



**Stage 0 Feasibility Study and
Environmental Inventory
Red River Bridge at Jimmie Davis Highway
Route LA 511
Bossier Parish
State Project No. 700-08-0114**



FINAL REPORT
(Main Report - Appendix A)

**Prepared for:
Louisiana Department of Transportation and Development**



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**STAGE 0 FEASIBILITY REPORT AND
ENVIRONMENTAL INVENTORY
STATE PROJECT NO. 700-08-0114
RED RIVER BRIDGE AT JIMMIE DAVIS HIGHWAY
ROUTE LA 511
BOSSIER PARISH, LA**

S.0 EXECUTIVE SUMMARY

S.1 INTRODUCTION

The Louisiana Department of Transportation and Development (LADOTD) is proposing to widen Louisiana Highway 511, locally referred to as Jimmie Davis Highway, from East Dixie Meadow Road to Barksdale Boulevard (US 71). The segment of highway crosses the Red River. As a preliminary step in the Project Delivery process, LADOTD is conducting a Stage 0 Feasibility Study and Environmental Inventory to increase the capacity of the Red River Bridge on Jimmie Davis Highway (LA 511).

S.2 PROJECT OVERVIEW

The project limits extend along Jimmie Davis Highway from East Dixie Meadow Road to Barksdale Boulevard (US 71). From the western project limit, Jimmie Davis Highway (LA 511) narrows from a 5 lane section to a two lane roadway across the Red River. On the east side of the river, the highway widens to 3 lanes and continues to its terminus at Barksdale Boulevard (US 71). The segment of highway is approximately 1.2 miles long.

Currently, construction work has begun widen the Jimmie Davis Highway to 5 lanes on the east side of the Red River between Centurytel Center Drive and Barksdale Boulevard. In addition, there are several projects near the east approach of the existing bridge that are planned to be built prior to widening the bridge crossing. These projects will likely increase traffic in the vicinity of the bridge; thus, emphasizing the need for considering additional lanes across the Red River.

This project is proposed by LADOTD and will be developed in coordination with the Northwest Louisiana Council of Governments (NLCOG), the municipalities of Bossier City and Shreveport, and interested federal and state resource agencies.

S.3 PURPOSE AND NEED

The purpose of the proposed action is to increase the vehicle capacity of the Red River Bridge at Jimmie Davis Highway and to provide a safe river crossing for bicycle and pedestrian traffic in order to:

- ◆ Reduce traffic congestion,
- ◆ Improve driver safety, and
- ◆ Connect recreation facilities on both sides of the Red River.

S.4 CONCEPT ALTERNATIVES

The development and evaluation of the conceptual alternatives are based on design criteria developed from current design standards, results of a traffic study, and suggestions from public input. The alternatives are labeled Alternatives 4, 5, 5A and 6. Alternatives 1 through 3 were eliminated because key elements of the alternatives were deemed not feasible. The surviving alternatives include, but are not limited to, the addition of a new bridge, accommodations for bicycle and pedestrian use, access to the Arthur Ray Teague Parkway, elimination of a signalized intersection, and improved access management along the existing corridor. The Design Criteria for the project are provided in Table 1. Drawings for each of the alternatives are provided in Figures 16-19. The concept alternatives include:

S.4.1 Alternative 4

A new bridge parallel to the existing bridge with removal of the existing bridge, ramps that provide access from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and signal modifications at Centurytel Center Drive.

Advantages

- ◆ Utilizes or retains most of the surrounding planned projects.
- ◆ The second lowest cost. Could be the lowest cost if eastbound lanes are maintained on the existing bridge.
- ◆ No additional ROW required.
- ◆ Shortest length of construction.

Disadvantages

- ◆ Requires that the Centurytel Center Drive intersection remain.

-
- ◆ No direct access from Arthur Ray Teague Parkway to Jimmie Davis Highway.
 - ◆ One-way ramps to Arthur Ray Teague Parkway could encourage wrong way traffic on ramps.

S.4.2 Alternative 5

A new bridge parallel to the existing bridge with removal of the existing bridge, ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and removal of the signalized intersection at Centurytel Center Drive with a new frontage road to provide access to the south side of LA 511 west of Sunflower Boulevard.

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Eliminates intersection at Centurytel Center Drive.
- ◆ Replaces existing bridge with a new bridge.

Disadvantages

- ◆ The second highest cost project.
- ◆ The longest segment of highway to be reconstructed.
- ◆ Frontage road needed to provide access to businesses on south side of Jimmie Davis Highway.

S.4.3 Alternative 5A

A new bridge parallel to the existing bridge for westbound traffic on the Jimmie Davis Bridge with eastbound traffic remaining on the existing bridge, ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and removal of the signalized intersection at Centurytel Center Drive with a new frontage road to provide access to the south side of LA 511 west of Sunflower Boulevard.

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Eliminates intersection at Centurytel Center Drive.
- ◆ Utilizes the existing bridge for eastbound traffic.
- ◆ Lowest cost alternative.

Disadvantages

- ◆ The longest segment of highway to be reconstructed.
- ◆ Frontage road needed to provide access to businesses on south side of Jimmie Davis Highway.
- ◆ Additional right-of-way acquisition required for frontage road.

S.4.4 Alternative 6

A new bridge parallel to the existing bridge with removal of the existing bridge, ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and removal of the traffic signal at Centurytel Center Drive.

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Provides access to Zack Drive without Frontage Road.
- ◆ Can accommodate a right-in, right out intersection with Centurytel Center Drive.

Disadvantages

- ◆ The highest cost project.
- ◆ Intersections of ramps with Arthur Ray Teague Parkway could confuse drivers.

Any of the alternatives discussed above would meet the purpose and need of the project. The information contained in this report is provided to the Federal Highway Administration (FHWA) and the Louisiana Department of Transportation and Development (LADOTD) in order to make informed decisions regarding the need for this project and the availability of the funding to progress this project through the Project Delivery Process. Ultimately, the FHWA and LADOTD will decide whether to proceed with a project to increase capacity along Jimmie Davis Highway into Stage 1 which is the Environmental Process.

1.0 INTRODUCTION

The Louisiana Department of Transportation and Development (LADOTD) is proposing to widen Louisiana Highway 511, locally referred to as Jimmie Davis Highway. The project limits extend along Louisiana Highway 511 from East Dixie Meadow Road to Barksdale Boulevard (US 71), including a crossing of the Red River. See Figure 1 for a Project Location Map. As a preliminary step in the Project Delivery process, LADOTD is conducting a Stage 0 Feasibility Study and Environmental Inventory to increase the capacity of the Red River Bridge on Jimmie Davis Highway (LA 511). This project is needed to meet current and future traffic demand, provide better access to the nearby Centurytel Center, and provide a bicycle and pedestrian crossing that will connect the southern ends of the bike paths parallel to the Clyde Fant and Arthur Ray Teague Parkways on either side of the river.

The condition of the existing bridge and proposed projects in the vicinity are primary factors affecting the proposed project. The two-lane truss bridge, built in 1968, was designed for an annual daily traffic (ADT) volume of 13,500 vehicles. Currently, the bridge serves an ADT volume of 27,679 vehicles. The existing bridge deck is currently in poor condition and is scheduled to be repaired in 2009. Since the opening of the bridge, LA 511, also known as East 70th Street, has been widened to five lanes west of the bridge. Likewise, Jimmie Davis Highway (LA 511) was widened to three lanes east of the bridge, and currently is being widened to five lanes. In addition, there are plans to extend the Arthur Ray Teague Parkway south to an eventual connection with US 71 and ramps connecting this extension with the Jimmie Davis Highway are being planned. The addition of the Centurytel Arena along with the commercial and residential developments has added a significant amount of traffic to the local roadway network since the bridge was constructed.

