LA 23: Belle Chasse Bridge & Tunnel (HBI)

Belle Chasse Highway (LA 23)
Jefferson and Plaquemines Parishes, LA

LADOTD Project NO. H.004791
Federal Aid Project NO. H004791

ENVIRONMENTAL ASSESSMENT

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Federal Highway Administration
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In cooperation with
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Plaquemines Parish, LA
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Belle Chasse, LA 70037

January 9, 2019

U.S. Department of Transportation
Federal Highway Administration

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FEDERAL HIGHWAY ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT

FOR

STATE PROJECT NO. H.004791
F.A.P. NO. H004791
LA 23: BELLE CHASSE BRIDGE AND TUNNEL (HBI)
LA 23
JEFFERSON AND PLAQUEMINES PARISHES

The FHWA has determined that Alternative 4A (the Selected Alternative) will not have any significant impact on the human environment. This Finding of No Significant Impact (FONSI) is based on the Environmental Assessment (EA) which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the attached EA.

1/03/19
Date

Robert V. Mahoney
Environmental Coordinator
Federal Highway Administration
Louisiana Division

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
BMP	Best Management Practice
CFR	Congressional Federal Register
CPRA	Coastal Protection and Restoration Authority
CRS	Cultural Resources Survey
dBA	Decibels
DOTD	Louisiana Department of Transportation and Development
EA	Environmental Assessment
EJ	Environmental Justice
EO	Executive Order
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FY	Fiscal Year
GEOID	a Census unique identifier for Geography (Block Group, Tract), used to label
GICA	Gulf Intracoastal Waterway Association
GIWW	Gulf Intracoastal Waterway
HAER	Historic American Engineering Record
HBI	Historic Bridge Inventory
HCIA	Harvey Canal Industrial Association (known as the Westbank Business & Industry Association since 2016)
HSDRRS	Hurricane and Storm Damage Risk Reduction System
LA 23	Belle Chasse Highway
LA 3017	Engineers Road
LA 406	Woodland Highway
LBCS	Land Based Classification System
LDEQ	Louisiana Department of Environmental Quality
LDWF	Louisiana Department of Wildlife and Fisheries
LNHP	Louisiana National Heritage Program
LPDES	Louisiana Pollutant Discharge Elimination System
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MSA	Metropolitan Statistical Area
NAC	Noise Abatement Criteria
NASJRB	New Orleans Naval Air Station Joint Reserve Base
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Association
NOGCRR	New Orleans & Gulf Coast Railway
NPS	National Park Service
PA	Programmatic Agreement Among the Federal Highway Administration, The Louisiana Department of Transportation and Development, The Advisory Council on Historic Preservation and the Louisiana State Historic Preservation Officer Regarding Management of Historic Bridges in Louisiana
PAC	Project Advisory Committee
RPC	New Orleans Regional Planning Commission
SHPO	State Historic Preservation Officer (Louisiana)
TNM	Traffic Noise Model
U.S.C.	United States Code
USACE	US Army Corps of Engineers
USCG	United States Coast Guard
WBV	Westbank and Vicinity Project (US Army Corps of Engineers)

Permits, Mitigation, and Commitments

The list of permits obtained prior to construction of the Selected Alternative include:

- USCG Bridge Permit for a new crossing of the Gulf Intracoastal Waterway (GIWW)
- USACE Section 10 permit for work in the GIWW
- USACE Section 404 Permit for impacts to jurisdictional wetlands (in form of general permit)
- USACE Section 408 Process to alter a USACE Civil Works Project
- Section 401 Water Quality Certification issued by the LDEQ in support of the Section 404 permit
- Coastal Use Permit from the LDNR in conjunction with the USACE programmatic general permit
- LPDES permit from LDEQ for Stormwater Discharge for Construction Activities (LAR600000)
- Permit from the Plaquemines Parish Westbank Levee District for work within 1,500 feet of a federal flood control structure, including a levee, floodwall, or floodgate

The list of mitigation and commitments for the Selected Alternative include:

- Mitigation for adverse effects to the Belle Chasse Tunnel defined in the Memorandum of Agreement between DOTD, FHWA and the SHPO includes: HAER Level II documentation, a historic marker commemorating the historic significance of the Tunnel, and an electronic presentation conveying the history and significance of the Tunnel.
- Pile driving and other constructed-related activities near the Belle Chasse Tunnel may result in temporary closure or restricted use of the tunnel. Vibration monitoring of the tunnel would occur during pile driving and each phase of construction to assess conditions and help determine if the tunnel can be opened to traffic.
- Mitigation for adverse effects to the Judge Perez Bridge (also known locally as the Belle Chasse Bridge) completed in accordance with the Programmatic Agreement (PA).
- Coordination with USACE, CPRA, Plaquemines Parish Westbank Levee District (SE Louisiana Flood Protection Authority West) and Plaquemines Parish required concerning proposed work within vicinity of Federal levees along the GIWW.
- Copy of letter and plans for proposed work near flood control structures must be submitted to the USACE Operations Division (Operations Manager for Completed Works) and OCPR.
- Above and below ground footprint of the WBV-6.2 project must be considered to avoid damaging or degrading this section of the HSDRRS.
- Consultation with the USCG needs to occur during development of plans and specifications in the engineering phase to determine the requirements for maintenance of the GIWW's navigation channel during project construction.
- Prior to the start of construction notification of the maritime community by the USCG will occur prior to the commencement of work on the project.
- Any waterway closures required to accommodate construction activities/staging need to be coordinated with the USCG Marine Safety Center.
- Removal of and mitigation for underground storage tank(s) located on sites impacted by the relocation of the LA 3017 approach to LA 23.
- Replacement of vegetation in association with this project's construction should follow applicable Best Management Practices, including use of approved, non-invasive species in the restoration process.
- Impacts to wetlands would be mitigated through purchase of mitigation credits prior to obtaining USACE permit.
- If Heritage tracked species are encountered in project area, these would be reported to the LNHP Data Manager.
- All work, equipment, and vessel operation should cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Once the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for the manatee(s).

- If a manatee(s) is sighted in or near the project area, all vessels associated with the project should operate at "no wake/idle" speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels should follow routes of deep water whenever possible.
- If used, siltation or turbidity barriers should be properly secured, made of material in which manatees cannot become entangled, and be monitored to avoid manatee entrapment or impeding their movement.
- Temporary signs concerning manatees should be posted prior to and during all in-water project activities and removed upon completion. Each vessel involved in construction activities should display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign of at-least 8 ½" x 11" reading language similar to the following: "CAUTION BOATERS: MANATEE AREA/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA AND WHERE THERE IS LESS THAN FOUR FOOT BOTTOM CLEARANCE WHEN MANATEE IS PRESENT". A second temporary sign measuring 8 ½" x 11" should be posted at a location prominently visible to all personnel engaged in water-related activities and should read language similar to the following: "CAUTION: MANATEE AREA/EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION".
- Collusions with, injury to, or sightings of manatees should be immediately reported to the Service's Louisiana Ecological Services Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821). Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident/sighting; and the approximate location, including the latitude and longitude coordinates, if possible.
- Swallow conservation measures would generally apply given the identification of active nesting sites on the existing Belle Chasse Bridge. The following measures should be taken:
  - Cliff swallows nest generally from April 1 – mid-August, and barn swallows nest from May 1-early September. Work that could impact nesting activity should be done outside of these nesting periods to the greatest extent possible.
  - To initiate work immediately after nesting activity is complete a qualified contractor representative will monitor swallow nesting activities to determine the number of nests and stage of nest construction in an effort to anticipate when active nesting will end. Once the bridge has been inspected and it has been determined that nesting activity is complete, the contractor or contractor's representative will provide an email report to LDOTD of the inspector's observations.
  - Once active nesting on the existing bridge has ended, the contractor should remove old nests as soon as possible. The presence of old nests may attract swallows that are investigating potential nesting sites.
  - Prior to the start of new nesting season (end of February- early March), the bridge should be surveyed at a minimum of every 2 days and remove any potential nesting material that has been initiated and is certain to not contain eggs.
  - Should nesting be initiated, care should be taken to avoid impacting active nests. While construction activities are underway, abatement measures (e.g. pressure washing/in-active nest clearing) may be possible along other reaches of the bridge if outside of a 25-foot-buffer of active nests.
  - Generally, egg laying for cliff swallows is completed by the end of July and young will fledge July-August depending on when the eggs were laid; however nesting should be monitored by qualified personnel to identify when nesting is completed. The Initiation of nest building should also begin to slow down mid-July and halt completely by the end of July at which time monitoring for nest construction could stop.
  - The contractor's representative should prepare a weekly report to DOTD that includes when the bridge was surveyed and when the beginning of new nests are removed this should include photographs and methods of nest removal. This report should also include if any additional methods of deterrence that are used and if these methods are successful.
- Project engineer, with DOTD Project Management Staff, would complete and submit a Federal Aviation Administration (FAA) form 7460 Airport Airspace Analysis for Obstruction Evaluation during project design (within a minimum of 6 months prior to the finalization of design and any construction activities) to determine need for any permits and to complete project coordination with any FAA infrastructure, including the Naval Air Station/Joint Reserve Base New Orleans (NAS JRB) located in Belle Chasse, LA (located 3.3 miles southwest of the proposed bridge location).

ENVIRONMENTAL CHECKLIST

WBS No. H.004791
Name: LA 23: Belle Chasse Bridge & Tunnel (HBI)
Route: LA 23
Parish: Jefferson and Plaquemines Parishes

1. General Information

☐ Conceptual Layout ☒ Line and Grade ☐ Preliminary Plans
☐ Survey ☐ Plan-in-Hand ☐ Advance Check Prints

2. Class of Action

☐ Environmental Impact Statement (E.I.S.) ☐ State Funded Only (EE/EF/ER)
☒ Environmental Assessment (E.A.)
☐ Categorical Exclusion (C.E.)
☐ Programmatic C.E. (as defined in FHWA letter of agreement dated 03/15/95)

3. Project Description

Construction of a new 4-lane fixed bridge at 73 ft above the high water line of the GIWW. The proposed project occurs at the site of the existing 2-lane Judge Perez Bridge (also identified locally as the Belle Chasse Bridge) and 2-lane Belle Chasse Tunnel over the GIWW in the community of Belle Chasse, LA. This project also includes minor modifications to the LA 23 corridor between Lapalco Boulevard/Behrman Highway (LA 428) in Jefferson Parish to Woodland Highway (LA 406) in Plaquemines Parish.

4. Public Involvement

☒ Views were solicited.
☐ Views were not solicited.
☒ Public Involvement events held. (List events and dates in Section 11.)
☒ A public hearing/opportunity for requesting a public hearing required. (List dates in Section 11.)
☐ A public hearing/opportunity for requesting a public hearing not required.

5. Real Estate

		NO	YES	N/A
a.	Will additional **right-of-way** be required?	☐	☒	☐
	Is right of way required from a **burial/cemetery** site?	☒	☐	☐
	Is right-of-way required from a Wetland Reserve Program (**WRP**) property?	☒	☐	☐
	Is required right-of-way prime **farmland**? (Use form AD 1006, if needed)	☒	☐	☐
b.	Will any **relocation** of residences or businesses occur?	☐	☒	☐
c.	Are construction or drainage **servitudes** required?	☒	☐	☐

6. Section 4(f) and Section 6(f)

		NO	YES	N/A
a.	Will historic sites or publicly owned parks, recreation areas, wildlife or waterfowl refuges (**Section 4f**) be affected?	☐	☒	☐
b.	Are properties acquired or improved with **L&WC** funds affected?	☒	☐	☐

7. Cultural Section 106

		NO	YES	N/A
a.	Are any **known historic properties** adjacent or impacted by the project? (If so, list below)	☐	☒	☐
b.	Are any k**nown archaeological sites** adjacent or impacted by the project? (If so, list site # below)	☒	☐	☐
c.	Would the project affect property owned by or held in trust for a federally recognized **tribal government?**	☒	☐	☐

8. Natural & Physical Environment

		NO	YES	N/A
a.	Are **wetlands** affected?	☐	☒	☐
b.	Are **other waters** of the U.S. affected?	☐	☒	☐
c.	Are **Endangered/Threatened Species**/Habitat affected?	☐	☒	☐
d.	Is project within 100 Year **Floodplain**?	☐	☒	☐
e.	Is project in **Coastal Zone** Management Area?	☐	☒	☐
f.	Is project in a **Coastal Barrier Resources** area?	☐	☐	☒
g.	Is project on a **Sole Source Aquifer**?	☒	☐	☐
h.	Is project impacting a **navigable waterway**?	☐	☒	☐
i.	Are any State or Federal **Scenic Rivers/Streams** impacted?	☒	☐	☐
j.	Is a **noise** analysis warranted (Type I project)	☐	☒	☐
k.	Is an **air** quality study warranted?	☒	☐	☐
l.	Is project in a **non-attainment** area?	☒	☐	☐
m.	Is project in an approved Transportation Plan, Transportation Improvement Program (TIP) and State Transportation Improvement Program (**STIP**)?	☐	☒	☐
n.	Are construction air, noise, & water impacts major?	☒	☐	☐
o.	Will the project affect or be affected by a **hazardous waste site**, leaking underground storage tank, oil/gas well, or other potentially contaminated site?	☒	☐	☐

9. Social Impacts

		NO	YES	N/A
a.	Will project change land use in the area?	☒	☐	☐
b.	Are any churches and schools impacted by or adjacent to the project? (If so, list below)	☒	☐	☐
c.	Has Title VI been considered?	☐	☒	☐
d.	Will any specific groups be adversely affected? (i.e., minorities, low-income, elderly, disabled, etc.)	☒	☐	☐
e.	Are any hospitals, medical facilities, fire, police facilities impacted by or adjacent to the project? (If so, list below)	☐	☒	☐
f.	Will Transportation patterns change?	☐	☒	☐
g.	Is Community cohesion affected by the project?	☒	☐	☐
h.	Are short-term social/economic impacts due to construction considered major?	☒	☐	☐
i.	Do conditions warrant special construction times? (i.e., school in session, congestion, tourist season, harvest)	☐	☒	☐
j.	Were Context Sensitive Solutions considered? (If so explain below)	☐	☒	☐
k.	Were bike and pedestrian accommodations considered? (explain below)	☐	☒	☐
l.	Will the roadway/bridge be closed? (If yes, answer questions below)	☒	☐	☐

	NO	YES	N/A
Will a detour bridge be provided?	☒	☐	☐
Will a detour road be provided?	☒	☐	☐
Will a detour route be signed?	☒	☐	☐

10. Permits (Check all permits that may be required)

☐Corps Nationwide	☒CUP/Consistency Determination	☐LA Scenic Stream
☒Corps Section 404/10	☒USCG Bridge	☐DEQ WQC
☒Levee	☐USCG Navigational Lights	☒LPDES Stormwater
☒Other (explain below)		

11. Other (Use this space to explain or expand answers to questions above.)

Item 6/7a: Section 4(f)/Historic properties impacted include the Judge Perez Bridge and the Belle Chasse Tunnel. The Judge Perez Bridge is a preservation candidate structure under the Programmatic Agreement (PA) for Louisiana Historic Bridges: *Programmatic Agreement among the Federal Highway Administration, The Louisiana Department of Transportation, the Advisory Council on Historic Preservation, and the Louisiana State Historic Preservation Officer Regarding Management of Historic Bridges in Louisiana*, 2015. The Belle Chasse Tunnel eligible under criteria A (Historic Significance in Transportation) and criteria C (Engineering) for the National Register of Historic Places (NHRP). The Judge Perez Bridge (also identified locally as the Belle Chasse Bridge) is eligible for the NRHP under criteria C (Engineering). In addition, the NOGCRR bridge adjacent to the Belle Chasse Bridge is eligible for the NRHP. All three have been determined eligible by FHWA and the SHPO. Project results in no effect to the NOGCRR Bridge. Adverse effects to the Belle Chasse Bridge mitigated under the PA and adverse effects to the Belle Chasse Tunnel mitigated under the *Memorandum of Agreement Among The U.S. Department of Transportation, Federal Highway Administration, The Louisiana Department of Transportation And Development, The Louisiana State Historic Preservation Officer For The Permanent Decommission of The LA 23 Belle Chasse Tunnel Belle Chasse, Plaquemines Parish, Louisiana.*

Item 8c: Proposed project falls within the manatee consultation zone and does involve in-water activities with depths of at least 2 feet, during the months of June and November. Measures to minimize potential impacts to manatees identified as part of the summary of permits, mitigation, and commitments.

Item 8d: 2018 FIRM Maps issued through Jefferson Parish indicate the LA 23 corridor is within Zone X. Updated FIRM Maps for Plaquemines Parish not available from FEMA (maps.riskmaps6.com). Effective Flood Insurance Map for Plaquemines Parish identifies the LA 23 corridor as in a high flood risk area (AE Zone) west of the GIWW and an area of lower flood risk (Zone X) east of the GIWW.

Item 9e: Belle Chasse Volunteer Fire Department Station #2 is adjacent to a portion of LA 3017 which will be improved and relocated in association with this project. Access to and from this station will not be affected. Vehicles from this station will encounter extended trip times to cross the GIWW during project construction. Service will remain available to properties on the southwest side of the GIWW from the Belle Chasse Volunteer Fire Department District #2 Station #1 located at 104 New Orleans Street.

Item 9f: Project includes closures of some minor/parish streets adjacent to LA 23 to accommodate the proposed bridge. These include the following on the north side of the GIWW: Mildred Street and Planters Canal Road at LA 23 would be closed. Neighborhood access to LA 23 would be accommodated at a signalized intersection at Burmaster Street as well as maintenance of a connection under the new bridge via E/W X Street. On the south side of the GIWW, realignment of Q and R Streets would maintain access to property around the current bridge and tunnel. Also, on the south side of the GIWW, the Dr. Bowen Drive intersection with LA 23 would be closed. Access to that street would continue via Barriere Road and Covert Road. Impacts of local street closures described above analyzed as part of the project's traffic study.

Item 9i: Closing LA 23 during peak AM and PM periods should be avoided the extent possible, given the proposed construction program of activities. When possible, construction during off-periods should be employed in areas with no residences or evidence of residential population to avoid impacts to traffic flow and access. Alternative access is possible via a detour over the GIWW bridge on General DeGaulle

Boulevard. As using the bridge requires a 9-mile detour, public information campaign, ITS signs and directional signage should be deployed to direct motorists on the need to use the detour as well as the defined route to reach the detour location.

Item 9j: Project incorporates a cross section which allows for development of most of the project within the existing corridor right-of-way in order to minimize displacements or loss of property access by developed sites within the limits of the proposed project.

Item 9k: Project incorporates elements which will allow for maintenance of pedestrian and bicycle access across the GIWW at this location.

Item 10: A list of permits beyond those checked off on this list appears as part of the document's "Permits, Mitigation and Commitments" section. Project requires USACE Section 408 process to alter a USACE Civil Works Project.

Preparer: Burk-Kleinpeter, Inc.
Date: October 16, 2018

1.0 Project Overview

The Regional Planning Commission (RPC) and the Louisiana Department of Transportation and Development (DOTD) propose to improve system linkage by improving connectivity of Belle Chasse Highway (LA 23) from Lapalco Boulevard/Behrman Highway (LA 428) to Woodland Highway (LA 406) over the Gulf Intracoastal Waterway (GIWW).

1.1 What is the purpose of the project?

LA 23 is a principal arterial which serves as the primary access point between Jefferson and Plaquemines parishes. Improving transportation system linkage by improving connectivity of LA 23 from Lapalco Boulevard to LA 406 would benefit traffic operations in this area. Improving connectivity in the LA 23 corridor addresses current conditions and operational constraints created by aging infrastructure.

1.2 Why is this project needed?

This project is needed to improve network continuity in the LA 23 corridor. It would address current operational constraints and increasing demands for maintenance created by aging infrastructure. Constructed in 1956, the Belle Chasse Tunnel closes whenever maintenance activities warrant. Periods for maintenance closures have become more frequent as traffic volumes in this area have increased and the tunnel has aged. During these periods, the Judge Perez Bridge (known locally and identified from this point forward as the Belle Chasse Bridge), constructed in 1968, operates with two-way traffic, effectively reducing the capacity for traffic at this location by half. The tunnel does not reciprocate with 2-way traffic during bridge closures. The current tunnel is open to passenger and freight vehicles but remains posted with restrictions on height. Trucks traveling south on LA 23 carrying hazardous cargo are also prohibited from using the tunnel and this affects many loads going to the petrochemical plants located south of the GIWW.



Belle Chasse Bridge and Belle Chasse Tunnel, LA 23 Belle Chasse, LA

1.3 What are the project boundaries and why were these selected?

The project boundaries are Lapalco Boulevard/Behrman Highway/LA 428 on the northwest, LA 406 and Hunt Street, on the southeast and neighborhood boundaries to the east and west in both Jefferson and Plaquemines Parishes (*Figure 1*). These boundaries were selected to capture the developed areas in both Jefferson and Plaquemines Parish which feed traffic to this section of the LA 23 corridor.

As noted, this project area also includes a section of the GIWW. This section of the GIWW connects to Mississippi River (via the Algiers Locks) to the Harvey Canal and lower Barataria basin.

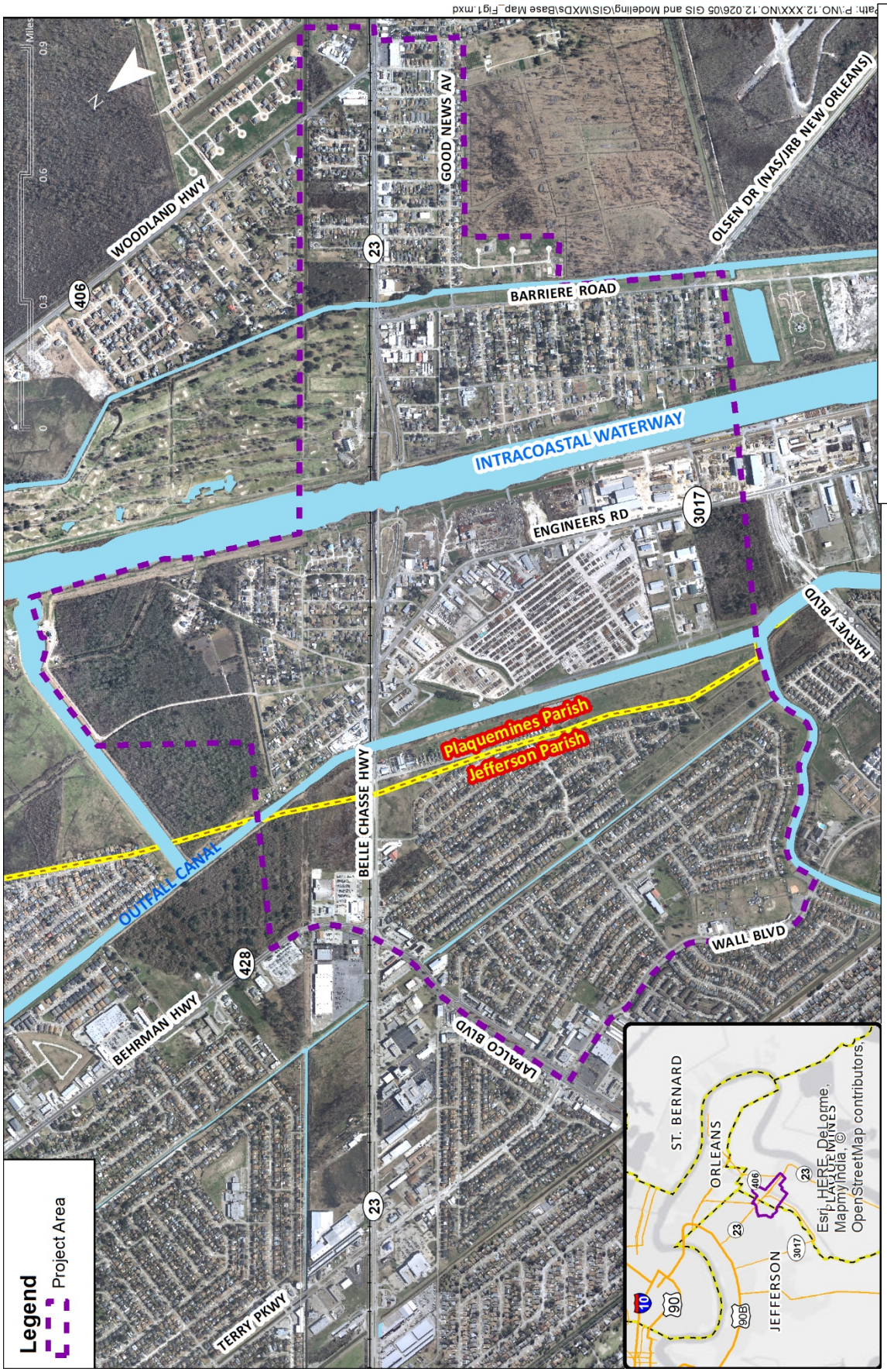


Figure 1: Study Area
LA 23: Belle Chasse Tunnel and Bridge (HBI)

1.4 How did this project get its start?

This project has its origins in the ongoing study and evaluation of the current transportation network between Jefferson and Plaquemines Parish as documented in the following table.

Table 1: Summary of Transportation Plan References (1996-2017)

Year	Document Title / Sponsor(s)	Relevant Relationship to this Project
1996	Belle Chasse Highway Bridge Over the Intracoastal Waterway: Planning/Line and Grade Study Regional Planning Commission, DOTD, Plaquemines Parish (State Project 716-38-0001)	Document corridor demands and traffic operations along with initial evaluation of potential alternatives including initial order of magnitude cost estimate for implementation
2009	Replace Belle Chasse Tunnel and Bridge Stage 0 Feasibility Study DOTD (State Project 700-38-0108)	Stage 0 review of potential replacement alternatives to improve access, efficiency, reliability and reduce deficiencies and travel time delay on LA 23 at the GIWW
2009	Transportation Improvement Program New Orleans Urbanized Area FY 09-12 *Adopted 1/13/09 • Amended through 9/30/12* Regional Planning Commission	Funding provided for repairs to the Belle Chasse Bridge and the Belle Chasse Tunnel: • Project 062-02-0119, $200K for gearbox repair (Bridge) • Project 062-02-0120, $2M for electrical and mechanical repair (Tunnel)
2009	Transportation Improvement Program New Orleans Urbanized Area FY 09-12 *Adopted 1/13/09 • Amended through 9/30/12* Regional Planning Commission	Funding provided for repairs to the Belle Chasse Bridge and the Belle Chasse Tunnel: • Project 062-02-0119, $200K for gearbox repair (Bridge) Project 062-02-0120, $2M for electrical and mechanical repair (Tunnel)
2010	Naval Air Station/Joint Reserve Base New Orleans Joint Land Use Study Plaquemines Parish Office of Economic Adjustment, US Department of Defense	Planning study funded through the Department of Defense to identify actions necessary to preserve airfield and base operations at the NAS/JRB New Orleans facility in Belle Chasse. Plan includes recommendation for guiding residential development away from the base parameter and a potential realignment of gate operations from LA 23 to Barriere Road.
2012	Plaquemines Parish Comprehensive Plan, Plaquemines Parish	20-year master plan to guide development of the Parish (including population growth, future land use, transportation system development, community facilities development including parks, schools, utilities, etc.) Plan does recommend: 1.) Extending Barriere Road to the future Peters Road corridor, west of Belle Chasse, combined with relocation of existing NASJRB main gate operations from Russell Avenue to Barriere Road; 2.) Concentrating growth around existing communities and commercial nodes; 3.) Incorporating recommendations from the JLUS concerning Military Influence Areas through implementation of overlay districts for height, uses, appearance and noise attenuation standards, establish aviation easements procedures, create storm water control and a memorandum of understanding for joint review of rezoning and development applications.

Table 1: Summary of Transportation Plan References (1996-2017)

Year	Document Title / Sponsor(s)	Relevant Relationship to this Project
2015	2015-2044 Metropolitan Transportation Plan, New Orleans Urbanized Area Fiscal Years 2015-2044 *Adopted 1/13/15* Regional Planning Commission	30-year plan and schedule for transportation project development in the New Orleans Urbanized Area. Plan includes project H.004791 (Replace Bridge and Tunnel Belle Chasse) as a Tier III project, for implementation during Federal Fiscal Years 2029-2044
2015	Louisiana Statewide Transportation Plan, DOTD	30-year investment and policy plan identifying project priorities and funding strategies to address transportation system development across Louisiana. Plan includes building a 4-lane bridge on LA 23 at the Belle Chasse Tunnel as a Megaproject, Priority A.
2017	Transportation Improvement Program New Orleans Urbanized Area, FY 15-18 *Adopted 6/10/14 • Amended through 7/11/17* Regional Planning Commission	Includes funding to address existing repairs and maintenance for the Belle Chasse Tunnel: • Project H.012079, $645K for Tunnel Repairs (11/15/16 Amendment) • Project H.012079, Add Historic Bridge Improvement (HBI) to name per DOTD PA (3/15/17 Amendment) • Project H.012079, $15M for Tunnel Repairs (4/12/16 Amendment); Adjust let date to FY18 (4/11/17 Amendment)

2.0 Alternatives Considered

2.1 What is an alternative?

An alternative is a potential solution which addresses the project purpose and need with a replacement of the Belle Chasse Bridge and Tunnel. Alternatives considered in this evaluation were initially identified within a Stage 0 Feasibility Study completed in 2009. This study used input from a project advisory group comprised of local officials, agency representatives, RPC and DOTD and from the community gathered during a series of project information meetings.



Belle Chasse Bridge on LA 23 at GIWW, Belle Chasse

2.2 How were alternatives defined?

The project started with 16 alternatives including five (5) defined in the Stage 0 Feasibility Study. To this, a total of eleven (11) alternatives would be added in response to commentary from the project advisory committee and the community. The total number of alternatives (17) included bridges applying two different technologies (fixed and moveable), two different cross sections (4 and 6 lanes), six grade choices (3%, 4%, 5%, 6% as well as an optimized grade), a preservation alternative and a do-nothing alternative (also considered as the no-build).

Each alternative identified passed through an evaluation to determine its compliance with the project purpose and need, its potential impacts on the built environment and the potential costs of construction and operations and maintenance. Results of these analyses received input from the project advisory

committee as well as the public during scheduled information meetings on the project (See Section 4.0).

As shown in following table, the initial review of alternatives considered each option based upon its ability to meet the project purpose and need (*Table 2*). Maintaining connectivity and continuity of the transportation network is part of the purpose and need and is important on LA 23 and the GIWW. This allows traffic to pass through the area, although with any construction activity, some detours or delays are inevitable. Of the alternatives/options shown in Table 1, the following do not meet the project purpose and need:

- All movable bridge alternatives (Options 2A, 3A, 6A, 7A, 2B, 3B, 6B);
- The Preservation Alternative (Option 4);
- The Do Nothing Alternative.

Table 2: Initial Alternatives Evaluation

LA 23: Belle Chasse Bridge & Tunnel (HBI)

Alternative	Option		Does the option meet the purpose and need?
Fixed-Span	1	100 ft. 4-lane with 5% grade	YES
	4A	73 ft. 4-lane with 5% grade	YES
	4B	73 ft. 4-lane with 6% grade	YES
	5	100 ft. 4-lane with 6% grade	YES
	6A	73 ft. 6-lane with 3% grade	YES
	6B	73 ft. 6-lane with 4% grade	YES
	6C	73 ft. 6-lane with 5% grade	YES
	6D	73 ft. 6-lane with optimized grade	YES
Movable	2A	70 ft. bascule 4-lane with 5% grade	**NO**
	3A	60 ft. bascule 4-lane with 5% grade	**NO**
	6A	70 ft. bascule 4-lane with 6% grade	**NO**
	7A	60 ft. vertical lift 4-lane with 6% grade	**NO**
	2B	70 ft. vertical lift 4-lane with 5% grade	**NO**
	3B	60 ft. vertical lift 4-lane with 5% grade	**NO**
	6B	70 ft. vertical lift 4-lane with 6% grade	**NO**
Preservation	4	Rehabilitate existing couplet (2-lane bridge + 2-lane tunnel)	**NO**
Do Nothing		No Build	**NO**

Although Option 1 did meet the project purpose and need, the same relative benefits could be gained with Option 4A, with fewer potential costs and potential displacements. Therefore, Option 1 was not advanced for further review.

The next evaluation measure used in the initial review was whether the option meets the current DOTD Design Guidelines. Bridge grades greater than 5% are considered steep. Steep grades could reduce the overall footprint of construction for the bridge and potentially lesson community impacts. However,

the resulting effect of this type of structure on traffic operations would be reduced travel speeds for vehicles, specifically heavy trucks.

As traffic ascends the bridge, it tends to accelerate harder to maintain speed to reach the apex of the bridge. The amount of interaction in the traffic created by the presence of slow moving vehicles is likely to create an environment during which slower moving traffic interrupting forward progression would be more common. Although some drivers will typically try to maintain their speed, it is a natural reflex for traffic to slow on the climb approach in response to the characteristics of the adjacent traffic pattern. Slower moving heavy trucks tend to reduce the speed of traffic in their lane and thus encourage passing of traffic along the corridor.

Once at apex, traffic crossing the bridge typically exercises less acceleration to maintain speed on the descent, opting for more braking pressure to reduce forward momentum in response to conditions found in the traffic stream as well as upstream traffic controls. Again, this slowdown of traffic would interrupt progress through subsequent signals and possibly eliminate opportunities for coordination with nearby signals and the benefits this would create for traffic operations.

Of the alternatives/options shown in the preceding table, the fixed-span alternatives 4B and 5 would provide for a steep bridge which does not meet current DOTD Design Guidelines and are not prudent. The adaptive reuse was likewise eliminated as not prudent given the commitment to additional costs required for construction, operations and maintenance as a bicycle/pedestrian facility which would duplicate of elements proposed as part of option 4A.

Based upon the outcomes of the initial evaluation, the fixed-span alternatives 4A, 6A, 6B, 6C and 6D remained potentially viable and moved into a second level of evaluation. This evaluation examined potential community impacts using an initial layout concept, comparing each option with the Do Nothing Alternative (*Table 3*):

- **Total potential displacements** –the number of residences, commercial businesses, industrial activities, community facilities and other facilities potentially impacted by the option, based upon current land use occupancy and parcel data from Jefferson and Plaquemines Parishes, as documented using conceptual layout information for each option. Options with a larger number of displacements would be potentially more disruptive to the adjacent community.
- **Road/Driveway Closures and Relocations** - an estimate of the number of streets, driveway access points closed because of the footprint of the proposed bridge and approaches suggested by each option as well as the expected relocations of major streets (LA 3017 and Barriere Road) and rail lines (spur of the NOGCRR) on LA 23 between Lapalco Boulevard and LA 406 required to accommodate the approaches to the proposed option. Options which require a larger number of road/driveway closures and relocation would be more disruptive to property access and would tend to create more potential impacts for the occupants including diminished business, decreased access to emergency services and the like.
- **Additional Water Crossings** – the number of additional water crossings and bridges requiring construction to accommodate the approaches as documented using conceptual layout information for each option. Options which require replacement of adjacent water crossings would have more associated costs and would potentially impact some areas identified as potential wetlands.
- **Traffic Operations on LA 23** – an indication of the expected improvement in travel time in the peak direction during morning and afternoon peak commute periods. As documented in the project's traffic study, in the existing condition of LA 23 (Do-Nothing Alternative) in the morning it takes, on average, 5 minutes, 20 seconds to travel southbound on LA 23 between Lapalco

Table 3: Secondary Alternatives Evaluation

LA 23: Belle Chasse Bridge & Tunnel (HBI)

Alternative	**Fixed Span**					**Do Nothing**
Option	**4A**) 73ft. 4-lane with 5% grade	**6A**) 73ft. 6-lane with 3% grade	**6B**) 73ft. 6-lane with 4% grade	**6C**) 73ft. 6-lane with 5% grade	**6D**) 73ft. 6-lane with optimized grade	Existing couplet (2-lane tunnel + 2-lane bridge)
Total Potential Displacements (est)[2]						
TOTAL[3]	11	88	66	60	65	0
Residential (Single-family, 2-family)	0	25	7	6	7	0
Commercial (Individual businesses)	11	59	56	51	55	0
Industrial Activities	0	3	2	2	2	0
Community Facilities	0	0	0	0	0	0
Other	0	1	1	1	1	0
Road/Driveway Closures and Relocations						
Local Streets closed (due to structure limits)	4	8	5	4	4	0
Driveways potentially closed (est.)	12	43	39	39	39	0
Relocated NOGC Railway Spur	NO	YES	YES	NO	NO	No Change
RELOCATED - Barriere Road	NO	YES	YES	NO	YES	No Change
RELOCATED - Engineers Road	YES	YES	YES	YES	YES	No Change
Additional Waterway Crossings						
Barataria Outfall Canal	0	3	2	0	1	0
Bayou Barriere/Barriere Outfall Canal	0	2	2	1	2	0
Traffic Operations on LA 23						
Network Connectivity/Continuity	Improved	Improved	Improved	Improved	Improved	No Change
AM Peak Improvement (Lapalco to Woodland SB)	17% reduction in travel time	17% reduction in travel time	14% reduction in travel time	20% reduction in travel time	20% reduction in travel time	No Change
PM Peak Improvement (Woodland to Lapalco NB)	59% reduction in travel time	19% reduction in travel time	22% reduction in travel time	61% reduction in travel time	61% reduction in travel time	No Change
Maritime Operations						
Requires bridge opening to allow traffic passage on GIWW?	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	Yes, bridge tender required for Belle Chasse Bridge
Hurricane Evacuation/Operations						
Projected impact on Hurricane Evacuation Traffic Operations	Improves existing conditions - bridge remains open to traffic and GIWW accesible to marine vessels	Improves existing conditions - bridge remains open to traffic and GIWW accesible to marine vessels	Improves existing conditions - bridge remains open to traffic and GIWW accesible to marine vessels	Improves existing conditions - bridge remains open to traffic and GIWW accesible to marine vessels	Improves existing conditions - bridge remains open to traffic and GIWW accesible to marine vessels	No change - Traffic would be stopped on LA 23 NB as bridge opens to accommodate marine needs; Tunnel closed in advance of landfall as per Emergency Operations plans.

Boulevard and LA 406, while in the afternoon, it takes 8 minutes, 46 seconds to travel northbound on LA 23 between LA 406 and Lapalco Boulevard. As documented in the traffic study, most of this delay is encountered in the LA 23 corridor between Barriere Road and Lapalco Boulevard. Changes in travel time shown with each option reflect a measure of change created through a combination of geometric improvements at individual intersections on LA 23 combined with street closures and traffic signal coordination. Delays outside of peak occur in the northbound direction because of bridge openings, which take anywhere from 7 to 10 minutes to complete. Options which replace the movable bridge with a fixed span would eliminate this delay and improve capacity, continuity, and connectivity on LA 23.

- **Maritime Operations** – an indication whether the option requires that a bridge opening and costs/commitment required with a bridge tender to accommodate vessel passage on the GIWW.
- **Hurricane Evacuation/Operations** – an indication whether the proposed option would improve the continuity of LA 23 during periods of evacuation in advance of a tropical weather event or other emergency. During these periods, the existing Belle Chasse Bridge must suspend its curfew operations and open with higher frequency to allow vessels to travel up the GIWW to safe harbor.

2.3 What are the alternatives under consideration?

As shown in Table 3, Options 6A through 6D would improve vehicular traffic and maritime operations and hurricane evacuation needs on LA 23. However, these benefits come with a greater potential impact to the community through a combination of potentially severe and disruptive displacements to the established community, as well as impacts to local streets and driveways, than Option 4A (*Figure 2*).

3.0 Environmental Resources

To understand more about the study area, a review took place to identify current characteristics given the amount of existing development and activity. The review incorporated data obtained as part of the initial feasibility study, updated with additional research and field reviews between 2012 and 2018.

The study area is divided between Jefferson and Plaquemines Parish. Of the 1,205 acres in the study area, 79% is in Plaquemines Parish, 21% in Jefferson Parish. The results and data summarized in this section will generally apply to the entire study area unless otherwise noted.



LA 23 at LA 3017 (looking south)

3.1 How is land in the study area currently occupied?

The most common use of land in the study area is residential, shown as yellow in the color on Figure 3. Industrial areas, shown in purple, occur primarily along LA 3017 which intersects with LA 23 0.42-mile northwest of the GIWW. Only 135 acres of this area have yet to be developed (*Figure 3, Table 4*). Most of these areas, as shown on Figure 3, are on the edges of the study area. Undeveloped parcels along LA 23 just north and east of LA 3017 which remain undeveloped are divided from LA 23 by the NOGCRR.

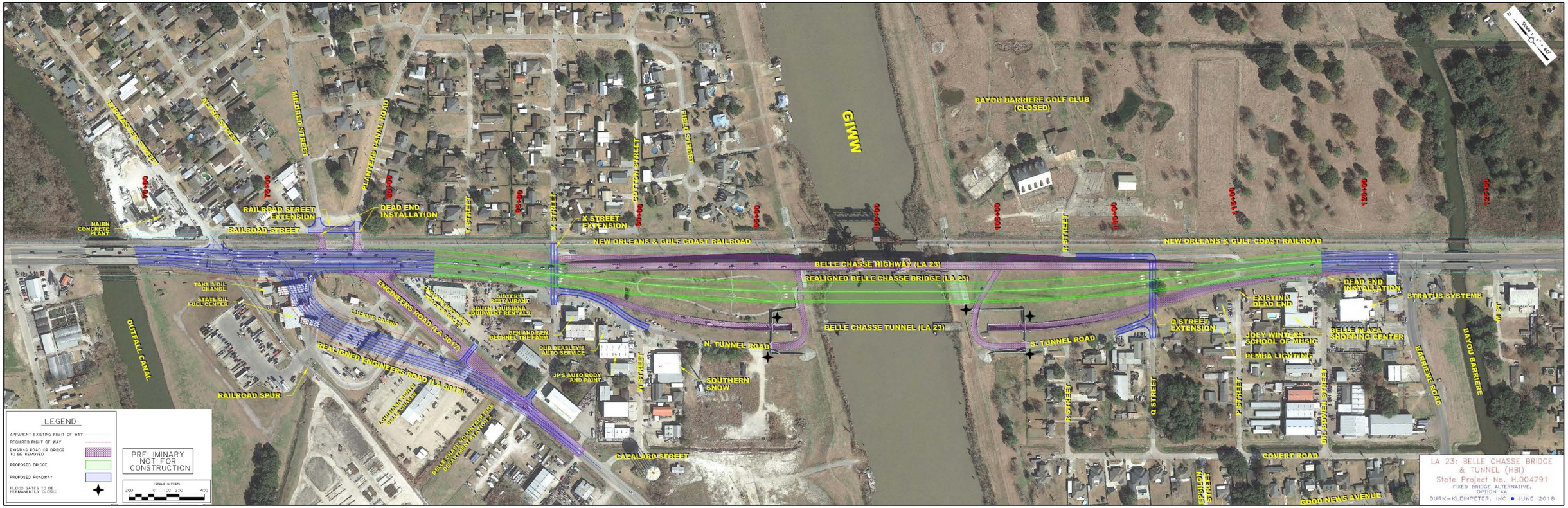


Figure 2: Option 4A, LA 23 Belle Chasse Bridge
LA 23: Belle Chasse Tunnel and Bridge (HBI)

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When land initially developed along LA 23, the corridor consisted of two lane roadway passing through the Belle Chasse Tunnel. Lot depths along LA 23 permitted the construction of structures, well away from the roadway. Construction of the Belle Chasse Bridge in 1967 and realignment of the tunnel access roads required right-of-way developed using property from lots fronting LA 23. The resulting action left lots along LA 23 with the frontage, but depth from the roadway reduced by 30-40 feet. The result creates one of the following conditions on the lots facing LA 23 which would likely factor into any property acquisition or right-of-way development along this corridor: loss of remaining front yard areas used for parking, storage, or front/side yard setbacks; encroachment upon front yards and individual structure facades; intrusion upon individual structures within the future corridor right-of-way.

Each parish has a comprehensive plan to guide future land use decisions. Both comprehensive plans (*Envision Jefferson 2020* and *Plaquemines Parish Master Plan)*[1] maintain the existing land use pattern within the study area for the future.

Current Zoning

Both parishes regulate the activities on land through zoning (*Table 4*). Within the list of the zoning districts which apply in the study area, Jefferson Parish does enforce overlay (i.e. regulations which fall on-top-of existing zoning) standards to define specific corridor-based rules to regulate site appearance in terms of signage and landscape. Plaquemines Parish does not. Zoning suggests the potential for a future land use pattern in the study area which varies little from that shown on Figure 3. Areas shown as vacant would be encouraged to develop in a manner consistent with adjacent parcels, unless otherwise approved by the local planning authority following review and public hearing (as determined by each Parish's administrative policy).

Table 4: Existing Zoning Districts and Permitted Uses
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

	Zoning District	Predominant / Permitted Uses
Jefferson Parish	Single-family Residential (R1-A)	Single-family dwellings, (also parks, government structures and community centers)
	Two Family Residential (R-2)	Detached or attached single-family, two-family, and town house dwellings
	Mixed Use Corridor (MUCD)	Various residential dwellings (excluding mobile homes), various retail/service oriented commercial activities. All uses must meet building siting and general design guidelines along with meeting of a development review procedures.
	Neighborhood Commercial (C-1)	Retail/ service-oriented activities, medical clinics, elderly housing, filling stations, laundromats, etc.
Plaquemines Parish	Rural or Agricultural (A1 & A2)	Farming, mineral extraction, forestry
	Mobile Home Park (MH)	Mobile homes
	Single-family Residential (R-1A, R-1AB, R-1B, & R-1C)	Detached single-family dwellings
	Two Family and Multifamily Residential (R-2 & RM-1)	Detached single-family, two-family, and town house dwellings
	Medical Services (M)	All types of dwellings excluding Mobile homes, medical uses including offices, hospitals, clinics, etc.
	Neighborhood and General Commercial (C-1 & C-2)	Retail shops, professional offices, filling stations, restaurants, vehicle sales, Barrooms/lounges/night clubs, etc.
	Heavy Industry (I-3)	Manufacturing, assembly, food processing, pharmaceuticals, and other processes of a heavy industry nature.

[1] Ordinance 21939, Adopted August 6, 2003, Jefferson Parish Code of Ordinances, ordinance become effective March 1, 2004. Copies of the Plaquemines Parish Master Plan obtained from http://www.plaqueminesmasterplan.com.

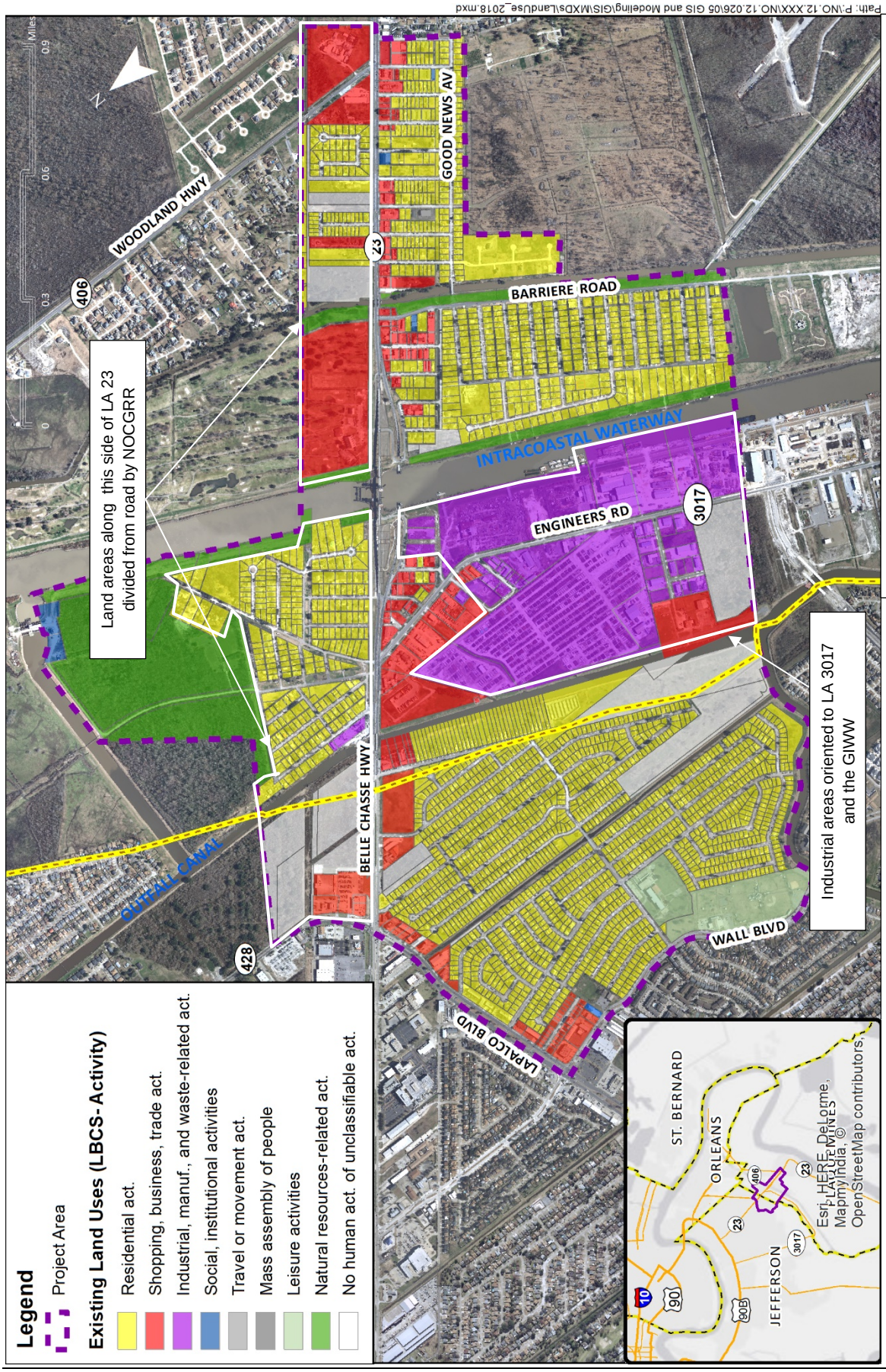


Figure 3: Existing Land Use
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Table 5: Existing Land Use by Activity Category and Acreage
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Land Use Activity	Total Acreage	Percent of Total
Residential Activities (LBCS Code 1000)	522	43.3%
Shopping, Business, Trade Activities (LBCS Code 2000)	181	15.0%
Industrial, Manufacturing & Waste-Related Activities (LBCS Code 3000)	174	14.4%
Social, Institutional, Infrastructure-Related Activities (LBCS Code 4000)	6	0.5%
Travel or Movement of People (LBCS Code 5000)	14	1.2%
Mass Assembly of People (LBCS Code 6000)	3	0.3%
Leisure Activities (LBCS Code 7000)	139	11.5%
Natural Resources – Related Activities (LBCS Code 8000)	31	2.6%
No Human Activity or Unclassifiable Activity (LBCS Code 9000)	135	11.2%
Total	1,205	100%

LBCS = Land Based Classification Standards, American Planning Association, April 1, 2001. Sources: Jefferson and Plaquemines Parish GIS Departments, parcel, and zoning shapefiles.

3.2 What is the current transportation system?

LA 23 is an urban principal arterial (*Figure 3*).[2.] It is approximately 2.05 miles from LA 428 to LA 406. The corridor has a 4-lane divided section (with raised median) except at the tunnel/bridge crossing. The apparent roadway width within the corridor right-of-way is 90 feet at LA 406 and LA 3017, including all designated shoulders.

The general LA 23 corridor characteristics in the study area include:

- Four 12-foot travel lanes;
- Center median, approximately 14-18 feet in width;
- Posted speed limit of 45 miles per hour;
- Shoulders along the eastern and western edges of the road generally 11 feet wide on the west and 8 feet wide on the east. The shoulder along north bound LA 23 has been converted to an additional through lane between Dale Avenue and Lapalco Boulevard;
- At-grade rail crossing at Burmaster Street, approximately 460 feet north of the LA 3017 intersection;
- Curb and gutter along eastern and western edges of corridor, south of Tunnel and bridge crossing and north of Timber Ridge Drive on the eastern edge of the corridor only, north to Lapalco Boulevard;
- Overhead utility lines along the eastern side of the corridor;
- Sidewalk along the western edge of the road between M Street and LA 406;
- Traffic signals at LA 428; Driveway at Rouses Supermarket Shopping Center; Dale Avenue; LA 3017/Planters Canal Road; Barriere Road, and LA 406;

[2] New Orleans Highway Functional Classification Urbanized Area Map, www.dotd.la.gov.

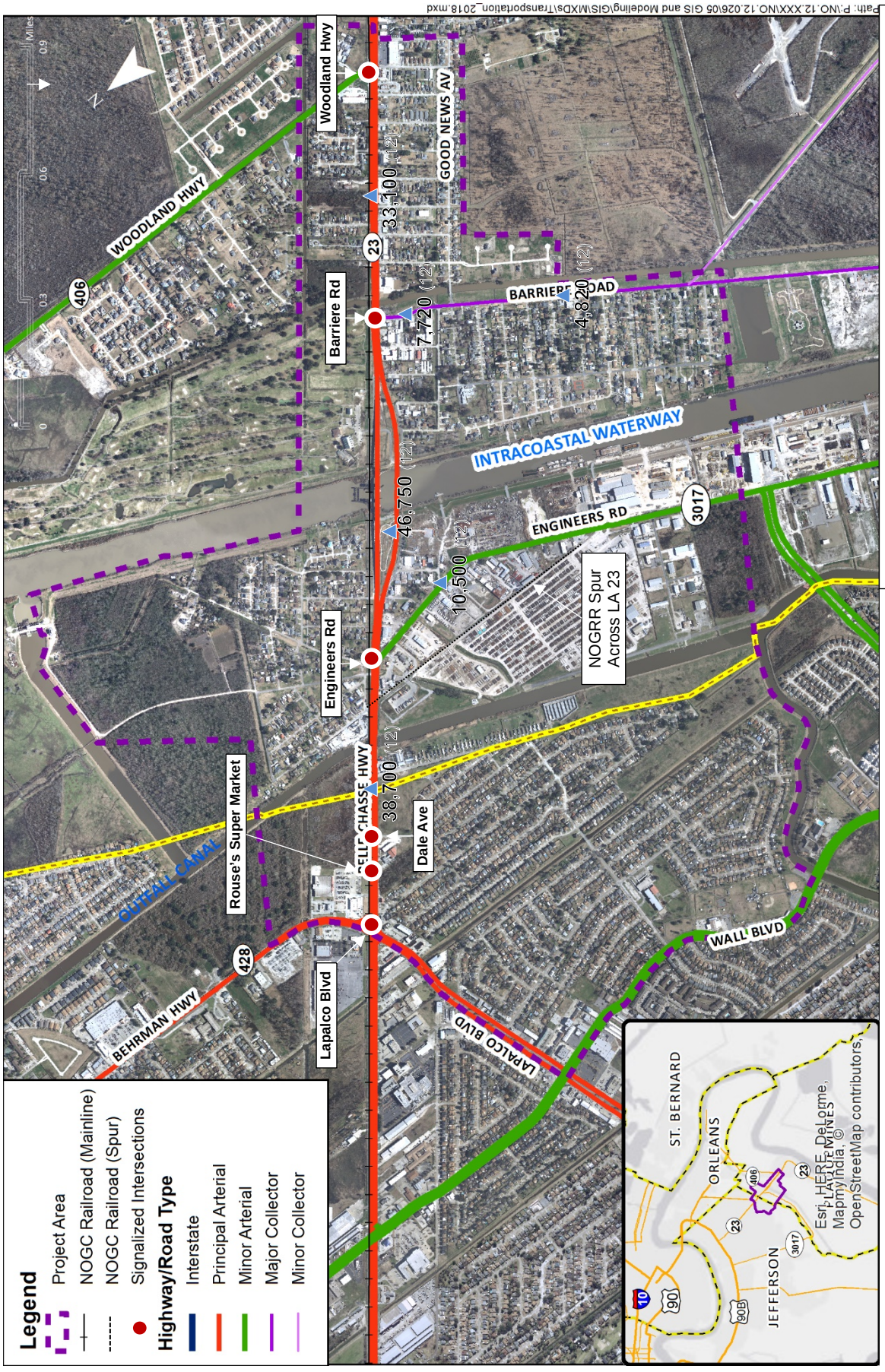


Figure 4: Existing Transportation Network
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

- 78 access points along the corridor between Lapalco Boulevard and Schlief Drive, with the majority located along the western side of the road. Some of the parcels in this area have continuous driveways along their frontage;
- DOTD has six (6) traffic signals in the LA 23 corridor between Lapalco Boulevard and LA 406;
- Movable bridge span (constructed in 1968), 2-lanes wide for northbound traffic and Tunnel (constructed in 1955), 2-lanes with no shoulders for southbound traffic at the GIWW.

Traffic data collected in October 2012 reveals that on a typical day, an average of 34,840 vehicles use the LA 23 corridor between LA 3017 and LA 406. Based upon these same 2012 traffic counts, approximately 46,750 vehicles crossed the GIWW via the Tunnel and bridge daily. Fluctuations in this volume would occur over time as well based upon the level of activities/events scheduled at nearby industrial, military, and educational facilities (*Table 6*).

Table 6: Average Daily Traffic Volumes (2006-2012)
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Location	2006	2007	2008	2010	2011	2012
Belle Chasse Hwy (LA 23)						
Lapalco Rd to Engineers Rd	36,900	-----	37,600	42,200	----	38,400
Engineers Rd to Barriere Rd[2]	44,100	-----	30,800	43,650	----	46,750
Barriere Rd to Woodland Hwy	----	------	35,800	-----	----	33,100
Engineers Rd (LA 3017)						
West X Street to Coquille Rd	---	---	----	----	---	10,500
Barriere Road						
LA 23 to Good News Ave[6,7]	---	---	---	7,340	---	7,720
Sigma St to Tau St[6]	------	---	---	4,890	---	4,820



Variable message sign for northbound traffic erected in the LA 23 median south of LA 406

A traffic study completed for this project in 2016 (*LA 23 Corridor Traffic Study, Lapalco Boulevard to Woodland Highway*) indicates that traffic congestion during peak periods is a common occurrence on LA 23. Observations indicate that queues of stopped traffic on LA 23 northbound at LA 3017 can extend over the Belle Chasse Bridge and block Barriere Road. Traffic congestion north of LA 3017 is a common occurring during peak between Dale Avenue and Lapalco Boulevard. A project to restripe the shoulder to allow right turns appears to have assisted in the movement of traffic, but periods of congestion remain common. Variable message signs on LA 23 south of LA 406 are present to direct motorists to the General DeGaulle Bridge during periods when the Belle Chasse Bridge opens outside of the prescribed peak-hour curfew to allow marine vessels to pass along the GIWW.

Pedestrian access over the Belle Chasse Bridge is closed and access for pedestrians through the tunnel remains inaccessible due to blocked stairwells (2018). Both the Bridge and Tunnel have sidewalk facilities which would connect to complementary facilities which take pedestrians into adjacent neighborhoods or to other points along LA 23.

There is no regularly scheduled transit service in Plaquemines Parish. The Parish's Community Action Agency (CAA) provides transportation services on a 24-hour notice to Parish residents, including those

in the study area. The Terrytown (W-8) route of Jefferson Transit (JeT) serves the western edge of the study area. Jefferson Parish also offers complementary paratransit services to qualified Parish residents within ¾ mile of the Terrytown Route.

The NOGCRR operates an active freight rail line along the eastern side of the LA 23 corridor. There are 18 at-grade crossings of the railroad in the study area. Of this total, eight (8) are at individual commercial or residential structure driveways along LA 23. One rail spur crosses LA 23 north and east of the LA 3017 intersection.



NOGCRR operates freight rail along the eastern edge of LA 23

3.3 What are the characteristics of the people residing in the study area?

Review of data from the US Bureau of the Census found the following characteristics within the study area's 13,613 residents (*Figure 5 and Tables 7-10*):

- 62% of the area was racially White, the area also includes 27% Black residents with Asians comprising another 3%. The racial breakdown of the remaining 8% of the study area included American Indian, Hawaiian or Pacific Islander populations, and individuals with two or more races;
- 10.3% of the study area population identified itself as ethnically Hispanic or Latino;
- Median household income for the census tracts in the study area ranged from $42,375 to $68,802. The highest household income levels were found in the census tracts in Plaquemines Parish containing the Belle Chasse Bridge and Tunnel.
- The percentage of households in the census tract containing the Belle Chasse Tunnel and Bridge who were at the poverty level is 7.2%. This level was less than the value found for Plaquemines Parish as a whole.
- Linguistically, 7.2% of the study area's residents speak English less than very well. Over half of this LEP population was Spanish speaking, while 32% speak Asian languages including Chinese and Vietnamese and another 10% speak other Indo-European languages such as French, Urdu, and Serbo-Croatian.
- The highest percentages of the study area population who indicated a problem with communicating in and understanding English lived in Jefferson Parish on the northern and western edge of the study area away from the existing Belle Chasse Tunnel and Bridge.
- The occupancy rate of the housing units within the study area was 93.6%. This value is higher than that found within the parishes. The 2010 Census recorded the percentage of housing units occupied in Jefferson Parish as 89.7% and as 84.2% within Plaquemines Parish.
- Within the block groups containing the current Belle Chasse Tunnel and Bridge, 61.7% of the population was between 18 and 64 years of age and 93.6% of the housing units were occupied.

Areas where direct project impacts would occur appear within Census Tract 502, which includes a population (at the time of the 2010 Census) with higher incomes, low-percentage of low-income population and a low percentage of minority population. Therefore, there appear to be no environmental justice issues associated with the project within the study area.

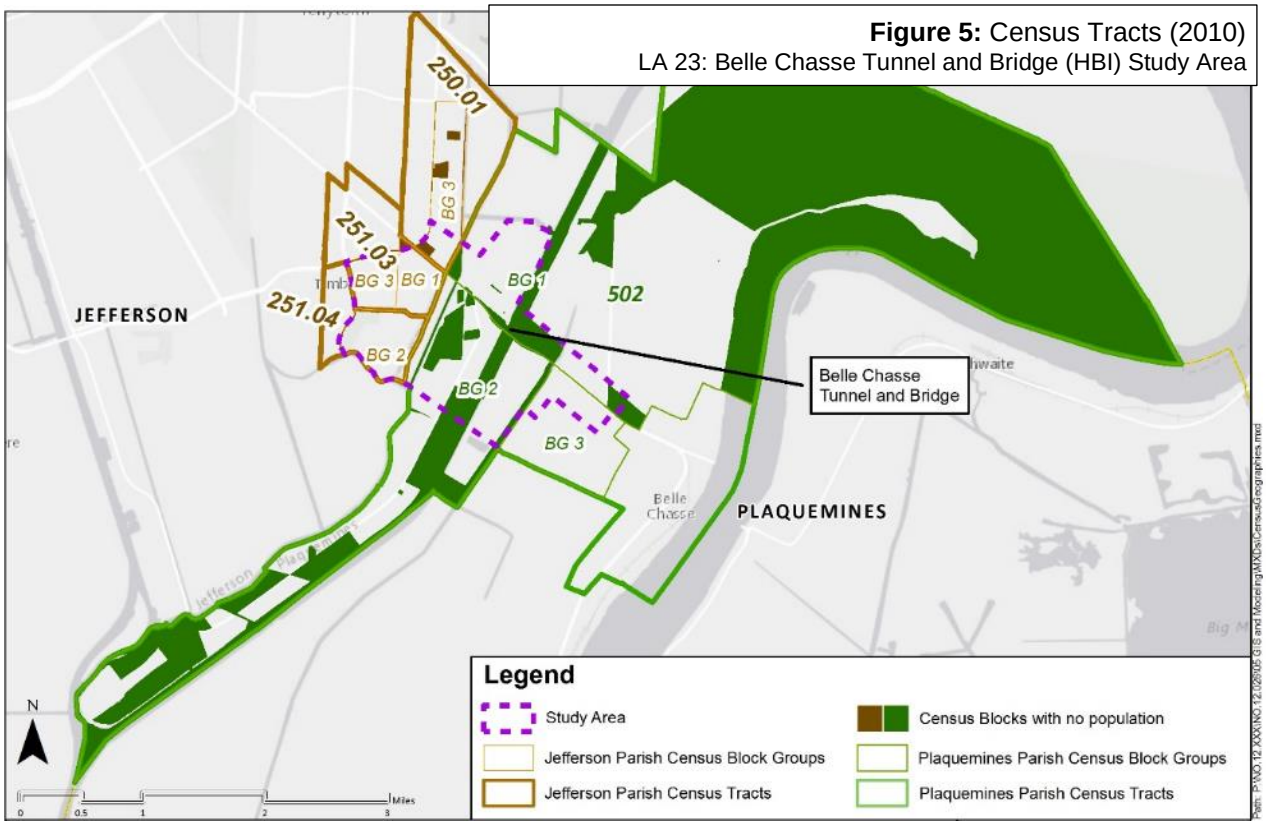


Figure 5: Census Tracts (2010)
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Table 7: Population Distribution by Census Tract Block Group
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Census 2010 Geography		Total Pop (2010)	Not Hispanic or Latino						Hispanic or Latino
			Population of One Race					Two or More Races	
			White	Black	American Indian	Asian	Other Race		
Jefferson	CT 250.01, BG 3	2,601	211 8.1%	1,844 70.9%	13 0.5%	53 2.0%	391 15.0%	89 3.4%	529 20.3%
	CT 251.03, BG 1	1,078	521 48.3%	464 43.0%	5 0.5%	66 6.1%	8 0.7%	14 1.3%	52 4.8%
	CT 251.03, BG 3	1,257	539 42.9%	530 42.2%	10 0.8%	60 4.8%	92 7.2%	27 2.1%	226 18.0%
	CT 251.04, BG 2	1,674	875 52.3%	569 34.0%	8 0.5%	79 4.7%	91 5.4%	52 3.1%	258 15.4%
Plaquemines	CT 502, BG 1	2,487	2,224 89.4%	93 3.7%	24 1.0%	84 3.4%	40 1.6%	22 0.9%	122 4.9%
	CT 502, BG 2	1,397	1,230 88.0%	69 4.9%	20 1.4%	21 1.5%	13 0.9%	44 3.1%	78 5.6%
	CT 502, BG 3	1,464	1,342 91.7%	20 1.4%	12 0.8%	33 2.3%	4 0.3%	53 3.6%	90 6.1%
	CT 502, BG 4	1,655	1,497 90.5%	58 3.5%	15 0.9%	40 2.4%	17 1.0%	28 1.7%	48 2.9%
Total Population of Block Groups which include Study Area		13,613 100%	8,439 62.0%	3,647 26.8%	107 0.8%	436 3.2%	655 4.8%	329 2.4%	1,403 10.3%
Minority Population				38%					

Source: US Census Bureau, 2010. SF1 100% data.

Table 8: Median Household Income and Low Income Population by Census Tract
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Jurisdiction	Median Household Income	Poverty Level (Percentage of Population for Whom Poverty is Determined, all Ages)
Jefferson Parish	$47,871	16.8%
CT 250.01	$46,577	24.2%
CT 251.03	$42,375	18.2%
CT 251.04	$52,271	10.4%
Plaquemines Parish	$54,835	13.7%
CT 502	$68,802	7.9%

Source: US Census, American Community Survey 2010-2014, Tables B17001 and B19013.3

Table 9: Age Distribution and Housing Occupancy by Census Tract Block Group
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

2010 Census Block Groups		Total Population	Age			Housing Units	
			< 18 Years	18 - 64 Years	65 Years and Older	Occupied	Vacant
Jefferson	CT 250.01, BG 3	2,601	884 34%	1,676 64%	40 2%	858 91.2%	83 8.8%
	CT 250.03, BG 1	1,078	257 24%	698 65%	121 11%	374 95.4%	18 4.6%
	CT 250.03, BG 3	1,257	288 23%	860 68%	104 8%	440 94.4%	26 5.6%
	CT 251.04, BG 2	1,674	421 25%	1,071 64%	173 10%	540 95.2%	27 4.8%
Plaquemines	CT 502, BG 1	2,487	749 30%	1,496 60%	235 9%	809 95.5%	38 4.5%
	CT 502, BG 2	1,397	364 26%	904 65%	124 9%	528 91.0%	52 9.0%
	CT 502, BG 3	1,464	363 25%	904 62%	183 13%	542 94.6%	31 5.4%
	CT 502, BG 4	1,655	447 27%	1,023 62%	172 10%	569 93.3%	41 6.7%
Totals for Block Groups which include the Study Area		13,613 100%	3,773 28.0%	8,632 63.0%	1,152 8.0%	4,660 93.6%	316 6.4%

Source: US Census Bureau, 2010. SF1 100% data.

Table 10: Limited English Proficiency by Census Tract
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Geography		Population (5 Years & Older)	LEP Persons*	LEP %	LEP Population Language Distribution			
					Speak Spanish	Speak Other Indo-European Languages	Speak Asian/Pacific Islander	Speak Other
Jefferson	CT 250.01	7,097	561	8.0%	56%	3%	59%	0%
	CT 251.03	3,433	433	11.6%	62%	14%	54%	28%
	CT 251.04	3,752	439	11.7%	46%	57%	33%	30%
Plaquemines	CT 502	8,079	194	2.4%	22%	27%	20%	0%
Totals for Census Tracts which include the Study Area		22,578	1,627	7.2%	55%	10%	32%	3%

*Limited English Proficiency Persons self-identify as speaking English less than "very well". Note, data reported at census tract level. Therefore, the information shown includes the resident population in the study area, as well as adjacent areas of both Jefferson and Plaquemines Parishes. Source: US Census, American Community Survey 2006-2010, Table S1601.

3.4 What community facilities are present?

A review of the study area identified all government facilities, schools, libraries, churches, cemeteries, and recreation centers (*Figure 6 and Table 11*). Of the facilities identified, a privately-owned golf course adjacent to the Belle Chasse Tunnel/Bridge and the LA 23 corridor closed for use during 2017.

Section 4(f) Resources

Section 4(f) of the Department of Transportation Act of 1966 (Pub. L. 89-670, 80 Stat. 931) stipulates that the Federal Highway Administration (FHWA) and other DOT agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife, and waterfowl refuges, or public and private historical sites unless the following conditions apply:

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

A review of databases and responses from the Solicitation of Views (SOV) process indicates no publicly owned parks, recreational areas, wildlife, and waterfowl refuges adjacent to the existing historic Belle Chasse Tunnel, Belle Chasse Bridge and the NOGCRR Bridge. These three transportation structures are the only Section 4(f) properties in the study area.

Section 6(f) Resources

Section 6(f) of the Land and Water Conservation Act requires that the conversion of lands or facilities acquired with Land and Water Conservation Act funds be coordinated with the Department of Interior. Usually replacement in kind is required. A review of the current National Park Service (NPS) Land and Water Conservation Fund (LWCF) database of projects by summary, county and date identified no projects within Plaquemines Parish. Of the projects funded by LWCF funds in Jefferson Parish, one is

located at Oakdale Park[3], which is over 1 mile west of the existing Belle Chasse Tunnel and Belle Chasse Bridge.

Table 11: Community Facilities
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

Map No.	Facility Name	Location	Type	Proximity to Tunnel/Bridge
1	Muslim Academy	460 Realty Drive, Gretna	School	+/- 1.34 miles
2	Anchor of Hope Baptist Church	463 Wall Boulevard, Gretna	Church	+/- 1.32 miles
3	Paul J. Solis Elementary School	2850 Mount Laurel Drive, Gretna	School	+/- 1.15 miles
4	Oakdale Playground and Community Center	650 Wall Boulevard, Gretna	Community Park with Rec. Center	+/- 1.32 miles
5	Oakdale Park and Ride	650 Wall Boulevard, Gretna	Jefferson Transit (JeT) Facility	+/- 1.37 miles
6	West Bank Church of the Nazarene	111 Warren Street, Belle Chasse	Church	+/- 0.52 mile
7	Booties and Bobbie Socks Day Care Center	105 Alpha Street, Belle Chasse	Daycare Center	+/- 0.50 mile
8	Belle Chasse Volunteer Fire Department Station #2	218 Engineers Road, Belle Chasse	Fire Station	+/- 0.30 mile
9	Elevated Water Tank, Parish Water Works	N Cazalard Road at Engineers Road	Water Tank	+/- 0.24 mile
10	Bayou Barriere Golf Club*	7427 LA 23, Belle Chasse	Golf Course with Club House	+/- 800 feet
11	Padua Community Services (Catholic Charities)	200 Beta Street, Belle Chasse	Community Services	+/- 0.32 mile
12	Blackie Buras Park	Epsilon @ Tau St, Belle Chasse	Community Park	+/- 0.55 mile
13	Brighter Horizons Child Care Center	151 Barriere Road, Belle Chasse	Daycare Center	+/- 0.41 mile
14	Potters House Assembly	176 J Street, Belle Chasse	Church	+/- 0.67 mile
15	Little Bumblebee Child Development Center	120 E Street, Belle Chasse	Daycare Center	+/- 1.0 mile
16	Lake Park Chapel	201 Schlief Drive, Belle Chasse	Church	+/- 1.20 miles

(*) - Bayou Barriere Golf Club, located at 7427 LA 23, Belle Chasse closed its clubhouse and golf course on Wednesday, January 4, 2017.

[3] Oakdale Jogging Track, approved September 11, 1991 in the amount of $51,808.13, as per the National Park Service, Land & Water Conservation Fund (LWCF). According to this database, there are no LWCF funded projects in Plaquemines Parish.

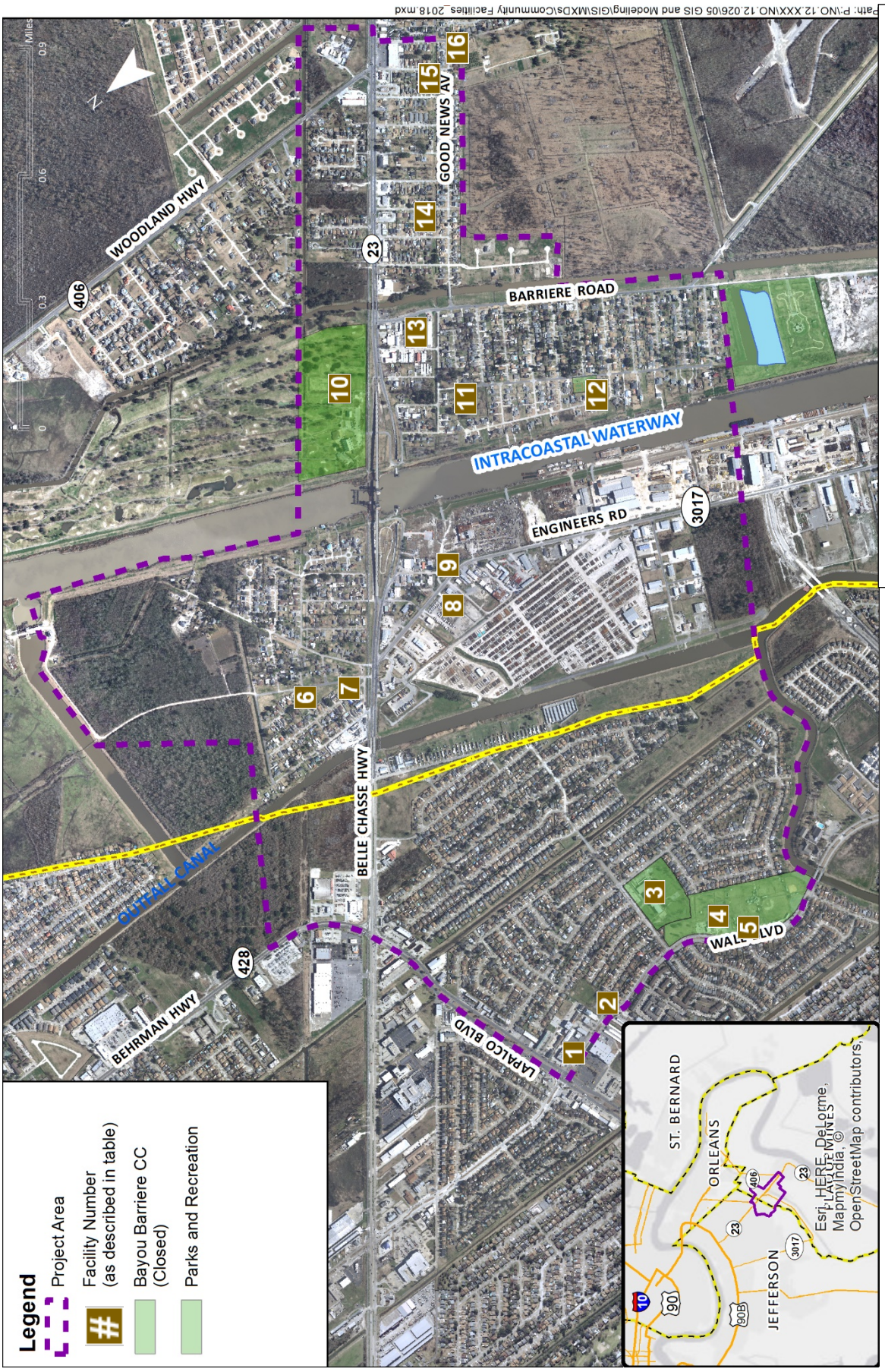


Figure 6: Existing Community Facilities
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

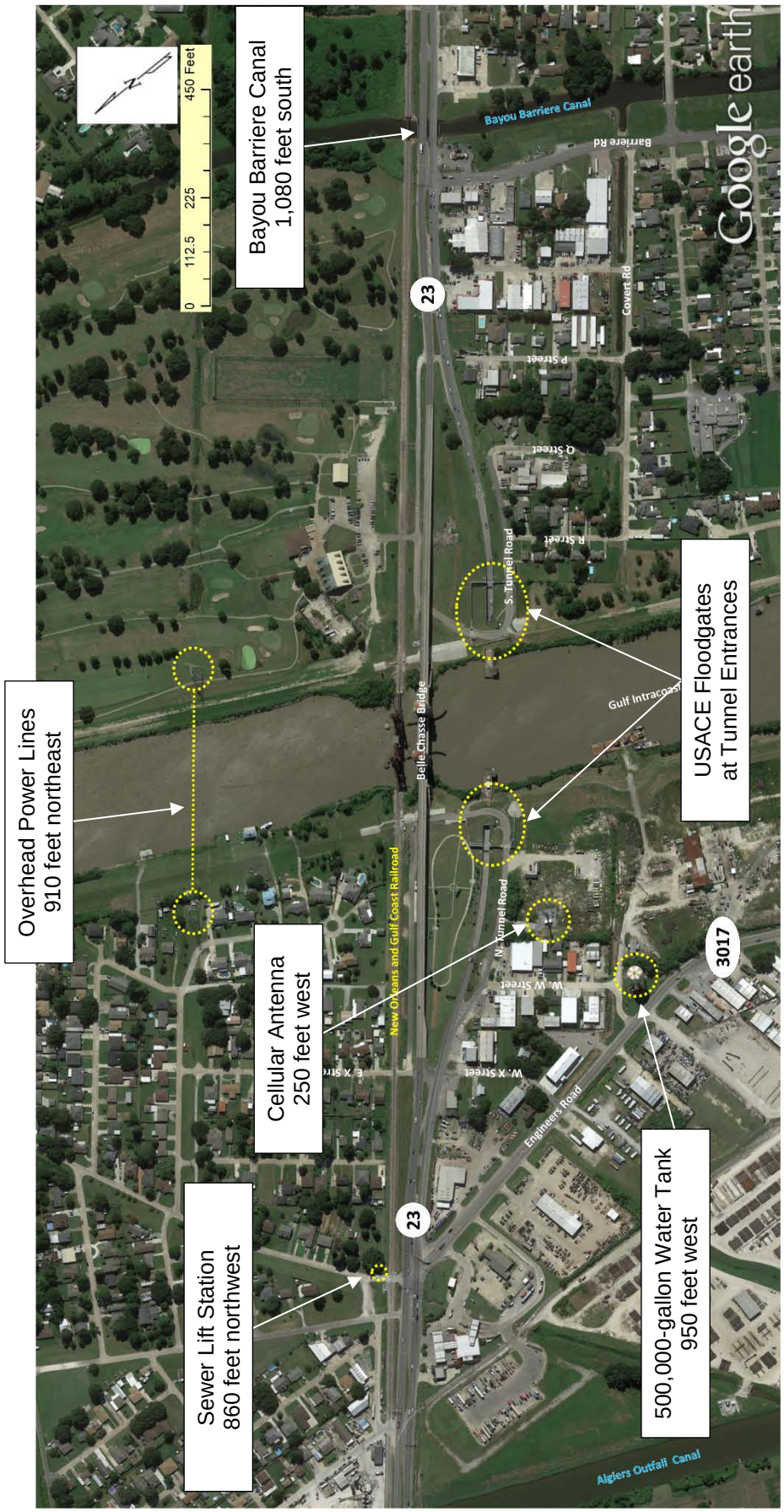


Figure 7: Existing Infrastructure Facilities within ¼ mile of Bridge/Tunnel
LA 23: Belle Chasse Tunnel and Bridge (HBI) Study Area

3.5 What utilities and infrastructure facilities are adjacent to the bridge and tunnel?

A review the study area identified all the following infrastructure elements within 0.25 mile of the Belle Chasse Bridge and Tunnel (*Figure 7*).

- The USCOE HSDRR project, authorized by the US Congress following Hurricane Katrina, resulted in the installation of floodgates at the entrances to the Belle Chasse Tunnel.
- There is a cellular telephone antenna 250 feet west of Belle Chasse Tunnel. This site is accessible from North Tunnel Road.
- There is a sewer lift station for Plaquemines Parish located 860 feet northeast of the Belle Chasse Bridge on the east side of the NOGCRR tracks at the intersection of Planters Canal Road.
- Overhead power lines cross the GIWW at an identified vertical clearance of 120 feet 910 feet northeast of the Belle Chasse Bridge.[4]
- There is a 500,000-gallon elevated freshwater tank 950 feet west of the Belle Chasse Bridge.
- The Bayou Barriere Drainage Canal is located 1,080 feet south of the Belle Chasse Bridge.

3.6 What hazardous materials and other issues are present?

A Phase I Environmental Site Assessment performed in general conformance with the scope and limitations of ASTM Practice E 1527-05 and 40 CFR 312. Given the data available at the time of the review, this assessment identified no sites with an effect on the LA 23 corridor at the Belle Chasse Tunnel and Belle Chasse Bridge (as documented in *Phase I – Environmental Site Assessment, Belle Chasse Highway – Behrman Highway to Woodland Highway,* November 2015*)*.

3.7 What are the navigation interests on the GIWW?

As the GIWW is a navigable waterway of the US, a bridge crossing is subject the jurisdiction of the US Coast Guard (USCG). This would require a bridge permit for this project. In addition, at the time of the Stage 0 Feasibility Study, the USCG identified its Guide Clearances for the bridges across the Algiers Canal specify a minimum of 100 feet of vertical clearance above Mean High Water and 125 feet of horizontal clearance between fenders and piers.[5] The marine vessel traffic study, conducted at the time of the Stage 0, provides a starting point to investigate and identify maritime traffic needs associated with the project.



Belle Chasse Bridge (LA 23) at GIWW, Belle Chasse

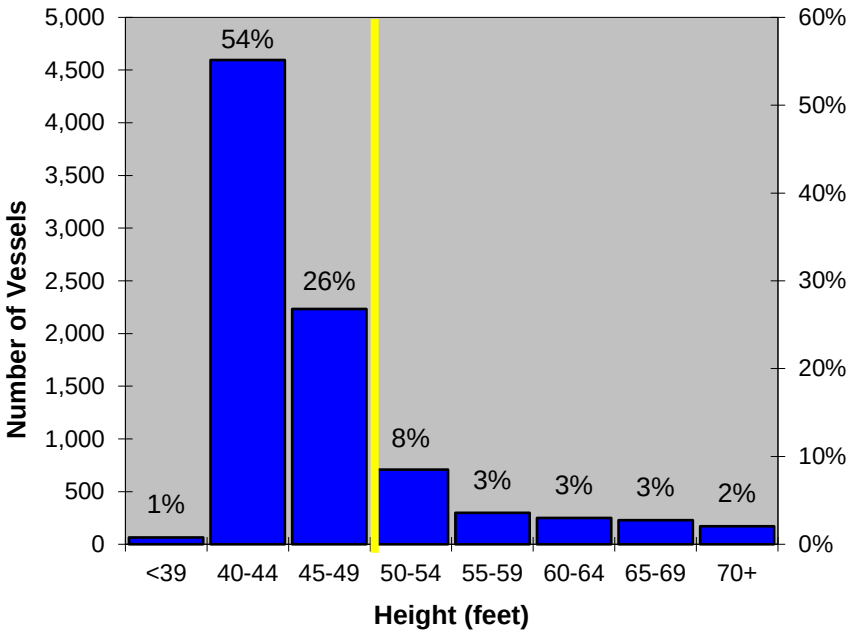
Summary of Stage 0 Marine Vessel Study

The marine vessel traffic study included the analysis of Bridge Tender Reports collected between January 2006 and December 2007, responses to a mail out survey to members of the Gulf Intracoastal Waterway Association (GICA), review of existing studies and regional navigational clearances. Over the two years of data examined, the Judge Bridge opened 7,323 times for 8,549 vessels. The

[4] *Analysis of the Navigation Routes from the Harvey Canal to the Gulf of Mexico*, prepared for the Jefferson Parish Port District, by Burk-Kleinpeter, Inc., February 2001.
[5] Correspondence on project 700-38-0108, from the US Department of Homeland Security, US Coast Guard Commander, Eighth Coast Guard District, December 23, 2008, as signed by David M. Frank, Bridge Administrator.

Bridge averaged ten openings per day at seven minutes per opening. On an annual basis, this is an average of 3,662 openings for 4,275 vessels.

The data compiled on the Bridge Tender Report includes the volume of vessels requiring the bridge to open along with their height. The summary of this information compiled in 2006-2007 (*Figure 8*) shows the average height of the vessels traveling on this portion of the GIWW is 46.2 feet. While these statistics do not account for ships which can pass under the Belle Chasse Bridge without requiring it to open, it does include data for 66 ships less than 39 feet tall or less which requested the bridge open to allow them to pass. The data shows that 81% of vessels had a height of 49 feet or less and 55% of vessels were less than 45 feet.



Data Source: Perez Bridge Tender Reports, 2006, 2007.

Figure 8: Summary of Marine Vessel Traffic at Belle Chasse Bridge by Height (2006-2007)

Marine Vessel Study Update (2013)

The data collected in the Stage 0 study served as a starting point for defining the initial Stage 1 bridge alternatives. Based upon the data collected, a movable bridge with a closed height of 60 feet above the mean high water in the GIWW would allow 92% of the traffic on the canal, as observed at the time of the marine vessel study to pass LA 23 without requiring the bridge to open.

Input received from the community suggested the strongest support existing in the Belle Chasse area to replacing the current movable span and tunnel with a fixed bridge. Having a fixed bridge keeps the span open for vehicular traffic during periods of heightened marine activity. This removes a perceived impediment connecting Belle Chasse and Plaquemines Parish to a nearby hospital and medical services located north of Lapalco Boulevard in Jefferson Parish. This likewise contributes positively to a reduction of travel time for emergency medical personnel northbound on LA 23 across the GIWW between the Parishes when the current Belle Chasse Bridge opens for marine traffic.

At a meeting of the USCG, GICA, RPC, NOGCRR and DOTD in March 2013, a review of navigation needs along the GIWW occurred. This included a review of current bridge operations, maintenance, and construction programs, as well as the existing structures along the GIWW between the Mississippi River and Barataria Bay. The GIWW in this area remains generally protected through a combination of the Harvey Canal Locks near Gretna and Algiers Locks upstream of this bridge. Passage at the single-bay Algiers Lock requires scheduled passage through a lock with a 75-foot horizontal clearance. Likewise, the Harvey Canal Locks, near Gretna has a similar horizontal clearance at the Mississippi River. In addition, bridges built along the along the GIWW have a horizontal clearance of 150 feet,

along with no schedule for replacement. Therefore, the GICA provided favorable comments to maintaining this same horizontal clearance with any bridge crossing the GIWW on LA 23.[6]

Another outcome of this meeting was the identification of a new potential fixed bridge at a vertical clearance of 73 feet. This height, consistent with the Crown Point Bridge over the GIWW at LA 3134 represented a height consistent with other bridges south and west of Belle Chasse through the Houma-Terrebonne stretch of the GIWW. The concept, deemed favorable by the Project Advisory Committee (PAC) to reduce costs along with potential landside impacts associated with a new bridge structure, found favor with the Harvey Canal Industrial Association (HCIA) who provided positive comments to the concept within a letter sent to the project on August 8, 2013.[7]

Evacuation and Emergency Access

During threat of a hurricane, Plaquemines Parish is within the Phase I area for evacuation. As hurricanes approach, the Parish would be evacuated starting 50 hours before the onset of tropical storm winds. This includes areas identified as outside of any levee protection system which are vulnerable to Category 1 and 2 storms.

The West Bank of Jefferson Parish is inside the Phase II area for evacuation. As hurricanes approach, the Parish would be evacuated starting 40 hours before the onset of tropical storm winds for areas south of I-10 which are levee protected areas but remain vulnerable.

During an evacuation, there are no route restrictions. LA 23, as the only state highway which traverses the length of the Parish's West Bank, is the route of choice for evacuating large scale population groups north, toward the West Bank Expressway corridor, and thence to I-10. Options exist for using US 90 west, but these would depend on factors such as storm track, projected storm surge and need to maintain passage through the area for police, fire, emergency medical services and other first responders.

According to the DOTD,[8] whenever a mandatory evacuation of any area is ordered, it would close all affected bridges to marine traffic until the evacuation is completed. This would include the Belle Chasse Bridge on LA 23. For this reason, it is imperative that all marine vessel owners move their vessels inland as soon as possible prior to the approach of a hurricane.

