



Louisiana Highway 23 Corridor Study

Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study RPC Contract No. LA23-05



Prepared for
The Regional Planning Commission
*for Jefferson, Orleans, Plaquemines,
St. Bernard & St. Tammany Parishes*

Prepared by



In association with



July 2006

FINAL

**CHECKLIST FOR STAGE 0
Preliminary Scope and Budget Worksheet**

District 2 **Parish** Jefferson and Plaquemines Parishes **Route** LA Hwy 23

Control Section _____ Total Project Length (miles) 1.25 miles (est)

Begin Project (CS Log Mile) _____ End Project (CS Log Mile) _____

Project Category (Safety, Capacity, etc.) Capacity Date Prepared: June 1, 2006

A. Purpose and Need for the project: Address existing congestion, improve travel time in corridor, utilize available right-of-way, support ongoing transportation system development in area (existing and future)

B. Project Concept **(Applies to North of Terry Parkway to Lapalco Boulevard, North of Algiers Outfall Canal to South of Engineers Road only)**

- Description of existing facility (functional class, ADT, number of lanes, etc.): State Highway, Major Arterial, 33,150 to 44,940 ADT (2006), 4 lanes divided with shoulders and median
- Major Design Features/Criteria of the proposed facility (attach aerial photo w/ concept if applicable): Median, shared right-of-way with existing railroad line, bridge over drainage canal, 5 signalized intersections (3 with other arterial roadways). See attached report for more details.
- Design Exceptions: To be addressed as needed in advanced design.
- Technical Analyses (traffic analysis, safety analysis, etc.): Attached report contains analysis of existing and future traffic conditions based upon changes in land use and growth of traffic
- Alternatives to Project Concept: No build concept was included in the review and analysis
- Future ITS / Traffic Considerations: DOTD and Parishes should coordinate on Access Management issues as adjacent properties develop along LA 23.
- Construction Traffic Management / Property Access Considerations: None noted, accept those which would apply relative to implementation of access management program in future.

C. Potential environmental impacts (Complete the Stage 0 Environmental Checklist on 4-10 to 4-13):
Checklist complete as per Stage 0 Guidelines. No potential environmental impacts by project noted.

D. Cost Estimate

- Engineering Design: \$ 267,000
 - Environmental Mitigation: not applicable
 - R/W Acquisition: \$ 10,000
C of A if applicable) _____
 - Utility Relocations: not applicable
 - Construction (including const. Traffic management): \$2,718,326
- TOTAL PROJECT COST: \$2,995,326**

NOTE

Information presented on this checklist (Purpose and Need, Project Concept, Cost Estimate) apply only to improvements to LA 23 from North of Terry Parkway to Lapalco Boulevard, North of Algiers Outfall Canal to South of Engineers Road.

Stage 0 information on the section between Lapalco Boulevard and North of the Algiers Outfall Canal is under development through LADOTD District 02

E. Expected Funding Source(s) (Highway Priority Program, CMAQ, Urban Systems, Fed/State earmarks, etc.) Urban Systems >200K , with matching funds from the State of Louisiana

ATTACH ANY ADDITIONAL DOCUMENTATION

Prepared by: Burk-Kleinpeter, Inc. & Evans-Graves, Inc.

Disposition (circle one): (1) Advance to Stage 1 (2) Hold for Reconsideration (3) Shelve

Stage 0 Environmental Checklist

Control Section _____ Parish Jefferson and Plaquemines Parishes
Route LA Highway 23 Begin Project (CS Log Mile) _____ End Project (CS Log Mile) _____

ADJACENT LAND USE: commercial, residential, industrial, and public

Any property owned by a Native American Tribe? NO

Any property enrolled into the Wetland Reserve Program? NO

Community Elements: Is the project impacting or adjacent to any:

Cemeteries	NO	
Churches	NO	
Schools	YES	George Cox Elementary School 2630 Belle Chasse Highway Gretna, LA 70053
Public Facilities	YES	Meadowcrest Medical Center 2600 Belle Chasse Highway Terrytown, LA 70053
Community water well/supply	NO	

Section 4(f) issue: Is the project impacting or adjacent to any:

Public recreation areas:	NO
Public parks	NO
Wildlife Refuges	NO
Historic Sites	NO

Is the project impacting, or adjacent to a property listed on the National Register of Historic Places? NO

Is the project within a historic district or a National Landmark District? NO

Do you know of any threatened or endangered species in the area? NO

Does the project impact a stream protected by the Louisiana Scenic Rivers Act? NO

Are there any Significant Trees as defined by EDSM I.1.1.21 within proposed ROW? NO

What year was the existing bridge built? The project area includes 2 bridges over the Algiers Outfall Canal. The Northbound Bridge was constructed in 1958. The Southbound Bridge was constructed in 1967.

Are any waterways impacted by the project considered navigable? NO

Stage 0 Environmental Checklist

Hazardous Material: Have you checked the following DEQ and EPA databases for potential problems?

Leaking Underground Storage Tanks	YES, 3 in vicinity
CERCLIS	YES, none in vicinity
ERNS	YES, 2 in vicinity
Enforcement and Compliance History	YES, none in vicinity

Underground Storage Tanks (UST): Are there any Gasoline Stations or other facilities that may have UST on or adjacent to the project? YES, in addition to the UST list (see below), there is a new gas station at the intersection of Lapalco Boulevard and Belle Chasse Highway on the Sav-A-Center property.

UST ID Number	Name of Facility	Address	City	Zip Code
1949	Meadowcrest Hospital	2500 Belle Chasse Hwy	Gretna	70056
13416	Victory Spirit	2320 Belle Chasse Hwy	Gretna	70053
20691	Danny & Clyde'S Food Store	1944 Belle Chasse Hwy	Gretna	70053
79703	Star Convenience Store	2950 Belle Chasse Hwy	Gretna	70056
13416	Victory Spirit	2320 Belle Chasse Hwy	Gretna	70053
13549	Pep Boys Manny Moe & Jack	1100 Behrman Hwy	Gretna	70056
71004	Best Stop Express	2850 Belle Chasse Hwy	Gretna	70053
71547	Shell #137435	2800 Belle Chasse Hwy	Belle Chasse	70053
79099	State Oil Fuel Center, Inc	1724 Hwy 23	Belle Chasse	70037

Any chemical plants, refineries or landfills adjacent to the project? NO

Any large manufacturing facilities adjacent to the project? YES

Dry Cleaners? NO

Oil/Gas wells: Have you checked DNR database for registered oil and gas wells?
Yes, 1 in vicinity: #98180: Plugged and Abandoned

Are there any possible residential or commercial relocations/displacements?
No

Do you know of any sensitive community issues related to the project?
No

Is the project area population minority or low income?
There are no disproportionate impacts on minorities or low income families.

Stage 0 Environmental Checklist

What type of detour/closures could be used on the job?

UNKNOWN

Did you notice anything of concern during your site/windshield survey of the area?

NO

Ellen M. Wilmer Burk-Kleinpeter, Inc.
Point of Contact

(504)486-5901
Phone Number

06/01/2006
Date

Stage 0 Environmental Checklist

SOURCES:

WETLAND RESERVE PROGRAM: United States Department of Agriculture (USDA), Natural Resources Conservation Service (NCRS).

<http://www.nrcs.usda.gov/programs/wrp/pdfs/louisiana05.pdf>

WILDLIFE REFUGES: Louisiana Department of Wildlife and Fisheries, map of Wildlife Management Areas.

<http://www.wlf.state.la.us/apps/netgear/clientFiles/lawlf/files/WMA%20Location%20Map.jpg.pdf>

NATIONAL REGISTER SITES: National Park Service, National Register Information Service (NRIS). <http://www.nr.nps.gov/>

THREATENED AND ENDANGERED SPECIES: Louisiana Department of Wildlife and Fisheries, Louisiana Natural Heritage Program, Threatened and Endangered Species. <http://www.wlf.state.la.us/apps/netgear/index.asp?cn=lawlf&pid=693>.

SCENIC RIVERS: Louisiana Department of Wildlife and Fisheries, Scenic Rivers Program. <http://www.wlf.state.la.us/apps/netgear/index.asp?cn=lawlf&pid=1239>

SIGNIFICANT TREES: Live Oak Society: LA DOTD's significant trees policy.

<http://www.louisianagardenclubs.org/pages/liveoakfiles/treepolicy.htm>

LEAKING UNDERGROUND STORAGE TANKS: LA DEQ Portal.

<http://www.deq.louisiana.gov/portal/tabid/2214/Default.aspx>

CERCLIS: United States Environmental Protection Agency (US EPA), Superfund (CERCLIS) Query. http://www.epa.gov/enviro/html/cerclis/cerclis_query.html

ERNS: National Response Center, Environmental Response Notification System.

Online. Available: <http://www.nrc.uscg.mil/download.html>

ECHOS: United States Environmental Protection Agency (US EPA), Enforcement and Compliance History Online (ECHO). <http://www.epa.gov/echo/>

USTS: Louisiana Department of Environmental Quality, Underground Storage Tanks Database. <http://www.deq.louisiana.gov/portal/tabid/136/Default.aspx>

OIL and GAS WELLS: Department of Natural Resources (DNR), SONRIS Integrated Applications. http://sonris-www.dnr.state.la.us/www_root/sonris_portal_1.htm.

EXECUTIVE SUMMARY

The purpose of this project is to provide improved roadway capacity within a 1.58 mile section of Belle Chasse Highway (LA 23). This covers a section of state highway connects between Terry Parkway and Engineers Road.

This project contains multiple areas of improvement, as shown on Figure ES-1. These areas are defined as:

- From approximately 150 feet north of Terry Parkway to Lapalco Boulevard
- From Lapalco Boulevard and the Algiers Outfall Canal
- From the Algiers Outfall Canal to the Engineers Road intersection

The LADOTD District 02 has agreed to design, implement and perform a Stage 0 for the section between Lapalco Boulevard and the Algiers Outfall Canal, due to the urgency and immediate need for improvements in this section of the roadway.

This report, while incorporating information for this corridor section to satisfy needs for project continuity, focuses on defining improvements and addressing Stage 0 requirements for the remaining portions of the corridor.

The recommended improvement program for the corridor examined within this Stage 0 report includes:

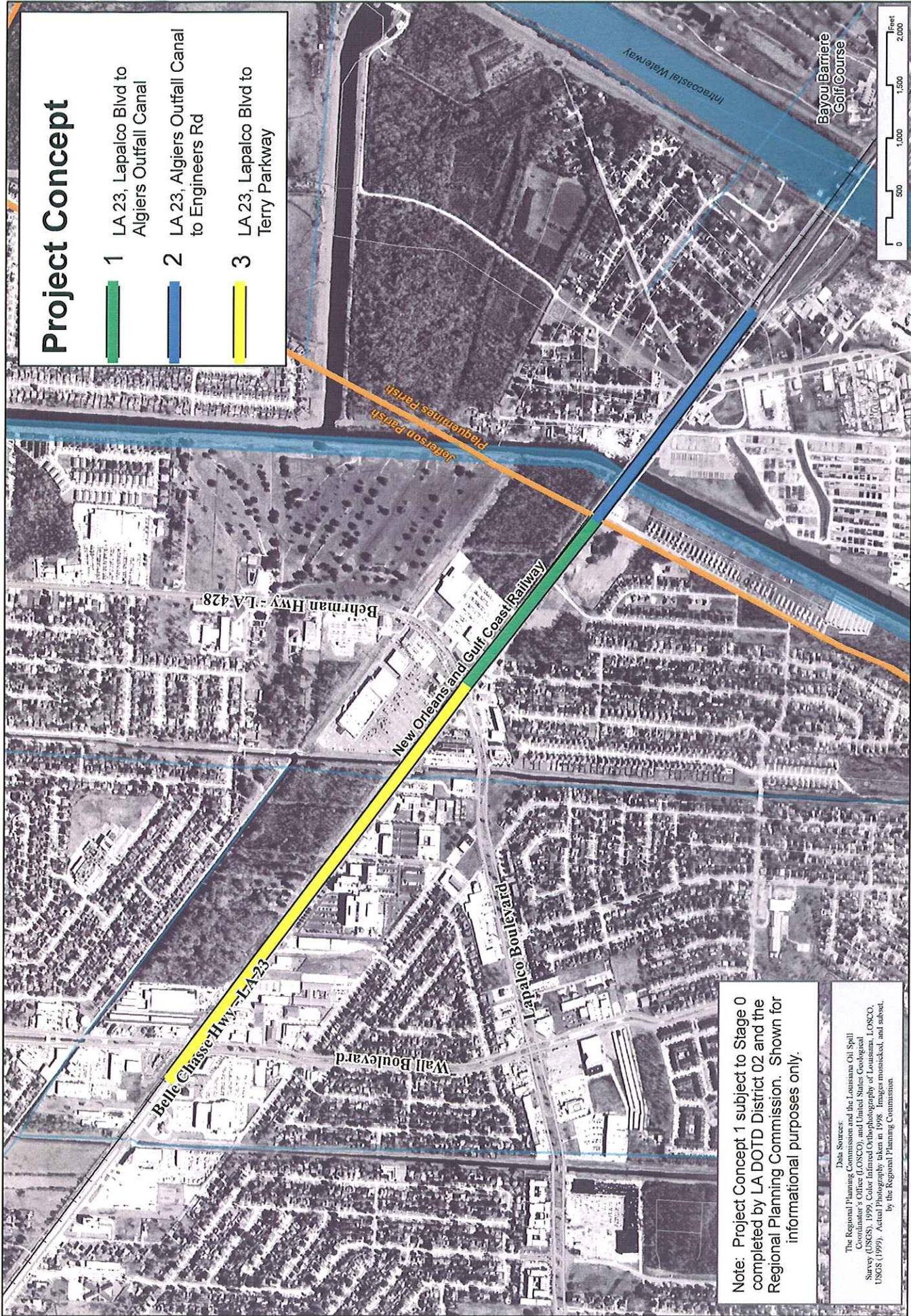
- A proposed 6-lane roadway section from approximately 150 feet north of Terry Parkway to Lapalco Boulevard
- A proposed 6-lane roadway section from north of the Algiers Outfall Canal to the bridge approach at the ICWW in Plaquemines Parish.

The initial order of magnitude cost estimate for these improvements, using LADOTD Unit Costs and existing corridor as-built information, is \$2.995 million. This total includes all costs for design, minimal right-of-way acquisition, and construction.

Review of the various environmental elements of the corridor, as outlined on the LADOTD Stage 0 form, identified no specific concerns with regard to the natural environment. In addition, social impacts within the identified corridor study area do not appear to be concentrated disproportionately on any specific demographic group, as there is a wide variety of income and racial diversity in the vicinity of the project area, with very few residents found living actually adjacent to the corridor right-of-way itself.



This page has been left intentionally blank.



Project Concept

- 1 LA 23, Lapalco Blvd to Algiers Outfall Canal
- 2 LA 23, Algiers Outfall Canal to Engineers Rd
- 3 LA 23, Lapalco Blvd to Terry Parkway

Note: Project Concept 1 subject to Stage 0 completed by LA DOTD District 02 and the Regional Planning Commission. Shown for informational purposes only.

Data Sources:
 The Regional Planning Commission and the Louisiana Oil Spill Coordinator's Office (LOSOCO), and United States Geological Survey (USGS), 1999, Color Infrared Orthophotography of Louisiana, LOSOCO, USGS (1999). Aerial Photography taken in 1998. Images mosaicked, and subset, by the Regional Planning Commission.

Figure ES-1.
Definition of Project Concept
 LA 23 - Terry Parkway to Intracoastal Waterway

BKI BURK-KLEINPETER, INC.
ENGINEERING, ARCHITECTURAL, PLANNING, ENVIRONMENTAL SCIENTISTS

July 2006
 BKI 10246-01

EVANS-ORAVES ENGINEERS, INC.
Engineering Consultants

Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parishes, Louisiana
 Stage 0 Feasibility - RPC Contract No. LA 23 - 05

This page has been left intentionally blank.

Table of Contents

Stage 0 Feasibility Study Checklist

List of Tables	ii
List of Figures	iii

A. Project Description, Purpose, and Need	1
B. Initial Project Concept	5
a. Existing Traffic Operations.....	5
b. Future Development Issues.....	12
c. Identified and Known Constraints	22
d. Initial Feasibility Analysis	23
d. Traffic Analysis	37
C. Preliminary Environment Review.....	47
D. Preliminary Cost Estimate.....	57
E. Expected Funding Sources.....	59

Appendix A	Existing (2006) Traffic Analysis
Appendix B	Future (2010) Traffic Analysis
Appendix C	Project Advisory Committee and Project Meeting Summaries
Appendix D	Detailed Cost Estimates & Apparent Right-of-Way Information
Appendix E	Agency and Public Involvement Plan



List of Tables

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	Average Daily Traffic Volumes LA 23 Corridor Study Area, Jefferson and Plaquemines Parishes, LA	7
2	Level-of-Service Evaluation by Corridor Segment LA 23 - Terry Parkway to Intracoastal Waterway	9
3	Level-of-Service Evaluation by Intersection LA 23 - Terry Parkway to Intracoastal Waterway	12
4	Future Development Sites – Jefferson Parish LA 23 Terry Parkway to Parish Line	14
5	Future Development Sites –Plaquemines Parish Belle Chasse Area	17
6	Proposed Transportation System Improvements LA 23 Corridor and Surrounding Area	19
7	Trip Generation Potential of Vacant Properties within LA 23 Corridor Build-Out Scenario (Year 2025) – Jefferson and Plaquemines Parishes	21
8	Summary Evaluation of Intersection Level-of-Service LA 23 - Terry Parkway to Intracoastal Waterway	46
9	Leaking Underground Storage Tank (LUST) Sites LA 23 Stage 0 Corridor Study Area.....	50
10	Underground Storage Tank (UST) Sites LA 23 Stage 0 Corridor Study Area.....	51
11	Summary Demographic Characteristics (Population and Income) LA 23 Stage 0 Corridor Study Area.....	54
12	Preliminary Order of Magnitude Cost Estimate LA 23 Corridor Improvement North of Terry Parkway to Lapalco Boulevard and North of Algiers Outfall Canal to South of Engineers Road.....	57
13	Programmed Funding for Improvements Transportation Improvement Program for New Orleans Urbanized Area FY2005-2007	59

List of Figures

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	Study Area LA 23 Stage 0 Feasibility Study	3
2	Traffic Stream Composition LA 23 – Terry Parkway to GIWW (01/2006)	6
3	Future Development Sites LA 23 – Terry Parkway to Parish Line	13
4	Future Development Sites Belle Chasse Area	17
5	Transportation Improvement Program Projects In Vicinity of LA 23 Stage 0 Study Area.....	18
6	Definition of Project Concept LA 23 – Terry Parkway to Intracoastal Waterway	25
7	LA 23 Lapalco Boulevard to Sav-A-Center Driveway Proposed Improvement – LA 23 Stage 0 Feasibility Study	27
8	LA 23 Sav-A-Center Driveway to North of Algiers Outfall Canal Proposed Improvement - LA 23 Stage 0 Feasibility Study.....	28
9	LA 23 at Terry Parkway/Wall Boulevard Intersection Proposed Improvement - LA 23 Stage 0 Feasibility Study.....	31
10	LA 23 South of Wall Boulevard Proposed Improvement - LA 23 Stage 0 Feasibility Study.....	32
11	LA 23 Terry Parkway/Wall Boulevard to Oakwood Canal Typical Section - Existing vs. Proposed	33
12	LA 23 Meadowcrest Street to Oakwood Canal Proposed Improvement - LA 23 Stage 0 Feasibility Study.....	34
13	LA 23 Oakwood Canal to Lapalco Boulevard Typical Section - Existing vs. Proposed	35



List of Figures (continued)

<u>Number</u>	<u>Title</u>	<u>Page</u>
14	LA 23 Kmart Driveway to Lapalco Boulevard Proposed Improvement - LA 23 Stage 0 Feasibility Study.....	36
15	LA 23 Bridge Widening Over Algiers Outfall Canal Typical Section - Existing vs. Proposed	39
16	LA 23 Algiers Outfall Canal to Engineers Road Typical Section - Existing vs. Proposed	40
17	LA 23 Algiers Outfall Canal to Mildred Street Proposed Improvement - LA 23 Stage 0 Feasibility Study.....	41
18	LA 23 Engineers Road to Belle Chasse Tunnel Typical Section - Existing vs. Proposed	42
19	LA 23 Mildred Street to Belle Chasse Tunnel Proposed Improvement - LA 23 Stage 0 Feasibility Study.....	43
20	Location of Documented Underground Storage Tank Sites LA 23 Stage 0 Corridor Study Area.....	49
21	Select Demographic Characteristics from Census 2000 LA 23 Stage 0 Corridor Study Area.....	55

PROJECT DESCRIPTION, PURPOSE AND NEED

Project Description

The purpose of this project is to provide improved roadway capacity within a 1.58 mile section of Belle Chasse Highway (LA 23), as shown on Figure 1. This section of state highway connects LA 3017 (Engineers Road) and the existing bridge/tunnel at the Gulf Intracoastal Waterway (GIWW) in Plaquemines Parish to Terry Parkway, an arterial street in Jefferson Parish.

The proposed project will add capacity to the existing LA 23 corridor from north of Terry Parkway to the Lapalco Boulevard intersection, and from the Algiers Outfall Canal to the bridge/tunnel approaches. The alternative which has been determined as both feasible and practical through the Stage 0 process is:

- A proposed 6-lane roadway section from approximately 150 feet north of Terry Parkway to Lapalco Boulevard
- A proposed 6-lane roadway section from north of the Algiers Outfall Canal to the bridge approach at the ICWW in Plaquemines Parish.

NOTE: A separate project, undertaken by the Regional Planning Commission (RPC) and the LADOTD District 02 has been identified to add lane capacity to LA 23 northbound and southbound from just north of the Algiers Outfall Canal to the intersection of Lapalco Boulevard and Behrman Highway. Information on this improvement has been included to demonstrate continuity of the improved capacity within the total corridor. A separate Stage 0 item is the responsibility of LADOTD District 02.

Project Purpose and Need

Input to the development of this initial statement of purpose and need came through review of existing data (traffic, land use and development), analysis and forecast of future changes and discussion with the project sponsors and interested stakeholders.

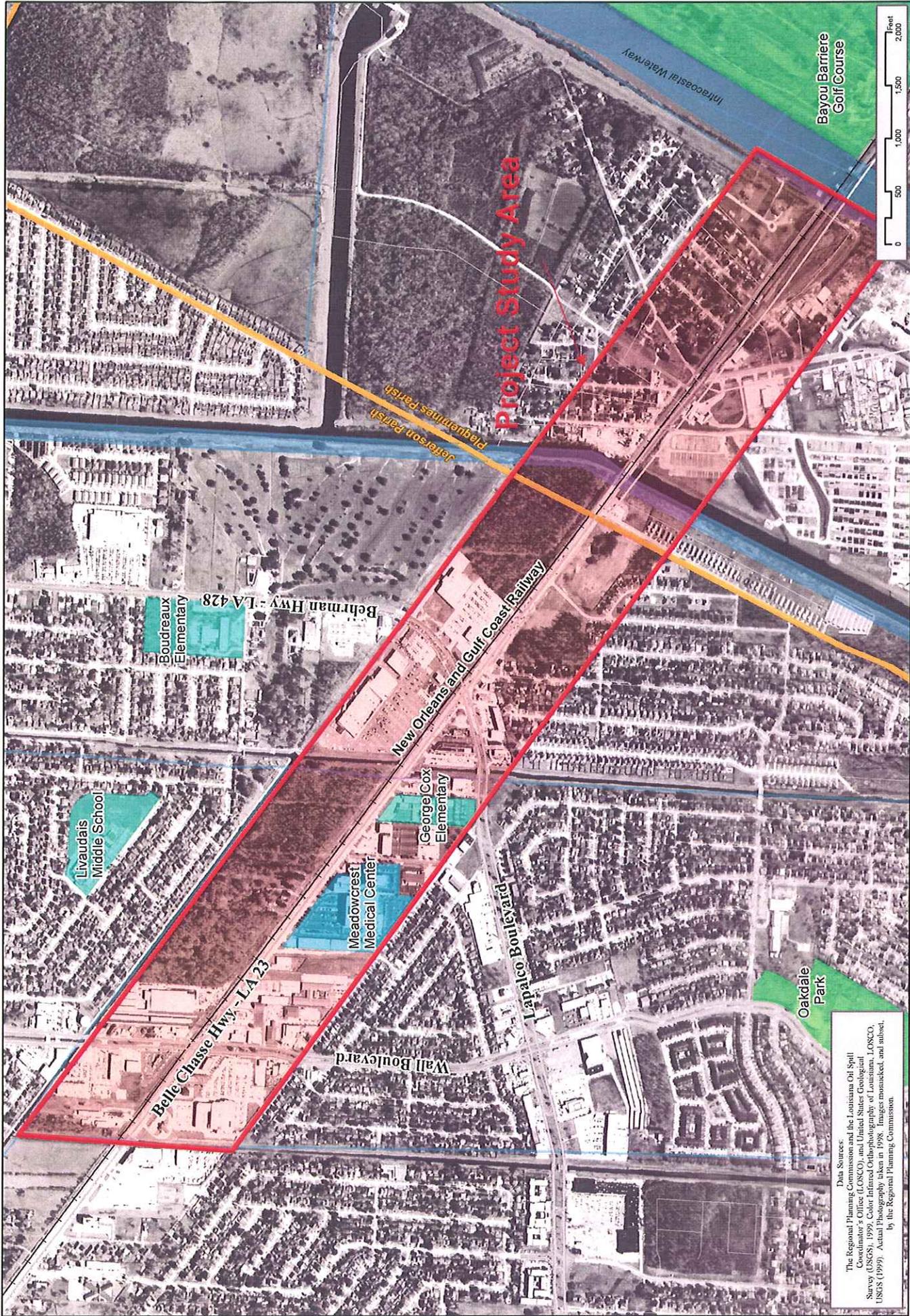
The purpose of the project is to provide improved roadway capacity between the Intracoastal Waterway and Terry Parkway. The project is being proposed to accomplish the following objectives:

- Provide a travel time savings in the corridor;
- Reduce congestion and provide improved capacity at key intersections within the corridor;
- Provide an improved approach for the future replacement crossing of the GIWW in Belle Chasse;
- Identify viable alternatives which can maximize available right-of-way in the corridor segment;
- Identify strategies which support LADOTD objectives for access management on state highway corridors;
- Support long-term thoroughfare development in the general area.



The need for the project is to remove several deficiencies from the corridor identified through the review of current operational conditions. These deficiencies contribute to congestion, increased travel time and delays within the corridor.

- Inadequate roadway capacity –the corridor has current peak-period congestion and level-of-service deficiencies. Long queues of stopped traffic form on the corridor, blocking access to side streets and adjacent properties. Overall, the corridor operates at an LOS E to F during peak periods.
- Projected increases in traffic demand – traffic volumes on the corridor continue to fluctuate following Hurricane Katrina. Overall, average traffic demand on LA 23 within the study area has increased by 11% since 2003. As Jefferson and Plaquemines Parishes continue to re-populate and redevelop, the number of vehicles on the corridor will increase. It is also possible that as parcels develop, this will generate trips and increase traffic on LA 23.
- Support ongoing roadway improvement plans - plans to construct a new arterial roadway parallel to Lapalco Boulevard will commence with the construction of the Harvey Boulevard corridor extension between Peters Road and Engineers Road. This corridor extension will result in enhanced access to the populated areas of Jefferson Parish east of the Harvey Canal. This roadway will intersect with Engineers Road, approximately 1 mile east of LA 23. It is expected that this will increase traffic demand on the LA 23 corridor as it will provide an additional point of access for commuters and through traffic. In addition, the RPC and LADOTD District 02 have commenced with the design and implementation of an interim improvement for the LA 23 corridor to add lane capacity north of the Algiers Outfall Canal.
- Improve traffic operations – improving traffic signal operations and lane capacity will help move traffic through the area smoother and with a decrease in delay. Continued coordination with the adjacent active rail line will be continued, thus maintaining the highest possible safety margin at the various at-grade crossings.
- Sustain economic development decisions – the corridor provides access to the Naval Air Station/Joint Reserve Base New Orleans in Belle Chasse, one of the region’s largest civilian and military employers. Long term plans to expand the base’s operation will be supported by improved access via LA 23. The corridor also provides connections to the Westbank Expressway, a vital east-west artery connecting the area to employment centers in New Orleans and West Jefferson.
- Linkages to future GIWW crossing improvements – it is anticipated that the current bridge/tunnel crossing will someday be replaced. Improving LA 23 will help provide an improved linkage between this future crossing and the existing arterial roadway system.



Data Sources:
 The Regional Planning Commission and the Louisiana Oil Spill
 Coordinator's Office (LORCO), and United States Geological
 Survey (USGS), 1999. Color Infrared Orthophotography of Louisiana, LORCO,
 USGS (1999). Actual Photography taken in 1998. Images mosaicked, and subset,
 by the Regional Planning Commission.

Figure 1.
Study Area
 LA 23 Stage 0 Feasibility Study

BKI BURK-KLEINPETER, INC.
 ENGINEERING, ARCHITECTURAL, PLANNING, ENVIRONMENTAL SCIENTISTS
EC EVANS-GRAVES
 ENGINEERS, INC.
 Engineering Consultants
 May 2006
 BKI 10246-01

Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parishes, Louisiana
 Stage 0 Feasibility - RPC Contract No. LA 23 - 05



This page has been left intentionally blank.

INITIAL PROJECT CONCEPT

Existing Traffic Operations

The focus of the existing traffic operations analysis is a section of the LA 23 corridor extending south from Terry Parkway/Wall Boulevard in Jefferson Parish to the GIWW in Plaquemines Parish. This 1.58 mile corridor has the following general characteristics:

- Four 12 foot travel lanes;
- Center median, averaging 14-16 feet in width;
- Turn lanes at signalized intersections;
- Two 10 to 12 foot shoulders along each edge;
- Signalized intersections at Terry Parkway/Wall Boulevard, K-Mart Shopping Center, Lapalco Boulevard/Behrman Highway, Sav-a-Center driveway and Engineers Road/Planters Canal Road;
- Curb and gutter drainage along the eastern roadway edge;
- Open ditches and/or culverts along the western roadway edge;
- Transit service along corridor north of Lapalco Boulevard only;¹
- An average driveway density of approximately 33 driveways per mile, with most located on the western side of the corridor;
- A posted speed limit of 40 miles per hour

Land uses along the corridor range from heavy commercial to vacant. Properties fronting on the western edge of the corridor are approximately 99% developed. Most (approximately 90%) appeared occupied and active in commercial operations, offices, medical services or educational facilities. Properties fronting on the eastern edge of the corridor are less developed, in part due to access limitations presented by the New Orleans Gulf Coast Railroad (NOGCRR) mainline. This railroad parallels LA 23 from Belle Chasse through Gretna. Crossings of this corridor are limited to the existing major street intersections (Terry Parkway, Behrman Highway, Planters Canal Road), as well as 21 minor roads and driveways to existing commercial business or residential structures. Those developed properties found on the eastern side of the corridor are generally high intensity commercial, consisting of one or more large retail buildings (over 25,000 sq.ft.) organized in freestanding strip centers with assorted out parcel development. Access to these sites is taken from an adjacent street, such as Terry Parkway or Behrman Highway, as opposed to LA 23.

¹ Jefferson Transit service schedule, as of January 1, 2006, no longer offers service on LA Highway 23 south of Lapalco Boulevard to the NAS/JRB New Orleans in Belle Chasse.



Graphic by Burk-Klempeter, Inc., 2006. Data Collected by Evans-Graves Engineers, 2006.

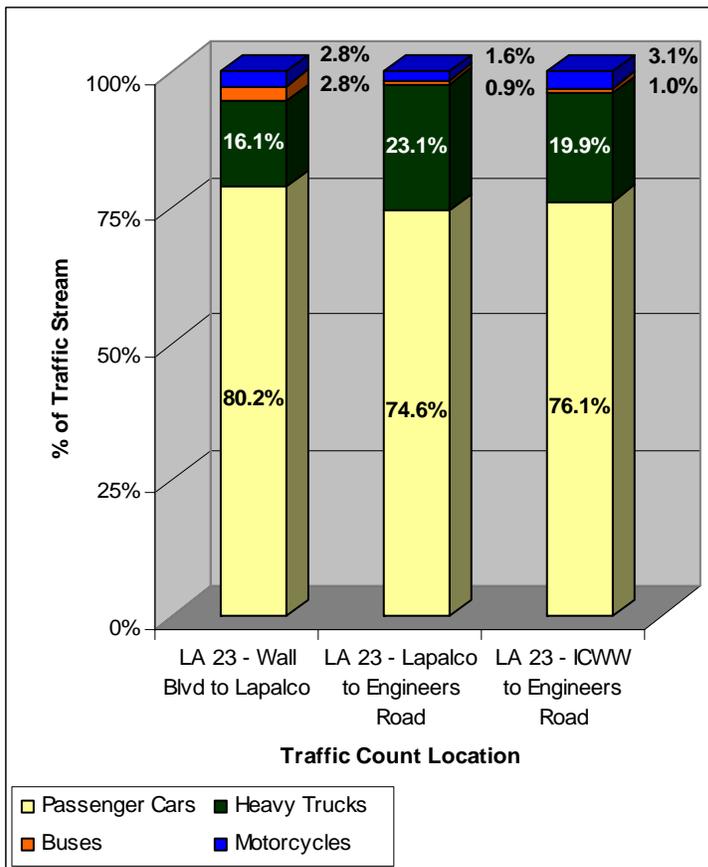


Figure 2 – Traffic Stream Composition

LA 23 – Terry Parkway to GIWW (01/2006)

- camping and recreational vehicles, motor homes, etc. with two, three or four axles.
- b. *Single-Trailer Trucks* - All vehicles consisting of two units, one of which is a tractor or straight truck power unit, with four or fewer, five or six or more axles.
 - c. *Multi-Trailer Trucks* - All vehicles consisting of three or more units, one which is a tractor or straight truck power unit, with six or seven or more axles.
4. Motorcycles - All two or three-wheeled motorized vehicles.

As shown in Figure 2, the majority of the traffic on LA 23 (74.6% to 80.2%) can be grouped as passenger cars. Heavy trucks, the next most prevalent group, comprised 16.1% to 23.1% of the total traffic stream in the corridor during the counting period. Buses and motorcycles comprised less than 6%, overall, of the total traffic stream.

Vehicle Classification (2006)

The analysis of existing traffic operations utilized average daily traffic count data provided collected by the project team. This data has been tabulated into vehicle classifications following the standardized FHWA “Scheme F” Vehicle Classification², defined as:

1. Passenger Cars - All sedans, coupes, and station wagons, plus all pickups, panels, vans and other vehicles such as campers, motor homes, ambulances, hearses, carryalls, and minibuses.
2. Buses - All vehicles manufactured as traditional passenger-carrying buses with two axles and six tires or three or more axles.
3. Heavy Trucks – covering all
 - a. *Single-Unit Trucks* - All vehicles on a single frame, including trucks,

² Office of Highway Policy Information, FHWA Vehicle Types, www.fhwa.dot.gov, January 3, 2006.

Average Daily Traffic Volume (2006)

Generally, the data gathered in January 2006 reveals that an average of 28,370 vehicles per day can be found on the corridor between Terry Parkway/Wall Boulevard and the GIWW. This average has been derived from the three stations established along the corridor.

The process of evacuation and repopulation following Hurricane Katrina has changed regional population distribution and travel demands. To determine the degree of impact of the hurricane on this corridor segment, the project team examined a variety of historic data. This included average daily traffic count figures from LADOTD, Jefferson Parish and Burk-Kleinpeter, for the period of 2001 to 2006. Table 1 provides a comparison between data collected for the project, with historical traffic numbers from the same general area.

Table 1
Average Daily Traffic Volumes, 2001 to 2006
 LA 23 Corridor Study Area, Jefferson and Plaquemines Parishes, LA

Corridor/Location	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2005</u>	<u>2006</u>
Belle Chasse Hwy (LA 23)					
Gretna City Limits		40,650		41,890	
Wall Blvd to Lapalco Blvd					33,150
Lapalco Blvd to Engineers Rd					34,540
Engineers Rd to GIWW	41,380		35,814		44,940
<hr/>					
Behrman Hwy (LA 428)					
East of Belle Chasse Hwy (LA 428)		29,890		28,510	
<hr/>					
Lapalco Boulevard					
Wall Blvd to Belle Chasse Hwy (LA 428)	41,800	42,200	32,500	34,400	
<hr/>					
Terry Parkway					
Carol Sue to Belle Chasse Hwy	27,000		32,850	29,700	
<hr/>					
Wall Boulevard					
Belle Chasse Hwy to Lapalco Blvd	21,900		25,800	22,300	

Notes:

- (1) Traffic counts in 2006 compiled by Evans-Graves Engineers, Inc.
- (2) Traffic counts reported on state highways in 2001, 2002, 2003 and 2005 provided by Louisiana Department of Transportation and Development.
- (3) Traffic counts reported on parish roadways provided by Jefferson Parish, Department of Traffic Engineering.

Compiled by Burk-Kleinpeter, Inc., 2006.

As shown in Table 1, total traffic volumes on LA 23 and other corridors show a general decline north of Lapalco Boulevard since the 2001 and 2002 count periods. Traffic



volumes south of Lapalco Boulevard recorded a slight growth, but in general, all traffic volumes and patterns in the area are best described as in flux due to Hurricane Katrina.

Corridor Level-of-Service Evaluation

An evaluation of the corridor's level-of-service utilized available traffic data for the corridor segments between Terry Parkway/Wall Boulevard and the GIWW. Common characteristics of the corridor's geometric design and traffic volume distribution collected as part of the data development tasks of the project, have been incorporated into the analysis. Finally, traffic signal characteristics, collected at the individual sites along the corridor, have been provided as inputs.

This analysis utilized a standard planning-level *Highway Capacity Manual* method for an arterial roadway.³ This analysis determines overall level-of-service based upon the roadway's average travel speed, percentage of travel time with a delay, density of traffic relative to accepted roadway capacity. One of six corresponding values for level-of-service (A through F) identifies the current traffic conditions in the segment. A value of A represents an optimum condition, while F represents the worst operating condition. A level-of-service C/D is generally recognized as acceptable for urban applications. As this corridor is suburban in nature, with both urban and transitional elements, it will be evaluated using a threshold of D.

Table 2 provides an overview of a planning level analysis of the level-of-service for the corridor. This analysis was completed for three time periods: 2001, 2003 and the present 2006. The analysis was staged to determine if changes in traffic volumes following Hurricane Katrina had a corresponding impact or change on level-of-service and corridor capacity.

As observed in the analysis, even with a slight reduction in traffic volume, the corridor's overall level-of-service is E, which indicates that peak-period traffic would be congested, with reduced travel speeds and increased travel time. Several observations of the corridor confirmed this condition, with several potential causes identified for this finding:

Current signal timing program - The current signal timing program used on LA 23 provides the majority of the clearance or green time at the various major intersections to the crossing streets (Terry Parkway/Wall Boulevard and Lapalco Boulevard/Behrman Highway). This reduces the amount of available time for traffic on LA 23 to progress north and south. It was observed that even with the bulk of the cycle's green time assigned to Behrman Highway, that traffic congestion and long queues of stopped or slow moving vehicles on this corridor at peak commonly occurred.

³ *Highway Capacity Manual, Special Report 209*, Transportation Research Board, National Research Council, 1998, as amended.

Table 2
Level-of-Service Evaluation by Corridor Segment
 LA 23 Corridor – Terry Parkway to GIWW

LA 23 Analysis Scenario	Average Daily Traffic Volume	Level of Service in Segment	Average Travel Speed in Segment
<u>Year 2001</u> Analysis of one corridor segment between at the GIWW (LADOTD Traffic Volume)	41,380 <i>in corridor segment</i>	LOS E <i>in corridor segment</i>	13.7 mph <i>in corridor segment</i>
<u>Year 2003</u> Analysis of one corridor segment between at the GIWW (LADOTD Traffic Volume)	35,814 <i>in corridor segment</i>	LOS E <i>in corridor segment</i>	13.8 mph <i>in corridor segment</i>
<u>Year 2006</u> Analysis of corridor between Terry Pkwy and GIWW (E-G Traffic Volumes)	34,540 <i>(Wall to Lapalco)</i> 44,940 <i>(Lapalco to GIWW)</i>	LOS E <i>both corridor segments</i>	14.4 mph <i>(Wall to Lapalco)</i> 13.5 mph <i>(Lapalco to GIWW)</i>

Notes

- (1) Assumes all characteristics for posted speed, driveway density, transit service and signal location as identified in general corridor characteristics.
- (2) Signal timing inputs assume a 150 second total cycle length, with a g/C of .36, as per the observed signal operations.
- (3) Year 2001 and 2003 traffic data obtained from LADOTD Station 221290, located on Belle Chasse Highway inside of Plaquemines Parish at the GIWW.
- (4) Year 2006 data collected by Evans-Graves Engineers, Inc.
- (5) Level-of-Service determined through analysis with Highway Capacity Software, version HCS+, with results of analysis included in Appendix A.

