PM)	SB SB	F (AM) F (PM)	SB SB	B+ (AM) B+ (PM)	Overall Overall
U.S. 90 (I-49) at Lassus St.	Stop	C (AM) C (PM)	NB NB	F (AM) F (PM)	NB NB	B (AM) B (PM)	Overall Overall
U.S. 90 (I-49) at cotton Rd.	Stop	C (AM) C (PM)	NB NB	E (AM) E (PM)	NB NB	A (AM) A (PM)	NB NB
U.S. 90 (I-49) at New LA 182 Access Road	Signalized	N/A	N/A	N/A	N/A	B+ (AM) B+ (PM)	Overall Overall
U.S. 90 (I-49) at Southeast Blvd.	Signalized	B (AM) D+ (PM)	Overall Overall	C (AM) F (PM)	Overall Overall	B (AM) B (PM)	Overall Overall
U.S. 90 (I-49) at South Berwick Rd. /Thorguson Dr.	Signalized	C+ (AM) C+ (PM)	Overall Overall	F (AM) C (PM)	Overall Overall	B+ (AM) B (PM)	Overall Overall



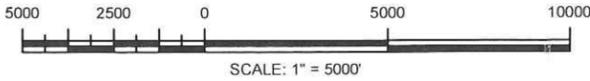
VICINITY MAP

US 90/I-49 MAINLINE

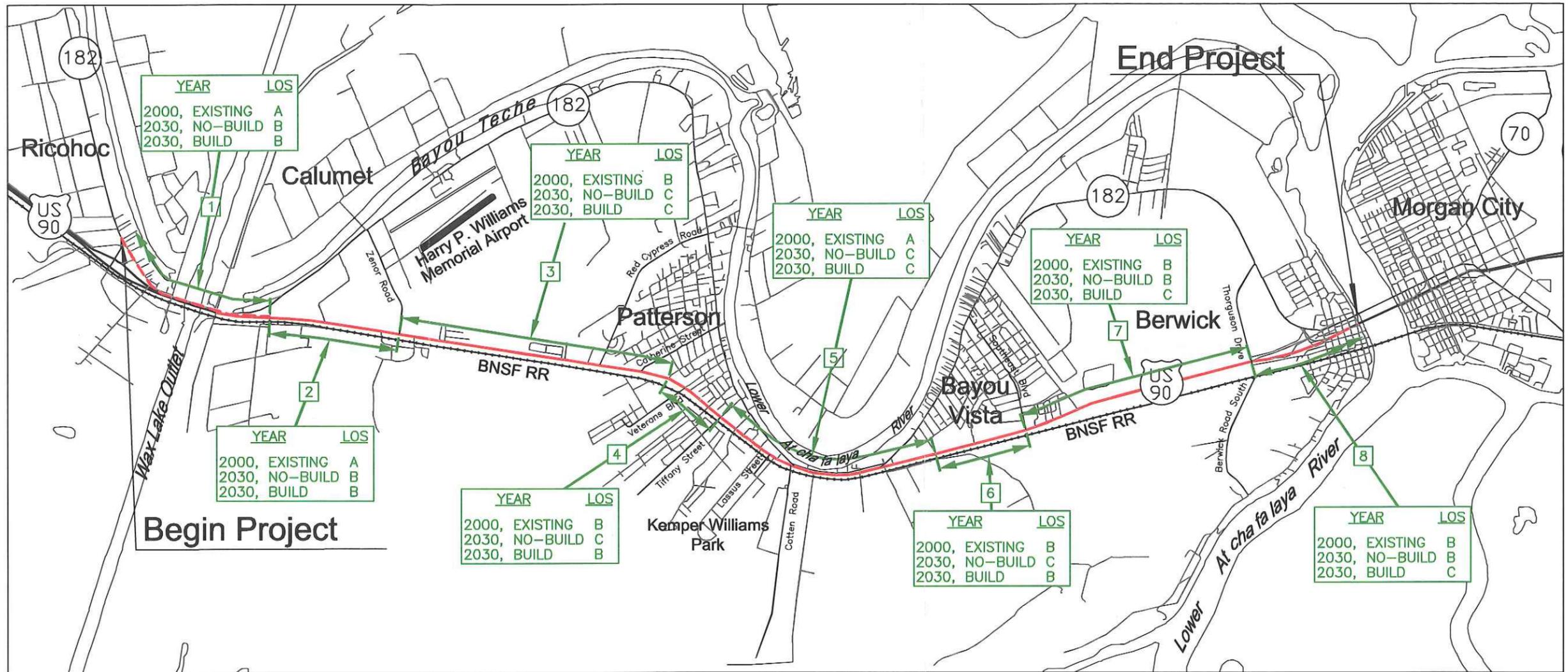
- |  |   |
|--|---|
| 1 U.S. 90 (I-49 FRONTAGE ROAD) AT LA 182 (NEAR WAX LAKE OUTLET)  | 8 U.S. 90 (I-49 FRONTAGE ROAD) AT ENTERPRISE ROAD / BERNARD STREET      |
| 2 LA 182 AT FRONTAGE ROAD  | 9 U.S. 90 (I-49 FRONTAGE ROAD) AT LASSUS STREET                         |
| 3 LA 182 AT OLD LA 182 (WEST OF WAX LAKE OUTLET)                 | 10 U.S. 90 (I-49 FRONTAGE ROAD) AT COTTEN ROAD                          |
| 4 U.S. 90 (I-49 FRONTAGE ROAD) AT RED CYPRESS ROAD               | 11 U.S. 90 (I-49 FRONTAGE ROAD) AT NEW LA 182 ACCESS ROAD               |
| 5 CATHERINE STREET AT GRADE SEPARATION                           | 12 U.S. 90 (I-49 FRONTAGE ROAD) AT SOUTHEAST BOULEVARD                  |
| 6 VETERANS DRIVE AT GRADE SEPARATION                             | 13 U.S. 90 (I-49 FRONTAGE ROAD) AT THORGUSON DRIVE / BERWICK ROAD SOUTH |
| 7 U.S. 90 (I-49 FRONTAGE ROAD) AT TIFFANY STREET / LIPARI STREET |   |

LEGEND

	US ROUTE	ADT - AVERAGE DAILY TRAFFIC	LA 182 IMPROVEMENT
	STATE ROUTE	BNSF RAILROAD	US 90 / I-49 IMPROVEMENT
	LOCAL ROAD		



I-49 SOUTH  
WAX LAKE OUTLET  
TO BERWICK  
**EXHIBIT 1-6**  
PEAK PERIOD LEVEL OF SERVICE  
AT CRITICAL INTERSECTIONS

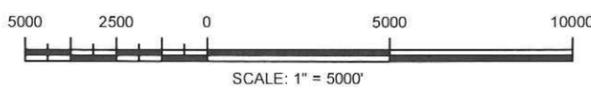


**US 90/I-49 MAINLINE**

- 1 LA 182 ACCESS ROAD WEST TO LA 182 ACCESS ROAD EAST
- 2 LA 182 ACCESS ROAD EAST TO ZENOR ROAD
- 3 ZENOR ROAD TO CHURCH STREET
- 4 CHURCH STREET TO LIPARI STREET
- 5 LIPARI STREET TO UNIVERSE ROAD
- 6 UNIVERSE ROAD TO SOUTHEAST BLVD.
- 7 SOUTHEAST BLVD. TO THORGUSON DRIVE / BERWICK ROAD SOUTH
- 8 EAST OF THORGUSON DRIVE / BERWICK ROAD SOUTH

**LEGEND**

- US ROUTE
- STATE ROUTE
- LOCAL ROAD
- ADT - AVERAGE DAILY TRAFFIC
- BNSF RAILROAD
- LA 182 IMPROVEMENT
- US 90 / I-49 IMPROVEMENT



I-49 SOUTH  
WAX LAKE OUTLET  
TO BERWICK  
**EXHIBIT 1-7**  
PEAK PERIOD LEVEL OF SERVICE  
US 90 / I-49 MAINLINE

**TABLE 1-7  
DATA FOR EXHIBIT 1-7**

Segment U.S. 90 (I-49) Location	Base Year – 2000			Design Year No Build 2030		Design Year - 2030		
	Facility	LOS	Critical Movement	LOS	Critical Movement	Facility	LOS	Critical Movement
West of LA 182 near Wax Lake Outlet	Divided Multilane	A	EB Peak 991 vph	B	EB Peak 1,565 vph	4-lane Freeway	B	WB Peak 1,555 vph
LA 182 to Zenor	Divided Multilane	A	WB Peak 989 vph	B	WB Peak 1,565 vph	4-lane Freeway	B	WB Peak 1,530 vph
Zenor to Church	Divided Multilane	B	EB Peak 1,253 vph	C	EB Peak 2,190 vph	4-lane Freeway	C	WB Peak 1,798 vph
Church to Lipari	Divided Multilane	B	WB Peak 1,145 vph	C	WB Peak 2,005 vph	4-lane Freeway	B	EB Peak 1,715 vph
Lipari to Universe	Divided Multilane	A	EB Peak 1,187 vph	C	EB Peak 2,075 vph	4-lane Freeway	C	WB Peak 1,933 vph
Universe to Southeast	Divided Multilane	B	EB Peak 1,187 vph	C	EB Peak 2,080 vph	4-lane Freeway	B	EB Peak 1,562 vph
Southeast to South Berwick/Thorguson	Divided Multilane	B	EB Peak 1,313 vph	B	EB Peak 1,915 vph	4-lane Freeway	C	EB Peak 2,106 vph
East of South Berwick/Thorguson	Divided Multilane	B	WB Peak 1,268 vph	B	WB Peak 1,850 vph	4-lane Freeway	C	EB Peak 1,946 vph

### 1.2.6 Safety Benefits of the Proposed Action

Recognizing the dual role of US 90 as a regional and local transportation corridor, the state recognizes the need to accommodate these separate and often conflicting travel patterns as well as provide for greater safety in the corridor. This project would achieve this objective by converting US 90 to Future I-49 South. Of any class of highways, interstate freeways provide the greatest levels of efficiency, safety, and reliability in the movement of people and goods.

The project would also reduce train/car conflicts associated with the BNSF Railroad because the roadway geometry approaching the at-grade crossings would be improved.

### **1.2.7 Coordination with Other Projects**

LDOTD is planning various improvements supporting the conversion of US 90 to I49 from LA 88 to the LA 182 Access Road West. Specifically a new overpass is being planned at LA 182 West as a separate project. The design and construction of both projects must be coordinated to assure continued access to developed properties and the maintenance of four lanes of traffic in the US 90 corridor.

### **1.2.8 Summary**

Conversion of US 90 to Future I-49 as herein described in the purpose and need, Chapter 1.0, and the alternatives analysis, Chapter 2.0, would provide demonstrated benefits as follows:

- System Linkage – Via Future I-49, the State of Louisiana would continue to implement a major transportation system linkage improvement serving a substantial portion of the State's population and economy. The improvement is consistent with federal, state, and local planning efforts.
- Hurricane Evacuation - The State would upgrade a critical corridor utilized for hurricane evacuation with demonstrated benefits in evacuation clearance times.
- Regional Mobility – St. Mary Parish would experience a substantial benefit in transportation network mobility, resulting in improved vehicle trip times with associated benefits in air quality and fuel consumption over the no-build condition.
- Safety – The existing US 90 corridor currently experiences safety issues consequent to intersection conflicts and the existing geometry. This project would convert existing US 90 operating as a full access roadway to Future I-49 operating as a control of access facility. The change in roadway geometry would provide safer conditions in the corridor.





## **2.0 Alternatives Analysis**

### **2.1 Project Criteria**

The following technical requirements and design goals were developed as guidelines for applying the design concepts to the corridor:

1. The Louisiana Department of Transportation and Development (LDOTD) design criteria for the mainline and connecting roadways are presented in Table 2-1 and Table 2-2. Design speeds for the freeway and for the arterial roads vary with individual routes, depending on whether they are considered rural or urban routes.
2. Interchange locations should be selected based on traffic patterns and service needs, spacing requirements, physical constraints, community input, and practicality.
3. Vertical clearance of elevated sections is 16.5 feet over roadways and 23 feet above railroads.
4. The selected alternative should avoid or minimize adverse environmental impacts. Where impacts are unavoidable, the design should consider permit and mitigation feasibility.
5. Drainage should meet state and federal guidelines.
6. The selected alternative should be sensitive to the community context and consider opportunities for visual enhancement.
7. Community needs and concerns, as expressed during the public participation program, should be addressed in the selected alternative.
8. Local access and circulation needs should be addressed in the selected alternative by maintaining or enhancing existing mobility.
9. The selected alternative should be compatible with BNSF Railroad requirements where right of way crossings and encroachments are unavoidable. Improving safety at railroad/cross-street crossings should be considered where appropriate.
10. The selected alternative should consider requirements for pedestrian and bicycle access.
11. Relocation of utilities, as required, should be considered in the selected alternative and included in the estimation of project costs.
12. The selected alternative should address constructability issues: minimize new right-of-way acquisition, maintain traffic flow during construction, be permitable, be compatible with other transportation plans, and require reasonable construction means to implement.

**Table 2-1  
Roadway Design Criteria  
Freeways**

Item No.	Design Item	Roadway Classification		
		F-1	F-2	F-3
1	Design Speed (M. P. H.)	50 ①	60	70
2	Level of Service	C ①	C ①	B ②
3	Number of Travel Lanes (Minimum)	4	4	4
4	Width of Travel Lanes (Ft.)	12	12	12
5	Width of Shoulders (Where used) (Ft.)			
	(A) Outside	10 ③	10 ③	10 ③
	(B) Median	6 ④	6 ④	6 ④
6	Type of Shoulders	Paved	Paved	Paved
7	Width of Median (Ft.)			
	(A) Depressed	50(Min.)	60(Min.) - 90(Des.)	60(Min.) - 90(Des.)
	(B) Continuous Barrier (4 Lane)	14 ⑤	14 ⑤	14 ⑤
	(C) Continuous Barrier (6 Lane)	26 ⑤	26 ⑤	26 ⑤
8	Fore Slope - Ratio	4:1(Min.) - 6:1(Des.)	6:1	6:1
9	Back Slope - Ratio	4:1	4:1	4:1
10	Pavement Cross Slope (Ft. / Ft.)	0.025 ⑥	0.025 ⑥	0.025 ⑥
11	Stopping Sight Distance	400 - 475 ⑦	525 - 650 ⑦	625 - 850 ⑦
12	Maximum Superelevation (Ft. / Ft.)	0.1	0.1	0.1
13	Maximum Horizontal Curvature (degree) ⑧	8	5	3
14	Maximum Grade (%)	4 ⑧	3 ⑧	3 ⑧
15	Minimum Vertical Clearance (Ft.)	16 ⑨	16 ⑨	16 ⑨
16	Width of Right of Way (Ft.)			
	(A) Depressed Median	As Needed	300	300
	(B) Median Barrier	As Needed	As Needed	As Needed
	(C) Minimum From Edge of Bridge Structure	15 - 20	15 - 20	15 - 20
17	Bridge Design Load	HS - 20	HS - 20	HS - 20
18	Width of Bridges (Minimum) (Face to Face Bridge Rail)	40'	40'	40'
19	Guardrail Required at Bridge Ends	Yes	Yes	Yes
20	Horizontal Clearance (Ft.) (From Edge of Travel Lane)			
	(A) 4:1 Foreslope	30	N / A	N / A
	(B) 6:1 Foreslope	22	32	34

- ① For Use in Urban Areas Only
- ② Level of Service D Permissible For Heavily Developed Urban Areas.
- ③ Level of Service C Permissible For Urban Conditions and Auxiliary Facilities in Rural Areas.
- ④ 12' Paved Required With Truck DDHV Greater Than 250  
4' To Be Paved -- 10' To Be Paved on 6 Lane Facilities -- 12' To Be Paved on 6 Lane Facilities With DDHV Greater Than 250.
- ⑤ 32' Maximum
- ⑥ 2% Permissible
- ⑦ Minimum Values Shown Permissible for Rehabilitation Projects.  
Maximum Values Shown to Be Used Where Conditions Permit.  
Grades 1% and Higher May Be Used in Special Cases.
- ⑧ 6" Additional To Allow For Future Surfacing -- 17' Required for Trusses and Pedestrian Overpasses.  
It May Be Necessary To Flatten The Degree of Curve And/Or Increase The Shoulder Width (Maximum 12') To Provide Adequate Stopping Sight Distance On Structure.
- ⑨