An analysis of available Belle Chasse Bridge tender records from DOTD identified the pattern of bridge opening timing, duration, and volumes taking place before, during, and after tropical storm/hurricane events. This analysis focused on five tropical storm/hurricane events, making landfall, or having tracks over Southern Louisiana (Cameron to Plaquemines Parishes) between 2007 and 2013, as identified following a search of Atlantic hurricane activity in the archives of the National Oceanic and Atmospheric Administration (NOAA): Hurricanes Humberto, Gustav, Ike, Isaac, and Tropical Storm Karen (remnant).[9]

Trends identified within the bridge tender reports (*as illustrated in Figure 9)* show a higher frequency of bridge openings occurring in the days leading up to a storm event/landfall and the few days after the storm passes. The period during which marine traffic increases also coincides with implementation of

[6] Letter from the Gulf Intracoastal Canal Association (GICA) Executive Director Jim Stark to Jason Sappington, Regional Planning Commission, dated March 25, 2013.
[7] Letter from Harvey Canal Industrial Association (HCIA) President Laurie Soileau, to Paul Waidhas, Burk-Kleinpeter, Inc, August 8, 2013.
[8] As obtained from the DOTD website, http://www.dotd.la.gov/
[9] Belle Chasse Bridge tender reports for Hurricanes Katrina and Rita unavailable from DOTD for this review. NOAA data identified three additional storms for which bridge tender data was not available. These events and their dates of investigation are: Tropical Storm Ida (11/8-11/12, 2009), Tropical Storm Bonnie (7/22-7/26/2010) and Remnant Storm Lee (9/2-9/5/2011).

the Parish's Emergency Operations Plan which identifies a specific window for evacuation of population and industrial centers in association with the approach of storm events.[10]

In addition, the departure of marine assets from a safer harbor following a storm creates a need for higher numbers of openings during the post storm recovery period clearly seen in the "U-shape" of the lines (*Figure 9*) reflects that movement. Data catalogued from DOTD bridge tender reports for the days leading up to and following a storm period[11] identified the time and duration of bridge openings which impacted flow of traffic between Plaquemines and Jefferson Parishes. These openings, once aggregated by time of day, allowed for a better understanding of the distribution of opening activity by peak and non-peak periods for traffic. Data within the bridge tender reports only capture only that marine traffic with vessel heights requiring a raising of the Belle Chasse Bridge (+/- 40 feet and higher). Therefore, the data does not capture instances when vessels with shorter heights, which do not require the bridge to open, pass this location.

As observed, the pattern of Belle Chasse Bridge openings around storm events seem largely consistent. In the days leading up to the storm, marine traffic activity seems normal to elevated, followed by a scarcity of marine traffic during storm events. After landfall or storm pass, marine traffic returns to the GIWW causing normal to elevated numbers of bridge openings. In general, periods of higher than normal marine traffic coincide with periods of vehicle traffic congestion related to evacuation egress and the eventual ingress.

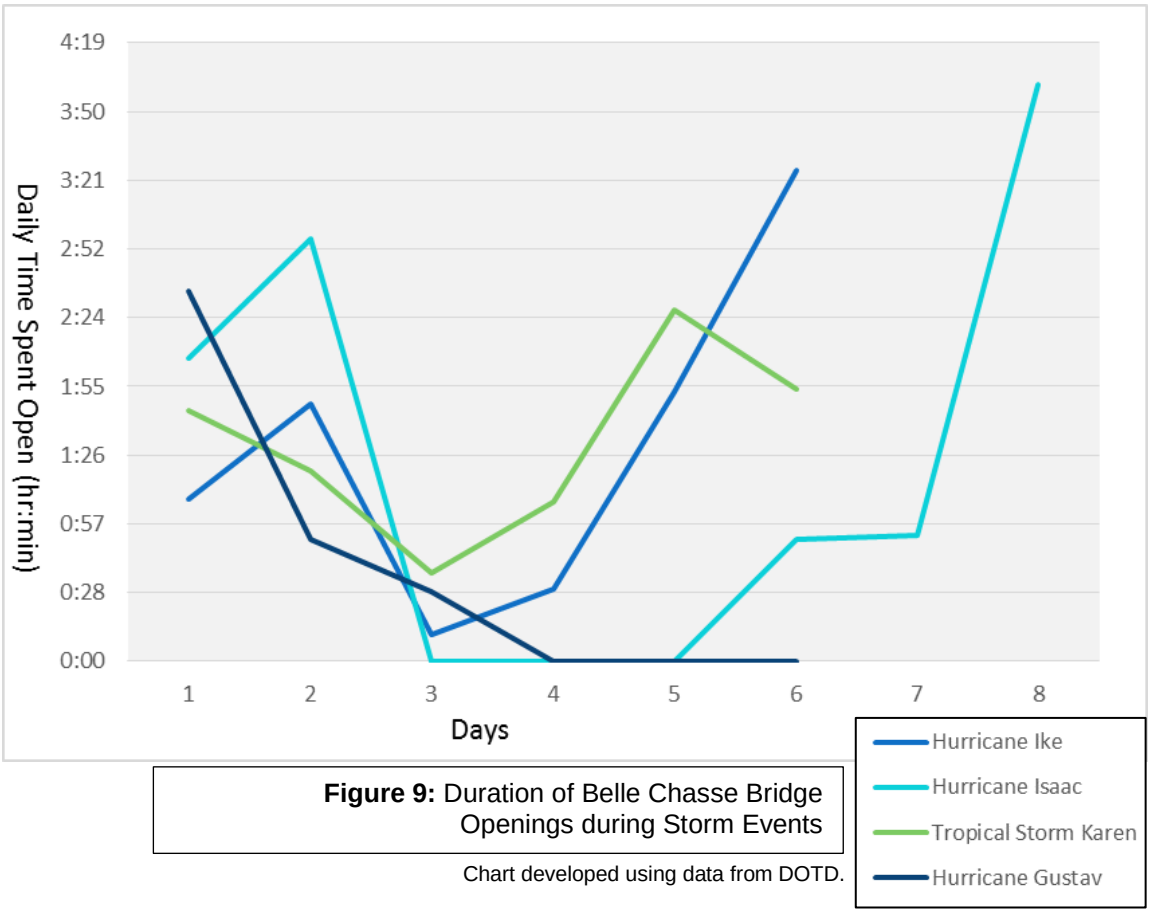


Figure 9: Duration of Belle Chasse Bridge Openings during Storm Events

Chart developed using data from DOTD.

[10] Available at http://plaqueminesparish.com/homeland-security-emergency-preparedness/.
[11] Storm landfall and duration data obtained from the National Oceanic and Atmospheric Administration website [http://www.nhc.noaa.gov/data/].

This overlap in congestion (between vehicles and increased marine traffic) relates to the demands from both industrial/ commercial entities and members of the public to commence with storm recovery. Given the need to open the existing vertical lift span over the GIWW to accommodate some portion of the marine traffic in the area, there is no ability to maintain the bridge for vehicles only (i.e. no marine openings) during the post-storm period.

3.8 What wetlands and other waters are present?

The area where this project would occur is heavily urbanized. However, a review of elements of the natural environment in the study area as documented in the wetland delineation completed for the *Preliminary Jurisdictional Determination Report for Replace Belle Chasse Tunnel and Bridge,* March 2016 (*Appendix F*) identified the following:

- A routine delineation within a field investigation area corresponding to the maximum footprint of construction of the build alternatives was completed with on-site evaluations along the LA 23 corridor between the Algiers Outfall Canal and Bayou Barriere, including the GIWW. It identified 699 linear feet (4.53 acres) of potentially jurisdictional waters and approximately 0.42 acre of potential jurisdictional wetlands.
- The GIWW is the main surface water feature within the immediate study area. The USACE operates and maintains the GIWW in the study area and operates the lock in Algiers at the Mississippi River.
- Two other surface water features occur in the study area: the Algiers Outfall Canal (0.5-mile north of the GIWW), a perennial drainage way that is part of the area's flood control system and Bayou Barriere (0.44-mile south of the GIWW), another perennial drainage way used to convey storm water.
- 2018 Flood Insurance Rate Maps (FIRM) issued through the Federal Emergency Management Agency (FEMA) for Jefferson Parish indicate the LA 23 corridor is within Zone X. Updated FIRM Maps for Plaquemines Parish were not available from FEMA (maps.riskmaps6.com). The effective flood insurance map for Plaquemines Parish identifies the LA 23 corridor as in a high flood risk area (AE Zone) north of the GIWW and an area of lower flood risk (Zone X) south of the GIWW.
- Vegetation communities within the study area identified during the field survey resulted in classification of the area into two general vegetation communities: Urban Landscape (describing plant communities occurring in developed areas which fall under regular maintenance) and Emergent Wetland (describing plant communities dominated by hydrophytic grasses, other herbaceous vegetation, and occasional woody species associated with the unmaintained fringe areas along both shorelines of the GIWW).
- There are young cypress trees planted near the GIWW, but at the time of survey, they did not fit the criteria in the DOTD policy definition of significant trees. In addition, scattered live oaks occur within the proposed project limits. A small number of these trees may approximate 18" diameter at breast height; however, none have a form that separates it from surrounding vegetation, are known to be historic, or have special community significance.
- The entire study area is located within the Louisiana Coastal Zone.

3.9 What Protected, Threatened and Endangered Species are present?

The area where this project would occur is heavily urbanized. However, review of the area for evidence or presence of protected, threatened, and endangered species has been documented in a *Natural Resources Assessment*, completed in May 2016 by HNTB. It found no evidence to support the presence of a protected, threatened, and endangered species in the study area.

The Endangered Species Act of 1973 [16 U.S.C. 1531 et. seq.], as amended, provides a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All federal agencies or projects utilizing federal funding are required to implement protection programs for designated species and to use their

authorities to further the purposes of the Act. This section includes a list of federally protected species of potential occurrence in Jefferson and Plaquemines Parish (*Table 12*).

The Louisiana Natural Heritage Program's Rare Species List for Jefferson and Plaquemines Parish was consulted to identify potential occurrences of any state threatened and endangered species potentially occurring in the study area that are not included in the federal listings.

Only the bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*) are unique to the state list. The bald eagle nests primarily in the tops of coniferous trees near open water and may winter throughout the state. No eagle nesting habitat exists within the project limits, but individuals may occasionally hunt in area waterways. The only reported nesting record of the peregrine falcon within Louisiana was in 1942. The species may winter or be observed during migration in the coastal region, including the study area, although wintering would be unlikely due to the absence of habitat resulting from urban development.

Table 12: Federally Protected Species of Potential Occurrence in Jefferson and Plaquemines Parish

Common Name	Scientific Name	Federal Status	Habitat
Brown pelican	*Pelecanus occidentalis*	Recovery	Coastal beach areas and waterways
Piping plover	*Charadrius melodus*	Threatened	Coastal sand and gravel beaches
Red knot	*Calidris canutus rufa*	Threatened	Coastal mudflats and tidal zones
Sprague's pipit	*Anthus spragueii*	Candidate	Plains, pastures, shortgrass prairies
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	Threatened	Anadromous, full migrant
Pallid sturgeon	*Scaphirhynchus albus*	Endangered	Bottom dweller in large, silty rivers
West Indian manatee	*Trichechus manatus*	Endangered	Shallow coastal waters, rivers, bays, and lakes
Louisiana black bear	*Ursus americanus luteolus*	Threatened	Bottomland hardwoods, marsh, upland forests
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	Oceanic, lagoons, mangroves, coral reefs
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Oceanic
Kemp's Ridley sea turtle	*Lepidochelys kempii*	Endangered	Variable, zonal, oceanic
Green sea turtle	*Chelonia mydas*	Threatened	Oceanic, bays, lagoons and shoals, seagrass beds
Loggerhead sea turtle	*Caretta caretta*	Threatened	Oceanic, beaches, nearshore coastal

Some short-term affects to the wildlife which do inhabit the area, would be expected as right-of-way would be cleared, and construction starts. However, wildlife would be expected to return to the area once construction ends and the area is re-vegetated. Impacts to wildlife resulting from sediment disposition or increased turbidity would be minimized to the extent practical by the proper use of Best Management Practices (BMP).

The Migratory Bird Treaty Act (MBTA) protects nesting birds in their summer reproductive and foraging habitat. Due to past landscape alterations that removed most trees and native groundcover, very little vegetative cover other than maintained grasses and trees discussed previously remain within the LA

23 corridor and areas adjacent to the Belle Chasse Bridge and Tunnel. It would not be anticipated that migratory birds would be impacted as the result of construction of the project due to the lack of remaining reproductive and foraging habitat.

In its comments about the project for the Endangered Species Act Project Review, the US Fish and Wildlife Services Louisiana Ecological Services Office concluded that the proposed action is not likely to adversely impact the West Indian Manatee (*Trichechus manatus)*.[12] However, the proposed action falls within the manatee consultation zone and involves in-water activities in depths of at-least 2 feet, during the months of June through November. Manatees receive protection under the Marine Mammal Protection Act of 1972, as well as the Endangered Species Act of 1973. Following Standard Manatee Conditions for in-water activities would be included in the project design. During in-water work in areas that potentially support manatees, all personnel associated with project would be instructed about the potential presence of manatees, manatee speed zones and need to avoid collisions with and injury to manatees.

3.10 What cultural and historic resources are present?

The cultural resources survey (CRS) (*Phase I Cultural Resources Survey for the Belle Chasse Tunnel and Bridge Replacement, Jefferson and Plaquemines Parishes*, January 2016) included results from review of previous study and consultation. The CRS shovel test of the entire area of potential effects (APE) recorded no archeological sites. In addition, there are no cemeteries or relic cemeteries identified in the study area. The survey of standing structures identified three as eligible for the NRHP consideration: the NOGCRR Bridge, the Belle Chasse Bridge and Belle Chasse Tunnel. Of these, the NOGCRR Bridge is not impacted by the proposed build alternatives. The remaining two structures are within the direct APE; the project would adversely affect both structures. Information on the history of each structure follows.



History of Belle Chasse Tunnel[13]

Belle Chasse Tunnel, touted as the first fully automatic underwater vehicular tunnel in the world, was the first underwater traffic tunnel built in Louisiana. Palmer and Baker designed the Belle Chasse Tunnel. Their other works included Bankhead Tunnel in Mobile and the Washburn Tunnel in the Houston suburbs, added to the NRHP in 2008. Belle Chasse Tunnel was highly advanced technologically and was equipped with automated ventilation and drainage equipment, graduated lighting to ease transition from light to dark, and power generators backed by batteries to prevent complete loss of power. These technological innovations eliminated the need for on-site operating personnel. In addition, the construction of the tunnel employed innovative engineering techniques to prevent groundwater intrusion. Despite some cracking and chronic leakage problems, the tunnel has continued to function for over 58 years as a vital artery, at first providing vehicular access to and from lower Plaquemines Parish and presently serving southbound traffic. Belle Chasse Tunnel is eligible for the NRHP under Criterion A and C.

[12] Endangered Species Act (ESA) Project Review and Guidance for Other Federal Trust Resources Report, May 10, 2018.
[13] Section from History of Belle Chasse Tunnel, prepared by Earth Search, Inc. Danya B. Lee, PhD., February 11, 2014.



History of Belle Chasse Bridge[14]

The Belle Chasse Bridge over the GIWW carries the northwest-bound lane of traffic one-way on LA 23. The construction of the bridge, designed by architect and engineers Waldemar S. Nelson and Co., began in 1967. It was part of a larger state plan that included increasing the width of LA 23 from two lanes to four lanes for ten miles. The bridge, projected to alleviate the congested traffic of the Belle Chasse Tunnel, came during a period of immense growth for Louisiana.

The Belle Chasse Bridge was previously determined to be eligible for nomination to the NRHP under Criterion C by FHWA and concurred by the SHPO. The bridge, which appears to be a standard state plan, is significant as a movable bridge and as a variation of the vertical lift type, which raises the center span, allowing for the passage of ships underneath prior to returning to its lowered position. The bridge is a tower drive type of vertical lift, meaning the machinery is at the top of each tower with its historic significance established by the presence of the two separate motor and drive mechanisms at the top of each tower (Mead and Hunt 2015). The bridge demonstrates qualities of NRHP eligibility under Criterion C. It maintains all seven aspects of integrity with only a minor loss of integrity of materials (NPS 1995). The bridge's structure, machinery, and operator's house embody the distinctive characteristics of a type and method of construction. They embody a state standard plan and were part of a larger state project. The architectural style apparent in the operator's house is the only ornamentation but is important as bridges in Louisiana rarely contain any decorative features. This, along with the state's pelican seal, adds a subtle sense of place to the overall design of the bridge.

4.0: Public Comments and Agency Coordination

Involvement of the local agencies and the community in a constructive dialogue identified their concerns and issues relative to the project. Input received, including that offered during the Stage 0 Feasibility Study, led to identification of an implementation alternative which meets both the NEPA requirements and those of the community in which it operates.

Details for the summary which follows remains contained in the project's public meeting records. These separate reports present a stand-alone account of the chronology of events and activities, including summary of comments received, along with copies of advertisements, notification emails and letters, newspaper articles or other items about the project's EA. Copies of all individual comment forms received from the public are part of the project meeting summaries housed at the offices of the RPC, DOTD and the State Library.

Materials on the project remain available for public viewing on the project website between meetings and updates (www.bellechassestudy.org). This allows individuals an opportunity to review the documents presented at the organized public events, as well as on their time using the electronic items. Submittal of general project comments through both direct mail and email opportunities extended throughout the project. A 10-day comment period followed all public meetings as per the guidance established in the DOTD Stage 1 Manual of Planning/Environmental Practice adopted June 30, 2006, with amendments and updates.

[14] Developed from Phase I Cultural Resources Survey compiled by Earth Search, Inc., August 2018.

4.1 Which agencies (Federal, State and Local) provided initial comments?

Agencies participating in the project's SOV offered comments which became part of the project development and evaluation process and appear in *Appendix A*.

4.2 What was the role of the New Orleans Regional Planning Commission?

The RPC is the primary local sponsor of this project. The RPC helped to establish a PAC which included representatives of local government (Jefferson and Plaquemines), the business community, DOTD, the USCG, NOCGRR and others to provide input on the evaluation of alternatives. The PAC met a total six (6) times over the course of the project. The RPC Transportation Policy Committee (TPC) received regular briefings on the project including a review of analysis results shared with the community and review of upcoming events. Records of the meetings of this group, including summary information from each meeting are in the project files maintained by the RPC.

The RPC also acted in its role as liaison of the region to convene a technical meeting to discuss maritime issues on March 14, 2013. Recommendations from this meeting, combined with feedback from the industrial community along the GIWW and Harvey Canal, helped to refine project alternatives in addition to leading to the identification of the preferred alternative 4A.

4.3 How was the public engaged during the project?

Three public meetings hosted during the preparation of this EA allowed the community to review the outcomes of the initial review of environmental resources, and the evaluation of project alternatives:







Public Meeting Photos

- *Public Information Meeting #1* – February 26, 2013 in the Belle Chasse Auditorium, attracted 159 individuals, 5 elected officials (and staff), 11 agency representatives and 4 members of the press.
- *Public Information Meeting #2* – June 7, 2016 in the Belle Chasse Auditorium, attracted total of 63 individuals, 9 elected officials (and staff), 15 agency representatives and 4 members of the press signed in for the meeting.

- *Public Information Meeting #3* – July 10, 2018 in the Belle Chasse Auditorium, attracted total of 239 individuals, 10 elected officials (and staff), 17 agency representatives and 1 members of the press signed in for the meeting.
- *Public Hearing* – November 28, 2018 in the Belle Chasse Auditorium, attracted total of 80 individuals, 7 elected officials (and staff), 29 agency representatives and 1 member of the press signed in for the meeting.

Public notice for all meetings appeared twice in *The Plaquemines Gazette* and *The New Orleans Advocate*. Press releases were issued to local print and electronic media in advance of the meeting. Post cards were mailed to all who signed up for project information during meetings or at the project website. Post card notification also went to local officials, agency representatives and others who expressed interest in being included on the distribution list.

All meetings were of a community open house format. The Public Hearing consisted of an open house for one hour, followed by a formal presentation and then a public comment period. Participants signed-in and then were self-directed through exhibits including a narrated informational presentation on a defined loop, project boards with a description of initial findings and alternatives under review. Project staff were present with the information boards and were able to respond directly to questions from the public. The public also had the opportunity to submit comments and questions in writing for up to 10 days following each meeting and the Public Hearing.

A summary of materials, record of comments received and responses for all meetings has been documented with individual public meeting summary reports. Documentation of the public hearing has also been prepared including a summary of attendance, exhibits, transcript and comments. These have been distributed to the Louisiana State Library in Baton Rouge, local libraries within the study area, in the offices of DOTD District 02, the RPC and on the project website.



Example of information display at community open house meeting 06/07/16

A website and email address were established to provide information as well as a location for community members to sign-up for more information. The website (*www.bellechassestudy.org)* started December 18, 2012 and remained available for public viewing and interaction throughout the project. The website included an email link for the public to use in providing comments, as well as to sign up for notices about upcoming meetings or events. This email address, LA23TunnelBridge@bkiusa.com, connected the public to project staff.

5.0: Comparison and Selection of Alternatives

5.1 How were the alternatives compared to one another?

The project utilized a two-phase screening of alignment alternatives. This process, also documented in *Section 2.0,* compared alternatives based upon their ability to meet the purpose and need and minimize potential impacts to the study area. Six of the options for the fixed-bridge alternative were able to meet the project purpose and need and passed forward for further consideration (*Table 13*). Other alternatives and options which did not meet the purpose and need were dropped from further consideration and development (*Section 2.0*).

Table 13: Initial Alternatives Considered
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Alternative	Option		Does the option meet the purpose and need?
Fixed-Span	1	100 ft. 4-lane with 5% grade	YES
	4A	73 ft. 4-lane with 5% grade	YES
	6A	73 ft. 6-lane with 3% grade	YES
	6B	73 ft. 6-lane with 4% grade	YES
	6C	73 ft. 6-lane with 5% grade	YES
	6D	73 ft. 6-lane with optimized grade	YES

In the evaluation of remaining alternatives, input from the community (through public comments received during and after community open house meetings) the project's advisory committee identified several key points to consider within the evaluation of alternatives and identification of the build alternative:

- Commentary from the PAC and public (during and after the initial public information meeting on February 26, 2013) indicated that community support was strongest for the fixed-bridge alternative, as opposed to the moveable bridge options (vertical lift or bascule). This support came with comments generally siting the public's opinion that a fixed-bridge option would be more reliable and able to maintain network continuity as opposed to the moveable bridge options. However, support was not evident within all sectors of the community for the fixed-bridge alternative due to potential impacts created by potential displacements and interruption to the transportation network and access (please see the *Appendix*).

- Input from public and subsequent discussion by local interests along the GIWW as part of the marine study update provided in Section 3.0 led to the identification of the 73-foot, fixed bridge alternative to the 100-foot bridge shown initially to the public at the February 2013 community meeting. This alternative could provide similar transportation network continuity benefits to the 100-foot alternative, while also meeting the needs for most maritime activities in the GIWW, as documented in the marine study update completed in 2013 (*Section 3.0*).

- Vetting of the 73-foot fixed-bridge alternative (Option 4A) occurred between May and July 2013, with subsequent vetting occurring with the local maritime community as part of an ongoing series of briefings facilitated by the RPC with local navigation interests on the GIWW including the USCG and GICA (March 14, 2013), the PAC (May 17, 2013) and HCIA (July 18, 2013). Study of impacts to traffic, local environmental elements, hazardous materials, cultural resources including historic structures, considered a common footprint for the project which would accommodate the range of fixed-span alternatives including: Options 1, 4A, 4B, 6A, 6B, 6C, and 6D.

- PAC support for the 73-foot fixed-bridge 4-lane, 5% grade alternative (Option 4A) came during their meeting on April 9, 2016, based upon the review of the outcome of the analysis of potential impacts and benefits to traffic.

- Public commentary received during and after the second public information meeting (June 7, 2016) indicated community support for Option 4A, the 73-foot fixed-bridge 4-lane, 5% grade alternative, as opposed to one of the other build options (Options 6A, 6B, 6C and any potential historic preservation alternatives).

5.2 Which alternative(s) did not fare well in the initial comparison and were dropped from further review?

As noted in Section 2.0, the results of the initial comparison determined nine (9) of the options within three alternatives (movable bridge, preservation alternative and do-nothing/no-build) did not meet the project purpose and need. Maintaining connectivity and continuity of the transportation network is part of the purpose and need and is important on LA 23 and the GIWW. This allows vehicular traffic to pass through the area, without interruption and without delay to marine traffic.

5.3 Which alternative(s) were recommended for further review and consideration?

A total of 5 options of the fixed-bridge alternative were considered for further review (*Table 14*). Although Option 1 shown in Table 13 did meet the project purpose and need, the same relative benefits could be gained with Option 4A, with fewer potential costs and potential displacements. Of the alternatives/options considered, Options 6A through 6D would improve vehicular traffic and maritime operations and hurricane evacuation needs on LA 23. However, these benefits come with a greater potential impact to the community through a combination of potentially severe and disruptive displacements to the established community, as well as impacts to local streets and driveways.

5.4 How would the alternative(s) effect the study area?

As shown in *Table 14*, all options have the potential to impact the community by creating potential displacements. As Options 6A, 6B, 6C, and 6D widen the LA 23 corridor to the southwest, these options create potentially more direct impacts to adjacent properties than option 4A. Option 4A does create direct impacts to adjacent properties, but these are limited to areas which include the realignment of LA 3017 and properties whose direct access to LA 23 is interrupted because of length of the approaches to the option's bridge section.

Cost estimates shared with the public in 2016 as part of the second round of community information meetings identified potential costs for the fixed bridge alternatives between $121.9 to $240.1 million (subject to further refinement). Costs generally increase between the options due to change in construction footprint and potential direct impacts to adjacent properties. Of the options, 6A would have the longest and potentially most impactful footprint of construction due to the relatively low slope of the fixed-bridge; while Option 4A would be have the shortest and potentially least impactful footprint of construction given its slope (which meets DOTD Design Guidelines) and adherence to the current 4-lane cross section on LA 23.

All the options identified have an impact on the existing historic Belle Chasse Bridge and Tunnel. Discussion of the impacts and mitigation associated with the build alternative on these structures has been documented as part of the Section 4(f) evaluation and are summarized in the next section (*Section 4(f) Evaluation, 23 CFR Part 774: Parks, Recreation Areas, Wildlife & Waterfowl Refuges & Historic Sites for Belle Chasse Tunnel, LA 23, Jefferson and Plaquemines Parishes, Louisiana*, August 21, 2018 and *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges, Belle Chasse Bridge and Approaches, LA 23, Plaquemines Parish, Louisiana, State Project No. H.004791, Federal Project No. H004791*).

Given the outcome of this alternatives review, Option 4A would provide benefits to vehicular traffic and maritime operations and hurricane evaluation needs. This option would provide these benefits while creating fewer potential displacements and road closures thus making it both feasible and prudent.

Table 14: Evaluation of Alternatives Recommended for Further Review
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Alternative	Fixed Span				
Option	**4A)** 73 ft. 4-lane with 5% grade	**6A**) 73 ft. 6-lane with 3% grade	**6B)** 73 ft. 6-lane with 4% grade	**6C)** 73 ft. 6-lane with 5% grade	**6D)** 73 ft. 6-lane with optimized grade
Meet Purpose and Need?	YES	YES	YES	YES	YES
Total Potential Displacements (est)	11	88	66	60	65
Initial Construction Cost Estimate (2016)	$121.9 million	$240.1 million	$206.2 million	$170.0 million	$170.0 million
Additional Waterway Crossings	0	5	4	1	3
Environmental Justice Communities	None	None	None	None	None
Use of Section 4(f) Properties	YES	YES	YES	YES	YES
Impact to Protected Species Habitat	None	None	None	None	None
Impact to Parks and Recreation Areas	None	None	None	None	None
Impact to Other Historic Properties	None	None	None	None	None
Impact to Wetlands and Waters of the US	0.42 acre of potential Wetlands 3.78 acres of potential Waters of the US	0.42 acre of potential Wetlands and 4.53 acres (699 linear feet) of potential Waters of the US			
Benefits to Maritime Operations on GIWW	Eliminates curfew on GIWW and time lost to maritime traffic				
Benefits to Traffic Operations on LA 23	Improved Network Continuity				

5.5 Does one alternative have fewer potential impacts than the others?

Of the Build Alternatives, Option 4A meets the purpose and need, provides benefits to vehicular traffic and maritime operations and hurricane evacuation needs. It also establishes continuity in the LA 23 corridor by eliminating the constraints for traffic operations found in the couplet of the Belle Chasse Tunnel and Bridge. In addition, it meets with DOTD Design Guidelines and has fewer potential community impacts.

RPC identified of Option 4A as their preferred alternative in correspondence to DOTD on August 11, 2017. DOTD identified Option 4A as well as their preferred alternative in correspondence to FHWA Louisiana on February 19, 2018. Copies of these letters are in the Appendix.

5.6 Which alternative is the Selected Alternative?

Option 4A is the selected alternative based upon the outcome of the alternatives analysis, as summarized in the discussion of the alternatives analysis shown in Section 5.5 and Table 14. Option 4A has the fewest community impacts (defined in terms of the number of potential displacements, the lowest estimated cost of construction, the least impact to wetlands and other waters of the US. The project does require the use of Section 4(f) properties (the Belle Chasse Tunnel and Belle Chasse Bridge), but this impact would be common to all build alternatives at this location.

6.0 Selected Alternative

6.1 What is the detailed description of the Selected Alternative?

The Selected Alternative, Option 4A, is a fixed four-lane bridge with a 73-feet of vertical clearance above mean high tide and 150-feet of clearance between the fender faces. The LA 23 bridge approaches would have 5% grades. It would replace the existing couplet, eliminate bridge interruptions, and tunnel maintenance closures. The Selected Alternative begins at the east end of the Barataria Outfall Canal Bridge and ends just before the Barriere Road intersection (*Figure 10*). The Selected Alternative would be built within the apparent right-of-way of LA 23, with the bridge section on a new alignment approximately midway between the existing Belle Chasse Bridge and Tunnel. Construction of the approaches to the Selected Alternative would require the eventual closure of the approaches to the current Belle Chasse Bridge and Tunnel as well as relocation of the LA 3017 approach to the current at-grade intersection. Traffic and access through the area would be maintained during any construction (*see the discussion with Table 17*).

The main components of the Selected Alternative are:

- New fixed high-level bridge providing four 12-foot travel lanes, 4-foot inside and 8-foot outside shoulders, bicycle, and pedestrian accommodations and 5% approach grades.
- Marine vessel traffic would be accommodated via 73-feet of vertical and 150-feet of horizontal clearances between fender faces.
- Realignment of and improvements to the LA 3017 and LA 23 intersection (including Burmaster St) to allow multiple intersections to function as one.
- Extension of Railroad St.
- Closure of the railroad crossings at Mildred St. and Planters Canal Rd.
- Connector streets under the new bridge at Q St. and X St.
- Demolition of the existing Belle Chasse Bridge.
- Decommissioning of the existing Belle Chasse Tunnel to render it unable for reuse in the future.

LA 23 is classified as an Urban Arterial with a design speed of 50 miles per hour and a posted speed of 45 miles per hour. The proposed roadway is a continuation of the four-lane divided highway onto the new bridge structure over the GIWW. The DOTD *Minimum Design Guidelines* dated March 6, 2017 were followed for developing the Line and Grade for the proposed improvements. The *LA 23: Belle Chasse Bridge & Tunnel (HBI) Line and Grade Study*[15] contains the full Design Report.

A marine vessel traffic study was conducted as part of the project (*Section 3.0*). After discussions with associations representing the maritime and fabrication industries using the GIWW, as well as the USCG, it was determined that a clearance of 73-feet of vertical and 150-feet of horizontal clearances between fender faces would meet current and future vessel traffic needs on the GIWW (*Section 4.0*). The profile of the bridge was set to maintain 73-feet of vertical clearance with potential future widening to six-lanes in the future (if the NOGC tracks are relocated away from the LA 23 corridor).

[15] *LA 23: Belle Chasse Bridge & Tunnel (HBI) Line and Grade Study*. August 17, 2018.

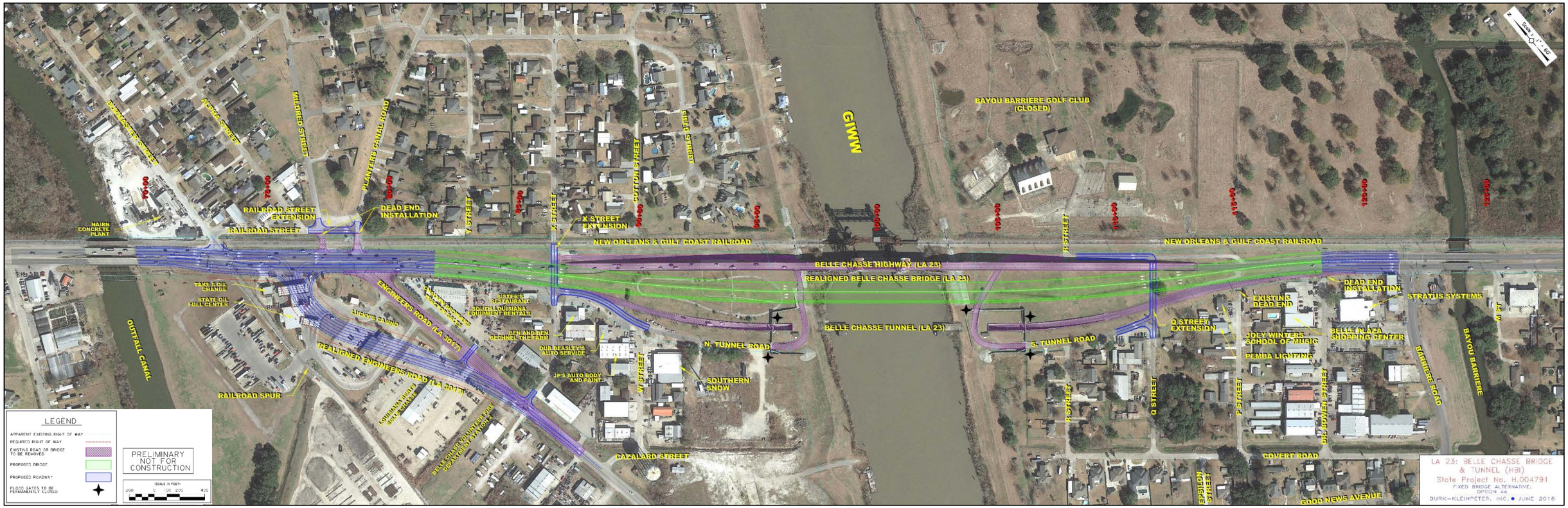


Figure 10: Selected Alternative
LA 23: Belle Chasse Tunnel and Bridge (HBI)

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The total estimated project cost of Selected Alternative is $149,751,219 (*Table 15*). This estimated cost includes the roadway and bridge construction, right-of-way and relocations, utility relocation, and professional fees. This also includes a 10% contingency. Costs can be expected to change as more details are developed. The cost estimate is considered accurate to the level of detail of the study performed to date (*August 2018*). Unit cost information from DOTD has been used to develop this estimate. Additional background information and more detailed cost estimates of the categories can be found in the Line and Grade Study.

Table 15: Cost Estimate for Selected Alternative
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Cost Category	Estimated Cost
Construction *(Existing bridge demolition and tunnel decommissioning, mobilization, bridge, and approaches construction)*	$ 111,509,171
Right-of-Way and Relocation *(Commercial displacements and relocations)*	$ 7,615,000
Utility Relocation	$ 5,897,000
Professional Services *(Permitting, survey, geotechnical, engineering design, testing, inspection, and construction administration)*	$ 11,116,300
Subtotal	$ 136,137,471
10% Contingency	$ 13,613,747
Total Estimated Project Cost	$ 149,751,219

6.2 What estimated displacements would occur with the Selected Alternative?

Although the Selected Alternative would be constructed within the footprint of the LA 23 corridor, it would potentially displace seven commercial structures. At the time of survey, these buildings included 5 occupied and two vacant commercial buildings.[16] Five of these buildings have frontage along LA 23 and two have frontage along LA 3017. All these structures are classified as commercial land uses and the occupied buildings host a total of 9 businesses. No residential structures would be displaced because of the Selected Alternative (*Table 16*).

Table 16: Potential Displacements and Additional Required Right-of-Way
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Location	Description
North of the GIWW (Along LA 23 and LA 3017)	6 commercial structures *(2 vacant structures, + 4 occupied structures)*
South of the GIWW (Along LA 23)	1 multiple-tenant commercial strip center *(8 spaces, 6 of which are occupied by financial, retail, and professional tenants)*
Total of Additional Acreage Required	2.14 acres

[16] Occupancy/Vacancy as determined through field review completed in March 2018.

Table 16: Potential Displacements and Additional Required Right-of-Way
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Address	Description
7104 LA Hwy 23	1 Occupied Structure, single business
7124A LA Hwy 23	1 Occupied Structure, single business
7124B LA Hwy 23	1 Occupied Structure, single business
204 Engineers Rd	1 Occupied Structure, single business
7222 LA Hwy 23	1 Vacant Structure
7222 LA Hwy 23	1 Vacant Structure
7532 LA Hwy 23	1 Occupied Structure, single structure with five businesses

6.3 What did the traffic study find for the Selected Alternative?

The traffic study focused on the LA 23 corridor between LA 428 and LA 406, about 2.1 miles (*LA 23 Corridor Traffic Study, Lapalco Boulevard to Woodland Highway, February 15, 2016*). Traffic counts and analyses included six signalized and four unsignalized intersections and included the evaluation of the street system modifications identified in *Section 6.1*. The analyses compared alternatives and options, for both the existing and future year (2044) periods. The results were one of criteria used in comparing alternatives and identifying the preferred Selected Alternative.

Besides a new fixed bridge, the Selected Alternative features include geometric intersection and signal phasing and timing improvements which were input into the traffic analyses. An estimated 1.2% annual growth rate in traffic was incorporated into the future year analyses. The traffic study estimated the AM peak southbound (LA 428 to LA 406) with a travel time savings at 17% and the PM peak northbound (LA 406 to LA 428) with a travel time savings at 59%. These figures would result from a reduction in congestion and intersection-related travel delays. Along with the improvements to the LA 23 bridge and highway, as well as the intersecting roadways this would result in improved overall area network connectivity and continuity during both normal traffic and hurricane evacuation periods.

The traffic model estimated travel time savings do not include reductions in delay and travel time related to the Selected Alternative being a fixed bridge. Those travel time savings related to the elimination of interruptions in vehicular traffic flow to allow for marine vessel traffic to pass would be in addition to those experienced during normal operations.

Roadway and bridge construction projects like the Selected Alternative which stay within the existing right-of-way to the extent possible normally have construction period traffic impacts. A four-phase construction period traffic maintenance plan has been developed. The general plan and sequence of construction is to maintain four-lanes of travel on LA 23 for as long as possible by constructing all improvements which do not encroach on the existing four lanes of travel. A minimum of two-lanes of traffic would be maintained during construction activities encroaching on the four-lanes of travel. Pile driving and other construction-related activities near the Belle Chasse Tunnel may result in temporary closure or restricted use of the tunnel. Should the tunnel need to be closed during construction, it would be monitored during pile driving and assessed to determine if it can be reopened to traffic. The main features of each phase of the construction period traffic maintenance plan have been identified to minimize interruption of traffic flow and network continuity through the LA 23 corridor (*Table 17*).

Table 17: Construction Period Traffic Sequencing Plan
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Phase of Construction	Description
Phase 1	The existing four lanes of traffic, two lanes southbound through the tunnel and two lanes northbound on the bridge, would be maintained. If temporary tunnel closures during pile driving operations near the tunnel are required, the existing bridge would be rerouted to handle two-way traffic. Coordination with the USCG and USACE would occur to minimize impacts to marine operations on the GIWW.
Phase 2	The LA 3017 realignment and the Railroad Street extension would be opened to traffic. The tunnel would be closed permanently (taken out-of-service and decommissioned), and two-way traffic would be maintained on the existing northbound lanes over the bridge.
Phase 3	Two-way traffic would be diverted to the southbound lanes of the new bridge. The remaining approaches for the northbound lanes of the new bridge, X Street, N. Tunnel Road (South), Q Street, S. Tunnel Road (North), and S. Tunnel Road (South) would be constructed. Demolition of the existing bridge and approaches would begin.
Phase 4	Traffic would be placed in its final four-lane configuration. Demolition of the existing bridge and closure/decommissioning of the existing tunnel has already been completed as part of Phase 2.

6.4 What Section 4(f) impacts would occur with the Selected Alternative?

Construction of the Selected Alternative would require the demolition of the existing Belle Chasse Bridge and decommissioning of the Belle Chasse Tunnel. As noted in *Section 3.0*, the Belle Chasse Tunnel is eligible for nomination to the NRHP. The Belle Chasse Bridge has Preservation Candidate status within the PA. The Selected Alternative would result in an adverse effect to two historic properties which would fall under Section 4(f). Section 4(f) law requires that the proposed transportation use of any land from a significant publicly owned park, recreation area wildlife and waterfowl refuge, or public or private historic site that is eligible for the NRHP be avoided, if feasible and prudent.

A full evaluation of measures to minimize harm has been made and submitted on behalf of both facilities. These Section 4(f) evaluations document there is no feasible and prudent alternatives for use of these structures as part of the Selected Alternative. Mitigation measures for the demolition of these structures has been identified as part of the interagency consultation process which lead to the development of a Memorandum of Agreement contained in the Section 4(f) document for the Belle Chasse Tunnel and the Programmatic Section 4(f) Evaluation and Approval for the Belle Chasse Bridge.

6.5 What did the traffic noise analysis find for the Selected Alternative?

A traffic noise analysis was prepared in accordance with the *DOTD Highway Traffic Noise Policy*, effective July 13, 2011 for the Selected Alternative (*Traffic Noise Analysis Report. LA 23 Belle Chasse Bridge and Tunnel (HBI)*. August 2018). The referenced noise policy complies with the FHWA noise regulations for Federal-aid projects found in 23 Code of Federal Regulations (CFR) Part 772. Existing noise levels were measured in the field and a traffic noise analysis using the Traffic Noise Model (TNM) 2.5 was conducted according to a Traffic Noise Protocol approved by DOTD.

Two alternatives, the Do-Nothing (No Build) Alternative and the Selected Alternative, were modeled to predict and compare traffic noise levels for conditions in the future design year of 2044. Physical geometry of the existing road, receiver locations and elevations, and the existing year (2013) traffic counts were input into the model. The proposed alignment, geometry, and projected traffic volumes for the Selected Alternative was used in the model for the future build condition analysis.

A total of 64 receivers, including the five (5) field measurement sites were modeled to determine whether these would be impacted by traffic noise for the two alternatives. Forty-five (45) of the receivers were identified as Activity Category B-residential. Three daycares, a medical clinic, and two locations at a former golf course were classified as Activity Category C. The remaining 14 receivers were classified as Activity Category E-businesses. No Activity Category A receivers were identified or modeled.

TNM 2.5 predicted that three (3) businesses would be impacted by the Selected Alternative traffic noise in the design year of 2044. If the project were not built, the model predicted that two (2) residences and five (5) businesses would be impacted by traffic noise in 2044. All impacts are attributed to noise levels exceeding the Noise Abatement Criteria (NAC); none of the alternatives would cause a substantial increase in noise, defined by LADOTD as +10 dBA over the existing year noise levels.

Two noise barriers were evaluated for the three (3) impacted receptors. This evaluation finds that noise abatement for the proposed project is marginally feasible based on factors for noise barriers such as safety and access to adjacent properties.

For a noise barrier to be considered acoustically feasible, 75 percent of the first row of impacted receivers adjacent to the barrier must achieve at least a five (5)-dBA reduction in highway traffic noise. TNM was used to model Noise Barrier 1 (north of the GIWW along the west side of LA 23) and Noise Barrier 2 (south of the GIWW along the west side of LA 23). Noise Barrier 1 modeled as a 900-foot wall would achieve a 6.9-dBA reduction when built to a height of 11 feet. This is the only impacted receiver adjacent to the barrier; therefore, Noise Barrier 1 would achieve a 5-dBA reduction for 100 percent of the impacted receivers.

Noise Barrier 2, modeled as a 232-foot wall would achieve an 8.6-dBA reduction when built to a height of 10 feet, but no wall modeled up to a height of 14 feet would also achieve the required reduction for R61. Because only 50 percent of the impacted receivers adjacent to this barrier would achieve the 5-dBA noise reduction, Noise Barrier 2 was determined to be not acoustically feasible.

Based on TNM output, Noise Barrier 1 was determined to be acoustically feasible; Noise Barrier 2 was determined to be not acoustically feasible.

While both barriers are predicted by TNM to provide sufficient noise abatement to meet reasonableness Criterion A, the cost-benefit threshold of $35,000 would limit the length of each barrier to the extent that a portion of each benefited receiver's property would remain exposed to traffic noise. Therefore, these barriers are not considered reasonable based on Criterion B-Cost Effectiveness.

This evaluation finds that while Noise Barrier 1 may be feasible, it is not reasonable. Noise Barrier 2 is neither feasible nor reasonable. For these reasons, it was determined that implementation of noise abatement is not warranted and should not be incorporated into the design of the Selected Alternative.

6.6 What are the potential Socio-Economic Impacts associated with the Selected Alternative and Tolling?

To determine the potential socio-economic impacts associated with this project, an environmental justice review completed for the Selected Alternative addressed the requirements of EO 12898, entitled "*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*" (See Appendix H, *Tolling Review: Environmental Justice Assessment,* prepared for LA 23: Belle Chasse Bridge & Tunnel Stage 1 Environmental Assessment. August 2018).

Analysis Area - Pursuant to that directive a general Environmental Justice (EJ) review was undertaken as part of the EA.[17] That effort utilized US Census Bureau data in both statistical and GIS spatial analyses. The GIWW is a geographic line that residents and workers on the West Bank of the Parish must cross for both every day and special trip purposes. Whether a person lives in Belle Chasse or in Venice, access to the closest hospital, large grocery store, big-box home improvement center, Interstate highway system, airport, etc. requires crossing the GIWW. Therefore, for the purposes of the EJ analyses, the entire West Bank of Plaquemines Parish is the key geographic area of analysis (*Figure 11*). For comparison and context purposes statistics are also provided for the threshold jurisdiction, Plaquemines Parish as a whole, the Eastbank of the Parish and the eight-parish Metropolitan Statistical Area (MSA).

These results do not indicate that the minority/low income population would be disproportionately impacted by the construction of the Selected Alternative or the potential imposition of tolls.

Tolling Review - As fully described in Appendix G, the DOTD conducted a toll funding feasibility study[18] which focused solely on the proposed Belle Chasse bridge to determine the feasibility of using tolls to fund part of the structure's construction and operation and maintenance costs. It is important to note that this is financial feasibility analysis and not a Department policy.

Key Findings - The analysis looked at the West Bank of Plaquemines Parish to determine if there are potential EJ concerns related to construction of a new bridge and the potential for EJ impacts related to the imposition of tolls to help finance a portion of the project construction cost.[19]. Major findings include:

- None of the Census Tracts or smaller break-out sub-areas which cover the Belle Chasse area, which include the project bridge have disproportionately high minority populations and households in poverty (*Figure 11*).
- 26.8% of the West Bank population is minority, a proportionate figure that is lower than the same statistic for the Eastbank, Plaquemines Parish or the MSA.
- In general, the West Bank of Plaquemines Parish is a more diverse area than the East Bank in terms of housing choices, population makeup and income levels. Looking at both median household income and households in poverty, the West Bank resembles the MSA. It has 17.8% of households in poverty, just like the MSA. That is a lower proportion than the Parish and much lower than the Eastbank.

[17] Belle Chasse Bridge & Tunnel Environmental Assessment Environmental Assessment, Environmental Justice Evaluation. August 1, 2018.
[18] LA 23 Belle Chasse Bridge and Tunnel Replacement Level 2 Traffic and Revenue Study (FINAL). Prepared for the Louisiana Department of Transportation and Development. Prepared by HDR Engineering, Inc. and Alliance Transportation Group, Inc. September 2018.
[19] DOTD is evaluating the possibility of entering into a Public-Private Partnership (P3) to partially fund the construction, operation, and maintenance of the Build Alternative. The latter would potentially involve imposition of some level of tolls on the GIWW crossing for a yet-to-be determined period.

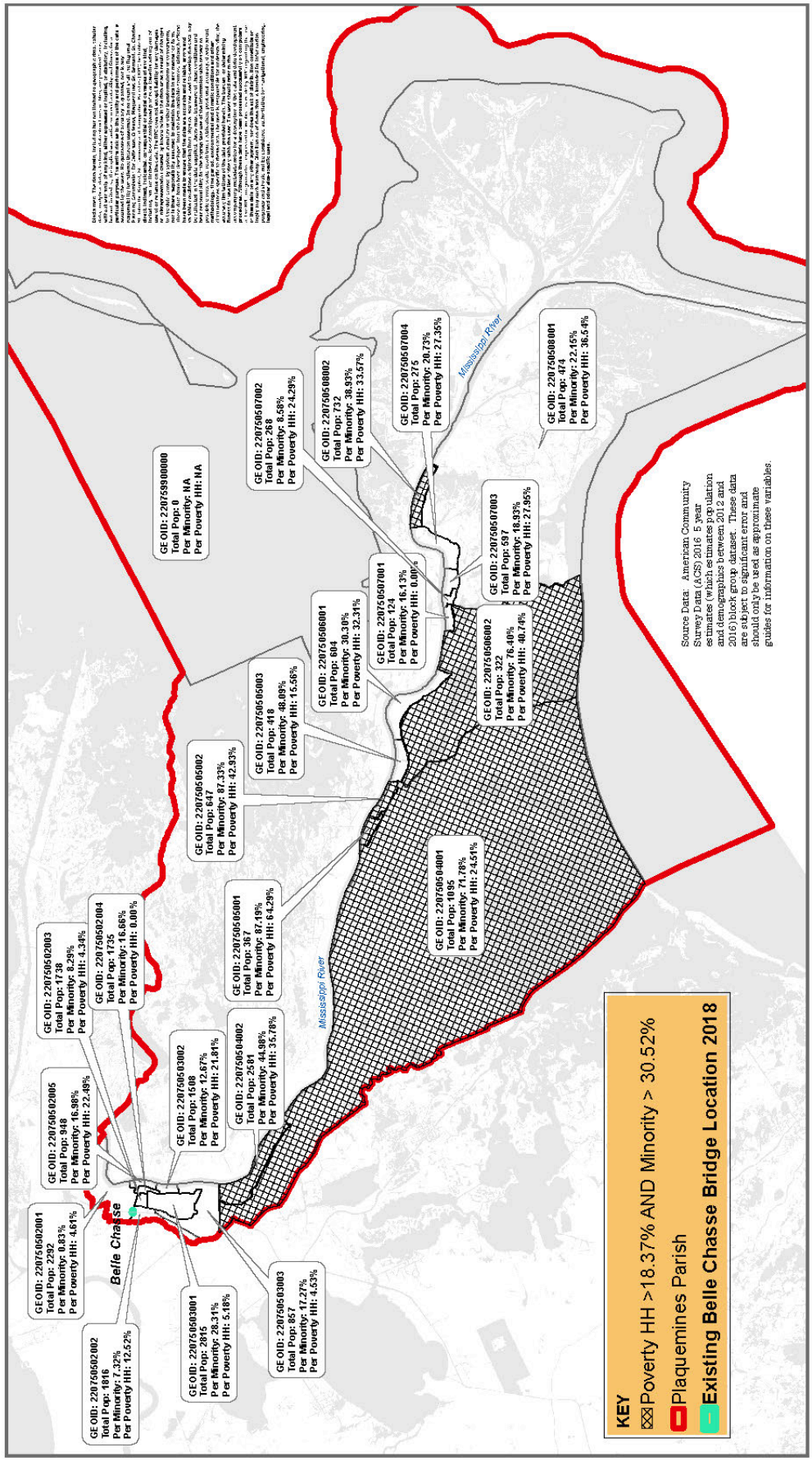


Figure 11: West Bank Demographic Analysis, Plaquemines Parish
LA 23: Belle Chasse Tunnel and Bridge (HBI)

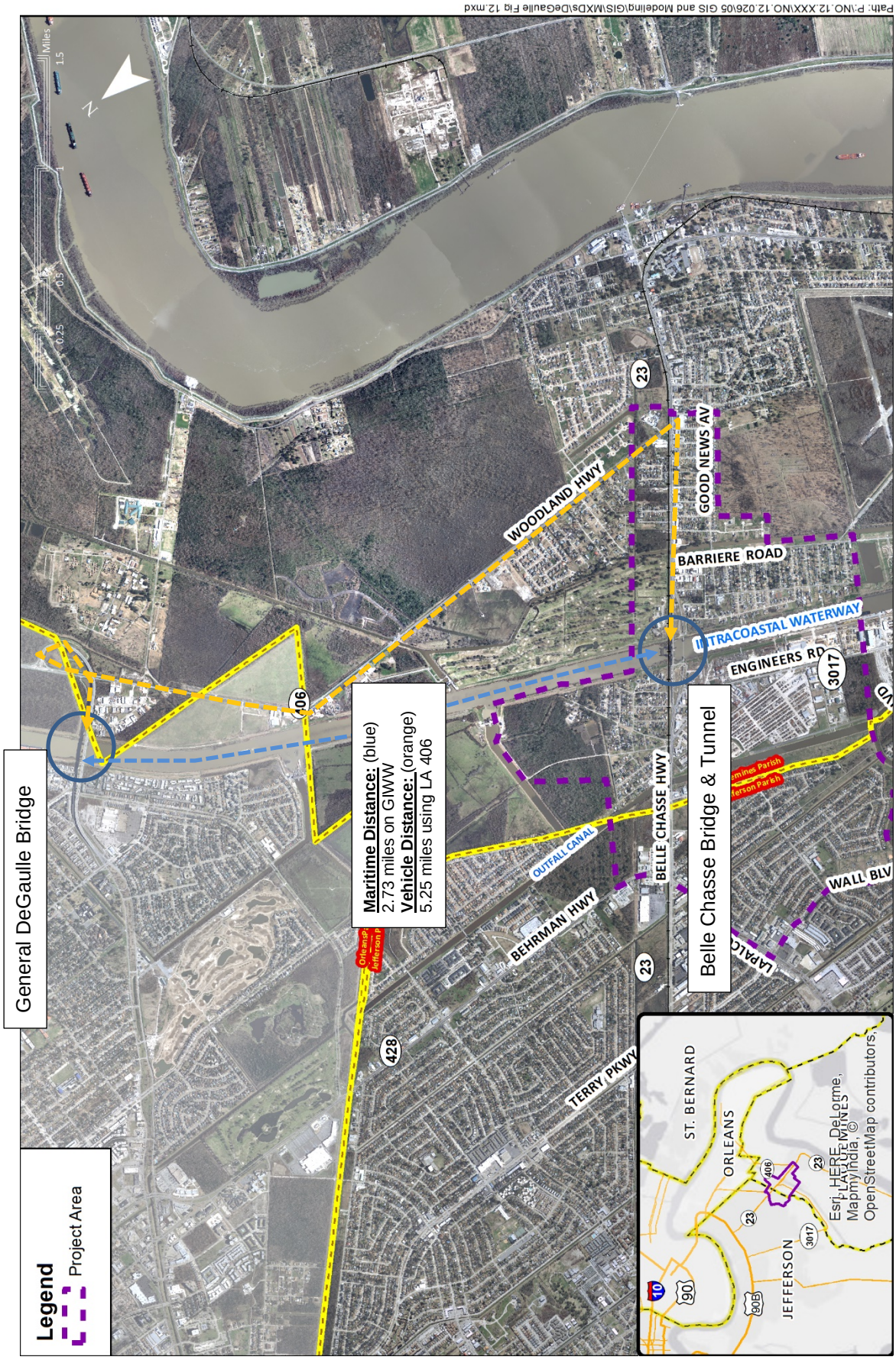


Figure 12: Location of General DeGaulle Bridge in relationship to the Belle Chasse Bridge & Tunnel LA 23: Belle Chasse Tunnel and Bridge (HBI)

- The number of food stamp recipients in an area is a secondary indicator of potential poverty and was included for that reason. Results indicate that the percent of the West Bank population receiving food stamps is noticeably lower than either the MSA or Eastbank, and just below the Parish as a whole.

Toll-Free Alternative - Another component of evaluating the potential EJ impact of tolling the Selected Alternative is identifying the availability of an alternative toll-free route (aka: toll avoidance route). The General DeGaulle bridge located about 3.2 miles and 3.5 minutes north of the Belle Chasse Bridge and Tunnel via LA 406 would be the toll-free route to cross the GIWW. It provides comparable capacity and reliability to the proposed bridge in that is it is a four-lane fixed span which is always open to vehicular traffic. Like LA 23, it provides a direct connection to US 90B and the Crescent City Connection (CCC) bridge over the Mississippi River (*Figure 12*).

6.7 What other potential impacts have been identified with the Selected Alternative?

The project replaces an existing two-lane vertical lift bridge and two-lane tunnel with a new four-lane fixed bridge and approaches, utilizing the existing right-of-way to the extent possible. The Selected Alternative would still have impacts, a summary of which follows.

Direct Impacts - are those which are immediate, covering those activities or actions which usually take place at the time of project construction.

- The Selected Alternative would require the acquisition of 2.14 acres of additional right-of-way.
- Approximately seven structures, containing 11 businesses would be displaced. No residences would be displaced.
- On the west side of the GIWW, LA 3017 would be relocated and realigned to intersect with LA 23.
- Also, on the east side of the GIWW, the Dr. Bowen Drive intersection with LA 23 would be closed. Access to that street would continue via Barriere Road and Covert Road.
- Access to four parcels along LA 23 and four parcels along LA 3017 (approximately 12 driveways) would change because of the Selected Alternative.
- Approximately 0.42 acre of potential wetlands and 3.78 acres of potential waters of the US may be impacted.
- Construction of the fixed Selected Alternative bridge would result in uninterrupted highway and marine vessel traffic flows resulting in improved network traffic flows and continuity for both modes of transportation.

Indirect Impacts – are those actions which might take place later because of the decision to build the project.[20]

- The seven parcels which would potentially be taken to accommodate the Selected Alternative footprint would only be partially used for the project. Once the project is complete and in operation, the DOTD may opt to return the surplus parts of these parcels to commerce. This would provide the private sector with a redevelopment opportunity that may change the nature of the land uses which are currently in place. The Plaquemines Parish Comprehensive Plan and Zoning Ordinance should be used to guide redevelopment.
- The street closures cited in the foregoing section would change access patterns for portions of the Fort St. Leon neighborhood and some businesses along North Tunnel Road. This may encourage some businesses and residents to relocate.

[20] Defined in 40 CFR 1508.8 as effects that are later in time or far removed in the distance (but still reasonably foreseeable) from the action that caused them.

- If a toll is imposed on traffic using the new Belle Chasse Bridge, this may encourage some traffic to divert to a toll-free route which would consist of LA 406, the General De Gaulle Bridge and General De Gaulle Drive (*Figure 12*). Increased traffic volumes on these routes may cause access problems and congestion at neighborhood entrances.
- If a toll is imposed on traffic using the new Belle Chasse bridge, it may have a greater impact on certain sub-groups of the population. This would depend upon factors which have yet to be determined. These include, but are not limited to the amount of any toll (as this has not been identified), whether there would be discounts for low-income residents and frequent users, etc.

Cumulative Impacts - are generally less defined and noticeable than direct impacts, cover a range of incremental changes occurring because of the decision to build the corridor.[21] The definition of cumulative impacts defined by the Council on Environmental Quality is:

"…*the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from minor by collectively significant actions taking place over a long period of time*" (40 CFR Section 1508.7).

As previously noted the Selected Alternative would provide a new four-lane fixed bridge that meets current design guidelines and the needs of the highway and GIWW users. The areas on either side of the LA 23 crossing of the GIWW (Belle Chasse in Plaquemines Parish and Gretna in Jefferson Parish) are mature suburban residential and commercial corridors, with industrial uses flanking the LA 3017 corridor. The land use patterns in the larger project area are also established. Both Jefferson and Plaquemines Parishes have comprehensive plans and zoning ordinances in place which govern how land can be used and developed. The NAS/JRB is the single largest land holding in the area. The Joint Land Use Study (JLUS) for the Base (*Table 1*) would regulate development type (land use, density, and height) round the perimeter of the Base.[22]

All the foregoing seems to indicate that the Selected Alternative should reinforce the existing activities and land use patterns by providing a more reliable highway crossing of the GIWW that would always be available to vehicular traffic. Once in operation that reliable bridge crossing could also encourage the development of vacant and underutilized parcels of land that are interspersed with the occupied parcels. However, the replacement new bridge would not appear to have the effect of encouraging major changes in the suburban Belle Chasse and Gretna areas.

The only major known long-term development on the West Bank of Plaquemines Parish is in the planning stages. The Plaquemines Port, Harbor & Terminal District is actively pursuing development of its port site, which is located about 24 miles south of the LA 23/GIWW crossing. This is guided by the *Comprehensive Port Development Master Plan for Plaquemines Parish*.[23] While the planning for development of this port site has been ongoing and is not dependent upon the completion of the Selected Alternative, the improved reliability of the new bridge should support the project better than the existing crossing.

[21] Defined in 40 CFR 1508.7 as the total effect on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.
[22] *Naval Air Station Joint Reserve Base (NAS JRB) Joint Land Use Study*. Prepared for Plaquemines Parish Government, gcr, Inc. and Burk-Kleinpeter, Inc., December 2010.
[23] *Comprehensive Port Development Master Plan for Plaquemines Parish*. Prepared by Trident Holdings, Inc. for the Plaquemines Port, Harbor & Terminal District. June 23, 2010.

6.8 What are the Permits, Mitigation, and Commitments associated with the Selected Alternative?

The list of permits obtained prior to construction of the Selected Alternative include:

- USCG Bridge Permit for a new crossing of the Gulf Intracoastal Waterway (GIWW)
- USACE Section 10 permit for work in the GIWW
- USACE Section 404 Permit for impacts to jurisdictional wetlands (in form of general permit)
- USACE Section 408 Process to alter a USACE Civil Works Project
- Section 401 Water Quality Certification issued by the LDEQ in support of the Section 404 permit
- Coastal Use Permit from the LDNR in conjunction with the USACE programmatic general permit
- LPDES permit from LDEQ for Stormwater Discharge for Construction Activities (LAR600000)
- Permit from the Plaquemines Parish Westbank Levee District for work within 1,500 feet of a federal flood control structure, including a levee, floodwall, or floodgate

Table 18: Summary of Mitigation and Commitments
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Item	Entity	Mitigation/Commitment
Belle Chasse Tunnel	FHWA DOTD SHPO	Mitigation for adverse effects to the Belle Chasse Tunnel defined in the Memorandum of Agreement between DOTD, FHWA and the SHPO includes: HAER Level II documentation, a historic marker commemorating the historic significance of the Tunnel, and an electronic presentation conveying the history and significance of the Tunnel.
Environmental Sites	DOTD LDEQ	Removal of (and possible mitigation for) underground storage tank(s) would be required at sites impacted by the relocation of the LA 3017 approach to LA 23.
Flood Control Structures	USACE CPRA Plaquemines Parish West Bank Levee District	Coordination with USACE, CPRA, Plaquemines Parish West Bank Levee District (SE Louisiana Flood Protection Authority West) and Plaquemines Parish required concerning proposed work within vicinity of Federal levees along the GIWW. Copy of letter and plans to USACE Operations Division (Operations Manager for Completed Works) and OCPR. Above and below ground footprint of the WBV-6.2 project must be considered to avoid damaging or degrading this section of the HSDRRS.
Judge Perez Bridge (known locally as the Belle Chasse Bridge)	FHWA DOTD ACHP SHPO	Mitigation completed in accordance with the Programmatic Agreement (PA).
Navigation	USCG	Consultation with the USCG needs to occur during development of plans and specifications in the engineering phase to determine the requirements for maintenance of the GIWW's navigation channel during project construction. Prior to the start of construction notification of the maritime community by the USCG will occur prior to the commencement of work on the project. Any waterway closures required to accommodate construction activities/staging need to be coordinated with the USCG Marine Safety Center.

Table 18: Summary of Mitigation and Commitments

LA 23: Belle Chasse Bridge & Tunnel (HBI)

Item	Entity	Mitigation/Commitment
Vegetation	DOTD	Replacement of vegetation in association with this project's construction should follow applicable BMPs, including use of approved, non-invasive species in the restoration process.
Wetlands	USACE LDEQ	Impacts mitigated through purchase of mitigation credits prior to obtaining USCoE permit.
Wildlife	Office of Wildlife, LDWF	If Heritage tracked species are encountered in project area, these would be reported to the LNHP Data Manager.
Wildlife (Manatees)	USFWS	All work, equipment, and vessel operation should cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Once the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for the manatee(s). If a manatee(s) is sighted in or near the project area, all vessels associated with the project should operate at "no wake/idle" speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels should follow routes of deep water whenever possible. If used, siltation or turbidity barriers should be properly secured, made of material in which manatees cannot become entangled, and be monitored to avoid manatee entrapment or impeding their movement. Temporary signs concerning manatees should be posted prior to and during all in-water project activities and removed upon completion. Each vessel involved in construction activities should display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign of at-least 8 ½" x 11" reading language similar to the following: "CAUTION BOATERS: MANATEE AREA/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA AND WHERE THERE IS LESS THAN FOUR FOOT BOTTOM CLEARANCE WHEN MANATEE IS PRESENT". A second temporary sign measuring 8 ½" x 11" should be posted at a location prominently visible to all personnel engaged in water-related activities and should read language similar to the following: "CAUTION: MANATEE AREA/EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION". Collusions with, injury to, or sightings of manatees should be immediately reported to the Service's Louisiana Ecological Services Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821). Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident/sighting; and the approximate location, including the latitude and longitude coordinates, if possible.
Wildlife (Swallows)	USFWS	Swallow conservation measures would generally apply given the identification of active nesting sites on the existing Belle Chasse Bridge. The following measures should be taken: Cliff swallows nest generally from April 1 – mid-August, and barn swallows nest from May 1-early September. Work that could impact nesting activity should be done outside of these nesting periods to the greatest extent possible.

Table 18: Summary of Mitigation and Commitments

LA 23: Belle Chasse Bridge & Tunnel (HBI)

Item	Entity	Mitigation/Commitment
Wildlife (Swallows)	USFWS	To initiate work immediately after nesting activity is complete a qualified contractor representative will monitor swallow nesting activities to determine the number of nests and stage of nest construction in an effort to anticipate when active nesting will end. Once the bridge has been inspected and it has been determined that nesting activity is complete, the contractor or contractor's representative will provide an email report to DOTD of the inspector's observations. Once active nesting on the existing bridge has ended, the contractor should remove old nests as soon as possible. The presence of old nests may attract swallows that are investigating potential nesting sites. Prior to the start of new nesting season (end of February- early March), the bridge should be surveyed at a minimum of every 2 days, and remove any potential nesting material that has been initiated and is certain to not contain eggs. Should nesting be initiated, care should be taken to avoid impacting active nests. While construction activities are underway, abatement measures (e.g. pressure washing/in-active nest clearing) may be possible along other reaches of the bridge if outside of a 25-foot-buffer of active nests. Generally, egg laying for cliff swallows is completed by the end of July and young will fledge July-August depending on when the eggs were laid; however nesting should be monitored by qualified personnel to identify when nesting is completed. The Initiation of nest building should also begin to slow down mid-July and halt completely by the end of July at which time monitoring for nest construction could stop. The contractor's representative should prepare a weekly report to DOTD that includes when the bridge was surveyed and when the beginning of new nests are removed this should include photographs and methods of nest removal. This report should also include if any additional methods of deterrence that are used and if these methods are successful.
FAA Obstruction Evaluation	DOTD	Project engineer, with DOTD Project Management Staff, would complete and submit a FAA form 7460 Airport Airspace Analysis for Obstruction Evaluation during project design (within a minimum of 6 months prior to the finalization of design and any construction activities) to determine need for any permits and to complete project coordination with any FAA infrastructure, including the NAS JRB New Orleans located in Belle Chasse, LA (located more than 1 mile southwest of the proposed bridge location).

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Appendix A
Solicitation of Views and Responses

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Executive Director, RPC

REGIONAL PLANNING COMMISSION

JEFFERSON • ORLEANS • PLAQUEMINES • ST. BERNARD • ST. TAMMANY PARISHES

September 10, 2012

Replace Belle Chasse Tunnel and Bridge
Stage 1 – Environmental Assessment
Plaquemines Parish, Louisiana
State Project No. 700-38-0108/ H.004791

In the early planning phases of a transportation facility, the Regional Planning Commission (RPC) and the Louisiana Department of Transportation and Development (LDOTD) solicit the views of those Federal, State, and local public agencies, groups, individuals or organizations which by special expertise or interest, can assist in the early identification of possible adverse economic, social, or environmental effects or concerns related to the transportation facility. Receipt of this letter means that your assistance is needed and appreciated to complete this task.

Due to this early request for your views, there exists very limited data concerning the proposed action; however, we are attaching a map showing the general location of the project, along with a description and a preliminary statement of purpose and need.

It is requested that you contact the project team by October 26, 2012 if you know of any major assets, planned projects, or other factors which may impact the project's location, design and construction. Replies should be addressed to:

Ed Elam, AICP
Burk-Kleinpeter, Inc.
4176 Canal Street
New Orleans, LA 70119
Fax: 504-488-1714 (Attention: Ed)
eelam@bkiusa.com

If you have any questions or would like additional information about the project, please do not hesitate to contact Ed Elam or Paul Waidhas at 504-486-5901.

Please refer to State Project No. H.004791 in your reply. Thank you for your input regarding this project.

Jeffrey Roesel, AICP
Deputy Director
Regional Planning Commission

TRANSPORTATION POLICY COMMITTEE (MPO) Full RPC Membership

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Greater N. O. Expwy. Comm.
PAT GALLWEY, *Chief Operating Officer, Port of New Orleans*
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PROPOSED ACTION

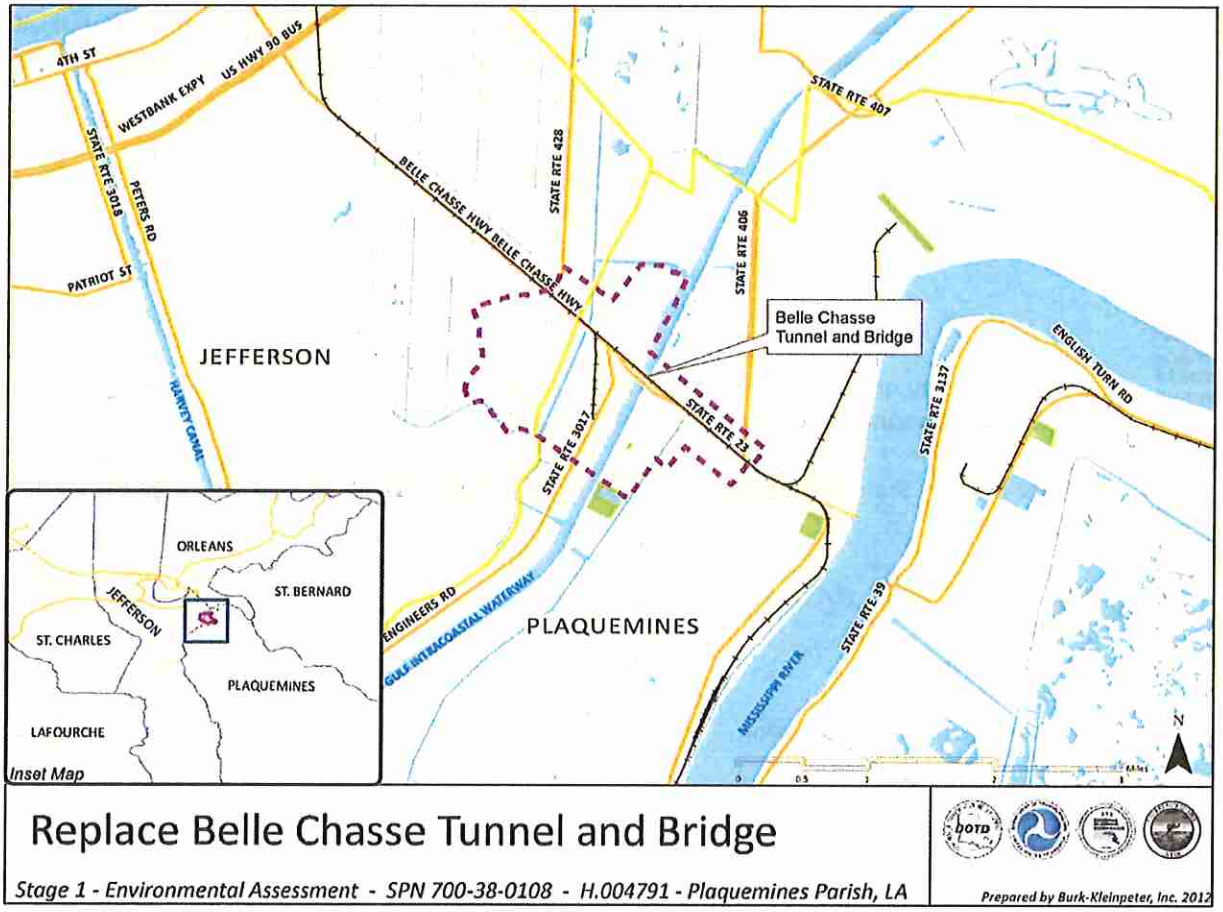
The Regional Planning Commission (RPC) and the Louisiana Department of Transportation and Development (LDOTD) are sponsoring an environmental assessment that will examine alternatives for replacing the Judge Perez/ Belle Chasse Tunnel and Bridge that crosses the Gulf Intracoastal Waterway (GIWW). This bridge crossing replacement, servicing Louisiana Highway 23 users, will extend between approximately 0.75 and 1 mile in length. The type of bridge structure is undetermined at this time, with the final result being identified as a result of the completed planning and environmental analysis. The replacement structure will have four travel lanes and include a bicycle lane.

STUDY AREA DEFINITION

The project area extends from Behrman Hwy/ Lapalco Blvd/ LA 428 in the northwest to Lartigue St, just beyond Woodland Hwy (LA 406) in the southeast. The southwestern boundary follows Wall Blvd down to the southern edge of the Bellemeade and Meadowbrook neighborhoods, then crossing the GIWW, the study area boundaries include the Fort St. Leon neighborhood and along Good News Ave in Belle Chasse. The northeastern boundary incorporates existing residential development and flood protection infrastructure. See Figure 1 for details. It is encouraged that comments under this solicitation of views focus only on this immediate study area.

(*Continued on next page*)

Figure 1: Project Area



PROJECT PURPOSE AND NEED

The purpose of this project is to improve access for residents and businesses located on the Westbank of Plaquemines Parish, by reducing or eliminating scheduled and unscheduled delays associated with bridge operation and bridge and tunnel maintenance. This project will replace two aging crossings (constructed in 1956 and 1968 respectively) and improve efficiency in daily commutes and hurricane evacuation capacity alike, while providing opportunities for industry growth reliant on transportation infrastructure.

Additional background information about the proposed project, including the build alternatives under consideration is available in the 2009 Feasibility Study which can be accessed via the New Orleans Regional Planning Commission website (www.norpc.org).

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JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF STATE PARKS

CHARLES R. DAVIS
DEPUTY SECRETARY

STUART JOHNSON, PH.D.
ASSISTANT SECRETARY

RECEIVED
OCT 11 2012
Burk-Kleinpeter Inc.

October 8, 2012

Mr. Ed Elam, AICP
Burk-Kleinpeter, Inc.
4176 Canal Street
New Orleans, LA 70119

Re: State Project No. 700-38-0108/H.004791
Replace Belle Chasse Tunnel and Bridge
Plaquemines Parish, Louisiana

Dear Mr. Elam,

I am in receipt of the solicitation of views request for replacement of the Belle Chasse Tunnel and Bridge in Plaquemines Parish.

The Division of Outdoor Recreation in the Louisiana Office of State Parks administers the Land and Water Conservation Fund program for Louisiana. In this capacity we compile an inventory of recreational sites within the state for publication in the Statewide Comprehensive Outdoor Recreation Plan (SCORP) published periodically. The most recent SCORP was published for the period of 2009-2014 with an inventory developed in 2009.

Based on the information provided, the only identified recreation facility in proximity to the project location is Bayou Barriere Golf Course at 7427 Highway 23. While this facility has not received Land and Water Conservation Fund assistance and does not have Section 6(f) protection, our office anticipates your environmental assessment will take in to consideration any actions that might infringe upon the recreational usefulness of this facility.

Sincerely,

Cleve Hardman
Director of Outdoor Recreation

BOBBY JINDAL
GOVERNOR

STEPHEN CHUSTZ
INTERIM SECRETARY

State of Louisiana

DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT

RECEIVED
OCT 12 2012
Burk-Kleinpeter Inc.

10/12/2012

BURK-KLEINPETER, INC.
4176 CANAL STREET
NEW ORLEANS, LA 70119
Attn: Ed Elam

RE: P20121374, Solicitation of Views
NEW ORLEANS REGIONAL PLANNING COMMISSION
Description: Replace Belle Chasse Tunnel and Bridge Stage 1 EA
Location: Lat 29° 52' 17"N / Long -90° 00' 32"W; Section N/A T R; Lot# N/A; Belle Chasse Tunnel and Bridge, LA 23 Belle Chasse, 70037
Plaquemines Parish, LA

Dear Ed Elam:

You are hereby advised that your application for a Coastal Use Permit (CUP) has been determined to be complete and review by the State for compliance with the Louisiana Coastal Resource Program (LCRP) and consistency with the federal Coastal Zone Management Act (CZMA) has begun. Additionally, it has been determined that your proposed activity is a use of state concern in accordance with Louisiana Revised Statue 49:214.5.

All correspondence and calls regarding this application should reference the Coastal Use Permit Number (P#) indicated above. Please note that all information concerning your application is in our database and is updated throughout the day as changes to the status of the application occur.
Your application can be found on our Webpage.

Should you have any questions, please check the online database or contact the assigned permit analyst: Jessica Williamson at (225) 219-9530 or jessica.williamson@la.gov. Be sure to reference the above Coastal Use Permit Number.

Chris Mott

Permit Coordinator

CM

Ed Elam

From: Office of Coastal Management <bpel.mail@la.gov>
Sent: Friday, October 12, 2012 1:49 PM
To: Ed Elam; JROESEL@NORPC.ORG
Subject: P20121374 - ORIGINAL - Acknowledgement Letter



PLEASE DO NOT REPLY TO THIS EMAIL. THIS ACCOUNT IS NOT MONITORED FOR INCOMING MAIL. If you would like to talk to someone about this application please call 225-342-7591 or 1-800-267-4019.

Coastal Use Permit Application Information

Applicant: New Orleans Regional Planning Commission
Project:
Project Parish(es): PLAQUEMINES

OCM Analyst: Jessica Williamson
Preliminary Determination: SOV Application Required
Application Modification: N/A

The Office of Coastal Management has determined that the application assigned (P20121374) is complete. You can view the acknowledgement letter online at:

Acknowledgment Letter
Make Comments



JOINT PERMIT APPLICATION TRACKER

Tracking Number: P20121374
Project Title:
Started: 10/11/2012 15:40:25
Assigned Analyst: JESSICA WILLIAMSON
Project Status: Received - Under Review

Color Legend: INTAKE/GIS/OCM REVIEW | ANALYST REVIEW | NOTICE/HOLD | RECOMMENDATION/REVIEW | ISSUANCE | WITHDRAWN/XFER TO OTHER ENTITY | APPLICATION DISTRIBUTION

Begin Date/Time	Activity	Responsible Party
10/15/2012 13:59:36	OCM Review	OCM
10/15/2012 13:55:30	Application Rcvd	OCM
10/12/2012 13:49:23	Application Review by analyst	ANALYST
10/12/2012 13:27:02	Complete:Assigned to analyst	ANALYST
10/11/2012 16:05:20	OCM Review	OCM
10/11/2012 16:02:43	Application Rcvd	OCM

Ed Elam

From: Office of Coastal Management <bpel.mail@la.gov>
Sent: Monday, October 15, 2012 1:59 PM
To: Ed Elam; JROESEL@NORPC.ORG
Subject: P20121374 - Joint Permit Application Received



PLEASE DO NOT REPLY TO THIS EMAIL. THIS ACCOUNT IS NOT MONITORED FOR INCOMING MAIL. If you would like to talk to someone about this application please call 225-342-7591 or 1-800-267-4019.

Coastal Use Permit Application Information

Applicant: New Orleans Regional Planning Commission
Project:
Project Parish(es): PLAQUEMINES

OCM Analyst: Jessica Williamson
Preliminary Determination: SOV Application Required
Application Modification: N/A

Thank you for using Office of Coastal Management's on-line application process. Your application has been received and has been assigned the following number:**P20121374**

You will be contacted within 5 business days regarding the status of your application. You may also follow the progress of your application on-line at:

Item Tracking (text)
Application
Make Comments
Application Invoice

Ed Elam

From: Office of Coastal Management <bpel.mail@la.gov>
Sent: Monday, October 15, 2012 1:56 PM
To: Ed Elam; JROESEL@NORPC.ORG
Subject: P20121374 - Joint Permit Application Received



PLEASE DO NOT REPLY TO THIS EMAIL. THIS ACCOUNT IS NOT MONITORED FOR INCOMING MAIL. If you would like to talk to someone about this application please call 225-342-7591 or 1-800-267-4019.

Coastal Use Permit Application Information

Applicant: New Orleans Regional Planning Commission
Project:
Project Parish(es): PLAQUEMINES

OCM Analyst: Jessica Williamson
Preliminary Determination: SOV Application Required
Application Modification: N/A

Thank you for using Office of Coastal Management's on-line application process. Your application has been received and has been assigned the following number:**P20121374**

You will be contacted within 5 business days regarding the status of your application. You may also follow the progress of your application on-line at:

Item Tracking (text)
Application
Make Comments
Application Invoice

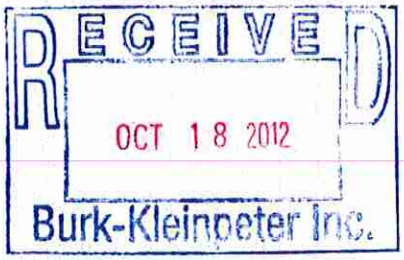
Ed Elam

From: Office of Coastal Management <bpel.mail@la.gov>
Sent: Thursday, October 18, 2012 9:30 AM
To: Ed Elam; JESSICA.WILLIAMSON@LA.GOV; JROESEL@NORPC.ORG
Subject: P20121374- comment received



PLEASE DO NOT REPLY TO THIS EMAIL. THIS ACCOUNT IS NOT MONITORED FOR INCOMING MAIL. If you would like to talk to someone about this application please call 225-342-7591 or 1-800-267-4019.

Coastal Use Permit Application Information



Applicant: New Orleans Regional Planning Commission
Project:
Project Parish(es): PLAQUEMINES

OCM Analyst: Jessica Williamson
Preliminary Determination: SOV Application Required
Application Modification: 15-OCT-12 JPN scanned cover letter, app form, and plats. Same as original version - just clearer version (mwv).

Comment from Other has been received for the referenced Coastal Use Permit Application. Please be advised that you may be required to address any issues raised by these comments.

View Comments

Permit Number: P20121374			
Office	Commentor	Comment Date	Comment
Other	CAPTURE	10/18/2012 09:07:30	4354199 - INTERNAL COMMENTS - CODE SHEET
OCPR	JAMESMC	10/16/2012 12:33:36	CUP# P20121374; With respect to its potential impact on the WEST BANK AND VICINITY STATUS:Not Constructed Project: BA-66 - WEST BANK AND VICINITY, applicant should coordinate with USACE/CPRA/Plaquemines Parish Government concerning proposed work within vicinity of Federal Levees along the Algiers Canal/GIWW.

Close

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY

JIMMY L. ANTHONY
ASSISTANT SECRETARY

RECEIVED
OCT 15 2012
Burk-Kleinpeter, Inc.

Date	October 11, 2012
Name	Ed Elam
Company	Burk-Kleinpeter, Inc.
Street Address	4176 Canal Street
City, State, Zip	New Orleans, LA 70119
Project	Replacing Belle Chasse Tunnel & Bridge Stage 1-Environmental Assessment State Project No. 700-38-0108/H.004791
Project ID	3532012
Invoice Number	12101102

Personnel of the Habitat Section of the Coastal & Non-Game Resources Division have reviewed the preliminary data for the captioned project. After careful review of our database, no impacts to rare, threatened, or endangered species or critical habitats are anticipated for the proposed project. No state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are known at the specified site within Louisiana's boundaries.

The Louisiana Natural Heritage Program (LNHP) has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the state of Louisiana. Heritage reports summarize the existing information known at the time of the request regarding the location in question. The quantity and quality of data collected by the LNHP are dependent on the research and observations of many individuals. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Louisiana have not been surveyed. This report does not address the occurrence of wetlands at the site in question. Heritage reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. LNHP requires that this office be acknowledged in all reports as the source of all data provided here. If at any time Heritage tracked species are encountered within the project area, please contact the LNHP Data Manager at 225-765-2643. If you have any questions, or need additional information, please call 225-765-2357.

Sincerely,

for Amity Bass, Coordinator
Natural Heritage Program

PREPARED BY JW
DATE 10/17/12

CMD - PERMIT CODING FORM

DATE PRINTED: 10/17/2012

P20121374 CUPNO | NEW ORLEANS REGIONAL PLANNING COMMISSION APPLICANT NAME | WILLIAMSON, JESSICA REVIEWER | PLAQUEMINES PARISH (ES)

10/11/2012 DATERECD | 10/12/2012 ACKNOWL | TOWNSHIP | RANGE | N/A SECTION | 201-D QUAD # | 29° - 52 - 17 LATITUDE | 90° - 0 - 32 LONGITUDE

(X) STATE CONCERN | ( ) LOCAL | (X) IN ( ) OUT CZ | ( ) IN (X) OUT CP

PGP [ ] 1 [ ] 2 [ ] NOT PGP

WELLNAME | WELL# | 13 APPLICANT TYPE | Y STATUS 80

[ ] REVISION # | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] REVISION ISSUE DATE | [0] EXEMPT | ( ) MAJOR ( ) MINOR | [ ][ ][ ][ ][ ][ ][-][-] CUBIC YARDS | [-] DREDGE | [-] RIG | [-] PIPELINE | [99] MISC | [9] H2O BLOCK | [10] DEVELOP

FIELD AREA [2]

( ) YES ( ) NO TRANSFER

ENTER THE NEW NAME IN APPLICANT FIELD

( ) YES (X) NO FIELD INVESTIGATION REQUESTED | ( ) YES (X) NO REVISED | ( ) YES (X) NO AMENDED | ( ) YES (X) NO MODIFIED | ( ) YES (X) NO EXTENDED

( ) YES (X) NO FOLLOW-UP REQUESTED

FINAL DETERMINATION (S) (SEPARATE BY COMMAS) SDN-APPL.REQ.

[ ][ ]/[ ][ ]/[ ][ ][ ][ ] ON-HOLD DATE | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] OFF-HOLD DATE | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] PUBLIC NOTICE DATE | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] PDRAFT DATE

(X) 0 ( ) 2 ( ) 4 ( ) 6 ( ) 8
( ) 1 ( ) 3 ( ) 5 ( ) 7 ( ) 9
PUBLIC NOTICE TYPE

[10]/[17]/[2012] ISSUE DATE | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] COMMENCE DATE | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] WITHDRAWN DATE | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] PUBLIC HEARING DATE | [ ][ ]/[ ][ ]/[ ][ ][ ][ ] APPEAL DATE

X-REFERENCE

Replacement of the Belle Chasse Bridge & Tunnel.

COMMENTS

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY
JIMMY L. ANTHONY
ASSISTANT SECRETARY

INVOICE

RETAIN THIS COPY FOR YOUR RECORDS

Date	October 11, 2012
Invoice Number	12101102
Project	Replacing Belle Chasse Tunnel & Bridge Stage 1-Environmental Assessment State Project No. 700-38-0108/H.004791
Name	Ed Elam
Company	Burk-Kleinpeter, Inc.
Street Address	4176 Canal Street
City, State, Zip	New Orleans, LA 70119
Number of Quads Reviewed	1
Total Due	$30.00

Payment should be made to "Louisiana Department of Wildlife & Fisheries" within 30 days of the date of this invoice. Please include the invoice number on your check and return a copy of this invoice with your remittance to the following address:

Louisiana Department of Wildlife & Fisheries
Attn: Jennifer Riddle
P.O. Box 80399
Baton Rouge, LA 70898-0399

Should you have any questions regarding this invoice, for review of the Louisiana Natural Heritage database for information on known sensitive elements at a charge of $30.00 per quad reviewed, please contact LNHP at (225) 765-2357.

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY
JIMMY L. ANTHONY
ASSISTANT SECRETARY

INVOICE

RETURN THIS COPY OF INVOICE WITH PAYMENT

Date	October 11, 2012
Invoice Number	12101102
Project	Replacing Belle Chasse Tunnel & Bridge Stage 1-Environmental Assessment State Project No. 700-38-0108/H.004791
Name	Ed Elam
Company	Burk-Kleinpeter, Inc.
Street Address	4176 Canal Street
City, State, Zip	New Orleans, LA 70119
Number of Quads Reviewed	1
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

October 11, 2012

RECEIVED
OCT 15 2012
Burk-Kleinpeter Inc.

Mr. Ed Elam, AICP
Burk-Kleinpeter, Inc.
4176 Canal Street
New Orleans, LA 70119

Dear Mr. Elam:

We have received Mr. Jeffrey Roesel's, Regional Planning Commission, September 10, 2012, letter requesting our evaluation of the potential environmental impacts that might result from the following project:

Replace Belle Chase
Tunnel & Bridge
SP No. 700-38-0108/H.004791
Plaquemines Parish
Belle Chase, Louisiana

In administering the sole source aquifer (SSA) program under Section 1424 of the Safe Drinking Water Act our Office performs evaluations of projects with federal financial assistance which are located over a designated sole source aquifer.

Based on the information provided, we have concluded that the project does not lie within the boundaries of a designated sole source aquifer and is thus not eligible for review under the SSA program.