Compiled by Burk-Kleinpeter, Inc., 2006.

Driveway signal impact on corridor progression – The LA 23 corridor segment identified for the study contains two driveway-based signals, at K-Mart and the Sav-a-Center. The K-Mart signal is approximately 500 feet north of the center of the Lapalco/Behrman/LA 23 intersection. The Sav-A-Center signal is approximately 770 feet south of the center of the same intersection.

The signal at the K-Mart driveway appears to be actuated (thus stopping traffic on LA 23) in response to vehicles queuing to enter or exit the site. During the period of traffic observation, the signal appeared to activate only when the queue of exiting or entering vehicles extended beyond three waiting vehicles. On these occasions, the signal program would stop north/south progression on LA 23 and allow these queues to clear.

In some instances, stopped traffic filling the lanes of LA 23 northbound would extend back through the Lapalco/Behrman/LA 23 intersection, to the first driveway of the Sav-A-Center. Traffic headed south on LA 23 did not appear as affected, with observed blockages extending back approximately 150 to 200 feet.



The signal at the Sav-A-Center driveway appears, by visual inspection, to be a more recent installation than at the K-Mart driveway. It has visible loop detectors in the turn lane to the supermarket on southbound LA 23 as well as the supermarket's driveway. Like the other driveway, queues of vehicles waiting to turn onto or off of LA 23 activate the signal and halt north/south traffic flow.

Traffic observations during the peak periods identified a high percentage of U-turn vehicles using the southbound left turn lane and signal at the Sav-A-Center driveway. The origins of these vehicles appear to be the single-family residential subdivision oriented to Cottonwood Drive and Dale Avenue and traffic leaving a restaurant at the Cottonwood Drive/LA Highway 23 intersection. The queues of waiting vehicles would activate the signal via the loop detectors in the roadway surface. At the time of the observation, the queue contained five to eight vehicles per cycle, and would stop northbound LA 23 for a period of 15 to 20 seconds, which represents approximately 10-15% of the total cycle length.

In those instances when the signal activates, it created extended queues of stopped traffic on northbound LA 23. During the PM peak, these queues reached their longest lengths, extending over 1,500 feet south to between the parish line and Engineers Road. In some instances, the queue of stopped vehicles extended through the Engineers Road intersection and to the base of the Belle Chasse Bridge.⁴ Southbound LA 23 traffic would be stopped as well, but would not block the Lapalco Boulevard intersection. The line of stopped vehicles extended north from the Sav-A-Center driveway signal to just south of Cottonwood Drive, near the Lapalco/Behrman/LA 23 intersection.

Railroad corridor along LA 23 – The eastern edge of LA 23 corridor adjoins the NOGCRR line. This rail line maintains daily service and was used by trains traveling south to Belle Chasse on all occasions during the off-peak traffic observation process. The presence of this railroad presents several elements which may also contribute toward congestion and delay in the LA 23 corridor:

Signal interruption – the traffic signals controlling traffic on the main east-west cross streets can be preempted by trains using the rail corridor. These signals include a preemption sequence tied to the railroad at-grade crossings. As a train approaches, a warning light and bell attached to each cross buck activates. This accompanies a red signal for traffic on all east-west approaches, including turning movements from LA 23. Traffic continues on an extended green cycle north and south until trains clear the at-grade crossing safety zone. The normal traffic signal cycle then resumes.

Corridor elevation – the railroad line has a higher elevation than the centerline of LA 23. At the intersections of Terry Parkway and LA 23 and Behrman Highway and LA 23, the rail line berm is estimated to be at a 3-5% grade above the centerline of LA 23. Vehicles heading east/west appear to slow down within the intersections to account for the change

⁴ Corridor observations completed by Burk-Kleinpeter, Inc. on February 8, 9, and 14, 2006.

in elevation. Vehicles slow to well below the posted limit to cross over the rail lines, creating extended traffic backups on Wall Boulevard/Terry Parkway and Lapalco Boulevard/Behrman Highway. During the AM Peak, the queue of slow moving eastbound traffic on Lapalco and Wall Boulevard would extend back approximately 1,000 to 1,200 feet from the stop line. The longest and most extensive of these queues was observed on Wall Boulevard. During the PM Peak, the queue of slow moving traffic on Terry Parkway and Behrman Highway would extend back approximately 1,000 to 1,500 feet from the stop line.⁵ The longest and most extensive of these queues was observed on Behrman Highway.

This elevation change allows the rail corridor to cross over the top of the levee at the GIWW and into Belle Chasse via the existing vertical lift bridge. The difference between the elevation of LA 23 and the rail line appear less pronounced at Gretna Boulevard and Whitney Avenue, but starts increasing gradually as the rail line crosses Wright Avenue. The greatest differential in the elevation appears south of Lapalco Boulevard, at the intersection of Planters Canal Road and Engineers Road.

Intersection Operations and Level-of-Service (2006)

An evaluation of current intersection operations and level-of-service focused on existing signalized intersections in the corridor. Peak-period traffic volumes by direction and vehicle classification (cars, trucks, buses) have been collected at five locations. Within the data set, three of the intersections are at the crossings of major streets. Two are at the driveway entrances of existing commercial sites (K-Mart and Sav-A-Center). Signal timing plans were established in the field or programming information provided by the LADOTD District 02.

As noted in the discussion on traffic observations, the Lapalco Boulevard/Behrman Highway and Sav-A-Center intersections appear to be most congested. Queues of stopped traffic during peak at both intersections extended through the adjacent up and downstream intersections. The signals on the end of the project area corridor (Terry Parkway/Wall Boulevard and Engineers Road/Planters Canal Road) appear to operate within their capacity, the only interruption created by trucks and vehicles turning into or out of those driveways which have been allowed on each approach within 150 feet of the intersection.⁶

Table 3 provides an overview of the existing intersection operations and calculated level-of-service during the defined peak-period.

⁵ Conditions as recorded by Burk-Kleinpeter, Inc. at the time of the peak-period traffic count observation, February 8, 9 and 14, 2006.

⁶ At the time of observation (January 2006), commercial buildings in the northwest and northeast quadrants of the Terry Parkway/Wall Boulevard and LA 23 intersection were under construction. A combination of dump trucks, delivery vehicles and earth movers occasionally blocked east and westbound traffic. The southbound right turn lane on LA 23 at this intersection was reduced in width by construction cones and signs due to this construction. The northwest quadrant of the Engineers Road/Planters Canal Road and LA intersection contains a truck stop which has a driveway approximately 100 feet west of the intersection. (Burk-Kleinpeter, Inc., 2006)



Table 3
Level-of-Service Evaluation by Intersection
 LA 23 – Terry Parkway to GIWW

Intersection	AM Peak Period		PM Peak Period	
	LOS	Delay	LOS	Delay
LA 23 at Engineers Rd/Planters Canal Rd	D ⁽¹⁾	53.6 seconds	E	82.7 seconds
LA 23 at Sav-A-Center Driveway	D	53.4 seconds	E	77.3 seconds
LA 23 at Lapalco Boulevard/Behrman Highway	F	93.9 seconds	F	107.0 seconds
LA 23 at Kmart Driveway ⁽²⁾	D	41.0 seconds	D	50.3 seconds
LA 23 at Terry Pkwy/Wall Blvd	F	133.4 seconds	F	192.9 seconds

Notes

- (1) LA 23 northbound (from Belle Chasse) operates at an LOS E during AM peak.
- (2) As per the TSI for the Kmart Driveway, signal phases for movements on LA 23 are controlled by movements at the Lapalco/Behrman Highway signal.
- (3) Assumes all characteristics for posted speed, driveway density, transit service and signal location as identified in general corridor characteristics.
- (4) Level-of-Service determined through analysis with SIGNAL 2000, TEAPAC Ver 1.11.16, with summary results of analysis included in Appendix A.
- (5) Signal timing and phasing information from LADOTD District 02 for the Engineers Road, Sav-A-Center, Lapalco and Kmart Driveway locations. Terry Parkway signal timing and phasing was collected in-field at time of traffic counting. All traffic signals offer a preemption cycle for New Orleans and Gulf Coast Railroad line, which runs approximately 15 feet east of the current edge of LA 23 right-of-way. Railroad line was not active during the AM and PM peak periods.
- (6) Assumes a grade on the east approach at all intersections of 3-5%, depending on location to account for railroad line.

Compiled by Burk-Kleinpeter, Inc., 2006.

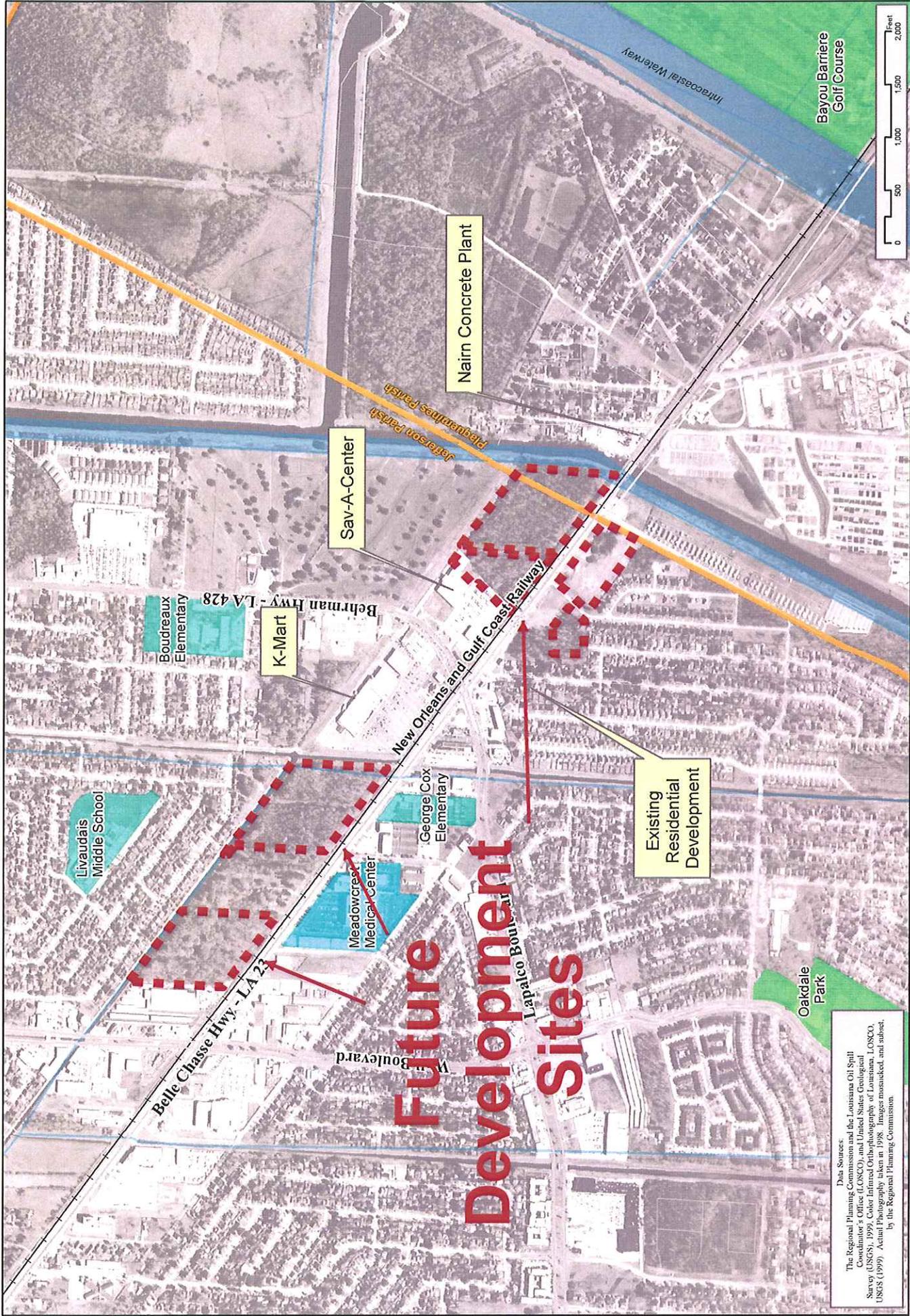
Future Development Issues

Future Land Use (Jefferson Parish)

Jefferson Parish has an adopted comprehensive plan for land use known locally as Envision Jefferson 2020.⁷ This plan, completed in December 2003, identifies a mixture of future land uses along LA 23. Most of these projected uses appear little changed from the existing pattern. Properties on the western side of the corridor should continue a pattern of infill and renewal. Vacant properties with frontage along LA 23 will likely include commercial uses. Both LADOTD and local government have an opportunity to work together to address common issues of access management through the appropriate driveway permitting and approval process.

Table 4 provides an overview of these sites, as shown on Figure 3, including their location and estimated total acreage.

⁷ *Envision Jefferson 2020 – Comprehensive Plan for Jefferson Parish, Louisiana*, provided by the Jefferson Parish Planning Department, adopted 2003.



Data Sources:
 The Regional Planning Commission and the Louisiana Oil Spill
 Coordinator's Office (LOSCO), and United States Geological
 Survey (USGS), 1999. Color Infrared Orthophotography of Louisiana, LOSCO,
 USGS (1999). Actual Photography taken in 1998. Images mosaicked, and subset,
 by the Regional Planning Commission.

Figure 3.
Future Development Sites
 LA 23 - Terry Parkway to Parish Line

BKJ BURK-KLEINPETER, INC.
 PROFESSIONAL ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
 May 2006
 BKJ 10246-01

EVANS-GRAYES ENGINEERS, INC.
 ENGINEERING CONSULTANTS

Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parishes, Louisiana
 Stage 0 Feasibility - RPC Contract No. LA 23 - 05



Table 4
Future Development Sites – Jefferson Parish
 LA 23 – Terry Parkway to Parish Line

Site No.	Description	Location	Total Acreage
Site #1	Undeveloped property	east of LA 23, southeast of Terry Parkway	12.2 acres
Site #2	Undeveloped property, adjacent to existing commercial development, separated from adjacent areas by drainage canal	east of LA 23, across from George Cox Elementary School	14.3 acres
Site #3	Undeveloped property, adjacent to existing commercial development	east of LA 23, adjacent to Sav-A-Center Shopping Center	5.6 acres
Site #4	Undeveloped property	east of LA 23, adjacent to Plantation/Outfall Canal	13.6 acres
Site #5	Undeveloped property, adjacent to existing single-family residential development	west of LA 23, between Parish Line and Dale Avenue	7.8 acres
TOTAL AREA			53.5 acres

Notes

- (1) Acreage calculation assumed based upon aerial photography review of the individual sites.
- (2) Description as of January 2006, at time of initial field review.

Compiled by Burk-Kleinpeter, Inc., 2006.

Properties on the eastern side of the corridor likewise will continue a pattern of infill and renewal. The continued presence and active use of the New Orleans and Gulf Coast will likely dampen plans for large scale development of existing vacant parcels unless issues relative to creation of new rail crossings or interconnections with existing locations can be addressed. Two large parcels on the northeast and southeast quadrants of the Lapalco Boulevard/Behrman Highway and LA 23 intersection offer the potential for such an arrangement. The first is the Kmart, located at 2701 Belle Chasse Highway, with an existing driveway with railroad grade crossing and traffic signal 509 feet north of the Lapalco Boulevard/Behrman Highway and LA 23 intersection. The second is the Sav-A-Center, located at 2851 Belle Chasse Highway. This location has two existing railroad at-grade crossings on LA 23, one of which is signalized.

Future Land Use (Plaquemines Parish)

Plaquemines Parish has no adopted comprehensive plan. A future land use scenario from an existing land use study area completed in March 2003 identified no changes from the current pattern.⁸ This conclusion was tested based upon review of the proposed map, aerial photography and actual field conditions (within Belle Chasse). While some infill development has taken place in the northwest quadrant of the Engineers Road and LA 23 intersection, the general finding was no substantial changes in the pattern and density of development.

Outside of the study area, a series of ongoing developments in Plaquemines Parish have been identified which may have an impact on traffic demand on the LA 23 corridor segment contained in the study area, as well as its primary approaches. Table 5 provides an overview of these sites, as shown on Figure 4.

Most this development will be oriented to the east of Belle Chasse along the Woodland Highway corridor, east of LA 23. This area is mostly vacant, though several single-family residential subdivisions have been developed in the past five years east of Belle Chasse Highway (Spring Wood and Pleasant Ridge). These developments joined an existing collection of subdivisions constructed prior to the mid 1990s.

A review of this area with Parish officials, property owners and developers indicated that the long-term trend is for more residential, commercial and manufacturing development in the area, and less undeveloped land.⁹

In March 2004, it was estimated that 4,300 acres of the total 6,480 acres in upper Belle Chasse and English Turn would be developed within a 20-year period. This was estimated to add an additional 4,000 PM peak-hour or 39,430 weekday trips to the roadway network in the area.¹⁰ Of this total, approximately 40% are assumed to be added to the LA 23 corridor in the future.

⁸ *Plaquemines Parish Land Use Study*, Prepared for Plaquemines Parish Government and the RPC, Urban Planning & Innovations, Co., in association with Villavaso & Associates, LLC, March 2003.

⁹ *Feasibility Study for Woodland Highway (LA 406) Widening, Belle Chasse Highway to English Turn*, prepared for The RPC by Burk-Kleinpeter, Inc., March 2004.

¹⁰ Pg. 3.9, Chapter Summary and Implications for Planning, *Feasibility Study for Woodland Highway (LA 406) Widening, Belle Chasse Highway to English Turn*, prepared for The RPC by Burk-Kleinpeter, Inc., March 2004.



Table 5
Future Development Sites – Plaquemines Parish
 Belle Chasse Area

Project Name and Location	Description	Projected Impacts on Traffic
NAS/JRB New Orleans Facility Development Belle Chasse, LA	Construction of 935 housing units at two bases (NAS and Algiers), commissary, exchange and joint reserve center. Extension of southwest runway by 2,000 feet	Facilities would increase number of future residents and workers (both civilian and military). NAS/JRB is only accessible from LA 23.
Residential/Commercial Development Belle Chasse, LA	Long-term development of a portion of approximately 6,480 acres bounded by the GIWW, Mississippi River and Belle Chasse Highway.	Increase number of residents and workers in the Parish. LA 23 provides one of three points of access to the area, the others being General DeGaulle and the Belle Chasse Ferry. Projected increase in traffic of 4,000 vehicles in PM Peak or 40,000 per day at full development and occupancy.

Notes

- (1) NAS/JRB New Orleans information from the *Peters Road Extension Environmental Assessment*, 2003.
- (2) Residential/Commercial development information from the *Feasibility Study for Woodland Highway (LA 406) Widening, Belle Chasse Highway to English Turn*, March, 2004.

Compiled by Burk-Kleinpeter, Inc., 2006.

Future Transportation Improvements

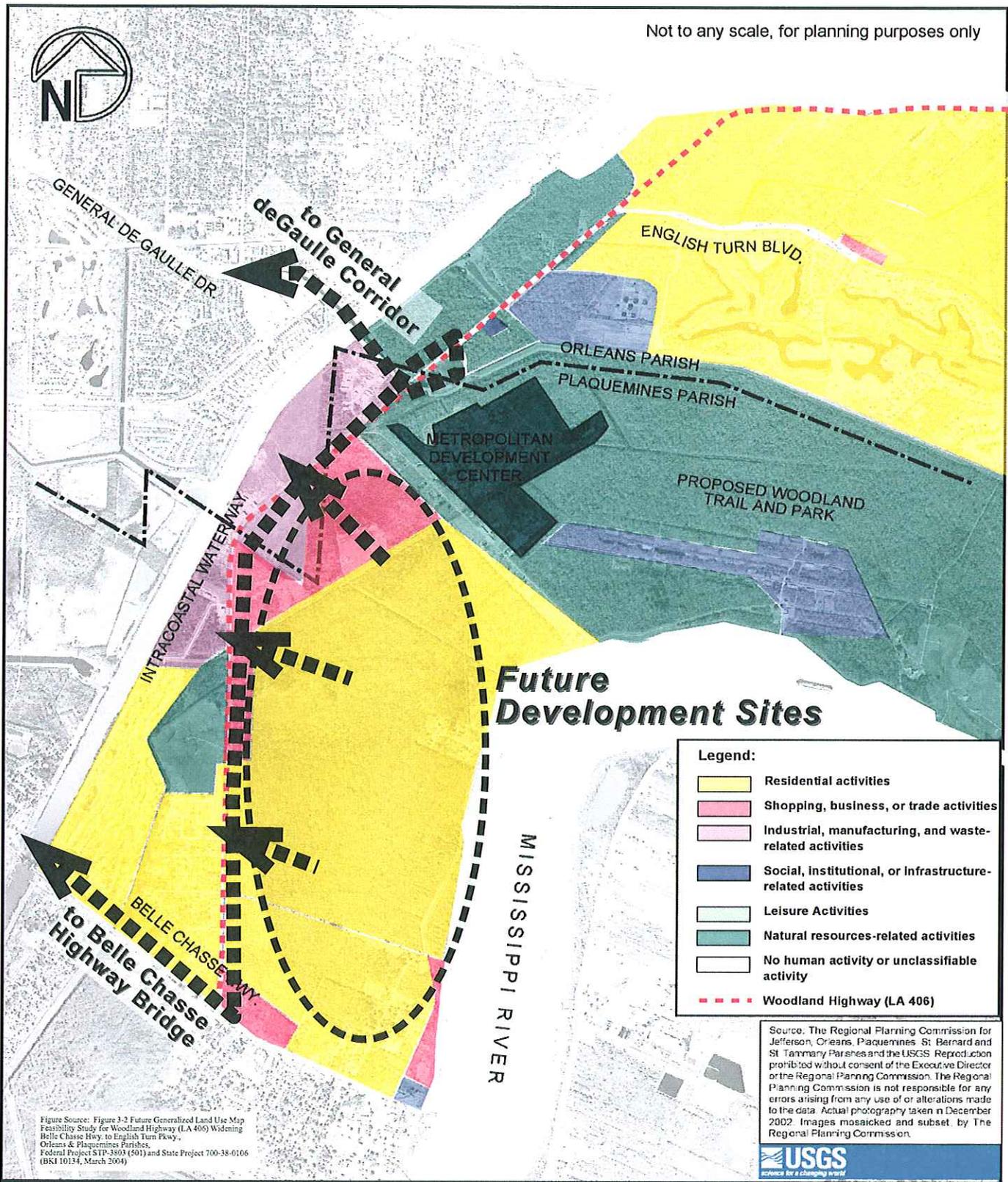
A review of the regional transportation program and transportation improvement program identified a series of general roadway improvements which will enhance traffic flow and connectivity through the identified study area.

These projects can be grouped into two categories. The first include maintenance projects which will overlay existing roadways and address surface deficiencies. The second include construction projects which will provide much needed capacity improvements to existing roadways which intersect with or lead to LA 23. Long-term construction projects identified in the regional transportation plan for implementation are added to the transportation improvement program as funding commitments from federal, state or local sources are identified.

Table 6 provides an overview of these projects, including a basic description and timeline for implementation (as known); while Figure 5 illustrates the location of these projects in reference to the Stage 0 study area.



Not to any scale, for planning purposes only



Future Development Sites

Legend:

- Residential activities
- Shopping, business, or trade activities
- Industrial, manufacturing, and waste-related activities
- Social, institutional, or infrastructure-related activities
- Leisure Activities
- Natural resources-related activities
- No human activity or unclassifiable activity
- Woodland Highway (LA 406)

Source: The Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard and St. Tammany Parishes and the USGS. Reproduction prohibited without consent of the Executive Director or the Regional Planning Commission. The Regional Planning Commission is not responsible for any errors arising from any use of or alterations made to the data. Actual photography taken in December 2002. Images mosaicked and subset by The Regional Planning Commission.



Figure Source: Figure 3-2 Future Generalized Land Use Map Feasibility Study for Woodland Highway (LA 406) Widening Belle Chasse Hwy. to English Turn Hwy., Orleans & Plaquemines Parishes, Federal Project STP-3803 (501) and State Project 700-38-0106 (BKI 10134, March 2004)



Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana
 Stage 0 Feasibility Study - RPC Contract No. LA 23-05

BKI BURK-KLEINPETER, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

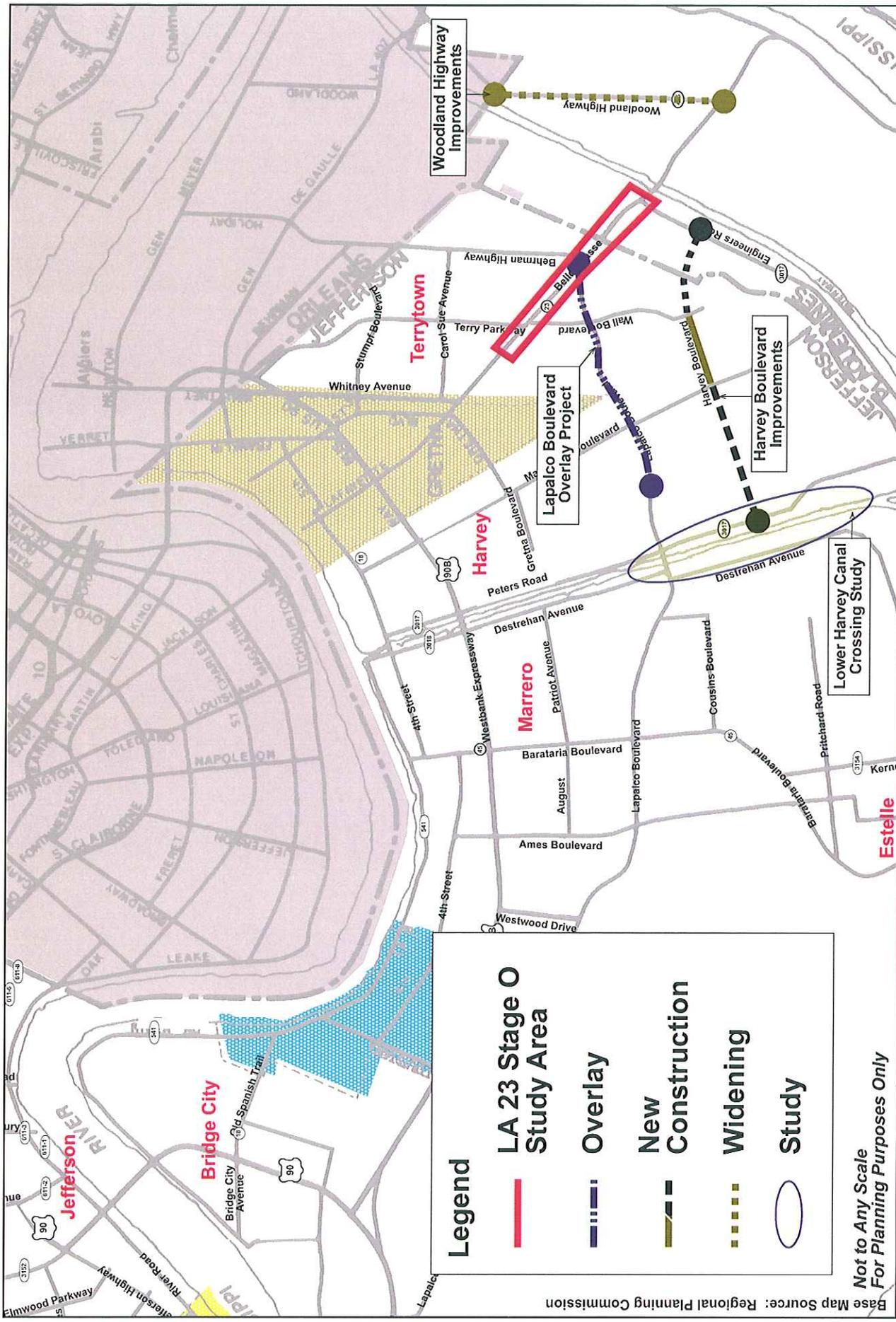
EG EVANS-GRAYES ENGINEERS, INC.
 ENGINEERING CONSULTANTS

May 2006
 BK1 10246-01

Figure 4.
 Development Sites
 Plaquemines Parish, LA



Base Map Source: Regional Planning Commission



Legend

- LA 23 Stage 0 Study Area
- - - Overlay
- - - New Construction
- - - Widening
- Study

Not to Any Scale
For Planning Purposes Only



Figure 5.
Transportation Improvement Program Projects
In Vicinity of LA 23 Stage 0 Study Area

BK BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
May 2006
BKI 10246-01

EC EVANS-GRAVES ENGINEERS, INC.
Engineering Consultants

Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parish, Louisiana
Stage 0 Feasibility Study - RPC Contract No. LA 23-05



Table 6
Proposed Transportation System Improvements
LA 23 Corridor and Surrounding Area

Source	Project Title	Description
<i>Transportation Improvement Program – New Orleans Urbanized Area Fiscal Years 2005-2007, RPC, October 12, 2004</i>	Lapalco Boulevard Overlay Projects <i>Use STP>200K program funds (plus local match) to overlay Lapalco Boulevard east of the Harvey Canal</i> Total Cost: \$4.89 million	SAP 742-26-0050 - LA 23 to Wall Blvd (4/04) SAP 742-26-0052 – Wall Blvd to Timberlane Dr. (FY05) SAP 742-26-0055 – Timberlane Dr. to Manhattan (FY05) SAP 742-26-0054 – Bayou Fatma to Brooklyn Dr. (FY06) SAP 742-26-0053 – Manhattan to Bayou Fatma (FY07)
	Harvey Boulevard Improvements <i>Use STP>200K program funds (plus local match) to widen existing road and construct new road extension</i> Total Cost: \$27.2 million	SAP 742-26-0044 – Wall Blvd to Engineers Rd (FY06) SAP 742-38-0003 – New Roadway, Plaquemines (FY07) SAP 742-26-0073 – Manhattan to Peters (FY 08-10) SAP 742-26-007X – Wall to Manhattan, 2 to 4 lanes (FY08-10)
	Lower Harvey Canal Crossing Study <i>Use STP>200K program funds (plus local match), to complete an environmental review canal crossings in the Lower Harvey Canal</i> Total Cost: \$40,000 (Supplement 1)	Study authorized in Jefferson Parish, Cost shown for project supplement (FY05)
	Woodland Highway (LA406) Improvements <i>Use STP>200K program funds (plus local match), to complete intersection improvements in corridor</i> Total Cost: \$4.5 million	SAP 838-03-0018 – Widen Intersections in Plaquemines Parish (FY 08-10)
	Harvey/Lapalco – Harvey Canal Crossing Total Cost – unknown	Project to improve east-west capacity over the Harvey Canal on the Westbank of Jefferson Parish. Suggests improving capacity at either the existing Lapalco Bridge or a new four lane alignment over at Harvey Boulevard.
<i>Metropolitan Transportation Plan – New Orleans Urbanized Area, Fiscal Year 2027, RPC, October 12, 2004</i>	Widening or Extension of Existing Roadways Total Cost – unknown	Identification of multiple projects that include lane additions in one or more sections or minor extensions to provide better connectivity. Project grouping includes improvements to the following locations of interest: <ul style="list-style-type: none"> • Harvey Boulevard Extension (Wall to Engineers), 4, lane • Harvey Boulevard Extension (Peters to Manhattan), 4 lane • Harvey Boulevard (Wall to Manhattan), 2 to 6 lanes • LA 406 Woodland Highway, Upgrade 2 to 4 lanes • LA 23 Widening, Wall Boulevard to LA 3017

Compiled by Burk-Kleinpeter, Inc., 2006.



Future Development Analysis

As noted in the previous discussion, land uses along LA 23 could be described as in transition. Several large parcels are currently vacant. However, long-term plans for these areas indicate the potential for an increase in developed areas and traffic. To determine how the development of these areas would impact traffic demand on the corridor, a trip generation analysis was completed on these vacant areas. Future land use activities are based on updated plans for the area. Development sites within vacant areas have been determined using the ratio of building sites to total site size developed from existing sites in the area. Combined with this analysis is information for other proposed development along Woodland Highway in the Belle Chasse area. As determined at the time of a review, these developments will have an appreciable impact, over time, on traffic demands on LA 23.

Table 7 provides an overview of the potential for added trips in the corridor through the year 2025, as well as current status of these sites based upon discussions with local government and planning representatives. The threshold 2025 was identified since it conformed to the likely build-out of the Jefferson Parish land use plan. This data is presented with the understanding that individual decisions and market forces may result in changes or implementation schedule. Where required, these trips will be added to the corridor to identify the sufficiency of improvements over the long-term as part of the general planning analysis.

Table 7
Trip Generation Potential of Vacant Properties within LA 23 Corridor
Build-Out Scenario (Year 2025) – Jefferson and Plaquemines Parishes

Site/Description	Projected Trip Generation			Development Status
	Weekday Trips	AM Peak Hour	PM Peak Hour	
Site #1 (JP) – 12.2 acres east of LA 23, southeast of Terry Parkway	+ 5,980	+ 90	+ 540	Site currently undeveloped. Future Land Use is Community Mixed Use (CMU - Jefferson Parish Future Land Use Map)
Site #2 (JP) – 14.3 acres east of LA 23, across from George Cox Elementary School	+ 6,970	+ 105	+ 630	Site currently undeveloped. Future Land Use is Community Mixed Use (CMU - Jefferson Parish Future Land Use Map)
Site #3 (JP) – 5.6 acres east of LA 23, adjacent to Sav-A-Center Shopping Center	+ 2,730	+ 41	+ 246	Site currently undeveloped. Future Land Use is Community Mixed Use (CMU - Jefferson Parish Future Land Use Map)
Site #4 (JP/PP) – 13.6 acres east of LA 23, adjacent to Plantation/Outfall Canal	+ 6,640	+ 100	+ 600	Site currently undeveloped. Future Land Use is Community Mixed Use (CMU - Jefferson Parish Future Land Use Map)
Site #5 (JP) – 7.8 acres west of LA 23, between Parish Line and Dale Avenue	+ 370	+ 29	+ 39	Site currently undeveloped. Future Land Use is Low Density Residential (Jefferson Parish Future Land Use Map)
Woodland Highway (OP/PP) – Multiple development sites east of Belle Chasse Highway	+10,360 <i>to LA 23 only</i>	+ 620 <i>to LA 23 only</i>	+ 830 <i>to LA 23 only</i>	Identified in March 2004 for Woodland Highway corridor study. Sites in varying stages of development.
TOTAL	+23,060 <i>vehicle trips</i>	+ 985 <i>vehicle trips</i>	+ 2,885 <i>vehicle trips</i>	Figures shown for full build-out and occupancy of development sites

Notes

- (1) Trip rates from the *Trip Generation Manual*, 7th Edition, Institute of Transportation Engineers, 2003. Residential properties assumed to be single-family (Land Use Code 210), commercial assumed to correspond to the Free-Standing Discount Store category (Land Use Code 815).
- (2) Woodland Highway corridor trip generation from Table 3-2, Trip Generation Table, *Feasibility Study for Woodland Highway (LA 406) Widening, Belle Chasse Highway to English Turn*, March, 2004, pg. 3.6. Distribution based upon assumed traffic distribution on Woodland Highway between Belle Chasse Highway and General de Gaulle Boulevard corridors, as build-out. Amount of peak-period traffic based upon assumption of 14% of total in AM and PM peak.
- (3) Land Use pattern based upon “Preferred Scenario, West Bank Area East of the Harvey Canal”, *Envision Jefferson 2020*, as produced by gcr & associates, production date 11/21/2002.

Compiled by Burk-Kleinpeter, Inc., 2006.



Identified and Known Constraints

The LA 23 corridor runs parallel to a section of the NOGCRR. According to the railway's webpage, the NOGCRR is a 32 mile long railroad that interchanges with the Union Pacific Railroad in Westwego, LA. This railroad serves over twenty switching and industrial customers and is the only railroad operating east of Avondale, LA on the westbank of the Mississippi River.¹¹ The edge of the right-of-way for the railway track is approximately 20 to 25 feet from the curb line adjacent to LA 23's east shoulder. Relocation or reduction in this rail corridor's right-of-way is not considered a feasible option for this project.

Other general constraints which will need to be considered during the concept development process also include the existing utility lines found along the corridor, which have been observed to include:

- A gas pipeline appears to be parallel to the west side of LA 23. Its location was noted since it has an above ground crossing of the Bayou Barataria Outfall Canal. Two additional pipelines can be found parallel to the corridor's western edge. They cross the Bayou Barataria Outfall Canal at 40 feet and 60 feet west of LA 23. Both are marked with ATMOS Energy warning signs. In addition, a warning sign from Bell South was found between the two pipes.
- A newly installed gas pipeline warning sign was found on the east side of LA 23 in the segment bounded by Bellemeade Boulevard and Terry Parkway/Wall Boulevard. During final design, a thorough review of the corridor will be required to account for new signs which are being installed to replace others which have been destroyed as a result of vandalism or Hurricane Katrina.
- LA 23 crosses three drainage canals within the study area. The first is an unnamed Jefferson Parish canal approximately 1,050 feet northwest of the Terry Parkway/Wall Boulevard intersection.¹² The second, Oakdale Canal is located approximately 845 feet northwest of the Lapalco Boulevard/Behrman Highway intersection (north of the Kmart). Both appear to connect the Industry Canal to Bayou Fatma. The third canal, Bayou Barataria Outfall Canal, is located approximately 2,400 feet southeast of the Lapalco Boulevard/Behrman Highway intersection.
- A sewer lift station (Plaquemines Parish Government Lift Station #1) was located on Planters Canal Road near the intersection with LA 23 and Engineers Road. It is east of the edge of the existing LA 23 corridor, separated from its edge by the railroad track and its earthen berm.

¹¹ Information obtained from the website of the New Orleans and Gulf Coast Railway, www.rgpc.com.

¹² This location appears to be owned by Jefferson Parish, as per the signs posted on the canal identifying it as a Jefferson Parish drainage canal easement.

- A small drainage ditch runs intermittently behind the railroad tracks from just north of Lapalco Boulevard to just south of Terry Parkway.
- Overhead utilities and streetlights are along both sides of the corridor. All traffic signals at intersections are mounted on wires and poles. Mast arms are used at the intersection of the Sav-a-Center driveway and LA 23.
- A cemetery, Westlawn South, was identified at the intersection of LA 23 and Wright Avenue. This facility is located outside of the immediate study area, but is approximately 85 feet east of the apparent edge of LA 23.

Initial Feasibility Analysis

The existing LA 23 corridor's documented traffic operations conclude that it is currently near or over capacity at most existing intersection, while the corridor itself is approaching capacity at peak. This condition, as observed, is most evident along the corridor south of Lapalco Boulevard. As land areas adjacent to the corridor develop, increase travel demands will worsen this existing condition.

The design concept identified in Figure 6 represents input from two groups: the RPC/LADOTD District 02 and the consultant team. The RPC/LADOTD District 02 proposal incorporates those elements identified in the statement of purpose and need and creates an immediate project which will help the areas of greatest congestion and delay. All design standards, cross sections and costs for this section have been developed by this group. The consultant team has incorporated the concept of this improvement for information only and continuity in the analysis of the up and downstream portions of the corridor.¹³ This helps address the statement of purpose and need as well as the totality of traffic operational issues along the corridor. The definition of up and downstream improvements has included input from the Project Advisory Committee, as well as the built environment presented by the existing LA 23 corridor.

Right-of-Way

The current LA 23 corridor is approximately 200 feet wide. It contains an 80-90 foot section which includes the existing NOGCRR corridor and vacant strip east of the rail line. The right-of-way line on the east side of the corridor is held constant, until it crosses the Algiers Outfall Canal. At this point, the line moves east approximately 12 feet and continues south toward the Engineers Road intersection. It is assumed that all corridor improvements will take place within an existing 110 foot right-of-way which extends west from the current curb line adjacent to the railroad, with a small section of right-of-way (approximately 600 sq ft, 12 feet wide by 50 feet long) required on the north approach of the Engineers Road intersection.

