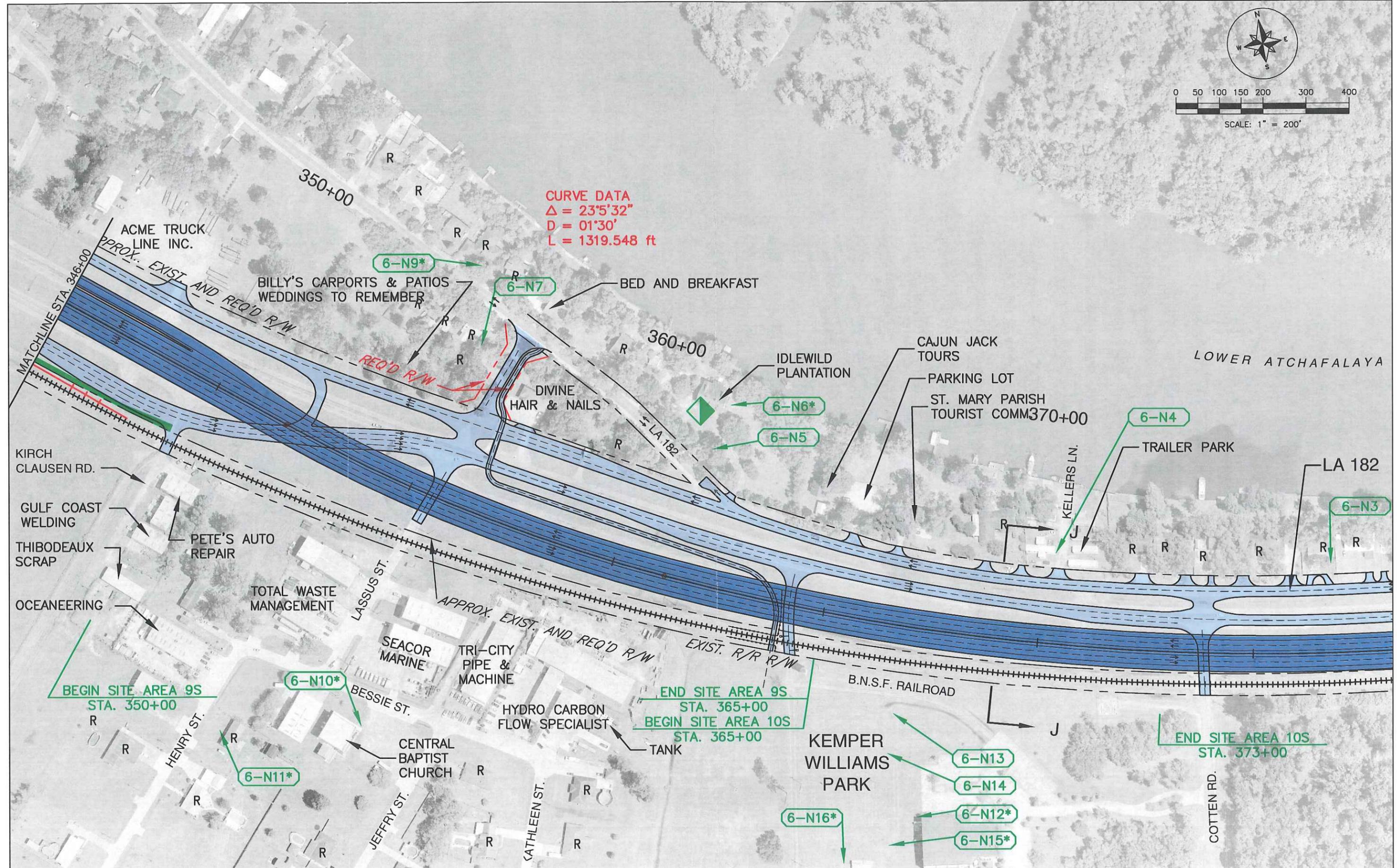
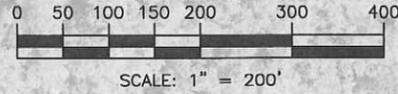
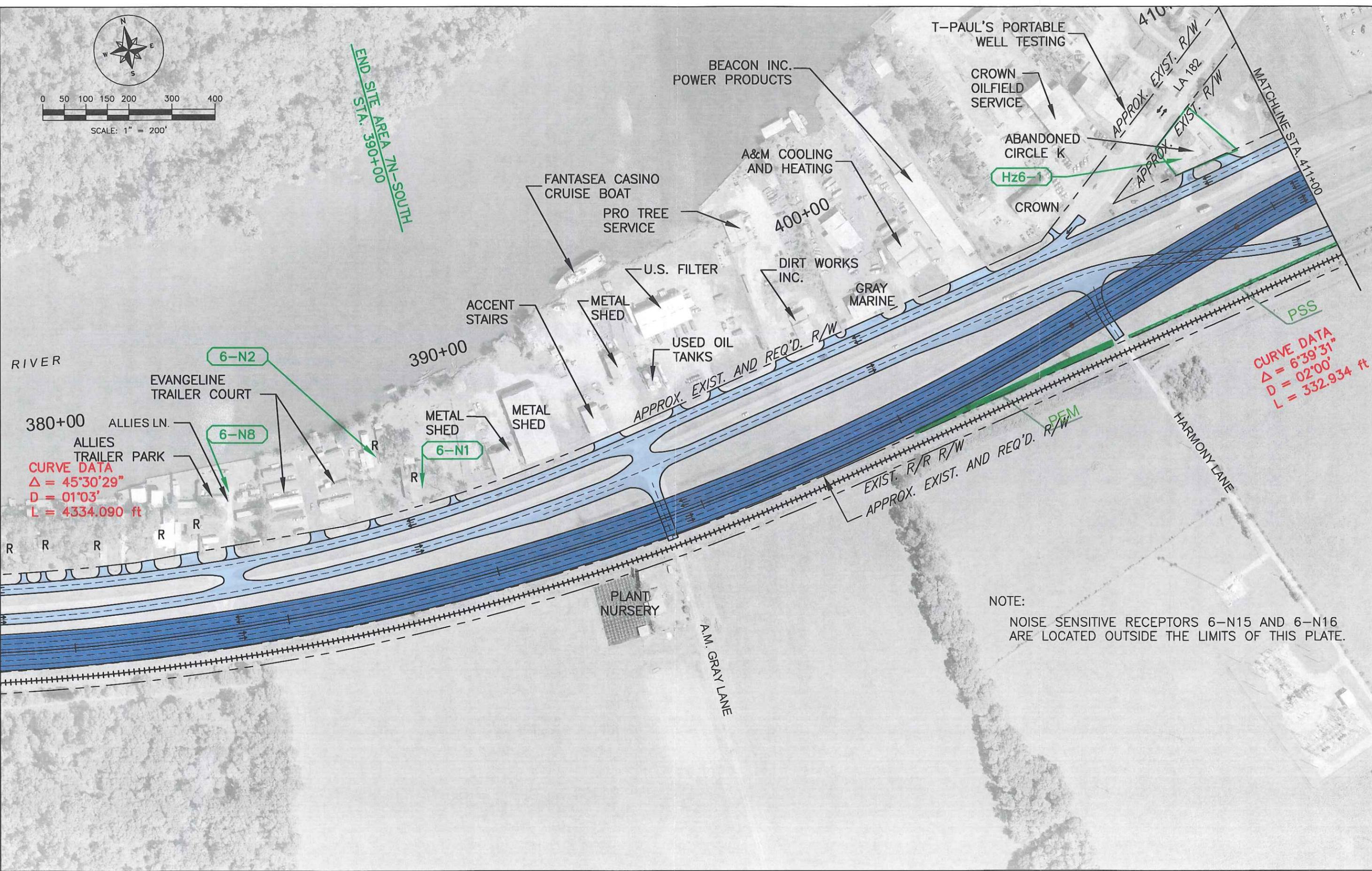


CURVE DATA
 $\Delta = 23^{\circ}5'32''$
 $D = 01^{\circ}30'$
 $L = 1319.548 \text{ ft}$





END SITE AREA 7N-SOUTH
STA. 390+00



BEACON INC.
POWER PRODUCTS

T-PAUL'S PORTABLE
WELL TESTING

CROWN
OILFIELD
SERVICE

ABANDONED
CIRCLE K

CROWN

A&M COOLING
AND HEATING

FANTASEA CASINO
CRUISE BOAT

PRO TREE
SERVICE

400+00

DIRT WORKS
INC.

GRAY
MARINE

U.S. FILTER

METAL
SHED

USED OIL
TANKS

ACCENT
STAIRS

390+00

METAL
SHED

METAL
SHED

6-N2

6-N8

6-N1

380+00

ALLIES LN.

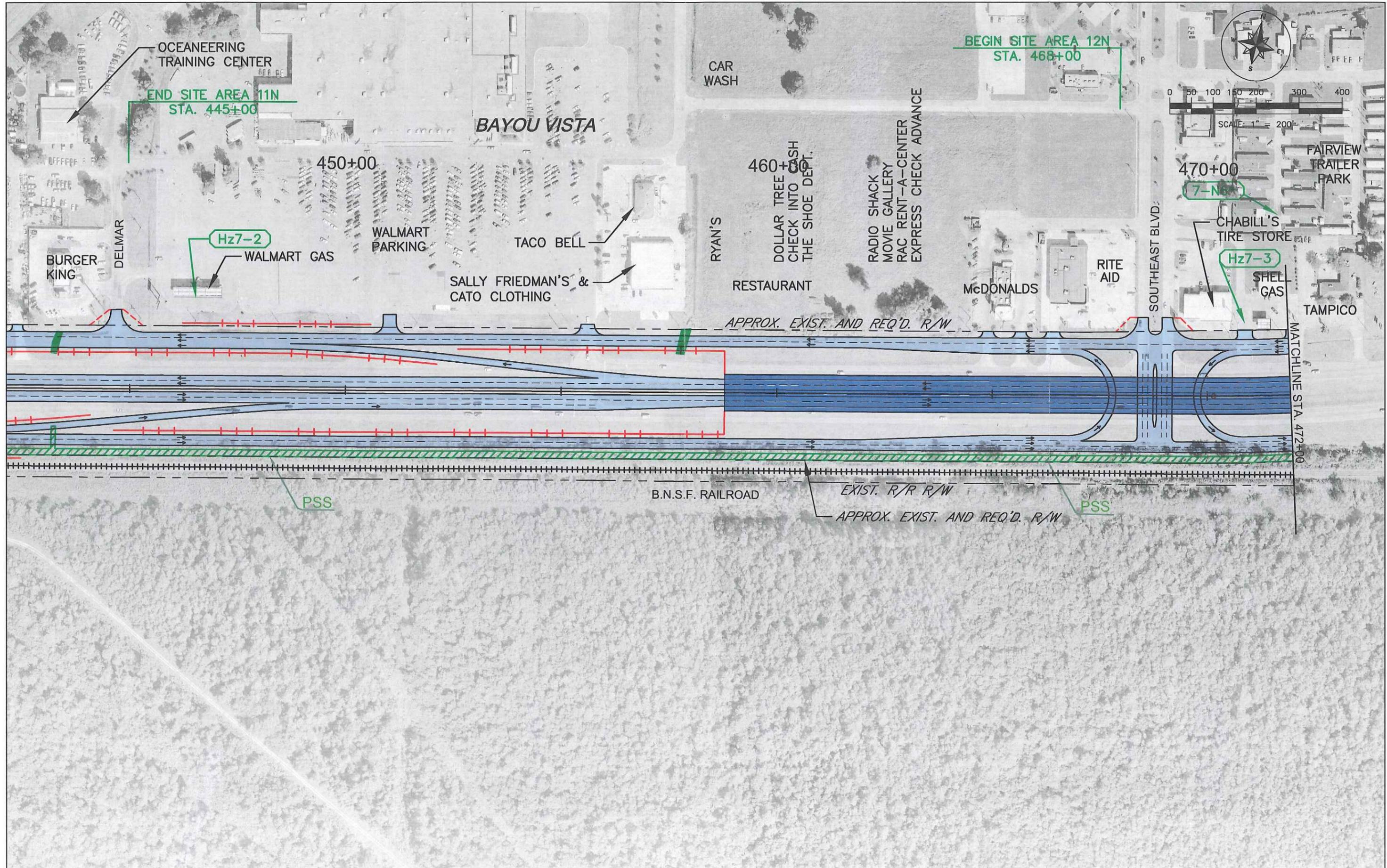
ALLIES
TRAILER PARK

CURVE DATA
 $\Delta = 45^{\circ}30'29''$
 $D = 01^{\circ}03'$
 $L = 4334.090 \text{ ft}$

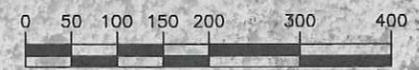
CURVE DATA
 $\Delta = 6^{\circ}39'31''$
 $D = 02^{\circ}00'$
 $L = 332.934 \text{ ft}$

NOTE:

NOISE SENSITIVE RECEPTORS 6-N15 AND 6-N16
ARE LOCATED OUTSIDE THE LIMITS OF THIS PLATE.





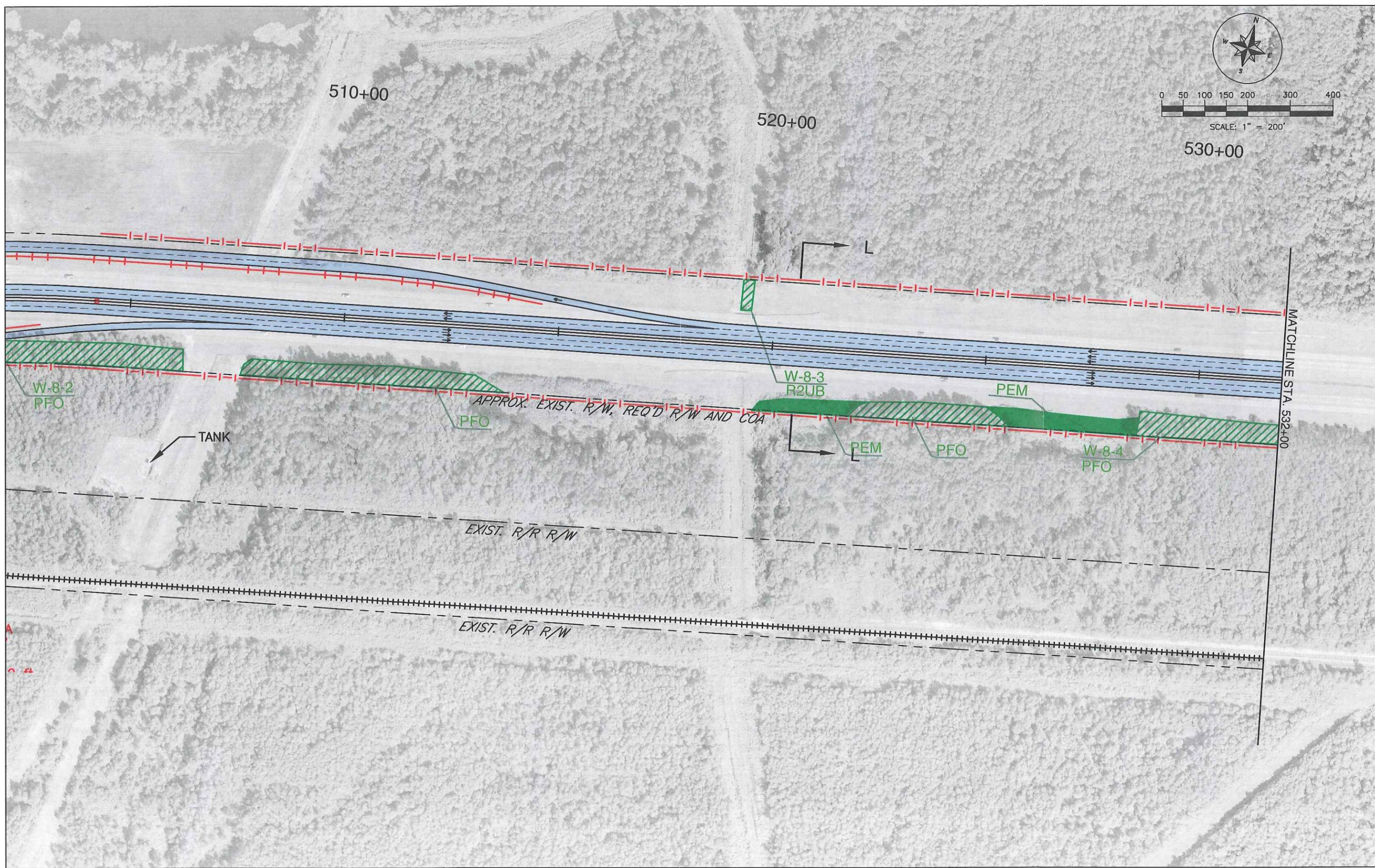


SCALE: 1" = 200'

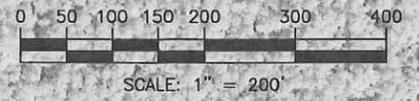
530+00

510+00

520+00



MATCHLINE STA. 532+00



540+00

550+00

560+00

FUTURE PATTIE DRIVE
(BY OTHERS)

MATCHLINE STA. 532+00

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

I-49 MAINLINE

M

W-9-2
R2UB

W-8-4
PFO

W-9-1
PFO

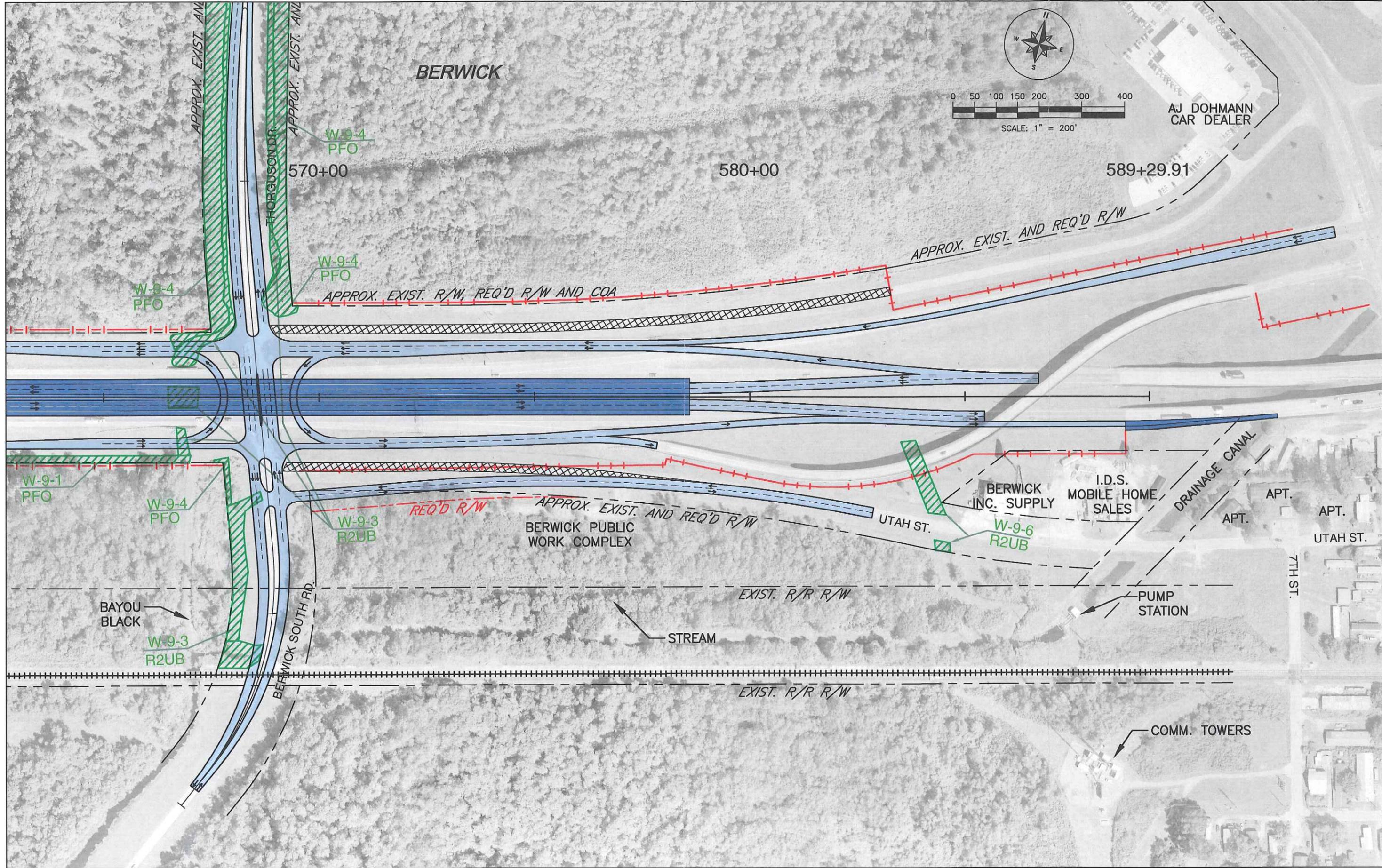
APPROX. EXIST. R/W, REQ'D R/W AND COA

W-9-1
PFO

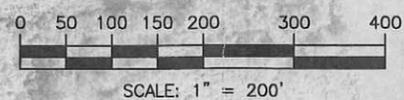
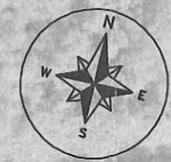
M

EXIST. R/R R/W

EXIST. R/R R/W



BERWICK



AJ DOHMANN
CAR DEALER

570+00

580+00

589+29.91

W-9-4
PFO

W-9-4
PFO

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

APPROX. EXIST. AND REQ'D R/W

W-9-1
PFO

W-9-4
PFO

W-9-3
R2UB

REQ'D R/W

APPROX. EXIST. AND REQ'D R/W

BERWICK PUBLIC
WORK COMPLEX

UTAH ST.

BERWICK
INC. SUPPLY

I.D.S.
MOBILE HOME
SALES

DRAINAGE CANAL

APT.

APT.

APT.

UTAH ST.

7TH ST.

BAYOU
BLACK

W-9-3
R2UB

BERWICK SOUTH RD.

STREAM

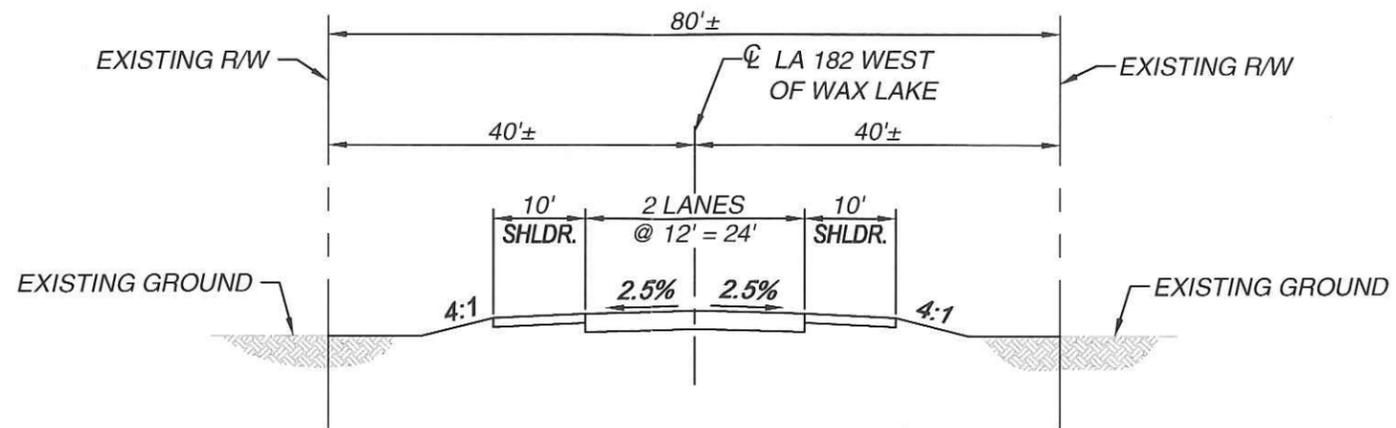
EXIST. R/R R/W

PUMP
STATION

EXIST. R/R R/W

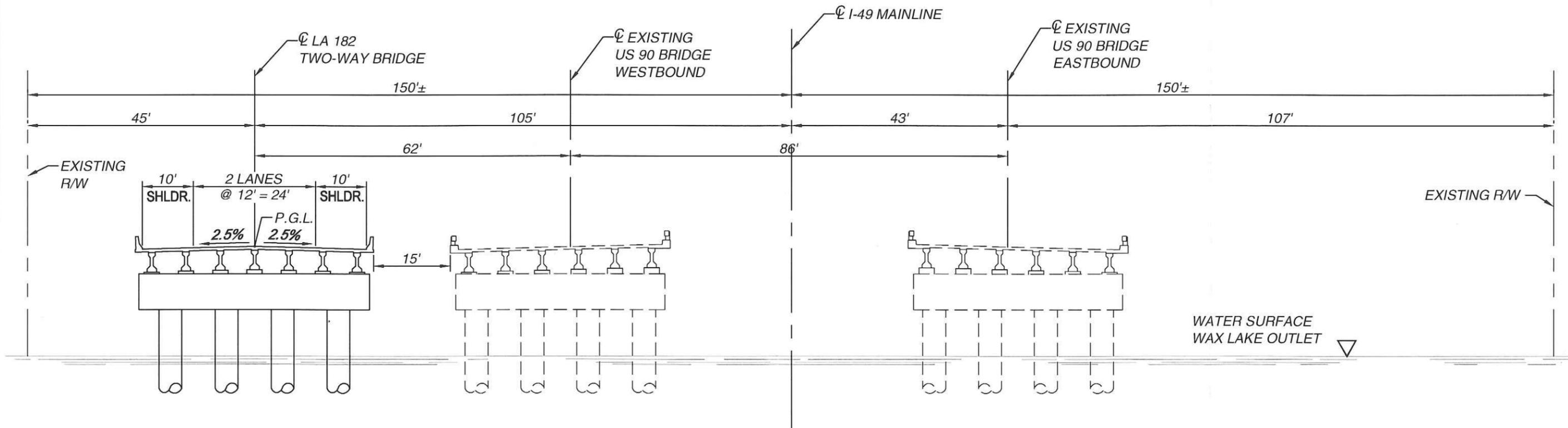
COMM. TOWERS

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



SECTION A-A, PLATE 1
LA 182 WEST OF WAX LAKE OUTLET

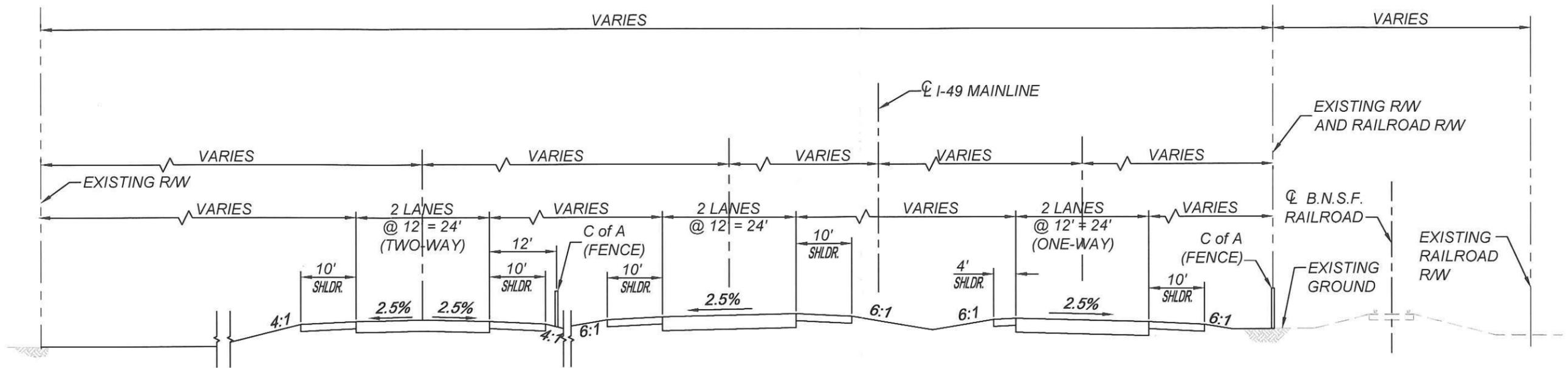
SCALE: 1" = 20'



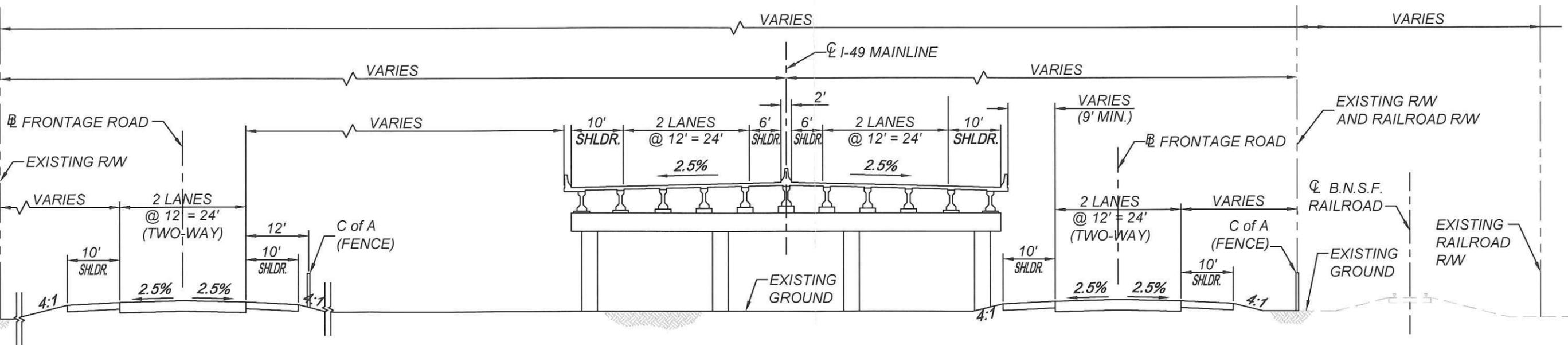
SECTION B-B, PLATE 1
LA 182 OVER WAX LAKE OUTLET

SCALE: 1" = 20'



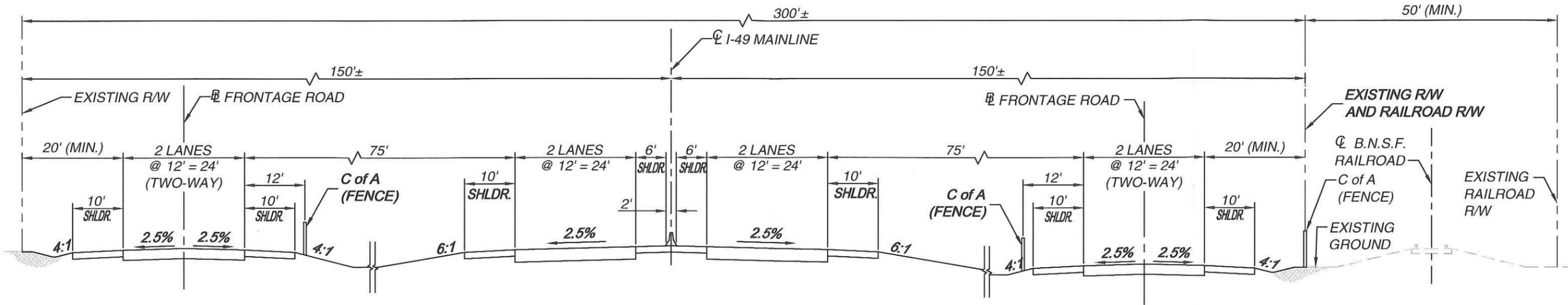


SECTION C-C, PLATE 2
I-49 MAINLINE
 SCALE: 1" = 20'