If you did not include the Parish/County; a legal description; project location and the latitude and longitude if available, please do so in future Sole Source Aquifer correspondence.

If you have any questions on this letter or the sole source aquifer program please contact me at (214) 665-7133.

Sincerely yours,

Michael Bechdol, Coordinator
Sole Source Aquifer Program
Ground Water/UIC Section

cc: Jesse Means, LDEQ
Noel Ardoin, LDOTD

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DAVID PERALTA
1st Vice Chairman
MITCHELL J. LANDRIEU
2nd Vice Chairman
BILLY NUNGESSER
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PATRICIA BRISTER
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JOHN F. STUMPF, JR.

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STATE OF LOUISIANA
DEPARTMENT
OF TRANSPORTATION
AND DEVELOPMENT
SHERRI LeBAS
Secretary

WALTER R. BROOKS
Executive Director, RPC

REGIONAL PLANNING COMMISSION

JEFFERSON • ORLEANS • PLAQUEMINES • ST. BERNARD • ST. TAMMANY PARISHES

September 10, 2012

2012 SEP 19 A 11:01

OCT 15 2012

Replace Belle Chasse Tunnel and Bridge
Stage 1 – Environmental Assessment
Plaquemines Parish, Louisiana
State Project No. 700-38-0108/ H.004791

In the early planning phases of a transportation facility, the Regional Planning Commission (RPC) and the Louisiana Department of Transportation and Development (LDOTD) solicit the views of those Federal, State, and local public agencies, groups, individuals or organizations which by special expertise or interest, can assist in the early identification of possible adverse economic, social, or environmental effects or concerns related to the transportation facility. Receipt of this letter means that your assistance is needed and appreciated to complete this task.

Due to this early request for your views, there exists very limited data concerning the proposed action; however, we are attaching a map showing the general location of the project, along with a description and a preliminary statement of purpose and need.

It is requested that you contact the project team by October 26, 2012 if you know of any major assets, planned projects, or other factors which may impact the project's location, design and construction. Replies should be addressed to:

Ed Elam, AICP
Burk-Kleinpeter, Inc.
4176 Canal Street
New Orleans, LA 70119
Fax: 504-488-1714 (Attention: Ed)
eelam@bkiusa.com

If you have any questions or would like additional information about the project, please do not hesitate to contact Ed Elam or Paul Waidhas at 504-486-5901.

Please refer to State Project No. H.004791 in your reply. Thank you for your input regarding this project.

Jeffrey Roesel, AICP
Deputy Director
Regional Planning Commission

TRANSPORTATION POLICY COMMITTEE (MPO) Full RPC Membership
IFTIKHAR AHMAD, Director, Louis Armstrong N. O. Intl. Airport
RYAN BROWN, Director, Transit Administration, Jefferson Parish
MIKE COOPER, Mayor, City of Covington
FREDDY DRENNAN, Mayor, City of Slidell
Greater N. O. Expwy. Comm.
PAT GALLWEY, Chief Operating Officer, Port of New Orleans
CATHY F. GAUTREAUX, Ex. Dir. Louisiana Motor Transport Assoc.
BARBARA MAJOR, Chairwoman, Regional Transit Authority
JOHN MORROW, Interim Gen. Manager, NO Public Belt RR
NATALIE ROBOTTOM, Parish President, St. John the Baptist
V.J. ST. PIERRE, JR., Parish President, St. Charles Parish
DONALD VILLERE, Mayor, City of Mandeville

Telephone (504) 483-8500 An Equal Opportunity Employer
Fax (504) 483-8526
Email: rpc@norpc.org; Web Site: http://www.norpc.org

REGIONAL TRANSPORTATION MANAGEMENT CENTER
10 VETERANS MEMORIAL BOULEVARD • NEW ORLEANS, LOUISIANA • 70124-1162

U. S. Department of Homeland Security
FEMA Region 6
800 North Loop 288
Denton, TX 76209-3698

FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION VI
MITIGATION DIVISION

PUBLIC NOTICE REVIEW/ENVIRONMENTAL CONSULTATION

☐ We have no comments to offer. ☒ We offer the following comments:

WE WOULD REQUEST THAT THE PARISH FLOODPLAIN ADMINISTRATOR BE CONTACTED FOR THE REVIEW AND POSSIBLE PERMIT REQUIREMENTS FOR THIS PROJECT.
WE WOULD REQUEST PROJECT TO BE IN COMPLIANCE WITH EO11988 & EO 11990

Mike Metcalf
Permit Officer/ FPA
Plaquemines Parish
102 Ave G, Suite C
Belle Chasse, LA 70037
mmetcalf@plaqueminesparish.com
504-297-5342

REVIEWER:

Mayra G. Diaz
Floodplain Management and Insurance Branch
Mitigation Division
(940) 898-5541

October 9, 2012

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

(318) 473-7751
Fax: (318) 473-7626

RECEIVED
OCT 15 2012
Burk-Kle

PLEASE DIRECT ALL FUTURE CORRESPONDENCE TO KEVIN NORTON AT THE ADDRESS SHOWN ABOVE

October 10, 2012

Ed Elam
Burk-Kleinpeter, Inc.
4176 Canal Street
New Orleans, LA 70119

RE: Replace Belle Chasse Tunnel and Bridge – Stage 1

Dear Ed:

I have reviewed the above referenced project for potential requirements of the Farmland Protection Policy Act (FPPA) and potential impact to Natural Resource Conservation Service projects in the immediate vicinity.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

The project map submitted with your request indicates that the proposed construction areas will not impact prime farmland and therefore is exempt from the rules and regulations of the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549. Furthermore, we do not predict impacts to NRCS work in the vicinity.

For specific information about the soils found in the project area, please visit our Web Soil Survey at the following location:

http://websoilsurvey.nrcs.usda.gov/

Please direct all future correspondence to me at the address shown above.

Respectfully,

Sarah Heymann

Kevin D. Norton
State Conservationist

ACTING FOR

BOBBY JINDAL
GOVERNOR

STEPHEN CHUSTZ
INTERIM SECRETARY

State of Louisiana

DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT

RECEIVED
OCT 17 2012
Burk-Kleinpeter Inc.

10/17/2012

BURK-KLEINPETER, INC.
4176 CANAL STREET
NEW ORLEANS, LA 70119
Attn: Ed Elam

RE: P20121374, Solicitation of Views
NEW ORLEANS REGIONAL PLANNING COMMISSION
Description: Replacement of the Belle Chasse Tunnel and Bridge.
Location: Lat. 29° 52' 17"N, Long. 90° 00' 32"W; Belle Chasse Tunnel and Bridge; LA Hwy 23; Belle Chasse, LA.
Plaquemines Parish, LA

Dear Ed Elam:

We have received your Solicitation of Views for the above referenced project, which has been found to be inside the Louisiana Coastal Zone. In order for us to properly review and evaluate this project, we require that a complete Coastal Use Permit Application packet (Joint Application Form, locality maps, project illustration plats with plan and cross section views, etc.) along with the appropriate application fee be submitted to our office. Using your complete application, we can provide you with an official determination, and begin the processing of any Coastal Use Permit that may be required for your project. You may obtain a free application packet by calling our office at (225) 342-7591 or (800)-267-4019, or by visiting our website at http://www.dnr.state.la.us/crm/coastmgt/cup/cup.asp.

We recommend that, during your planning process, you make every effort to minimize impacts to vegetated wetlands. As our legislative mandate puts great emphasis on avoiding damages to these habitats, in many cases the negotiations involved in reducing such disturbances and developing the required mitigation to offset the lost habitat values delay permit approval longer than any other factor. Additionally, the following sensitive features may require additional processing time by the appropriate resource agencies:

The area where the project is located is all part of the aboriginal homelands of the Chitimacha Tribe of Louisiana. As such, large villages, burial sites, and sacred sites were in place in that entire area. If at any time during the course of the work, any traditional cultural properties are discovered, Permittee shall immediately contact Kimberly S. Walden (Cultural Director) or Melanie Aymond (Research Coordinator) at (337) 923-9923 or (337) 923-4395. Office hours are Monday through Thursday from 7:30 A.M. - 5:00 P.M. and on Friday between 7:30 A.M. - 11:30 A.M. If traditional cultural properties are discovered on the weekend or after business hours, the notification shall be made the

next business morning.

With respect to its potential impact on the WEST BANK AND VICINITY STATUS:Not Constructed Project: BA-66 - WEST BANK AND VICINITY, applicant should coordinate with USACE/CPRA/Plaquemines Parish Government concerning proposed work within vicinity of Federal Levees along the Algiers Canal/GIWW.

Applicant should coordinate with the West Plaquemines Levee District. Please contact Ken Dugas at (504) 392-6690 Ext. 1510 or at ken_dugas@cmaaccess.com.

Should you desire additional consultation with our office prior to submitting a formal application, we recommend that you call and schedule a pre-application meeting with our Permit Section staff. Such a preliminary meeting may be helpful, especially if a permit application that is as complete as possible is presented for evaluation at the pre-application meeting.

If you have any questions, would like to request an application packet or would like to schedule a pre-application meeting, please contact Jessica Williamson at (225) 219-9530 or jessica.williamson@la.gov.

Sincerely,

Karl L. Morgan
Administrator

Karl L. Morgan/jw

Attachments

Final Plats:

1) P20121374 Final Plats 10/15/2012

cc: Jessica Diez, OCM w/plats
Frank Cole, CMD/FI w/plats
Plaquemines Parish w/plats
NEW ORLEANS REGIONAL PLANNING COMMISSION w/plats

Ed Elam

From: Office of Coastal Management <bpel.mail@la.gov>
Sent: Wednesday, October 17, 2012 4:33 PM
To: Ed Elam; LEAANN.BAKER@LA.GOV; JESSICA.WILLIAMSON@LA.GOV; FRANK.COLE@LA.GOV; ALBERTINE_KIMBLE@PLAQUEMINESPARISH.COM; JROESEL@NORPC.ORG; DBUTLER@WLF.LA.GOV; UCM_MAIL@LA.GOV
Subject: P20121374 - Processing Complete



PLEASE DO NOT REPLY TO THIS EMAIL. THIS ACCOUNT IS NOT MONITORED FOR INCOMING MAIL. If you would like to talk to someone about this application please call 225-342-7591 or 1-800-267-4019.

Coastal Use Permit Application Information

Applicant:	New Orleans Regional Planning Commission
Project:	
Project Parish(es):	PLAQUEMINES
OCM Analyst:	Jessica Williamson
Final Determination:	SOV Application Required
Application Modification:	15-OCT-12 JPN scanned cover letter, app form, and plats. Same as original version - just clearer version (mwv).

Processing of the above application has been completed. Click the link below to view the final determination:

Authorization

JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana

OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT

CHARLES R. DAVIS
DEPUTY SECRETARY

PAM BREAUX
ASSISTANT SECRETARY

October 15, 2012

RECEIVED
OCT 18 2012
Burk-Kleinpeter Inc.

Jeffrey Roesel
Deputy Director
Regional Planning Commission
10 Veterans Memorial Boulevard
New Orleans, LA 70124-1162

Re: Section 106 Review
Requested Additional Information
Proposed Replacement of Belle
Chasse Tunnel and Bridge
Plaquemines Parish, LA

Dear Mr. Roesel:

Thank you for your email of September 10, 2012 that we received on October 5, 2012, concerning the above-referenced undertaking. We are unable to complete the Section 106 review at this time due to the submittal of insufficient documentation as required by the Section 106 Regulations (36 CFR 800). We will need the following information to complete our review for the aforementioned project:

- ☐ Name of federal agency, agency involvement (Funding, license\permit, etc. and description of the undertaking (Detailed description of project).
- ☐ Applicant contact information (Name, address, phone number and email address).
- ☐ Agency contact information (Name, address, phone number and email address).
- ☒ Description of the Area of Potential Effects (APE). The APE can be direct or indirect. It is defined as "the geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist." (Include the latitude\longitude of the undertaking location and APE)
- ☒ Description of all historic properties within and adjacent to the APE. The historic standing structure is any structure fifty years of age and older. Under Section 106, it is the responsibility of the federal agency or its designee to identify all structures listed or eligible

for listing in the National Register of Historic Places

☒ Detailed project scope of work including design plans.

☒ Map and site plan showing APE and exact location of project undertaking.

☒ Photographs of the entire APE and project location. Photographs of all historic structures (fifty years of age and older) within the APE. Buildings should be documented showing diagonal views of front and side and rear and opposite side of the building. All photos should be keyed to a site map and project plans if applicable.

If you have any questions, please contact Mike Varnado in the Division of Historic Preservation at (225) 219-4596 or mvarnado@crt.la.gov.

Sincerely,

Pam Breaux

Pam Breaux
State Historic Preservation Officer

PB:MV:s

From: Beth Altazan-Dixon
To: Ed Elam
Subject: DEQ SOV 121010/1920 Replace Belle Chasse Tunnel and Bridge
Date: Wednesday, October 24, 2012 11:34:23 AM
Attachments: image001.png

October 24, 2012

Jeffrey Roesel, Deputy Director
Regional Planning Commission
10 Veterans Memorial Blvd
New Orleans, LA 70124
eelam@bkiusa.com

RE: 121010/1920
H.004791

Replace Belle Chasse Tunnel and Bridge
LADOTD/RPC Funding
Plaquemines Parish

Dear Mr. Roesel:

The Department of Environmental Quality (LDEQ), Business and Community Outreach Division has received your request for comments on the above referenced project.

After reviewing your request, the Department has no objections based on the information provided in your submittal. However, for your information, the following general comments have been included. Please be advised that if you should encounter a problem during the implementation of this project, you should immediately notify LDEQ's Single-Point-of-contact (SPOC) at (225) 219-3640.

- Please take any necessary steps to obtain and/or update all necessary approvals and environmental permits regarding this proposed project.
- If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.
- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.
- All precautions should be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permits Division at (225) 219-9371 to determine if your proposed project requires a permit.
- If your project will include a sanitary wastewater treatment facility, a Sewage Sludge and Biosolids Use or Disposal Permit application or Notice of Intent must be submitted no later than January 1, 2013. Additional information may be obtained on the LDEQ website at http://www.deq.louisiana.gov/portal/tabid/2296/Default.aspx or by contacting the LDEQ Water Permits Division at (225) 219- 9371.
- If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, you should contact the Corps directly regarding permitting issues. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.
- All precautions should be observed to protect the groundwater of the region.
- Please be advised that water softeners generate wastewaters that may require special limitations depending on local water quality considerations. Therefore if your water system improvements include water softeners, you are advised to contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.

- Any renovation or remodeling must comply with LAC 33:III.Chapter 28, Lead-Based Paint Activities; LAC 33:III.Chapter 27, Asbestos-Containing Materials in Schools and State Buildings (includes all training and accreditation); and LAC 33:III.5151, Emission Standard for Asbestos for any renovations or demolitions.
- If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

Currently, Plaquemines Parish is classified as attainment with the National Ambient Air Quality Standards and has no general conformity determination obligations.

Please send all future requests to my attention. If you have any questions, please feel free to contact me at (225) 219-3958 or by email at beth.dixon@la.gov.

Sincerely,

Beth

Beth Altazan-Dixon, EPS III
Performance Management
LDEQ/Office of the Secretary
Business and Community Outreach and Incentives Division
P.O. Box 4301 (602 N. 5th Street)
Baton Rouge, LA 70821-4301
Phone: 225-219-3958
Fax: 225-325-8148
Email: ***beth.dixon@la.gov***

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SHERRI LeBAS *Secretary*

WALTER R. BROOKS *Executive Director, RPC*

REGIONAL PLANNING COMMISSION

JEFFERSON • ORLEANS • PLAQUEMINES • ST. BERNARD • ST. TAMMANY PARISHES

RECEIVED
OCT 26 2012
Burk-Kleinpeter, Inc.

RECEIVED
FISH & WILDLIFE SERV
LAFAYETTE, LA.

September 10, 2012

Replace Belle Chasse Tunnel and Bridge
Stage 1 – Environmental Assessment
Plaquemines Parish, Louisiana
State Project No. 700-38-0108/ H.004791

In the early planning phases of a transportation facility, the Regional Planning Commission (RPC) and the Louisiana Department of Transportation and Development (LDOTD) solicit the views of those Federal, State, and local public agencies, groups, individuals or organizations which by special expertise or interest, can assist in the early identification of possible adverse economic, social, or environmental effects or concerns related to the transportation facility. Receipt of this letter means that your assistance is needed and appreciated to complete this task.

Due to this early request for your views, there exists very limited data concerning the proposed action; however, we are attaching a map showing the general location of the project, along with a description and a preliminary statement of purpose and need.

It is requested that you contact the project team by October 26, 2012 if you know of any major assets, planned projects, or other factors which may impact the project's location, design and construction. Replies should be addressed to:

Ed Elam, AICP
Burk-Kleinpeter, Inc.
4176 Canal Street
New Orleans, LA 70119
Fax: 504-488-1714 (Attention: Ed)
eelam@bkiusa.com

SITE MAY CONTAIN WETLANDS
Contact the U.S. Army Corps of Engineers
for a jurisdictional determination.
District: New Orleans
Telephone No. 504-862-2274

If you have any questions or would like additional information about the project, please do not hesitate to contact Ed Elam or Paul Waidhas at 504-486-5901.

Please refer to State Project No. H.004791 in your reply. Thank you for your input regarding this project.

Jeffrey Roesel, AICP
Deputy Director
Regional Planning Commission

This project has been reviewed for effects to Federal trust resources under our jurisdiction and currently protected by the Endangered Species Act of 1973 (Act). The project, as proposed,
( ) Will have no effect on those resources
(✓) Is not likely to adversely affect those resources.
This finding fulfills the requirements under Section 7(a)(2) of the Act.

Oct 24, 2012
Date

Acting Supervisor
Louisiana Field Office
U.S. Fish and Wildlife Service

TRANSPORTATION POLICY COMMITTEE (MPO) Full RPC Membership
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Appendix B
Other Correspondence

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Office of Engineering
PO Box 94245 | Baton Rouge, LA 70804-9245
ph: 225-379-1234| fx: 225-379-1851

John Bel Edwards, Governor
Shawn D. Wilson, Ph.D., Secretary
Christopher P. Knotts, P.E., Chief Engineer

December 28, 2018

STATE PROJECT NO. H.004791
FEDERAL-AID PROJECT NO. H004791
LA 23: BELLE CHASSE BRIDGE AND TUNNEL (HBI)
ROUTE: LA 23
PARISHES: JEFFERSON AND PLAQUEMINES

Mr. Wes Bolinger
Division Administrator
Federal Highway Administration
5304 Flanders Drive, Suite A
Baton Rouge, LA 70808
ATTN: Robert Mahoney, Mark Stinson

APPROVED
Robert Mahoney
ENVIRONMENTAL COORDINATOR
FEDERAL HIGHWAY ADMINISTRATION
DATE 1-03-2019

VIA: email with electronic attachments via large file transfer

SUBJECT: Environmental Assessment

Dear Mr. Bolinger:

Transmitted for your approval is the Environmental Assessment (EA) for the above captioned project. The Louisiana Department of Transportation and Development (LADOTD) previously identified Alternative 4A (73-foot fixed span, 4-lane bridge at 5% grade) as the preferred alternative for this project (see enclosed February 19, 2018 correspondence). A public hearing was held on November 28, 2018 for which the transcript is enclosed including responses to the public comments received. Also enclosed for your approval are the Section 4(f) Programmatic statement for the historic LA 23 Judge Perez Bridge and the Section 4(f) statement for the historic LA 23 Belle Chasse Tunnel, as required by Title 23 Part 774 of the United States Code (23 CFR Part 774). LADOTD certifies that due consideration has been given to the social, economic, environmental and other effects of the proposed project, and that all requirements set forth in Section 128 of Title 23 of the United States Code have been met.

We request that this project be processed with a Finding of No Significant Impact (FONSI). The attached sheet has been provided for your stamp and signature. If you have any questions, please contact Carey Coxe at (225) 242 4520, carey.coxe@la.gov or Tiffinee Brown at (225) 242-4518, tiffinee.brown@la,gov.

Sincerely,

for Noel Ardoin, Environmental Engineer Administrator

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REGIONAL PLANNING COMMISSION

JEFFERSON, ORLEANS, PLAQUEMINES, ST. BERNARD, ST. CHARLES, ST. JOHN THE BAPTIST, ST. TAMMANY AND TANGIPAHOA PARISHES

August 11, 2017

Ms. Tiffinee Brown, Environmental Impact Specialist 3
Louisiana Department of Transportation & Development
Environmental Section - 28
P.O. Box 94245
Baton Rouge, LA 70804-9245

RE: Belle Chasse Tunnel & Bridge EA
SPN 700-38-010 / H.004791

Dear Ms. Brown:

Pursuant to our discussions at our July 31st meeting and after careful deliberation the Regional Planning Commission is hereby notifying the Louisiana Department of Transportation & Development that we have identified Alternative 2a.[1] from the attached preservation alternatives matrix as our Preferred Alternative because it best meets the purpose and need of the project in comparison to the other remaining alternatives. This alternative is depicted on the attached plan view sheet. It consists of demolishing the existing LA 23 tunnel and vertical lift bridge, and replacing those structures with a single four-lane fixed span that also provides for bicycle and pedestrian traffic. The bridge features will also include 5% grade approaches on LA 23, a 73 foot vertical and 150 foot horizontal navigation envelope for vessels on the Gulf Intracoastal Waterway. We have identified Alternative 2a as our choice as the Preferred Alternative based on the following:

- It fully meets the project's purpose and need;
- It fully meets the current roadway and inland waterway navigation requirements and standards;
- It will be built within the existing LA 23 right-of-way;
- It will improve daily traffic operations on LA 23 between Lapalco Boulevard and Woodland Highway (LA 406);
- It will improve daily marine vessel traffic operations on the Algiers Canal section of the GIWW;
- It will provide higher capacity and greater reliability for highway traffic and marine vessel traffic during hurricane evacuation situations;
- It will have lower maintenance requirements and costs than either a moveable bridge or tunnel;

The attached preservation alternatives matrix provides the basis for the RPC's identification of a preferred alternative. As noted in the matrix, we understand that an impact related to this is the removal of two structures that are over 50 years old. While unfortunate, we believe that in total, advantages provided by construction of the identified Preferred Alternative will far outweigh the loss of these aging and increasingly unreliable existing water crossings. The RPC will work with the Department to notify any interested parties of the availability of these two structures so that their potential for an alternative use(s) can be explored.

[1] Description same as Alternative 4A as presented previously to the public and in all project-related analyses completed to this point in the project, including the 73' Foot Fixed Span Bridge Alternatives Evaluation Matrix, also attached.

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We appreciate the assistance that the DOTD has provided throughout the environmental process and look forward its successful conclusion so that we can improve this vital highway and maritime transportation structure.

Sincerely,

Walter Brooks

Walter Brooks
Executive Director

Cc: Noel Ardoin, DOTD
Loong Tsai, DOTD
Maria Reid, DOTD
Carey Coxe, DOTD
Paul Waidhas, BKI

Attachments: Judge Perez Bridge / Belle Chasse Tunnel Decision Matrix
Alternative Plan View
Summary Evaluation of 73-foot Fixed-Span Bridge Alternatives

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Summary Evaluation of 73-foot Fixed-Span Bridge Alternatives
LA 23 Corridor at GIWW

	Alternative 4A *4-lane, 73 ft, 5% Grade, fixed-span bridge*	Alternative 6A *6-lane, 73 ft, 3% Grade, fixed-span bridge*	Alternative 6B *6-lane, 73 ft, 4% Grade, fixed-span bridge*	Alternative 6C *6-lane, 73 ft, 5% Grade, fixed-span bridge*	Alternative 6D *6-lane, 73 ft, Optimized Grade [1], fixed-span bridge*
Total Number of Potential Sites Impacted (est)[2]	**8**	**70**	**47**	**43**	**45**
Occupied Sites	7	52	34	30	32
Vacant Sites	1	13	10	10	10
Unknown Sites	0	5	3	3	3
Types of Activities on Potential Sites (est)[2]	**5**	**88**	**66**	**60**	**65**
Residential (Single-family, 2-family)	0	25	7	6	7
Commercial (Individual businesses[3])	5	59	56	51	55
Industrial Activities	0	3	2	2	2
Community Facilities	0	0	0	0	0
Other	0	1	1	1	1
Traffic Operations on LA 23[4]					
AM Peak Improvement (Lapalco to Woodland SB)	17% reduction in travel time	17% reduction in travel time	14% reduction in travel time	20% reduction in travel time	20% reduction in travel time
PM Peak Improvement (Woodland to Lapalco NB)	59% reduction in travel time	19% reduction in travel time	22% reduction in travel time	61% reduction in travel time	61% reduction in travel time
Traffic Volumes					
Existing Bridge/Tunnel Combined ADT (2012)	46,750	46,750	46,750	46,750	46,750
Bridge Estimated ADT from NORTM E+C (2044)	47,600	48,200	48,200	48,200	48,200
Differential (44 vs.12)	2%	3%	3%	3%	3%
Pedestrian Access Measures					
Sidewalk/Side Path	YES	YES	YES	YES	YES
Apparent Local Road Closures/Relocations					
Local Streets closed (due to structure)	4	8	5	4	4
Driveways potentially closed (est.)	6	43	39	39	39
Relocated NOGC Railway Spur	NO	YES	YES	NO	NO
RELOCATED - Barriere Road	NO	YES	YES	NO	YES
RELOCATED - Engineers Road	YES	YES	YES	YES	YES
Additional Waterway Crossings					
Barataria Outfall Canal	0	3	2	0	1
Bayou Barriere/Barriere Outfall Canal	0	2	2	1	2
Marine Operations					
Requires Bridge openning to allow traffic passage on GIWW?	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings
Hurricane Evacuation/Operations					
Projected impact on Hurricane Evacuation Traffic Operations	Eliminates bridge openings during evacuation	Eliminates bridge openings during evacuation	Eliminates bridge openings during evacuation	Eliminates bridge openings during evacuation	Eliminates bridge openings during evacuation
Initial Order of Magnitude Cost Estimate[5]	**$121.9 mil**	**$240.1 mil**	**$206.2 mil**	**$170.0 mil**	—[1]
Lifecycle Operations and Maintenance [6]	**$11.0 mil**	**$21.6 mil**	**$18.6 mil**	**$15.3 mil**	

Notes:

1- Optimized concept discarded from further consideration and review as Alternative 6C provided a similar bridge slope and fewer potential impacts.

2 - Site status (occupied vs. vacant) as defined with field review completed in August 2015. Closed business sites identified during field review included within the category "Vacant Sites". Sites identified as "Unknown" appeared to be either occupied or vacant, but a clear determination was not possible during the field review.

3- As defined during field review, August 2015.

4- As summarized from traffic study completed and submited to DOTD on February 15, 2016.

5- Cost of construction includes estimate of initial right-of-way development and relocation costs, initial utility relocation costs, and professional services plus project-based contingency (20%) based upon comparable units from DOTD projects, BKI, August 2016.

6- 75 years operation and maintenance cost, developed using input from DOTDby HNTB and BKI, 2016-2017.

Compiled by Burk-Kleinpeter, Inc. 2015, updated August 11, 2017 - FOR PLANNING PURPOSES ONLY

JUDGE PEREZ BRIDGE/BELLE CHASSE TUNNEL - DECISION MATRIX
STATE PROJECT NO.: 700-38-0108/H.004791
FEDERAL AID PROJECT NO.: H004791
STRUCTURE #0820200432 (Judge Perez Bridge) and 0820200521 (Belle Chasse Tunnel)

Purpose:[1] Belle Chasse Highway (LA 23) is a principal arterial which serves as the primary access point between Jefferson and Plaquemines Parishes. Improving transportation system linkage by improving connectivity of Belle Chasse Highway (LA 23) from Lapalco Boulevard to Woodland Highway could benefit traffic operations in this area. Improvements to LA 23 remain a Megaproject Priority A in the 2015 Louisiana Statewide Transportation Plan Update and Tier III implementation project (FY 2029-2044) in the Metropolitan Transportation Plan adopted by the New Orleans Regional Planning Commission. Along the corridor, LA 23 crosses the Gulf Intracoastal Waterway via movable bridge (Judge Perez Bridge) and tunnel. The GIWW, a 1,300 mile inland commercial waterway, connects established maritime-dependent businesses in the project area with a broad local, regional, national and international clientele via the numerous commercial port facilities oriented to the waterway as well as along the Mississippi River. The proposed action for this project must maintain or improve modal interrelationships between vehicular traffic on LA 23 and maritime traffic in the Gulf Intracoastal Waterway.

Need: Improving connectivity in the Belle Chasse Highway (LA 23) corridor addresses current conditions and operational constraints created by aging infrastructure. Constructed in 1956, the Belle Chasse Tunnel closes whenever maintenance activities warrant. During these periods, the Judge Perez Bridge, constructed in 1958, operates with two-way traffic, effectively reducing the capacity for traffic at this location by half. The Bridge also must open its center span to accommodate maritime traffic needs on the GIWW, stopping the flow of northbound traffic and creating additional operational delays on the Belle Chasse Highway (LA 23) corridor. Solutions in place to maintain peak-period traffic operations also affect maritime operations on the GIWW.

	Possible Scenario	Meets Purpose and Need Statement		Criteria						
		Improving Transportation System Linkage	Maintain or Improve Modal Interrelationships	Roadway Deficiencies	Historic Value	Estimated Cost (DOTD)	Estimated Cost (FHWA)	Estimated Cost (Others)	Mitigation	Environmental Impacts
Alternative 1 No Build *2-lane Judge Perez Bridge plus 2-lane Belle Chasse Tunnel*	Bridge/tunnel maintained as is	No Curfew operations remain in place to keep Judge Perez Bridge open to vehicles during peak traffic. Curfew limits time for marine traffic passage through the area.	No SB oversized trucks and hazardous cargoes must continue to use 9.0 mile detour around Belle Chasse Tunnel.	Con - bridge and tunnel both have inadequate cross section, high maintenance and operations costs. Closures of bridge/tunnel to address maintenance remain in place	Pro - Historic structures (Bridge and Tunnel) left in place. Tunnel is likely eligible for inclusion on the National Register of Historic Places. Con - Bridge and tunnel will continue to deteriorate. Tunnel closes with regular frequency for cleaning and repair of leaks, etc.	100% State Funds for Maintenance 75-yr O&M Costs Bridge: $62,000,000 Tunnel: $59,100,000	None	None	N/A	No effect to historic property. Possible eventual loss of historic structures to deterioration or damage.
Alternative 2 Replace Bridge and Tunnel on Existing Alignment *New 4-lane fixed bridge at 73ft high, demolish Belle Chasse Tunnel and Judge Perez Bridge*	2a.) Demolish existing tunnel and bridge and new 5% grade bridge built on current alignment	Yes New bridge improves traffic operations in corridor between Lapalco Boulevard and Woodland Highway.	Yes New bridge does not need to open to allow maintenance of maritime traffic operations on GIWW. Traffic flow on LA 23 maintained.	Pro - new facility meets all applicable design standards, maintain pedestrian and bicycle access and have reduced cost of operations and maintenance as compared to moveable bridge and tunnel	Con - loss of historic property and adverse effects.	$ 24,380,000 20% of Design/Construction $ 20,172,000 20% of ROW $ 1,328,000 20% of Utilities Costs $ 1,080,000 20% of Bridge/Tunnel Demo $ 1,800,000 75-yr O&M Cost $ 11,000,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	$ 97,520,000 80% of Design/Construction $ 80,688,000 80% of ROW $ 5,312,000 80% of Utilities Costs $ 4,320,000 80% of Bridge/Tunnel Demo $ 7,200,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	Unknown Plus additional costs associated with ongoing inspection of floodwall and levee at site of fill/demolition of tunnel (USACE, Southeast Louisiana Flood Protection Authority, West (SLFPA-W))	TBD Bridge mitigated by the Programmatic Agreement; Tunnel mitigated via S106 consultation	**Adverse Effect** due to demolition of structures. Mitigation required for hazardous materials encountered (along with post demo site monitoring). Activities must not undermine levee/floodwall. Impact to private property; new 4-lane bridge ROW requires 8.7 acres of property and +/- 5 structures
New 4-lane fixed bridge at 73ft high, demolish Belle Chasse Tunnel and relocate Judge Perez Bridge	2b.) Existing bridge moved to new location where it may regain eligibility with tunnel demolished in place. New 5% grade bridge built on current alignment.	Yes New bridge improves traffic operations in corridor between Lapalco Boulevard and Woodland Highway.	Yes New bridge does not need to open to allow maintenance of maritime traffic operations on GIWW. Traffic flow on LA 23 maintained.	Pro - new facility meets all applicable design standards and have reduced cost of operations and maintenance	Con - Adverse Effect due to loss of NRHP eligibility, will need to be accepted and maintained by third party. Pro - Bridge can possibly be made NRHP eligible again. Some historic fabric survives.	$ 23,640,000 20% of Design/Construction $ 20,172,000 20% of ROW $ 1,328,000 20% of Utilities Costs $ 1,080,000 20% of Tunnel Demo $ 860,000 75-yr O&M Cost $ 11,000,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	$ 94,160,000 80% of Design/Construction $ 80,688,000 80% of ROW $ 5,312,000 80% of Utilities Costs $ 4,320,000 80% of Tunnel Demo $ 3,840,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	Bridge relocation $4,200,000 plus (requires moving vertical lift span, towers, and associated equipment. Suggest offering funds up to amount equal of demolition to assist.) Con - Cost of bridge relocation exceeding demolition costs, plus estimated 75 year O&M cost for non-operational rehabbed bridge ($24.9M) or operational rehabbed bridge ($46.8M) more than demolition costs.	TBD Bridge mitigated by the Programmatic Agreement; Tunnel mitigated via S106 consultation	**Adverse Effect** created by bridge removal. Regaining NRHP eligibility at new location possibility. **Adverse Effect** due to demolition of tunnel. Mitigation required for hazardous materials encountered (along with post demo site monitoring). Activities must not undermine levee/floodwall along GIWW. Impact to private property; new 4-lane bridge ROW requires 8.7 acres of property and +/- 5 structures

	Possible Scenario	Meets Purpose and Need Statement		Criteria						
		Improving Transportation System Linkage	Maintain or Improve Modal Interrelationships	Roadway Deficiencies	Historic Value	Estimated Cost (DOTD)	Estimated Cost (FHWA)	Estimated Cost (Others)	Mitigation	Environmental Impacts
Alternative 3 Replacement Bridge on Alternative Alignment *New 4-lane fixed bridge at 73ft high, Rehabilitate and Store Raised Judge Perez Bridge and demolish Belle Chasse Tunnel*	3a.) New 5% grade bridge built on alternative alignment west of current bridge and historic bridge opened and left in place but taken out of service, tunnel demolished in place.	Yes New bridge improves traffic operations in corridor between Lapalco Boulevard and Woodland Highway.	Yes New bridge does not need to open to allow maintenance of maritime traffic operations on GIWW. Traffic flow on LA 23 maintained.	Pro - New bridge constructed to DOTD Design standards.	Con - Potential Adverse Effect - Bridge will be marketed, but if a new owner is not identified within the specified 90 days of marketing time, the bridge will need to be demolished due to being taken out of use on highway system. Tunnel demolition would be an Adverse Effect. Pro - Some historic fabric of bridge survives if new owner found. Otherwise resource is lost and adverse effect results.	$ 23,540,000 20% of Design/Construction $ 20,172,000 20% of ROW $ 1,328,000 20% of Utilities Costs $ 1,080,000 20% of Tunnel Demo $ 960,000 75-yr O&M Cost $ 11,000,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	$ 94,160,000 80% of Design/Construction $ 80,688,000 80% of ROW $ 5,312,000 80% of Utilities Costs $ 4,320,000 80% of Tunnel Demo $ 3,840,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	Bridge Decommission $5,200,000 Con - Cost of decommissioning bridge (stored in up position) exceeding demolition costs, plus estimated 75 year O&M costs ($24.9 M) for maintaining bridge on-site to future owner (if found) is more than demolition costs. Plus Unknown Cost Plus additional costs associated with ongoing inspection of floodwall and levee at site of fill/demolition of tunnel (USACE, SLFPA-W)	TBD Bridge mitigated by the Programmatic Agreement; Tunnel mitigated via S106 consultation	Possible No Adverse Effect If bridge retains NRHP eligibility with rehab and storage in up position New owner responsible for O&M burden for bridge at current location. If new owner not found, bridge would be removed, resulting in an Adverse Effect. Adverse Effect due to demolition of tunnel. Impact to private property; new 4-lane bridge ROW requires 8.7 acres of property and +/- 5 structures
New 4-lane fixed bridge at 73ft high, demolish Judge Perez Bridge and demolish Belle Chasse Tunnel	3b.) New 5% grade bridge built on alternative alignment west of current historic bridge, with historic bridge demolished and tunnel demolished in place.	Yes New bridge improves traffic operations in corridor between Lapalco Boulevard and Woodland Highway.	Yes New bridge does not need to open to allow maintenance of maritime traffic operations on GIWW. Traffic flow on LA 23 maintained.	Pro - New bridge constructed to DOTD Design standards.	Con - Adverse Effect from loss of bridge and tunnel and related historic fabric.	$ 24,380,000 20% of Design/Construction $ 20,172,000 20% of ROW $ 1,328,000 20% of Utilities Costs $ 1,080,000 20% of Tunnel/Bridge Demo $ 1,800,000 75-yr O&M Cost $ 11,000,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	$ 97,520,000 80% of Design/Construction $ 80,688,000 80% of ROW $ 5,312,000 80% of Utilities Costs $ 4,320,000 80% of Tunnel/Bridge Demo $ 7,200,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling	Unknown Cost Plus additional costs associated with ongoing inspection of floodwall and levee at site of fill/demolition of tunnel (USACE, SLFPA-W)	TBD Bridge mitigated by the Programmatic Agreement; Tunnel mitigated via S106 consultation	Adverse Effect due to demolition of bridge and tunnel. Mitigation required for hazardous materials encountered (along with post demo site monitoring). Activities must not undermine levee/floodwall along GIWW. Impact to private property; new 4-lane bridge ROW requires 8.7 acres of property and +/- 5 structures
Alternative 3 Replacement Bridge on Alternative Alignment *(Continued)* *New 2-lane fixed bridge at 73ft high, Raise (Bay 2) Judge Perez Bridge and demolish Belle Chasse Tunnel*	3c.) New 5% grade bridge built on alternative alignment west of current bridge and historic bridge left in service; historic bridge is raised to reduce openings required at GIWW (Raise Bay 2) with reconstruction following the secretary of interior standards, functional integrity does not directly increase corridor or structure transportation capacity. Tunnel demolished in place.	Yes New bridge improves traffic operations in corridor between Lapalco Boulevard and Woodland Highway.	Yes SB traffic operations improved (limitations for oversized vehicles removed. NB traffic operations improve as alternative raises height of deck's seated position by 20 feet, which reduces bridge openings by 90%.	Pro - New approaches constructed to DOTD Design standards. Improves mechanics, mechanical systems and raises height of deck's seated position by 20 feet, reducing bridge openings by 90%. Some existing historic fabric of bridge retained. Con - Existing Judge Perez Bridge cross sectional characteristics remain with no increase in corridor structure of transportation capacity. Closes corridor for up to 18 months.	Con - Possible Adverse Effect from loss of tunnel and related historic fabric as well as Potential Adverse Effect with any Raise Bay 2 Plan. Historic bridge may be negatively impacted by Raise Bay 2 Alternative. Pro - Some historic fabric survives with bridge rehab and reuse.	$ 28,950,000 20% of Design/Construction $ 9,480,000 20% of ROW $ 1,328,000 20% of Utilities Costs $ 1,180,000 20% Raise Bay 2 Bridge* $ 16,002,000 20% of Tunnel Demo $ 960,000 75-yr O&M Cost $ 50,000,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling 75 yr O&M cost ($39 M) for Judge Perez bridge would remain	$ 115,800,000 80% of Design/Construction $ 37,920,000 80% of ROW $ 5,312,000 80% of Utilities Costs $ 4,720,000 80% Raise Bay 2 Bridge* $ 64,008,000 80% of Tunnel Demo $ 3,840,000 Con - Higher cost to DOTD and FHWA to accommodate demolition activities Tunnel demolition occurs in-place with removal of access points and filling 75 yr O&M cost ($39 M) for Judge Perez bridge would remain	Unknown Cost Plus additional costs associated with ongoing inspection of floodwall and levee at site of fill/demolition of tunnel (USACE, SLFPA-W)	TBD Bridge mitigated by the Programmatic Agreement; Tunnel mitigated via S106 consultation	Possible Adverse Effect with Raise Bay 2 Bridge Plan. Possible No Adverse Effect if bridge retains NRHP eligibility with proposed rehabilitation. Historic integrity is anticipated to be maintained, however should be closely examined during engineering development. Adverse Effect due to demolition of tunnel. Mitigation required for hazardous materials encountered (along with post demo site monitoring). Activities must not undermine levee/floodwall along GIWW. Impact to private property; new 2-lane bridge ROW requires 8.7 acres of property and +/- 5 structures

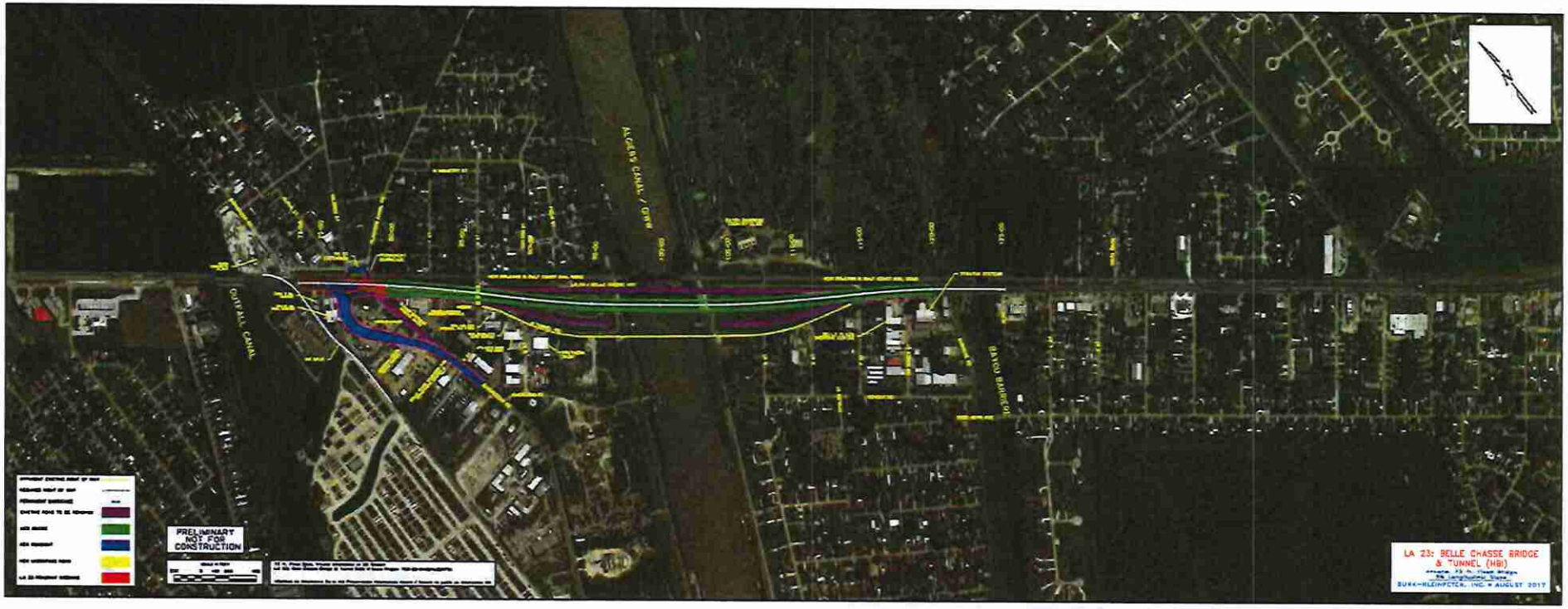
	Possible Scenario	Meets Purpose and Need Statement		Criteria						
		Improving Transportation System Linkage	Maintain or Improve Modal Interrelationships	Roadway Deficiencies	Historic Value	Estimated Cost (DOTD)	Estimated Cost (FHWA)	Estimated Cost (Others)	Mitigation	Environmental Impacts
Alternative 4 Rehabilitate Bridge and Tunnel *Rehabilitate 2-lane Judge Perez Bridge plus 2-lane Belle Chasse Tunnel*	4a.) Historic bridge rehabilitated to meet the Secretary of Interior Standards and retain historic integrity with Tunnel rehabilitation completed.	No Existing cross sections would remain, structures would not include shoulders. Detour for SB oversized trucks and hazardous cargoes would remain in place following rehab. Cross section inside of tunnel cannot be widened without loss of pedestrian areas and potential impact to structure.	No Standard rehabilitation does not change bridge horizontal or vertical clearance on GIWW. Bridge functionality improved - reduction in time required to open and close span anticipated. Tunnel rehab does not address tunnel height and width restrictions for oversized trucks. Detour remains for SB oversized trucks and hazardous cargo.	Pro - Bridge and tunnel renovation and maintenance will improve both, extend their life, and keep them in service. Con - bridge and tunnel both have inadequate cross section, high maintenance and operations costs. Eventually, both will deteriorate.	Pro - Historic structures (Bridge and Tunnel) left in place. Tunnel is likely eligible for inclusion on the National Register of Historic Places. Con - Bridge and tunnel will eventually deteriorate. Tunnel closures for cleaning expected as use patterns and demands warrant.	$ 3,960,000 20% of Bridge/Tunnel Rehab 75-yr O&M Cost* $ 91,300,000 Con - 75 yr O&M costs for the tunnel and bridge exceed the cost of rehabilitation at $46.8 million for bridge and $44.5 million for the tunnel.	$ 15,840,000 80% of Bridge/Tunnel Rehab Con - 75 yr O&M costs for the tunnel and bridge exceed the cost of rehabilitation at $46.8 million for bridge and $44.5 million for the tunnel.	None	TBD Bridge mitigated by the Programmatic Agreement; Tunnel mitigated via S106 consultation	Possible No Adverse Effect if bridge and tunnel retain NRHP eligibility with rehab complete.
	4b.) Historic bridge rehabilitated to meet transportation standards but not the Secretary of Interior Standards with Tunnel rehabilitation completed.	No Existing cross sections would remain, structures would not include shoulders. Detour for SB oversized trucks and hazardous cargoes would remain in place following rehab. Cross section inside of tunnel cannot be widened without loss of pedestrian areas and potential impact to structure.	No Standard rehabilitation does not change bridge horizontal or vertical clearance on GIWW. Bridge functionality improved - reduction in time required to open and close span anticipated. Tunnel rehab does not address tunnel height and width restrictions for oversized trucks. Detour remains for SB oversized trucks and hazardous cargo.	Pro - Bridge and tunnel renovation and maintenance will improve both, extend their life, but eventually both will deteriorate. Retention of some of the historic bridge fabric may be possible. Con - Adverse Effect due to incompatible rehab; bridge and tunnel both have inadequate cross section, high maintenance and operations costs.	Pro - Historic structures (Bridge and Tunnel) left in place. Tunnel is likely eligible for inclusion on the National Register of Historic Places. Rehab focus include electrical, mechanical and some minor structural work. Con - Adverse Effect to bridge due to loss of historic fabric. Bridge and tunnel will eventually deteriorate. Tunnel closures for cleaning expected as use patterns and demands warrant.	$ 3,960,000 20% of Bridge/Tunnel Rehab 75-yr O&M Cost* $ 91,300,000 Con - 75 yr O&M costs for the tunnel and bridge exceed the cost of rehabilitation at $46.8 million for bridge and $44.5 million for the tunnel.	$ 15,840,000 80% of Bridge/Tunnel Rehab Con - 75 yr O&M costs for the tunnel and bridge exceed the cost of rehabilitation at $46.8 million for bridge and $44.5 million for the tunnel.	None	TBD Bridge mitigated by the Programmatic Agreement; Tunnel mitigated via S106 consultation	Adverse Effect due to incompatible rehab of bridge which might be mitigated somewhat by retention of some of the historic bridge fabric. Possible eventual loss of historic structure to deterioration and damage.

Notes: Please see *Existing Structures Alternatives Report for Belle Chasse Tunnel and Bridge* (HNTB, January 2017) for more information. Also, during pile driving and excavations, tunnel may be closed to traffic operations for safety and inspected for safety and leakage prior to re-opening.

1.) Bridge: *Raise and Reset Towers* and *Raise/Reset Tower and Renovate* options generally deemed not feasible as this would place tunnel towers within the approach zone of the main east-west runway of the NAS/JRB Belle Chasse facility. *Raise Bay 2 and Renovate* option also not considered as it would add travel lanes to the bridge, creating a 6-lane corridor and remove pedestrian access.

2.) Tunnel: Relocation of tunnel to new location generally deemed not feasible due the type of construction method used to build facility and potential for adverse effect to the structure during process of disassembly. Acquisition of the tunnel by third party generally not deemed feasible given location, cost for rehabilitation ($14.8 million) and estimated 75 year O&M commitment ($44.5 million).

3.) 75 yr O&M costs for existing structures based upon data provided by DOTD.


ALGIERS CANAL / GNOW
OUTFALL CANAL
BAYOU BARATARIA
PRELIMINARY
NOT FOR
CONSTRUCTION
LA 23: BELLE CHASSE BRIDGE
& TUNNEL (HBI)
BURK-KLEINPETER, INC. • AUGUST 2017

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Environmental Section
PO Box 94245 | Baton Rouge, LA 70804-9245
Phone: 225-242-4502 Fax: 225-242-4500

John Bel Edwards, Governor
Shawn D. Wilson, Ph.D., Secretary

February 19, 2018

STATE PROJECT NO.: H.004791
F.A.P NO.: H004791
LA 23: BELLE CHASSE BRIDGE & TUNNEL
JEFFERSON AND PLAQUEMINES PARISHES

Mr. Wes Bolinger
Division Administrator
Federal Highway Administration
5304 Flanders Drive, Suite A
Baton Rouge, LA 70808

SUBJECT: Preferred Alternative Selection

Dear Mr. Bolinger:

The New Orleans Regional Planning Commission (RPC) has selected a preferred alternative for the LA 23: Belle Chasse Bridge and Tunnel Project. The purpose and need for the proposed project is to improve system linkage by improving connectivity of Belle Chasse Highway (LA 23) from Lapalco Boulevard/Behrman Highway (LA 428) to Woodland Highway (LA 406); meet the challenges of transportation demand as identified in the Louisiana Statewide Transportation Plan and the Metropolitan Transportation Plan, New Orleans Urbanized Area; while complimenting modal interrelationships between traffic on LA 23 and maritime access in the Gulf Intracoastal Waterway. The RPC selected the Build Alternative 4A (Historic Alternative 3B) which is a 73 foot fixed span, 4-lane bridge at a 5% grade as the preferred alternative. The Louisiana Department of Transportation and Development (LADOTD) concurs with this selection.

There were numerous project build alternatives initially included for the proposed project. All alternatives have been evaluated based on purpose and need; potential for displacements; visual changes; costs for construction; operations and maintenance; potential impacts on traffic and maritime operations; benefits to hurricane evacuation operations; and general constructability given the current traffic demands on LA 23.

The original build alternatives for the project included 16 options. Within these options were two different bridge technologies which included a movable bridge or a fixed bridge. The alternatives also consisted of four different approach and bridge grade options which include 3%, 4%, 5%, and 6% grades. Input from a project advisory committee which included local officials, the RPC and LADOTD, traffic studies, the maritime community, maritime interests and the public assisted in eliminating many of the original 16 options to a list of five build alternatives (see enclosed Tables 2.1 and 2.2). Bascule and lift span bridges were considered but eliminated due to the LA 23 traffic impacts associated with moveable bridges opening for maritime traffic.

The LA 23 bridge over the Gulf Intracoastal Waterway is also known as the Judge Perez Bridge. It is a steel vertical lift bridge built in 1967, is eligible for the National Register of Historic Places (NRHP) and was included in LADOTD's Historic Bridge Inventory and Historic Bridge Programmatic Agreement (HBPA), executed August 25, 2015. The bridge was categorized as a Preservation Candidate for Historic Preservation. As per HBPA Section VII. C.2 Treatment of Louisiana Historic Bridges, Preservation Candidate Bridges and Attachment 4B Procedures for Project Affecting Preservation Candidate Bridges. The Belle Chasse Tunnel was previously determined eligible for the NRHP by the Federal Highway Administration on February 17, 2017 in relation to a

tunnel repair project (H.012079). The Louisiana State Historic Preservation Officer (SHPO) concurred with the eligibility determination on March 10, 2017 (see enclosed SHPO correspondence dated March 10, 2017).

An Historic Preservation Alternative Decision Matrix is enclosed that assists in explaining the reason that Alternative 4(a) or Historic Alternative 3(b) was chosen. Review of these options with the community and the advisory committee identified support and preference for a fixed span bridge instead of a moveable bridge. Comments documenting these preferences are in the records of public participation for this project. A copy of the public meeting transcript for the public meeting on June 7, 2016 is provided as an enclosure.

A final decision matrix was submitted to the SHPO on June 1, 2017. In response to this letter, the SHPO identified the "No-Build" and the "Rehabilitate Bridge and Tunnel" as the only alternatives acceptable for historic preservation (see enclosed SHPO correspondence dated June 24, 2017). However, the "No-Build" and the "Rehabilitate Bridge and Tunnel" alternative do not meet the purpose and need for the proposed project.

LADOTD wishes to formerly record Alternative 4A (73-foot fixed span, 4-lane bridge at 5% grade) as the preferred alternative for this project. The National Environmental Policy Act process will continue and evaluate the impacts of the preferred alternative and a No Build Alternative in an Environmental Assessment. If you have any questions or comments, please contact Tiffinee Brown at (225) 242-4518.

Sincerely,

for Noel Ardoin
Environmental Engineer Administrator

Enclosures
NA/tnb

cc: Walter Brooks
Eric Kalivoda
Nicholas Olivier

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Endangered Species Act (ESA) Project Review and Guidance for Other Federal Trust Resources Report

Instructions

Please submit a copy of this report to the Louisiana Ecological Services Office for review at lafayette@fws.gov. Contact our office at (337) 291-3100 for further assistance.

Project Description: DOTD proposes to construct a new 4-lane fixed bridge at 73 ft above the high water line of the GIWW. The proposed project occurs at the site of the existing 2-lane Judge Perez Bridge and 2-lane Belle Chasse Tunnel over the Gulf Intracoastal Waterway in the community of Belle Chasse, LA. This project includes minor modifications to the LA 23 corridor between Lapalco Boulevard/Behrman Highway (LA 428) in Jefferson Parish to Woodland Highway (LA 406) in Plaquemines Parish. The project also may include the decommission, demolition, and/or removal of the Judge Perez Bridge and the Belle Chasse Tunnel.

Requesting Agency: Louisiana DOTD

Project Coordinates: Latitude: 29.871521 Longitude: -90.009109

Point of Contact: Maria Bernard Reid

Address: PO Box 94245

City: Baton Rouge **State:** Louisiana **Zip Code:** 70804-9245

Phone Number 1: 225-242-4506 **Phone Number 2:** _____

Email Address: maria.reid@la.gov

Does the proposed action only involve telecommunication structure(s)?

No

Would the proposed action occur entirely within an existing footprint or rights-of-way (ROW)?

No

Would any portion of the proposed action occur within one of these areas of interest?

No

West Indian Manatee

Does the proposed action fall within the manatee consultation zone, excluding the Mississippi River (see map), and involve in-water activities, with depths of at least 2 feet, during the months of June through November?

Yes

Is the proposed action's footprint entirely on land?

No

Would the proposed action involve in-water activities, with depths of at least 2 feet, during the months of June through November?

Yes

Would the following Standard Manatee Conditions for in-Water Activities be included within the project design?

Yes

Standard Manatee Conditions for In-water Activities

During in-water work in areas that potentially support manatees all personnel associated with the project should be instructed about the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. Additionally, personnel should be instructed not to attempt to feed or otherwise interact with the animal, although passively taking pictures or video would be acceptable.

All on-site personnel are responsible for observing water-related activities for the presence of manatee(s). We recommend the following to minimize potential impacts to manatees in areas of their potential presence:

- All work, equipment, and vessel operation should cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Once the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for manatee(s).
- If a manatee(s) is sighted in or near the project area, all vessels associated with the project should operate at “no wake/idle” speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels should follow routes of deep water whenever possible.
- If used, siltation or turbidity barriers should be properly secured, made of material in which manatees cannot become entangled, and be monitored to avoid manatee entrapment or impeding their movement.

- Temporary signs concerning manatees should be posted prior to and during all in-water project activities and removed upon completion. Each vessel involved in construction activities should display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8½ " X 11" reading language similar to the following: "CAUTION BOATERS: MANATEE AREA/ IDLE SPEED IS REQUIRED IN CONSRUCTION AREA AND WHERE THERE IS LESS THAN FOUR FOOT BOTTOM CLEARANCE WHEN MANATEE IS PRESENT". A second temporary sign measuring 8½ " X 11" should be posted at a location prominently visible to all personnel engaged in water-related activities and should read language similar to the following: "CAUTION: MANATEE AREA/ EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION".
- Collisions with, injury to, or sightings of manatees should be immediately reported to the Service's Louisiana Ecological Services Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821). Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident/sighting; and the approximate location, including the latitude and longitude coordinates, if possible.

Conclusion:
We have concluded that the proposed action is not likely to adversely impact the West Indian Manatee.

Maria Bernard Rivet — 10 May 2018
Project Representative — *Date*

Based on the information provided in this report, as well as any pertinent correspondence and documentation saved to the project file at our office (if applicable), the Service agrees with your conclusion that the proposed action is not likely to adversely impact the following species:

West Indian Manatee

Joseph A. R — 14 May 18
Louisiana Ecological Services Office — *Date*
U.S. Fish and Wildlife Service

Technical assistance for the proposed action is concluded when you receive signature from this office. To ensure continued compliance with the ESA, reinitiate coordination when:

- new information reveals that the action may impact listed species to an extent not considered in this coordination;
- the action is modified in a way that causes effects to listed species not considered in this coordination; or
- a new species is listed that the action may impact.

Migratory Bird Conservation Recommendations

Bald Eagle

The proposed project area may provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), which was officially removed from the List of Endangered and Threatened Species as of August 8, 2007. However, the bald eagle remains protected under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) and theMigratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.) The Louisiana Department of Wildlife and Fisheries (LDWF) has not collected comprehensive bald eagle survey data since 2008, and new active, inactive, or alternate nests may have been constructed within the proposed project area since that time.

The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. A copy of the NBEM Guidelines is available at:

http://www.fws.gov/migratorybirds/pdf/management/nationalbaldeaglenanagementguidelines.pdf

In southern Louisiana parishes, eagles typically nest in mature trees (e.g., baldcypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water. Bald eagles may also nest in mature pine trees near large lakes in central and northern Louisiana. If a bald eagle nest occurs or is discovered within 660 feet of the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: https://www.fws.gov/southeast/our-services/eagle-technical-assistance. Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary.

Colonial Waterbirds

In accordance with the Migratory Bird Treaty Act of 1918 (as amended), please be advised should the project area be located in or near wetland habitats which may be inhabited by colonial nesting waterbirds and/or seabirds, additional restrictions may be necessary.

Colonies may be present that are not currently listed in the database maintained by the Louisiana Department of Wildlife and Fisheries. That database is updated primarily by (1) monitoring previously known colony sites and (2) augmenting point-to-point surveys with flyovers of adjacent suitable habitat. Although several comprehensive coast-wide surveys have been recently conducted to determine the location of newly-established nesting colonies, we recommend that a qualified biologist inspect the proposed work site for the presence of undocumented nesting colonies during the nesting season because some waterbird colonies may change locations year-to-year. To minimize disturbance to colonial nesting birds please refer to our colonial nesting waterbird guidance on the LESO Webpage https://www.fws.gov/lafayette/Migratory_Birds/MigBird.html.

Additional Migratory Bird Conservation Recommendations

During the project impact analysis process developers should identify project-related impacts to migratory birds and the conservation measures that will be used to mitigate them. For additional Migratory Bird Conservation recommendations, guidance and tools to help reduce impacts to birds and their habitats please visit the LESO webpage https://www.fws.gov/lafayette/Migratory_Birds/MigBird.html and the Service's Migratory Bird Program Webpage (https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php).

Gulf Intracoastal Canal Association
PO Box 6846
New Orleans, LA 70174

RECEIVED
MAR 26 2013
Burk-Kleinpeter Inc.

March 25, 2013

Mr. Jason Sappington
Senior Transportation Planner
New Orleans Regional Planning Commission
10 Veterans Memorial Boulevard
New Orleans, LA 70124

Dear Mr. Sappington:

As requested at our meeting on March 14th, I am writing to offer comments on behalf of the Gulf Intracoastal Canal Association (GICA) on the Replace Belle Chasse Tunnel and Bridge Project, Stage 1 Environmental Assessment (EA). GICA is a 108-year-old trade association representing some 400 industry members and stakeholders involved in towboat and barge operations, shipping, shipyards and associated waterways industries which use the Gulf Intracoastal Waterway (GIWW) between Brownsville, Texas and St. Marks, Florida. GICA is committed to ensuring the GIWW is maintained, operated and improved to provide safe, efficient, economical and environmentally-sound water transportation, serving petrochemical facilities, refineries, farms, mines, ports, commercial fisheries, and recreation.

As discussed on March 14th, GICA's preferred alternative, which our members feel provides the safest and most efficient result for waterways commerce at the Belle Chasse Bridge, on the Algiers Canal, is your Alternative 2 – a 70 foot high, movable bridge. The great majority of GICA members and associates would not require openings of a bridge of this height and would be amenable to once a day openings for vessels with greater than 70 foot air draft. Additionally, we discussed the horizontal clearance associated with this alternative. Although the most recent draft of the EA indicates up to a 250 foot horizontal clearance associated with the 70 foot movable bridge, the Regional Planning Commission and its contractor, Burk-Kleinpeter, Inc., are now proposing a narrower horizontal clearance as a practical and less costly alternative.

GICA has long advocated for safe navigational clearances on the GIWW when structures on the waterway are considered. Most recently, we have made clear our position that a 225 foot minimum horizontal clearance should be adopted for all structures contemplated. This was our position during design consultations for the West Closure Complex and the IHNC Lake Borgne Surge Barrier features of the USACE's New Orleans Hurricane Storm Damage Risk Reduction System. The West Closure Complex does have a 225 foot sector gate and the Surge Barrier features a 150 foot sector gate and an adjacent 150 foot barge gate to accommodate navigation while providing flood protection. Further, in Texas, the I-45 Galveston Causeway and BNSF Railroad Bridges which cross the GIWW at mile marker 357 West of Harvey Locks, have been widened to a much safer 300 foot horizontal clearance.

GICA recognizes the practical and fiscal challenges associated with a 225 foot horizontal bridge opening at the Belle Chasse location. Given: 1) the generally protected nature of the Algiers Canal, 2) that the nearby Algiers Lock has a horizontal clearance of 75 feet and 3) that nearby 150 foot wide bridges also

act to restrict navigation traffic, GICA is not opposed to sizing the Belle Chasse replacement bridge with a 150 feet horizontal clearance.

Thank you for the opportunity to comment on this important project. GICA and its members look forward to safer and more efficient waterborne traffic as a result of a new bridge.

Sincerely,

Jim Stark
Executive Director

Cc: Mr. David Frank, Commander, Eighth Coast Guard District Bridge Administration Branch
Mr. Ed Elam, Associate Planner, Burk-Kleinpeter, Inc.

HARVEY CANAL INDUSTRIAL ASSOCIATION
The voice of the business community since 1946

August 8, 2013

Mr. Paul Waidhas, AICP
Vice President of Planning
Burke-Kleinpeter, Inc.
479 Canal Street
New Orleans, LA 70119

REPLACE BELLE CHASSE TUNNEL & BRIDGE
STAGE 1 ENVIRONMENTAL ASSESSMENT
State Project No. 700-38-0108 • H.004791 • Federal Aid Project No. DE-3806(500) • RPC Contract No: BCTunnel

Dear Mr. Waidhas:

The Harvey Canal Industrial Association (HCIA) understands that the Louisiana State Department of Transportation and Development, the New Orleans Regional Planning Commission and the Plaquemines Parish Government recently joined together to do an environmental assessment study for a new bridge over the Algiers Canal to replace the current lift bridge and tunnel on Highway 23.

The HCIA has reviewed the four proposed alternatives for the replacement bridge. After careful consideration, the HCIA Board of Directors has voted to support Alternative #4, which if accepted, will be a 73' fixed bridge over the Gulf Intercostal Waterway (Algiers Canal).

The HCIA considered many factors in supporting Alternative #4, mainly, however, that the new bridge (and the removal of the tunnel) will provide easier access to lower Plaquemines for the trucking industry, giving an economic impact for the future growth along the Algiers/Harvey Canal industrial corridor. In conjunction with the proposed 100' fixed bridge for the Peters Road extension, these improvements will reduce vehicular congestion for over 46,000 users daily and provide a much needed hurricane evacuation alternative for the entire Belle Chasse community. The HCIA also recognizes that the 73' fixed bridge is the most cost effective alternative that can be achieved within the limits of the State's fiscal concerns.

We look forward to continuing to work with you on moving this project forward.

Sincerely,

Laurie Soileau,
President
Harvey Canal Industrial Association

P. O. BOX 397 · HARVEY, LA · 70059 · PHONE (504) 367-1721 · FAX (504) 367-8927 · EMAIL: hcia@bellsouth.net

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Appendix C
Public Comments Received

Appendix C: Public Comments Received

LA 23: Belle Chasse Bridge & Tunnel (HBI) Public Information Meetings

Comment forms received on February 26, 2013 at close of public information meeting

No.	Submitted By	Comment or Question	Response
1	C Danos	Please use the design for the 100' fixed bridge!	Comment noted.
2	K Davenport	The largest bridge is the best for Belle Chasse – even though it would effect us more in traffic in our neighborhood. Go biggest & best!	Comments noted.
3	J Davenport	The 100' fixed high-level bridge alternative would be the best for the parish. It would probably have the most impact on my neighborhood.	The fixed-bridge alternative option 1, 100 ft, did not continue past the first level of alternatives evaluation. The fixed-bridge alternative option 4A, 73 ft, meets the project purpose and need, would have fewer potential impacts to the community, offer benefits to network continuity and traffic operations while costing less to construct than the 100 ft fixed-bridge alternative.
4	D Landry	I am in favor of the 100 foot bridge.	Comment noted

Comment written onto exhibit board at the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
5	D. Schmitt	Mr. Schmitt provided a mark-up of Exhibit 1B, 100-foot Fixed Bridge, with a suggestion for a ramp to the bridge from Engineers Rd (LA 3017) eastbound, to LA 23 southbound, and from existing Barriere Road eastbound to LA 23 northbound and to LA 23 southbound.	Comments noted. The physical constraints of the bridge location, elevation, and active rail line along the eastern edge of LA 23, combined with the requirements for roadway grade and radii preclude consideration of flyover ramps at the locations identified.

Comment submitted by letter at the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
6	M. Mariana	For several reasons, I do not support any of the current options to replace the Belle Chasse Bridge and Tunnel with a new bridge. Our most sensible option is a new state-of-the-art 4-lane or 6-lane tunnel placed between the current bridge and tunnel system. This option has essentially no negative impact on a 45 year old business and residential corridor and thus I believe has a lower total cost to our community. Unfortunately, the tunnel option has never been given a serious and thorough evaluation. I ask you to do that now, even at this late date. Look outside of the U.S. to the Netherlands where 3 tunnels were built in the last 20 years all at a cost comparable to the bridge proposals without the long-term negative consequences. A new, state-of-the-art 4-lane or 6-lane tunnel, once that does not leak and that is properly maintained would enhance the quality of life in the Belle Chasse community. Imagine never waiting for the bridge again. We could take advantage of most the current infrastructure without the significant impact of the bridge options. A new tunnel would allow people to get into and out of Belle Chasse for lunch. It would get works into and especially out of Belle Chasse in the evenings without having to wait for the bridge. It would ensure that ambulances are never again behind a mile of bridge traffic. Some would have to make new excuses for being late to work. And I might finally get to see all of the movie previews. All of the new bridge options have major flaws. And with the high-rise Woodland Bridge and the new high-rise bridge at the Peters Road Bypass, large trucks and oversized loads still have access to LA 23. A new high-rise bridge at Belle Chasse, however, would stretch from the Jefferson Parish line to Woodland Highway. It would have a significant negative impact on several dozen businesses and hundreds of families. And no sane resident of Belle Chasse wants another draw bridge of any size. We have only one clear alternative, a new, state-of-the-art 4 lane or 6 lane tunnel to replace the current bridge and tunnel. Please given it the consideration it deserves. Sincerely (Signed with name, address, email address and cell phone number). Attachment includes tunnel cost estimates for tunnels constructed in The Netherlands as compared with FHWA.	Comments noted. The initial feasibility study (Stage 0) considered a tunnel replacement option as one of the potential improvements in this location. At the time of that study (2009), constructability issues with the tunnel surfaced. These included the potential impacts to navigation on the GIWW resulting from a full or partial closure of the canal during construction, potential problems with current soils and concerns about the long-term maintenance burden associated with an operating tunnel given the local environment. In addition, initial construction cost estimates, given the local environment, were 2.5 times greater than the most expense bridge replacement alternative identified. Any proposed tunnel could have a developed footprint like the Build Alternatives 2 and 3. Potential impacts to the built environment would be similar including some potential structural displacements. In addition, closure of driveway access along LA 23 occurs in the tunnel to accommodate the structure's approaches. Opportunities for frontage roads to restore property access remains limited within creating additional structural displacements, given the current space constraints on the LA 23 corridor away from the current tunnel and bridge location.

Comment submitted by letter at the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
7	B. Becnel	We need someone to please contact us. Our business is just before the tunnel and will be cut off. Ben Becnel (phone number and email address provided). We farm for a living. This building is used to sell our produce.	Comments noted. Contact information added to future notices of public information meetings. All concepts displayed at this meeting close Tunnel Road at LA 23. Tunnel Road remains accessible from West X Street, via Engineers Rd (LA 3017).

Comment submitted by letter or reply form following the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
8	S/P Mattison	I would like to see a 70 ft bridge build. Doing this saves time and money in building it. It keeps jobs and will help alleviate traffic. People would know when it will be open to marine traffic. The 100 ft bridge may sound nice but it would cost jobs and take more properties from people in order to build. It would require all 3 of my properties on L Street to be built. I am willing to move as long as I get the price I feel it is worth. Two of my properties are on commercial. I want what is best for Plaquemines Parish.	Comments noted. Personnel from DOTD Real Estate division present at the public information meeting were able to respond to specific questions regarding property acquisition.
9	T& R Roubion	1.) The only option that will not affect us is the 60 ft bridge. Our business (Roubion's Tire Service) has been at Barriere Rd for 33 years. 2.) The business is worth much more than the value of the property, so any buy out and relocation would be a loss for us. 3.) A 70 ft bridge doesn't make sense because the advantages of it don't out weigh the disadvantages, as long as the 60 ft bridge is an option. A 100 ft bridge would be like having the I-10 in your back yard, and too many people would be displaced. Crime would increase along noise and quality of life.	Comments noted about alternatives. The option 4A does not impact the location identified in these comments (Roubion's Tire Service, at the corner of LA 23 and Barriere Road). The design concept ends the bridge on LA 23 at Dr. Bowen Drive and returns the corridor to the existing LA 23 right-of-way before Barriere Road.
10	D. Pavlovich	I think 70 foot bridge would be ample for the amount of Marine traffic.	Comment noted. Review of marine traffic and bridge opening patterns at Judge Perez Bridge substantiate that a bridge at 70 feet above mean sea level could accommodate 98% of the marine traffic sources surveyed as a part of this project.

Comment submitted by letter or reply form following the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
11	G/H Ragas	Due to the tremendous amount of traffic on LA Hwy 23 at the northern end of Plaquemines Parish, AND common sense tells us that this traffic will increase tremendously as our Parish continues its rapid growth in the upper westbank area, we must seek to choose the 100' high bridge which will never close and stop our traffic flow! President Nungesser at the 2/16/13 meeting said it would take decades to obtain right-of-ways to build a 100' high bridge. Can someone with the LADOTD confirm Billy's fears that a 100' high bridge would not happen in our life time due to right-of-way acquisitions? Does the state have the right to expropriate the right of ways needed for a 100' high bridge? Have other crossings of a 100' high bridge over the Intracoastal Canal within several miles of the existing bridge been studied to determine if feasible? Is a large modern tunnel out of the question due to cost? Please provide the public with the answer to these questions. Thank you so much! Let's plan ahead for at least 100 years.	Comments noted. DOTD personnel were on-hand at the meeting to respond directly to questions regarding right-of-way acquisition process and policies regarding compensation. This information is available to respond to questions of the public but is not offer for purchase or start of individual property purchase negotiations. Given the level of concept definition, detailed discussion of the process of right-of-way acquisition beyond discussion of the DOTD policy is premature. One of the exhibits in the meeting room provides an overview of the marine study which includes examination of the heights of all structures over the GIWW between the Algiers Lock and LA 3134 in Lafitte, LA. This review shows the height of bridges along the GIWW vary in height in this stretch of the waterway from 40 to 117 feet in height.
12	L Felo	I own and operate La Jae's Restaurant and Catering which is located in the Espenan Strip Mall. I consider option 3 the best option. This option would have the least negative impact on my business. Option 1 would make it difficult for customers to have access to our strip mall. As a result, it would put a financial strain on the business.	Comment noted – *Option 3 is the 60 foot movable bridge option.* The option 4A does not impact the location identified in these comments (Espenan Strip Mall at 7614 LA 23). The design concept ends the bridge on LA 23 at Dr. Bowen Drive and returns the corridor to the existing LA 23 right-of-way before Barriere Road.
13	J. Espenan, Jr.	I support the idea of a 60 or 70 foot bridge. The cost of a 100 foot bridge is too much. To the people whom want a 100 foot bridge, I say we already have one feel free to use it any time its located on Woodland Highway. This parish needs a bridge that can start construction ASAP. Don't lose sight of the reason a new bridge is needed it is because the tunnel is not repairable. I own the mall at 7614 Highway 23. A 100-foot bridge will bankrupt my clients and shutdown this mall due to the fact that we will lose highway access. These businesses cannot survive without easy access from the north and southbound traffic. This mall is the major source of my family's income. I also have drawings and was in the process of permitting two duplexes on M Street. I have shut this project down because of the threat of a 100-foot bridge. Please contact me when a decision is made: Email address provided.	Comment noted. The option 4A does not impact the location identified in these comments (Espenan Strip Mall at 7614 LA 23). The design concept ends the bridge on LA 23 at Dr. Bowen Drive and returns the corridor to the existing LA 23 right-of-way before Barriere Road.

Comment submitted by letter or reply form following the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
14	W. Cornell	My vote is No for 100 ft bridge. Voting for Alt B 70 ft bridge.	Comment noted – *members of the community were not asked to vote a preference as part of this meeting by the project team or DOTD staff members in attendance.*
15	E. Cornell	No to the 100' Bridge, Yes to the 60' Bridge	Comment noted – *members of the community were not asked to vote a preference as part of this meeting by the project team or DOTD staff members in attendance.*
16	L Stegile	I am in favor of the 60' ft bridge we do not need the 100 ft bridge – we have a 100 ft bridge on Woodland Hwy.	Comment noted – *members of the community were not asked to vote a preference as part of this meeting by the project team or DOTD staff members in attendance.*

Comment submitted email following the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
17	Rick	Please tell me that any new bridge…WILL NOT...be a drawbridge…replacing one problem with another is not a solution.	<u>As noted in response to this email:</u> Thank you for your comments. As the project is in the preliminary stage of environmental study, we have included the comments received in the project record. Please visit the project website for updated information related to the project – http://www.bellechassestudy.org/. The next opportunity for in-person input will be during the public hearing, which has not yet been scheduled. To ensure you receive timely notification of future meetings related to the project, please provided your mailing address as part of your response. You may return this information via email to TunnelBridge@bkiusa.com. Thank you. In addition, the project shown at this website address has two drawbridge options under consideration: one at 70 feet above MSL and another at 60 feet above MSL.
18	S. Mattison	I was disappointed by what I saw at this public meeting Belle Chasse on Feb. 26. The 100 ft bridge will take my parents' house, rental, and commercial property forcing them to sell everything they own. The house which they rent out is on commercial property and is the house in	<u>As noted in response to this email:</u> Thank you for your comments. As the project is in the preliminary stage of environmental study, we have included the comments received in the project record. Please visit the project website for updated information related to the project – http://www.bellechassestudy.org/.

Comment submitted email following the public information meeting on February 26, 2013

No.	Submitted By	Comment or Question	Response
19	S. Mattison (continued)	which my dad was raised. In fact, he had a front row seat as L ST was developed and paved. His childhood home was the first on the street. He watched Belle Chasse Bridge and Tunnel were built. Do you honestly want to take his childhood home as well as his current home? I can tell you he doesn't want to just ive it up. The ramp coming through L ST would also greatly impact Brighter Horizons Day Care and the safety of children there. The ramp comes down right in front of the day care. Before and after school care buses would stop in the line of traffic to pick up and drop off children. This was not in the study, so in my book, the study is a bit faulty. On the other side of the bridge, State Oil just finished rebuilding after the fire. Moving Engineers Rd would demolish State Oil and Lucky's Casino with the 100 ft and 70 ft. The only concrete place in the parish that I know of Nairn Concrete Services will also be demolished for a ramp. The draw-bridge is one of the big things that keep crime in Belle Chasse down to a minimal. They can shut down the ferries and raise the bridge, leaving only one way a criminal can go while the police wait for them. My choice would be the 60 ft bridge which would have minimal impact and save jobs.	As noted in response to this email: Thank you for your comments. As the project is in the preliminary stage of environmental study, we have included the comments received in the project record. Please visit the project website for updated information related to the project – http://www.bellechassestudy.org/. The next opportunity for in-person input will be during the public hearing, which has not yet been scheduled. To ensure you receive timely notification of future meetings related to the project, please provided your mailing address as part of your response. You may return this information via email to TunnelBridge@bkiusa.com. Thank you. In addition, the road connections shown on the figures consist of at-grade improvements, not grade separated or ramp structures. If these are a part of the project, they would be labeled as such on the illustrations.

Comment forms received on June 7, 2016 at close of the second public information meeting

No.	Submitted By	Comment or Question	Response
1	G. Abdelnoor	Vote for 4A	Comment noted.
2	D. Ansardi	Best Option 4A	Comment noted.
3	D. Braun	Sisters Restaurant	Comment noted.
4	B&C Mattison	We would like 4A. Live on L St. Hurry up and get it done quick!	Comment noted.

Comment forms received on June 7, 2016 at close of the second public information meeting

No.	Submitted By	Comment or Question	Response
5	O. Billiot	People that own property where the bridge is going to pass bought the property knowing they will make big bucks when it comes time to buy them out. Becnel's Fruit Stand across the Canal on Jefferson side is one of the new property owners.	Comment noted. All property acquisition for this project will be made in connection with the guidelines of the Uniform Act, as administered by DOTD Real Estate. This process utilizes fair market values.
6	D&P Lonodier	After reviewing the 6 lane option of the bridge/tunnel replacement plans, we feel all of these proposals impact our community with the most disruption and economic impact. The 6 lanes destroy the businesses on the south side of the highway. Along with the businesses being closed and removed, you impact several homes blocks at a time. Yes, the residents and visitors of our parish need an alternate to the old and deteriorating tunnel and bridge but NOT at the expense of local businesses and neighborhoods. Please implement option 4A. The cost of construction and least loss of our community should speak volumes!	Comment noted.
7	M. Marland	A new 4-lane or 6-lane tunnel should be seriously evaluated to replace the current bridge and tunnel. We must look to firms with recent tunnel construction experience and there really are none in the US. We should look to firms like Tunnel Engineering Consultants in Europe (tec-tunnel.com). They have several such projects under their belts. A bridge would greatly disturb the Belle Chasse community that has developed over the last 50 years. A tunnel would not. Please seriously evaluate.	Comments noted. A tunnel option for the replacement, considered within the project's Stage 0 Feasibility Study, dropped from consideration due to the relative high cost of construction and potential for impact to maritime operations on the GIWW. Replacing the current tunnel with a modern tunnel structure would require the new facility comply with current design standards. This would require the tunnel be wider (to include shoulders, improved pedestrian access points and wider travel lanes) and longer to provide a gradual grade down under the GIWW and up to the surface. This would extend the limits of the tunnel beyond the current footprint of the Belle Chasse Tunnel, making the length comparable to the 5% bridge options shown at this meeting (both 4- and 6-lane). Constructing a tunnel of this length would provide comparable interruptions and impacts to the bridge option. In addition, the cost of construction and future operations and maintenance requirements would be higher than a bridge in the same location.

Comment received from markups to exhibits at June 7, 2016 during the second public information meeting

No.	Submitted By	Comment or Question	Response
8	J. Guilbeau	This (Alternative 4A) is the best alternative. Least impact! Cheapest!	Comment noted.
9	J. Tonglet	This (Alternative 4A) is my choice seems to be the best alternative!!	Comment noted.
10	S. Mattison	Put weight/speed limit (35 MPH) on existing tunnel and bridge and place money on tunnel to repair it – make it right. Where does the money come from for property acquisition?	Comment noted. In response to the question, the cost of property acquisition is part of the construction cost of the project. Funds used for this activity come from the pool of money used to finance the project.
11	P. Mattison	1.) Put sign 35 MPH thru tunnel. 2.) Put weight limit on Tunnel. 3.) Repair for $15m.	Comment noted.

Comment received by letter as submitted during the June 7, 2016 public information meeting

No.	Submitted By	Comment or Question	Response
12	G. Hero	Re: Belle Chasse Tunnel The Belle chasse tunnel was built as part of digging the Intracoastal Canal. While the canal work was going on the tunnel was constructed on dry land. The tunnel had to be supported by pilings in our soil. When the tunnel was done the canal ran over it. When the pit was dry the pilings were in compression. Once the water covered the structure it could float up but was held down by the pilings in tension. This caused movement of the expansion joints and the leakage. The Expressway tunnel over the Harvey Canal was built by putting a sheet pile cofferdam around half of the Harvey Canal to build half of the tunnel at a time. It is hard to stop a leak from the outside. Friction tape on a leaky garden hose doesn't work. The final permanent repair to our tunnel may to be construct a cofferdam around half, drain one side at a time and patch the leaks from the outside. See attached picture of the construction. (Copy of sepia photo of Belle Chasse Tunnel, Handwritten date of March 3, 1955 and Palmer and Baker, Inc.)	Comments noted.

Comment received by letter as submitted during the June 7, 2016 public information meeting

No.	Submitted By	Comment or Question	Response
13	C Ballay	Re: Belle Chasse Tunnel and Bridge Environmental Assessment (Addressed to Regional Planning Commission, 10 Veterans Memorial Boulevard, New Orleans, LA 70124, Attn: Jason Sappington, AICP) Dear Mr. Sappington: This letter is written to express my views on the above referenced matter. As a life-long resident of Plaquemines Parish, with my residence being in Belle Chasse since 1976, I have used the Belle Chasse Bridge & Tunnel quite often, and thus very familiar with this area. I write to request that a thorough and complete analysis be done on replacing the present bridge and tunnel with a new 4 lane tunnel instead of a new bridge. It just seems that is would be best for Belle Chasse for several reasons, that I will list. First, a new tunnel could be located between the present bridge and tunnel and thus no additional land would be needed and no traffic would have to be re-routed during construction, other than when it would be connected to existing roadways, which should be short period of time. The cost savings on property appropriations would be substantial. Second, a tunnel would keep all of Belle Chasse, located on both sides of the Gulf Intracoastal Waterway (GIWW) closer as a community and not separated as a high bridge would do. A tunnel could easily have a bike/pedestrian area that would allow one to cross the canal on foot or bicycle much easier than over a high bridge. One should keep in mind that the town of Belle Chasse, along with Hwy 23, was here long before the GIWW was dug through it. Third, since the GIWW is not very deep (when compared to rivers or other tunnel crossings), the slope of the tunnel and costs should not be as expensive as most tunnels. And with the progress of construction techniques, materials, and engineering, the stability and quality of a tunnel would be far better today than it was back when the present BC tunnel was built. It has been mentioned that the GIWW can not be closed for the time it would take to construct a tunnel. It would seem that some of the tunnel work could be pre-constructed (welded steel tubes) offsite and moved to location by barge and thus reduce construction time. Also, the GIWW locks at the Miss River required the GIWW to be closed for several months when it was repaired a year or so ago. The marine traffic was re-routed during that time and it seemed to not be a problem. Please include this letter in the public comments obtained on this project. Also, I would also request that if a tunnel is not selected, that an explanation be given as to why a bridge is better for this project. Thank you for your consideration of my foregoing comments and your work on this much needed project.	Comments noted. A tunnel option for the replacement, considered within the project's Stage 0 Feasibility Study, dropped from consideration due to the relative high cost of construction and potential for impact to maritime operations on the GIWW. Replacing the current tunnel with a modern tunnel structure would require the new facility comply with current design standards. This would require the tunnel be wider (to include shoulders, improved pedestrian access points and wider travel lanes) and longer to provide a gradual grade down under the GIWW and up to the surface. This would extend the limits of the tunnel beyond the current footprint of the Belle Chasse Tunnel, making the length comparable to the 5% bridge options shown at this meeting (both 4- and 6-lane). Constructing a tunnel of this length would provide comparable interruptions and impacts to the bridge option. In addition, the cost of construction and future operations and maintenance requirements would be higher than a bridge in the same location. Upon submittal of this letter at the meeting, Mr. Ballay discussed the points raised within with an engineering representative of the project team.

Comment received during June 7, 2016 public information meeting as an audio recording

No.	Submitted By	Comment or Question	Response
14	P. Hensen	My name is Paul Hensen. I live on I Street in Belle Chasse for the last 70 years. I was here before the bridge was ca…and the tunnel was ever built. I wish you'd do something for that…to get rid of that bridge…a good (inaudible) would do a good job.	Comment noted.

Comment forms received in the mail following the June 7, 2016 public information meeting

No.	Submitted By	Comment or Question	Response
15	G/H Ragas	We implore the State of Louisiana to expeditiously proceed with the construction of a new fixed bridge as referenced above, (State Project No. 700-38-0108 • H.004791 Federal Aid Project No. DE-3906(500) RPC Contract No. BCTunnel) to replace the existing bridge and tunnel, which are antiquated and causing unnecessary distress and anxiety to those who regularly use these corridors of travel, due to the extreme traffic congestion of the existing structures. We recommend using option 6C (6-lane 5% grade) to accommodate future expansion and development of the area for the next 100 years. We recommend an increase in gasoline tax by the State to pay for this project and other much needed highway projects in La. such as this one. When feasible, we also recommend tolls, to move forward and not continue to allow our La. Highway System to deteriorate. The lease we expect to achieve is option 4a (4-lane – 5% grade)! Sincerely, Garry B Ragas, Holly P. Ragas	Comments noted.
9	M Diaz FEMA Region VI	Letter dated June 10, 2016, received by Burk-Kleinpeter, Inc. on June 20, 2016: Federal Emergency Management Agency, Region VI, Mitigation Division NOTICE REVIEW/ENVIRONMENTAL CONSULTATION We offer the following comments: WE WOULD REQUEST THAT THE COMMUNITIES' FLOODPLAIN ADMINISTRATORS' BE CONTACTED FOR THE REVIEW AND POSSIBLE PERMIT REQUIREMENTS FOR THIS PROJECT. IF FEDERALLY FUNDED, WE WOULD REQUEST PROJECT TO BE IN COMPLIANCE WITH EO11988 & EO 11990.	Comments noted. Coordination with local floodplain managers took place during solicitation of views. Evaluation for issues relative to EO 11988 (floodplains) and EO 11990 (wetlands) part of the evaluation of project alternatives.
10	M Windom	I think Plan 4A is the best plan and hope it's done soon.	Comment noted.
11	W. Earl Windom	I prefer plan 4A and that it be completed ASAP. I think this is the best alternative.	Comment noted.

Comment forms received in the mail following the June 7, 2016 public information meeting

No.	Submitted By	Comment or Question	Response
12	S. Bustin	I prefer plan 4A. It seems to be the most logical. I do hope whichever plan is selected, it will be built in the near future. My husband and I have lived at our current location on S. Industry St., at the end of Vista Dr. for 44 years. The narrow medians on the hwy. are not adequate for turning cars and are very dangerous. We have through the years witnessed many accidents in our area. In planning for a new bridge, wider medians would be a blessing. Thank you for considering my comments.	Comment noted. As noted during the meeting, the Stage 1 Environmental study is part of a series of steps DOTD follows to develop a project for construction. The timeline discussed for construction could be as few as 10 years, pending the identification of available funding for construction. If funding is not readily identifiable, the timeline for construction could be much longer.
13	R. Bustin	I prefer plan 4A given the amount of property to work with, displacing fewer people. If this plan is chosen, I would hope that wider medians could be incorporated from Barriere Road to Vista Dr. The current ones are not wide enough for a turning vehicle which makes it very dangerous for us turning into Vista or leaving it to go south (left). We live at the end of Vista Dr. and as the traffic has increased, it has become more dangerous. I am hopeful this new bridge could be built in the near future. The last meeting was 3 years ago and nothing definitive has been done.	Comment noted. As noted during the meeting, the Stage 1 Environmental study is part of a series of steps DOTD follows to develop a project for construction. The timeline discussed for construction could be as few as 10 years, pending the identification of available funding for construction. If funding is not readily identifiable, the timeline for construction could be much longer.

Comment cards/emails received because of the July 10, 2018 public information meeting

No.	Submitted by	Comment or Question	Response
1	J. Guilbeau	Build it!	Comment noted.
2	M. Mariana	Thank you. Presentation was well organized. There are a few aspects of the project that must be included in the contract with the private partner. Toll must be easy to pay for the coming into and going out of Belle Chasse (no stopping at all). Tolls must be paid on the fly. Also, if the gas tax is again approved, some funds must go to eliminate the tolls. I will take the secretary at his word that the tolls will be a small as possible for a short a time as possible. Finally, the state must consider increased traffic on LA 406 Woodland Hwy. It will need more maintenance as more people will go to the non-toll bridge. Please keep me informed. Thanks again.	Comment noted.