¹³ **NOTE:** A separate project, undertaken by LADOTD District 02 has been identified to add lane capacity to LA 23 northbound and southbound from just north of the Algiers Outfall Canal to the intersection of Lapalco Boulevard and Behrman Highway. Information on this improvement has been included to demonstrate continuity of the improved capacity within the total corridor. A separate Stage 0 item has been completed for this improvement by LADOTD District 02.



Cost Estimate Development

The cost estimate reflects input from the LADOTD standardized unit costs for roadway construction. Details for construction, along with demolition, design, construction administration, survey and contingency have been provided as part of the study appendices. The basis for all unit cost assumptions for the project is the LADOTD Unit Cost Bid Summaries for the 1st quarter of 2006.¹⁴

Drainage and Utilities

The west side of the LA 23 corridor contains several underground and overhead utilities. Field inspection of the area indicates that these utilities include electrical, gas, drainage and sewerage. All improvements within the corridor will have no impact on existing utility lines located in this area.

Cross Section¹⁵

All cross section information used for the project have been based on the appropriate standards of LADOTD. As LA 23 is a state highway, the final approvals and acceptance of any section and design will rest with the Department.¹⁶ As proposed, the cross section will hold the existing curb line on the eastern edge of the corridor. No intrusion or reduction of the current clear zone around the NOGCRR line is anticipated. All necessary and required coordination steps with the NOCGRR are suggested during the advanced stages of design. However, the sections and recommendations presented herein include comments and suggestions made as a result of the review of existing conditions, field data, as-built drawings (as available), survey information, and those entities participating in the Project Advisory Committee process (RPC, Jefferson Parish, Plaquemines Parish, LADOTD District 02). As such, this does reflect a final approved design or construction plan, which would be developed in future phases of the prescribed LADOTD project development timeline.

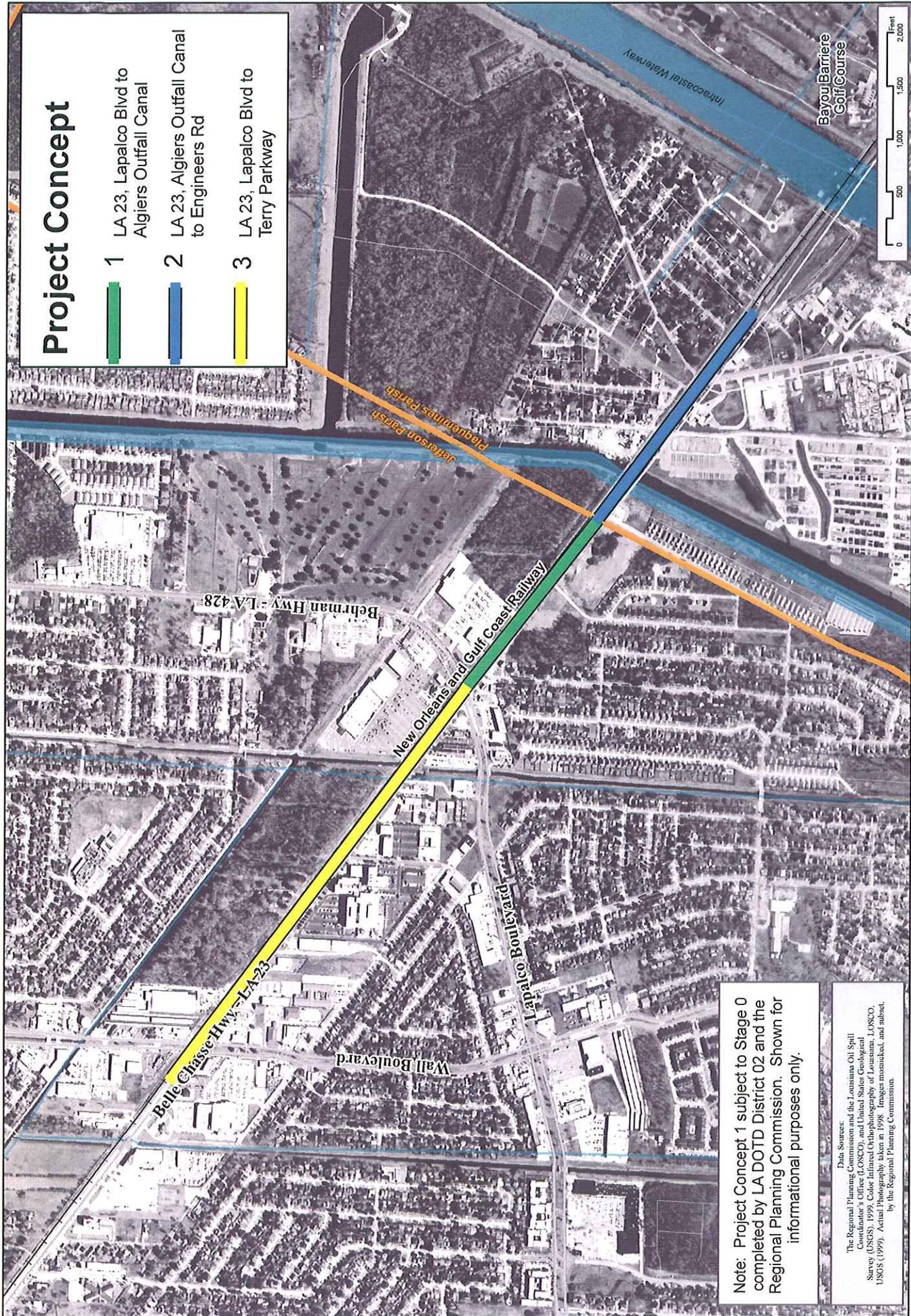
Traffic Control and Operations

The corridor has been part of a general program of signal upgrades and improvements made by the Parishes and LADOTD District 02 in the Greater New Orleans area. For the purposes of this project, it has been assumed that all existing signals would be coordinated and interconnected (as needed) as part of this general improvement.

¹⁴ Quantity Summary Sheets, Louisiana Department of Transportation and Development, 1st Quarter 2006.

¹⁵ A separate project, undertaken by LADOTD District 02 will identify the final cross section for the improvements to LA 23 northbound and southbound from just north of the Algiers Outfall Canal to the intersection of Lapalco Boulevard and Behrman Highway. Items included in this report are for information only.

¹⁶ **NOTE: General design issues including lane, median and shoulder widths, will be addressed in more advanced design. All other specific design issues, including but not limited to those mentioned above and that pertain to LADOTD standards shall be addressed in more advanced stages of design.**



Project Concept

- 1 LA 23, Lapalco Blvd to Algiers Outfall Canal
- 2 LA 23, Algiers Outfall Canal to Engineers Rd
- 3 LA 23, Lapalco Blvd to Terry Parkway

Note: Project Concept 1 subject to Stage 0 completed by LA DOTD District 02 and the Regional Planning Commission. Shown for informational purposes only.

Data Sources:
 The Regional Planning Commission and the Louisiana Oil Spill Coordinator's Office (LONSCO), and United States Geological Survey (USGS), 1999, Color Infrared Orthophotography of Louisiana, LONSCO, USGS (1999), Aerial Photography taken in 1998. Images mosaicked, and subset, by the Regional Planning Commission.

Figure 6.
Definition of Project Concept
 LA 23 - Terry Parkway to Intracoastal Waterway

BKI BURK-KLEINPETER, INC.
ENGINEER, ARCHITECT, PLANNER, ENVIRONMENTAL SCIENTIST

EVANS-GRAVES ENGINEERS, INC.
Partnering Consultants

May 2006
 BKJ 10246-01

Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parishes, Louisiana
 Stage 0 Feasibility - RPC Contract No. LA 23 - 05

Algiers Outfall Canal Bridge

The corridor contains a minor bridge crossing the Algiers Outfall canal. This bridge consists of two independent sections, one of which is about 10 inches higher in elevation than the other. The bridge has 14 foot travel lanes, which would be reduced to a standard 12 foot width. A widening of the bridge would take place to the west within the limits of the existing right-of-way. A small section would be added to the northbound span, bringing it closer to the southbound span. A jersey barrier would be installed between the two spans to address the differential in elevation.¹⁷

Initial Limits of Construction and Project Details

Based upon review of existing traffic operations, the current LA 23 corridor has a series of logical segments which could be transitioned into project phases which address the specific points within the initial statement of purpose and need:

- LA 23, Lapalco Boulevard to Algiers Outfall Canal, improvements as defined and undertaken by the RPC and LADOTD District 02;
- LA 23, Algiers Outfall Canal to Engineers Road, improvements to the main entry/exit point to the corridor segment from the south;
- LA 23, Lapalco Boulevard to Terry Parkway, improvements to the main entry/exit point to the corridor segment from the north.

The improvements required within each of these portions of the corridor to support the upgrade of LA 23 and address the initial statement of purpose and need include:

LA 23, Lapalco Boulevard to Algiers Outfall Canal (Figures 7 and 8)

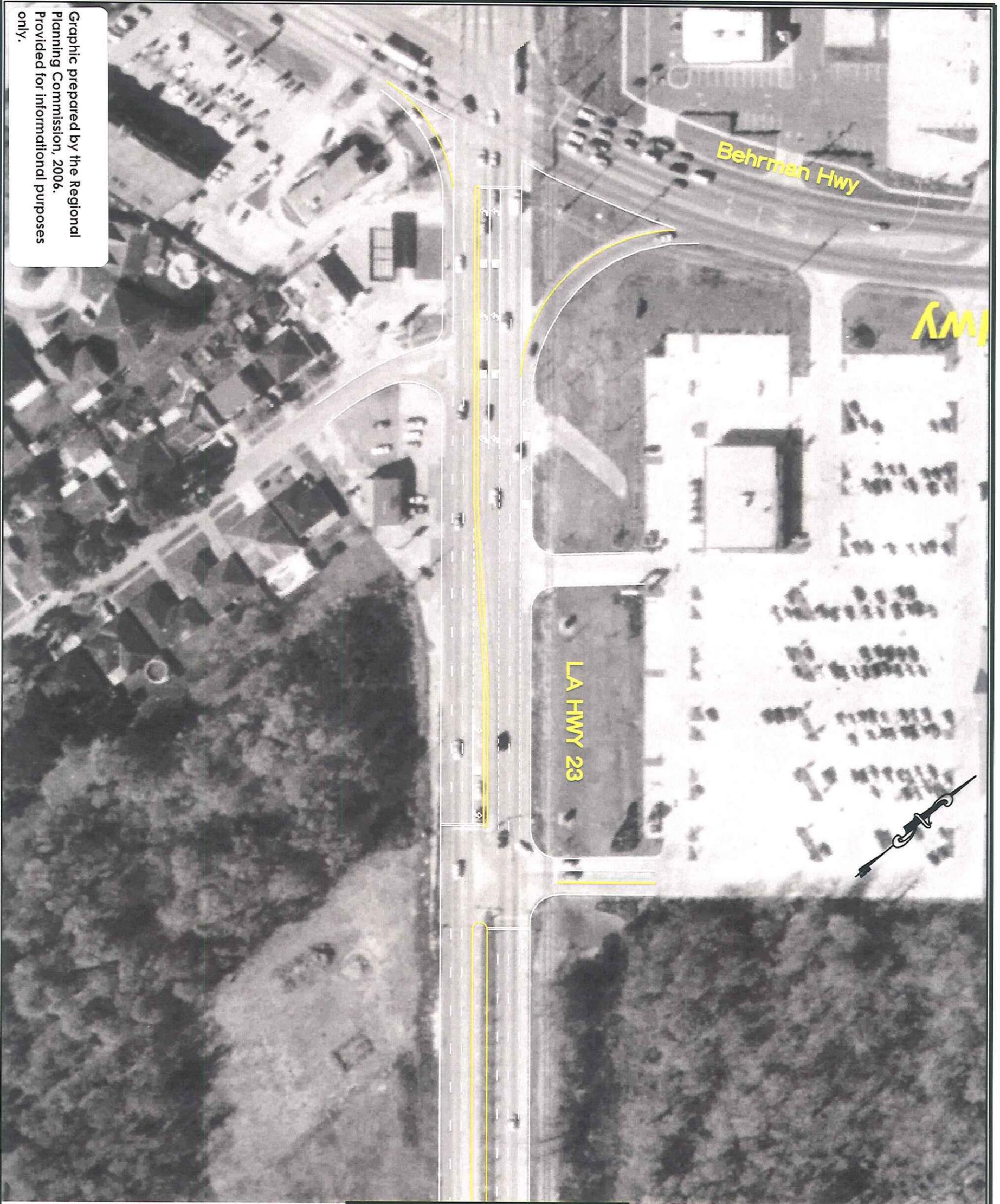
This portion of the project, as defined and developed by the RPC and LADOTD District 02, extends south from the Lapalco Boulevard/Behrman Highway intersection approximately 2,000 feet to just north of the Algiers Outfall Canal. Improvements to this section of the road include:

- Widening of LA 23 north from the Canal to the Sav-a-Center driveway to a 4-lane section northbound, starting north of the Algiers Outfall Canal Bridge;
- Creation of a 3-lane section on LA 23 northbound which extends the queue space for the eastbound dedicated right turn lane, from a transition point approximately 512 feet north of the Algiers Outfall Canal Bridge and converts the right-turn lane at the Sav-A-Center to a through-right¹⁸;
- Extension of the eastbound right turn lane from Lapalco Boulevard from its transition point with LA 23 into a dedicated through lane;
- Transition of southbound lane addition into existing southbound lanes prior to the Algiers Outfall Canal Bridge.

¹⁷ According to LADOTD Bridge Maintenance, the Algiers Outfall Canal bridges are listed as being in good condition, having gone through a thorough inspection about 2 years ago (Burnell Dudley LADOTD Bridge Maintenance to Ken Magiera, Evans-Graves).

¹⁸ **NOTE:** The RPC and LADOTD District 02 have proposed an additional northbound through lane to this section. This lane would end at the queue lanes for the westbound double left onto Lapalco Boulevard. This lane would extend back approximately 1,500 – 1,800 feet, through the Sav-A-Center driveway. This lane would be an additional through lane at this intersection.

Graphic prepared by the Regional Planning Commission, 2006. Provided for informational purposes only.



Match Line Figure 8

Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parish, Louisiana
Stage 0 Feasibility Study - RPC Contract No. LA 23-05



Figure 7.
LA 23 Lapalco Boulevard to
Sav-A-Center Driveway
Proposed Improvement - LA 23 Stage 0
Feasibility Study

Match Line Figure 7



Graphic prepared by the Regional Planning Commission, 2006. Provided for informational purposes only.

Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05



Figure 8.

LA 23 Sav-A-Center Driveway to North of Algiers Outfall Canal Proposed Improvement - LA 23 Stage 0 Feasibility Study

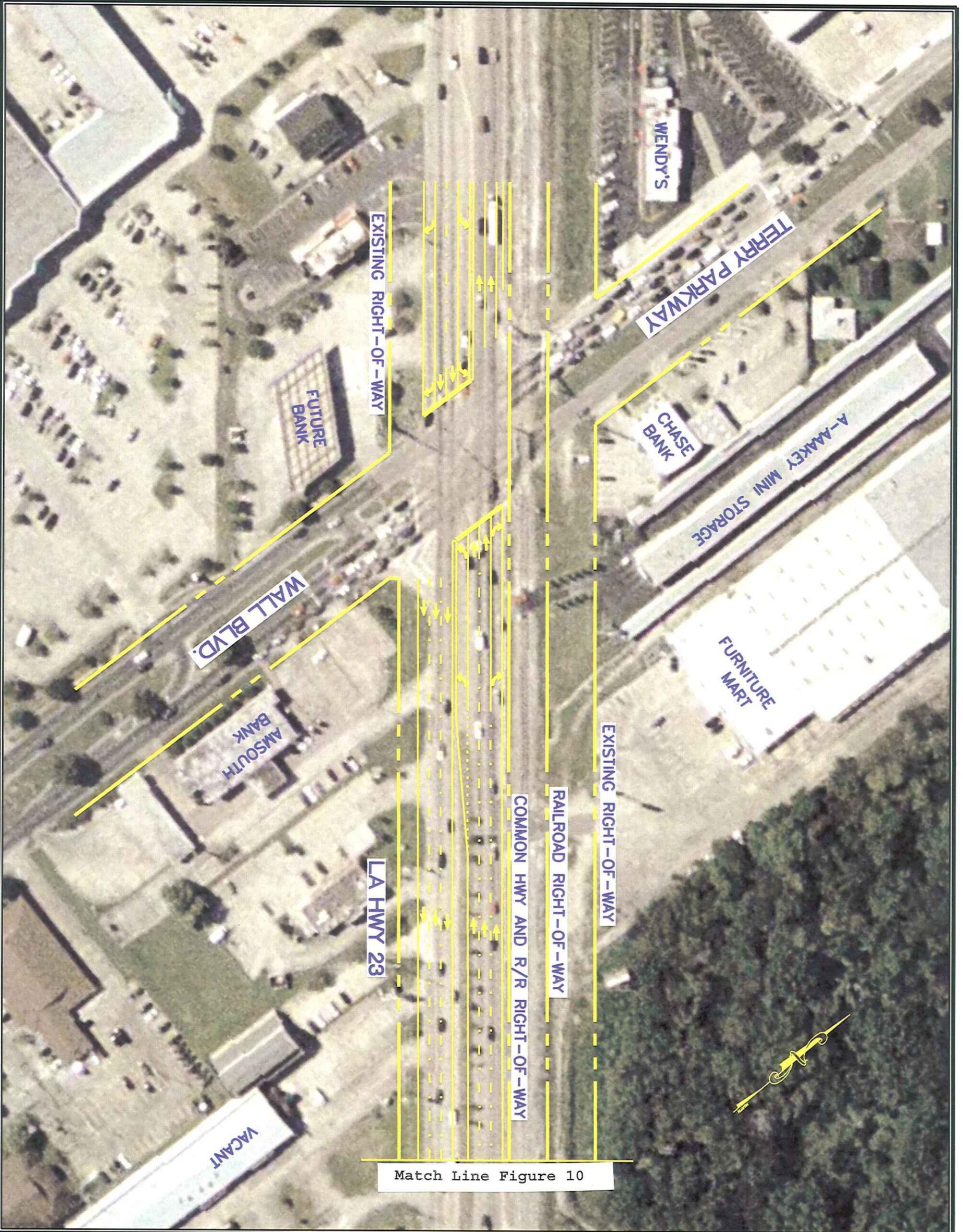
LA 23, Algiers Outfall Canal to Engineers Road (Figures 9 through 14)

This portion of the project, as developed by the consultant team, continues an improvement south from the initial improvement, through the Engineers Road intersection. Improvements to this section of the road include:

- Continuing a 3rd lane south from the initial improvement to the Engineers Road intersection. This 3rd lane will be dropped at the intersection as an extension of the existing right turn lane.
- Creation of a new 3rd lane north from the Belle Chasse bridge (south approach of the Engineers Road intersection) to the initial improvement;
- Widening of the bridge over the Algiers Outfall Canal to a 6 lane section;



This page left intentionally blank.



Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana
 Stage 0 Feasibility Study - RPC Contract No. LA 23-05



Figure 9.
 LA 23 at Terry Parkway/Wall
 Boulevard Intersection
 Proposed Improvement - LA 23 Stage 0
 Feasibility Study

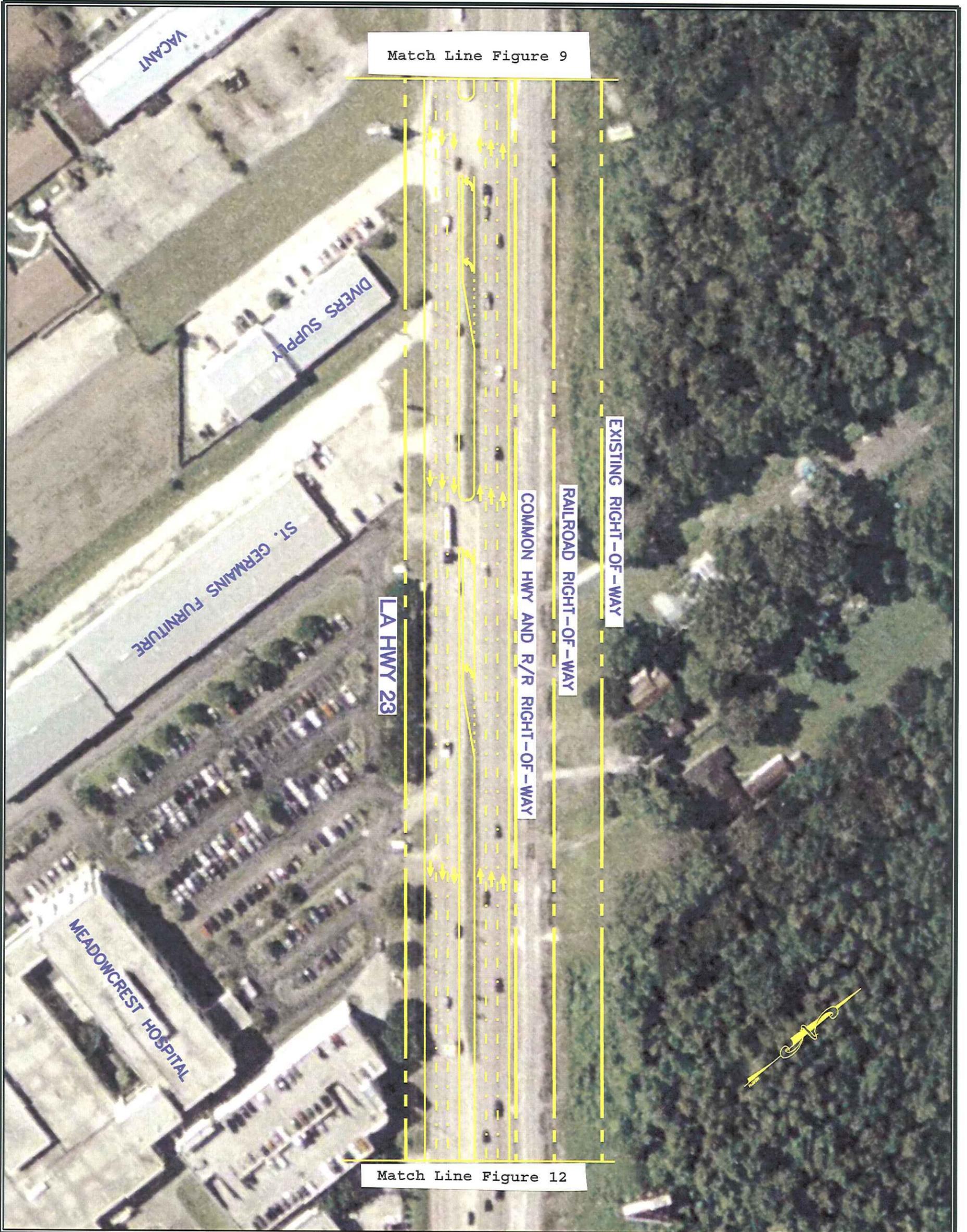


Figure 10.
 LA 23 South of Wall Boulevard
 Proposed Improvement - LA 23 Stage 0
 Feasibility Study

Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05



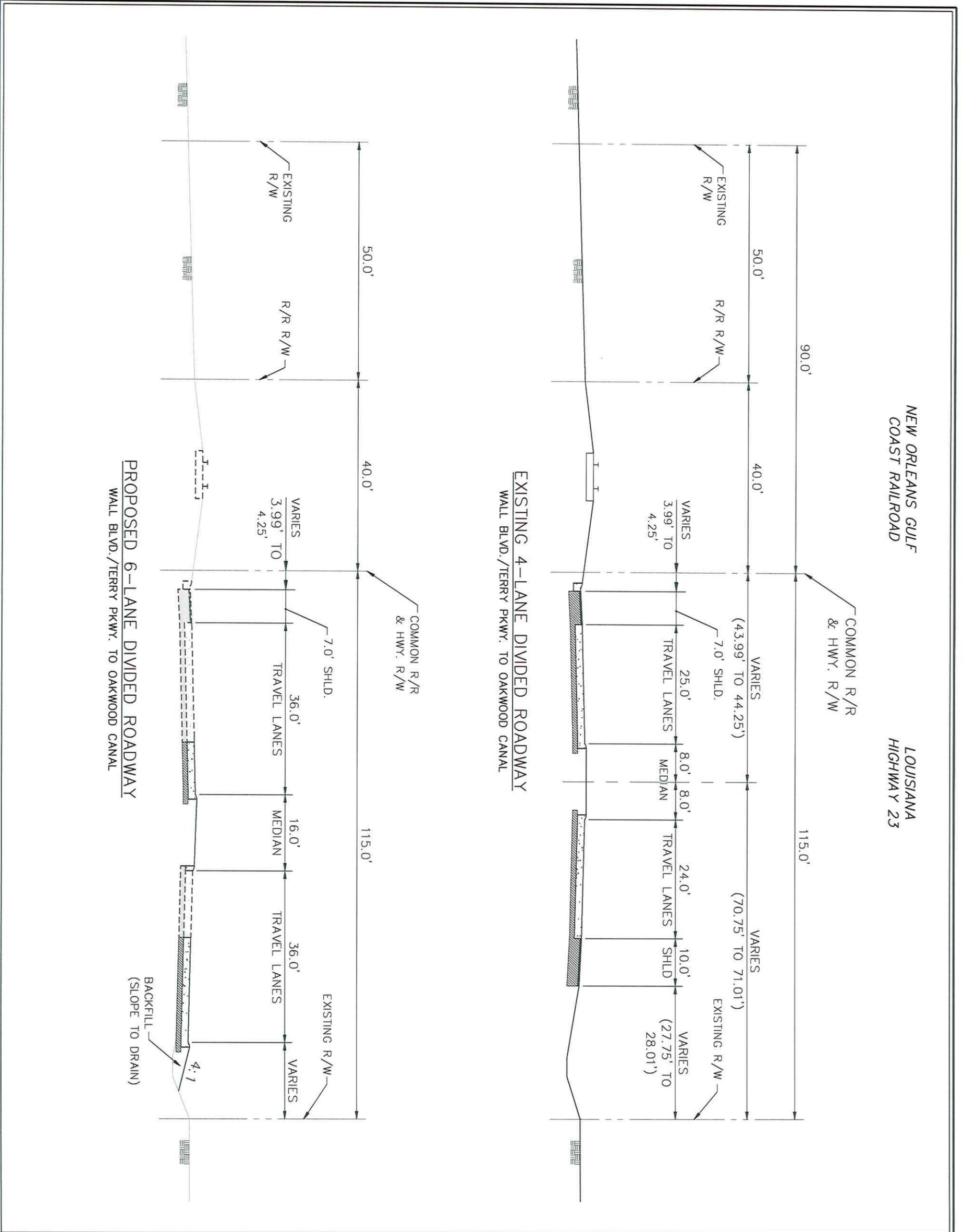
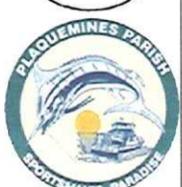


Figure 11.
 LA 23 Terry Parkway/Wall
 Boulevard to Oakwood Canal
 Typical Section - Existing vs. Proposed

Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05





Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana

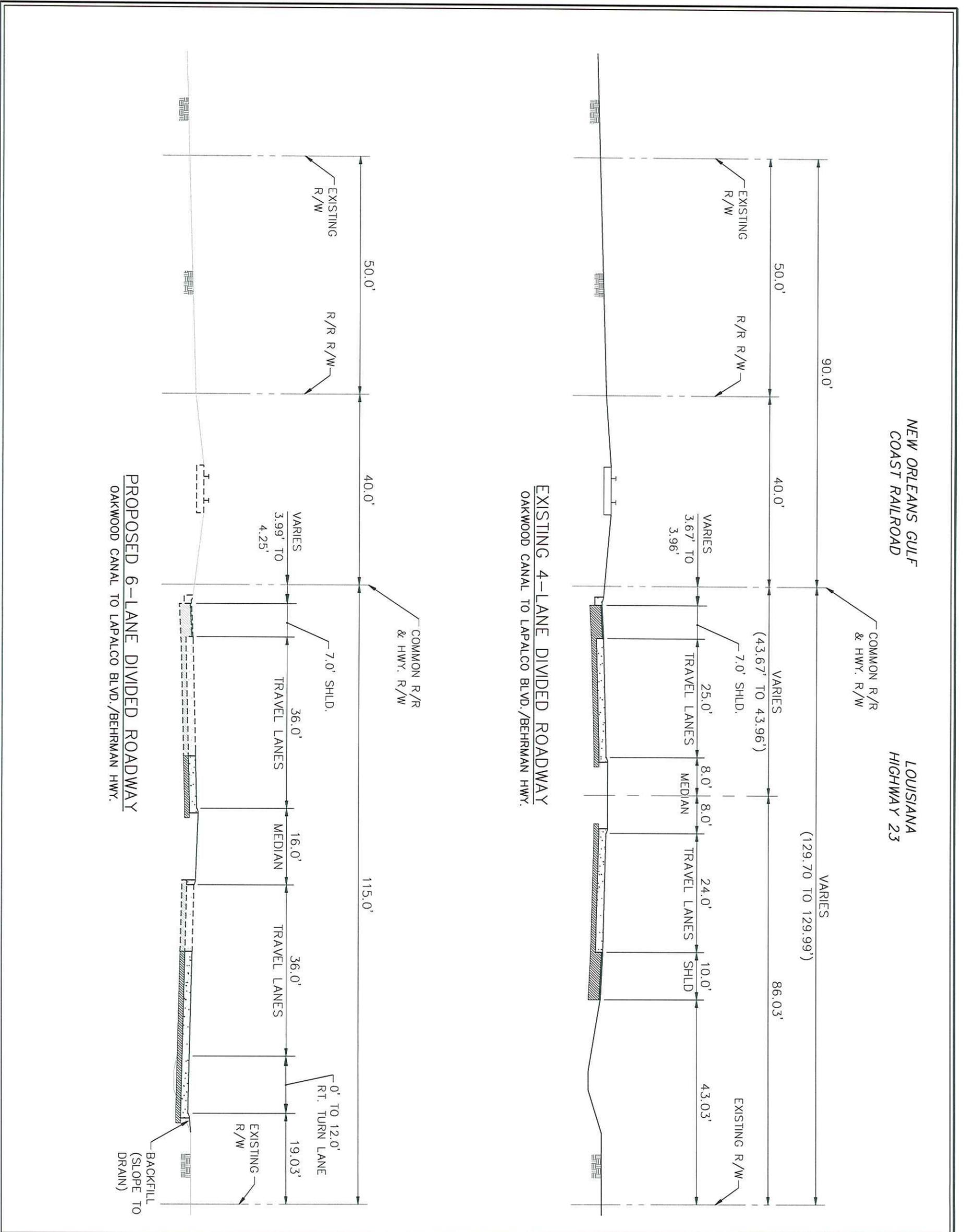
Stage 0 Feasibility Study - RPC Contract No. LA 23-05

BKI BURK-KLEINPETER, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

EG EVANS-GRAVES
 ENGINEERS, INC.
 Engineering Consultants



Figure 12.
 LA 23 Meadowcrest Street to
 Oakwood Canal
 Proposed Improvement - LA 23 Stage 0
 Feasibility Study



Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05



Figure 13.
LA 23 Oakwood Canal to
Lapalco Boulevard
Typical Section - Existing vs. Proposed



Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05

BKI BURK-KLEINPETER, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

EG EVANS-GRAVES ENGINEERS, INC.
 Engineering Consultants



Figure 14.
 LA 23 Oakwood Canal to
 Lapalco Boulevard
 Proposed Improvement - LA 23 Stage 0
 Feasibility Study

LA 23, Terry Parkway to Lapalco Boulevard (Figures 15 through 19)

This portion of the project, as developed by the consultant team, continues an improvement north from the initial improvement, to the Terry Parkway/Wall Boulevard intersection. Improvements to this section of the road include:

- Continuing a 3rd lane north from the initial improvement to the Terry Parkway intersection. This 3rd lane will be dropped at the intersection as a right-turn lane.
- Creation of a new 3rd lane south from Terry Parkway/Wall Boulevard to Lapalco Boulevard intersection and initial improvement;
- Creation of a new right-turn lane for LA 23 southbound at Lapalco Boulevard, approximately 420 feet long (at start of taper);

Traffic Analysis

As described in the statement of current conditions, traffic operations of the existing LA 23 corridor is at-best congested. Changes in traffic volumes associated with post Hurricane Katrina displacements and differing travel demands have reduced traffic, but resulted in few improvements in the level-of-service. Of the five intersections analyzed, most are over capacity and experiencing significant delays on all approaches. The addition of traffic resulting from the area's repopulation and in-fill development will result in continued deterioration in roadway capacity and traffic operations.

The traffic analysis assumes that the existing 4-lane boulevard roadway would be changed to a 6-lane roadway section. To determine the changes in overall level-of-service, an intersection level analysis, following the methods described in the *Highway Capacity Manual*, revealed an improvement in overall level-of-service.

Within the analysis, it is assumed that the typical section of the corridor would more closely conform to an urban roadway. For the purposes of planning, the corridor section is assumed to remain a major suburban/urban arterial, defined by the *Highway Capacity Manual*¹⁹ as a roadway with a posted speed limit of 40-45 mph, 1 to 5 traffic signals per mile, little pedestrian activity, separate left-turn lanes and lower density of intersecting driveways.

Analysis Year Assumption

The forecast year for the analysis is assumed to be 2010. This represents the time at which the project would be complete and open to traffic.

Background Traffic Volume Growth Assumption

It is assumed that traffic on the corridor will be added as a result of normal growth and recovery, plus new trips added as a result of new development. A determination of the background traffic growth rate was made based upon pre-Katrina volumes on LA 23 in both Jefferson and Plaquemines Parishes.

¹⁹ Table 11-2, Aid in Establishing Arterial Classification, Chapter 11, Urban Streets, *Highway Capacity Manual*, pg. 11-8, Updated December 1997.



Development-Based Traffic Growth Assumption

Trips added as a result of new development were calculated using a standard trip generation methodology which incorporates the *Trip Generation Manual, 7th Edition* peak-hour rates for appropriate land uses.²⁰ As none of these areas are currently developed or developing, the definition of future trips added to the LA 23 corridor came from an assumed rate of growth. This included review of current development approvals and subdivisions in the study area, field review of the sites and likely demand based upon existing land use plans.²¹ An existing traffic study for the Woodland Highway corridor was used to help determine potential traffic added as a result of development south of the project area in Belle Chasse.²²

Traffic Distribution Assumption

Traffic added as a result of new development was distributed through the various intersections, added where required to the turning and through movements to simulate increasing traffic demands. Distribution between corridors was based upon current (2006) peak-period turning movement volumes and directional split information obtained from existing resources.

These increased volumes assume that development sites to the east of the existing NOGCRR line within Jefferson Parish would take their access from one of the existing at-grade intersections. This would be accomplished through interconnecting these sites with some form of perimeter or ring road, frontage road, or shared parking facilities. This appears most likely in these areas since the future land use (and current zoning) for all is similar. Properties to the west of LA 23 would develop and connect to one or more of the existing minor roadways that provide a point of access for adjacent residential subdivision development.

Appendix B contains a summary of the projected change in traffic volumes at the various signalized intersections along the corridor as a result of background and development-based traffic growth.

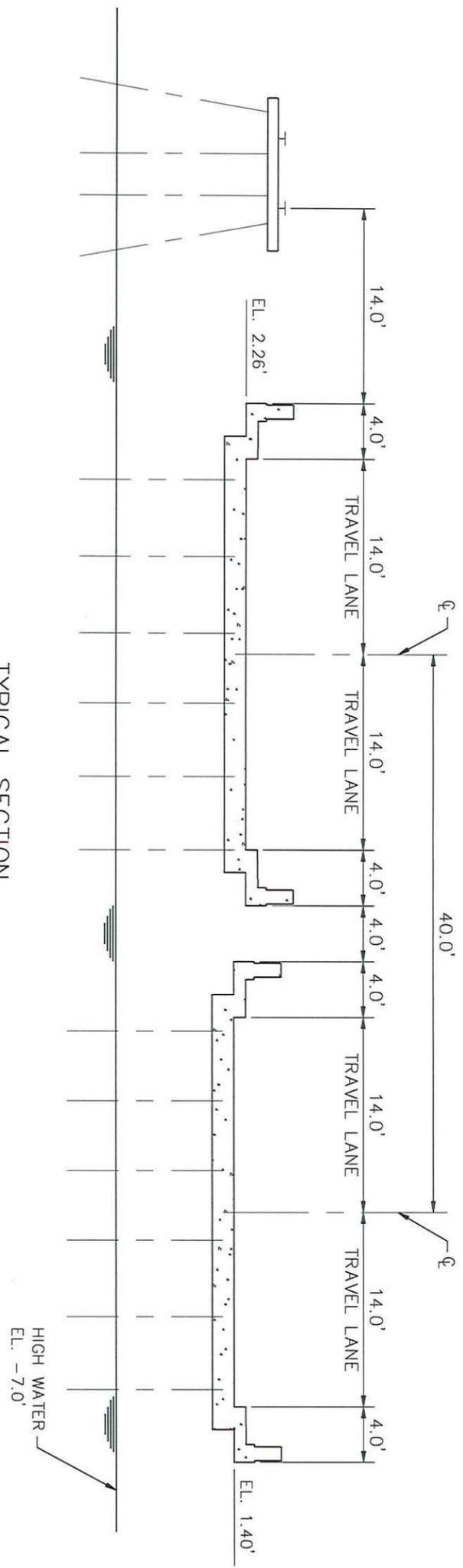
²⁰ *Trip Generation Manual, 7th Edition*, Institute of Transportation Engineers, 2003.

²¹ *Envision Jefferson 2020 Land Use Plan*, Jefferson Parish, as amended through January 2006; *Plaquemines Parish Land Use Study 2003*, prepared for Plaquemines Parish Government and RPC, Urban Planning & Innovations, Co., and Villavaso & Associates, LLC, March 2003.

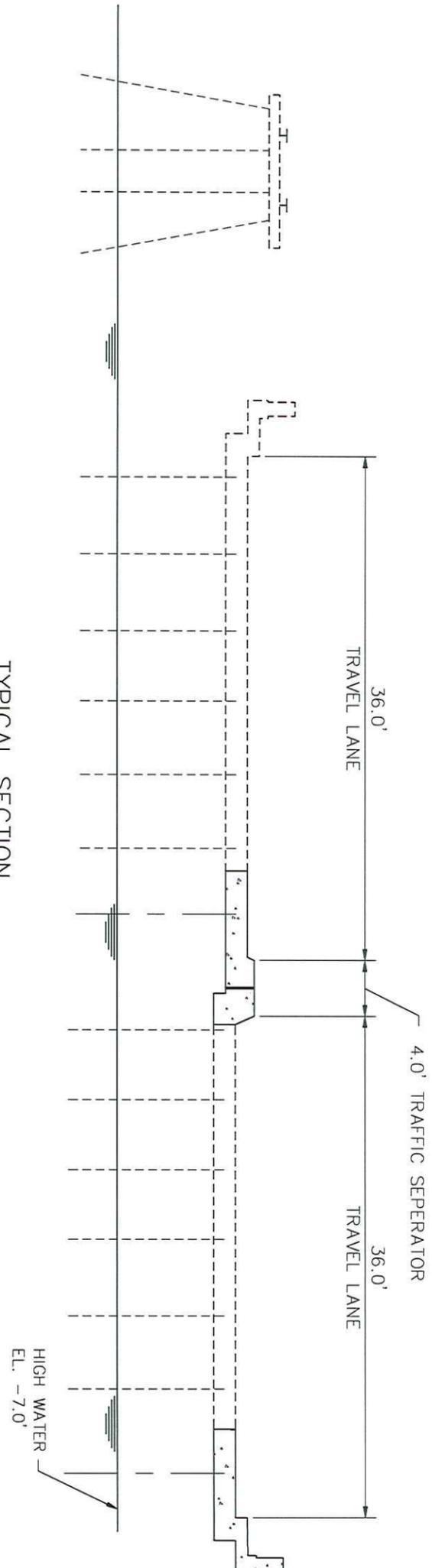
²² Growth of traffic from the Woodland Highway area came from the *Feasibility Study for Woodland Highway (LA 406) Widening, Belle Chasse Highway to English Turn*, prepared for the RPC, March 2004 by Burk-Kleinpeter, Inc.