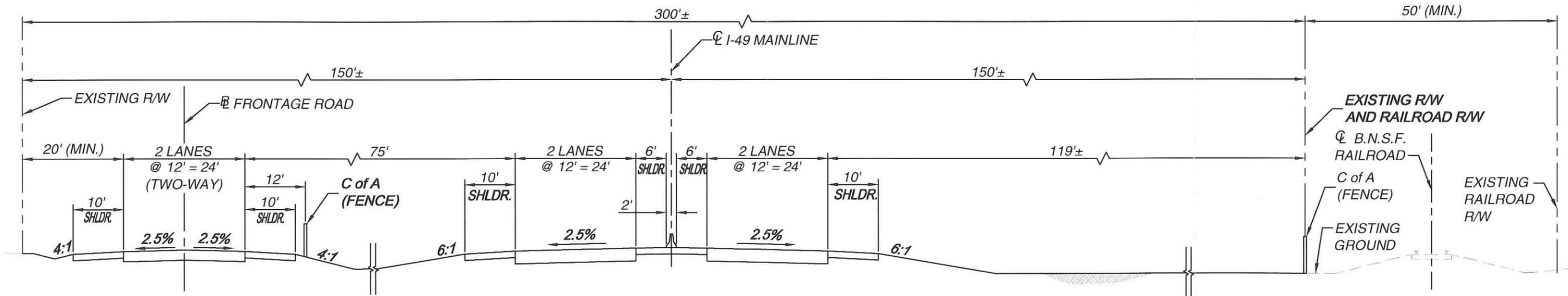


SECTION D-D, PLATE 2
I-49 MAINLINE ELEVATED
 SCALE: 1" = 20'



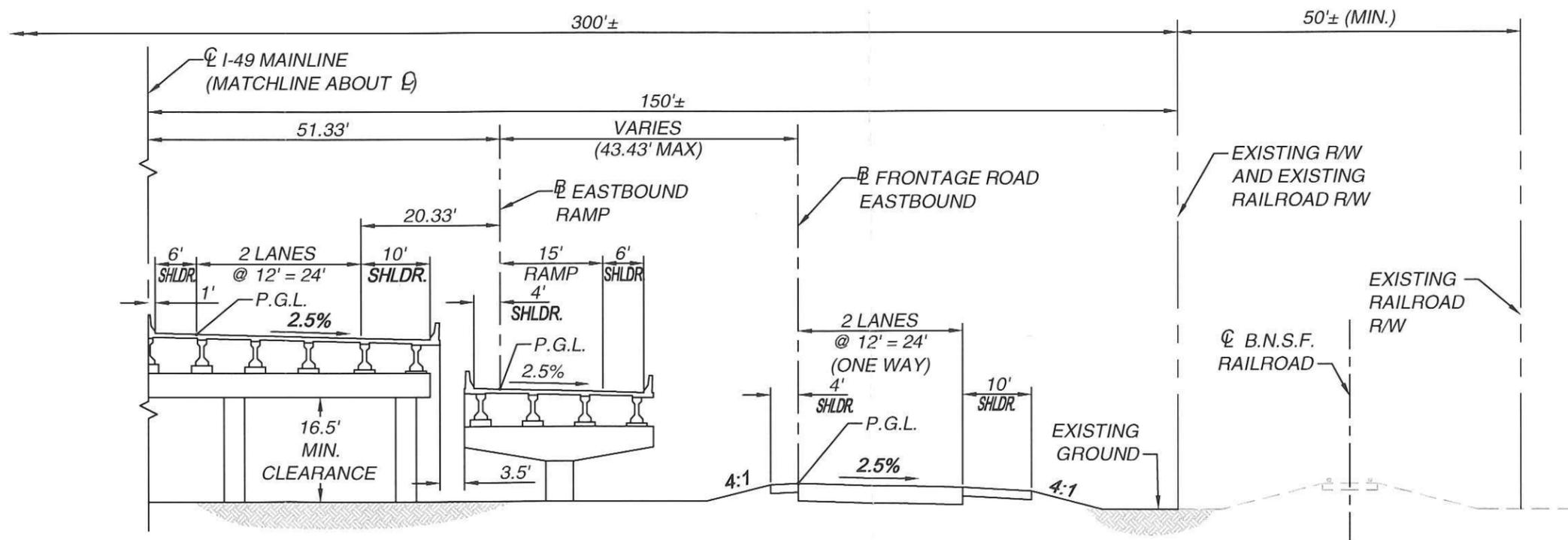
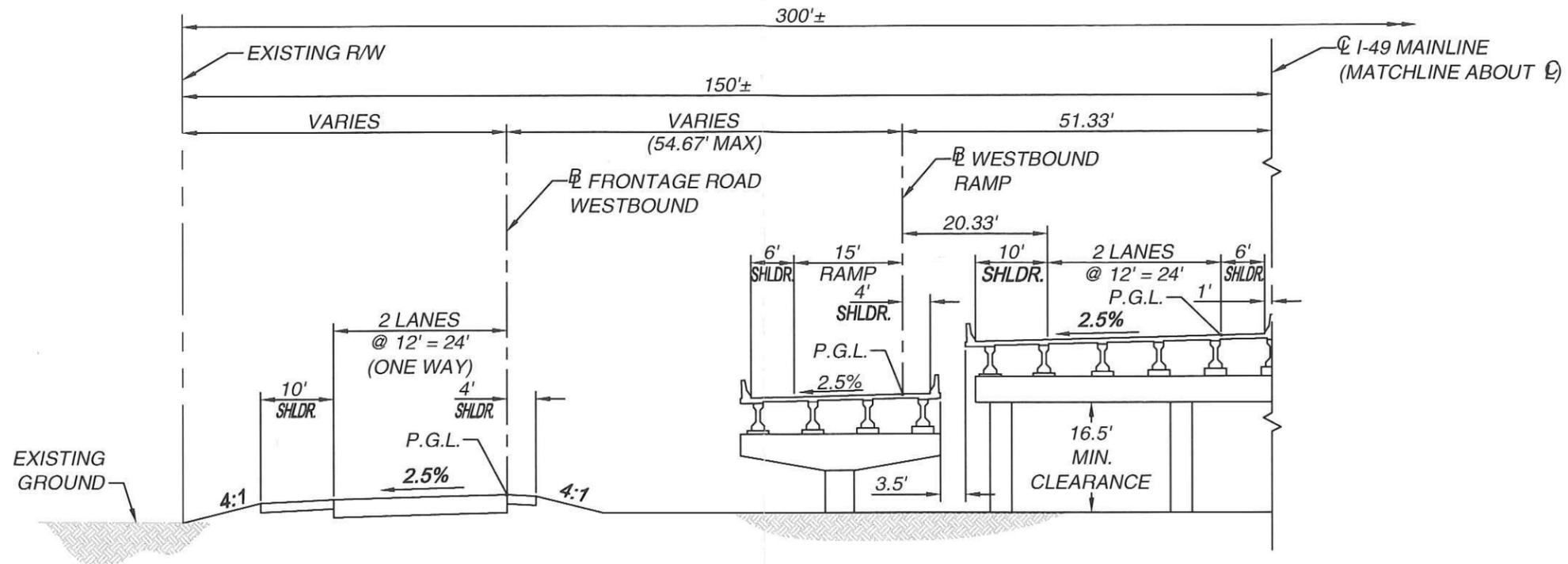


SECTION E-E, PLATE 3
I-49 MAINLINE AT GRADE
 SCALE: 1" = 20'



SECTION F-F, PLATE 4
I-49 MAINLINE AT GRADE WITH
ONE TWO-WAY FRONTAGE ROAD
 SCALE: 1" = 20'





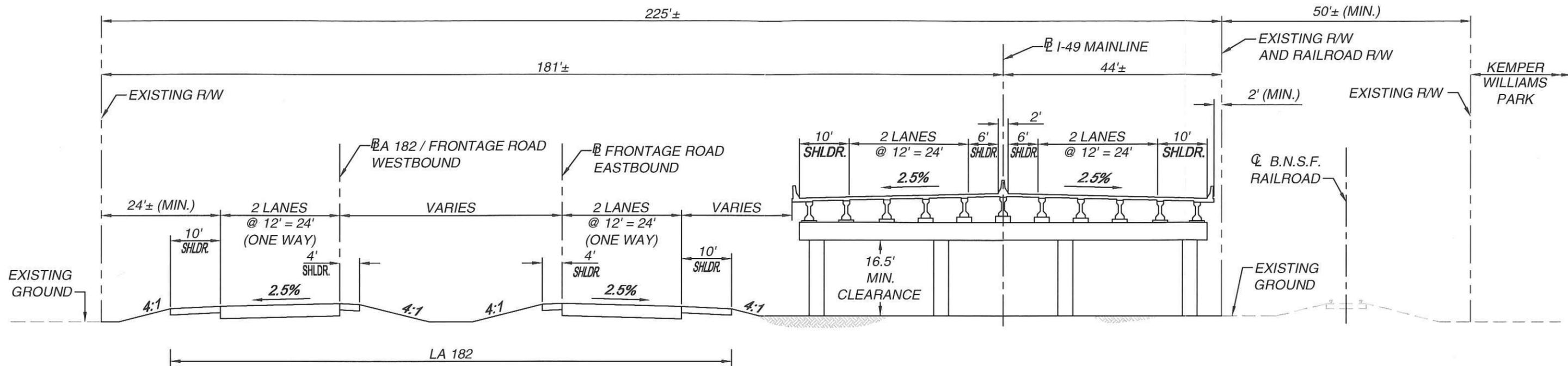
SECTION H-H, PLATE 5
I-49 MAINLINE SHOWING ELEVATED RAMPS

SCALE: 1" = 20'

TYPICAL SECTIONS

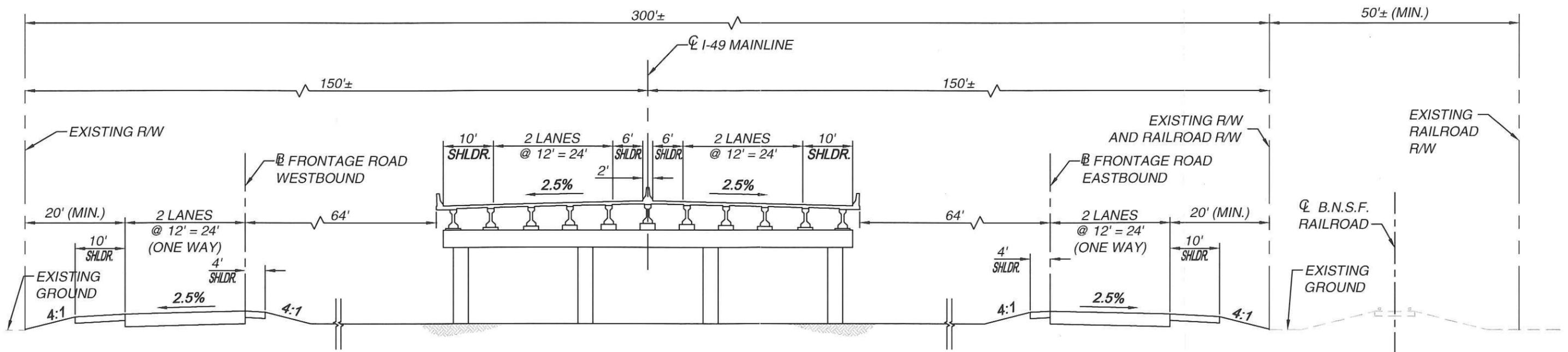
SHEET 4 OF 6





SECTION J-J, PLATE 6
I-49 MAINLINE ELEVATED ADJACENT TO KEMPER WILLIAMS PARK
WITH LA 182 / FRONTAGE ROADS AT GRADE

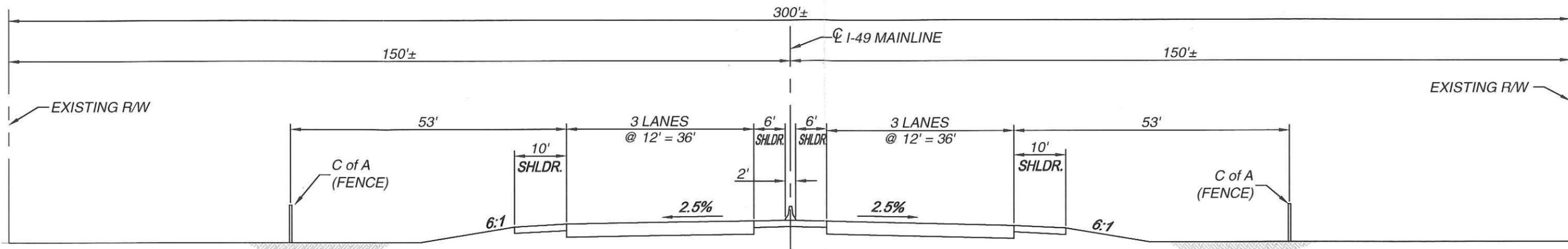
SCALE: 1" = 20'



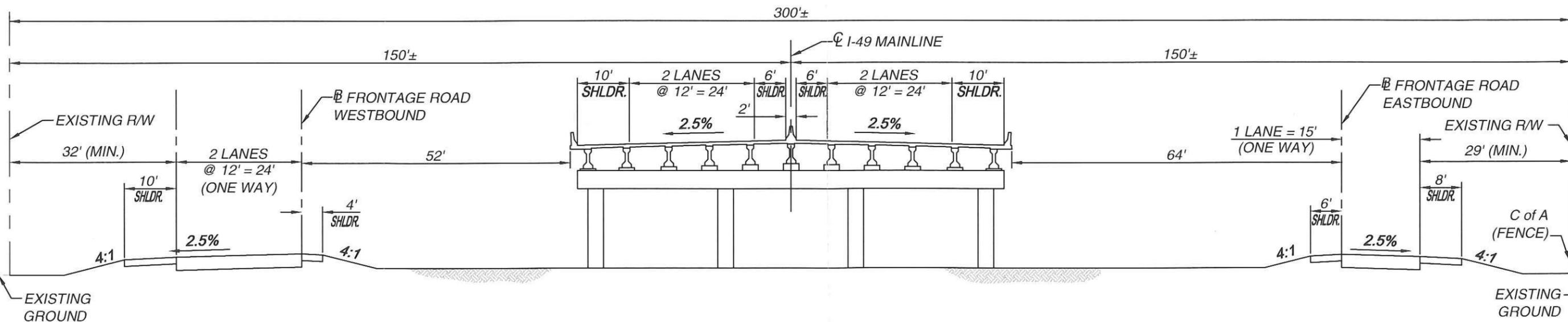
SECTION K-K, PLATE 7
I-49 MAINLINE ELEVATED

SCALE: 1" = 20'



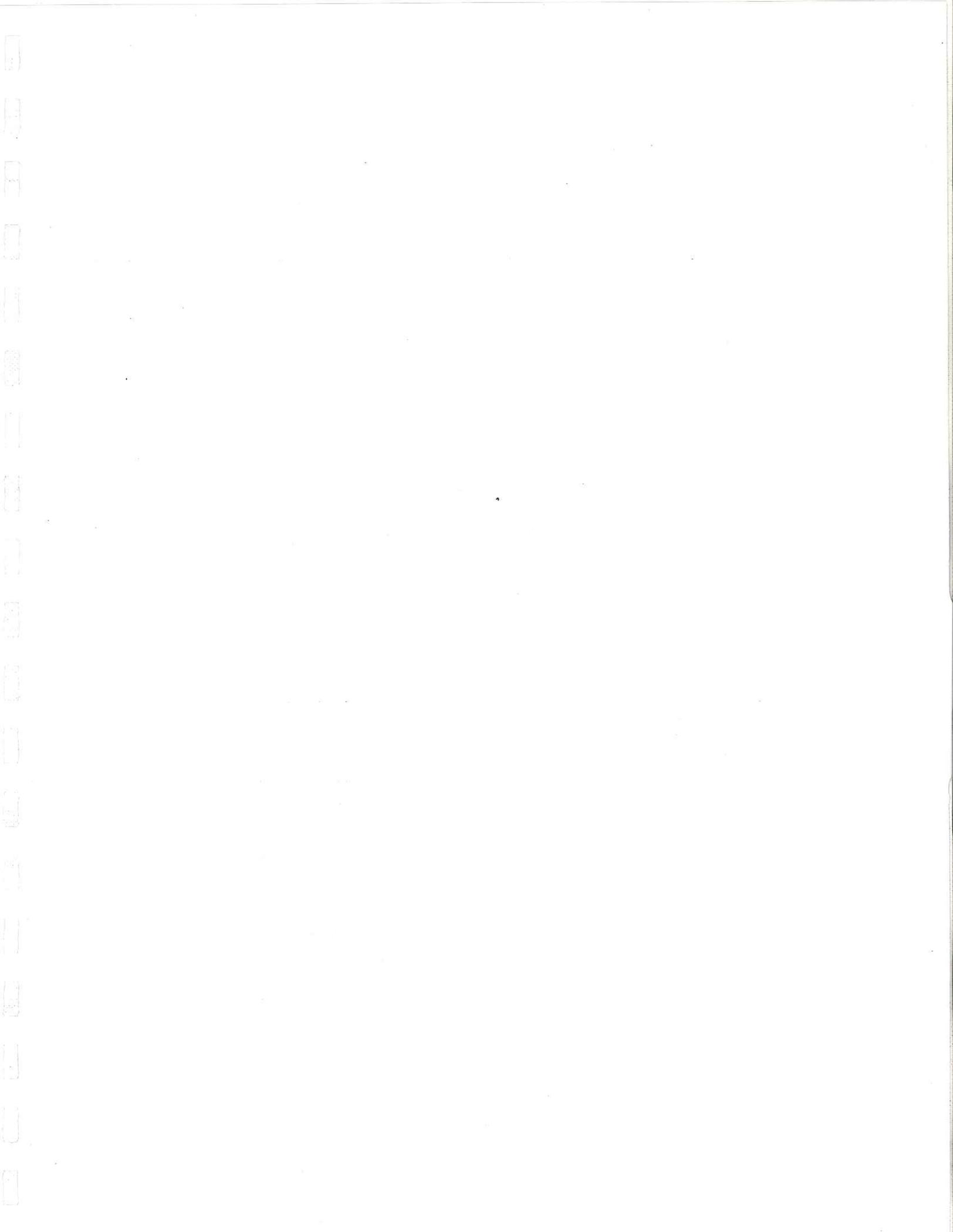


SECTION L-L, PLATES 8-1
I-49 MAINLINE
 SCALE: 1" = 20'



SECTION M-M, PLATE 9-1
I-49 MAINLINE AT BERWICK
 SCALE: 1" = 20'





3.0 Affected Environment

3.1 Introduction

Exhibit 1-2 presents the limits of the proposed upgrade of existing US 90 to Future I-49 South from Wax Lake Outlet to Berwick. At the western end of the project, the selected alternative includes a projection of LA 182 into the rural community of Ricohoc via a new bridge crossing of Wax Lake Outlet. The segment of the US 90 corridor studied here proceeds east from Wax Lake Outlet to the US 90 crossing of the Lower Atchafalaya River in Berwick. Thus, the affected environment encompasses Ricohoc and those communities bounded by Wax Lake Outlet on the east, the Bayou Teche/Lower Atchafalaya River waterways on the north, the Lower Atchafalaya River on the east and the coastal marshes of south Louisiana to the south, which is hereafter referenced as the project planning area.

The affected environment of the project planning area is the unique product of complex natural processes that transformed the area over thousands of years. These composite forces created an area containing diverse environments providing many resources for floral, faunal, and human communities. The natural land and water features of the project planning area have provided transportation opportunities integral to development and are illustrated throughout the history of the area.

The low-lying deltaic plain of the project planning area is crossed by an alluvial ridge, which is the remnant of an ancient course of the Mississippi River. The planning area contains three major and distinctive geomorphic terrains; the Teche Mississippi, Teche Red River, and inland swamp terrains. The broad ridges that border Bayou Teche rise as high as 16 feet, and are some of the highest natural landforms in the deltaic plain. South of these ridges the terrain consists of inland swamp scattered with patches of fresh marsh, an ecosystem characteristically associated with southern Louisiana. These diverse environments provide a habitat for various forms of wildlife, discussed in more detail in Section 3.12.

The natural levees of the Atchafalaya Basin were prime locations for occupation by prehistoric peoples. These areas provided optimum soil drainage, natural resource availability, protection from natural hazards, and access to transportation routes. Archeological research indicates that these ridges were occupied from 10,000 B.C. throughout the prehistoric period.

Bayou Teche, the Lower Atchafalaya River, Berwick Bay, and the area's proximity to the Gulf of Mexico afforded the project planning area with transportation opportunities that have shaped its history. In the early colonial period, the Atakapas and Chitimacha tribes had settlements within modern St. Mary Parish around the Lower Atchafalaya River and Bayou Teche. The earliest documented European settler in the project planning area was Thomas Berwick in 1784. The Berwick family received a land grant for a 70-arpent front tract on Tiger Island fronting the lower Atchafalaya River and Berwick Bay.

Like the previous inhabitants of St. Mary Parish, early European settlers found the area along Bayou Teche to be the most desirable land for settlement. Eighteenth and

nineteenth century settlers found the alluvial soil along Bayou Teche favorable for commercial sugarcane farming, which remains one of the main agricultural products of the planning area. By 1825, schooners were carrying St. Mary Parish sugar via Bayou Teche and the Atchafalaya River directly to northern states. The greatest stimulus to development in the antebellum period was the construction of the New Orleans, Opelousas, and Great Western railway line from Algiers to Berwick Bay, which began in 1852.

In the twentieth century, transportation continued to be a significant influential force in the development and landscape of St. Mary Parish. The Southern Pacific System acquired and added to the existing Louisiana and Texas Rail System early in the century. The parish also saw dramatic changes in water transportation. The Atchafalaya ship channel was dredged to 14 feet by 1909, and by 1960 the channel was maintained at a depth of 16 feet. The St. Mary Parish portion of the Intracoastal Waterway was completed in 1935. As an additional means of safely passing flood waters to the Gulf of Mexico, the U.S. Army Corps of Engineers (USACE) constructed Wax Lake Outlet, significantly altering the natural environment of the planning area.

The aviation industry was introduced in the area in the late twenties when Patterson Airport, now known as Harry P. Williams Memorial Airport, was built. In early 1929, the Wedell-Williams Air Service was formed, originally to provide charter trips, sight-seeing flights, and flight instruction for the south Louisiana market. The business rapidly expanded, establishing regularly scheduled flights, producing award-winning racing planes, and winning the contract for airmail service between New Orleans and Houston.

Road transportation was dramatically improved in the parish with the construction of the Old Spanish Trail, the present LA 182 and the predecessor of existing US 90. The Berwick Bay Highway Bridge (current Hwy. 182 Bridge) was constructed between 1931 and 1933. Existing US 90 was constructed in the 1970's.

New industries developed in St. Mary Parish in the twentieth century around the available natural resources. In the early decades of the century, timber became one of the most important economic forces in St. Mary Parish. However, by 1925, supplies of virgin cypress were rapidly being depleted, and the lumber business severely declined. Seafood also became an important industry in the region at this time, not only harvesting, but packing and shipping.

Petroleum has been the single most important factor affecting the economy and development of the region in the past sixty years, especially with the introduction of off-shore oil platforms. It has been the cause of many economic swings over the past decades. The influence of petroleum in the parish continues, with the revival of off shore drilling beginning in the mid-nineties.

The environment of St. Mary Parish continues to be altered largely by economic factors, such as the petroleum and chemical industries, which drive development and other physical changes to the landscape.

Existing US 90 serves as the principal roadway through the coastal parishes of south Louisiana. It also functions as the primary local roadway access through the rural community of Calumet, the incorporated City of Patterson, the unincorporated community of Bayou Vista, and the incorporated Town of Berwick.

3.2 Socioeconomics and Land Use

A number of national and state data sources have been evaluated to derive a demographic profile of the planning area. These include:

- US Census: Parish data and data from the Census tracts that include the project area: Census 2000 Tract 405 (Berwick area), Tract 406 (Bayou Vista area), Tract 407 (Patterson north of U.S. 90), Tract 408 (Patterson south of U.S. 90, and the unincorporated areas to the west), and Tract 409, (including the Ricohoc community, which is located west of Wax Lake Outlet)
- 1997 Louisiana State Profile prepared by Woods & Poole Economics, a firm specializing in economic and demographic projections at the county and state level;
- Population Questionnaires submitted to Louisiana Tech University by the Cities of Franklin, Morgan City and Patterson and the Town of Berwick for the two-year period from July 1998 through June 2000;
- Additional land use and building permit information provided by St. Mary Parish, Berwick, and Patterson;
- Louisiana Population Data Center at LSU; and
- Center for Business & Economic Research at the University of Louisiana, Monroe.

There are a number of geographic areas that have been considered in the description and analysis of the project and its potential benefits and impacts.

St. Mary Parish – Certain demographic profiles and projections consider only parish level detail. However, to the extent practical, such data sets have been interpolated downward to reflect planning area conditions.

Planning Area - As noted in Section 3.1, the planning area extends beyond US 90 to encompass the communities serviced by the roadway, including Ricohoc, Calumet, Patterson, Bayou Vista and Berwick. This area includes Census Tracts 405, 406, 407 and 408; and a small portion of Tract 409.

Project Area - The other area of concern is the project area. This area includes the 2,000 foot wide area along the alignment of the Future I-49 and any connecting roadways that would be upgraded as part of the project. This is the area shown on the Project Atlas and referenced throughout this FEIS as the “project area”.

3.2.1 Demographics

Table 3-1 presents total population for St. Mary Parish and breakdowns by race and ethnicity for the decades 1970 through 2000. It should be noted that these figures represent all of St. Mary Parish, not the planning area or the project area, as defined above.

According to Woods & Poole, the parish population peaked in 1982, just prior to the "Oil Bust" of the 1980's. Although the economy has experienced a mild recovery starting in 1997, the year 2000 population estimate of 57,800 persons remains 8,379 persons less than its year 1982 peak of 66,179 persons.

**TABLE 3-1
POPULATION CHARACTERISTICS IN ST. MARY PARISH
1970 THROUGH 2000 (IN THOUSANDS)**

	1970	Percent	1980	Percent	1990	Percent	2000	Percent
<i>WHITE</i>	43.7	71 %	44.9	70 %	37.8	65 %	35.2	61 %
<i>NON-WHITE</i>	17.4	29 %	19.5	30 %	20.2	35 %	22.6	39 %
<i>HISPANIC</i>	0.6	1 %	1.2	2 %	1.1	2 %	2.2	4 %
TOTAL	61.1		64.4		58.0		57.8	

Source 1997 State Profile Louisiana, Woods & Poole

The US Bureau of the Census found that the population in the planning area has changed as follows during the last decade:

- The population of Tract 405, encompassing the Town of Berwick, declined from 4,693 persons in 1990 to 4,418 in 2000, a decrease of 275.
- The population of Tract 406, encompassing the community of Bayou Vista, declined from 4,953 persons in 1990 to 4,442 in 2000, a decrease of 511.
- The population of Tract 407, encompassing the City of Patterson north of existing US 90, declined from 4,050 persons in 1990 to 3,736 in 2000, a decrease of 314.
- The population of Tract 408, encompassing the City of Patterson south of existing US 90 and rural areas to the west including the community of Calumet, grew from 2,813 persons in 1990 to 3,254 in 2000, an increase of 441 people.

The older areas and more established communities of Berwick, Bayou Vista, and Patterson north of existing US 90, as defined by the Census Tracts that encompass them, experienced a cumulative population decline of 1100 persons, or 8%, over the decade from 1990 - 2000. The planning area declined by 659 persons, or 4% during the same period.

Notwithstanding a population trend in St. Mary Parish that would not appear to support new residential building construction, there has been a modest amount of new residential construction as indicated by St. Mary Parish building permit activity over the last three years. On an average, 122 building permits were annually processed in St. Mary Parish. Eighty permits, or 65% of the permits issued, were issued within the Future I-49 South planning area. The shift in population to the area of Patterson south of US 90 supports this demand for new housing.

The reconciliation of very slow growth, or no growth, population trends with modest residential permit activity can potentially be understood in relation to a number of factors:

- Even within a very slow growth economy, there will always be a demand for construction of some new residential units.

- Considering the depressed housing market, which was induced by the “oil bust” of the 1980’s, there may have been some pent-up demand for new residential units, which only recently has been realized with the improving economy. New units can reflect upgrades in size and/or quality, or conversion from mobile home units to frame construction.
- Within a given reporting cycle, typically building permits are issued for housing units that were not constructed.

Table 3-2 presents the number of jobs in the parish for the same periods as shown in Table 3-1.

**TABLE 3-2
EMPLOYMENT IN ST. MARY PARISH
1970 THROUGH 2000 (IN THOUSANDS)**

	1970	1980	1990	2000
TOTAL	27.0	40.8	31.0	32.3

Source: 1997 State Profile Louisiana, Woods & Poole

The project area in St. Mary Parish traverses US Census Tracts 405, 406, 407, 408, and an extremely small portion of 409 on the west side of Wax Lake Outlet. Table 3-3 presents population estimates for the project area from 2000 to 2030. The estimate is based on the area of a given tract, and the area within that tract occupied by the planning area, and assumes an even distribution within a tract. While the tract is a much smaller data unit than the parish, it still extends a considerable distance beyond the 2,000-foot wide project area illustrated on the Project Atlas. The estimate in Table 3-3 is an effort to more closely approximate the numbers of persons and other relevant characteristics within the project area as presented in the Project Atlas.

**TABLE 3-3
POPULATION IN FUTURE I-49 PROJECT AREA
2000 AND ESTIMATED* 2010 – 2030**

Census Tract	Total Population	Total Area (sq. mi.)	Portion within Project Area (sq. mi.)	Percent within Project Area	Population within Project Area 2000 (actual)	Population within Project Area 2010 (growth rate of 0.0011)	Population within Project Area 2020 (growth rate of 0.0017)	Population within Project Area 2030 (growth rate of 0.0017)
405	4,418	9.9	1.0	10.1%	447	452	462	476
406	4,442	8.4	1.0	12.4%	553	559	572	588
407	3,736	1.5	0.3	19.0%	708	716	732	753
408	3,254	181.7	1.8	1.0%	32	32	33	34
409	3,015	598.1	0.4	0.1%	2	2	2	2
Total	18,865	799.6	4.48	0.60%	1,742	1,761	1,802	1,853

* Estimate based on the census count, an assumed even distribution of population throughout a given Census Tract, and growth rate projected by Woods & Poole.

Source: 2000 US Census; 1997 State Profile Louisiana, Woods & Poole

3.2.2 Land Development in Project Area

For analysis purposes, land use within the 2,000 foot wide corridor of the US 90/Future I-49 right-of-way can be divided into the following three areas, as shown in Exhibit 2-2.