No.	Submitted by	Comment or Question	Response
3	T. Buras	We were told during the meeting that vessels traveling through the canal often scrape the top of the B.C. Tunnel. Is this true? If so, they should pay for repair.	Marine vessel traffic on the Gulf Intracoastal Waterway (GIWW) is regulated by the US Coast Guard.
4	C. and R. Armes	We were not able to attend the public meeting on 10 July. We just heard today that there is an alternative plan to have a road behind our home on Good News Ave. Please explain just what this alternative is about. This was the first time we had seen or heard of the possibility of Good News having a road behind it with the replacement of the bridge and tunnel.	There is no alternative plan to have a road behind (your home) on Good News Ave. The preferred alternative bridge and its approaches are centered on the existing LA 23 right-of-way.
5	G. Chauvin	We own Chauvin Bros. Tractor established in 1952. Our business has been on the corner of Hwy. 23 and Engineers Rd. since 1988. We are a retail construction and agriculture equipment dealer. We rely on our visibility and our high traffic location for sales. Besides equipment sales, we sell parts, service and have a 25 year old Rental Company (South Louisiana Equipment Rentals). Our Rental Company has one gate on Hwy. 23 that will certainly be blocked with the new bridge. Our Tractor Dealership has three gates; two for eighteen wheelers and one for our parts and equipment customers. We need all four of these gates, but believe this is not possible with the new bridge. This may be necessary for our Parishioners, but worry the new bridge may have a serious negative impact on our 3rd generation family owned business. Thank you for taking the time to read this, as we appreciate your consideration.	Comment noted.
6	M. Hecht	GNO, Inc Letter of Support	Letter is included in the record.
7	J. DiMarco	PABI Letter of Support	Letter is included in the record.
8	D. Havnen	Thank you for the meeting and opportunity to comment on the LA 23: Belle Chasse Bridge & Tunnel (HBI) Environmental Assessment. I am a resident and business owner at 108 West W Street. While I was in attendance of the 10 July 2018 meeting I was unable to see or hear the presentation that was given that evening. I was, however, able to review exhibits and talk with several representatives that evening. To note, I am not opposed to a reasonable toll if it is managed appropriately, preferably an unmanned system, and is removed once the bridge is paid in full. The main concern I'd like to raise is drainage/flooding and the impact on current flood remediation project on the north side of the bridge/tunnel. Our area, just a few hundred feet from the entrance to the tunnel, is currently part of a Hazard Mitigation Grant and Drainage Improvement project. Project Name: Engineers Road – Cazalard Road Drainage Improvements Project Identifiers:	The design of the bridge and tunnel will be coordinated with other ongoing and programmed projects, such as the FEMA Hazard Mitigation drainage project.

No.	Submitted by	Comment or Question	Response
8	D. Havnen	HMGP #1603-075-0009; FEMA-1603-DR-LA, Project #0240 This project has been in the works for nearly 10 years and is nearing the first stages on construction. This project is to improve drainage capacity and prevent flooding. Over the years there have been several projects in our area that have inadvertently reduced drainage capacity at the same time increasing water shed and flooding. We would like to see more consideration given to drainage with regards to flooding and water shed (e.g. water diversion, temporary green space retention ponds, system capacity, preventative maintenance, etc) moving forward with the Bridge/Tunnel project for the safety of our community. In summary, I ask that the issue of drainage and flood prevention be carefully considered and incorporated into the front end of this project.	The design of the bridge and tunnel will be coordinated with other ongoing and programmed projects, such as the FEMA Hazard Mitigation drainage project.
9	J. Stymest/A. Durel	We have been in business in Plaquemines Parish for the last 16 years. We are currently located at 112 Doctor Bowen Street. We understand that the Belle Chasse Bridge Project will make our street not accessible to Belle Chasse Hwy. This inconvenience along with the tolls that are expected to be charged will very likely cause a major financial burden on us due to the fact that 85% of our customers come from outside the parish. This inconvenience to our customers will cause them to look elsewhere for auto repair services. We are a small business and the lost revenue would most definitely force my business to close. Also, over the next few years the construction alone may close my business. Plaquemines Parish is supported by and consists of primarily small businesses. I don't feel the N.O. Regional Planning Commission took into consideration the affect that this project will have on all of the small business owners, not only the ones located on Hwy 23. Remember these businesses are not big box stores, they are family owned and operated. I feel the affect this will have on all of the businesses within the Belle Chasse area could possibly cause lawsuits and the loss of tax revenue to both the state and parish.	Comment noted.
10	N. Cleveland	I'm curious whether you can tell me if DDOT or any other Louisiana government agency running the potential procurement of the Belle Chasse Bridge and Tunnel Replacement Project has hired a Financial Advisor (FA). I see that an engineering advisor (Burk-Kleinpeter, Inc.) has been chosen, but haven't come across an FA to the government. Any assistance on this would be greatly appreciated.	Burk-Kleinpeter, Inc. and their subconsultants are only preparing the environmental assessment, line and grade study and related documents. The DOTD had a statewide feasibility study prepared that included financial analyses of a number of projects, including the Belle Chasse bridge. A P3 firm or team will be chosen to design, construct, operate and maintain the proposed new Belle Chasse bridge.

No.	Submitted by	Comment or Question	Response
11	R. Meladine	I would like to see a sketch of the bridge and off ramps to see if it will affect my home at 221 Burmaster st. Belle Chasse La., if possible you could email it to me @ raymondmeladine@ashtonmarine.com	The residence at 221 Burmaster St. is located approximately one-quarter mile away from the LA 23 right-of-way and the project will be at grade (on the ground) in the existing LA 23 right-of-way at Burmaster St. There are no ramps in the bridge project, only the north and south side LA 23 highway approaches. There is no "sketch of the bridge and off ramps". The plan view exhibits displayed at the public meeting are based on more detailed engineering plans and provide the best depiction of how the proposed project relates to the adjacent properties and local street system.
12	J. Stark	Quick question on your bridge alternatives. I think we have discussed with you and USCG in past. Will the horizontal clearance be bank to bank, no bridge piers in the GIWW? Thanks.	The horizontal marine vessel navigation envelope will be 150 ft. between the fenders protecting the bridge piers. The GIWW navigation channel is 125 ft. wide. Like the current bridge, the piers will be located in the GIWW, outside of the navigation channel.
13	J. Robinson	The cost estimate for the new bridge was almost $150 million. Every project has some contingency built in to its cost estimate that reflects the unknown that could occur. What was the contingency included in the cost estimate?	A 10% contingency cost is included in the construction cost estimate.
14	J. Robinson	"In any project decision, the option of doing nothing is an acceptable alternative. The new bridge does not provide any more lanes than what is there currently. If the objective is to increase traffic flow, options that do that without a new bridge should be examined. Here are some ideas to consider: • Extend bridge opening curfew times. For example, keep the bridge down until 6:30 PM or 7:00 PM	One of the primary reasons for replacing the current bridge and tunnel pair is that they are nearing the end of their usable life. Reliability is an issue, as is evidenced by the relatively frequent bridge and tunnel closures to traffic for both scheduled and unscheduled maintenance.

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14	J. Robinson	"In any project decision, the option of doing nothing is an acceptable alternative. The new bridge does not provide any more lanes than what is there currently. If the objective is to increase traffic flow, options that do that without a new bridge should be examined. Here are some ideas to consider: • Extend bridge opening curfew times. For example, keep the bridge down until 6:30 PM or 7:00 PM	Maintenance costs are rising commensurately. The current bridge curfew times for marine vessel traffic are the result of a study of both navigation and highway travel demands. While the proposed preferred alternative will replace four lanes with four lanes, noticeable capacity and travel time savings will be built into the project. The bridge will never need to open to accommodate marine vessel traffic. The traffic signals will be synchronized between Woodland Hwy. and Lapalco Blvd. Dedicated turning lanes will be incorporated into the primary intersections.
15	J. Robinson	The DOTD has issued a Notice of Intent to solicit bids for the construction of the bridge. Letters of Interest were due in April 4, 2018. A public meeting was held on July 10 and this information was not presented. Please provide a list of the contractors who responded with a Letter of Interest.	The initial DOTD request for interested P3 firms/teams yielded six responses. Those were evaluated by DOTD, with the three strongest candidates being invited to prepare full bid packages. Those three are: Connect One Bridging Partners; Plenary Infrastructure Belle Chasse, LLC; and UBP Belle Chasse Development, LLC. The participating firms on each of these teams can be found on the DOTD website at http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Public-PrivatePartnerships/PubPrivPartnerships/Belle%20Chasse%20Proposer%20Short-%20List.pdf

No.	Submitted by	Comment or Question	Response
16	J. Robinson	I know there are plans to relocate the railroad currently along highway 23 to Peters Road and will extend from there along a route south of the air base to the existing ROW. This is being done to eliminate the crossings on the highway 23 leg and the leg within the Gretna City limits. There are also plans to extend Walker Road to provide another access to Belle Chasse. Why can't these projects be combined and given higher priority? Once the Walker Road extension is done, traffic on the BC Bridge will be reduced. And with the railroad gone, the ROW can be used for a third lane on highway 23.	While an initial feasibility study has been done to evaluate relocating the railroad track paralleling LA 23, there is no funding committed or apparent to do this. However, the preferred alternative Belle Chasse bridge, as contained in the environmental assessment is configured such that two additional lanes can be provided at some point in the future, if and when the railroad tracks are removed. The Peters Road Extension has been paused because of an acute lack of funds to complete the project.
17	L. Vix	I live at 109 Good News Avenue. I would like to know how the people who live on the side streets off of Barriere Road will access their homes. Will the old Belle Chasse Hwy still be available for their use or will Good News be bombarded with this traffic as well as traffic to the back gate of the base.	Barriere Rd. will remain connected to LA 23 as it currently is. Neighborhood and NAS JRB access patterns that depend on Barriere Rd. will not be affected by the Belle Chasse Bridge project.
18	C. Gainey	I am not in favor of the Plaquemines Parish residents paying for this bridge. Too many companies are here in the Parish.	Comment noted.
19	C. Hepting	Traffic to the school is already bad, will a light be put up at Woodland by the Primary or a officer to ensure safety of busses and children during construction? On the J.P. side of tunnel in Ft. St. Leon is where I live, my concern is I travel over the bridge 3 times or more a day. I am a single mom of two, the lowest toll or pass possible would be nice. I think if your in B.C. and have to travel multiple times or live on this side we should have some kind of discount or pass if not a waived fee. The schools are on the opposite side and this should be taken into consideration. Also, the entry and exit out of my neighborhood and closure of Planters Canal is very inconvenient.	A series of intersection improvements between Woodland Hwy. and Lapalco Blvd. are part of the bridge project. Improved signalization and dedicated turning lanes will improve safety and reduce congestion. While a toll structure and special considerations the various user groups crossing the GIWW have yet to be established, DOTD is considering these matters as part of the P3 package. As a result of your comment and others, an alternative to closing Burmaster St. at LA 23 is being evaluated by the project team.

No.	Submitted by	Comment or Question	Response
20	Y. Faulkner	First of all let me say this: I asked about the activity around the bridge and tunnel presently going on and if it was related to the new bridge. I was told "no". I don't believe that because they are taking core samples. Why would they lie? My objections and concerns about the new bridge are: Why are we going to be penalized by making us pay a toll? Residents should either be exempt or given a reduced fee. Are Senior Citizens going to be exempt? The residents at the North end of the bridge will not be impacted like the residents on the South end (in terms of tolls). The cost of the bridge should be shared equally by ALL residents of Plaquemines Parish (not just the West Bank) When the Woodland Hwy. bridge was built, why didn't the residents of Orleans Parish not have to pay a toll? (discrimination) We will essentially be prisoners in our own Parish. The alternative route (Woodland Bridge) is not always convenient depending on your destination. My parents are deceased now but when they were alive they lived on East X Street (at the foot of the bridge) I live on Lake Park Drive. When my father was under Hospice care I frequently made trips there several times a day. The same when my mother was ill and in a nursing home on Woodland Hwy. Thankfully I didn't have to experience paying a toll @ that time because it would have greatly impacted my family. The idea of a toll is totally unacceptable to me. Our property values will plummet if there is a toll implemented. This is my belief as a retiree of the Plaquemines Parish Assessor's Office. We will have to pay higher fees for services from anyone we do business with outside of Plaquemines Parish. Example: I hire a pet sitter who lives in Marrero. She comes to my house 3 times a day…….so she has to pay a toll each time. Ridiculous! Example: I have an in-home Veterinarian…..so she has to pay a toll to come to my house. Any services that are provided to us from someone outside of the parish will be more expensive. Delivery of all goods to restaurants, stores will all be impacted. Oil and fishing industry will all be impacted. Some people will be hit with a double whammy.....bridge toll and ferry toll. Why would anyone want to do that? NO TOLLS.....NO TOLLS! This will be death to the West Bank of Plaquemines Parish. Want to buy a house? Thanks!!	While the soil boring activity in the vicinity of the existing bridge & tunnel are not related this environmental assessment project, it is related to the preparation of the P3 information package. These are two separate projects. It is not known who told you that the borings are not related to the bridge project, but perhaps that is reason for the answer you received. As previously noted, a toll structure and special consideration the various user groups crossing the GIWW have yet to be established, but DOTD is considering these matters as part of the P3 package. The General De Gaulle Bridge, which provides access over the GIWW for Orleans Parish residents was opened to traffic, over 30 years ago in 1985 and has no relation to the current Belle Chasse project. We cannot address the question regarding funding for that bridge. Comments regarding opposition to tolls are noted.
21	J. Robinson	The estimated cost for the project is about $150 million. Of that, about $50 million is to be financed privately and paid for with tolls. I have 40 years experience with the oil and gas industry and have run projects of this magnitude or greater. All projects are subject to cost overruns for a variety of reasons. This project could easily end up costing $200 million. If	The construction cost estimate for the bridge includes a 10% contingency cost for potential cost overruns.

No.	Submitted by	Comment or Question	Response
21	J. Robinson	the final cost of the bridge is higher than estimated, will the excess cost be finances with tolls?	
22	J. Robinson	I attended the public meeting on July 10 expecting to hear more details concerning the tolls. However, no information was forthcoming. The project should make public a pro forma plan of the tolls including the amount of the toll and how long they would be collected. Information should also be given about the entity who would collect the tolls including who would regulate that entity.	The environmental assessment / line and grade study and P3 / toll analysis are two separate projects on separate time lines. While the toll information that was presented at the public meeting may or may not have satisfied those in attendance, it is what was available at the time. The P3 bidding process will identify the operating entity and establish the various toll levels, duration of tolls, collection methods, etc.
23	J. Banquer	MY COMMENTS: 1. NO ONE IN PLAQUEMINES PARISH WANTS THE TOLLS. 2. CONSTANTLY REPEATING IT WILL BE BUILT "AT THE LOWEST COST AT THE LEAST AMOUNT OF TIME" IS AS SIMPLISTIC AS REPEATING "I'LL MAKE MONEY IN THE STOCK MARKET BY BUYING LOW AND SELLING HIGH". 3. SAYING "IF THE COST IS TOO HIGH I'LL WALK AWAY" IS JUST A PLATITUDE; BECAUSE YOUR TASK IS TO BUILD A TOLL BRIDGE AND YOU HAVE NO DOG IN THE HUNT - NO COST TO YOU! I DOUBT YOU'LL WALK AWAY - WE'LL PROBABLY HEAR, "THAT'S THE BEST WE COULD DO" 4. WHY NOT BUILD THE PETERS ROAD BRIDGE FIRST AND NOT FORCE PEOPLE TO TAKE EITHER THE TOLL OR LONGER ROUTE? 5. REGARDING THE LONGER ROUTE, HOW IS IT THE HOMEOWNERS IN ENGLISH TURN DID NOT HAVE TO PAY A TOLL? TOO INFLUENTIAL AND POLITICALLY CONNECTED? 6. WE WERE TOLD ONLY 48% OF RESPONDERS WERE AGAINST THE TOLL. THAT'S HARD ENOUGH TO BELIEVE BUT WHY NOT PUT IT TO A TEST - INSTEAD OF A PUBLIC MEETING, HAVE A PUBLIC VOTE. AN ELECTION.	Comments noted.
24	R. Darling	I was unfortunately unable to attend the meeting that was held on the 10th regarding the construction of the new bridge. However, as a resident of Belle Chasse, I am very glad to hear that this project is going to finally be done. I have heard that there may be a possibility of tolls on the new bridge to help cover some of the cost of the new construction. I am not necessarily opposed to tolls, but do have a concern regarding an implementation of a possible toll. I live off of Woodland Highway (LA 406), and there has been an increase of traffic due to all of the recent residential developments over the past 5 years. If a toll is put in place at the new bridge, I can't help but think that there may be a substantial increase in	This is one of several comments regarding the potential for increased traffic on Woodland Hwy. as it is on the toll-free route across the GIWW. DOTD is aware of the potential increase in traffic and will consider appropriate actions.

No.	Submitted by	Comment or Question	Response
24	R. Darling	traffic along Woodland highway due to people trying to avoid paying a toll. Has this been taken into consideration, and what may be some possible remedies?	
25	J. Robinson	Any toll on the new bridge would constitute a tax on the people who live and work in Plaquemines Parish. In addition, it could constitute a barrier to people who might want visit the parish for recreation, dining or entertainment. The impact of these taxes should be considered in the environmental impact study.	Tolls are considered to be user fees as opposed to taxes. As previously noted, the environmental assessment / line and grade study and P3 / toll analysis are two separate projects. The latter P3 analysis will consider the potential impacts and evaluate potential varying tolling levels.
26	L. Boudreaux	I am not for the new Bridge. I think the Corp of Engineers should fix the tunnel because they caused it to leak this bad when they installed the new gates on the tunnel. If you live in Plaquemines and you need anything outside of the parish, it's going to cost you for every single trip across the bridge.	Comments regarding opposition to the new bridge and toll financing are noted.
27	J. Robinson	Surveys showed that a majority of people in Plaquemines Parish supported a new bridge. However, this was done before a toll was envisioned which constitutes a major change. I recommend that a new survey be done that asks of people are willing to pay a toll and, if so, how much. This survey should also include people within the neighboring zip codes (70114, 70131, 70053, 70056, 70058, 70072) so the impact of the tolls on people visiting the parish.	The DOTD administered a survey to inform the P3 effort. This was done in May of 2018 and included several toll-related questions. Over 2,000 people participated in the survey.
28	N. Babin	Belle Chasse has been my home for over 30 years. I have married, raised 3 children to become productive, college educated young adults. Only 1 still remains in Plaquemines. I am tired of waiting for Louisiana to have a better year to get basic transportation needs met. As former Governor Edwin Edwards once told me, "who would be against charging a toll so strangers who do not spend money locally but use your roads and bridges would have to help support the roads they do use." My core is against a toll, but my better sense tells me we have waited too long. Make sure we get quality engineering, quality construction, and build the bridge while I am alive to use it. And make sure systemically the tolls are collected for the debt then stopped. For the record, I am in favor of what builds a quality bridge in the fastest way without cutting corners.	Comments supporting toll financing if it is used to provide a quality bridge and stopped once the costs have been recovered.
29	J. Robinson	The tolls will be collected by a private entity. They are essentially a monopoly. Please advise how they will be regulated to protect the taxpayer against monopolistic practices.	Concerns noted. P3 projects nationwide are governed by detailed contract instruments and subject to regular audits to insure compliance. The conditions for the Belle Chasse project will be established by the P3 process.

No.	Submitted by	Comment or Question	Response
30	C. Champagne	I would like see tolls taken off after the project is paid back to lender.	Comment noted that the tolls should be stopped once the costs have been recovered.
31	G. Ragas	Please let me know if all other Parishes in Louisiana will have to pay tolls, if they need a bridge or new highway. Plaquemines Parish should not be the only Parish to have to pay tolls on a DOTD Project. Thank you.	The December 2017 Task 2 Feasibility of Tolling Priority B Megaprojects study prepared for DOTD evaluated several major transportation projects throughout the state for which there is no funding currently available. The Belle Chasse Bridge is one of those which was identified as being suitable for potential toll funding.
32	J. Perret	I think residents SHOULD NOT have to pay tolls!	Comment noted opposing Plaquemines Parish residents having to pay tolls.
33	M. Poole	I do not like the toll (I am a senior citizen and have many doctor visits out of the parish.	Comment noted opposing tolls for senior citizens.
34	D. Cole	Not in favor of tolls on bridge. Thought public would have a say and vote on tolls. Therefore, I will have to use my vote for Governor of Louisiana if tolls are placed on citizens of Plaquemines Parish.	Comment noted favoring a vote on the tolls.
35	M. Territa	I Mike T. does not think a toll is a good idea for the business of the Parish. Outsiders of Plaq. will not want to come in Plaq. because of said toll. Also will hurt sales tax revenue of Plaq. Parish. I really don't understand why there isn't any caution lamps and warning signs in front of tunnel to give you a idea to be careful driving thru tunnel. Ex. Stay In Lane & Slow Down for Slippery Roads. Tolls are a much negative no matter how cheap. (was thinking of adding on but not now!) Please no tolls. Thank you	Comments regarding opposition to tolls are noted.
36	C. Duplechain, DVM	Tolls will clearly hurt businesses in Belle Chasse. Customers & clients will choose to go elsewhere. I have many client/patients that come to Belle Chasse from Harvey, Gretna, Marrero & Algiers. This aggravation & expense will harm Plaquemines Businesses.	Comments regarding opposition to tolls are noted.

No.	Submitted by	Comment or Question	Response
37	E. & J. Smith	I am not opposed to tolls, but strongly feel that Plaquemines residents should be provided a discount. Business in the areas that will be affected - not necessarily displaced - should be contacted to discuss just how they will be impacted. A&L Sales has a warehouse on Barriere Road (BR). With the proposed layout of new roads, BR will have much more traffic. With 18 wheelers coming on a daily basis, BR will be a nightmare & very dangerous for residents. For lower tolls for Plaquemines residents there must be a LEGITIMATE process to verify residency. Just ask our school district how many out of parish students somehow "live" in our parish when it's time to register for school. Any extra money collected over proposed collections should go to reduce the time the tolls should be collected. How will tolls w/o a tag be collected?? Gas tax revenue should be used to buy out balance of contract or to make improvements on Woodland	Comments regarding how tolls should be collected, discounts applied are noted. The P3 process will evaluate and establish potential varying tolling levels.
38	J. Peeples	The canal cut Belle Chasse in half. The canal was not built for Belle Chasse or Plaquemines Parish. It was built primarily for the maritime industry which benefits from the canal. Why is the maritime industry not required to contribute a significant amount to paying for the debt? What percentage of the tolls will be allowed to go toward administration & profits of the private financer? Would tolls be charged both ways? If tolls are continued after the bridge is paid for, excess tolls should go toward Plaquemines Parish projects and not be diverted elsewhere such as Crescent City Connection tolls were diverted to Fouchon? The use of excess tolls should be transparent, well publicized, not hidden from the people. Plaquemines Parish residents should get major discounts. It is my understanding that residents of Grand Isle are exempt from tolls.	Neither the DOTD nor any other state agency has any authority over the maritime industry. P3 projects nationwide are governed by detailed contract instruments and subject to regular audits to insure compliance. The conditions for the Belle Chasse project will be established by the P3 process.
39	E. Smith	If people cross multiple times a day they should not have to pay after a certain number of crosses	Comment regarding discounts for multiple daily crossing is noted. The P3 process will evaluate and establish potential varying tolling levels.
40	S. Sylve	Need vouchers for college students traveling to and from residents like Crescent City Connection offered.	Comment regarding discount for college students crossing the bridge is noted. The P3 process will evaluate and establish potential varying tolling levels.
41		Offer an unlimited trip toll tag to locals. $100 per household	Comment regarding unlimited crossing discounted tag for local households is noted. The P3 process will evaluate and establish potential varying tolling levels.

No.	Submitted by	Comment or Question	Response
42	J. Robinson	I understand that the requirement to select engineering services by a qualification based process does not apply to the DOTD, however, Louisiana Revised Statute 38:1381.1 (C) states that: "records, as defined in R.S. 44:1(A)(2)(a), involved or dealing with the selection of design professional services shall be open to the public in accord with the intent of Louisiana Constitution Article XII, Section 3, and R.S. 44:31." Please provide information as to how this will be done regarding the Belle Chasse bridge PPP contract.	This specific P3 statute exempts the selection process from the customary public works provisions. However, P3 qualifications based best practices are being applied to this Procurement. As the Entity soliciting the P3, LADOTD is required to protect the confidentiality of Proposers proprietary information. At the conclusion of the selection of a P3 Proposer, Procurement records will be available via a public records request. For questions outside the scope of the environmental, specifically regarding the P3 procurement, refer questions to ABTR-BelleChasse@la.gov.
43	J. Robinson	The Belle Chasse bridge is reported to be the first contract of its type in Louisiana. Please provide information regarding the experience of the contracting entity with negotiating PPP contracts.	You are correct, however, LADOTD is utilizing industry best practices as advised by experienced P3 consultants. For questions outside the scope of the environmental, specifically regarding the P3 procurement, refer questions to ABTR-BelleChasse@la.gov.
44	J. Robinson	One complaint about PPPs is that the revenue the contractor collects is more than the cost of issuing a municipal bond essentially costing the taxpayers more than necessary. Please advise if there is a limit to the rate of return the contractor will be able to receive on his investment.	As the Entity soliciting the P3, LADOTD is required to protect the confidentiality of Proposers proprietary information. For questions outside the scope of the environmental, specifically regarding the P3 procurement, refer questions to ABTR-BelleChasse@la.gov.

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45	J. Robinson	The PPP is a simplistic phrase that can cover an incredibly complicated subject. The Secretary's statement that the public will be protected because they have a contract is facile and not always true. From what I heard, I see no risk on the private entity, only reward. The public should be informed as to the terms of the PPP beyond the amount of tolls and period of collection. We especially need to understand the risk/reward aspects of the contract and the terms that could trigger a contract amendment.	Prior to execution of the P3 contract, DOTD will submit the Proposal to the House and Senate committees on transportation for public hearing and public comment. For questions outside the scope of the environmental, specifically regarding the P3 procurement, refer questions to ABTR-BelleChasse@la.gov.
46	J. Robinson	Louisiana requires a qualification based selection process for selection of engineering services. However, the DOTD is exempt from that requirement for design - build contracts. A PPP is different from a design - build contract. Please provide the legal opinion that states the DOTD can enter into a PPP without the qualification based selection of engineering services.	Refer to R.S. 48:250.4 For questions outside the scope of the environmental, specifically regarding the P3 procurement, refer questions to ABTR-BelleChasse@la.gov.
47	H. Landry	No tolls - We pay fuel taxes and should not have to pay a toll for roads, bridges, etc. Also we have the naval base, seafood industry, the port, and oil (what left) and we have to pay a toll - that is crazy. We need better leadership to help fight for this community. *Jason* Please pass this on to our elected representatives. NO TOLLS!!!	Comment noted.
48		Improve Railroad Street to proposed closed RR crossover. Keep proposed closed RR crossover open. Put stop light at Burmaster Street.	Per previous responses to this concern, Burmaster St. and Engineers Rd. will function as one signalized intersection with Belle Chasse Hwy.
49	G. Chauvin	We own Chauvin Bros. Tractor established in 1952. We have been on the corner of Hwy. 23 and Engineers Rd. since 1988. We are a retail construction and agriculture equipment dealer and rely on our visibility / high traffic location for sales. Besides equipment sales, we sel parts, service and have a 25 year old rental company. (South Louisiana Equipment Rentals) Our rental co. has one gate on Hwy 23 that will certainly be blocked with the new bridge. Our tractor dealership has 3 gates, 2 for 18 wheelers and 1 for our parts and equipment customers. We need all 4 of our gates, but believe this is not possible with the new bridge. A new bridge may be necessary for our parishioners, but worry this may have a serious negative impact on our 3rd generation family owned business.	Comment noted. The final design team and DOTD Real Estate staff will work with key parcel owners, such as Chauvin Bros. Tractor to provide access.

No.	Submitted by	Comment or Question	Response
50	K Beckham	A few questions first: Why do you not have a model or other posters that show more detail? For instance; where will the lights for the traffic be placed? What companies and homes will need to be torn down? How will y'all re-route the traffic during building? How long will the project take to build? Why would you re-route a neighborhood through what seems like a industrial street? What will you do about the maritime traffic when the bridge will still be there? In a meeting we were told there will be a toll bridge both ways, at the cost of maybe $3 each way. Why do we have to pay to maintain a state bridge? Why do we have to pay to come in and out our own parish? Even though both sides are our parish. I and my family can't afford to travel across this bridge and if this does take place, we are selling and moving as soon as it starts! Thanks!	The project is currently in the environmental assessment and line and grade (conceptual) engineering stage. Plans developed to date are consistent with the requirements of DOTD and FHWA. As the project moves forward preliminary and final (construction) plans and specifications will be developed. The large-scale roll plan displayed at the meeting showed which businesses would be impacted by the project. No residences are impacted. A construction period traffic management plan has been developed. The project will take approximately three years to build. The street extensions under the bridge will provide the neighborhoods with connectivity to the network and utilize neighborhood streets. The navigation (tow boat operators) and fabrication industries, along with the US Coast Guard were consulted regarding the vertical navigation clearance on the GIWW. The 73 ft. vertical navigation clearance will accommodate the vessels and cargo using the GIWW. Toll operations and specifics are to be determined.
51	M.R. Dobrowski	I have heard there is a $5 billion account for keeping waterways clear. Since traffic in the intracoastal waterway is complaining about boats scraping the top of the tunnel, why can't money be taken out of that fund for construction of the new bridge & demolishing the tunnel?	The project team is not aware of any such account through state and federal programs.
52		Recommend keeping railroad crossings open. Keep Engineer's Road as is with stoplight. Add stop light at Burmaster St.	Per previous responses to this concern, Burmaster St. and Engineers Rd. will function as one signalized intersection with Belle Chasse Hwy.
53		Improve Railroad Street to proposed closed RR crossover. Keep proposed closed RR crossover open. Put stop light at Burmaster Street.	Per previous responses to this concern, Burmaster St. and Engineers Rd. will function as one signalized intersection with Belle Chasse Hwy.
54	J & M Langlois	I think tolls should be lower & only collected one way. Residents of the parish should get a discount. To accommodate heavier traffic 1. A traffic light should be installed at front entrance	Toll operations and specifics are to be determined.
55	R. Roubion	Belle Chasse cannot be compared to any other community when it comes to the effects of the tolls. I asked legitimate questions about the negative effects a toll would have on our business and was given a memorized answer about statistics and “truck traffic” which had nothing to do with my question. Tolls will effectively kill business, lower property value and change the face of Belle Chasse as we know it. I am a mother, grandmother, property	Comments noted.

No.	Submitted by	Comment or Question	Response
55	R. Roubion	Chasse as we know it. I am a mother, grandmother, property owner and business owner. My children and grandchildren visit us every Sunday for lunch. They live in Gretna & Harvey. Do you expect them to pay a toll to come visit us? This is beyond ridiculous. I would have to pay them and our suppliers just to convince them to come!	Comments noted.
56	T. & R. Roubion	Consequences of tolls on the community of Belle Chasse: 1) Cost of doing business here: a) Suppliers who cross the bridge multiple times a day b) Customers who live outside the Parish will not want to pay a toll 2) For residents it will be like another tax! We leave for doctor visits, shopping, etc. Our family has to pay to visit us! 3) Decreased home value (property). Less people will want to live here. The cost of living here is already high! 4) Increased traffic and safety concerns on Woodland Hwy. I can't imagine any other small town having to pay a toll just to enter or leave their neighborhood. (Gretna, Harvey, Marrero) The injustice is that Belle Chasse & P. Parish will be penalized because of its unique location!	Comments noted.
57	B. Derbes	A 5 lane tunnel would make more sense. It could be built off site. When completed, 2 coffer dams could be set and the old tunnel removed. Barge traffic could use the Harvey Lock. The tunnel could then be set & tensioned together. It would take a lesser foot print and the bridge would handle two way traffic until completed. Then the bridge could be removed. It would be more efficient with less disruption.	A tunnel was considered at the outset of the Feasibility Study, but dismissed because of apparent geotechnical, constructability, cost and community and navigation impacts.
58	B. Pavlovich	Nairn Concrete is located at 102 Burmaster St. Based upon my interpretation of the current plans, the new routes will present major issues for our delivery trucks and for the neighbors trying to leave the neighborhood. With 19 concrete trucks & twelve 18-wheelers running daily, we are required to make a left turn on Hwy 23 to access jobs. – A truck leaves our plant approximately every 10 minutes and often have multiple trucks trying to exit Hwy 23 to return to our plant. – As our trucks wait to turn left onto Hwy 23, residential traffic will back up. This will be especially frustrating for residents during morning rush hours, which is our busiest time. – There is no back-up plan if our exit is blocked or closed: We cannot leave through the neighborhood since it is a "non-truck"	Per previous responses to this concern, Burmaster St. and Engineers Rd. will function as one signalized intersection with Belle Chasse Hwy.

No.	Submitted by	Comment or Question	Response
58	B. Pavlovich	route. – There is no safe way for our trucks to turn south. U-turns are not a viable option for our large, heavy trucks unless we have an expanded turning area. – It is important that we are able to operate efficiently to serve the city, parish, state, and federal projects we will be servicing during these changes. I would like to discuss possible solutions, such as a stop light at Burmaster & Hwy 23 or an access road, railroad crossover, & stop light at the intersection of Hwy 23 & Engineers Road.	Per previous responses to this concern, Burmaster St. and Engineers Rd. will function as one signalized intersection with Belle Chasse Hwy.
59	A. Franklin	Nairn Concrete is located at 102 Burmaster St. From the current plans, the new outline will present major issues for our delivery trucks and the neighbors trying to leave their neighborhood. With 19 concrete trucks and 12 18-wheelers running daily, we are required to make a left turn on Hwy 23 to access jobs. – We have a truck leaving our plant approximately 10 minutes and often have multiple trucks trying to exit Hwy 23 to return to our plant. – As our trucks wait to turn left onto Hwy 23, traffic from residents will begin backing up. This will be an issue particularly during morning rush hours, which is our busiest time. – There is no back-up plan/exit in the event our exit is blocked or closed off: We cannot leave through the neighborhood since it is a “non-truck” route. – U-turns are not a viable option unless we have an expanded turning area. – It is important that we are able to operate functionally to serve the city, parish, state, and federal projects we have during these changes. We are open to discuss solutions and other options.	Per previous responses to this concern, Burmaster St. and Engineers Rd. will function as one signalized intersection with Belle Chasse Hwy.
60	D. Richoux	I think the toll on the Belle Chasse bridge such be on one way. Not both ways. Also I think it needs to be ???(unreadable) I live in Springwood Estates and Kenneth St is the back street of my subdivision and when evening traffic gets heavy on Hwy 23 cars cut through the neighbor. I think when construction on the bridge starts, you need to gate the back street. Also trying ???(unreadable) traffic to get out on Woodland Highway is very hard. I think you are going to need a red light on Woodland at Springwood entrance. Woodland Highway, instead of a two lane to handle at the traffic. It get a lot of traffic in the afternoon.	Toll operations and specifics are to be determined. A construction period traffic management plan has been developed. DOTD will monitor traffic patterns and adjust signage and access to the extent possible to minimize neighborhood impacts during construction. If there are apparent access problems once the new bridge is in operation and traffic has normalized, a traffic signal warrant study would be performed to determine if a signal should be provided at the Springwood entrance.

No.	Submitted by	Comment or Question	Response
62	S. Scandurro	**BRIDGE DESIGN/SITE SELECTION** 1. Is the State considering any alternative designs for the bridge, such as different heights, bridge types, drawbridge, etc., to maintain the footprint of the existing bridge? 2. Is the State considering alternatives to the bridge access roads and lanes in order to maintain the current footprint? 3. Why is the State maintaining a 73' high bridge design? 4. Hasn't the State designed and constructed other fixed bridges with a height of less than 73'? 5. If yes to 4, please identify the location of those fixed bridges and describe their design. 6. If a 73' high bridge is required, why did the State· initially propose several alternatives for new bridge that were 60'?	**BRIDGE DESIGN/SITE SELECTION** 1. The Belle Chasse Bridge and Tunnel EA began in 2012 and during the course of the project approximately 20 alternatives have been identified, conceptually developed and evaluated. These were presented to the Project Advisory Committee (PAC) and/or public at meetings which occurred as part of the process. Those alternatives included fixed spans and moveable bridges. The latter included both vertical lift and bascule (drawbridge) spans of varying vertical clearances. From the first PAC and public meeting the most prevalent and consistent comment/request from residents and the business community was for a fixed bridge, one that would never need to open to allow marine vessel traffic to pass. The community preferred a fixed span bridge because of the reliability it provided for both daily travel and hurricane evacuation situations. 2. No feasible alternatives were found to maintain the current footprint due to the proximity of the NOGC railroad track and the ends of the new bridge structure. The alignment for the new bridge was determined by considering the final buildout, along with constructability and maintenance of traffic during construction. 3. After conferring with the fabrication industry representatives in the area, tow boat industry representatives and the US Coast Guard (USCG), 73 ft. of vertical clearance was identified as the lowest acceptable height for a fixed bridge. This is the same vertical navigation clearance as the Kerner Bridge (LA 3134) at Crown Point, the nearest bridge over the GIWW west of the Belle Chasse Bridge. 4. The GIWW is a federally regulated commercially trafficked waterway that serves interstate commerce. It is part of the federal Marine Highway System. As such, the horizontal and vertical navigation envelope of a navigation structure is required to meet USCG and US Army Corps of Engineers (USACE) design criteria. 5. Refer to the response to No. 4 above. 6. The 60 ft. vertical clearance bridge was one of the initial alternatives evaluated. It was a moveable bridge which would

			have to open numerous times per day to accommodate vessel traffic. The moveable 60 ft. alternative had very little (if any) support from the PAC or public.
		7. Didn't the State's alternatives for 60' high bridge maintain the existing bridge footprint or one similar so as not to cut-off Engineers Road?	7. The 60 ft. vertical clearance alternative had a larger footprint than the existing bridge, which has a much lower (40 ft.) vertical navigation clearance. The increased height results in a longer footprint.
		8. Didn't the 60' high bridge plans impact less businesses and properties and carry a significantly lower total costs?	8. The 60 ft. vertical clearance moveable bridge alternative has fewer impacts to businesses. The cost to operate and maintain the mechanical and electrical systems and moveable structural elements of a moveable bridge are much higher than for a fixed bridge. That cost also increases more with time.
		9. Why did the State revise the alternatives for new fixed bridge on or about April 30, 2016?	9. Prior to April 30 a NEPA-derived alternative was included that proposed a 73 ft. vertical clearance fixed span option. This option was a response to public comments regarding the impact of a 100 ft. vertical clearance fixed span.
		10. Why did the State eliminate the alternatives for new fixed bridge that maintained the existing footprint and did not impact existing businesses?	10. There were no fixed bridge alternatives that maintained the existing Belle Chasse Bridge footprint.
		11. If the State pursues the preferred design 4A, what happens to the "orphaned" area of Engineers Road that will no longer be used to access the new bridge? Will the servitude be released or the property otherwise used by the State?	11. If it is determined that certain property is no longer needed for highway purposes, the procedures under RS 48:221 will be followed.
		12. If the bridge stays as designed with a 73' height, can the down ramps for the preferred design 4A be shortened to maintain the existing access to Engineers Road?	12. No, the current design for the preferred alternative option 4A features 5% slopes on each side. DOTD and the consultant team evaluated steeper grades to shorten the footprint but dropped these from consideration because of safety and capacity concerns.
		13. Is there supporting analysis for the construction costs of the preferred design and any alternatives, including maintaining a drawbridge or other design?	13. Yes, alternatives were developed in groups to a similar level of detail and cost estimates were prepared for each alternative as part of the project process.
		14. Did the State consider acquiring the servitudes related to the infrequently used railroad near Engineers Road, Planter's Canal, and any gas pipelines running parallel to Planters Canal in its bridge design?	14. No, all alternatives consider utilizing the existing LA 23 right-of-way to the extent possible.

		15. Has the State studied any designs for the residual parcels impacted by the planned realignment of Engineers Road?	15. The design drawings represented in the EA document are conceptual and residual parcels will be identified in the design process presented on Right-of-Way maps.
		BRIDGE CONSTRUCTION 16. Does the State have a crossing agreement (or has it made any contact) with the owner of the railroad servitude that parallels Engineers Road?	**BRIDGE CONSTRUCTION** 16. The NOGC is part of the PAC and has attended those meetings as well as the three public meetings.
		17. Does the State have agreements (or has it made any contact) with any other private servitude holders in the area of the redesign bridge?	17. No.
		18. Are there any studies on the suitability of alternative sites for the bridge, down ramps, and the Realigned Engineers Rd., Western Mark?	18. No, the scope of this project is bridge and tunnel replacement with an emphasis on improving connectivity between Plaquemines and Jefferson parishes. The intent of the bridge placement is to utilize the existing LA 23 right-of-way to the extent possible.
		ECONOMIC TOLLS 19. Has the State designed and constructed other bridges that were funded in whole or part by tolls?	**ECONOMIC TOLLS** 19. In the past, previously tolled structures were the Crescent City Connection and the Sunshine Bridge. Currently there is one State toll facility, LA 1 between Leeville and Port Fourchon.
		20. Are there any other current or proposed bridge projects that are to be funded in whole or part by tolls?	20. No.
		21. Has the State considered other bridges in the State of Louisiana and whether private tolls would be instituted on those structures, whether existing or not?	21. The December 2017 Task 2 Feasibility of Tolling Priority A and Priority B Megaprojects study prepared for DOTD evaluated several major transportation projects throughout the state for which there is no funding currently available. The Belle Chasse Bridge is one of those which was identified as being suitable for potential toll funding.
		22. Is the State considering converting other bridges to a toll structure to avoid disparate treatment of Plaquemines Parish citizens?	22. The preferred build alternative 4A would be a new bridge partially funded by tolls and not conversion of an existing structure that does not have tolls.
		23. Will the tolls be imposed on both north and southbound vehicles crossing the bridge?	23. Toll operations and specifics are to be determined.
		24. If the toll booths are only to be located on one side of the bridge, what was considered in making that determination?	24. Toll operations and specifics are to be determined.

		25. Where are the toll booths proposed to be located within the bridge plan?	25. Toll operations and specifics are to be determined.
		26. What is the anticipated costs of constructing the toll booths, equipment and/or other facilities required to collect the tolls?	26. Toll operations and specifics are to be determined.
		27. What is the anticipated ongoing costs of operating the toll booths, including salaries, maintenance, utilities, insurance, etc.?	27. Toll operations and specifics are to be determined.
		28. Does the amount that the State represented to the public to be the total costs for design 4A include all costs related to the construction of toll booths, purchase of related equipment and/or other facilities, training, and recurring operation expenses of the toll booths?	28. The toll-related facilities and operations will be part of the selected P3 firm's cost of doing business and are not part of the cost estimate presented on July 10th.
		29. If yes to 29, please provide the total amount of the cost of design 4A attributed to toll booths along with a breakdown or itemization of each cost or item included in the total.	29. Refer to the response to No. 28 above.
		30. Please provide copies of all documents, appraisals, studies, or other documents or materials considered in estimating the total costs to construct and operate the toll booths.	30. The Environmental Assessment did not estimate toll collection or operation costs.
		31. Wouldn't all or a much higher percentage of the costs of the 60' bridge designs initially proposed by the State have been covered by the funding approved for the project making the necessity of tolls unnecessary?	31. The estimated cost for the 60 ft. vertical clearance moveable bridge is $170,500,000, which is more than the estimated $148,037,600 cost of the 73 ft. vertical clearance fixed bridge. Additionally, the cost of operating and maintaining a moveable bridge will be higher than a fixed bridge.
		32. What is the expected cost of the tolls to cross the new bridge in either direction?	32. This has not been decided yet.
		33. What toll discount structure for repeat crossings users are being contemplated?	33. This has not been decided yet, but is one of the things that DOTD will evaluate as part of the process.
		34. What toll structure for over 4-wheel trucks and less than 18 wheeler are being considered?	34. This has not been decided yet.
		35. What toll structure for semi-trailer (18 wheelers) are being considered.	35. This has not been decided yet.
		36. What is the documentation that supports the expected price of the new tolls and, specifically, what return on investment is being considered appropriate for the private partner?	36. Refer to the response to No. 28.

		37. What operating costs are being considered for the new bridge?	37. Refer to the response to No. 28.
		38. What capital reserves are expected to be reserved in addition to repair and maintenance costs?	38. Refer to the response to No. 28.
		39. Is the proposed bridge at Peters Road likely be funded without the use of a toll road?	39. Refer to the response to No. 28.
		40. Is the proposed new rail bridge at Peters road to be funded without the use of a toll road?	40. The Peters Road rail bridge was not studied under the scope of this project.
		41. What analysis has the State performed on the expected traffic and tolls over the next 30 years in 5-year increments to determine the economic or commercial value of the bridge (such as serving oil, gas, and other commercial facilities on the downriver side of the bridge)?	41. The EA includes a Traffic Study of the LA 23 corridor in the vicinity of the bridge and tunnel.
		42. What other funding sources for the bridge other than private tolls paid by citizens have been proposed or considered and at what capital amounts?	42. As presented to the public on July 10th, the funding scenario for the new Belle Chasse Bridge is as follows: National Highway Performance Program $26.2 Million Metropolitan Planning Organization $12.0 Million INFRA Grant $45.0 Million GARVEE Bonds $12.0 Million Toll Revenue $52.8 Million
		ECONOMICS - PROPERTY AND BUSINESSES AFFECTED BY BRIDGE	**ECONOMICS-PROPERTY AND BUSINESSES AFFECTED BY BRIDGE**
		43. What is the supporting analysis and documentation for the +$5 million budgeted for acquisitions of property and rights-of-way to accommodate the new bridge design?	43. The $5.5 Million represented in the EA is an estimate utilizing current market values based on the number and type of properties that are impacted, along with typical valuations for those uses.
		44. How is the+$5 million budgeted for the acquisitions of property and rights-of-way allocated among parcels and businesses that are to be impacted by the bridge construction?	44. DOTD intends to us Federal funds to compensate for right-of-way costs. These funds are in addition to those listed in no. 42.
		45. Please provide the amount allocated by the State for the property, business and damages of the business identified as State Oil Fuel Center, Inc., and describe how such amount was determined.	45. No specific amounts have been allocated for particular property owners to date. The requirement for those determinations, State and Federal laws for real estate acquisition and relocation assistance, will not be undertaken until the final design is determined.
		46. Please provide the amount allocated by the State for the relocation of State Oil Fuel Center and its facilities, and describe how such amount was determined.	46. See the response to no. 45.

		47. Have any appraisals been performed or are under contract on any of the properties to be impacted by the bridge design? 48. When are appraisers expected to be hired to do valuation studies on thls project by parcel? 49. Have any market studies been performed? By Whom? 50. Please provide copies of all the appraisals, market studies, feasibility studies, engineering cost studies and other financial feasibility studies. 51. Is there a separate budget line item for reconstruction costs or economic losses (that is, lost profits) suffered by businesses that will be affected by the bridge construction, off ramps, and the realignment of Engineers Road, or is that part of the amount budgeted for acquisitions of property and rights of way?	47. No. 48. Appraisals will be conducted during the property survey and right-of-way map process. 49. No market studies have been performed. 50. The Stage 0 Feasibility Study will be made available on the LADOTD website. 51. Relocation costs cover reconstruction costs.

Public Comments
LA 23: Belle Chasse Bridge & Tunnel (HBI), Public Hearing, November 28, 2018

No.	Submitted By	Format	Comment	Response
The following are transcriptions of verbal comments provided before the attendance at the November 28, 2018 Public Hearing in the Belle Chasse Auditorium.				
1	J. Banquer	Public Comment	I'm pretty well bummed about the idea, so I don't see anything that's overly negative in Plaquemines Parish or that would be detrimental to businesses. I think people will think more than once or twice before paying a toll to come to a restaurant down here. As far as property values, as far as property values, they're going to go down. I mean, who is going to want to pay a toll to come and buy property here in order to come home every night. Businesses, property… What about the five thousand people who live in neighborhoods down there? They don't live here anyway. They're going to be punished. They're going to have to pay a toll to go to work and get back out. Is the toll going to be one way or both ways? I don't know. Alternatives, yeah, there's alternatives. Well, listen, according to the alternatives and other things, we need 48 million or 52 million, and I looked over some of the paperwork over the last few weeks, miraculously 300 million dollars was found. Of that, maybe 52 will take care of this bridge and you wouldn't have all of this building toll, facilitate and have them tear them down later, and all the aggravation and keeping track of the money and make sure where it's going. Another alternative would be to build the other bridge by the Peters Road Extension first. That way you have two ways to get into the parish. You could go out west or east. You wouldn't just be depending on the one that	As Secretary Shawn Wilson noted in his presentation at the Public Hearing, the method of toll collection has not yet been established and will come out of the competition among the three remaining P3 teams. While surplus revenue has been factored into the analysis of other funds, it is not prudent to include it with any certainty. Any early pay off of debt associated with this project can be paid with surplus money if appropriated. That is the best policy approach to make unexpected monies available. As of the second Revenue Estimating Committee meetings in December of 2018, no additional revenue has been recognized in the current budget. The Revenue Estimating Committee is the Legislatively mandated entity established to recognize additional revenue. In fact, the speaker of the House has indicated that it is not fiscally prudent, as a banker, to adjust revenue expectations based on market volatility. In essence, there is uncertainty as to the availability of additional revenue. Additionally, surplus money is constitutionally required to go to two other sources before one-time allocations are

			was on Woodland. I could probably go through there in I think about 15 to 20 minutes. I think it's really a bad idea. And I think, I think we should find, think of ways to make it happen. Is that about three minutes?	made, such as infrastructure, state projects, or higher education. Furthermore, the states' current plan for any additional surplus revenue prioritizes at least $74M to ensure the state maintains its current level matching dollars to receive the current allocation of federal funding. While there was money in prior budgets to improve part of the Walker Rd. approach to the Gulf Intracoastal Waterway, DOTD no longer has the funding available or programed to build the bridge over the GIWW at Peters Road.
2	D. Cole	Public Comment	I've been in Plaquemines Parish since 1976. I've seen the parish grow and I've seen a lot of things happening in this parish, and I don't really see any advantage of having a bridge with a toll. It will be the only accessible road, we'll be the only bridge in the state that I know of that has a toll. Now, if you're going to toll the people of Plaquemines Parish, they, people from the industries and all that, and from the base, and I value the opinion of the people that are going to pay this toll. You might have a few fishermen come down, like let's pay a toll. My first concern is why are we wanting to build this bridge, continue to let trucks and trains go through Downtown Belle Chasse if you want to call it, instead of building a bridge over on Peters Road Extension, take the trucks and take the trains and move them behind the base and down the river. That's who ought to be paying the taxes is industry. There's nothing in Belle Chasse. All you're doing is wanting to go down here on Highway 23. I mean with all of the energy facilities around here. They said they were going to end and they been saying that for 30 years too. I just think that you're going to work out	While the toll levels have not yet been established, there will be a graduated scale, with industrial trucks paying higher tolls than passenger cars, SUVs and pick-up trucks. While there was money in prior budgets to improve part of the Walker Rd. approach to the Gulf Intracoastal Waterway, DOTD does not currently have the funding available or programed to build the most costly part of the Peters Road Extension, the bridge over the GIWW. The tolls are not intended to make the State or anyone "rich". Tolls will be removed as soon as the construction and operation costs are retired. The contract with the successful P3 team will be available for public review and the toll operation will be audited per state regulations.

			from Belle Chasse and then they're going to put a toll on it. As far as Woodland Highway as an alternative, I lived in Houston where they have toll roads and I will probably use Woodland Highway, until I get my first ticket from the New Orleans Police, and then I may consider paying a toll. (Laughter) I'm gonna have to think about that too. Another thing is, I think that actually this is being rammed down our throats. We don't really have a say, okay. And I, I'm ____ my government official knew about this, business and industry know about this. We had our first meeting back in July of 2000. The last one was in 2016, I guess it was. So, this is in the public, governmental officials who are all for getting rich on a toll on the bridge. They all know about it. They didn't tell us about it until _____. And I still don't understand why we're having to pay a toll and they built a bridge over there by English Turn, for English Turn residents and didn't charge them a toll. Maybe you ought to consider tolling that bridge instead now so we can pay for our bridge instead of just us. Maybe, I mean, yeah, you want to build a four-lane bridge in Downtown Houma, that I walked over the other day and had no traffic on it. You know people go over one side then they go over and do stuff. You don't even think about a toll.	Tolls cannot be levied on an existing bridge, like the General De Gaulle span that was constructed using public funds.
3	A. Henry	Public Comment	Yeah, I've been in Belle Chasse all my life, 52 years. This is a state facility. They know it. It should be fully, fully funded by the state. A couple of you _____. We're the people of Belle Chasse, we provide _____. They got 350 million dollars of surplus in the state budget. _____. You the representatives, here, we'll get behind you. Let's get you the 50 thousand dollars for this bridge. The people of Belle Chasse and the whole Plaquemines Parish _____ do not need to pay a toll on the bridge. It'll be too big! It's a State Highway; it's a hurricane	While surplus revenue has been factored into the analysis of other funds, it is not prudent to include it with any certainty. Any early pay off of debt associated with this project can be paid with surplus money if appropriated. That is the best policy approach to make unexpected monies available. As of the second Revenue Estimating Committee meetings in December of 2018, no additional revenue has been recognized in the current budget. The Revenue Estimating Committee

			evacuation route also. It needs to be totally funded by the State. Got money, we got our representatives, we got senators, hey, we need to get behind them and get this deal done for the people of Plaquemines. Get it done, man! _____. No tolls! No tolls!	is the Legislatively mandated entity established to recognize additional revenue. In fact, the speaker of the House has indicated that it is not fiscally prudent, as a banker, to adjust revenue expectations based on market volatility. In essence, there is uncertainty as to the availability of additional revenue. Additionally, surplus money is constitutionally required to go to two other sources before one-time allocations are made, such as infrastructure, state projects, or higher education. Furthermore, the states' current plan for any additional surplus revenue prioritizes at least $74M to ensure the state maintains its current level matching dollars to receive the current allocation of federal funding.
The following are transcriptions of verbal comments provided to the transcriptionist in a one-on-one setting at the November 28, 2018 Public Hearing in the Belle Chasse Auditorium.				
4	B. Rousselle	One-on-One Comment	I am opposed to tolls. I believe that the state has other alternatives to fund this project. I also would like to see when the tunnel is filled in, the bulkhead that says "Belle Chasse Tunnel" remain in place at ground level as a monument to the historical Belle Chasse Community. It can become a monument.	As noted in the presentations given both at the July public meeting and at the November Public Hearing, the state is proposing to use a mix of different sources, most of which come from non-toll sources. However, the sources do not have additional dollars available. The $52.8 million that would be financed with toll revenue accounts for just 36% of the total estimated construction cost. Additionally, the period of time during which tolls are levied can be reduced if DOTD finds additional outside revenue. A historic marker/monument will be part of the place that is established once the new bridge is constructed, the tunnel is closed and the old bridge removed. The exact nature of the

				historic documentation and marker will be determined by the Section 4(f) and Section 106 discussions among DOTD, FHWA and the State Historic Preservation Officer (SHPO).
5	M. Landry	One-on-One Comment	I just walked in so I missed it and I don't know what was said. Talked to a couple of people and they said it was the same old stuff; nothing new. You're going to hear the same old thing over, and over, and over again. My comment is, I don't think we're doing enough, our elected officials in Belle Chasses, Plaquemines Parish, and the State, they're not doing enough to try to find the money to pay for this bridge, pay for this bridge and tunnel replacement. What I think they're missing is, I think there's other avenues that could be possible. The shipping industry since the Canal, Industrial Canal was built by the United States Government, the Federal Government, and we have this shipping that pass to move goods for the nation throughout our area, then I think we should charge the shipping industry and others to pay for the bridge. And I think we're lacking in that. We should seek charging the shipping industry. They get away with everything. Because I think this canal and this bridge replacement is also for their, my understanding is that we need a deeper draft. The ships would have a deeper draft, so there's been anecdotal reports that some of the ships or traffic vessels kind of scrape the tunnel, anecdotal reports, and the DOT has acknowledged through a request, Freedom of Information request, and, so we are not only replacing this tunnel because it's old and it needs to be replaced, we're replacing it for that reason. To increase the shipping, the bridge is not, the bridge holds up shipping in movement of products, if you want to call it shipping or whatever. I'm sure they can understand. And I'm going to jump	In response to the inability of the traditional federal/state funding split to cover the entire cost of the Belle Chasse bridge project, DOTD has put together an innovative funding package that includes five different sources of money. As noted in the presentations given both at the July public meeting and at the November Public Hearing, the four non-toll sources account for about $95.2 million or 64% of the project cost. The $52.8 million that would be financed with toll revenue accounts for about 36% of the total estimated construction cost. DOTD and the State of Louisiana do not have the authority to levy a toll or fee upon the marine vessel traffic using the Gulf Intracoastal Waterway. The Canal is under federal control and part of the National Marine Highway System. Fees levied upon that maritime traffic are used to operate and maintain those federal waters. While vibration from the necessary Corps of Engineers upgrades to the hurricane flood protection levee, flood wall and flood gates may have caused some additional leaks in the tunnel, the facility is simply at or beyond its design lifespan. Over the years leaks and other problems have increased, as have

			the gun on something else. I've asked for these reports and these reports are not documented in the state, in DOTD. And I think if someone said or gave a report that it's possible something is scraping the top of the tunnel, I think it should be documented within the DOTD, which it's not. Because we'll be in the same situation as we were with the 17th Street Canal where the state was involved and the federal government. Who was to blame? Who was responsible? I think anything that happens to that tunnel, it should be documented that we can go and retrieve this information. And I just recently put in another FOI request or Freedom of Information request. We're having work done on tunnel where the tunnel will be closed soon and my understanding, it's because they are fixing a leak that Corps created when they put the flood wall, the hurricane protection flood wall and I was told, and I have my Representative that said it at one of these meetings that the tunnel was damaged due to the Corps of Engineers and the tunnel is leaking more because The Corps disturbed the tunnel, cracked the tunnel, or whatever. And I cannot get a Freedom of Information on that. That's not documented within the state. Now, I think that is a horrible shame that we have a Federal Government project that damaged a state, state facility tunnel, and we don't have that documented. If the tunnel was to collapse and hurt someone today and all the lawsuits and all, that wouldn't even be documented. I just. I think. Let's just go ahead with that. I'm not going to say what I want to say about the State. Half this building right now is filled with the engineers, the State, the people who are going to make money off of this project, and that's a sad thing. The last meeting I was here, I asked the DOTD Commissioner about the people who were involved that may get the contract and he couldn't say who they were, but they	maintenance interruptions to traffic flow and the associated costs. The comment that DOTD cannot now say which firm or team will get the P3 contract to build and operate the new bridge is accurate. However, that is deliberate in that the selection of a team is part of a competitive and transparent multi-step process which was described in the Public Hearing presentation. The intent of that process is to identify a highly qualified team that offers the state a relatively short toll duration with reasonable toll rates. The new Belle Chasse bridge would in fact not be the only toll facility in the state. The Lake Pontchartrain Causeway and LA 1 from Leeville south to Grand Isle are both toll roads. In response to the lack of adequate traditional funding, there are also other potential toll projects in other parts of the state which are under consideration to be built and operated as toll facilities. Tolls will not be in place indefinitely. The duration of tolls will cease once the construction and operation costs are recovered. Additionally, that period can be reduced if DOTD finds additional outside revenue. These points will be part of the contract between the DOTD and the successful P3 team. There will be toll exemptions for certain vehicles, the majority of which are public.

			were in this building at that same time and that's a damn shame. And that's what makes the people mad, stuff like that. But I can assure you, we're going to find out something else about this tunnel and this bridge and I will find out. Thank you. I could say more, but I'm not. You get it up here because you get screwed. I mean, we're going to be the only people in the state, in this small community paying for the, record this please. We're going to be the only small community in the state that's going to be paying a toll. Once they put the toll, the toll will never go off, because it's going to be another elected official and it's going to be just like the Crescent City Connection. We're going to have to pay for maintenance. We're going to have to pay for, it will never go off. And also, once that toll is put on that bridge, the parish employees are not going to pay the toll, the military at the base, those people are not going to pay the toll, the fire department is not going to pay the toll, ambulance is not going to pay the toll, so the toll is going to last forever because it's going to be a handful of people that's going to have to pay the toll. And state officials are not going to have to pay it also. They're going to have a badge or whatever and swipe it, so it's going to be left to a handful of people, and that's going to be stone, paying the toll. Thank you.	However, such exemptions will not be widespread because these are explicitly and narrowly identified in six Louisiana Revised Statutes. The toll feasibility study estimated that only about 2% of traffic would be exempt from paying a toll, assuring that repayment of the construction and operation expenses will be paid for by a broad range of bridge users.

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Appendix D

Programmatic Section 4(f) Evaluation and Approval for
FHWA Projects that
Necessitate the Use of Historic Bridges
Belle Chasse Bridge and Approaches

US Department of Transportation
Federal Highway Administration

Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges

Belle Chasse Bridge and Approaches[1]
LA 23, Jefferson and Plaquemines Parishes, Louisiana
State Project No. H.004791
Federal Project No. H004791

Introduction

This Section 4(f) programmatic evaluation has been completed for the Belle Chasse Bridge and Approaches (also identified as the Judge Perez Bridge), LA 23, Jefferson and Plaquemines Parishes, Louisiana in accordance with Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges (Federal Highway Administration [FHWA] 1983). This approval is made pursuant to Section 4(f) of the Department of Transportation Act of 1966, 49 United States Code (USC) 303, and Section 18(a) of the Federal-Aid Highway Act of 1968, 23 USC 138.

This document has been prepared to demonstrate the following:

- There are no feasible and prudent alternatives to the use of the Belle Chasse Bridge over the Gulf Intracoastal Waterway (GIWW).
- The project includes all possible planning to minimize harm resulting from the use of the Belle Chasse Bridge over the GIWW.
- The project meets the applicability criteria for the programmatic Section 4(f) evaluation for projects that necessitate the use of historic bridges, issued by FHWA.

Use

Even though the Belle Chasse Bridge is eligible for inclusion on the National Register of Historic Places (NHRP), it must perform as an integral part of the modern transportation system. When unable to maintain system continuity and integrity, the result is bridge rehabilitation or replacement. For this programmatic Section 4(f) evaluation, the proposed action will "use" a bridge that is eligible for inclusion on the NHRP and the historic integrity of the bridge will be impaired by demolition.

Applicability

This programmatic Section 4(f) evaluation may be applied by FHWA to the proposed project because it meets the following criteria:

1. The bridge is to be replaced or rehabilitated with federal funds.
2. The project will require use of a historic bridge structure which is eligible for listing on the NRHP.

[1] Identified in the Programmatic Agreement as the Intracoastal Waterway/Judge Perez Bridge (Recall No. 02500), located in Plaquemines Parish.

3. The bridge is not a National Historic Landmark.
4. The FHWA Division Administrator has determined that the facts of the project match those set forth in this document.
5. Agreement among the FHWA, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) has been reached through procedures pursuant to Section 106 of the National Historic Preservation Act (NHPA; FHWA 1983).

Project Purpose and Need

Belle Chasse Highway (LA 23) is a principal arterial which serves as the primary access point between Jefferson and Plaquemines Parishes. Improving transportation system linkage by improving connectivity of Belle Chasse Highway (LA 23) from Lapalco Boulevard to Woodland Highway could benefit traffic operations in this area. Currently, the Belle Chasse Tunnel and Bridge function as a 4-lane couplet (2-lanes each). Improving connectivity in the Belle Chasse Highway (LA 23) corridor addresses current conditions and operational constraints created by aging infrastructure. Constructed in 1956, the Belle Chasse Tunnel closes whenever maintenance activities warrant. During these periods, the Judge Perez Bridge, constructed in 1968, operates with two-way traffic, effectively reducing the capacity for traffic at this location by half. During times of bridge closure, the tunnel does not reciprocate as DOTD does not allow two-way traffic operations in the tunnel. The Bridge also must open its center span to accommodate maritime traffic needs on the GIWW, stopping the flow of northbound traffic and creating additional operational delays on the Belle Chasse Highway (LA 23) corridor. A curfew on bridge openings keeps the bridge open to traffic for all but emergency needs during peak morning and afternoon periods. Since the bridge does not open, this does affect maritime operations on the GIWW. The proposed project improves modal interrelationships between vehicular traffic on LA 23 and maritime traffic in the GIWW.

Description of Section 4(f) Property

The Belle Chasse Bridge opened to traffic in 1968, has been assigned Preservation Candidate status in Attachment 1 of the *Programmatic Agreement […] Regarding Management of Historic Bridges in Louisiana* (PA). Preservation Candidate bridges are historic structures that, due to factors of condition and context, should be designated for preventative maintenance, preservation, and rehabilitation when prudent and feasible. Attachment 4B of the PA describes the Procedures for Projects Affecting Preservation Candidate Bridges, specifically reviewing and assessing alternatives. At a minimum, consideration is to be given to rehabilitation for continued use on site, adaptive reuse, and replacement.

This Bridge is eligible for the National Register of Historic Places (NRHP) under Criterion C: Design/Engineering. This tower drive vertical lift bridge has significance as a movable bridge and as an important variation within the vertical lift bridge type. Distinctive engineering features that convey this variation include the location of two separate motor and drive mechanisms, which power the two sheaves on each tower. This bridge appears to conform to a state standard plan (SL50-150-28). The bridge exhibits alterations to the operator's house and replacement of isolated mechanical components and counterweight ropes that results in a minor loss of integrity but continues to convey the significant design features of this variation within the vertical lift type. No evidence was found during research or data collection activities to indicate that this bridge possesses a direct and important association with historical events or trends. This bridge does not possess significance under Criterion A.

The Belle Chasse Bridge does not meet current LADOTD design guidelines. The bridge has two 12-foot wide travel lanes, no shoulders, and the bridge approach roadway alignments do not meet current geometric guidelines.

Description of Proposed Action

The Preferred Alternative, as identified in the LA 23: Belle Chasse Bridge and Tunnel[2] HBI Environmental Assessment (EA), is a new bridge over the GIWW designed to meet current guidelines located on an alignment between the current bridge and tunnel. The proposed bridge would be a fixed bridge constructed with a 150-foot navigation envelope and 73 feet above mean high water, of vertical clearance. The bridge would have four 12-foot wide travel lanes, center barrier, outside shoulders and sidewalk. The superstructure of the bridge would be supported by reinforced concrete abutments found on pile supported foundations. The bridge would provide four 12-foot wide travel lanes, an 8-foot wide shoulder with a separate sidewalk using one of two options: one, 6-foot wide sidewalk divided from the roadway with a barrier or two, 5-foot wide sidewalks. The bridge would have the ability to be widened in the future to as many as six travel lanes without experiencing a loss in available clearances between the bridge and mean high water in the GIWW.

Alternatives and Findings

To determine the applicability of this programmatic Section 4(f) evaluation to the proposed project, each of the following alternatives were considered:

1. Do Nothing.
2. Build a new structure at a different location without affecting the historic integrity of the existing bridge, as determined by procedures implementing the National Historic Preservation Act (NHPA).
3. Rehabilitate the historic bridge without effecting the historic integrity of the structure, as determined by procedure's implementing the NHPA.

1. Do Nothing

Maintenance of the existing bridge has required upgrades to the bridge electrical system and replacement of the guidewires. Increasing traffic on the bridge deck (approximately 23,400 vehicles per day) as well as within the GIWW (approximately 10 openings per day, given current vessel demand) place much wear and tear on the structure. This kind of activity is expected to continue, as the LA 23 corridor is the primary connector between Jefferson and Plaquemines Parishes. The structure functions as a bypass corridor to the adjacent Belle Chasse Tunnel, which must close regularly for cleaning and maintenance. During tunnel closures, the bridge must operate under two-way traffic patterns to maintain connectivity along the LA 23 corridor. The ongoing commitment to making repairs, along with routine maintenance, cleaning, testing and inspection would continue under the Do Nothing Alternative. The Do Nothing Alternative does not address the purpose and need, or the stated deficiencies related to its age and design. Traffic flow cannot be improved, and high operational and maintenance costs would continue. For these reasons, it has been determined that the Do Nothing Alternative is not feasible and prudent.

2. Build on a New Location without using the existing bridge

Ways to build a new structure without affecting the historic integrity of the existing bridge were evaluated. Utilization of the existing bridge as a parallel bridge adjacent to a new structure would not resolve the functional obsolescence, roadway geometrics that do not meet current guidelines, or operational problems of the existing bridge.

[2]The Belle Chasse Tunnel is also eligible for the NRHP.

Another alternative that would allow the Belle Chasse Bridge to remain in its current location would be to take the bridge out of service and find another party to operate and maintain it. To prevent obstructions to navigation, the existing bridge would have to provide sufficient vertical clearance either by continuing to open or by removal of the center span. The bridge was marketed for alternative use in accordance with the PA. No other parties or entities expressed interest in assuming responsibility for the bridge.

Given the developed environment along LA 23, alignments for a new bridge outside of the existing LA 23 corridor right-of-way could not be identified without creating significant community displacements. An alternative to maintain the current LA 23 corridor right-of-way with a range of fixed and moveable bridge options proved the most feasible. All the options developed found that the location identified allowed for a maintenance of traffic operations during construction on LA 23, as well as the operations of the adjacent New Orleans Gulf Coast Railway (NOGCRR) line east of LA 23. Placing a new bridge on a skewed alignment between the existing Belle Chasse Tunnel, and NOGCRR allows the new structure to be constructed in an area which creates potentially fewer direct impacts:

- Estimated displacement of 7 commercial structures (2 vacant structures and 5 occupied structures with a total of 11 individual businesses);
- Acquisition of approximately 8.7 acres of private property;
- Closure of 12 driveways and 4 local streets (Mildred Street, Planters Canal Road, Tunnel Road, Dr. Bowen Street);
- No impact to the NOGCRR rail line or spur line crossing LA 23;
- Estimated impact to approximately 2 acres of land which includes both maintained and emergent wetland vegetation;
- Estimated impacts to approximately 0.42 acres of wetlands and 4.53 acres of waters of the US.

If no other entity agreed to take the existing bridge, this alternative requires the demolition of the current Belle Chasse bridge, its approaches, and ground-level intersections to maintain network connectivity and continuity across the GIWW.

For these reasons, it was determined that keeping the existing bridge in place is not a prudent and feasible alternative.

3. Bridge Rehabilitation Without Affecting Historical Integrity.

Bridge rehabilitation sufficient to allow the bridge to remain in service was considered as the only concept that would not replace the bridge. By keeping the bridge in service as part of the LA 23 transportation network, the bridge would not be removed or replaced. However, to remain in service, network connectivity issues created by the opening of the bridge to accommodate maritime traffic and vehicular traffic operational deficiencies during peak morning and afternoon periods which create periods of delay and increased travel time between the parishes would both need to be addressed.

Two forms of rehabilitation were considered, rehabilitation to the original condition of the bridge and rehabilitation sufficient to address to the project purpose and need. Bridge rehabilitation can be considered feasible and prudent only if both of the following conditions can be met:

1. The elements that make the bridge historically significant are preserved
2. Geometric and traffic operations deficiencies are addressed

It was determined that the two conditions cannot be met at the same time. Rehabilitation to its original condition would maintain the bridge's historical significance but would not meet the purpose and need nor sufficiently address geometric and traffic operational deficiencies.

To determine geometric adequacy, consideration must be given to the number of travel lanes, roadway width, approach roadway, vertical and horizontal clearances, sight distances, and functional classifications for the roadway. The existing bridge is classified as an urban principal arterial. Current LADOTD design guidelines for this type of roadway require, at a minimum, 12-foot travel lanes, 4-foot paved shoulders, accommodation for complete streets as well as adequate site distances. In addition, as this bridge is part of an urban network including access for pedestrians and bicyclists, facilities for each should be accommodated to assure mobility needs for all population groups can be met.

The bridge operates under a curfew which limits openings for passage of marine traffic on the GIWW to outside of the peak period for vehicular traffic operations. When the bridge opens, LA 23 traffic is stopped northbound. The alternative to waiting for the bridge to close and traffic flow northbound to resume is an 9.85-mile detour around this location using a combination of Woodland Highway (LA 406), the General De Gaulle Bridge and General De Gaulle Boulevard and Behrman Highway (LA 428) to return to LA 23. Waiting for the bridge to close could add as much as 10 minutes to the trip headed northbound. Using this detour is no better as it too would add travel time (plus additional traffic delay) to trips between Plaquemines and Jefferson Parish.

Renovating the bridge to raise the vertical profile of the roadway allows the vertical lift span to be substantially preserved while partially addressing the project purpose and need to improve connectivity and modal interrelationships by reducing conflicts between vehicular and maritime traffic. A 20-foot grade raise achieves roughly 60 feet of navigational clearance and reduces required openings by approximately 90 percent. Some travel restrictions will still exist for both corridors, however, since full vertical clearance is not anticipated to be feasible. The seated position of the lift span is raised up the tower legs, re-aligning traffic from the first into the second bay of each the tower. The modified load paths are anticipated to require structural modifications and strengthening. Reconstruction and lengthening of the approaches by approximately 800 feet is also required. Reconstruction on-alignment results in major interim traffic impacts due to bridge closure but minimizes negative community impacts.

Correction of geometric and traffic operational deficiencies sufficient enough to meet the purpose and need would entail removal and replacement of significant historic elements, such as the tower drive lift system. In addition, improving the functionality of the bridge in relation to GIWW traffic requires the bridge be raised, which would also affect its tower drive lift system. Therefore, neither form of rehabilitation was determined to be a prudent and feasible alternative.

Measures to Minimize Harm

This programmatic Section 4(f) evaluation and approval may be used only for projects where the FHWA Division Administrator, in accordance with this evaluation, ensures that the proposed action includes all possible planning to minimize harm. The following criteria are applied to make this determination:

1. For bridges that are to be rehabilitated, the historic integrity of the bridge is preserved, to the greatest extent possible, consistent with unavoidable transportation needs, safety, and the load requirements;

2. For bridges that are to be rehabilitated to the point that the historic integrity is affected or that are to be moved or demolished, FHWA ensures that, in accordance with Historic American Engineering Record (HAER) standards, or other suitable means developed through consultation, fully adequate records are made of the bridge.

3. For bridges that are to be replaced, the existing bridge is made available for an alternative use provided a responsible party agrees to maintain and preserve the bridge; and

4. For bridges that are adversely affected, agreement among the SHPO, ACHP, and FHWA is reached through Section 106 process of the NHPA on measures to minimize harm and those measures are incorporated into the project. This programmatic Section 4(f) evaluation does not apply to projects where such an agreement cannot be reached.

For the Belle Chasse Bridge, criteria 3 and 4 are applicable. The SHPO concurred that the existing Belle Chasse Bridge was eligible for the NRHP on October 15, 2013. A PA between FHWA, LADOTD and the SHPO on September 15, 2015 has been executed that addresses mitigation for the adverse effect of demolishing the bridge. The PA includes a commitment for recordation of certain bridges identified utilizing the HAER standards and an agreement to market the bridge to a sponsor who agrees to maintain and preserve the bridge in a manner that will not obstruct navigation. The Judge Perez Bridge was marketed for non-vehicular adaptive re-use from February 20 to May 22, 2018. There were no responses to the marketing; no other parties or entities expressed interest in the bridge for re-use. Per the PA, this bridge was not identified to be recorded via the HAER documentation standards.

Conclusions

As noted in the introduction, the objective of the Section 4(f) programmatic evaluation is to show that the proposed project complies with Section 4(f) of the Department of Transportation Act of 1966 by meeting the following conditions:

- There are no feasible and prudent alternatives to the use of the Belle Chasse Bridge over the GIWW.
- The project includes all possible planning to minimize harm resulting from the use of the Belle Chasse Bridge over the GIWW.
- The project meets the applicability criteria for the programmatic Section 4(f) evaluation for projects that necessitate the use of historic bridges, issued by FHWA.

Given the information presented in this Section 4(f) programmatic evaluation and approval, it is concluded that the proposed project meets the above noted conditions and thereby complies with Section 4(f) of the Transportation Act of 1966.

FEDERAL HIGHWAY ADMINISTRATION

By _____ Date January 3, 2019

Charles Bolinger
Division Administrator

Appendix E

Section 4(f) Evaluation 23 CFR Part 774: Parks, Recreation Areas, Wildlife & Waterfowl, Refuges, & Historic Sites
For Belle Chasse Tunnel, LA 23,
Jefferson and Plaquemines Parishes, Louisiana

SECTION 4(f) Evaluation

23 CFR Part 774: Parks, Recreation Areas, Wildlife & Waterfowl, Refuges, & Historic Sites

For

BELLE CHASSE TUNNEL
LA 23, JEFFERSON AND PLAQUEMINES PARISHES, LOUISIANA

LEAD AGENCY
FEDERAL HIGHWAY ADMINISTRATION
LOUISIANA DIVISION
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JOINT LEAD AGENCY
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
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BATON ROUGE, LA 70802

COOPERATING AGENCIES
UNITED STATES DEPARTMENT OF HOMELAND SECURITY
US COAST GUARD, 8TH DISTRICT
HALE BOGGS FEDERAL BUILDING - ROOM 1313
500 POYDRAS ST
NEW ORLEANS, LA 70130-3310

State Project No. H.004791
Federal Project No. H004791

OCTOBER 16, 2018

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ABBREVIATIONS

CRS	Cultural Resources Survey
EA	Environmental Assessment
FHWA	Federal Highway Administration, US Department of Transportation
GIWW	Gulf Intracoastal Waterway
LA 23	Belle Chasse Highway
LA 3017	Engineers Road
LADOTD	Louisiana Department of Transportation and Development
NOGCRR	New Orleans Gulf Coast Railway
NORPC	New Orleans Regional Planning Commission
NRHP	National Register of Historic Places
PA	Programmatic Agreement
SHPO	State Historic Preservation Officer
USDOT	United States Department of Transportation

Section 4(f) Evaluation

State Project No. H.004791
Federal Project No. H004791

Belle Chasse Tunnel
LA 23, Jefferson and Plaquemines Parishes, Louisiana

1.0 Project Description

The Louisiana Department of Transportation and Development (LADOTD) is proposing to replace the existing 2-lane LA 23/Belle Chasse Tunnel under the Gulf Intracoastal Waterway (GIWW) in Plaquemines Parish between Engineers Road (LA 3017) and Barriere Road (a Plaquemines Parish Road) with a 4-lane fixed bridge and associated approach and intersection improvements (See Figure 1, Inset 2 and Figure 2). The Belle Chasse Tunnel and adjacent Belle Chasse Bridge are a 4-lane couplet for crossing the GIWW. Section 4(f) requires that the proposed transportation use of any land from a significant publicly owned public park, recreation area, wildlife, and waterfowl refuge or public or private historic site that is on or eligible for the National Register of Historic Places (NRHP) be avoided, if feasible and prudent, before any US Department of Transportation (US DOT) funding or approvals can be granted. Additionally, a full evaluation of measures to minimize harm to that property must be made and documented.

1.1 Proposed Action – The proposed action is the construction of a new 73-foot vertical navigation clearance fixed bridge with approaches following the existing alignment of LA 23. This project is required because of the decommissioning of the Belle Chasse Tunnel, defined as no longer used for vehicular traffic or as part of the Louisiana Highway System[1], and demolition of the Belle Chasse Bridge. This project is subject to an environmental assessment (EA) with more detail about alternatives development and relative impacts contained in Chapters 1 and 2 of the EA.

The proposed bridge would be a fixed bridge constructed with a navigation clearance of 150-feet and 73-feet above mean high water of vertical clearance. The bridge would have four 12-foot wide travel lanes, center barrier, outside shoulders and sidewalk. The superstructure of the bridge would be supported by reinforced concrete abutments found on pile supported foundations. The bridge would provide four 12-foot wide travel lanes, an 8-foot wide shoulder with a separate sidewalk using one of two options: one, 6-foot wide sidewalk divided from the roadway with a barrier or two, 5-foot wide sidewalks. The bridge would have the ability to be widened in the future to as many as six travel lanes without experiencing a loss in available clearances between the bridge and mean high water in the GIWW.

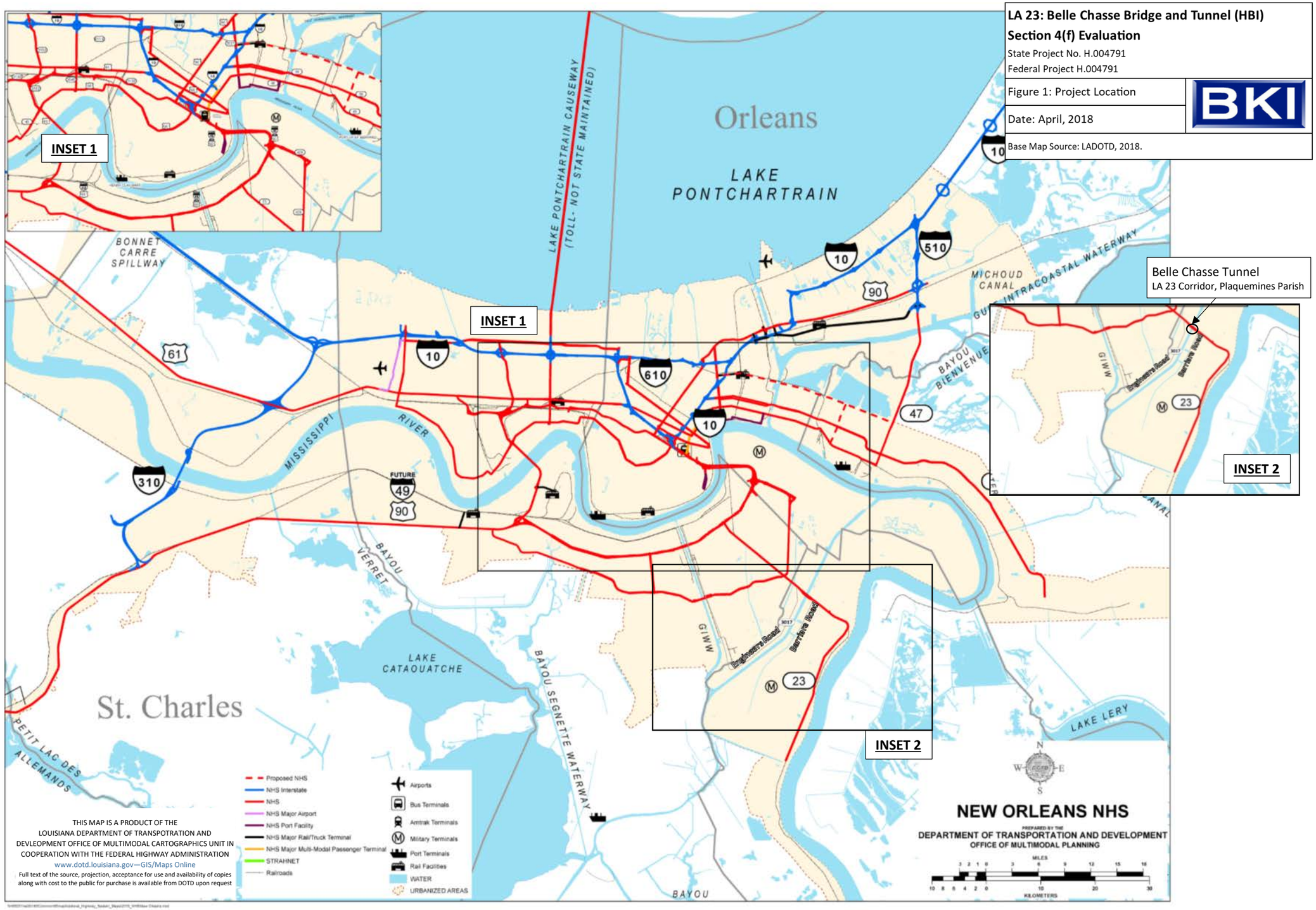
[1] Although adaptive reuse as a pedestrian and bicycle facility was evaluated as an option.

LA 23: Belle Chasse Bridge and Tunnel (HBI)
Section 4(f) Evaluation
State Project No. H.004791
Federal Project H.004791

Figure 1: Project Location

Date: April, 2018

Base Map Source: LADOTD, 2018.



Generally, the new bridge and roadway would follow the existing alignment of LA 23 and requires the demolition of the Belle Chasse Bridge (subject to a separate *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges*). Included in this project are (as shown on Figure 4):

- a new intersection for LA 23 with LA 3017;
- closure of the intersection of LA 23 with East and West X Street;
- an existing ramp from LA 23 southbound to North Tunnel Road which connects to West X Street, Belle Chasse Bridge, and the LA 23 Median Enhancement;
- closure of the intersection with LA 23 and Dr. Bowen Drive;
- closure of a ramp from LA 23 northbound to South Tunnel Road which connects to a rail crossing at the former Bayou Barriere Golf Course and two parish roads (Q Street and R Street).

The length of the project is approximately 1 mile (0.94 miles) and it is anticipated that additional right-of-way would be required on the north end of the project area as part of the relocation of LA 3017. The project location is shown on Figure 1.

A total of three design alternatives (Fixed Bridge, Moveable Bridge and Preservation Alternative) with 21 options of bridge width and approach slope grade and the no action (No-Build) alternative were initially considered in the environmental phase for the portion of this project affecting this Section 4(f) resource. The Fixed Bridge and Moveable Bridge alternatives considered a location between the current Belle Chasse Tunnel and Bridge. Following two public meetings and review with local stakeholders and officials, the MPO and locally preferred alternative identified as potentially viable is option 4A, the 73-foot vertical clearance fixed bridge with four, 12-foot-wide travel lanes and 8-foot-wide shoulders. This alternative would adversely affect the Belle Chasse Tunnel if there is no adaptive reuse and the tunnel is demolished.

1.2 Purpose and Need –LA 23 is a principal arterial which serves as the primary access point between Jefferson and Plaquemines parishes. Improving transportation system linkage by improving connectivity of LA 23 from Lapalco Boulevard to Woodland Highway would benefit traffic operations in this area. Improving connectivity in the LA 23 corridor addresses current conditions and operational constraints created by aging infrastructure. Constructed in 1956, the Belle Chasse Tunnel closes whenever maintenance activities warrant. Periods for maintenance closures have become more frequent as traffic volumes in this area have increased and the tunnel has aged. During these periods, the Belle Chasse Bridge, constructed in 1968, operates with two-way traffic, effectively reducing the capacity for traffic at this location by half. The tunnel does not reciprocate with 2-way traffic during bridge closures. The current tunnel is open to passenger and freight vehicles but remains posted with restrictions on height. Trucks traveling south on LA 23 carrying hazardous cargo are also prohibited from using the tunnel and this affects many loads going to the petrochemical plants located south of the GIWW.

This project would impact the existing Belle Chasse Bridge and approaches (also identified as the Belle Chasse Bridge). A review of this bridge is ongoing as part of a separate Programmatic

Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges (Federal Highway Administration [FHWA] 1983). This approval would be made pursuant to Section 4(f) of the Department of Transportation Act of 1966, 49 United States Code (USC) 303, and Section 18(a) of the Federal-Aid Highway Act of 1968, 23 USC 138.

2.0 Section 4(f) Property

2.1 Belle Chasse Tunnel

2.1.1. Property Description/Type of Section 4(f) Property - The Belle Chasse Tunnel, located in Plaquemines Parish, LA in the unincorporated community of Belle Chasse is a transportation structure which opened to traffic in 1956. The tunnel is an 800-foot long buried structure that carries two 11-foot-wide traffic lanes (22-foot wide roadway with 14.25-foot vertical clearance) and a single 4 foot, 10-inch wide pedestrian walkway along the tunnel's western side to allow pedestrian access under the GIWW.

The Belle Chasse Tunnel is eligible for nomination to the NRHP under Criteria A and C. As the first fully automatic underwater vehicular tunnel in the world and the first underwater traffic tunnel built in Louisiana, the Belle Chasse Tunnel was identified as important under Criterion A-Historical Significance in Transportation. Contributing elements to Belle Chasse Tunnel historic property included its concrete approaches, block letter signage at each entrance, reinforced concrete walls, interior covering of glazed tiles, elevated walkway, and ventilation towers.