**Source: Louisiana Department of Transportation and Development**

**Table 2-2  
Arterial Roadway Design Criteria**

Item No.	Design Item	Roadway Classification			
		Rural		Urban <sup>Ⓞ</sup>	
		Two Lane	Four Lane	UA-1	UA-2
1	Design Speed (M. P. H.)	60	60	35	45
2	Design Hourly Volume	0 - 600 <sup>Ⓞ</sup>	601 - 2300	N/A	N/A
3	Level of Service	B	B	C <sup>Ⓞ</sup>	C <sup>Ⓞ</sup>
4	Number of Travel Lanes	2	4 <sup>Ⓞ</sup>	2 Min. - 4 Typ.	2 Min. - 4 Typ.
5	Width of Travel Lanes (Ft.)	12	12	8 - 12	12
6	Width of Parking Lanes (Where used) (Ft.)	N / A	N / A	10 - 12	10 - 12
7	Width of Shoulders (Where used) (Ft.)				
	(A) Outside	8(Min.) - 10(Des.)	10	N / A	N / A
	(B) Median	N / A	6 <sup>Ⓞ</sup>	N / A	N / A
8	Type of Shoulders	Paved	Paved	N / A	N / A
9	Width of Median (Ft.)				
	(A) Depressed	N / A	40(Min.) - 60(Des.)	N / A	N / A
	(B) Raised	N / A	N / A	4(Min.) - 30(Des.)	4(Min.) - 30(Des.)
	(C) Two way Left Turn Lanes	N / A	N / A	8(Min.) - 14(Typ.)	8(Min.) - 14(Typ.)
10	Width of Sidewalk (Where Used)				
	Offset From Curb (Ft.)	N / A	N / A	4	4
	Adjacent From Curb (Ft.)	N / A	N / A	6	6
	Fore Slope - Ratio	6:1	6:1	3:1(Min.) - 4:1(Des.)	3:1(Min.) - 4:1(Des.)
12	Back Slope - Ratio	4:1	4:1	3:1	3:1
13	Pavement Cross Slope (Ft. / Ft.)	0.025 <sup>Ⓞ</sup>	0.025 <sup>Ⓞ</sup>	0.025 <sup>Ⓞ</sup>	0.025 <sup>Ⓞ</sup>
14	Stopping Sight Distance	525 - 650 <sup>Ⓞ</sup>	525 - 650 <sup>Ⓞ</sup>	275 - 325 <sup>Ⓞ</sup>	325 - 400 <sup>Ⓞ</sup>
15	Maximum Superelevation (Ft. / Ft.)	0.1	0.1	0.04	0.04
16	Maximum Horizontal Curvature <sup>Ⓞ</sup>	8	5	3	
	Without Superelevation (+0.025)	N / A	N / A	1000	N / A
	Without Superelevation (-0.025)	N / A	N / A	800	N / A
17	With Superelevation (degree <sup>Ⓞ</sup> )	5	5	4	7.5
18	Maximum Grade (%)	3 <sup>Ⓞ</sup>	3 <sup>Ⓞ</sup>	7	6
19	Minimum Vertical Clearance (Ft <sup>Ⓞ</sup> )	16	16	16	16
20	Minimum Horizontal Clearance (Ft.)				
	(A) From Edge Of Travel Lane	30	32	N / A	N / A
	(B) Outside From Back of Curb	N / A	N / A	5(Min.) - 15(Des.)	6(Min.) - 15(Des.)
	(C) Median (Where Used) (From Back of Curb)	N / A	N / A	4(Min.) - 15(Des.)	4(Min.) - 15(Des.)
21	Minimum Width of Right of Way (Ft <sup>Ⓞ</sup> )				
	(A) From Centerline	75	As Needed	N / A	N / A
	(B) From Edge of Travel Lane	N / A	N / A	3(Min.) - 17(Des.)	3(Min.) - 17(Des.)
22	Bridge Design Load	HS - 20	HS - 20	HS - 20	
23	Width of Bridges (Minimum) (Face to Face Bridge Rail)	Shoulder Width	40	Rdwy. + 8 <sup>Ⓞ</sup>	Rdwy. + 8 <sup>Ⓞ</sup>
24	End Treatment Required at Bridges	Yes	Yes	Yes	Yes

- Ⓞ Applies to Curbed Sections Only. For uncurbed Sections use Rural Standards.
- Ⓢ Used When Adding Two Lanes to Existing Facility.
- Ⓞ For Rolling Terrain. Limiting Passing Sight Distance and High Percentage Trucks, 4 Lanes may be Required When DVH is Above 400.
- Ⓞ Level of Service D Permissible in Highly Developed Areas.
- Ⓞ Consider Increasing to Six Lane Facility When DVH is Above Figure Shown in Item No. 2.
- Ⓢ 4' Paved.
- Ⓢ 2% Permissible for Rehabilitation Projects.
- Ⓞ Minimum Values Shown Permissible for Rehabilitation Projects. Maximum Values Shown to be Used Where Conditions Permit.
- Ⓢ It May Be Necessary to Increase the Radius of the Curve and/or the Shoulder Width (Maximum of 12') to Provide Adequate Stopping Sight Distance on Structure.
- Ⓢ 4% Permissible on Rolling Terrain.
- Ⓢ 6" Additional to Allow for Future Surfacing.
- Ⓢ Minimum Required for New Location and as Needed for Existing Alignment. Obtain Additional Right of Way for Future Lanes Where Justified.
- Ⓢ For Approach Roadways Without Curbs, Use Shoulder Width. 6' Sidewalk Behind Curb to be Carried Across Bridge When Justified By Pedestrian Traffic.

**Source: Louisiana Department of Transportation and Development**

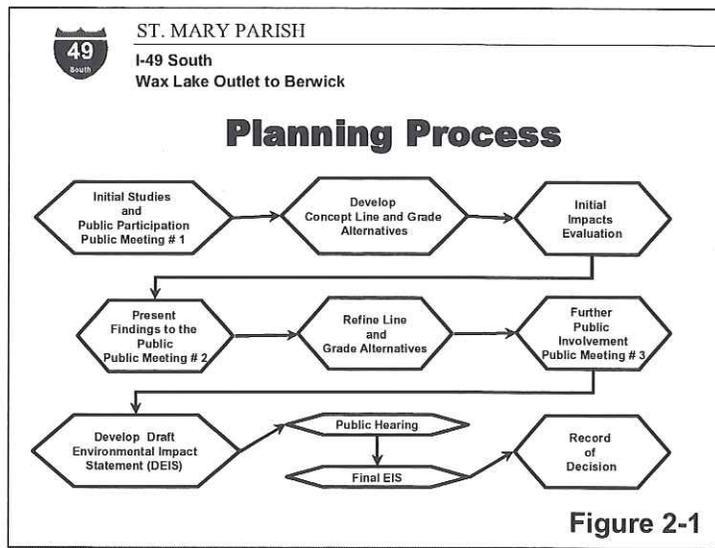
## 2.2 Planning Process

This study process was undertaken to carry forward the conversion of a four-lane US route, US 90, which provides continuous access to abutting properties, to a limited access interstate highway, Future I-49, served by access ramps to frontage roads and grade-separated interchanges.

Within a structured public participation program, the development and examination of project alternates was undertaken as part of an iterative process which:

- Identified engineering concepts, which could be applied to meet the project purpose and need.
- Developed engineering line and grade alignments in conformance with appropriate design criteria.
- Modified line and grade alternates in response to environmental constraints and public comment.

The planning process followed to undertake the Future I-49 South project is presented in Figure 2-1:



## 2.3 Conceptual Engineering Concepts

At the First Public Meeting, which was held in October 2000, generic design concepts were developed on this theme that would place the mainline and/or frontage roads at grade or grade-separated with numerous ramp configurations. At this conceptual level, focus was placed on meeting broad engineering and traffic requirements.

Four geometric concepts were presented at the First Public Meeting. Three of the Concepts (A, B and C) were limited access roadways with associated one-way frontage road systems. The fourth concept (Concept D) presented a mainline

roadway with two-way frontage roads. Geometric details of Concepts A, B and D are presented in Figures 2-2 and 2-3.

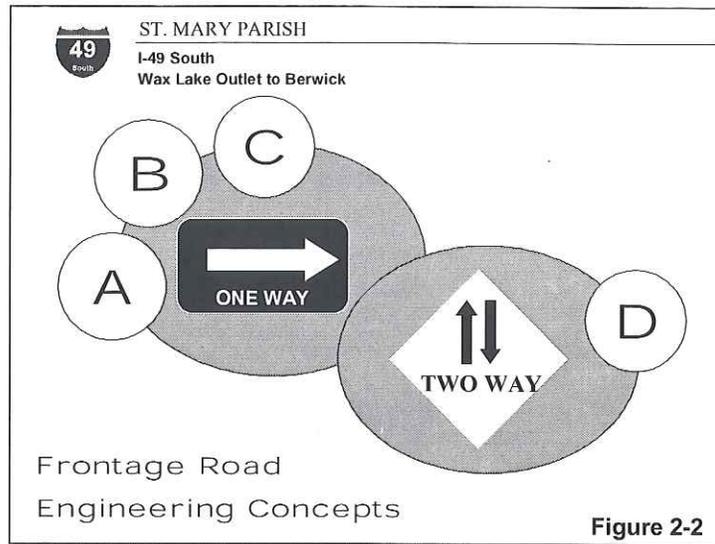


Figure 2-2

Concepts A and B vary in the location of entrance ramps in relation to connecting roadways. In Concept A, a vehicle exits in advance of the interchange. This design frequently results in relatively more traffic movements at interchanges, and tends to concentrate highway related land uses at interchanges.

In Concept B, a vehicle exits between interchanges onto the frontage roads. In comparison to Concept A, this design reduces the traffic movements at interchanges and provides development opportunities along the entire length of the frontage roads.

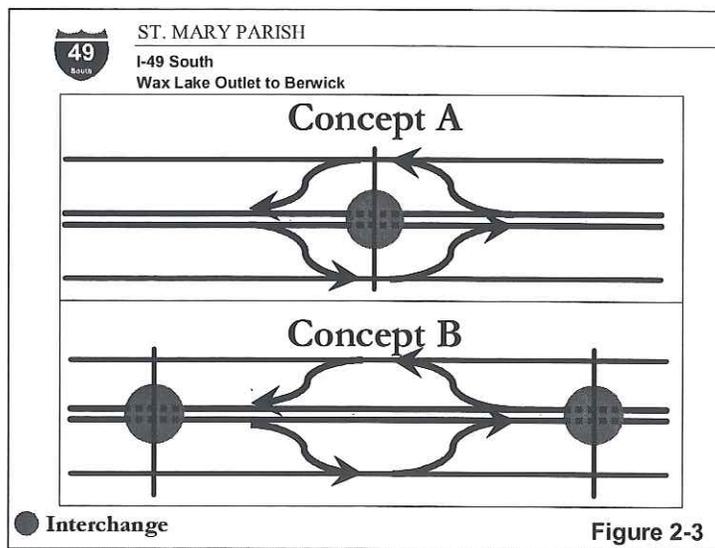
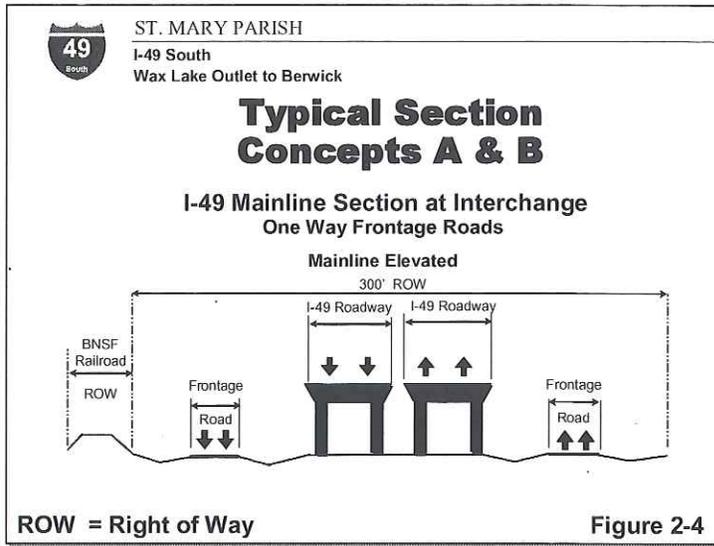


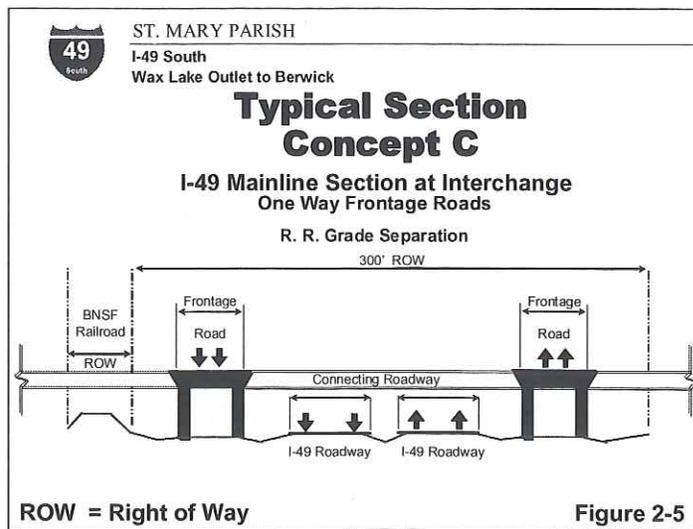
Figure 2-3

Concepts A and B typically fit within a right-of-way 300 feet in width for the highway mainline and the frontage roads (Figure 2-4). The required right-of-way width of the connecting roads was determined by traffic projections and intersection

capacity analysis, and might exceed existing available right-of-way. Concepts A and B are typically utilized in urban settings.



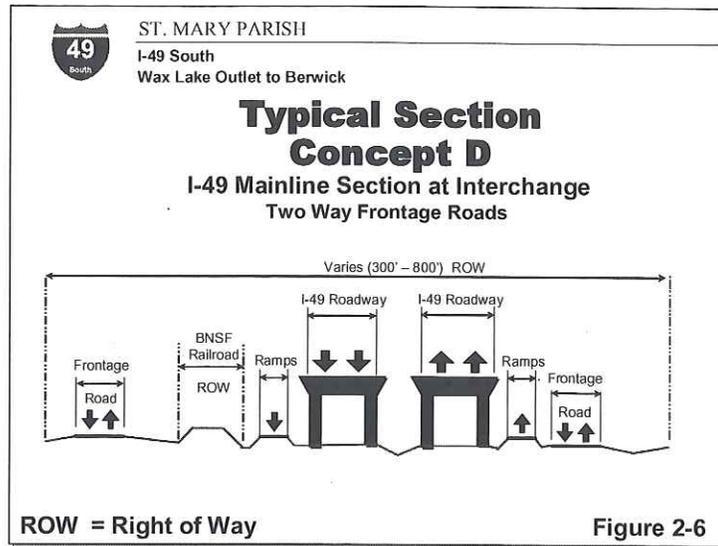
For most of the route, the BNSF Railroad parallels the existing US 90. Concept C was one of the concepts developed to address railroad issues. Concept C would have the exit geometry of either A or B, but the connecting road would be elevated over the highway mainline, which would allow grade separations at the railroad tracks (Figure 2-5).



Again, the required mainline and frontage road right-of-way would be 300 feet. The connecting roads would require additional right-of-way for the structure, even if the traffic projections do not identify a need for additional capacity.

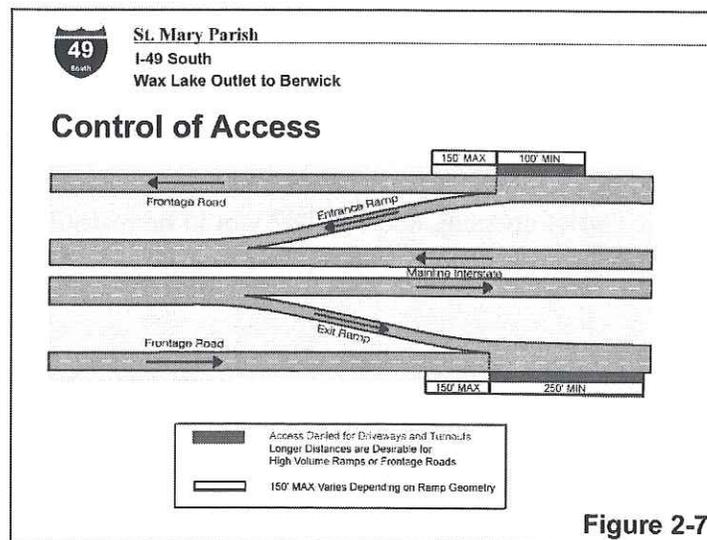
Concept C did not prove to be a suitable geometry and was it was not carried forward beyond the First Public Meeting in October 2000.

Concept D provides a conceptual view of the two-way frontage road geometry (Figure 2-6). This concept typically requires substantially more right-of-way, especially at connecting roads. Concept D is utilized in rural settings.



The need for control of access to frontage roads, as well as to the mainline highway, will also be an essential part of the design concept. Geometric details of Concepts A, B and D are presented in Exhibit 2-1.

To ensure safe operating conditions, driveways are typically prohibited in the areas where entrance and exit ramps meet the frontage roads (Figure 2-7).



## 2.4 No-Build Alternate

The no-build alternate would result in no upgrade of US 90 to interstate status as contemplated in the build alternates. US 90, along with its service roads and intersections, would remain in its existing configuration. Existing operational characteristics of the roadway would remain.

Improvements under a no-build alternate would be limited to routine roadway maintenance actions that would be undertaken by the LDOTD on an as-needed basis.

The project purpose and need would not be met by the no-build alternate. As US 90 does not currently meet interstate design standards, the roadway would not be able to safely and efficiently accommodate interstate commerce traffic as envisioned for Future I-49. Existing mainline and cross-street configurations would continue to inhibit through traffic movements as occurs today. Moreover, US 90 could not adequately serve as an I-10 alternate. With through traffic growth, local traffic movements would be inhibited to an increasing degree. This would exacerbate already serious safety concerns on US 90.