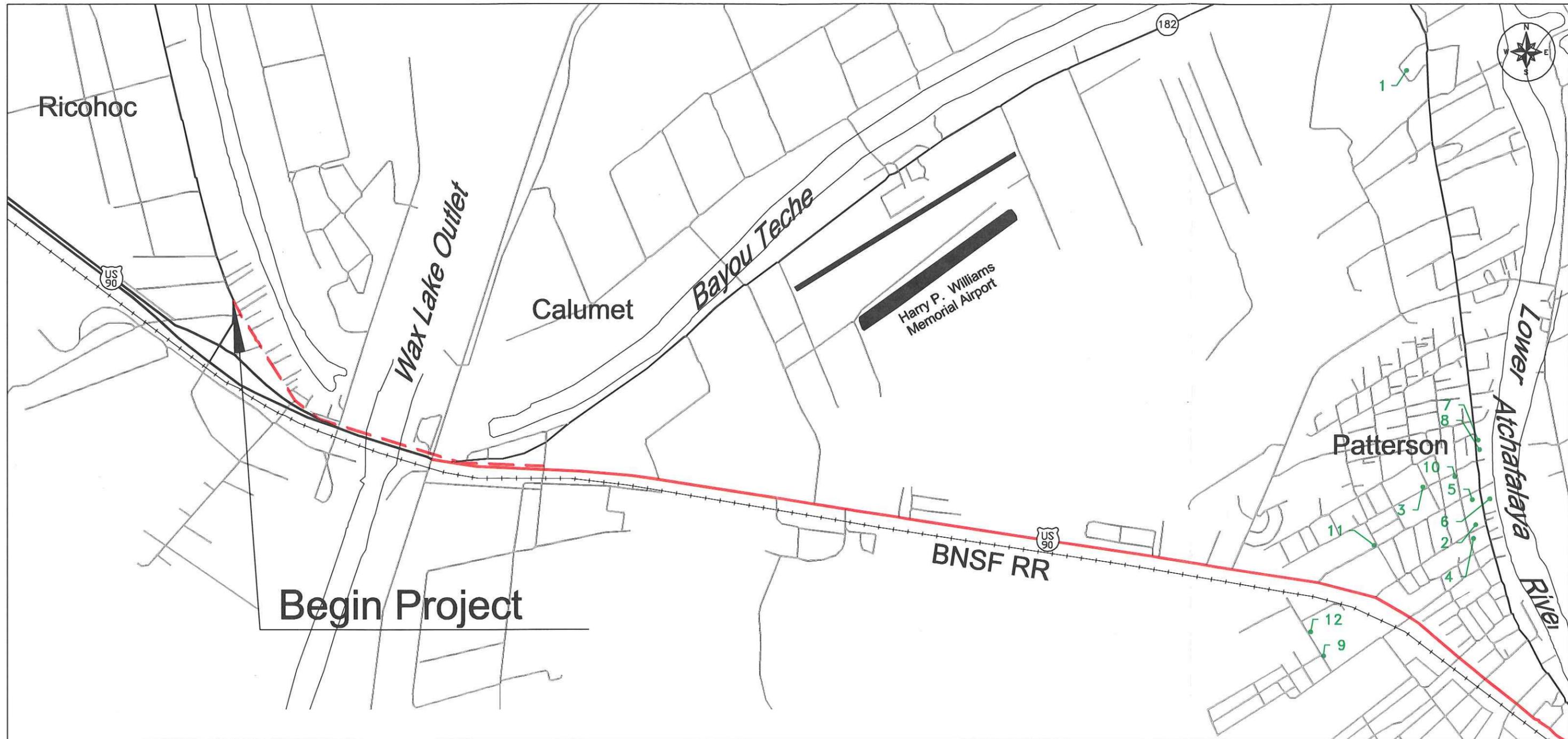
- **Rural** - The rural area extends on both sides of Wax Lake Outlet from Ricohoc to Red Cypress Road. There are several industrial facilities located south of existing US 90. Residential areas include the rural communities of Ricohoc, and Calumet, two mobile home communities, Todd Subdivision, and the Grandwood Apartments. A large portion of the area remains undeveloped, or in agricultural use.
- **Patterson/Bayou Vista** The more developed portion of the Planning Area includes the City of Patterson and the unincorporated community of Bayou Vista. Except for the area throughout the Atchafalaya meander, where residences and the St. Mary Parish Tourist Commission abut LA 182, the abutting land uses on the north side of the right-of-way are characterized by highway related commercial and industrial businesses. On the south side of existing US 90 the proximity of the BNSF Railroad right-of-way eliminates abutting properties. However, within Patterson there are industrial and residential uses south of the railroad as well as a number of public facilities. The public facilities include a number of churches and Kemper Williams Park, which is both a 4(f) property and a property which has been developed in part utilizing Section 6(f) funds. South of the railroad, east of the park, the land is largely vacant.
- **The Town of Berwick** - Developed areas of Berwick are primarily located along the natural levee of the Lower Atchafalaya River. Most of Berwick within the project area consists of undeveloped forested land. Berwick officials consider the undeveloped forested areas prime sites for future development. This is reflected in their thoroughfare plan that includes Pattie Drive, a new four-lane roadway connection between LA 182 and US 90 (Future I-49).

3.3 Community Facilities

As discussed above, the project area traverses two incorporated municipalities, Patterson and Berwick, and the unincorporated community of Bayou Vista. The entire project area is within St. Mary Parish. The following are the community facilities found in these areas. Their locations are shown on Exhibits 3-1A and B, and 3-2A and B.

3.3.1 Schools and School Bus Routes

The St. Mary Parish School Board operates seven schools in the communities surrounding US 90. No schools are situated adjacent to US 90. The Bayou Vista Elementary School extends to the fifth grade (K-5). Grades 6-12 students from Bayou Vista attend schools either in Patterson or Berwick. The two municipalities each have an elementary school, a junior high, and a senior high school.



Schools

- 1. Patterson High School
- 2. Patterson Junior High School
- 3. Hattie A. Watts Elementary School

Libraries

- 4. Patterson Branch Library

Parks and Recreation

- 5. Hauseman Park
- 6. Morey Park

Public Safety

- 7. Patterson Police Department
- 8. Patterson Volunteer Fire and Ambulance
- 9. Patterson Fire Substation

Government Facilities

- 10. Patterson City Hall
- 11. U.S. Post Office Patterson Branch

Health Care Facilities

- 12. Sunrise Care and Rehabilitation

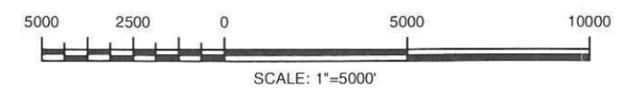


 US ROUTE
 STATE ROUTE
 LOCAL ROAD

LEGEND

 FACILITY NUMBER AND LOCATION
 BNSF RAILROAD

 LA 182 IMPROVEMENT
 US 90 / I-49 IMPROVEMENT



**I-49 SOUTH
WAX LAKE OUTLET
TO BERWICK
EXHIBIT 3-1A
COMMUNITY FACILITIES**

Schools

- 13. Bayou Vista Elementary School
- 14. Berwick High School
- 15. Berwick Junior High School
- 16. Berwick Elementary School

Libraries

- 17. Bayou Vista Branch Library
- 18. Berwick Branch Library

Parks and Recreation

- 19. Kemper Williams Park & Campground
- 20. Patterson Civic Center
- 21. Bayou Vista Central Park
- 22. Bayou Vista Community Center
- 23. Berwick Walking Trails
- 24. Berwick Civic Complex and Ball Fields
- 25. Pharr Memorial Park
- 26. Berwick Historic Lighthouse and Park

Public Safety

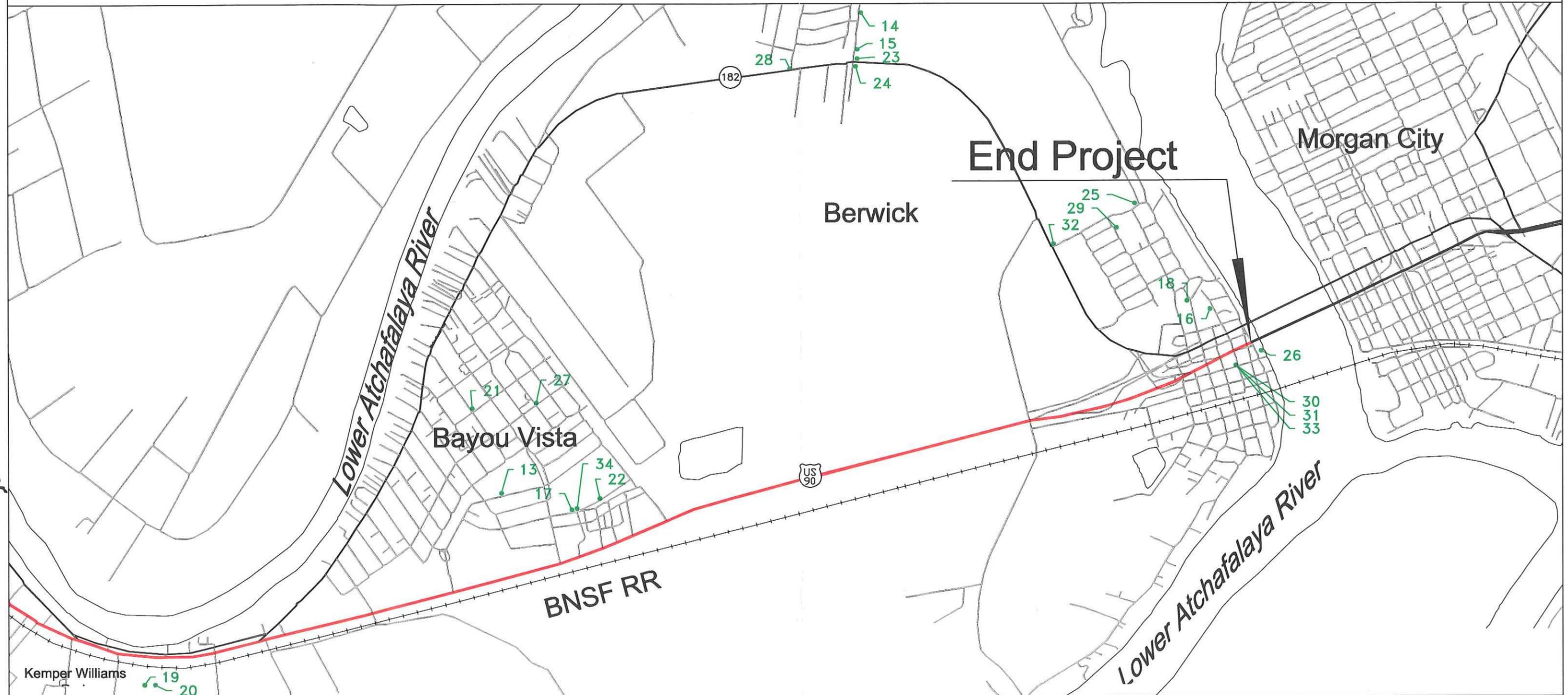
- 27. St. Mary Parish Fire Department
- 28. Berwick Ray Raspberry Fire Station
- 29. Golden Farms Fire Station
- 30. Berwick Police Department
- 31. Berwick V.J. Bella Central Fire Station

Government Facilities

- 32. U.S. Post Office Berwick Branch
- 33. Berwick Town Hall

Health Care Facilities

- 34. Fairview Treatment Center and Out Patient Clinic of St. Mary Parish



LEGEND

- US ROUTE
- STATE ROUTE
- LOCAL ROAD
- FACILITY NUMBER AND LOCATION
- BNSF RAILROAD
- LA 182 IMPROVEMENT
- US 90 / I-49 IMPROVEMENT



I-49 SOUTH
WAX LAKE OUTLET
TO BERWICK
EXHIBIT 3-1B
COMMUNITY FACILITIES

The St. Mary Parish School Board provides school bus service to the schools between the morning hours of 7:00 am and 8:15 am and the afternoon hours of 2:30 pm and 3:45 pm. For an hour and fifteen minutes twice a day, a total of seventeen school buses cross US 90 at least once. A high frequency of school bus crossings occur at Veterans/Railroad Avenue in the Patterson, with twelve crossings each school day.

In Patterson, the Red Cypress Road school bus route crosses US 90 eleven times, which is the second highest frequency of US 90 crossings. As residential growth in Patterson is projected south of US 90, the pattern of US 90 school bus crossings is expected to continue, and their frequency to increase over time.

Certain school bus routes in the Patterson area use US 90 to transport students. The Red Cypress Road to Todd Street bus route uses US 90 to pick up students living in the Todd subdivision. The Todd Street, Laurie Lane, and Marine Street Route transport students between the Todd subdivision and other residential areas along US 90. US 90 is used by school buses between Zenor Road and Lassus Street near Kemper Williams Park. Exhibits 3-1A and B locate schools in the Planning Area.

In Berwick, Sixth Street has a high frequency of school bus crossings, but the roadway is under the bridge approach and does not require the school bus to interface with US 90 traffic. The Thorguson Drive and Thorguson Drive/River Road school bus routes cross US 90 at a signalized intersection.

St. Mary Parish School Board also operates two routes that transport students to private schools in Morgan City, Central Catholic High School and Holy Cross Elementary. Where possible, these buses use LA 182 and Thorguson Drive in Berwick and cross US 90 at the signalized intersections.

In addition to regular school bus routes, Special Education buses operate throughout the area during the day providing door-to-door service to special education students. Two Special Education buses operate in Berwick, Bayou Vista, and parts of Morgan City. One Special Education bus operates in Patterson and crosses US 90 to provide service to special education students in the areas located south of US 90. Table 3-4 summarizes weekday school bus route crossing of US 90.

**TABLE 3-4
WEEKDAY SCHOOL BUS ROUTES ACROSS US 90**

Street Crossing	Crossings per Day	Street Crossing	Crossings per Day
City of Patterson		Lassus St.	5
Red Cypress Rd.	11	Zenor Rd.	4
Red Cypress Rd, Todd St.	4	Lipari St., RR Ave.	4
Red Cypress Rd, Veterans	2	Veterans Dr.	12
Todd St., Laurie Lane, Marine	2	Town of Berwick	
Tiffany, Lassus, Service Road	2	Sixth St.	12
Catherine Street	6	Thorguson Dr.	5
Catherine Street, Red Cypress	2	River Rd., Thorguson Dr.	6
Hwy 182	3	Bayou Vista Community	
Wedell St.	1	Southeast Blvd.	4
Bernard St.	1	Bergeron, Zenor Rd.	2
Enterprise Ave., Tiffany St.	2		

3.3.2 Public Safety and Other Government Facilities

Exhibits 3-1A and B present community facilities and schools in the vicinity of the project area. Public safety and other government facilities located in Patterson, Berwick, and Bayou Vista include the following:

Patterson Volunteer Fire Department and Ambulance	Berwick Police Department
Patterson Police Department	Berwick V.J. Bella Central Fire Station
Patterson City Hall	U.S. Post Office Berwick Branch
U.S. Post Office Patterson Branch	Berwick Ray Rasberry Fire Station
Patterson Fire Substation on Lia Street	Golden Farms Fire Sub Station
Berwick Town Hall	St. Mary Parish Fire Department Bayou Vista

3.3.3 Recreation and Libraries

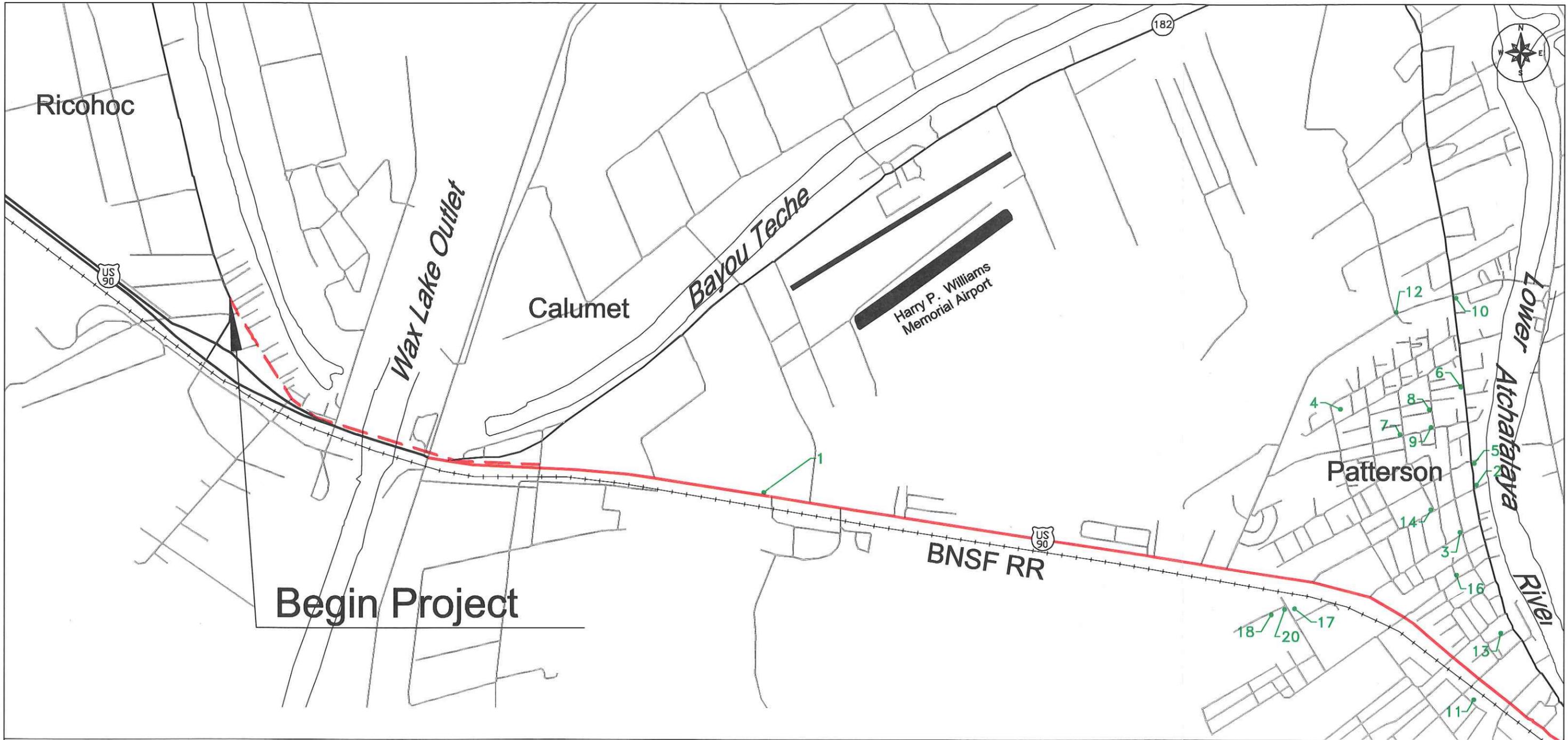
Examination of the project study area and environs identified the following recreational facilities and libraries:

Hauseman Park Patterson	Bayou Vista Community Center
Patterson Public Library	Berwick Library
Morey Park Patterson	Pharr Memorial Park Berwick
Patterson Area Civic Center	Berwick Historic Lighthouse and Park
Kemper Williams Park and Campgrounds	Berwick Walking Trail
Bayou Vista Central Park	Berwick Civic Complex and ball fields
Bayou Vista Library	

Recreational facilities include the large Kemper Williams Park and Campgrounds, including the Patterson Civic Center, which is operated by St. Mary Parish, as well as city and community parks. Patterson has Hauseman Park and Morey Park. Berwick has a Berwick Civic Complex and ball fields, Pharr Memorial Park, the Berwick historic Lighthouse and Park, and the Berwick Walking Trail. The Berwick park facilities are complemented by ball fields adjacent to the junior and senior high schools. Bayou Vista has a Community Center and a Central Park.

Kemper Williams Park and Campgrounds is a 296 acre recreational park on US 90 near Patterson. The park serves the regional recreational needs of the communities in the parish. Park facilities include a golf driving range, lighted tennis courts, a picnic area with a pavilion, a children's playground, horseshoe pitching area, baseball/softball/soccer fields, 24 recreational vehicle campsites with full hook-ups, 164 recreational vehicle campsites available for group camping, a tent camping area, boat and swamp tours, and fishing ponds. Planned projects include an 18-hole golf course, canoe trail, and walking trails. The Louisiana State Museum in Patterson also is located within the park.

Access to the park is primarily by auto from Cotten Road; the Gatehouse entrance to the park is located one quarter of a mile south of US 90 on Cotten Road while the entrance to the Patterson Civic Center is near US 90. A secondary access road from US 90 is open on a limited basis to accommodate large recreational vehicles. Both access routes require crossing the BNSF Railroad right-of-way at-grade.



Churches and Cemeteries

- | | | | |
|--|---|--------------------------------------|--|
| 1. Calumet Baptist Church | 6. First Baptist | 11. Bethel Pentecostal Fellowship | 16. Good Hope Baptist Church |
| 2. Patterson United Methodist | 7. Bethlehem Church of God in Christ | 12. Christ Gospel Church | 17. River Life Church |
| 3. St. Joseph Catholic Church and Cemetery | 8. Zion Chapel AME Church | 13. Jehovah's Witnesses of Patterson | 18. Church of Jesus Christ Latter Day Saints |
| 4. Patterson Memorial Cemetery | 9. New Salem Baptist Church | 14. Church of God Prophecy | 19. St. Luke Baptist Church |
| 5. Open Church | 10. Holy Trinity Evangelical Episcopal Church Rectory | 15. Word of Life Family Church | 20. Ibert's Memorial Park and Cemetery |

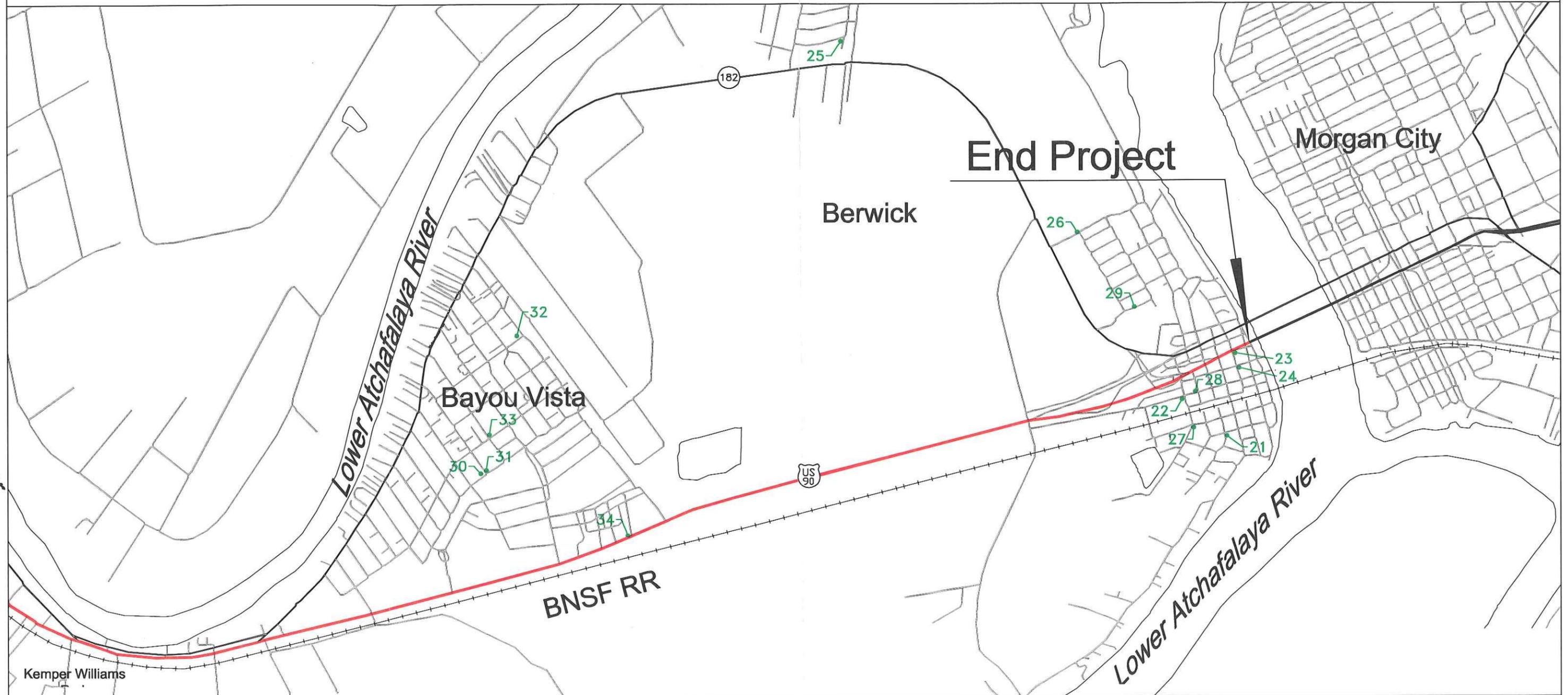
	US ROUTE STATE ROUTE LOCAL ROAD	LEGEND FACILITY NUMBER AND LOCATION BNSF RAILROAD	LA 182 IMPROVEMENT US 90 / I-49 IMPROVEMENT	 SCALE: 1"=5000'	I-49 SOUTH WAX LAKE OUTLET TO BERWICK EXHIBIT 3-2A CHURCHES AND CEMETERIES

Churches and Cemeteries

- 21. Berwick Cemetery
- 22. First United Pentecostal Church
- 23. St. Stephen Catholic Church
- 24. Twin City Gospel Temple
- 25. First assembly of God Church

- 26. First United Methodist Church of Berwick
- 27. Little Zion Baptist Church of Berwick
- 28. St. John Baptist Church of Berwick
- 29. First Baptist Church
- 30. St. Bernadette Catholic Church

- 31. Miracle Revival Center
- 32. Faith Baptist Church
- 33. Bayou Vista Baptist Church
- 34. Higher Heights Full Gospel Baptist Ministries



Kemper Williams



- US ROUTE
- STATE ROUTE
- LOCAL ROAD

LEGEND

- FACILITY NUMBER AND LOCATION
- BNSF RAILROAD

- LA 182 IMPROVEMENT
- US 90 / I-49 IMPROVEMENT



I-49 SOUTH
WAX LAKE OUTLET
TO BERWICK
EXHIBIT 3-2B
CHURCHES AND CEMETERIES

The Patterson Area Civic Center is located in Kemper Williams Park and provides a gymnasium/multi-purpose room and meeting rooms for civic and social events.

3.3.4 Health Care Facilities and Emergency Medical Service

Acadian Ambulance Service covers a 29 parish service area including St. Mary Parish. Two ambulances are assigned to the Morgan City area, one of which is stationed in Patterson at the Fire Station at 1306 Main Street. The emergency helicopters make on-scene landings and use a rooftop landing pad at Lakewood Hospital in Morgan City. The service's fixed wing plane has utilized Patterson Airport to transport patients. Acadian Ambulance Service is the point of contact for the LDOTD concerning road closures and other activities that may affect ambulance service routes. Ambulance crews are contacted through the Dispatch Center in Lafayette, LA.

Health care facilities in the project area are shown on Exhibit 3-1A and include the following:

- Patterson Volunteer Fire Department and Ambulance
- Sunrise Care and Rehabilitation for Patterson
- Fairview Treatment Center and Out Patient Clinic of St. Mary Parish

Lakewood Hospital in Morgan City is the medical facility that serves the Berwick, Patterson, and Bayou Vista. Other health care facilities located in the area include the Fairview Treatment Center and Out Patient Clinic, a substance abuse treatment and out patient clinic operated by St. Mary Parish in Bayou Vista. The Sunrise Care and Rehabilitation private care facility is located in Patterson.

3.3.5 Houses of Worship and Cemeteries

Thirty-four (34) churches and four cemeteries are found in the project area and its vicinity (Exhibits 3-2A and 3-2B). Five of these churches are located adjacent to the US 90 right-of-way. These are: Calumet Baptist Church, Riverlife Church, Bethel Pentecostal Fellowship, Word of Life Family Church, and Higher Heights Full Gospel Baptist Ministries. See Section 4.1.4.2 for further discussion of the possible impacts of the selected alternative to these churches.

Calumet Baptist Church	Church of Jesus Christ of L D S
Patterson United Methodist Church	St. Luke Baptist Church
St. Joseph Catholic Church and Cemetery	Ibert's Memorial Park and Cemetery
Patterson Memorial Cemetery	Berwick Cemetery
Open Church	First United Pentecostal Church
First Baptist Church	St. Stephen Catholic Church
Bethlehem Church of God in Christ	Twin City Gospel Temple
Zion Chapel AME Church	First Assembly of God Church
New Salem Baptist Church	Little Zion Baptist Church
Holy Trinity Evangelical Episcopal Church Rectory	First United Methodist Church of Berwick
Bethel Pentecostal Fellowship	St. John Baptist Church of Berwick
Christ Gospel Church	First Baptist Church
Jehovah Witnesses of Patterson	St. Bernadette Catholic Church

Church of God of Prophecy
Word of Life Family Church
Good Hope Baptist
Riverlife Church

Miracle Revival Center
Faith Baptist Church
Bayou Vista Baptist Church
Higher Heights Full Gospel Baptist
Ministries

3.4 Air Quality

National and state ambient air quality standards (AAQS) were developed for specific (criteria) pollutants to protect public health, safety, and welfare as a result of the Federal Clean Air Act of 1970. The Clean Air Act Amendments of 1990 (CAAA) mandated a program by which air quality must be improved and maintained so as to meet the National Ambient Air Quality Standards (NAAQS), with frameworks for state and regional agency jurisdictions, accountability, and an established time schedule. This program involves on-going monitoring and reporting, from which regions are classified as to their attainment status with regard to each criteria pollutant. St. Mary Parish is designated by the EPA as an attainment area with limited maintenance plan requirements. Since the transportation conformity rule applies to maintenance areas, St. Mary Parish must demonstrate conformity.

Transportation Conformity

Transportation conformity is a process required of Metropolitan Planning Organizations (MPOs) pursuant to the CAAA, to ensure that federal funding and approval are given to those transportation activities that are consistent with air quality goals. CAAA requires that transportation plans, programs, and projects in nonattainment or maintenance areas that are funded or approved by FHWA be in conformity with the State Implementation Plan (SIP), which represents the State's plan to either achieve or maintain the NAAQS for a particular pollutant.

Subsequent to the CAAA, the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 included transportation planning provisions that stated that federal projects located in nonattainment or maintenance areas cannot be approved, funded, advanced through the planning process, or implemented unless those projects are in a

3.5 Noise

Noise is an undesirable or unwanted sound perceived subjectively by the recipient. Acceptance of a certain noise level may vary among individuals, neighborhoods, and the time of day.

Noise levels are expressed in terms of the hourly, equivalent sound levels in decibels (dBA). Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level (LAeq). The LAeq is the value of a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same time period. For example, an LAeq evaluated over a one-hour period is written as LAeq1h.

**TABLE 3-5
NOISE MEASUREMENT RESULTS, OCTOBER, 2000**

Site #	Site Location	Distance to US 90 EOP (ft)	Peak Hour Noise Measurement				Off-Peak Noise Measurement			
			Date	Start Time	Duration (min)	L_{Aeq} (dB)	Date	Start Time	Duration (min)	L_{Aeq} (dB)
1a	395 Ricohoc Road (near road)	150	Oct. 25	07:40	20	71	Oct. 25	12:46	30	67
1b	395 Ricohoc Road (near house)	200	---	---	---	---	Oct. 25	12:46	30	65
2	Calumet Baptist Church	140	Oct. 25	08:25	20	69	Oct. 25	11:05	30	68
3	Grandwood Apartments	120	Oct. 26	08:24	20	70	Oct. 26	11:12	30	71
4	212 Susan Street	140	Oct. 25	05:37	20	70	Oct. 25	14:00	30	67
5a	Idlewild House (front)	170	Oct. 26	07:23	20	67	Oct. 25	15:45	30	67
5b	Idlewild House (back)	280	Oct. 26	07:23	20	63	Oct. 25	15:45	30	62
6	805 Kellers Lane	70	Oct. 25	16:43	20	73	Oct. 25	09:55	30	73
7	Word of Life Family Church	240	---	---	---	---	Oct. 25	15:45	30	62
8	145 Todd Lane	220	Oct. 25	17:29	20	63	Oct. 25	14:28	30	63

Project area noise measurements were obtained to characterize current conditions. Noise sensitive land uses were identified based on FHWA criteria: residences, schools, churches, hospitals, libraries, parks and recreational areas. Based upon these identified uses, ten (10) representative noise measurement sites were selected. The measurement location at each site was chosen to be a representative distance from the existing US 90 for the noise-sensitive receivers in the nearby area. The locations of the noise measurement sites are shown on the Atlas Plates.