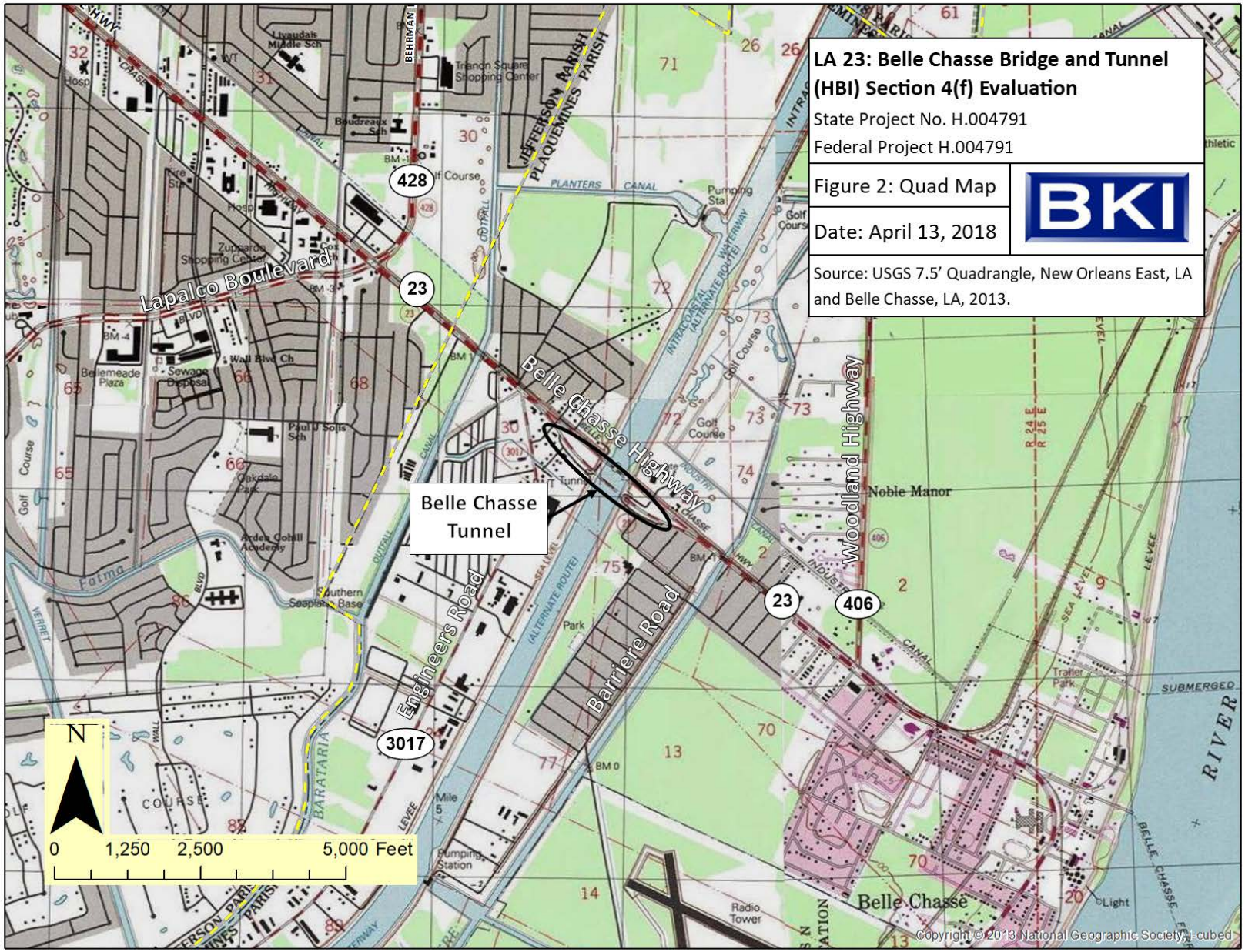
The Belle Chasse Tunnel is eligible under Criterion C-Engineering, as a tunnel designed and built utilizing the most highly advanced engineering and technology available at the time. The state-of-the-art tunnel was designed by Palmer and Baker, whose other works include the Bankhead Tunnel in Mobile as well as the Washburn Tunnel in the Houston suburbs, which was added to the NRHP in 2008. The Belle Chasse tunnel was built using tubular construction in a "dry land area," allowing engineers to avoid the time and expense of burrowing under an existing waterway. In addition, innovative engineering techniques were employed to prevent groundwater intrusion, including a double system of well points created especially for the project. Belle Chasse Tunnel was equipped with automated ventilation and drainage systems, and automatically operated adjustable graduated lighting to ease transition from light to dark.

2.1.2. Ownership – LADOTD owns the Belle Chasse Tunnel.

2.1.3. Size – The limits of the Belle Chasse Tunnel and approaches are 4,135.12 feet from south of LA 3017 to just north of Dr. Bowen St.

2.1.4. Function and Available Activities - The Belle Chasse Tunnel functions as part of the LA 23 principal arterial highway linking Plaquemines Parish with Jefferson Parish (See Figure 2). An average of 22,300 vehicles per average weekday travel south through the tunnel on LA 23 into Belle Chasse. The tunnel has a pedestrian path accessible from both sides of the GIWW. Bicycles can be walked through the tunnel using this path as well. The current tunnel is open to

2.1.5. Location



2.1.6. Photographs



LA 23: Belle Chasse Bridge and Tunnel (HBI)
Section 4(f) Evaluation
State Project No. H.004791
Federal Project H.004791

Figure 3: Tunnel Photos

Dates: Vary (2012-2018)

Sources: Earth Search, Inc. and BKI.

Photo 1 Northwest Portal of the Belle Chasse Tunnel
Photographer facing southeast
Photo Source: Burk-Kleinpeter, Inc.



Photo 2 Interior of the Belle Chasse Tunnel
Photographer facing southeast
Photo Source: Earth Search, Inc.



Photo 3 West sheltered pedestrian entryway of Tunnel
Photographer facing northeast
Photo Source: Earth Search, Inc.

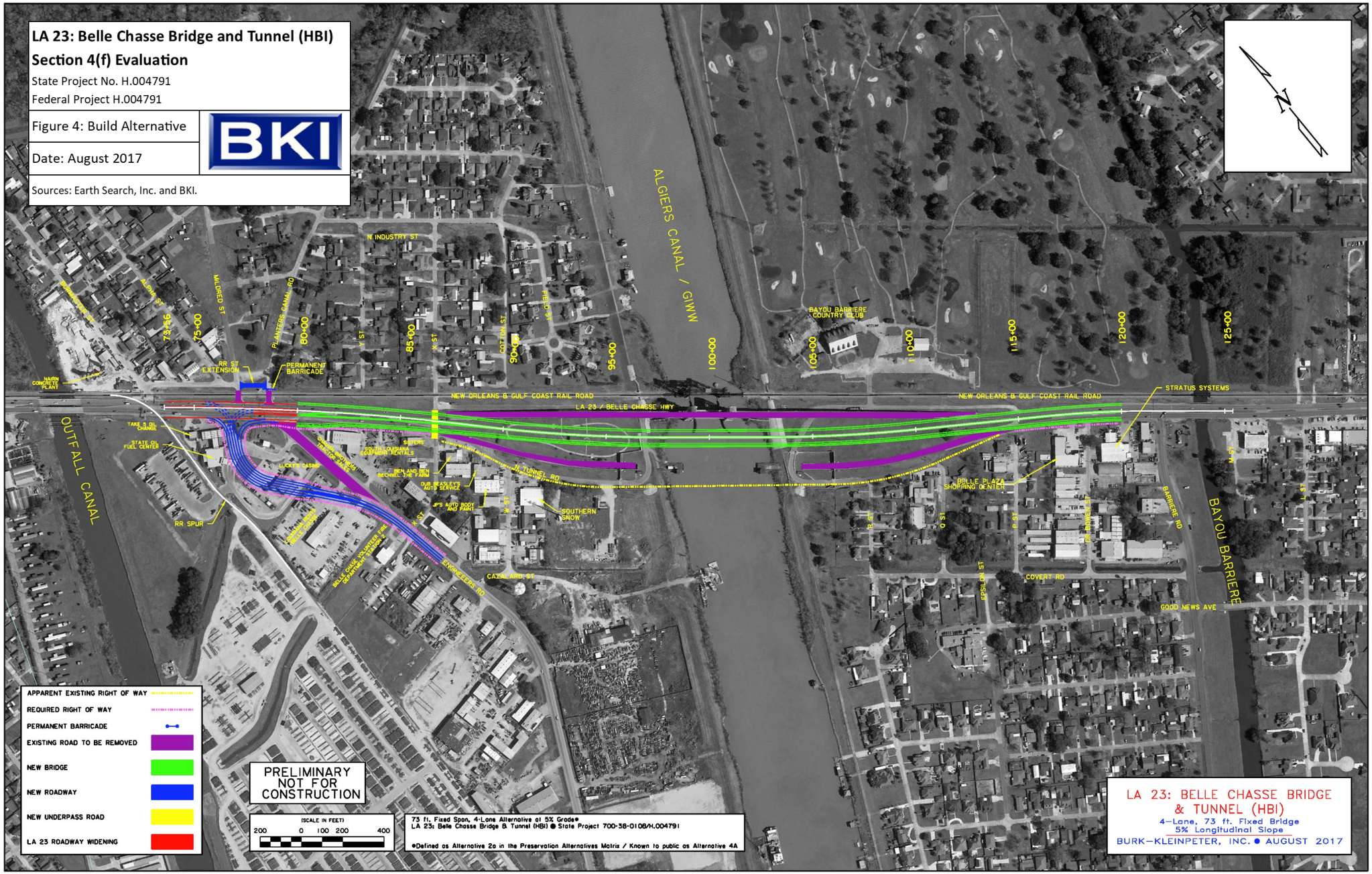


Photo 4 Southeast Portal of the Belle Chasse Tunnel
Photographer facing northwest
Photo Source: Earth Search, Inc.

passenger and freight vehicles but remains posted with restrictions on height. Trucks traveling south on LA 23 carrying hazardous cargo are also prohibited from using the tunnel and this affects many loads going to the petrochemical plants located south of the GIWW. Oversized trucks and trucks with hazardous cargo must detour via LA 428 or LA 406 (See Figure 2) to cross the GIWW at the General De Gaulle Bridge. The General De Gaulle Bridge is located 8 miles east of LA 23 in Orleans Parish. Drivers of oversized trucks are informed of the height limit of the tunnel and prohibition on oversized trucks by signs on LA 23 southbound before the entrance to the tunnel approach. Just before the entrance to the tunnel approach, oversized trucks are directed off LA 23 to the existing surface streets adjacent to the tunnel to turn around.

2.1.7. Detailed Maps/Drawings to identify relationship between project alternative and Section 4(f) property

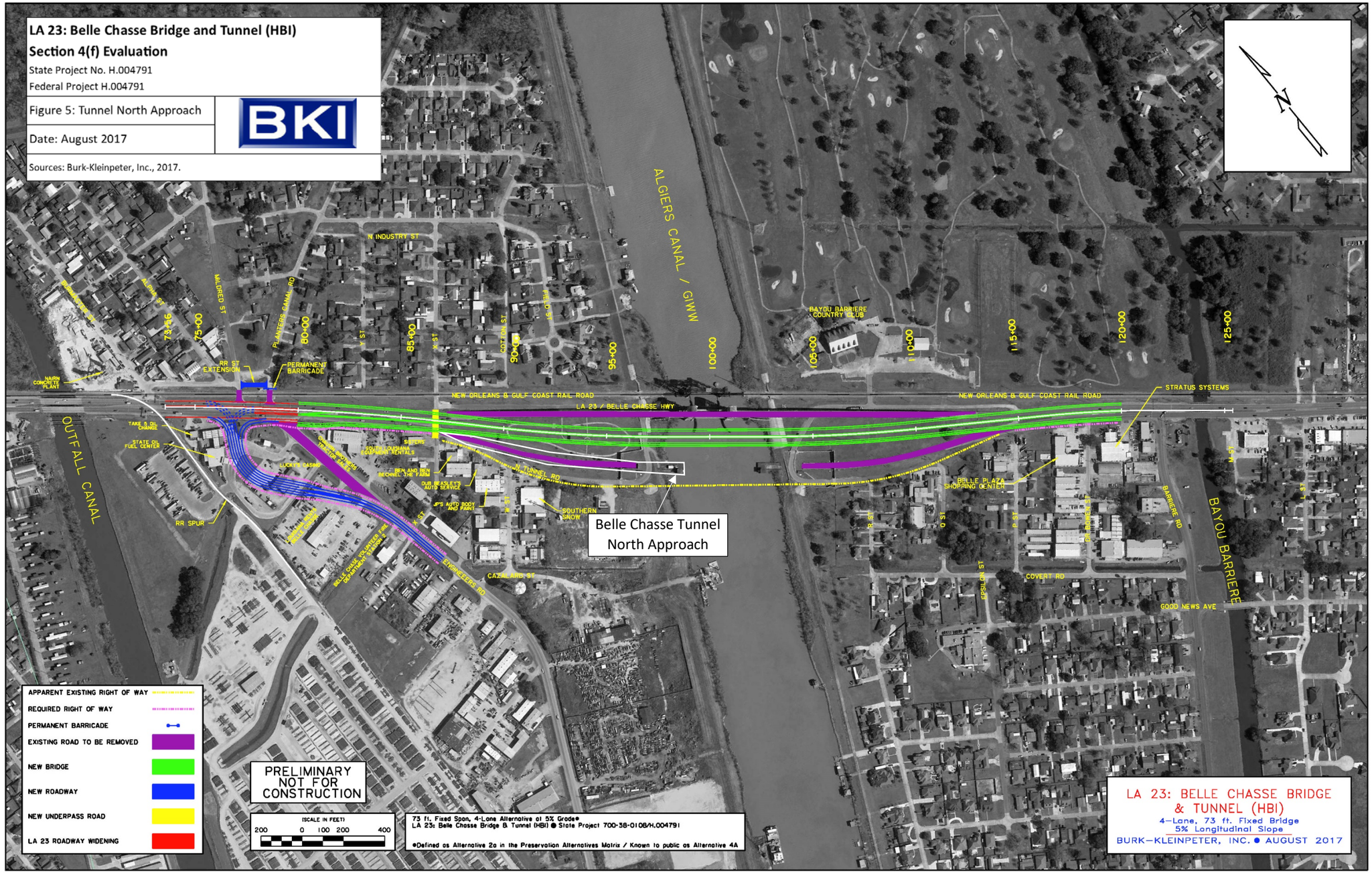
Figures 4 through 6 provide the location of the preferred alternative for the



Belle Chasse Bridge replacement along with improvements to the approaches to connect the proposed bridge to the existing LA 23 highway corridor.

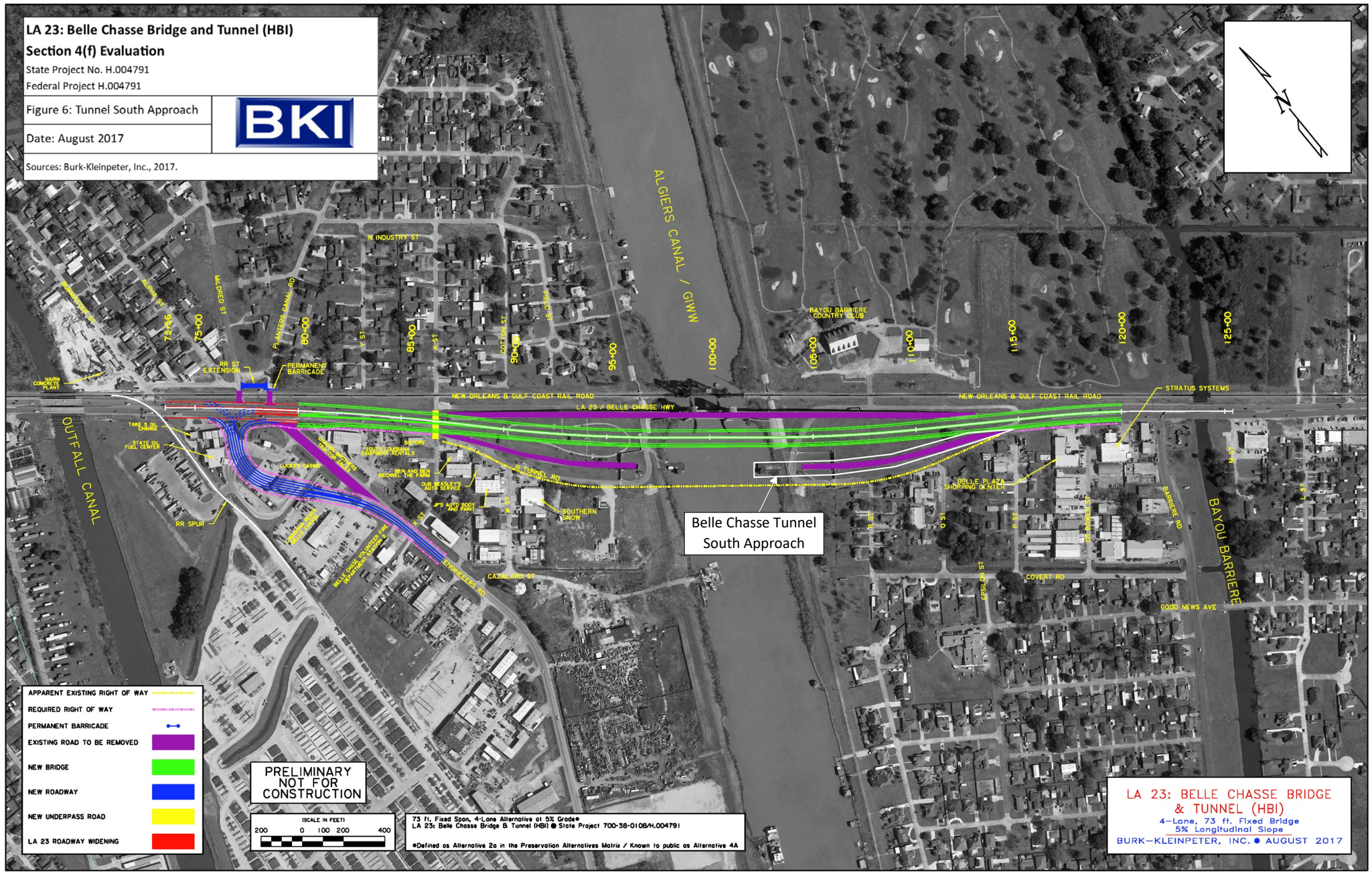
Figure 4 to the right provides the general location for the preferred alternative (shown in green) in relation to the existing Belle Chasse Tunnel and Bridge (shown in purple). The preferred alternative would be constructed between both the existing bridge and tunnel but would tie back to the LA 23 mainline south of Engineers Road and north of Barriere Road.[2]

As shown in Figure 5 to the right, the north approach of the new bridge would be approximately 100 feet northeast of the tunnel approach. It would require closure of the tunnel access to connect the new bridge approach to the LA 23 corridor at W./E. X Street.



[2] – Subject to further refinement within the context of the LA 23 Line and Grade Study, under development.

As shown in Figure 6 to the right, the south approach of the new bridge would be approximately 90 feet northeast of the tunnel approach. It would require closure of the tunnel access to connect the new bridge approach to the LA 23 corridor at P Street.



2.1.7. Description and location of all Existing and Planned Facilities - The Belle Chasse Tunnel is in Plaquemines Parish under the Algiers Canal reach of the GIWW which connects the Harvey Canal to the Mississippi River. The facility described in the Section 4(f) includes just the tunnel and approaches. There are two stairwells (see Figure 7 on page 15 and individual site photos on page 10) which provide access the tunnel's pedestrian walkway on both sides of the GIWW. In addition, there are two airshafts located within the GIWW close to the shoreline which provide for exhaust and ventilation.

There are no auxiliary structures or buildings associated with the tunnel. There are no plans to expand this facility or construct additional administrative and support buildings for the structure. LADOTD manages the structure's maintenance and operations from their existing maintenance facilities in the New Orleans area located in Bridge City, LA and the Regional Traffic Operations Center located in New Orleans, LA.

2.1.8. Access and Usage/Hours of Use – The Belle Chasse Tunnel is open to the public as part of a couplet (Belle Chasse Tunnel and Belle Chasse Bridge) providing 4 travel lanes on the LA 23 corridor over the GIWW. The tunnel does close for advertised periods to allow cleaning or maintenance. During these periods, southbound traffic on LA 23 is detoured to the adjacent Belle Chasse Bridge, converting the normal one-way traffic flow (northbound only) to two-way traffic flow. Advance notification of changes in access which require changes in traffic flow are provided through LADOTD and Plaquemines Parish in the local media, via email blast to subscribers and on overhead signs located along the LA 23 corridor.

2.1.9. Relationship to Similarly Used Lands in Vicinity and Potential effects of a Change in the Section 4(f) property - The Belle Chasse Tunnel is part of a pair of transportation structures on LA 23 in Plaquemines Parish. The other transportation structure, the Belle Chasse Bridge, sits approximately 270 feet northeast of the tunnel. The bridge was constructed after the tunnel (in 1968) and like the tunnel has two travel lanes and offers pedestrian access across the GIWW. As shown on Figure 4 (aerial), the LA 23 corridor widens at W. X Street to include the footprint of the approaches to both structures, prior to narrowing south of Q Street. The Belle Chasse Bridge is the subject of a separate Programmatic Section 4(f) evaluation. Together, these two structures carry approximately 44,700 vehicles per day over/under the GIWW. As noted previously, during periods of closure for maintenance and cleaning, the Belle Chasse Bridge is converted to two-way traffic flow to allow bypass of the tunnel.


LA 23: Belle Chasse Bridge and Tunnel (HBI)
Section 4(f) Evaluation
State Project No. H.004791
Federal Project H.004791
Figure 7 Belle Chasse Tunnel Facilities
Date: April 13, 2018
Source: ESRI, DigitalGlobe, et.al, 2018.
BKI
N
E. X Street
23
Belle Chasse Bridge
23
W. X Street
W. W Street
N. Tunnel Road
S. Tunnel Road
Engineers Road
R Street
Q Street
P Street
Gulf Intracoastal Waterway
1
2
3
LEGEND
1 Tunnel Approach
2 Pedestrian Staircase
3 Exhaust Tunnel
3017
0 112.5 225 450 Feet

2.1.10. Characteristics of the Section 4(f) property that either reduce or enhance its value - Any discussion of rehabilitation remains conceptual in nature and preliminary as additional inspection of the facility and its exterior would be required prior to establishing the exact scope and nature of work. Repeated attempts to repair the tunnel have been made to address damage caused by vehicles and by water infiltration occurring at various locations along the tunnel. Although these repairs have targeted cracks and other locations which allow water to enter the tunnel from the GIWW, none of these operations are long lasting. Water continues to enter the tunnel regularly requiring closures by LADOTD for cleaning and repair. During these periods, two-way traffic is maintained via the Belle Chasse Bridge. Efforts to divert the water entering the tunnel into a collection system does not keep water from dripping directly onto vehicular traffic at certain locations. The continued dripping of water in the tunnel remains a concern in the community.

Any rehabilitation of the tunnel which addresses functional integrity, does not directly increase corridor or structure transportation capacity or roadway geometrics. In addition, the rehabilitation process would require a complete external inspection of the tunnel which would require partial closure of the GIWW to allow access to the top of the tunnel. Such activities might require a partial closure of the GIWW which would interfere with maritime traffic operations. The rehabilitation alternative does not improve the continuity of traffic flow as existing prohibitions for movement of oversized vehicles south on LA 23 into Plaquemines Parish would remain in place. Therefore, this alternative would not address the project purpose and need and is not prudent.

3.0 Alternatives Analysis

3.1 Section 4(f) Use – The proposed action would require the use of the Section 4(f) property as defined in 23 CFR 774.17 as part of the area incorporated into the construction of a new bridge over the GIWW. As shown on Figures 5 and 6, this new facility would require the demolition of the existing approaches to the tunnel to accommodate the approaches to the preferred alternative. This would eliminate vehicle access to the Belle Chasse Tunnel.

The build action considered two different build alternatives (Fixed-Span and Movable bridges) with 15 options. As all new bridge alternatives/options occur on a skewed alignment between the existing Tunnel and Bridge, these are also the avoidance alternatives.

The Preservation Alternative would consist of the existing structure couplet over the GIWW: the 2-lane bridge combined with the 2-lane tunnel. The Preservation Alternative includes repair and restoration of the Tunnel. Adaptive reuse of the tunnel as a potential pedestrian/bicycle link under the GIWW remains an option.

The Do-Nothing Alternative maintains the current bridge and tunnel.

The proposed build action eliminates the vehicle access provided with the existing approaches but would retain local street access to the area of the tunnel on both sides of the GIWW. Maintaining the tunnel in this use would require a commitment to complete

rehabilitation activities to address current water seepage into the Tunnel. The estimated cost of these activities (approximately $15 million) should be borne by the owner of the structure. In addition, this would require a commitment to ongoing maintenance. The adaptive reuse is likewise not feasible given the commitment to additional costs (construction + operations and maintenance) for a facility which would be a duplicate of elements proposed to be part of the preferred alternative (option 4A).

As shown in Table 1, the initial review of alternatives considered each option based upon its ability to meet the project purpose and need (prudence). Maintaining connectivity and continuity of the transportation network is part of the purpose and need and is important on LA 23 and the GIWW. This allows traffic to pass through the area, although with any construction activity, some detours or delays are inevitable. Of the alternatives/options shown in Table 1, the following do not meet the project purpose and need:

- All movable bridge alternatives (Options 2A, 3A, 6A, 7A, 2B, 3B, 6B);
- The Preservation Alternative (Option 4);
- The Do Nothing Alternative.

Table 1: Initial Alternatives Evaluation
LA 23: Belle Chasse Bridge & Tunnel (HBI)

Alternative	**Option**		**Does the option meet the purpose and need?**
Fixed-Span (Avoidance)	1	100 ft. 4-lane with 5% grade	YES
	4A	73 ft. 4-lane with 5% grade	YES
	4B	73 ft. 4-lane with 6% grade	YES
	5	100 ft. 4-lane with 6% grade	YES
	6A	73 ft. 6-lane with 3% grade	YES
	6B	73 ft. 6-lane with 4% grade	YES
	6C	73 ft. 6-lane with 5% grade	YES
	6D	73 ft. 6-lane with optimized grade	YES
Movable (Avoidance)	2A	70 ft. bascule 4-lane with 5% grade	**NO**
	3A	60 ft. bascule 4-lane with 5% grade	**NO**
	6A	70 ft. bascule 4-lane with 6% grade	**NO**
	7A	60 ft. vertical lift 4-lane with 6% grade	**NO**
	2B	70 ft. vertical lift 4-lane with 5% grade	**NO**
	3B	60 ft. vertical lift 4-lane with 5% grade	**NO**
	6B	70 ft. vertical lift 4-lane with 6% grade	**NO**
Preservation	4	Rehabilitate existing couplet (2-lane bridge + 2-lane tunnel)	**NO**
Do Nothing		No Build	**NO**
Alternate Use		Pedestrian/Bicycle Link	---

The next evaluation measure used in the initial review was whether the option meets the current LADOTD Design Guidelines. Bridge grades greater than 5% are considered steep. Steep

grades could reduce the overall footprint of construction for the bridge and potentially lessen community impacts. However, the resulting effect of this type of structure on traffic operations would be reduced travel speeds for vehicles, specifically heavy trucks.

As traffic ascends the bridge, it tends to accelerate harder to maintain speed to reach the apex of the bridge. The amount of interaction in the traffic created by the presence of slow moving vehicles is likely to create an environment during which slower moving traffic interrupting forward progression would be more common. Although some drivers will typically try to maintain their speed, it is a natural reflex for traffic to slow on the climb approach in response to the characteristics of the adjacent traffic pattern. Slower moving heavy trucks tend to reduce the speed of traffic in their lane and thus encourage passing of traffic along the corridor.

Once at apex, traffic crossing the bridge typically exercises less acceleration to maintain speed on the descent, opting for more braking pressure to reduce forward momentum in response to conditions found in the traffic stream as well as upstream traffic controls. Again, this slowdown of traffic would interrupt progress through adjacent signals and possibly eliminate opportunities for coordination with nearby signals and the benefits this would create for traffic operations.

Of the alternatives/options shown in Table 1, the fixed-span alternatives, options 4B and 5 would provide for a steep bridge which does not meet current LADOTD Design Guidelines and are not prudent. The adaptive reuse was likewise eliminated as not prudent given the commitment to additional costs required for construction, operations and maintenance as a bicycle/pedestrian facility which would duplicate of elements proposed as part of option 4A.

Based upon the outcomes of the initial evaluation shown in Table 1, the Fixed-Span alternatives/options 1, 4A, 6A, 6B, 6C and 6D remained potentially viable and moved into a second level of evaluation. This evaluation examined potential community impacts using an initial layout concept, comparing each option with the Do Nothing Alternative:

- Total potential displacements –the number of residences, commercial businesses, industrial activities, community facilities and other facilities potentially impacted by the option, based upon current land use occupancy and parcel data from Jefferson and Plaquemines Parishes, as documented using conceptual layout information for each option. Options with a larger number of displacements would be potentially more disruptive to the adjacent community.
- Road/Driveway Closures and Relocations - an estimate of the number of streets, driveway access points closed because of the footprint of the proposed bridge and approaches suggested by each option as well as the expected relocations of major streets (Engineers Road and Barriere Road) and rail lines (spur of the NOGC Railway) on LA 23 between Lapalco Boulevard and Woodland Highway required to accommodate the approaches to the proposed option. Options which require a larger number of road/driveway closures and relocation would be more disruptive to property access and would tend to create more potential impacts for the occupants including diminished business, decreased access to emergency services and the like.

- Additional Water Crossings – the number of additional water crossings and bridges requiring construction to accommodate the approaches as documented using conceptual layout information for each option. Options which require replacement of adjacent water crossings would have more associated costs and would potentially impact some areas identified as potential wetlands.
- Traffic Operations on LA 23 – an indication of the expected improvement in travel time in the peak direction during morning and afternoon peak commute periods. As documented in the project's traffic study, in the existing condition of LA 23 (Do-Nothing Alternative) it takes, on average, 5 minutes, 20 seconds to travel southbound on LA 23 between Lapalco Boulevard and Woodland Highway, while in the afternoon, it takes 8 minutes, 46 seconds to travel northbound on LA 23 between Woodland Highway and Lapalco Boulevard. As documented in the traffic study, most of this delay is encountered in the LA 23 corridor between Barriere Road and Lapalco Boulevard. Changes in travel time shown with each option reflect a measure of change created through a combination of geometric improvements at individual intersections on LA 23 combined with street closures and traffic signal coordination. Delays outside of peak occur in the northbound direction because of bridge openings, which take anywhere from 7 to 10 minutes to complete. Options which replace the movable bridge with a fixed span would eliminate this delay and improve capacity, continuity, and connectivity on LA 23.
- Maritime Operations – an indication whether the option requires that a bridge opening, and costs/commitment required with a bridge tender to accommodate vessel passage on the GIWW.
- Hurricane Evacuation/Operations – an indication whether the proposed option would improve the continuity of LA 23 during periods of evacuation in advance of a tropical weather event or other emergency. During these periods, the existing Belle Chasse Bridge must suspend its curfew operations and open with higher frequency to allow vessels to travel up the GIWW to safe harbor.

As shown in Table 2, Options 6A through 6D would improve vehicular traffic and maritime operations and hurricane evacuation needs on LA 23. However, these benefits come with a greater potential impact to the community through a combination of potentially severe and disruptive displacements to the established community, as well as impacts to local streets and driveways, than Option 4A.

When compared with the Do Nothing Alternative, Option 4A meets the purpose and need, provides benefits to vehicular traffic and maritime operations and hurricane evacuation needs. It also establishes continuity in the LA 23 corridor by eliminating the constraints for traffic operations found in the couplet of the Belle Chasse Tunnel and with Belle Chasse Bridge. In addition, Option 4A meets with LADOTD Design Guidelines.

Table 2: Secondary Alternatives Evaluation

LA 23: Belle Chasse Bridge & Tunnel (HBI)

Alternative	Fixed Span					Do Nothing
Option	**4A**) 73ft. 4-lane with 5% grade	**6A**) 73ft. 6-lane with 3% grade	**6B**) 73ft. 6-lane with 4% grade	**6C**) 73ft. 6-lane with 5% grade	**6D**) 73ft. 6-lane with optimized grade	Existing couplet (2-lane tunnel + 2-lane bridge)
Total Potential Displacements (est)[2]						
TOTAL[3]	11	88	66	60	65	0
Residential (Single-family, 2-family)	0	25	7	6	7	0
Commercial (Individual businesses)	11	59	56	51	55	0
Industrial Activities	0	3	2	2	2	0
Community Facilities	0	0	0	0	0	0
Other	0	1	1	1	1	0
Road/Driveway Closures and Relocations						
Local Streets closed (due to structure limits)	4	8	5	4	4	0
Driveways potentially closed (est.)	12	43	39	39	39	0
Relocated NOGC Railway Spur	NO	YES	YES	NO	NO	No Change
RELOCATED - Barriere Road	NO	YES	YES	NO	YES	No Change
RELOCATED - Engineers Road	YES	YES	YES	YES	YES	No Change
Additional Waterway Crossings						
Barataria Outfall Canal	0	3	2	0	1	0
Bayou Barriere/Barriere Outfall Canal	0	2	2	1	2	0
Traffic Operations on LA 23						
Network Connectivity/Continuity	Improved	Improved	Improved	Improved	Improved	No Change
AM Peak Improvement (Lapalco to Woodland SB)	17% reduction in travel time	17% reduction in travel time	14% reduction in travel time	20% reduction in travel time	20% reduction in travel time	No Change
PM Peak Improvement (Woodland to Lapalco NB)	59% reduction in travel time	19% reduction in travel time	22% reduction in travel time	61% reduction in travel time	61% reduction in travel time	No Change
Maritime Operations						
Requires bridge opening to allow traffic passage on GIWW?	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	No, eliminates need for bridge tender and openings	Yes, bridge tender required for Belle Chasse Bridge
Hurricane Evacuation/Operations						
Projected impact on Hurricane Evacuation Traffic Operations	None - bridge remains open to traffic and GIWW accesible to marine vessels	None - bridge remains open to traffic and GIWW accesible to marine vessels	None - bridge remains open to traffic and GIWW accesible to marine vessels	None - bridge remains open to traffic and GIWW accesible to marine vessels	None - bridge remains open to traffic and GIWW accesible to marine vessels	No change - Traffic would be stopped on LA 23 NB as bridge opens to accommodate marine needs; Tunnel closed in advance of landfall as per Emergency Operations plans.

3.2. Do-Nothing and Preservation Alternatives – The only alternatives considered that would avoid impact to the Belle Chasse Tunnel is the Do-Nothing Alternative and the Preservation Alternative. However, this would mean the continuation of traffic operations, congestion and mobility issues along the LA 23 corridor resulting from the required maintenance and operations of the Belle Chasse Tunnel and Belle Chasse Bridge. In addition, maintaining the current structure with the Belle Chasse Bridge would continue the current restrictions on marine traffic at this location during peak vehicle traffic periods. LA 23 is a primary arterial connecting Jefferson and Plaquemines Parish with a steady volume of traffic which is expected to remain constant in the future. Replacing the Belle Chasse Tunnel and accompanying Belle Chasse Bridge with the preferred alternative allows both vehicle and marine traffic to pass through this area uninterrupted.

3.3 Measures to Minimize Harm/Least Overall Harm - There are no feasible and prudent alternatives that both meet the purpose and need and have no impact on the Belle Chasse Tunnel. In situations where there is no prudent and feasible avoidance alternative, FHWA may approve from the remaining alternatives that use a Section 4(f) property, only the alternative which causes the least overall harm in light of the statute's preservation purpose. Evaluation of least overall harm, which used the information shown in Table 3 considered the following factors:

1. Ability to mitigate adverse impacts to 4(f) property – The fixed bridge alternative avoids the portion of the Belle Chasse Tunnel under the GIWW but requires use of land currently occupied by the Tunnel approaches to construct the roadway approaches to the fixed bridge.

2. Relative severity of the remaining harm after mitigation – The fixed bridge alternative would replace both the Belle Chasse Tunnel and adjacent bridge. Tunnel closure and decommissioning activities would be part of the overall project. Mitigation measures identified for the tunnel closure and decommissioning include HAER documentation, a historic marker and electronic presentation for public distribution.

3. Relative significance of each Section 4(f) property – The Belle Chasse Tunnel is eligible for nomination to the NRHP under Criteria A and C. The Belle Chasse Bridge has been assigned Preservation Candidate status in Attachment 1 of the *Programmatic Agreement […] Regarding Management of Historic Bridges in Louisiana* (PA). Preservation Candidate bridges are historic structures that, due to factors of condition and context, should be designated for preventative maintenance, preservation, and rehabilitation when prudent and feasible.

4. Views of officials with Jurisdiction over 4f property – In a June 27, 2018 memorandum the LA DOTD Chief Engineer noted that Alternative Option 4A is the preferred alternative and described how the Department will treat the tunnel. The memo informs local jurisdictions that the tunnel will be decommissioned from the state highway system and made permanently inaccessible. That action would likely mean that it would no longer be eligible for the National Register of Historic Places. The memorandum also notes the consultation

with the SHPO and proposed HAER documentation. Refer to Attachment C, which contains the memorandum, for additional information.

5. Degree to which each alternative meets the purpose and need – As shown in Table 1, the alternative under consideration meets the project statement of purpose and need

6. After reasonable mitigation, magnitude of impacts to non-4(f) properties – The alternative under consideration has the potential to create varied impacts to non-4(f) properties. As options 6A, 6B, 6C, and 6D widen the LA 23 corridor to the west, these options create potentially more direct impacts to adjacent properties than option 4A (See Table 3). Option 4A does create direct impacts to adjacent properties, but these are limited to areas which include the realignment of LA 3017 and properties whose direct access to LA 23 is interrupted because of length of the approaches to the option's bridge section.

7. Substantial differences in costs among alternatives – Estimates shared with the public in 2016 as part of the second round of community information meetings on the project included estimates of potential construction costs. These provided an initial range (subject to further refinement) of costs for the fixed bridge alternatives options within a range between $121.9 to $240.1 million. Costs generally increase between the options due to change in construction footprint and potential direct impacts to adjacent properties. Of the options, 6A would have the longest and potentially most impactful footprint of construction due to the relatively low slope of the fixed-bridge; while Option 4A would be have the shortest and potentially least impactful footprint of construction given its slope (which meets LADOTD Design Guidelines) and adherence to the current 4-lane cross section on LA 23.

Given the outcome of this alternatives review, Option 4A would provide benefits to vehicular traffic and maritime operations and hurricane evaluation needs. This option would provide these benefits while creating fewer potential displacements and road closures thus making it both feasible and prudent.

Table 3: Evaluation of Least Overall Harm

LA 23: Belle Chasse Bridge & Tunnel (HBI)

Alternative	Fixed Span				
Option	**4A**) 73ft. 4-lane with 5% grade	**6A**) 73ft. 6-lane with 3% grade	**6B**) 73ft. 6-lane with 4% grade	**6C**) 73ft. 6-lane with 5% grade	**6D**) 73ft. 6-lane w/optimized grade
Total Potential Displacements (est)					
TOTAL	11	88	66	60	65
Residential (Single-family, 2-family)	0	25	7	6	7
Commercial (Individual businesses)	11	59	56	51	55
Industrial Activities	0	3	2	2	2
Community Facilities	0	0	0	0	0
Other	0	1	1	1	1
Potential Costs (2016)[1]					
Initial Order of Magnitude Cost (2016)	$121.9 million	$240.1 million	$206.2 million	$170.0 million	$170.0 million
Additional Waterway Crossings					
Barataria Outfall Canal	0	3	2	0	1
Bayou Barriere/Barriere Outfall Canal	0	2	2	1	2
Environmental Justice Communities					
Impact to Minority & Low Income Communities	None	None	None	None	None
Use of Section 4(f) Properties					
Effects to Belle Chasse Tunnel	YES	YES	YES	YES	YES
Effects to Belle Chasse Bridge	YES	YES	YES	YES	YES
Protected Species Habitat					
Wildlife and Waterfowl Refuges	None	None	None	None	None
Parks and Recreation Areas					
Acres of Parkland Taken	None	None	None	None	None

4.0 Coordination with Officials with Jurisdiction

As one of the project proponents (LADOTD) is the Official with Jurisdiction, it is implied that LADOTD intends to decommission the Belle Chasse Tunnel. High maintenance costs, no expansion capabilities, poor traffic operations and poor geometric design are all reasons cited for the Tunnel's decommissioning. In 2009, the New Orleans Regional Planning Commission (NORPC) and LADOTD completed an initial feasibility study (identified by LADOTD as a Stage 0 Feasibility Study) to identify concepts for improving traffic operations and connectivity at this location on LA 23. Between 2012 and 2018 an environmental study (identified by LADOTD as a Stage 1 Environmental Study) of the project continued the work concluded in 2009. This scope of this effort led to identification of a preferred alternative from within a range of potential alternatives/options examined for impacts relative to the Do Nothing Alternative. Identification of the preferred alternative came with the benefit of an analysis of potential impacts, benefits and input from the community and local officials.

5.0 Conclusions

The Preferred Alternative, as identified in the LA 23: Belle Chasse Bridge and Tunnel[2] HBI Environmental Assessment (EA), is built over the GIWW on an alignment between the current bridge and tunnel. Given the developed environment along LA 23, alignments for a new bridge outside of the existing LA 23 corridor right-of-way could not be identified without creating substantial community displacements. An alternative to maintain the current LA 23 corridor right-of-way with a range of fixed and moveable bridge options proved the most feasible. All the options developed found that the location identified allowed for a maintenance of traffic operations during construction on LA 23, as well as the operations of the adjacent New Orleans Gulf Coast Railway (NOGCRR) line east of LA 23. Placing a new bridge on a skewed alignment between the existing Belle Chasse Tunnel, and NOGCRR allows the new structure to be constructed in an area which creates potentially fewer direct impacts, but does require the closure of the Belle Chasse Tunnel to vehicles, impacting access to the structure:

- Estimated displacement of 7 commercial structures (2 vacant structures and 5 occupied structures with a total of 9 individual businesses at the time of survey);
- Acquisition of approximately 8.7 acres of private property;
- Closure of 12 driveways and 4 local streets (Mildred Street, Planters Canal Road, Tunnel Road, Dr. Bowen Street);
- No impact to the NOGCRR rail line or spur line crossing LA 23;
- Estimated impact to approximately 2 acres of land which includes both maintained and emergent wetland vegetation;
- Estimated impacts to approximately 0.42 acres of wetlands and 3.78 acres of waters of the US.

[2]The Belle Chasse Tunnel is also eligible for the NRHP.

January 3, 2019

Date

Charles W. Bolinger

Division Administrator

Attachment A:

MOA for Belle Chasse Tunnel

MEMORANDUM OF AGREEMENT
AMONG THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION,
THE LOUISIANA DEPARTMENT OF TRANSPORTATION
AND DEVELOPMENT,
THE LOUISIANA STATE HISTORIC PRESERVATION OFFICER
FOR THE
PERMANENT DECOMMISSION OF THE LA 23 BELLE CHASSE TUNNEL
BELLE CHASSE, PLAQUEMINES PARISH, LOUISIANA

WHEREAS, the U.S. Department of Transportation, Federal Highway Administration (FHWA), is providing financial assistance to the New Orleans Regional Planning Commission (NORPC) in conjunction with the Louisiana Department of Transportation and Development (LADOTD) so that it may replace the LA 23 Intracoastal Waterway (ICWW) Judge Perez Bridge (Structure # 02380620200432, Recall No. 002500) and the Belle Chasse Tunnel (Structure No. 02380620200621, Recall No. 002510, Louisiana Historic Resource Inventory No. 38-00115) on LA 23 in Belle Chasse, Plaquemines Parish, Louisiana, under Federal Aid Project No. H004791 and State Project No. H.004791; and

WHEREAS, FHWA, in consultation with LADOTD, determined that the Belle Chasse Tunnel, constructed in 1955, that currently carries east bound LA 23 traffic, cannot be feasibly repaired or modified to meet current transportation design standards and after construction of the new bridge, will be closed to all traffic and made completely and permanently inaccessible or demolished; and

WHEREAS, FHWA, in consultation with the Louisiana State Historic Preservation Officer (LASHPO), determined the Belle Chasse Tunnel is eligible for the National Register of Historic Places (NRHP) under Criterion A for its historical significance as the first fully automatic (regarding ventilation, drainage and lighting) underwater tunnel in the world and the first underwater traffic tunnel in Louisiana. It was also determined to be eligible under Criterion C-Engineering as it was designed and built utilizing the most highly advanced engineering and technology available at the time. LASHPO concurred with the NRHP eligibility determination for Belle Chasse Tunnel; and

WHEREAS, FHWA, in conjunction with LADOTD, determined that the proposed project will have an adverse effect on the Belle Chasse Tunnel and consulted with LASHPO, pursuant to 36 C.F.R. 800, regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. 306108). LASHPO accepted FHWA's invitation to concur in this Memorandum of Agreement (MOA); and

WHEREAS, FHWA, in consultation with the LASHPO, determined the Area of Potential Effects (APE) shown in Attachments 1 and 2 is the existing Belle Chasse Tunnel and associated right of way (ROW), located on LA 23 in Plaquemines Parish; and

WHEREAS, the LA 23/ICWW Judge Perez Bridge (Judge Perez Bridge), (Structure # 02380620200432, Recall No. 002500) a steel vertical lift bridge constructed in 1967 to relieve congestion in the Belle Chase Tunnel by carrying westbound LA 23 traffic, is mentioned herein for its association with the tunnel only; and

WHEREAS, FHWA, in consultation with the LASHPO, determined the Judge Perez Bridge is eligible for the NRHP under Criterion C for Design and Engineering. It is included in LADOTD's Historic Bridge Inventory and as a Preservation Candidate in the Programmatic Agreement among the FHWA, the LADOTD, the Advisory Council for Historic Preservation (ACHP) and the LASHPO regarding Management of Historic Bridges in Louisiana, executed September 21, 2015, and as such will be subject to the stipulations regarding Preservation Candidate bridges therein and will not be subject to additional Section 106 Consultation or adverse effect mitigations herein; and

WHEREAS, in accordance with 36 C.F.R. 800.6(a)(1), FHWA notified the ACHP of its adverse effect determination and the ACHP has chosen not to participate in the consultation pursuant to 36 C.F.R. 800.6(1)(iii); and

WHEREAS, FHWA, in conjunction with LADOTD, notified other local, state and federal agencies and the public of the project and adverse effect to the tunnel and invited participation in the Section 106 process via newspaper advertisement and mailed notification to addressees on the Solicitation of Views lists for Plaquemines and Jefferson parishes and received no responses; and

WHEREAS, upon rendering the Belle Chasse Tunnel completely and permanently inaccessible or demolished, any in situ remains will not be considered or recorded as an archaeological site; and

NOW, THEREFORE, FHWA, LADOTD, and LASHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

FHWA will ensure that Stipulations I-III are carried out by an individual who meets the Secretary of the Interior's Professional Qualification Standards:

I. Historic American Engineering Record

1. Prior to rendering the Belle Chasse Tunnel completely and permanently inaccessible or demolished, FHWA and LADOTD shall ensure that Historic American Engineering Record (HAER) Level II documentation on the Belle

Chasse Tunnel is submitted and accepted to the National Park Service for submission to the Library of Congress HAER collection.

2. LADOTD will provide LASHPO with the following items:

    a. Two digital copies of the final HAER documentation including drawings, photos (in TIFF format) and Written Historical and Descriptive Data report.

II. Historic Marker

1. LADOTD, in consultation with FHWA and LASHPO, shall erect a Historic Marker commemorating the historic significance of the Belle Chasse Tunnel. Language content for the marker will be reviewed for a fifteen (15) day period by FHWA, LADOTD and LASHPO before the marker order is finalized and submitted to the Louisiana Historical Marker Program under the Louisiana Office of Tourism. The Marker application shall be submitted to the Louisiana Historical Marker Program within one year of completion of the project.

2. The Marker shall be placed on the LADOTD right-of way, near the site of the Belle Chasse Tunnel within 180 days of LADOTD's receipt of the Marker.

III. Electronic Presentation

1. LADOTD, in consultation with FHWA and LASHPO shall determine the appropriate electronic format, such as the Environmental Systems Research Institute Story Map platform, video, etc., and create an electronic presentation conveying the history and significance of the Belle Chasse Tunnel to be made available for public viewing through the LADOTD and LASHPO websites. The presentation will be completed within 270 days of the finalization of this MOA.

IV. Preclusion of Archaeological Site Designation

1. FHWA and LASHPO agree that the upon rendering the Belle Chasse Tunnel completely and permanently inaccessible or demolished and thereafter, any in situ remains of the tunnel will not be considered or recorded as an archaeological site.

V. Administrative Stipulations

1. This MOA will be null and void if its stipulations are not carried out within 10 years from the date of its execution. At such time, and prior to work continuing on the undertaking, FHWA shall either seek to renew this MOA or execute a new MOA FHWA shall notify the signatories as to the course of action it will pursue.

2. Should any signatory to this MOA object to any action carried out pursuant to this MOA, FHWA and LADOTD shall consult with the objecting party to resolve the objections.

    a. If FHWA determines that the objection cannot be resolved, FHWA shall forward all documentation relevant to the dispute, including the FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. FHWA will then proceed according to its final decision.

    b. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

    c. FHWA's responsibility to carry out all actions under this MOA that are not the subject of the dispute will remain unchanged.

3. Any signatory to this MOA may terminate it by providing thirty (30) days written notice to the other signatories provided that the signatories consult during this period prior to termination to seek agreement on amendments or other actions that to avoid termination. In the event of termination, the FHWA and LADOTD, in consultation with ACHP and LASHPO, will determine how to carry out the responsibilities under Section 106 in a manner consistent with the applicable provisions of 36 C.F.R. 800.

Execution of the Memorandum of Agreement by the Federal Highway Administration, the Louisiana Department of Transportation and Development, and the Louisiana State Historic Preservation Officer, and implementation of its terms, shall constitute evidence that the Federal Highway Administration has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

Federal Highway Administration

By: _____ Date: 8-23-2018
Charles W. Bolinger, Division Administrator

Louisiana Department of Transportation and Development

By: _____ Date: 8/24/18
for Shawn D. Wilson, Ph.D., Secretary

Louisiana State Historic Preservation Officer

By: _____ Date: 8/22/2018
Kristin P. Sanders, LASHPO

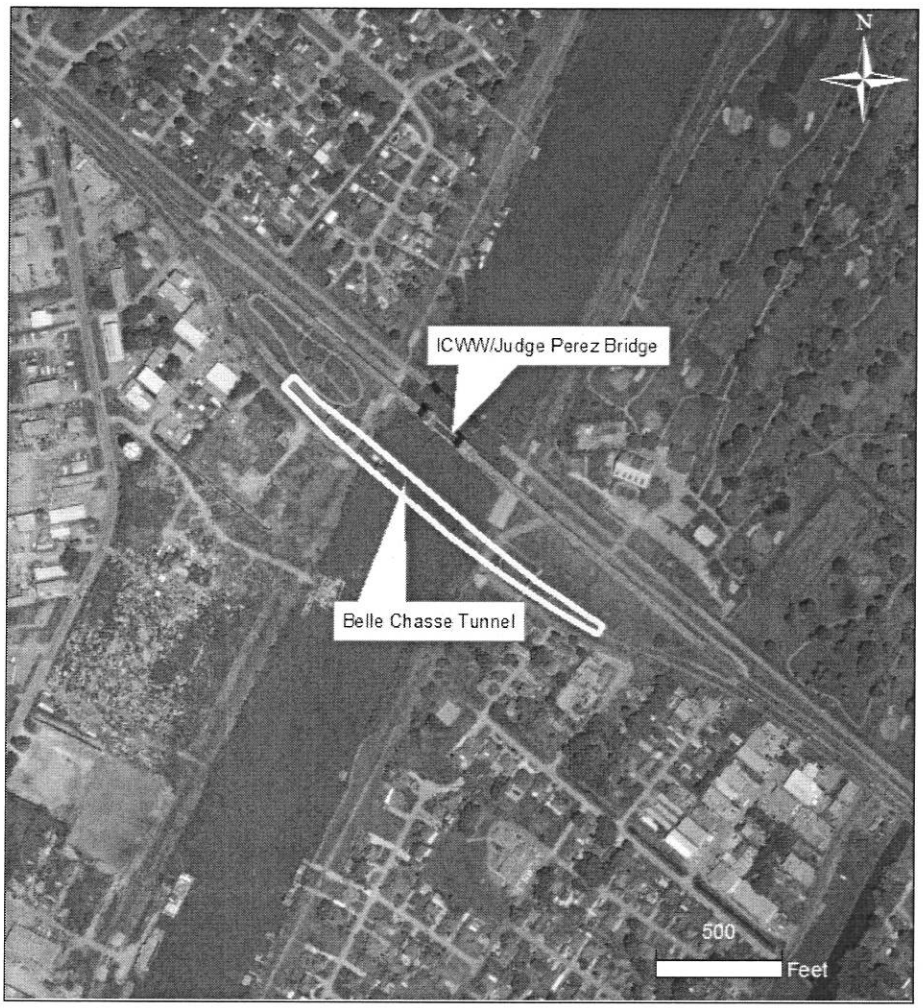




LA 23 ICWW/ JUDGE PEREZ BRIDGE
AND BELLE CHASSE TUNNEL
ON U.S.G.S. BERTRANDVILLE, LA
7.5 MINUTE
QUADRANGLE MAP

DOTD
LOUISIANA DEPARTMENT OF
TRANSPORTATION & DEVELOPMENT

Attachment 1



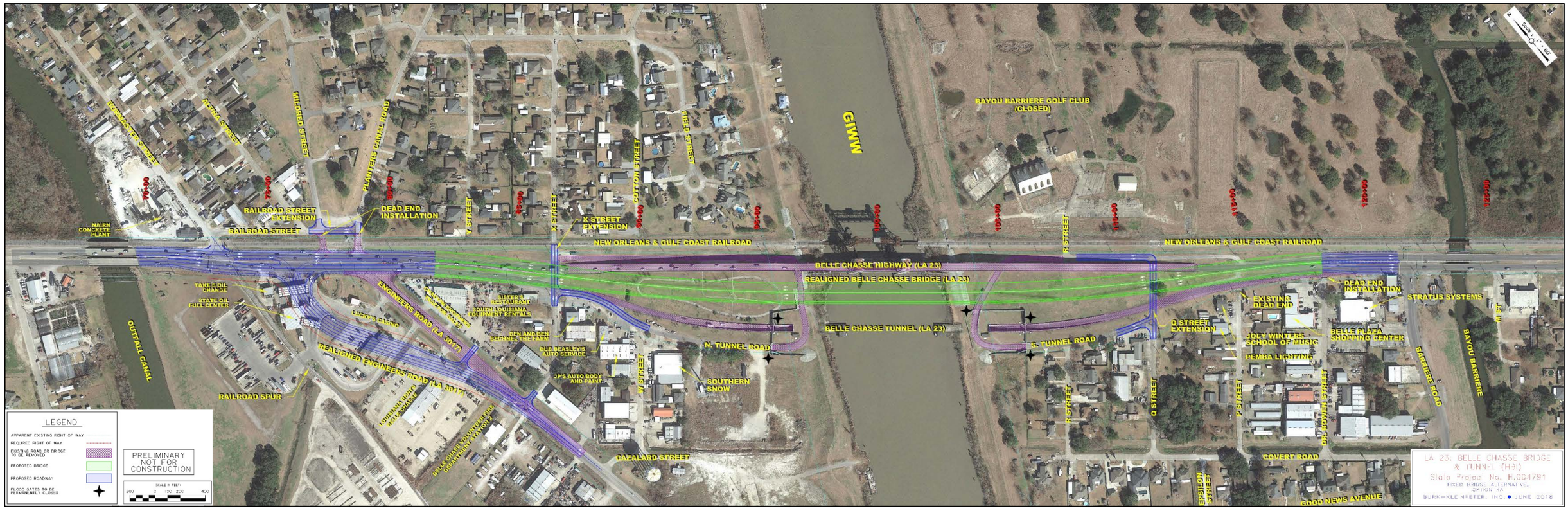


LA 23 JUDGE PEREZ BRIDGE
AND BELLE CHASSE TUNNEL
AERIAL PHOTO APRIL 2017

DOTD
LOUISIANA DEPARTMENT OF
TRANSPORTATION & DEVELOPMENT

Attachment 2

Attachment B:
Depiction of the Design Alternative



Option 4A, LA 23 Belle Chasse Bridge
LA 23: Belle Chasse Tunnel and Bridge (HBI)

Attachment C:
Coordination with Jefferson Parish and Plaquemines Parish

Information on the project forwarded to Jefferson and Plaquemines Parishes by DOTD. Neither parish commented on the information provided.

Attachment D:
Agency Coordination

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

IN REPLY REFER TO FILE NO.

INTRADEPARTMENTAL CORRESPONDENCE

REFERRED TO

____ REFERRED FOR ACTION
____ ANSWER FOR MY SIGNATURE
____ FOR FILE
____ FOR YOUR INFORMATION
____ FOR SIGNATURE
____ RETURN TO ME
____ PLEASE SEE ME
____ PLEASE TELEPHONE ME
____ FOR APPROVAL
____ PLEASE ADVISE ME
____ _____

BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____

STATE PROJECT NO: H.004791
FEDERAL PROJECT NO. H004791
NAME: BELLE CHASSE BRIDGE & TUNNEL (HBI)
ROUTE: LA 23
PARISHES: JEFFERSON & PLAQUEMINES

MEMORANDUM TO THE PROJECT TEAM

FROM: Christopher P. Knotts, P.E.
LADOTD Chief Engineer

DATE: June 27, 2018

SUBJECT: Belle Chasse Tunnel

The Louisiana Department of Transportation and Development (LADOTD), the Official with Jurisdiction over the Belle Chasse Tunnel, prefers Option 4A. Option 4A proposes a new four-lane fixed bridge with 73-foot vertical clearance and 150-foot horizontal navigation clearance over the Gulf Intracoastal Waterway (GIWW). This alignment follows a path in between the LA 23 couplet of the Judge Perez Bridge and the Belle Chasse Tunnel within current LADOTD ROW.

LADOTD will decommission the Belle Chasse Tunnel from the State Highway System. It is unlikely that another entity would acquire, rehabilitate, and maintain the tunnel for an alternate use due to the associated costs. Once decommissioned, the tunnel would be made permanently inaccessible which would likely adversely affect the tunnel to the extent that it would not remain eligible for the National Register of Historic Places. LADOTD recognizes that decommissioning the tunnel and rendering it inaccessible is a "use" of a historic property under Section 4(f) of the U.S. DOT Act.

LADOTD is currently consulting with Louisiana State Historic Preservation Officer (SHPO) regarding mitigation of the adverse effect on the tunnel. The proposed mitigation requires Historic American Engineering Record documentation of the tunnel. This record will document the history of the tunnel and its historic features, prior to the tunnel's decommissioning. LADOTD is seeking an agreement with the SHPO to preclude the tunnel from being considered an archeological site that would affect future federal projects in this location.

CK/mbr

cc: Nicholas Olivier
Noel Ardoin

RECOMMENDED FOR APPROVAL 7/2/18 DATE

RECOMMENDED FOR APPROVAL DATE

RECOMMENDED FOR APPROVAL DATE

APPROVED 7/2/18 DATE

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1001 Indian School Road NW, Suite 348
Albuquerque, New Mexico 87104

File 9043.1
ER 18/0398

September 26, 2018

VIA ELECTRONIC MAIL ONLY

Charles W. Bolinger
Division Administrator
Federal Highway Administration
5304 Flanders Drive, Suite A
Baton Rouge, Louisiana 70808

Subject: Review of the Section 4(f) Evaluation for the Proposed Decommissioning of the Belle Chasse Tunnel, Jefferson and Plaquemines Parishes, Louisiana

Dear Mr. Bolinger:

The U.S. Department of the Interior (Department) has reviewed the Section 4(f) Evaluation for the Belle Chasse Tunnel LA 23, Jefferson and Plaquemines Parishes, Louisiana. In this regard, we are providing the following comments for your use.

We welcome this opportunity to cooperate with the Federal Highway Administration (FHWA) and the Louisiana Department of Transportation and Development (LADOTD) in evaluating the proposed construction of a new 73-foot vertical navigation clearance fixed bridge with approaches, which follows the existing alignment of LA 23. As detailed in the August 21, 2018, Section 4(f) evaluation, the purpose of the proposed project is to improve transportation system linkage by improving connectivity of LA 23 from Lapalco Boulevard to Woodland Highway. Improving connectivity in the LA 23 corridor addresses current conditions and operational constraints created by aging infrastructure

Section 4(f) Comments

The Section 4(f) evaluation adequately describes a range of avoidance alternatives, the affected Section 4(f) resources, and discloses potential project impacts to those resources.

The Section 4(f) evaluation identifies one National Register of Historic Places (NRHP) eligible resource within the Preferred Alternatives' proposed Area of Potential Effects. It is the Belle

Chasse Tunnel. It was determined that the project will have an adverse effect on the Belle Chasse Tunnel.

The Section 4(f) evaluation discusses an ongoing coordination effort with the State of Louisiana Department of Culture, Recreation & Tourism, Office of Cultural Development (State Historic Preservation Office, or SHPO), in compliance with Section 106 of the National Historic Preservation Act. The evaluation notes that the SHPO has concurred with these findings and that a Memorandum of Agreement (MOA) to address measures to mitigate impacts to the Belle Chasse Tunnel was signed by the FHWA, the LADOTD, and the SHPO on August 24, 2018.

Section 7 of the Endangered Species Act (ESA)

The FHWA request involved only a review of the Section 4(f) evaluation. However, as noted in a phone call with FHWA environmental coordinator Robert Mahoney, the Fish and Wildlife Service (FWS) was one of the Department of the Interior bureaus that received a copy of the Section 4(f) evaluation review request from our Headquarters, and they provided ESA comments regarding the project to us. Subsequent to the conversation with Mr. Mahoney, I spoke with the FWS Ecological Services office, sharing that Mr. Mahoney had reported that an ESA Section 7 consultation had occurred with FWS in 2012 regarding the project. They indicated that in the intervening years, project details and resulting potential impacts, and conservation measures, may have changed. We therefore recommend that the FHWA reinitiate Section 7 consultation with FWS regarding this project.

Summary Comments

The Department has no objection to Section 4(f) approval of this project contingent on the subsequent full execution of the requirements identified in the referenced MOA.

The Department has a continuing interest in working with the FHWA and LADOTD to ensure that impacts to resources of concern to the Department are adequately addressed. For matters related to Section 4(f) comments, please coordinate with Steven M. Wright, National Park Service Southeast Regional Office, Planning and Compliance Division, at (404) 507-5710, or at Steven_M_Wright@nps.gov. For any questions regarding ESA, contact Joshua Marceaux, USFWS Ecological Services, at (337) 447-5923, or at Joshua_Marceaux@fws.gov.

Thank you for the opportunity to review and comment on this Section 4(f) evaluation.

Sincerely,



Stephen R. Spencer, PhD
Regional Environmental Officer

Cc: Robert Mahoney, FHWA

Appendix F
Preliminary Jurisdictional Determination Report

PRELIMINARY JURISDICTIONAL DETERMINATION REPORT

FOR

Replace Belle Chasse Tunnel and Bridge
Plaquemines Parish
(RPC Project No. H004791)

PLAQUEMINES PARISH, LOUISIANA

Prepared for
U.S. Army Corps of Engineers, New Orleans District
and
Louisiana Department of Transportation and Development

Prepared by
HNTB Corporation
2021 Lakeshore Drive, Suite 230
New Orleans, LA 70122

March 2016

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Appendix A: Wetland Determination Data Forms
Appendix B: Feature Photographs

PRELIMINARY JURISDICTIONAL DETERMINATION REPORT

1.0 Introduction

The Regional Planning Commission (RPC) and the Louisiana Department of Transportation and Development (LDOTD) are sponsoring options to improve the Judge Perez/Belle Chasse Tunnel and Bridge that cross the Gulf Intracoastal Waterway (GIWW). Both the tunnel and bridge are eligible for the National Register of Historic Places; therefore, options to improve include not only replacement, but also the rehabilitation of existing structures.[1]

Bridge replacement, servicing Louisiana Highway (LA) 23 users, would extend between approximately 0.75 and 1.1 mile in length, not including approach improvements. The proposed bridge would be a fixed structure (i.e. with no moveable span) with a defined horizontal clearance of 73 feet above mean high water at the GIWW. To address LDOTD comments regarding future traffic operations on the corridor, the replacement structure is proposed to have up to six travel lanes and include a bicycle lane and pedestrian sidewalk. The capacity added as a result of the new proposed bridge would allow for the decommissioning of the existing Belle Chasse Tunnel.

To accommodate this structure, it will require consideration of upgrades to the LA 23 corridor which include carrying the 6-lane section from the bridge along LA 23 south through the Woodland Highway/LA 406 intersection. See **Exhibit 1 – Project Location Map**. This report summarizes the methods and results of the wetland delineation conducted within the right-of-way (ROW) of the proposed project.

2.0 Methods

Although this methodology details the information used and the steps taken to identify wetlands and waters within the proposed project ROW, pursuant to the requirements of USACE Regulatory Guidance Letter 08-02, all waters and wetlands identified within the proposed project ROW were included within this Preliminary Jurisdictional Determination Report (PJD), as they may be jurisdictional waters of the U.S.

2.1 Overview

Field investigations were conducted on November 18 and November 19, 2015. The investigations enabled project scientists to identify potentially jurisdictional waters and wetlands located within the proposed project ROW. The project area consists of the proposed ROW and easements for the ultimate ROW required for LA 23 to be

[1] Rehabilitation of existing structures will be evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 and Section 4(f) of the Department of Transportation Act of 1966.

consistent with other environmental documents prepared for the proposed project. Determinations were made as to the potential presence of waters of the U.S., including wetlands, subject to United States Army Corps of Engineers (USACE) jurisdiction under Section 404 of the Clean Water Act (CWA) and/or Section 10 of the Rivers and Harbors Act of 1899. Two manuals (*1987 Corps of Engineers Wetland Delineation Manual* [Technical Report Y-87-1] and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Atlantic and Gulf Coastal Plain Region* [Regional Supplement]) were used for identifying potential waters of the U.S. including wetlands, based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.

The jurisdictional determination activities specifically consisted of delineating and surveying identified water and wetland features within the project area. The method used for wetland determinations was the Routine Onsite Wetland Determination Method. The proposed project is predominately linear; therefore, transects were not necessary. Field investigations followed the methods described in the *Regional Supplement* in the completion of the Wetland Determination Data Form – Atlantic and Gulf Coastal Plain Region.

Once a feature was identified as a potential jurisdictional area, it was assigned a feature number and delineated. Each feature was individually numbered, along with a corresponding upland observation point located in the same general area. Vegetation, hydrology, and soils were evaluated at representative observation points to determine the presence (or absence) of wetland characteristics. These observation points are shown on **Exhibit 2 – Corridor Map**. Indicators of hydrophytic vegetation, wetland hydrology, and hydric soils were recorded for the wetland areas as well as for the corresponding representative upland areas on Wetland Determination Data Forms – Atlantic and Gulf Coastal Plain Region (**Appendix A**). Specific procedures are further discussed below.

The following reference materials were used in conjunction with the recorded field data to evaluate the potential for jurisdictional waters of the U.S., including wetlands, to exist within the project area:

Cowardin, L.M., V. Carter V., F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Report No. FWS/OBS/-79/31.Washington, D.C.;

FEMA Flood Insurance Rate Maps (FIRMs) panels 2201390015B, 2201390035B, and 2201390055B for Plaquemines Parish, Louisiana;

Lichvar, R.W. 2013. The National Wetland Plant List: 2013 wetland ratings. Phytoneuron 2013-49: 1-241;

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42;

Munsell Soil Color Book, Munsell Color, Revised 2009;

National Wetland Inventory (NWI) maps;

Soil Survey of Plaquemines Parish, Louisiana, U.S. Department of Agriculture (USDA), NRCS, 2000;

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed December 2, 2015;

U.S. Army Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. USACE Environmental Laboratory, 1987;

U.S. Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), 2010; and

USGS topographic quadrangle (7.5-minute series): New Orleans East, Bertrandville, Belle Chasse.

Other resources may have been used to a lesser degree during the course of this investigation.

Mapping Conventions

Waters, wetlands, and observation points were delineated and surveyed using a Trimble GPS receiver providing real-time submeter accuracy. Prior to the field investigations, the Trimble Unit was set for a maximum Position Dilution of Precision (PDOP) of six and a minimum of three. In areas where the canopy cover interfered with the ability of the Trimble Unit to receive signals from the satellites, the PDOP may have been increased to a maximum of 10 for individual points. In areas where right-of-entry was not available, the data collected in the field was extrapolated using aerial photographs. The survey data from the Trimble Unit was processed in Pathfinder Office - Version 5.6 and ArcMap GIS-Version 10.3.1 was used to generate figures of the surveyed features.

2.2 Vegetation

The USACE Manual defines hydrophytic vegetation as the community of macrophytic plant life that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence. Hydrophytic vegetation is present when the plant community is dominated by species that require or can tolerate prolonged inundation or soil saturation during the growing season. Hydrophytic vegetation within the project area was identified using the procedures and indicators described in the Regional

Supplement and recorded on the Wetland Determination Data Forms. Dominant vegetation was identified and categorized in accordance with the regional indicator status in The National Wetland Plant List. The indicator status of a plant species is expressed in terms of the estimated probability of that species occurring in wetland conditions within a given region.

In addition to identification of individuals to the species level, dominant vegetative communities were also characterized at each upland and wetland data point. Upland communities were classified as either herbaceous, scrub-shrub, or forested upland. Wetland community classification was based on the Cowardin classification system (Cowardin et. al. 1979) and included only the following wetland type:

- Palustrine Emergent (PEM): These features are dominated by grasses and other herbaceous vegetation associated with areas inundated for at least a portion of the growing season.

2.3 Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper stratum. In general, hydric soils are flooded, ponded, or saturated for a week or more during the growing season when soil temperatures are above 32 degrees Fahrenheit. The anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry, and are used to differentiate hydric from non-hydric soils (USACE Environmental Laboratory 1987).

The presence of hydric soil indicators within the project area was identified on-site using the procedures and indicators described in the Regional Supplement. Soil samples were obtained from approximately the upper 12 to 16 inches of the soil surface and compared with soil mapping units from the published Natural Resources Conservation Service's (NRCS) *Soil Survey of Plaquemines Parish, Louisiana* (2000). See **Exhibit 3 – Soils Map**. Shovel testing, using a "sharpshooter" shovel, was conducted to observe soil characteristics, which included horizon profile, matrix, value, chroma, texture, and concretions, as indicated by the *Munsell Soil Color Book* (2009). Hydric soils were determined to be present if one significant hydric soil indicator was present. Soil sampling depths for each sample hole were noted on the accompanying data form for each observation point location.

2.4 Hydrology

Hydrological indicators were identified in the field. Wetland hydrology indicators were used in combination with indicators of hydric soil and hydrophytic vegetation to determine whether an area is a wetland. Wetland hydrology indicators provide evidence that the site has a continuing wetland hydrologic regime and that hydric soils and hydrophytic vegetation are not relicts of a past hydrologic regime. The presence of wetland hydrology indicators within the project area was identified using

the procedures and indicators described in the Regional Supplement: an area was deemed to have wetland hydrology if it exhibited at least one primary hydrologic indicator or two secondary hydrologic indicators. Primary hydrologic indicators include inundation, saturation in the upper 12 inches, watermarks, drift lines, sediment deposits, drainage patterns, etc. Secondary indicators include crayfish burrows, water-stained leaves, relevant local soil survey data, FAC-neutral test, etc. An area was considered to lack wetland hydrology when it fails to exhibit one primary or two secondary wetland hydrology indicators. Wetland hydrology can result from direct precipitation, flooding, groundwater or a combination of these sources. Within the project area, wetlands are predominately fed by precipitation and infrequent flooding events associated with adjacent waterbodies.

For linear water features, the ordinary high water mark (OHWM) was measured and surveyed at each crossing. The term "OHWM" is defined in 33 CFR 328.3(e) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas." The width of feature from OHWM to OHWM and the depth were estimated and recorded. The flow regime of each linear feature was determined through field observations, U.S. Geological Survey (USGS) topographic maps, Federal Emergency Management Agency (FEMA) floodplain maps, and aerial photography.

2.5 Other

National Wetland Inventory

U.S. Fish and Wildlife Service National Wetland Inventory (NWI) quadrangle maps were reviewed to determine the location of mapped wetlands within the project area (**Exhibit 4 – NWI Map).** Only two areas were identified within the project ROW: the GIWW which is classified as R1UBVx (riverine, tidal, unconsolidated bottom, permanent tidal, excavated); and the Outfall Canal, which is classified as R2UBHx (riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated).

FEMA Flood Insurance Rate Maps

FEMA Flood Insurance Rate Maps (FIRMs) were reviewed to determine flood zones within the proposed project and these are shown on **Exhibit 5 – USGS Quadrangle and FEMA Floodplain Map**. The project area is located within three FIRMS (FEMA Map Number 2201390015B, May 1, 1985; FEMA Map Number 2201390035B, May 1, 1985; and FEMA Map Number 2201390055B, May 1, 1985). Primarily the project area west of the GIWW is located in Zone A: areas of the 100-year flood with base flood elevations and flood hazard factors not determined. The project area east of the GIWW is located in Zone B: areas between the limits of the 100-year and 500-year flood; or certain areas subject to 100-year flooding with average depths less

than one foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.

3.0 Delineation Results

3.1 Site Description

Three linear water features cross the project area: the Outfall Canal, the GIWW and Bayou Barriere. Surrounding land use in the project area is generally retail/commercial, light industrial, marine industrial, and residential. A golf course is situated immediately north of the project area and east of the GIWW. Shipping is a major industry within the GIWW. Much of the area adjacent to both banks of the GIWW within the project area is dedicated to limited-access bridge and tunnel operations and maintenance facilities. Mowed and maintained areas extend approximately 1/4 mile landward from either bank of the GIWW within most of the project area, which, along with the high level of development, accounts for the landscaped appearance of the area in general. Three (3) wetland features closely associated with the GIWW were located during the field investigations. To facilitate the individual wetland feature descriptions and reduce repetitiveness, detailed information on the soil types and vegetation types within the proposed ROW is discussed below. The corresponding soil map unit and name, and vegetation type is used in the individual wetland descriptions.

3.2 Vegetation

A vegetation survey was conducted within the entire project area. Plant species in the tree, sapling/shrub and herbaceous strata were recorded and categorized according to their wetland indicator status. No woody vines were observed. Observed vegetation species are listed in **Table 1**.

Table 1: Dominant Vegetation within Proposed Project Area

Scientific Name	Common Name	Indicator Status
Trees		
Acer rubrum	Red maple	FAC
Carya illinoinensis	Pecan	FACU
Celtis laevigata	Sugar-berry	FACW
Gleditsia triacanthos	Honey-locust	FAC
Lagerstroemia sp.[1, 2]	Crape myrtle	
Morus rubra	Red mulberry	FACU
Pinus taeda	Loblolly pine	FAC
Quercus virginiana	Live oak	FACU
Taxodium distichum[1]	Southern bald-cypress	OBL
Triadica sebifera	Chinese tallowtree	FAC
Ulmus americana	American elm	FAC
Saplings/Shrubs[3]		
Ligustrum japonicum	Japanese privet	FAC
Sesbania drummondii	Poison-bean	FACW
Herbaceous		
Alternanthera philoxeroides	Alligator-weed	OBL

Ambrosia trifida	Great Ragweed	FAC
Ampelopsis arborea	Peppervine	FAC
Calyptocarpus vialis	Straggler daisy	FAC
Campsis radicans	Trumpet-Creeper	FAC
Centella erecta	Stiff spadeleaf	FACW
Colocasia esculenta	Coco-yam	FACW
Commelina diffusa	Climbing day flower	FACW
Cynodon dactylon	Bermuda grass	FACU
Digitaria ciliaris	Southern crab grass	FACU
Diodia virginiana	Virginia Buttonweed	FAC
Eichhornia crassipes	Common water-hyacinth	OBL
Eragrostis secundiflora	Red love grass	UPL
Eupatorium capillifolium	Dog-fennel	FACU
Euphorbia maculata	Spotted sandmat	FACU
Eustachys petraea	Pinewoods finger grass	FACU
Lamium amplexicaule	Henbit deadnettle	UPL
Ludwigia peploides	Floating primrose-willow	OBL
Lysimachia arvensis	Scarlet yellow-loosestrife	FACU
Medicago polymorpha	Toothed medick	FACU
Mikania scandens	Climbing hempvine	FACW
Oxalis violacea	Violet wood-sorrel	UPL
Panicum repens	Torpedo grass	FACW
Paspalum dilatatum	Golden crown grass	FAC
Paspalum notatum	Bahia grass	FACU
Paspalum urvillei	Vasey's grass	FAC
Persicaria hydropiperoides	Swamp smartweed	OBL
Persicaria pensylvanica	Pinkweed	FACW
Phragmites australis	Common reed	FACW
Phyla nodiflora	Turkey-tangle	FAC
Rubus trivialis	Southern dewberry	FACU
Rumex crispus	Curly dock	FAC
Sagittaria graminea	Grass-leaf arrowhead	OBL
Sagittaria platyphylla	Delta arrowhead	OBL
Sambucus nigra	Black Elder	FACW
Solidago canadensis	Canadian goldenrod	FACU
Sorghum halepense	Johnson grass	FACU
Stenotaphrum secundatum	St. Augustine grass	FAC
Symphyotrichum subulatum	Seaside American-Aster	OBL
Taraxacum officinale	Common dandelion	FACU
Toxicodendron radicans	Eastern poison ivy	FAC
Verbena incompta	Brazilian vervain	FACW

Nomenclature follows Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.

Notes:

[1]Planted and maintained for landscaping purposes.

[2]Indicator statuses not available for representatives of genera not keyed to the species level.

[3]It is assumed that all species listed under "Trees" must also occur, or have occurred at some point, as "Saplings/Shrubs"; therefore, they are not repeated in the latter category.

Vegetation observed during the field investigations has been classified into two general vegetation communities. These communities are described as:

- **Urban Landscape** - describes habitats associated with plant communities occurring in developed areas such as those used for GIWW facilities and

maintenance, industrial/commercial, retail and residential. Within the project ROW, these areas are typically maintained throughout the year and are commonly planted with trees, herbs, and grasses for landscaping purposes. Dominant species include live oak, bald cypress, Bermuda grass and St. Augustine grass. Neglected areas were often colonized by nuisance or invasive species such as Chinese tallowtree, Japanese privet and great ragweed. Various native and non-native herbaceous weedy species also occur within this habitat type where not controlled by herbicides.

- **Emergent Wetland** - describes habitats dominated by hydrophytic grasses, other herbaceous vegetation, and occasional woody species. These communities are primarily associated with the unmaintained fringe areas along both shorelines of the GIWW, but also occur in a vegetated drainage feature west of the GIWW. Dominant species include common reed, coco-yam, alligator-weed and delta arrowhead.

3.3 Soils

Soil samples were taken at each data point and evaluated for hydric properties per the technical guidelines and methods described in the Regional Supplement. The Soil Survey of Plaquemines Parish, Louisiana (2000) was reviewed to document the soil map units likely to occur at the individual features located within the proposed ROW. Two different soil types were identified as occurring at the individual features. **Table 2** provides descriptions of these mapped soil types. **Exhibit 3 – Soils Map** shows the soils as mapped by the NRCS Web Soil Survey.

Table 2: Soil Descriptions

Map Unit Name and Symbol	Description	Hydric Status	Prime Farmland? (Y or N)
Westwego clay, 0 to 0.5 percent slopes (Ww)	Level, poorly-drained mineral soil in former swamps that have been drained. It is protected from most flooding. Surface layer is very dark gray firm clay about 4 inches thick, underlain by an 18-inch layer of very dark grayish brown, very fluid muck. In many urban areas, loamy and sandy fill material has been placed on the surface. Water table is 1-3 feet. Permeability is very slow except through the network of cracks. Most areas are used as woodland or pasture, with small amounts in residential areas or idle land reserved for future urban uses. Poorly suited to urban uses due to flooding, wetness, subsidence, low strength, and high shrink-swell potential.	Hydric	N
Urban land (Ub)	Consists of areas where more than 85% of the surface is covered by asphalt, concrete, buildings, or other impervious surfaces. Examples are parking lots, oil storage tank farms, industrial parks, and shopping centers. These areas are mainly on the natural levees along the Mississippi River. Slope is less than 1%. Includes areas that are mostly miscellaneous, artificial fill material.	Non-hydric	N

3.4 Hydrology

The project area is relatively flat, although some topography has been introduced by filling and excavation, presumably for drainage improvements and construction of embankment areas for the roadway. As a consequence of the overall land development activities in the area, any natural surface drainage features have been altered by the installation of various water control structures, ditches and pipes that convey stormwater runoff from the existing roadway into the three water features crossing the ROW. In the wetlands, wetland hydrology indicators identified during the field surveys include surface water, high water table, saturation, aquatic fauna and oxidized rhizospheres. All observed indicators are considered to be primary indicators of wetland hydrology.

3.5 Individual Feature Descriptions

Features are listed in sequential order from the beginning of the project west of the Outfall Canal to the project terminus east of Bayou Barriere.

Water 1, the Outfall Canal, is a perennial drainageway that is part of the New Orleans area flood control system. Within the ROW the feature flows north to south and under existing twin bridges at LA 23. This water is mapped in the NWI as R2UBHx (riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated). The OHWM width is approximately 150 feet within the proposed project area. The water feature within the project area is approximately 143 linear feet (0.42 acre). See **Exhibit 2 Sheet 1** and **Feature Photographs, Page 1**.

Water 2, the GIWW, is a major navigable waterway used for shipping and agricultural purposes. Within the ROW the feature flows northeast to southwest, under the existing liftbridge and over the existing tunnel at LA 23. This water is mapped in the NWI as R1UBVx (riverine, tidal, unconsolidated bottom, permanent tidal, excavated). The OHWM width varies from approximately 330 feet to 510 feet within the proposed project area and its channel depth is maintained to 12 feet. The water feature within the project area is approximately 370 linear feet (3.78 acres). See **Exhibit 2**, **Sheet 2** and **Feature Photographs, Page 1**.

Water 3, Bayou Barriere, is a perennial drainageway used to convey stormwater. Within the ROW the feature flows northeast to southwest and under existing twin bridges at LA 23. South of the bridges, a spur of the ROW crosses the feature again. This water is not mapped by the NWI. The OHWM width varies from approximately 65 feet to 90 feet within the proposed project limits. The water feature within the project area is approximately 186 linear feet (0.33 acre). See **Exhibit 2**, **Sheet 3** and **Feature Photographs, Pages 1 and 2**.

Wetland 1 is a linear, vegetated, upland-cut ditch conveying roadway drainage to the GIWW (Water 2), and may be considered adjacent to that feature. Vegetation associated with this feature is emergent wetland. The associated soil type is Urban Land. This feature is not mapped by the NWI. This feature extends beyond the proposed ROW. The area within the project area is approximately 0.02 acre in size. See **Exhibit 2, Sheet 2** and **Feature Photographs, Page 2**. See **Appendix A** Wetland Determination Data Forms 1U and 1W.

Wetland 2 consists of two thin emergent wetland areas fringing the west bank of the GIWW (Water 2). The wetland areas, designated in **Exhibit 2** as features 2A and 2B, are separated by a 35-foot wide concrete pad and comprise the same system. Vegetation associated with this feature is emergent wetland grading into maintained grass. The associated soil type is Westwego clay, 0 to 0.5 percent slopes. This feature is not mapped by the NWI. This feature extends beyond the project area. The area within the proposed project area is approximately 0.24 acre in size. See **Exhibit 2, Sheet 2** and **Feature Photographs, Page 3**. See **Appendix A** Wetland Determination Data Forms 2U and 2W.

Wetland 3 is very similar to Wetland 2, which is directly across the GIWW, and consists of three thin emergent wetland areas fringing the east bank of the GIWW (Water 2). The wetland areas, designated in **Exhibit 2** as features 3A, 3B and 3C, are separated by a 35-foot wide concrete pad and an artificial berm, and comprise the same system. Vegetation associated with this feature is emergent wetland grading into maintained grass. The associated soil type is Westwego clay, 0 to 0.5 percent slopes. This feature is not mapped by the NWI. This feature extends beyond the project area. The area within the proposed project area is approximately 0.16 acre in size. See **Exhibit 2, Sheet 2** and **Feature Photographs, Pages 4 and 5**. See **Appendix A** Wetland Determination Data Forms 3U and 3W.

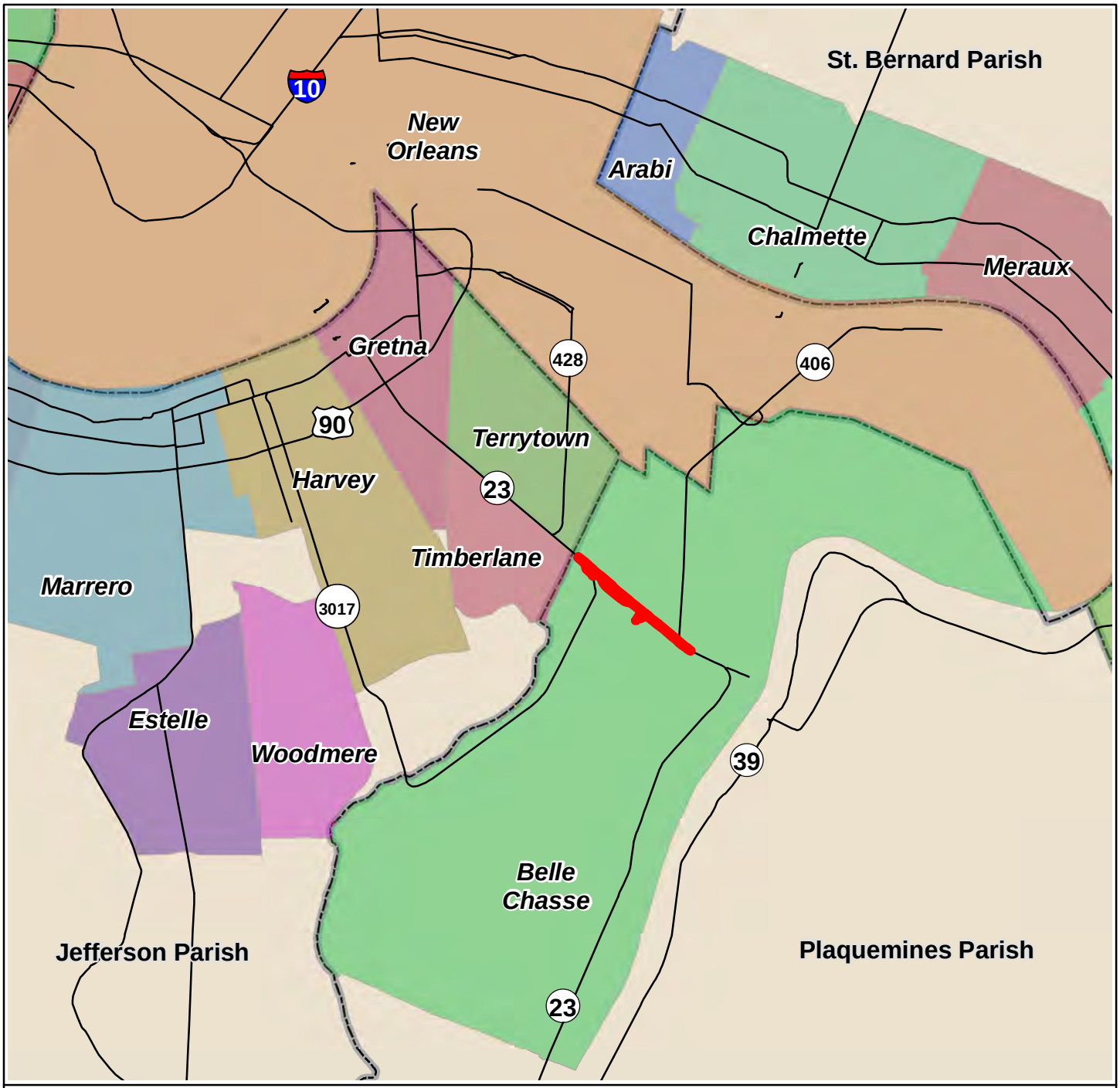
4.0 Conclusion

Based on the results of the on-site evaluations along the project area, it was determined that potential waters of the U.S., including wetlands, are present within the project area. **Table 3** summarizes the features identified within the proposed project corridor. Approximately 699 linear feet (4.53 acres) of potentially jurisdictional waters and approximately 0.42 acre of potentially jurisdictional wetlands were identified. **Exhibit 2** shows the delineated boundaries of all wetland and waterbody features identified in the project area.

USACE permits are required for impacts to any waters of the U.S., including wetlands, subject to USACE jurisdiction under Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act. Coordination with the USACE is required to verify this PJD report and to discuss permitting options prior to any construction activities within the potentially jurisdictional areas.