To increase the capacity of Jimmie Davis Highway, LADOTD is evaluating four concept alternatives that were developed during the course of this Feasibility Study. The concept alternatives are:

- Alternative 4. A new bridge parallel to the existing bridge with removal of the existing bridge, ramps that provide access from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and signal modifications at Centurytel Center Drive.
- Alternative 5. A new bridge parallel to the existing bridge with removal of the existing bridge, ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and removal of the signalized intersection at Centurytel Center Drive with a new frontage road

to provide access to the south side of LA 511 west of Sunflower Boulevard.

- Alternative 5A. A new bridge parallel to the existing bridge for westbound traffic on the Jimmie Davis Bridge with eastbound traffic remaining on the existing bridge, ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and removal of the signalized intersection at Centurytel Center Drive with a new frontage road to provide access to the south side of LA 511 west of Sunflower Boulevard.
- Alternative 6. A new bridge parallel to the existing bridge with removal of the existing bridge, ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and removal of the traffic signal at Centurytel Center Drive.

Project alternatives for further study are based on design criteria developed from current LADOTD design standards, traffic analysis, and input from LADOTD staff, regulatory agencies, elected officials and staff from local governments, the Northwest Louisiana Council of Governments (NLCOG), and the general public. Using the information provided in this report, the Federal Highway Administration (FHWA) and the LADOTD will ultimately determine whether to proceed with a project to increase capacity along Jimmie Davis Highway to Stage 1.

In Stage 1, LADOTD would produce an Environmental Impact Statement (EIS). The purpose of the EIS is to provide detailed planning and environmental analysis to determine the project scope, location, and major design features; a project cost estimate of engineering, right-of-way acquisition, control-of-access acquisition, utility relocations, construction, mitigation, construction administration and a reasonable contingency, resulting in an overall project budget in current dollars; and documentation of the environmental decision.

2.0 PROJECT AREA DESCRIPTION

The Jimmie Davis Bridge is the southernmost crossing of the Red River in the metropolitan area of Shreveport and Bossier City. The western terminus of the project is located in the southeast quadrant of Section 15, Range 13 West, Township 17 North at the intersection of LA 511 and East Dixie Meadow Road. LA 511 continues generally eastward across the Red River through Section 14 to its eastern terminus in Section 13 at the intersection of US 71. See Figure 1 for a Project Location Map.

More specifically, the project begins at the intersection of East Dixie Meadow Road and East 70th Street (LA 511) which is approximately 3,800 feet west of the Red River. East 70th Street proceeds northeast to an interchange with Clyde Fant Parkway. Then, the road turns eastward just west of the bridge approach. As LA 511 crosses over the Red River the highway changes names to Jimmie Davis Highway as it leaves Caddo Parish and enters Bossier Parish. The first intersection east of the eastern bridge approach is a signalized intersection with Centurytel Center Drive and Zack Drive. Jimmie Davis Highway continues eastward to Sunflower Boulevard; then, to Medical Drive. The final intersection is where Jimmie Davis Highway terminates at US 71, also known as Barksdale Boulevard.

The terrain traversed by LA 511 is relatively flat. The project area is suburban in nature. On the western end of the project, development is primarily residential. Also, there is an abandoned amusement park that currently operates as a church. On the east side of the Red River, the land adjacent to the highway is light commercial. To the south of Jimmie Davis Highway, there is a residential neighborhood. To the north of Jimmie Davis Highway, there is the Centurytel Arena, a hospital, and two nursing homes.

On the west side of the river, Jimmie Davis Highway has an interchange with the Clyde Fant Parkway. The Clyde Fant Parkway is a divided highway which connects several riverfront parks from the Jimmie Davis Bridge to downtown Shreveport. Likewise, Bossier City built the Arthur Ray Teague Parkway on the east side of the river. This parkway currently ends just north of Jimmie Davis Highway, but is planned to be extended south to Barksdale Boulevard. Both parkways are considered roadways, not recreation facilities.

3.0 PURPOSE AND NEED

3.1 Project Purpose

The purpose of the proposed action is to increase the vehicle capacity of the Red River Bridge at Jimmie Davis Highway and to provide a safe river crossing for bicycles and pedestrian traffic. The purpose of this Stage 0 Feasibility Study and Environmental Inventory is to identify and evaluate potential environmental, cultural, and socioeconomic resources within the Project Area and to evaluate the feasibility of widening Jimmie Davis Highway and providing pedestrian access on the river crossing.

3.2 Project Need

The existing 2-lane truss bridge, built in 1968, currently is the southernmost river crossing within the metropolitan area of Shreveport and Bossier City and serves 27,679 vehicles per day. Currently, there is enough right-of-way to the north of the existing Jimmie Davis Bridge to build a parallel structure and an intersection on the east side of the river. Local government officials and the local Metropolitan Planning Organization (MPO), the NLCOG support replacement of the bridge because of the many benefits, discussed below, that it will offer to the southern portion of the metropolitan area, including coordination with planned projects adjacent to the highway.

3.2.1 Traffic Demand

The existing 2-lane truss bridge handles a current ADT volume of 27,679 vehicles. Traffic is expected to increase in 2030 to an ADT of 35,558 vehicles for Alternative 4 and the No-Build Condition and an ADT of 37,839 vehicles for Alternatives 5, 5A, and 6. In order to provide a minimum Level of Service of C, two lanes in each direction are necessary.

In addition, the traffic signal at the intersection of Jimmie Davis Highway and Centurytel Center Drive creates a bottleneck. Removal of phases or complete removal of the traffic signal would offer a significant benefit to the traffic flow along Jimmie Davis Highway.

3.2.2 Safety Benefits of the Proposed Action

The existing bridge is now 41 years old and is showing significant signs of aging. Several steel members have experienced severe corrosion. There is also erosion of the embankment and some cracks and spalling to the abutment walls and the deck. There is a significant amount of rehabilitation required. A new bridge or the rehabilitation of the existing bridge would improve the safety of the river crossing.

The current bridge does not have shoulders. A new bridge would provide 4 foot inside shoulders and 8 foot outside shoulders.

The traffic signal at Centurytel Drive occurs at the bottom of a long 5% grade. It has been the source of rear-end collisions and red-light running. The improvement in the proposed action would either reduce these conflicts or completely eliminate the traffic signal at the intersection.

3.2.3 Improved Access to Arthur Ray Teague Parkway and Centurytel Center

The following planned projects near the east approach of the bridge will occur in the near future:

- ◆ An off ramp from eastbound Jimmie Davis Highway to an extension of the Arthur Ray Teague Parkway will be built by LADOTD.
- ◆ The Arthur Ray Teague Parkway Extension will be constructed past the bridge to intersect the proposed off ramp. This project will be paid for by Bossier City.
- ◆ Bossier Parish plans to build a two lane parkway from the Arthur Ray Teague Parkway Extension to the intersection of Sligo Road (LA 612) and US 71.
- ◆ An off ramp from westbound Jimmie Davis Highway to the Arthur Ray Teague Parkway is currently planned. It will be built by either Bossier City or LADOTD pending a safety review.
- ◆ Right-of-Way for the Arthur Ray Teague Parkway Extension to the intersection of US 71 and Sligo Road (LA 612) will be sufficient for a future four lane section to be built by Bossier Parish.
- ◆ Construction of LA 511 east of the bridge from a three/four lane section to a five lane section was initiated during the course of this Feasibility Study.

All of these projects will increase traffic demand at the eastern approach of the bridge. A new bridge with at least 4 lanes is needed to provide a roadway with 4 lanes from the LA 511 intersection with the Bert Kouns Industrial Loop (LA 3132) to the dead end at Barksdale Boulevard (US 71).

The planned ramps to Arthur Ray Teague Parkway would eliminate left turn movements at the intersection of Jimmie Davis Highway and Centurytel Center Drive which would reduce the delay caused by that phase of traffic signal.

3.2.4 Accommodations for Bicycle and Pedestrian Travel

The community has expressed interest in a connection between the Clyde Fant Bicycle Trail and the Arthur Ray Teague Bicycle Trail. The proposed bridge would allow for a separated shared-use pedestrian and bicycle path that will provide such a connection. Further consideration for context sensitive solutions to provide the shared-use path will take place in the environmental process.