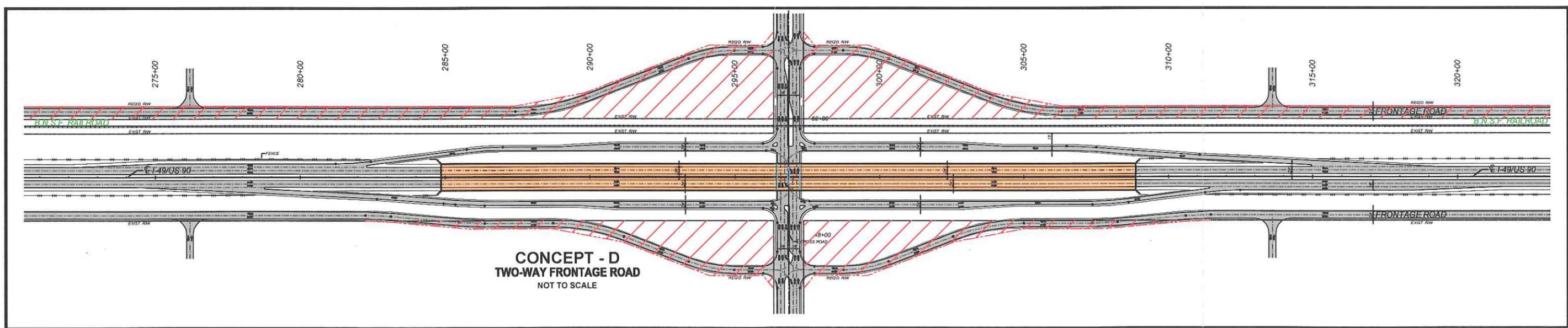
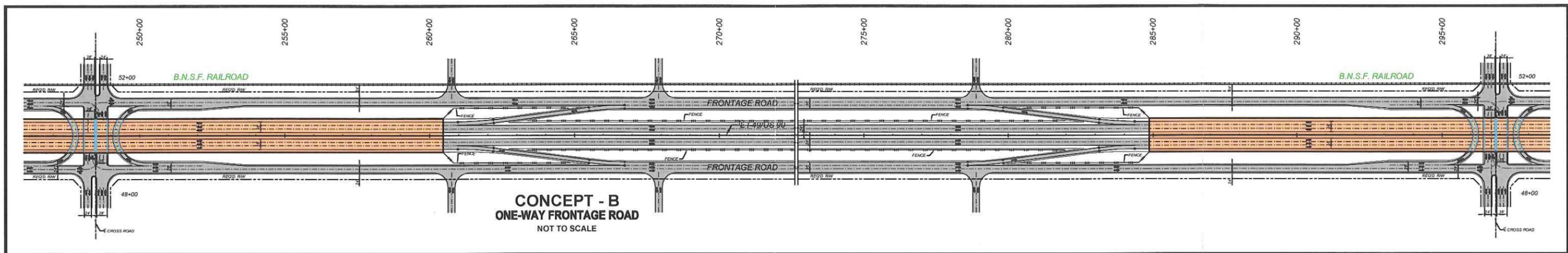
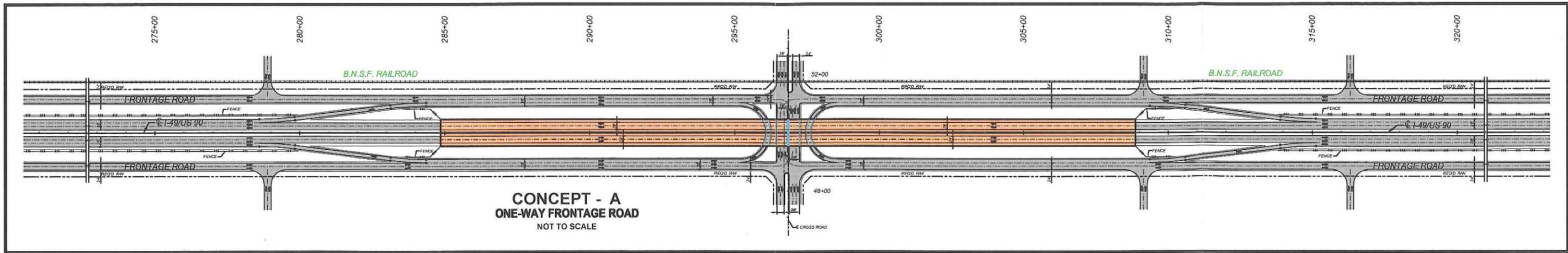
It has been demonstrated that US 90 does not currently have the capacity to accommodate traffic demand during a coastal evacuation event. With continued regional growth, increased evacuation traffic demand can be anticipated by the design year. Longer traffic delays and impaired mobility during an emergency event would result.

## 2.5 Line and Grade Alternates

The initial planning termini for the Wax Lake Outlet to Berwick Segment of Future I-49 South were identified as the US 90 connection with LA 182 Access Road East on the western end of the project, and the existing US 90 connection with the Lower Atchafalaya River Bridge/LA 182 on the eastern end of the project.

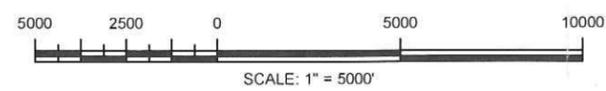
At the First Public Meeting held in October 2000, comments were made by farmers who cultivate land on both the east and west banks of Wax Lake Outlet. The farmers indicated an ongoing requirement to move "slow-moving" farm equipment from one side of Wax Lake Outlet to the other.

If the existing US 90/LA 182 bridge crossing of Wax Lake Outlet is designated for use as part of Future I-49, farmers would be prohibited from using that route to move their equipment, except by permit. Based on this concern, the project limit on the west was extended to include a new bridge crossing over Wax Lake Outlet to the current connection of LA 182 Access Road West and US 90. Future I-49 would use the existing Wax Lake Outlet crossing and LA 182 would be re-routed across the new Wax Lake Outlet bridge.



**LEGEND**

	GRADE ROADWAY		FENCE
	ELEVATED ROADWAY		R/W TO BE ACQUIRED
	RAILROAD		
	TRAFFIC FLOW		
	EXISTING RIGHT OF WAY		

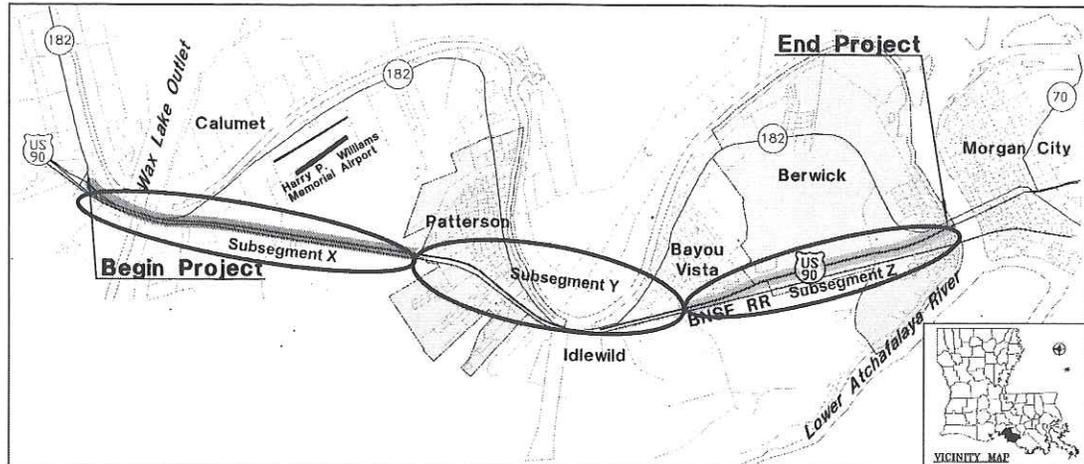


**I-49 SOUTH**  
**WAX LAKE OUTLET**  
**TO BERWICK**  
**EXHIBIT 2-1**  
**GEOMETRIC DETAILS**  
**OF FRONTAGE ROAD CONCEPTS**

ENVIRONMENTAL IMPACT STATEMENT  
I-49 SOUTH  
WAX LAKE OUTLET TO BERWICK

In applying the design concepts, the project corridor was divided into three subsegments that have been designated X, Y, and Z. Exhibit 2-2 shows the location of each of these subsegments.

**EXHIBIT 2-2  
PLANNING SUBSEGMENTS**



The three subsegment limits were defined by specific sets of traffic, land use, and environmental issues that distinguish one subsegment from another. This approach enabled the alternatives analysis to have a high level of flexibility to focus on specific corridor issues. Alternates could be developed, refined, or eliminated in one subsegment while not affecting the same process in another subsegment. In all subsegments, it is proposed that the mainline highway would be a four-lane facility.

Future traffic requirements for the entire planning segment were established by forecasting traffic under the build and no-build conditions at year 2010 and year 2030.

The conceptual engineering for the selected alternative is presented in the Project Atlas, Section 2.7. The Project Atlas consists of a series of aerial map plates with the proposed roadway improvements indicated in association with land use and other environmental features. Engineering typical sections keyed to the plates are also provided following the atlas plates.

**2.5.1 Subsegment X**

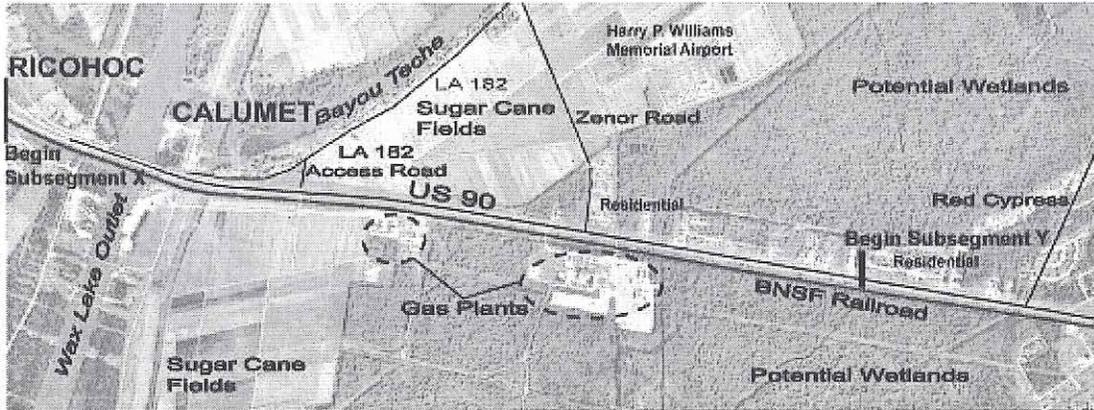
**2.5.1.1 Subsegment X – Existing Conditions**

Subsegment X extends from the connection of LA 182 Access Road West across Wax Lake Outlet via the new bridge over Wax Lake Outlet. The conversion of US 90 to I-49 begins at the eastern end of the existing US 90 bridge over Wax Lake outlet. The eastern terminus of Subsegment X is a point 5,300 feet east of Zenor Road. The BNSF Railroad borders existing US 90 on the south.

Two rural communities are located north of existing US 90 in the vicinity of Wax Lake Outlet. The community of Ricohoc is located on the west bank of Wax Lake

Outlet, and Calumet is located on the east bank. Much of the land bordering existing US 90 remains in agricultural use. (Exhibit 2-3.)

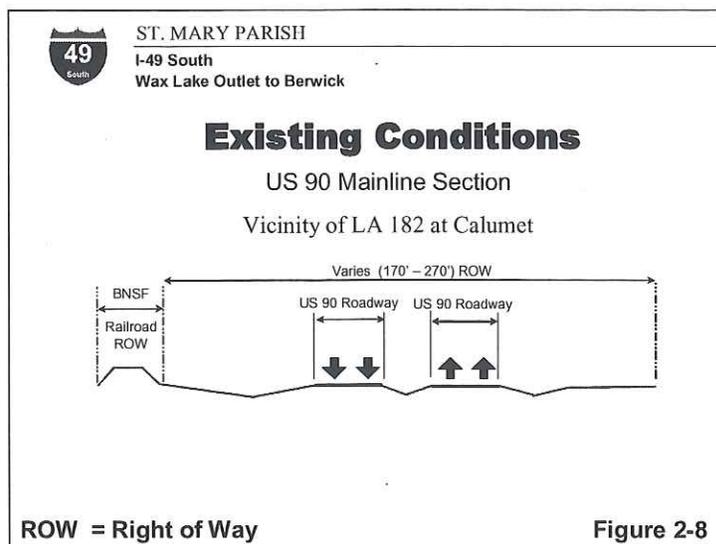
**EXHIBIT 2-3  
SUBSEGMENT X**



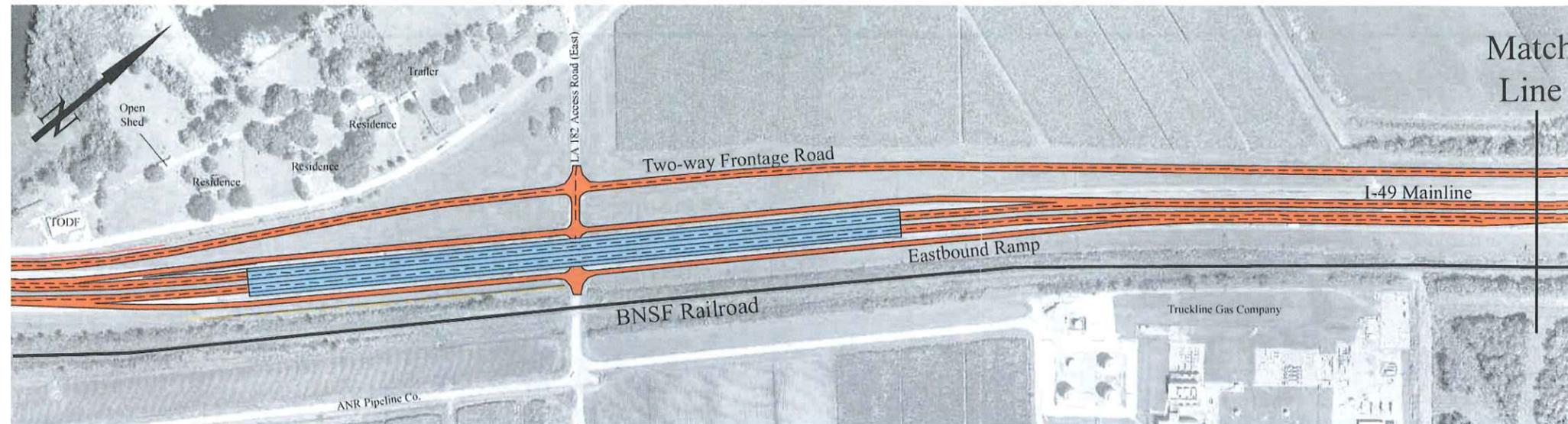
Also east of Wax Lake Outlet, two industrial complexes are located south of US 90. One is accessed from US 90 by a local roadway, which crosses the BNSF Railroad as a local route projection of LA 182 Access Road East. The other complex, which contains several operating business units, is accessed from US 90 by two private crossings of the BNSF Railroad in the vicinity of Zenor Road.

Continuing to the east through the remainder of Subsegment X, there are a number of residential developments located north of US 90 with undeveloped forested land located south of the BNSF Railroad.

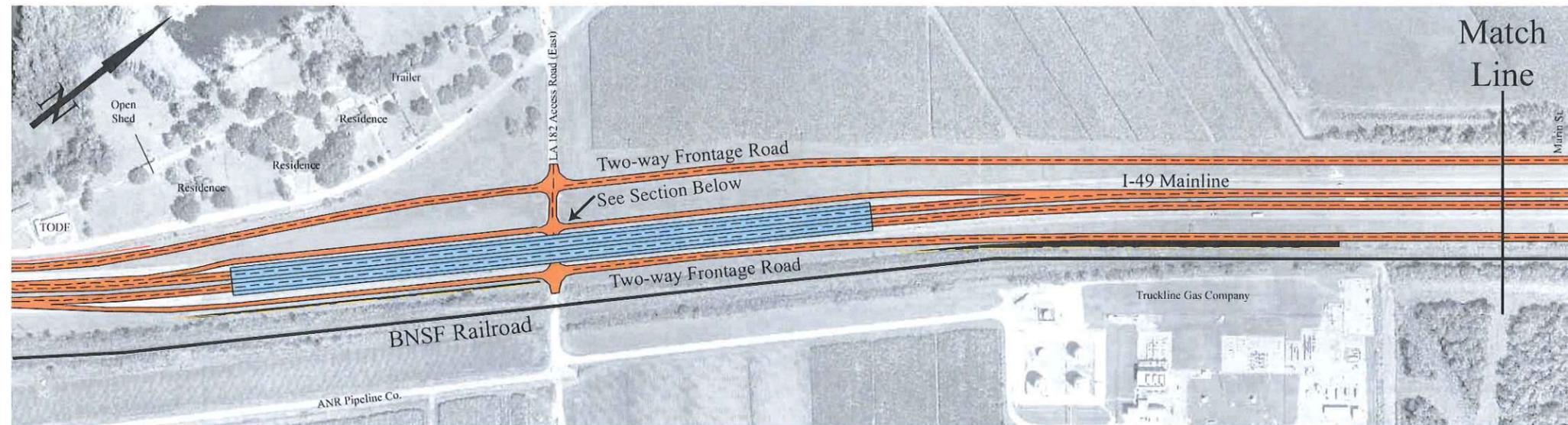
Throughout Subsegment X, existing US 90 is a four-lane rural route (Figure 2-8). Year 2000 Average Daily Traffic (ADT) of US 90 at LA 182 Access Road East is 19,500 vehicle per day.