Table 3: Potential Waters of the U.S., Including Wetlands, within the Proposed Project Area

Site	Linear Feet in Project Area	Acres in Project Area
Water 1	143	0.42
Water 2	370	3.78
Water 3	186	0.33
Wetland 1	N/A	0.02
Wetland 2	N/A	0.24
Wetland 3	N/A	0.16
Total Waters	699	4.53
Total Wetlands	N/A	0.42



N

0 1 2 3 4 Miles

Legend

- Project Area
- Road
- Parish Boundary

Source: Census 2000 Tiger Data, LDOTD Roads and Parish Boundary

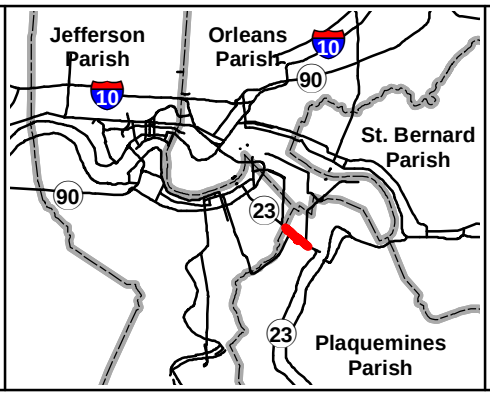


EXHIBIT 1
PROJECT LOCATION MAP
Replace Belle Chasse Tunnel and Bridge

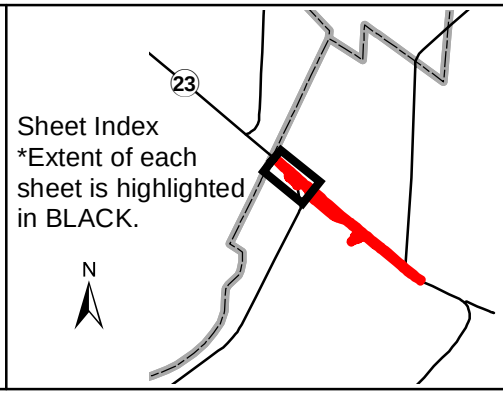
Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



Legend

- Project Area
- Water
- Wetland
- Sampling Point



N

0 200 400 Feet

EXHIBIT 2
CORRIDOR MAP
Sheet 1 of 4

Replace Belle Chasse Tunnel and Bridge

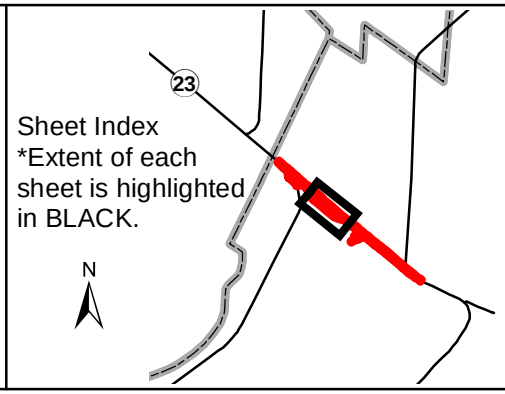
Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



Legend

- Project Area
- Water
- Wetland
- Sampling Point



N

0 200 400 Feet

EXHIBIT 2
CORRIDOR MAP
Sheet 2 of 4

Replace Belle Chasse Tunnel and Bridge

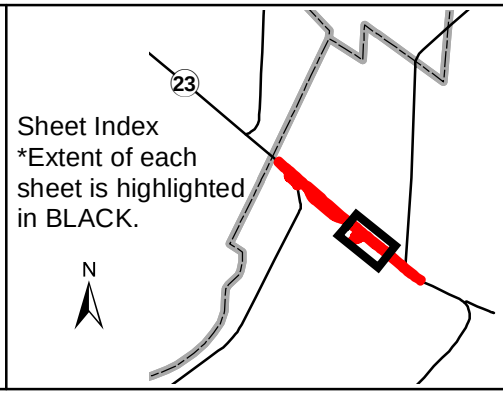
Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



Legend

- Project Area
- Water
- Wetland
- Sampling Point



N

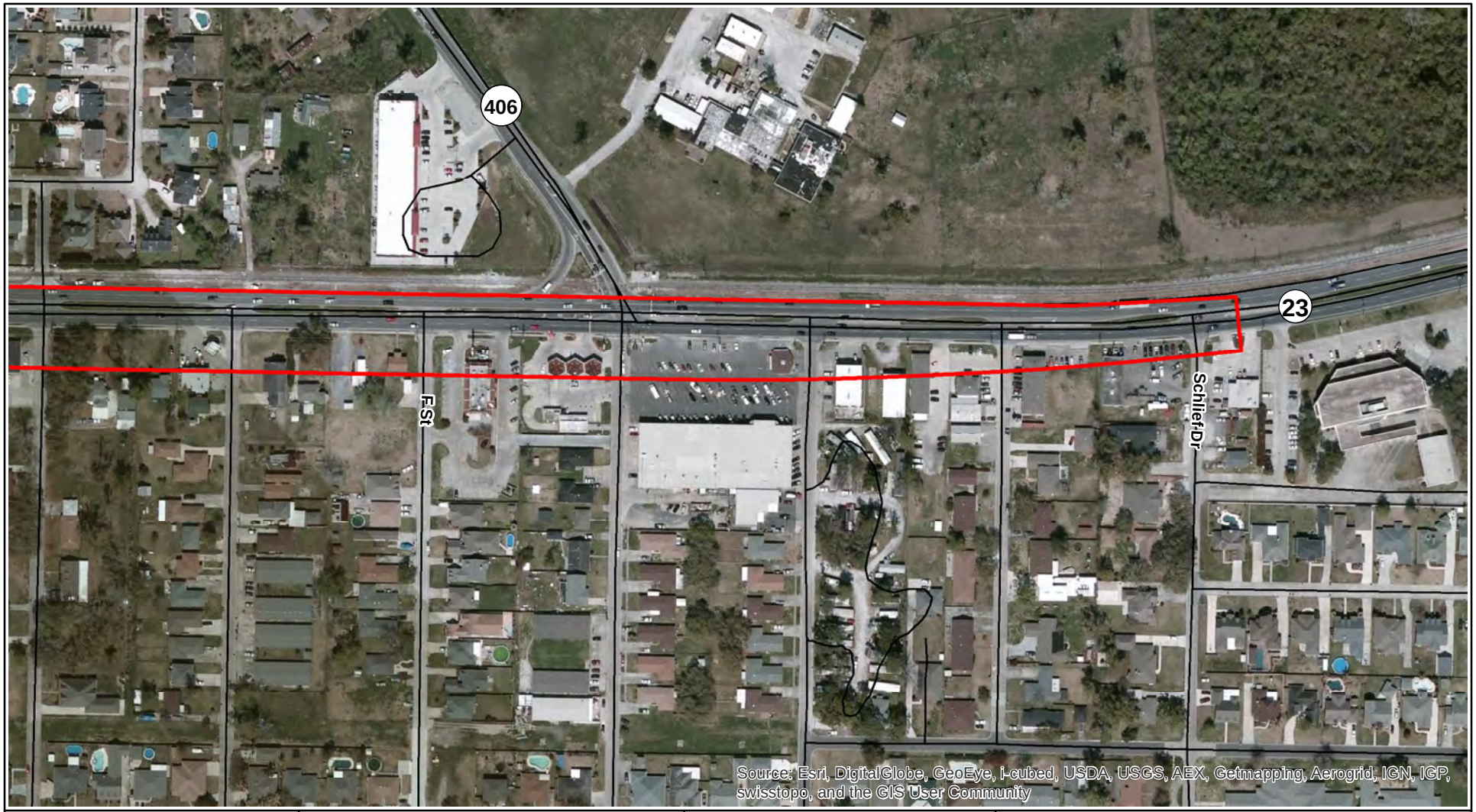
0 200 400 Feet

EXHIBIT 2
CORRIDOR MAP
Sheet 3 of 4

Replace Belle Chasse Tunnel and Bridge

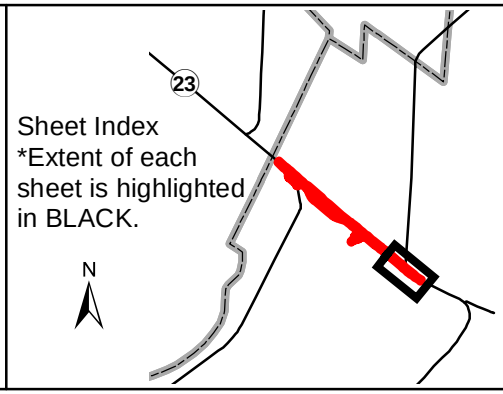
Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



Legend

- Project Area
- Water
- Wetland
- Sampling Point



Sheet Index
*Extent of each sheet is highlighted in BLACK.

N

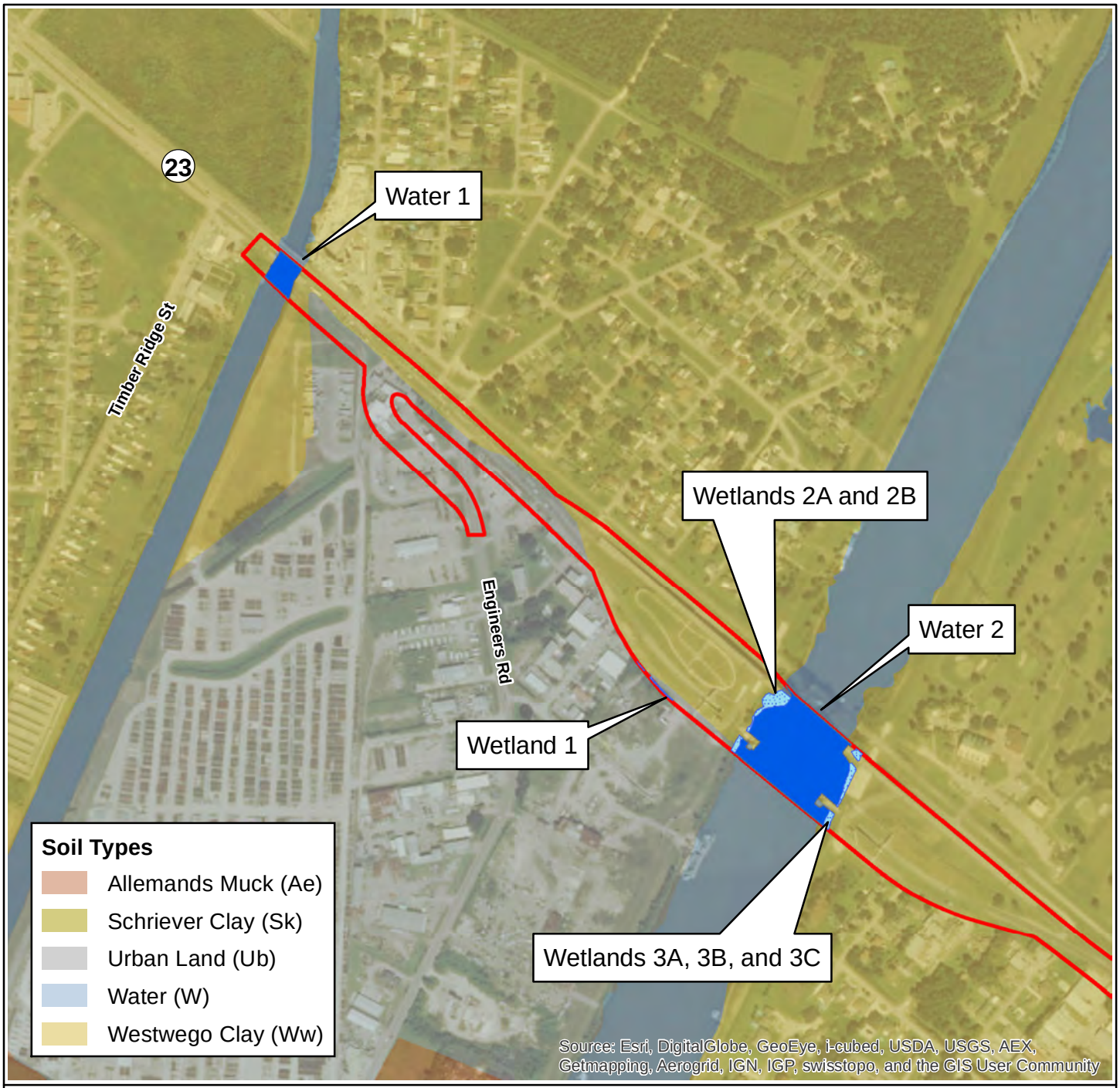
0 200 400 Feet

EXHIBIT 2
CORRIDOR MAP
Sheet 4 of 4

Replace Belle Chasse Tunnel and Bridge

Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



N

0 500 1,000 1,500 Feet

Legend

- Water
- Wetland
- Project Area

Source: USDA-NRCS SSURGO Data

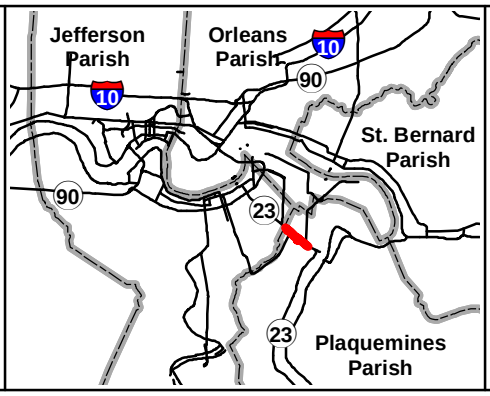


EXHIBIT 3
SOILS MAP
Sheet 1 of 2
Replace Belle Chasse Tunnel and Bridge

Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



N

0 500 1,000 1,500 Feet

Legend

- Water
- Wetland
- Project Area

Source: USDA-NRCS SSURGO Data

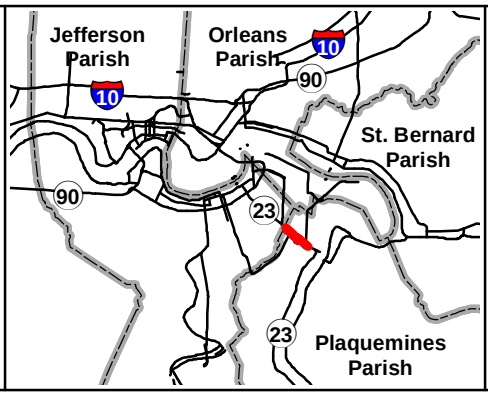
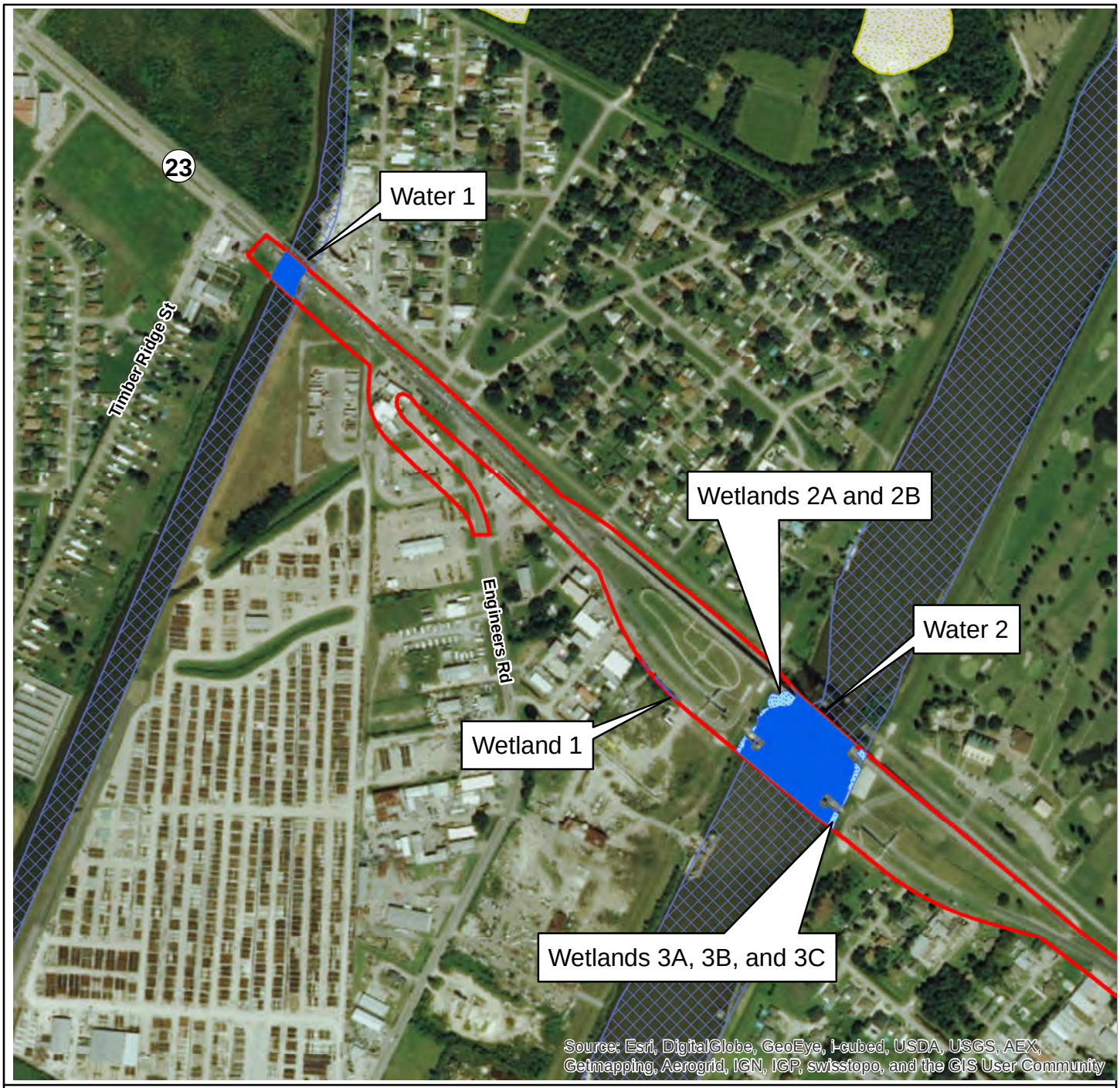


EXHIBIT 3
SOILS MAP
Sheet 2 of 2
Replace Belle Chasse Tunnel and Bridge

Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



N

0 500 1,000 1,500 Feet

Legend

- Water
- Wetland
- Project Area

NWI Mapped Wetlands

- Freshwater Forested/Shrub Wetland
- Riverine

Source: USFWS NWI GIS Data

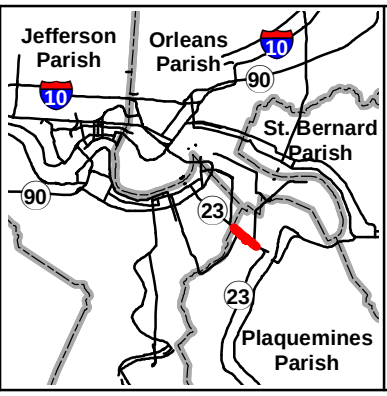


EXHIBIT 4
NWI MAP
Sheet 1 of 2
Replace Belle Chasse Tunnel and Bridge

Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



N

0 500 1,000 1,500 Feet

Legend

- Water
- Wetland
- Project Area

NWI Mapped Wetlands

- Freshwater Forested/Shrub Wetland
- Riverine

Source: USFWS NWI GIS Data

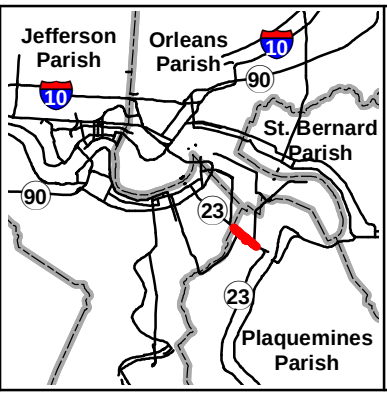


EXHIBIT 4
NWI MAP
Sheet 2 of 2

Replace Belle Chasse Tunnel and Bridge

Preliminary Jurisdictional Determination Report

Plaquemines Parish, Louisiana



N

0 500 1,000 1,500 Feet

Legend

- Project Area
- Water
- Wetland

FEMA Flood Zones

- Zone A
- Zone B

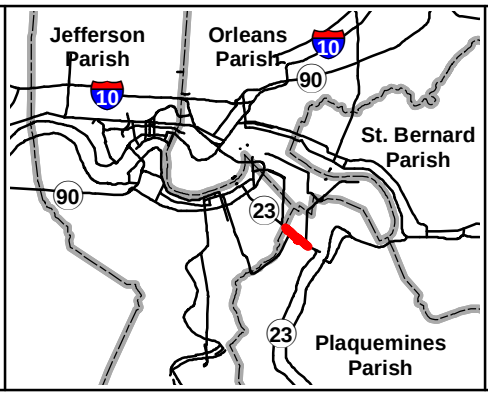


EXHIBIT 5
USGS QUANDRANGLE and FEMA FLOODPLAIN MAP
Sheet 1 of 2
Replace Belle Chasse Tunnel and Bridge

Preliminary Jurisdictional Determination Report
Plaquemines Parish, Louisiana



N

0 500 1,000 1,500 Feet

Legend

- Project Area
- Water
- Wetland

FEMA Flood Zones

- Zone A
- Zone B

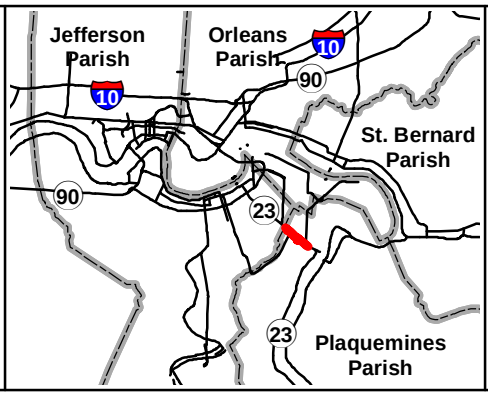


EXHIBIT 5
USGS QUANDRANGLE and FEMA FLOODPLAIN MAP
Sheet 2 of 2
Replace Belle Chasse Tunnel and Bridge

Preliminary Jurisdictional Determination Report
Plaquemines Parish, Louisiana

APPENDIX A: WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Belle Chasse Bridge Replacement City/County: Plaquemines Sampling Date: 11/19/2015

Applicant/Owner: LA DOTD State: LA Sampling Point: 1U

Investigator(s): M. Carothers, S. Inglish Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): <1%

Subregion (LRR or MLRA): O Lat: 29.872538 Long: -90.011299 Datum: NAD 83

Soil Map Unit Name: Westwego clay, 0 to 0.5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Area upland of ditch, consisting of thin strip of invasive woody vegetation bordered by mostly impervious surface on both sides.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ligustrum japonicum	30	Yes	FAC
2. Triadica sebifera	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Sapling/Shrub Stratum (Plot size: 30')			
1. Ligustrum japonicum	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 30')			
1. Cynodon dactylon	30	Yes	FACU
2. Sorghum halepense	30	Yes	FACU
3. Ambrosia trifida	15	No	FAC
4. Oxalis violacea	5	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below).

Meets Indicator 2 (dominance test).

SOIL

Sampling Point: 1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Clay	
7-12	10 YR 4/2	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No hydric indicators observed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Belle Chasse Bridge Replacement City/County: Plaquemines Sampling Date: 11/19/2015

Applicant/Owner: LDOT State: LA Sampling Point: 1W

Investigator(s): M. Carothers, S. Inglish Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): <1%

Subregion (LRR or MLRA): O Lat: 29.872538 Long: -90.011315 Datum: NAD 83

Soil Map Unit Name: Westwego clay, 0 to 0.5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Linear vegetated upland-cut ditch conveying roadway drainage to GIWW.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0
Water Table Present?	Yes X	No _____	Depth (inches): surface
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): surface

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area received 1.25 inches rainfall the previous day, likely accounting for observed depth and flow in ditch.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 1W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Sagittaria platyphylla	20	Yes	OBL
2. Commelina diffusa	10	Yes	FACW
3. Mikania scandens	5	No	FACW
4. Alternanthera philoxeroides	5	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		

50% of total cover: 20 20% of total cover: 8

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

Meets Indicator 2 (dominance test).

SOIL

Sampling Point: 1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Loamy Clay	with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☑ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Greasy feel with dark staining.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Belle Chasse Bridge Replacement City/County: Plaquemines Sampling Date: 11/19/2015

Applicant/Owner: LA DOTD State: LA Sampling Point: 2U

Investigator(s): M. Carothers, S. Inglish Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): <1%

Subregion (LRR or MLRA): O Lat: 29.872002 Long: -90.009682 Datum: NAD 83

Soil Map Unit Name: Westwego clay, 0 to 0.5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Area upland of the west bank of the GIWW.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 2U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 30')			
1. Morus rubra	5	Yes	FACU
2. Sesbania drummondii	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30')			
1. Cynodon dactylon	30	Yes	FACU
2. Sorghum halepense	30	Yes	FACU
3. Ambrosia trifida	15	No	FAC
4. Rumex crispus	5	No	FAC
5. Rubus trivialis	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below).

Does not meet hydrophytic vegetation criterion.

SOIL

Sampling Point: 2U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					Clay	interspersed with gravel
6-12		100						Rock/gravel fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No hydric indicators observed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Belle Chasse Bridge Replacement City/County: Plaquemines Sampling Date: 11/19/2015

Applicant/Owner: LA DOTD State: LA Sampling Point: 2W

Investigator(s): M. Carothers, S. Inglish Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat/gently sloping w/ microdepressions Local relief (concave, convex, none): None Slope (%): <1%

Subregion (LRR or MLRA): O Lat: 29.872026 Long: -90.009495 Datum: NAD 83

Soil Map Unit Name: Westwego clay, 0 to 0.5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Two thin emergent wetland areas fringing the west bank of the GIWW. The wetlands are separated by a 35-foot concrete pad and comprise the same system.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 2

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Various marine mollusk shells throughout soil profile, although origin is unknown.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 2W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Triadica sebifera	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Sapling/Shrub Stratum (Plot size: 30')			
1. Sesbania drummondii	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: 30')			
1. Colocasia esculenta	25	Yes	FACW
2. Phragmites australis	20	Yes	FACW
3. Panicum repens	20	Yes	FACW
4. Persicaria hydropiperoides	10	No	OBL
5. Paspalum urvillei	10	No	FAC
6. Verbena incompta	10	No	FACW
7. Ampelopsis arborea	5	No	FAC
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: 20% of total cover:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below).

Meets Indicator 2 (dominance test).

SOIL

Sampling Point: 2W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	95	10 YR 5/6	5	C	PL	Clay	
8-12								shell hash/gravel fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Meets Indicator F6.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Belle Chasse Bridge Replacement City/County: Plaquemines Sampling Date: 11/19/2015

Applicant/Owner: LA DOTD State: LA Sampling Point: 3U

Investigator(s): M. Carothers, S. Inglish Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): <1%

Subregion (LRR or MLRA): O Lat: 29.871379 Long: -90.008152 Datum: NAD 83

Soil Map Unit Name: Westwego clay, 0 to 0.5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Area upland of the east bank of the GIWW.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed. Marine mollusk shells were interspersed throughout the soil matrix. However, soil is likely fill material or may have been moved by equipment from adjacent wetlands, so origin of shells is unknown. Therefore, "aquatic fauna" was not considered to be a reliable indicator.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 3U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 30')			
1. Sesbania drummondii	10	Yes	FACW
2. Triadica sebifera	5	Yes	FAC
3. Morus rubra	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 30')			
1. Cynodon dactylon	60	Yes	FACU
2. Sorghum halepense	10	No	FACU
3. Ambrosia trifida	10	No	FAC
4. Solidago canadensis	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below).

Meets Indicator 2 (dominance test).

SOIL

Sampling Point: 3U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10 YR 3/1	100					Loamy Clay	matrix interspersed with shells

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No hydric indicators observed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Belle Chasse Bridge Replacement City/County: Plaquemines Sampling Date: 11/19/2015

Applicant/Owner: LA DOTD State: LA Sampling Point: 3W

Investigator(s): M. Carothers, S. Inglish Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat/gently sloping; artificial topography Local relief (concave, convex, none): None Slope (%): <1%

Subregion (LRR or MLRA): O Lat: 29.871437 Long: -90.008278 Datum: NAD 83

Soil Map Unit Name: Westwego clay, 0 to 0.5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Three thin fringe wetland areas adjacent to east bank of GIWW. Similar to the two wetlands at Area 2 on west bank, the three wetlands are separated by 1) a 35-foot concrete pad and 2) an artificial berm. The three wetlands are similar in all aspects and comprise one system. Mechanized land moving activity has resulted in the formation of mounds and berms within the delineated wetland areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 2

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Various marine mollusk shells throughout soil profile although origin is unknown.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 3W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Triadica sebifera	20	Yes	FAC
2. Morus rubra	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30')			
1. Ambrosia trifida	30	Yes	FAC
2. Phragmites australis	20	Yes	FACW
3. Sambucus nigra	10	No	FACW
4. Colocasia esculenta	10	No	FACW
5. Toxicodendron radicans	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below).

Community is fragmented with wetland/upland species zones overlapping due to artificial berms and mounds. Meets Indicator 2 (dominance test).

SOIL

Sampling Point: 3W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Silty Clay	
4-12	10YR 4/2	95	10YR 3/6	5	C	M	Sandy Loam	soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☑ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Soil is likely tossed fill material, as it consists of various textures. Still meets Indicator F6.

APPENDIX B: FEATURE PHOTOGRAPHS



1. Looking northwest from south of LA 23 at Water 1, the Outfall Canal.



2. Looking east across Water 2, the GIWW, along the southern edge of the project area.



3. Looking northeast from south of LA 23 at Water 2, the GIWW, at the existing bridge.



4. Looking northwest from south of LA 23 at Water 3, Bayou Barriere.

Photographs taken on November 18 and 19, 2015.



5. Looking south from south of LA 23 along Water 3, Bayou Barriere, where roadway spur would cross the feature.



6. Looking west at Wetland 1 on the south side of N Tunnel Rd.



7. Wetland 1 upland sampling point (1U).



8. Wetland 1 wet sampling point (1W).

Photographs taken on November 18 and 19, 2015.



9. Looking northeast at Wetland 2A just south of LA 23 bridge at GIWW.



10. Looking southeast at Wetland 2B from south of LA 23 at the GIWW.



11. Wetlands 2A and 2B upland sampling point (2U).



12. Wetlands 2A and 2B wet sampling point (2W).

Photographs taken on November 18 and 19, 2015.



13. Looking northwest at Wetland 3A at LA 23 at the GIWW.



14. Looking northwest at Wetland 3B from south of LA 23 at the GIWW.



15. Looking southwest at Wetland 3C from south of LA 23 at the GIWW.



16. Wetlands 3A, 3B, and 3C upland sampling point (3U).

Photographs taken on November 18 and 19, 2015.



17. Wetlands 3A, 3B, and 3C wet sampling point (3U).

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Appendix G
Tolling Review: LA 23 Belle Chasse Bridge and Tunnel Replacement
Level 2 Traffic and Revenue Study (FINAL)

LA 23 Belle Chasse Bridge and Tunnel Replacement
Level 2 Traffic and Revenue Study

(FINAL)

Contract No. 4400006552
Retainer Contract for Strategic Advisory Services Related to Louisiana Transportation Authority Participation in Public-Private Partnerships
Task Order No. H.004791.5
State Project No. H.004791.5
F.A.P. No. H004791
LA 23: Belle Chasse Bridge and Tunnel Replacement
Plaquemines Parish, LA

Prepared by:

HDR Engineering, Inc. and

Alliance Transportation Group, Inc.

September 2018

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Executive Summary

The HDR Team of HDR Engineering, Inc. and Alliance Transportation Group. Inc. has performed a Level 2 Traffic and Revenue Study[1] of the LA 23 Belle Chasse Bridge and Tunnel Replacement Project with delivery as a public-private partnership. Belle Chasse Highway (LA 23) is a principal arterial that serves as the primary access point between Jefferson and Plaquemines Parishes. The Belle Chasse Bridge and Tunnel Replacement Project provides for the replacement of the existing 1950-60s tunnel and adjacent vertical lift bridge spanning the Gulf Intracoastal Waterway along LA 23. To help fund the project, the study assumes toll collection in both directions.

The Level 2 Traffic and Revenue Study included forecasting anticipated daily traffic using the toll bridge, preparing estimates of daily and annual toll revenue, and developing a detailed annual operations and maintenance cost estimate for the Project. The HDR Team coordinated with the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John, St. Tammany and Tangipahoa Parishes and used its regional travel demand model. The estimated O&M costs are based on HDR's experience on other projects.

A base case and sensitivity analysis was conducted to assess the impact on traffic and revenue for three sets of toll rates (shown in 2022, opening day, dollars) per one-way trip as follows:

- Primary Toll Scenario: $0.50 (auto), $1.50 (single unit truck), and $3.00 (multi-unit truck)
- Sensitivity Analysis Scenario 1: $1.00 (auto), $3.00 (single unit truck), and $6.00 (multi-unit truck)
- Sensitivity Analysis Scenario 2: $1.50 (auto), $4.50 (single unit truck), and $9.00 (multi-unit truck)

The $0.50 auto toll used in the base case (primary toll scenario) was set as a starting point for evaluation based on historic toll rates in the New Orleans area. At that toll rate, in the tenth year of operation the bridge is projected to generate $8.3 million in gross revenue with $3.6 million in O&M costs, for a net revenue of $4.7 million. In this scenario the O&M cost is approximately 43 percent of gross revenue which is higher than most toll roads in the US. Going to a $1.00 auto toll generates $10.7 in million in gross revenue with an O&M cost of $3.1 million or 29 percent of gross revenue which is much more typical for US operations.

The $0.50 auto toll is well below the optimum toll rate for the facility. Not only that, $0.50 in 2022 is substantially less in real buying power than the $0.50 toll used on prior Louisiana Department of Transportation and Development toll facilities. The toll sensitivity analysis showed that for autos and single unit trucks, the maximum revenue point along the toll elasticity curve is at a toll level of $1.75 per one-way trip at which point the steady decline in traffic volume begins to offset the toll increases. For single unit trucks, the $1.50 primary toll rate is very near the optimum

[1] The planning level traffic and revenue forecast prepared under this scope is not at the level of an investment grade study that can be relied on to issue debt for this toll facility. It will provide the Louisiana Department of Transportation and Development with a reasonable estimate of the potential toll revenue that may be generated by this Project.

point already and increasing the toll rate may actually reduce annual revenue for that class of vehicle. For multi-use trucks, the maximum revenue point is at the toll level of $3.75 per one-way trip and the primary toll rate of $3.00 is approximately 20 percent below the optimum point. Tolls could be increased slightly and still result in annual revenues increasing for that class of vehicle. The fact that the primary toll rate for autos is set well below the optimum rate means that, if needed, tolls could be increased and the annual revenue would go up. This toll rate adjustment would be considered an advantage to the financing of the Project. As a matter of principle, owners should always price a toll on the leading or upward sloping side of the revenue curve to maximize the public good and to provide future flexibility.

Acronyms

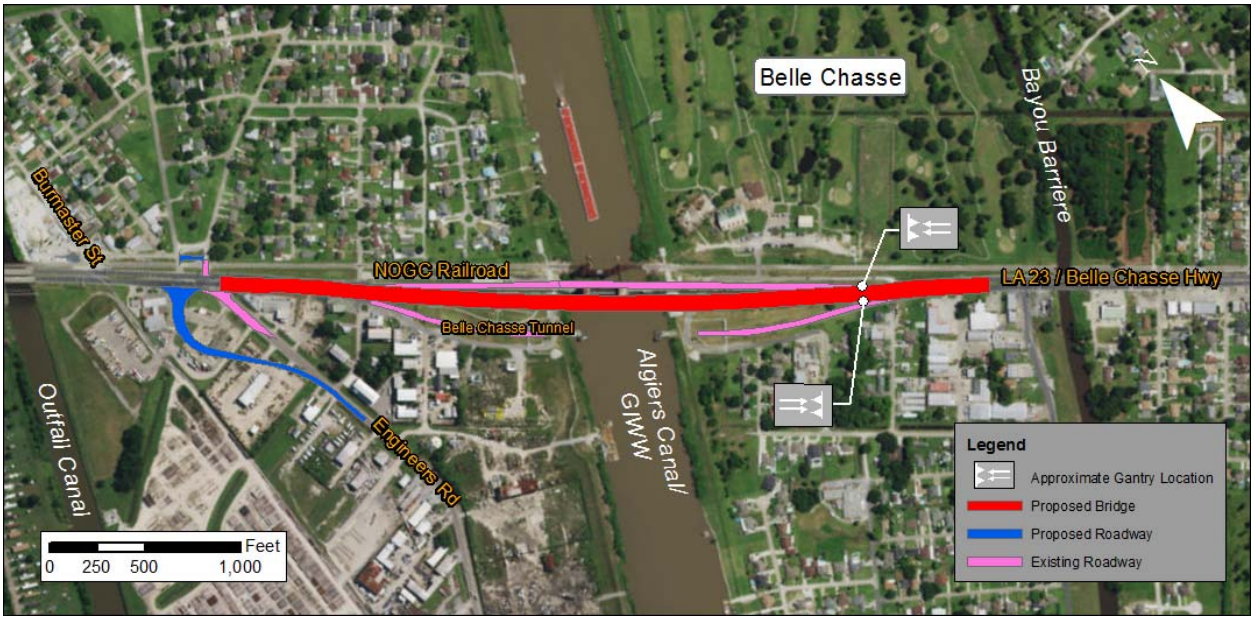
CSC	Customer Service Center
EA	Environmental Assessment
FHWA	Federal Highway Administration
FTE	Full Time Equivalent
FY	Fiscal Year
GIWW	Gulf Intracoastal Waterway
HDR	HDR Engineering, Inc.
HDR Team	HDR Engineering, Inc. and Alliance Transportation Group, Inc.
IBT	Image Based Transactions
INFRA	Infrastructure for Rebuilding America Grant
LADOTD	Louisiana Department of Transportation and Development
MPO	Metropolitan Planning Organizations
NEPA	National Environmental Policy Act of 1969
NOI	Notice of Intent
O&M	Operations and Maintenance
PPP	Public-Private Partnership
RFQ	Request for Qualifications
RPC	Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John, St. Tammany and Tangipahoa Parishes
SELATRAM	Southeast Louisiana Travel Model
TAZ	Traffic Analysis Zone
TDM	Travel Demand Model
T&R	Traffic and Revenue
USCG	United States Coast Guard
USGS	United States Geological Survey
VOT	Value of Time

1.0 Introduction

The HDR Team of HDR Engineering, Inc. (HDR) and Alliance Transportation Group. Inc. (Alliance) has performed a Level 2 Traffic and Revenue Study as part of *Task Order No. 3 Level 2 Toll Feasibility Study of the LA 23 Bridge-Tunnel Replacement Project.* The study goal was to refine the preliminary toll feasibility study for the LA 23 Belle Chasse Bridge and Tunnel Replacement Project previously completed by the HDR Team under Task Order No. H.012806.1. The Level 2 study considers development of the Project as a public-private partnership (PPP).

Belle Chasse Highway (LA 23) is a principal arterial that serves as the primary access point between Jefferson and Plaquemines Parishes. Northbound LA 23 crosses the Gulf Intracoastal Waterway (GIWW) over a vertical-lift bridge, the Judge Perez Bridge, and southbound LA 23 crosses the GIWW through the Belle Chasse Tunnel. The Belle Chasse Bridge and Tunnel Replacement Project (**Figure 1-1**) provides for the replacement of the existing vintage tunnel and adjacent lift-span bridge. The new four-lane bridge would improve capacity and efficiency for traffic as well as marine operations. This Project has received support from Plaquemines Parish, the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John, St. Tammany and Tangipahoa Parishes (RPC), the Federal Highway Administration (FHWA), and the Louisiana Department of Transportation and Development (LADOTD). The United States Coast Guard (USCG), United States Geological Survey (USGS) and other regional stakeholders have been involved in the development of this Project.

Figure 1-1. General Configuration of the Belle Chasse Bridge and Tunnel Replacement Project



Improvements to LA 23 are a Megaproject Priority A in the 2015 *Louisiana Statewide Transportation Plan* and a Tier III implementation project (FY 2029-2044) in the Metropolitan Transportation Plan adopted by the Regional Planning Commission 1 and 2.[2]

The RPC and the LADOTD are conducting an environmental assessment (EA) to identify a preferred alternative for the Project. Several alternative bridge configurations (number of lanes and vertical grades) were initially evaluated as part of the National Environmental Policy Act (NEPA) alternatives analysis. A public meeting was held in early July 2018 to provide an update on the EA and conceptual designs and to give the public the opportunity to comment on the Project. The Project purpose is to:[3]

- Improve transportation system linkage by improving the connectivity between Woodland Highway and Lapalco Boulevard.
- Maintain and improve modal interrelationships between vehicular traffic on LA 23 and maritime traffic on the GIWW.

The Project is needed because the existing tunnel and bridge, which were built in the late 1950s and 1960s, are reaching the end of their useful life, and one or the other closes frequently causing extensive vehicular delay due to bridge operations or tunnel maintenance. The existing vertical lift bridge is subject to frequent openings due to high volumes of waterborne industrial barge traffic, stopping the flow of northbound vehicular traffic. Closure of either the tunnel or the bridge reduces vehicular traffic capacity by half. Current operating rules to maintain vehicular traffic flows on LA 23 during peak periods restrict maritime operations on the GIWW.[4]

[2] http://bellechassestudy.org/, accessed on July 17, 2018.
[3] July 2018 Public Meeting Project Information handout for the LA 23: Belle Chasse Bridge & Tunnel (HBI) Environmental Assessment
[4] July 2018 Public Meeting Project Information handout for the LA 23: Belle Chasse Bridge & Tunnel (HBI) Environmental Assessment

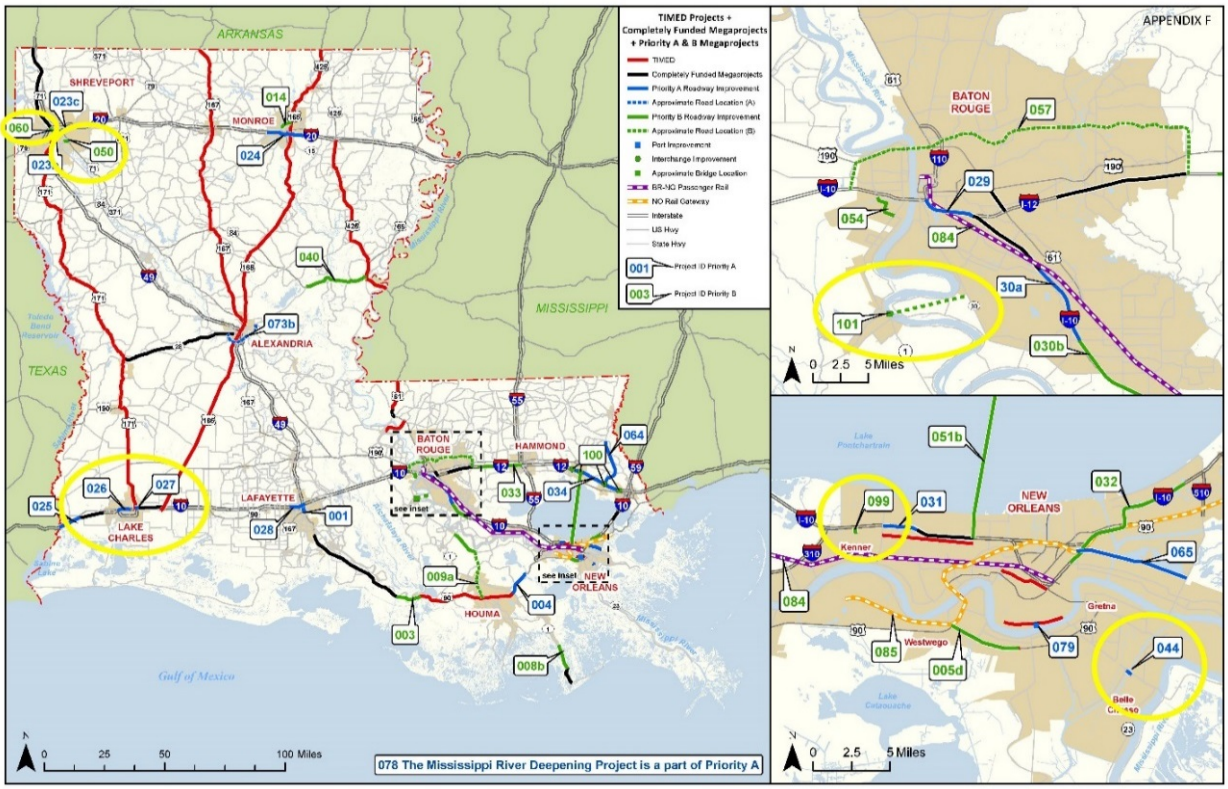
2.0 Project Overview

Under Task Order No. H.012806.1, the HDR Team performed a qualitative, conceptual-level screening of programmed transportation projects for their general potential to utilize tolling as a funding source. Each of the Priority A and Priority B megaprojects that are included within the 2015 *Louisiana Statewide Transportation Plan* were evaluated. The results of the conceptual-level screening initially identified six potential projects for toll evaluation. The six megaprojects selected for toll evaluation are listed below and are shown in **Figure 2-1**. The megaproject naming convention consists of the priority list (A or B), followed by the project identification number.

- A-26: I-10 Calcasieu River Bridge, Lake Charles
- A-44: LA 23 Bridge and Tunnel Replacement, Belle Chasse
- B-50: LA 511 Jimmie Davis Bridge, Shreveport-Bossier Metro Area
- B-60: I-49 Inner City Connector, Shreveport
- B- 99: Loyola Drive/I-10 Interchange, New Orleans Metro Area
- B-101: Mississippi River Bridge LA 1 to LA 30, Baton Rouge Metro Area

The HDR Team assessed the potential net toll revenue and the resultant additional funding from toll revenue bonds that could be available to the State for the six selected megaprojects. The financial assessment included a sketch-level demand analysis, feasibility assessment, and financial assessment. Megaproject A-44, LA 23 Bridge and Tunnel Replacement, was the only one of the six megaprojects projected to fully cover capital costs using a combination of net toll bond proceeds and interest earnings during construction (“project revenues”). Subsequently, the Level 1 analysis provided a good indicator of the general feasibility of using tolling as a funding source for the Belle Chasse Bridge and Tunnel Replacement Project.

Figure 2-1. Priority A and B Megaprojects Map

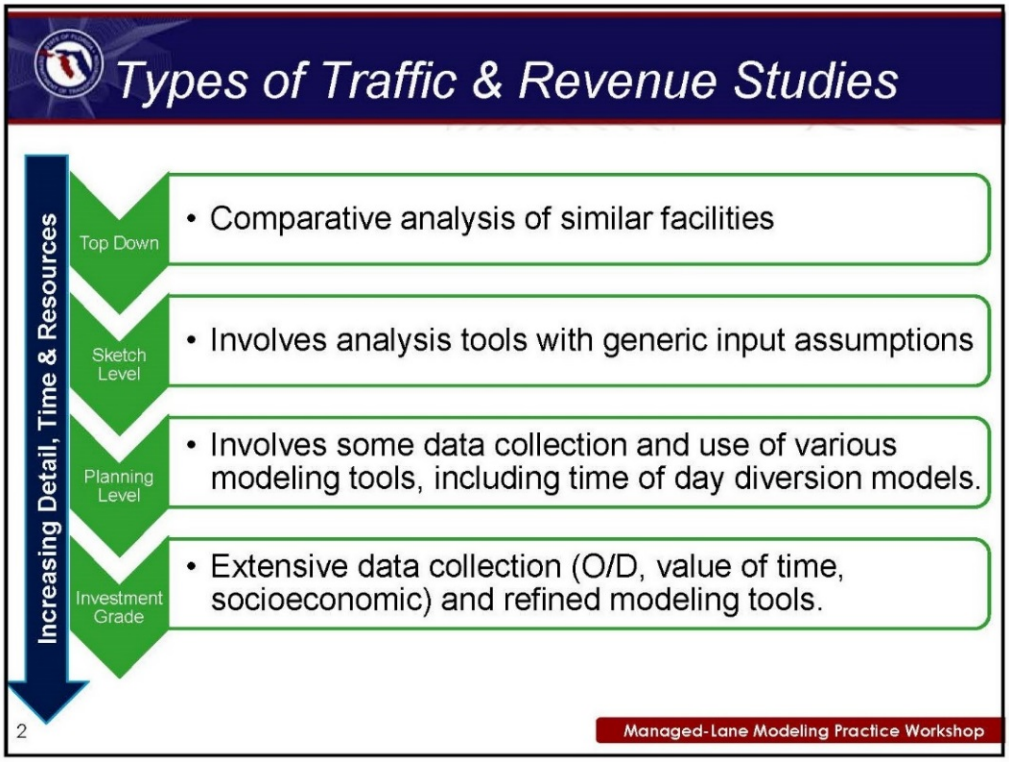


Source: LADOTD *Louisiana Statewide Transportation Plan,* Appendix F, December 2015

3.0 Overview of the Toll Feasibility Evaluation

In the US, toll feasibility studies range from "top down" to "investment grade" in terms of level of effort and resources used. **Figure 3-1** illustrates these general levels of the types of traffic and revenue studies. The prior toll study comparing the six megaprojects would be considered in the "top down" range and normally would not be in-depth enough to support a decision to develop an individual project as a toll road.

Figure 3-1. Types of Traffic and Revenue Studies



Source: *Florida Experience*, presentation by Josiah Banet, 2013. Retrieved from http://www.fsutmsonline.net/images/uploads/06_Florida_Experience_-_Josiah_Banet.pdf

Note: The planning level traffic and revenue forecast prepared under this scope is not at the level of an investment grade study that can be relied on to issue debt for this toll facility. It will provide the LADOTD with a reasonable estimate of the potential toll revenue that may be generated by this Project.

The LADOTD recently received a $45 million federal Infrastructure for Rebuilding America grant (INFRA grant). The grant funds are committed to the Project, as are $26.2 million in federal funds allocated to the LADOTD and $12 million in federal funds allocated to the RPC.

The traffic and revenue study described in this report consisted of a more comprehensive forecast of traffic, toll revenue, and a more detailed estimate of annual operations and

maintenance (O&M) costs. The Level 2 traffic and revenue study included forecasting anticipated daily traffic using the toll bridge, preparing estimates of daily and annual toll revenue, and developing a detailed annual operations and maintenance cost estimate for the Project. The Level 2 traffic study resulted in a projected net cash flow that would be available to help finance the project.

To develop the Level 2 traffic study, the HDR Team coordinated with the RPC and used its regional travel demand model (TDM) to:

1. Verify milestone and horizon year network assumptions
2. Verify milestone and future year traffic analysis zone (TAZ) attribute assumptions
3. Assess the robustness of the input data and the current level of RPC travel demand model calibration and validation, to better understand model strengths and weaknesses to identify areas of uncertainty that must be accounted for within the analysis to ensure a robust Level 2 demand analysis.

This information was used to shape the methodology for the demand analysis and develop a risk assessment of model data and performance for use in setting the parameters of the sensitivity analysis. The HDR Team further refined the Toll Assignment Macro developed in the Statewide Toll Feasibility Analysis to incorporate lessons learned in the sketch-planning analysis, insights gained from coordination with RPC, and modifications to toll analysis assumptions.

Using the refined RPC TDM and revised Toll Assignment Macro, the HDR Team conducted a demand analysis to define and assess existing and future year traffic conditions for:

1. Base Years: 2022, 2032, 2040, and 2045
2. Vehicle Types: Auto, Single Unit Truck, Multi-Unit Truck (see **Table 3-1** for a description of vehicle classes)
3. Adjusted Value of Time (VOT) by vehicle class
4. Reviewed and assessed the distribution of vehicle origin-destination trip ends for traffic analysis zones in the bridge area of influence to ensure comprehensive interpretation of potential diversion.

Table 3-1. Vehicle Classes

Vehicle Class	Description
Auto	Two axle vehicles: Passenger vehicles, pickups, SUVs, etc.
Single Unit Truck	Three+ axle commercial vehicles: Commercial vehicles such as panel trucks, step vans and other fixed body trucks
Multi-Unit Truck	Heavy freight tractor-trailer rigs

A base case and sensitivity analysis was conducted to assess the impact on traffic and revenue at the toll rates shown in **Table 3-2**.

Table 3-2. Toll Rates by Scenario

Scenario	Auto	Single Unit Truck	Multi-Unit Truck
Primary Toll Scenario	$0.50	$1.50	$3.00
Sensitivity Analysis Scenario 1	$1.00	$3.00	$6.00
Sensitivity Analysis Scenario 2	$1.50	$4.50	$9.00

For each scenario, the HDR Team adjusted gross revenue in order to calculate net revenue available to repay the cost of construction. The following adjustments were made:

1. Leakage for Image Based Transactions
2. Non-revenue users
3. Operations and Maintenance costs

4.0 Assumptions

4.1 General Assumptions and Traffic Forecast Assumptions

The following assumptions guided the preparation of the Level 2 Traffic and Revenue (T&R) forecast for the Project:

1. Only one scenario was modeled that consisted of the proposed Belle Chasse Bridge and Tunnel Replacement Project only. The modeled scenario assumes Woodland Highway as the only competing facility.
2. Start of toll operations – November 2022. Maintenance and demolition of the existing bridge and tunnel is anticipated to take 1 year after completion of construction and the start of toll operations. A 50-year T&R forecast was assessed.
3. Model runs were based on RPC forecast milestone years as currently included in the Metropolitan Planning Organization (MPO) Travel Demand Model (TDM): 2016, 2022, 2032, 2040 and 2045.
4. MPO TDM Network Assumptions; Facility Network based on RPC assumptions.
5. Toll collection in both directions.
6. One-way passenger vehicle toll rates of $0.50, $1.00 and $1.50 (with transponders) were tested.
7. Single unit trucks (commercial vehicles) and multi-unit trucks (heavy trucks) were modeled with a multiple of automobile toll rates similar to prior business rules on other tolled facilities.
8. Open road tolling would allow Image Based Transactions (IBT) with a 50 percent surcharge for each image based transaction (manually added to the T&R model output).
9. All tolls rates are in 2022 dollars.
10. For this forecast, there was no frequent user discount.
11. Model runs used one toll rate 24 hours/day, i.e., no variable pricing by time of day.
12. No changes in facility configuration from the previous Level 1 toll feasibility study; however, the latest geometric layout for the Belle Chasse Tunnel and Bridge Preferred Alternative (Alternative 4A) were used to confirm the proposed roadway network within the TDM.
13. Bridge capacity and speeds considered the 5 percent grades on each approach to the bridge. Impedance factors were adjusted accordingly.
14. Any reductions in revenue due to exempt vehicles were made manually to the model output. Research was conducted on tolling statutes and local conditions to determine exempt vehicles/users (see **Appendix A – Desktop Review: Non Revenue Users Memorandum**).

4.2 Revenue Forecast Assumptions

The following assumptions were used in calculating the annual toll revenue:

1. Used 290 days/year to convert to annual revenue (annualization factor); 290 days/year was also used for the Level 1 toll assessment.
2. Portions of transactions with transponders vary over time:
    a. Year 1 – 50 percent (November 2022 through 2023)
    b. Year 2 – 55 percent (2024)
    c. Year 3 – 60 percent (2025)
    d. Year 4 – 70 percent (2026)
    e. Year 5 on – 80 percent (2027)
3. A 5 percent leakage was applied to IBT revenues.
4. The fixed toll rates to be modeled would span the life of the analysis; i.e., 50 year duration.
5. A 2 percent revenue reduction was applied due to non-revenue (exempt) vehicles.
6. Toll revenue forecasts are in constant 2018 dollars.
7. Demand Ramp-up factors were applied in the first few years:
    a. Year 1 – 60 percent (November 2022 through 2023)
    b. Year 2 – 80 percent (2024)
    c. Year 3 – 90 percent (2025)
    d. Year 4 - 100 percent (2026)
8. While all toll rates are in 2022 dollars, all resulting revenue outputs were de-escalated to 2018 dollars.

4.3 Toll System Operating and Maintenance Cost Assumptions

The HDR Team made certain assumptions to develop the Operating and Maintenance (O&M) cost forecast. These assumptions and estimates are based on an understanding of the Project, common industry practices, experience with other toll facilities in operations, and external research. Below are the itemized assumptions used for the O&M estimate:

1. All costs are in 2018 dollars.
2. Start of toll operations was assumed to occur in November 2022 per LADOTD guidance. Subsequently, costs in the first year were estimated only based on two months of operations. Startup costs were assumed to be included in the capital cost estimates.
3. All assumptions from the revenue forecasts flow through to the O&M forecast.

4. Many operational costs can be tied to the number of transponder accounts held. To estimate accounts based on transactions, it was estimated that there were 144 transactions per account per year. Account turnover was estimated at 5 percent and that an average of two transponders were linked to each account.
5. Non-Revenue Accounts: Non-revenue or exempt vehicle accounts were assumed to be all transponder based transactions.
6. Image Review: It was estimated that 20 percent of images require manual review, each requiring two reviews. It was also estimated that a reviewer can process 400 images per hour.
7. Mail Processing: Mail would generally be generated by two sources, transponder account manual replenishments and IBT payments. It was estimated that 10 percent of transponder accounts and 60 percent of IBT mailings result in incoming mail to process.
8. Phone Calls: Calls would primarily be generated by two sources, account holders and IBT mailings. It was estimated that 20 percent of IBT mailings generate phone calls and there are 1.5 calls per transponder account per year. It was also estimated that a customer service representative can process 20 calls per hour.
9. License Plate Lookups: It was estimated that 5 percent of IBT transactions are from out-of-state plate requiring lookups and used a sliding scale to estimate the number of lookups, starting near 90 percent of these transactions to 50 percent in later years. A conservative $1.00 per out-of-state lookup was estimated due to the low volumes. In-state license plate lookups are assumed to be free.
10. Statement Mailing Costs: Transponder account holders may choose to have paper statements mailed, but it was assumed that the concessionaire would charge a statement fee to cover these costs.
11. IBT Mailing Costs: Mailing costs can be complicated to forecast for IBT transactions. It was assumed that IBT transactions would be bundled and mailed as a statement each month, with five transactions per mailing at a cost of $1.00 per mailing. Two notices and a final violation notice would be mailed for each transaction, and a payment rate of 55 percent, 30 percent and 15 percent for each subsequent mailing, respectively. Finally, it was conservatively assumed that half of these mailing costs would be recovered through administrative fees and/or penalties. Toll facilities typically recover all of these costs.
12. Credit Card Fees were estimated to be 3 percent of revenue collected by credit card.
13. Banking Fees were estimated to be 1 percent of non-credit card revenue.
14. Toll Tags were estimated to be $1.00 with $1.50 additional for mailing costs.
15. One customer service center was assumed
16. Facility: The facility is assumed to be one location for all back office functions and a walk-in customer service center. The facility was estimated at 3,000 square feet at $20 per square foot. Additional annual costs include utilities at $18,000, Internet/web hosting

at $36,000, and interactive voice response licensing and operations at $15,000. A 1-800 number would also be provided at $0.05 per minute.

17. Roadway and Bridge: The facility was estimated at 318,864 square feet with a typical O&M cost averaging $0.36 per square foot for routine maintenance. This amount equates to approximately $114,000 per year for roadway and bridge maintenance costs only. Additionally, a Biannual Bridge inspection is estimated at $60,000 every two years (or $30,000 per year).
18. Safety Patrol: The safety service patrol was estimated to be provided by the concessionaire with a labor cost of $35,000 and an additional $20,000 for the leased vehicle and expenses.
19. Vehicle Expenses: Expenses for operations' vehicles include two trucks at $13,200 per year for leases and expenses.
20. Back Office Processing: In addition to the customer service costs identified herein, a $0.05 per transaction cost for back office processing of transactions was also included. This cost covers the software licensing and maintenance related to getting transactions from the in-lane equipment into the customer service center.
21. Labor: **Table 4-1** is a list of the salary information for each labor category and the number of positions. Some positions are based on volumes and processing assumptions as noted in previous assumptions. Annual salaries are further estimated to require a burned labor rate of 160 percent. All toll collection and customer service center (CSC) staff are expected to be contracted out.

Table 4-1. Salary and Positions by Labor Category

Position	Annual Salary	Number of Positions
General Manager	$95,000	1
Finance/Accounting	$75,000	1
CSC Supervisor	$50,000	1
QC/Team Lead	$40,000	1
CSC Staff	$35,000	Varies on Volume
LADOTD Oversight*	$75,000	1

*LADOTD employee

22. Office Supplies: Annual cost of office supplies is estimated at $500 per full time equivalent (FTE) employee.
23. Other professional services are included in **Table 4-2**.

Table 4-2. Other Professional Services

Other Services/Costs	Annual Cost
Insurance	$120,000
Accounting Services	$30,000
Audit Services	$25,000
IT Services	$30,000
Legal Services	$30,000
Toll Enforcement Contract	$0 Use local enforcement
Marketing	$150,000 in Year 1. $50,000 Year 2+

5.0 Methodology and Results

5.1 Traffic Forecast

5.1.1 Methodology

The traffic forecasting effort for this Project uses the Southeast Louisiana Travel Model (SELATRAM), a travel demand model (TDM) maintained by the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John, St. Tammany and Tangipahoa Parishes, to perform traffic forecasts for the Belle Chasse Bridge and Tunnel Replacement Project Build Scenarios for a series of forecast years. SELATRAM is a sophisticated quantitative analysis tool capable of providing robust forecasts.

SELATRAM has been carefully configured and quality tested for use in this study to ensure the model is preforming well in the study corridor. In addition, some refinements and updates to model parameters and procedures have been performed to adapt the model components to the specific requirements of a traffic and revenue study of this type.

However, SELATRAM has not been specifically recalibrated or revalidated to the specific assumptions of the Traffic and Revenue (T&R) Study, nor has the model's performance been optimized for the LA 23 Corridor. In addition, there were no new traffic counts or stated preference surveys performed as part of this study. Therefore, the traffic analysis described in this report is considered to be a Level 2, or mid-level, analysis.

Vehicle Class

In the traffic assignment phase, SELATRAM allows for the discrimination of three vehicle classes, namely: passenger autos, single unit trucks and multi-unit trucks. Each of these vehicle classes serves a different purpose within the travel market, and, therefore, responds differently to tolls. Toll rates for each vehicle class were developed based on prior business rules and policies applied on past LADOTD tolled facilities.

Performing Traffic Forecasts

To perform traffic forecasts for the Belle Chasse Bridge and Tunnel Replacement Project, SELATRAM was applied using the selected toll rates for each scenario combined with the toll parameters in the SELATRAM toll-enabled traffic assignment model (adjusted to incorporate the specific assumptions of this study) to obtain forecast year traffic volumes by vehicle class for a set of four forecast years. Forecast years include: 2022, the projected opening year of the Project; 2032, a milestone year in which the development of other projects may have an influence on traffic projections; and two additional milestone years: 2040 and 2045 to provide sufficient inflection points for the HDR Team to interpolate annualized traffic and revenue projections for the life of the Project.

5.1.2 Traffic Forecast Results

The primary toll forecast (**Table 5-1**) uses toll rates of $0.50 for autos, $1.50 for single unit trucks, and $3.00 for multi-unit trucks. All toll rates are shown in 2022 dollars. The applied toll

rates appear to have only a modest impact on traffic diversion patterns between LA 23 and Woodland Highway.

The 2022 tolled scenario shows a 7.1 percent diversion of traffic volume from LA 23 to Woodland Highway. In the 2022 tolled scenario, 72.4 percent of traffic volume is on LA 23 and 27.6 percent on Woodland Highway. The pattern remains consistent through each of the forecast years with about 71.8 percent of traffic volume on LA 23 in 2045.

Table 5-1. Tolled Traffic Forecasts by Year

Tolled Traffic Forecasts by Year					
Bridge	Auto	Single Unit Truck	Multi-Unit Truck	Total Volume	
	One-way Toll ($0.50)	One-way Toll ($1.50)	One-way Toll ($3.00)	LA 23 Tolled	No Toll
2022 Scenario (opening year)					
LA 23	39,696	3,406	1,404	44,506	48,919
Woodland	15,854	798	295	16,947	12,534
Screen Line Total	55,550	4,204	1,699	61,453	61,453
2032 Scenario					
LA 23	40,342	3,297	1,425	45,064	50,106
Woodland	16,548	981	395	17,924	12,882
Screen Line Total	56,890	4,278	1,820	62,988	62,988
2040 Scenario					
LA 23	42,893	3,231	1,561	47,685	53,954
Woodland	18,729	1,113	367	20,209	13,940
Screen Line Total	61,622	4,344	1,928	67,894	67,894
2045 Scenario					
LA 23	44,521	3,399	1,577	49,497	54,879
Woodland	18,049	934	372	19,355	13,973
Screen Line Total	62,570	4,333	1,949	68,852	68,852

5.1.3 Use of Traffic Forecasts

These traffic forecasts reflect tolled conditions for a toll scenario based on historical toll rates and the Belle Chasse Bridge and Tunnel Replacement Project build scenario definition. The traffic forecasts for these four scenario years serve as the basis for developing annualized revenue projections and interpolating annual revenue across the lifecycle of the Project.

This section provides a summary of the traffic forecasting results to provide context for the O&M cost analysis and the revenue analysis described in subsequent sections of this report. More detailed descriptions of SELATRAM, the project assumptions, traffic forecasting methodology, toll parameters and traffic forecasting results are contained in **Appendix B – Traffic Forecasting Technical Memorandum**.

5.2 Operations and Maintenance Estimate Results

5.2.1 Methodology

HDR used an Excel based model to develop detailed annual O&M costs for each of the toll rate scenarios. The model was built using a standardized methodology that promotes transparency, ease of use in auditing and quality control, and flexibility.

The estimate is a bottom up cost forecast based on annual toll transaction data provided by the travel forecast. Based on transaction data, the HDR Team was able to calculate costs based on processing labor time, mailing costs, and account management. For non-transaction related costs, the HDR Team used other industry standards and local costs including real estate, vehicle expenses, labor rates, and professional services. .

5.2.2 Results

The results of the O&M Estimate are summarized in **Table 5-2** by the milestone years used in the traffic forecast. Year 2023 has been added because 2022 is only a partial year of operations. More detailed annual results are provided in **Appendix C-1**.

Table 5-2. O&M Cost Estimate (2018 $, in thousands)

Scenario	2022*	2023	2032	2040	2045
Primary Toll Scenario	$ 839	$3,608	$3,626	$3,750	$3,836
Sensitivity Analysis Scenario 1	$ 734	$3,057	$3,117	$3,268	$3,299
Sensitivity Analysis Scenario 2	$ 671	$2,724	$2,825	$3,005	$3,046

* 2022 is a partial year

The O&M estimate is further broken down for each case into nine categories. **Table 5-3** includes the breakdown for the Primary Toll Scenario. **Appendix C-2** presents the O&M cost estimates for each toll scenario for a 50-year duration (2022 to 2072).

Table 5-3. Primary Toll Scenario (2018 $, in thousands)

Primary Toll Scenario	2022*	2023	2032	2040	2045
Subtotal - Labor	$204	$1,221	$1,142	$1,178	$1,203
Subtotal - Mailing and Processing	$121	$660	$441	$467	$485
Subtotal - Other	$38	$49	$20	$22	$23
Subtotal - Banking	$17	$105	$181	$191	$198
Subtotal - CSC Facility	$67	$202	$202	$204	$206
Subtotal - Insurance	$20	$120	$120	$120	$120
Subtotal - Professional Services	$169	$165	$165	$165	$165
Subtotal - Toll Facility O&M	$62	$371	$371	$371	$371
Subtotal - Back Office Processing	$65	$388	$653	$691	$718
Contingency 10%	$76	$328	$330	$341	$349
Total	$839	$3,608	$3,626	$3,750	$3,836

* 2022 is a partial year

5.2.3 Costs over Time

In the early years, costs change over time based primarily on the number of IBT being processed. These transactions are the driver of increased costs due to the labor associated with processing, mailing costs for invoices, and license plate lookup costs. These costs ramp up to a peak in 2025 and then reduce to a steady state by 2027 as most customers shift to transponder accounts. After 2027, toll operations costs (in constant 2018 dollars) vary only with the number of transactions. **Figure 5-1** provides the O&M costs over time by cost type.

Figure 5-1. O&M Cost Breakdown

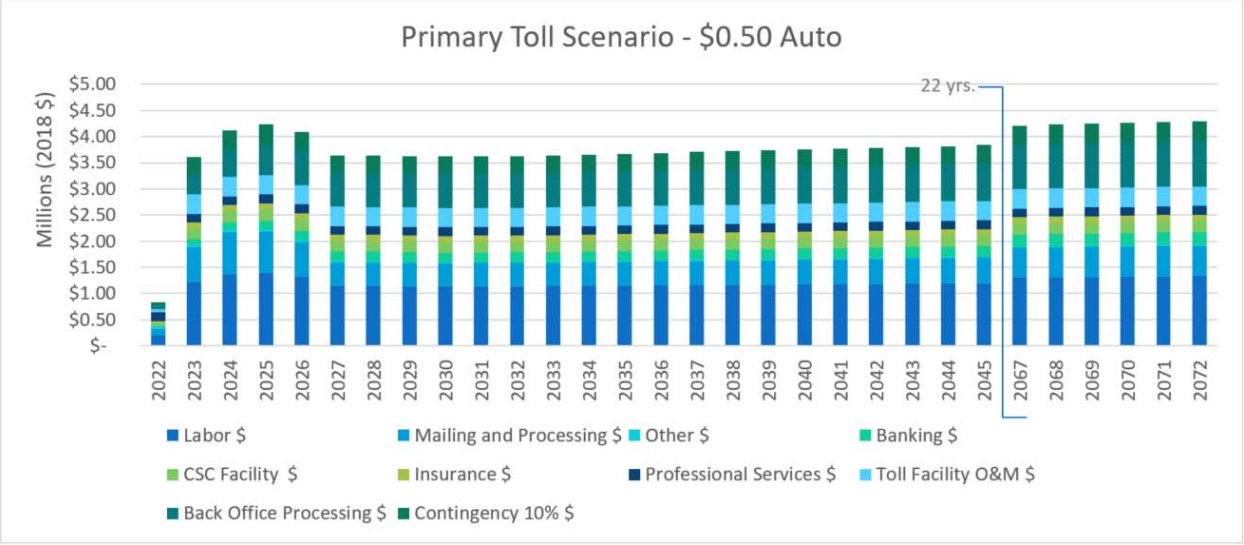
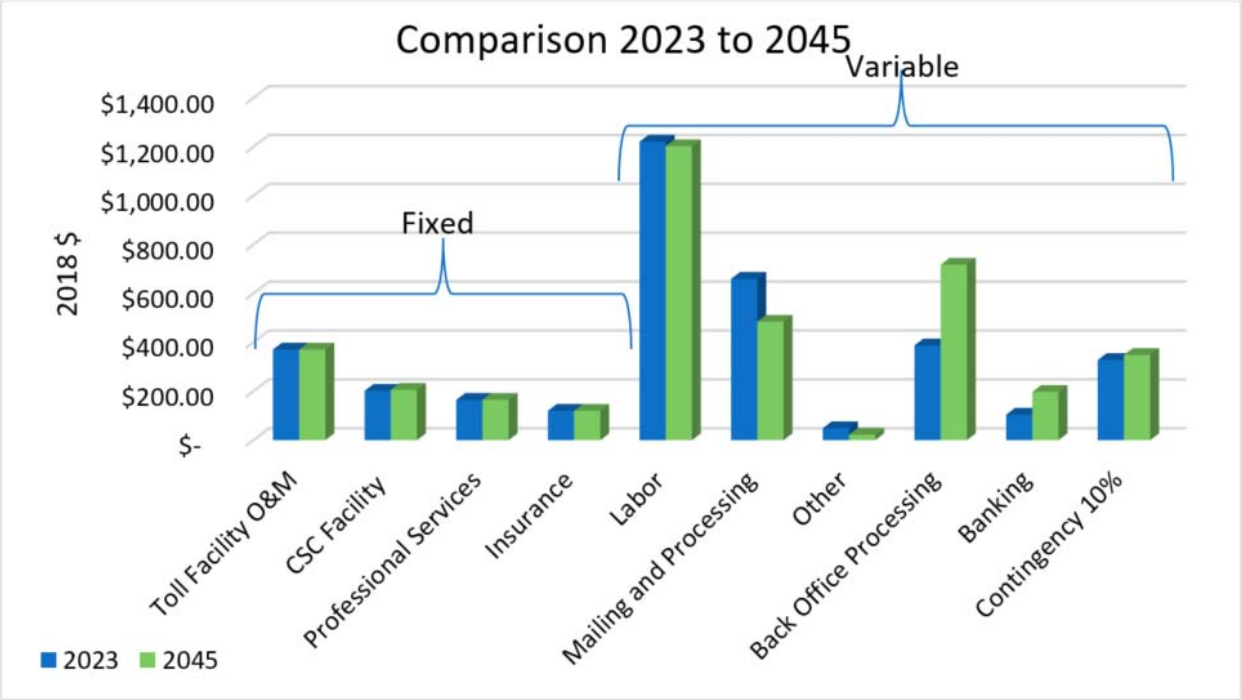


Figure 5-2 compares 2023 O&M Costs to 2045 O&M Costs (both in 2018 dollars). Costs are grouped into fixed and variable categories. Within the Variable category, some costs decrease over time and others increase:

- Labor costs vary considerably with the number of IBT transactions, and transactions overall. In the first few years, IBT transactions account for significant labor expenses, dropping off in 2027 and then increasing proportionally with transactions over time.
- Mailing and processing costs decrease significantly as IBT transactions reduce in favor of transponder account transactions.
- Other costs include license plate lookups which decrease over time with the reduction in IBTs, and transponder costs, which are relatively stable after the initial ramp-up period.
- Back office processing and banking costs both increase over time as these are directly related to the number of transactions processed and revenue collected. As transactions and revenue go up, so do these costs linearly.
- Finally, contingency is simply proportional to all other costs and will follow the overall cost trend.

Figure 5-2. O&M Cost Breakdown Comparison



5.3 Revenue Forecast Results

5.3.1 Methodology

HDR used an Excel based model to convert the traffic forecast produced by Alliance as discussed in Section 5.1 to annual revenue. Traffic model years 2022, 2032, 2040, and 2045 were provided for each of three vehicle classes to HDR. For each model year and vehicle class HDR performed the following calculations:

1. Split transactions by transaction type: Transponder or IBT using transponder penetration factors
2. Interpolated daily traffic between model years
3. Forecasted non-revenue or exempt vehicle trips
4. Applied an annualization factor
5. Applied ramp-up factors

These calculations resulted in annual transactions by vehicle class each year between 2022 and 2072. Next, gross revenue was calculated:

1. Calculated daily gross revenue by multiplying daily IBT and Transponder transactions for each vehicle class by its associated toll rate in 2022 dollars.
2. Calculated revenue associated with non-revenue or exempt vehicles
3. Annualized all revenues by multiplying by 290
4. Applied ramp-up factors
5. Calculated leakage due to IBT estimated at 5 percent for each vehicle class
6. Summed revenue by vehicle class and year
7. De-escalated all gross revenue from 2022 dollars to 2018 dollars

The resulting data included gross revenue in 2018 dollars by transaction type, vehicle class, and year.

5.3.2 Results

The results of the gross revenue forecast are summarized in **Table 5-4** by the milestone years. Year 2023 was added because 2022 is only a partial year of operations. More detailed annual results are provided in **Appendix D-1 and D-2**.

Table 5-4. Total Gross Revenue (2018 $, in thousands)

Scenario	2022*	2023	2032	2040	2045
Primary Toll Scenario	$ 922	$5,533	$ 8,255	$ 8,700	$ 9,012
Sensitivity Analysis Scenario 1	$1,180	$7,096	$10,709	$11,819	$12,173
Sensitivity Analysis Scenario 2	$1,321	$7,952	$12,140	$13,840	$14,380

* 2022 is a partial year

Revenue is further broken down by vehicle class for each scenario as shown in **Tables 5-5 through 5-7**.

Table 5-5. Primary Toll Scenario ($0.50 Auto) Gross Revenue by Vehicle Class (2018 $, in thousands)

Vehicle Class	2022*	2023	2032	2040	2045
Auto	$627	$3,768	$5,665	$6,023	$6,252
Single Unit Truck	$161	$965	$1,389	$1,361	$1,432
Multi-Unit Truck	$133	$800	$1,201	$1,315	$1,329
Total	**$922**	**$5,533**	**$8,255**	**$8,700**	**$9,012**

* 2022 is a partial year

Table 5-6. Sensitivity Analysis Scenario 1 ($1.00 Auto) Gross Revenue by Vehicle Class (2018 $, in thousands)

Vehicle Class	2022*	2023	2032	2040	2045
Auto	$938	$5,628	$8,368	$9,071	$9,163
Single Unit Truck	$118	$712	$1,137	$1,345	$1,479
Multi-Unit Truck	$125	$756	$1,203	$1,404	$1,532
Total	**$1,180**	**$7,096**	**$10,709**	**$11,819**	**$12,173**

* 2022 is a partial year

Table 5-7. Sensitivity Analysis Scenario 2 ($1.50 Auto) Gross Revenue by Vehicle Class (2018 $, in thousands)

Vehicle Class	2022*	2023	2032	2040	2045
Auto	$1,062	$6,383	$9,592	$10,846	$11,040
Single Unit Truck	$122	$741	$1,193	$1,402	$1,579
Multi-Unit Truck	$136	$829	$1,355	$1,592	$1,761
Total	**$1,321**	**$7,952**	**$12,140**	**$13,840**	**$14,380**

* 2022 is a partial year

5.3.3 Gross Revenue over Time

Gross revenue over the first four to five years is driven to a peak in 2026 due to ramp-up factors and the surcharge placed on IBT. IBTs are forecast to reduce in quantity by 2027, reducing revenue from surcharges. At the same time ramp-up factors also end. Both of these factors contribute to a slight decrease in revenue in 2027. It appears that the breakdown in revenue between autos, single unit trucks, and multi-unit trucks remain relatively proportional to each other over time. **Figure 5-3** and **Figure 5-4** illustrate gross revenue over time by transaction type and by vehicle classification, respectively.

Figure 5-3. Gross Revenue by Transaction Type

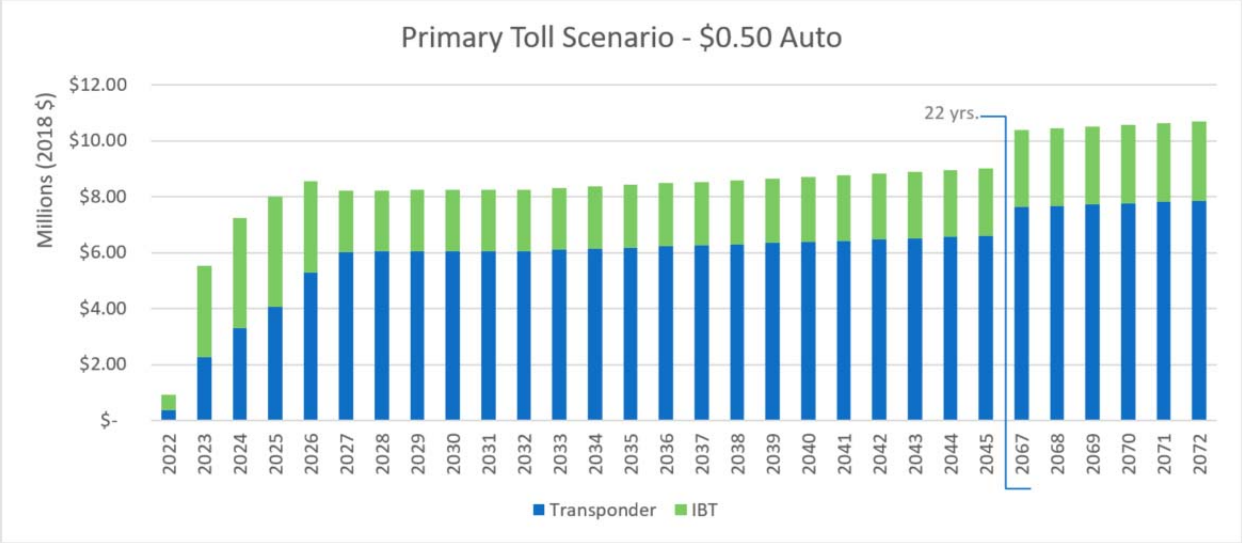
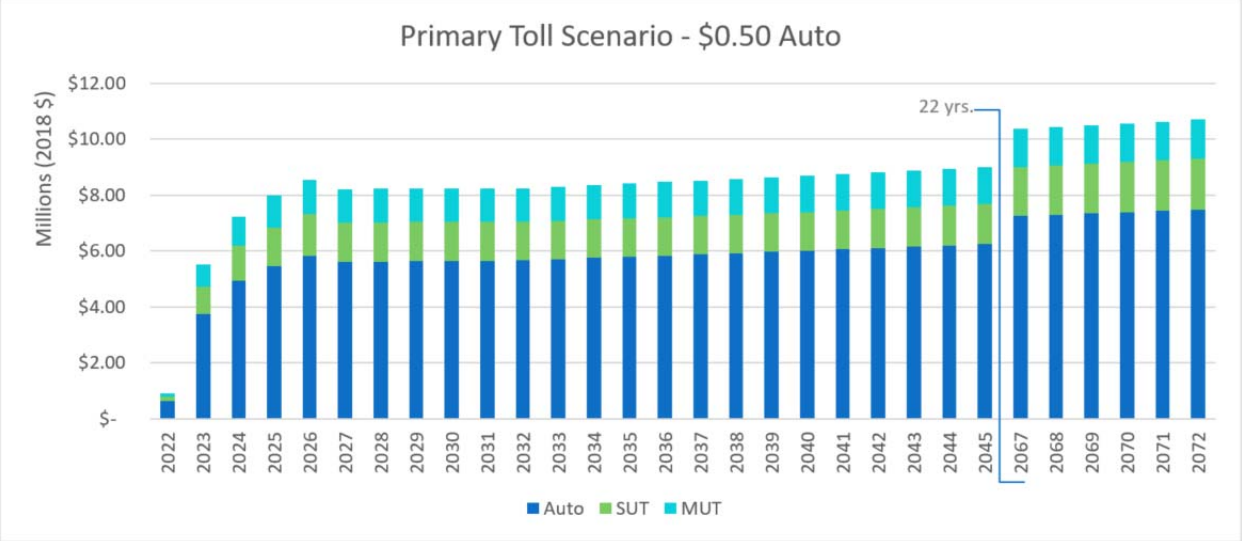


Figure 5-4. Gross Revenue by Vehicle Class



5.4 Net Revenue Results

To ultimately arrive at net revenue, O&M costs were subtracted from gross revenue. **Tables 5-8 through 5-10** and **Figure 5-5** show the resulting cash flows in 2018 dollars. For more details on the net revenue forecast, refer to **Appendix E-1 and E-2.**

Table 5-8. Net Revenue Results – Primary Toll Scenario (2018 $, in thousands)

Primary Toll Scenario	2022*	2023	2032	2040	2045
Gross Revenue	$922	$5,533	$8,255	$8,700	$9,012
O&M Cost	$839	$3,608	$3,626	$3,750	$3,836
Total Thousands ($2018)	**$83**	**$1,925**	**$4,629**	**$4,949**	**$5,176**

* 2022 is a partial year

Table 5-9. Net Revenue Results – Sensitivity Analysis Scenario 1 (2018 $, in thousands)

Sensitivity Analysis Scenario 1	2022*	2023	2032	2040	2045
Gross Revenue	$1,180	$7,096	$10,709	$11,819	$12,173
O&M Cost	$734	$3,057	$3,117	$3,268	$3,299
Total	**$446**	**$4,038**	**$7,592**	**$8,552**	**$8,874**

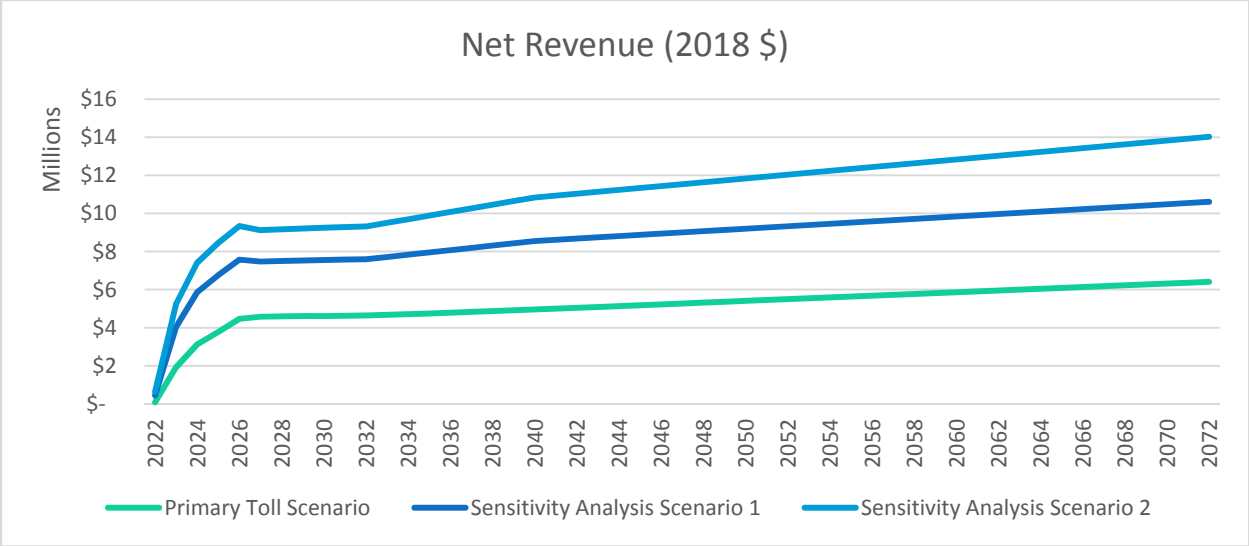
* 2022 is a partial year

Table 5-10. Net Revenue Results – Sensitivity Analysis Scenario 2 (2018 $, in thousands)

Sensitivity Analysis Scenario 2	2022*	2023	2032	2040	2045
Gross Revenue	$1,321	$7,952	$12,140	$13,840	$14,380
O&M Cost	$671	$2,724	$2,825	$3,005	$3,046
Total	**$650**	**$5,228**	**$9,315**	**$10,835**	**$11,334**

* 2022 is a partial year

Figure 5-5. Net Revenue Results – Comparison



Net revenue increases considerably for each of the Sensitivity Analysis Scenarios for two reasons: toll rates are increased and revenue rises faster than demand is diminished, and fewer transactions equate to lower variable O&M costs. For the year 2032, Scenario 1 shows an increase in net revenue of 64 percent over the Primary Scenario. In the same year, Scenario 2 shows an increase in net revenue of 101 percent over the Primary Scenario.

6.0 Toll Sensitivity Analysis

Previous business rules and policies applied on past LADOTD tolled facilities informed the toll rates selected for the Project. Social equity, among other legitimate policy considerations, provided the foundation for setting the tolls in this way. However, because the tolls were not established through a revenue optimization analysis, it is appropriate to fully understand the opportunity cost of setting the tolls below the facility's full revenue potential. Therefore, this study included a toll sensitivity analysis to identify how travelers are likely to respond to higher toll rates. The analysis used a wide range of tolls strictly to develop toll elasticity curves that show fluctuation in traffic volume and conceptual daily revenue amounts under varying toll rates.

Table 6-1 shows the rates used for the sensitivity analysis by vehicle class. In addition to a toll-free scenario and the primary toll scenario rates, two additional rate scenarios ($1.00 and $1.50 auto rates) were developed for each vehicle class. After reviewing initial results, additional $3.00 and $5.00 auto rates and additional $12.00 multi-unit truck rates were added to the analysis to provide sufficient data points to define the toll elasticity curves for each class.

Table 6-1. Vehicle Class Toll Rates

Vehicle Class	Rates					
	No Toll	**Primary Toll Scenario**	**Sensitivity Analysis Scenario 1**	**Sensitivity Analysis Scenario 2**	**Additional Inflection Points**	**Additional Inflection Points**
Auto	$0	$0.50	$1.00	$1.50	$3.00	5.00
Single Unit Truck	$0	$1.50	$3.00	$4.50		
Multi-Unit Truck	$0	$3.00	$6.00	$9.00	$12.00	

6.1 Sensitivity Analysis Scenario 1

As shown in **Table 6-2**, the auto $1.00, single unit truck $3.00, and multi-unit truck $6.00 toll scenario results in a near equal distribution of traffic volumes between LA 23 and Woodland Highway. Compared to the no toll forecast, the Sensitivity Analysis Scenario 1 shows a 35 percent diversion in traffic volume from LA 23 to Woodland Highway in opening year.

Table 6-2. Tolled Traffic Forecasts by Year – Sensitivity Analysis Scenario 1

Tolled Traffic Forecasts by Year					
Bridge	**Auto**	**Single Unit Truck**	**Multi-Unit Truck**	**Total Volume**	
	One-way Toll ($1.00)	**One-way Toll ($3.00)**	**One-way Toll ($6.00)**	**LA 23 Tolled**	**No Toll**
2022 Scenario (opening year)					
LA 23	29,679	1,241	659	31,579	48,919
Woodland	25,871	2963	1040	29,874	12,534
Screen Line Total	55,550	4,204	1,699	61,453	61,453
2032 Scenario					
LA 23	29,795	1,350	714	31,859	50,106
Woodland	27,095	2928	1106	31,129	12,882
Screen Line Total	56,890	4,278	1,820	62,988	62,988
2040 Scenario					
LA 23	32,297	1,596	833	34,726	53,954
Woodland	29,325	2,748	1095	33,168	13,940
Screen Line Total	61,622	4,344	1,928	67,894	67,894
2045 Scenario					
LA 23	32,624	1,755	909	35,288	54,879
Woodland	29,946	2578	1040	33,564	13,973
Screen Line Total	62,570	4,333	1,949	68,852	68,852

6.2 Sensitivity Analysis Scenario 2

As shown in **Table 6-3,** in the auto $1.50, single unit truck $4.50, and multi-unit truck $9.00 toll scenario, more than half (51 percent) of traffic is diverting away from LA 23 in the opening year in favor of Woodland Highway. Diversion in the out-years is similar (diversion in 2045 is 49 percent) but is mitigated somewhat by the level-of-service impact on Woodland Highway resulting from the higher traffic volumes.

Table 6-3. Tolled Traffic Forecasts by Year – Sensitivity Analysis Scenario 2

Tolled Traffic Forecasts by Year					
Bridge	Auto	Single Unit Truck	Multi-Unit Truck	Total Volume	
	One-way Toll ($1.50)	One-way Toll ($4.50)	One-way Toll ($9.00)	LA 23 Tolled	No Toll
2022 Scenario (opening year)					
LA 23	22,413	860	480	23,753	48,919
Woodland	33,137	3,344	1,219	37,700	12,534
Screen Line Total	55,550	4,204	1,699	61,453	61,453
2032 Scenario					
LA 23	22,769	944	536	24,249	50,106
Woodland	34,121	3,334	1,284	38,739	12,882
Screen Line Total	56,890	4,278	1,820	62,988	62,988
2040 Scenario					
LA 23	25,745	1,109	630	27,484	53,954
Woodland	35,877	3,235	1,298	40,410	13,940
Screen Line Total	61,622	4,344	1,928	67,894	67,894
2045 Scenario					
LA 23	26,205	1,249	697	28,151	54,879
Woodland	36,365	3,084	1,252	40,701	13,973
Screen Line Total	62,570	4,333	1,949	68,852	68,852

The goal of the analysis was to see how users responded to different tolling rates and how this decision affected traffic volumes for the LA 23 Bridge and the alternative route along Woodland Highway for each scenario year. However, the analysis also allowed for the development of toll elasticity curves to understand the statistical relationship between the variables as well as to estimate conceptual daily revenue produced at each price point along the curve.

6.3 Toll Elasticity

Using the traffic forecast results for each toll rate from the sensitivity analysis, the HDR Team developed anticipated traffic volume curves showing the conceptual volume of traffic at any given toll rate. In conjunction with the traffic forecasts, the team developed a (conceptual level) anticipated daily revenue for each price point (toll rate) by multiplying daily traffic volumes for each vehicle class by the nominal toll rate to get the expected daily revenues for each vehicle class. This calculation was done with the forecast raw toll receipts without regard to discounts, leakage or exempt trips. The results are only valid as relative values, not absolute amounts. The revenue estimates are reported in 2022 dollars.

The combination of the traffic forecasts, toll rates, and anticipated daily revenue serve to inform the development of the elasticity curves.