NEW ORLEANS GULF
COAST RAILROAD

LOUISIANA
HIGHWAY 23



TYPICAL SECTION
EXISTING BRIDGE OVER ALGIERS
OUTFALL CANAL



TYPICAL SECTION
BRIDGE WIDENING OVER ALGIERS
OUTFALL CANAL

Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parish, Louisiana

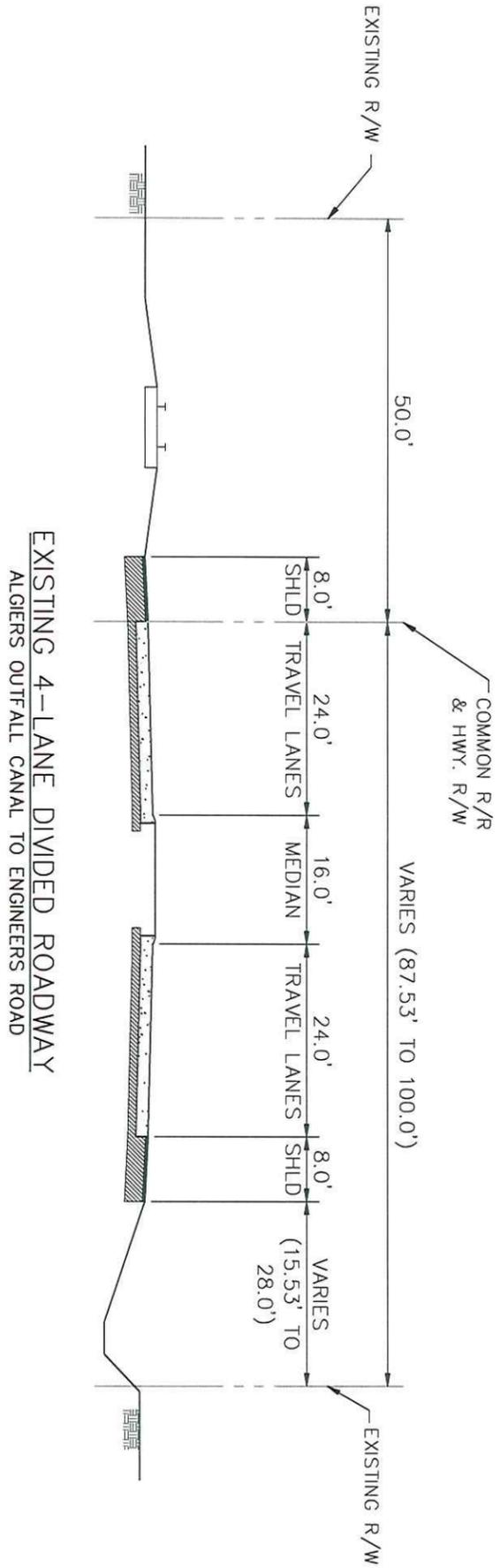
Stage 0 Feasibility Study - RPC Contract No. LA 23-05



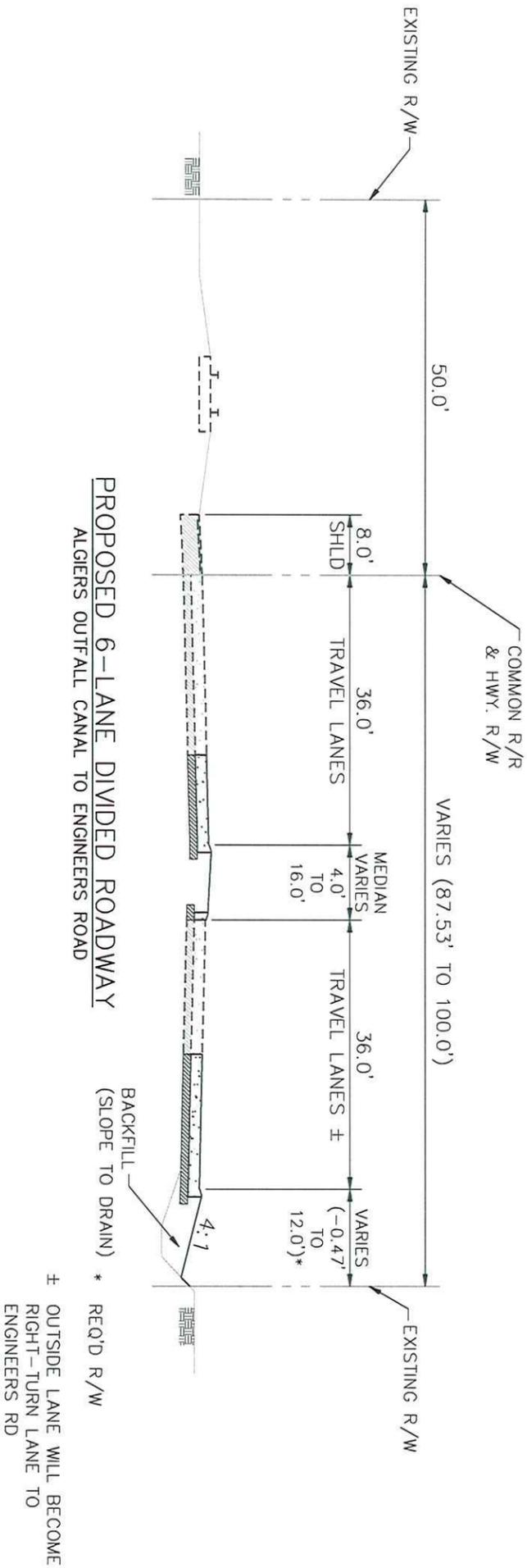
Figure 15.
LA 23 Bridge Widening
Over Algiers Outfall Canal
Typical Section - Existing vs. Proposed

NEW ORLEANS GULF
COAST RAILROAD

LOUISIANA
HIGHWAY 23



EXISTING 4-LANE DIVIDED ROADWAY
ALGIERS OUTFALL CANAL TO ENGINEERS ROAD



PROPOSED 6-LANE DIVIDED ROADWAY
ALGIERS OUTFALL CANAL TO ENGINEERS ROAD

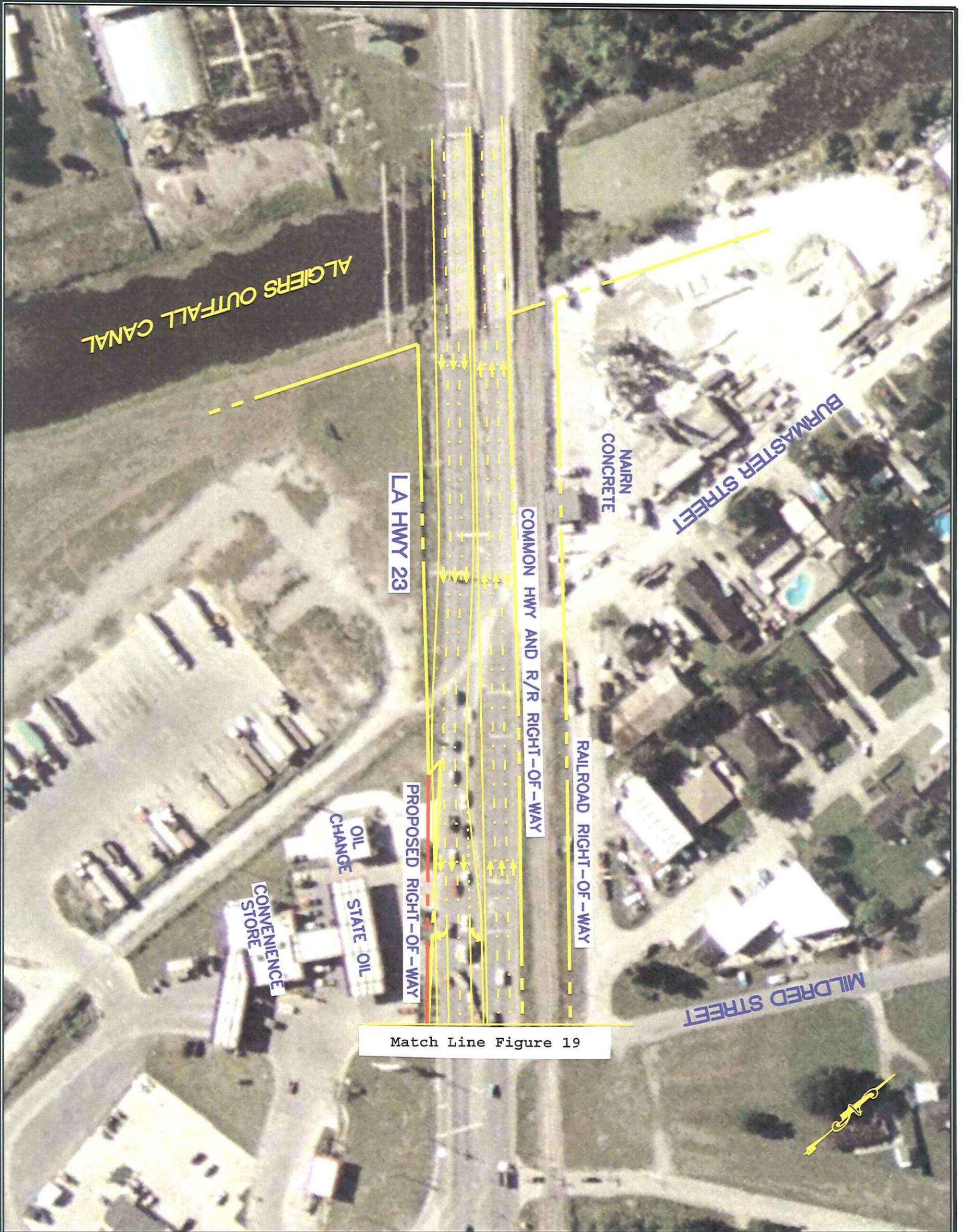
* REQ'D R/W
± OUTSIDE LANE WILL BECOME
RIGHT-TURN LANE TO
ENGINEERS RD

Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05



Figure 16.
LA 23 Algiers Outfall
Canal to Engineers Road
Typical Section - Existing vs. Proposed



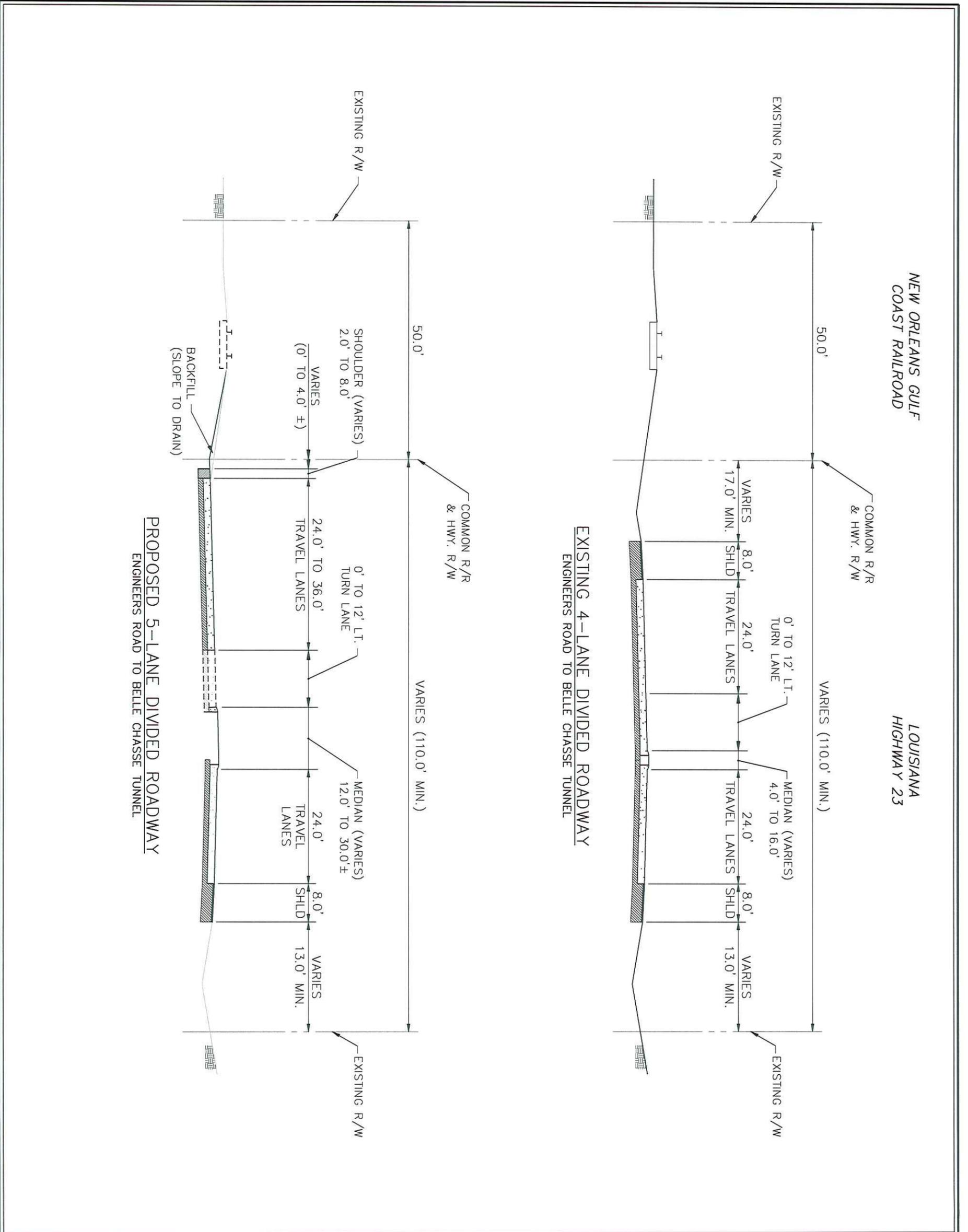
Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana
 Stage 0 Feasibility Study - RPC Contract No. LA 23-05



BKI BURK-KLEINPETER, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

EG EVANS-GRAVES ENGINEERS, INC.
 Engineering Consultants

Figure 17.
 LA 23 Algiers Outfall
 Canal to Mildred Street
 Proposed Improvement - LA 23 Stage 0
 Feasibility Study

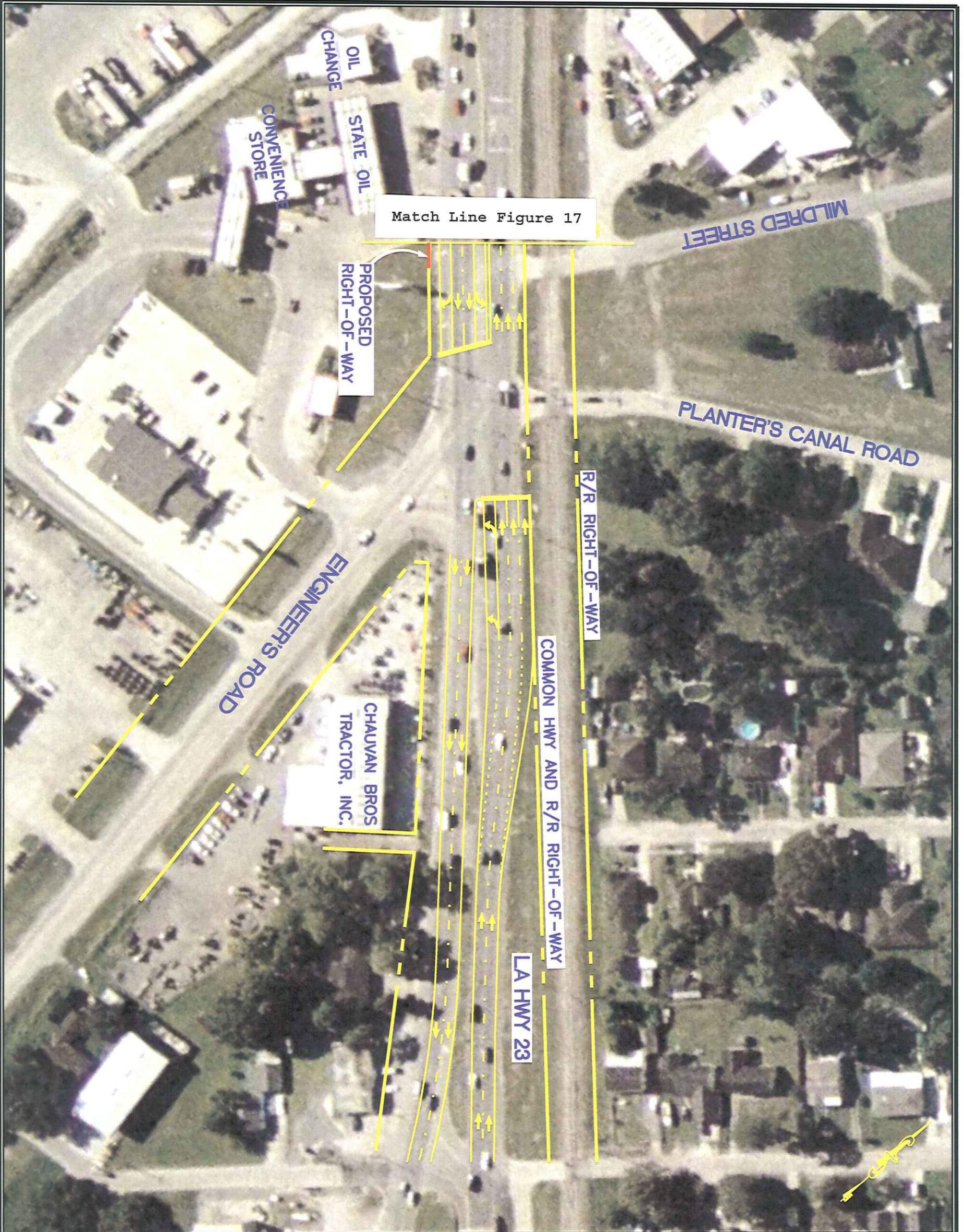


Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05



Figure 18.
LA 23 Engineers Road to Belle Chasse Tunnel
Typical Section - Existing vs. Proposed



Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parish, Louisiana

Stage 0 Feasibility Study - RPC Contract No. LA 23-05

BKI BURK-KLEINPETER, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

EG EVANS-GRAVES ENGINEERS, INC.
 Engineering Consultants



Figure 19.
 LA 23 Mildred Street to
 Belle Chasse Tunnel
 Proposed Improvement - LA 23 Stage 0
 Feasibility Study

Back of Figure

Operations Summary

Table 8 provides an overview of the anticipated change in traffic delay and level-of-service resulting from implementation of a standard 6-lane section within the corridor north and south of the initial LADOTD District 02 improvement.

As shown, the additional capacity provides opportunities to move a higher number of vehicles through each intersection, improving north-south traffic flow. In the analysis, an assumption has also been made that the traffic signals will be reprogrammed to better utilize the increased capacity. Overall, the level-of-service and delay on the corridor will be improved as a result of the new 6-lane section. Queues of stopped, waiting traffic will be reduced, as well, within the corridor. As observed, the longest of the queues was south of the Sav-a-Center driveway. This queue extended as far as the Outfall Canal, which is approximately 1,400 feet southeast of the intersection. With the 3-lane improvement, the total queue length in the through lanes could be almost half as long, approximately 750 feet.



Table 8
Summary Evaluation of Intersection Level-of-Service
 LA 23 – Terry Parkway to GIWW

Intersection	Existing Corridor ⁽¹⁾			
	Year 2006		Year 2010 - No Build	
	AM Peak	PM Peak	AM Peak	PM Peak
LA 23 at Engineers Road and Planters Canal Road	LOS D <i>53.6 secs delay</i>	LOS E <i>82.7 secs delay</i>	LOS E <i>57.8 secs delay</i>	LOS F <i>95.8 secs delay</i>
LA 23 at Sav-A-Center Driveway	LOS D <i>53.4 secs delay</i>	LOS E <i>77.3 secs delay</i>	LOS E <i>59.6 secs delay</i>	LOS F <i>89.1 secs delay</i>
LA 23 at Lapalco Boulevard/Behrman Highway	LOS F <i>93.9 secs delay</i>	LOS F <i>107.0 secs delay</i>	LOS F <i>100.4 secs delay</i>	LOS F <i>115.7 secs delay</i>
LA 23 at Kmart Driveway	LOS D <i>41.0 secs delay</i>	LOS D <i>50.3 secs delay</i>	LOS D <i>42.1 secs delay</i>	LOS E <i>59.0 secs delay</i>
LA 23 at Terry Parkway/Wall Boulevard	LOS F <i>133.4 secs delay</i>	LOS F <i>192.9 secs delay</i>	LOS F <i>204.0 secs delay</i>	LOS F <i>212.4 secs delay</i>

Intersection	Improved Corridor		
	Geometric Improvements ⁽²⁾	Year 2010 - Build	
		AM Peak	PM Peak
LA 23 at Engineers Road and Planters Canal Road	<i>Additional NB through lane on LA 23</i>	LOS C <i>25.3 secs delay</i>	LOS D <i>42.0 secs delay</i>
LA 23 at Sav-A-Center Driveway	<i>Additional NB/SB through lane on LA 23, loose right turn lane on NB LA 23</i>	LOS A <i>7.4 secs delay</i>	LOS B <i>15.8 secs delay</i>
LA 23 at Lapalco Boulevard/Behrman Highway	<i>Additional NB/SB through lane capacity on LA 23</i>	LOS D <i>41.8 secs delay</i>	LOS E <i>58.5 secs delay</i>
LA 23 at Kmart Driveway	<i>Additional NB/SB through lane capacity on LA 23</i>	LOS C <i>23.0 secs delay</i>	LOS B <i>11.2 secs delay</i>
LA 23 at Terry Parkway/Wall Boulevard	<i>Additional NB/SB through lane capacity on LA 23</i>	LOS D <i>41.1 secs delay</i>	LOS D <i>46.6 secs delay</i>

Notes:

- (1) - See Table 3 for description of assumptions for the Year 2006 existing conditions analysis.
- (2) - Geometric improvements as defined at the corridor level project description - 1 additional travel lane northbound, 1 additional travel lane southbound.
- (3) - Year 2010 No Build assumes Existing Traffic + Growth in Background Traffic + Development-based Traffic + Existing Corridor Geometrics and Signal Timing (from TSI/Field)
- (4) - Year 2010 Build assumes Existing Traffic + Growth in Background Traffic + Development-based Traffic + Future Corridor Geometrics + Retimed/Coordinated Traffic Signals.
- (5) - Analysis utilizes the Signal 2000 software, along with TRANSYT 7F to optimize corridor splits and offsets between traffic signals. Signal 2000 is a product of Stong Concepts, 2003. PRETRANSYT processor, a product of Strong Concepts, was used to establish TRANSYT 7F file. TRANSYT 7F is a product of University of Florida Transportation Research Center, October 1999.

Compiled by Burk-Kleinpeter, Inc., 2006.

PRELIMINARY ENVIRONMENTAL REVIEW

A preliminary environmental review was conducted in accordance with the Stage 0 Checklist to uncover whether the proposed project will adversely impact the community or area in terms of social, environmental, and man-made hazardous materials that may be present in the vicinity. The methods employed to recover the required data included Internet research and field investigations.

The preliminary environmental review yielded very little to indicate that any of the Stage 0 criteria will be even minimally impacted. *There are no specific concerns with regard to the natural environment identified through the Stage 0 Review.* In terms of man-made hazards, there are Underground Storage Tanks (USTs) present adjacent to the corridor, but they are assumed to be far enough outside of the ROW that they will not be impede the project. Additionally, *social impacts do not appear to concentrate impacts disproportionately on any specific demographic group, as there is a wide variety of income and racial diversity in the vicinity of the project area, with very few residential populations actually adjacent to the ROW itself.* Each of the subjects researched are described in greater detail below.

Natural Environment

Wetland Reserve Program - There are no Wetland Reserve Program Properties located in the vicinity of the project corridor.¹

Section 4(f) Issues - The proposed project will not impact any adjacent public parks or wildlife refuges, as there are none located adjacent to the project area.²

One public recreation facility is located in the vicinity of the project area. Bayou Barriere Golf Course in Belle Chasse is located on the opposite side of the GIWW from the project area and will not be impacted. Oakdale Park in Jefferson Parish is located .5 miles from the project corridor, and thus, will not be impacted either.

Historic Sites - Additionally, there are no known historic sites that will be impacted by the proposed project, as there are none known to be present in the vicinity. There are no properties listed on the National Register of Historic Places located in the vicinity of the project area, thus none shall be impacted by the proposed project. There are no Local, State, or National Historic Districts or National Landmark Districts located in the vicinity of the project area.³

¹ United States Department of Agriculture (USDA), Natural Resources Conservation Service (NCRS), Online. Available: <http://www.nrcs.usda.gov/programs/wrp/pdfs/louisiana05.pdf>. Accessed January 2, 2006.

² Louisiana Department of Wildlife and Fisheries, map of Wildlife Management Areas. Online. Available: <http://www.wlf.state.la.us/apps/netgear/clientFiles/lawlf/files/WMA%20Location%20Map.jpg.pdf>. Accessed: January 2, 2006.

³ National Park Service, National Register Information System (NRIS). Online. Available: <http://www.nr.nps.gov/>. Accessed: January 2, 2006.



Threatened or Endangered Species - The project area is possibly within the range of the Bald Eagle and the Brown Pelican, two species which are listed as endangered by the state government. However, these species are likely to remain closer to coastal and wetland areas, so it is unlikely that there are large numbers present within the project area.⁴

Louisiana Scenic Rivers Act - No waterways listed under this Act will be impacted by the project, as there are none in the project area.⁵

Significant Trees - There are no significant trees located in the ROW, as defined by the LADOTD's Significant Tree Policy.⁶ In general, the trees that fit this criteria are live oak, red oak, white oak, magnolia or cypress which are aesthetically important, 18" or greater in diameter at breast height, and have a form that separates it from the surrounding vegetation or meets the criteria for historic trees. There are no trees meeting this criteria located immediately adjacent to the project area. Additionally, there are no trees listed on Live Oak Society Registry located in the vicinity of the project area either.

Existing Bridge - The two spans over the drainage canal within the project section were constructed in 1958.

Navigable Waterways - The GIWW is the southern boundary of the project area, which the LA 23 corridor crosses by means of a combined drawbridge/tunnel facility. This waterway is outside the project area and will not be impacted.⁷

Man-Made Hazards and Impacts

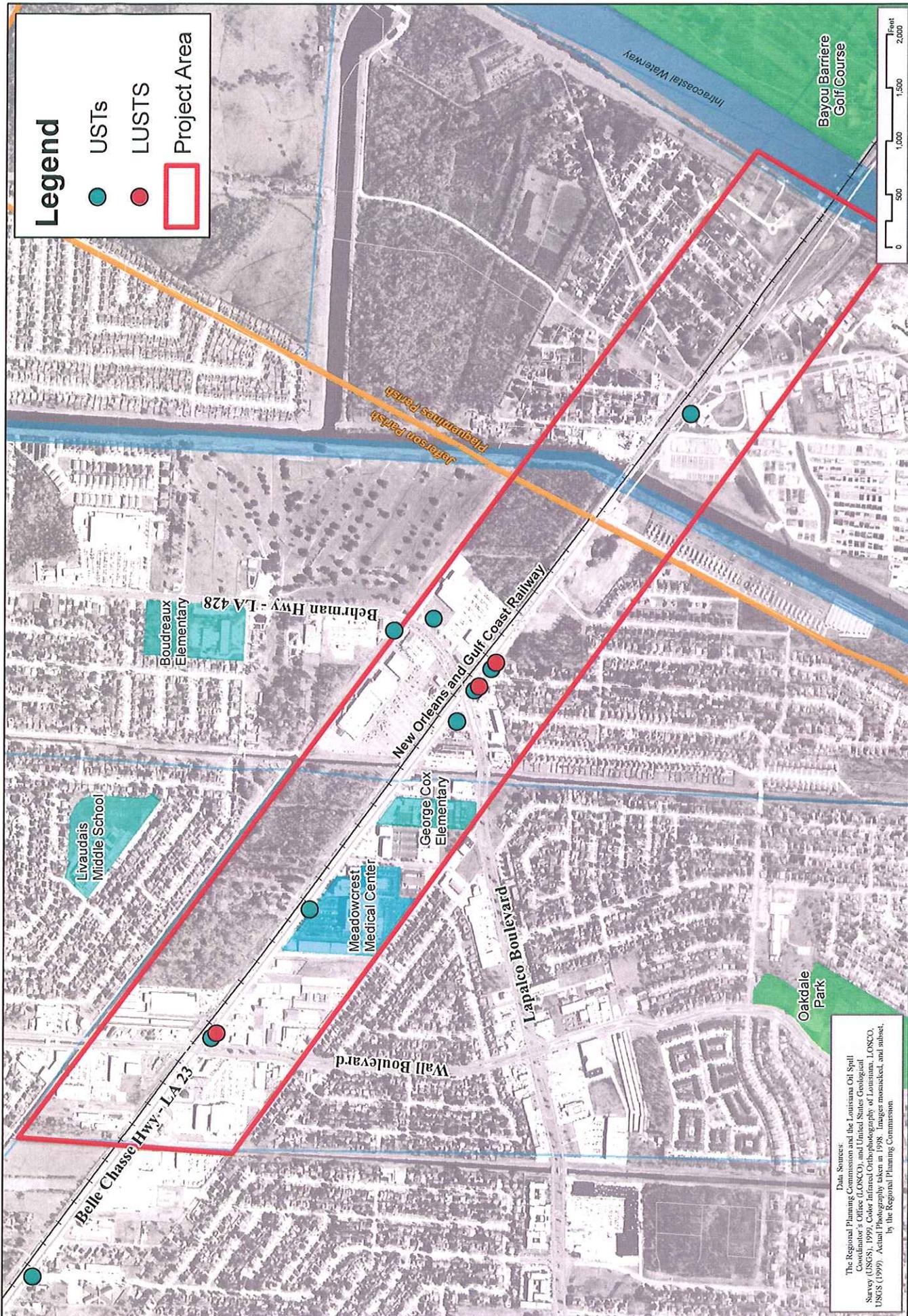
Hazardous Materials - *Leaking Underground Storage Tanks (LUSTs)*: There are three LUSTs located within the project area, and two additional sites nearby. These sites are listed in Table 9 and illustrated on Figure 20.

⁴ Louisiana Department of Wildlife and Fisheries, Louisiana Natural Heritage Program, Threatened and Endangered Species. Online. Available: <http://www.wlf.state.la.us/apps/netgear/index.asp?cn=lawlf&pid=693>. Accessed: August 25, 2005.

⁵ Louisiana Department of Wildlife and Fisheries, Louisiana Scenic Rivers System Map. Online. Available: <http://www.wlf.state.la.us/apps/netgear/clientFiles/lawlf/files/1065197838.pdf>. Accessed: August 25, 2005.

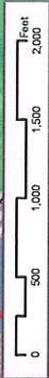
⁶ Live Oak Society, LA DOTD Significant Tree Policy. Online. Available: <http://www.louisianagardenclubs.org/pages/liveoakfiles/treepolicy.htm>. Accessed: January 2, 2006.

⁷ Data Collected via Field Survey, August 22, 2005.



Legend

- USTs
- LUSTs
- Project Area



Data Sources:
 The Regional Planning Commission and the Louisiana Oil Spill Coordinator's Office (LOSCCO), and United States Geological Survey (USGS), 1999; Color Infrared Orthophotography of Louisiana, LOSCO, USGS (1999). Actual Photography taken in 1998. Images mosaicked, and subset, by the Regional Planning Commission

Figure 20.
 Locations of Documented
 Underground Storage Tanks (USTs) and
 Leaking Underground Storage Tanks (LUSTs)

BKI BURK-KLEINPETER, INC.
PROFESSIONAL ARCHITECTS, ENGINEERS, ENVIRONMENTAL SCIENTISTS

EVANS-GRUBBS ENGINEERS, INC.
Engineering Consultants

May 2006
 BKI 10246-01

Louisiana Highway 23 Corridor Study
 Jefferson and Plaquemines Parishes, Louisiana
 Stage 0 Feasibility - RPC Contract No. LA 23 - 05

Table 9
Leaking Underground Storage Tank (LUST) Sites
 LA 23 Stage 0 Corridor Study Area

LUST #	Name of Facility	Address
71004	EZ Serve #2153	2850 Belle Chasse Hwy, Gretna
13416	Exxon Co USA #56161	2320 Belle Chasse Hwy, Gretna
71547	Gretna Car Wash	2800 Belle Chasse Hwy, Belle Chasse
74397	D' Express, Inc.	701 Behrman Hwy, Gretna
41934	Super B Spur Station	755 Behrman Hwy, Gretna

Data Source: Louisiana Department of Environmental Quality, 2006.
 Compiled by Burk-Kleinpeter, Inc., 2006

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS): There are no CERCLIS sites located in the vicinity of the project corridor.⁸

Environmental Response Notification System (ERNS): Two incidences occurred in 2004 which were reported to the National Response Center and added to its ERNS database, which appear to occur within or very near to the project area.⁹

- The first incident occurred on 6-19-2004, at 2400 Belle Chasse Highway (incident no. 725497) and it involved a bank of three mounted transformers wherein one “blew its top” and caught on fire. While the fire was being extinguished, some oil (mixed with water) entered a storm drain. It is unknown whether the oil contained PCBs, however, it was reported that less than one gallon of the oil/water mixture entered the storm drain.
- The second incident occurred in the GIWW, at the southeastern end of the project area (incident no. 730283). A vessel struck the Judge Perez Bridge when it was in the ‘down’ position, and some fuel was released as a result, however no damage occurred to the bridge.

Enforcement and Compliance History (ECHOs): There are no ECHOs located in the project corridor.¹⁰

⁸ United States Environmental Protection Agency (US EPA), Superfund (CERCLIS) Query. Online. Available: http://www.epa.gov/enviro/html/cerclis/cerclis_query.html. Accessed: January 2, 2006.

⁹ National Response Center, Environmental Response Notification System. Online. Available: http://www.nrc.uscg.mil/wdbcgi/wdbcgi.exe/WWWUSER/WEBDB.foia_query.show_parms. Accessed: January 2, 2006.

¹⁰ United States Environmental Protection Agency (US EPA), Enforcement and Compliance History Online (ECHO). Online. Available: <http://www.epa.gov/echo/>. Accessed: January 3, 2006.

Chemical Plants, Refineries, Landfills - There are no chemical plants, refineries, or landfills located adjacent to the project corridor. There do not appear to be any facilities that release harmful or noxious fumes or pollutants.¹¹

Large Manufacturing Facilities - A concrete mixing plant, *Nairn Concrete* is located on the north side of the highway adjacent to the project corridor near the parish line at the intersection of Belle Chasse Highway and Burmaster.¹²

Dry Cleaners - There are no dry cleaning establishments within the project corridor.

Oil/Gas Wells - A single well exists near the intersection with Lapalco Boulevard to the south of the highway. The well, #98180, is listed as being plugged and abandoned.¹³

Underground Storage Tanks - According to the Underground Storage Tank Registry, there are nine USTs located adjacent to the project area, as shown in Table 10.¹⁴

Table 10
Underground Storage Tank (UST) Sites

LA 23 Stage 0 Corridor Study Area

UST ID	Name of Facility	Address
1949	Meadowcrest Hospital	2500 Belle Chasse Hwy, Gretna, LA 70056
13416	Victory Spirit	2320 Belle Chasse Hwy, Gretna, LA 70053
20691	Danny & Clyde's Food Store	1944 Belle Chasse Hwy, Gretna, LA 70053
79703	Star Convenience Store	2950 Belle Chasse Hwy, Gretna, LA 70056
13549	Pep Boys Manny Moe & Jack	1100 Behrman Hwy, Gretna, LA 70056
71004	Best Stop Express	2850 Belle Chasse Hwy, Gretna, LA 70053
71547	Shell #137435	2800 Belle Chasse Hwy, Belle Chasse, LA 70053
79099	State Oil Fuel Center, Inc.	1724 Highway 23, Belle Chasse, LA 70037

Data Source: Louisiana Department of Environmental Quality, 2006.
 Compiled by Burk-Kleinpeter, Inc., 2006

¹¹ Ibid.

¹² Ibid.

¹³ Louisiana Department of Natural Resources (DNR), SONRIS Integrated Applications. Online. Available: http://sonris-www.dnr.state.la.us/www_root/sonris_portal_1.htm. Accessed: January 3, 2006.

¹⁴ Louisiana Department of Environmental Quality, Underground Storage Tanks Database. Online. Available: <http://www.deq.louisiana.gov/portal/tabid/136/Default.aspx>. Accessed January 3, 2006.



Gasoline Stations¹⁵ - In addition to the nine registered USTs found on the Louisiana Department of Environmental Quality's registry, there is one additional gas station in the vicinity of the project area. It is located at the rear of the Sav-A-Center property at the intersection of Lapalco Boulevard and Belle Chasse Highway, and it is well beyond the project corridor.

Social Impacts

Community Elements - There are no churches or cemeteries in the project area vicinity. There is one school located near the project area, George Cox Elementary School at 2630 Belle Chasse Highway. The portion of highway in front of the school will not be affected by the project.¹⁶

There is a hospital located adjacent to the project area, the Meadowcrest Medical Center, located at 2600 Belle Chasse Hwy. The highway in front of the hospital will likewise not be impacted by the proposed project.¹⁷

There is a single above-ground water tank on Engineers Road, but it is located well outside the project area and should not be impacted.¹⁸

Residential/Commercial Relocations and Displacements - There are no residential or commercial relocations anticipated, as the proposed project utilizes the vacant land between the existing LA Hwy 23 ROW and the existing ROW for the NOGC RR corridor.

Sensitive Community Issues Related to the Project - No sensitive community issues related to the project have been identified by the project team.

Demographics: Impacts^{19,20}

Jefferson Parish – Within the Jefferson Parish portion of the project area, there are six block groups in total, divided amongst three census tracts. In Census Tract 250.01, there are two Block Groups – Block Groups 2 and 3. Census Tract 251.03 has four Block Groups in the project area - Block Groups 1, 2, 3, and 4. Census Tract 251.02 has just one Block Group in it that falls within the project area – Block Group 2.

In Jefferson Parish, 30% of the population could be considered minority. In Census Tract 250.01, Block Group 2, the minority population percentage is lower (17%) than the parish average, however for Block Group 3 within the same Census Tract, the

¹⁵ Data Collected via Field Survey, August 22, 2005.

¹⁶ Online Yellow Pages. Online. <http://www.superpages.com/>. Accessed: August 25, 2005.

¹⁷ Online Yellow Pages. Online. <http://www.superpages.com/>. Accessed: January 3, 2006.

¹⁸ Data Collected via Google Earth Satellite Imagery. Accessed: August 25, 2005.

¹⁹ The US Bureau of the Census, Census 2000 Summary File 1 (SF-1). 100-Percent Data. P-3. Race. Available: <http://www.factfinder.census.gov>. Accessed: January 16, 2006.

²⁰ The US Bureau of the Census, Census 2000 Summary File 3 (SF-3). Sample Data. P-53. Median Household Income in 1999 (Dollars). P-57. Poverty Status in 1999 by Age. Online. Available: <http://www.factfinder.census.gov>. Accessed: January 16, 2006.

minority population is significantly higher (87%). In Census Tract 251.02, Block Group 2, the minority population is lower (17%) than that of the Parish as a whole. For Census Tract 251.03, Block Groups 1, 3 and 4, the minority population is slightly higher than the average (35%, 46% and 40%), whereas it is substantially higher in Block Group 2 for this same Census Tract (71%). It is noteworthy that the only location where there is any substantial residential population within the project area is south of Belle Chasse Highway, between Southwood and Cottonwood Drives, in Census Tract 251.03, Block Group 4.

In all block groups except for Block Group 3 in Census Tract 250.01 and Census Tract 251.03, Block Group 2, median household incomes are well above the parish median and the percentage of residents in poverty is lower than the parish as a whole. In these two block groups, the corresponding rates trend in the opposite manner.

Plaquemines Parish - Two block groups within a single census tract (Block Groups 1 and 2, Census Tract 502) are within the Plaquemines Parish portion of the project area. In Plaquemines Parish, minorities comprise 30% of the population. The two affected block groups have minority populations below that level. Median household incomes are at or above the parish average. Poverty rates are well below levels for the parish as a whole.

For the majority of the project area, it is apparent that there are no disparate impacts to low income or minority populations. The few locations where lower income and minority populations reside are not immediately adjacent to the area of impact, and thus will bear no greater burden than any other demographic group.