### Alternate X-1



### Alternate X-2



 At-Grade Roadway

 Elevated Roadway (Bridge/Overpass)

 Required Additional ROW

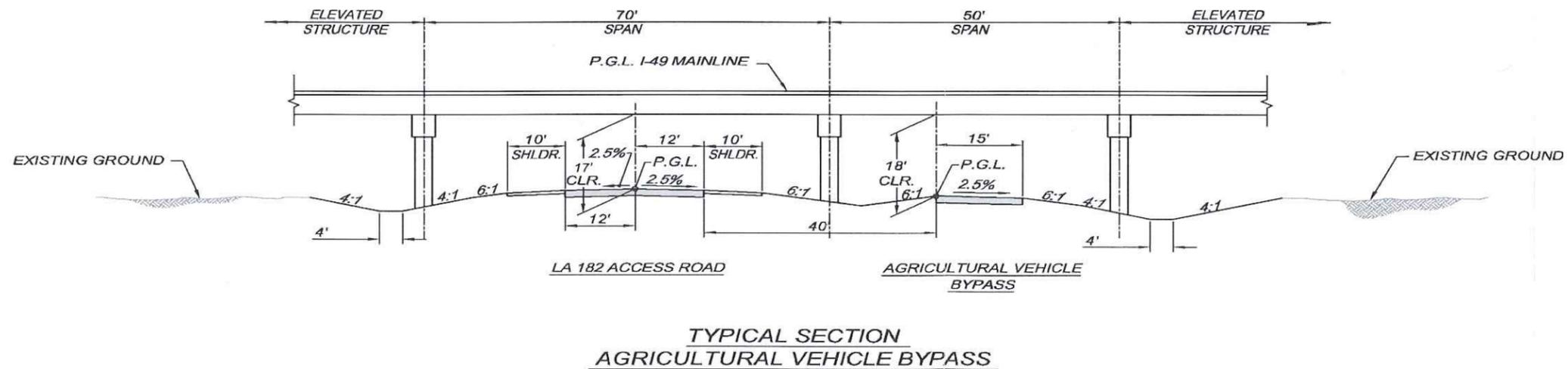
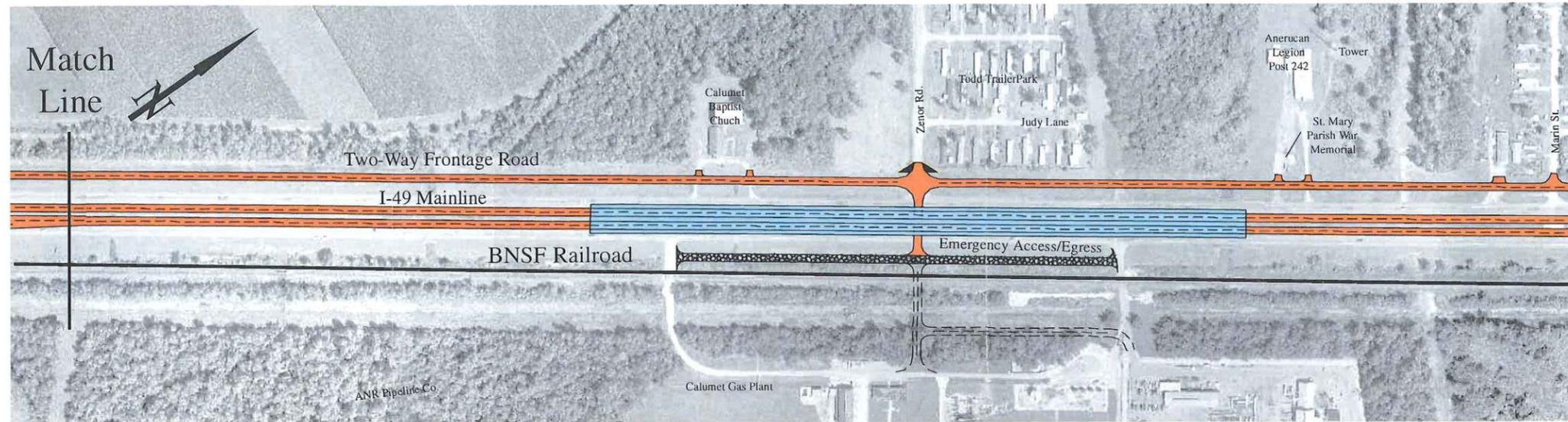


Exhibit 2-4A  
Subsegment X Comparison

### Alternate X-1



### Alternate X-2



  
At-Grade Roadway

  
Elevated Roadway  
(Bridge/Overpass)

  
Required Additional ROW

Exhibit 2-4B  
Subsegment X Comparison

### 2.5.1.2 Subsegment X, Line and Grade Alternates

Two alternates were considered for Subsegment X during the preparation of the DEIS. Both alternates would re-route LA 182 in the area between LA 182 Access Road West and LA 182 Access Road East from its current alignment, which is coincidental with US 90, to a new alignment, which crosses Wax Lake Outlet via a new two-way, two-lane bridge. The engineering analysis for crossing Wax Lake Outlet via a new bridge considered crossings both to the north and to the south of the existing US 90 bridge. There were constructability issues associated with locating another bridge structure between the existing US 90 bridge and the BNSF Railroad bridge. Consequently, the new bridge crossing of Wax Lake Outlet is located on the north side of the existing US 90 bridge.

Alternate X-1 was presented at the February 2000 Public Meeting (Exhibit 2-4A and B). Future I-49 through Subsegment X was initially proposed as a four-lane mainline roadway with a two-way, two-lane frontage road located to north for the following reasons:

- The BNSF Railroad parallels Future I-49 on the south. There are only three existing grade crossings of the railroad. Consequently, it is not necessary to provide continuous access to abutting properties on the south.
- Traffic projections indicate that a single two-way frontage road would accommodate future traffic demand. The anticipated year 2030 Average Daily Traffic for the Future I-49 at LA 182 East Access Road is 34,269 VPD.
- The one-way frontage road geometry, as presented in design concepts A and B, is typically applied in urban settings. This geometry assumes the continuous location of interchanges at a spacing of approximately one mile. For the length of the planning period, Future I-49 as routed through Subsegment X is anticipated to remain a rural roadway, which does not support the use of the one-way frontage road geometry.

Issues identified in the public participation process led to the development of Alternate X-2 (Exhibit 2-4 A and B). An important issue was the need to maintain the existing egress characteristics from the gas plants located south of the mainline at Zenor Road for safety purposes. Discussions with the management of the several plants led to the understanding that their operations would not be permitted for safety reasons if egress in both directions was not maintained. Alternate X-2 addresses this concern by providing a two-way frontage road south of the mainline from LA 182 Access Road East to the plants. East of the plants, the two-way road becomes a ramp onto eastbound I-49. In Alternate X-1, access to the gas plants south of Zenor Road is provided by a penetration under the Future I-49 mainline at Zenor Road. Because the mainline structure at Zenor Road is eliminated, the estimated construction cost of Alternate X-2 is substantially less than that for Alternate X-1.

Alternate X-2 was first presented to the public at the June 2001 Public Meeting. One remaining concern expressed at the June 2001 Public Meeting related to the proposed vertical clearance associated with the mainline structure over the LA 182 East Access Road. The proposed vertical clearance was 16.5'. Farmers requested that the clearance be raised to 18', so that their farm equipment could pass unimpeded under the mainline roadway. In response to this request, the LDOTD established a 17'

vertical clearance for the mainline structure. The Department further agreed to provide a bypass route under the mainline structure with a clearance of 18' to accommodate the movement of farm equipment, as presented on Exhibit 2-4A.

Alternate X-2, with associated modifications relating to vertical clearance at LA 182 East Access Road, is the selected alternative as presented at the Public Hearing in May 2006. During the preparation of this FEIS, it was determined that the proposed interchange at LA 182 Access Road East did not conform to the rural interchange spacing requirements based on the intended construction of an interchange at LA 182 Access Road West in Ricohoc. As a result, this interchange has been removed from the selected alternative. Exhibit 2-4C indicates the associated removals. As shown in the Project Atlas on Plates 2a and 2b, the grade separation at LA 182 Access Road East and the two-way frontage road from there to the entrance ramp remain to serve the industrial and agricultural activities south of the mainline. Plates 1a through 3b describe Subsegment X.

### **2.5.1.3 Subsegment X, Right-of-Way Requirements**

The design of Subsegment X provides for the greatest portion of the proposed improvements to occur within the existing US 90/LA 182 right-of-way. Exceptions would occur at LA 182 Access Road West, at LA 182 Access Road East, at Zenor Road, and to accommodate a portion of the two-way frontage road located south of the Future I-49 mainline.

Right-of-way acquisition in these areas would be minimized to the greatest extent possible, but cannot be avoided for reasons of constructability and minimum geometrical requirements. Approximately 1.1 acres would be acquired. No business or residential takings are anticipated in Subsegment X.

## **2.5.2 Subsegment Y**

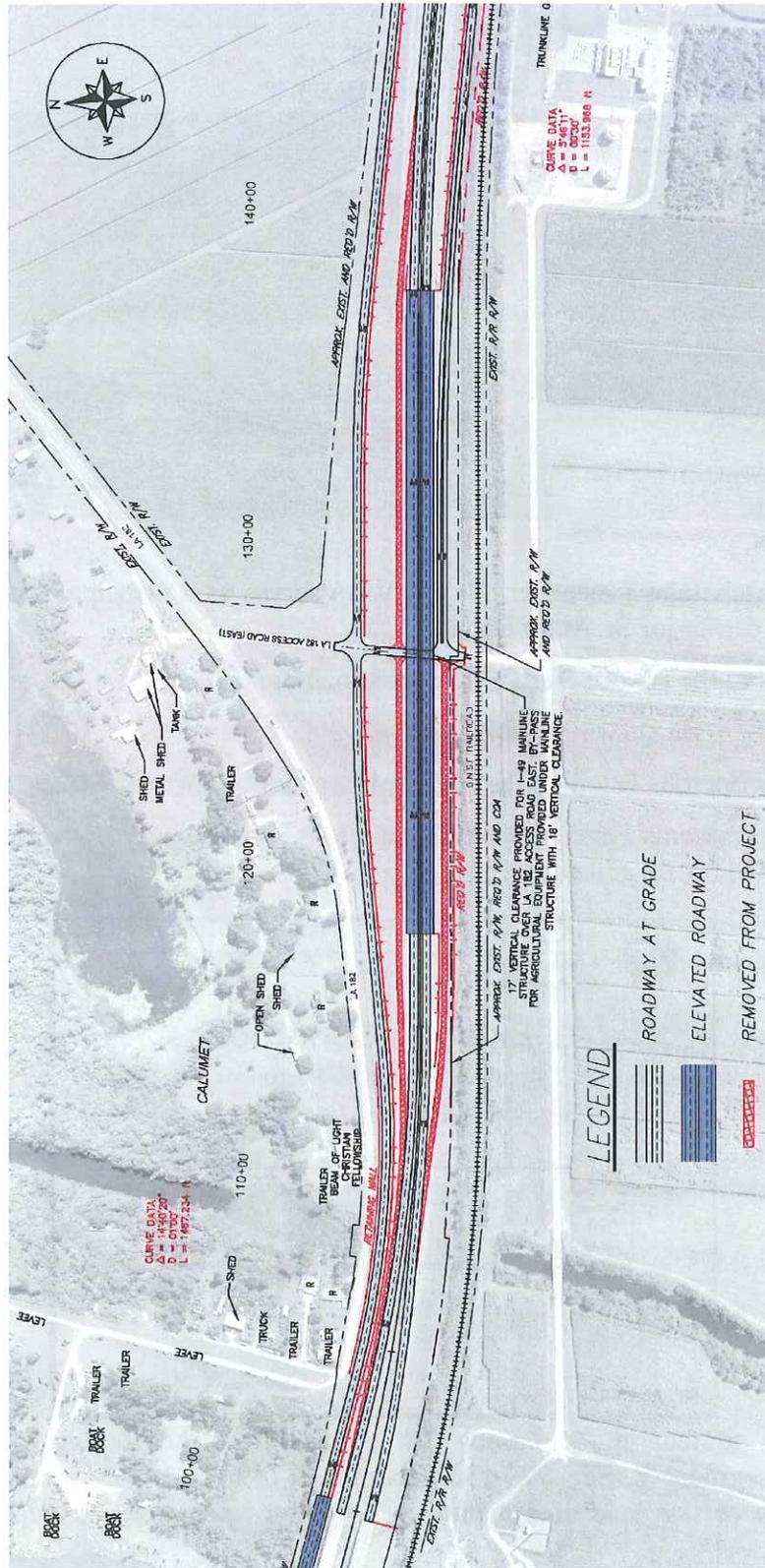
### **2.5.2.1 Existing Conditions**

Subsegment Y extends from Subsegment X to a point 2400 feet west of Southeast Boulevard (Exhibit 2-5). Within Subsegment Y, US 90 is a four-lane route, which traverses through the communities of Patterson and Bayou Vista. US 90 is the "main street" for Patterson and Bayou Vista.

Throughout Subsegment Y, there is a concern for potential community disruption impacts, which might result from locating a limited access roadway into this community. The BNSF Railroad abuts the existing US 90 right-of-way to the south throughout Subsegment Y. In this subsegment, year 2000 Average Daily Traffic (ADT) on US 90 reaches 24,100 VPD between Church and Catherine Streets and is 25,460 VPD at the Atchafalaya Meander.

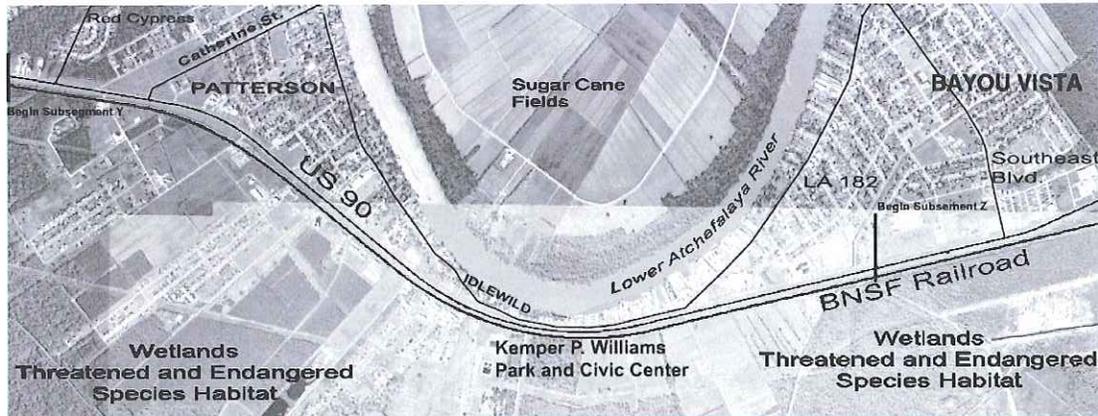
Patterson is principally a residential community, which already experiences traffic circulation problems associated with local roadway crossings of the BNSF Railroad. There are also commercial areas along US 90, which must be served. North/south traffic circulation may be further affected by the conversion of US 90 to Future I-49.

### Exhibit 2-4C Removal of Interchange at LA 182 Access Road East



For a portion of the route through Subsegment Y in Idlewild, the meander of the Lower Atchafalaya River constricts the US 90 corridor by locating the BNSF Railroad, US 90 and LA 182 into a common corridor (Figure 2-9).

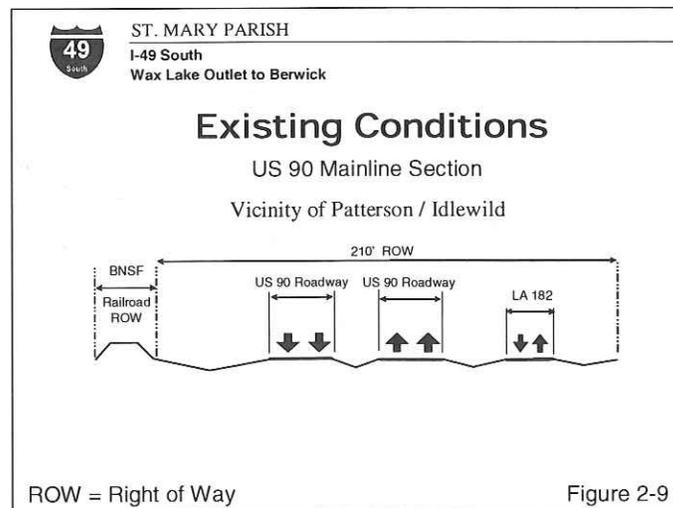
**EXHIBIT 2-5  
SUBSEGMENT Y**



East of the Atchafalaya meander, Bayou Vista serves as a principal commercial and employment center for St. Mary Parish.

The concerns in the area of the Idlewild area include:

- an existing right-of-way less than 300 feet,
- several properties listed on the National Register of Historic Places,
- Kemper Williams Park, and which functions as a publicly owned park and as a major local traffic generator.



With respect to federal regulations that would affect the routing of Future I-49 through Subsegment Y, Sec. 771.135 Section 4(f) (49 USC. 303) establishes federal protection for certain land uses including publicly owned parks, recreation areas, or

wildlife and waterfowl refuges, or any significant-historic site unless a determination is made that:

- (i) There is no feasible and prudent alternative to the use of land from the property; and
- (ii) The action includes all possible planning to minimize harm to the property resulting from such use.

Section 4(f) protection applies to both Kemper Williams Park and properties listed on, or eligible for listing on, the National Register.

#### **2.5.2.2 Subsegment Y, Line and Grade Alternates**

Year 2030 Average Daily Traffic (ADT) at the Atchafalaya Meander for the build condition is 48,304 vehicles per day. Four line and grade alternates were presented at the Public Meeting of February 2001. These are designated Y-1, Y-2, Y-3, and Y-4. (See Exhibits 2-6A-2-6D.)

In all alternates there would be a four-lane mainline highway. The two-way frontage road geometry utilized in Subsegment X transitions to a one-way frontage road system at the Red Cypress Road interchange. To the east of Red Cypress, this subsegment varies by alternate. The following figures show typical roadway sections at Kemper Williams Park that highlight the major differences among these alternates.

Alternate Y-4 includes a grade separation structure that crosses over the BNSF Railroad and Future I-49 to connect Catherine Street on the north side of the right-of-way with Waveland Road on the south. This grade separation of both the highway and the BNSF, as shown in Exhibit 2-6D would provide a safe means of linking the two parts of Patterson that are separated by the BNSF and, potentially, the Future I-49 improvements.

At the February 2001 Public Meeting, there was public consensus that Alternate Y-4 was preferred as it provided a continuous elevated mainline structure throughout the Idlewild area. The structure returned to grade on the east of the Tiffany Street/Lipari Street, however. In response to requests of representatives of the City of Patterson to maintain the north/south access across US 90 at the Tiffany/Lipari intersection, Alternate Y-4 as presented at the June 2001 Public Meeting included the extension of the structure in consideration of this request.

However, at the May 2, 2006, DEIS Public Hearing/Open House, substantial comment was received from the Mayor of Patterson, a Councilman, and local property owners asking that the grade separation over the highway and the BNSF be either moved or eliminated. The concern was that the land acquisition required to construct the overpass would have an adverse impact on the ability of the potentially affected properties to be developed in the future. Properties fronting on US 90 were indicated as being of primary economic interest.

An evaluation of traffic operations in the area without the overpass indicates satisfactory LOS can be maintained in the Design Year at other intersections. For this reason, the overpass was eliminated from the project and no new site for an overpass will be considered as part of this project. It should be noted that the realignment of the Veterans Drive/frontage road intersection will be constructed as shown on Exhibit

2-6D. Realignment is needed to provide adequate separation between it and the frontage road ramp to the east.