3.3 Coordination with Other Programs

3.3.1 Regional Transportation Plans

NLCOG listed the replacement of the Jimmie Davis Bridge as a High Priority Project in the Long Range Caddo-Bossier Transportation Plan for 2001-2025. It is also planned to widen E 70th St. (LA 511) from Burt Kouns Industrial Loop to the Clyde Fant Parkway interchange. This will provide additional capacity to LA 511 west of the bridge.

The Bossier City Transportation Improvement Plan dated February 2007 mentions the replacement and widening of the bridge and the roadway to US 71.

3.3.2 Recreation Plans

A proposed shared-use path linking the Clyde Fant and Arthur Ray Teague bicycle trails is recommended in the Clyde Fant Parkway Recreation Plan dated May 2008.

3.4 Summary

The project's purpose is to improve traffic conditions along Jimmie Davis Highway and to accommodate bicycle and pedestrian travel across the Red River. Meeting the project needs would provide the benefits outlined below:

- ◆ Increased traffic capacity on the bridge crossing,
- ◆ Improved access to/from the Arthur Ray Teague Parkway,
- ◆ Improved access to/from the Centurytel Center,
- ◆ Improved access management along the Jimmie Davis Highway corridor,
- ◆ Improved highway safety,
- ◆ Linkage of pedestrian and recreational facilities, and
- ◆ Consistency with adjacent planned projects.

4.0 NATURAL RESOURCES ENVIRONMENTAL INVENTORY

The purpose of this environmental inventory is to identify areas of potential affected Environments and Impacts to Wetlands, Threatened and Endangered Species, and actual and potential environmental conditions from Hazardous Materials within the Project Area defined as 1,000 feet from the project limits. Data found through research can be found in Appendix C.

4.1 Wetland Investigation

4.1.1 Purpose

The purpose of the wetland investigation was to identify the presence and possible extent of impact to wetlands within the Project Area that meet guidelines set forth by the United States Army Corps of Engineers (USACE) and are regulated under Section 404 of the Clean Water Act (CWA). Based on current USACE policy for identifying jurisdictional wetlands, the identification of possible wetlands was accomplished using the USACE Wetlands Delineation manual (Environmental Laboratory 1987).

4.1.2 Scope

AECOM conducted a review of the existing site information including:

- Bossier City, LA, United States Department of Agriculture/Soil Conservation Survey (USDA/SCS) soil survey maps and information to determine the presence and extent of hydric soils (USDA/SCS 1998, 2002, and 2004);
- United States Geological Survey (USGS) 7.5 Minutes Series Bossier City Topographical Quadrangle Map, (USGS 1998);
- National Wetland Inventory Maps from the US Fish and Wildlife Service (USFWS);
- USFWS National List of Vascular Plant Species that Occur in Wetlands- National Summary (USFWS 1996);
- Field Indicators of Hydric Soils in the United States, Version 5.0.1, U.S. National Resources Conservation Service(NRCS 2003);
- NRCS – Louisiana Hydric Soils Indicator List (NRCS 1987); and,
- Federal Emergency Management Agency (FEMA), Flood Insurance Rating Map, Bossier Parish, Louisiana.

A windshield survey of the Project Area also was performed to identify topographic, drainage, and vegetation features that would indicate the potential for jurisdictional wetland classification.

4.1.3 Findings

4.1.3.1 Soils

Review of the data indicates that are three soil series in the Project Area. These soils are Severn, Coughatta, and Caplis. None of these are considered to be hydric soils. Figure 2 presents the soils in the project area.

4.1.3.2 Vegetation

Dominant vegetation species in each vegetation stratum within the Project Area was generally identified. The wetland indicator status of each plant species was identified using the USFWS National List of Plant Species that Occur in Wetland Regions, Region 2, to determine whether vegetation in the Project Area was predominantly hydrophytic. Most of the vegetation along the banks of the Red River are trees, bushes, and grasses expected in a wetland area.

4.1.3.3 Hydrology

The Project Area was examined for wetland hydrology. Indicators of wetland hydrology could include vegetated hummocks, water marks on tree trunks and other vegetation, evidence of inundation or ponding, changes in the morphology of plants, drift lines, and drainage patterns.

The USFWS Quadrangle National Wetland Inventory (NWI) indicated that there are no mapped, federally-designated wetlands located in the Project Area. Figure 3 is a copy of NWI map of the Project Area. In addition, AECOM reviewed the USFWS Quadrangle NWI Maps for shaded relief, land coverage, topographic maps, FEMA Flood Insurance Rating Maps and an aerial map for the Project Area.

Based on the review of the data, seven areas of positive indicators were identified where hydrophytic vegetation and/or wetland hydrology may be present. See Figure 4 for the Potential Wetlands Map. The first two areas are in the loops of the interchange at Clyde Fant Parkway. The third area is along the eastern bank of the Red River from the water's edge to the existing levee. The fourth and fifth areas are along the drainage ditches for the existing highway. The sixth and seventh areas are the upper end of Mack's Bayou that meanders across the Jimmie Davis Highway Right-of-Way.

4.2 Threatened and Endangered Species

4.2.1 Purpose

This investigation identified the presence of Threatened and Endangered Species within the Project Area under the guidelines of Section 7 of the Endangered Species Act. It also evaluated the potential effects of the action on listed and proposed species and on designated and proposed critical habitat to determine the potential for adverse impacts and to determine whether formal consultation would be necessary during Stage 1.

A biological investigation was used to identify the presence and possible impact to Threatened and Endangered Species within the Project Area under the guidelines of the Endangered Species Act Section 7. The purpose of the biological investigation was to evaluate the potential effects of the action on listed and proposed species and designated and proposed critical habitat and determine whether any such species or habitat are likely to be adversely affected by the Proposed Action and to determine whether formal consultation is necessary.

4.2.2 Scope

AECOM conducted a review of existing site information including:

- Bossier City, LA, United States Department of Agriculture/Soil Conservation Survey (USDA/SCS) soil survey maps and information to determine the presence and extent of hydric soils (USDA/SCS 1998, 2002, and 2004);
- United States Geological Survey (USGS) 7.5 Minutes Series Bossier City Topographical Quadrangle Map, (USGS 1998);
- National Wetland Inventory Maps from the US Fish and Wildlife Service (USFWS);
- USFWS List of Threatened and Endangered Species for Bossier Parish, and
- the USFWS Endangered Species Program.

A windshield survey was performed on February 8, 2009, to identify possible habitats for Threatened and Endangered Species.

4.2.3 Findings

Research of the above data indicated that there are three federally designated threatened or endangered species in the Project Area. These are the bald eagle (*Haliaeetus leucocephalus*), red-cockaded woodpecker (*Picoiden borealis*), and

the interior least tern (*Sterna antillarum athalassos*). Fact sheets about these species are provided in Appendix C.

The windshield survey revealed that most of the land adjacent to the existing highway right-of-way east of the river was developed as commercial property. The land use transitioned to suburban residential developments. On the west side of the Red River, there was some maintained pasture in addition to suburban residential developments.

Common grasses such as bahiagrass (*Paspalum notatum*) and Centipedegrass (*Eremochloa polystachya*) were present along with scattered trees such as live oak (*Quercus virginiana*) and sweetgum (*Liquidambar styraciflua*). Some pecan trees (*Carya illinoensis*) also remain from the pecan grove that existed prior to the development of the highway and commercial properties adjacent to it. Woody wetland forests were identified along the riverbanks on both sides of the river.

Based on review of the data, vegetation, and drive-by inspection two areas of positive indicators for the possible presence of threatened or endangered species were identified. The first is along the western bank of the Red River. The second is along the eastern bank of the Red River.

4.3 Groundwater

Review of the United States Geological Survey (USGS) 7.5 Minute, Topographic Map indicated that elevation of the Project Area is generally 165 feet above mean sea level (Figure 1). The Project Area slopes mildly to the south and east. Groundwater within the Project Area is expected to flow toward the east; however, underground obstructions, formations, and seasonal fluctuations may affect the flow of groundwater in a specific area.