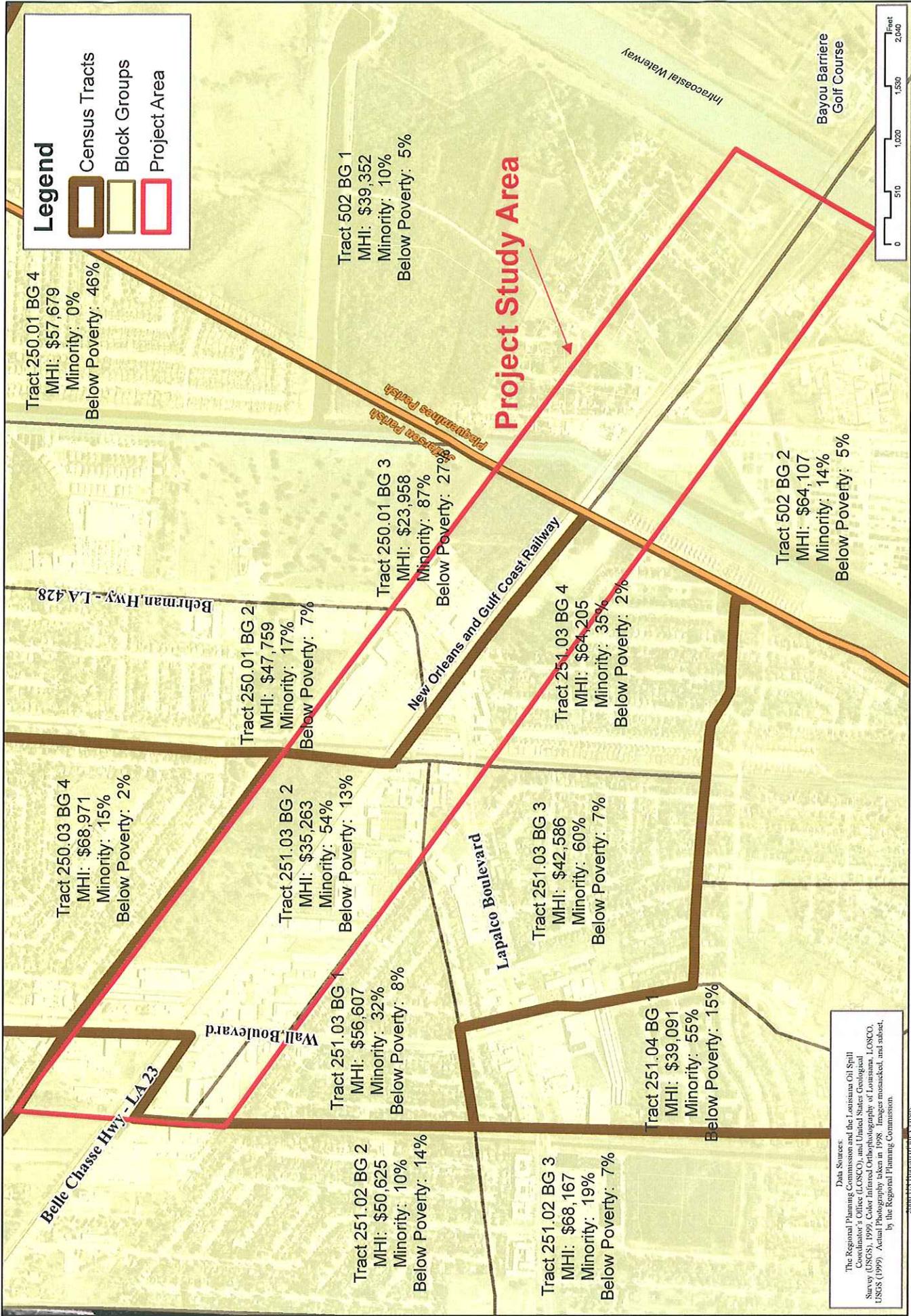
Table 11
Summary Demographic Characteristics (Population and Income)
 LA 23 Stage 0 Corridor Study Area

	Total Population	Percentage Minority	Percent below Poverty Level	1999 Median Household Income
Jefferson Parish	455,466	30%	14%	\$38,435
Census Tract 250.01				
Block Group 2	1,362	17%	7%	\$47,759
Block Group 3	2,825	87%	28%	\$23,958
Census Tract 251.02				
Block Group 2	1,968	17%	3%	\$50,625
Census Tract 251.03				
Block Group 1	987	35%	7%	\$56,607
Block Group 2	488	71%	8%	\$35,263
Block Group 3	1,318	46%	7%	\$42,586
Block Group 4	1,131	40%	2%	\$64,205
Plaquemines Parish	26,757	30%	17%	\$38,173
Census Tract 502				
Block Group 1	1,658	14%	5%	\$64,107
Block Group 2	1,265	5%	10%	\$39,352

Note:

1. Data from US Census Bureau website, factfinder.census.gov.

Compiled by Burk-Kleinpeter, Inc., 2006.



Data Sources:
The Regional Planning Commission and the Louisiana Oil Spill Commission's Office of Coastal Conservation and Geology, USGS (USGS) 1999 Color Infrared Orthophotography of Louisiana, USGS (1999). Aerial Photography taken in 1998. Images mosaicked and subset by the Regional Planning Commission.

Figure 21.
Select Demographic Characteristics
LA 23 Stage 0 Corridor Study Area

BK1 BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

EG EVANS-GRAVES ENGINEERS, INC.
Engineering Consultants

May 2006
BK1 10246-01

Louisiana Highway 23 Corridor Study
Jefferson and Plaquemines Parishes, Louisiana
Stage 0 Feasibility - RPC Contract No. LA 23 - 05



This page left intentionally blank

PRELIMINARY COST ESTIMATE

A preliminary order of magnitude cost estimate for the project has been prepared using unit cost information supplied by LADOTD. The purpose of this estimate is to provide an initial review of the commitment required to construct the project.

Estimates include costs for right-of-way, engineering, survey, and contingency as expressed in 2006 dollars, based on bid tabulations from the 1st quarter of 2006 reported by LADOTD. Future steps in the LADOTD project development process may result in adjustments in corridor location, assumed conditions and typical sections developed as a result of detailed study and survey. In addition, adjustments in unit costs will require subsequent changes in the estimates contained herein. Therefore, these costs should be considered preliminary, not final.

Table 13
 Preliminary Order of Magnitude Cost Estimate
 LA 23 Corridor Improvements
 North of Terry Parkway to Lapalco Boulevard and
 North of Algiers Outfall Canal to South of Engineers Road

Cost Category	Estimated Cost
Mobilization, Demolition, Site Preparation	
Roadway Components	\$2,273,605
Signalization	
Drainage and Utilities Relocation	
Contingencies	\$454,721
Engineering, Construction Administration, Testing	\$267,000
Total Estimated Project Cost	\$2,995,326

Notes:

- (1) Based upon unit cost information provided by LADOTD.
- (2) Price does not include costs associated with interim improvement under design and review at LADOTD District 02.
- (3) Assumes that existing bridges at the Algiers Outfall Canal will be widened. According to LADOTD, both are listed in good condition, having gone through an inspection about 2 years ago (as per Burnell Dudley, DOTD Bridge Maintenance to Ken Magiera, Evans-Graves Engineers).
- (4) Costs does not include any private utility relocations, which would be handled by the respective utility company.
- (5) Existing light standards along LA 23 are on the back of the right-of-way and should not be disturbed during construction. May wish to consider upgrade of lighting for project.

Compiled by Evans-Graves Engineers, Inc., 2006.



This page left intentionally blank.

EXPECTED FUNDING SOURCES

According to the Transportation Improvement Program for the New Orleans Urbanized Area for the Fiscal Years 2005-2007, some funding has been allocated to improvements on LA 23. This information is provided in Table 13. Also included is information on two general programs for funding overlay improvements on Surface Transportation Program (STP) corridors.

Table 13

Programmed Funding for Improvements

Transportation Improvement Program for New Orleans Urbanized Area FY 2005-2007

Fiscal Year	Project Name	Work Phase	Estimated Cost	Federal Share	Source
FY 2004 <i>10/01/03 – 9/30/04</i>	LA 23 – Wall to Engineers Rd (LA 3017)	Study	\$100,000	\$80,000	Surface Transportation Program >200K
FY 2006 <i>10/01/05 – 9/30/06</i>	STP Overlays, District 02	Construction	\$2.0 Million	\$1.6 Million	Surface Transportation Program
FY 2007 <i>10/01/05 – 9/30/06</i>	STP Overlays, District 02	Construction	\$2.0 Million	\$1.6 Million	Surface Transportation Program

Program as proposed October 12, 2004 and as amended through August 9, 2005.

Source: RPC, January, 2006.

As per the RPC, improvements identified for the portions of the corridor between Terry Parkway and Lapalco Boulevard and from north of the Algiers Outfall Canal to south of Engineers Road, are anticipated to be funded through the Urban System >200K federal program, with matching funds provided by the State of Louisiana.



This page left intentionally blank.

Appendix A
Existing (2006) Traffic Analysis
(Corridor Segments and Critical Intersections)



HCS+: Urban Streets Release 5.2

Burk-Kleinpeter, Inc.
 Planning Division
 4176 Canal Street - NO, LA 70119

Phone: 504/486-5901
 E-Mail: eelam@bkusa.com

Fax: 504/488-1714

PLANNING ANALYSIS

Analyst: Burk-Kleinpeter, Inc. (NO)
 Agency/Co.: Planning Division
 Date Performed: 2/24/2006
 Analysis Time Period: PM Peak Period
 Urban Street: LA 23 - Wall to Lapalco
 Direction of Travel:
 Jurisdiction: Jefferson Parish
 Analysis Year: Current (2006)
 Project ID: 10246-01 LA 23 Stage 0 Feasibility Study

Traffic Characteristics

Annual average daily traffic, AADT	34541	vpd
Planning analysis hour factor, K	0.070	
Directional distribution factor, D	0.590	
Peak-hour factor, PHF	0.850	
Adjusted saturation flow rate	2560	pcphgpl
Percent turns from exclusive lanes	75	%

Roadway Characteristics

Number of through lanes one direction, N	2	
Free flow speed, FFS	40	mph
Urban class	2	
Section length	0.73	miles
Median	Yes	
Left-turn bays	Yes	

Signal Characteristics

Signalized intersections	3	
Arrival type, AT	3	
Signal type (k = 0.5 for planning)	Actuated	
Cycle length, C	150.0	sec
Effective green ratio, g/c	0.360	

Results

Annual average daily traffic, AADT	34541	vpd
Two-way hourly volume	2417	vph
Hourly directional volume	1426	vph
Through-volume 15-min. flow rate	419	v
Running time	80.8	sec
v/c ratio	0.23	
Through capacity	1843	vph
Progression factor, PF	1.000	
Uniform delay	33.5	sec
Filtering/metering factor, I	0.983	
Incremental delay	0.3	sec
Control delay	33.7	sec/v
Total travel speed, Sa	14.4	mph
Total urban street LOS	E	

Traffic Count Summary Form

Location: Belle Chasse Highway (LA 23)
At: Wall Boulevard to Lapalco Boulevard
Count Date(s): 02/21/06 - 02/23/06
Count Type: Average Weekday
Job Name: LA 23 Stage 0 Feasibility Study
Job Number: 10246-01

Time Period	24 Hour Average				TOTAL
	Northbound	NB%	Southbound	SB%	
12 AM-1	86	41%	125	59%	211
1-2	54	38%	87	62%	141
2-3	50	39%	80	61%	130
3-4	67	45%	82	55%	148
4-5	107	38%	175	62%	282
5-6	292	30%	694	70%	986
6-7	725	43%	955	57%	1,680
7-8	996	49%	1,025	51%	2,021
8-9	980	48%	1,060	52%	2,040
9-10	841	45%	1,043	55%	1,884
10-11	1,003	48%	1,094	52%	2,097
11-12	1,011	47%	1,132	53%	2,143
12 PM-1	1,164	48%	1,274	52%	2,438
1-2	1,088	47%	1,244	53%	2,332
2-3	1,097	46%	1,265	54%	2,362
3-4	668	34%	1,313	66%	1,980
4-5	1,141	45%	1,382	55%	2,522
5-6	1,101	44%	1,417	56%	2,518
6-7	1,075	49%	1,118	51%	2,193
7-8	798	47%	908	53%	1,706
8-9	429	42%	597	58%	1,025
9-10	322	40%	474	60%	795
10-11	210	38%	342	62%	551
11-12	142	39%	218	61%	360
24-HR TOTAL	15,442	45%	19,099	55%	34,541

7:00 AM - 7:00 PM	Vehicles	Dir. %	% of 24-HR.
Northbound	12,163	46%	79%
Southbound	14,365	54%	75%
TOTAL	26,527	100%	77%

Peak-Hour	Vehicles	% of 24-HR.
AM	2,143	6%
PM	2,522	7%

Comments: Not adjusted for trucks (vehicles with three or more axles).
Data Source: Evans-Graves Engineers, Inc. 2006.

HCS+: Urban Streets Release 5.2

Burk-Kleinpeter, Inc.
 Planning Division
 4176 Canal Street

Phone: 504/486-5901
 E-Mail: eelam@bkusa.com

Fax: 504/488-1714

PLANNING ANALYSIS

Analyst: Burk-Kleinpeter, Inc. (NO)
 Agency/Co.: Planning Division
 Date Performed: 02/17/2006
 Analysis Time Period: PM Peak Period
 Urban Street: LA 23 - Lapalco to ICWW
 Direction of Travel:
 Jurisdiction: Jefferson Parish
 Analysis Year: Current (2006)
 Project ID: 10246-01 LA 23 Stage 0 Feasibility Study

Traffic Characteristics

Annual average daily traffic, AADT	44940	vpd
Planning analysis hour factor, K	0.070	
Directional distribution factor, D	0.560	
Peak-hour factor, PHF	0.850	
Adjusted saturation flow rate	2560	pcphgpl
Percent turns from exclusive lanes	75	%

Roadway Characteristics

Number of through lanes one direction, N	2	
Free flow speed, FFS	45	mph
Urban class	2	
Section length	0.65	miles
Median	Yes	
Left-turn bays	Yes	

Signal Characteristics

Signalized intersections	3	
Arrival type, AT	3	
Signal type (k = 0.5 for planning)	Actuated	
Cycle length, C	150.0	sec
Effective green ratio, g/C	0.360	

Results

Annual average daily traffic, AADT	44940	vpd
Two-way hourly volume	3145	vph
Hourly directional volume	1761	vph
Through-volume 15-min. flow rate	517	v
Running time	69.8	sec
v/c ratio	0.28	
Through capacity	1843	vph
Progression factor, PF	1.000	
Uniform delay	34.2	sec
Filtering/metering factor, I	0.970	
Incremental delay	0.4	sec
Control delay	34.5	sec/v
Total travel speed, Sa	13.5	mph
Total urban street LOS	E	

Traffic Count Summary Form

Location: Belle Chasse Highway (LA 23)
At: Engineers Road to ICWW
Count Date(s): 02/14/06 - 02/16/06
Count Type: Average Weekday

Job Name: LA 23 Stage 0 Feasibility Study
Job Number: 10246-01

Time Period	24 Hour Average				TOTAL
	Northbound	NB%	Southbound	SB%	
12 AM-1	114	47%	128	53%	241
1-2	77	45%	92	55%	169
2-3	56	40%	86	60%	142
3-4	58	36%	104	64%	162
4-5	118	29%	281	71%	399
5-6	376	24%	1,201	76%	1,577
6-7	1,019	34%	2,013	66%	3,032
7-8	1,415	45%	1,722	55%	3,137
8-9	1,413	50%	1,408	50%	2,821
9-10	1,134	48%	1,209	52%	2,343
10-11	1,122	48%	1,192	52%	2,314
11-12	1,419	53%	1,258	47%	2,677
12 PM-1	1,399	48%	1,510	52%	2,909
1-2	1,191	46%	1,371	54%	2,562
2-3	1,271	49%	1,309	51%	2,580
3-4	1,628	54%	1,376	46%	3,004
4-5	1,787	55%	1,449	45%	3,236
5-6	1,691	53%	1,490	47%	3,181
6-7	1,646	54%	1,387	46%	3,032
7-8	1,018	50%	1,021	50%	2,039
8-9	577	43%	756	57%	1,333
9-10	409	41%	581	59%	990
10-11	305	45%	370	55%	675
11-12	157	41%	230	59%	387
24-HR TOTAL	21,395	48%	23,540	52%	44,935

7:00 AM - 7:00 PM	Vehicles	Dir. %	% of 24-HR.
Northbound	17,114	51%	80%
Southbound	16,679	49%	71%
TOTAL	33,793	100%	75%

Peak-Hour	Vehicles	% of 24-HR.
AM	3,137	7%
PM	3,236	7%

Comments: Not adjusted for trucks (vehicles with three or more axles).
Data Source: Evans-Graves Engineers, Inc. 2006.

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 23 at Engineers Road

Sq 47 LG/LG	Phase 1	Phase 2	Phase 3	Phase 4
.	+	+	+	^
/ \	<+	>		<++++
	v		^	++++
	^		++++	v
North	+ >	<+	++++>	
	+	+	++++	
	+	+	v	

	G/C=0.429	G/C=0.107	G/C=0.214	G/C=0.107
	G= 60.0"	G= 15.0"	G= 30.0"	G= 15.0"
	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=46.4%	OFF=60.7%	OFF=85.7%

C=140 sec G=120.0 sec = 85.7% Y=20.0 sec = 14.3% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	283	1191	6	16	11	48	2	1369	111	152	3	126	3318
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	12/1	0/0	0/0	24/2	12/1	12/1	12/1	12/1	
g/C Rqd@C:%	38	47	29	0	31	0	0	51	32	34	29	32	
g/C Used: %	43	43	11	0	11	0	0	43	11	21	21	21	
SV @E: vph	607	1357	152	0	147	0	0	1357	131	272	376	307	4706

Svc Lvl:LOS	C	D+	E+		E+			E+	E	D	D+	D	D
Deg Sat:v/c	0.47	0.88	0.03	0.00	0.40	0.00	0.00	1.01	0.65	0.50	0.01	0.37	0.84
HCM Del:s/v	29.1	43.5	56.1	0.0	59.7	0.0	0.0	67.0	68.7	49.7	43.3	47.6	53.6
Tot Del:min	34	216	1	0	19	0	0	383	32	31	1	25	742
# Stops:veh	51	273	1	0	17	0	0	342	27	33	1	27	772

Queue 1:veh	14	40	0	0	5	0	0	54	8	10	0	8	54
Queue 1: ft	380	1071	10	0	128	0	0	1455	218	260	4	208	1455

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	1480			75			1482			281			3318

Svc Lvl:LOS	D+			E+			E+			D			D
Deg Sat:v/c	0.80			0.40			0.98			0.44			0.84
HCM Del:s/v	40.8			59.7			67.1			48.7			53.6
Tot Del:min	251			19			415			57			742
# Stops:veh	325			17			369			61			772

Queue 1:veh	40			5			54			10			54
Queue 1: ft	1071			128			1455			260			1455

Peak-Hour Traffic Count Summary Sheet

Job Name: LA 23 Stage 0 Feasibility Study

Job No.: 10246-01

N

NS Street: LA Highway 23

Count Date: 2/8/2006
 Peak Period: AM
 Start: 7:30 AM End: 8:30 AM

SB EXITING VOL: 1,087
 SB ENTERING VOL: 1,193

0	1,087	106
R	1087	106
	T	L

EW Street: Sav-A-Center Driveway

TOTAL	Buses	Trucks	Autos
0			L
0			T
0			R

	Autos	Trucks	Buses	TOTAL
R	5			5
T				0
L	20			20

EB ENTERING VOL: 0
 EB EXITING VOL: 0

L	T	R
	1321	38

WB ENTERING VOL: 25
 WB EXITING VOL: 0

Comments:

K = All Approaches
 Peak Hr NB Approach
 Factor SB Approach
 EB Approach
 WB Approach

% of = All Approaches
 HV NB Approach
 @ Peak SB Approach
 EB Approach
 WB Approach

0	1,321	38
0	1,321	38

NB ENTERING VOL: 1,359
 NB EXITING VOL: 0

TOTAL INTERSECTION TRAFFIC VOLUME: 2,577

2,577

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - LA 23 at Sav-A-Center

Sq 81 **/**	Phase 1	Phase 2	Phase 3	Phase 4
/ \	+ *	+		^
	+ *	+		++++
	+ *>	+		++++
	v	v		++++
North		^	^	v
		* +>	+ +>	+>
		* +	+ +	+
		* +	+ +	+

	G/C=0.200	G/C=0.280	G/C=0.120	G/C=0.280
	G= 25.0"	G= 35.0"	G= 15.0"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=20.0%	OFF=52.0%	OFF=68.0%

C=125 sec G=110.0 sec = 88.0% Y=15.0 sec = 12.0% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	1208	118	6	0	22	42	1468	0	0	0	0	2864
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	12/1	24/2	0/0	0/0	0/0	0/0	
g/C Rqd@C:%	0	45	28	25	0	26	26	51	0	0	0	0	
g/C Used: %	0	48	17	28	0	28	76	44	0	0	0	0	
SV @E: vph	0	1520	275	433	0	489	1227	1393	0	0	0	0	5337

Svc Lvl:LOS		C	D	C		C	A	E					D
Deg Sat:v/c	0.00	0.80	0.39	0.01	0.00	0.04	0.03	1.05	0.00	0.00	0.00	0.00	0.89
HCM Del:s/v	0.0	30.3	47.1	32.5	0.0	32.8	3.7	74.7	0.0	0.0	0.0	0.0	53.4
Tot Del:min	0	153	23	1	0	3	1	457	0	0	0	0	638
# Stops:veh	0	254	26	1	0	4	3	367	0	0	0	0	655

Queue 1:veh	0	32	7	0	0	1	1	55	0	0	0	0	55
Queue 1: ft	0	880	169	7	0	26	18	1498	0	0	0	0	1498

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1326			28			1510			0			2864

Svc Lvl:LOS	C			C			E			D			
Deg Sat:v/c	0.76			0.04			1.03			0.00			0.89
HCM Del:s/v	31.8			32.8			72.7			0.0			53.4
Tot Del:min	176			4			458			0			638
# Stops:veh	280			5			370			0			655

Queue 1:veh	32			1			55			0			55
Queue 1: ft	880			26			1498			0			1498

Peak-Hour Traffic Count Summary Sheet

Job Name: L.A. 23 Stage 0 Feasibility Study

Job No.: 10246

Count Date: 2/8/2006
 Peak Period: AM
 Start: 7:30 AM End: 8:30 AM

NS Street: LA Hwy 23



SB EXITING VOL:	852
SB ENTERING VOL:	820

31	640	149
0	0	0
0	0	0
31	640	149
R	T	L

Peds	0

L	T	R
411	642	321
0	0	0
0	0	0
411	642	321

NB ENTERING VOL:	1,374
NB EXITING VOL:	1,193

TOTAL	Buses	Trucks	Autos
63	0	0	63 L
638	0	0	638 T
342	0	0	342 R

EB ENTERING VOL:	1,043
EB EXITING VOL:	954
Autos	
Trucks	
Buses	
TOTAL	

Comments: Data collected by
 Evans-Graves Engineers
 February 2006

TOTAL INTERSECTION TRAFFIC VOLUME: 4,107 4,107

Autos	Trucks	Buses	TOTAL
R 147	0	0	147
T 512	0	0	512
L 211	0	0	211

WB ENTERING VOL:	870
WB EXITING VOL:	1,108

K =	0.93	All Approaches
Peak Hr Factor	0.88	NB Approach
	0.88	SB Approach
	0.91	EB Approach
	0.91	WB Approach

% of HV @ Peak	=	0%	All Approaches
		0%	NB Approach
		0%	SB Approach
		0%	EB Approach
		0%	WB Approach

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - LA 23 at Lapalco Behrman Hwy

Sq 84 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
/ \	+ + +	+ +			^
	+ + +	+ +			****
	<+ + +>	<+ +			<****
	v	v		^	++++
North		^	^	++++	v
		* +>	<+ + +>		++++>
		* +	+ + +		++++
		* +	+ + +		v

	G/C=0.168	G/C=0.160	G/C=0.160	G/C=0.128	G/C=0.200
	G= 21.0"	G= 20.0"	G= 20.0"	G= 16.0"	G= 25.0"
	Y+R= 0.0"	Y+R= 6.0"	Y+R= 6.0"	Y+R= 5.0"	Y+R= 6.0"
	OFF= 0.0%	OFF=16.8%	OFF=37.6%	OFF=58.4%	OFF=75.2%

C=125 sec G=102.0 sec = 81.6% Y=23.0 sec = 18.4% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	18	711	166	163	569	234	179	713	457	380	709	70	4369
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	24/2	24/2	12/1	24/2	24/2	12/1	24/2	12/1	
g/C Rqd@C:%	26	35	30	0	36	28	31	35	31	39	35	27	
g/C Used: %	33	33	14	0	20	13	37	37	16	20	20	13	
SV @E: vph	460	1039	185	0	588	355	521	1165	466	258	620	172	5829

Svc Lvl:LOS	C	D+	E		F	D	C	C	E	F	F	D	F
Deg Sat:v/c	0.04	0.68	0.77	0.00	1.21	0.61	0.34	0.61	0.93	1.34	1.12	0.34	0.89
HCM Del:s/v	28.6	38.3	68.0	0.0	161.0	54.2	29.0	33.2	76.4	226.1	123.5	50.7	93.9
Tot Del:min	2	113	47	0	491	53	22	99	145	358	365	15	1710
# Stops:veh	3	154	40	0	183	55	32	145	113	95	177	16	1013

Queue 1:veh	1	20	11	0	36	8	8	19	17	40	32	4	40
Queue 1: ft	22	545	299	0	982	206	223	510	464	1089	862	113	1089

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	895			966			1349			1159			
Svc Lvl:LOS	D+			F			D			F			F
Deg Sat:v/c	0.69			1.07			0.69			1.15			0.89
HCM Del:s/v	43.6			135.1			47.3			152.7			93.9
Tot Del:min	162			544			266			738			1710
# Stops:veh	197			238			290			288			1013

Queue 1:veh	20			36			19			40			40
Queue 1: ft	545			982			510			1089			1089

Peak-Hour Traffic Count Summary Sheet

Job Name: LA 23 Stage 0 Feasibility Study Job No.: 10246-01

NS Street: LA Highway 23 N

Count Date: 2/8/2006
 Peak Period: AM
 Start: 7:30 AM End: 8:30 AM

SB EXITING VOL: 802
 SB ENTERING VOL: 802

0	792	10
R	792	10
T		L

EW Street: K Mart Driveway

TOTAL	Buses	Trucks	Autos
0			L
0			T
0			R

	Autos	Trucks	Buses	TOTAL
R	15			15
T				0
L	28			28

EB ENTERING VOL: 0
 EB EXITING VOL: 0

L	T	R
	830	22

WB ENTERING VOL: 43
 WB EXITING VOL: 43

Comments: _____

K = All Approaches
 Peak Hr NB Approach
 Factor SB Approach
 EB Approach
 WB Approach

% of = All Approaches
 HV NB Approach
 @ Peak SB Approach
 EB Approach
 WB Approach

TOTAL INTERSECTION TRAFFIC VOLUME: 1,697

1,697

NB ENTERING VOL: 852
 NB EXITING VOL: 852

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 4 - LA 23 at Kmart Driveway

Sq 81 LG/**	Phase 1	Phase 2	Phase 3	Phase 4
.		+	+	^
/ \		+	+	++++
		+	+	++++
		v	v	++++
North	^	^		v
	+ +>	* *>		
	+ +	* *		
	+ +	* *		

	G/C=0.300	G/C=0.097	G/C=0.263	G/C=0.233
	G= 45.0"	G= 14.5"	G= 39.5"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.5"	Y+R= 5.5"	Y+R= 5.0"
	OFF= 0.0%	OFF=30.0%	OFF=43.3%	OFF=73.3%

C=150 sec G=134.0 sec = 89.3% Y=16.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	880	11	17	0	31	24	922	0	0	0	0	1885
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	0/0	24/2	0/0	0/0	0/0	0/0	
g/C Rqd@C:%	0	43	32	32	0	32	0	44	0	0	0	0	
g/C Used: %	0	40	26	23	0	23	0	40	0	0	0	0	
SV @E: vph	0	1246	445	331	0	375	0	1245	0	0	0	0	3642

Svc Lvl:LOS		D+	D+	D+		D+		D+					D+
Deg Sat:v/c	0.00	0.71	0.02	0.05	0.00	0.08	0.00	0.76	0.00	0.00	0.00	0.00	0.71
HCM Del:s/v	0.0	39.8	41.0	44.6	0.0	45.0	0.0	41.9	0.0	0.0	0.0	0.0	41.0
Tot Del:min	0	146	2	3	0	6	0	165	0	0	0	0	322
# Stops:veh	0	184	2	3	0	6	0	204	0	0	0	0	399

Queue 1:veh	0	28	1	1	0	2	0	31	0	0	0	0	31
Queue 1: ft	0	755	16	26	0	47	0	837	0	0	0	0	837

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	891			48			946			0			1885

Svc Lvl:LOS	D+			D+			D+						D+
Deg Sat:v/c	0.70			0.06			0.76			0.00			0.71
HCM Del:s/v	39.8			44.8			41.9			0.0			41.0
Tot Del:min	148			9			165			0			322
# Stops:veh	186			9			204			0			399

Queue 1:veh	28			2			31			0			31
Queue 1: ft	755			47			837			0			837

Peak-Hour Traffic Count Summary Sheet

Job Name: LA 23 Stage 0 Feasibility Study

Job No.: 10246-01

Count Date: 2/14/2006
 Peak Period: AM
 Start: 7:30 AM End: 8:30 AM

NS Street: LA Highway 23

N

SB EXITING VOL: _____
 SB ENTERING VOL: 971

188	683	100
188	683	100
R	T	L

Peds		
Peds		Peds
Peds		

L	T	R
17	568	268
17	568	268
NB ENTERING VOL: 853		
NB EXITING VOL: _____		

TOTAL	Buses	Trucks	Autos
281			281
821			821
36			36
			L
			T
			R

EB ENTERING VOL: <u>1,138</u>
EB EXITING VOL: _____

Autos	Trucks	Buses	TOTAL
TOTAL INTERSECTION TRAFFIC VOLUME: <u>3,742</u>			

Comments: _____

	Autos	Trucks	Buses	TOTAL
R	114			114
T	378			378
L	288			288

WB ENTERING VOL: 780
 WB EXITING VOL: _____

K = _____
 Peak Hr Factor =
 All Approaches
 NB Approach
 SB Approach
 EB Approach
 WB Approach

% of HV @ Peak =
 All Approaches
 NB Approach
 SB Approach
 EB Approach
 WB Approach

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 5 - LA 23 at Terry/Wall

Sq 74 **/**	Phase 1	Phase 2	Phase 3	Phase 4
/ \	+ + *			^
	+ + *			++++
	<+ + *>			<++++
	v		^ ****	
		^	++++ v	
North		<+ * +>		++++>
		+ * +		****
		+ * +		v

	G/C=0.293	G/C=0.213	G/C=0.060	G/C=0.300
	G= 44.0"	G= 32.0"	G= 9.0"	G= 45.0"
	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=32.7%	OFF=57.3%	OFF=66.7%

C=150 sec G=130.0 sec = 86.7% Y=20.0 sec = 13.3% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	209	759	111	127	420	127	298	631	19	40	912	312	3965
Wid/Ln:ft/#	12/1	24/2	12/1	12/1	24/2	12/1	12/1	24/2	24/2	12/1	24/2	12/1	
g/C Rqd@C:%	37	40	34	35	37	34	39	38	32	33	43	38	
g/C Used: %	29	29	29	30	30	6	21	21	21	30	30	6	
SV @E: vph	441	1057	505	448	920	67	300	735	711	461	945	68	6658

Svc Lvl:LOS	D+	D	D+	D+	D+	F	E	E+	D	D+	E	F	F
Deg Sat:v/c	0.45	0.72	0.21	0.27	0.45	1.20	0.88	0.82	0.03	0.08	0.96	2.89	0.91
HCM Del:s/v	43.8	49.8	40.1	40.3	42.9	220.6	79.4	63.3	46.7	37.8	71.7	945.3	133.4
Tot Del:min	38	157	19	21	75	117	99	166	4	6	273	1229	2204
# Stops:veh	43	170	21	24	85	31	72	150	4	7	224	78	909

Queue 1:veh	13	26	6	7	13	15	23	24	1	2	37	57	57
Queue 1: ft	316	648	158	183	360	371	576	604	15	56	1012	1416	1416

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1079			674			948			1264			3965

Svc Lvl:LOS	D			E			E			F			F
Deg Sat:v/c	0.61			0.56			0.82			1.41			0.91
HCM Del:s/v	47.6			75.9			68.0			286.3			133.4
Tot Del:min	214			213			269			1508			2204
# Stops:veh	234			140			226			309			909

Queue 1:veh	26			15			24			57			57
Queue 1: ft	648			371			604			1416			1416

Peak-Hour Traffic Count Summary Sheet

Job Name: LA 23 Stage 0 Feasibility Study

Job No.: 10246-01

Count Date: 2/8/2006
 Peak Period: PM
 Start: 4:00 PM End: 5:00 PM

NS Street: LA Highway 23

N

SB EXITING VOL:	1,241
SB ENTERING VOL:	1,241

132	1,102	7
132	1,102	7
R	T	L

EW Street: Engineers/Planters Canal

TOTAL	Buses	Trucks	Autos
247			247
6			6
91			91
			L
			T
			R

EB ENTERING VOL:	344
EB EXITING VOL:	

Comments: _____

TOTAL INTERSECTION TRAFFIC VOLUME: 3,173

	Autos	Trucks	Buses	TOTAL
R	10			10
T	2			2
L	40			40

WB ENTERING VOL:	52
WB EXITING VOL:	

K = All Approaches
 Peak Hr NB Approach
 Factor SB Approach
 EB Approach
 WB Approach

% of = All Approaches
 HV NB Approach
 @ Peak SB Approach
 EB Approach
 WB Approach

NB ENTERING VOL:	1,536
NB EXITING VOL:	

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 23 at Engineers Road

Sq 47	Phase 1	Phase 2	Phase 3	Phase 4
LG/LG	+	+		^
.	+	+		++++
/ \	<+ +	+>		<++++
	v		^	++++
			++++	v
North	+ +>	<+	++++>	
	+ +	+	++++	
	+ +	+	v	

	G/C=0.429	G/C=0.107	G/C=0.214	G/C=0.107
	G= 60.0"	G= 15.0"	G= 30.0"	G= 15.0"
	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=46.4%	OFF=60.7%	OFF=85.7%

C=140 sec G=120.0 sec = 85.7% Y=20.0 sec = 14.3% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	147	1224	8	11	2	44	16	1567	124	101	7	274	3525
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	12/1	0/0	0/0	24/2	12/1	12/1	12/1	12/1	
g/c Rqd@C:%	33	48	29	0	31	0	0	55	32	32	29	36	
g/c Used: %	43	43	11	0	11	0	0	43	11	21	21	21	
SV @E: vph	607	1357	152	0	146	0	0	1357	131	272	376	307	4705

Svc Lvl:LOS	C+	D	E+		E+			F	E	D	D+	E+	F
Deg Sat:v/c	0.24	0.90	0.04	0.00	0.31	0.00	0.00	1.17	0.73	0.33	0.02	0.81	0.95
HCM Del:s/v	25.7	45.9	56.1	0.0	58.6	0.0	0.0	123.3	75.3	47.2	43.4	65.8	82.7
Tot Del:min	16	234	2	0	14	0	0	813	39	20	1	75	1214
# Stops:veh	23	285	2	0	13	0	0	395	30	21	1	65	835

Queue 1:veh	7	42	1	0	4	0	0	73	9	6	0	19	73
Queue 1: ft	181	1130	13	0	96	0	0	1988	250	166	10	518	1988

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1379			57			1707			382			3525

Svc Lvl:LOS	D+			E+			F			E+			F
Deg Sat:v/c	0.83			0.31			1.13			0.67			0.95
HCM Del:s/v	43.8			58.6			119.8			60.5			82.7
Tot Del:min	252			14			852			96			1214
# Stops:veh	310			13			425			87			835

Queue 1:veh	42			4			73			19			73
Queue 1: ft	1130			96			1988			518			1988

Peak-Hour Traffic Count Summary Sheet

Job Name: LA 23 Stage 0 Feasibility Study Job No.: 10246-01

NS Street: LA Highway 23 N

Count Date: 2/8/2006
 Peak Period: PM
 Start: 4:00 PM End: 5:00 PM

SB EXITING VOL: 94
 SB ENTERING VOL: 1,284

0	1,190	94
R	1190	94
T		L

EW Street: Sav-A-Center Driveway

TOTAL	Buses	Trucks	Autos
0			L
0			T
0			R

	Autos	Trucks	Buses	TOTAL
R	89			89
T				0
L	50			50

EB ENTERING VOL: 0
 EB EXITING VOL: 0

L T R
 1487 180

WB ENTERING VOL: 139
 WB EXITING VOL: 0

Comments: _____

K = _____
 All Approaches
 Peak Hr NB Approach
 Factor SB Approach
 EB Approach
 WB Approach

NB ENTERING VOL: 1,667
 NB EXITING VOL: 3,090

% of HV @ Peak = _____
 All Approaches
 NB Approach
 SB Approach
 EB Approach
 WB Approach

TOTAL INTERSECTION TRAFFIC VOLUME: 3,090

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - LA 23 at Sav-A-Center

Sq 81 **/**	Phase 1	Phase 2	Phase 3	Phase 4
.	+ *	+		^
/ \	+ *	+		++++
	+ *>	+		****
	v	v		v
North		^	^	
		* +>	+ +>	+>
		* +	+ +	+
		* +	+ +	+

	G/C=0.200	G/C=0.280	G/C=0.120	G/C=0.280
	G= 25.0"	G= 35.0"	G= 15.0"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=20.0%	OFF=52.0%	OFF=68.0%

C=125 sec G=110.0 sec = 88.0% Y=15.0 sec = 12.0% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	1322	104	99	0	56	200	1652	0	0	0	0	3433
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	12/1	24/2	0/0	0/0	0/0	0/0	
g/c Rqd@C:%	0	48	28	28	0	26	30	56	0	0	0	0	
g/c Used: %	0	48	17	28	0	28	76	44	0	0	0	0	
SV @E: vph	0	1520	275	433	0	489	1227	1393	0	0	0	0	5337

Svc Lvl:LOS		C	D	C		C	A	F					E
Deg Sat:v/c	0.00	0.87	0.34	0.22	0.00	0.11	0.16	1.19	0.00	0.00	0.00	0.00	0.93
HCM Del:s/v	0.0	34.7	46.6	34.8	0.0	33.6	4.2	26.2	0.0	0.0	0.0	0.0	77.3
Tot Del:min	0	191	20	14	0	8	3	869	0	0	0	0	1105
# Stops:veh	0	295	23	19	0	10	14	413	0	0	0	0	774

Queue 1:veh	0	38	6	5	0	3	4	73	0	0	0	0	73
Queue 1: ft	0	1040	148	122	0	67	92	1974	0	0	0	0	1974

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	1426			155			1852			0			

Svc Lvl:LOS	D+			C			F						E
Deg Sat:v/c	0.83			0.18			1.08			0.00			0.93
HCM Del:s/v	35.6			34.4			113.0			0.0			77.3
Tot Del:min	211			22			872			0			1105
# Stops:veh	318			29			427			0			774

Queue 1:veh	38			5			73			0			73
Queue 1: ft	1040			122			1974			0			1974

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - LA 23 at Lapalco Behrman Hwy

Sq 84 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
.	+ + *	+ *			^
/ \	+ + *	+ *			****
	<+ + *>	<+ *			<****
	v	v		^	++++
		^	^	++++	v
North		+ +>	<+ + +>		++++>
		+ +	+ + +		++++
		+ +	+ + +		v

	G/C=0.168	G/C=0.160	G/C=0.160	G/C=0.128	G/C=0.200
	G= 21.0"	G= 20.0"	G= 20.0"	G= 16.0"	G= 25.0"
	Y+R= 0.0"	Y+R= 6.0"	Y+R= 6.0"	Y+R= 5.0"	Y+R= 6.0"
	OFF= 0.0%	OFF=16.8%	OFF=37.6%	OFF=58.4%	OFF=75.2%

C=125 sec G=102.0 sec = 81.6% Y=23.0 sec = 18.4% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	74	853	284	94	694	217	199	814	560	357	687	108	4941
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	24/2	24/2	12/1	24/2	24/2	12/1	24/2	12/1	
g/c Rqd@C:%	27	38	33	0	37	28	31	37	33	38	35	28	
g/c Used: %	33	33	14	0	20	13	37	37	16	20	20	13	
SV @E: vph	460	1039	185	0	599	355	521	1165	466	258	620	172	5840