The following elasticity graphs, shown in **Figures 6-1 through 6-3**, depict the relationship between total daily volume and total revenue raised per day based on varying toll price points. The results are not meant to identify the ideal revenue making price point for tolls, but rather to illustrate the possible opportunity cost for setting tolls below their full revenue potential. The fact that the primary toll rate for autos is set well below the optimum rate means that, if needed, tolls could be increased and the annual revenue would go up. This toll rate adjustment would be considered an advantage to the financing of the Project.

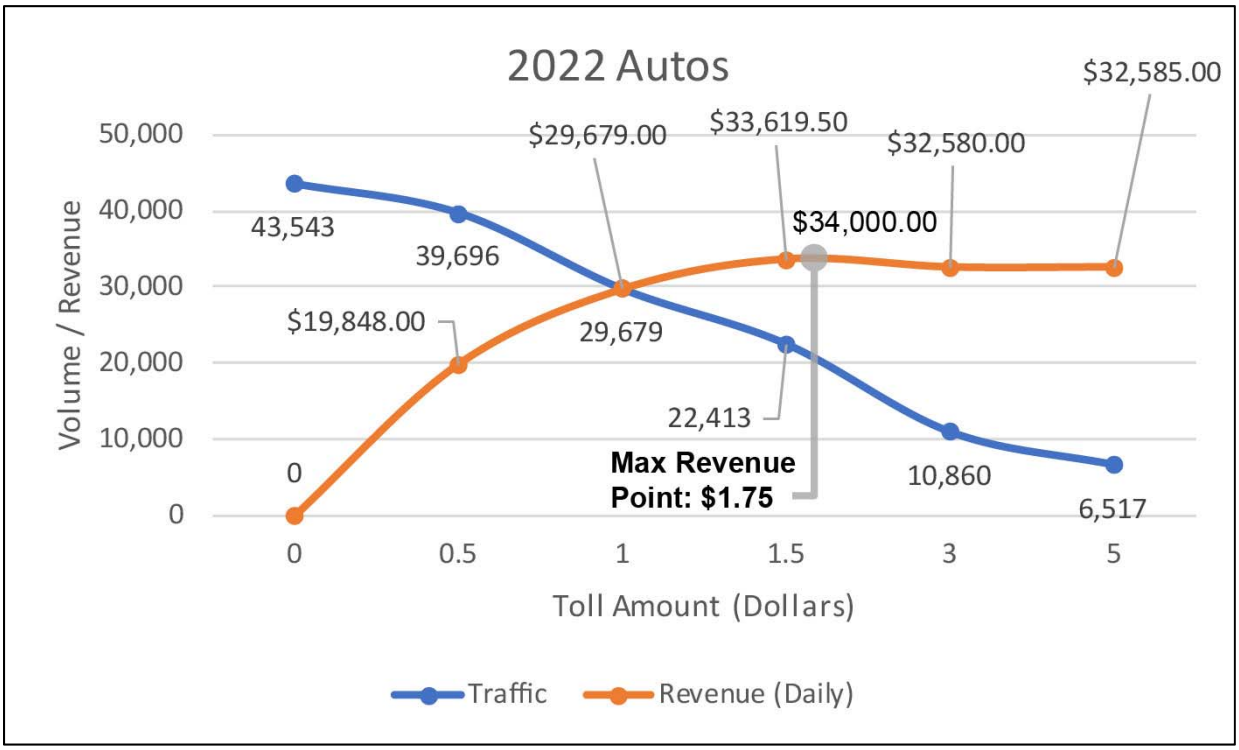
It is important to note that the curves were created by smoothing curves based on a limited set of data points, meaning that the peak points of the curve may change depending on the addition of data points.

6.3.1 Year 2022 – Autos

In **Figure 6-1**, the price elasticity curve for autos in scenario year 2022 shows a steep rise in the potential daily revenue curve up to the $0.50 toll or $19,848 revenue level. Between the $0.50 toll point and the $1.50 toll point the revenue curve begins to flatten out. The traffic volume curve maintains a consistent slope proportional to the toll increases with a reduction in auto traffic by 3,847 trips at the $0.50 toll level (43,543 less 39,696 trips) and a reduction of an additional 17,283 trips at the $1.50 toll point (39,696 less 22,413 trips).

In this scenario, the maximum revenue point along the curve is $34,000. This revenue point occurs at a toll level of $1.75 per one-way trip at which point the steady decline in traffic volume begins to offset the toll increases. As a matter of principle, however, owners should always price a toll on the leading or upward sloping side of the revenue curve to maximize use of the public good and to provide future flexibility.

Figure 6-1. Year 2022 – Autos

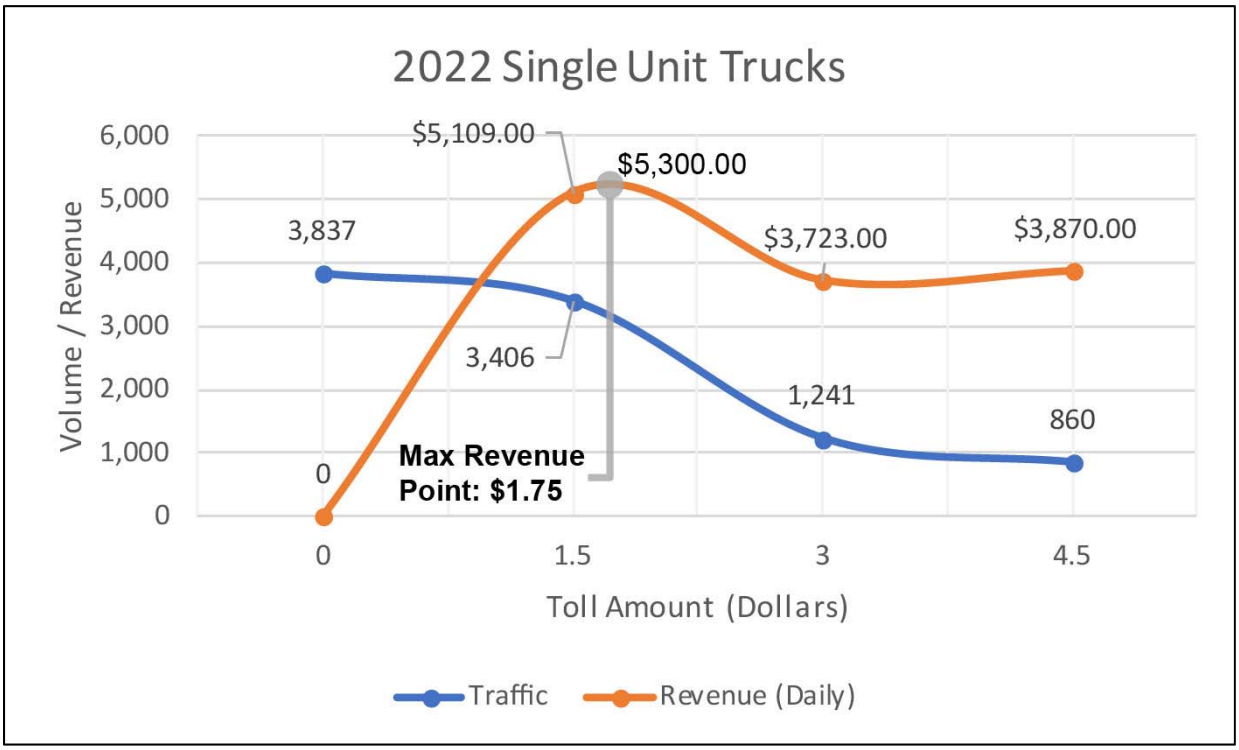


6.3.2 Year 2022 – Single Unit Trucks

In **Figure 6-2**, the price elasticity curve for single unit trucks in scenario year 2022 shows a steep rise in potential daily revenue to $5,109 up to the vicinity of the $1.50 toll, corresponding with a reduction in traffic volume by 431 vehicles (3,837 less 3,406 trips. As the proposed toll increases from $1.50 to $3.00 the traffic volume curve reflects a significant decrease in anticipated users by 2,165 (3,406 less 1,241 trips) along with a decrease in anticipated revenue by $1,386 daily ($5,109 less $3,723).

In this scenario, the maximum revenue point along the curve is $5,300. This revenue point is observed at a toll value of $1.75 per one-way trip. At this toll point the revenue curve flattens out and revenue gains are overcome by the steadily decreasing traffic volumes. For single unit trucks, the $1.50 primary toll rate is very near the optimum point already and increasing it may actually reduce annual revenue for that class of vehicle.

Figure 6-2. Year 2022 – Single Unit Truck

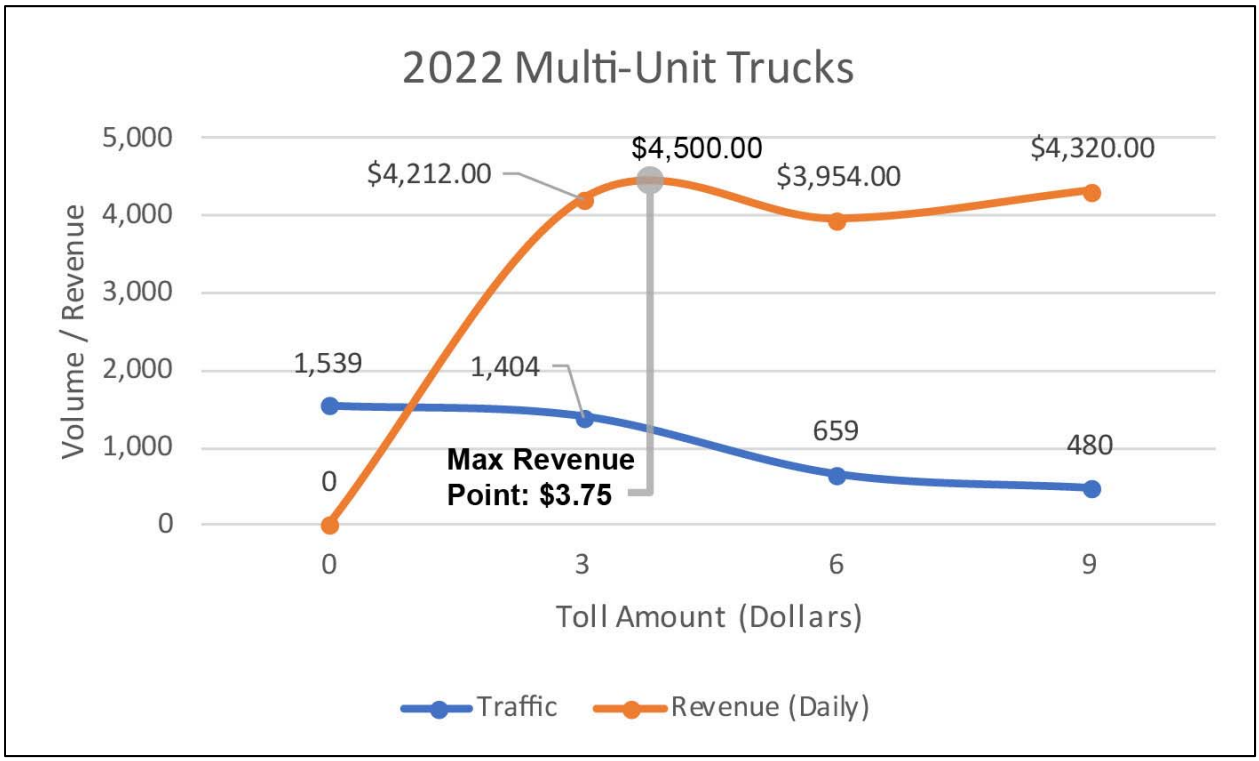


6.3.4 Year 2022 – Multi-Unit Trucks

In **Figure 6-3**, the price-elasticity curve for multi-unit trucks in scenario year 2022 shows a steep rise in potential revenue to $4,212 at the $3.00 toll level, corresponding with a slight reduction in truck volumes by 135 vehicles (1,539 less 1,404 trips). The revenue curve flattens out significantly after this point, while the slope of the traffic volume curve increases and does not begin to flatten until the $6.00 toll level.

In this scenario, the maximum revenue point along the curve is $4,500. This revenue point is observed at the toll level of $3.75 per one-way trip. For multi-unit trucks, the primary toll rate of $3.00 is approximately 20 percent below the optimum point. Tolls could be increased slightly and still result in annual revenues increasing for that class of vehicle.

Figure 6-3. Year 2022 – Multi-Unit Trucks



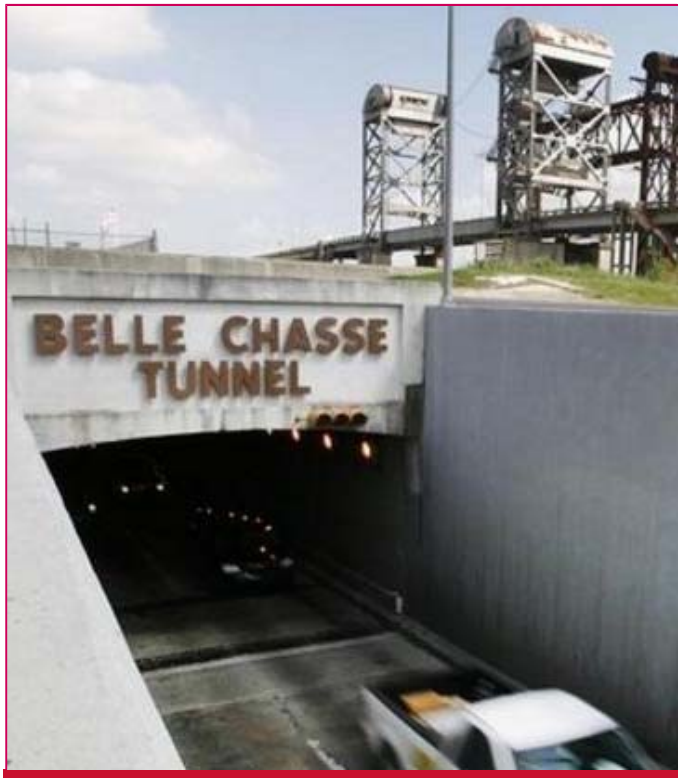
6.3.5 Toll Elasticity Summary

The $0.50 auto toll used in the base case was set as a starting point for evaluation based on historic toll rates in the New Orleans area. At that toll rate, in the tenth year of operation the bridge is estimated to generate $8.3 million in gross revenue with $3.6 million in O&M costs, for a net revenue of $4.7 million. In this scenario the O&M cost is approximately 43 percent of gross revenue which is higher than most toll roads in the US. Going to a $1.00 auto toll generates $10.7 in million in gross revenue with an O&M cost of $3.1 million or 29 percent of gross revenue which is much more typical for US operations.

The toll sensitivity analysis showed that for autos and single unit trucks, the maximum revenue point along the toll elasticity curve is at a toll level of $1.75 per one-way trip at which point the steady decline in traffic volume begins to offset the toll increases. For single unit trucks, the $1.50 primary toll rate is very near the optimum point already and increasing it may actually reduce annual revenue for that class of vehicle. For multi-use trucks, the maximum revenue point is at the toll level of $3.75 per one-way trip and the primary toll rate of $3.00 is approximately 20 percent below the optimum point. Tolls could be increased slightly and still result in annual revenues increasing for that class of vehicle. The fact that the primary toll rate for autos is set well below the optimum rate means that, if needed, tolls could be increased and the annual revenue would go up. This toll rate adjustment would be considered an advantage to the financing of the Project. As a matter of principle, owners should always price a toll on the leading or upward sloping side of the revenue curve to maximize use of the public good and to provide future flexibility.

Appendix A – Desktop Review: Non Revenue Users Memorandum

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Desktop Review Non-Revenue Users
(Final)

Belle Chasse Bridge and Tunnel Replacement
Plaquemines Parish

Level 2 Toll Study

Contract No. 4400006552:
Retainer Contract for Strategic Advisory Services
Related to Louisiana Transportation Authority Participation
in Public-Private Partnerships
Task Order No. H.004791.5

Prepared by:

HDR Engineering, Inc.

September 2018

Summary

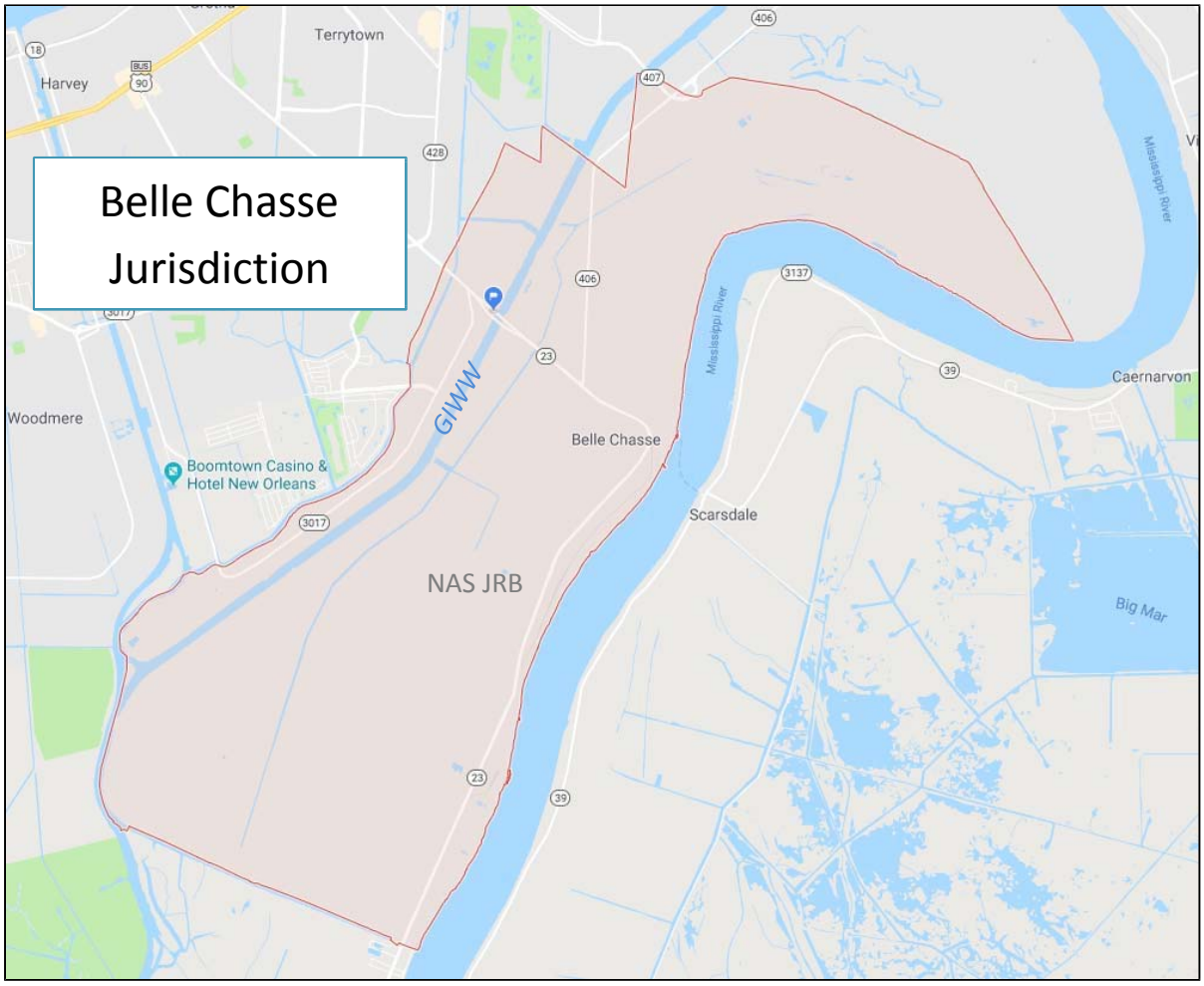
The purpose of this memorandum was to conduct research on statewide tolling statutes and to determine potential reductions in toll revenue due to exempt vehicles/non-revenue users. The volume of non-revenue users are defined as an estimate of the average annual daily traffic (AADT) on the Belle Chasse Bridge; herein referred to as trips per day. This analysis of potential non-revenue users of the proposed Belle Chasse Bridge and Tunnel Replacement toll project is the result of a desktop review and limited to desktop data. Refer to Appendix A for legislative requirements for non-revenue users.

Non-Revenue Users	Statute	Est. AADT	Notes
Full-time Firemen Commuting	Statewide	**10.0**	Volume is unknown and will require discussions with fire stations.
Fire Emergencies	Statewide	**0.2**	Average six per month based on 911 data
Law Enforcement Calls	Statewide	**0.7**	Average 20 crossings per month based on police calls
Law Enforcement Patrols and Commutes	Statewide	**20.0**	Volume is unknown and will require discussions with parish Sheriff's Office.
Organized Militia of the State	Statewide	**500.0**	Volume estimated based on best available data.
Disabled American Veterans	Statewide	**10.0**	Volume is unknown and will require further information, however volume is expected to be low
Publicly Owned Vehicles and Mass Transit	Statewide	**0.0**	While there are no public bus routes across the facility, there is likely para-transit and similar services. Further research is needed.
School Buses	Statewide	**20.0**	Volume based on captured peak period bus trips
Students Attending School Operating Private Vehicles	Statewide	**0.0**	The number of student crossings is unknown. Operationally, this is not recommended for the proposed facility.
	Total	560	
	LA 23 AADT	44,506	
	% Non-Revenue Users	**1.2%**	

Overall, based on this desktop review and simplified assumptions, the number of non-revenue transactions may be in the range of 1 to 2 percent of traffic across the Belle Chasse Bridge.

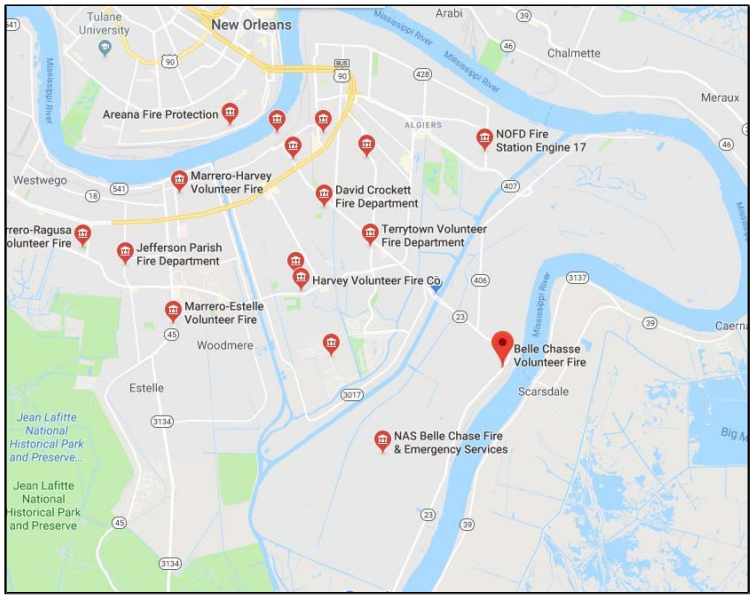
Belle Chasse Area

Because most of the non-revenue travel is based on public services, jurisdictional boundaries are important in this analysis. Note that the Belle Chasse jurisdiction extends across the Gulf Intracoastal Waterway (GIWW) to include LA 3017 (Engineers Road), but not north of the GIWW crossing at LA 407 (Woodland Highway).

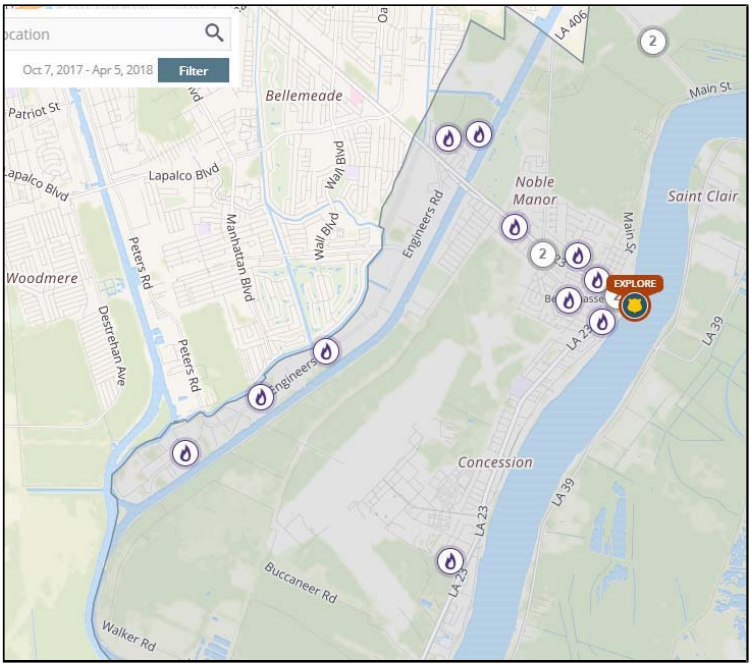


Firefighters

There are two fire stations in Belle Chasse: NAS Belle Chase Fire & Emergency Services at the Naval Air Station Joint Reserve Base (NAS JRB), and Belle Chasse Volunteer Fire. These fire departments would likely handle the majority of calls east of the Gulf Intracoastal Waterway (GIWW). There were only five calls reported on the west side of the GIWW within the Belle Chasse jurisdiction over the most recent six month period (October 2017 to March 2018). It is not known if the volunteer fire department jurisdictions vary from those of the Belle Chasse jurisdiction; however, the volume of emergency fire calls is small. Because the Belle Chasse fire department is volunteer, we would expect there may be multiple vehicles (assume three) crossing for each call. Therefore we estimate one emergency per month with three vehicles responding with round trips, totaling six crossings per month.



Area Fire Departments



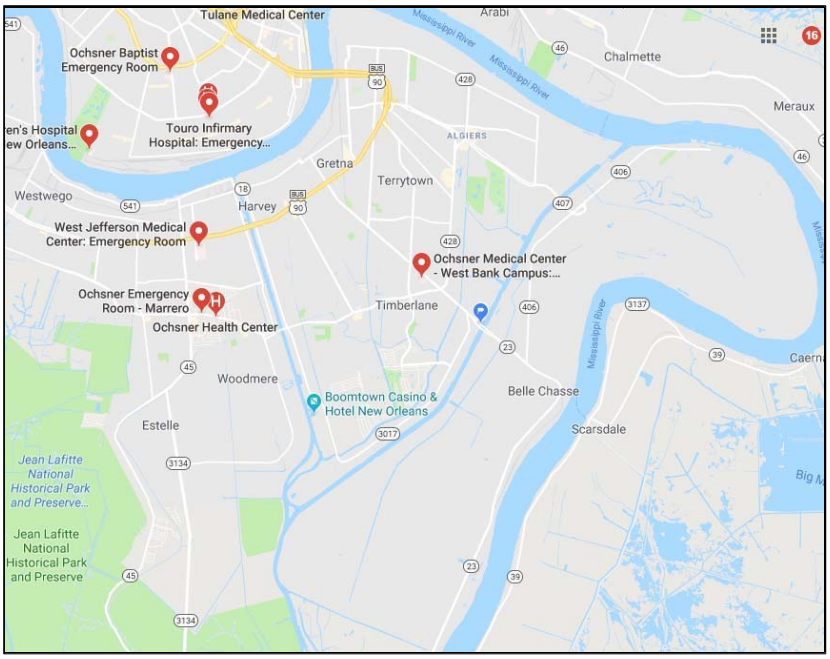
Fire Department Calls – 10/17 to 03/18

The legislation treats volunteer firefighters and full-time firefighters differently. Full-time firefighters are permitted to free passage for commuting and all firefighting activities. Volunteer firefighters are only permitted free passage when performing official firefighting or fire prevention services, which excludes commuting. The Belle Chasse fire department is volunteer, while the NAS Belle Chasse Fire & Emergency Services have full-time firefighters, who would be eligible for free commuting tolls. With limited commuter information for this small population, we have estimated 10 trips per day.

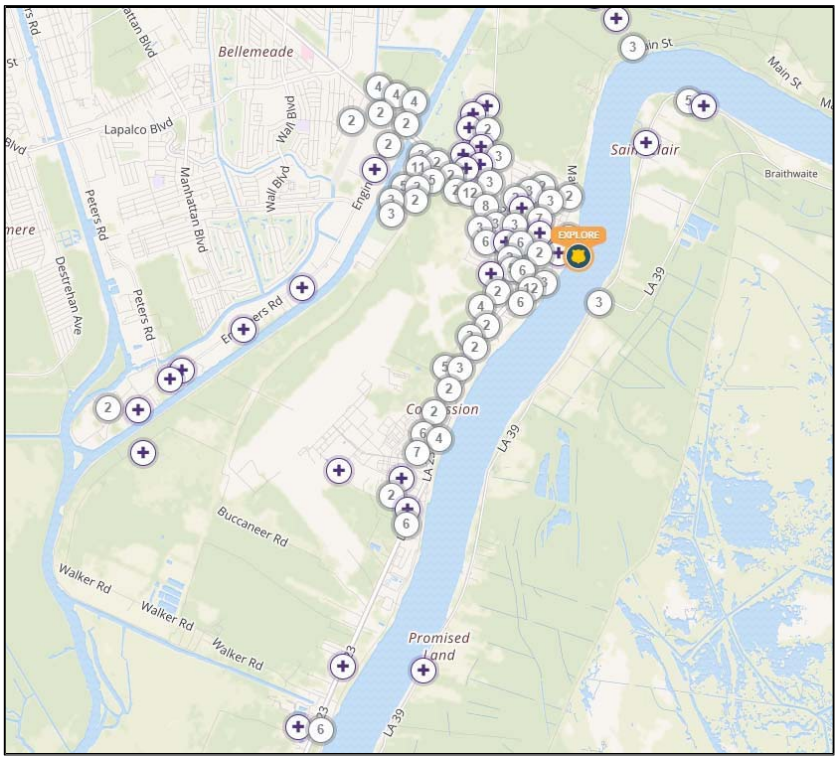
Emergency Vehicles

The nearest hospitals and emergency room facilities in the vicinity of Belle Chasse are located in Jefferson Parish on the west side of the GIWW across the Belle Chasse Bridge. They include Ochsner Medical Center in Gretna and West Jefferson Medical Center/Hospital in Marrero. There were 626 medical emergencies reported east of the GIWW in the most recent six month period. Even if all of those required transport to the hospitals in Jefferson Parish, that would only be four round trips per day, or eight trips total. (www.crimereports.com)

Providing free passage to emergency vehicles does not appear to be specified in law (except for publicly owned vehicles) this is included in the Administrative Code.



Area Hospitals and Emergency Rooms

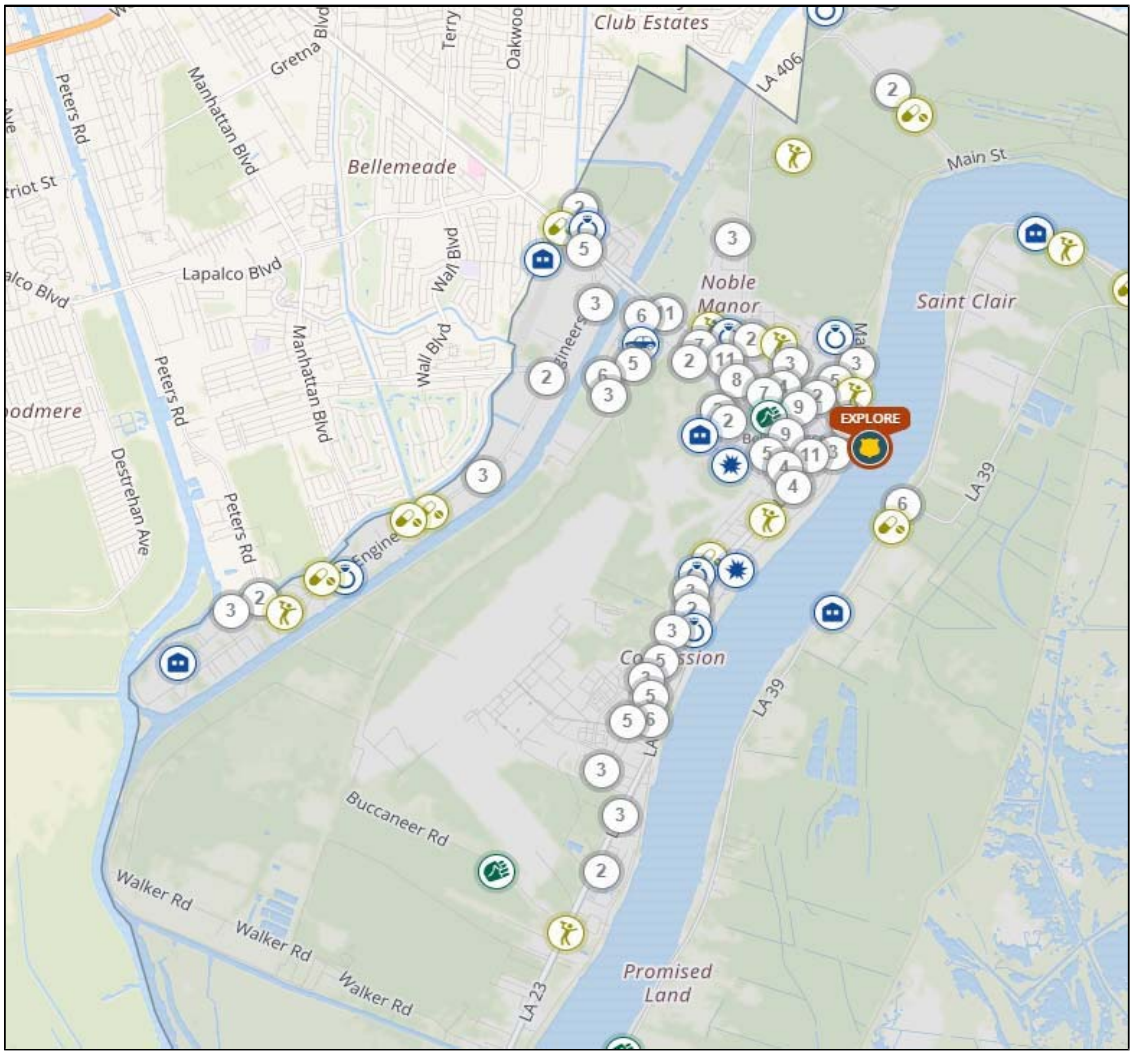


911 Medical Calls in Belle Chasse 10/17 to 03/18

Law Enforcement

Belle Chasse is a separate law enforcement jurisdiction from the City of New Orleans. The Woodland Highway Bridge (LA 407), allows New Orleans Police from District 4 to access the land area north of Belle Chasse, leaving the Plaquemines Parish Sheriff's Office to cover Belle Chasse and the primary users of the Belle Chasse Bridge. During the most recent six months (October 2017 – March 2018) only 29 incidents were recorded on the west side of the GIWW requiring a bridge crossing. The number of regular patrols crossing the bridge is unknown. (www.crimereports.com)

We recommend following up with the Plaquemines Parish Sheriff's Office to discuss estimated crossings for other official business and patrols. For the purposes of this estimate, we will assume 30 incidents require two vehicles each, with round trips totaling, 120 trips or 20 per month. The number of patrols is unknown, but we will assume 20 additional crossings per day, which would include patrols, official business, and commuting in police cars or publicly owned vehicles.



911 Police Calls in Belle Chasse 10/17 to 03/18

State Militia

The Naval Air Station Joint Reserve Base (NAS JRB) users are likely a significant source of traffic for the Belle Chasse Bridge. Upon detailed review of the legislation, only Louisiana National Guard are eligible for free passage in the execution of duties. Administrative code specifies that free passage will only be granted through use of automatic vehicular identification toll tags.



Naval Air Station/Joint Reserve Base

There are 4,188 active and reserve military personnel stationed at the base, out of 6,016 total personnel. Of those, only the 159th Fighter Wing LA Air National Guard (LANG) is eligible for free tolls. Unfortunately, no one at base command or with the LA Air National Guard was able provide the number of LANG personnel stationed at the base.

We do know that Command considers LANG a "Key Non-Navy Tenant" and it is ranked as the biggest non-Navy tenant. The top five Navy Tenants include Navy Operational Support (373 Military), VFA-204 (296 Military), Fleet Readiness Center (236 Military), and VR-54 (191 Military), and Navy Air Logistics

Office (55 Military). These, along with command at 159 military total 1,310 out of the 4,188 military personnel, leaving 2,878 among the remaining tenants. There are five non-Navy tenants and 22 other tenants. Given this information, we will assume that the 159th Fighter Wing LANG is approximately the size of the larger Navy tenants, at 350 military or 5.8 percent of the total population stationed at the base (this does exclude families that may be living on base, which make this number conservative).

There are two access points to the base: Barriere Road which is only open in the AM and PM peak periods to automobiles, and the main entrance at Russell Drive on LA 23, open 24 hours a day and suitable for trucks. We received data from Alliance stating that in 2016 approximately 7,000 vehicle trips cross the LA 23 bridge each day to access the NAS Belle Chasse. Of these 6,100 are passenger vehicles. Because the legislation does not restrict free passage to passenger vehicles, we will use 7,000 daily trips. Further, Alliance indicated that this number would remain relatively flat through 2018 allowing us to compare NAS JRB data to traffic.

If we assume the makeup of that traffic is the same as the makeup of the base, we can estimate that 5.8 percent of 7,000 is 407 trips per day being LANG military.

LA National Guard Military On Base:	350
Total stationed on-base (excluding families):	6,016
Estimated percentage of LA Air National Guard Traffic:	5.82%
Total trips across bridge generated by NAS JRB:	7,000
Estimated LA Air National Guard Trips:	407

If we are conservative, and estimate 450 trips in 2022, we can compare to the projected 2022 AADT resulting in approximately 1 percent of traffic as shown below:

Estimated 2022 AADT:	44,506
Estimated LA Air National Guard Trips:	450
Percentage of LANG Military Non-Revenue Trips	1.0%

Other items that could affect these results:

- Number of military personnel living on-base or in Belle Chasse could reduce this number.
- Number of reserve trips on weekends is expected to significantly increase this number, however weekend trips are not included in revenue projections.

See Appendix B for additional NAS JRB data.

Disabled Veterans

No information is known about the number of disabled veteran users of the Belle Chasse Bridge. We have estimated 10 trips per day.

Mass Transit and Other Public Vehicles

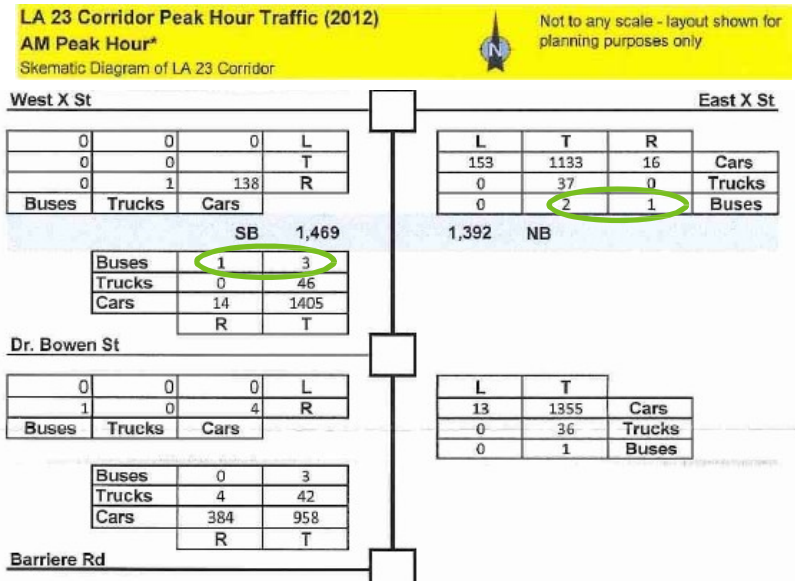
There is no mass transit operated across the facility. However, legislation permits publicly owned vehicles to have free passage. Administrative code defines public vehicles as those discussed elsewhere in this document and no others. This includes emergency vehicles, police, fire, military, and mass transit. We recommend maintaining this definition and not expanding to state or parish vehicles. However para transit or other similar public transit services should be considered.

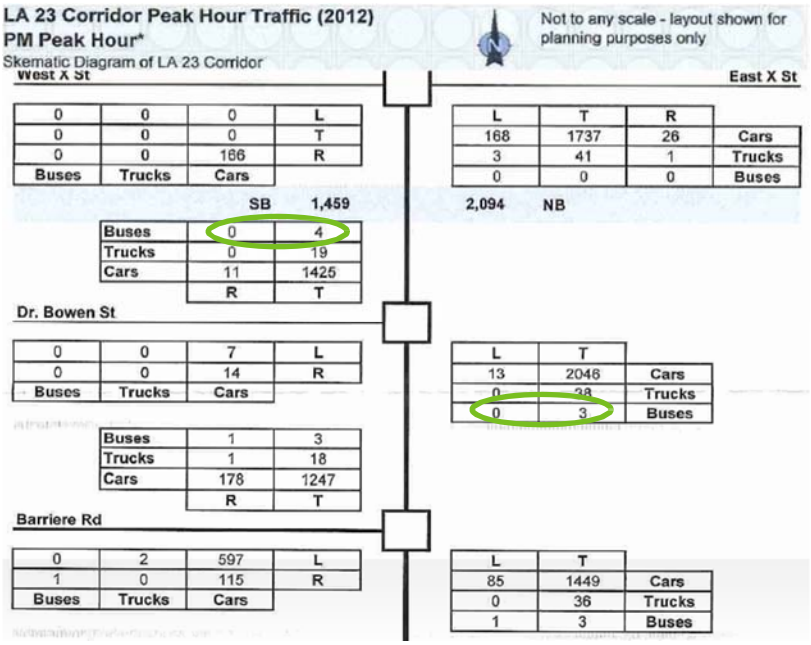
School Buses

Traffic counts show buses in the AM and PM peak hours. Because no mass transit bus services have routes across the GIWW, we will assume that these are school buses.

The number of buses seen in each of the peak AM and PM hours is three to four buses in each direction according to the 2012 traffic survey (Appendix B). It is not reasonable to apply a peak hour factor (PHF) to school buses, but we can increase the estimated quantity and still result in a minimal impact to projected traffic. We recommend discussing school bus routes with the local schools and school districts to identify a more accurate estimate. For the purpose of this report, we will assume 20 crossing per day.

Buses	
Assumed PHF	0.30
Right turn from LA 23 SB to Barriere WB	8
Bus AADT	27
LA 23 AADT	39,476
% of Non-Revenue	0.1%





Future Considerations

The following is a list of policy decisions that should be considered:

1. Consider paratransit and other transit services and public vehicle policies.
2. Consider policy regarding employees of the tolling authority or concessionaire use of facility for free.

Appendix A: Non-Revenue Users

Appendix A: Non-Revenue Users Comparison

User	Legislative Requirements
Firefighters	All firefighters on-duty or commuting to employment (LSA-R.S. 33:1975)
Volunteer Firefighters	All volunteer firefighters, when performing official firefighting or fire prevention services (not commuting). (LSA-R.S. 33:1975)
Emergency Vehicles	No discussion of emergency vehicles other than requirements covered by specific users (e.g. firemen, law enforcement, etc).
Law Enforcement	All state police and other law enforcement personnel with law enforcement agency equipment. (LSA-R.S. 40:1392)
Organized Militia of the State	In uniform or presents order for duty. Must be going to, engaged in, or returning from any parade, drill or meeting which he is required to attend or upon being called to, engaging in, or returning from any active state duty order by the governor. (LSA-R.S. 29:27,A)
Disabled American Veterans	Upon providing proper identification (LSA-R.S. 29:27,B)
Public Vehicles	All publicly owned vehicles (LSA-R.S. 48:972)
Mass Transportation	Any vehicle used with or in furtherance of mass transportation of general public, owned and operated by publicly subsidized transit organization. (LSA-R.S. 48:972)
School Buses	Publically subsidized school buses would qualify (LSA-R.S. 158)
Students	Student passage to and from school during certain hours (LSA-R.S. 157)

Appendix B: NAS JRB New Orleans Data

NAS JRB NEW ORLEANS LA

Mission Statement:

To provide superior operational and training environments for active duty and reserve component from all branches of the armed services while sustaining the full spectrum of combat, peacetime, and humanitarian operations.

As of: 09JAN18

Personnel Data (provide Installation Command and Tenant Command numbers separately)

Data as of: 08 Feb 2018

	Command	Tenants	Total
• Military			
- Active + Reserve FTS:	159	2,242	2,401
LIMDU Included:	7		
TEMDU Included:	3		
- Reserve SELRES:	N/A	1,787	1,787
• Civilians			
o Appropriated Fund:	112	1,268	1,380
o Non-Appropriated Fund:	176	0	176
o Foreign National Indirect:	N/A	0	0
o Foreign National Direct:	N/A	0	0
• Contractor:	18	254	272
• Total:	465	5,551	6,016

Comments

***Of Note: Military population supported includes 814 Marine Forces Reserve personnel, 700 U.S. Coast Guard personnel, and another 35 active duty personnel stationed at SPAWAR and area universities. Total military supported on and off base approximately 8,000.

Top Five (5) Navy Tenants By population (Mil and Civ)

Data as of: 09 Jan 2018

- Navy Operational Support Center(MIL 373/CIV 4)
- VFA-204(MIL 296/CIV 0)
- Fleet Readiness Center Mid-Atlantic Det. New Orleans (FRC)(MIL 236/ CIV 15)
- VR-54(MIL 191/CIV 0)
- Navy Air Logistics Office(MIL 55/CIV 2)

Key Non-Navy Tenants

Data as of: 09 Jan 2018

- 159th Fighter Wing LA Air National Guard
- Belle Chasse Academy
- 377th Theater Support Command
- Coast Guard Air Station

- Marine Aircraft Group 49 Detachment C

List of all remaining Tenant Commands

Data as of: 09 Jan 2018

- Region Legal Service Office Southeast
- Navy Recruiting District
- Navy Reserve Professional Development Center
- Carson Wagonlit Travel/SATO
- Customer Service Desk (CSD) New Orleans
- Defense Commissary Agency
- Joint Reserve Intelligence Center (JRIC)
- Marine Executive Transport Squadron (VMR) Belle Chasse
- Military Entrance Processing Station (MEPS)
- Naval Air Reserve Base Joint Credit Union
- Naval Branch Health Clinic Belle Chasse
- Naval Criminal Investigative Service
- Naval Facilities Engineering Command
- Naval Munitions Command Det. New Orleans
- Fleet Logistics Center Jacksonville
- Navy Calibration Lab New Orleans
- Navy Exchange
- Navy Marine Corps Relief Society
- Patrician Military Housing
- Aviation Support Division
- Embry Riddle Aeronautical University
- Subway

Force Laydown

Data as of: Jan 9, 2018 8:56:15 AM

- 0 Ships
- 0 Submarines
- 4 Fixed Wing Aviation Squadrons
- 2 Helicopter Squadrons

List of Individual Ships, Submarines, Squadrons

Data as of: 09 Jan 2018

- Strike Fighter Squadron 204 (VFA-204)
- Fleet Logistics Support Squadron 54 (VR-54)
- Marine Transport Squadron Belle Chasse (VMR)
- 159th Fighter Wing, LA ANG
- Marine Aircraft Group 49 Detachment C (MAG-49)
- Coast Guard Air Station

MILCON Projects (current status)

Data as of: 09 Jan 2018

Project	FY	Status
P-509 Police Station Addition (UMC).	2016	Project awarded 30SEP16 for $1.2M. Start date: 01OCT16. End date: JUN18. Any projected issues: None.
P-500 Joint Reserve Intelligence Center.	2017	Project awarded 29JUN17 for $11M. Start date: 29JUN17. End date: FEB19. Any projected issues: None.
LAANG Squad Operations.	2016	Project awarded 29SEP17 for $8.7M. Start date: TBD. End date: Aug 2019. Any projected issues: None.

Status of ARRA-funded projects

Data as of: N/A

- N/A

Status of Excess Infrastructure

Data as of: 09 Jan 2018

- Demo various (5) building projects waiting funding.

Sailor Support Initiatives/Programs

Data as of: 09 Jan 2018

- Plans are underway to open a recreation center for all in Bldg. 410, formerly the Liberty Center, which is currently closed.
- Teen Center with pool tables, ping pong, gaming, movie room, internet.
- Various MWR functions including Armed Forces Entertainment performances, Family Fun Days and other special events for the community and Sailors.
- The Boondoggles all-hands club features a number of flat screen televisions, pool tables, foosball table, shuffle board, darts, large bar and seating area, adjoining conference room suitable for small ceremonies or large meetings.
- The ITT program offers local tours of plantations, airboat swamp tours, Disney tickets, airline tickets, and tickets for local attractions.
- Commissary/Navy Exchange (NEX): In 2011, a new Navy Exchange and Commissary facility occupying more than 100,000 square feet opened on base for service to the military and their families.
- MWR Programs - Red Flag activities: none - Services available: Library, Specialty Shoppe (framing, signs, banners), Auto Hobby, Outdoor Recreation (paintball, archery), Outdoor Gear Rental (campers, boats, tables, tents), Plaquedilla Park/Picnic Area

(outdoor basketball court, playground), Fitness Center/Sports Complex (softball field, football field, track, tennis court, pavilion, playground), Swimming pool (open Memorial Day until Labor Day).

• The Fleet and Family Support Center (FFSC) staff of 23 provides a full range of services, including: - Information & Referral - Life Skills Education - Counseling - Crisis Response - Relocation Assistance - Family Employment Readiness Assistance - Transition Assistance - Personal Financial Management - Deployment Support and Individual Augmentee (IA) Case Management - New Parent Support Home Visitation - Family Advocacy Program Services - Domestic Abuse Victim Advocacy - Sexual Assault Prevention and Response (SAPR) - Ombudsman Support - Retired Activities Office Support • Fleet and Family Support - List of counseling available: Individual, couples, & family counseling; clinical assessments and consultation; group counseling for domestic abuse offenders; crisis intervention. - Staffing Numbers: 23 total staff (3 APF; 2 NAF; 18 Contractors) • SAPR Program Status - Sexual Assault Response Coordinator (SARC)/ SAPR Victim Advocate (SAPR VA) Funded Billets/Current On Board: 2/2 - Number of tenant SAPR VAs: 38 – Sexual Assault Case Management Group (SACMG) Chair: Capt. Mark Sucato, NAS JRB NOLA Commanding Officer (CO)., Meetings: monthly - Victim's Legal Counsel Available? Yes, located at NCBC Gulfport - Sexual Assault Support Group(s) Available (i.e. AUDRA)? No - Night Barracks Roving Patrols Conducted? Yes. Other areas patrolled? Yes. Security conducts day and night patrols across the installation and the Resident Advisors conduct day and night patrols in the barracks, as well as the Command Duty Officer (CDO). - Additional SAPR Comments: None • Coalition of Sailors Against Destructive Decisions (CSADD) Status: The installation CSADD group is active and coordinates with the FFSC on an ongoing basis. • FFSC Initiatives include: - Ongoing training for Child Development Center (CDC)/ Child Your Program (CYP) staff - Monthly “Admiral’s Club” group meetings for children with deployed parents, in conjunction with the Belle Chasse Academy counselors - Monthly “Budget for Baby” classes, in conjunction with Navy-Marine Corps Relief Society (NMCRS) - Twice monthly “Mommy and Me” groups for parents and young children, in conjunction with the United States Coast Guard (USCG).

• Military Support Organizations: Navy-Marine Corps Relief Society (NMCRS) provides robust support to sailors and their families in the New Orleans area.

Military Housing, including PPV and Barracks (Include waiting lists)

Data as of: 02 Feb 2018

Family Housing Units	
Owned	0
Leased	0
PPV	935
Comments	

NAS JRB New Orleans has a significant shortfall in single family (s/f) homes in Belle Chasse, these include senior enlisted and mid-grade officer, housing. Current planning numbers show the capability to support 22 additional s/f homes in the existing Public Private Venture (PPV) footprint. When PPV was brought to the installation, 525 new homes were built and currently 410 pre-existing Navy built homes are being used as part of the PPV portfolio. A 1974 single family ranch home is designated as the Installation Commanding Officer's (CO's) home. The Executive Officer's (XO's) home was demolished due to poor condition. On occasion there is a waiting period for 4 BR homes within the current PPV portfolio.	
Barracks Housing	
Owned	6
Leased	0
PPV	0
Beds	499
Comments	
NAS JRB New Orleans gained building 45 as a UH building/asset in November 2016. Building 462 is located in the Navy Gateway Inns and Suites (NGIS) complex but was retained as Unaccompanied Housing (UH) during NAS JRB's designation as a Critical Housing Area (CHA) following passage of Hurricane Katrina. NOLA is no longer considered a CHA but UH has retained possession. UH programs for and provides housing to Navy E4 and below and Marine E5 and below. Annual utilization average is 74%.	
Dormitory Housing	
Buildings	0
Beds	0
Comments	

Status of Gyms and other Physical Fitness Facilities

Data as of: 09 Jan 2018

- MWR operates a top notch Fitness Center offering personal training and fitness classes. It is air conditioned, with a modern gym and aerobics room, full basketball court, racket ball courts, the latest weight and cardio machines, free weight area, treadmills, exercise bikes, spinning bikes, elliptical trainers, rock climbing wall, and a child friendly workout room.
- Sports Complex with 1/4 mile running track, softball field, football/soccer field, playground, tennis courts, pavilion and concession stand, with restrooms. Capacity: 1,000. Condition: new; Project underway for lights and artificial turf for football/soccer field.

Child and Youth Programs, including CDCs (Include waiting lists)

Data as of: 09 Jan 2018

- Capacity (by Age Group):

- Infant – 4 rooms (32 children)

- Pre-Toddler – 3 rooms (30 children)
- Toddler – 3 rooms (42 children)
- Preschool – 3 rooms (72 children)
• Utilization Rate (by Age Group):
- Infant - 3 rooms (24 children)
- Pre-Toddler – 3 rooms (30 children)
- Toddler – 3 rooms (31 children)
- Preschool – 3 rooms (68 children)
• Wait List (duration by Age Group)
- Currently no waiting list. Immediate placement based on need and request for care.
• The Youth Center operates as a Department of Defense certified and nationally accredited program that offers a variety of hands-on and recreational activities; and programs for children ages 6 years to 18 years still in High School.
• The nationally accredited Child Development Center (CDC) has a capacity of 176 children and offers quality child development programs for working parents in the center and/or in a certified Child Development Home.
• Hourly care and respite care are available to all eligible patrons not registered in the Child Your Program (CYP) programs.

Availability of Quality Schooling

Data as of: 09 Jan 2018

• Quality schooling (K-8) is available locally through the Belle Chasse Academy, the largest and oldest state chartered school on a DOD installation.

• The local high school (9-12), Belle Chasse High School, is in one of the best school districts in the region and is supportive of school age military dependents.

• New Orleans Military and Maritime Academy (9-12), in Algiers, offers a STEM-focused curriculum. All students participate in the Marine Corps Junior Reserve Officer Training Program.

Any issues with Special Need, School-Age Children

Data as of: 09 Jan 2018

• None identified.

If applicable, information on DoD Schools, including:
-- Local DoDDS School Statistics
-- Local DoDDS School Satisfaction Surveys

School Stats Data as of: 09 Jan 2018
School Surveys Data as of: 09 Jan 2018

• N/A.

• N/A.

Appendix B – Traffic Forecasting Technical Memorandum

LA 23 Bridge Traffic Forecasts

Technical Memorandum

LA 23 Belle Chasse Bridge and Tunnel Replacement Level 2 Traffic and Revenue Study

Contract No. 4400006552
Retainer Contract for Strategic Advisory Services Related to Louisiana Transportation Authority Participation in Public-Private Partnerships
Task Order No. H.004791.5
State Project No. H.004791.5
F.A.P. No. H004791
LA 23: Belle Chasse Bridge and Tunnel Replacement
Plaquemines Parish, LA

Prepared by:

HDR Engineering, Inc. and Alliance Transportation Group, Inc.

September 26, 2018 v2

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Traffic Forecasting Methodology and Results – LADOTD P3 Study | LA 23 Bridge Traffic Forecasts

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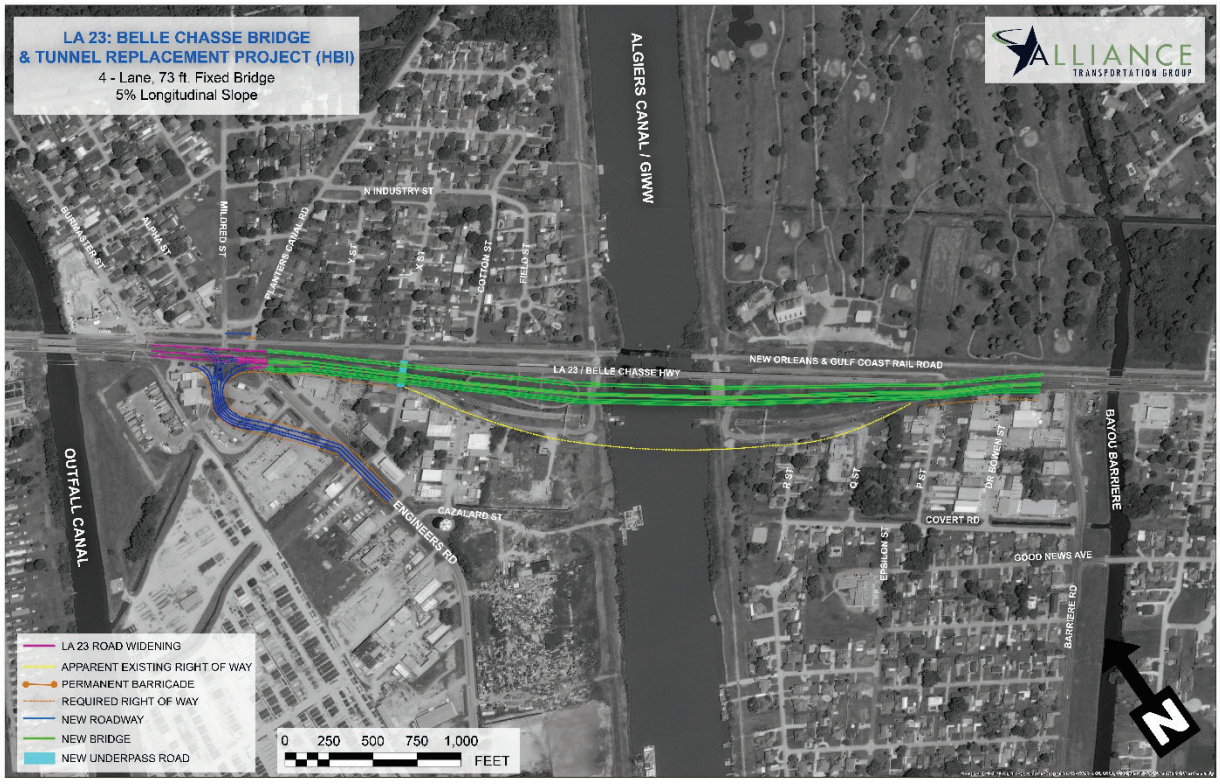
1. Project Overview

This technical memorandum provides a description of the development of traffic forecasts for the Louisiana Department of Transportation and Development (LADOTD) P3 Study for the LA 23 Belle Chasse Bridge and Tunnel Replacement Project. The work described in this memorandum was conducted under LADOTD Retainer Contract for Comprehensive Strategic Advisory Services Related to Louisiana Transportation Authority (LTA) Participation in Public-Private Partnerships (PPP); Task Order No. H.004791.5; LA 23 Bridge & Tunnel Replacement Traffic and Revenue Study.

The following sections provide details of the methodology, assumptions and outcomes of using the 2017 updated version of the Southeast Louisiana Travel Model (SELATRAM), the Regional Planning Commission (RPC)for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John, St. Tammany and Tangipahoa Parishes travel demand model, to obtain forecast year tolled traffic volumes for use in a Level 2 traffic and revenue (T&R) analysis of the LA 23 Belle Chasse Bridge & Tunnel Replacement (LA 23 Bridge) Project.

The proposed LA 23 Bridge & Tunnel Replacement Project is a bridge on LA 23 crossing the Gulf Intracoastal Waterway (GIWW). The project replaces the current combination of a vintage tunnel and a companion lift-span bridge which is subject to frequent openings due to high volumes of waterborne industrial barge traffic. The proposed improvement is a four (4) lane, midrise, fixed span bridge with a 5% grade on each approach. **Figure 1: Belle Chasse Bridge and Tunnel** illustrates the project geometry and extent.

Figure 1: Proposed LA 23 Bridge & Tunnel Replacement Project



Prepared by Alliance Transportation Group based on schematic from *Update to the LA 23 Bridge & Tunnel Replacement Corridor Traffic Study* (RPC 2016)

The objectives of this project are to use the Metropolitan Planning Organization travel demand model covering the project study area to forecast and analyze traffic and revenue produced by the Belle Chasse Bridge for various toll and infrastructure scenarios. The forecast and analysis of the scenarios include: the development of tolled-traffic assignment macros; development of values of time for the study area; conducting toll sensitivity analyses for each scenario year; and selecting, in collaboration with LADOTD, toll rates by vehicle class and time of day to be used in analyzing the project.

The travel demand modeling results and analysis in this technical memorandum provide traffic forecasts reflecting tolled conditions for a primary toll scenario and sensitivity test results for several alternative toll scenarios. These traffic analyses are not intended to be a standalone product, but rather are meant to support and be incorporated into the overall Traffic and Revenue Analysis Report being developed by the project team, which will help LADOTD evaluate the feasibility of the Belle Chasse Bridge as a tolled facility.

2. Traffic Forecasts

2.1 Methodology

The traffic forecasting effort for this project uses SELATRAM, a travel demand model (TDM) maintained by the RPC, to perform traffic forecasts for the LA 23 Bridge Build Scenarios for a series of forecast years. SELATRAM is a sophisticated quantitative analysis tool capable of providing robust forecasts. SELATRAM has been carefully configured and quality tested for use in this study to ensure the model is performing well in the study corridor. Comparison of existing conditions to the SELATRAM 2016 traffic results for the LA 23 corridor showed a reasonable match to available traffic counts in the vicinity of the LA 23 Bridge with only minor adjustments to account for intermittent bridge openings.

In addition, some refinements and updates to model parameters and procedures have been performed to adapt the model components to the specific requirements of a traffic and revenue study of this type. However, SELATRAM has not been specifically recalibrated or revalidated to the specific assumptions of the LA 23 Bridge Traffic and Revenue (T&R) Study, nor has the model's performance been optimized for the LA 23 Corridor. Therefore, the traffic analysis described in this memorandum is considered to be a Level 2 or mid-level analysis.

Vehicle Class

In the traffic assignment phase, SELATRAM allows for the discrimination of three vehicle classes, namely: passenger autos, single unit trucks and multi-unit trucks. Each of these vehicle classes serves a different purpose within the travel market, and, therefore, responds differently to tolls. **Table 1: Vehicle Classes** shows the vehicle classes and provides a brief description of each.

Table 1: Vehicle Classes

Vehicle Class	Description
Auto	Two axle vehicles: Passenger vehicles, pickups, SUVs, etc.
Single Unit Truck	Three+ axle commercial vehicles: Commercial vehicles such as panel trucks, step vans and other fixed body trucks
Multi-Unit Truck	Heavy freight tractor-trailer rigs

Passenger Value of Time

Value of Time (VOT) represents the perceived cost of travel time that forms the basis for a driver's decision of whether it is worth the monetary cost to pay a specific toll. VOT parameters in a TDM allow for the prediction of what percentage of travelers will pay the toll as compared to those that will suffer the inconvenience of diverting their route to a non-tolled facility.

SELATRAM has parameters for peak and off-peak VOT for auto travel. Although the VOT is reported in 2010 dollars, the VOT was developed using 2000 US Census household income data, which is somewhat dated information, particularly for post-Katrina New Orleans. After performance testing, the traffic modeling team decided to update the VOT to allow the project analysis to benefit from more recent data. The updated VOT was developed based on 2015 American Community Survey (ACS) 5-year sample data

reported median household income, and VOT guidance from U.S. Department of Transportation (USDOT, 2014).

Because the LA 23 Bridge Project connects Plaquemines Parish to Jefferson Parish, and primarily serves those markets, the passenger VOT was calculated based on the VOT parameters for these two parishes rather than the aggregate for the New Orleans metropolitan area. The value of time in the 2010 dollars used in SELATRAM and applied in this analysis are shown in **Table 2: Passenger Value of Time.**

Table 2: Passenger Value of Time

Passenger VOT in 2010 $	
Off-Peak	**Peak**
$ 10.86	$ 21.72

Truck Value of Time

SELATRAM does not contain a parameter for applying truck VOT, which is considerably higher than the VOT for non-commercial auto travel. To address this issue, the traffic modeling team relied upon published national research. The consensus of recent national research shows that the value of time for freight transport and commercial vehicle activity is more a function of the overall economy and is therefore more closely aligned with national norms than local conditions. Truck VOT for this study was established using guidance from the Federal Highway Authority (FHWA). National VOT parameters and values from the *National Cooperative Highway Research Program (NCHRP) Report 722: Assessing Highway Tolling and Pricing Options and Impacts* were used to establish both single unit and multi-unit truck VOT. **Table 3: Truck Value of Time** provides the Truck VOT used in this analysis.

Table 3: Truck Value of Time

Truck VOT in 2010 $	
Single Unit Trucks	**Multi-Unit Trucks**
$ 30.37	$ 60.75

2.2 Performing Traffic Forecasts

To perform traffic forecasts for the LA 23 Bridge Project, SELATRAM was applied using the selected toll parameters for each scenario combined with the revised VOT parameters in the SELATRAM toll-enabled traffic assignment model to obtain forecast year traffic volumes by vehicle classification/toll-class for a set of four (4) forecast years. **Table 4: Modeling Forecast Years** shows 2022, the projected opening year of the project; 2032, a milestone year in which the development of other projects may have an influence on traffic projections; and two additional milestone years: 2040 and 2045 to provide sufficient inflection points for the project team to interpolate annualized traffic and revenue projections for the life of the project.

Table 4: Modeling and Forecast Years

Model Year	Description
2022	Projected Opening Year
2032	Opening Year + 10
2040	Scenario Milestone Year
2045	Scenario Milestone Year

SELATRAM TDM Model forecasts demographic and socioeconomic datasets and other associated inputs for the base and forecast years analysis. The current updated version of the SELATRAM TDM available from the RPC contains only a 2016 baseline network that does not have any forecast year roadway network. Updating the forecast year road network is not feasible and is outside of the project scope of work and timeline. Therefore, to determine the usability of the 2016 network as an alternative for the project's forecast years 2022, 2032, 2040, and 2045, various analyses were conducted to ensure / confirm that the road network does not have any impact on the bridge traffic volume forecasting. Analysis results showed a variance in overall Vehicle Miles Traveled (VMT) of less than 5% and virtually no variance in the traffic assignment results within the LA 23 corridor. The TDM team, therefore, determined that with minimal updates it was reasonable to proceed with the analysis using the 2016 baseline network provided in the SELATRAM package.

Because SELATRAM is configured to only run one set of VOT values and one toll at a time, each forecast year scenario was run three times with the respective VOT and toll for each vehicle class. The outputs were then extracted, analyzed, and formatted to report the traffic by vehicle classification / toll-class for each forecast year. The fixed VOT within the generalized cost function and the fixed nominal toll rates keeps the tolls constant in terms of real dollar value for each scenario year. The results of the four forecast years were used as pivot points for interpolation / extrapolation of the annualized traffic and life-cycle revenue calculations.

Traffic forecasts for LA 23 and Woodland Highway were produced for a no toll forecast and primary toll forecast for each vehicle class in each scenario year. In all scenarios, trip distribution of origins and destinations was assumed to be the same with the total traffic crossing the GIWW screen line remaining constant. Therefore, drivers who chose to avoid LA 23 due to the toll, diverted to the alternative route along Woodland Highway. In this analysis the two roads operated as the inverse of one another. As the toll amount increased along LA 23, drivers increasingly opted to use the non-tolled Woodland Highway instead. Traffic forecasts by vehicle class were recorded for each scenario year and are documented in **Table 5: Traffic Forecasts by Year - No Toll Forecast (Control Scenario)** and **Table 6: Tolled Traffic Forecasts by Year - Primary Toll Forecast**.

No Toll Forecast (Control Scenario) – In the no-toll forecast (**Table 5: Traffic Forecasts by Year - No Toll Forecast (Control Scenario**), LA 23 carries the bulk of the traffic crossing the GIWW. In the 2022 scenario, 79.5% of traffic volume is on LA 23 and 20.5% is on Woodland Highway. The proportion of traffic remains consistent in the other future year scenarios (e.g., 2045 projected volume remains consistent at 79.3% and 20.7% on LA 23 and Woodland Highway respectively). The no toll forecast provides traffic volumes

that the build scenario attracts under non-tolled conditions. This control scenario serves as a baseline for calculation and analysis of toll diversion rates under the alternative toll scenarios\Table 5: Traffic Forecasts by Year - No Toll Forecast (Control Scenario)

Table 5: Traffic Forecasts by Year – No Toll Forecast (Control Scenario)

Traffic Forecasts by Year					
Bridge	**Auto**	**Single Unit Truck**	**Multi-Unit Truck**	**Total Volume**	
	One-way Toll ($0)	**One-way Toll ($0)**	**One-way Toll ($0)**	**(LA 23 Tolled)**	**(No-Toll)**
2022 Scenario (opening year)					
LA 23	43,543	3,837	1,539	NA	48,919
Woodland	12,102	368	164	NA	12,634
Screen Line Total	55,645	4,204	17,03	NA	61,553
2032 Scenario					
LA 23	44,536	3,913	1,657	NA	50,106
Woodland	12,524	367	166	NA	13,075
Screen Line Total	57,078	4,280	1,823	NA	63,181
2040 Scenario					
LA 23	48,228	3,971	1,755	NA	53,954
Woodland	13,664	375	169	NA	14,208
Screen Line Total	61,892	4,346	1,924	NA	68,162
2045 Scenario					
LA 23	49,102	3,987	1,790	NA	54,879
Woodland	13,769	353	165	NA	14,287
Screen Line Total	62,871	4,340	1,955	NA	69,166

Primary Toll Forecast – The primary toll forecast (**Table 6: Tolled Traffic Forecasts by Year - Primary Toll Forecast**) uses toll rates based on business rules and policies applied on past LADOTD tolled facilities. Tolls by vehicle class are: $0.50 for autos, $1.50 for single unit trucks and $3.00 for multi-unit trucks. The applied toll rates appear to have only a modest impact on traffic diversion patterns between LA 23 and Woodland Highway. Compared to the no-toll forecast, the 2022 tolled scenario shows a 7.1% diversion of traffic volume from LA 23 to Woodland Highway. In the 2022 scenario, 72.4% of traffic volume is on LA 23 and 27.6% on Woodland Highway. The pattern remains consistent with about 71.8% of traffic volume on LA 23 in 2045.

Table 6: Tolled Traffic Forecasts by Year - Primary Toll Forecast

Tolled Traffic Forecasts by Year					
Bridge	Auto	Single Unit Truck	Multi-Unit Truck	Total Volume	
	One-way Toll ($0.50)	One-way Toll ($1.50)	One-way Toll ($3.00)	(LA 23 Tolled)	(No-Toll)
2022 Scenario (opening year)					
LA 23	39,696	3,406	1,404	44,506	48,919
Woodland	15,854	798	295	16,947	12,534
Screen Line Total	55,550	4,204	1,699	61,453	61,453
2032 Scenario					
LA 23	40,342	3,297	1,425	45,064	50,106
Woodland	16,548	981	395	17,924	12,882
Screen Line Total	56,890	4,278	1,820	62,988	62,988
2040 Scenario					
LA 23	42,893	3,231	1,561	47,685	53,954
Woodland	18,729	1,113	367	20,209	13,940
Screen Line Total	61,622	4,344	1,928	67,894	67,894
2045 Scenario					
LA 23	44,521	3,399	1,577	49,497	54,879
Woodland	18,049	934	372	19,355	13,973
Screen Line Total	62,570	4,333	1,949	68,852	68,852

2.3 Use of Traffic Forecasts

The traffic forecast results reported in this section reflect tolled conditions for a primary toll scenario based on previously established LADOTD business rules and the project definition. The primary traffic forecasts for these four scenario years serve as the basis for developing annualized revenue projections and interpolating annual revenue across the lifecycle of the project to help LADOTD evaluate the Belle Chasse Bridge and Tunnel Replacement Project as a tolled facility. Revenue results are reported in the full Traffic and Revenue Report of which this memorandum is a part.

3. Toll Sensitivity Analysis

Previous business rules and policies applied on past LADOTD tolled facilities informed the toll rates selected for the LA 23 Bridge and Tunnel Replacement Project. Social equity, among other legitimate policy considerations, provided the foundation for setting the tolls in this way. However, because the tolls were not established through a revenue optimization analysis, it is appropriate to fully understand the opportunity cost of setting the tolls below the facility's full revenue potential. Therefore, this study included a toll sensitivity analysis to identify how travelers are likely to respond to various toll rates. The analysis used a wide range of tolls strictly to develop toll elasticity curves that show fluctuation in traffic volume and conceptual daily revenue amounts under varying toll rates.

Table 7: Vehicle Class Toll Rates shows the varying rates used by vehicle class. In addition to a non-toll scenario and the primary toll scenario rates, two additional rate scenarios ($1.00 and $1.50 auto rates) were developed for each vehicle class. After reviewing initial results, additional $3.00 and $5.00 auto rates and additional $12.00 multi-unit truck rates were added to the analysis to provide sufficient data points to define the elasticity curves for each class. A sensitivity analysis was run for each of the three vehicle classes at the different toll rates.

Table 7: Vehicle Class Toll Rates

Vehicle Class	Rates					
	Non-Toll Scenario	Primary Toll Scenario	Sensitivity Analysis Scenario 1	Sensitivity Analysis Scenario 2	Additional Inflection Points	Additional Inflection Points
Auto	$0	$0.50	$1.00	$1.50	$3.00	5.00
Single Unit Truck	$0	$1.50	$3.00	$4.50		
Multi-Unit Truck	$0	$3.00	$6.00	$9.00	$12.00	
	Table 5	Table 6	Table 8	Table 9		

Sensitivity Analysis Scenario 1 – As shown in **Table 8: Tolled Traffic Forecasts by Year**, the auto $1.00, single unit truck $3.00, and multi-unit truck $6.00 toll scenario results in a near equal distribution of traffic volumes between LA 23 and Woodland Highway. Compared to the no toll forecast, the Sensitivity Analysis Scenario shows a 35.4% diversion rate from LA 23 to Woodland Highway in 2022 and a 35.7% diversion rate from LA 23 to Woodland Highway in 2045.

Table 8: Tolled Traffic Forecasts by Year

Tolled Traffic Forecasts by Year					
Bridge	Auto	Single Unit Truck	Multi-Unit Truck	Total Volume	
	One-way Toll ($1.00)	One-way Toll ($3.00)	One-way Toll ($6.00)	(LA 23 Tolled)	(No-Toll)
2022 Scenario (opening year)					
LA 23	29,679	1,241	659	31,579	48,919
Woodland	25,871	2963	1040	29,874	12,534
Screen Line Total	55,550	4,204	1,699	61,453	61,453
2032 Scenario					
LA 23	29,795	1,350	714	31,859	50,106
Woodland	27,095	2928	1106	31,129	12,882
Screen Line Total	56,890	4,278	1,820	62,988	62,988
2040 Scenario					
LA 23	32,297	1,596	833	34,726	53,954
Woodland	29,325	2,748	1095	33,168	13,940
Screen Line Total	61,622	4,344	1,928	67,894	67,894
2045 Scenario					
LA 23	32,624	1,755	909	35,288	54,879
Woodland	29,946	2,578	1,040	33,564	13,973
Screen Line Total	62,570	4,333	1,949	68,852	68,852

Sensitivity Analysis Scenario 2 – As shown in **Table 9: Tolled Traffic Forecasts by Year**, in the auto $1.50, single unit truck $4.50, and multi-unit truck $9.00 toll scenario, more than half (51.4%) of traffic is projected to divert away from LA 23 in the opening year in favor of Woodland Highway. Diversion in the out-years is similar (diversion in 2045 is 48.5%) but is mitigated somewhat by the level of service (LOS) impact on Woodland Highway, with LOS decreasing from B to D, resulting from the higher traffic volumes.

Table 9: Tolled Traffic Forecasts by Year

Tolled Traffic Forecasts by Year					
Bridge	Auto	Single Unit Truck	Multi-Unit Truck	Total Volume	
	One-way Toll ($1.50)	One-way Toll ($4.50)	One-way Toll ($9.00)	(LA 23 Tolled)	(No-Toll)
2022 Scenario (opening year)					
LA 23	22,413	860	480	23,753	48,919
Woodland	33,137	3,344	1,219	37,700	12,534
Screen Line Total	55,550	4,204	1,699	61,453	61,453
2032 Scenario					
LA 23	22,769	944	536	24,249	50,106
Woodland	34,121	3,334	1,284	38,739	12,882
Screen Line Total	56,890	4,278	1,820	62,988	62,988
2040 Scenario					
LA 23	25,745	1,109	630	27,484	53,954
Woodland	35,877	3,235	1,298	40,410	13,940
Screen Line Total	61,622	4,344	1,928	67,894	67,894
2045 Scenario					
LA 23	26,205	1,249	697	28,151	54,879
Woodland	36,365	3,084	1,252	40,701	13,973
Screen Line Total	62,570	4,333	1,949	68,852	68,852

The goal of the analysis was to see how users may respond to different tolling rates and how this decision affected traffic volumes for the LA 23 bridge and the alternative route along Woodland Highway for each scenario year. However, the analysis also allowed for the development of toll elasticity curves to understand the statistical relationship between the variables, as well as to estimate conceptual revenue produced at each price point along the curve.

4. Toll Elasticity

Using the traffic forecast results for each toll rate from the sensitivity analysis, the project team developed anticipated traffic volume curves showing the conceptual volume of traffic at any given toll rate. In conjunction with the traffic forecasts, the team developed a (conceptual level) anticipated daily revenue for each price point (toll rate) by multiplying daily traffic volumes for each vehicle class by the nominal toll rate to get the expected daily revenues for each vehicle class. This calculation was done with the forecast raw toll receipts without regard to discounts, leakage or exempt trips. The results are only valid as relative values, not absolute amounts. The revenue estimates are reported in 2022 dollars.

The combination of the traffic forecasts, toll rates and anticipated daily revenue serve to inform the development of the elasticity curves.

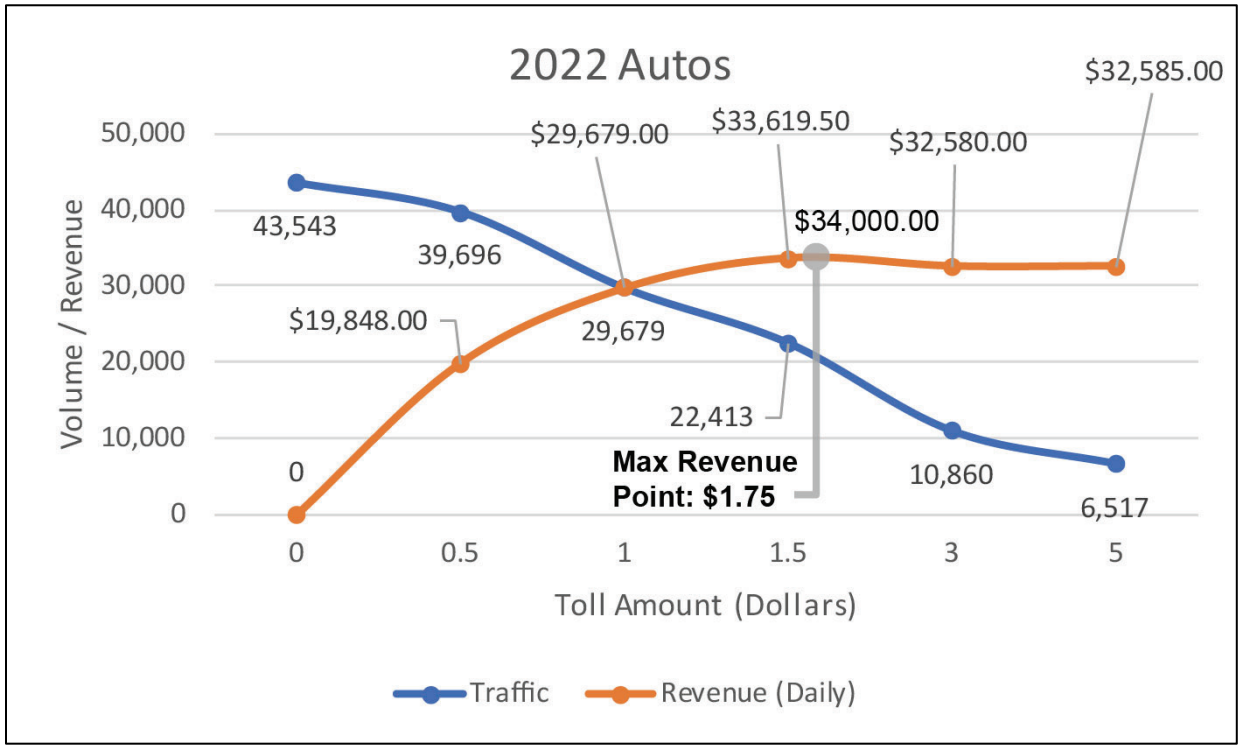
The following elasticity graphs, shown in Figure 2 through Figure 4 below, depict the relationship between total daily volume and total revenue raised per day based on varying toll price points. The results are not meant to identify the ideal revenue making price point for tolls, but rather to illustrate the possible opportunity cost for setting tolls below their full revenue potential. It is important to note that the curves were created by smoothing curves based on a limited set of data points, meaning that the peak points of the curve may change depending on the addition of data points.

4.1 Year 2022 – Autos

In **Figure 2: Elasticity Curve Year 2022 – Autos,** the price elasticity curve for autos in scenario year 2022 shows a steep rise in the potential daily revenue curve up to the $0.50 toll or $19,848.00 revenue level. Between the $0.50 toll point and the $1.50 toll point, the revenue curve begins to flatten out. The traffic volume curve maintains a consistent slope proportional to the toll increases with a reduction in auto traffic by 3,847 trips at the $0.50 toll level (43,543 less 39,696 trips) and a reduction of an additional 17,283 trips at the $1.50 toll point (39,696 less 22,413 trips).

In this scenario, the maximum revenue point along the curve is $34,000.00. This revenue point occurs at a toll level of $1.75 per one-way trip at which point the steady decline in traffic volume begins to offset the toll increases.

Figure 2: Elasticity Curve Year 2022 – Autos

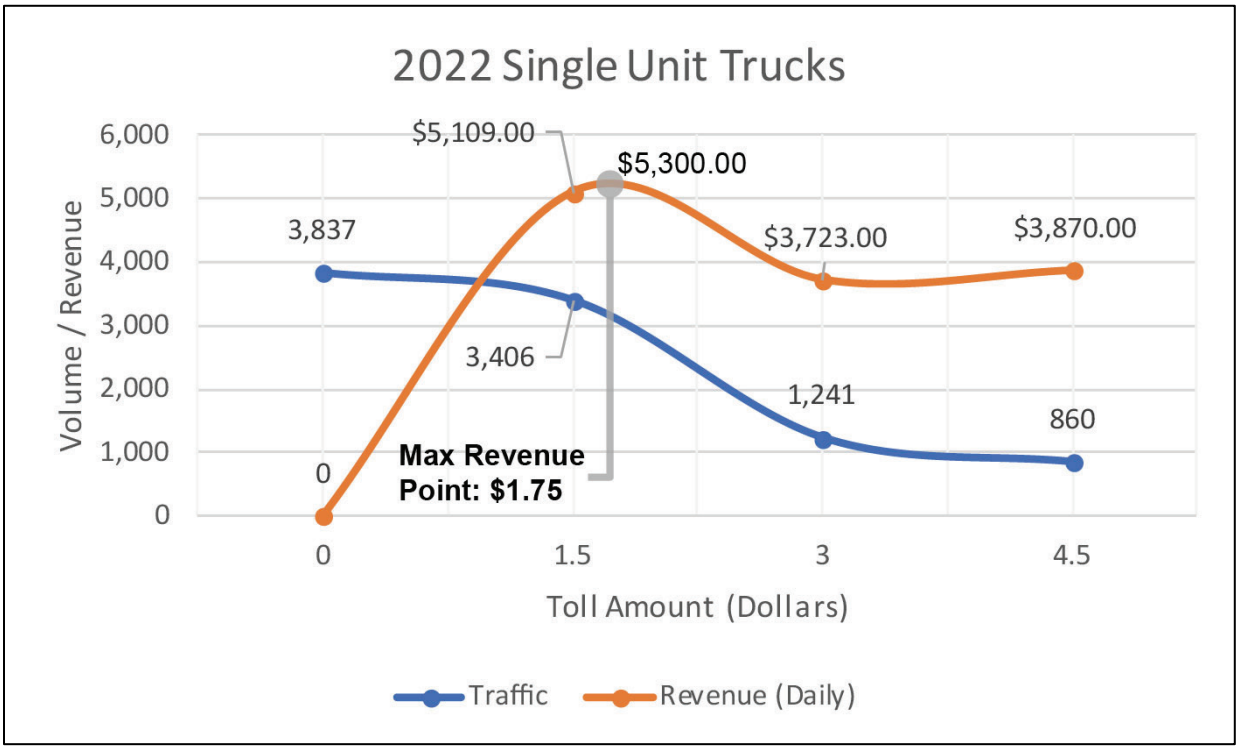


4.2 Year 2022 – Single Unit Trucks

In **Figure 3: Elasticity Curve Year 2022 – Single Unit Trucks,** the price elasticity curve for single unit trucks in scenario year 2022 shows a steep rise in potential daily revenue to $5,109.00 up to the vicinity of the $1.50 toll, corresponding with a reduction in traffic volume by 431 (3,837 less 3,406 trips). As the proposed toll increases from $1.50 to $3.00, the traffic volume curve reflects a significant decrease in anticipated users by 2,165 (3,406 less 1,241 trips) along with a decrease in anticipated revenue by $1,386 daily ($5,109 less $3,723).

In this scenario the maximum revenue point along the curve is $5,300.00. This revenue point is observed at a toll value of $1.75 per one-way trip. At this toll point, the revenue curve flattens out and revenue gains are overcome by the steadily decreasing traffic volumes.

Figure 3: Elasticity Curve Year 2022 – Single Unit Trucks

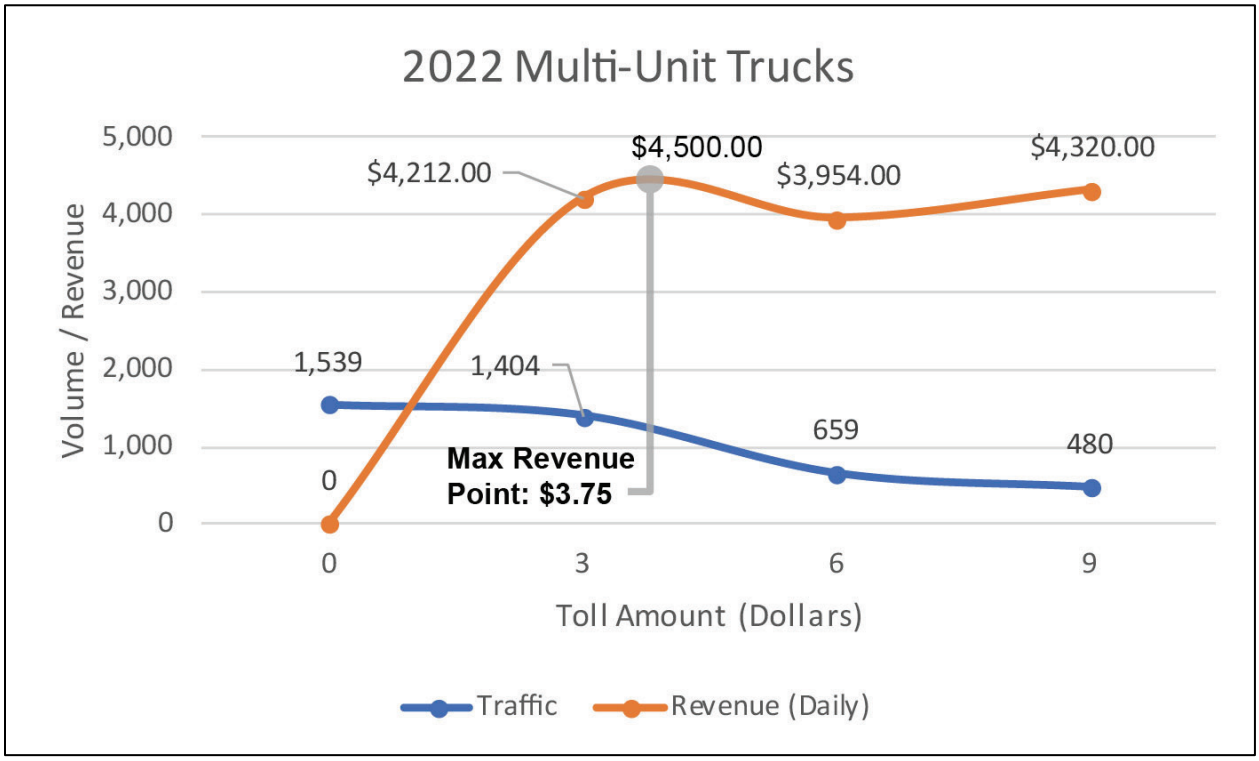


4.3 Year 2022 – Multi-Unit Trucks

In **Figure 4: Year 2022 – Multi-Unit Trucks**, the price elasticity curve for multi-unit trucks in scenario year 2022 shows a steep rise in potential revenue to $4,212.00 at the $3.00 toll level, corresponding with a slight reduction in trip volumes by 135 (1,539 less 1,404 trips). The revenue curve flattens out significantly after this point, while the slope of the traffic volume curve increases and does not begin to flatten until the $6.00 toll level.

In this scenario the maximum revenue point along the curve is $4,500.00. This revenue point is observed at the toll level of $3.75 per one-way trip.

Figure 4: Elasticity Curve Year 2022 – Multi-Unit Trucks



5. Conclusion

This technical memorandum provides a description, assumptions and outcomes of applying the 2017 updated version of the RPC SELATRAM travel demand model to obtain forecast year tolled traffic volumes and to develop other information for use in a Level 2 traffic and revenue analysis of the LA 23 Belle Chasse Bridge and Tunnel Replacement Project. The work described in this memorandum was conducted under the LADOTD Retainer Contract for Comprehensive Strategic Advisory Services Related to LTA Participation in Public-Private Partnerships; Task Order No. H.004791.5; LA 23 Bridge & Tunnel Replacement Traffic and Revenue Study.