AECOM reviewed the list of water wells registered with LADOTD within the Project Area. The locations of the wells are mapped on Figure 5. The water wells support a variety of uses from water distribution for drinking water to groundwater monitoring.

4.4 Flood Plains

AECOM reviewed the FEMA Flood Insurance Rating Maps. Most of the project is in Flood Zone X which is an area of minimal flooding. The area on the flooded side of the river levee is in Flood Zone A, which is the 100-year flood plain. Figure 6 depicts the flood zones in the project area.

4.5 Scenic Streams

In 1970, the Louisiana Legislature created the Louisiana Natural and Scenic Rivers System for the purpose of preserving, protecting, developing, reclaiming, and enhancing the wilderness qualities, scenic beauties, and ecological regimes of certain free-flowing Louisiana streams.

Neither the Red River nor Mack's Bayou were found on the List of Natural and Scenic Rivers of the Louisiana Natural and Scenic Rivers Act for (R.S. 56:1847) and the List of Historic and Scenic Rivers (R.S. 56:1856).

4.6 Oil and Gas

AECOM reviewed the SONRIS database maintained by the Louisiana Department of Natural Resources. Within the Project Area, there are nine gas wells. None of them were adjacent to the highway right-of-way.

4.7 Hazardous Waste Sites/Underground Storage Tanks

4.7.1 Purpose

The Hazardous Materials investigation identified actual and potential environmental concerns and contamination within the Project Area by performing a review of historical and current environmental records and documentation readily available on the internet. The identified concerns or contaminations are Recognized Environmental Conditions (REC). This means the presence or likely presence of a hazardous substance or petroleum product indicate an existing release, a past release, or a possible threat of a release of a hazardous substance or petroleum product into a structure, the ground, groundwater, or surface water of a specific property. The term is not intended to include conditions that generally do not present a material risk of harm to public health or their environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies.

4.7.2 Scope

In order to identify actual and potential environmental concerns and contamination in the Project Area, a windshield survey was performed and the federal and state databases available on the internet were reviewed. The scope of services included:

- ◆ A windshield survey to visually observe the Project Area, its structures, and surrounding properties for identification of potential sources or indications of contamination such as

underground storage tanks (USTs), aboveground storage tanks (ASTs), potential sources of polychlorinated biphenyls (PCBs), chemicals and hazardous materials, and areas with surface stains or distressed vegetation.

- ◆ A review of available federal and state databases on the internet for contaminated sites and environmental compliance to identify use, generation, storage, treatment, or disposal of hazardous materials, or releases of such materials that may impact the Project Area. Federal and state databases reviewed for this project include: Environmental Protection Agency (EPA), National Priorities List (NPL), and EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List, Louisiana Department of Environmental Quality (LDEQ) Superfund Registry, LDEQ Leaking Underground Storage Tank (LUST) List and the Underground Storage Tank (UST) List.
- ◆ A review of publicly available information pertaining to the regional geology to approximate the potential groundwater flow direction and geologic conditions in and around the Project Area.

No attempt was made to independently verify the accuracy or completeness of information received from or reviewed by federal, state and local regulatory agencies or the entities interviewed during the course of the Environmental Report.

4.7.3 Findings

Seven facilities listed on various databases are located within the limits of the search area. The windshield survey identified an additional two facilities for which no data is available:

- Meineke Car Care, 1616 Jimmie Davis Highway, and
- Tobros, LLC, 1751 Jimmie Davis Highway, a self serve car wash.

A total of 9 facilities were identified as locations of potential environmental conditions. These facilities warrant further investigation in Stage 1. Table 2 at the end of this report identifies the number of facilities that were identified by each database. Figure 10 shows the locations of EPA Properties of Interest.

There also are two underground storage tanks in the Project Area located at the Valero Gas Station, 4901 Barksdale Boulevard, and Brookshire's Gas Station, 4911 Barksdale Boulevard.

There is also one drycleaning facility. South Bossier Cleaners is located at 4970 Barksdale Boulevard.

5.0 HUMAN, SOCIAL, AND ECONOMIC ENVIRONMENTAL INVENTORY

This section of the Environmental Inventory investigates the human and built environment within the Project Area. The research included a review of current land use, demographics, and archeological records within the Project Area to identify actual and potential concerns.

5.1 SCOPE OF SERVICES

The environmental report was undertaken to identify the human and built environments within the Project Area. The following items were investigated in this inventory.

5.1.1 Land Use

On February 8, 2009, a windshield survey of the Project Area was performed. In Caddo Parish, the land on the south side of East 70th Street (LA 511) was primarily maintained pasture. On the north side of the road were the remnants of Hamel's Amusement Park. Currently, the property is operated as a church. Many of the rides have been removed with the exception of the log flume ride next to the westbound onramp from Clyde Fant Parkway.

In Bossier Parish, the survey revealed that most of the land adjacent to the existing highway right-of-way was developed as commercial property. Businesses consist of medical and professional offices, daycare, car care facilities, gas stations, and a pharmacy. To the south of the commercial property adjacent to Jimmie Davis Highway, there is a large residential subdivision called Plantation Estates. To the north of Jimmie Davis Highway is the Centurytel Center, Reeves Marine, Cornerstone Hospital, and Colonial Oaks Guest Care Center.

5.1.2 Population

According to 2000 U.S. Census data, there are 98,310 people in Bossier Parish. Of that total, approximately 2,438 live in the Project Area. The demographics of the Study Area are as follows: 82.2 percent White (non-Hispanic), 13.1 percent African-American, 4.7 percent Other. Average annual population growth is approximately 1.5%.

5.1.3 Zoning

A review of the Zoning Maps for Bossier City identifies the properties along Jimmie Davis Highway as Commercial property.

5.1.4 Community Landmarks

5.1.4.1 Schools

There are no public schools in the Project Area. There is one daycare facility in the project area. Old McDonald's Daycare Center is located at 1805 Jimmie Davis Highway.

5.1.4.2 Churches

There are two churches located in the Project Area: Riverpark Church located at the abandoned Hamel's Amusement Park on the west side of the Red River and Barksdale Baptist Church located at 1714 Jimmie Davis Highway.

5.1.4.3 Cemeteries

There are no cemeteries in the Project Area.

5.1.4.4 Hospitals

There is one hospital, Cornerstone Hospital, located on Medical Drive. There is also the Colonial Oaks Guest Care Center, a nursing home at 4921 Medical Drive.

5.1.4.5 Parks

There are no active parks adjacent to Jimmie Davis Highway right-of-way. However, there are two parks within the Project Area. The first is the Marie and Charles Hamel Memorial Park located between the Clyde Fant Parkway and the western bank of the Red River at Island View Drive. It also contains the current southern trailhead for the bicycle trail associated with the Clyde Fant Parkway. The second park is located across the Arthur Ray Teague Parkway from the Centurytel Center. It serves as the southern trail head for the bike path built as part of the Arthur Ray Teague Parkway.

5.1.4.6 Other Landmarks of Special Interest

The Centurytel Center is a 270,000 square foot arena capable of holding events that attract up to 14,000 people. It is located on the east side of the Red River just north of Jimmie Davis Highway.

5.1.5 Title VI/Environmental Justice

According to 2000 U.S. Census data, there are 98,310 people in Bossier Parish. Of that total, approximately 2,438 people live in the Project Area. The

demographics of the Study Area are as follows: 17.8 percent of the Study area population is non-white compared to 25.4 percent in Bossier Parish and 3.9 percent live below the poverty level compared to 13.4 percent in the Parish.

5.1.6 Archaeological and Cultural Resources

An area of high probability for prehistoric site locations was found along Mack's Bayou at the eastern end of the Project Area. All other areas within the Project Area have a low probability of prehistoric sites.