Svc Lvl:LOS	C	D+	F		F	D	C	D+	F	F	F	D	F
Deg Sat:v/c	0.16	0.82	1.32	0.00	1.28	0.56	0.38	0.70	1.14	1.26	1.09	0.53	0.96
HCM Del:s/v	29.9	44.0	227.2	0.0	190.6	53.0	29.5	35.5	137.8	192.9	111.1	53.7	107.0
Tot Del:min	9	156	269	0	626	48	24	120	322	287	318	24	2203
# Stops:veh	13	196	71	0	197	51	37	173	140	89	171	25	1163

Queue 1:veh	3	26	31	0	41	7	9	22	26	35	30	7	41
Queue 1: ft	92	708	827	0	1122	189	251	608	705	961	805	181	1122

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	1211			1005			1573			1152			4941

Svc Lvl:LOS	F			F			E			F			F
Deg Sat:v/c	0.90			1.13			0.82			1.09			0.96
HCM Del:s/v	86.1			160.9			71.1			131.1			107.0
Tot Del:min	434			674			466			629			2203
# Stops:veh	280			248			350			285			1163

Queue 1:veh	31			41			26			35			41
Queue 1: ft	827			1122			705			961			1122

Peak-Hour Traffic Count Summary Sheet

Job Name: LA 23 Stage 0 Feasibility Study Job No.: 10246-01

NS Street: LA Highway 23 N

Count Date: 2/8/2006
 Peak Period: PM
 Start: 4:00 PM End: 5:00 PM

SB EXITING VOL: 1,061
 SB ENTERING VOL: 1,074

0	1,061	13
R	1061	13
T		L

EW Street: K Mart Driveway

TOTAL	Buses	Trucks	Autos
0			L
0			T
0			R

	Autos	Trucks	Buses	TOTAL
R	69			69
T				0
L	45			45

EB ENTERING VOL: 0
 EB EXITING VOL: 0

L	T	R
	892	23

Autos
 Trucks
 Buses
 TOTAL

0	892	23
---	-----	----

Comments:

WB ENTERING VOL: 114
 WB EXITING VOL: 114

K = All Approaches
 Peak Hr Factor = NB Approach
 SB Approach
 EB Approach
 WB Approach

% of HV @ Peak = All Approaches
 NB Approach
 SB Approach
 EB Approach
 WB Approach

TOTAL INTERSECTION TRAFFIC VOLUME: 2,103 2,103

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 4 - LA 23 at KMart Driveway

Sq 81 LG/**	Phase 1	Phase 2	Phase 3	Phase 4
.		+	+	^
/ \		+	+	++++
		+	+	
		v	v	++++
North	^	^		v
	+ +>	* +>		
	+ +	* +		
	+ +	* +		

	G/C=0.300	G/C=0.097	G/C=0.263	G/C=0.233
	G= 45.0"	G= 14.5"	G= 39.5"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.5"	Y+R= 5.5"	Y+R= 5.0"
	OFF= 0.0%	OFF=30.0%	OFF=43.3%	OFF=73.3%

C=150 sec G=134.0 sec = 89.3% Y=16.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	1179	14	77	0	50	1	991	0	0	0	0	2312
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	12/1	24/2	0/0	0/0	0/0	0/0	
g/C Rqd@C:%	0	48	32	34	0	33	32	45	0	0	0	0	
g/C Used: %	0	40	26	23	0	23	40	40	0	0	0	0	
SV @E: vph	0	1256	445	331	0	375	640	1256	0	0	0	0	4303

Svc Lvl:LOS		E+	D+	D	D	D	C+	D+					D
Deg Sat:v/c	0.00	0.94	0.03	0.21	0.00	0.12	0.00	0.79	0.00	0.00	0.00	0.00	0.83
HCM Del:s/v	0.0	56.9	41.0	46.6	0.0	45.5	27.3	43.2	0.0	0.0	0.0	0.0	50.3
Tot Del:min	0	279	2	15	0	9	0	178	0	0	0	0	483
# Stops:veh	0	283	3	16	0	10	0	218	0	0	0	0	530

Queue 1:veh	0	45	1	5	0	3	0	33	0	0	0	0	45
Queue 1: ft	0	1221	20	119	0	76	1	895	0	0	0	0	1221

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1193			127			992			0			2312

Svc Lvl:LOS	E+			D			D+						D
Deg Sat:v/c	0.93			0.17			0.79			0.00			0.83
HCM Del:s/v	56.7			46.2			43.2			0.0			50.3
Tot Del:min	281			24			178			0			483
# Stops:veh	286			26			218			0			530

Queue 1:veh	45			5			33			0			45
Queue 1: ft	1221			119			895			0			1221

Peak-Hour Traffic Count Summary Sheet

Job Name: LA 23 Stage 0 Feasibility Study Job No.: 10246



NS Street: LA Hwy 23

Count Date: 2/14/2006
 Peak Period: PM
 Start: 4:45 PM End: 5:45 PM

SB EXITING VOL: 972
 SB ENTERING VOL: 1,420

TOTAL		Buses		Trucks		Autos		Autos	
196	0	0	0	196	L	447	816	157	
490	0	0	0	490	T	0	0	0	
86	0	0	0	86	R	0	0	0	
TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
772	1,344	0	0	196	L	447	816	157	
				490	T		T	L	
				86	R				

EW Street: Wall Boulevard/Terry Parkwa

TOTAL		Buses		Trucks		Autos		Trucks		Buses		TOTAL	
196	0	0	0	196	L	Peds	0	R	144	0	0	144	
490	0	0	0	490	T	Peds		T	845	0	0	845	
86	0	0	0	86	R	Peds		R	352	0	0	352	
TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
772	1,344	0	0	196	L	0	0	T	144	0	0	144	
				490	T			R	845	0	0	845	
				86	R			L	352	0	0	352	

EB ENTERING VOL: 772
 EB EXITING VOL: 1,344

WB ENTERING VOL: 1,341
 WB EXITING VOL: 1,003

Comments: Data collected by
 Evans-Graves Engineers
 February 2006

K	=	0.98	All Approaches
Peak Hr		0.90	NB Approach
Factor		0.93	SB Approach
		0.92	EB Approach
		0.93	WB Approach

% of	=	0%	All Approaches
HV		0%	NB Approach
@ Peak		0%	SB Approach
		0%	EB Approach
		0%	WB Approach

TOTAL INTERSECTION TRAFFIC VOLUME: 4,573

4,573

NB ENTERING VOL: 1,040
 NB EXITING VOL: 1,254

Appendix B
Future (2010) Traffic Analysis
(Traffic Volume Forecast, Intersections No-Build and Build Scenarios)



Table B-1

Summary of Projected Traffic Increases (Current 2006 vs. 2010)

Growth in Background Traffic, Development Based Increases, Woodland Highway

AM Peak (0730-0830)			2006	2010	PM Peak (1600-1700)			2006	2010
LA 23 at Engineers Road					LA 23 at Engineers Road				
<i>S</i> <i>approach</i>	Left		100	102	<i>S</i> <i>approach</i>	Left		132	135
	Through		1,232	1,267		Through		1,102	1,161
	Right		2	2		Right		7	7
<i>N</i> <i>approach</i>	Left		5	5	<i>N</i> <i>approach</i>	Left		14	15
	Through		1,072	1,097		Through		1,410	1,481
	Right		255	266		Right		112	123
<i>W</i> <i>approach</i>	Left		113	119	<i>W</i> <i>approach</i>	Left		247	270
	Through		3	5		Through		6	6
	Right		137	140		Right		91	93
<i>E</i> <i>approach</i>	Left		43	44	<i>E</i> <i>approach</i>	Left		40	41
	Through		10	10		Through		2	2
	Right		14	15		Right		10	13
LA 23 at Sav-A-Center Driveway					LA 23 at Sav-A-Center Driveway				
<i>S</i> <i>approach</i>	Through		1,321	1,362	<i>S</i> <i>approach</i>	Through		1,487	1,560
	Right		38	42		Right		180	199
<i>N</i> <i>approach</i>	Left		106	117	<i>N</i> <i>approach</i>	Left		94	134
	Through		1,087	1,116		Through		1,190	1,250
<i>E</i> <i>approach</i>	Left		20	22	<i>E</i> <i>approach</i>	Left		50	67
	Right		5	12		Right		89	152
LA 23 at Lapalco/Behrman					LA 23 at Lapalco/Behrman				
<i>S</i> <i>approach</i>	Left		411	424	<i>S</i> <i>approach</i>	Left		504	538
	Through		642	670		Through		733	825
	Right		321	330		Right		339	348
<i>N</i> <i>approach</i>	Left		149	154	<i>N</i> <i>approach</i>	Left		256	273
	Through		640	665		Through		768	846
	Right		31	32		Right		82	89
<i>W</i> <i>approach</i>	Left		63	65	<i>W</i> <i>approach</i>	Left		97	104
	Through		638	659		Through		618	654
	Right		342	351		Right		321	336
<i>E</i> <i>approach</i>	Left		211	216	<i>E</i> <i>approach</i>	Left		195	203
	Through		512	525		Through		625	648
	Right		147	152		Right		85	94
LA 23 at Kmart Driveway					LA 23 at Kmart Driveway				
<i>S</i> <i>approach</i>	Through		830	859	<i>S</i> <i>approach</i>	Through		892	973
	Right		22	28		Right		23	50
<i>N</i> <i>approach</i>	Left		10	17	<i>N</i> <i>approach</i>	Left		13	45
	Through		792	818		Through		1,061	1,133
<i>E</i> <i>approach</i>	Left		28	33	<i>E</i> <i>approach</i>	Left		45	76
	Right		15	20		Right		69	101

Table B-1

Summary of Projected Traffic Increases (Current 2006 vs. 2010)

Growth in Background Traffic, Development Based Increases, Woodland Highway

AM Peak (0730-0830)		2006	2010	PM Peak (1600-1700)		2006	2010
LA 23 at Terry/Wall				LA 23 at Terry/Wall			
<i>N</i> <i>approach</i>	Left	100	103	<i>N</i> <i>approach</i>	Left	157	168
	Through	683	711		Through	816	905
	Right	188	198		Right	447	497
<i>S</i> <i>approach</i>	Left	17	17	<i>S</i> <i>approach</i>	Left	52	53
	Through	568	591		Through	632	682
	Right	268	274		Right	356	364
<i>E</i> <i>approach</i>	Left	288	295	<i>E</i> <i>approach</i>	Left	352	375
	Through	378	387		Through	845	865
	Right	114	117		Right	144	147
<i>W</i> <i>approach</i>	Left	281	288	<i>W</i> <i>approach</i>	Left	196	201
	Through	821	840		Through	490	501
	Right	36	37		Right	86	92

Notes:

- (1) - Background traffic growth based upon actual conditions. Estimate of 1.0% annual growth - using pre-Katrina Average Daily Traffic Volumes collected around LA 23 corridor as part of Woodland Highway Corridor study.
- (2) - Traffic added as a result of new development assumed to follow existing distributions/patterns.
- (3) - Peak-hour trip estimates for new development based upon application of appropriate peak-hour factors to identified development sites from the *Trip Generation Manual*, 7th Edition or as determined from the Woodland Highway Corridor Study.

Compiled by Burk-Kleinpeter, Inc., 2006

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 23 at Engineers Road

Sq 47 LG/LG	Phase 1	Phase 2	Phase 3	Phase 4
.	+	+		^
/ \	<+	>		<++++
	v		^	++++
		^	++++	v
North	+ +>	<+	++++>	
	+ +	+	++++	
	+ +	+	v	

	G/C=0.429	G/C=0.107	G/C=0.214	G/C=0.107
	G= 60.0"	G= 15.0"	G= 30.0"	G= 15.0"
	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=46.4%	OFF=60.7%	OFF=85.7%

C=140 sec G=120.0 sec = 85.7% Y=20.0 sec = 14.3% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	296	1219	6	17	11	49	2	1408	113	156	6	132	3415
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	12/1	0/0	0/0	24/2	12/1	12/1	12/1	12/1	
g/C Rqd@C:%	38	47	29	0	31	0	0	51	32	34	29	33	
g/C Used: %	43	43	11	0	11	0	0	43	11	21	21	21	
SV @E: vph	607	1357	152	0	147	0	0	1357	131	272	376	307	4706

Svc Lvl:LOS	C	D	E+		E+			E	E	D	D+	D	E+
Deg Sat:v/c	0.49	0.90	0.03	0.00	0.41	0.00	0.00	1.04	0.67	0.51	0.01	0.39	0.86
HCM Del:s/v	29.5	45.5	56.1	0.0	59.9	0.0	0.0	75.2	69.5	50.0	43.4	47.9	57.8
Tot Del:min	36	231	1	0	19	0	0	442	33	33	1	26	822
# Stops:veh	53	283	1	0	18	0	0	352	27	34	1	28	797

Queue 1:veh	15	41	0	0	5	0	0	57	8	10	0	8	57
Queue 1: ft	401	1121	10	0	132	0	0	1541	223	267	9	218	1541

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1521			77			1523			294			3415

Svc Lvl:LOS	D+			E+			E			D			E+
Deg Sat:v/c	0.81			0.41			1.01			0.45			0.86
HCM Del:s/v	42.4			59.9			74.8			48.9			57.8
Tot Del:min	268			19			475			60			822
# Stops:veh	337			18			379			63			797

Queue 1:veh	41			5			57			10			57
Queue 1: ft	1121			132			1541			267			1541

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - LA 23 at Sav-A-Center

Sq 81 **/**	Phase 1	Phase 2	Phase 3	Phase 4
.	+ *	+		^
/ \	+ *	+		++++
	+ *>	+		++++
	v	v		v
North		^	^	
		* +>	+ +>	+>
		* +	+ +	+
		* +	+ +	+

	G/C=0.200	G/C=0.280	G/C=0.120	G/C=0.280
	G= 25.0"	G= 35.0"	G= 15.0"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=20.0%	OFF=52.0%	OFF=68.0%

C=125 sec G=110.0 sec = 88.0% Y=15.0 sec = 12.0% Ped= 0.0 sec = 0.0%

MVMF TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	1240	130	13	0	24	47	1513	0	0	0	0	2967
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	12/1	24/2	0/0	0/0	0/0	0/0	
g/C Rqd@C:%	0	46	28	26	0	26	26	52	0	0	0	0	
g/C Used: %	0	48	17	28	0	28	76	44	0	0	0	0	
SV @E: vph	0	1520	275	433	0	489	1227	1393	0	0	0	0	5337

Svc Lvl:LOS		C	D	C		C	A	F					E+
Deg Sat:v/c	0.00	0.82	0.43	0.03	0.00	0.05	0.04	1.09	0.00	0.00	0.00	0.00	0.91
HCM Del:s/v	0.0	31.4	47.6	32.7	0.0	32.9	3.7	86.1	0.0	0.0	0.0	0.0	59.6
Tot Del:min	0	162	26	2	0	3	1	543	0	0	0	0	737
# Stops:veh	0	265	29	2	0	4	3	378	0	0	0	0	681

Queue 1:veh	0	34	7	1	0	1	1	59	0	0	0	0	59
Queue 1: ft	0	921	187	15	0	28	20	1606	0	0	0	0	1606

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1370			37			1560			0			2967

Svc Lvl:LOS	C			C			F						E+
Deg Sat:v/c	0.78			0.04			1.05			0.00			0.91
HCM Del:s/v	32.9			32.8			83.6			0.0			59.6
Tot Del:min	188			5			544			0			737
# Stops:veh	294			6			381			0			681

Queue 1:veh	34			1			59			0			59
Queue 1: ft	921			28			1606			0			1606

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - LA 23 at Lapalco Behrman Hwy

Sq 84 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
/ \	+ + +	+ +			^
	+ + +	+ +			****
	<+ + +>	<+ +			<****
	v	v		^	++++
North		^	^	++++	v
		* +>	<+ + +>		++++>
		* +	+ + +		++++
		* +	+ + +		v

	G/C=0.168	G/C=0.160	G/C=0.160	G/C=0.128	G/C=0.200
	G= 21.0"	G= 20.0"	G= 20.0"	G= 16.0"	G= 25.0"
	Y+R= 0.0"	Y+R= 6.0"	Y+R= 6.0"	Y+R= 5.0"	Y+R= 6.0"
	OFF= 0.0%	OFF=16.8%	OFF=37.6%	OFF=58.4%	OFF=75.2%

C=125 sec G=102.0 sec = 81.6% Y=23.0 sec = 18.4% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	19	739	171	169	583	240	189	744	471	390	732	72	4519
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	24/2	24/2	12/1	24/2	24/2	12/1	24/2	12/1	
g/C Rqd@C:%	26	36	30	0	37	28	31	36	32	40	36	27	
g/C Used: %	33	33	14	0	20	13	37	37	16	20	20	13	
SV @E: vph	460	1039	185	0	588	355	521	1165	466	258	620	172	5829

Svc Lvl:LOS	C	D+	E		F	D	C	C	F	F	F	D	F
Deg Sat:v/c	0.04	0.71	0.80	0.00	1.25	0.62	0.36	0.64	0.96	1.38	1.16	0.35	0.92
HCM Del:s/v	28.6	39.1	70.8	0.01	174.6	54.7	29.2	33.8	82.5	240.8	137.3	50.9	100.4
Tot Del:min	2	120	50	0	547	55	23	105	162	391	419	15	1889
# Stops:veh	3	162	41	0	188	57	34	154	117	97	183	16	1052

Queue 1:veh	1	21	12	0	38	8	9	20	18	42	34	4	42
Queue 1: ft	23	574	312	0	1039	213	237	539	491	1145	923	117	1145

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	929			992			1404			1194			4519

Svc Lvl:LOS	D+			F			D			F			F
Deg Sat:v/c	0.71			1.10			0.71			1.18			0.92
HCM Del:s/v	44.7			145.6			49.5			165.9			100.4
Tot Del:min	172			602			290			825			1889
# Stops:veh	206			245			305			296			1052

Queue 1:veh	21			38			20			42			42
Queue 1: ft	574			1039			539			1145			1145

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 4 - LA 23 at Kmart Driveway

Sq 81 LG/**	Phase 1	Phase 2	Phase 3	Phase 4
/ \		+	+	^
		+	+	++++
		+	+	++++
		v	v	++++
North	^	^		v
	+ +>	* *>		
	+ +	* *		
	+ +	* *		

	G/C=0.300	G/C=0.097	G/C=0.263	G/C=0.233
	G= 45.0"	G= 14.5"	G= 39.5"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.5"	Y+R= 5.5"	Y+R= 5.0"
	OFF= 0.0%	OFF=30.0%	OFF=43.3%	OFF=73.3%

C=150 sec G=134.0 sec = 89.3% Y=16.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	909	19	22	0	37	31	954	0	0	0	0	1972
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	0/0	24/2	0/0	0/0	0/0	0/0	
g/c Rqd@C:%	0	43	32	32	0	32	0	45	0	0	0	0	
g/c Used: %	0	40	26	23	0	23	0	40	0	0	0	0	
SV @E: vph	0	1246	445	331	0	375	0	1245	0	0	0	0	3642

Svc Lvl:LOS		D+	D+	D+		D		D+					D+
Deg Sat:v/c	0.00	0.73	0.04	0.06	0.00	0.09	0.00	0.79	0.00	0.00	0.00	0.00	0.73
HCM Del:s/v	0.0	40.6	41.2	44.8	0.0	45.1	0.0	43.3	0.0	0.0	0.0	0.0	42.1
Tot Del:min	0	154	3	4	0	7	0	178	0	0	0	0	346
# Stops:veh	0	193	4	4	0	7	0	217	0	0	0	0	425

Queue 1:veh	0	29	1	1	0	2	0	33	0	0	0	0	33
Queue 1: ft	0	791	27	33	0	56	0	890	0	0	0	0	890

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	928			59			985			0			1972

Svc Lvl:LOS	D+			D+			D+						D+
Deg Sat:v/c	0.72			0.08			0.79			0.00			0.73
HCM Del:s/v	40.6			45.0			43.3			0.0			42.1
Tot Del:min	157			11			178			0			346
# Stops:veh	197			11			217			0			425

Queue 1:veh	29			2			33			0			33
Queue 1: ft	791			56			890			0			890

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 5 - LA 23 at Terry/Wall

Sq 74 **/**	Phase 1	Phase 2	Phase 3	Phase 4
/ \	+ + *			^
	+ + *			++++
	<+ + *>			<++++
	v		^ ****	
North		^	++++ v	
		<+ * +>		++++>
		+ * +		****
		+ * +		v

	G/C=0.293	G/C=0.213	G/C=0.060	G/C=0.300
	G= 44.0"	G= 32.0"	G= 9.0"	G= 45.0"
	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=32.7%	OFF=57.3%	OFF=66.7%

C=150 sec G=130.0 sec = 86.7% Y=20.0 sec = 13.3% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	220	790	114	130	430	328	304	657	19	41	933	320	4286
Wid/Ln:ft/#	12/1	24/2	12/1	12/1	24/2	12/1	12/1	24/2	24/2	12/1	24/2	12/1	
g/c Rqd@C:%	37	40	34	35	37	39	39	38	32	33	44	38	
g/c Used: %	29	29	29	30	30	6	21	21	21	30	30	6	
SV @E: vph	441	1057	505	448	920	67	300	735	711	461	945	68	6658

Svc Lvl:LOS	D+	D	D+	D+	D+	F	F	E+	D	D+	E	F	F
Deg Sat:v/c	0.47	0.75	0.22	0.28	0.46	3.09	0.90	0.85	0.03	0.09	0.98	2.96	1.09
HCM Del:s/v	44.2	50.9	40.2	40.4	43.1	*****	82.5	65.9	46.7	37.8	76.99	78.3	204.0
Tot Del:min	41	167	19	22	77	1418	105	181	4	6	299	1304	3643
# Stops:veh	45	179	21	25	87	82	74	158	4	7	231	80	993

Queue 1:veh	13	27	7	8	14	61	24	26	1	2	39	58	61
Queue 1: ft	335	683	163	188	370	1514	595	641	15	57	1061	1461	1514

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	1124			888			980			1294			4286

Svc Lvl:LOS	D			F			E			F			F
Deg Sat:v/c	0.64			1.41			0.85			1.44			1.09
HCM Del:s/v	48.5			410.0			70.7			298.6			204.0
Tot Del:min	227			1517			290			1609			3643
# Stops:veh	245			194			236			318			993

Queue 1:veh	27			61			26			58			61
Queue 1: ft	683			1514			641			1461			1514

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 23 at Engineers Road

Sq 47	Phase 1	Phase 2	Phase 3	Phase 4
LG/LG				
.	+ *	+		^
/ \	+ *	+		****
	<+ *	>		<****
	v		^	****
	^		++++	v
North	+ +>	<*	++++>	
	+ +	*	****	
	+ +	*	v	

	G/C=0.542	G/C=0.100	G/C=0.158	G/C=0.067
	G= 65.0"	G= 12.0"	G= 19.0"	G= 8.0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF=88.3%	OFF=45.8%	OFF=59.2%	OFF=78.3%

C=120 sec G=104.0 sec = 86.7% Y=16.0 sec = 13.3% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	Total									
AdjVol: vph	296	1219	6	17	11	49	2	1408	113	156	6	132	3415
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	12/1	0/0	0/0	36/3	12/1	12/1	12/1	12/1	
g/c Rqd@C:%	34	45	24	0	26	0	0	39	27	29	24	27	
g/c Used: %	54	54	10	0	7	0	0	54	10	16	16	16	
SV @E: vph	767	1715	151	0	89	0	0	2464	129	198	275	225	6013
-----	-----												
Svc Lvl:LOS	B	C+	D		E			B	E+	E+	D+	D	C+
Deg Sat:v/c	0.39	0.71	0.03	0.00	0.66	0.00	0.00	0.57	0.71	0.70	0.02	0.53	0.61
HCM Del:s/v	16.3	21.9	48.8	0.0	68.1	0.0	0.0	18.6	66.6	56.9	42.7	48.4	25.3
Tot Del:min	20	111	1	0	22	0	0	109	31	37	1	27	359
# Stops:veh	43	227	1	0	19	0	0	234	27	37	1	30	619
-----	-----												
Queue 1:veh	10	28	0	0	5	0	0	20	7	10	0	8	28
Queue 1: ft	283	752	9	0	127	0	0	545	199	260	8	206	752

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	1521			77			1523			294			3415
-----	-----												
Svc Lvl:LOS	C+			E			C+			D			C+
Deg Sat:v/c	0.64			0.66			0.58			0.61			0.61
HCM Del:s/v	20.9			68.1			22.2			52.8			25.3
Tot Del:min	132			22			140			65			359
# Stops:veh	271			19			261			68			619
-----	-----												
Queue 1:veh	28			5			20			10			28
Queue 1: ft	752			127			545			260			752

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - LA 23 at Sav-A-Center

Sq 21 **/**	Phase 1	Phase 2	Phase 3
.	+ *	+	^
/ \	+ *	+	++++
	+ *>	+	****
	v	v	v
North		^	
		* *>	
		* *	
		* *	

	G/C=0.150	G/C=0.708	G/C=0.042
	G= 18.0"	G= 85.0"	G= 5.0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF=93.3%	OFF=11.7%	OFF=85.8%

C=120 sec G=108.0 sec = 90.0% Y=12.0 sec = 10.0% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	1240	130	13	0	24	47	1513	0	0	0	0	2967
Wid/Ln:ft/#	0/0	36/3	12/1	12/1	0/0	12/1	0/0	36/3	0/0	0/0	0/0	0/0	
g/C Rqd@C:%	0	37	27	24	0	24	0	41	0	0	0	0	
g/C Used: %	0	89	15	4	0	4	0	71	0	0	0	0	
SV @E: vph	0	4057	244	45	0	51	0	3220	0	0	0	0	7617
-----	-----												
Svc Lvl:LOS		A	D	E+		E+		A					A
Deg Sat:v/c	0.00	0.31	0.48	0.20	0.00	0.32	0.00	0.48	0.00	0.00	0.00	0.00	0.41
HCM Del:s/v	0.0	1.0	48.1	57.0	0.0	58.4	0.0	7.9	0.0	0.0	0.0	0.0	7.4
Tot Del:min	0	5	26	3	0	6	0	51	0	0	0	0	91
# Stops:veh	0	46	30	3	0	6	0	173	0	0	0	0	258
-----	-----												
Queue 1:veh	0	5	7	1	0	2	0	15	0	0	0	0	15
Queue 1: ft	0	129	185	21	0	38	0	415	0	0	0	0	415

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1370			37			1560			0			2967
-----	-----												
Svc Lvl:LOS	A			E+			A						A
Deg Sat:v/c	0.32			0.28			0.48			0.00			0.41
HCM Del:s/v	5.5			57.9			7.9			0.0			7.4
Tot Del:min	31			9			51			0			91
# Stops:veh	76			9			173			0			258
-----	-----												
Queue 1:veh	7			2			15			0			15
Queue 1: ft	185			38			415			0			415

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - LA 23 at Lapalco Behrman Hwy

Sq 42 **/**	Phase 1	Phase 2	Phase 3	Phase 4
.	+	+	^	^
/ \	+	+	++++	++++
	>	<+	<++++	<++++
		v	****	^
North	<*	* +>	v	++++
	*	* +		++++>
	*	* +		****
				v
	G/C=0.200	G/C=0.208	G/C=0.108	G/C=0.350
	G= 24.0"	G= 25.0"	G= 13.0"	G= 42.0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF=33.3%	OFF=56.7%	OFF=80.8%	OFF=95.0%

C=120 sec G=104.0 sec = 86.7% Y=16.0 sec = 13.3% Ped= 0.0 sec = 0.0%

MVMPT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	19	739	171	169	583	240	189	744	471	390	732	72	4519
Wid/Ln:ft/#	12/1	36/3	12/1	0/0	24/2	24/2	12/1	36/3	24/2	12/1	24/2	12/1	
g/C Rqd@C:%	24	30	28	0	36	27	30	31	30	39	35	30	
g/C Used: %	21	21	20	0	49	11	21	21	20	35	35	35	
SV @E: vph	273	948	295	0	1482	297	273	948	605	496	1108	200	6925
Svc Lvl:LOS	D+	D	D+		C+	E+	D	D	D	D+	C	C	D+
Deg Sat:v/c	0.06	0.78	0.54	0.00	0.51	0.73	0.64	0.79	0.77	0.79	0.66	0.34	0.69
HCM Del:s/v	38.2	49.1	44.9	0.0	20.9	60.0	48.0	49.4	51.2	43.2	34.4	29.7	41.8
Tot Del:min	3	151	32	0	66	60	38	153	100	70	105	9	787
# Stops:veh	4	175	38	0	127	58	43	176	111	87	155	13	987
Queue 1:veh	1	16	10	0	16	8	11	16	15	22	19	3	22
Queue 1: ft	26	440	258	0	431	218	294	444	397	583	525	92	583

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	929			992			1404			1194			4519
Svc Lvl:LOS	D			C			D			D+			D+
Deg Sat:v/c	0.72			0.56			0.76			0.68			0.69
HCM Del:s/v	48.1			30.4			49.8			37.0			41.8
Tot Del:min	186			126			291			184			787
# Stops:veh	217			185			330			255			987
Queue 1:veh	16			16			16			22			22
Queue 1: ft	440			431			444			583			583

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 4 - LA 23 at Kmart Driveway

Sq 21 LG/**	Phase 1	Phase 2	Phase 3
	+	+ *	^
	+	+ *	+ + + +
/ \	+	+ * >	
	v	v	* * * *
	^		v
North	* * >		
	* *		
	* *		

	G/C=0.359	G/C=0.272	G/C=0.276
	G= 46.7"	G= 35.4"	G= 35.9"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF=36.7%	OFF=75.7%	OFF= 6.0%

C=130 sec G=118.0 sec = 90.8% Y=12.0 sec = 9.2% Ped= 0.0 sec = 0.0%

MVMPTOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	909	19	22	0	37	31	954	0	0	0	0	1972
Wid/Ln:ft/#	0/0	36/3	12/1	12/1	0/0	12/1	0/0	36/3	0/0	0/0	0/0	0/0	
g/C Rqd@C:%	0	35	27	27	0	27	0	36	0	0	0	0	
g/C Used: %	0	66	27	28	0	28	0	36	0	0	0	0	
SV @E: vph	0	2997	478	419	0	473	0	1624	0	0	0	0	5991

Svc Lvl:LOS		A	C	C		C		C					C+
Deg Sat:v/c	0.00	0.30	0.04	0.05	0.00	0.08	0.00	0.61	0.00	0.00	0.00	0.00	0.44
HCM Del:s/v	0.0	9.3	34.8	34.6	0.0	34.9	0.0	34.8	0.0	0.0	0.0	0.0	23.0
Tot Del:min	0	35	3	3	0	5	0	143	0	0	0	0	189
# Stops:veh	0	96	3	4	0	7	0	202	0	0	0	0	312

Queue 1:veh	0	9	1	1	0	2	0	19	0	0	0	0	19
Queue 1: ft	0	253	24	27	0	46	0	510	0	0	0	0	510

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	928			59			985			0			

Svc Lvl:LOS	A			C			C						C+
Deg Sat:v/c	0.30			0.07			0.61			0.00			0.44
HCM Del:s/v	9.9			34.8			34.8			0.0			23.0
Tot Del:min	38			8			143			0			189
# Stops:veh	99			11			202			0			312

Queue 1:veh	9			2			19			0			19
Queue 1: ft	253			46			510			0			510

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 5 - LA 23 at Terry/Wall

Sq 38 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
/ \		+ + *	^	^	
		+ + *	++++	++++	
		<+ + *>	<++++	<++++	
		v	****		^
North	<* + +>	+ +>	v	****>	****
	* + +	+ +		++++	++++
	* + +	+ +		v	v

	G/C=0.042	G/C=0.200	G/C=0.242	G/C=0.042	G/C=0.308
	G= 5.0"	G= 24.0"	G= 29.0"	G= 5.0"	G= 37.0"
	Y+R= 4.0"				
	OFF= 1.7%	OFF= 9.2%	OFF=32.5%	OFF=60.0%	OFF=67.5%

C=120 sec G=100.0 sec = 83.3% Y=20.0 sec = 16.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	220	790	114	130	430	328	304	657	19	41	933	320	4286
Wid/Ln:ft/#	12/1	36/3	12/1	12/1	24/2	12/1	12/1	36/3	24/2	12/1	24/2	12/1	
g/C Rqd@C:%	30	30	32	27	30	33	33	29	24	25	39	32	
g/C Used: %	20	20	20	32	32	24	28	28	4	38	38	31	
SV @E: vph	296	1037	124	497	978	411	427	1426	114	619	1214	557	7700

Svc Lvl:LOS	D	D	E	C	C	D	D+	D+	E+	C+	D+	D+	D+
Deg Sat:v/c	0.69	0.76	0.78	0.26	0.44	0.77	0.70	0.46	0.13	0.07	0.77	0.57	0.64
HCM Del:s/v	50.9	48.7	68.9	30.8	32.9	50.9	43.8	36.4	55.8	23.5	35.4	36.3	41.1
Tot Del:min	47	160	33	17	59	70	55	100	4	4	138	48	735
# Stops:veh	51	186	27	24	85	76	68	136	5	6	204	67	935

Queue 1:veh	13	17	8	6	11	19	17	12	1	2	26	16	26
Queue 1: ft	321	427	188	148	294	474	417	299	15	40	693	400	693

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1124			888			980			1294			4286

Svc Lvl:LOS	D			D+			D+			D+			D+
Deg Sat:v/c	0.75			0.54			0.53			0.70			0.64
HCM Del:s/v	51.2			39.2			39.0			35.3			41.1
Tot Del:min	240			146			159			190			735
# Stops:veh	264			185			209			277			935

Queue 1:veh	17			19			17			26			26
Queue 1: ft	427			474			417			693			693

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - LA 23 at Sav-A-Center

Sq 81 **/**	Phase 1	Phase 2	Phase 3	Phase 4
/ \	+ *	+		^
	+ *	+		++++
	+ *>	+		****
	v	v		v
North		^	^	
		* +>	+ +>	+>
		* +	+ +	+
		* +	+ +	+

	G/C=0.200	G/C=0.280	G/C=0.120	G/C=0.280
	G= 25.0"	G= 35.0"	G= 15.0"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=20.0%	OFF=52.0%	OFF=68.0%

C=125 sec G=110.0 sec = 88.0% Y=15.0 sec = 12.0% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	0	1389	149	169	0	74	221	1733	0	0	0	0	3735
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	12/1	24/2	0/0	0/0	0/0	0/0	
g/C Rqd@C:%	0	49	29	30	0	27	31	58	0	0	0	0	
g/C Used: %	0	48	17	28	0	28	76	44	0	0	0	0	
SV @E: vph	0	1520	275	433	0	489	1227	1393	0	0	0	0	5337

Svc Lvl:LOS		D+	D	D+		C	A	F					F
Deg Sat:v/c	0.00	0.91	0.49	0.38	0.00	0.15	0.18	1.24	0.00	0.00	0.00	0.00	0.97
HCM Del:s/v	0.0	39.0	48.4	36.8	0.0	33.9	4.2	151.1	0.0	0.0	0.0	0.0	89.1
Tot Del:min	0	225	30	26	0	10	4	1091	0	0	0	0	1386
# Stops:veh	0	322	34	34	0	14	15	433	0	0	0	0	852

Queue 1:veh	0	43	9	9	0	4	4	81	0	0	0	0	81
Queue 1: ft	0	1154	217	216	0	89	103	2204	0	0	0	0	2204

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1538			243			1954			0			3735

Svc Lvl:LOS	D+			D+			F						F
Deg Sat:v/c	0.87			0.31			1.12			0.00			0.97
HCM Del:s/v	39.9			35.9			134.5			0.0			89.1
Tot Del:min	255			36			1095			0			1386
# Stops:veh	356			48			448			0			852

Queue 1:veh	43			9			81			0			81
Queue 1: ft	1154			216			2204			0			2204

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - LA 23 at Lapalco Behrman Hwy

Sq 84 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
.	+ + *	+ *			^
/ \	+ + *	+ *			****
	<+ + *>	<+ *			<****
	v	v		^	++++
		^	^	++++	v
North		+ +>	<+ + +>		++++>
		+ +	+ + +		++++
		+ +	+ + +		v

	G/C=0.168	G/C=0.160	G/C=0.160	G/C=0.128	G/C=0.200
	G= 21.0"	G= 20.0"	G= 20.0"	G= 16.0"	G= 25.0"
	Y+R= 0.0"	Y+R= 6.0"	Y+R= 6.0"	Y+R= 5.0"	Y+R= 6.0"
	OFF= 0.0%	OFF=16.8%	OFF=37.6%	OFF=58.4%	OFF=75.2%

C=125 sec G=102.0 sec = 81.6% Y=23.0 sec = 18.4% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	82	940	303	104	720	226	209	917	598	104	720	226	5149
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	24/2	24/2	12/1	24/2	24/2	12/1	24/2	12/1	
g/C Rqd@C:%	28	40	34	0	38	28	32	39	34	28	35	31	
g/C Used: %	33	33	14	0	20	13	37	37	16	20	20	13	
SV @E: vph	460	1039	185	0	598	355	521	1165	466	258	620	172	5839

Svc Lvl:LOS	C	D	F		F	D	C	D+	F	D+	F	F	F
Deg Sat:v/c	0.18	0.90	1.41	0.00	1.35	0.58	0.40	0.79	1.22	0.37	1.14	1.11	1.00
HCM Del:s/v	30.1	51.3	263.5	0.0	216.6	53.6	29.8	38.8	168.0	44.0	130.0	151.4	115.7
Tot Del:min	10	201	333	0	744	50	26	148	419	19	390	143	2483
# Stops:veh	15	225	75	0	206	53	39	204	149	22	180	56	1224

Queue 1:veh	4	31	35	0	45	7	10	27	30	6	33	20	45
Queue 1: ft	102	838	936	0	1229	198	265	722	810	158	891	552	1229

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1325			1050			1724			1050			5149

Svc Lvl:LOS	F			F			F			F			F
Deg Sat:v/c	0.98			1.18			0.89			1.06			1.00
HCM Del:s/v	98.5			181.5			82.5			126.1			115.7
Tot Del:min	544			794			593			552			2483
# Stops:veh	315			259			392			258			1224

Queue 1:veh	35			45			30			33			45
Queue 1: ft	936			1229			810			891			1229

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 4 - LA 23 at KMart Driveway

Sq 81 LG/**	Phase 1	Phase 2	Phase 3	Phase 4
.		+	+	^
/ \		+	+	++++
		+	+	++++
	^	v	v	v
North	+ +>	* +>		
	+ +	* +		
	+ +	* +		

	G/C=0.300	G/C=0.097	G/C=0.263	G/C=0.233
	G= 45.0"	G= 14.5"	G= 39.5"	G= 35.0"
	Y+R= 0.0"	Y+R= 5.5"	Y+R= 5.5"	Y+R= 5.0"
	OFF= 0.0%	OFF=30.0%	OFF=43.3%	OFF=73.3%

C=150 sec G=134.0 sec = 89.3% Y=16.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	0	1259	50	112	0	84	1	1081	0	0	0	0	2587
Wid/Ln:ft/#	0/0	24/2	12/1	12/1	0/0	12/1	12/1	24/2	0/0	0/0	0/0	0/0	
g/c Rqd@C:%	0	49	33	34	0	33	32	46	0	0	0	0	
g/c Used: %	0	40	26	23	0	23	40	40	0	0	0	0	
SV @E: vph	0	1256	445	331	0	375	640	1256	0	0	0	0	4303

Svc Lvl:LOS		E	D+	D	D	D	C+	D					E+
Deg Sat:v/c	0.00	1.00	0.10	0.31	0.00	0.20	0.00	0.86	0.00	0.00	0.00	0.00	0.87
HCM Del:s/v	0.0	71.2	42.0	47.9	0.0	46.5	27.3	47.7	0.0	0.0	0.0	0.0	59.0
Tot Del:min	0	374	9	22	0	16	0	215	0	0	0	0	636
# Stops:veh	0	314	9	23	0	17	0	248	0	0	0	0	611

Queue 1:veh	0	52	3	7	0	5	0	38	0	0	0	0	52
Queue 1: ft	0	1412	73	176	0	129	1	1033	0	0	0	0	1412

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
AdjVol: vph	1309			196			1082			0			2587

Svc Lvl:LOS	E			D			D						E+
Deg Sat:v/c	0.97			0.26			0.86			0.00			0.87
HCM Del:s/v	70.1			47.3			47.7			0.0			59.0
Tot Del:min	383			38			215			0			636
# Stops:veh	323			40			248			0			611