Noise measurements were obtained on October 25 and 26, 2000 during weekday peak and off-peak traffic times. Noise measurement involved short-term sampling, typically 20-30 minutes in length. Instrumentation utilized was a Metrosonics db-308 Type 2 sound analyzer. Observations throughout the measurement periods were made to note any background noise due to sources other than road traffic. Wind speed was measured with a handheld wind meter. Spot traffic counts were made

during the noise measurements. The noise measurement results are summarized in Table 3-5.

The measurement data revealed that the major noise source at all of the measured noise-sensitive receivers is the traffic on existing US 90. The measured LAeq for the receivers closest to US 90 was 73 dBA (based on the measurements at 805 Kellers Lane). For the receivers farthest from US 90 (the back of the Idlewild House and 145 Todd Lane), the peak hour LAeq was around 63 dBA. Off-peak noise levels were within one dB of the peak hour measurements for six of the eight sites. The two exceptions are 395 Ricohoc Road (Site 1a) and 212 Susan Street where the peak hour measurements were 3 to 4 dB higher than the measured off-peak noise level.

The FHWA Noise Standards and LDOTD Highway Traffic Noise Policy include Noise Abatement Criteria (NAC) for different land use activity categories. Activity category B, which includes residences, has an NAC of 66 dBA. Comparison of the noise measurement results with the NAC determined that, measured peak hour noise levels equaled or exceeded the NAC at six of the eight measurement sites. The back of the Idlewild House (Site 5b) and 145 Todd Lane (Site 8) had peak hour noise levels below the NAC.

3.6 Water Quality

3.6.1 Surface Water

Four (4) major surface water features are found in the project area: Wax Lake Outlet, Bayou Teche, Lower Atchafalaya River, and Berwick Bay. Each is designated a navigable waterway by the USACE. Numerous small drainage ways traverse the project corridor and are tributary to one of these major surface water features.

In the project area, the Lower Atchafalaya River flows eastward into Berwick Bay, and is a major regulated distributary of the Mississippi, Red, and Black Rivers. Berwick Bay is to the east of the project area. The Lower Atchafalaya River then flows south to the Gulf of Mexico, approximately 20 miles south of Berwick. Wax Lake Outlet is a manmade waterway that diverts a portion of the Atchafalaya River flow. As such, Wax Lake Outlet serves as a reliever waterway, particularly during floodwater periods. Wax Lake Outlet forms the western boundary of the project. Bayou Teche conveys water from its origin in south central Louisiana to the Lower Bayou Teche, Wax Lake Outlet, and the Atchafalaya River. Bayou Teche parallels the project corridor to the north.

The quality of surface waters in the project area is affected by point and non-point source pollution. Point sources include mainly industrial, municipal, and sewer discharges. Non-point source pollution includes stormwater runoff, industrial discharges, landscape maintenance activities, forestry, agriculture, and natural sources. The types of constituents identified as contributing to the Atchafalaya River basin water quality profile include organics, metals, low dissolved oxygen, pathogens, oil, grease, and nutrients.

The State of Louisiana Water Quality Management Plan, Water Quality Inventory 305(b) (LDEQ, 2000), identifies the Atchafalaya River as meeting the criteria for the following designated uses: drinking water supply upstream from the US 90 bridge,

primary and secondary contact recreation, and fish and wildlife propagation (upstream only). Suspected causes of impairment include mercury and other metals.

Section 303(d) of the Federal Clean Water Act requires states to identify water bodies that are not meeting water quality standards and to develop total maximum daily pollutant loads for those watersheds. A total maximum daily load (TMDL) is the amount of a pollutant that a watershed can assimilate without exceeding the established water quality standard for that pollutant. Through the establishment of TMDL's, pollutant loads can be allocated to the combined point and non-point sources in a watershed (USEPA, 2000a).

Pollutants of primary concern in the Bayou Teche include fecal coliform (FC), chloride, and sulfate (USEPA, 2000a, 2000b, 2000c). TMDL's developed for Bayou Teche specify a FC load reduction of 738% (USEPA, 2000a), and a reduction of 14.5% in sulfate loading to meet in-stream water quality standards (USEPA, 2000c).

3.6.2 Ground Water

According to the Recharge Potential of Louisiana Aquifers prepared for LDEQ by the Louisiana Geological Society and dated 1988, aquifers located under the project study area contain saline water that is unsuitable for most uses (Renken, 1998 and Winslow et al, 1968). The project study area is not a recharge area for any major Louisiana aquifers.

A review of water wells registered with the Water Resources Section of LDOTD showed that approximately 20 wells are located in the project study area (Table 3-6). The Water Well Registration Data File contains only wells registered with LDOTD. It is possible that additional wells have been drilled in the project study area but are not registered. None of the registered wells are located within the existing US 90 right-of-way or the proposed Future I-49 right-of-way.

**TABLE 3-6
LDOTD WELL TYPE AND DISTRIBUTION**

WELL TYPE	No.
Monitor	10
Plugged	10
Total	20

A search of Federal and State Water Well databases for Public Water System (PWS) wells located within the project study area was performed. A PWS is any water system that provides water to at least 25 people for at least 60 days annually. The search reported five (5) wells at five different locations. None of these are located within the right-of-ways of the existing US 90, or Future I-49.

According the Ground Water Protection Division (GWPD) of LDEQ, at this time there are no Wellhead Protection Areas within one mile of the project study area.

3.7 Wetlands

3.7.1 Definition of Wetlands

A wetland is defined as "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal

circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." [USEPA, 40 CFR 230.3 and COE 33 CFR 328.3]

The definition emphasizes hydrology, vegetation and soil conditions. Each of the criteria must be present for an area to be identified as wetlands.

- Hydrology: The area is inundated either permanently or periodically at mean water depths < 6.6 ft., or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation (cut off is > 5% of growing season; continuously).
- Vegetation: The prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions as described in the definition of a wetland. Hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions.
- Soil: Soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions.

Normal circumstances, in the wetland definition, are defined as conditions that would exist if the vegetation or any of the three criteria were not altered or removed. The 1992 Energy and Water Resources Appropriation Act mandated that all USACE Districts use the *Wetlands Delineation Manual* (USACE 1987) for making jurisdictional determinations pursuant to the Clean Water Act.

Areas designated as "prior converted croplands" by the Natural Resources Conservation Service (NRCS) are defined as wetlands that were farmed prior to December 23, 1985 and have a cropping history. The cropping history requires that a farmed wetland remains in furrow or planted in crops.

No properties along the US 90 corridor in the Wax Lake Outlet to Berwick section have been accepted into the Wetland Reserve Program. Also, no applications for acceptance are pending in the corridor.

3.7.2 Wetland Delineation Findings

A preliminary wetland delineation was conducted in the project study area, in accordance with the *Wetlands Delineation Manual* (USACE 1987). The purpose of the preliminary wetland delineation was to estimate the presence or absence of wetlands using the three technical criteria: vegetation, hydrology, and soils. All three criteria had to be met to designate an area as a wetland. A field investigation was conducted and sample locations (plots) were taken during the field investigation. Supportive documentation such as National Wetlands Inventory Maps (NWI), infrared aerial photographs, and parish soil surveys were reviewed to assist in the delineation. The preliminary delineation was performed on the existing and proposed right-of-way and selected adjacent properties. The USACE will verify this delineation in association with the Section 404 permit process.

Many of the wetland areas exhibited definitive visual wetland characteristics of either vegetation or hydrology. During the field investigation, the soil characteristics confirmed the presence of anaerobic processes inherent to hydric or wetland soils. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough

during the growing season to develop anaerobic conditions in the upper part (USDA, 1991). The hydric soil units in the Berwick project area include the Alligator, Baldwin, Buxin, and Iberia soil units. Primary locations of wetlands were found to include:

- Vegetated wet ditches and wet fields
- Forested wetlands
- Scrub/Shrub wetlands
- Other waters of the US (canals, coulees and other waterways)

Vegetative wet ditches, forested wetlands, scrub/shrub and other waters of the US are designated on National Wetlands Inventory (NWI) maps as Palustrine Emergent (PEM), Palustrine Forested (PFO), Palustrine Scrub/Shrub (PSS), and Riverine Lower Perennial Unconsolidated Bottom (R2UB), respectively. These wetland types occur throughout the planning area, and are referenced on the Atlas Plates.

Vegetative habitat types located within the project area are predominantly composed of a seasonally mowed grass median between the northbound and southbound lanes of US 90 and within the right-of-way between the travel lanes and the right-of-way boundaries. Pasture grasses make up most of the habitat. Wet ditches found in these areas experience periodic inundation. Several water bodies traverse US 90 in a perpendicular direction, including Wax Lake Outlet, Bayou Patterson West and East Branches, four unnamed canals or coulees, and Little Bayou Black. Wax Lake Outlet is a navigable waterway. Common wet grasses within the right-of-way were identified as Pennywort (*Hydrocotyle*), Spikerush (*Eleocharis*), Rush (*Juncus*), Flatsedge (*Cyperus*), Beakrush (*Rhynchospora*), Alligator-weed (*Alternanthera*), and Bluestem (*Andropogon*).

Broad-leaved forested wetlands were found in isolated pockets of undeveloped property outside of the project area or adjacent to the coulees and bayous. Areas of broad-leaved wetlands are located on the west and east bank of Wax Lake Outlet on the north bound side of existing US 90. Other broad-leaved wetlands exist on the southern boundary of US 90, primarily in the Berwick vicinity. In the broad-leaved deciduous wetlands, typical vegetation may include Willow (*Salix*), Palmetto (*Sabal*), Wax-Myrtle (*Myrica*), Oak (*Quercus*), Elder-berry (*Sambucus*), Maple (*Acer*), Buttonbush (*Cephalanthus*), Arrow-Head (*Sagittaria*), Cattail (*Typha*), Supple-jack (*Berchemia*), Sugar-Berry (*Celtis*), Ash (*Fraxinus*), and Privet (*Ligustrum*). Needle-leaved forested wetlands are found primarily between Bayou Vista and Berwick on the north side of the existing US 90 right-of-way. Much of this wetland is in transition due to alterations in the hydrology. Typical trees found in the needle-leaved deciduous wetlands are Cypress (*Taxodium*), with a mixture of Willow (*Salix*), Gums (*Nyssa*), Ash (*Fraxinus*), and Maple (*Acer*).

Scrub/shrub wetlands are a successional stage to forested wetland. Typical vegetation includes Wax Myrtle (*Myrica*), Maple (*Acer*), and Black Willow (*Salix*). The scrub/shrub community is narrow and linear in shape in the project area. It extends along most of the length of US 90 either within or adjacent to the southern right-of-way boundary.

Approximately 18.74 acres of wetlands were found within the project study area, using the definitions and guidelines set forth by the *Wetlands Delineation Manual*. The preliminary delineation process included the sampling of forty-eight areas to determine whether these met the hydrophytic vegetation, wetland hydrology, and hydric soil criteria identified during wetland delineation. The twenty-one areas that met all three criteria are classified as wetlands.

Plates 1 through 9 in the Project Atlas show the wetlands areas found in the project area. All wetland areas in the existing and required US 90 right-of-way are mapped. The wetland areas are identified in green on the plates. Many of the wetland areas appear as small green lines due to the map scale and the small size of the wetland drainage ditches that exist in the grassy area between the existing travel lanes and between the travel lanes and the edge of the right-of-way.

3.8 Floodplains and Waterways

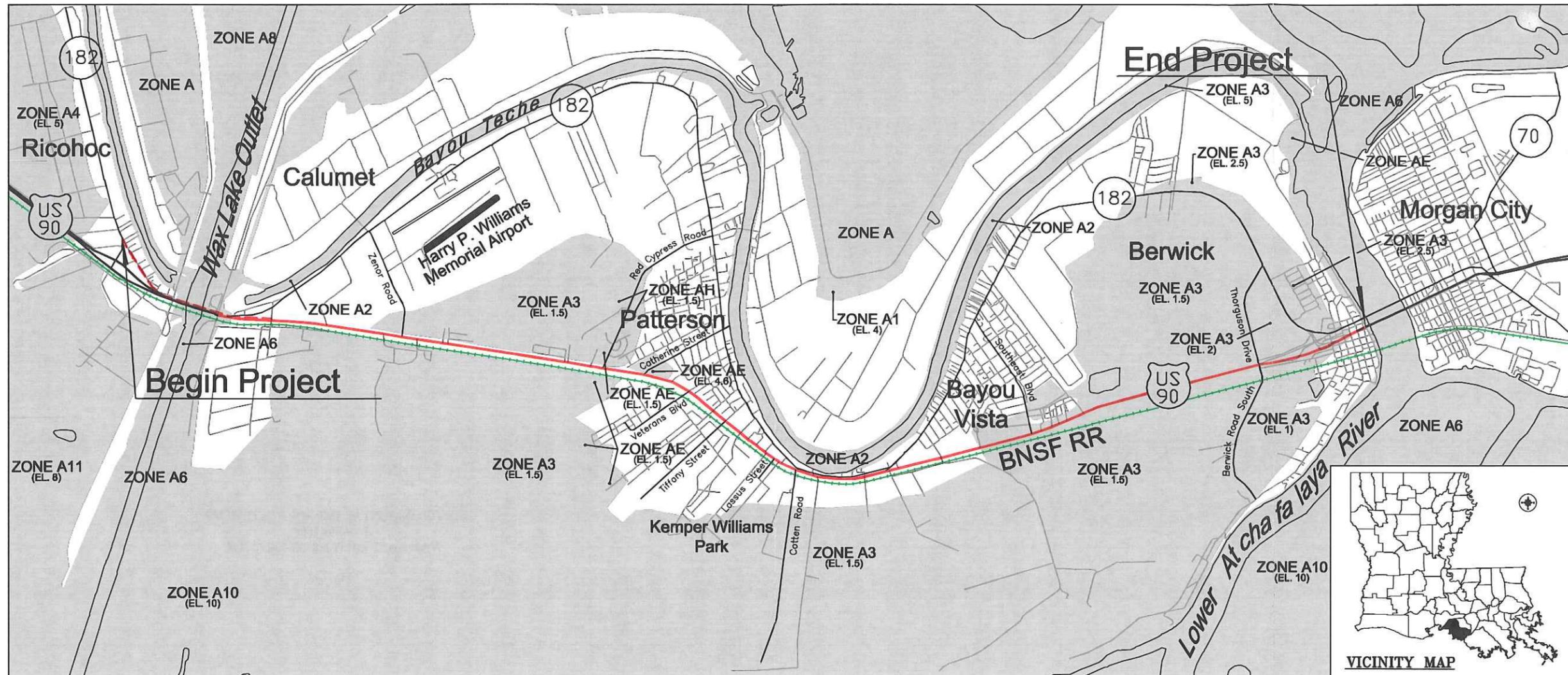
Situated on the Gulf of Mexico, St. Mary Parish contains 104 square miles of inland waterways creating an extreme potential for flooding from storm tides, local rainfall, and river levee overtopping, particularly during hurricanes. The Lower Atchafalaya River, Berwick Bay, and Wax Lake Outlet form the drainage boundaries of the project area. The Atchafalaya River, which flows into Berwick Bay, and the Lower Atchafalaya River, is a major regulated distributary of the Mississippi, Red, and Black Rivers.

The project site is located in a fastland known as the Wax Lake East Drainage basin. The basin is surrounded by artificial levees that provide protection from river and storm flooding. The basin contains a system of drainage canals, ditches, and pumps.

These forced drainage areas are typically located between natural levee ridges and adjacent backswamp areas. Within them lie most of the agricultural, urban, and industrial land of the coastal zone (Louisiana Coastal Wetlands Task Force, 1998)

The Wax Lake East Drainage basin is 46 square miles in area and is divided into three sub areas: the North Bayou Teche, the Bayou Teche, and the Wax Lake East sub areas. The project site is within the Wax Lake East sub area (Mississippi River Commission, 1952).

Flood control for the area on the Lower Atchafalaya River from Calumet to Berwick is provided by the Atchafalaya Basin Floodwater continuous levee system. The Atchafalaya Basin Floodway constructed by the USACE utilizes two primary channels to distribute excess Mississippi River water during flood stages. These channels are the Wax Lake Outlet, a man-made channel on the western boundary of the project, and the Lower Atchafalaya River, the eastern boundary of the project. The USACE built continuous levees along these channels to control the flow protecting the surrounding communities from river floods up to the 100-year frequency. Floodwalls provide Berwick and Patterson with 50-year or better protection. Even though the floodwalls and continuous levees provide sufficient 100-year protection for the majority of land within the project limits, low-lying areas still have the potential for backwater flooding caused from local rainfall. A network



SOURCE: FIRM FLOOD INSURANCE MAP AND STREET INDEX (FEMA)
 PANEL NO'S. 220197 0001C, 220192 0275C, 220192 0250D, 220192 0150D, 220192 0175E, 220194 0005C.

NOTES:

- ZONE A:** AN AREA INUNDATED BY 1% ANNUAL CHANCE OF FLOODING, FOR WHICH NO BASE FLOOD ELEVATIONS (BFE'S) HAVE BEEN DETERMINED.
- ZONE AE:** AN AREA INUNDATED BY 1% ANNUAL CHANCE OF FLOODING, FOR WHICH BASE FLOOD ELEVATIONS (BFE'S) HAVE BEEN DETERMINED.
- ZONE AH:**
- ZONE A1: - A11:** SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 100- YEAR FLOOD; WITH BASE FLOOD ELEVATIONS SHOWN AND ZONE SUBDIVIDED ACCORDING TO FLOOD HAZARD FACTORS (FHFS)



LEGEND		
	US ROUTE	
	STATE ROUTE	
	LOCAL ROAD	

**I-49 SOUTH
 WAX LAKE OUTLET
 TO BERWICK
 EXHIBIT 3-3
 100-YEAR FLOODPLAIN**

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

of pump stations and drainage ditches provide security against flooding for most of these low-lying areas.

Examination of Federal Emergency Management Agency (FEMA) flood mapping for the project area determined that the US 90 corridor is partially within a 100-year floodplain. The 100-year flood elevation ranges between 1.4 feet to 5 feet in the project area (FEMA 1992, 1995a, 1995b). Crossing Wax Lake Outlet, US 90 traverses or abuts the 100-year floodplain on the north from Station 170+00 to Station 298+00 and on the south from Station 130+00 to Station 285+00. US 90 re-enters the 100-year floodplain west of Southeast Boulevard at Station 440+00 in Bayou Vista and remains within the floodplain to the project's eastern terminus in Berwick. Some portions of the US 90 corridor are within the 500-year floodplain and/or protected by levees from the 100-year flood.

Wax Lake Outlet is the only navigable waterway crossed, and potentially impacted, by the project. Pending a design for the LA 182 crossing of the outlet, it must be assumed that both a Section 9 permit and a Section 10 permit would be required from the USCG. Construction of the LA 182 crossing would result in stormwater impacts discussed in Section 4.3.5.2, temporary interruptions of navigation during construction, and other potential construction impacts that are discussed in section 4.21.

3.9 Wild and Scenic Rivers

There are no rivers in the project area that are designated as Wild and Scenic under the Federal Wild and Scenic Rivers Act. There are no rivers designated as Natural and Scenic, or Historic and Scenic by the State of Louisiana in the project area.

3.10 Coastal Zone and Coastal Barriers

US 90, specifically the outside edge of the eastbound lanes of US 90, forms the northern boundary of the Louisiana Coastal Zone. The Coastal Zone comprises a broad band of land and waterways along the southern edge of the state and along the lower portion of the Mississippi River in Louisiana. The Louisiana Coastal Resources Program was initiated with the cooperation of Louisiana citizens, federal, state and local agencies and advisory groups to preserve, restore, and enhance the resources found within the Coastal Zone. The Louisiana Department of Natural Resources (LDNR), Office of Coastal Restoration and Management, serves as the regulator of activities within the Coastal Zone. Activities planned within the Coastal Zone typically require a Coastal Use Permit from the LDNR.

A coastal barrier is defined as a depositional geologic feature (such as a bay barrier, tombolo, barrier spit, or barrier island) that is subject to wave, tidal, and wind energies, and which protects landward aquatic habitats from direct wave attack. There are no coastal barriers in the project area.

3.11 Aquatic Ecology

The LDEQ identifies the portion of the Atchafalaya River upstream of US 90 as meeting the criteria for fish and wildlife propagation. This is reflected in the good quality of the fishery of St. Mary Parish. Smaller drainageways including the ditches

and coulees traversing the project study area have likely suffered some degradation in water quality consequent to agricultural and development practices. This condition would tend to limit the population and diversity of fish and aquatic vegetation in these waterways.

3.12 Vegetation and Wildlife

Vegetation on higher areas in the project study area consist of live oak (*Quercus virginiana*), red oak (*Quercus falcata*), white oak (*Quercus alba*), water oak (*Quercus nigra*), sweet-gum (*Liquidambar styraciflua*), and sugar hackberry (*Celtis laevigata*).

The forested wetlands adjacent to the project study area include characteristic species of bald cypress (*Taxodium distichum*), drummond red maple (*Acer rubrum var. drummondii*), water oak (*Quercus nigra*), black willow (*Salix nigra*), green ash (*Fraxinus pennsylvanica*), tupelo gum (*Nyssa aquatica*), buttonbush (*Cephalanthus occidentalis*) and dwarf palmetto (*Sabal minor*). The composition of associate species varies greatly from site to site.

The scrub/shrub wetland community includes true shrubs, young trees, and shrubs or trees that are stunted due to some environmental condition(s). Characteristic species include buttonbush (*Cephalanthus occidentalis*), groundsel bush (*Baccharis halimifolia*), dwarf palmetto (*Sabal minor*), wax myrtle (*Myrica cerifera*), marsh elder (*Iva fluvens*), and drummond red maple (*Acer rubrum var. drummondii*). There also is some black willow (*Salix nigra*) mixed in with the above species. All of these species will not necessarily be found at the same site. This vegetative community is primarily found paralleling the south ROW and the railroad.

The vegetated wet ditches are generally found in the median and along the side of the existing US 90 roadway. Vegetation found in these emergent wetlands include species such as alligator weed (*Alternanthera*), wild millet (*Pennisetum*), smartweed (*Polygonum*), rushes (*Juncus*, *Eleocharis* and *Scirpus*), sedges (*Carex* and *Cyperus*), cattail (*Typha*), reeds (*Phragmites*), wild rice (*Zizania*), and panic grass (*Panicum*). Drier portions of the grassed median contain bahia grass (*Paspalum*), crabgrass (*Digitaria*), knotroot foxtail (*Setaria*), and white clover (*Trifolium*). This vegetation is typically found a short distance on either side of drainage structures such as box culverts, headwalls and culverts under driveways, perpendicular and parallel to the existing US 90 roadway.

3.12.1 Birds

More than 300 known species of birds can be found in the coastal parishes of Louisiana. The project study area falls within the Central Migratory Flyway for neotropical birds and a large number of species of song birds, raptors, and waterfowl. The highest diversity of species occurs during the spring and fall of each year. The most common species of songbirds found within the project study area include the northern cardinal (*Cardinalis cardinalis*), blue jay (*Cyanocitta cristata*), northern mockingbird (*Mimus polyglottos*) and American robin (*Turdus migratorius*). These birds find nesting and shelter within the areas where tree canopy and understory still exists. Several species of woodpecker such as the downy woodpecker (*Picoides pubescens*) and red-headed woodpecker (*Melanerpes erythrocephalus*) inhabit these

isolated areas of the tree canopy. The pileated woodpecker (*Dryocopus pileatus*) can be found living on the outskirts of urban development.

The most common of the raptor found within the study area is the red-tailed hawk (*Buteo jamaicensis*). The great horned owl (*Bubo virginianus*) flies the fringes between the trees and open fields. The bald eagle (*Haliaeetus leucocephalus*) inhabits nesting sites in St. Mary Parish, but none are within or near the project area.

Waterfowl populations are limited to the marsh habitat found outside of the project area. There, species such as the mallard (*Anas platyrhynchos*), the gadwall (*Anas strepera*), and the wood duck (*Aix sponsa*) can be found.

The largest populations of game birds are those associated with open land, such as mourning doves (*Zenaida macroura*), bobwhite quail (*Colinus virginianus*), and common snipe (*Gallinago gallinago*). Other non-game species associated with open land are the eastern meadowlark (*Sturnella magna*) and killdeer (*Charadrius vociferus*). Additional species found within the region include woodcock (*Scolopax minor*), ibis (*Eudocimus* and *Plegadus*), egrets (*Egretta*), and herons (*Ardea*). A list of species of birds that may occur in the vicinity of the project area may be found in Table 3A-1 in the Appendix to this chapter.

3.12.2 Mammals

In addition to the wide variety of birds, more than 46 known species of mammals inhabit the coastal parishes of Louisiana including St. Mary Parish. Mammals found within the project study area are mainly those that have adapted to living in close proximity to man and include Virginia opossum (*Didelphis virginiana*), northern raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Woodland habitat adjacent to the project study area could support species such as beaver (*Castor canadensis*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), mink (*Mustela vison*), long tailed weasel (*Mustela frenata*), river otter (*Lutra canadensis*), muskrat (*Ondatra zibethica*), nutria (*Myocastor coypus*), and spotted skunk (*Spilogale putorius*). Louisiana black bear (*Ursus americanus luteolus*) are also found in the woodland habitat adjacent to the project study area.

Game species of mammals that may be found inside the project study area include eastern cottontail rabbit (*Sylvilagus floridanus*), swamp rabbit (*Sylvilagus aquaticus*), eastern fox squirrel (*Sciurus niger*), and the eastern gray squirrel (*Sciurus carolinensis*). Other game species of mammals that may find suitable habitat outside, but in the vicinity of, the project area include the white tailed deer (*Odocoileus virginianus*). In the Appendix of this chapter, Table 3A-2 contains species of mammals that may be found in the project study area.

3.12.3 Amphibians and Reptiles

The project area contains many small drainage ways that provide habitat for 65 known species of reptiles and amphibians shown in the Appendix of this chapter, Table 3A-3. The most common species include the slider (*Chrysemys floridana*), eastern box turtle (*Terrapene carolina*), southern leopard frog (*Rana sphenoccephala*), common kingsnake (*Lampropeltis getulus*), copperhead snake (*Agkistrodon*

contortrix), and cottonmouth snake (*Agkistrodon piscivorus*). The American alligator (*Alligator mississippiensis*) inhabits marsh in the vicinity of the project area.

3.12.4 Aquatic Fauna

The fishery of St. Mary Parish is good since there are many major waterways, lakes, and coastal marshes. Typical species of aquatic fauna that may occur in the vicinity of the project area are shown in the Appendix of this chapter, Table 3A-4.

3.13 Threatened and Endangered Species

Threatened and endangered (T&E) species are under the protection of the Endangered Species Act (ESA) of 1973. A federally sponsored action must be evaluated under Section 7 of the Act to assess the potential to jeopardize listed species or adversely impact the habitat of a listed species. An endangered species is one in danger of extinction throughout all, or a significant portion, of its range. A threatened species is one that is likely to become endangered within the foreseeable future. A rare species is simply one that has a small population in its range.

Consultation with the U.S. Fish and Wildlife Service (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.

3.13.1 Bald Eagle

The bald eagle is federally listed as a threatened species. The bald eagle is a large raptor with wingspread approaching 7 feet. Plumage is mainly dark brown with a pure white head and tail when adult. First year juveniles are often chocolate brown to blackish, sometimes with white mottling on the tail, belly, and underwings. The head and tail become increasingly white with age until full adult plumage is reached in the 5th or 6th year. An opportunistic predator, the bald eagle feeds primarily on fish but also takes a variety of birds, mammals, and turtles (both live and as carrion) when fish are not plentiful or readily available.

Because fish is their preferred food, eagles are seldom found far from water. Bald eagles typically roost in the tallest trees within cypress swamp habitats bordering on open water areas such as marshes and pipeline corridors.

Bald eagles are present in various locations throughout St Mary Parish. In a response letter, LDWF identified an active bald eagle nest located approximately one mile southwest of Idlewild, Louisiana. Idlewild is the area of the project area immediately east of Patterson including Idlewild Plantation House, Kemper Williams Park, and scattered residential and industrial uses along US 90.

During a November 2000 meeting with USFWS and LDWF, this nest was discussed. In a letter dated May 22, 2001, found in the Appendix to Chapter 5, the USFWS stated that a 3,500 foot buffer zone would minimize construction related noise levels at the nest site. Because of noise levels currently associated with US 90 and the surrounding area, and because of the distance of the nest from the proposed project location, USFWS stated that the proposed project is not likely to adversely affect bald

eagles. Furthermore, a bald eagle nest aerial survey conducted by LDWF confirmed that, to date, the subject bald eagle nest is the only active nest within one mile of the project study area.

3.13.2 Louisiana Black Bear

The Louisiana black bear (*Ursus americanus luteolus*) is currently listed as threatened on the federal and state level in Louisiana. It is one of sixteen subspecies of black bears in the United States. A large, bulky mammal with long black fur, it has large nostrils and a broad nose pad. The muzzle is yellowish-brown, and the throat and chest sometimes have a white blaze present.

Typical habitat for *Ursus americanus luteolus* is bottomland hardwood (riparian) forests, cypress-tupelo forests, swamplands, and river bottoms, but the bear is not limited to these habitats. Key requirements for the Louisiana black bear habitat are food, water, cover, and denning sites. The black bear is an "opportunistic omnivore," feeding on nuts, berries, grubs, leftover agricultural products, and often human garbage and pet food.

Typically, denning sites are in low areas, under large trees or slopes, or hollowed-out logs. Bears usually follow paths such as deer trails, old logging roads, ATV Trails, riverbanks, and edges of sloughs and bayous. Various reasons for bear movement include food, cover, reproduction (breeding), and population dispersal. Bears will travel along uncleared ditches and bayous as little as 10 to 15 meters wide to move between forested tracts that are separated by open land.

Black bears are known to inhabit areas in and surrounding the project study area. Local residents report black bear sightings, especially along the periphery of developed tracts. Black bear mortality data is collected by the USFWS in the project area. At least 12 Louisiana black bears were killed attempting to cross US 90 in the project area between 1997 and 2002. USFWS records indicate that at least 6 additional bears have died in vehicle-related collisions in the project area since 2003.

The USFWS has been monitoring the black bear population in the Lower Atchafalaya Basin for over ten years as part of the Louisiana Black Bear Recovery Plan. The Recovery Plan was developed by the Black Bear Conservation Committee, made up of a coalition of over 50 state and federal agencies, forest and agricultural companies, special interest organizations, and universities. The intent of the Recovery Plan is to restore the Louisiana black bear to suitable habitat within its historic range. Past and on-going development of former bear habitat in the basin has caused the bear subpopulations to become isolated from one another. The resulting habitat fragmentation limits the ability of bears to travel successfully from one population to another. The USFWS is interested in protecting the genetic diversity and viability of several subpopulations of the bear located north and south of US 90 in the Tensas and Atchafalaya River basins. A key component of the Recovery Plan is to establish and protect connectivity between the subpopulations by several means including facilitating travel corridors.

The presence of black bears in the project area indicates that enough suitable habitat exists to enable bears to forage and move through the area. The mortality data

indicates that bear movement is sometimes compromised by intervening human transportation corridors.