Architectural research and the windshield survey confirmed that most of the structures are modern residential, commercial, and institutional structures. None of the structures, including the Jimmie Davis Bridge, would be eligible for the National Register of Historic Places. Regardless, further review, including a Section 106 review, and coordination with the Louisiana State Historic Preservation Officer (SHPO) should be completed in Stage 1 of the Project Delivery Process.

Findings and recommendations of the Cultural Resources work can be found in Appendix D.

5.1.7 Noise

A traffic noise assessment was conducted to determine future noise impacts and, if necessary, to identify potential locations of noise barriers. The noise analysis included a modeling assessment of future project noise levels under the worst-case Build Alternatives 4, 5 and 6 in 2030. Where impacts were identified, noise barriers were evaluated using the noise abatement guidelines described in the Department of Transportation and Development's (DOTD's) *Highway Traffic Noise Policy*. The noise report is included in Appendix E.

5.1.8 Air Quality

An investigation of environmental databases for air quality was performed as a part of this study. A discussion on toxic emissions can be found in the Hazardous Waste section of this report. Further analysis of air quality impacts should be considered in the Environmental Process. In addition, there are three non-scope substances that affect air quality. Those three substances are detailed in the following paragraphs.

5.1.8.1 Radon

Bossier Parish is a low risk area for radon accumulation in residential structures. The average radon concentration is 0.27255 picoCuries per liter of air. This level is below the US Environmental Protection Agency level of 4.0 picoCuries per liter of air. Radon concentrations that would pose a risk to human health is extremely rare.

5.1.8.2 Suspect Asbestos Containing Materials (ACMs)

Asbestos has been widely used in residential, commercial, institutional, and industrial construction. Asbestos is a known human carcinogen when inhaled and poses serious health risks. By June 1978, the federal government banned the use of friable ACMs.

ACMs were not investigated as a part of this study.

5.1.8.3 Lead-Based Paint

The US Environmental Protection Agency and the Housing and Urban Development (HUD) Agency are the regulatory agencies with jurisdiction over lead-based paint, which were common in structures built prior to 1978.

Lead-based paints were not part of the investigation.

6.0 DESCRIPTION AND EVALUATION OF CONCEPT ALTERNATIVES

6.1 DESCRIPTION OF GEOMETRIC CONCEPTS

The development and evaluation of the conceptual alternatives are based on design criteria developed from current design standards, results of a traffic study, and suggestions from public input. The alternatives, labeled Alternatives 4, 5, 5A and 6, include, but are not limited to, the addition of a new bridge, accommodations for bicycle and pedestrian use, access to the Arthur Ray Teague Parkway, elimination of a signalized intersection, and improved access management along the existing corridor. The Design Criteria for the project are provided in Table 1. In all alternatives, the project match with the existing 5-lane section would require a design exception under the current design standards. Drawings for each of the alternatives are provided in Figures 16-19. Alternatives 1 through 3 were removed from consideration because key elements of the alternatives were determined to be not feasible.

As discussed previously in Chapter 3, there are several projects that are planned that will affect traffic east of the Red River. It is assumed in the narrative describing the alternatives that these projects will be completed prior to the completion of any new bridge. The planned projects are listed below:

- ◆ An off ramp from eastbound Jimmie Davis Highway to an extension of the Arthur Ray Teague Parkway will be built by LADOTD.
- ◆ The Arthur Ray Teague Parkway Extension will be constructed past the bridge to intersect the proposed off ramp. This project will be paid for by Bossier City.
- ◆ Bossier Parish plans to build a two lane parkway from the Arthur Ray Teague Parkway Extension to the intersection of Sligo Road (LA 612) and US 71.
- ◆ An off ramp from westbound Jimmie Davis Highway to the Arthur Ray Teague Parkway is currently planned. It will be built by either Bossier City or LADOTD pending a safety review.
- ◆ Right-of-Way for the Arthur Ray Teague Parkway Extension to the intersection of US 71 and Sligo Road (LA 612) will be sufficient for a future four lane section to be built by Bossier Parish.
- ◆ Construction of LA 511 east of the bridge from a three/four lane section to a five lane section was initiated during the course of this Feasibility Study.

Through information obtained from LADOTD and discussions with representatives of local agencies, it was determined that the concept alternatives should address four major issues:

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1. the traffic projections indicate that the capacity of the existing two lane bridge is inadequate for motor vehicles;
 2. the existing bridge lacks proper facilities for bicycles and pedestrians;
 3. the existing configuration of the intersection at Jimmie Davis Highway and Centurytel Center Drive results in traffic congestion and accidents; and
 4. the need to connect Jimmie Davis Highway with the proposed extension of Arthur Ray Teague Parkway.

6.1.1 Alternative 4

The objective of Alternative 4 is to maximize the continued use of the proposed projects that will be completed prior to the construction of a new bridge.

Just west of the Clyde Fant Parkway interchange, the existing five lane section would transition to two twelve foot wide lanes in each direction with a four foot wide inside shoulder and an eight foot wide outside shoulder separated by a concrete median barrier. An impact attenuator will be placed at the western and eastern ends of the barrier for safety. The roadway would turn eastward to cross the Red River approximately forty feet north of the existing bridge. The centerline radius is 2,323.50 feet. At the Clyde Fant Parkway interchange, the geometry for the ramps would be adjusted to tie-in with the new highway alignment.

On the eastern bridge approach, a set of reverse curves with radii of 7,668.00 feet would be used to shift the centerline of the highway so that the lanes would fit between the existing off ramps from eastbound and westbound Jimmie Davis Highway to Arthur Ray Teague Parkway and match the existing five lane section at the Centurytel Drive intersection. Access to Jimmie Davis Highway from Arthur Ray Teague Parkway would be provided via Reeves Marina Drive and Centurytel Center Drive. On the assumption that the construction of a 5-lane section is completed east of Centurytel Center Drive, the end of the construction for the project would be at the intersection of Centurytel Center Drive.

6.1.2 Alternative 5

The objective of Alternative 5 is to provide a complete interchange with Arthur Ray Teague Parkway while still providing adequate access to adjacent businesses.

Prior to the Clyde Fant Parkway interchange, the existing five lane section would transition to two twelve foot wide lanes with a four foot wide inside shoulder and an eight foot wide outside shoulder in each direction separated by a concrete median barrier. An impact attenuator will be placed at the western and eastern

ends of the barrier for safety. The roadway would turn eastward to cross the Red River approximately forty feet north of the existing bridge. At the Clyde Fant Parkway interchange, the geometry for the ramps would be adjusted to tie-in with the new highway alignment.

On the east side of the Red River, a full interchange would be developed with Arthur Ray Teague Parkway. The intersection of Centurytel Center Drive and Zack Drive would be closed to provide ramps for all movements of the interchange. A portion of the existing eastbound off-ramp would be retained to become the on-ramp from Arthur Ray Teague Parkway to eastbound Jimmie Davis Highway. The acceleration lane for the eastbound on-ramp will extend from its merge point to the intersection with Sunflower Boulevard. It will act as a weaving lane for traffic entering the highway via the on-ramp and traffic exiting the highway to access Sunflower Boulevard or the businesses along the proposed frontage road on the south side of Jimmie Davis Highway. A new eastbound off-ramp would be constructed and would intersect with Arthur Ray Teague Parkway just north of the existing ramp to create a 14 foot wide median between the ramps.

The existing westbound off-ramp would be removed and rebuilt to the north. It will parallel a new on-ramp that will tie into westbound Jimmie Davis Highway. Both ramps will create a complete full three-legged intersection with Arthur Ray Teague Parkway.

A frontage road will be built to access the businesses along the south side of Jimmie Davis Highway. The frontage road will connect to Zack Drive to access the storage facility at the end of the road.

The mainline of the roadway would shift to the south using a long curve followed by a tangent that will tie into the existing five lane section at Medical Drive. The end of construction for this alternative would be at Medical Drive.

6.1.3 Alternative 5A

The objective of Alternative 5A is to provide a complete interchange with Arthur Ray Teague Parkway while still providing adequate access to adjacent businesses and utilizing the existing bridge.