Queue 1:veh	52			7			38			0			52
Queue 1: ft	1412			176			1033			0			1412

SIGNAL2000/TEAPAC[Ver 1.11.16] - Capacity Analysis Summary

Intersection Averages for Int # 1 - LA 23 at Engineers Road
 Degree of Saturation (v/c) 0.77 Vehicle Delay 42.0 Level of Service D+

Sq 47	Phase 1	Phase 2	Phase 3	Phase 4
LG/LG	+ *	+		^
.	+ *	+		****
/ \	<+ *	>+		<****
	v		^	****
	^		****	v
North	+ +>	<*	++++>	
	+ +	*	++++	
	+ +	*	v	

	G/C=0.533	G/C=0.100	G/C=0.192	G/C=0.042
	G= 64.0"	G= 12.0"	G= 23.0"	G= 5.0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF= 3.3%	OFF=60.0%	OFF=73.3%	OFF=95.8%

C=120 sec G=104.0 sec = 86.7% Y=16.0 sec = 13.3% Ped= 0.0 sec = 0.0%

Lane Group	Width/Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Adj @E	Volume	v/c	HCM Delay	L S	Queue Model
------------	-------------	----------	----------	-----------------------	--------	--------	-----	-----------	-----	-------------

N Approach 41.3 D+

RT	12/1	0.280	0.533	657	756	137	0.181	14.6	B+	119 ft
TH	24/2	0.554	0.533	1564	1689	1646	0.975	43.4	*D+	1425 ft
LT	12/1	0.240	0.100	1	151	17	0.094	49.3	D	24 ft

S Approach 28.0 C

RT+TH	36/3	0.374	0.533	2293	2426	1298	0.535	18.5	B	495 ft
LT	12/1	0.278	0.100	1	129	150	0.949	110.2	*F	310 ft

E Approach 118.5 F

RT+TH+LT	12/1	0.252	0.042	1	50	62	0.861	118.5	*F	120 ft
----------	------	-------	-------	---	----	----	-------	-------	----	--------

W Approach 82.7 F

RT	12/1	0.269	0.192	1	249	103	0.379	43.2	D+	152 ft
TH	12/1	0.238	0.192	1	343	7	0.019	39.4	D+	9 ft
LT	12/1	0.328	0.192	1	280	300	0.990	97.3	*F	593 ft

SIGNAL2000/TEAPAC[Ver 1.11.16] - Capacity Analysis Summary

Intersection Averages for Int # 2 - LA 23 at Sav-A-Center
 Degree of Saturation (v/c) 0.57 Vehicle Delay 15.8 Level of Service B

Sq 21 **/**	Phase 1	Phase 2	Phase 3
.	+ *	+	^
/ \	+ *	+	****
	+ *>	+	
	v	v	++++
North		^	v
		* *>	
		* *	
		* *	

	G/C=0.125	G/C=0.617	G/C=0.158
	G= 15.0"	G= 74.0"	G= 19.0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF= 6.7%	OFF=22.5%	OFF=87.5%

C=120 sec G=108.0 sec = 90.0% Y=12.0 sec = 10.0% Ped= 0.0 sec = 0.0%

Lane Group	Width/Lanes	g/C Req'd	g/C Used	Service Rate @C (vph)	Adj @E Volume	v/c	HCM Delay	L S	Queue Model 1
N Approach									9.5 A
TH	36/3	0.387	0.775	3526	3526	1389	0.394	4.4	A 281 ft
LT	12/1	0.272	0.125	1	197	149	0.659	57.0	*E+ 228 ft
S Approach									16.3 B
RT+TH	36/3	0.475	0.617	2742	2797	1954	0.699	16.3	*B 752 ft
E Approach									51.4 D
RT	12/1	0.283	0.158	1	226	169	0.671	54.3	*D 254 ft
LT	12/1	0.254	0.158	1	256	74	0.262	44.8	D+ 101 ft

SIGNAL2000/TEAPAC[Ver 1.11.16] - Capacity Analysis Summary

Intersection Averages for Int # 3 - LA 23 at Lapalco Behrman Hwy
 Degree of Saturation (v/c) 0.85 Vehicle Delay 58.5 Level of Service E+

Sq 44	Phase 1	Phase 2	Phase 3	Phase 4
/				
.	*	+		^
/ \	*	+		****
	*>	<+		<****
		v		
			^	++++
North	<+	*	****	v
	+	* +>		++++>
	+	* +		++++
	+	* +		v
	G/C=0.208	G/C=0.225	G/C=0.150	G/C=0.283
	G= 25.0"	G= 27.0"	G= 18.0"	G= 34.0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF=33.3%	OFF=57.5%	OFF=83.3%	OFF= 1.7%

C=120 sec G=104.0 sec = 86.7% Y=16.0 sec = 13.3% Ped= 0.0 sec = 0.0%

Lane Group	Width/Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Adj @E Volume	v/c	HCM Delay	L S	Queue Model 1
N Approach									61.1 E+
RT	12/1	0.262	0.225	1	300	82	0.257	D+	114 ft
TH	36/3	0.328	0.225	1	1024	940	0.918	E+	611 ft
LT	12/1	0.329	0.208	1	309	303	0.918	*E	548 ft
S Approach									58.7 E+
RT	12/1	0.304	0.225	1	300	209	0.655	D	322 ft
TH	36/3	0.325	0.225	1	1024	917	0.896	*E+	584 ft
LT	24/2	0.325	0.208	1	633	598	0.934	E	567 ft
E Approach									58.7 E+
RT+TH	24/2	0.370	0.283	343	867	824	0.950	*E+	771 ft
LT	24/2	0.267	0.150	1	431	226	0.498	D	183 ft
W Approach									54.8 D
RT	12/1	0.269	0.283	149	390	104	0.259	C	135 ft
TH	24/2	0.343	0.283	356	897	720	0.803	D	589 ft
LT	12/1	0.300	0.150	1	211	226	0.950	*F	442 ft

SIGNAL2000/TEAPAC[Ver 1.11.16] - Capacity Analysis Summary

Intersection Averages for Int # 4 - LA 23 at KMart Driveway
 Degree of Saturation (v/c) 0.37 Vehicle Delay 11.2 Level of Service B+

Sq 21	Phase 1	Phase 2	Phase 3
LG/**			
.	+	+ *	^
/ \	+	+ *	****
	v	+ *>	
	^	v	++++
North	* *>		v
	* *		
	* *		

	G/C=0.642	G/C=0.075	G/C=0.183
	G= 77.0"	G= 9.0"	G= 22.0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= 4.0"
	OFF=45.0%	OFF=12.5%	OFF=23.3%

C=120 sec G=108.0 sec = 90.0% Y=12.0 sec = 10.0% Ped= 0.0 sec = 0.0%

Lane Group	Width/Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Adj @E Volume	v/c	HCM Delay	L S	Queue Model

N Approach								7.1	A
TH	36/3	0.369	0.750	3413	3413	1259	0.369	5.3	A 270 ft
LT	12/1	0.248	0.075	1	106	50	0.370	54.5	*D 76 ft

S Approach								10.2	B+
RT+TH	36/3	0.346	0.642	2886	2920	1082	0.371	10.2	*B+ 307 ft

E Approach								43.3	D+
RT	12/1	0.268	0.183	1	265	112	0.388	43.9	*D+ 153 ft
LT	12/1	0.257	0.183	1	300	84	0.260	42.5	D+ 112 ft

SIGNAL2000/TEAPAC[Ver 1.11.16] - Capacity Analysis Summary

Intersection Averages for Int # 5 - LA 23 at Terry/Wall
 Degree of Saturation (v/c) 0.70 Vehicle Delay 46.6 Level of Service D

Sq 38	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
/		* + +	^	^	
.		* + +	++++	++++	
/ \		<* + +>	<++++	<****	
		v	****		^
North	<* + +>	+ +>	v	++++>	****
	* + +	+ +		++++	++++>
	* + +	+ +		v	v

	G/C=0.042	G/C=0.367	G/C=0.250	G/C=0.042	G/C=0.133
	G= 5.0"	G= 44.0"	G= 30.0"	G= 5.0"	G= 16.0"
	Y+R= 4.0"				
	OFF= 0.0%	OFF= 7.5%	OFF=47.5%	OFF=75.8%	OFF=83.3%

C=120 sec G=100.0 sec = 83.3% Y=20.0 sec = 16.7% Ped= 0.0 sec = 0.0%					

Lane Group	Width/Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Adj @E	Volume	v/c	HCM Delay	L S	Queue Model 1
N Approach										41.9 D+
RT	12/1	0.440	0.367	393	583	552	0.947	61.6	*E+	864 ft
TH	36/3	0.321	0.367	1433	1902	1006	0.529	30.1	C	425 ft
LT	12/1	0.414	0.367	148	233	187	0.763	46.7	D	274 ft
S Approach										25.1 C+
RT	12/1	0.372	0.442	557	702	404	0.575	26.2	C+	447 ft
TH	36/3	0.297	0.442	2019	2291	758	0.331	22.0	C+	271 ft
LT	24/2	0.243	0.042	1	114	59	0.404	57.9	*E+	49 ft
E Approach										60.0 E+
RT	12/1	0.282	0.325	291	512	163	0.318	30.9	C	187 ft
TH	24/2	0.398	0.325	604	1003	961	0.958	58.8	*E+	886 ft
LT	12/1	0.358	0.250	57	428	417	0.948	74.2	*E	687 ft
W Approach										62.4 E+
RT	12/1	0.264	0.208	1	316	102	0.304	40.7	D+	133 ft
TH	24/2	0.314	0.208	1	654	557	0.844	55.4	E+	496 ft
LT	12/1	0.291	0.133	1	213	223	0.925	89.6	*F	393 ft

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 23 at Engineers Road

Sq 47	Phase 1	Phase 2	Phase 3	Phase 4
LG/LG				
.	+	+		^
/ \	<+	>		<++++
	v		^	++++
			++++	v
North	+ +>	<+	++++>	
	+ +	+	++++	
	+ +	+	v	

	G/C=0.429	G/C=0.107	G/C=0.214	G/C=0.107
	G= 60.0"	G= 15.0"	G= 30.0"	G= 15.0"
	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
	OFF= 0.0%	OFF=46.4%	OFF=60.7%	OFF=85.7%

C=140 sec G=120.0 sec = 85.7% Y=20.0 sec = 14.3% Ped= 0.0 sec = 0.0%

MVMPTOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	137	1646	17	14	2	46	8	1290	150	103	7	300	3720
Wid/Ln:ft/#	12/1	24/2	12/1	0/0	12/1	0/0	0/0	24/2	12/1	12/1	12/1	12/1	
g/C Rqd@C:%	33	57	30	0	31	0	0	49	33	32	29	37	
g/C Used: %	43	43	11	0	11	0	0	43	11	21	21	21	
SV @E: vph	607	1357	152	0	146	0	0	1357	131	272	376	307	4705

Svc Lvl:LOS	C+	F	E+		E+			D	F	D	D+	E	F
Deg Sat:v/c	0.23	1.21	0.09	0.00	0.33	0.00	0.00	0.96	0.88	0.34	0.02	0.88	1.00
HCM Del:s/v	25.5	142.9	56.5	0.0	58.9	0.0	0.0	54.0	99.4	47.3	43.4	76.5	95.8
Tot Del:min	15	980	4	0	15	0	0	292	62	20	1	96	1485
# Stops:veh	22	411	4	0	14	0	0	314	37	22	1	73	898

Queue 1:veh	6	80	1	0	4	0	0	47	12	6	0	22	80
Queue 1: ft	168	2170	28	0	105	0	0	1281	328	170	10	596	2170

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1800			62			1448			410			3720

Svc Lvl:LOS	F			E+			E+			E			F
Deg Sat:v/c	1.13			0.33			0.95			0.73			1.00
HCM Del:s/v	133.1			58.9			58.7			68.6			95.8
Tot Del:min	999			15			354			117			1485
# Stops:veh	437			14			351			96			898

Queue 1:veh	80			4			47			22			80
Queue 1: ft	2170			105			1281			596			2170

Appendix C
Project Advisory Committee
and Project Meeting Summaries



Evans-Graves presented information on the alternatives for improving the LA 23 corridor between the Algiers Outfall Canal and the ICWW and north of Lapalco to north of Terry Parkway. The alternative presented maintained the existing curb line adjacent to the New Orleans Gulf Coast Railroad. All widening took place to the west. Cost information for improvements to these two sections was presented. This cost (\$1.9 million) included all construction items less survey, engineering and right-of-way acquisition. It was noted that unit costs from DOTD are changing periodically based upon commodity price changes following Hurricane Katrina.

As the RPC would like to move the short-term project to construction (funding is available), it has been suggested that the results of the Stage 0 be provided to DOTD Environmental for review. Prior to the meeting, RPC identified an issue with the LA 21 Stage 0 on questions about detailed design information and exceptions. A standard disclaimer relative to this subject has been developed by RPC and approved by DOTD. It has been provided to BKI for inclusion in the Stage 0 report.

In addition, a review meeting with Plaquemines Parish has been scheduled for Tuesday, May 2nd, 1:30 p.m. at the President's Office. It was suggested that the BKI/Evans-Graves team attend so that a complete briefing and discussion could be held on the short-term interim improvement, as well as other improvements shown in the Phase 2/3 projects.

One final meeting has been suggested by RPC to allow for coordination of all remaining issues. The goal would be to have a draft Stage 0 report no later than Mid May, 1st week of June. It was discussed that the items which RPC and DOTD are developing on the interim project would need to be received by BKI no later than middle May – this did not seem to be a problem, but would be addressed at the May 2nd meeting.

The draft report would be submitted to DOTD Environmental for a 30-day comment period, ending in July. This would allow the report to be finalized, the TIP to be amended for the interim project in August.

Written by: Ed Elam Date: April 28, 2006
Copies to: File, Participants



Louisiana Highway 23 Corridor Study Stage 0 Feasibility Study

Jefferson and Plaquemines Parishes, LA
RPC Contract No. No. LA 23-05

Project Advisory Committee Meeting

Wednesday, April 26, 2006 - 10:00 a.m.

Regional Planning Commission
1340 Poydras Street, Suite 2100 - New Orleans, LA

WORKING AGENDA

I. Welcome

II. Project Overview

The project team will present a summary of the LA Highway 23 Stage 0 Feasibility Study. This Phase 0 Study is the initial stage in the Department of Transportation and Development (DOTD)'s Program Development and Project Delivery System. Discussion items will include:

- a. Identification of the project's initial purpose and need
- b. Review of existing traffic conditions
- c. Identification of results of preliminary environmental checklist review
- d. Discussion of potential project concepts and order of magnitude cost estimates

III. Feedback, Questions and Answers

The Project Advisory Committee will be given the opportunity to discuss their concerns and comments with regard to the proposed alternatives.

IV. Adjourn

Meeting Attendance Form

Project Advisory Committee Meeting
 Wednesday, April 26, 2006
 Regional Planning Commission, 1340 Poydras Street, Suite 2100
 LA 23 Corridor Study Stage 0 Feasibility Study
 BKI 10246-01



Please Print

Name	Preferred Mailing Address (Street or PO Box, City, State, Zip)	Phone Number	Email
KEVIN B. MOORE	JPTRAFFIC ENG. 2100 DICKORY AVE. HARAHAN, LA 70123	504.736.6530	MOORE@JEFFERPARISH.NET
STEVEN LUNDGREN	EVANS-GRAVES 1 GALERIA BLVD. STE 1520 MET, LA 70001	504-836-8190	slundgren@evans-graves.com
KEN MAGIERA	EVANS - GRAVES ENGINEERS 1 GALERIA BLVD, STE 1520, METairie, LA 70001	504-836-8190	KMAGIERA@EVANS-GRAVES.COM
ED EUM	BKI 4176 CANAL ST, NEW ORLEANS, LA 70119	504-486-5501	EEUM@BKUSA.COM
PAUL WALSHAS	"	"	PAULWALSHAS@BKUSA.COM
BRUCE BADEN	"	504-483-6787	BRUCE@BADENDESIGN.COM
WALTER BRACKS	RPC	568-6621	WBRACKS@RPCORP.COM
JOHN BORDELON	RPC	568-6611	JBORDELON@RPCORP.COM

M E E T I N G R E P O R T

BKI Job No.: 10214 **Date:** May 2, 2006
State Project No.: 736-38-0002
Project Title: *LA 23 Widening Study*
Meeting Location: Plaquemines Parish Government Bldg. – Belle Chasse
Participants: Benny Rousselle, Walter Brooks, Johnny Bordelon, Mike Stack, Steve Strength, Steve Lundrgren, Ken Magiera, Paul Waidhas

Summary

The purposes of the meeting were:

- Discuss the recommendations for the widening of LA 23 between Engineers Rd and Lapalco Blvd.
- Identify tasks and responsibilities for finalization of the report
- Identify tasks and responsibilities leading to implementation of a short-term improvement at Wall Blvd.

Paul started the meeting off with a review of the project scope and general findings. The environmental checklist reveals that there are no major concerns and, with one exception, the project stays within the r/w. Though the project will now be developed in two or three phases, it is essential that all phases are covered in the Feasibility Study so that the project avoids potential segmentation problems as it advances.

Johnny reviewed the short-term plan he had developed for the segment between the Barataria/Planters Canal and Behrman Hwy./Lapalco Blvd. It utilizes the shoulders to provide additional lane capacity as a Phase 1 project. The VISSIM model showed dramatic improvement for the northbound pm peak period which is severely congested at the present time.

Walter asked whether the project would stay out of the railroad r/w. Benny and Walter both felt that it was essential to avoid the RR r/w, particularly for any short-term project. Johnny indicated that it would. There was some discussion regarding a potential overlap in RR and hwy. r/w. Regardless, the three-lane northbound section stays within the apparent DOTD r/w.

Ken reviewed the Phase 2 and 3 plans developed by E-G. Phase 2 stretches from just south of Engineers Rd. to the Phase 1 project. Phase 3 stretches northward from the Phase 1 project at Behrman Hwy./Lapalco Blvd. to Terry Pkwy./Wall Blvd. Both phases will utilize the shoulders to provide one lane of additional capacity in each direction. Ken noted that the project is constrained to the apparent DOTD r/w and does not encroach on the RR r/w on the northbound side. The only apparent taking of property occurs on the west side at Engineers Rd. where a narrow sliver will need to be acquired from a gas station/convenience store. This does not appear to cause a problem for the operation of that business. Paul opined that this, by itself, would not likely cause the project to move from an apparent Categorical Exclusion to an Environmental Assessment. Such a taking is a relatively routine and benign matter.

The bridge over Planters Canal is the critical element of the Phase 2 project. Ken noted that these are actually two separate spans about 4 ft. apart. Lane capacity can be added using the existing spans by putting in a Jersey type barrier in the middle and widening the spans in a westward direction. This also avoids problems related the difference in deck elevation between the two bridges. On the west side there will be no conflict with the utilities crossing the canal. Mike requested that E-G provide a cost comparison between rehabilitating and expanding the bridge, as currently planned v. demolishing building a new bridge. Steve noted that this can be done, but that the latter option would likely present more serious construction period traffic problems.

BURK-KLEINPETER, INC.
MEETING REPORT (cont.)

Job Title: *LA 23 Widening Study*
Meeting Date: *May 2, 2006*

The costs for the project are not final, with RPC/DOTD needing to prepare an estimate for Phase 1. However, Walter felt that the initial estimates were very encouraging. He can cover the project from two sources. Paul requested a brief description of the funding mechanism for the report.

Mike and Steve Strength will look into restriping the shoulders in order to provide an immediate benefit at the Behrman Hwy. intersection. This will be temporary and not part of the project.

Follow-up Actions:

- 1) E-G will provide the cost estimate template Mike.
- 2) Mike will prepare a cost estimate for the Phase 1 project and transmit this to BKI.
- 3) Mike and Johnny will prepare a brief description of Phase 1 for inclusion in the report.
- 4) Mike and Johnny will lay out the Phase 1 project on aerial photos and provide this to E-G/BKI, he will trace over this and prepare the report map sheet.
- 5) E-G will finalize the design and cost estimate per the meeting
- 6) Walter will provide a brief description of the funding package to BKI
- 7) BKI will prepare a draft report for review by RPC

Written by: Paul W

Copies to: Walter B, Johnny B, Mike S, Ken M, Ed E, File

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119
(504) 486-5901 - FAX (504) 488-1714

M E E T I N G R E P O R T

Job No.: 10246-01 **Date:** June 1, 2006

Job Title: LA 23 Stage 0 Feasibility Study

Meeting Location: BKI Offices – 1st Floor Conference Room Regional Planning Commission (RPC) Office
1340 Poydras, Suite 2100

Participants: BKI Ed Elam
Others Walter Brooks, Johnny Bordelon
Steve Lundgren, Ken Magiera (Evans-Graves)

Summary: The purpose of the meeting was to update the RPC on the status of work on the portions of the Stage 0 project completed by BKI/Evans-Graves and to touch base with the RPC on the status of their work on the defined interim improvement between Lapalco Boulevard and the Algiers Outfall Canal.

At the meeting, Evans-Graves provided BKI with copies of the updated drawings and cost estimate. These were available for review by the client. A copy of the detailed line item cost estimate for the project (less the portion developed by the RPC and District 02) was left with Walter Brooks. The total for the project (not including improvements under design/review by the RPC and District 02) is \$2.995 million.

In response to the follow-up questions on design exceptions for the LA 21 Stage 0 Feasibility Study, BKI provided a copy of a footnote to the RPC staff for review. This footnote (shown on page 24 of the draft report), was found to be acceptably presented. Another footnote on the same page identifying the need to coordination with the NOCGRR as necessary, was suggested to be placed into the discussion on the cross section.

BKI had anticipated receiving a cross section and detailed line item cost estimate for the interim (phase 1) improvements {Lapalco Blvd to Algiers Outfall Canal} from the RPC, as agreed at the May 2nd project meeting. Neither was provided at this meeting.

It was discussed by Johnny Bordelon that the initial cost estimate for the project was somewhere in the range of \$350,000. It was noted that this cost may not be complete, as the improvement as shown conceptually by the RPC required enclosure of an existing drainage ditch. Following discussion, the cost for the initial project was suggested to be in the range of \$750,000.

Work continues on the detailed cost estimate and initial cross section at the District, but these items would not be available for inclusion in the current report. Johnny Bordelon felt strongly that these details were not required for the report and that any questions from DOTD headquarters about the interim improvement between Lapalco Boulevard and the Canal could be addressed by direct discussions with the District. It was also noted that the District is completing its own Stage 0 for the interim improvement. This direction to talk with the District needed to be made clearly throughout the report being prepared by BKI/Evans-Graves.

For BKI/EG to complete its tasks and submit a final Stage 0 report to the RPC, the following items will occur:

1. A comment will be added to report (where appropriate) to indicate that the District 02 will be completing the Stage 0 for the identified interim improvement (Project Concept #1, Lapalco Boulevard to Algiers Outfall Canal on page 25 of the report).
2. A similar comment will be added to the cover sheet of the Stage 0 Checklist shown at the front of the report.
3. A comment to the effect that the Project Concept #1 is currently under design by District 02 will be added to the report. Given the Stage 0 guidelines, this statement would be placed into the project purpose and need (at the introduction), in the recommendations following the analysis and the project cost estimate information.
4. RPC identified the urban >200K as the source of the funding for the improvement we are working on for the Stage 0, with the state providing the match money. This will be identified in the funding section of the report.
5. RPC will provide Evans-Graves with an updated background for the drawing completed by Johnny defining the improvement between Lapalco Boulevard and the Algiers Outfall Canal.
6. The project cost estimate information developed by Evans-Graves will need to identify the 1st quarter DOTD bid tabs from 2006 as the source for unit costs.
7. BKI will move 1 of the footnotes in the report about the curb line on the east side of the corridor to the discussion about the "Cross Section".
8. BKI will provide Johnny Bordelon with a copy of the draft report for his review no later than the end of next week. All comments will be received back at BKI no later than 10-14 days following receipt of the report. Once all comments are addressed, BKI will provide a final report to use with discussions with DOTD Environmental.
9. BKI will be asked to attend a review meeting in NO with DOTD on the project sometime in early July. This meeting will include environmental and planning, as well as the district.
10. Evans-Graves will also provide some minor pieces of information from the as-built plans for the corridor to help address some of the line items on the Stage 0 checklist.

It was noted that the RPC would be responsible for responding to all questions from review agents at DOTD headquarters relative to the defined interim improvement, as they arise in the review of the Stage 0 document. The review meeting with DOTD headquarters (shown as item 9) would include representatives of Environmental and Planning divisions, at which time the Stage 0 will be reviewed.

Follow-up Actions:

- BKI** – Address comments and provide a draft report for review by Johnny Bordelon and Jeff Roesel.
- E-G** – Provide items as noted to help in completion of Stage 0 form.
- RPC** – Follow-up on the Stage 0 items for the interim improvement (Lapalco to north of the Algiers Outfall Canal); review draft document and provide comments as needed.

Written by: E. Elam
Copies to: File

Date: 06/02/06

Appendix D
Detailed Cost Estimates &
Apparent Right-of-Way Information



**LA 23 Widening Feasibility Study
 RPC Contract No. LA 23-05
 Jefferson and Plaquemines Parish, Louisiana**

Cost Estimate - North of Terry Parkway to Lapalco Boulevard and North of Algiers Outfall Canal to South of Engineers Road

Item No.	Description	Quantity	Unit	Unit Price	Total
1	Removal of Concrete Pavement and Curbs	2,850	Sq. Yd.	\$10.00	\$28,500.00
2	Removal of Shoulder	2,270	Sq. Yd.	\$7.00	\$15,890.00
3	Excavation and Embankment	1	Lump Sum	\$10,000.00	\$10,000.00
4	9" PCC Pavement	14,780	Sq. Yd.	\$75.00	\$1,108,500.00
5	Class II Base Course	5,380	Cu. Yd.	\$65.00	\$349,700.00
6	Geotextile Fabric	16,150	Sq. Yd.	\$2.50	\$40,375.00
7	Integral Barrier Curb	8,100	Lin. Ft.	\$15.00	\$121,500.00
8	CB-06	20	Each	\$5,000.00	\$100,000.00
9	CB-08	6	Each	\$7,000.00	\$42,000.00
10	15" RCP	420	Lin. Ft.	\$40.00	\$16,800.00
11	Adjust Existing Inlet	5	Each	\$1,000.00	\$5,000.00
12	Remove Existing Inlet	17	Each	\$1,000.00	\$17,000.00
13	Removal and Replacement of Pavement Markings	22,620	Lin. Ft.	\$3.00	\$67,860.00
14	Mobilization	1	Lump Sum	\$120,000.00	\$120,000.00
15	Bridge Widening	240	Sq. Yd.	\$580.00	\$139,200.00
16	Seed and Fertilizer	3.2	Acre	\$400.00	\$1,280.00
17	Temporary Signs and Barricades	1	Lump Sum	\$20,000.00	\$20,000.00
18	Modifications to Existing Traffic Signals	2	Each	\$35,000.00	\$70,000.00

Sub-Total - Construction Cost	\$2,273,605.00
+ 20% Contingency	\$454,721.00
Total - Construction	\$2,728,326.00
Engineering - Design, Advertisement, CA.	\$184,000.00
Surveying	\$20,000.00
Geotechnical Investigation	\$8,000.00
Resident Inspection	\$50,000.00
Materials Testing	\$5,000.00
Total Project Cost	\$2,995,326.00

**Cost Comparison Between
 Cost of New Bridge to Cost of Widening Existing Bridge**

Cost of new 6-lane divided bridge	880 Sq. Yd.	\$500.00	\$440,000.00
			Total construction cost with new bridge
			\$3,089,286.00
Cost of widening existing bridge	240 Sq. Yd.	\$580.00	\$139,200.00
			Total const. cost with widening exist. bridge
			\$2,728,326.00

Cost estimate prepared by Evans-Graves Engineers, 2006.



Design Standards for Roadways
Louisiana Department of Transportation and Development



LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Design Standards for Freeways

Item No.	Item	Urban		Rural
		F-1	F-2	F-3 ¹
1	Design Speed (mph)	50	60	70
2	Level of Service	C ³	C ³	B ²
3	Number of Lanes (minimum)	4	4	4
4	Width of Travel Lanes (ft)	12	12	12
5	Width of Shoulders (ft)			
	(a) Inside ⁴	6	6	6
	(b) Outside ⁵	10	10	10
6	Shoulder Type	Paved	Paved	Paved
7	Width of Median (minimum) (ft)			
	(a) Depressed	50	68 (min) – 100 (des)	72 (min) – 100 (des)
	(b) Continuous barrier (4 lane) ⁶ Continuous barrier (6 lane) ⁶	15 27	15 27	15 27
8	Fore Slope (vertical – horizontal)	1:4 to 1:6	1:6	1:6
9	Back Slope (vertical – horizontal)	1:4	1:4	1:4
10	Pavement Cross Slope (%) ⁷	2.5	2.5	2.5
11	Stopping Sight Distance (ft)	425	570	730
12	Maximum Superelevation (%) ⁸	10	10	10
13	Minimum Radius (ft) ⁹ (with 10% superelevation)	700	1,100	1,700
14	Maximum Grade (%) ¹⁰	4	3	3
15	Minimum Vertical Clearance (ft) ¹¹	16	16	16
16	Width of Right-of-Way (ft)			
	(a) Depressed median	As Needed	As Needed	Varies ¹²
	(b) Median barrier	As Needed	As Needed	As Needed
	(c) Minimum from edge of bridge structure ¹³	15 – 20	15 – 20	15 – 20
17	Bridge Design Live Load ¹⁴	AASHTO	AASHTO	AASHTO
18	Minimum Width of Bridges (face to face of bridge rail at gutter line) (ft)	Roadway Width	Roadway Width	Roadway Width
19	Horizontal Clearance (from edge of travel lane) (ft)			
	(a) 1:4 Fore slope	30	N/A	N/A
	(b) 1:6 Fore slope	22	32	34

Approved *William A. Temple*
Chief Engineer/j

3-5-03
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Footnotes for Freeway Design Standards

1. These standards may be used in urban areas.
2. Level of Service C can be used in urban areas.
3. Level of Service D can be used in heavily developed urban areas.
4. 4 feet to be paved – 10 feet to be paved on 6 lane facilities – 12 feet to be paved on 6 lane facilities with truck DDHV greater than 250.
5. 12 feet paved when truck DDHV is greater than 250.
6. For larger medians two barriers may be required. The maximum offset of 15 feet from barrier to edge of travel lane shall not be exceeded.
7. 2 percent permissible for rehabilitation projects.
8. In Districts 04 and 05, where ice is more frequent, superelevation should not exceed 8 percent from the $e_{max} = 10\%$ table.
9. It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provide adequate stopping sight distance on structure.
10. Grades 1 percent higher may be used in urban areas.
11. An additional 6 inches should be added for additional future surfacing. 17 feet is required for trusses and pedestrian overpasses.
12. As needed for urban projects: 300 feet to 330 feet for rural projects depending on median width.
13. 25 feet shall generally be provided in accordance with EDSM II.1.1.1.
14. For LFD and ASD designs a HST-18 vehicle should be included as one of the live load vehicles.

General Note:

Overlay design standards (separate sheet) shall be applicable to those projects for which the primary purpose is to improve the riding surface.

Approved *H. Tenzel*
Chief Engineer

3-5-03
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Design Standards for Local Roads and Streets

Item No.	Item	Rural			Urban	
		RL-1	RL-2	RL-3	UL-1	UL-2
1	Design Speed (mph) ¹	30	40	50	20	30
2	Average Daily Traffic	0 - 250	250 - 400	Over 400	N/A	N/A
3	Typical Number of Lanes	2	2	2	2	2
4	Minimum Width of Travel Lanes (ft)	9	9	11 - 12 ²	10 - 11 ³	10 - 11 ³
5	Minimum Width of Shoulders (ft) ⁴	2	2	5 - 8 ⁵	When used ⁶	When used ⁶
6	Shoulder Type	Aggregate	Aggregate	Aggregate	Paved	Paved
7	Minimum Width of Parking Lanes (where used) (ft)	N/A	N/A	N/A	7 - Residential 8 - Industrial	7 - Residential 8 - Industrial
8	Minimum Width of Sidewalk (where used) (ft)					
	(a) Offset from curb	N/A	N/A	N/A	4	4
	(b) Adjacent to curb	N/A	N/A	N/A	6	6
9	Fore Slope (vertical - horizontal)	1:3 ⁷	1:3 ⁷	1:4	1:3	1:3
10	Back Slope (vertical - horizontal)	1:2	1:2	1:3	1:2	1:2
11	Pavement Cross Slope (%) ⁸	2.5	2.5	2.5	2.5	2.5
12	Stopping Sight Distance (ft)	200	305	425	115	200
13	Maximum Superelevation (%)	10 ⁹	10 ⁹	10 ⁹	4	4
14	Minimum Radius (ft) ^{10, 11}					
	(a) With normal crown (-2.5% cross slope)	7,585	11,625	16,700	100	325
	(b) With 2.5% superelevation	1,930	3,250	5,000	85	250
	(c) With full superelevation	250	450	700	80	235
15	Maximum Grade (%) ¹²	7	7	6	10	9
16	Minimum Vertical Clearance (ft)	15	15	15	15	15
17	Minimum Horizontal Clearance (ft)					
	(a) From edge of travel lane	10 ⁷	10 ⁷	Varies ¹³	7 - Shoulder facilities	10 - Shoulder facilities
	(b) From back of curb	N/A	N/A	N/A	1 (min) - 6 (des)	1 (min) - 6 (des)
18	Bridge Design Load Live ¹⁴	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
19	Minimum Width of Bridges (face to face of bridge rail at gutter line)	Traveled way plus 4'	Traveled way plus 4'	Traveled ¹⁵ way plus 6'	Traveled ^{16, 17} way plus 8'	Traveled ^{16, 17} way plus 8'
20	Bridge End Treatment	Yes	Yes	Yes	¹⁶	¹⁶

Approved *[Signature]*
Chief Engineer

3-5-03
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Footnotes for Local Road and Street Design Standards

- 1- The design speed may not be less than the current posted speed of the overall route.
- 2- For ADT greater than 2000, use 12-foot lane widths.
- 3- Lane widths in residential areas may be reduced to 9 feet if necessary. 12-foot lane widths are preferred in industrial areas.
- 4- Where bicycles are prevalent, a paved 4-foot shoulder should be provided.
- 5- For ADT less than 1500, the minimum shoulder width may be reduced to 4 feet if necessary. For ADT 1500 to 2000, use 6-foot shoulders. For ADT over 2000, use 8-foot shoulders.
- 6- Select the shoulder width that corresponds to the ADT shown in the rural local standards.
- 7- The value shown should be provided on new roadways. A lesser value may be used on existing roads depending on soil stability, right-of-way constraints, the safety record of the road, and the size vehicles using the road. Guidance is available in the publication entitled 'AASHTO Guidelines for Geometric Design of Very Low Volume Local Roads (ADT \leq 400)'.
- 8- 2 percent acceptable for rehabilitation projects.
- 9- In Districts 04 and 05, where ice is more frequent, superelevation should not exceed 8 percent from the $e_{max} = 10\%$ table.
- 10- It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provide adequate stopping sight distance on structure.
- 11- On roadways with an ADT \leq 400, a sharper radius may be used on fully superelevated roadways if necessary. For specific values refer to the publication entitled 'AASHTO Guidelines for Geometric Design of Very Low Volume Local Roads (ADT \leq 400)'. Different radii apply at divisional islands.
- 12- Grades 2 percent higher may be used in rural rolling terrain.
- 13- Varies from 14 feet to 28 feet. Refer to the Roadside Design Guide for the applicable value. For spot replacement projects refer to the applicable part of footnote 7.
- 14- For LFD and ASD designs a HST-18 vehicle should be included as one of the live load vehicles.
- 15- For ADT greater than 2000, use roadway width.
- 16- Refer to EDSM II.3.1.4 when sidewalks will be provided and for guardrail requirements.
- 17- When shoulders are provided, the minimum bridge width shall be the larger of that shown or the roadway width.

General Local Road Notes:

These standards shall not apply to:

- a. Dead end roads (open at one end only).
- b. Roads that are dependent on dead end roads for access.

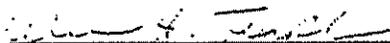
Urban standards may be applied to any street for which curb is to be used and the posted speed is less than 50 mph, or any street for which a posted speed of 30 mph or less would be appropriate.

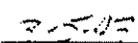
On spot replacement projects the existing geometry and superelevation may remain providing there are no safety problems.

The appropriate local governing body is authorized to make design exceptions for specific items listed in these standards, with proper engineering justification.

General Note:

Overlay design standards (separate sheet) shall be applicable to those projects for which the primary purpose is to improve the riding surface.

Approved: 
Chief Engineer


Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Design Standards for Rural Arterial Roads

Item No.	Item	Rural		
		RA-1	RA-2	RA-3
1	Design Speed (mph)	50 ¹	60 ²	70
2	Number of Lanes (minimum) ³	2	2	4
3	Width of Travel Lanes (ft)	11 - 12 ⁴	12	12
4	Width of Shoulders (minimum) (ft)			
	(a) Two Lane	8 ⁵	8 ⁵	N/A
	(b) Divided facilities			
	(1) Inside	4 (Paved)	4 (Paved)	4 ⁶ (Paved)
	(2) Outside	8 ⁵	8 ⁵	8 - 10 ⁷
5	Outside Shoulder Type	Aggregate (2' min paved)	Aggregate (2' min paved)	Paved
6	Parking Lane Width (ft)	N/A	N/A	N/A
7	Width of Median on Divided Facilities (ft)			
	(a) Depressed	42 - 60	42 - 60	60
	(b) Raised	N/A	N/A	N/A
	(c) Two way left turn lane	N/A	N/A	N/A
8	Fore slope (vertical - horizontal)	1:6	1:6	1:6
9	Back slope (vertical - horizontal)	1:4	1:4	1:4
10	Pavement Cross-slope (%) ⁸	2.5	2.5	2.5
11	Stopping Sight Distance (ft)	425	570	730
12	Maximum Superelevation (%) ⁹	10	10	10
13	Minimum Radius (ft) ¹⁰ (with full superelevation)	700	1,100	1,700
14	Maximum Grade (%) ¹¹	4	3	3
15	Minimum Vertical Clearance (ft) ¹²	16	16	16
16	Minimum Horizontal Clearance (ft) (from edge of travel lane)	20	30 ¹³	34
17	Bridge Design Live Load ¹⁴	AASHTO	AASHTO	AASHTO
18	Width of Bridges (min) (face to face of bridge rail at gutter line) (ft)	Roadway width	Roadway width	Roadway width

Approved *W. H. Tennyson*
Chief Engineer

3-5-03
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Footnotes for Rural Arterial Design Standards

1. The design speed may not be less than the current posted speed of the overall route.
2. Consider using RA-3 criteria (except Item No. 3) for roadways that will be widened in the future.
3. Consider increasing to a 4-lane facility if design volume is greater than 6,000 vehicles per day and 6 lanes if design volume is greater than 25,000 vehicles per day. If more than two lanes are to be provided, outside shoulders should be paved.
4. 12 feet required when design ADT is 1,500 or greater.
5. 6-foot shoulders are allowed if design volume is between 400 - 2,000 vehicles per day. 4-foot shoulders allowed if design volume is less than 400 vehicles per day.
6. 8 to 10 feet on 6 lane facilities.
7. Consider using 10-foot outside shoulders where trucks are greater than 10 percent or if large agricultural vehicles use the roadway.
8. 2 percent acceptable on rehabilitation projects.
9. In Districts 04 and 05, where ice is more frequent, superelevation should not exceed 8 percent from the $e_{max} = 10\%$ table.
10. It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provide adequate stopping sight distance on structure.
11. Grades 1 percent higher are permissible in rolling terrain.
12. An additional 6 inches should be added for additional future surfacing.
13. On multilane facilities, use 32 feet.
14. For LFD and ASD designs a HST-18 vehicle should be included as one of the live load vehicles.

General Note:

Overlay design standards (separate sheet) shall be applicable to those projects for which the primary purpose is to improve the riding surface.