In the absence of the overpass and to facilitate traffic flow, Texas style U-turns will be provided at the Tiffany/Lipari intersection. The U-turns will be designed to channelize traffic, thereby avoiding potential conflicts with movements from driveways along the frontage road.

Another issue raised at the February 2001 Public Meeting was the need to provide pedestrian/bicycle access to Kemper Williams Park from areas of Patterson located north of existing US 90. Alternate Y-4 includes a plan for providing the requested access. The plan for pedestrian/bicycle access with a discussion relating to the engineering analysis thereto is more fully described in Section 4.20.3.

Alternate Y-4, as presented at the June 2001 Public Meeting with the bicycle access plan and revised subsequent to the May 2, 2006 Public Hearing/Open House to eliminate the Catherine/Waveland overpass, is the selected alternative in Subsegment Y as presented in the Project Atlas, Plates 4a through 7a.

### **2.5.2.3 Subsegment Y Right-of-Way Requirements**

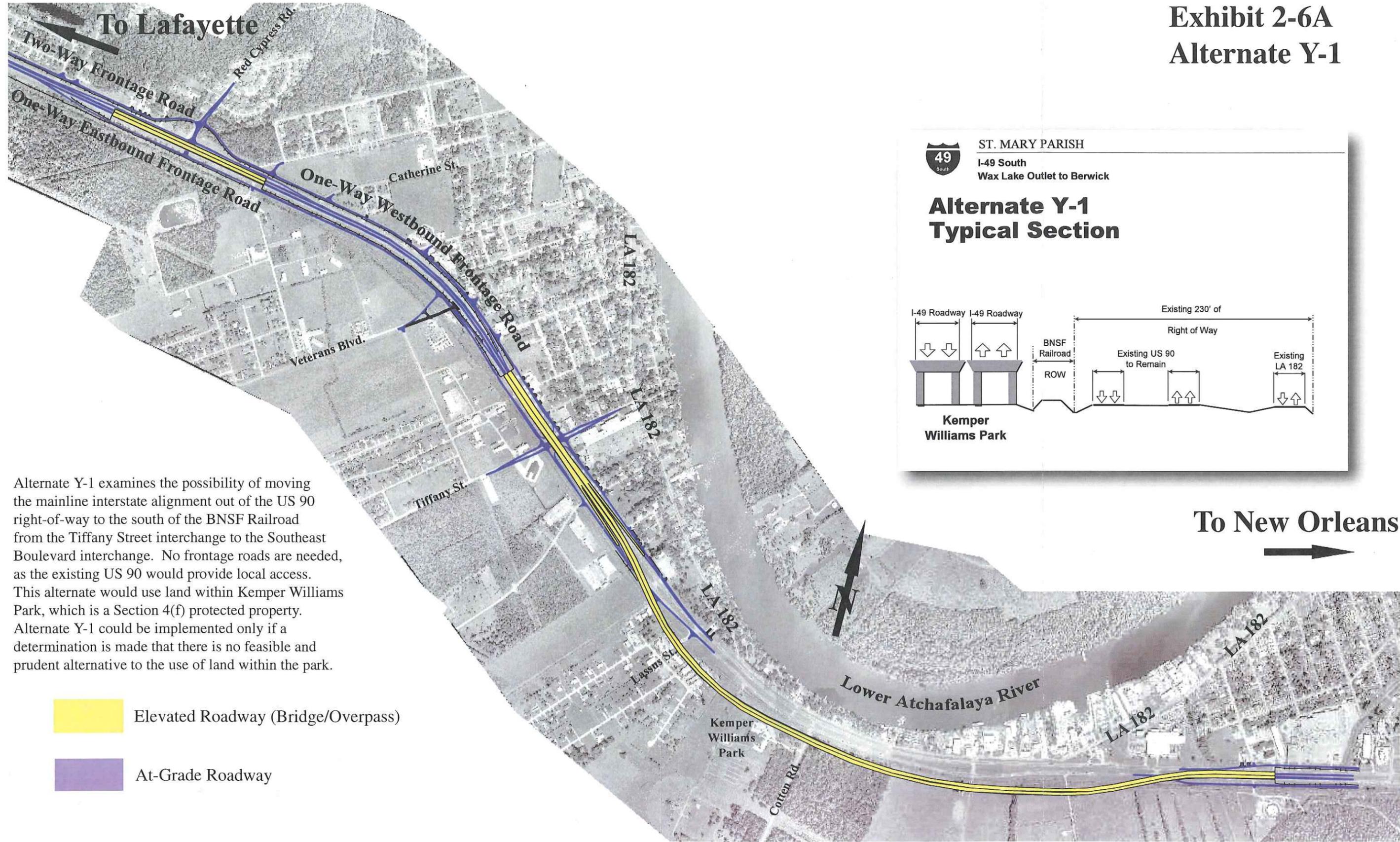
The conceptual design of Subsegment Y provides for the greatest portion of the proposed improvements to occur within the existing US 90/LA 182 right-of-way. Right-of-way acquisition in these areas would be minimized to the greatest extent possible, but cannot be avoided for reasons of constructability and minimum geometrical requirements.

Approximately 4.24 acres of additional right-of-way will be required throughout Subsegment Y. Most of the additional right-of-way will be associated with the Red Cypress Road Interchange (approximately 2 acres) and the new roadway segments which link LA 182 east and west of Idlewild to the new at-grade boulevard section.

There are also many locations where smaller amounts of right-of-way will be acquired, principally at the intersections of existing local streets and the proposed frontage roads. These include the frontage road intersections with Todd Street, Grandwood Street, Park Street, Catherine Street, Church Street, Railroad Avenue, Wise Street, St. Peter Street, Susan Street, Lipari Street, Tiffany Street, Bernard Street, Callahan Street, Universe Road, and Delmar Street.

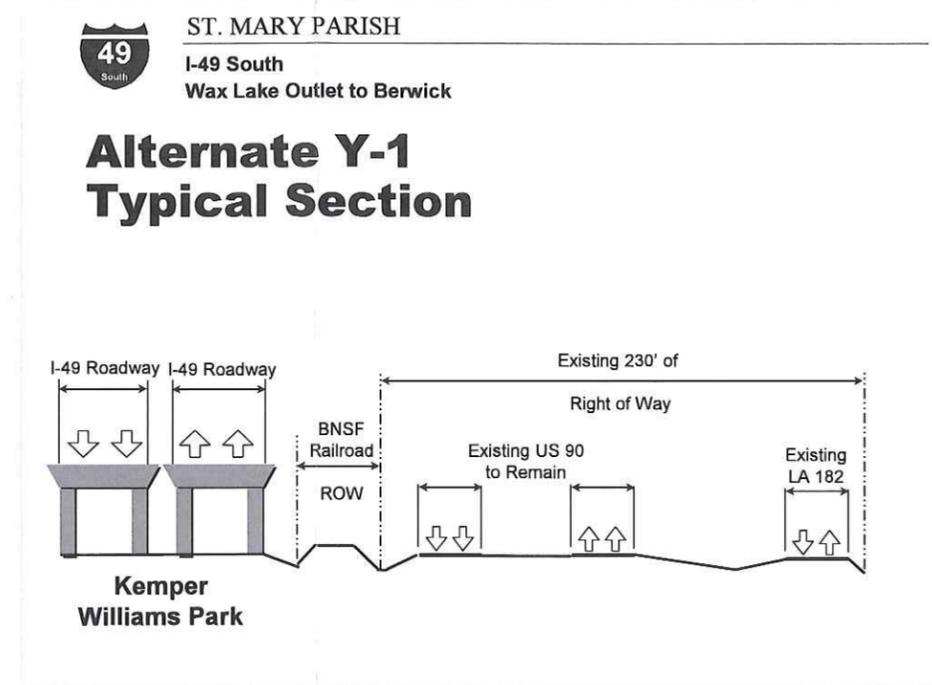
No commercial or residential takings are anticipated in Subsegment Y. Entrance and exit ramps have been located so as to avoid and/or minimize control of access conflicts with abutting properties. However, as presented in Table 2-5, there are two locations within Subsegment Y where properties may be impacted by control of access.

# Exhibit 2-6A Alternate Y-1

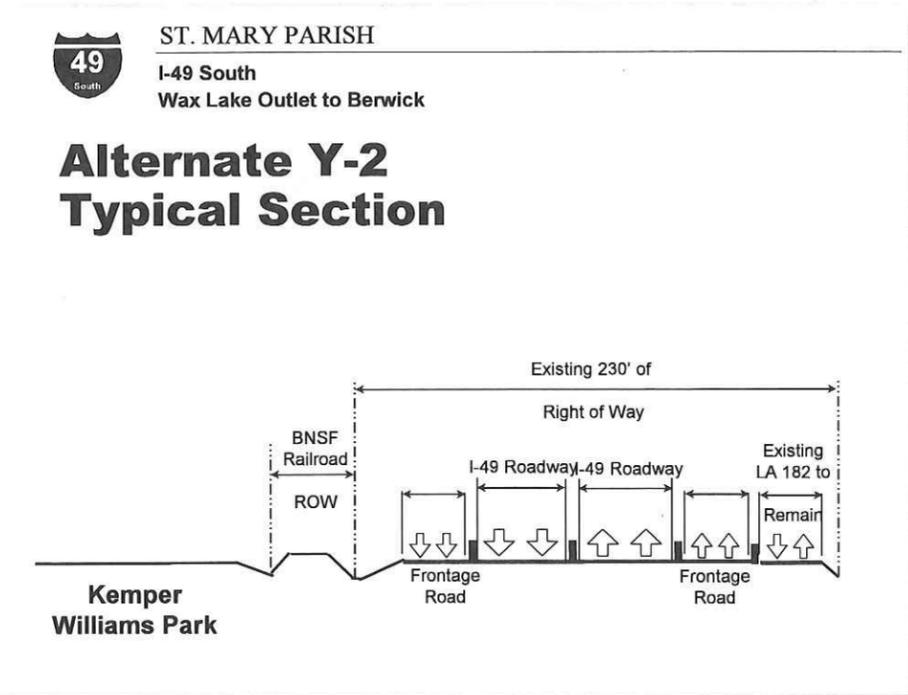
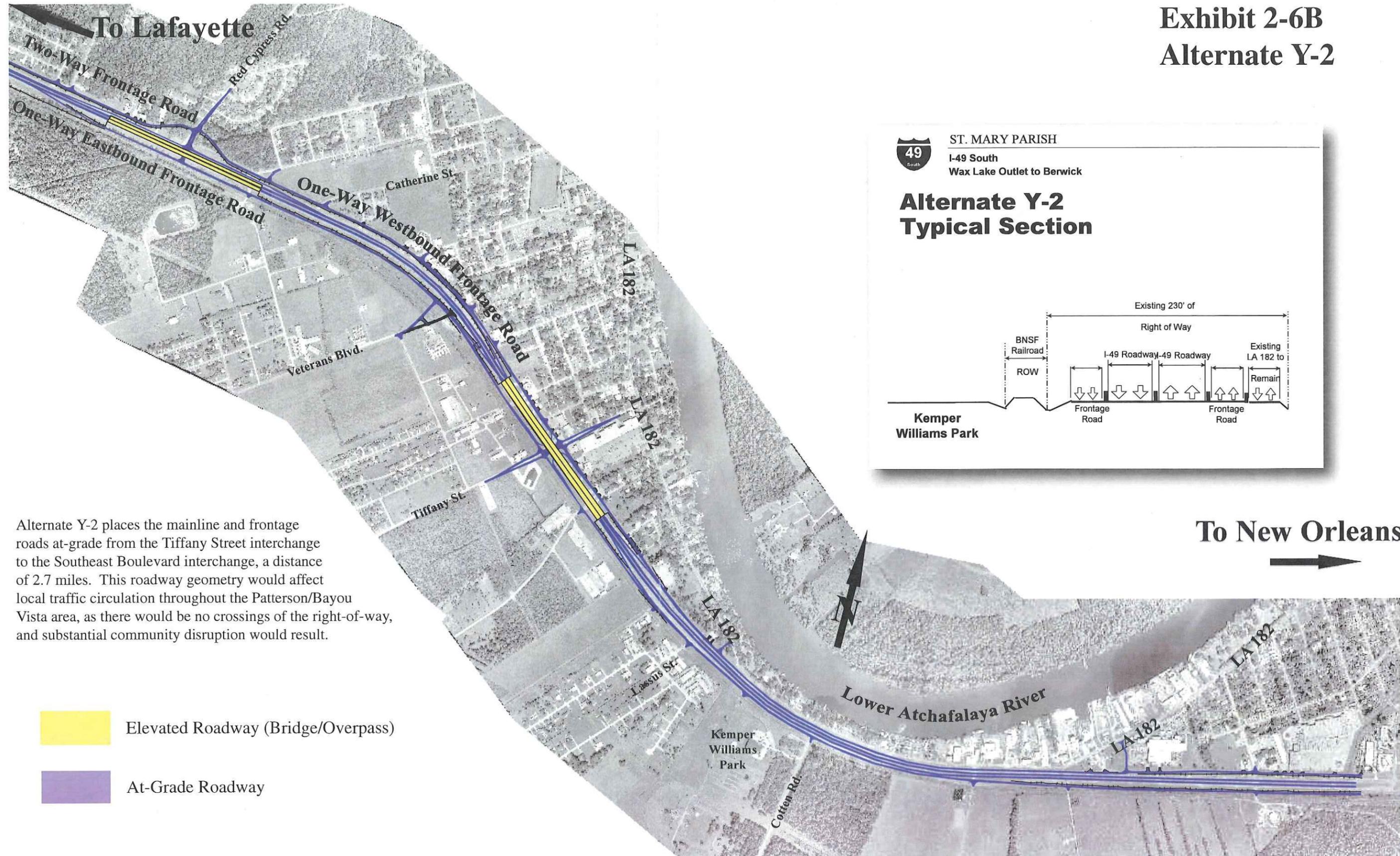


Alternate Y-1 examines the possibility of moving the mainline interstate alignment out of the US 90 right-of-way to the south of the BNSF Railroad from the Tiffany Street interchange to the Southeast Boulevard interchange. No frontage roads are needed, as the existing US 90 would provide local access. This alternate would use land within Kemper Williams Park, which is a Section 4(f) protected property. Alternate Y-1 could be implemented only if a determination is made that there is no feasible and prudent alternative to the use of land within the park.

- Elevated Roadway (Bridge/Overpass)
- At-Grade Roadway



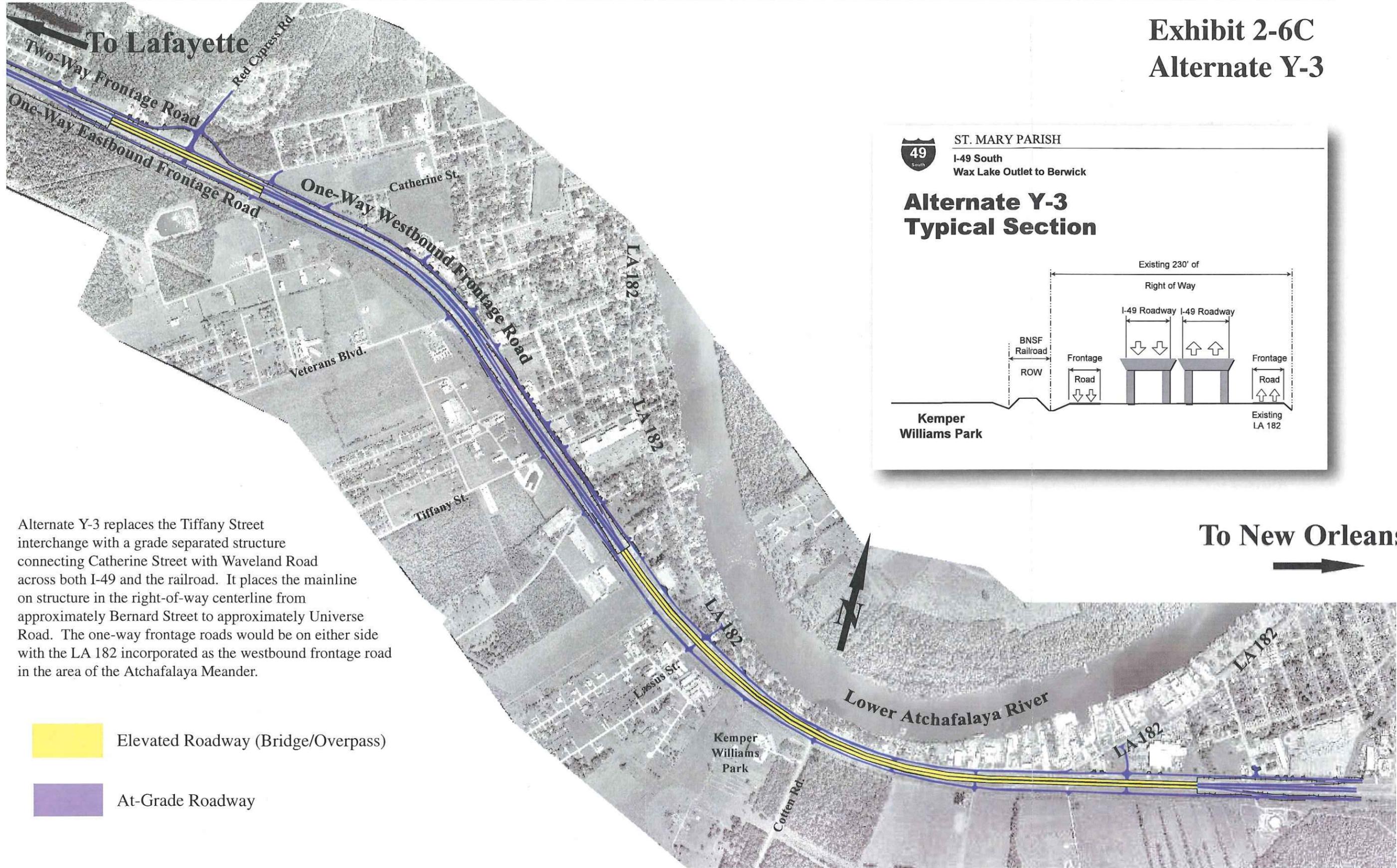
# Exhibit 2-6B Alternate Y-2



Alternate Y-2 places the mainline and frontage roads at-grade from the Tiffany Street interchange to the Southeast Boulevard interchange, a distance of 2.7 miles. This roadway geometry would affect local traffic circulation throughout the Patterson/Bayou Vista area, as there would be no crossings of the right-of-way, and substantial community disruption would result.