3.14 Hazardous Waste Screening

A survey of the project study area was conducted to identify sites that contain, or potentially contain, hazardous or toxic materials and/or wastes. Two types of sites were of particular interest for this project:

- Sites containing Underground Storage Tanks (USTs)
- Sites where hazardous materials or wastes are generated, stored, handled, or disposed

These two types of sites, should they be contaminated, have the potential to impact the project area directly by being within the existing or proposed ROW, and indirectly through migration of contamination off-site and onto the project ROW. For this reason, particular attention was paid to these potential impact scenarios.

Due to the physical size and nature of this project and to the large number of tracts adjacent to US 90 within the project study area, a complete and comprehensive site inspection for each of the parcels located along the corridor was not performed. A modified site reconnaissance was performed as part of this assessment using American Society for Testing and Materials (ASTM) methodologies that are applicable to this type of corridor assessment.

3.14.1 Regulatory Agency Records Review

To assess potential environmental liability concerns associated with the selected alternative, a search of Federal and State environmental compliance databases was performed. A "Corridor Study" was conducted on the project corridor using a one mile buffer area around the highways. One mile was selected as the endpoint for the search because the ASTM established a standard format for Environmental Site Assessments, for determining environmental liability concerns that defined acceptable search distances for issues of concern. This standard, ASTM E 1527-97, established a distance of one mile or less for hazardous waste sites and USTs.

The database search and records review of regulatory agencies was conducted in order to determine what, if any, information, release reporting, or registrations exist or have been applied for which might reveal a potential for contamination, indicate the possible presence of contamination, or assist in identifying recognized environmental conditions in connection with the project corridor. The data search and records review of regulatory agencies includes the review of standard environmental record sources identified within section 7.2.1.1 of ASTM Standard Practice E 1527-97, along with other appropriate agencies as deemed necessary. The Federal ASTM E 1527-97 Databases searched are listed in Table 3A-5 in the Appendix to this chapter. State ASTM E 1527-97 Databases searched are listed in Table 3A-6, and Federal ASTM E 1527-97 Supplemental Databases searched are listed in Table 3A-7 in the Appendix to this chapter.

Underground Storage Tanks

Underground Storage Tanks (USTs) are defined as a tank, or a combination of tanks, used to contain regulated substances, the volume of which, including connecting underground pipes, is 10% or more beneath the surface of the ground.

The Louisiana Department of Environmental Quality (LDEQ), Underground Storage Tank Division (USTD), requires by law that all USTs within the state be registered with that division. The data search queried UST records maintained by LDEQ. In addition, visits were made to the LDEQ UST Division file rooms to further research records on selected UST and Leaking Underground Storage Tank (LUST) sites located during the data search and site reconnaissance phases. Leaking underground storage tanks are UST systems that have been documented as releasing fuel or other substances into the environment.

Hazardous Waste Sites

Hazardous wastes are defined by 42 USC § 6903, as: “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” The federal and state databases were used to identify known hazardous waste sites.

3.14.2 Site Reconnaissance and Visual Inspection

A drive-through site reconnaissance and on-site visual inspection was conducted along the US 90 corridor to search for observable or recorded indications of adverse environmental impact near or within the existing and proposed rights-of-way.

The site reconnaissance was performed in three stages. The first stage consisted of reviewing the historical maps and photos and regulatory agency records to get an overview of where potential environmental issues might arise. Using this method, selected locations were earmarked for a closer on-the-ground visual site inspection. The second stage consisted of driving the roadway examining both the ROW and adjacent properties for visual signs indicating potential areas of environmental concern. The third stage consisted of the on-the-ground site inspection of previously identified areas of concern to assess the sites for indications of spills or leaks that may have resulted in observable adverse impacts to the existing or proposed right-of-way.

3.14.3 Data Search Results and Site Reconnaissance Observations

No hazardous waste sites within the study area are contained in the USEPA's National Priority List (NPL), CERCLIS list, CERC-NFRAP, CORRACTS, RCRIS-TSD, or RCRIS-LQG databases, or on LDEQ's State Hazardous Waste Site (SHWS) or Sanitary Waste Facility/Landfill (SWF/LF) lists.

Databases that yielded facilities within the search area include RCRIS-SQG, LUST, and UST. The following interprets the results of the EDR Report as they relate to the selected alternative.

- Eighteen (18) sites were identified as Small Quantity Hazardous Waste Generators. Only one (1) of these sites is located adjacent to the US 90 right-of-way. Of the remaining seventeen, three are mis-geocoded and are actually located in Morgan City, and the remaining fourteen sites are located far enough away from any proposed improvements that they need no further investigation.
- The SQG site located adjacent to the ROW, Omega Waste Management (Sta. 234+00), has been investigated. The proposed project improvements would not require additional right-of-way across this site. Additionally, no violations or spills were listed for this site.

It is not anticipated that any of the 18 Hazardous Waste Generator sites would have an environmental impact on the proposed work.

- One (1) LUST site was listed in the data search. This LUST site, Leevac Petroleum, Inc., is located on the east side of the Atchafalaya River. This location is sufficiently distant from the proposed work that it will not have any environmental impact on the improvements.
- The UST list records twelve (12) registered UST'S. These tanks appear in the database by virtue of their registration. Ten (10) of these USTs are located far enough away (1/4 mile) from any proposed improvements that they need no further investigation. Both of the two (2) remaining USTs are listed as active with the tanks still in place. According to the database records, neither of these two active UST sites are reported to have leaks. Both of these properties are located adjacent to the existing US 90 right-of-way. A careful review was conducted to determine if any part of these two active sites is physically located within the proposed ROW for the project.

Analysis of the UST records and review of the aerial photographs indicates that none of the UST sites should have any environmental impact on the proposed work.

3.14.3.1 Circle K Store # 870

During the drive-through site investigation, a property was observed that contained pump and treat equipment. Upon further investigation, a number of monitoring wells and charcoal filtering drums were also noted. This site, located at the eastern most intersection of US 90 and LA 182 in Bayou Vista (Sta. 409+00), was not listed on the records review. However, records for this site were located in the Lafayette LDEQ office. The property, formerly Circle K Store # 870, has been completely cleared of all buildings and structures. All that remains are the concrete driveways and the convenience store foundation.

The records indicate that the UST'S were removed in 1996 and BTEX contamination was found in the groundwater. Six (6) monitoring and three (3) recovery wells were put into place along with a groundwater treatment system. Quarterly monitoring of the nine wells has been conducted since 1996. Review of the data indicated that in 1996 the contamination plume extended beyond the site boundaries and into the US 90 right-of-way but not under the roadway itself.

The monitoring well data show that the plume has been steadily shrinking since the groundwater treatment system has been in place. However, as of the March 2001

quarterly report, the plume still extends slightly into the US 90 right-of-way. Preliminary roadway drawings place the westbound frontage road over the non-detect limits of the plume.

3.14.3.2 Patterson Bait Shop

An additional property investigated carefully during the drive-through site reconnaissance was the Patterson Bait Shop. This site was listed by EDR as having registered, non-leaking USTs still in use. The visual inspection of the site revealed that the bait shop was not being used and the gasoline pumps were removed with the piping capped. A large section of concrete pavement had been removed down to bare soil. This exposed area was large enough to have contained underground storage tanks, and it was located on a portion of the site that could have logically housed the USTs. It should be noted that this exposed soil area was located outside the project ROW. At the time of the inspection, newly constructed wooden forms were in place in this exposed soil area. It is assumed that this area was scheduled to have the concrete pavement replaced.

The owner was not able to be located, and the LDEQ electronic database did not have records indicating the USTs removal or closure. No inference should be made as to possible leaking USTs or to illegal removal or closure of UST. It is possible that the USTs did not leak and were being closed properly through LDEQ, but that the records had not reached the database.

The unknown UST regulatory status of the Patterson Bait Shop does not meet the definition of a recognized environmental condition.

Table 3-7 lists all of the hazardous sites that are adjacent to the US 90 right-of-way, their type, status, and their potential to impact the project. As can be seen from this table, the Circle K Store #870, a former Leaking Underground Storage Tank location that is currently under pump and treat, is the only site that can potentially impact the project.

3.14.4 Oil and Gas Wells

To determine the location of petroleum wells in the project area, a review of the oil and gas well records from the Louisiana Department Natural Resources, Office of Conservation (LDNR) was conducted. LDNR regulates the permitting, drilling, and plugging of all oil and gas wells in the State of Louisiana. The review, conducted using the Strategic Online Natural Resources Information System (SONRIS), indicated that some mineral activity has occurred in the vicinity of the project area.

According to the database records, six (6) permits were issued for wells within 2,500 feet of US 90. Two of the permits were issued for the same location. The first of those two permits expired before the well was drilled. The well for the second permit was drilled but was dry and has been plugged. The remaining four wells were dry and have been plugged.

None of the plugged wells are located within, or adjacent to, the existing US 90 or proposed Future I-49 right-of-way.

**TABLE 3-7
UST AND LUST SITES ADJACENT TO PROJECT AREA**

ATLAS LABEL	APPROX STA.	TYPE	STATUS	AGENCY NAME (CURRENT NAME)	UST'S ADJACENT TO EXISTING DOTD RIGHT-OF-WAY	ADDITIONAL REQUIRED RIGHT-OF-WAY	IMPACT TO PROJECT
Hz 5-2	298+00	UST	Active	Cracker Barrel #215	Yes	No	No
Hz 5-3	318+00	UST	Active	(EXXON station)	No	No	No
Hz 5-4	321+600	UST	Active	(Bayou Food & Gas)	No	No	No
Hz 5-5	331+00	UST	Active	(Conoco station)	Yes	No	No
Hz 5-6	343+00	UST	Inactive	Patterson Bait Shop	Yes	No	No
Hz 6-1	409+00	LUST	Inactive Removed	Circle K #870	No	No	Yes
Hz 7-1	427+00	UST	Active	(Chevron)	No	Yes	No
Hz 7-2	446+00	UST	Active	(Wal-Mart station)	No	No	No
Hz 7-2	471+00	UST	Active	(Shell station)	No	No	No
Hz 8-1	492+00	UST	Active	Bayou Vista Truck Stop	No	No	No
Hz 9-1	> 585+00	UST	Active	Jubilee #614 (Texaco)	No	No	No
Not Shown	> 585+00	UST	Active	Berwick Mobil Station	No	No	No
Not Shown	> 585+00	UST	Active	Arthur's Corp. (Shell station)	No	No	No
Not Shown	> 585+00	LUST	Inactive In-place	Leevac Petroleum, Inc.	No	No	No

3.14.5 Land Fills

Although not reported in the records review, both the drive-through site reconnaissance and the aerial photographs reveal a landfill south of the BNSF Railroad tracks between Bayou Vista and Berwick. This landfill is located within the project study area but not within the existing or proposed right-of-way.

A visit was made to the LDEQ Solid Waste Division to research the agency records. The landfill is called the Harold "Babe" Landry Landfill. The oldest material located in the file is a letter dated December 31, 1989. The letter documents that ten monitoring wells were installed in August 1986. The first monitoring report was dated November 27, 1989. An eleventh monitoring well was installed in November of 1989. Semi-annual ground water reports were submitted to the LDEQ from November 27, 1989 to present. June 23, 2000 was the most recent report. A review

of the conclusion section of the June report indicated none of the analytes monitored as part of the semi-annual groundwater monitoring program had concentrations exceeding or approaching maximum concentration levels. Statistical analyses did not indicate any significant increase in concentration over previous monitoring events.

This landfill is located sufficiently far from the project area that it will have no environmental effect on the proposed project.

3.15 Geology, Topography and Soils

The project area crosses the low-lying upper Mississippi deltaic plain. The deltaic plain is crossed by a prominent alluvial ridge composed of the relict natural levees of an ancient course of the Mississippi River. Historically, human settlement and land use activities have occurred on the upland areas located on the natural levees and chenier ridges. Deltaic plain towns such as Berwick and Patterson were initially established on the crests of natural levees (Earth Search, 2001). Elevations in the project area range from 1.5 feet to 10 feet.

The project study area is comprised of three distinct soils associations including silty and loamy soils, bottomland soils, and marsh soils. The Soil Survey of St. Mary Parish published by the United States Department of Agriculture - Soil Conservation Service, states that the predominant soils within the project study area consist of:

- Swamp Muck
- Baldwin Silt Loam
- Baldwin Silty Clay Loam

The Baldwin series developed in old alluvium, predominantly of Mississippi River and Red River origin. Baldwin soils are imperfectly to poorly drained. Marsh soils including swamp mucks are made up of organic soils and clays found in the wettest areas. These poorly to very poorly drained soils are derived from Mississippi River and Red River alluvium, and are frequently inundated. The Soil Interpretations manual for St. Mary Parish identifies the soils as having severe capability limitations due to wetness.

3.15.1 Swamp Muck

Swamp muck is comprised of poorly drained and very poorly drained material derived from Mississippi River materials and from mixed Mississippi River and Red River alluvium. In the southeastern part of the parish, east of the Wax Lake Outlet, large areas of these soils occur in association with areas of fresh water marsh, clays, and mucky clays, but at slightly higher elevations. Much of the soil is level or in depressions. Surface runoff is very slow or ponded, and internal drainage is very slow or lacking. Water is near or on the surface much of the time. This unit qualifies as capability class 7w1.

3.15.2 Baldwin Silt Loam

This nearly level soil has a fine soil texture and thick subsoil. It occupies slopes of less than 1 percent. This soil is imperfectly drained; surface runoff and internal drainage are slow. The soil contains moderate amounts of organic matter and plant nutrients. This unit qualifies as capability class 3w4.

3.15.3 Baldwin Silty Clay Loam

This level to nearly level soil has a thinner and finer textured surface soil than Baldwin silt loam and occurs at lower elevations on slopes of less than 1 percent. This soil is imperfectly drained; surface runoff and internal drainage are slow. The content of organic matter and plant nutrients is moderately high. Permeability is moderate to good in most areas. This unit qualifies as capability class 3w4.

3.15.4 Prime Farmland

Prime Farmland soils, as defined by the U.S. Department of Agriculture (USDA), are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained yields of crops. Prime Farmland soils produce the highest yields with minimal inputs of energy and other economic resources. For these reasons, Prime Farmland soils are of major importance in meeting the nation's short-term and long-term food and fiber needs.

Prime Farmland soils may presently be in use as cropland, pasture, or woodland. Along the project corridor, several of the Baldwin, Buxin, Cypremort, and Iberia soil units are considered prime farmland. These occur coincident with existing agricultural fields near Wax Lake Outlet and on both sides of US 90 in the Patterson area. Prime Farmland soils in the Patterson area have been extensively developed for residential and business uses, although agricultural use of portions of the Prime Farmland soil area remains. A determination from the Natural Resources Conservation Service concluded that no prime, unique statewide, or locally important farmland is found within the 13 acres of additional required right-of-way for this project (form NRCS-CPA-106).

3.16 Aesthetics

Aesthetics is concerned with visual resources and the human value placed on the visual experience. In this subjective environment, the examination of project aesthetics must take into consideration

1. The visual impression of the project from on or outside the right-of-way and
2. The visual impression of the area surrounding the right-of-way from the right-of-way.

The examination of aesthetics included identifying existing visual resources in the project area in this section, and assessing project impact on these existing visual resources in Chapter 4.

The overall visual impression along the project corridor is a blend of highway-oriented development and agriculture. Business development, on or near the corridor, focuses on visibility that is reinforced with various building facade treatments and signage. Agricultural uses are typically found behind the properties fronting the corridor or along other roadways such as LA 182. Agricultural uses have frontage on US 90 in Calumet. Woodland fragments are interspersed between development areas.

The landform is nearly level, affording seasonal views across agricultural land. The US 90 corridor is generally at approximately the same elevation as the surrounding

land. The BNSF Railroad that parallels the corridor to the south is slightly elevated in relation to US 90, sometimes obscuring views southward from the corridor.

Examination of the project corridor identified moderate to high quality visual resources at the Wax Lake Outlet where there are water views from both the right-of-way and abutting properties. Moderate to high quality visual resources also are found in the agricultural fields to the east of Wax Lake Outlet, both north and south of the right-of-way. Other moderate to high quality visual resources occur in the Idlewild area, including the Bayou Teche, Idlewild Plantation and the immediate neighborhood.

The woodlands abutting the US 90 corridor have moderate visual quality as a naturalized context for the southeastern Louisiana region.

The majority of land use along the project corridor contains low to moderate quality visual resources, in the forms of residential, business, and industrial development.

The existing US 90 corridor has a typical highway appearance that features a linear roadway configuration. Areas not developed with travel surfaces are vegetated with grasses. The corridor has low visual quality.

Visually sensitive receptors include residences, parks, natural areas, historic resources, and public facilities. These are places people utilize, and they are contextual visual environments in which the setting has import. Within the project area, visually sensitive receptors include residential uses adjacent to and near US 90, Kemper Williams Park, Idlewild Plantation, and Wax Lake Outlet. Highway user views tend to be limited in duration due to the attention required to drive US 90. Consequently, highway users are not considered among the primary visually sensitive receptors (See Exhibits 3-1A, and B and 3-2A, and B).

3.17 Cultural Resources

An intensive level cultural resources survey 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 1966, 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),
- 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 latter is discussed in Section 4.15.2. In consultation with the Louisiana State Historic Preservation Office, 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). No additional buildings were identified as eligible for NRHP listing. The eligibility of site 16SMY84 is undetermined per SHPO's letter dated March 22, 2004. Site 16SMY86 is eligible for NRHP listing. These sites are outside of the ROW currently under consideration.

Idlewild Plantation House

Located on the west bank of the Atchafalaya River near Patterson, Idlewild Plantation House was built between 1850 and 1854 by sugar planter Georges Haydel for his daughter, Evelina, and her husband, Gabriel Antoine Briant. The House is a one-and-a-half-story, side gabled, wood frame, center-hall dwelling in the Greek Revival style. The house boasts unusual first floor windows with small doors at their bases that, when opened, create a floor to ceiling window. The facade has unique ironwork in the form of unusually patterned vents around the base of the house and balustrades on the gallery and side balconies.

The house originally had a total of nine rooms, six downstairs and three upstairs. Long-leaf pine, probably imported from somewhere along the Atlantic Coast, was used for all of the framing, interior floors, walls and ceilings. This was unusual since most builders preferred local cypress, which was easier to cut and much harder than the soft pine. Cypress was utilized for all exterior woodwork, interior trim, molding, doors, and mantles



Figure 3-1 Idlewild Plantation House

Idlewild Plantation House is NRHP-listed under Criterion C; however, all four of the NRHP criteria apply. It maintains excellent historical integrity reflecting French and English architectural traditions. Excluding minor changes not affecting the architectural significance, the house is in original condition and is an unequaled example of the plantation homes surrounding the Patterson area. Its association with the early development of the sugar plantation economy on the Bayou Teche and its use during the Civil War give it associative significance to major themes in Louisiana history (Criterion A). Its association with one of the prominent planters in the region, Frenchmen Georges Haydel and the Union General Nathaniel Banks, lend significance under Criterion B. Finally, Criterion D pertains in that the construction of the house has many unusual idiosyncrasies including rare cast-iron balustrades and the utilization of non-local wood. Thus, the house possesses research potential (Criterion D).

3.18 Section 6(f) Resources

Section 6(f) of the Federal Land and Water Conservation Fund Act (LWCF) requires coordination with and approval of federal undertakings by the U.S. Department of the Interior if land acquired and/or developed using LWCF funds is to be impacted by the undertaking. Inquiry to the Louisiana Department of Culture, Recreation, and Tourism determined that Kemper Williams Park is a Section 6(f) property. LWCF grant money was obtained for park development. Kemper Williams Park includes a large parcel of land south of the US 90 corridor in the Idlewild area and a smaller tract on the north side of US 90 adjacent to Bayou Teche which includes the St. Mary Parish Tourism office. The park provides active as well as passive recreational opportunities. The Patterson Area Civic Center is located on the park property.

3.19 Energy

The energy needs of existing US 90 are found in facility maintenance and daily operations. Facility maintenance involves the repair and general servicing of the highway amenities including the highway section components, its structures, its supporting utilities, signs, drainage structures, and landscaped areas. These amenities have been designed with specific maintenance schedules that are programmed into the LDOTD's statewide manpower and cost budgets.

Energy expenditure during daily operations is found in vehicle operations on the highway. Costs in terms of fuel usage and vehicle wear are borne by the individual vehicle owners. These expenditures are voluntary. Supply of needed energy resources is driven largely by demand.

**TABLE 3A-1
SPECIES OF BIRDS THAT OCCUR OR MAY OCCUR IN THE
VICINITY OF THE US 90 PROJECT STUDY AREA
(LOWERY 1974A)**

Common Name	Scientific Name	Common Name	Scientific Name
Pelecaniformes		Apodiformes	
Double-Crested Cormorant	<i>Phalacrocorax auritus</i>	Ruby-Throated Hummingbird	<i>Archilochus colubris</i>
Anhinga	<i>Anhinga anhinga</i>	Anseriformes	
Podicipediformes		Mallard	<i>Anas platyrhynchos</i>
Pied-Billed Grebe	<i>Podilymbus podiceps</i>	Gadwall	<i>Anas strepera</i>
Ciconiiformes		Green-Winged Teal	<i>Anas crecca</i>
Great Blue Heron	<i>Ardea herodias</i>	American Widgeon	<i>Anas americana</i>
Little Blue Heron	<i>Egretta caerulea</i>	Wood Duck	<i>Aix sponsa</i>
Cattle Egret	<i>Bubulcus ibis</i>	Ring-Necked Duck	<i>Aythya collaris</i>
Snowy Egret	<i>Egretta thula</i>	Greater Scaup	<i>Aythya marila</i>
Yellow-Crowned Night Heron	<i>Nycticorax violaceus</i>	Common Goldeneye	<i>Bucephala clangula</i>
American Bittern	<i>Botaurus lentiginosus</i>	Ruddy Duck	<i>Oxyura jamaicensis</i>
Green-Backed Heron	<i>Butorides striatus</i>	American Black Duck	<i>Anas rubripes</i>
Louisiana Heron	<i>Hydranassa tricolor</i>	Northern Pintail	<i>Anas acuta</i>
Great Egret	<i>Casmerodius albus</i>	Blue-Winged Teal	<i>Anas discors</i>
Black-Crowned Night Heron	<i>Nycticorax nycticorax</i>	Northern Shoveler	<i>Anas clypeata</i>
Least Bittern	<i>Ixobrychus exilis</i>	Redhead	<i>Aythya americana</i>
Killdeer	<i>Charadrius vociferous</i>	Canvasback	<i>Aythya valisneria</i>
Ibis	<i>Eudocimus and Plegadus</i>	Lesser Scaup	<i>Aythya affinis</i>
Falconiformes		Bufflehead	<i>Bucephala albeola</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Charadriiformes	
Turkey Vulture	<i>Cathartes aura</i>	American Woodcock	<i>Scolopax minor</i>
Coopers Hawk	<i>Accipiter cooperii</i>	Least Sandpiper	<i>Calidris minutilla</i>
Sharp-Shinned Hawk	<i>Accipiter striatus</i>	Herring Gull	<i>Circus cyaneus</i>
Red Shouldered Hawk	<i>Buteo lineatus</i>	Common Snipe	<i>Gallinago gallinago</i>
Red-Tailed Hawk	<i>Buteo jamaicensis</i>	Ring-Billed Gull	<i>Larus delawarensis</i>
Broad-Winged Hawk	<i>Buteo platypterus</i>	Columbiformes	
Mississippi Kite	<i>Ictinia mississippiensis</i>	Mourning Dove	<i>Zenaida macroura</i>
Black Vulture	<i>Coragyps atratus</i>	Strigiformes	
Piciformes		Eastern Screech Owl	<i>Otus asio</i>
Northern Flicker	<i>Colaptes auratus</i>	Long-Eared Owl	<i>Asio otus</i>
Red-Bellied Woodpecker	<i>Melanerpes carolinus</i>	Great Horned Owl	<i>Bubo virginianus</i>
Yellow-Bellied Sapsucker	<i>Sphyrapicus varius</i>	Barred Owl	<i>Strix vana</i>
Red-Headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Gruiformes	
Hairy Woodpecker	<i>Picoides villosus</i>	King Rail	<i>Rallus elegans</i>
Downy Woodpecker	<i>Picoides pubescens</i>	American Coot	<i>Fulica americana</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Common Moorhen	<i>Gallinula chloropus</i>
Caprimulgiformes		Coraciiformes	
Whip-Poor-Will	<i>Caprimulgus vociferus</i>	Belted Kingfisher	<i>Ceryle alcyon</i>
Chuck-Will's-Widow	<i>Caprimulgus carolinensis</i>		

TABLE 3A-1 CONTINUED
SPECIES OF BIRDS THAT OCCUR OR MAY OCCUR IN THE
VICINITY OF THE US 90 PROJECT STUDY AREA

Common Name	Scientific Name	Common Name	Scientific Name
Passeriformes		Passeriformes	
Eastern Phoebe	<i>Sayornis phoebe</i>	Swamp Phoebe	<i>Melospiza georgiana</i>
Acadian Flycatcher	<i>Empidonax virescens</i>	Eastern Wood-Pewee	<i>Contopus virens</i>
Northern Rough-Winged Swallow	<i>Stelgidopteryx erripennis</i>	Blue Jay	<i>Cyanocitta cristata</i>
American Crow	<i>Corvus brachyrhynchos</i>	Carolina Chickadee	<i>Parus carolinensis</i>
Tufted Titmouse	<i>Parus bicolor</i>	Red-breasted Nuthatch	<i>Sitta canadensis</i>
Brown-Headed Nuthatch	<i>Sitta pusilla</i>	Brown Creeper	<i>Certhia americana</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>	Winter Wren	<i>Troglodytes troglodytes</i>
Northern Mockingbird	<i>Mimus polyglottos</i>	Brown Thrasher	<i>Toxostoma rufum</i>
American Robin	<i>Turdus migratorius</i>	Wood Thrush	<i>Hylocichla mustelina</i>
Hermit Thrush	<i>Catharus guttatus</i>	Louisiana Water Thrush	<i>Seiurus motacilla</i>
Golden-Crowned Kinglet	<i>Regulus satrapa</i>	Ruby-Crowned Kinglet	<i>Regulus calendula</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Loggerhead Shrike	<i>Lanius ludovicianus</i>
White-Eyed Vireo	<i>Vireo griseus</i>	Yellow-Throated Vireo	<i>Vireo flavifrons</i>
Solitary Vireo	<i>Vireo solitarius</i>	Red-Eyed Vireo	<i>Vireo olivaceus</i>
Northern Parula Warbler	<i>Parula americana</i>	Prothonotary Warbler	<i>Protonotaria cetera</i>
Hooded Warbler	<i>Wilsonia cirtina</i>	Kentucky Warbler	<i>Oporonis formosus</i>
Pine Warbler	<i>Dendroica pinus</i>	Yellow-Throated Warbler	<i>Dendroica dominica</i>
Yellow-Rumped Warbler	<i>Dendroica coronata</i>	Common Yellowthroat	<i>Geothlypis trichas</i>
Yellow-Breasted Chat	<i>Icteria virens</i>	Eastern Meadowlark	<i>Sturnella magna</i>
Red-Winged Blackbird	<i>Agelaius phoeniceus</i>	Common Grackle	<i>Quiscalus quiscula</i>
Boat-Tailed Grackle	<i>Quiscalus major</i>	Summer Tanager	<i>Piranga rubra</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>	Purple Finch	<i>Carpodacus purpureus</i>
Blue Grossbeak	<i>Guiraca caerulea</i>	Indigo Bunting	<i>Passerina cyanea</i>
Painted Bunting	<i>Passerina ciris</i>	Rufous-Sided Towhee	<i>Pipilo erythrophthalmus</i>
Dark-Eyed-Junco	<i>Junco hyemalis</i>	White-Throated Sparrow	<i>Zonotrichia albicollis</i>
Fox Sparrow	<i>Passerella iliaca</i>	Lincoln's Sparrow	<i>Melospiza lincolnii</i>
Galliformes			
Bob White Quail	<i>Colinus virginianus</i>		

TABLE 3A-2
SPECIES OF MAMMALS THAT OCCUR OR MAY OCCUR IN THE
VICINITY OF THE US 90 PROJECT STUDY AREA
(LOWERY 1974B)

Common Name	Scientific Name
Marsupialia	
Virginia Opossum	<i>Didelphis virginiana</i>
Edentata	
Nine-banded Armadillo	<i>Dasypus novemcinctus</i>
Carnivora	
Louisiana Black Bear	<i>Ursus americanus luteolus</i>
Red Fox	<i>Vulpes fulva</i>
Striped Skunk	<i>Mephitis mephitis</i>
Coyote	<i>Canis latrans</i>
Spotted Skunk	<i>Spilogale putorius</i>
Bobcat	<i>Lynx rufus</i>
Northern Raccoon	<i>Procyon lotor</i>
Gray Fox	<i>Urocyon cinereoargenteus</i>
Northern American Mink	<i>Mustela vison</i>
Long Tailed Weasel	<i>Mustela frenata</i>
Neartic River Otter	<i>Lutra canadensis</i>
Chiroptera	
Southeastern Myotis	<i>Myotis austroriparius</i>
Seminole Bat	<i>Lasiurus seminolus</i>
Northern Yellow Bat	<i>Lasiurus intermedius</i>
Rafinesque's Big-Eared Bat	<i>Plecotus rafinesquii</i>
Red Bat	<i>Lasiurus borealis</i>
Hoary Bat	<i>Lasiurus cinereus</i>
Evening Bat	<i>Nycticeius humeralis</i>
Brazilian Free-Tailed Bat	<i>Tadarida brasiliensis</i>
Artiodactyla	
White-Tailed Deer	<i>Odocoileus virginianus</i>

Common Name	Scientific Name
Insectivora	
Short-Tailed Shrew	<i>Blarina brevicauda</i>
Eastern Mole	<i>Scalopus aquaticus</i>
Least Shrew	<i>Cryptotis parva</i>
Lagomorpha	
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Swamp Rabbit	<i>Sylvilagus aquaticus</i>
Rodentia	
Beaver	<i>Castor canadensis</i>
Gray Squirrel	<i>Sciurus carolinensis</i>
Southern Flying Squirrel	<i>Glaucomys volans</i>
Fulvous Harvest Mouse	<i>Reithrodontomys fulvescens</i>
Cotton Mouse	<i>Peromyscus gossypinus</i>
Eastern Wood Rat	<i>Neotoma floridana</i>
Roof Rat	<i>Rattus rattus</i>
House Mouse	<i>Mus musculus</i>
Fox Squirrel	<i>Sciurus niger</i>
Marsh Rice Rat	<i>Orzomys palustris</i>
White-Footed Mouse	<i>Peromyscus leucopus</i>
Hispid Cotton Rat	<i>Sigmodon hispidus</i>
Common Muskrat	<i>Ondatra zibethinus</i>
Norway Rat	<i>Rattus norvegicus</i>
Nutria	<i>Myocastor coypus</i>

TABLE 3A-3
SPECIES OF AMPHIBIANS AND REPTILES THAT OCCUR OR MAY
OCCUR IN THE VICINITY OF THE US 90 PROJECT STUDY AREA
(DUNDEE 1989; CONANT 1975)