Approved W. J. Temple
Chief Engineer

3-5-03
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Design Standards for Rural Collector Roads

Item No.	Item	Rural		
		RC-1	RC-2	RC-3
1	Average Daily Traffic ¹	Under 400	400 - 2000	Over 2000
2	Design Speed (mph)	40 - 60 ²	50 - 60 ²	60
3	Number of Lanes	2	2	2 - 4 ³
4	Width of Travel Lanes (ft)	11	11 - 12 ⁴	12
5	Width of Shoulders (ft)			
	(a) Inside on multilane facilities	N/A	N/A	4
	(b) Outside	2 ⁵	4 - 5 ⁶	8
6	Shoulder Type	Paved	Aggregate (2' min paved)	Aggregate (2' min paved) (4' min paved on 4-lane facilities)
7	Width of Parking Lanes (ft)	N/A	N/A	N/A
8	Width of Median on multilane facilities (ft)			
	(a) Depressed	N/A	N/A	42 - 60
	(b) Raised	N/A	N/A	N/A
	(c) Two way left turn lane	N/A	N/A	N/A
9	Width of Sidewalk (minimum) (ft)			
	(a) Offset from curb	N/A	N/A	N/A
	(b) Adjacent to curb	N/A	N/A	N/A
10	Fore Slope (vertical - horizontal)	1:4	1:4	1:6
11	Back Slope (vertical - horizontal)	1:4 ⁷	1:4	1:4
12	Pavement Cross Slope (%) ⁸	2.5	2.5	2.5
13	Stopping Sight Distance (ft)	305 (40 mph)	425 (50 mph) 570 (60 mph)	570
		425 (50 mph)		
		570 (60 mph)		
14	Maximum Superelevation (%) ⁹	10	10	10
15	Minimum Radius (ft) ¹⁰ (with full superelevation)	450 ¹¹	700 ¹²	1,100
16	Maximum Grade (%)	7 (40 mph)	6 (50 mph) 5 (60 mph)	5
		6 (50 mph)		
		5 (60 mph)		
17	Minimum Vertical Clearance (ft) ¹³	15	15	15
18	Minimum Horizontal Clearance (ft) (from edge of travel lane)	10, 14, 24 ¹⁴	26 (50 mph) 32 (60 mph)	30
19	Bridge Design Live Load ¹⁵	AASHTO	AASHTO	AASHTO
20	Minimum Width of Bridges (face to face of bridge rail at gutter line) (ft)	30	Roadway width	Roadway width

Approved *William H. Temple*
Chief Engineer

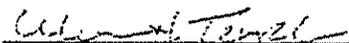
3-5-03
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Footnotes for Rural Collector Design Standards

- 1- Current traffic may be used to determine the appropriate classification.
- 2- The design speed may not be less than the current posted speed of the overall route.
- 3- For rolling terrain, limited passing sight distance and high percentage trucks, further analysis should be made to determine if additional lanes are required when ADT is above 7,000.
- 4- For design speeds greater than 50 mph and ADT greater than 1,500 use 12-foot lanes.
- 5- Where bicycle activity is observed, a 4-foot shoulder should be provided.
- 6- For ADT greater than 1,500 use 6 foot shoulders.
- 7- 1:3 back slopes are allowed where right-of-way restrictions dictate.
- 8- 2 percent acceptable for rehabilitation projects.
- 9- In Districts 04 and 05, where ice is more frequent, superelevation should not exceed 8 percent from the $e_{max} = 10\%$ table.
- 10- It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provide adequate stopping sight distance on structure.
- 11- Radius based on 40 mph. Radii for 50 mph and 60 mph are shown under the RC-2 and RC-3 classifications respectively.
- 12- Radius based on 50 mph. The radius for 60 mph is shown under the RC-3 classification.
- 13- Where the roadway dips to pass under a structure, a higher vertical clearance may be necessary. An additional 6 inches should be added for additional future surfacing.
- 14- The lower value is based on a 40 mph design speed, the middle value for 50 mph and the upper value for 60 mph.
- 15- For LFD and ASD designs a HST-18 vehicle should be included as one of the live load vehicles.

General Note:

Overlay design standards (separate sheet) shall be applicable to those projects for which the primary purpose is to improve the riding surface.

Approved 
Chief Engineer

3.5.07
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Design Standards for Urban and Suburban Arterial Roads and Streets

Item No.	Item	Urban			Suburban	
		UA-1	UA-2	UA-3	SA-1	SA-2
1	Design Speed (mph)	40	45	50	50	55
2	Level of Service	C ²	C ²	C ²	C	C
3	Number of Lanes	2 (min) - 4 (typ)	2 (min) - 4 (typ)	2 (min) - 4 (typ)	2 (min) - 4 (typ)	2 (min) - 4 (typ)
4	Width of Travel Lanes (ft)	11	11 - 12	12	12	12
5	Width of Shoulders (minimum) (ft) ³					
	(a) Inside on multilane facilities	N/A	N/A	4	4	4
	(b) Outside	8	8	8	8	8
6	Shoulder Type	Paved	Paved	Paved	Paved	Paved
7	Parking Lane Width (ft)	10 - 12	10 - 12	N/A	N/A	N/A
8	Width of Median on Multilane Facilities (ft)					
	(a) Depressed	N/A	N/A	30	30 - 42	42
	(b) Raised	6 - 30 ⁴	6 - 30 ⁴	30	30	30
	(c) Two way left turn lane	11 - 14 typ.	11 - 14 typ.	N/A	N/A	N/A
9	Width of Sidewalk (minimum) (where used) (ft) ⁵					
	(a) Offset from curb	4	4	4	4	4
	(b) Adjacent to curb	6	6	N/A	N/A	N/A
10	Fore slope (vertical - horizontal)	1:3 (min) - 1:4 (des)	1:3 (min) - 1:4 (des)	1:4	1:4 to 1:6	1:6
11	Back slope (vertical - horizontal)	1:3	1:3	1:3	1:3	1:4
12	Pavement Cross-slope (%) ⁶	2.5	2.5	2.5	2.5	2.5
13	Stopping Sight Distance (ft)	305	360	425	425	495
14	Maximum Superelevation (%)	4	4	4	4	6
15	Minimum Radius (ft) ^{7,8}					
	(a) With normal crown (-2.5% cross-slope)	700	1,000	16,700	16,700	19,700
	(b) With 2.5% superelevation	550	750	3,500	3,500	5,250
	(c) With full superelevation	500	700	1,000	1,000	1,100
16	Maximum Grade (%)	7	6	6	4 ⁹	4
17	Minimum Vertical Clearance (ft) ¹⁰	16	16	16	16	16
18	Minimum Horizontal Clearance (ft)					
	(a) From edge of travel lane	18 ¹¹	25 ¹¹	28	20 - 28 ¹²	24
	(b) Outside (from back of curb) (when curb is used)	6 (min) - 15 (des)	6 (min) - 15 (des)	19	10 (1:6) 18 (1:4)	14
	(c) Median (from back of curb) (when curb is used)	4 (min) - 15 (des)	4 (min) - 15 (des)	13	12	18
19	Bridge Design Live Load ¹³	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
20	Width of Bridges (minimum) (face to face of bridge rail at gutter line) ¹⁴					
	(a) Curbed facilities (without sidewalks)	Traveled ¹⁵ way plus 8'	Traveled ¹⁵ way plus 8'	Roadway width	Roadway width	Roadway width
	(b) Shoulder facilities	Roadway width	Roadway width	Roadway width	Roadway width	Roadway width
21	Guardrail Required at Bridge Ends	¹⁵	¹⁵	Yes	Yes	Yes

Approved [Signature]
Chief Engineer

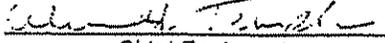
3-5-03
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Footnotes for Urban and Suburban Arterial Design Standards

- 1- These standards may be used only on a rural roadway section that adjoins a roadway section currently classified as urban. The standard selected should be based on the posted speed.
- 2- Level of service D allowable in heavily developed urban areas.
- 3- Curb may be used in place of shoulders on UA-1 and UA-2 facilities. If used on suburban facilities, it shall be placed at the edge of shoulder on two lane facilities and 1 foot beyond the edge of the shoulders on multilane facilities. If used on UA-3 facilities, it shall be placed at the edge of the shoulder. For design speeds greater than 45 mph, curb will not be placed in front of guardrail.
- 4- The minimum median width may be reduced to 4 feet if curb offsets are not provided. On principal arterials, particularly at intersections, the upper limit should be considered.
- 5- If shoulders are used, sidewalks should be separated from the shoulder.
- 6- 2 percent acceptable for rehabilitation projects.
- 7- It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provide adequate stopping sight distance on structure.
- 8- Different radii apply at divisional islands.
- 9- Grades 1 percent higher are permissible in rolling terrain.
- 10- An additional 6 inches should be added for additional future surfacing.
- 11- Applies to facilities with shoulders. Refer to the Roadside Design Guide when 1:3 fore slopes are used.
- 12- Use the larger value when 1:4 fore slopes are used.
- 13- For LFD and ASD designs a HST-18 vehicle should be included as one of the live load vehicles.
- 14- For suburban roads with shoulders and curbs, consider widening each bridge 8 feet to allow for a future lane and 4 foot offsets to bridge rail.
- 15- Refer to EDSM II.3.1.4 when sidewalks will be provided and for guardrail requirements.

General Note:

Overlay design standards (separate sheet) shall be applicable to those projects for which the primary purpose is to improve the riding surface.

Approved 
Chief Engineer

7.5.02
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Design Standards for Urban and Suburban Collector Roads and Streets

Item No.	Item	Urban		Suburban ¹		
		UC-1	UC-2	SC-1	SC-2	SC-3
1	Average Daily Traffic	N/A	N/A	N/A	N/A	N/A
2	Design Speed (mph)	30 - 40	45	40	45	50
3	Number of Lanes (minimum)	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4
4	Width of Travel Lanes (ft)	11 - 12	12	11	11	11 - 12 ²
5	Width of Shoulders (ft)					
	(a) Inside on multilane facilities	N/A	N/A	N/A	N/A	4 ³
	(b) Outside	8 ^{2,4}	8 ^{2,4}	4 - 5 ⁴	4 - 5 ⁴	6.8 ⁵
6	Shoulder Type	Paved	Paved	Paved	Paved	Paved
7	Width of Parking Lanes (where used) (ft)	7 - 10 ⁶	11	7 - 10 ⁶	11	N/A
8	Width of Median on multilane facilities (ft)					
	(a) Depressed	N/A	N/A	N/A	N/A	30
	(b) Raised	4 (min) - 30 (des)	26			
	(c) Two way left turn lane	11 - 14 typ.	N/A			
9	Width of Sidewalk (minimum) (where used) (ft) ⁷					
	(a) Offset from curb	4	4	4	4	4
	(b) Adjacent to curb	6	6	6	6	N/A
10	Fore Slope (vertical - horizontal)	1:3 - 1:4 ⁸	1:3 - 1:4 ⁸	1:4	1:4	1:4
11	Back Slope (vertical - horizontal)	1:3 ⁹	1:3	1:3	1:3	1:3
12	Pavement Cross Slope (%) ¹⁰	2.5	2.5	2.5	2.5	2.5
13	Stopping Sight Distance (ft)	200 (30 mph) 305 (40 mph)	360	305	360	425
14	Maximum Superelevation (%)	4	4	4	4	6
15	Minimum Radius (ft) ^{11, 12}					
	(a) With normal crown (-2.5% cross slope)	325 (30 mph) 700 (40 mph)	1,000	700	1,000	16,700
	(b) With 2.5% superelevation	250 (30 mph) 550 (40 mph)	750	550	750	4,400
	(c) With full superelevation	235 (30 mph) 500 (40 mph)	700	500	700	900
16	Maximum Grade (%)	9	8	7	6	6
17	Minimum Vertical Clearance (ft) ¹³	15	15	15	15	15
18	Minimum Horizontal Clearance (ft)					
	(a) From edge of travel lane	10	10	10	10	26 - 28 ¹⁴
	(b) Outside (from back of curb) (when curb is used)	1 (min) - 6 (des)	6 (min) - 15 (des)	1 (min) - 6 (des)	6 (min) - 15 (des)	17 - 19 ¹⁵
	(c) Median (from back of curb) (when curb is used)	1 (min) - 6 (des)	4 (min) - 15 (des)	1 (min) - 6 (des)	4 (min) - 15 (des)	13
19	Bridge Design Live Load ¹⁶	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
20	Minimum Width of Bridges (face to face of bridge rail at gutter line)					
	(a) Curbed facilities (without sidewalks)	Traveled ¹⁷ way plus 3'	Roadway width			
	(b) Shoulder facilities	Roadway width	Roadway width	Roadway width	Roadway width	Roadway width
21	Guardrail Required at Bridge Ends					Yes

Approved William H. Taylor
Chief Engineer

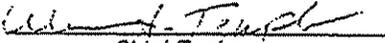
3-5-07
Date

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Footnotes for Urban and Suburban Collector Design Standards

- 1- These standards may be used only on a rural roadway section that adjoins a roadway section currently classified as urban. The standard selected should be based on the posted speed.
- 2- For ADT less than 2,000 refer to Exhibit 6-5 on page 429 in the 'AASHTO 2001 Policy on Geometric Design of Highways and Streets'.
- 3- Applicable to depressed medians only.
- 4- Curb may be used instead of shoulder. Where bicycle activity is observed, a bike lane should be considered.
- 5- If curb will not be used, shoulder widths may be reduced, see footnote 2. When curb is used on multilane facilities, it shall be placed at the edge of shoulder. When curb is used on two-lane facilities, 8 foot shoulders will be required if a future center turn lane will be added. Curb will not be placed in front of guardrail.
- 6- 7 and 8-foot widths are limited to residential areas for 30 and 40 mph respectively.
- 7- If shoulders are used, sidewalks should be separated from shoulder.
- 8- Where shoulders are used, 1:4 minimum fore slopes are required through the limits of horizontal clearance.
- 9- 1:2 back slopes are allowed where right of way restrictions dictate.
- 10- 2 percent acceptable for rehabilitation projects.
- 11- It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provide adequate stopping sight distance on structure.
- 12- Different radii apply at divisional islands.
- 13- Where the roadway dips to pass under a structure, a higher vertical clearance may be necessary. An additional 6 inches should be added for additional future surfacing.
- 14- The higher value is applicable to roadways with an ADT greater than 6,000.
- 15- These values apply to roadways with 8-foot shoulders. See footnote 15.
- 16- For LFD and ASD designs a HST-18 vehicle should be included as one of the live load vehicles.
- 17- Refer to EDSM II.3.1.4 when sidewalks will be provided and for guardrail requirements.

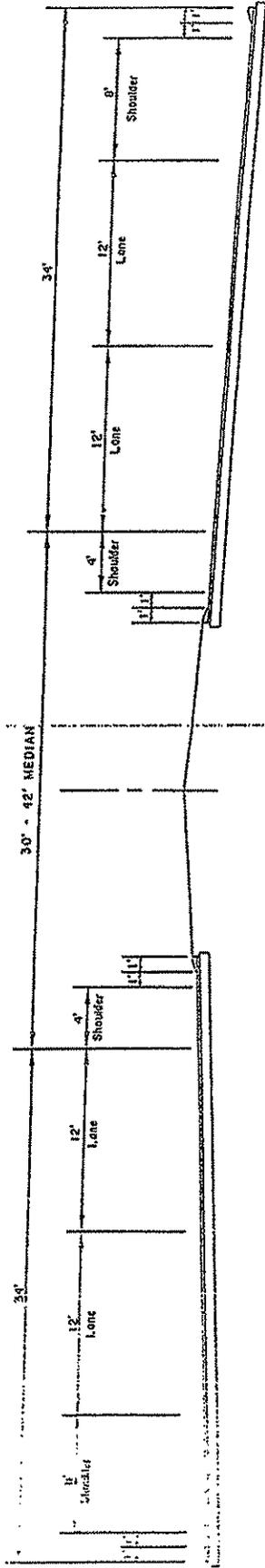
General Note:

Overlay design standards (separate sheet) shall be applicable to those projects for which the primary purpose is to improve the riding surface.

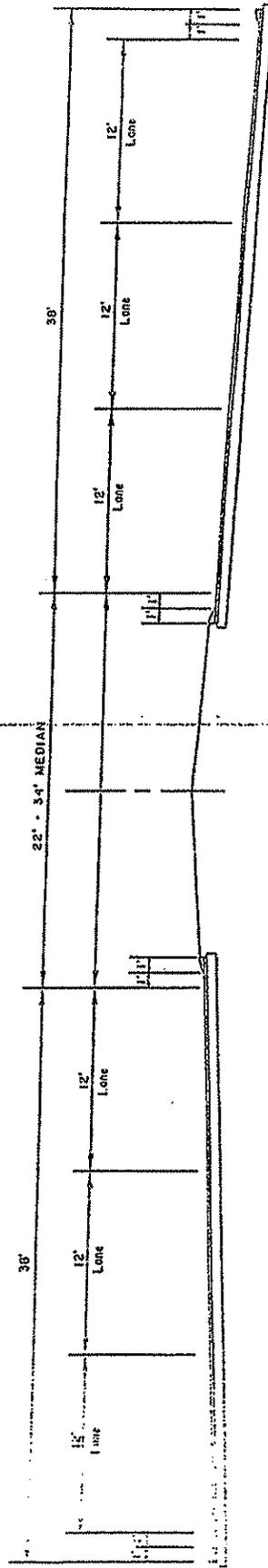
Approved 
Chief Engineer

3-5-03
Date

SUBURBAN ARTERIAL

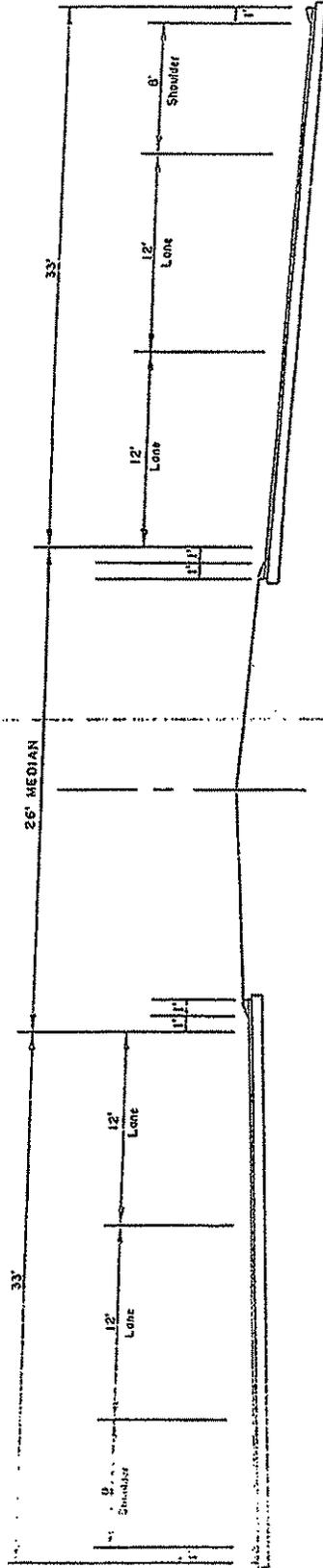


INITIAL CONSTRUCTION

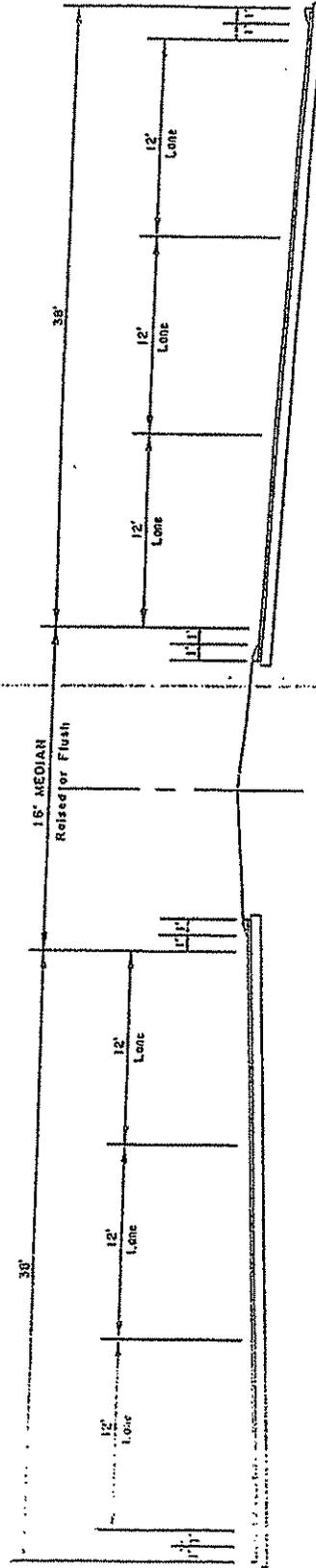


FUTURE SECTION

SUBURBAN COLLECTOR



INITIAL CONSTRUCTION



FUTURE SECTION (Raised Shown)

Appendix E
Agency and Public Involvement Plan



Outline

The purpose of the agency and public involvement plan is to identify those jurisdictional review agencies and public or private parties that expressed interest in the project.

The level and complexity of agency interaction and notification will be determined during the Stage 1 process when LA DOTD's Environmental Section will review the completed Stage 0 report's statement of feasibility and determine an appropriate course of action from one of the following types of documents: Categorical Exclusion (CE), Environmental Assessment with Finding of No Significant Impact (EA/FONSI) or Environmental Impact Statement with Finding of No Significant Impact (EIS/FONSI).

No official public process has been conducted during the course of this Stage 0 Feasibility Study. The project team conducted a series of general project review meetings involving key project sponsors (Jefferson Parish, Plaquemines Parish, Regional Planning Commission, Louisiana Department of Transportation and Development). During the course of these meetings, several critical agents were identified who would need to participate in a review or comment capacity on the project. Additionally, the team consulted standard agency notification lists provided through the Louisiana Department of Transportation and Development for environmental documentation review to determine others who may need to be a part of any future review process. These have been summarized and presented in Table E-1 for review and consideration. The groups represented in the table fall into the following general categories:

- **LA DOTD** – LA DOTD and LA DOTD District 02 will play a role in reviewing the adequacy of future environmental and engineering design documentation;
- **Economic Development** – Several groups active in promoting and supporting long-term development of the immediate area have been identified as they will have a stake in the project's long-term development and implementation;
- **Environmental Groups** – These groups represent issues relative to the natural environment;
- **Indian Tribes** – This group includes all representatives who would be consulted during the environmental documentation process;
- **Information Agencies** – These groups should be provided information on the project to determine if it has any impacts on their ongoing work in the area;
- **Elected Officials** – This group represents those elected officials who need to be kept informed about the project;
- **Local Government** – This group represents key contacts within parish government who may have additional information on the project area required to address environmental concerns and issues;
- **Permitting Agencies** – This group represents those agencies who may play a role in permitting the project during its stages of development and construction;
- **US Government Officials** – This group represents those Congressional Officials who represent the project's study area.



Table E-1
LA 23 Corridor Widening Feasibility Study
 Initial Stakeholder List

No.	Title	First Name	Last Name	Organization	Address	City	State	Zip	Representing
1	Ms.	Theresa	Adams	Harvey Canal Industrial Association (HCIA)	PO Box 397	Harvey	LA	70059	Economic Development
2	Ms.	Caitlin	Cain	Regional Planning Commission	1340 Poydras Street, Suite 2100	New Orleans	LA	70112	Economic Development
3	Mr.	Peter	Chocheles	JEDCO	3445 N. Causeway Boulevard, Suite 300	Metairie	LA	70002	Economic Development
4	Ms.	Donna	Duhe	Plaquemines Parish Office of Tourism (Economic Development)	106 Avenue G	Belle Chasse	LA	70037	Economic Development
5	Mr.	Charles	McCarty	Plaquemines Parish Department of Economic Development and Tourism	PO Box 937	Belle Chasse	LA	70037	Economic Development
6	Mr.	Edward	Peak	Millennium Port Authority	1350 Port of New Orleans Place	New Orleans	LA	70130	Economic Development
7	Ms.	Dottie	Stephenson	JEDCO	3445 N. Causeway Boulevard, Suite 300	Metairie	LA	70002	Economic Development
8	Honorable	Lynda	Banta	Plaquemines Parish Council District 08	PO Box 7148	Buras	LA	70041	Elected Official
9	Honorable	John	Barthelemy, Jr.	Plaquemines Parish Council District 01	7136 Highway 39, Suite 207	Braithwaite	LA	70040	Elected Official
10	President	Aaron	Broussard	Jefferson Parish	1221 Elmwood Park Boulevard	Jefferson	LA	70123	Elected Official
11	Honorable	Thomas J.	Capella	Jefferson Parish Council, At-Large District B	1221 Elmwood Park Boulevard	Jefferson	LA	70123	Elected Official
12	Honorable	Joe	Clark	Plaquemines Parish Council District 09	PO Box 570	Venice	LA	70091	Elected Official
13	Honorable	Louis J.	Congemi	Jefferson Parish Council District 04	1221 Elmwood Park Boulevard, Suite 1015	Jefferson	LA	70123	Elected Official
14	Honorable	Amos	Cornier	Plaquemines Parish Council District 06	PO Box 315	Port Sulfur	LA	70083	Elected Official
15	Honorable	Rick	Fremm	Plaquemines Parish Council District 02	106 Avenue G	Belle Chasse	LA	70037	Elected Official
16	Honorable	Jay	Friedman	Plaquemines Parish Council District 07	28028 Highway 23	Port Sulfur	LA	70083	Elected Official
17	Honorable	Jerry	Hodnett	Plaquemines Parish Council District 03	106 Avenue G	Belle Chasse	LA	70037	Elected Official
18	Honorable	Elton M.	Lagasse	Jefferson Parish Council District 02	1221 Elmwood Park Boulevard	Jefferson	LA	70123	Elected Official
19	Honorable	Byron L.	Lee	Jefferson Parish Council District 03	PO Box 9	Gretna	LA	70054	Elected Official
20	Honorable	Mike	Mudge	Plaquemines Parish Council District 04	106 Avenue G	Belle Chasse	LA	70037	Elected Official

Table E-1
LA 23 Corridor Widening Feasibility Study
 Initial Stakeholder List

No.	Title	First Name	Last Name	Organization	Address	City	State	Zip	Representing
21	Honorable	Chris L.	Roberts	Jefferson Parish Council District 01	PO Box 9	Gretna	LA	70054	Elected Official
22	President	Benny	Rousselle	Plaquemines Parish Government	106 Avenue G	Belle Chasse	LA	70037	Elected Official
23	Honorable	Jennifer L.	Sneed	Jefferson Parish Council District 05	1221 Elmwood Park Boulevard	Jefferson	LA	70123	Elected Official
24	Honorable	Steve	Vaughn	Plaquemines Parish Council District 05	104 New Orleans Street	Belle Chasse	LA	70037	Elected Official
25	Honorable	John F.	Young, Jr.	Jefferson Parish Council, At-Large District A	1221 Elmwood Park Boulevard, Suite 1014	Jefferson	LA	70123	Elected Official
26			Director	The Sierra Club/Delta Chapter	P.O. Box 19469	New Orleans	LA	70179	Environmental Group
27	Mr.	Carlton	Dufrechou	Lake Pontchartrain Basin Foundation	3838 N. Causeway Blvd. Suite 2070	Metairie	LA	70002	Environmental Group
28	Mr.	Luke	Fontana	Save Our Wetlands, Inc.	P.O. Box 750478	New Orleans	LA	70176	Environmental Group
29	Mr.	Nelwyn	McInnis	The Nature Conservancy of Louisiana	P.O. Box 1497	Covington	LA	70434	Environmental Group
30	Mr.	Earl	Barbry, Sr.	Chairman, Quapaw Tribe of Oklahoma	P.O. Box 331	Marksville	LA	71351	Indian Tribe
31	Mr.	Gilmer	Bennett	Apalachee Tribe of Louisiana	P.O. Box 84	Libuse	LA	71348	Indian Tribe
32	Ms.	Brenda	Dardar	Chairman, United Houma Nation	20896 LA Highway 1	Golden Meadow	LA	70357	Indian Tribe
33	Mr.	Rufus	Davis, Jr.	Chairman, Caddo Adai Indians of Louisiana	P.O. Box 246	Robeline	LA	71469	Indian Tribe
34	Mr.	Vernon	Hunter	Chairman, Caddo Tribe of Oklahoma	P.O. Box 487	Binger	OK	73009	Indian Tribe
35	Ms.	Mona	Kogel	Director, Inter-Tribal Council of Louisiana	5723 Superior Drive, SB-1	Baton Rouge	LA	70816	Indian Tribe
36	Mr.	Phillip	Martin	Chairman, Mississippi Band of Choctaw Indians	P.O. Box 6527	Philadelphia	MS	39350	Indian Tribe
37	Mr.	Lovelin	Poncho	Chairman, Coushatta Tribe of Louisiana	P.O. Box 808	Eilton	LA	70532	Indian Tribe
38	Mr.	Ed	Rogers	Chairman, Quapaw Tribe of Oklahoma	P.O. Box 765	Quapaw	OK	74363	Indian Tribe
39	Ms.	Beverly C.	Smith	Chairperson, Jean Band of Choctaws	P.O. Box 14	Jena	LA	71342	Indian Tribe
40	Mr.	Joey	Strickland	Director, Office of Indian Affairs	365 North Fourth Street	Baton Rouge	LA	70804	Indian Tribe

Table E-1
LA 23 Corridor Widening Feasibility Study
 Initial Stakeholder List

No.	Title	First Name	Last Name	Organization	Address	City	State	Zip	Representing
41	Mr.	Roy L.	Tyler	Chairman, Clifton Choctaw Tribe of Louisiana	1312 Clifton Road	Clifton	LA	71447	Indian Tribe
42		Hospital	Administrator	Meadowcrest Hospital	2500 Belle Chasse Highway	Gretna	LA	70056	Information Agency
43	Ms.	Dottie	Bailey	Geraldine Boudreaux Elementary School - Jefferson Parish Schools	950 Behrman Highway	Gretna	LA	70056	Information Agency
44	Mr.	Walter	Brooks	Regional Planning Commission	1340 Poydras Street, Suite 2100	New Orleans	LA	70112	Information Agency
45	Ms.	Carolyn	Burdine	US Army Corps of Engineers	PO Box 60267	New Orleans	LA	70160	Information Agency
46			Chairman	Regional Planning Commission	1340 Poydras Street, Suite 2100	New Orleans	LA	70112	Information Agency
47			Director	Department of Economic Development, Office of Commerce and Industry	P.O. Box 94185	Baton Rouge	LA	70804	Information Agency
48			Director	Office of State Parks, Department of Cultural Recreation and Tourism	P.O. Box 44426	Baton Rouge	LA	70804	Information Agency
49			Director	State Planning Office, Capital Annex Building 2nd Floor	P.O. Box 94095	Baton Rouge	LA	70804	Information Agency
50	Mr.	Chuck	Morse	State Byway Coordinator, Louisiana Department of Tourism	P.O. Box 44032	Baton Rouge	LA	70804	Information Agency
51	Mr.	Ellsworth	Pillie	US Army Corps of Engineers	PO Box 60267	New Orleans	LA	70160	Information Agency
52	Mr.	Marcus N.	Redford, P. E.	US Department of Homeland Security, US Coast Guard Bridge Administration	Commander (obc), Eight Coast Guard District, 501 Magazine St	New Orleans	LA	70130-3396	Information Agency
53	Captain	Anthony J.	Rizzo	NAS/JRB New Orleans	400 Russell Avenue	New Orleans	LA	70143	Information Agency
54	Dr.	Diane	Roussel	Jefferson Parish School Board	501 Manhattan Boulevard	Harvey	LA	70058	Information Agency
55	Dr.	Scott	Steckler	George Cox Elementary - Jefferson Parish Schools	2630 Belle Chasse Highway	Gretna	LA	70056	Information Agency
56	Mr.	Peter	Allain	Louisiana DOTD - Traffic Engineering Division	7686 Tom Drive	Baton Rouge	LA	70806	LA DOTD
57	Ms.	Noel	Ardoin	Louisiana DOTD - Environmental Division	P.O. Box 94245	Baton Rouge	LA	70804	LA DOTD
58	Mr.	James	Bradbury	Louisiana DOTD - Office of the Secretary	P.O. Box 94245	Baton Rouge	LA	70804	LA DOTD
59	Dr.	Eric	Kalivoda	Louisiana DOTD - Office of Planning	P.O. Box 94245	Baton Rouge	LA	70804	LA DOTD
60	Mr.	Guy	Leonard	Louisiana DOTD - Design Section	P.O. Box 94245	Baton Rouge	LA	70804	LA DOTD

Table E-1

LA 23 Corridor Widening Feasibility Study
Initial Stakeholder List

No.	Title	First Name	Last Name	Organization	Address	City	State	Zip	Representing
61	Mr.	Thomas	Payment	Louisiana DOTD District 02 Office	PO Box 9180	Bridge City	LA	70096-9180	LA DOTD
62			Program Director	Louisiana DOTD - Floodplain Management Program	Room 430, PO Box 94245	Baton Rouge	LA	70804	LA DOTD
63	Mr.	Vince	Russo	Louisiana DOTD- Environmental Division	P.O. Box 94245	Baton Rouge	LA	70804	LA DOTD
64	Mr.	Steven	Strength	Louisiana DOTD District 02 Office	PO Box 9180	Bridge City	LA	70096-9180	LA DOTD
65	Mr.	Mark	Drewes	Department of Public Works, Jefferson Parish	1221 Elmwood Park Boulevard, Suite 802	Jefferson	LA	70123	Local Government
66	Mr.	Ed	Durabb	Department of Planning, Jefferson Parish	1221 Elmwood Park Boulevard, Suite 601	Jefferson	LA	70123	Local Government
67	Mr.	Jose'	Gonzalez	Jefferson Parish Government, Director of Public Works	1221 Elmwood Park Boulevard	Jefferson	LA	70123	Local Government
68	Mr.	Lornie	Greco	Plaquemines Parish Government, Director of Operations	102 Avenue G	Belle Chasse	LA	70037	Local Government
69	Ms.	Eula	Lopez	Council Clerk, Jefferson Parish	Jefferson Parish Government Bldg. 200 Derbigny St, Ste 6700	Gretna	LA	70053	Local Government
70	Mr.	Kevin	Moore	Traffic Engineering Supervisor, Department of Traffic Engineering, Jefferson Parish	2100 Dickory Avenue	Jefferson	LA	70123	Local Government
71	Mr.	Randy	Nicholson	Department of Streets, Jefferson Parish	1901 Ames Boulevard	Marrero	LA	70072	Local Government
72	Mr.	Gary	Ragas	Plaquemines Parish Government, Director of Administration	102 Avenue G	Belle Chasse	LA	70037	Local Government
73	Mr.	Bill	Serpas	Plaquemines Parish Government, Director of Public Service	102 Avenue G	Belle Chasse	LA	70037	Local Government
74	Ms.	Connie R.	Treadway	Plaquemines Parish Government, Permits, Planning and Zoning Section	28028 Highway 23	Port Sulfur	LA	70083	Local Government
75	Mr.	Reda	Youssef	Jefferson Parish Government, Director of Capital Projects	1221 Elmwood Park Boulevard, Suite 906	Jefferson	LA	70123	Local Government
76	Ms.	Melanie	Bauder	LDEQ, Office of Environmental Services, Permits Division	P.O. Box 82135	Baton Rouge	LA	70884	Permitting Agency
77	Mr.	Joe	Bloise	Federal Highway Administration Louisiana Division	5304 Flanders Drive, Suite A	Baton Rouge	LA	70808	Permitting Agency
78	Mr.	Charles R.	Demas	Department of the Interior, Geological Survey	3535 S. Sherwood Forest Boulevard, Suite 120	Baton Rouge	LA	70816	Permitting Agency
79			Director	Department of Agriculture and Forestry, Office of Forestry	P. O. Box 1628	Baton Rouge	LA	70821	Permitting Agency
80			Director	Department of Culture, Recreation & Tourism, Division of Archaeology	P. O. Box 44247, Capital Annex, 3rd Floor	Baton Rouge	LA	70804	Permitting Agency

Table E-1
LA 23 Corridor Widening Feasibility Study
 Initial Stakeholder List

No.	Title	First Name	Last Name	Organization	Address	City	State	Zip	Representing
81		Director		Department of Natural Resources	P. O. Box 94275, 625 North 4th Street	Baton Rouge	LA	70802	Permitting Agency
82		Director		Department of Public Safety, Highway Safety Commission	P. O. Box 66336	Baton Rouge	LA	70896	Permitting Agency
83		Director		Federal Aviation Administration, US Department of Transportation	800 Independence Avenue SW	Washington	DC	20591	Permitting Agency
84		Director		Department of Wildlife and Fisheries, Ecological Studies Section	P. O. Box 98000	Baton Rouge	LA	70898	Permitting Agency
85		Director		Louisiana Natural Heritage Program, LA Department of Wildlife and Fisheries	P. O. Box 98000	Baton Rouge	LA	70898	Permitting Agency
86		Director		US Department of Commerce, Economic Development Administration	327 Congress Avenue, Suite 200	Austin	TX	78701	Permitting Agency
87		Director		US Department of the Interior, Regional Environmental Office	P. O. Box 649	Albuquerque	NM	87103	Permitting Agency
88		Director		US EPA Office of Groundwater		Dallas	TX	75202	Permitting Agency
89		Director		Federal Activities BR (6E-F), US EPA	1445 Ross Avenue	Dallas	TX	75202	Permitting Agency
90		Director		Louisiana Forestry Association	P. O. Drawer 5067	Alexandria	LA	71301	Permitting Agency
91	Mr.	Fred	Dunham	Louisiana Department of Wildlife and Fisheries	P. O. Box 9800	Baton Rouge	LA	70898	Permitting Agency
92	Mr.	John	Etinger	United States Environmental Protection Agency	P. O. Box 60267	New Orleans	LA	70160	Permitting Agency
93	Mr.	Donald	Gohmert	Natural Resources Conservation Services	3737 Government Street	Alexandria	LA	71302	Permitting Agency
94	Ms.	Patti	Holland	United States Fish and Wildlife Services	646 Cajundome Boulevard, Suite 400	Lafayette	LA	70506	Permitting Agency
95	Mr.	Michael P.	Jansky	United States Environmental Protection Agency	1445 Ross Avenue	Dallas	TX	75202	Permitting Agency
96	Colonel	Thomas F.	Julich	US Army Corps of Engineers, New Orleans District, Environmental Resources Specialist	P. O. Box 60267	New Orleans	LA	70160	Permitting Agency
97	Ms.	Lisa	Miller	Louisiana Department of Environmental Quality	P. O. Box 82231	Lafayette	LA	70884	Permitting Agency
98	Mr.	Barry	Obiol	US Army Corps of Engineers, New Orleans District, Environmental Resources Specialist	CEMVN-OD-SW P. O. Box 60267	New Orleans	LA	70160	Permitting Agency
99	Mr.	Greg	Solvey	FEMA Region VI	800 North Loop 288	Denton	TX	76201	Permitting Agency
100		Superintendent		US Department of the Interior, National Park Service	P. O. Box 728	Santa Fe	NM	87504	Permitting Agency

Table E-1
LA 23 Corridor Widening Feasibility Study
 Initial Stakeholder List

No.	Title	First Name	Last Name	Organization	Address	City	State	Zip	Representing
101			Superintendent	National Marine Fisheries Service, Habitat Conservation	Center for Wetland Research	Baton Rouge	LA	70803	Permitting Agency
102	Dr.	Nancy G.	Thompson	National Marine Fisheries Service, Southeast Regional Office	9721 Executive Center Drive N.	St. Petersburg	FL	33702	Permitting Agency
103	Mr.	Morton	Wakeland	US EPA Marine and Wetlands Section	1445 Ross Avenue	Dallas	TX	75202	Permitting Agency
104	Mr.	Larry	Wiesepape	LDEQ Office of Environmental Services (Permits Division)	P.O. Box 82135	Baton Rouge	LA	70884	Permitting Agency
105	Honorable	William J.	Jefferson	US House of Representatives District 02, State of Louisiana	1012 Hale Boggs Federal Building, 500 Poydras Street	New Orleans	LA	70130	US Government Official
106	Honorable	Mary	Landrieu	United States Senator, State of Louisiana	Federal Building, Room 326, 707 Florida Boulevard	Baton Rouge	LA	70801	US Government Official
107	Honorable	Charles	Melancon	US House of Representatives District 03, State of Louisiana	404 Cannon House Office Building	Washington	DC	20515-1807	US Government Official
108	Honorable	David	Vitter	United States Senator, State of Louisiana	2800 Veterans Memorial Blvd, Suite 201	Metairie	LA	70002	US Government Official



BKI **BURK-KLEINPETER, INC.**
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
P.O. Box 19087, NEW ORLEANS, LA 70179-0087
PHONE: (504) 486-5901 FAX (504) 488-1714
BKI 10246-01 JULY 2006
WWW.BKIUSA.COM