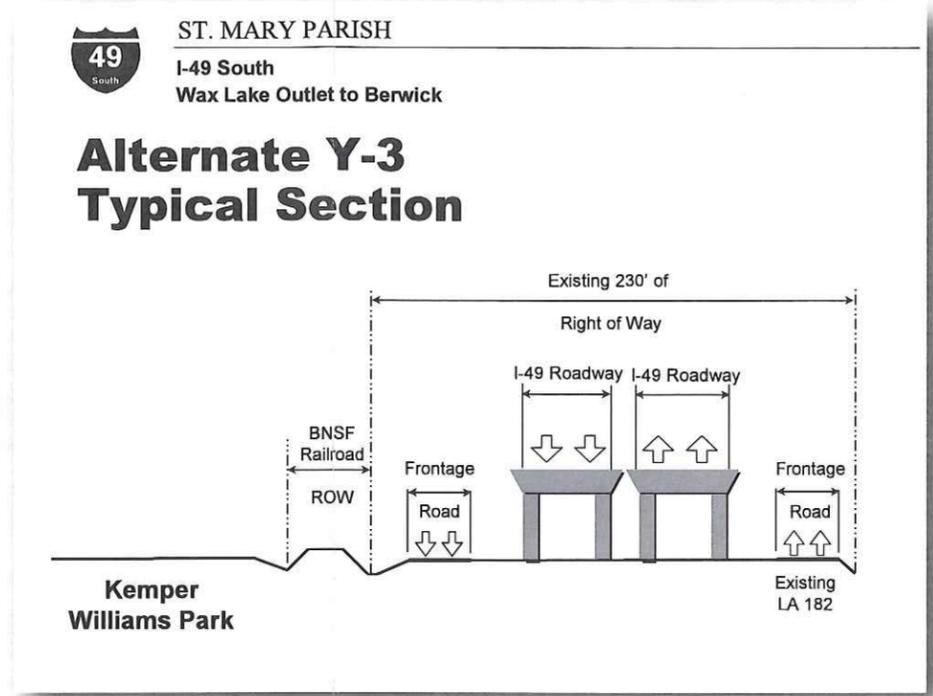
- Elevated Roadway (Bridge/Overpass)
- At-Grade Roadway

# Exhibit 2-6C Alternate Y-3



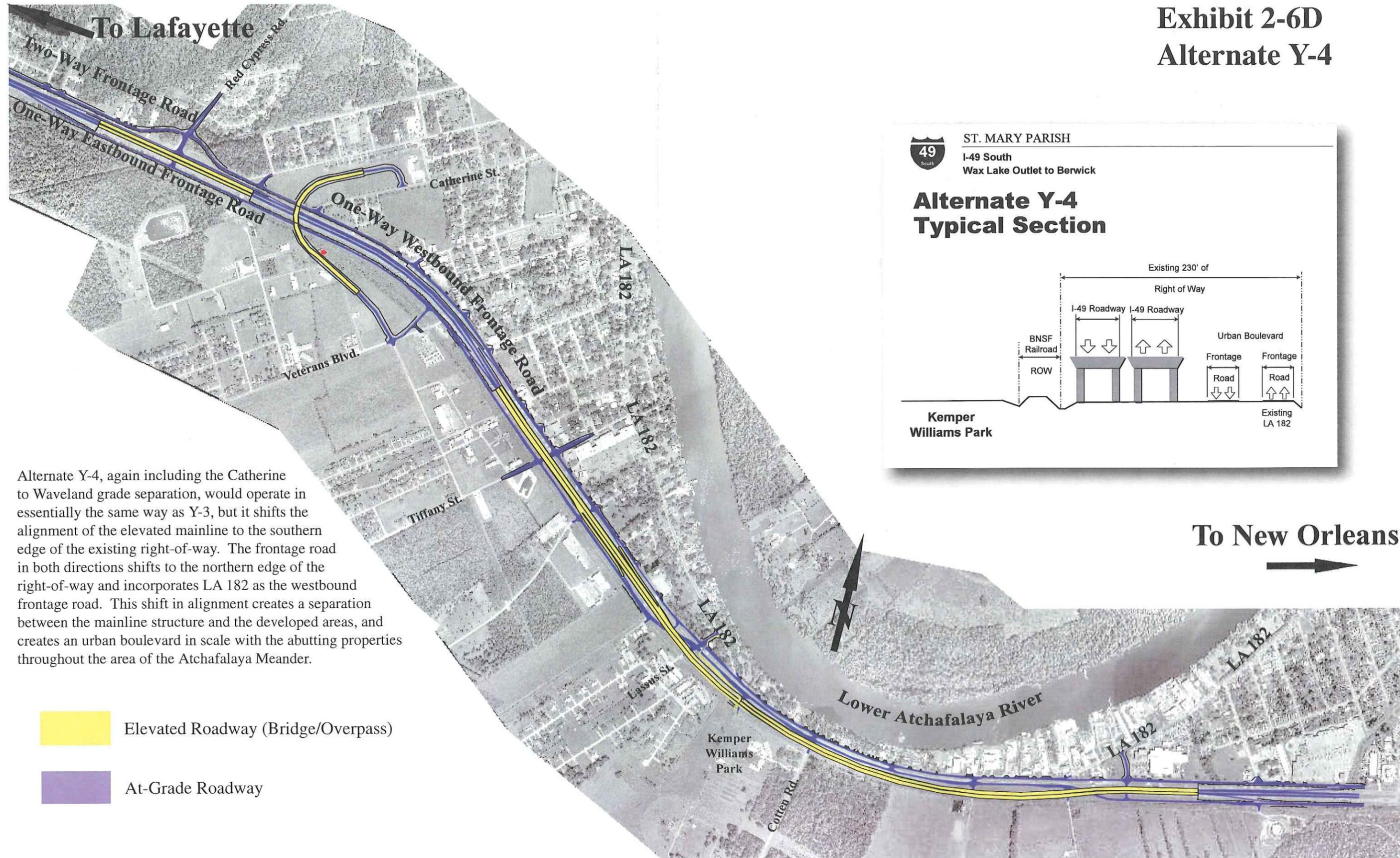
Alternate Y-3 replaces the Tiffany Street interchange with a grade separated structure connecting Catherine Street with Waveland Road across both I-49 and the railroad. It places the mainline on structure in the right-of-way centerline from approximately Bernard Street to approximately Universe Road. The one-way frontage roads would be on either side with the LA 182 incorporated as the westbound frontage road in the area of the Atchafalaya Meander.

- Elevated Roadway (Bridge/Overpass)
- At-Grade Roadway



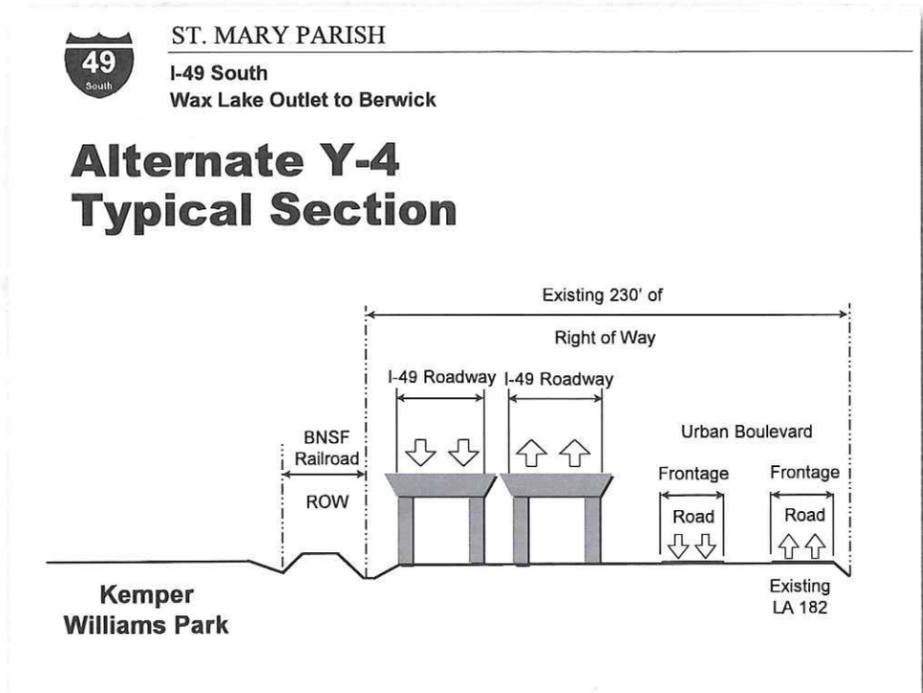
**To New Orleans**  
➔

# Exhibit 2-6D Alternate Y-4



Alternate Y-4, again including the Catherine to Waveland grade separation, would operate in essentially the same way as Y-3, but it shifts the alignment of the elevated mainline to the southern edge of the existing right-of-way. The frontage road in both directions shifts to the northern edge of the right-of-way and incorporates LA 182 as the westbound frontage road. This shift in alignment creates a separation between the mainline structure and the developed areas, and creates an urban boulevard in scale with the abutting properties throughout the area of the Atchafalaya Meander.

- Elevated Roadway (Bridge/Overpass)
- At-Grade Roadway



**2.5.3 Subsegment Z**

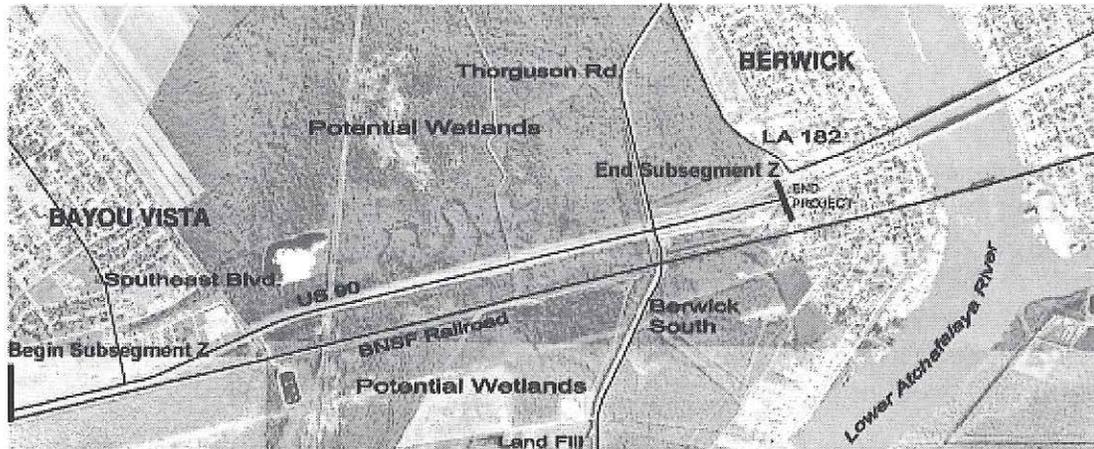
Subsegment Z extends from the terminus of Subsegment Y to the Lower Atchafalaya River Bridge Approach in Berwick (Exhibit 2-7).

**2.5.3.1 Existing Conditions**

Within Subsegment Z, US 90 is a four-lane route, which traverses through Bayou Vista and Berwick. Year 2000 Average Daily Traffic (ADT) for US 90 at Southeast Boulevard is 26,021 vehicles per day. For a portion of the route through Subsegment Z, the BNSF Railroad abuts the existing US 90 right-of-way to the south. Undeveloped forested areas are located to the south of existing US 90.

North of existing US 90, the western portion of Subsegment Z in Bayou Vista is substantially developed as commercial properties, with the local Wal-Mart serving as the area’s principal traffic generator. There are also large tracts of undeveloped land located north of existing US 90. Most of these areas are located within the incorporated municipality of Berwick.

**EXHIBIT 2-7  
SUBSEGMENT Z**



Portions of the undeveloped land located in proximity to existing US 90 may be wetlands with habitat value for various species, including the Louisiana Black Bear, (*Ursus americanus luteolus*). The project terminates into a combined interchange connection with the Thorguson Drive, the bridge crossing of the Lower Atchafalaya River and LA 182.

**2.5.3.2 Subsegment Z, Line and Grade Alternates**

Two alternates were considered for Subsegment Z as shown on Exhibit 2-8. Alternate Z-1 was presented initially at the February 2001 Public Meeting. For a portion of the route, Alternate Z-1 provides only the mainline interstate highway. No frontage roads are included within Berwick west of Thorguson Drive. Also, control of access would be maintained between Thorguson Drive and LA 182 to the east of Thorguson Drive. This limitation of access to properties abutting the Future I-49 was

intended to discourage development of land that may be wetlands with habitat value for various species, including the Louisiana black bear, (*Ursus americanus luteolus*).

At the February 2001 Public Meeting, the Town of Berwick officially expressed a number of concerns relating to Alternate Z-1. These include:

- Emergency Preparedness – Officials expressed concern that there be some form of bypass available, should an incident occur on the main line interstate.
- Consistency with local plans – Berwick officials consider the undeveloped forested areas prime sites for future development. This is reflected in their thoroughfare plan, which includes a new four-lane roadway connection between LA 182 and US 90 (Future I-49). The new roadway is designated Pattie Drive.

Berwick officials requested that frontage roads be included in the proposed action for Future I-49. The Louisiana Office of Emergency Preparedness also expressed a concern that frontage roads be included in the selected alternative to provide additional capacity during hurricane evacuation situations.

Alternate Z-2 was developed in response to these comments. Both Alternate Z-1 and Alternate Z-2 were presented at the June 2001 Public Meeting. Alternate Z-2 provides a westbound one-way frontage road on the north side of the Future I-49 mainline. Because it provides for an intersection with Pattie Drive, Alternate Z-2 is consistent with the Berwick thoroughfare plan. It also responds to the noted comments from the Louisiana Office of Emergency Preparedness. Alternate Z-2 also differs from Z-1 in that it allows for the properties located to the east of Thorguson Drive on the north side of Future I-49 to directly access the frontage road.

The versions of Alternate Z-1 and Alternate Z-2, as presented at the June 2001 Public Meeting, both included two travel lanes in each direction for the mainline roadway. At the June 2001 Public Meeting, Berwick officials requested that two-way frontage roads be included as part of Future I-49 both to the north and to the south of the Future I-49 mainline. In particular they were concerned that local trips to/from Bayou Vista be able to be accomplished without requiring that vehicles enter onto the Future I-49 mainline (Exhibit 2-9).

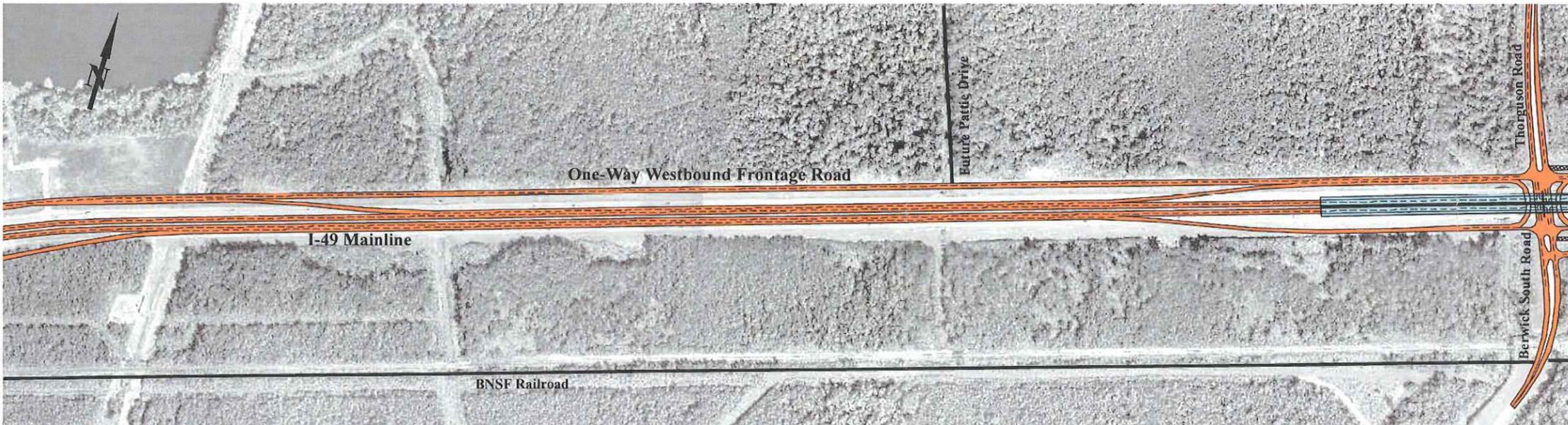
In response to these comments, the proposed roadway geometry was revised. Without major revisions to the project involving substantial taking of additional right-of-way at both the Southeast Boulevard and the Thorguson Drive interchanges, it was not possible to provide for two-way frontage roads through Berwick. However, an additional travel lane in each direction was included on the Future I-49 mainline in both alternates between Southeast Boulevard and Thorguson Drive. These lanes would allow vehicles to travel between Bayou Vista and Berwick without entering the main stream of Future I-49 traffic.

Therefore, Alternate Z-1 and Alternate Z-2 differ in the frontage road access they provide to abutting properties. The additional access to abutting properties as provided in Alternate Z-2, especially west of Thorguson Drive, would support secondary development on land that may be wetlands with habitat value for various species, including the Louisiana black bear, (*Ursus americanus luteolus*).