Common Name	Scientific Name
Caudata	
Marbled Salamander	<i>Ambystoma opacum</i>
Small-Mouthed Salamander	<i>Ambystoma texanum</i>
Dwarf Salamander	<i>Eurycea quadridigitata</i>
Lesser Siren	<i>Siren intermedia</i>
Mole Salamander	<i>Ambystoma talpoideum</i>
Three-Toed Amphiuma	<i>Amphiuma tridactylus</i>
Eastern Newt	<i>Notophthalmus viridescens</i>
Serpentes	
Racer	<i>Coluber constrictor</i>
Mud Snake	<i>Farancia abacura</i>
Common Kingsnake	<i>Lampropeltis getulus</i>
Western Green Water Snake	<i>Nerodia cyclopion</i>
Southern Water Snake	<i>Nerodia fasciata</i>
Plain-bellied Water Snake	<i>Nerodia erythrogaster</i>
Diamond-backed Water Snake	<i>Nerodia rhombifera</i>
Grahams Crayfish Snake	<i>Regina prahamii</i>
Glossy Crayfish Snake	<i>Regina rigida</i>
Brown Snake	<i>Storeria dekayi</i>
Rough Earth Snake	<i>Virginia striatula</i>
Copperhead	<i>Agkistrodon contortrix</i>
Rat Snake	<i>Elaphe obsoleta</i>
Eastern Hog-Nosed Snake	<i>Heterodon platyrhinos</i>
Rough Green Snake	<i>Opheodrys aestivus</i>
Western Ribbon Snake	<i>Thamnophis proximus</i>
Eastern Coral Snake	<i>Micrurus fulvius</i>
Cottonmouth	<i>Agkistrodon piscivorus</i>
Crocodylia	
American Alligator	<i>Alligator Mississippiensis</i>

Common Name	Scientific Name
Testudines	
Snapping Turtle	<i>Chelydra serpentina</i>
Painted Turtle	<i>Chrysemys picta</i>
Eastern Box Turtle	<i>Terrapene carolina</i>
Slider	<i>Chrysemys floridana</i>
Spiny Softshell	<i>Trionyx spiniferus</i>
Common Musk Turtle	<i>Sternotherus odoratus</i>
Razor-Backed Musk Turtle	<i>Sternotherus carinatum</i>
Eastern Mud Turtle	<i>Kinosternon subrubrum</i>
Chicken Turtle	<i>Deirochelys reticularia</i>
Ornate Box Turtle	<i>Terrapene ornata</i>
Mississippi Map Turtle	<i>Graptemys kohnii</i>
Anura	
Gulf Coast Toad	<i>Bufo valliceps</i>
Woodhouse's Toad	<i>Bufo woodhousei</i>
Northern Cricket Frog	<i>Acris crepitans</i>
Gray Treefrog	<i>Hyla versicolor</i>
Spring Peeper	<i>Hyla crucifer</i>
Cope's Gray	<i>Hyla chrysoscelis</i>
Green Treefrog	<i>Hyla cinerea</i>
Squirrel Treefrog	<i>Hyla squirella</i>
Striped Chorus Frog	<i>Pseudacris triseriata</i>
Eastern Narrow-Mouthed Toad	<i>Gastrophryne carolinensis</i>
Bullfrog	<i>Rana catesbeiana</i>
Pig Frog	<i>Rana grylio</i>
Greenfrog	<i>Rana clamitans</i>
Southern Leopard Frog	<i>Rana sphenoccephala</i>
Squamata-Lacertila	
Mediterranean Gecko	<i>Hemidactylus turcicus</i>
Five-lined Skink	<i>Eumeces fasciatus</i>
Ground Skink	<i>Scincella lateralis</i>
Green Anole	<i>Anolis carolinensis</i>
Broad-headed Skink	<i>Eumeces latipes</i>

TABLE 3A-4
SPECIES OF AQUATIC FAUNA THAT OCCUR OR MAY OCCUR IN THE
VICINITY OF THE US 90 PROJECT STUDY AREA
(BOSCHUNG ET AL. 1995; ROBINS ET AL. 1991; WALLS 1975)

Common Name	Scientific Name
Lepisosteidae	
Spotted Gar	<i>Lepisosteus oculatus</i>
Alligator Gar	<i>Lepisosteus spatula</i>
Longnose Gar	<i>Lepisosteus osseus</i>
Amiidae	
Bowfin	<i>Amia calva</i>
Anguillidae	
American Eel	<i>Anguilla rostrata</i>
Clupeidae	
Skipjack Herring	<i>Alosa chrysochloris</i>
Threadfin Shad	<i>Dorosoma petenense</i>
Gizzard Shad	<i>Dorosoma cepedianum</i>
Cyprinidae	
Carp	<i>Cyprinus carpio</i>
Golden Shiner	<i>Notemigonus crysoleucas</i>
Castostomidae	
River Carpsucker	<i>Carpionodes carpio</i>
Smallmouth Buffalo	<i>Ictiobus bubalus</i>
Ictaluridae	
Blue Catfish	<i>Ictalurus furcatus</i>
Channel Catfish	<i>Ictalurus punctatus</i>
Yellow Bullhead	<i>Ictalurus natalis</i>
Flathead Catfish	<i>Pylodictis olivaris</i>
Aphredoderidae	
Pirate Perch	<i>Aphredoderus sayanus</i>
Cyprinodontidae	
Sheepshead Minnow	<i>Cyprinodon variegatus</i>
Bayou Killifish	<i>Fundulus pulvereus</i>
Golden Topminnow	<i>Fundulus chrysotus</i>
Rainwater Killifish	<i>Lucania parva</i>

Common Name	Scientific Name
Poeciliidae	
Least Killifish	<i>Heterandria formosa</i>
Mosquitofish	<i>Gambusia affinis</i>
Sailfin Molly	<i>Poecilia latipinna</i>
Atherinidae	
Brook Silverside	<i>Labidesthes sicculus</i>
Percichthyidae	
Yellow Bass	<i>Morone mississippiensis</i>
White Bass	<i>Morone chrysops</i>
Centrarchidae	
Warmouth	<i>Lepomis gulosus</i>
Bluegill	<i>Lepomis macrochirus</i>
Redear Sunfish	<i>Lepomis microlophus</i>
Flier	<i>Centrarchus macropterus</i>
Orangespotted Sunfish	<i>Lepomis humilis</i>
Longear Sunfish	<i>Lepomis megalotis</i>
Spotted Sunfish	<i>Lepomis punctatus</i>
Largemouth Bass	<i>Micropterus salmoides</i>
Bantam Sunfish	<i>Lepomis symmetricus</i>
Black Crappie	<i>Pomoxis nigromaculatus</i>
Eleotridae	
Fat Sleeper	<i>Dormitator maculatus</i>
Gobiidae	
Freshwater Goby	<i>Gobionellus shufeldti</i>
Naked Goby	<i>Gobiosoma bosci</i>
Clown Goby	<i>Micorgobius gulosus</i>
Cichlidae	
Mouthbrooder	<i>Tilapia sp.</i>

**TABLE 3A-5
FEDERAL ASTM E 1527-97 DATABASES**

NPL	National Priority List (Superfund)	USEPA
Proposed NPL	Proposed National Priority List Sites	USEPA
Delisted NPL	National Priority List Deletions	USEPA
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System	USEPA
CERC-NFRAP	CERCLIS No Further Remedial Action Planned	USEPA
CORRACTS	Corrective Action Report	USEPA
RCRIS	Resource Conservation Recovery Information System (RCRA)	USEPA
RCRIS-TSD	RCRIS Transportation, Storage, Dispose/Treat database	USEPA
RCRIS-LQG	RCRIS Large Quantity Generator Database	USEPA
RCRIS-SQG	RCRIS Small Quantity Generator Database	USEPA
ERNS	Emergency Response Notification System	USEPA

**TABLE 3A-6
STATE ASTM E 1527-97 DATABASES**

SHWS	Louisiana Site Remediation Information System LASRIS (Inactive and abandoned Sites) State Hazardous Waste	LDEQ
SWF/LF	Solid Waste Facility/Landfill Sites	LDEQ
LUST	Leaking Underground Storage Tank Incident Reports	LDEQ
UST	Registered Underground Storage Tanks	LDEQ

**TABLE 3A-7
FEDERAL ASTM E 1527-97 SUPPLEMENTAL DATABASES**

CONSENT	Superfund (CERCLA) Consent Decrees	USEPA
ROD	Records of Decision	NTS
FINDS	Facility Index System	USEPA
HMIRS	Hazardous Materials Information Reporting System	DOT
MLTS	Material Licensing Tracking System	NRC
MINES	Mines Master Index Record	DOL
NPL Liens	Federal Superfund Liens	USEPA
PADS	PCB Activity Database System	USEPA
RAATS	RCRA Administrative Action Tracking System	USEPA
TRIS	Toxic Chemical Release Inventory System	USEPA
TSCA	Toxic Substances Control Act	USEPA
FTTS	FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)	USEPA

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4.0 Environmental Consequences

4.1 Land Use and Socioeconomics

4.1.1 Demographics

As discussed in Chapter 3.0, demographic data were collected from a variety of sources. These include US Census data from tracts traversed by the project for Environmental Justice analysis, including an estimate of the portions of these units within the immediate 2,000 foot wide project area shown on the Project Atlas, and demographic data utilized from the Woods & Poole 1997 State Profile. The Environmental Justice data is found in Tables 4-1 and 4-2. The parish, planning area, and project area demographic data are presented in Tables 3-1, 3-2, and 3-3.

Current population trends in St. Mary Parish do not support growth of new residential building construction. However, over the last three years, there has been a modest amount of new residential construction, concentrated around the I-49 South planning area, as indicated by St. Mary Parish building permit activity. Slow growth, or no growth, population trends with modest residential permit activity are expected to continue.

4.1.1.1 No-build Alternate, Demographics

The no-build alternate has no effect on existing socioeconomic conditions.

4.1.1.2 Selected Alternative, Demographics

The direct effect of the selected alternative was examined at the census tract level because the smaller block group socioeconomic data is not currently available from the 2000 US Census. It is reasonable to assume that no population groups would be impacted adversely, as no residences would be relocated and access to residential areas would not be interrupted. The community disruption discussed in section 4.1.6.2 is based on the potential for the conversion of US 90 to I-49 to worsen the existing problems of crossing US 90 to deliver public services. It has a general effect on all residents of Patterson and Bayou Vista.

4.1.2 Environmental Justice

4.1.2.1 Executive Order 12898

An analysis of the potential project impact on minority and low-income communities was undertaken in compliance with the implementing regulations of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994). The Order specifies actions to be taken on a range of issues that are intended to promote nondiscrimination in federal actions, to provide minority communities and low-income communities equal access to public information regarding a federal action, and provide an opportunity for public participation in the evaluation of a federal action in matters relating to human health and the environment. In particular, the Order stipulates that:

“To the greatest extent practicable and permitted by law...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low income populations...”(Order Section I-101).

“Each Federal Agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons...from participation in, denying persons the benefits of, or subject persons...to discriminations under such programs, policies, and activities, because of their race, color, or national origin” (Order Section 2-2).

4.1.2.2 Demographic Profile, Environmental Justice

A demographic profile of the US Census tracts in St. Mary Parish that contain the Future I-49 South project area was compiled to answer the following questions posed by the Order:

- Does the potentially affected community include minority and/or low-income populations?
- Are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community and/or tribal resources?

**TABLE 4-1
POPULATION CHARACTERISTICS OF PROJECT
CENSUS TRACTS IN ST. MARY PARISH TRAVERSED BY PROJECT**

Census Tract	Total Persons	White #	% Black	% Black #	Amer. Indian/Alaska Native	Asian	Native Hawaiian/Other Pacific Islander	Some Other Race	Two or More Races	Other Races %	
405	4,418	3,828	87	365	8	31	32	0	24	138	5
406	4,442	4,081	92	166	4	45	11	2	59	78	4
407	3,736	1,749	47	1,871	50	29	15	0	36	36	3
408	3,254	2,573	79	533	16	30	17	0	34	67	5
TOTAL	15,850	12,231	77	2,935	19	135	75	2	153	319	4

Source: 2000 US Census

Future I-49 South traverses Census Tracts 405, 406, 407, and 408 in St. Mary Parish. Table 4-1 summarizes the demographic make up of these tracts. A review of this 2000 US Census population data, including racial composition, indicates that there is a minority community located in the project study area. Census Tract 407 located in Patterson has a minority population of 53%. Black residents comprise 50% of the population, and the percent of other races is 3%.

4.1.2.3 Income Levels, Environmental Justice

The 1990 US Census data indicates that the median household incomes in Census Tracts 405, 406, and 408 are higher than for St. Mary Parish as a whole. Although Census Tract 407 has a median household income that is less than the median household income of St. Mary Parish, it is not a low-income community by the standard set by the U.S. Department of Housing and Urban Development. A low-income community is defined as one in which the median household income is equal to, or lower than, 80% of the parish median income. As shown in Table 4-2, the median income of Census Tract 407 is \$18,856 while 80% of the parish median income is \$16,784. By this standard, there are no low-income communities in the project area.

**TABLE 4-2
MEDIAN INCOME
CENSUS TRACTS IN ST. MARY PARISH TRAVERSED BY PROJECT**

1990 Median Household Income in St. Mary Parish	\$20,980
Low Income 80% of Median	\$16,784
Census Tract 405	\$20,728
Census Tract 406	\$23,119
Census Tract 407	\$18,856
Census Tract 408	\$29,591

Source: 1990 US Census

4.1.2.4 Project Effect Discussion, Environmental Justice

The Future I-49 South project has been designed so that its service benefits are available to all affected communities along the corridor, regardless of community make up or income level. The public involvement program has been implemented to inform all affected parties, establish a dialogue, and develop workable and reasonable design solutions.

Although Census Tract 407 has a 53% minority population, the area within the tract to be used as right-of-way by the proposed project is vacant, and the noise analysis indicates that no residences in the tract are impacted in accord with the DOTD Noise Policy. No residences, public facilities, or other developed properties are taken by the proposed project in Census Tract 407. The project would not disproportionately affect low-income communities or designated federal or state Native American resources, because there are no low-income communities or designated tribal resources in the project area.

4.1.3 Development in the Area

4.1.3.1 No-build Alternate, Development

The no-build alternate would not change the general pattern of development in the corridor as the pattern results from the local economy that drives the market demands for industrial growth, for additional housing, and for commercial services and

community facilities to meet the needs of the population. The rate of growth, however, would be constrained over time as the congestion of the roadway network reduces the relative advantages currently provided in the corridor by the availability of vacant land and the access provided by US 90.

4.1.3.2 Selected Alternative, Development

The selected alternative also would not change the general pattern of development in the corridor. It differs from the no-build in that it supports continued development by providing the following advantages over the no-build.

On the national and state level, it provides a transportation facility commensurate with the needs of a continued expansion of the national and state economies that would support the regional economy.

On the regional level, as it provides the additional roadway capacity needed to relieve increased congestion on the statewide network, it would attract additional economic activity to the US 90/Future I-49 corridor in St. Mary Parish.

On a local level, it provides transportation benefits without displacing any residences, businesses, or community facilities.

4.1.3.3 Consistency with State and Local Plans

The project is consistent with transportation plans at the state and local levels in subsegments X and Y. At the local level, the selected alternative supports the development of Patterson to the south of Future I-49 right-of-way as foreseen in the Patterson Land Use Plan. Within subsegment Z, 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.

4.1.4 Community Facilities

4.1.4.1 No-build Alternate, Community Facilities

The no-build alternate would involve no change in the location of any existing community facilities. Under the no-build alternate, however, those facilities which are transportation dependent, i.e. emergency services and transportation resources serving schools, senior centers and other public facilities, would be affected by the gradual deterioration in the capacity of the existing roadway network, especially the intersections of local streets with US 90.

4.1.4.2 Selected Alternative, Community Facilities

Under the build condition, US 90 will be converted from a full access roadway to Future I-49, which will operate as a limited access roadway. This conversion will potentially affect the travel pattern of local transportation service providers. School bus routes would have to be adjusted to route services across Future I-49 through interchanges. However, these services would benefit from the improved capacity of the overall transportation network as documented in Chapter 1.0. The selected alternative will provide safer and more accessible transportation to these community facilities.

An examination was made of potential project impacts on the five churches located adjacent to the US 90 right-of-way: Calumet Baptist Church, Riverlife Church, Bethel Pentecostal Fellowship, Word of Life Family Church, and Higher Heights Full Gospel Baptist Ministries. None of the churches would experience direct physical impacts due to the project. Right-of-way acquisition of church property is not anticipated to be required beyond a narrow undeveloped land strip apparently owned by the Bethel Pentecostal Fellowship along Tiffany Street.

The travel lanes of Future I-49 would be located the same distance as the travel lanes of US 90, or greater, from these churches due to reduction in the width of the median. New frontage roads would bring traffic closer to the churches. However, the traffic using the frontage roads would be local and would be operating at slower speeds than currently experienced on US 90. Churches currently having direct access to US 90 would have direct access to the new frontage road. The separation of local traffic on the frontage road from through traffic on the interstate should improve access and safety for church congregations.

The noise analysis portion of the FEIS (Section 4.3.2) determined that, under Future I-49 Build conditions, an exterior sound level impact would occur at the Calumet Baptist Church, Riverlife Church, and Higher Heights Full Gospel Baptist Ministries. The noise analysis determined that Bethel Pentecostal Fellowship and Word of Life Family Church would not experience a traffic noise impact due to the project. As the focus of church activities at the impacted locations appears to be indoors, an adverse noise impact on these activities due to traffic noise is not anticipated to occur.

4.1.5 Relocation Impacts

4.1.5.1 No-build Alternate, Relocation

No right-of-way acquisition would be required under the no-build alternate. Consequently, there would be no relocation impacts.

4.1.5.2 Selected Alternative, Relocation

The proposed project will be located primarily in the existing right-of-way of the existing US 90. As documented in Chapter 2.0, however, there would be areas along connecting roads that require the acquisition of additional right-of-way. These areas are notably in the following locations:

- Red Cypress Road at the intersection with the frontage road, no relocations;

- The extension of Lassus Street to the north of Future I-49 to intersect with Main Street (LA 182), no relocations;
- The new connection between the frontage roads and LA 182 at Station 412+50, no relocations.

The proposed project is not anticipated to displace any commercial or residential properties.

In a number of other locations, small amounts of right-of-way would be required for geometric improvements at intersections of existing roadways with the frontage roads as described in Chapter 2.0.

4.1.6 Community Disruption

4.1.6.1 No-build Alternate, Community Disruption

The no-build alternate would not result in direct community disruption. Over the 30-year planning horizon, however, increased traffic volumes through the project area could result in greater difficulty in crossings of the highway right-of-way.

4.1.6.2 Selected Alternative Community Disruption

A number of potential community disruption impacts were examined as part of the planning for Future I-49 as follows:

Wax Lake Outlet Crossing

Concern - 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, which was 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.

Mitigation - 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.

Access to Industrial Plants located south of the BNSF Railroad

Concern - Alternate X-1 was presented at the February 2001 Public Meeting (Exhibit 2-4A and B). This alternate proposed a four-lane mainline roadway with a single two-way, two-lane frontage road located to north.

Operators of the gas plants located to the south of the BNSF Railroad expressed concern regarding the access/egress provided by 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.

Mitigation - Alternate X-2 was developed to address this concern. Alternate X-2 provides an additional two-way frontage road south of the Future I-49 mainline from LA 182 Access Road East to the driveways of the plants. East of the driveways the two-way road transitions to a one-way ramp on to eastbound Future I-49. In Alternate X-1, access to the gas plants south of Zenor Road is provided by an extension of Zenor Road under an elevated section of Future I-49. Because this mainline structure at Zenor Road is eliminated, the estimated construction cost of Alternate X-2 is substantially less than that for Alternate X-1. The Alternate X-2 geometry maintains the current access/egress flow characteristics to the plants and is less costly to construct than Alternate X-1.

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

Concern - 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.

Mitigation - 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 2-4A depicts the proposed bypass.

Access Throughout Patterson and Bayou Vista

Concern - 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.

Patterson is principally a residential community, and it already experiences traffic congestion associated with local roadway crossings of the BNSF Railroad that abuts the existing US 90 right-of-way to the south throughout Subsegment Y. There are also commercial areas along US 90, which must be served. North/south traffic circulation, and the delivery of public services, may be further affected by the conversion of US 90 to Future I-49.

Mitigation - The alternatives considered for Subsegment Y are documented in Chapter 2. Actions taken to mitigate potential community disruption impact resulting from increased traffic congestion include:

Elevation of the Future I-49 Mainline Roadway – The mainline of Future I-49 is elevated through much of Patterson to allow for a continuous connection between

local sufficient north/south roadways. The length of the mainline structure was extended during the planning process to include the crossing of Tiffany Street / Lipari Street in response to local concerns.

Boulevard Roadway in Vicinity of the Idlewild – In the vicinity of the Idlewild, 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 the abutting properties.

Access Between the Town of Berwick and the Bayou Vista Community

Concern - In Subsegment Z there were community access concerns regarding travel between Berwick and the commercial area in Bayou Vista. Residents did not wish to enter the high speed I-49 to make this relatively short trip.

Mitigation – The selected alternative, Z-1, as well as the alternative Z-2, provide an auxiliary travel lane on the Future I-49 mainline in both directions between Bayou Vista and Berwick. This auxiliary lane allows vehicular trips between Berwick and Bayou Vista to be accomplished without requiring that vehicles to enter the Future I-49 mainline traffic stream (Exhibit 2-8).

4.2 Air Quality

Air Quality Standards and Conformity

National and state ambient air quality standards (AAQS) were developed for specific (criteria) pollutants to protect public health, safety, and welfare as a result of the Federal Clean Air Act of 1970. The Clean Air Act Amendments of 1990 (CAAA) mandated a program by which air quality must be improved and maintained so as to meet the National Ambient Air Quality Standards (NAAQS), with frameworks for state and regional agency jurisdictions, accountability, and an established time schedule. This program involves on going monitoring and reporting, from which regions are classified as to their attainment status with regard to each criteria pollutant. 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.

Transportation Conformity

Transportation conformity is a process required of Metropolitan Planning Organizations (MPOs) pursuant to the CAAA, to ensure that federal funding and approval are given to those transportation activities that are consistent with air quality goals. CAAA requires that transportation plans, programs, and projects in nonattainment or maintenance areas that are funded or approved by FHWA be in conformity with the State Implementation Plan (SIP), which represents the State's plan to either achieve or maintain the NAAQS for a particular pollutant.

Subsequent to the CAAA, the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 included transportation planning provisions that stated that federal

projects located in nonattainment or maintenance areas cannot be approved, funded, advanced through the planning process, or implemented unless those projects are in a fiscally constrained and conforming Long Range Transportation Plan and Transportation Improvement Program (TIP).

As previously stated, the project is located in St. Mary Parish, which is an attainment area. Therefore, conformity does not apply to this project.

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 that 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.

An analysis of the potential project-related air quality impacts was undertaken for the purpose of identifying roadway intersections where vehicular traffic would cause or contribute to levels of CO beyond the NAAQS.

Models approved by the U.S. Environmental Protection Agency (USEPA), MOBILE5b and CAL3QHC2.0, were utilized to develop appropriate emission factors and determine hourly concentrations of CO. Future emissions analyses that may be required would use the currently approved model, MOBILE6. The USEPA Guideline for Modeling Carbon Monoxide from Roadway Intersections was utilized to identify analysis locations for modeling and to identify modeling input parameters. Parameters used in the modeling effort, as specified by USEPA requirements or LDEQ guidance as applicable, included the following:

Meteorological variables

Averaging time: 60 minutes (USEPA)
Persistence factor: 0.70 (USEPA)
Surface roughness coefficient: 108 cm, suburban (Actual)
Settling and deposition velocities: 0 (CAL3QHC Default)
Wind speed: 1 meter/second (USEPA)
Wind direction: Every 10° from 0 to 360° (USEPA and LDEQ)
Atmospheric stability class: D (LDOTD and LDEQ)
Mixing height: 1,000 meters CAL3QHC Default)

Site variables

Roadway and receptor coordinates: x/y system (Actual)
Roadway widths: 12-foot travel lanes (Actual)
Roadway and receptor elevations: receptor elevation 5 feet above ground (Actual)

Traffic variables

Traffic volumes, traffic signal timing, and speeds: Project Traffic Study
Clearance lost time: 2 seconds (CAL3QHC default)

Emissions variables

Composite factors for free-flow links: (LDEQ)

Idle emission factors for queue links: (LDEQ)

Two study years were analyzed, 2010 and 2030, representing the base year and the project design year, respectively.

Applying the rationale in the USEPA Guideline, the peak hour traffic volumes, delays, and results of the levels of service (LOS) analyses for years 2010 and 2030, build and no-build alternates were examined. Intersections were ranked according to delay (LOS) and total traffic volume (See Table 4A-2 in the Appendix to this chapter.). Intersections with an LOS C or better were not considered in the analysis. As stated in the USEPA Guideline, it is presumed that if CO concentrations at the worst-case intersections were acceptable, all other locations also would be acceptable.

The screening and ranking analysis for the 2010 base year identified the intersection of US 90 and Southeast Boulevard for CO modeling.

This intersection, although it is predicted to operate at C+ during the morning peak hour, it is predicted to operate at LOS E during the afternoon peak hour. Therefore, CO modeling was completed for this intersection for the year 2010 base year case for the afternoon peak hour.

In the year 2030, the LOS at these following four signalized intersections will have deteriorated to operating at LOS F during either the morning or afternoon peak hour.

- US 90 and Wal-Mart
- US 90 and Southeast Boulevard
- US 90 and Thorguson Drive
- US 90 and LA 182 On/Off Ramps

Table 4-3 presents the results of the screening and ranking analysis for the 2030 no-build case. The screening and ranking analysis does not include the peak hours when the intersections are predicted to operate at LOS C or better.

As indicated, the highest volume intersection with the greatest delay is US 90 and Southeast Boulevard, which is predicted to accommodate 3,851 vehicles during the afternoon peak hour with a delay of 149.4 seconds per vehicle. The second highest volume intersection is US 90 and Wal-Mart that is predicted to accommodate 3,620 vehicles with a delay per vehicle of 84.5 seconds during the afternoon peak hour. The third highest volume intersection is US 90 and Thorguson Drive, with 3,146 vehicles and a delay per vehicle of 80 seconds during the morning peak hour.

In summary, the screening and ranking analysis for the year 2030 no-build case identified the following intersections for CO modeling:

- US 90 and Southeast Boulevard – PM
- US 90 and Wal-Mart – PM
- US 90 and Thorguson Drive – AM

A total of ten intersections could warrant signalization under the 2010 and 2030 build cases. For the purposes of the noise analysis, signalization is assumed at all 10 locations. Review of the 2010 build LOS analysis revealed that all ten of the

intersections would operate at LOS B or better during both the morning and afternoon peak hours. For the 2030 build case, all ten signalized intersections will continue to operate at LOS B or better during both the morning and afternoon peak hours. CO modeling was not completed for the 2010 and 2030 build cases, since the USEPA has determined that intersections that operate at LOS C or better probably do not require further analysis.

**TABLE 4-3
INTERSECTION SCREENING AND RANKING RESULTS
FOR 2030 NO-BUILD**

<i>Intersection</i>	<i>Peak Hour</i>	<i>Delay in seconds (LOS)</i>	<i>Total Traffic Volume (vph)</i>	<i>Traffic Volume Ranking</i>	<i>LOS Ranking</i>	<i>Analyze?</i>
US 90 / Wal-Mart	PM	84.5 (F)	3,620	2	2	Yes
US 90 / Southeast Blvd.	PM	149.4 (F)	3,851	1	1	Yes
US 90 / Thorguson Rd.	AM	80.0 (F)	3,146	3	3	Yes
US 90 / LA 182 On/Off Ramps	PM	73.4 (F)	1,561	4	4	No

**TABLE 4-4
SUMMARY OF LAND USES,
INTERSECTIONS IDENTIFIED FOR CO MODELING**

<i>Intersection</i>	<i>Case</i>	<i>Surrounding Sensitive Land Uses</i>	<i>Distance to Closest Sensitive Land Use (feet)</i>
US 90 and Wal-Mart	No-build	Wal-Mart Parking Lot and Gas Station	100
US 90 and Southeast Blvd.	No-build	Rite Aid, Gas Station, McDonald's	100
US 90 and Thorguson Rd.	No-build	Vacant	----

The screening and ranking analysis assesses the types of land uses abutting the intersection(s) identified for CO modeling to determine if sensitive land uses exist. Table 4-4 summarizes the land uses surrounding those intersections identified for CO modeling.

As indicated in Table 4-4, sensitive land uses are located near two of the three intersections. The exception is the intersection of US 90 and Thorguson Drive where all quadrants of the intersection are vacant. As a result, CO modeling was not conducted for this intersection.

4.2.1 No-build Alternate, Air Quality

The no-build alternate would involve no improvements to the existing roadway. The modeling results for no-build 2010 and 2030 are shown in Table 4-5 below. The highest CO concentrations would occur at the US 90/Southeast Boulevard and US 90/Wal-Mart driveway intersections during the PM peak hour at 7.1 parts per million (1-hour) and 5.6 parts per million (8-hour). These concentrations are acceptable in comparison to the primary and secondary NAAQS for CO: 35 parts per million (ppm) over a 1-hour period and 9 ppm over an 8-hour period.

**TABLE 4-5
PREDICTED WORST-HOUR CARBON MONOXIDE (CO)
CONCENTRATIONS**

<i>Intersection</i>	<i>Case</i>	<i>Peak Hour</i>	<i>1-Hour Concentration (ppm)</i>	<i>8-Hour Concentration (ppm)</i>	<i>Receptor Location</i>	<i>Wind Angle (degrees)</i>
US 90 / Southeast Blvd.	2010 No-build	PM	6.9	5.4	Northeast corner	100
US 90 / Southeast Blvd.	2030 No-build	PM	7.1	5.6	Northeast corner	100
US 90 and Wal-Mart	2030 No-build	PM	7.1	5.6	Northbound US 90 100 ft south of Wal-Mart	120

These results indicate that the predicted CO concentrations will not exceed the CO one-hour NAAQS of 35.0 parts per million (ppm) or the eight-hour standard of 9.0 ppm at the study intersections for the 2010 base year and 2030 no-build cases.

4.2.2 Selected Alternative, Air Quality

As previously stated above, all signalized intersections will operate at a peak period LOS B or better under 2010 and 2030 build conditions. As a result, air quality modeling is not warranted and compliance with the NAAQS is implied.

4.2.3 Mitigation Measures, Air Quality

As compliance with the NAAQS is anticipated under the selected alternative, mitigation is not warranted.

4.3 Noise

The FHWA Noise Abatement Criteria (NAC) and LDOTD Highway Traffic Noise Policy were used to analyze potential project-related noise impacts. The FHWA has assigned NAC levels to five categories of land use organized according to their sensitivity to noise. Table 4-6 presents these NAC levels.

These are Leq levels above which noise would begin to intrude on the corresponding land use. Leq is the value of a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same time period. According to the FHWA, a project is determined to have a noise impact should either of the following conditions occur:

Predicted Leq noise levels approach or exceed the NAC. Noise levels that approach the NAC are defined as occurring at 1 decibel less than the NAC.

A substantial increase in predicted noise level over the existing noise level would occur, even though the NAC is not reached. This increase is considered to be 10 decibels or greater, which is roughly a doubling or more of the perceived noise level.

The LDOTD Highway Traffic Noise Policy specifies a traffic noise impact as occurring when either of the following conditions occurs:

- Predicted Leq noise levels equal or exceed the values shown in Table 4-6;
- Predicted Leq noise levels are 10 decibels or more above the existing noise level.

**TABLE 4-6
LDOTD NOISE ABATEMENT CRITERIA**

<i>Activity Category</i>	<i>L_{Aeq1hr} dBA*</i>	<i>Description of Activity</i>
A	56 (Exterior)	Land on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	66 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	71 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped lands.
E	51 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

* These criteria are consistent with the FHWA Noise Abatement Criteria (23 CFR 772) allowing for indication of traffic noise impacts when levels approach within 1 dBA.