Prior to the Clyde Fant Parkway interchange, the existing five lane section would transition to two twelve foot wide lanes with a four foot wide inside shoulder and an eight foot wide outside shoulder in each direction separated by a raised median. The eastbound lane would utilize the existing pavement to access the existing bridge. The westbound lanes would separate from the eastbound lanes in the curve to access the new bridge to cross the Red River approximately eighty feet north of the existing bridge. At the Clyde Fant Parkway interchange,

the geometry for the ramps would be adjusted to tie-in with the new highway alignment.

On the east side of the Red River, a full interchange would be developed with Arthur Ray Teague Parkway. The intersection of Centurytel Center Drive and Zack Drive would be closed in order to provide ramps for all movements of the interchange. A portion of the existing eastbound off-ramp would be retained to become the on-ramp from Arthur Ray Teague Parkway to eastbound Jimmie Davis Highway. The acceleration lane for the eastbound on-ramp will extend from its merge point to the intersection with Sunflower Boulevard. It will act as a weaving lane for traffic entering the highway via the on-ramp and traffic exiting the highway to access Sunflower Boulevard or the businesses along the frontage road on the south side of Jimmie Davis Highway. A new eastbound off-ramp would be constructed and would intersect with Arthur Ray Teague Parkway just north of the existing ramp to create a 14 foot wide median between the ramps.

The existing westbound off-ramp would be removed and rebuilt to the north. It will parallel a new on-ramp that will tie into westbound Jimmie Davis Highway. Both ramps will create a complete full three-legged intersection with Arthur Ray Teague Parkway.

A frontage road will be built to access the businesses along the south side of Jimmie Davis Highway. The frontage road will connect to Zack Drive to access the storage facility at the end of the road.

The mainline of the roadway would shift to the south using a long curve followed by a tangent that will tie into the existing five lane section at Medical Drive. The end of construction for this alternative would be at Medical Drive.

6.1.4 Alternative 6

The objective of Alternative 6 is to provide a complete interchange with Arthur Ray Teague Parkway and still maintain an intersection with Zack Drive.

Prior to the Clyde Fant Parkway interchange, the existing five lane section would transition to two twelve foot wide lanes with a four foot wide inside shoulder and an eight foot wide outside shoulder in each direction separated by a concrete median barrier. An impact attenuator will be placed at the western and eastern ends of the barrier for safety. The roadway would turn eastward to cross the Red River approximately forty feet north of the existing bridge. At the Clyde Fant Parkway interchange, the geometry for the ramps would be adjusted to tie-in with the new highway alignment.

On the east side of the Red River, a full interchange would be developed with Arthur Ray Teague Parkway. In the eastbound direction, an off-ramp from the

bridge would tie into the existing eastbound off ramp. An eastbound on-ramp would be built parallel to the mainline and merge into the mainline approximately 500 feet west of the intersection with Zack Drive. Access from Zack Drive to Jimmie Davis Highway would be eastbound only. The acceleration lane would become an access lane that would continue to Sunflower Drive. This lane would be used to provide access to businesses along the south side of Jimmie Davis Highway.

A new off-ramp will be built from westbound Jimmie Davis Highway to Arthur Ray Teague Parkway. At the intersection, traffic can turn either north or south onto Arthur Ray Teague Parkway. A new on-ramp will be built from Arthur Ray Teague Parkway to westbound Jimmie Davis Highway. The on-ramp will parallel the off-ramp just to the north, span over Arthur Ray Teague Parkway, and tie to westbound Jimmie Davis Highway. While Centurytel Center Drive is shown as a dead end at the right-of-way line, consideration could be given to a right in, right out intersection with Jimmie Davis Highway.

6.2 MAIN SPAN BRIDGE ALTERNATIVES

The main span of the proposed bridge would consist of three continuous spans, 350 feet, 400 feet, and 350 feet for a total length of structure of 1100 feet.

Alternatives 4 and 5 would consist of two 12 foot travel lanes (each direction), a 4 foot inside shoulder and an 8 foot outside shoulder (each direction), a 2 foot wide median barrier, two concrete roadside barrier rails, a 10 foot wide bicycle lane, and a pedestrian railing for an overall width of 88'-1 1/2".

For Alternative 5A, the eastbound lanes would utilize the existing bridge, which would consist of two 12 foot lanes with 2 foot shoulders while on structure. The westbound lanes would consist of two 12 foot lanes with a 4 foot inside shoulder, an 8 foot outside shoulder, and a 10 foot bicycle lane for a total structure width of 50'-1 1/2".

For Alternative 6, the bridge section would consist of three 12 foot wide lanes (each direction), a 4 foot inside shoulder and an 8 foot outside shoulder (each direction) a 2 foot wide median barrier, two concrete roadside barrier rails, a 10 foot wide bicycle lane, and a pedestrian railing for an overall width of 112'-1 1/2". The additional 12 foot lane would act as a weaving lane between the Clyde Fant Parkway and Arthur Ray Teague Parkway interchanges.

There are two feasible construction methods to span the proposed bridge: continuous steel plate girders or a concrete segmental box girder.

6.2.1 Continuous Steel Plate Girder

The continuous steel plate girder main span would consist of multiple parallel constant depth steel plate girders (girder depths would be limited to a maximum of 12 feet). If the design of the structure requires a deeper girder section, a variable depth web could be used to accommodate the required span length.

6.2.2 Concrete Segmental Box Girder

The concrete segmental box girder alternative would consist of either a pre-cast or cast-in-place series of trapezoidal box girders that would be connected together using post-tensioned strands. The depth of the box girder would vary from 10 feet at mid-span to 22 feet at the pier. In order to accommodate the variable depth girder, the profile of the bridge shown in the alternatives would have to be raised approximately 10 feet to provide the required horizontal and vertical clearances necessary for maritime navigation. Therefore, a concrete segmental box girder should only be considered for Alternatives 5 and 6.

6.3 SHARED-USE BICYCLE AND PEDESTRIAN PATH

In all the alternatives, a pedestrian and bicycle path separated from automobile traffic would be added to the north side of the bridge. The bicycle path would separate from the bridge prior to crossing either Clyde Fant Parkway or Arthur Ray Teague Parkway. This would prevent an at grade intersection with either of the parkways or the additional expense to provide additional pedestrian and bicycle grade separations to cross the parkways. On the west side, the bicycle path would run along the top of an old levee to the southern end of the trail. On the east side, the bicycle path would parallel the Arthur Ray Teague Parkway to the existing southern end of the trail across from the Centurytel Center. While on structure, the path should be fenced on each side for the safety of the users.

Design criteria for the shared-use path can be found in Table 1B. These criteria were developed based on criteria and standards contained within the AASHTO Guide for the Development of Bicycle Facilities with considerations for accessible design as mandated by the standards of the Americans with Disabilities Act (ADA). The key elements of the bicycle and pedestrian shared use path include the following:

- ◆ The width of the shared-use path shall be 10 feet.
- ◆ The longitudinal grade shall not exceed 5 percent at any point along the bridge.
- ◆ The cross slope shall not exceed 2.5%.

6.4 PROJECT COSTS

Roadway costs for each alternative were developed based on the unit costs posted on the LADOTD 4th Quarter 2008 weighted unit price list. Square foot cost estimates for the bridge structure on the main span and approach spans, including the shared use bicycle and pedestrian path, are based on quantity summaries from the Red River Bridge at Coushatta and the 4th Quarter 2008 unit price list. No escalation was added to the unit prices.

Project costs, including right-of-way, control-of-access, environmental, and engineering costs, for each alternative are summarized in Table 6-1.

Table 6-1
Estimated Project Costs

Alternative	Estimated Cost
4	\$83.0 Million
5	\$98.9 Million
5A	\$63.4 Million
6	\$139.4 Million

6.5 UTILITIES

Investigation of existing utility locations included the review of information received from utility companies, as-built plans from previous roadway projects in the area, and identification during the windshield survey. The approximate locations of existing utilities are shown on Figures 21A and 21B of this report.