### Alternate Z-1



### Alternate Z-2



**At-Grade Roadway**



**Elevated Roadway  
(Bridge/Overpass)**

Exhibit 2-8  
Subsegment Z Comparison

ENVIRONMENTAL IMPACT STATEMENT  
I-49 SOUTH  
WAX LAKE OUTLET TO BERWICK

Both alternates were carried forward in the Draft Environmental Impact Statement (DEIS) to provide agencies, officials, and the public with the opportunity to comment. The USFWS reiterated in their May 31, 2006 letter that they could not support Alternate Z-2 because:

- the northern frontage road would induce development, and
- an alternative exists which would not have that impact.

The USFWS letter is included in Chapter 5. During the Public Hearing/Comment Period, substantial support for Z-2 was received from municipal officials and the public, while little support was received for Z-1.

In consideration of all comments and having made the provision for an extra travel lane for local travel on I-49 South between Southeast Boulevard and Thorguson Drive, the DOTD and FHWA selected Alternate Z-1 because there is currently is no planned development for the land north of the proposed I-49 in Berwick. The selected alternative would not prohibit future construction of a frontage road.

The DOTD would commit to constructing the frontage road contingent on:

- The property abutting the right-of-way on the north receiving development rights from the Town and the regulatory agencies;
- The property owners demonstrating the commitment for the development to occur; and
- The frontage road receiving environmental approval from FHWA.

Another comment relative to Subsegment Z requested an extension of Robinson Road to allow access to an undeveloped property east of Thorguson Drive and north of US 90. The selected alternative has been revised to include a provision to extend Robinson Road westward within DOTD right-of-way to approximately Station 585+00 where it would dead end. Plates 7b through 9b in the Project Atlas show the selected alternative.

### **2.5.3.3 Subsegment Z, Right-of-Way Requirements**

The conceptual design of Subsegment Z provides for the greatest portion of the proposed improvements to occur within the existing US 90/LA 182 right-of-way. Right-of-way acquisition in these areas would be minimized to the greatest extent possible, but cannot be avoided for reasons of constructibility and minimum geometric requirements.

The locations where smaller amounts of right-of-way will be acquired, principally at the intersections of existing local streets and the proposed frontage roads include frontage road intersections with Southeast Boulevard, Fairview Street, Anthony Street, and the access roadway to the Berwick sewage treatment facility. Also Utah Street will be re-aligned slightly in the vicinity of Berwick South Road. A total of .5 acres of additional required right-of-way will be acquired. There are no relocations anticipated as a result of the selected alternative. Control of Access Impacts are presented in Table 2-5.

## 2.6 Summary

### 2.6.1 Selected alternative

The selected alternative for the Wax Lake Outlet to Berwick corridor consists of the alternates as presented in the Public Involvement Program, and as amended in consideration of the comments received during the review of the DEIS. The selected alternative includes Alternate X-2, Alternate Y-4 without the overpass included in the DEIS as discussed in 2.5.2.2, and Alternate Z-1.

### 2.6.2 Right-of-Way Acquisition

The Project Atlas and Table 2-4 note areas where additional right-of-way would be acquired. The entire project would include the acquisition of approximately 6.74 acres of right-of-way. Control of access impacts are presented and described in Table 2-5.

### 2.6.3 Project Costs

Preliminary costs have been developed for the entire route for construction, right-of-way acquisition, and mitigation. The construction costs include the cost of at-grade roadway and roadway on structure with associated drainage improvements and utility relocations. The right-of-way acquisition costs include the cost of the land and the value of associated improvements. Mitigation costs include the cost of wetlands mitigation and the cost associated with the construction of noise mitigation barriers. Anticipated project costs are summarized in Table 2-3.

**TABLE 2-3  
COST ESTIMATES IN THOUSANDS OF 2006 DOLLARS**

	<b>X-2, Y-4, and Z-1</b>
Design	13,700
Right-of-Way Costs	400
Utility Relocations	2,000
Total Construction Costs*	275,400
Mitigation Costs	2,000
<b>TOTAL COSTS</b>	<b>293,500</b>

\* Costs include 15% contingency.

**TABLE 2-4  
RIGHT-OF-WAY IMPACT LOCATIONS**

Plate	Approx. Station	Description	Area (sq. ft.)	Plate	Approx. Station	Description	Area (sq. ft.)
1	52+50	LA 182 @ West 182 Access Rd	2,745.52	5	327+50	NE Lipari St. - 526 US 90 E.	1,928.68
2	140+00	South two-way Frontage Rd	32,995.55	5	326+75	SW Tiffany - 500 Tiffany St.	909.04
3	181+50	NW Zenor Rd	729.38	5	327+50	SE Tiffany - 101 Tiffany St.	884.53
3	182+50	NE Zenor Rd - 1 Judy Lane	729.38	5	335+00	NW Bernard St. - 500 US 90 E.	246.53
4	251+00	NW Todd St. - 100 Hedricks	746.69	5	335+50	NE Bernard St. - 126 Bernard St.	204.62
4	251+75	NE Todd St. - 100 Todd St.	758.89	5	340+25	NW Callahan St. (W)	216.77
4	253+00	NW Grandwood St. - 100 Todd St.	770.50	5	340+75	NE Callahan St. (W)	192.36
4	253+75	NE Grandwood St.	798.24	5	343+25	NW Callahan St. (E) - 825 US 90 E.	182.42
4	265+00	NW Red Cypress Rd.	62,189.38	6	355+50	Lassus St. Extension	13,710.77
4	270+00	NE Red Cypress Rd.	67,679.54	7	412+50	LA 182 Connection - 585 US 90 E.	19,275.11
4	278+50	Park St.	8,595.26	7	427+50	NW Universe Rd. - 783 US 90 E.	1,585.02
4,5	286+25	NW Catherine St.	309.22	7	428+50	NE Universe Rd. - 815 Universe Rd.	1,380.48
4,5	287+25	NE Catherine St. - 1130 US 90 W	1,107.54	7	444+00	NW Delmar - 937 US 90 E.	839.10
5	300+00	NW Church St. - 1026 US 90 W	2,400.34	7	445+00	NE Delmar - 959 US 90 E.	865.82
5	307+00	NW Railroad Ave. - 900 US 90 W	1,299.46	7	468+00	NW Southeast Blvd. - 1301 US 90 E.	1,009.60
5	308+00	NE Railroad Ave	1,165.69	7	469+50	NE Southeast Blvd. - 1437 Southeast Blvd.	904.66
5	312+00	NW Wise St. - 800 US 90 W	1,126.23	8	477+00	NW Fairview St. - 1557 US 90 E.	1,046.65
5	313+00	NE Wise St.	1,007.00	8	477+50	NE Fairview St. - 1601 US 90 E.	942.00
5	320+00	NW St. Peter St. - 702 US 90 W	333.14	8	483+50	NW Anthony St. - 1515 Anthony St.	1,039.27
5	320+50	NE St. Peter St.	247.49	8	484+00	NE Anthony St. - 1515 Anthony St.	937.06
5	323+00	NW Susan St. - 504 Susan St.	1,082.63	8	484+00	NE Anthony St. - 1520 Anthony St.	729.38
5	324+00	NE Susan St. - 612 US 90 E.	971.23	8	484+00	NE Anthony St. - 1520 Anthony St.	729.38
5	326+75	NW Lipari St. - 604 US 90 E.	1,416.24	9	570+00	Utah St. Realignment	14,232.78

**TABLE 2-5  
CONTROL OF ACCESS IMPACTS**

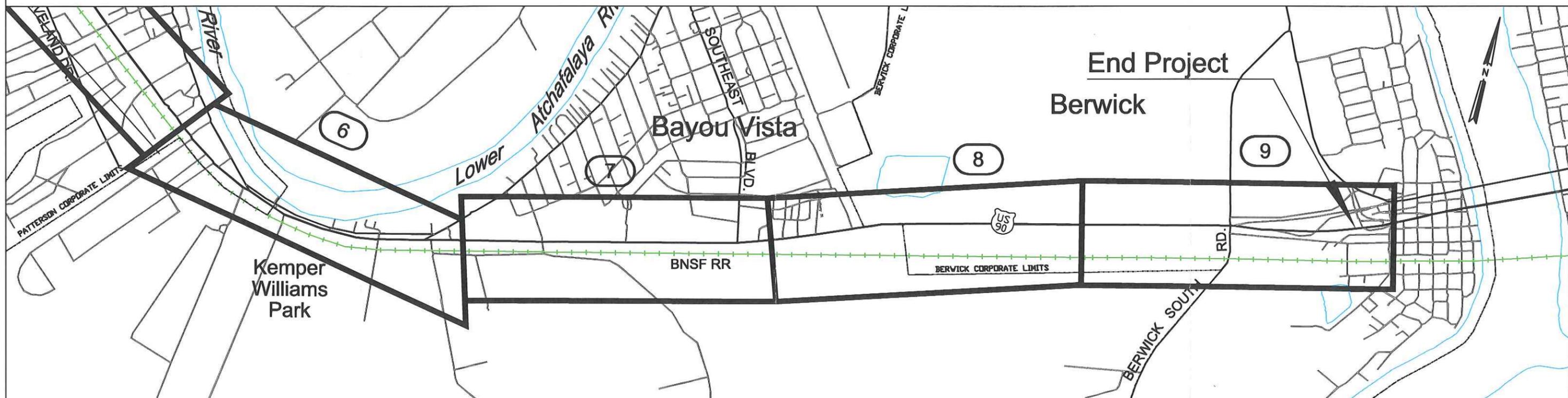
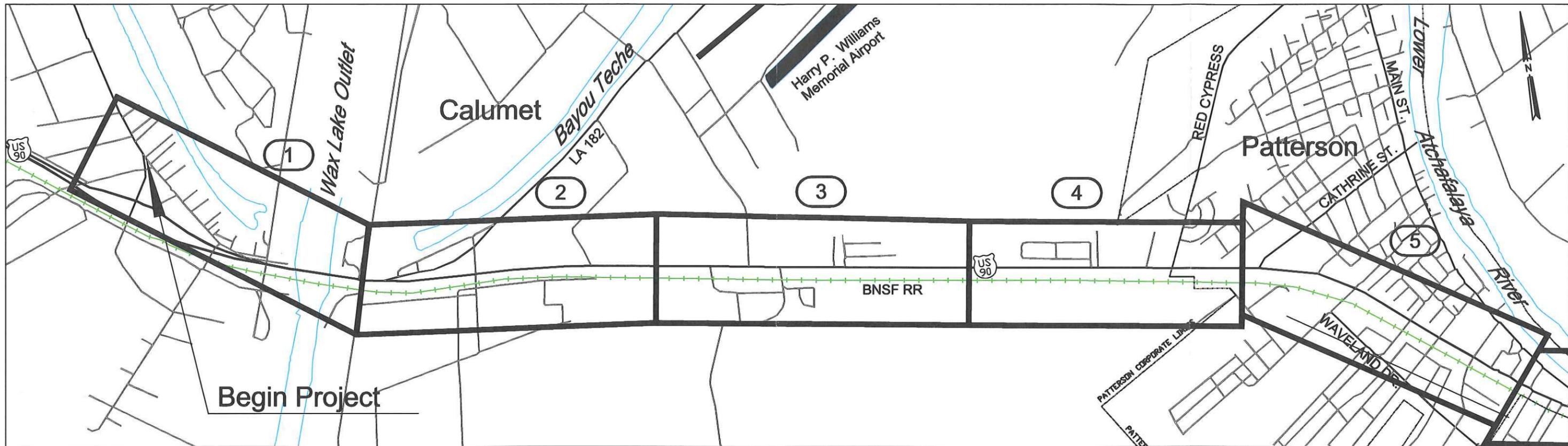
Approximate Station	North side Feature	Abutting Property / Special Conditions	South side Feature	Abutting Property/ Special Conditions
100 to 278 except for LA 182 Access Road East interchange & at 175 & 188	N/A			BNSF & wetlands; exception at 175 & 188 is for gas plant driveways.
310	N/A		EB Entrance	BNSF
315	WB Entrance	Vacant, but may eliminate future access from frontage road.	N/A	
335	WB Exit	Vacant, but may eliminate future access from frontage road.	N/A	
345	N/A		EB Exit	BNSF
430	N/A		EB Exit	BNSF
440	WB Entrance	Drainage crossing & Oceanecring, but no impact on driveway	EB Entrance	BNSF
450	WB Exit	Wal-Mart, 973 Highway 90 East, eliminate 1 of 2 driveways, but it could be relocated eastward	N/A	
500 to 568	N/A		EB Exit	BNSF & wetlands
510 to 568	WB Entrance	wetlands	N/A	
570 to End	WB Exit	Vacant. C of A should be required only at approx. 575 for exit.	EB Entrance & EB ramp to LA 182	Public / Utah St. ROW. Adjacent properties have access to Utah St.

## 2.7 Project Atlas

The Project Atlas consists of 1"=200' scale aerial map plates providing coverage of the entire US 90/Future I-49 corridor. Engineering details of the selected alternative including existing and required right-of-way and areas affected by control of access are delineated. Locations of engineering typical sections drawings, which follow the plates, are also noted.

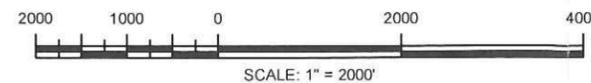
The Atlas locates Existing land use and other environmental features including:

- Noise sensitive receptors and barriers suggested for noise mitigation efforts
- Wetland sites
- Sites containing potential environmental hazards
- Properties listed on the National Register of Historic Places



**LEGEND**

9 PLATE NUMBER

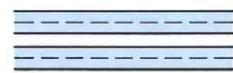


**PROJECT ATLAS**  
PLATE MAP KEY



ENVIRONMENTAL IMPACT STATEMENT  
I-49 SOUTH  
WAX LAKE OUTLET TO BERWICK  
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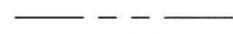
# LEGEND



ROADWAY AT GRADE



ELEVATED ROADWAY



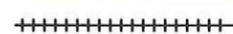
EXISTING RIGHT-OF-WAY



CONTROL OF ACCESS



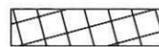
APPROXIMATE LIMITS OF ADDITIONAL REQUIRED RIGHT-OF-WAY



EXISTING RAILROAD



NOISE BARRIER (PLATES 3, 4 & 5)



PAVEMENT REMOVAL

R

RESIDENCE



POTENTIAL RELOCATION



IMPACTED NOISE SENSITIVE RECEPTOR SITE (2030 BUILD)



NOISE SENSITIVE RECEPTOR - NO IMPACT (2030 BUILD)



POTENTIAL HAZARD SITE



WETLAND AREA (R2UB, PFO, PSS)



WETLAND AREA (PEM)



WETLAND SITE NUMBER  
WETLAND TYPE



LISTED ON, OR POTENTIALLY ELIGIBLE FOR  
THE NATIONAL REGISTER OF HISTORIC PLACES

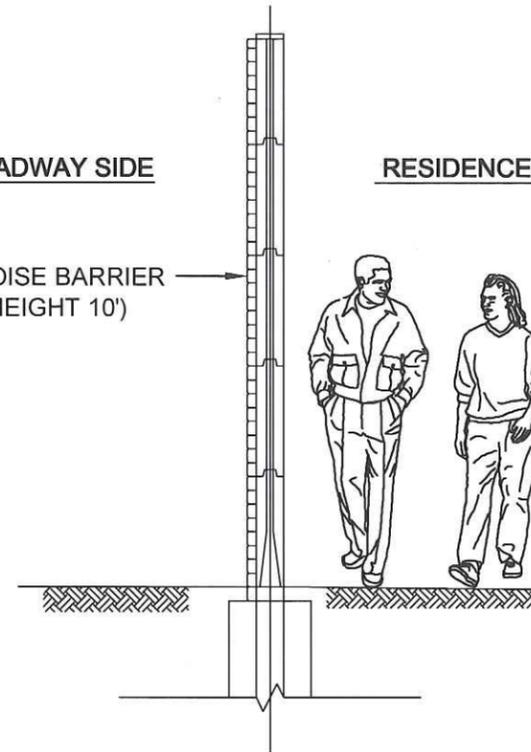


ENGINEERING SECTION

ROADWAY SIDE

RESIDENCE SIDE

TYPICAL NOISE BARRIER  
(MINIMUM HEIGHT 10')



NOTE:

THIS GRAPHIC REPRESENTS NOISE WALL  
LOCATED ALONG PROPERTY LINE ONLY.