Source: LDOTD Highway Traffic Noise Policy

Predictions of A-weighted equivalent sound levels for the 2010 base year and 2030 build and no-build alternates were made using the FHWA's TNM 1.0b Traffic Noise Model (TNM). The following parameters were incorporated into the modeling effort to predict the peak hourly Leq at specific receptors:

- Traffic volumes: Actual and predicted (Traffic Study)
- Traffic speed: Actual and predicted –mainline: 70 mph(Traffic Study);
- Traffic speed: Actual and predicted –frontage road: range of 35 to 55 mph (Traffic Study);
- Roadway geometry: Actual and proposed
- Receptors: Actual, height at 5 feet above the ground
- Terrain and vegetation: Actual, criteria as provided by TNM

4.3.1 No-build Alternate, Noise

The no-build alternate would involve no improvements to the existing roadway. The examination of the noise impacts of the no-build alternate evaluated and quantified traffic noise impacts for 2010 and 2030. The results of this analysis are summarized in Table 4A-1 in the Appendix to this chapter.

2010 Base Year

Predicted worst-hour LAeq1h for the 2010 base year vary by noise analysis area. The highest predicted noise levels are between 70 and 74 dBA.

As indicated in Table 4-7, no residences are predicted to be impacted in Noise Analysis Areas 5N (See Plate 4), 6S, 8S, 9S (Plate 6), 10S (Plate 6), 11N (Plate 7), and 12N (Plate 7). Residences are, however, predicted to be impacted in Noise Analysis Areas 1N (Plate 1), 2N (Plate 1), 3N-North (Plate 3), 3N-South (Plate 3), 4N (Plate 4), 7N-North (Plate 5), and 7N-South (Plates 5 and 6).

Table 4-7 below also lists other Category B land uses where predicted noise levels exceed the NAC. As shown, exterior noise levels at the Calumet Baptist Church in Noise Analysis Area 3N-North, the Plantation Inn in Noise Analysis Area 11N, and the Higher Heights Full Gospel Baptist Ministries in Noise Analysis Area 12N are predicted to exceed 66 dBA.

However, these locations do not contain any exterior areas of “frequent human use.” Additionally, the Plantation Inn and the churches appear to be air-conditioned and normally would be expected to operate under a “closed windows” condition.

Assuming a 25 dB reduction for building attenuation, predicted interior one-hour equivalent sound levels would be between 42 and 45 dBA. These interior levels are below the NAC of 52 dBA for Activity Category E land uses. As a result, no impacts are predicted to occur at these locations.

Finally, the St. Mary’s Parish War Memorial in Noise Analysis Area 3N-North and the area of Kemper Williams Park within approximately 100 feet of US 90 are predicted to be impacted.

A total of 114 residences along the existing US 90 alignment have a 2010 base year LAeq1h equaling or exceeding the LDOTD NAC and are considered impacted.

2030 No-Build

As with the 2010 base year case, predicted worst-hour LAeq1h for the 2030 no-build case vary by noise analysis area. The highest predicted noise levels are between 71 and 75 dBA.

The 2030 no-build noise levels are 1 to 2 dB higher than 2010 base year noise levels. These increases are the result of predicted increases in traffic volumes and not substantial enough to cause noise impacts as defined by the LDOTD Noise Policy.

No residences are predicted to be impacted in Noise Analysis Areas 5N, 6S, 8S, 9S, 10S, and 11N. Residences are, however, predicted to be impacted in Noise Analysis Area 1N, 2N, 3N-North, 3N-South, 4N, 7N-North, 7N-South, and 12N.

Impacts to Category B land uses will remain the same as for the 2010 base year case.

A total of 121 residences along the existing US 90 alignment have a 2030 no-build LAeq1h equaling or exceeding the LDOTD NAC and are considered impacted.

4.3.2 Selected Alternative, Noise

As with the 2010 base year and 2030 no-build cases, predicted worst-hour LAeq1h for the 2030 no-build case vary by noise analysis area. The highest predicted noise levels are between 70 and 74 dBA.

In most noise analysis areas, the 2030 build noise levels are 2 to 6 dB higher than 2010 base year noise levels. Impacts would not occur since the increase in noise levels above the 2010 base year is not 10 dB or more.

The affected receivers in Noise Analysis Area 6S include the Riverlife Church and the North Garden View Apartments. 2010 base year noise levels at these receivers are 61 and 56 dBA, respectively. The grade separation structure would be located approximately 100 feet from the Riverlife Church and 300 feet from the North Garden View Apartments. Traffic on the ramp would increase noise levels at these receivers by 7 and 9 dB, respectively, resulting in 2030 build noise levels of 67 and 63 dBA, respectively.

While the noise level at the North Garden View Apartments would remain below the LDOTD NAC, the noise level at the Riverlife Church will be above the NAC. However, no exterior areas of "frequent human use" are located at the Church. The Church appears to be air-conditioned and normally would be expected to operate under a "closed windows" condition. Assuming a 25 dB reduction for building attenuation results in a predicted interior one-hour equivalent sound level of 42 dBA. This interior level is below the NAC of 52 dBA for Activity Category E land uses. As a result, impacts are not predicted to occur at this location.

Year 2030 build noise levels at most receivers in Noise Analysis Area 7N-South would be reduced by 1-3 dB from 2010 base year levels. This reduction occurs because Future I-49 will be located on a bridge structure with parapet walls along the edge of pavement near these receivers. Additionally, Future I-49 is located farther from these receivers than in other areas since both the westbound and eastbound frontage roads are located on the north side of Future I-49.

No residences are predicted to be impacted in Noise Analysis Areas 5N, 8S, 9S, and 10S. Residences are, however, predicted to be impacted in Noise Analysis Area 1N, 2N, 3N-North, 3N-South, 4N, 6S, 7N-North, 7N-South, 11N, and 12N.

**TABLE 4-7 SUMMARY OF IMPACTED RESIDENCES
BY NOISE ANALYSIS AREA**

<i>Noise Analysis Area</i>	2010 Base Year		2030 No-Build		2030 Build	
	<i>Number of Impacted Residences</i>	<i>Other Impacted Category B Land Uses</i>	<i>Number of Impacted Residences</i>	<i>Other Impacted Category B Land Uses</i>	<i>Number of Impacted Residences</i>	<i>Other Impacted Category B Land Uses</i>
1N	6	None	6	None	9	None
2N	4	None	6	None	8	None
3N-North	9	St. Mary's Parish War Memorial, Calumet Baptist Church*	9	St. Mary's Parish War Memorial, Calumet Baptist Church*	18	St. Mary's Parish War Memorial, Calumet Baptist Church*, American Legion Post 242*
3N-South	20	None	20	None	24	None
4N	25	None	27	None	44	None
6S	0	None	0	None	2	Riverlife Church*
7N-North	11	None	11	None	23	None
7N-South	39**	None	39**	None	37**	None
8S	0	None	0	None	0	None
9S	0	None	0	None	0	None
10S	0	Kemper Williams Park (100 feet)	0	Kemper Williams Park (100 feet)	0	Kemper Williams Park (200 feet)
11N	0	Plantation Inn*	0	Plantation Inn*	3	Plantation Inn*
12N	0	Higher Heights Full Gospel Baptist	2	Higher Heights Full Gospel Baptist	6	Higher Heights Full Gospel Baptist

* No exterior areas of frequent human activity.

** Includes the Idlewild House National Historic 4(f) Property

The predicted noise levels at the American Legion Post in Noise Analysis Area 3N-North is also above the NAC. However, exterior areas of "frequent human use" do not exist at this location and the predicted interior one-hour equivalent sound level is 42 dBA. This interior level is below the NAC of 52 dBA for Activity Category E land uses. As a result, impacts are not predicted to occur at this location.

Finally, the area of Kemper Williams Park within approximately 200 feet of US 90 is predicted to be impacted.

A total of 174 residences along the existing US 90 alignment have a 2030 build LAeq1h equaling or exceeding the LDOTD NAC and are considered impacted.

4.3.3 Noise Abatement Potential

In 23 CFR 772, FHWA requires that the following noise abatement options be examined for any impacted land uses. These noise abatement options according to the LDOTD Highway Traffic Noise Policy are discussed below.

Traffic management measures: These include speed reductions and truck restrictions. These strategies are counter to the purpose of the project and would not be used as abatement measures for this project.

Alteration of horizontal and vertical alignments: Alteration of the horizontal alignment would not be appropriate when the selected alternative, by definition, upgrades the existing right-of-way. Alteration of vertical alignment also would not be appropriate as the cost would be greater than the construction of barriers.

Acquisition of property rights to impacted receivers: Acquisition of impacted properties also would be costly and would generate community disruption impacts.

Noise insulation of public use or nonprofit institutional structures: No land uses of this type in the project area would be impacted.

Construction of noise barriers whether within or outside the highway right-of-way: This remaining option is the construction of noise barriers that are considered in detail in the following sections.

4.3.4 Mitigation of Noise Impacts

4.3.4.1 Noise Barrier Feasibility Analysis

A total of seven areas of impacted residences were identified for noise barrier analyses. The TNM 1.0b program was used to predict preliminary noise levels with abatement and to evaluate alternate noise barrier designs for the impacted noise receivers. The design of noise barriers was aimed at providing an insertion loss (noise reduction) of at least 8 dB at one of the impacted receivers for the barrier to be considered acoustically feasible, in accordance with LDOTD policy.

Noise barriers were found to be acoustically feasible at the following locations:

Future I-49 Westbound, from Truckline Gas Co. to American Legion Post 242 (Sta. 165+00 to 195+00)

Future I-49 Westbound, from American Legion Post 242 to Bayou Patterson (Sta. 195+00 to 235+00)

Future I-49 Westbound, from Johnson Road to Shady Grove Drive (Sta. 235+00 to 265+00)

Feasibility means that the needed noise reduction can be provided and that the construction of noise barriers would not be anticipated to pose any major design or construction issues. Feasibility alone does not determine whether a barrier will be built. Each barrier must also pass a "reasonableness" test as described below.

Though there were other impacted residences along the proposed project, potential noise barriers for them would either interfere with driveway access to the properties

or the 8 dB minimum noise reduction could not be met. Therefore, constructing barriers for these residences was not considered to be feasible.

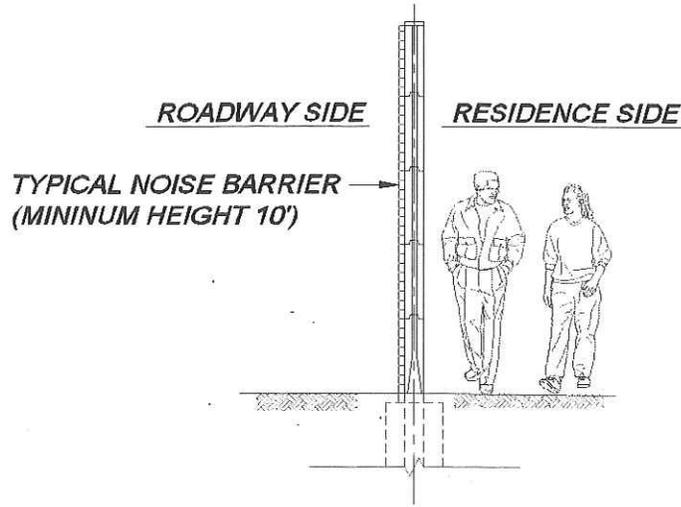


Figure 4-1 Noise Barrier Section

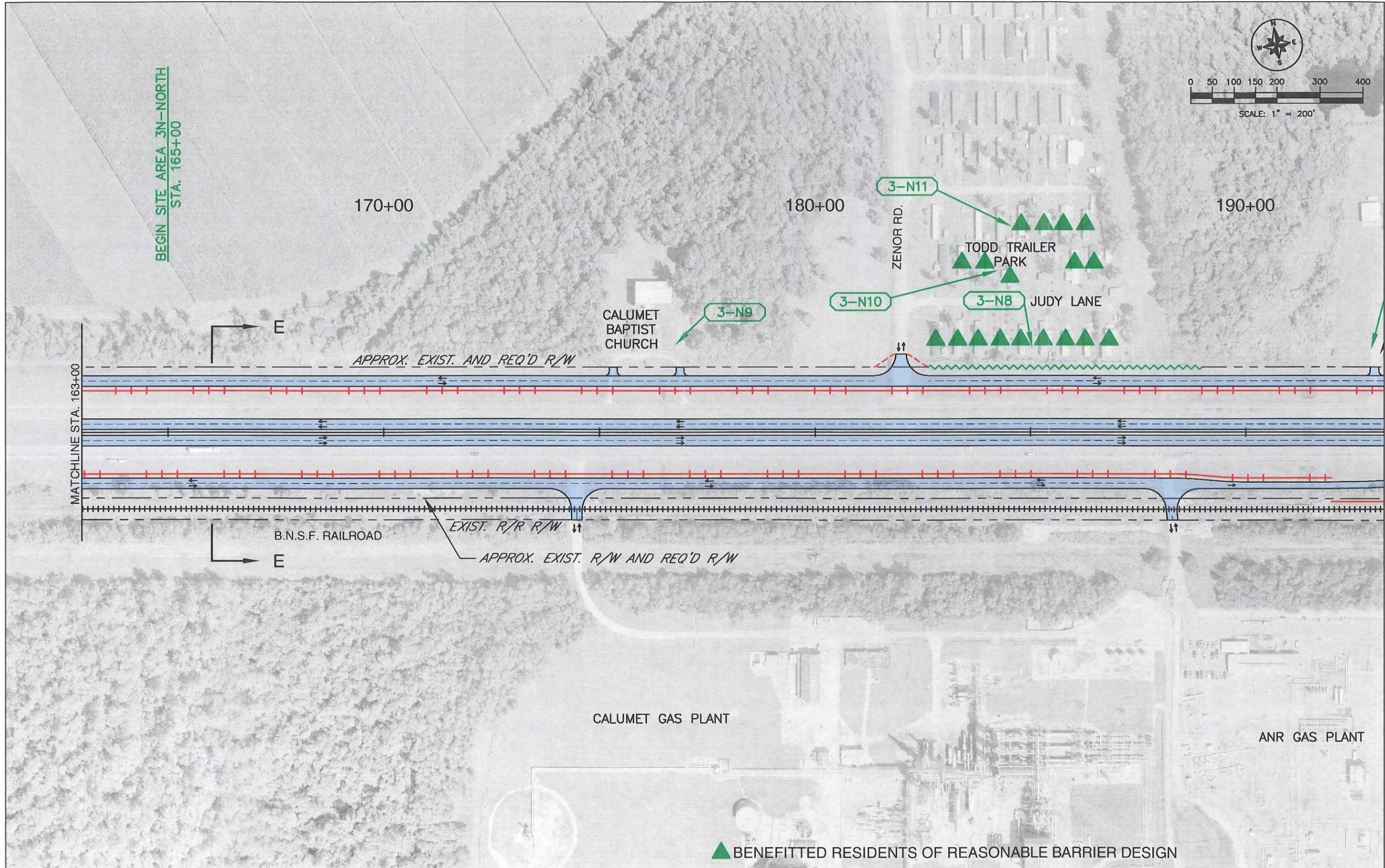
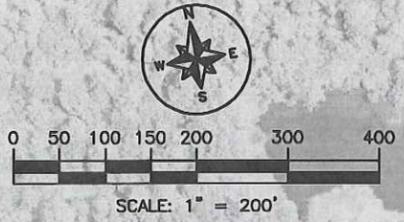
4.3.4.2 Noise Barrier Reasonableness Analysis

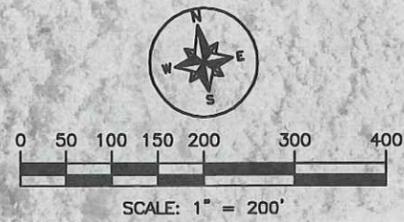
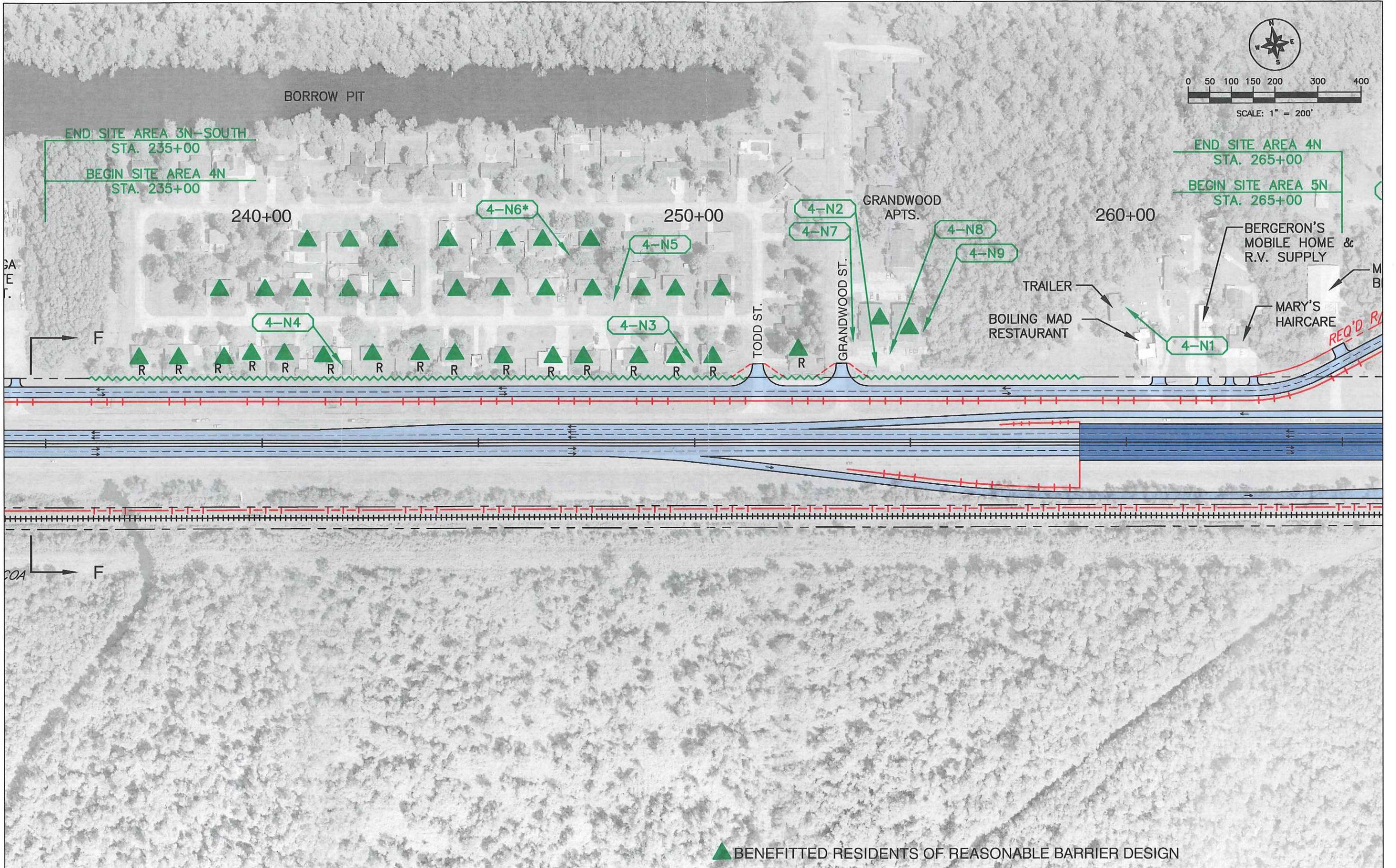
In accordance with LDOTD policy, feasible noise barriers need to have a cost per benefited residence that does not exceed \$15,000 to be considered reasonable. Barriers that are not reasonable typically would not be proposed for a project.

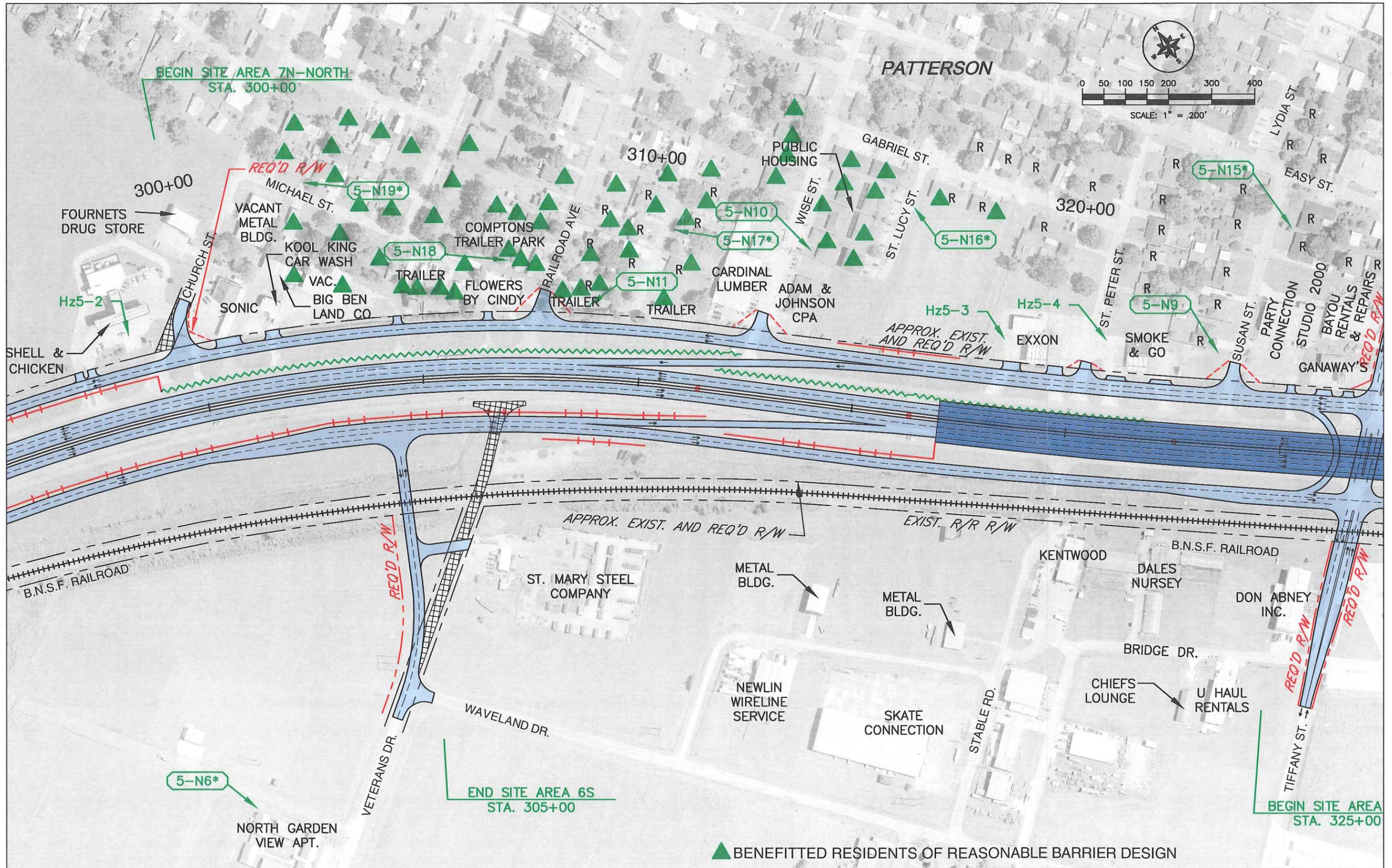
Barrier designs for the impacted areas were quantified to determine the noise reduction that was provided for each modeled receiver. These noise reductions were used as the basis for determining the total number of benefited residences at each barrier location. Benefited residences are residences that would experience 5 or more dB of noise reduction due to construction of the barrier, whether or not the residence would be impacted without the barrier.

Barrier costs were then estimated based on a LDOTD unit cost of \$25 per square foot. The total barrier cost was then divided by the number of benefited residences to arrive at the cost per benefited residence for each noise analysis area. This cost was then compared to the LDOTD \$15,000 criterion to assess reasonableness.

The results of the reasonableness analysis for the areas where noise barrier were determined to be feasible are shown in Table 4-8. Noise barriers were determined not to be reasonable for areas 2N, 3N-South, 6S, and 12N. Additionally, construction of noise barriers along the edge of pavement was determined not to be reasonable for areas 3N-North and 4N. The cost per benefited residence for the barrier for Noise Analysis Area 4N, however, was \$15,490, \$490 above the reasonableness criterion of \$15,000 per benefited residence.







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Noise barriers at the right-of-way (ROW), however, were determined to be reasonable for 3N-North and 4N. Additionally, a noise barrier at the edge of pavement (EOP) was determined to be reasonable for the westernmost residences in 7N-North where Future I-49 is at-grade.

As shown on Exhibit 4-1A the noise barrier at the ROW for 3N-North begins at Station 189+00 and ends at Station 182+00 for a total distance of 685 feet. The noise barrier height is 12 feet. The total cost of the barrier is \$205,500. A total of 18 residences will be benefited resulting in a cost per benefited residence of \$11,417. Based on this design, a noise barrier is reasonable for this area and is proposed as part of the build case.

As shown on Exhibit 4-1B, the noise barrier at the ROW for 4N will be comprised of three separate barriers in order to maintain access to local roads. 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 near Station 251+70, and the third begins at Todd Street near Station 251+20 and ends at Station 236+00. Both of these barriers are 10 feet in height. The total length of the three barriers is 2,170 feet. The height of the first noise barrier varies from 10 to 16 feet. The height of the other two barriers is 10 feet. The total cost of the barrier is \$587,500. A total of 41 residences will be benefited resulting in a cost per benefited residence of \$14,329. Based on this design, a noise barrier is reasonable for this area and is proposed as part of the build case.

As shown on Exhibit 4-1C, the noise barrier at the EOP for 7N-North will be comprised of two separate barriers. 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 along the entrance ramp from the frontage road at Station 314+00 and ends at Station 299+00. For these residences was not considered to be feasible.

For the first 200 feet, this portion is 12 feet in height, for the next 800 feet, it is 14 feet in height, for the next 200 feet it is 12 feet in height, and for the remaining 300 feet it is 10 feet in height. The total length of the two barriers is 2,500 feet. The total cost of the barrier is \$785,000. A total of 53 residences will be benefited resulting in a cost per benefited residence of \$14,811. Based on this design, a noise barrier is reasonable for this area and is proposed as part of the selected alternative.

The height of barriers is limited to the distance from the location of the barrier to the outside edge of the right travel lane. This is a precaution against the road being closed as a result of the possible failure of the barrier during a storm event. A portion of the barrier proposed in 7N-North is limited to 8 feet for this reason.

TABLE 4-8
BARRIER ANALYSIS RESULTS AND FEASIBILITY/REASONABLENESS
ANALYSIS 2030 SELECTED ALTERNATIVE

<i>Noise Analysis Area</i>	<i>Noise Barrier Location</i>	<i>Barrier Length (ft)</i>	<i>Average Barrier Height (ft)</i>	<i>Barrier Cost*</i>	<i>Number of Benefited Residences</i>	<i>Cost Per Benefited Residence</i>	<i>Reasonable?</i>
2N	EOP	2,200	11	\$625,000	7	\$89,286	No
3N-North	EOP	1,650	14	\$577,500	25	\$23,100	No
3N-North	ROW	685	12	\$205,500	18	\$11,417	Yes
3N-South	EOP	2,700	12	\$815,000	24	\$33,958	No
3N-South	ROW	2,070	10	\$517,500	24	\$21,563	No
4N	EOP	2,300	14	\$790,000	51**	\$15,490	No
4N	ROW	2,170	11	\$587,500	41**	\$14,329	Yes
6S	EOP	1,200	13	\$385,000	3	\$128,333	No
7N-North	EOP	2,500	13	\$785,000	53***	\$14,811	Yes
12N	EOP	2,500	19	\$1,158,000	32	\$36,118	No

* Based on a cost of \$25 per square foot.

** Includes 6 apartments.

*** Includes 29 single-family homes, 11 mobile homes, 10 apartments, and 3 multi-family units.

4.4 Water Quality

Typically, roadways are sources of oils, grease, metals, hydrocarbons, rubber particles, and other solids that are washed off impervious surfaces during rain events. Landscaped areas, such as highway shoulders and medians, are often utilized to filter storm water runoff in its path to surface water bodies. These vegetated areas slow the rate of runoff enabling settlement of waterborne contaminants.

4.4.1 Surface Water

4.4.1.1 No-build Alternate, Surface Water

The no-build alternate would result in no adverse impact to surface waters.

4.4.1.2 Selected Alternative, Surface Water

Locations where surface water bodies currently traverse the US 90 right-of-way would be retained in the Future I-49 South design. Examination of the adequacy of the existing culverts and crossings provided along the US 90 corridor indicates the need to replace and/or enlarge a number of these structures to increase capacity and improve drainage. Detailed design of these structures would be undertaken to meet federal requirements and ensure no adverse impact to upstream or downstream uses.

There is no concern regarding stormwater runoff resulting from traffic traversing the new LA 182 crossing of Wax Lake Outlet as volumes lower than 30,000 ADT typically have no substantial impacts (Maestri et al 1988). As the crossing is intended for local traffic and agricultural equipment, that threshold of traffic volume would not be reached.

4.4.1.3 Mitigation Measures, Surface Water

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.

4.4.2 Ground Water

4.4.2.1 No-build Alternate, Ground Water

The no-build alternate would involve no activities that would cause new impacts to ground water.

4.4.2.2 Selected Alternative, Ground Water

The selected alternative would result in an increase in impervious surface area. As there are no aquifers located under the project area, nor is the project area a recharge area for any major Louisiana aquifers, no adverse impact on recharge capability would occur.

There are no potable groundwater wells within the proposed or existing right-of-way.

It is not anticipated that any of the water wells will be impacted by the selected alternative.

4.4.2.3 Mitigation Measures, Ground Water

As implementation of the project is not expected to have an adverse impact on water quality, mitigation measures are not warranted. Any well impacted by the construction of the proposed project would be dealt with in accordance with the regulations set forth by the Ground Water Protection Division (GWPD), Water Well Rules and Standards of the Water Resources Division of LDOTD, and any other federal, state, or local regulation that may apply. This would include plugging all

affected wells and borings to prohibit potential entry of contaminants into groundwater.

4.5 Floodplains

4.5.1 No-build Alternate, Floodplains

No impacts to existing floodplains would occur under the no-build alternate.

4.5.2 Selected Alternative, Floodplains

Future I-49 South would traverse existing floodplains associated with the several surface water drainageways that cross the US 90 corridor in a perpendicular orientation. In accordance with Executive Order No. 11988, no longitudinal floodplain impacts would occur.

Project design and construction would meet federal requirements, resulting in no adverse impacts on floodplains. In particular, finished roadway grades would be above the 100-year floodplain elevation to maintain passable roadway conditions during storm events. New or reconstructed culvert structures would be designed to convey normal drainage as well as storm flows.

The project would not create or exacerbate a flooding problem on adjacent properties. As described in Section 3.8, flooding currently occurs in the project area associated with backwater flooding after locally heavy rainfall events that cause bi-directional flows in the coulee culverts and crossings. The rainfall pools in the nearly level floodways and floodplains, sometimes affecting existing developed land uses.

4.6 Wetlands

Activities conducted in wetlands may be subject to Section 404 of the Clean Water Act under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Section 404 establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Activities that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry.

The basic premise of the program is that no discharge of dredged or fill material can be permitted:

- if a practicable alternative exists that is less damaging to the aquatic environment or
- if the nation's waters would be significantly degraded; and

When a project seeks a permit, project sponsors must show that:

- steps were taken to avoid wetland impacts where practicable,
- potential impacts to wetlands were minimized, and
- compensation was provided for any remaining, unavoidable impacts through activities to restore or create wetlands.