6.6 ENGINEERING EVALUATION OF ALTERNATIVES

6.6.1 Alternative 4

Advantages

- ◆ Utilizes or retains most of the surrounding planned projects.
- ◆ The second lowest cost. Could be the lowest cost if eastbound lanes are maintained on the existing bridge.
- ◆ No additional ROW required.
- ◆ Shortest length of construction.

Disadvantages

- ◆ Requires that the Centurytel Center Drive intersection remain.

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- ◆ No direct access from Arthur Ray Teague Parkway to Jimmie Davis Highway.
 - ◆ One-way ramps to Arthur Ray Teague Parkway could encourage wrong way traffic on ramps.

6.6.2 Alternative 5

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Eliminates intersection at Centurytel Center Drive.
- ◆ Replaces existing bridge with a new bridge.

Disadvantages

- ◆ The second highest cost project.
- ◆ The longest segment of highway to be reconstructed.
- ◆ Frontage road needed to provide access to businesses on south side of Jimmie Davis Highway.

6.6.3 Alternative 5A

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Eliminates intersection at Centurytel Center Drive.
- ◆ Utilizes the existing bridge for eastbound traffic.
- ◆ Lowest cost alternative.

Disadvantages

- ◆ The longest segment of highway to be reconstructed.
- ◆ Frontage road needed to provide access to businesses on south side of Jimmie Davis Highway.
- ◆ Additional right-of-way acquisition required for frontage road.

6.6.4 Alternative 6

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Provides access to Zack Drive without Frontage Road.
- ◆ Can accommodate a right-in, right out intersection with Centurytel Center Drive.

Disadvantages

- ◆ The highest cost project.
- ◆ Intersections of ramps with Arthur Ray Teague Parkway could confuse drivers.

7.0 IMPACTS TO NATURAL ENVIRONMENT

A discussion of the potential impacts to the natural environment is provided below. A summary of the potential impacts is provided in Table 3.

7.1 WETLANDS

Based on various maps researched and the windshield survey of the project area, potential wetland habitats occur along the banks of the Red River. The impact caused by any of the alternatives would be a minimal loss of habitat due to the construction of the bridge piers and the embankments of the bicycle path connection. Further study should be conducted during Stage 1.

7.2 THREATENED AND ENDANGERED SPECIES

In recent years, the least interior tern has been spotted along the river banks of the Mississippi and Red Rivers. While no threatened or endangered species were found in the project area during the field investigation, the Proposed Action could impact the habitat of the least interior tern. Further investigation should be conducted in Stage 1 to determine if there are any least interior tern nests within the Project Area.

7.3 OTHER BIOLOGICAL RESOURCES

There are no potential impacts to other forests or pastureland in the project area. The projects, in most cases, will be contained within the existing right-of-way limits. Most of the adjacent land has already been disturbed by commercial development.

7.4 WATER RESOURCES AND HYDROLOGY

7.4.1 Surface Water

The Red River will be spanned with a new river crossing. Impacts to the Red River would consist of a temporary increase in Total Suspended Solids (TSS) due to the construction of the bridge.

Surface waters in the immediate project area, other than the Red River, consist of roadside ditches and small bayous and creeks. Impacts to these waters include a temporary increase in turbidity and Total Suspended Solids (TSS) during construction due to runoff of roadbase materials and a potential for

temporary interruption of flows for the installation or extension of culverts or drain pipe.

7.4.2 Groundwater

The Project Area will not affect any water wells nor impact any sources of groundwater.

7.5 GEOLOGY AND TOPOGRAPHY

Due to the roadway widening and the addition of the interchange ramps, minor localized alteration of the geology and topography is expected to occur. These changes in topography could affect some of the drainage patterns within the vicinity of the interchange with Arthur Ray Teague Parkway.

7.6 SOILS AND PRIME FARMLAND

Impacts to the native soils would include the filling and construction of additional highway lanes and interchange ramps over existing soils particularly in the area of the Arthur Ray Teague Parkway interchange. Otherwise, affects to existing soils in the project area would be minimal. In addition, there would be no impacts to prime farmland.

7.7 FLOOD PLAINS

Most of the project area is located in Flood Zone X which means flooding of the land, while it could occur, would be unlikely. Areas of the project in Flood Zone A, which is the 100-year flood plain, would not be impacted by the Proposed Action.

7.8 SCENIC STREAMS

There are no impacts to any waterways included in the Louisiana natural and Scenic Streams System as a result of the Proposed Action.

8.0 IMPACTS TO HUMAN, SOCIAL AND ECONOMIC ENVIRONMENT

8.1 LAND USE AND ZONING

Most of the land adjacent to the project is commercial and already developed. Undeveloped lots adjacent to the right-of-way will not be affected. Expansion of the highway from 3 lanes to 5 lanes on the east side of the Red River will allow more traffic to use the corridor, which could ultimately hasten development of the remaining undeveloped commercial property.

The change in land use as a result of the proposed action would be the minimal right-of-way needed near Sunflower Drive for the frontage road shown in Alternative 5A.

8.2 COMMUNITY LANDMARKS AND FACILITIES

There are several community landmarks either along or near Jimmie Davis Highway. Since the Proposed Action will occur within the existing right-of-way, there are no anticipated negative impacts to any of the community landmarks and facilities other than minimal disruption of access during construction.

8.3 Population

The population growth rate used for the traffic analysis was 1.5 percent. Since most of the land within or adjacent to the Project Area has been developed, the Proposed Action would not affect the population in the project area.

8.4 SOCIOECONOMIC

No potential negative socioeconomic impacts to the project would be caused by the Proposed Action.

8.5 Transportation

The proposed action would potentially impact the mobility and transportation opportunities in the study area in the following ways::

- ◆ Improved access to and from the Centurytel Center will reduce traffic congestion before and after large events at the facility.
- ◆ Reduced traffic congestion during peak periods will shorten commute times for travelers who cross the bridge.

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- ◆ Removal of the intersection at Centurytel Center Boulevard would reduce collisions caused by the proximity of a traffic signal to the foot of the approach.
 - ◆ Connection of the two bicycle paths will improve recreational facilities and mode choice in the project area.

8.6 TITLE VI/ENVIRONMENTAL JUSTICE

Environmental Justice requires that low income and minority populations be provided with the opportunity to participate in the decision making process. There are no environmental justice concerns for this project as there are no low-income or minority communities in the project area.

8.7 ARCHAEOLOGICAL AND CULTURAL RESOURCES

Based on geologic, geomorphological, and soils data, there is one area of high probability for prehistoric site locations. Further study of this area is recommended.

As there are no structures in the Project Area that are eligible for the National Register of Historic Places (NHRP), no adverse impacts are anticipated.

8.8 RECREATION

The addition of the pedestrian and bicycle path would improve recreation facilities in the Project Area because it would provide for a desired connection between the Clyde Fant Parkway and Arthur Ray Teague Parkway bicycle trails.

8.9 SECTION 4(f) AND 6(f) LANDS

There are no impacts to Section 4(f) properties and there are no Section (6f) properties in the project area.

8.10 Air and Noise Quality

8.10.1 Air Quality

No long-term or permanent adverse impacts to air quality are expected from the project. The project would increase traffic movement through the area, thereby potentially reducing hydrocarbon emissions from automobiles previously stopped in congested traffic.

8.10.2 Noise Quality

Based on the LADOTD Noise Policy, sensitive noise receptors are impacted by a potential project if:

- ◆ The predicted future traffic noise levels equal or exceed a one hour equivalent sound level of 66dB or 71dBA (receptor dependant), A-weighted (dBA) and,
- ◆ The predicted future traffic noise levels are a substantial increase over the existing noise levels, which is defined by LADOTD as an increase in the one hour equivalent sound level of 10 or more dBA.

These criteria apply to external area of frequent human activity such as schools, churches, residential backyards, pools, hospitals, and parks.

Since predicted noise levels at study area receptors range from 57dBA to 63dBA, there is no need to provide measures for noise abatement.