NOISE BARRIER LOCATED AS FOLLOWS:

STA. 182+00 TO 189+00	(12')
STA. 236+00 TO 251+20	(10')
STA. 251+80 TO 253+00	(10')
STA. 253+70 TO 259+00	(VARIES 10'-16')
STA. 299+00 TO 314+00	(VARIES 8'-14')
STA. 312+00 TO 322+00	(VARIES 10'-14')

NOISE WALL LOCATED ALONG PROPERTY LINE ALSO  
FEASIBLE BETWEEN FRONTAGE ROAD AND MAINLINE  
FROM STA. 233+50 TO 257+10 (VARIES 12'-14')

NOISE ANALYSIS AREAS:

1N	- STA. 50+00 TO 90+00
2N	- STA. 100+00 TO 130+00
3N-NORTH	- STA. 165+00 TO 195+00
3N-SOUTH	- STA. 195+00 TO 235+00
4N	- STA. 235+00 TO 265+00
5N	- STA. 265+00 TO 295+00
6S	- STA. 275+00 TO 305+00
7N-NORTH	- STA. 300+00 TO 345+00
7N-SOUTH	- STA. 345+00 TO 390+00
8S	- STA. 325+00 TO 340+00
9S	- STA. 350+00 TO 365+00
10S	- STA. 365+00 TO 373+00
11N	- STA. 420+00 TO 445+00
12N	- STA. 468+00 TO 485+00

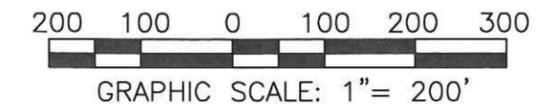
NOTES:

1. NOISE SENSITIVE RECEPTORS ARE LOCATED ON THE SIDE  
OF EACH RESIDENCE CLOSEST TO US 90/I-49.

2. THE FOLLOWING MEASUREMENT SITES ARE REPRESENTED  
BY THE ASSOCIATED NOISE SENSITIVE RECEPTOR:

1-N2	= SITE 1
3-N9	= SITE 2
4-N2	= SITE 3
5-N9	= SITE 4
6-N5	= SITE 5a
6-N6	= SITE 5b
6-N4	= SITE 6
5-N22	= SITE 7
8-N2	= SITE 8

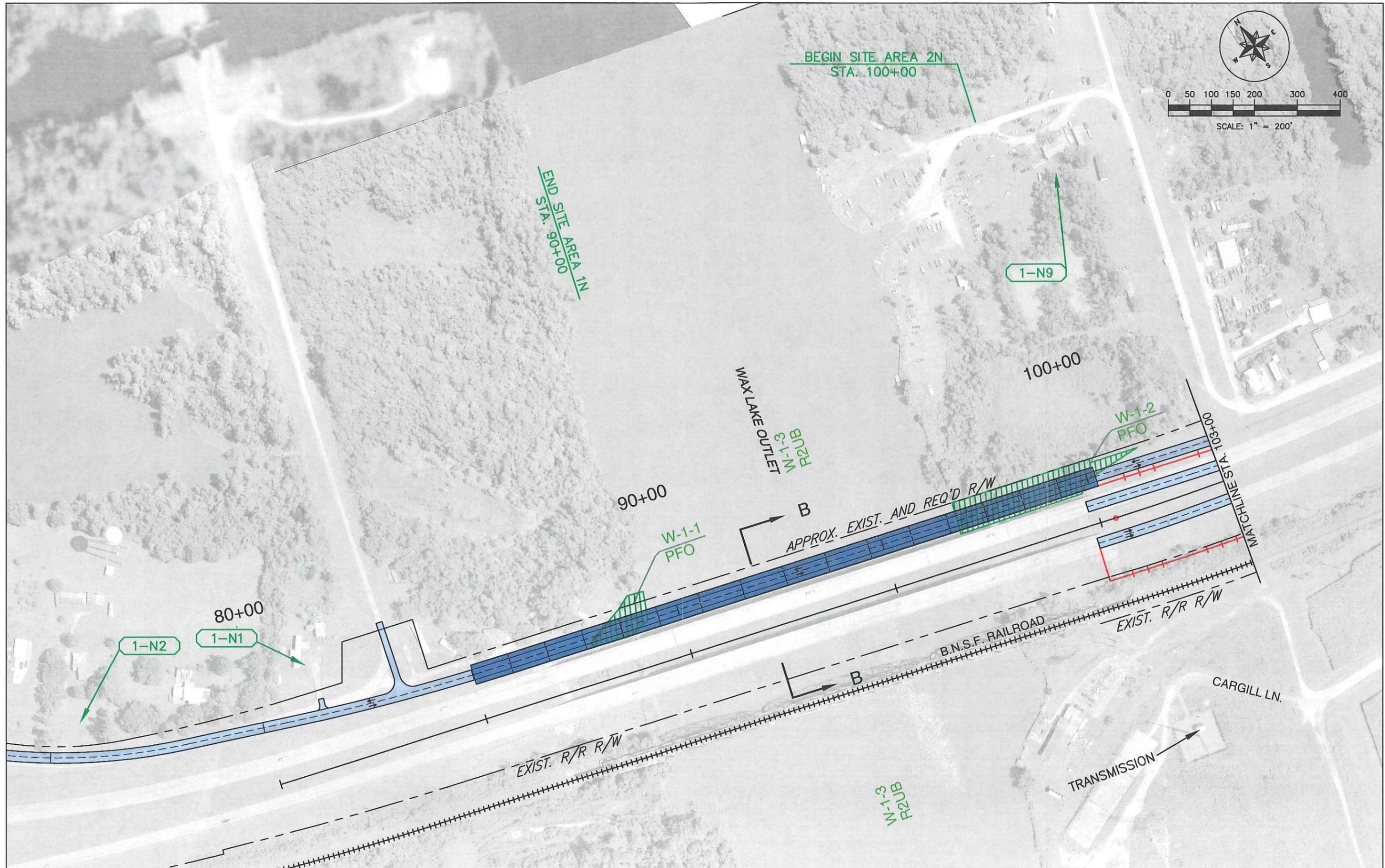
3. ALL CURVE DATA REFERS TO I-49 MAINLINE  
UNLESS OTHERWISE NOTED.

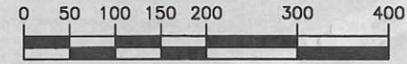
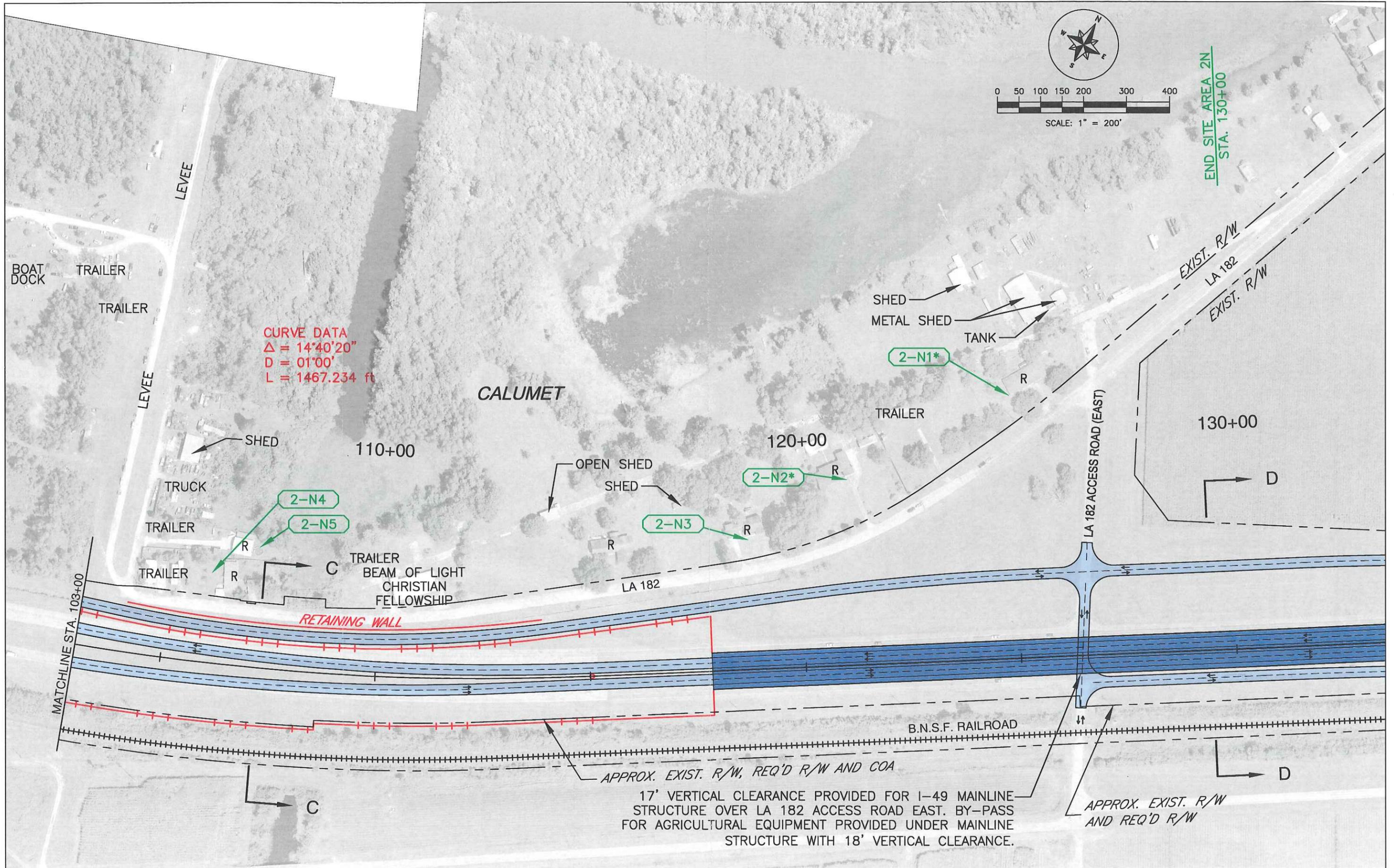




SCALE: 1" = 200'



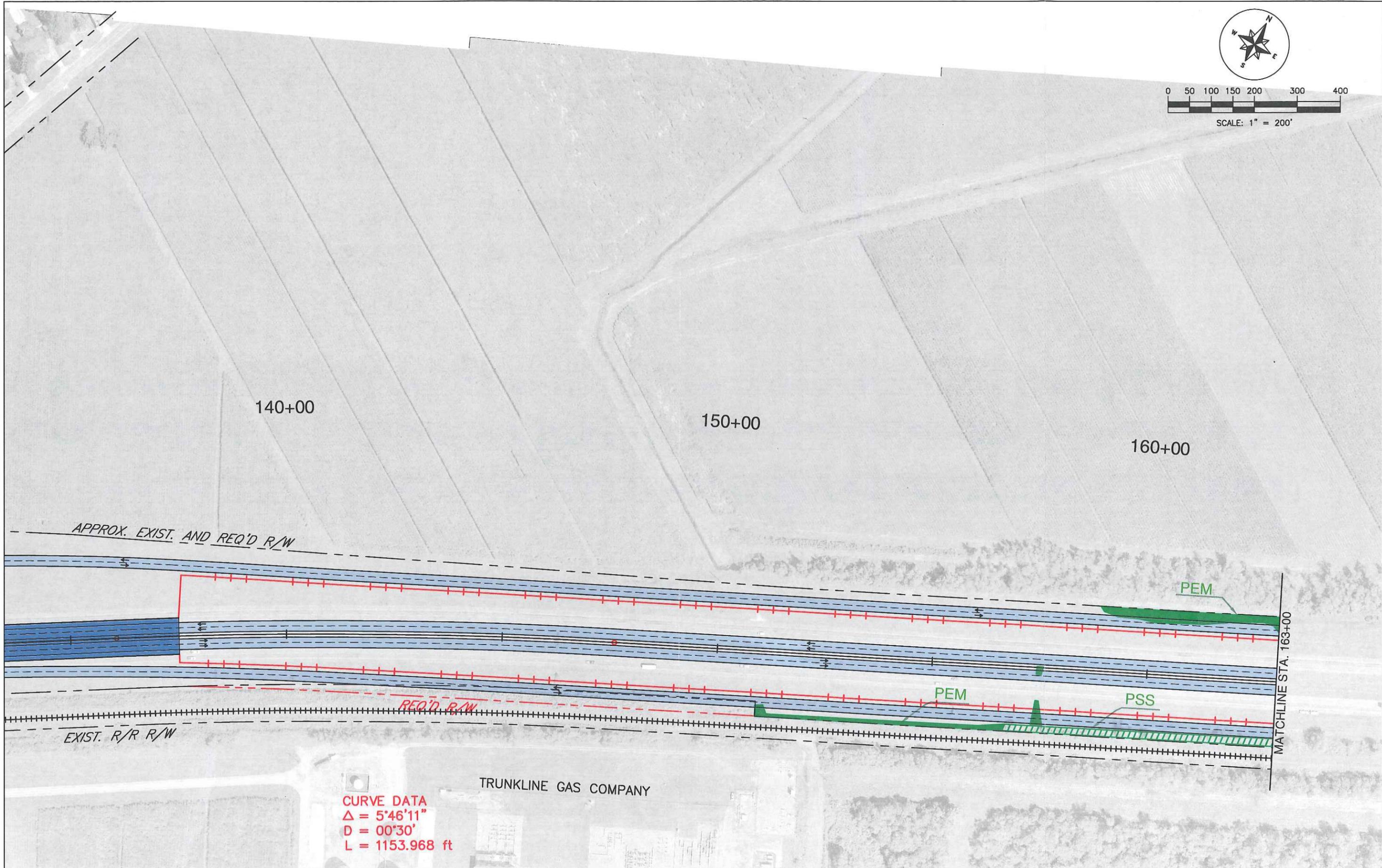




SCALE: 1" = 200'



SCALE: 1" = 200'



140+00

150+00

160+00

APPROX. EXIST. AND REQ'D R/W

PEM

MATCHLINE STA. 163+00

REQ'D R/W

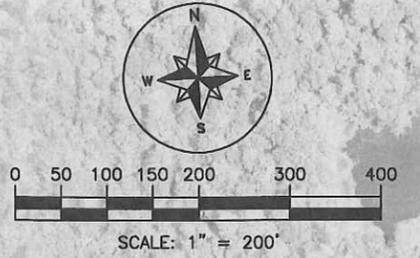
PEM

PSS

EXIST. R/R R/W

TRUNKLINE GAS COMPANY

CURVE DATA  
 $\Delta = 5^{\circ}46'11''$   
 $D = 00^{\circ}30'$   
 $L = 1153.968 \text{ ft}$



BEGIN SITE AREA 3N-NORTH  
STA. 165+00

170+00

180+00

190+00

CALUMET  
BAPTIST  
CHURCH

3-N9

3-N11

ZENOR RD.

TODD TRAILER  
PARK

3-N10

3-N8 JUDY LANE

APPROX. EXIST. AND REQ'D R/W

MATCHLINE STA. 163+00

PSS

PEM

PEM

PSS & PFO

B.N.S.F. RAILROAD

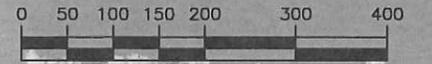
EXIST. R/R R/W

APPROX. EXIST. R/W AND REQ'D R/W

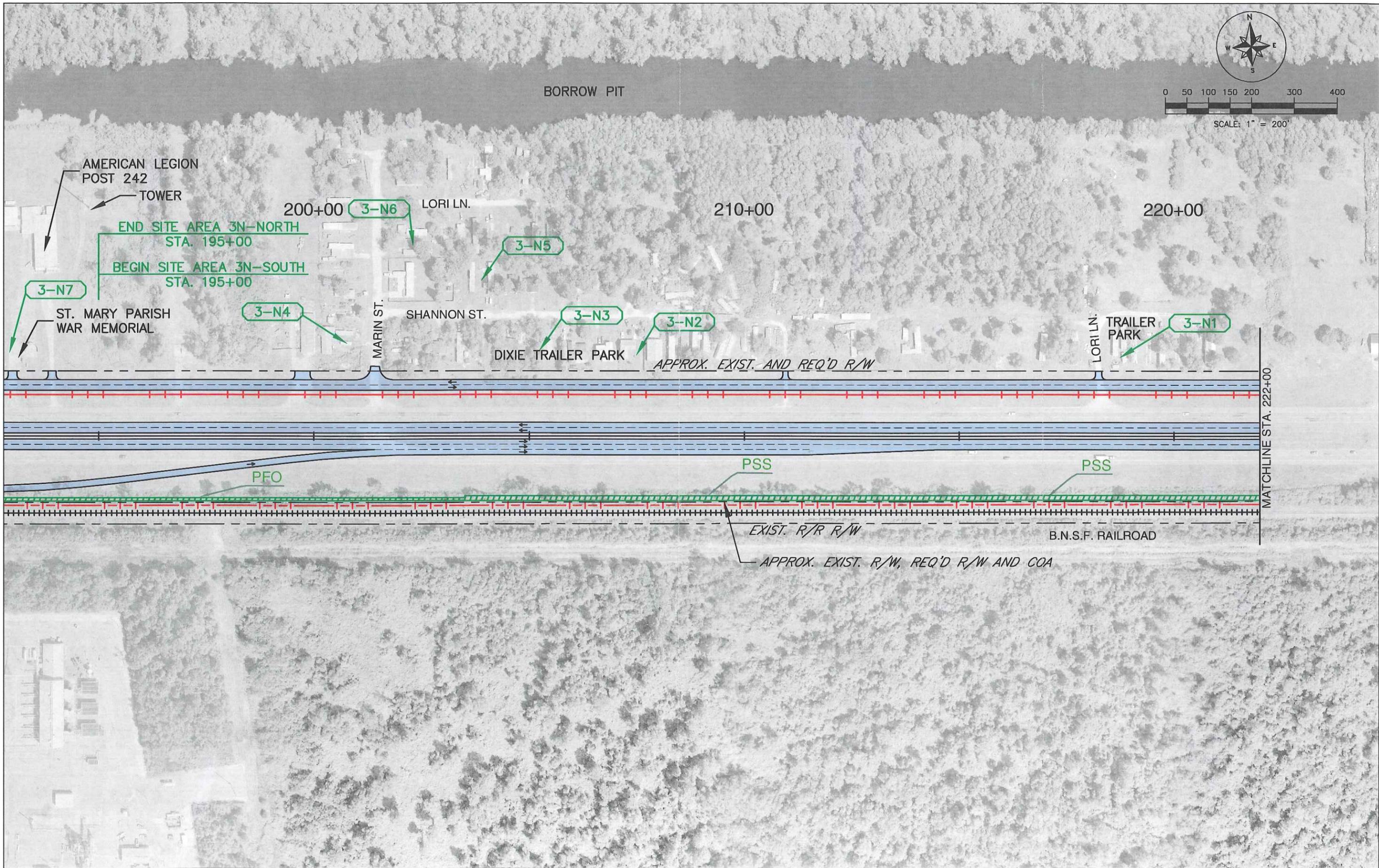
W-3-1  
PFO

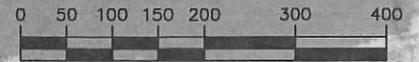
CALUMET GAS PLANT

ANR GAS PLANT



SCALE: 1" = 200'





SCALE: 1" = 200'