The USACE also regulates activities within navigable waterways through Section 10 of the Rivers and Harbors Act of 1899. The United States Coast Guard also is responsible for the approval of the location and plans of bridges constructed across navigable waters of the United States, in this case Wax Lake Outlet. Further, wetlands are regulated through the Coastal Zone Management Act of 1972, which provided coastal states with a greater voice in the regulation of coastal resources. Louisiana's Coastal Zone Management Act was passed in 1978.

4.6.1 No-build Alternate, Wetlands

The no-build alternate would involve no activity that would directly or indirectly cause new adverse impacts on wetlands.

4.6.2 Selected Alternative, Wetlands

Wetlands within the project area by classification are quantified for the selected alternative in Table 4-9. 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. The USACE makes the final determination of jurisdiction during the permit process. Potential mitigation measures to offset unavoidable wetland impacts would be considered on an as needed basis during the permitting process.

Vegetated wet ditches are found primarily in the medians and between the travel lanes and the edge of the right-of-way. Some of the wet ditches are on parcels of undeveloped property and adjacent to the driveways or intersecting roads where they would be impacted by construction.

Forested wetlands are found primarily between the towns along the US 90 right-of-way with the largest impact area being near Berwick. Additional forested wetlands would be impacted by the widening of connecting roadways.

**TABLE 4-9
CLASSIFICATIONS OF WETLANDS IMPACTED**

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

* Does not include mowed and maintained highway ditches.

** Temporary impacts. No compensatory mitigation anticipated.

Scrub/shrub wetlands impacts are found primarily between the eastbound travel lanes and the right-of-way boundary along the BNSF Railroad. This wetland area will mainly be impacted by frontage road construction on the south side of the proposed Future I-49 right-of-way.

Wax Lake Outlet, Bayou Patterson West Branch, Bayou Patterson East Branch, Little Bayou Black, and four unnamed canals or coulees constitute the other waters of the

United States wetlands impacts in the project area. The mainline, frontage roads, and, in some cases, connecting road improvements, would cross these waterways that are presently crossed by either box culverts or bridges.

The construction of the LA 182 crossing of Wax Lake Outlet would result in stormwater impacts discussed in Section 4.3.5.2, temporary interruptions of navigation during construction requiring a permit under Section 10, and other potential construction impacts that are discussed in section 4.21.

Where unavoidable, project impacts on wetlands have been minimized. The project is compliant with the implementing regulations of Executive Order No. 11990 which prescribe the protection and enhancement of wetlands. A portion of the impacted wetlands falls within the Louisiana Coastal Zone (Section 4.8). Depending on the wetlands location, either the USACE or the CMD would have jurisdiction.

4.6.3 Mitigation Measures, Wetlands

Potential mitigation measures due to wetland impacts include restoration, creation, or purchase of replacement wetlands through an approved mitigation bank. There are several options for mitigation banks within the same hydrological unit of the project study area. On-site mitigation would be one form of creation, if space were available. The created wetlands would have to be viable, functional wetlands of a predetermined value and approved by the USACE and/or CMD. One of the aforementioned methods of mitigation would be designated during the permitting process.

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.

4.7 Wild and Scenic Rivers

The project area contains no designated wild and scenic rivers. No impacts to designated wild and scenic rivers are anticipated under any of the project alternates.

4.8 Coastal Zones/Coastal Barriers

4.8.1 No-build Alternate, Coastal Zone/Coastal Barriers

The no-build alternate would involve no new construction. As a consequence, there would be no need for a coastal use permit. No impact to coastal barriers would occur under the no-build alternate.

4.8.2 Selected Alternative, Coastal Zones/Coastal Barriers

As the northern boundary of the Louisiana Coastal Zone follows the outside edge of the southbound lane of US 90, project-related grading or filling activity south of this line would require a Coastal Use Permit (CUP). The CMD Permits/Mitigation program is responsible for the issuance of a CUP and the mitigation of unavoidable losses of wetland function and value due to permitted activities.

No impacts to coastal barriers are anticipated.

4.8.3 Mitigation Measures, Coastal Zones/Coastal Barriers

The CMD Rules and Procedures for mitigation require the permitted project to demonstrate the ability to avoid or minimize project impacts identified during the permit review process. By utilizing the existing US 90 right-of-way to implement the project and minimizing the need to acquire additional right-of-way, the project is embodying best practical techniques to minimize adverse impacts on the coastal zone.

As the selected alternative would have no impact on coastal barriers, mitigation is not warranted.

4.9 Aquatic Ecology

4.9.1 No-build Alternate, Aquatic Ecology

The no-build alternate would involve no construction activity. Consequently, no adverse impacts to aquatic ecology would occur under this alternate.

4.9.2 Selected Alternative, Aquatic Ecology

Project construction would strive to avoid adverse impacts to aquatic ecology by prohibiting construction activities in existing waterways except where bridge or culvert construction necessitates such activity. In the latter case, Best Management Practices would be utilized to maintain waterway flows during and after construction, and minimize siltation and erosion. These practices would be consistent with the LDOTD soil erosion control procedures.

The facility during operations would utilize a rural roadway section with swale drainage that would enable storm water runoff to flow through vegetated areas prior to discharge to surface waters. This design would enable waterborne contaminants to be filtered from the runoff prior to discharge, thereby protecting water quality and minimizing the potential for siltation.

4.9.3 Mitigation Measures, Aquatic Ecology

As the project would apply best management practices during construction, and experience vegetative filtration of runoff during operation, no additional mitigation measures would be warranted.

4.10 Vegetation and Wildlife

4.10.1 No-build Alternate, Vegetation and Wildlife

The no-build alternate would involve no disturbance of existing vegetation or wildlife as no new construction would be undertaken. Current US 90 roadway maintenance activities, such as grass mowing and brush trimming would continue according to the existing maintenance plan.

4.10.2 Selected Alternative, Vegetation and Wildlife

Project construction within the existing US 90 and Future I-49 rights-of-way would primarily disturb grassy land strips, scrub/shrub border, and manmade drainage ditches between the existing roadways and the right-of-way boundaries.

The areas to be impacted within the US 90 right-of-way and the proposed right-of-way acquisition areas do not provide unique or unusual habitats for wildlife in the project study area. Construction activity would have an adverse impact on those commonly occurring species that inhabit those areas, as the shelter and food resources utilized by the wildlife would be eliminated.

With construction completion, disturbed areas would be seeded and maintained in accordance with LDOTD roadway maintenance program.

4.10.3 Mitigation Measures, Vegetation and Wildlife

No mitigation measures are warranted, as the project would have no impact on unique or unusual natural vegetation or wildlife within the project study area.

4.11 Threatened and Endangered Species

4.11.1 No-build Alternate, Threatened and Endangered Species

The no-build alternate would involve no new construction activity. No impact on threatened or endangered species habitat would occur. Incidents of Louisiana black bear mortality in the project area have been recorded. The no-build alternate would provide no protection to bears attempting to cross US 90.

4.11.2 Selected Alternative, Threatened and Endangered Species

4.11.2.1 Bald Eagles

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.

4.11.2.2 Louisiana Black Bear

Formal consultation with the USFWS regarding the Louisiana black bear in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531), has been completed, and a Biological Opinion was issued, dated October 19, 2004. The USFWS determined that the selected alternative is "not likely to result in jeopardy to the species or destruction or adverse modification of proposed critical habitat." In order to assure this, however, it states non-discretionary Terms and Conditions to be met by FHWA, and discretionary Conservation Recommendations, which are defined in 4.11.3.

4.11.3 Mitigation Measures, Threatened and Endangered Species

Should the proposed project encroach within 3,000 feet of any active bald eagle nest during the nesting season, further consultation with the United States Fish and Wildlife Services (USFWS) would be necessary.

To mitigate impacts to the Louisiana black bear, the following was determined by the Biological Opinion.

The non-discretionary Terms and Conditions direct FHWA to do the following:

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.

The discretionary Conservation Recommendations propose that FHWA and LDOTD consider the following 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.

In addition to following the direction of these Terms and Conditions, FHWA and LDOTD will consider the Conservation Recommendations and will undertake public involvement during the design phase regarding bear crossings

4.12 Geology, Topography, and Soils

4.12.1 No-build Alternate; Geology, Topography, and Soils

The no-build alternate would involve no property takings. No impacts to Prime Farmlands would occur. The no-build alternate would involve no disturbance of existing soils, underlying geologic features, or the topographic character of the project area.

4.12.2 Selected Alternative; Geology, Topography, and Soils

Consultation with the National Resources Conservation Service determined that the project area has no impact on prime, unique statewide or locally important farmland (form NRCS-CPA-106). Right-of-way takings would be re-examined during final design to minimize property acquisition impacts.

The selected alternative would involve soil disturbance to construct the new roadways, remove or relocate roadway sections, and install and/or relocate infrastructure. These impacts would be minimized by employing erosion and sediment control measures. In compliance with USEPA storm water quality guidelines, Best Management Practices for soil erosion and sediment control would be implemented to reduce impacts caused by construction of the project. These measures may include the use of sediment barriers, temporary and permanent vegetative cover for soil stabilization, dust control, and the use of riprap for the protection of soils surfaces from the erosive forces of water.

The selected alternative would have no physical impact on the underlying geologic formations. Since cut and fill activities for roadbed construction and boring activities for elevated structure construction would be conducted for the selected alternative, some erosion may occur within the right-of-way during the construction period.

4.12.3 Mitigation Measures, Geology, Topography, and Soils

Cut and fill operations would be minimized to meet grade and level requirements set forth by FHWA and LDOTD. Design and construction activities will incorporate Best Management Practices to prevent future erosion. Such practices to be used during construction and development activities include temporary control measures, permanent control measures, and low-impact land use practices. Temporary control measures include limiting the amounts of impervious surfaces created, preservation of stream buffers and sensitive areas such as natural wetlands and riparian corridors, limiting disturbance of soil and vegetation, and maintaining the natural infiltrative capacity of an area.

4.13 Hazardous Waste Sites

4.13.1 No-build Alternate, Hazardous Waste Sites

The no-build alternate would involve no new construction activity. The LDOTD would continue to conduct its program of routine maintenance within the US 90 right-of-way. This on-going activity would have no affect or be impacted by known hazardous waste sites of concern.

Spills of hazardous materials being transported on US 90 pose a potential threat to environmental quality. Local or state law enforcement provides initial response to incidents on US 90 and other state highways involving spills of potentially contaminated or hazardous materials. The local public safety agency or state police would control the site, but take no action relating to spill containment or clean-up. Typically, local fire departments respond and take action to contain a spill. Other agencies may be notified based on the spill circumstance. For example, if liquid is flowing into waterway, the U.S. Coast Guard would immediately be contacted and

would be responsible for responding to contain the spill within the waterway. The state police generally allow the owner of the incident vehicle to select a private firm to clean up the spilled material. If the owner has no preference, the state police would select a local contractor on their behalf.

4.13.2 Selected Alternative, Hazardous Waste Sites

No environmental impacts are anticipated due to the small or large quantity hazardous waste generators located within the project study area, since the proposed improvements would not require additional right-of-way across these properties.

Twelve underground storage tanks (UST) sites were identified adjacent to US 90. Additional right-of-way acquisition is not proposed at any of these sites. As proposed construction activity would remain primarily within the existing US 90 right-of-way and none of the UST sites are reported as leaking, no impacts are anticipated at any of these twelve sites.

One leaking underground storage tank (LUST) site was identified adjacent to US 90. The former Circle K Store #870 site (Hz 6-1 on Plate 6) is located at the intersection of US 90 and LA 182 in Bayou Vista. The site has been cleared of all buildings and structures. Monitoring well data provided by LDEQ indicates that the non-detect edge of the contamination plume extends under the existing US 90 right-of-way but not under the westbound travel lane. Since the selected alternative would involve construction of the westbound frontage road over a potentially contaminated area, this site would be subject to current LDOTD policy on underground storage tanks and contaminated sites. This policy dictates that potentially contaminated sites be investigated early in the planning stages of a project so that sound engineering decisions can be made regarding alignment, acquisition and/or remediation.

The regulatory status of an additional UST site, the Patterson Bait Shop, could not be determined. It is suspected that the underground storage tanks have been removed. Additional right-of-way acquisition from this site is proposed.

4.13.3 Mitigation Measures, Hazardous Waste Sites

The site of the Circle K Store # 870 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.

At the Patterson Bait Shop site, a field investigation indicated the apparent removal of USTs. However, the records search could not verify the regulatory status of the removal. Consequently further review of records is recommended as the project advances into design and construction.

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

4.14 Aesthetics

Viewer sensitivity to visual resources is highly subjective. People tend to become acclimated to existing visual conditions and place a subjective value on those conditions.

4.14.1 No-build Alternate, Aesthetics

The no-build alternate would have no impact on existing views and aesthetic characteristics of the project corridor.

4.14.2 Selected Alternative, Aesthetics

The selected alternative would construct the interstate and frontage roads at-grade except at interchanges or through much of the urbanized area where Future I-49 or interchange ramps would be constructed on elevated structure. Throughout much of the corridor, the at-grade appearance of Future I-49 would remain similar to that of existing US 90. Future I-49 would be elevated on structure at LA 182 Access Road East in Calumet, and Red Cypress Road, from Tiffany Street to Universe Road, and at Southeast Boulevard and Thorguson Drive. These elevated structures would change the appearance of roadways in the project corridor. Viewers potentially sensitive to the proposed elevated roadway would include residents near these grade separations.

4.14.3 Mitigation Measures, Aesthetics

To soften the effect of the elevated elements, the addition of landscaping would be included provided that a local entity assumes responsibility for maintenance of the plantings.

4.15 Cultural Resources

4.15.1 No-build Alternates, Cultural Resources

The no-build alternate would involve no right-of-way acquisition. Cultural resources identified in the project area would not be affected by the no-build alternate.

4.15.2 Selected Alternative, Cultural Resources

An assessment of project effect was made according to 36 CFR 800.5, regulations implementing the National Historic Preservation Act, and in consultation with the State Historic Preservation Office (SHPO). Consultation with the SHPO is an ongoing process. Per 36 CFR 800.5, an undertaking has an adverse effect on an historic property when the undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register, in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. These criteria of adverse effect, as enumerated by 36 CFR 800.5, were applied to the listed resource identified within the APE with the following results.

Idlewild Plantation House

Idlewild Plantation House is located 175 feet from the proposed Future I-49 right-of-way. The Future I-49 mainline in the area of the existing eastbound US 90 lanes would consist of an elevated structure approximately 26 feet tall at a distance of approximately 385 feet from the Idlewild Plantation House. The frontage roads would be constructed north of the mainline, between the house and the elevated structure, within the existing right-of-way. With the frontage roads to the north of the mainline, the elevated structure is positioned as far from the house as is possible.

In a letter of May 4, 2005, found in the Appendix to Chapter 5, the SHPO concurred with the FHWA's Finding of No Adverse Affect regarding this property.

Site 16SMY84

This site lies outside the currently proposed project right-of-way. The project would have no effect on the site if all construction activities are confined to the currently proposed right-of-way.

Site 16SMY86

This site lies outside the currently proposed project right-of-way. The project would have no effect on the site if all construction activities are confined to the currently proposed right-of-way.

4.15.3 Mitigation Measures, Cultural Resources

In the event that the currently proposed right-of-way is relocated, 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.

4.15.4 Section 106 Statement

As discussed in Section 4.15.2 above, the project would have no potential adverse effect on Idlewild Plantation House. Therefore, the requirements of Section 106 of the National Historic Preservation Act, 36 CFR 800, have been satisfied.

4.16 Section 6(f) Resources

4.16.1 No-build Alternate, Section 6(f) Resources

The no-build alternate would have no impact on Section 6(f) resources.

4.16.2 Selected Alternative, Section 6(f) Resources

The selected alternative would have no physical impact on Kemper Williams Park, the only Section 6(f) property in the project study area. Project construction activity would occur within the existing US 90 right-of-way. No new right-of-way acquisition would be required that would involve taking Section 6(f) property. The proposed project would have no effect on the use of Kemper Williams Park property for its intended purposes.

4.16.3 Mitigation Measures, Section 6(f) Resources

As the selected alternative would have no adverse impact on Kemper Williams Park, mitigation is not warranted.

4.17 Section 4(f) Statement

Section 4(f) of the U.S. Department of Transportation Act (49 USC 303 and 23 USC 138) requires that a Section 4(f) evaluation be prepared for any federally funded highway project that uses property that is part of a publicly owned park, recreation area, wildlife refuge, or a cultural resource.

4.17.1 No-build Alternate, Section 4(f)

The no-build alternate would involve no construction or right-of-way acquisition. No impacts on Section 4(f) properties would occur.

4.17.2 Selected Alternative, Section 4(f)

One publicly owned park known as Kemper Williams Park is found within the project area. Kemper Williams Park also is a 6(f) property (Section 4.16 above). The selected alternative would have no physical impact on Kemper Williams Park. Project construction activity would occur primarily within the existing US 90 right-of-way. No new right-of-way acquisition would be required that would involve taking Section 6(f) or 4(f) property. The proposed project would have no effect on the use of Kemper Williams Park property for its intended purposes.

The project would have no direct impact on historic 4(f) properties (Section 4.15 above). Project construction activity would occur primarily within the existing US 90 right-of-way. No new right-of-way acquisition would be required from Section 4(f) historic properties.

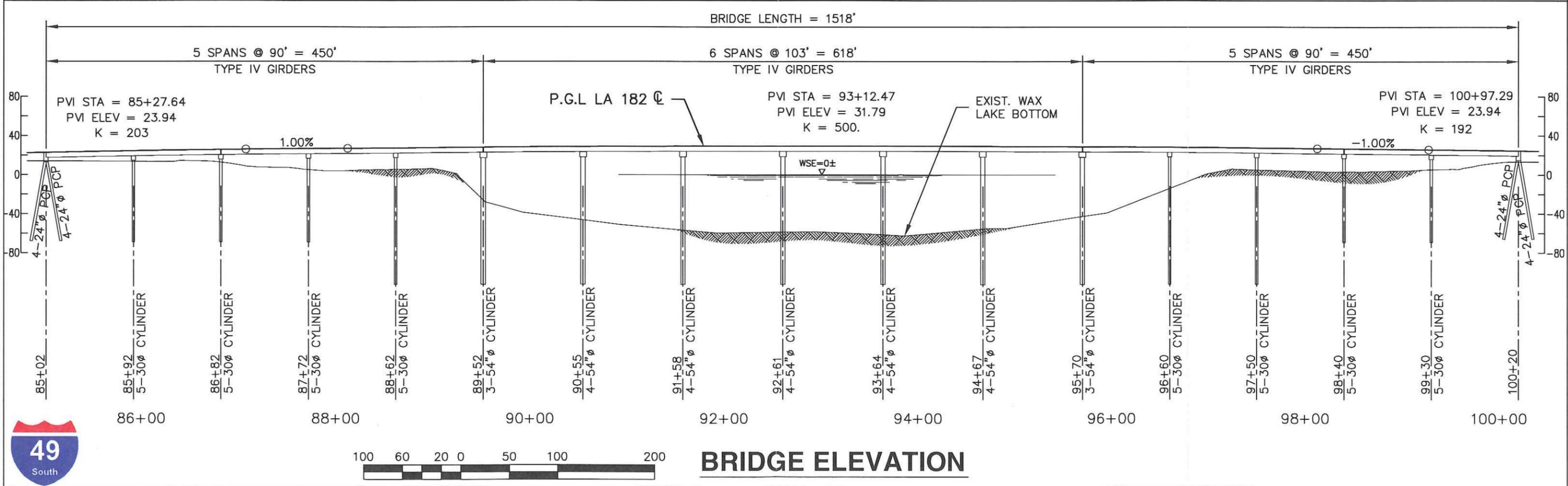
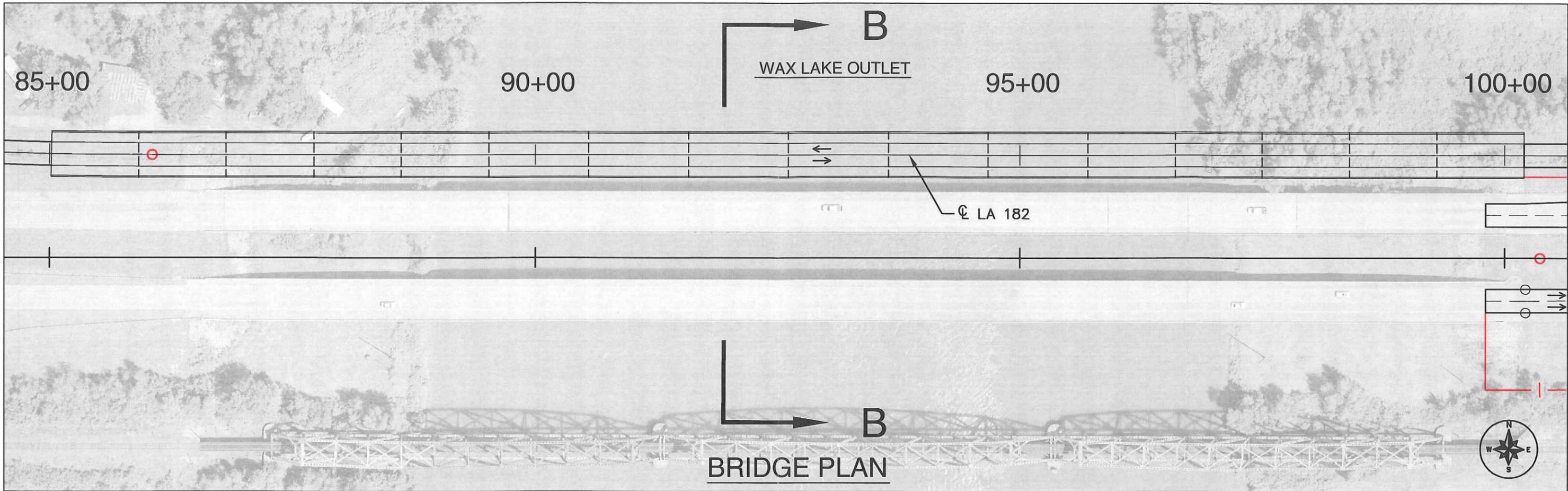
4.17.3 Mitigation Measures, Section 4(f)

As the project would have no impact on Section 4(f) properties, mitigation is not warranted.

4.18 Permits and Approvals

4.18.1 No-build Alternate, Permits and Approvals

The no-build alternate would involve no activities requiring acquisition of permits and approvals.



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

4.18.2 Selected Alternative, Permits and Approvals

Implementation of the selected alternative would likely require the following permits and approvals:

Federal Permit Requirements - USACE, New Orleans District, permit 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. As part of the permit process, design alternates and cumulative impacts would be examined. Data to support the selection of the preferred design must be submitted to the USACE for review and approval.

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).

State of Louisiana, Louisiana Department of Natural Resources, Coastal Management Division – Proposed actions south of the eastbound US 90 travel lanes, including earth movement, wetlands disturbance, and roadway construction 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.

United States Coast Guard – 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).

Parish of St. Mary - Regarding floodplain impacts, a letter of "No Objection" is requested for the proposed project under the authority of Parish Ordinances.

4.19 Energy

4.19.1 No-build Alternate, Energy

Energy expenditure under a no-build alternate would be equivalent to that which is currently used to maintain and operate existing US 90. No new or additional expenditures would be required until such time as existing facilities require replacement.

4.19.2 Selected Alternative, Energy

Construction of either of the selected alternative would require commitment of labor, equipment, and materials. Construction-related energy consumption is a short-term

expenditure that would be offset over the life of the project by energy efficiency gained from the improved transportation facility. For example, better levels of service would result in increased fuel efficiency and reduced travel time.

Once operational, the energy needs of Future I-49 South would be found in facility maintenance and daily operations. Facility maintenance would involve the repair and general servicing of the highway amenities including the highway section components, its structures, its supporting utilities, signs, drainage structures, and landscaped areas. As with the existing US 90 facilities, these amenities would be designed with specific maintenance schedules that would be programmed into the LDOTD statewide manpower and cost budgets. As an existing NHS route, upgrading US 90 to interstate standards would increase the priority it receives for both pavement and bridge preservation projects.

4.20 Impacts to Transportation Patterns

4.20.1 Vehicular Access to Businesses and Residences

4.20.1.1 No-build Alternate, Vehicular Access to Businesses and Residences

The no-build alternate would involve no new construction or right-of-way acquisition and would not result in changes in vehicular access to businesses or residences.

4.20.1.2 Selected Alternative, Vehicular Access to Businesses and Residences

There are no business or residential 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. (See Table 2-5). No residential properties are affected. The only business location affected by control of access restriction is a driveway to the Wal-Mart Supercenter at 973 Highway 90 East in Bayou Vista, resulting in the need to relocate an existing driveway.

Other properties affected by control of access are currently vacant.

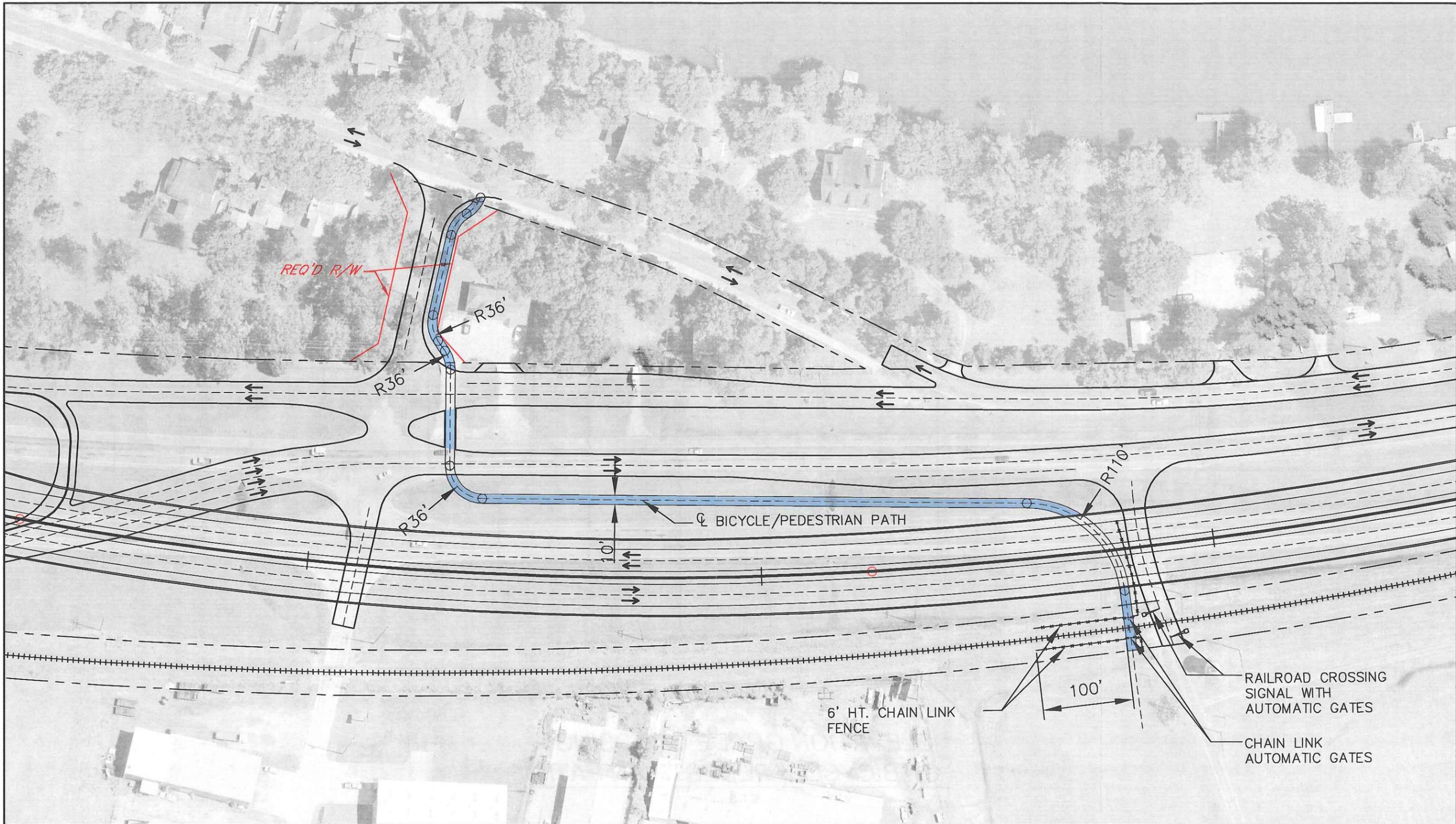
4.20.1.3 Mitigation Measures, Vehicular Access to Businesses and Residences

Properties impacted by control of access would be compensated in accord with LDOTD policies and procedures. The Wal-Mart driveway would be relocated.

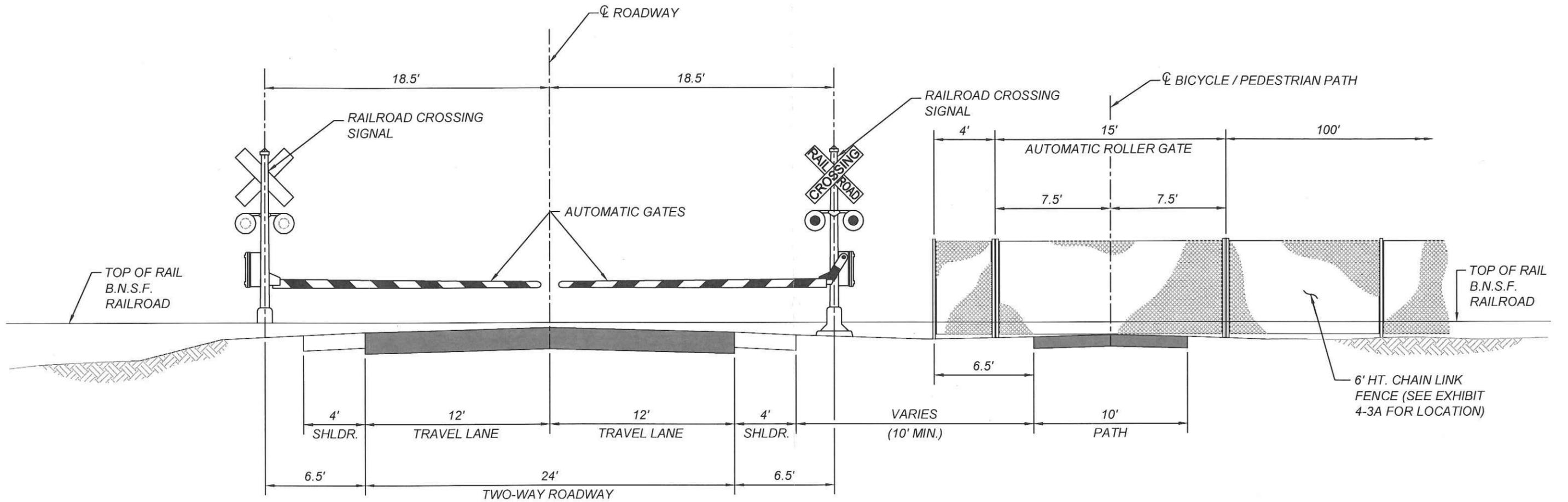
4.20.2 Hurricane Evacuation

4.20.2.1 No-build Alternate, Hurricane Evacuation

The no-build alternate would involve no new construction and make no changes in evacuation activities.



I-49 SOUTH
 WAX LAKE OUTLET
 TO BERWICK
EXHIBIT 4-3A
 BICYCLE / PEDESTRIAN PATH



**ELEVATION GRADE CROSSING
OF BICYCLE / PEDESTRIAN PATH**

N.T.S.



BICYCLE / PEDESTRIAN PATH
EXHIBIT 4-3B