8.11 HAZARDOUS WASTE SITES/UNDERGROUND STORAGE TANKS

Further study of the nine environmental concerns identified in Section 4.7.3 and Appendix C is recommended to confirm that there are no potentially negative impacts to the Proposed Action.

There are no leaking underground storage tanks in the project area. The two registered underground storage tanks in the project area are located at Barksdale Boulevard which should have minimal impact on the Proposed Action.

9.0 PUBLIC COMMENT PROCESS

A public meeting was held on August 6, 2009 for the purpose to present the project to the public and elected officials and to receive their comments on the alternatives.

The open house meeting was held at Barksdale Baptist Church located at 1714 Jimmie Davis Highway in Bossier City, LA. Those in attendance included over 50 citizens of the local community along with elected officials from Bossier City, Bossier Parish, and the State Legislature. Also in attendance were two representative of LADOTD and six representatives of the Project Team comprised of AECOM, U.S.A. Inc.; Neel-Schaffer, Inc.; and Earth Search, Inc.

Attendees were encouraged to view a presentation that replayed at 30 minute intervals. Following the presentation, there were directed to view the maps and ask questions of the representatives of the consultant team and LADOTD. A handout prepared for the meeting attendees included a description of the open house format including a map of the meeting hall, an example of a statement card, a summary of the Project Delivery Process, a vicinity map depicting the project location, descriptions of the concept alternatives for the Proposed Action, a summary of the findings of the environmental inventory, and a public comment form.

Verbal comments were transcribed by a court reporter. Written comments were accepted at the meeting as well. In addition, a comment period was provided so that attendees who did not want to comment at the meeting could either email or mail comments to LADOTD regarding their views of the projects. An official record has been compiled by the project team. The document contains a copy of the public notice, the handout, the presentation, the attendee registration, the statement cards, transcript of comments provided to the court reporter, a petition authored by Mr. Scott Irwin of the Bossier City Council, and comments received within fourteen days following the meeting. A copy of the public record can be found in Appendix H.

The general types of comments received during and after the public meeting are summarized and discussed below.

- ◆ *Build the Bridge NOW!*
There is strong public support for a widened bridge. The community has heard that a new bridge will be built at Jimmie Davis Highway for years and believes that the construction of the bridge is long overdue.

- ◆ *Remove the intersection at Centurytel Center Drive and connect Jimmie Davis Highway to Arthur Ray Teague Parkway.*

Traffic and safety are major concerns in the area. It is believed that the signal at Centurytel Center Drive causes traffic to queue for miles. In addition, the location of the intersection at the foot of the long 5% grade has been the cause of accidents, particularly in icy weather. There is also a desire by the local government to have a connection with the extension of Arthur Ray Teague Parkway.

◆ *Will there be a toll to cross the bridge?*

Prior to this study, it was understood through discussions in the community and between elected officials that the construction of any new span would be funded with a toll. While no stated funding source was mentioned at this meeting, tolling was a major subject of the comments. Most of those who commented on the record were against a toll. More study of funding options for construction of the bridge need to be considered in Stage 1.

◆ *The bicycle and pedestrian path should be a part of the any bridge project.*

There were several comments in support of the shared-use bicycle and pedestrian path that will link the existing bicycle paths located on each side of the river. Advocates of the bicycling community see the inclusion of a bicycle path on the bridge is an important component of the new bridge.

◆ *Reuse the existing bridge if it will truly save money.*

Many comments expressed the concern to build the improvements in an efficient manner. They see the reuse of the existing bridge as a cost savings to the project and believe it will reduce the construction time of the new bridge since the new bridge can be built with little impact to the existing bridge.

10.0 SUMMARY

The LADOTD is evaluating the feasibility and determining the environmental impact of widening Jimmie Davis Highway (LA Highway 511) across the Red River between Shreveport and Bossier City. The purpose and need of the project is to increase the capacity of Jimmie Davis Highway, to provide access to the local traffic network, and to provide a shared-use bicycle/pedestrian crossing that will link recreation facilities on both sides of the Red River.

In the study area, Jimmie Davis Highway (LA 511) narrows from a 5 lane section to a two lane roadway across the red River. On the east side of the river, the highway widens to 3 lanes and continues to its terminus at Barksdale Boulevard (US 71). The segment of highway is approximately 1.2 miles long.

Currently, the widening of the highway to 5 lanes between Centurytel Center Drive and Barksdale Boulevard is under construction. In addition, there are several projects near the east approach of the existing bridge that are planned to be built prior to widening the bridge crossing. These projects will likely increase traffic in the vicinity of the bridge; thus, emphasizing the need for additional lanes across the Red River.

Advantages to the Proposed Action include:

- Reduction in travel time for commuters that use the bridge
- Reduction in traffic congestion along the highway
- Safer driving conditions by removing the light at Centurytel Center Boulevard
- Improved access to the Centurytel Center
- Connection of recreation facilities and increase in mode choice with a pedestrian and bicycle river crossing

Disadvantages to the Proposed Action include:

- Some alternatives will limit access to some properties near the east approach of the bridge
- Potential increase in traffic crossing the bridge as more vehicles are drawn to an improved roadway

The following concept alternatives were developed:

10.0.1 Alternative 4

A new bridge parallel to the existing bridge with removal of the existing bridge, ramps that provide access from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway, and signal modifications at Centurytel Center Drive.

Advantages

- ◆ Utilizes or retains most of the surrounding planned projects.
- ◆ The second lowest cost. Could be the lowest cost if eastbound lanes are maintained on the existing bridge.
- ◆ No additional ROW required.
- ◆ Shortest length of construction.

Disadvantages

- ◆ Requires that the Centurytel Center Drive intersection remain.
- ◆ No direct access from Arthur Ray Teague Parkway to Jimmie Davis Highway.
- ◆ One-way ramps to Arthur Ray Teague Parkway could encourage wrong way traffic on ramps.

10.0.2 Alternative 5

A new bridge parallel to the existing bridge with removal of the existing bridge, removal of the signalized intersection at Centurytel Center Drive, and ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway.

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Eliminates intersection at Centurytel Center Drive.
- ◆ Replaces existing bridge with a new bridge.

Disadvantages

- ◆ The second highest cost project.
- ◆ The longest segment of highway to be reconstructed.
- ◆ Frontage road needed to provide access to businesses on south side of Jimmie Davis Highway.

10.0.3 Alternative 5A

A new bridge parallel to the existing bridge for westbound traffic on the Jimmie Davis Bridge, removal of the signalized intersection at Centurytel Center Drive, and ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway. The existing bridge would remain for eastbound traffic.

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Eliminates intersection at Centurytel Center Drive.
- ◆ Utilizes the existing bridge for eastbound traffic.
- ◆ Lowest cost alternative.

Disadvantages

- ◆ The longest segment of highway to be reconstructed.
- ◆ Frontage road needed to provide access to businesses on south side of Jimmie Davis Highway.
- ◆ Additional right-of-way acquisition required for frontage road.

10.0.4 Alternative 6

A new bridge parallel to the existing bridge with removal of the existing bridge, removal of the traffic signal at Centurytel Center Drive, and ramps that provide access to and from Jimmie Davis Highway to a planned extension of Arthur Ray Teague Parkway.

Advantages

- ◆ Provides full interchange with Arthur Ray Teague Parkway.
- ◆ Provides access to Zack Drive without Frontage Road.
- ◆ Can accommodate a right-in, right out intersection with Centurytel Center Drive.

Disadvantages

- ◆ The highest cost project.
- ◆ Intersections of ramps with Arthur Ray Teague Parkway could confuse drivers.

Any of the alternatives discussed above meet the purpose and need of the project. The information provided in this report is provided to the Federal Highway Administration (FHWA) and the Louisiana Department of Transportation and Development (LADOTD) in order make informed decisions regarding the need for this project and the availability of the funding to progress this project through the Project Delivery Process. Ultimately, the FHWA and LADOTD will decide whether to proceed with a project to increase capacity along Jimmie Davis Highway to Stage 1.