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Appendix C – Estimated Operations and Maintenance Cost

Appendix C-1
Operations and Maintenance Cost Estimate ($000, 2018 $)

Primary Toll Scenario	**2022**	**2023**	**2032**	**2040**	**2045**
Labor	$ 203.5	$ 1,221.1	$ 1,142.4	$ 1,178.2	$ 1,202.6
Mailing and Processing	$ 120.6	$ 660.2	$ 441.2	$ 467.0	$ 484.8
Other	$ 38.4	$ 49.1	$ 20.2	$ 21.9	$ 22.8
Banking	$ 17.4	$ 104.5	$ 181.0	$ 190.8	$ 197.7
CSC Facility	$ 67.3	$ 201.8	$ 201.9	$ 204.3	$ 206.0
Insurance	$ 20.0	$ 120.0	$ 120.0	$ 120.0	$ 120.0
Professional Services	$ 169.2	$ 165.0	$ 165.0	$ 165.0	$ 165.0
Toll Facility O&M	$ 61.8	$ 370.8	$ 370.8	$ 370.8	$ 370.8
Back Office Processing	$ 64.5	$ 387.7	$ 653.4	$ 691.4	$ 717.7
Contingency 10%	$ 76.3	$ 328.0	$ 329.6	$ 340.9	$ 348.7
Total	**$ 839.0**	**$ 3,608.1**	**$ 3,625.6**	**$ 3,750.4**	**$ 3,836.1**

Sensitivity Analysis Scenario 1	**2022**	**2023**	**2032**	**2040**	**2045**
Subtotal - Labor	$ 170.3	$ 1,021.9	$ 964.9	$ 1,003.7	$ 1,010.8
Subtotal - Mailing and Processing	$ 85.5	$ 468.2	$ 312.0	$ 340.1	$ 345.4
Subtotal - Other	$ 27.3	$ 34.8	$ 14.4	$ 16.0	$ 15.8
Subtotal - Banking	$ 22.3	$ 134.0	$ 234.9	$ 259.2	$ 267.0
Subtotal - CSC Facility	$ 65.6	$ 189.8	$ 189.7	$ 192.4	$ 192.9
Subtotal - Insurance	$ 20.0	$ 120.0	$ 120.0	$ 120.0	$ 120.0
Subtotal - Professional Services	$ 169.2	$ 165.0	$ 165.0	$ 165.0	$ 165.0
Subtotal - Toll Facility O&M	$ 61.8	$ 370.8	$ 370.8	$ 370.8	$ 370.8
Subtotal - Back Office Processing	$ 45.8	$ 275.0	$ 462.0	$ 503.5	$ 511.7
Contingency 10%	$ 66.8	$ 278.0	$ 283.4	$ 297.1	$ 299.9
Total	**$ 734.5**	**$ 3,057.5**	**$ 3,116.9**	**$ 3,267.8**	**$ 3,299.3**

Sensitivity Analysis Scenario 2	**2022**	**2023**	**2032**	**2040**	**2045**
Subtotal - Labor	$ 150.3	$ 901.9	$ 862.6	$ 906.4	$ 914.9
Subtotal - Mailing and Processing	$ 64.3	$ 352.6	$ 237.5	$ 269.3	$ 275.6
Subtotal - Other	$ 20.5	$ 26.2	$ 11.2	$ 13.0	$ 12.7
Subtotal - Banking	$ 25.0	$ 150.2	$ 266.3	$ 303.5	$ 315.4
Subtotal - CSC Facility	$ 64.5	$ 182.5	$ 182.7	$ 185.7	$ 186.3
Subtotal - Insurance	$ 20.0	$ 120.0	$ 120.0	$ 120.0	$ 120.0
Subtotal - Professional Services	$ 169.2	$ 165.0	$ 165.0	$ 165.0	$ 165.0
Subtotal - Toll Facility O&M	$ 61.8	$ 370.8	$ 370.8	$ 370.8	$ 370.8
Subtotal - Back Office Processing	$ 34.4	$ 207.1	$ 351.6	$ 398.5	$ 408.2
Contingency 10%	$ 61.0	$ 247.6	$ 256.8	$ 273.2	$ 276.9
Total	**$ 671.0**	**$ 2,724.1**	**$ 2,824.5**	**$ 3,005.5**	**$ 3,045.9**

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Appendix C-2
Operations and Maintenance Cost Estimate Details (2018$)

Primary Toll Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Labor	$ 203,508	$ 1,221,051	$ 1,376,499	$ 1,397,376	$ 1,323,105	$ 1,149,991	$ 1,147,527	$ 1,143,114	$ 1,140,630	$ 1,141,538	$ 1,142,446	$ 1,147,008
Mailing and Processing	$ 120,555	$ 660,174	$ 791,984	$ 790,631	$ 661,660	$ 443,166	$ 442,369	$ 440,757	$ 439,952	$ 440,564	$ 441,176	$ 444,447
Other	$ 38,447	$ 49,082	$ 51,302	$ 45,118	$ 42,918	$ 32,673	$ 29,114	$ 23,385	$ 19,807	$ 20,006	$ 20,206	$ 20,524
Banking	$ 17,407	$ 104,521	$ 140,336	$ 158,918	$ 178,577	$ 180,361	$ 180,498	$ 180,635	$ 180,772	$ 180,909	$ 181,046	$ 182,266
CSC Facility	$ 67,324	$ 201,827	$ 211,947	$ 214,213	$ 210,978	$ 201,716	$ 201,739	$ 201,744	$ 201,766	$ 201,819	$ 201,872	$ 202,175
Insurance	$ 20,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Professional Services	$ 169,167	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Toll Facility O&M	$ 61,799	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Back Office Processing	$ 64,534	$ 387,688	$ 517,564	$ 582,988	$ 648,573	$ 649,383	$ 650,192	$ 651,001	$ 651,810	$ 652,619	$ 653,428	$ 658,179
Contingency 10%	$ 76,274	$ 328,013	$ 374,542	$ 384,504	$ 372,160	$ 331,308	$ 330,723	$ 329,643	$ 329,053	$ 329,325	$ 329,596	$ 331,039
Total	**$ 839,014**	**$ 3,608,147**	**$ 4,119,966**	**$ 4,229,539**	**$ 4,093,763**	**$ 3,644,389**	**$ 3,637,952**	**$ 3,626,070**	**$ 3,619,581**	**$ 3,622,571**	**$ 3,625,560**	**$ 3,641,429**

Sensitivity Analysis Scenario 1	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Subtotal - Labor	$ 170,314	$ 1,021,885	$ 1,131,924	$ 1,146,493	$ 1,093,649	$ 970,835	$ 968,930	$ 965,646	$ 963,732	$ 964,299	$ 964,867	$ 969,877
Subtotal - Mailing and Processing	$ 85,537	$ 468,247	$ 561,532	$ 560,364	$ 468,783	$ 313,863	$ 313,183	$ 311,928	$ 311,244	$ 311,598	$ 311,952	$ 315,539
Subtotal - Other	$ 27,272	$ 34,800	$ 36,361	$ 31,955	$ 30,385	$ 23,113	$ 20,583	$ 16,516	$ 13,976	$ 14,201	$ 14,426	$ 14,795
Subtotal - Banking	$ 22,293	$ 134,032	$ 180,194	$ 204,318	$ 229,891	$ 232,487	$ 232,963	$ 233,439	$ 233,915	$ 234,392	$ 234,868	$ 237,912
Subtotal - CSC Facility	$ 65,555	$ 189,783	$ 196,948	$ 198,540	$ 196,234	$ 189,662	$ 189,667	$ 189,660	$ 189,666	$ 189,693	$ 189,721	$ 190,052
Subtotal - Insurance	$ 20,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 169,167	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 61,799	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 45,790	$ 274,981	$ 366,966	$ 413,202	$ 459,520	$ 459,926	$ 460,332	$ 460,738	$ 461,144	$ 461,550	$ 461,956	$ 467,152
Contingency 10%	$ 66,773	$ 277,952	$ 312,972	$ 321,066	$ 313,425	$ 284,568	$ 284,145	$ 283,372	$ 282,947	$ 283,152	$ 283,358	$ 285,112
Total	**$ 734,499**	**$ 3,057,471**	**$ 3,442,687**	**$ 3,531,731**	**$ 3,447,678**	**$ 3,130,244**	**$ 3,125,594**	**$ 3,117,090**	**$ 3,112,414**	**$ 3,114,676**	**$ 3,116,938**	**$ 3,136,231**

Sensitivity Analysis Scenario 2	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Subtotal - Labor	$ 150,323	$ 901,938	$ 985,344	$ 996,901	$ 957,511	$ 865,089	$ 864,041	$ 861,947	$ 860,883	$ 861,755	$ 862,627	$ 868,270
Subtotal - Mailing and Processing	$ 64,345	$ 352,639	$ 423,396	$ 423,030	$ 354,318	$ 237,517	$ 237,286	$ 236,618	$ 236,379	$ 236,950	$ 237,522	$ 241,564
Subtotal - Other	$ 20,532	$ 26,238	$ 27,448	$ 24,179	$ 23,021	$ 17,556	$ 15,667	$ 12,612	$ 10,704	$ 10,954	$ 11,204	$ 11,610
Subtotal - Banking	$ 24,950	$ 150,209	$ 202,205	$ 229,575	$ 258,643	$ 261,900	$ 262,772	$ 263,645	$ 264,517	$ 265,389	$ 266,261	$ 270,922
Subtotal - CSC Facility	$ 64,484	$ 182,528	$ 187,957	$ 189,192	$ 187,483	$ 182,542	$ 182,573	$ 182,594	$ 182,624	$ 182,671	$ 182,719	$ 183,093
Subtotal - Insurance	$ 20,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 169,167	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 61,799	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 34,442	$ 207,083	$ 276,686	$ 311,918	$ 347,295	$ 348,015	$ 348,734	$ 349,453	$ 350,172	$ 350,891	$ 351,611	$ 357,474
Contingency 10%	$ 61,004	$ 247,643	$ 275,883	$ 283,059	$ 278,406	$ 256,841	$ 256,686	$ 256,266	$ 256,107	$ 256,440	$ 256,773	$ 258,872
Total	**$ 671,045**	**$ 2,724,068**	**$ 3,034,709**	**$ 3,113,646**	**$ 3,062,469**	**$ 2,825,252**	**$ 2,823,550**	**$ 2,818,925**	**$ 2,817,177**	**$ 2,820,842**	**$ 2,824,508**	**$ 2,847,595**

Appendix C-2
Operations and Maintenance Cost Estimate Details (2018$)

Primary Toll Scenario	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Labor	$ 1,151,571	$ 1,156,134	$ 1,160,539	$ 1,164,945	$ 1,169,350	$ 1,173,776	$ 1,178,202	$ 1,183,095	$ 1,187,988	$ 1,192,881	$ 1,197,754	$ 1,202,628
Mailing and Processing	$ 447,719	$ 450,991	$ 454,197	$ 457,403	$ 460,609	$ 463,823	$ 467,037	$ 470,592	$ 474,147	$ 477,701	$ 481,248	$ 484,794
Other	$ 20,842	$ 21,160	$ 21,303	$ 21,446	$ 21,589	$ 21,755	$ 21,920	$ 22,101	$ 22,282	$ 22,462	$ 22,620	$ 22,779
Banking	$ 183,486	$ 184,706	$ 185,926	$ 187,147	$ 188,367	$ 189,587	$ 190,807	$ 192,179	$ 193,551	$ 194,924	$ 196,296	$ 197,669
CSC Facility	$ 202,478	$ 202,780	$ 203,082	$ 203,383	$ 203,685	$ 203,987	$ 204,288	$ 204,622	$ 204,956	$ 205,289	$ 205,623	$ 205,956
Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Back Office Processing	$ 662,929	$ 667,680	$ 672,430	$ 677,181	$ 681,931	$ 686,682	$ 691,433	$ 696,687	$ 701,942	$ 707,197	$ 712,452	$ 717,707
Contingency 10%	$ 332,482	$ 333,924	$ 335,327	$ 336,730	$ 338,132	$ 339,540	$ 340,948	$ 342,507	$ 344,066	$ 345,625	$ 347,178	$ 348,732
Total	**$ 3,657,298**	**$ 3,673,167**	**$ 3,688,596**	**$ 3,704,026**	**$ 3,719,455**	**$ 3,734,940**	**$ 3,750,426**	**$ 3,767,574**	**$ 3,784,723**	**$ 3,801,871**	**$ 3,818,963**	**$ 3,836,055**

Sensitivity Analysis Scenario 1	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Subtotal - Labor	$ 974,887	$ 979,897	$ 984,716	$ 989,535	$ 994,354	$ 999,031	$ 1,003,708	$ 1,005,077	$ 1,006,446	$ 1,007,815	$ 1,009,327	$ 1,010,838
Subtotal - Mailing and Processing	$ 319,125	$ 322,712	$ 326,219	$ 329,726	$ 333,233	$ 336,680	$ 340,128	$ 341,168	$ 342,209	$ 343,249	$ 344,349	$ 345,449
Subtotal - Other	$ 15,165	$ 15,534	$ 15,691	$ 15,847	$ 16,004	$ 16,002	$ 15,999	$ 15,890	$ 15,781	$ 15,671	$ 15,720	$ 15,769
Subtotal - Banking	$ 240,957	$ 244,001	$ 247,046	$ 250,090	$ 253,135	$ 256,179	$ 259,224	$ 260,776	$ 262,328	$ 263,881	$ 265,433	$ 266,985
Subtotal - CSC Facility	$ 190,384	$ 190,715	$ 191,045	$ 191,375	$ 191,704	$ 192,033	$ 192,361	$ 192,463	$ 192,566	$ 192,668	$ 192,771	$ 192,875
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 472,348	$ 477,545	$ 482,741	$ 487,938	$ 493,134	$ 498,331	$ 503,527	$ 505,157	$ 506,787	$ 508,416	$ 510,046	$ 511,676
Contingency 10%	$ 286,866	$ 288,620	$ 290,325	$ 292,030	$ 293,736	$ 295,405	$ 297,074	$ 297,632	$ 298,191	$ 298,749	$ 299,344	$ 299,938
Total	**$ 3,155,523**	**$ 3,174,816**	**$ 3,193,574**	**$ 3,212,333**	**$ 3,231,091**	**$ 3,249,452**	**$ 3,267,812**	**$ 3,273,955**	**$ 3,280,098**	**$ 3,286,241**	**$ 3,292,781**	**$ 3,299,322**

Sensitivity Analysis Scenario 2	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Subtotal - Labor	$ 873,913	$ 879,555	$ 884,993	$ 890,430	$ 895,868	$ 901,149	$ 906,430	$ 908,067	$ 909,704	$ 911,341	$ 913,135	$ 914,929
Subtotal - Mailing and Processing	$ 245,607	$ 249,650	$ 253,607	$ 257,564	$ 261,521	$ 265,413	$ 269,304	$ 270,544	$ 271,784	$ 273,024	$ 274,329	$ 275,635
Subtotal - Other	$ 12,015	$ 12,420	$ 12,597	$ 12,773	$ 12,950	$ 12,952	$ 12,954	$ 12,837	$ 12,721	$ 12,604	$ 12,663	$ 12,721
Subtotal - Banking	$ 275,582	$ 280,242	$ 284,902	$ 289,563	$ 294,223	$ 298,883	$ 303,544	$ 305,913	$ 308,282	$ 310,651	$ 313,020	$ 315,389
Subtotal - CSC Facility	$ 183,467	$ 183,841	$ 184,213	$ 184,585	$ 184,957	$ 185,328	$ 185,698	$ 185,820	$ 185,941	$ 186,062	$ 186,185	$ 186,308
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 363,337	$ 369,201	$ 375,064	$ 380,928	$ 386,791	$ 392,655	$ 398,518	$ 400,452	$ 402,387	$ 404,321	$ 406,255	$ 408,190
Contingency 10%	$ 260,971	$ 263,070	$ 265,117	$ 267,163	$ 269,210	$ 271,217	$ 273,224	$ 273,942	$ 274,661	$ 275,379	$ 276,138	$ 276,896
Total	**$ 2,870,683**	**$ 2,893,770**	**$ 2,916,283**	**$ 2,938,797**	**$ 2,961,311**	**$ 2,983,387**	**$ 3,005,462**	**$ 3,013,366**	**$ 3,021,270**	**$ 3,029,174**	**$ 3,037,516**	**$ 3,045,858**

Appendix C-2
Operations and Maintenance Cost Estimate Details (2018$)

Primary Toll Scenario	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**
Labor	$ 1,207,501	$ 1,212,374	$ 1,217,247	$ 1,222,120	$ 1,226,993	$ 1,231,867	$ 1,236,740	$ 1,241,613	$ 1,246,486	$ 1,251,359	$ 1,256,232	$ 1,261,106
Mailing and Processing	$ 488,341	$ 491,887	$ 495,433	$ 498,979	$ 502,526	$ 506,072	$ 509,618	$ 513,164	$ 516,711	$ 520,257	$ 523,803	$ 527,350
Other	$ 22,937	$ 23,095	$ 23,253	$ 23,412	$ 23,570	$ 23,728	$ 23,886	$ 24,044	$ 24,203	$ 24,361	$ 24,519	$ 24,677
Banking	$ 199,041	$ 200,413	$ 201,786	$ 203,158	$ 204,531	$ 205,903	$ 207,275	$ 208,648	$ 210,020	$ 211,393	$ 212,765	$ 214,138
CSC Facility	$ 206,290	$ 206,623	$ 206,957	$ 207,290	$ 207,624	$ 207,957	$ 208,291	$ 208,624	$ 208,957	$ 209,291	$ 209,624	$ 209,958
Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Back Office Processing	$ 722,961	$ 728,216	$ 733,471	$ 738,726	$ 743,981	$ 749,235	$ 754,490	$ 759,745	$ 765,000	$ 770,255	$ 775,509	$ 780,764
Contingency 10%	$ 350,286	$ 351,840	$ 353,394	$ 354,948	$ 356,501	$ 358,055	$ 359,609	$ 361,163	$ 362,717	$ 364,271	$ 365,824	$ 367,378
Total	**$ 3,853,148**	**$ 3,870,240**	**$ 3,887,331**	**$ 3,904,424**	**$ 3,921,516**	**$ 3,938,609**	**$ 3,955,701**	**$ 3,972,792**	**$ 3,989,885**	**$ 4,006,977**	**$ 4,024,069**	**$ 4,041,162**

Sensitivity Analysis Scenario 1	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**
Subtotal - Labor	$ 1,012,350	$ 1,013,861	$ 1,015,373	$ 1,016,884	$ 1,018,395	$ 1,019,907	$ 1,021,418	$ 1,022,930	$ 1,024,441	$ 1,025,953	$ 1,027,464	$ 1,028,975
Subtotal - Mailing and Processing	$ 346,549	$ 347,649	$ 348,749	$ 349,849	$ 350,948	$ 352,048	$ 353,148	$ 354,248	$ 355,348	$ 356,448	$ 357,548	$ 358,648
Subtotal - Other	$ 15,818	$ 15,867	$ 15,917	$ 15,966	$ 16,015	$ 16,064	$ 16,113	$ 16,162	$ 16,211	$ 16,260	$ 16,309	$ 16,358
Subtotal - Banking	$ 268,537	$ 270,090	$ 271,642	$ 273,194	$ 274,746	$ 276,299	$ 277,851	$ 279,403	$ 280,956	$ 282,508	$ 284,060	$ 285,612
Subtotal - CSC Facility	$ 192,978	$ 193,082	$ 193,185	$ 193,288	$ 193,392	$ 193,495	$ 193,599	$ 193,702	$ 193,806	$ 193,909	$ 194,012	$ 194,116
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 513,306	$ 514,936	$ 516,565	$ 518,195	$ 519,825	$ 521,455	$ 523,085	$ 524,714	$ 526,344	$ 527,974	$ 529,604	$ 531,234
Contingency 10%	$ 300,533	$ 301,127	$ 301,722	$ 302,317	$ 302,911	$ 303,506	$ 304,100	$ 304,695	$ 305,290	$ 305,884	$ 306,479	$ 307,073
Total	**$ 3,305,862**	**$ 3,312,402**	**$ 3,318,943**	**$ 3,325,484**	**$ 3,332,024**	**$ 3,338,564**	**$ 3,345,105**	**$ 3,351,646**	**$ 3,358,186**	**$ 3,364,727**	**$ 3,371,267**	**$ 3,377,807**

Sensitivity Analysis Scenario 2	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**
Subtotal - Labor	$ 916,722	$ 918,516	$ 920,310	$ 922,104	$ 923,898	$ 925,691	$ 927,485	$ 929,279	$ 931,073	$ 932,867	$ 934,661	$ 936,454
Subtotal - Mailing and Processing	$ 276,940	$ 278,245	$ 279,551	$ 280,856	$ 282,162	$ 283,467	$ 284,772	$ 286,078	$ 287,383	$ 288,689	$ 289,994	$ 291,299
Subtotal - Other	$ 12,779	$ 12,837	$ 12,896	$ 12,954	$ 13,012	$ 13,070	$ 13,129	$ 13,187	$ 13,245	$ 13,303	$ 13,362	$ 13,420
Subtotal - Banking	$ 317,758	$ 320,127	$ 322,496	$ 324,865	$ 327,234	$ 329,603	$ 331,972	$ 334,342	$ 336,711	$ 339,080	$ 341,449	$ 343,818
Subtotal - CSC Facility	$ 186,431	$ 186,553	$ 186,676	$ 186,799	$ 186,922	$ 187,044	$ 187,167	$ 187,290	$ 187,413	$ 187,535	$ 187,658	$ 187,781
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 410,124	$ 412,058	$ 413,992	$ 415,927	$ 417,861	$ 419,795	$ 421,730	$ 423,664	$ 425,598	$ 427,533	$ 429,467	$ 431,401
Contingency 10%	$ 277,655	$ 278,413	$ 279,171	$ 279,930	$ 280,688	$ 281,446	$ 282,205	$ 282,963	$ 283,721	$ 284,480	$ 285,238	$ 285,996
Total	**$ 3,054,200**	**$ 3,062,541**	**$ 3,070,884**	**$ 3,079,225**	**$ 3,087,567**	**$ 3,095,909**	**$ 3,104,251**	**$ 3,112,593**	**$ 3,120,935**	**$ 3,129,277**	**$ 3,137,619**	**$ 3,145,961**

Appendix C-2
Operations and Maintenance Cost Estimate Details (2018$)

Primary Toll Scenario	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**	**2069**
Labor	$ 1,265,979	$ 1,270,852	$ 1,275,725	$ 1,280,598	$ 1,285,471	$ 1,290,344	$ 1,295,217	$ 1,300,091	$ 1,304,964	$ 1,309,837	$ 1,314,710	$ 1,319,583
Mailing and Processing	$ 530,896	$ 534,442	$ 537,988	$ 541,535	$ 545,081	$ 548,627	$ 552,173	$ 555,720	$ 559,266	$ 562,813	$ 566,359	$ 569,905
Other	$ 24,836	$ 24,994	$ 25,152	$ 25,310	$ 25,469	$ 25,627	$ 25,785	$ 25,943	$ 26,101	$ 26,260	$ 26,418	$ 26,576
Banking	$ 215,510	$ 216,882	$ 218,255	$ 219,627	$ 221,000	$ 222,372	$ 223,744	$ 225,117	$ 226,489	$ 227,862	$ 229,234	$ 230,606
CSC Facility	$ 210,291	$ 210,625	$ 210,958	$ 211,292	$ 211,625	$ 211,959	$ 212,292	$ 212,626	$ 212,959	$ 213,293	$ 213,626	$ 213,960
Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Back Office Processing	$ 786,019	$ 791,274	$ 796,529	$ 801,783	$ 807,038	$ 812,293	$ 817,548	$ 822,803	$ 828,057	$ 833,312	$ 838,567	$ 843,822
Contingency 10%	$ 368,932	$ 370,486	$ 372,040	$ 373,594	$ 375,147	$ 376,701	$ 378,255	$ 379,809	$ 381,363	$ 382,917	$ 384,470	$ 386,024
Total	**$ 4,058,253**	**$ 4,075,345**	**$ 4,092,438**	**$ 4,109,530**	**$ 4,126,622**	**$ 4,143,714**	**$ 4,160,806**	**$ 4,177,899**	**$ 4,194,991**	**$ 4,212,083**	**$ 4,229,175**	**$ 4,246,267**

Sensitivity Analysis Scenario 1	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**	**2069**
Subtotal - Labor	$ 1,030,487	$ 1,031,998	$ 1,033,510	$ 1,035,021	$ 1,036,532	$ 1,038,044	$ 1,039,555	$ 1,041,067	$ 1,042,578	$ 1,044,090	$ 1,045,601	$ 1,047,113
Subtotal - Mailing and Processing	$ 359,748	$ 360,847	$ 361,947	$ 363,047	$ 364,147	$ 365,247	$ 366,347	$ 367,447	$ 368,547	$ 369,647	$ 370,747	$ 371,846
Subtotal - Other	$ 16,407	$ 16,456	$ 16,505	$ 16,555	$ 16,604	$ 16,653	$ 16,702	$ 16,751	$ 16,800	$ 16,849	$ 16,898	$ 16,947
Subtotal - Banking	$ 287,165	$ 288,717	$ 290,269	$ 291,822	$ 293,374	$ 294,926	$ 296,478	$ 298,031	$ 299,583	$ 301,135	$ 302,687	$ 304,240
Subtotal - CSC Facility	$ 194,219	$ 194,323	$ 194,426	$ 194,530	$ 194,633	$ 194,736	$ 194,840	$ 194,943	$ 195,047	$ 195,150	$ 195,254	$ 195,357
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 532,863	$ 534,493	$ 536,123	$ 537,753	$ 539,383	$ 541,012	$ 542,642	$ 544,272	$ 545,902	$ 547,532	$ 549,161	$ 550,791
Contingency 10%	$ 307,668	$ 308,263	$ 308,857	$ 309,452	$ 310,046	$ 310,641	$ 311,236	$ 311,830	$ 312,425	$ 313,019	$ 313,614	$ 314,209
Total	**$ 3,384,348**	**$ 3,390,889**	**$ 3,397,429**	**$ 3,403,969**	**$ 3,410,510**	**$ 3,417,051**	**$ 3,423,591**	**$ 3,430,131**	**$ 3,436,672**	**$ 3,443,212**	**$ 3,449,753**	**$ 3,456,294**

Sensitivity Analysis Scenario 2	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**	**2069**
Subtotal - Labor	$ 938,248	$ 940,042	$ 941,836	$ 943,630	$ 945,423	$ 947,217	$ 949,011	$ 950,805	$ 952,599	$ 954,392	$ 956,186	$ 957,980
Subtotal - Mailing and Processing	$ 292,605	$ 293,910	$ 295,216	$ 296,521	$ 297,826	$ 299,132	$ 300,437	$ 301,743	$ 303,048	$ 304,353	$ 305,659	$ 306,964
Subtotal - Other	$ 13,478	$ 13,536	$ 13,595	$ 13,653	$ 13,711	$ 13,769	$ 13,828	$ 13,886	$ 13,944	$ 14,002	$ 14,060	$ 14,119
Subtotal - Banking	$ 346,187	$ 348,556	$ 350,925	$ 353,294	$ 355,663	$ 358,032	$ 360,401	$ 362,770	$ 365,139	$ 367,508	$ 369,878	$ 372,247
Subtotal - CSC Facility	$ 187,904	$ 188,026	$ 188,149	$ 188,272	$ 188,395	$ 188,517	$ 188,640	$ 188,763	$ 188,886	$ 189,008	$ 189,131	$ 189,254
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 433,335	$ 435,270	$ 437,204	$ 439,138	$ 441,073	$ 443,007	$ 444,941	$ 446,876	$ 448,810	$ 450,744	$ 452,678	$ 454,613
Contingency 10%	$ 286,755	$ 287,513	$ 288,272	$ 289,030	$ 289,788	$ 290,547	$ 291,305	$ 292,063	$ 292,822	$ 293,580	$ 294,338	$ 295,097
Total	**$ 3,154,303**	**$ 3,162,645**	**$ 3,170,987**	**$ 3,179,328**	**$ 3,187,670**	**$ 3,196,013**	**$ 3,204,354**	**$ 3,212,696**	**$ 3,221,038**	**$ 3,229,380**	**$ 3,237,722**	**$ 3,246,064**

Appendix C-2
Operations and Maintenance Cost Estimate Details (2018$)

Primary Toll Scenario	2070	2071	2072
Labor	$ 1,324,456	$ 1,329,330	$ 1,334,203
Mailing and Processing	$ 573,451	$ 576,998	$ 580,544
Other	$ 26,734	$ 26,893	$ 27,051
Banking	$ 231,979	$ 233,351	$ 234,724
CSC Facility	$ 214,293	$ 214,627	$ 214,960
Insurance	$ 120,000	$ 120,000	$ 120,000
Professional Services	$ 165,000	$ 165,000	$ 165,000
Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791
Back Office Processing	$ 849,077	$ 854,331	$ 859,586
Contingency 10%	$ 387,578	$ 389,132	$ 390,686
Total	**$ 4,263,360**	**$ 4,280,452**	**$ 4,297,544**

Sensitivity Analysis Scenario 1	2070	2071	2072
Subtotal - Labor	$ 1,048,624	$ 1,050,135	$ 1,051,647
Subtotal - Mailing and Processing	$ 372,946	$ 374,046	$ 375,146
Subtotal - Other	$ 16,996	$ 17,045	$ 17,094
Subtotal - Banking	$ 305,792	$ 307,344	$ 308,897
Subtotal - CSC Facility	$ 195,460	$ 195,564	$ 195,667
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 552,421	$ 554,051	$ 555,681
Contingency 10%	$ 314,803	$ 315,398	$ 315,992
Total	**$ 3,462,834**	**$ 3,469,374**	**$ 3,475,915**

Sensitivity Analysis Scenario 2	2070	2071	2072
Subtotal - Labor	$ 959,774	$ 961,568	$ 963,362
Subtotal - Mailing and Processing	$ 308,270	$ 309,575	$ 310,880
Subtotal - Other	$ 14,177	$ 14,235	$ 14,293
Subtotal - Banking	$ 374,616	$ 376,985	$ 379,354
Subtotal - CSC Facility	$ 189,377	$ 189,499	$ 189,622
Subtotal - Insurance	$ 120,000	$ 120,000	$ 120,000
Subtotal - Professional Services	$ 165,000	$ 165,000	$ 165,000
Subtotal - Toll Facility O&M	$ 370,791	$ 370,791	$ 370,791
Subtotal - Back Office Processing	$ 456,547	$ 458,481	$ 460,416
Contingency 10%	$ 295,855	$ 296,613	$ 297,372
Total	**$ 3,254,406**	**$ 3,262,748**	**$ 3,271,090**

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Appendix D – Gross Toll Revenue

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Appendix D-1
Gross Toll Revenue Detail (2018$)

Primary Toll Scenario					
Transponder Revenue	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 255,514	$ 1,535,604	$ 4,154,812	$ 4,417,433	$ 4,585,175
SU Truck	$ 65,771	$ 393,259	$ 1,018,813	$ 998,344	$ 1,050,096
MU Truck	$ 54,223	$ 325,850	$ 880,551	$ 964,744	$ 974,786
Total	$ 375,509	$ 2,254,714	$ 6,054,177	$ 6,380,522	$ 6,610,057

IBT Revenue	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 371,539	$ 2,232,827	$ 1,510,265	$ 1,605,921	$ 1,666,758
SU Truck	$ 95,636	$ 572,134	$ 370,079	$ 362,778	$ 381,872
MU Truck	$ 78,845	$ 473,746	$ 320,098	$ 350,424	$ 353,793
Total	$ 546,020	$ 3,278,706	$ 2,200,443	$ 2,319,122	$ 2,402,423

Grand Total	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 627,053	$ 3,768,431	$ 5,665,078	$ 6,023,354	$ 6,251,933
SU Truck	$ 161,407	$ 965,393	$ 1,388,892	$ 1,361,123	$ 1,431,968
MU Truck	$ 133,069	$ 799,596	$ 1,200,650	$ 1,315,168	$ 1,328,579
Total	**$ 921,529**	**$ 5,533,420**	**$ 8,254,620**	**$ 8,699,644**	**$ 9,012,480**

Sensitivity Analysis Scenario 1					
Transponder Revenue	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 382,061	$ 2,293,388	$ 6,137,083	$ 6,652,540	$ 6,719,740
SU Truck	$ 47,890	$ 290,072	$ 834,207	$ 986,372	$ 1,084,469
MU Truck	$ 50,825	$ 308,193	$ 882,096	$ 1,028,855	$ 1,123,089
Total	$ 480,776	$ 2,891,654	$ 7,853,386	$ 8,667,767	$ 8,927,298

IBT Revenue	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 555,586	$ 3,334,639	$ 2,230,955	$ 2,418,147	$ 2,442,856
SU Truck	$ 69,748	$ 421,856	$ 303,251	$ 358,286	$ 394,226
MU Truck	$ 74,128	$ 447,464	$ 321,222	$ 375,133	$ 408,827
Total	$ 699,462	$ 4,203,959	$ 2,855,428	$ 3,151,565	$ 3,245,910

Grand Total	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 937,647	$ 5,628,028	$ 8,368,038	$ 9,070,687	$ 9,162,596
SU Truck	$ 117,637	$ 711,928	$ 1,137,458	$ 1,344,658	$ 1,478,695
MU Truck	$ 124,953	$ 755,657	$ 1,203,318	$ 1,403,988	$ 1,531,917
Total	**$ 1,180,238**	**$ 7,095,613**	**$ 10,708,813**	**$ 11,819,332**	**$ 12,173,208**

Appendix D-1
Gross Toll Revenue Detail (2018$)

Sensitivity Analysis Scenario 2					
Transponder Revenue	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 432,783	$ 2,601,010	$ 7,034,756	$ 7,954,314	$ 8,096,439
SU Truck	$ 49,821	$ 301,983	$ 874,758	$ 1,027,696	$ 1,157,462
MU Truck	$ 55,614	$ 337,298	$ 994,096	$ 1,167,889	$ 1,293,020
Total	$ 538,218	$ 3,240,290	$ 8,903,611	$ 10,149,900	$ 10,546,920

IBT Revenue	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 629,358	$ 3,781,878	$ 2,557,418	$ 2,891,556	$ 2,943,221
SU Truck	$ 72,443	$ 438,703	$ 318,414	$ 374,010	$ 421,182
MU Truck	$ 80,867	$ 491,267	$ 360,532	$ 424,552	$ 468,355
Total	$ 782,669	$ 4,711,849	$ 3,236,363	$ 3,690,117	$ 3,832,757

Grand Total	**2022**	**2023**	**2032**	**2040**	**2045**
Auto	$ 1,062,142	$ 6,382,888	$ 9,592,174	$ 10,845,870	$ 11,039,659
SU Truck	$ 122,264	$ 740,686	$ 1,193,172	$ 1,401,706	$ 1,578,644
MU Truck	$ 136,481	$ 828,564	$ 1,354,628	$ 1,592,441	$ 1,761,375
Total	**$ 1,320,886**	**$ 7,952,139**	**$ 12,139,974**	**$ 13,840,017**	**$ 14,379,678**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Primary Toll Scenario

Transponder Revenue	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 255,514	$ 1,535,604	$ 2,255,880	$ 2,773,019	$ 3,600,528	$ 4,121,470	$ 4,128,113	$ 4,134,788	$ 4,141,462	$ 4,148,137	$ 4,154,812
SU Truck	$ 65,771	$ 393,259	$ 575,046	$ 703,619	$ 908,899	$ 1,035,613	$ 1,032,176	$ 1,028,835	$ 1,025,495	$ 1,022,154	$ 1,018,813
MU Truck	$ 54,223	$ 325,850	$ 478,402	$ 588,324	$ 763,454	$ 873,986	$ 875,608	$ 876,844	$ 878,080	$ 879,316	$ 880,551
Total	$ 375,509	$ 2,254,714	$ 3,309,328	$ 4,064,961	$ 5,272,881	$ 6,031,069	$ 6,035,897	$ 6,040,467	$ 6,045,037	$ 6,049,607	$ 6,054,177

IBT Revenue	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 371,539	$ 2,232,827	$ 2,683,735	$ 2,688,153	$ 2,243,684	$ 1,498,285	$ 1,500,719	$ 1,503,105	$ 1,505,492	$ 1,507,879	$ 1,510,265
SU Truck	$ 95,636	$ 572,134	$ 684,224	$ 681,810	$ 566,630	$ 376,256	$ 375,133	$ 373,869	$ 372,606	$ 371,342	$ 370,079
MU Truck	$ 78,845	$ 473,746	$ 569,663	$ 570,112	$ 476,217	$ 317,852	$ 317,852	$ 318,414	$ 318,975	$ 319,537	$ 320,098
Total	$ 546,020	$ 3,278,706	$ 3,937,622	$ 3,940,074	$ 3,286,531	$ 2,192,393	$ 2,193,704	$ 2,195,388	$ 2,197,073	$ 2,198,758	$ 2,200,443

Grand Total	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 627,053	$ 3,768,431	$ 4,939,615	$ 5,461,171	$ 5,844,212	$ 5,619,755	$ 5,628,831	$ 5,637,893	$ 5,646,955	$ 5,656,016	$ 5,665,078
SU Truck	$ 161,407	$ 965,393	$ 1,259,271	$ 1,385,428	$ 1,475,529	$ 1,411,869	$ 1,407,309	$ 1,402,705	$ 1,398,101	$ 1,393,496	$ 1,388,892
MU Truck	$ 133,069	$ 799,596	$ 1,048,065	$ 1,158,436	$ 1,239,670	$ 1,191,838	$ 1,193,460	$ 1,195,258	$ 1,197,055	$ 1,198,852	$ 1,200,650
Total	**$ 921,529**	**$ 5,533,420**	**$ 7,246,951**	**$ 8,005,036**	**$ 8,559,412**	**$ 8,223,462**	**$ 8,229,600**	**$ 8,235,855**	**$ 8,242,110**	**$ 8,248,365**	**$ 8,254,620**

Sensitivity Analysis Scenario 1

Transponder Revenue	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 382,061	$ 2,293,388	$ 3,364,880	$ 4,131,130	$ 5,357,306	$ 6,125,239	$ 6,127,453	$ 6,129,861	$ 6,132,268	$ 6,134,676	$ 6,137,083
SU Truck	$ 47,890	$ 290,072	$ 429,338	$ 531,598	$ 694,863	$ 800,607	$ 807,481	$ 814,162	$ 820,844	$ 827,525	$ 834,207
MU Truck	$ 50,825	$ 308,193	$ 454,797	$ 563,785	$ 736,882	$ 848,882	$ 855,834	$ 862,400	$ 868,965	$ 875,531	$ 882,096
Total	$ 480,776	$ 2,891,654	$ 4,249,016	$ 5,226,513	$ 6,789,051	$ 7,774,728	$ 7,790,769	$ 7,806,423	$ 7,822,077	$ 7,837,731	$ 7,853,386

IBT Revenue	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 555,586	$ 3,334,639	$ 4,003,214	$ 4,004,937	$ 3,338,757	$ 2,226,462	$ 2,227,585	$ 2,228,428	$ 2,229,270	$ 2,230,113	$ 2,230,955
SU Truck	$ 69,748	$ 421,856	$ 510,360	$ 514,516	$ 432,414	$ 290,896	$ 293,143	$ 295,670	$ 298,197	$ 300,724	$ 303,251
MU Truck	$ 74,128	$ 447,464	$ 542,707	$ 545,852	$ 458,246	$ 307,744	$ 309,990	$ 312,798	$ 315,606	$ 318,414	$ 321,222
Total	$ 699,462	$ 4,203,959	$ 5,056,282	$ 5,065,305	$ 4,229,417	$ 2,825,102	$ 2,830,718	$ 2,836,896	$ 2,843,073	$ 2,849,250	$ 2,855,428

Grand Total	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 937,647	$ 5,628,028	$ 7,368,095	$ 8,136,067	$ 8,696,063	$ 8,351,701	$ 8,355,039	$ 8,358,289	$ 8,361,538	$ 8,364,788	$ 8,368,038
SU Truck	$ 117,637	$ 711,928	$ 939,699	$ 1,046,114	$ 1,127,277	$ 1,091,503	$ 1,100,624	$ 1,109,832	$ 1,119,041	$ 1,128,249	$ 1,137,458
MU Truck	$ 124,953	$ 755,657	$ 997,504	$ 1,109,637	$ 1,195,129	$ 1,156,626	$ 1,165,824	$ 1,175,198	$ 1,184,571	$ 1,193,944	$ 1,203,318
Total	**$ 1,180,238**	**$ 7,095,613**	**$ 9,305,298**	**$ 10,291,818**	**$ 11,018,469**	**$ 10,599,831**	**$ 10,621,487**	**$ 10,643,319**	**$ 10,665,150**	**$ 10,686,982**	**$ 10,708,813**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Sensitivity Analysis Scenario 2											
Transponder Revenue	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 432,783	$ 2,601,010	$ 3,820,728	$ 4,696,514	$ 6,097,587	$ 6,979,915	$ 6,990,960	$ 7,001,909	$ 7,012,858	$ 7,023,807	$ 7,034,756
SU Truck	$ 49,821	$ 301,983	$ 446,579	$ 553,913	$ 724,833	$ 836,524	$ 843,939	$ 851,644	$ 859,349	$ 867,053	$ 874,758
MU Truck	$ 55,614	$ 337,298	$ 500,895	$ 621,067	$ 814,278	$ 940,800	$ 951,459	$ 962,118	$ 972,778	$ 983,437	$ 994,096
Total	$ 538,218	$ 3,240,290	$ 4,768,201	$ 5,871,494	$ 7,636,698	$ 8,757,238	$ 8,786,358	$ 8,815,671	$ 8,844,984	$ 8,874,298	$ 8,903,611

IBT Revenue	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 629,358	$ 3,781,878	$ 4,545,622	$ 4,552,810	$ 3,800,186	$ 2,537,201	$ 2,541,132	$ 2,545,204	$ 2,549,275	$ 2,553,346	$ 2,557,418
SU Truck	$ 72,443	$ 438,703	$ 532,374	$ 536,754	$ 451,507	$ 303,251	$ 306,621	$ 309,569	$ 312,517	$ 315,465	$ 318,414
MU Truck	$ 80,867	$ 491,267	$ 595,720	$ 603,470	$ 508,788	$ 343,685	$ 347,054	$ 350,424	$ 353,793	$ 357,162	$ 360,532
Total	$ 782,669	$ 4,711,849	$ 5,673,716	$ 5,693,034	$ 4,760,481	$ 3,184,137	$ 3,194,807	$ 3,205,196	$ 3,215,585	$ 3,225,974	$ 3,236,363

Grand Total	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Auto	$ 1,062,142	$ 6,382,888	$ 8,366,350	$ 9,249,324	$ 9,897,773	$ 9,517,116	$ 9,532,092	$ 9,547,113	$ 9,562,133	$ 9,577,154	$ 9,592,174
SU Truck	$ 122,264	$ 740,686	$ 978,953	$ 1,090,668	$ 1,176,340	$ 1,139,775	$ 1,150,560	$ 1,161,213	$ 1,171,866	$ 1,182,519	$ 1,193,172
MU Truck	$ 136,481	$ 828,564	$ 1,096,615	$ 1,224,537	$ 1,323,066	$ 1,284,484	$ 1,298,513	$ 1,312,542	$ 1,326,571	$ 1,340,599	$ 1,354,628
Total	**$ 1,320,886**	**$ 7,952,139**	**$ 10,441,918**	**$ 11,564,528**	**$ 12,397,179**	**$ 11,941,375**	**$ 11,981,165**	**$ 12,020,867**	**$ 12,060,570**	**$ 12,100,272**	**$ 12,139,974**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Primary Toll Scenario

Transponder Revenue	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 4,187,640	$ 4,220,467	$ 4,253,295	$ 4,286,123	$ 4,318,950	$ 4,351,778	$ 4,384,605	$ 4,417,433	$ 4,450,981	$ 4,484,530	$ 4,518,078
SU Truck	$ 1,016,255	$ 1,013,696	$ 1,011,138	$ 1,008,579	$ 1,006,020	$ 1,003,462	$ 1,000,903	$ 998,344	$ 1,008,695	$ 1,019,045	$ 1,029,395
MU Truck	$ 891,076	$ 901,600	$ 912,124	$ 922,648	$ 933,172	$ 943,696	$ 954,220	$ 964,744	$ 966,753	$ 968,761	$ 970,769
Total	$ 6,094,970	$ 6,135,763	$ 6,176,556	$ 6,217,350	$ 6,258,143	$ 6,298,936	$ 6,339,729	$ 6,380,522	$ 6,426,429	$ 6,472,336	$ 6,518,243

IBT Revenue	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 1,522,222	$ 1,534,179	$ 1,546,136	$ 1,558,093	$ 1,570,050	$ 1,582,007	$ 1,593,964	$ 1,605,921	$ 1,618,088	$ 1,630,256	$ 1,642,423
SU Truck	$ 369,166	$ 368,254	$ 367,341	$ 366,428	$ 365,516	$ 364,603	$ 363,691	$ 362,778	$ 366,597	$ 370,416	$ 374,234
MU Truck	$ 323,889	$ 327,680	$ 331,470	$ 335,261	$ 339,052	$ 342,842	$ 346,633	$ 350,424	$ 351,097	$ 351,771	$ 352,445
Total	$ 2,215,278	$ 2,230,113	$ 2,244,947	$ 2,259,782	$ 2,274,617	$ 2,289,452	$ 2,304,287	$ 2,319,122	$ 2,335,782	$ 2,352,443	$ 2,369,103

Grand Total	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 5,709,862	$ 5,754,647	$ 5,799,431	$ 5,844,216	$ 5,889,000	$ 5,933,785	$ 5,978,569	$ 6,023,354	$ 6,069,070	$ 6,114,785	$ 6,160,501
SU Truck	$ 1,385,421	$ 1,381,950	$ 1,378,479	$ 1,375,007	$ 1,371,536	$ 1,368,065	$ 1,364,594	$ 1,361,123	$ 1,375,292	$ 1,389,461	$ 1,403,630
MU Truck	$ 1,214,965	$ 1,229,279	$ 1,243,594	$ 1,257,909	$ 1,272,224	$ 1,286,538	$ 1,300,853	$ 1,315,168	$ 1,317,850	$ 1,320,532	$ 1,323,215
Total	**$ 8,310,248**	**$ 8,365,876**	**$ 8,421,504**	**$ 8,477,132**	**$ 8,532,760**	**$ 8,588,388**	**$ 8,644,016**	**$ 8,699,644**	**$ 8,762,211**	**$ 8,824,779**	**$ 8,887,346**

Sensitivity Analysis Scenario 1

Transponder Revenue	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 6,201,515	$ 6,265,947	$ 6,330,379	$ 6,394,812	$ 6,459,244	$ 6,523,676	$ 6,588,108	$ 6,652,540	$ 6,665,980	$ 6,679,420	$ 6,692,860
SU Truck	$ 853,227	$ 872,248	$ 891,269	$ 910,289	$ 929,310	$ 948,331	$ 967,351	$ 986,372	$ 1,005,991	$ 1,025,611	$ 1,045,230
MU Truck	$ 900,441	$ 918,786	$ 937,131	$ 955,476	$ 973,820	$ 992,165	$ 1,010,510	$ 1,028,855	$ 1,047,702	$ 1,066,549	$ 1,085,395
Total	$ 7,955,183	$ 8,056,981	$ 8,158,779	$ 8,260,576	$ 8,362,374	$ 8,464,172	$ 8,565,969	$ 8,667,767	$ 8,719,673	$ 8,771,579	$ 8,823,486

IBT Revenue	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 2,254,354	$ 2,277,753	$ 2,301,152	$ 2,324,551	$ 2,347,950	$ 2,371,349	$ 2,394,748	$ 2,418,147	$ 2,423,089	$ 2,428,031	$ 2,432,973
SU Truck	$ 310,130	$ 317,010	$ 323,889	$ 330,768	$ 337,648	$ 344,527	$ 351,406	$ 358,286	$ 365,474	$ 372,662	$ 379,850
MU Truck	$ 327,960	$ 334,699	$ 341,438	$ 348,177	$ 354,916	$ 361,655	$ 368,394	$ 375,133	$ 381,872	$ 388,611	$ 395,350
Total	$ 2,892,445	$ 2,929,462	$ 2,966,479	$ 3,003,496	$ 3,040,514	$ 3,077,531	$ 3,114,548	$ 3,151,565	$ 3,170,434	$ 3,189,303	$ 3,208,172

Grand Total	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 8,455,869	$ 8,543,700	$ 8,631,531	$ 8,719,362	$ 8,807,194	$ 8,895,025	$ 8,982,856	$ 9,070,687	$ 9,089,069	$ 9,107,451	$ 9,125,833
SU Truck	$ 1,163,358	$ 1,189,258	$ 1,215,158	$ 1,241,058	$ 1,266,958	$ 1,292,858	$ 1,318,758	$ 1,344,658	$ 1,371,465	$ 1,398,273	$ 1,425,080
MU Truck	$ 1,228,402	$ 1,253,485	$ 1,278,569	$ 1,303,653	$ 1,328,736	$ 1,353,820	$ 1,378,904	$ 1,403,988	$ 1,429,573	$ 1,455,159	$ 1,480,745
Total	**$ 10,847,628**	**$ 10,986,443**	**$ 11,125,258**	**$ 11,264,073**	**$ 11,402,888**	**$ 11,541,703**	**$ 11,680,518**	**$ 11,819,332**	**$ 11,890,108**	**$ 11,960,883**	**$ 12,031,658**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Sensitivity Analysis Scenario 2														
Transponder Revenue	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 7,149,701	$ 7,264,646	$ 7,379,590	$ 7,494,535	$ 7,609,480	$ 7,724,425	$ 7,839,370	$ 7,954,314	$ 7,982,739	$ 8,011,164	$ 8,039,589
SU Truck	$ 893,876	$ 912,993	$ 932,110	$ 951,227	$ 970,344	$ 989,462	$ 1,008,579	$ 1,027,696	$ 1,053,649	$ 1,079,602	$ 1,105,555
MU Truck	$ 1,015,820	$ 1,037,544	$ 1,059,269	$ 1,080,993	$ 1,102,717	$ 1,124,441	$ 1,146,165	$ 1,167,889	$ 1,192,915	$ 1,217,942	$ 1,242,968
Total	$ 9,059,397	$ 9,215,183	$ 9,370,969	$ 9,526,755	$ 9,682,541	$ 9,838,328	$ 9,994,114	$ 10,149,900	$ 10,229,304	$ 10,308,708	$ 10,388,112

IBT Revenue	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 2,599,185	$ 2,640,952	$ 2,682,719	$ 2,724,487	$ 2,766,254	$ 2,808,021	$ 2,849,788	$ 2,891,556	$ 2,901,889	$ 2,912,222	$ 2,922,555
SU Truck	$ 325,363	$ 332,313	$ 339,262	$ 346,212	$ 353,161	$ 360,111	$ 367,060	$ 374,010	$ 383,444	$ 392,879	$ 402,313
MU Truck	$ 368,534	$ 376,537	$ 384,539	$ 392,542	$ 400,544	$ 408,547	$ 416,549	$ 424,552	$ 433,312	$ 442,073	$ 450,833
Total	$ 3,293,083	$ 3,349,802	$ 3,406,521	$ 3,463,240	$ 3,519,959	$ 3,576,679	$ 3,633,398	$ 3,690,117	$ 3,718,645	$ 3,747,173	$ 3,775,701

Grand Total	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Auto	$ 9,748,886	$ 9,905,598	$ 10,062,310	$ 10,219,022	$ 10,375,734	$ 10,532,446	$ 10,689,158	$ 10,845,870	$ 10,884,628	$ 10,923,386	$ 10,962,144
SU Truck	$ 1,219,239	$ 1,245,305	$ 1,271,372	$ 1,297,439	$ 1,323,506	$ 1,349,572	$ 1,375,639	$ 1,401,706	$ 1,437,093	$ 1,472,481	$ 1,507,869
MU Truck	$ 1,384,355	$ 1,414,081	$ 1,443,808	$ 1,473,534	$ 1,503,261	$ 1,532,988	$ 1,562,714	$ 1,592,441	$ 1,626,228	$ 1,660,014	$ 1,693,801
Total	**$ 12,352,479**	**$ 12,564,985**	**$ 12,777,490**	**$ 12,989,995**	**$ 13,202,501**	**$ 13,415,006**	**$ 13,627,511**	**$ 13,840,017**	**$ 13,947,949**	**$ 14,055,881**	**$ 14,163,813**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Primary Toll Scenario

Transponder Revenue	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 4,551,627	$ 4,585,175	$ 4,618,724	$ 4,652,272	$ 4,685,821	$ 4,719,369	$ 4,752,918	$ 4,786,466	$ 4,820,015	$ 4,853,563	$ 4,887,112
SU Truck	$ 1,039,746	$ 1,050,096	$ 1,060,447	$ 1,070,797	$ 1,081,147	$ 1,091,498	$ 1,101,848	$ 1,112,198	$ 1,122,549	$ 1,132,899	$ 1,143,249
MU Truck	$ 972,778	$ 974,786	$ 976,794	$ 978,802	$ 980,811	$ 982,819	$ 984,827	$ 986,836	$ 988,844	$ 990,852	$ 992,860
Total	$ 6,564,150	$ 6,610,057	$ 6,655,965	$ 6,701,872	$ 6,747,779	$ 6,793,686	$ 6,839,593	$ 6,885,500	$ 6,931,407	$ 6,977,314	$ 7,023,221

IBT Revenue	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 1,654,591	$ 1,666,758	$ 1,678,926	$ 1,691,093	$ 1,703,260	$ 1,715,428	$ 1,727,595	$ 1,739,763	$ 1,751,930	$ 1,764,098	$ 1,776,265
SU Truck	$ 378,053	$ 381,872	$ 385,691	$ 389,509	$ 393,328	$ 397,147	$ 400,965	$ 404,784	$ 408,603	$ 412,422	$ 416,240
MU Truck	$ 353,119	$ 353,793	$ 354,467	$ 355,141	$ 355,815	$ 356,489	$ 357,162	$ 357,836	$ 358,510	$ 359,184	$ 359,858
Total	$ 2,385,763	$ 2,402,423	$ 2,419,083	$ 2,435,743	$ 2,452,403	$ 2,469,063	$ 2,485,723	$ 2,502,383	$ 2,519,043	$ 2,535,704	$ 2,552,364

Grand Total	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 6,206,217	$ 6,251,933	$ 6,297,649	$ 6,343,365	$ 6,389,081	$ 6,434,797	$ 6,480,513	$ 6,526,229	$ 6,571,945	$ 6,617,661	$ 6,663,377
SU Truck	$ 1,417,799	$ 1,431,968	$ 1,446,137	$ 1,460,306	$ 1,474,475	$ 1,488,644	$ 1,502,813	$ 1,516,982	$ 1,531,151	$ 1,545,320	$ 1,559,489
MU Truck	$ 1,325,897	$ 1,328,579	$ 1,331,261	$ 1,333,943	$ 1,336,625	$ 1,339,308	$ 1,341,990	$ 1,344,672	$ 1,347,354	$ 1,350,036	$ 1,352,718
Total	**$ 8,949,913**	**$ 9,012,480**	**$ 9,075,047**	**$ 9,137,615**	**$ 9,200,182**	**$ 9,262,749**	**$ 9,325,316**	**$ 9,387,883**	**$ 9,450,451**	**$ 9,513,018**	**$ 9,575,585**

Sensitivity Analysis Scenario 1

Transponder Revenue	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 6,706,300	$ 6,719,740	$ 6,733,180	$ 6,746,620	$ 6,760,060	$ 6,773,500	$ 6,786,940	$ 6,800,380	$ 6,813,820	$ 6,827,260	$ 6,840,700
SU Truck	$ 1,064,849	$ 1,084,469	$ 1,104,088	$ 1,123,707	$ 1,143,326	$ 1,162,946	$ 1,182,565	$ 1,202,184	$ 1,221,804	$ 1,241,423	$ 1,261,042
MU Truck	$ 1,104,242	$ 1,123,089	$ 1,141,936	$ 1,160,783	$ 1,179,630	$ 1,198,477	$ 1,217,324	$ 1,236,171	$ 1,255,017	$ 1,273,864	$ 1,292,711
Total	$ 8,875,392	$ 8,927,298	$ 8,979,204	$ 9,031,110	$ 9,083,017	$ 9,134,923	$ 9,186,829	$ 9,238,735	$ 9,290,641	$ 9,342,547	$ 9,394,454

IBT Revenue	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 2,437,914	$ 2,442,856	$ 2,447,798	$ 2,452,740	$ 2,457,682	$ 2,462,624	$ 2,467,566	$ 2,472,507	$ 2,477,449	$ 2,482,391	$ 2,487,333
SU Truck	$ 387,038	$ 394,226	$ 401,415	$ 408,603	$ 415,791	$ 422,979	$ 430,167	$ 437,356	$ 444,544	$ 451,732	$ 458,920
MU Truck	$ 402,089	$ 408,827	$ 415,566	$ 422,305	$ 429,044	$ 435,783	$ 442,522	$ 449,261	$ 456,000	$ 462,739	$ 469,478
Total	$ 3,227,041	$ 3,245,910	$ 3,264,779	$ 3,283,648	$ 3,302,517	$ 3,321,386	$ 3,340,255	$ 3,359,124	$ 3,377,993	$ 3,396,862	$ 3,415,731

Grand Total	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 9,144,215	$ 9,162,596	$ 9,180,978	$ 9,199,360	$ 9,217,742	$ 9,236,124	$ 9,254,506	$ 9,272,888	$ 9,291,269	$ 9,309,651	$ 9,328,033
SU Truck	$ 1,451,888	$ 1,478,695	$ 1,505,503	$ 1,532,310	$ 1,559,117	$ 1,585,925	$ 1,612,732	$ 1,639,540	$ 1,666,347	$ 1,693,155	$ 1,719,962
MU Truck	$ 1,506,331	$ 1,531,917	$ 1,557,503	$ 1,583,088	$ 1,608,674	$ 1,634,260	$ 1,659,846	$ 1,685,432	$ 1,711,017	$ 1,736,603	$ 1,762,189
Total	**$ 12,102,433**	**$ 12,173,208**	**$ 12,243,983**	**$ 12,314,758**	**$ 12,385,534**	**$ 12,456,309**	**$ 12,527,084**	**$ 12,597,859**	**$ 12,668,634**	**$ 12,739,409**	**$ 12,810,184**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Sensitivity Analysis Scenario 2											
Transponder Revenue	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 8,068,014	$ 8,096,439	$ 8,124,863	$ 8,153,288	$ 8,181,713	$ 8,210,138	$ 8,238,563	$ 8,266,987	$ 8,295,412	$ 8,323,837	$ 8,352,262
SU Truck	$ 1,131,509	$ 1,157,462	$ 1,183,415	$ 1,209,368	$ 1,235,321	$ 1,261,274	$ 1,287,227	$ 1,313,180	$ 1,339,133	$ 1,365,086	$ 1,391,040
MU Truck	$ 1,267,994	$ 1,293,020	$ 1,318,046	$ 1,343,073	$ 1,368,099	$ 1,393,125	$ 1,418,151	$ 1,443,177	$ 1,468,204	$ 1,493,230	$ 1,518,256
Total	$ 10,467,516	$ 10,546,920	$ 10,626,325	$ 10,705,729	$ 10,785,133	$ 10,864,537	$ 10,943,941	$ 11,023,345	$ 11,102,749	$ 11,182,153	$ 11,261,557
IBT Revenue	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 2,932,888	$ 2,943,221	$ 2,953,554	$ 2,963,887	$ 2,974,220	$ 2,984,553	$ 2,994,886	$ 3,005,219	$ 3,015,552	$ 3,025,885	$ 3,036,218
SU Truck	$ 411,748	$ 421,182	$ 430,617	$ 440,051	$ 449,486	$ 458,920	$ 468,355	$ 477,789	$ 487,223	$ 496,658	$ 506,092
MU Truck	$ 459,594	$ 468,355	$ 477,115	$ 485,876	$ 494,636	$ 503,397	$ 512,157	$ 520,918	$ 529,679	$ 538,439	$ 547,200
Total	$ 3,804,229	$ 3,832,757	$ 3,861,285	$ 3,889,813	$ 3,918,341	$ 3,946,870	$ 3,975,398	$ 4,003,926	$ 4,032,454	$ 4,060,982	$ 4,089,510
Grand Total	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Auto	$ 11,000,901	$ 11,039,659	$ 11,078,417	$ 11,117,175	$ 11,155,933	$ 11,194,690	$ 11,233,448	$ 11,272,206	$ 11,310,964	$ 11,349,722	$ 11,388,480
SU Truck	$ 1,543,256	$ 1,578,644	$ 1,614,031	$ 1,649,419	$ 1,684,806	$ 1,720,194	$ 1,755,582	$ 1,790,969	$ 1,826,357	$ 1,861,744	$ 1,897,132
MU Truck	$ 1,727,588	$ 1,761,375	$ 1,795,162	$ 1,828,948	$ 1,862,735	$ 1,896,522	$ 1,930,309	$ 1,964,095	$ 1,997,882	$ 2,031,669	$ 2,065,456
Total	**$ 14,271,745**	**$ 14,379,678**	**$ 14,487,610**	**$ 14,595,542**	**$ 14,703,474**	**$ 14,811,406**	**$ 14,919,339**	**$ 15,027,271**	**$ 15,135,203**	**$ 15,243,135**	**$ 15,351,067**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Primary Toll Scenario

Transponder Revenue	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 4,920,660	$ 4,954,209	$ 4,987,757	$ 5,021,306	$ 5,054,854	$ 5,088,403	$ 5,121,951	$ 5,155,500	$ 5,189,048	$ 5,222,597	$ 5,256,145
SU Truck	$ 1,153,600	$ 1,163,950	$ 1,174,300	$ 1,184,651	$ 1,195,001	$ 1,205,351	$ 1,215,702	$ 1,226,052	$ 1,236,402	$ 1,246,753	$ 1,257,103
MU Truck	$ 994,869	$ 996,877	$ 998,885	$ 1,000,893	$ 1,002,902	$ 1,004,910	$ 1,006,918	$ 1,008,927	$ 1,010,935	$ 1,012,943	$ 1,014,951
Total	$ 7,069,129	$ 7,115,036	$ 7,160,943	$ 7,206,850	$ 7,252,757	$ 7,298,664	$ 7,344,571	$ 7,390,478	$ 7,436,385	$ 7,482,293	$ 7,528,200

IBT Revenue	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 1,788,433	$ 1,800,600	$ 1,812,768	$ 1,824,935	$ 1,837,103	$ 1,849,270	$ 1,861,438	$ 1,873,605	$ 1,885,773	$ 1,897,940	$ 1,910,108
SU Truck	$ 420,059	$ 423,878	$ 427,696	$ 431,515	$ 435,334	$ 439,153	$ 442,971	$ 446,790	$ 450,609	$ 454,427	$ 458,246
MU Truck	$ 360,532	$ 361,206	$ 361,880	$ 362,554	$ 363,227	$ 363,901	$ 364,575	$ 365,249	$ 365,923	$ 366,597	$ 367,271
Total	$ 2,569,024	$ 2,585,684	$ 2,602,344	$ 2,619,004	$ 2,635,664	$ 2,652,324	$ 2,668,984	$ 2,685,644	$ 2,702,304	$ 2,718,965	$ 2,735,625

Grand Total	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 6,709,093	$ 6,754,809	$ 6,800,525	$ 6,846,241	$ 6,891,957	$ 6,937,673	$ 6,983,389	$ 7,029,105	$ 7,074,821	$ 7,120,537	$ 7,166,253
SU Truck	$ 1,573,659	$ 1,587,828	$ 1,601,997	$ 1,616,166	$ 1,630,335	$ 1,644,504	$ 1,658,673	$ 1,672,842	$ 1,687,011	$ 1,701,180	$ 1,715,349
MU Truck	$ 1,355,401	$ 1,358,083	$ 1,360,765	$ 1,363,447	$ 1,366,129	$ 1,368,811	$ 1,371,494	$ 1,374,176	$ 1,376,858	$ 1,379,540	$ 1,382,222
Total	**$ 9,638,152**	**$ 9,700,719**	**$ 9,763,287**	**$ 9,825,854**	**$ 9,888,421**	**$ 9,950,988**	**$ 10,013,555**	**$ 10,076,123**	**$ 10,138,690**	**$ 10,201,257**	**$ 10,263,824**

Sensitivity Analysis Scenario 1

Transponder Revenue	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 6,854,140	$ 6,867,580	$ 6,881,020	$ 6,894,460	$ 6,907,900	$ 6,921,340	$ 6,934,780	$ 6,948,220	$ 6,961,660	$ 6,975,100	$ 6,988,540
SU Truck	$ 1,280,662	$ 1,300,281	$ 1,319,900	$ 1,339,520	$ 1,359,139	$ 1,378,758	$ 1,398,377	$ 1,417,997	$ 1,437,616	$ 1,457,235	$ 1,476,855
MU Truck	$ 1,311,558	$ 1,330,405	$ 1,349,252	$ 1,368,099	$ 1,386,946	$ 1,405,793	$ 1,424,639	$ 1,443,486	$ 1,462,333	$ 1,481,180	$ 1,500,027
Total	$ 9,446,360	$ 9,498,266	$ 9,550,172	$ 9,602,078	$ 9,653,985	$ 9,705,891	$ 9,757,797	$ 9,809,703	$ 9,861,609	$ 9,913,516	$ 9,965,422

IBT Revenue	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 2,492,275	$ 2,497,217	$ 2,502,159	$ 2,507,101	$ 2,512,042	$ 2,516,984	$ 2,521,926	$ 2,526,868	$ 2,531,810	$ 2,536,752	$ 2,541,694
SU Truck	$ 466,108	$ 473,296	$ 480,485	$ 487,673	$ 494,861	$ 502,049	$ 509,237	$ 516,425	$ 523,614	$ 530,802	$ 537,990
MU Truck	$ 476,217	$ 482,955	$ 489,694	$ 496,433	$ 503,172	$ 509,911	$ 516,650	$ 523,389	$ 530,128	$ 536,867	$ 543,606
Total	$ 3,434,600	$ 3,453,469	$ 3,472,338	$ 3,491,207	$ 3,510,076	$ 3,528,945	$ 3,547,814	$ 3,566,682	$ 3,585,551	$ 3,604,420	$ 3,623,289

Grand Total	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 9,346,415	$ 9,364,797	$ 9,383,179	$ 9,401,561	$ 9,419,943	$ 9,438,324	$ 9,456,706	$ 9,475,088	$ 9,493,470	$ 9,511,852	$ 9,530,234
SU Truck	$ 1,746,770	$ 1,773,577	$ 1,800,385	$ 1,827,192	$ 1,854,000	$ 1,880,807	$ 1,907,615	$ 1,934,422	$ 1,961,230	$ 1,988,037	$ 2,014,845
MU Truck	$ 1,787,775	$ 1,813,361	$ 1,838,946	$ 1,864,532	$ 1,890,118	$ 1,915,704	$ 1,941,290	$ 1,966,875	$ 1,992,461	$ 2,018,047	$ 2,043,633
Total	**$ 12,880,960**	**$ 12,951,735**	**$ 13,022,510**	**$ 13,093,285**	**$ 13,164,060**	**$ 13,234,835**	**$ 13,305,611**	**$ 13,376,386**	**$ 13,447,161**	**$ 13,517,936**	**$ 13,588,711**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Sensitivity Analysis Scenario 2											
Transponder Revenue	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 8,380,687	$ 8,409,112	$ 8,437,536	$ 8,465,961	$ 8,494,386	$ 8,522,811	$ 8,551,236	$ 8,579,660	$ 8,608,085	$ 8,636,510	$ 8,664,935
SU Truck	$ 1,416,993	$ 1,442,946	$ 1,468,899	$ 1,494,852	$ 1,520,805	$ 1,546,758	$ 1,572,711	$ 1,598,664	$ 1,624,617	$ 1,650,570	$ 1,676,524
MU Truck	$ 1,543,282	$ 1,568,308	$ 1,593,335	$ 1,618,361	$ 1,643,387	$ 1,668,413	$ 1,693,439	$ 1,718,466	$ 1,743,492	$ 1,768,518	$ 1,793,544
Total	$ 11,340,962	$ 11,420,366	$ 11,499,770	$ 11,579,174	$ 11,658,578	$ 11,737,982	$ 11,817,386	$ 11,896,790	$ 11,976,194	$ 12,055,598	$ 12,135,003
IBT Revenue	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 3,046,551	$ 3,056,884	$ 3,067,217	$ 3,077,550	$ 3,087,883	$ 3,098,216	$ 3,108,549	$ 3,118,882	$ 3,129,215	$ 3,139,548	$ 3,149,881
SU Truck	$ 515,527	$ 524,961	$ 534,396	$ 543,830	$ 553,265	$ 562,699	$ 572,134	$ 581,568	$ 591,003	$ 600,437	$ 609,872
MU Truck	$ 555,960	$ 564,721	$ 573,482	$ 582,242	$ 591,003	$ 599,763	$ 608,524	$ 617,285	$ 626,045	$ 634,806	$ 643,566
Total	$ 4,118,038	$ 4,146,566	$ 4,175,094	$ 4,203,622	$ 4,232,150	$ 4,260,678	$ 4,289,206	$ 4,317,734	$ 4,346,263	$ 4,374,791	$ 4,403,319
Grand Total	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**
Auto	$ 11,427,237	$ 11,465,995	$ 11,504,753	$ 11,543,511	$ 11,582,269	$ 11,621,026	$ 11,659,784	$ 11,698,542	$ 11,737,300	$ 11,776,058	$ 11,814,816
SU Truck	$ 1,932,520	$ 1,967,907	$ 2,003,295	$ 2,038,682	$ 2,074,070	$ 2,109,457	$ 2,144,845	$ 2,180,233	$ 2,215,620	$ 2,251,008	$ 2,286,395
MU Truck	$ 2,099,243	$ 2,133,029	$ 2,166,816	$ 2,200,603	$ 2,234,390	$ 2,268,177	$ 2,301,963	$ 2,335,750	$ 2,369,537	$ 2,403,324	$ 2,437,110
Total	**$ 15,458,999**	**$ 15,566,932**	**$ 15,674,864**	**$ 15,782,796**	**$ 15,890,728**	**$ 15,998,660**	**$ 16,106,593**	**$ 16,214,525**	**$ 16,322,457**	**$ 16,430,389**	**$ 16,538,321**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Primary Toll Scenario

Transponder Revenue	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 5,289,694	$ 5,323,242	$ 5,356,791	$ 5,390,339	$ 5,423,888	$ 5,457,436	$ 5,490,985
SU Truck	$ 1,267,453	$ 1,277,804	$ 1,288,154	$ 1,298,504	$ 1,308,855	$ 1,319,205	$ 1,329,555
MU Truck	$ 1,016,960	$ 1,018,968	$ 1,020,976	$ 1,022,984	$ 1,024,993	$ 1,027,001	$ 1,029,009
Total	$ 7,574,107	$ 7,620,014	$ 7,665,921	$ 7,711,828	$ 7,757,735	$ 7,803,642	$ 7,849,549

IBT Revenue	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 1,922,275	$ 1,934,443	$ 1,946,610	$ 1,958,778	$ 1,970,945	$ 1,983,113	$ 1,995,280
SU Truck	$ 462,065	$ 465,884	$ 469,702	$ 473,521	$ 477,340	$ 481,158	$ 484,977
MU Truck	$ 367,945	$ 368,619	$ 369,292	$ 369,966	$ 370,640	$ 371,314	$ 371,988
Total	$ 2,752,285	$ 2,768,945	$ 2,785,605	$ 2,802,265	$ 2,818,925	$ 2,835,585	$ 2,852,245

Grand Total	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 7,211,969	$ 7,257,685	$ 7,303,401	$ 7,349,117	$ 7,394,833	$ 7,440,549	$ 7,486,265
SU Truck	$ 1,729,518	$ 1,743,687	$ 1,757,856	$ 1,772,025	$ 1,786,194	$ 1,800,364	$ 1,814,533
MU Truck	$ 1,384,904	$ 1,387,587	$ 1,390,269	$ 1,392,951	$ 1,395,633	$ 1,398,315	$ 1,400,997
Total	**$ 10,326,391**	**$ 10,388,959**	**$ 10,451,526**	**$ 10,514,093**	**$ 10,576,660**	**$ 10,639,227**	**$ 10,701,795**

Sensitivity Analysis Scenario 1

Transponder Revenue	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 7,001,980	$ 7,015,420	$ 7,028,860	$ 7,042,300	$ 7,055,740	$ 7,069,180	$ 7,082,620
SU Truck	$ 1,496,474	$ 1,516,093	$ 1,535,713	$ 1,555,332	$ 1,574,951	$ 1,594,570	$ 1,614,190
MU Truck	$ 1,518,874	$ 1,537,721	$ 1,556,568	$ 1,575,415	$ 1,594,262	$ 1,613,108	$ 1,631,955
Total	$ 10,017,328	$ 10,069,234	$ 10,121,140	$ 10,173,047	$ 10,224,953	$ 10,276,859	$ 10,328,765

IBT Revenue	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 2,546,636	$ 2,551,577	$ 2,556,519	$ 2,561,461	$ 2,566,403	$ 2,571,345	$ 2,576,287
SU Truck	$ 545,178	$ 552,366	$ 559,554	$ 566,743	$ 573,931	$ 581,119	$ 588,307
MU Truck	$ 550,345	$ 557,084	$ 563,822	$ 570,561	$ 577,300	$ 584,039	$ 590,778
Total	$ 3,642,158	$ 3,661,027	$ 3,679,896	$ 3,698,765	$ 3,717,634	$ 3,736,503	$ 3,755,372

Grand Total	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 9,548,616	$ 9,566,997	$ 9,585,379	$ 9,603,761	$ 9,622,143	$ 9,640,525	$ 9,658,907
SU Truck	$ 2,041,652	$ 2,068,460	$ 2,095,267	$ 2,122,075	$ 2,148,882	$ 2,175,689	$ 2,202,497
MU Truck	$ 2,069,219	$ 2,094,804	$ 2,120,390	$ 2,145,976	$ 2,171,562	$ 2,197,148	$ 2,222,733
Total	**$ 13,659,486**	**$ 13,730,261**	**$ 13,801,037**	**$ 13,871,812**	**$ 13,942,587**	**$ 14,013,362**	**$ 14,084,137**

Appendix D-2
Gross Toll Revenue Detail (2018$)

Sensitivity Analysis Scenario 2							
Transponder Revenue	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 8,693,360	$ 8,721,784	$ 8,750,209	$ 8,778,634	$ 8,807,059	$ 8,835,484	$ 8,863,909
SU Truck	$ 1,702,477	$ 1,728,430	$ 1,754,383	$ 1,780,336	$ 1,806,289	$ 1,832,242	$ 1,858,195
MU Truck	$ 1,818,570	$ 1,843,597	$ 1,868,623	$ 1,893,649	$ 1,918,675	$ 1,943,701	$ 1,968,728
Total	$ 12,214,407	$ 12,293,811	$ 12,373,215	$ 12,452,619	$ 12,532,023	$ 12,611,427	$ 12,690,831

IBT Revenue	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 3,160,214	$ 3,170,547	$ 3,180,880	$ 3,191,213	$ 3,201,546	$ 3,211,879	$ 3,222,212
SU Truck	$ 619,306	$ 628,741	$ 638,175	$ 647,610	$ 657,044	$ 666,479	$ 675,913
MU Truck	$ 652,327	$ 661,087	$ 669,848	$ 678,609	$ 687,369	$ 696,130	$ 704,890
Total	$ 4,431,847	$ 4,460,375	$ 4,488,903	$ 4,517,431	$ 4,545,959	$ 4,574,487	$ 4,603,015

Grand Total	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Auto	$ 11,853,573	$ 11,892,331	$ 11,931,089	$ 11,969,847	$ 12,008,605	$ 12,047,362	$ 12,086,120
SU Truck	$ 2,321,783	$ 2,357,170	$ 2,392,558	$ 2,427,946	$ 2,463,333	$ 2,498,721	$ 2,534,108
MU Truck	$ 2,470,897	$ 2,504,684	$ 2,538,471	$ 2,572,258	$ 2,606,044	$ 2,639,831	$ 2,673,618
Total	**$ 16,646,253**	**$ 16,754,186**	**$ 16,862,118**	**$ 16,970,050**	**$ 17,077,982**	**$ 17,185,914**	**$ 17,293,846**

Appendix E – Net Revenue Forecast

Appendix E-1
Net Revenue Forecast ($000, 2018 $)

Primary Toll Scenario	**2022**	**2023**	**2032**	**2040**	**2045**
Gross Revenue	$ 922	$ 5,533	$ 8,255	$ 8,700	$ 9,012
O&M Costs	$ 839	$ 3,608	$ 3,626	$ 3,750	$ 3,836
Net Revenue	**$ 83**	**$ 1,925**	**$ 4,629**	**$ 4,949**	**$ 5,176**

Sensitivity Analysis Scenario 1	**2022**	**2023**	**2032**	**2040**	**2045**
Gross Revenue	$ 1,180	$ 7,096	$ 10,709	$ 11,819	$ 12,173
O&M Costs	$ 734	$ 3,057	$ 3,117	$ 3,268	$ 3,299
Net Revenue	**$ 446**	**$ 4,038**	**$ 7,592**	**$ 8,552**	**$ 8,874**

Sensitivity Analysis Scenario 2	**2022**	**2023**	**2032**	**2040**	**2045**
Gross Revenue	$ 1,321	$ 7,952	$ 12,140	$ 13,840	$ 14,380
O&M Costs	$ 671	$ 2,724	$ 2,825	$ 3,005	$ 3,046
Net Revenue	**$ 650**	**$ 5,228**	**$ 9,315**	**$ 10,835**	**$ 11,334**

Appendix E-2
Net Revenue Forecast Details (2018$)

Primary Toll Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross Revenue	$ 921,529	$ 5,533,420	$ 7,246,951	$ 8,005,036	$ 8,559,412	$ 8,223,462	$ 8,229,600	$ 8,235,855	$ 8,242,110	$ 8,248,365	$ 8,254,620	$ 8,310,248
O&M Cost	$ 839,014	$ 3,608,147	$ 4,119,966	$ 4,229,539	$ 4,093,763	$ 3,644,389	$ 3,637,952	$ 3,626,070	$ 3,619,581	$ 3,622,571	$ 3,625,560	$ 3,641,429
Total	$ 82,515	$ 1,925,273	$ 3,126,985	$ 3,775,497	$ 4,465,649	$ 4,579,074	$ 4,591,648	$ 4,609,785	$ 4,622,529	$ 4,625,794	$ 4,629,059	$ 4,668,818

Sensitivity Analysis Scenario 1	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross Revenue	$ 1,180,238	$ 7,095,613	$ 9,305,298	$ 10,291,818	$ 11,018,469	$ 10,599,831	$ 10,621,487	$ 10,643,319	$ 10,665,150	$ 10,686,982	$ 10,708,813	$ 10,847,628
O&M Cost	$ 734,499	$ 3,057,471	$ 3,442,687	$ 3,531,731	$ 3,447,678	$ 3,130,244	$ 3,125,594	$ 3,117,090	$ 3,112,414	$ 3,114,676	$ 3,116,938	$ 3,136,231
Total	$ 445,739	$ 4,038,142	$ 5,862,611	$ 6,760,087	$ 7,570,791	$ 7,469,586	$ 7,495,893	$ 7,526,228	$ 7,552,736	$ 7,572,306	$ 7,591,876	$ 7,711,397

Sensitivity Analysis Scenario 2	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross Revenue	$ 1,320,886	$ 7,952,139	$ 10,441,918	$ 11,564,528	$ 12,397,179	$ 11,941,375	$ 11,981,165	$ 12,020,867	$ 12,060,570	$ 12,100,272	$ 12,139,974	$ 12,352,479
O&M Cost	$ 671,045	$ 2,724,068	$ 3,034,709	$ 3,113,646	$ 3,062,469	$ 2,825,252	$ 2,823,550	$ 2,818,925	$ 2,817,177	$ 2,820,842	$ 2,824,508	$ 2,847,595
Total	$ 649,841	$ 5,228,071	$ 7,407,208	$ 8,450,882	$ 9,334,710	$ 9,116,123	$ 9,157,615	$ 9,201,943	$ 9,243,393	$ 9,279,429	$ 9,315,466	$ 9,504,884

Appendix E-2
Net Revenue Forecast Details (2018$)

Primary Toll Scenario	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Gross Revenue	$ 8,365,876	$ 8,421,504	$ 8,477,132	$ 8,532,760	$ 8,588,388	$ 8,644,016	$ 8,699,644	$ 8,762,211	$ 8,824,779	$ 8,887,346	$ 8,949,913	$ 9,012,480
O&M Cost	$ 3,657,298	$ 3,673,167	$ 3,688,596	$ 3,704,026	$ 3,719,455	$ 3,734,940	$ 3,750,426	$ 3,767,574	$ 3,784,723	$ 3,801,871	$ 3,818,963	$ 3,836,055
Total	$ 4,708,578	$ 4,748,337	$ 4,788,536	$ 4,828,735	$ 4,868,933	$ 4,909,076	$ 4,949,219	$ 4,994,637	$ 5,040,056	$ 5,085,475	$ 5,130,950	$ 5,176,425

Sensitivity Analysis Scenario 1	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Gross Revenue	$ 10,986,443	$ 11,125,258	$ 11,264,073	$ 11,402,888	$ 11,541,703	$ 11,680,518	$ 11,819,332	$ 11,890,108	$ 11,960,883	$ 12,031,658	$ 12,102,433	$ 12,173,208
O&M Cost	$ 3,155,523	$ 3,174,816	$ 3,193,574	$ 3,212,333	$ 3,231,091	$ 3,249,452	$ 3,267,812	$ 3,273,955	$ 3,280,098	$ 3,286,241	$ 3,292,781	$ 3,299,322
Total	$ 7,830,920	$ 7,950,442	$ 8,070,499	$ 8,190,555	$ 8,310,612	$ 8,431,066	$ 8,551,520	$ 8,616,153	$ 8,680,785	$ 8,745,417	$ 8,809,652	$ 8,873,887

Sensitivity Analysis Scenario 2	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Gross Revenue	$ 12,564,985	$ 12,777,490	$ 12,989,995	$ 13,202,501	$ 13,415,006	$ 13,627,511	$ 13,840,017	$ 13,947,949	$ 14,055,881	$ 14,163,813	$ 14,271,745	$ 14,379,678
O&M Cost	$ 2,870,683	$ 2,893,770	$ 2,916,283	$ 2,938,797	$ 2,961,311	$ 2,983,387	$ 3,005,462	$ 3,013,366	$ 3,021,270	$ 3,029,174	$ 3,037,516	$ 3,045,858
Total	$ 9,694,302	$ 9,883,720	$ 10,073,712	$ 10,263,703	$ 10,453,695	$ 10,644,124	$ 10,834,555	$ 10,934,583	$ 11,034,611	$ 11,134,639	$ 11,234,230	$ 11,333,820

Appendix E-2
Net Revenue Forecast Details (2018$)

Primary Toll Scenario	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
Gross Revenue	$ 9,075,047	$ 9,137,615	$ 9,200,182	$ 9,262,749	$ 9,325,316	$ 9,387,883	$ 9,450,451	$ 9,513,018	$ 9,575,585	$ 9,638,152	$ 9,700,719	$ 9,763,287
O&M Cost	$ 3,853,148	$ 3,870,240	$ 3,887,331	$ 3,904,424	$ 3,921,516	$ 3,938,609	$ 3,955,701	$ 3,972,792	$ 3,989,885	$ 4,006,977	$ 4,024,069	$ 4,041,162
Total	$ 5,221,900	$ 5,267,375	$ 5,312,850	$ 5,358,325	$ 5,403,800	$ 5,449,275	$ 5,494,750	$ 5,540,225	$ 5,585,701	$ 5,631,175	$ 5,676,650	$ 5,722,125

Sensitivity Analysis Scenario 1	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
Gross Revenue	$ 12,243,983	$ 12,314,758	$ 12,385,534	$ 12,456,309	$ 12,527,084	$ 12,597,859	$ 12,668,634	$ 12,739,409	$ 12,810,184	$ 12,880,960	$ 12,951,735	$ 13,022,510
O&M Cost	$ 3,305,862	$ 3,312,402	$ 3,318,943	$ 3,325,484	$ 3,332,024	$ 3,338,564	$ 3,345,105	$ 3,351,646	$ 3,358,186	$ 3,364,727	$ 3,371,267	$ 3,377,807
Total	$ 8,938,121	$ 9,002,356	$ 9,066,590	$ 9,130,825	$ 9,195,060	$ 9,259,295	$ 9,323,529	$ 9,387,764	$ 9,451,998	$ 9,516,233	$ 9,580,468	$ 9,644,703

Sensitivity Analysis Scenario 2	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
Gross Revenue	$ 14,487,610	$ 14,595,542	$ 14,703,474	$ 14,811,406	$ 14,919,339	$ 15,027,271	$ 15,135,203	$ 15,243,135	$ 15,351,067	$ 15,458,999	$ 15,566,932	$ 15,674,864
O&M Cost	$ 3,054,200	$ 3,062,541	$ 3,070,884	$ 3,079,225	$ 3,087,567	$ 3,095,909	$ 3,104,251	$ 3,112,593	$ 3,120,935	$ 3,129,277	$ 3,137,619	$ 3,145,961
Total	$ 11,433,410	$ 11,533,001	$ 11,632,591	$ 11,732,181	$ 11,831,771	$ 11,931,362	$ 12,030,952	$ 12,130,542	$ 12,230,132	$ 12,329,723	$ 12,429,313	$ 12,528,903

Appendix E-2
Net Revenue Forecast Details (2018$)

Primary Toll Scenario	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069
Gross Revenue	$ 9,825,854	$ 9,888,421	$ 9,950,988	$ 10,013,555	$ 10,076,123	$ 10,138,690	$ 10,201,257	$ 10,263,824	$ 10,326,391	$ 10,388,959	$ 10,451,526	$ 10,514,093
O&M Cost	$ 4,058,253	$ 4,075,345	$ 4,092,438	$ 4,109,530	$ 4,126,622	$ 4,143,714	$ 4,160,806	$ 4,177,899	$ 4,194,991	$ 4,212,083	$ 4,229,175	$ 4,246,267
Total	$ 5,767,601	$ 5,813,076	$ 5,858,550	$ 5,904,025	$ 5,949,500	$ 5,994,976	$ 6,040,451	$ 6,085,925	$ 6,131,400	$ 6,176,875	$ 6,222,351	$ 6,267,826

Sensitivity Analysis Scenario 1	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069
Gross Revenue	$ 13,093,285	$ 13,164,060	$ 13,234,835	$ 13,305,611	$ 13,376,386	$ 13,447,161	$ 13,517,936	$ 13,588,711	$ 13,659,486	$ 13,730,261	$ 13,801,037	$ 13,871,812
O&M Cost	$ 3,384,348	$ 3,390,889	$ 3,397,429	$ 3,403,969	$ 3,410,510	$ 3,417,051	$ 3,423,591	$ 3,430,131	$ 3,436,672	$ 3,443,212	$ 3,449,753	$ 3,456,294
Total	$ 9,708,937	$ 9,773,172	$ 9,837,406	$ 9,901,641	$ 9,965,876	$ 10,030,110	$ 10,094,345	$ 10,158,580	$ 10,222,814	$ 10,287,049	$ 10,351,283	$ 10,415,518

Sensitivity Analysis Scenario 2	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069
Gross Revenue	$ 15,782,796	$ 15,890,728	$ 15,998,660	$ 16,106,593	$ 16,214,525	$ 16,322,457	$ 16,430,389	$ 16,538,321	$ 16,646,253	$ 16,754,186	$ 16,862,118	$ 16,970,050
O&M Cost	$ 3,154,303	$ 3,162,645	$ 3,170,987	$ 3,179,328	$ 3,187,670	$ 3,196,013	$ 3,204,354	$ 3,212,696	$ 3,221,038	$ 3,229,380	$ 3,237,722	$ 3,246,064
Total	$ 12,628,493	$ 12,728,083	$ 12,827,674	$ 12,927,264	$ 13,026,854	$ 13,126,444	$ 13,226,035	$ 13,325,625	$ 13,425,215	$ 13,524,806	$ 13,624,396	$ 13,723,986

Appendix E-2
Net Revenue Forecast Details (2018$)

Primary Toll Scenario	2070	2071	2072
Gross Revenue	$ 10,576,660	$ 10,639,227	$ 10,701,795
O&M Cost	$ 4,263,360	$ 4,280,452	$ 4,297,544
Total	$ 6,313,301	$ 6,358,775	$ 6,404,250

Sensitivity Analysis Scenario 1	2070	2071	2072
Gross Revenue	$ 13,942,587	$ 14,013,362	$ 14,084,137
O&M Cost	$ 3,462,834	$ 3,469,374	$ 3,475,915
Total	$ 10,479,753	$ 10,543,988	$ 10,608,222

Sensitivity Analysis Scenario 2	2070	2071	2072
Gross Revenue	$ 17,077,982	$ 17,185,914	$ 17,293,846
O&M Cost	$ 3,254,406	$ 3,262,748	$ 3,271,090
Total	$ 13,823,576	$ 13,923,167	$ 14,022,757

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Appendix H
Tolling Review: Environmental Justice Evaluation

BACKGROUND

The Louisiana Department of Transportation and Development (DOTD) and Regional Planning Commission (RPC) have identified the Belle Chasse tunnel and bridge crossing of the Gulf Intracoastal Waterway (GIWW) as a high priority project. Both structures are old and are experiencing frequent and increasing scheduled and non-scheduled maintenance closures. Unfortunately, the DOTD does not have adequate funding to address the situation and this shortfall is not forecast to improve in the foreseeable future using standard funding sources.

Therefore, the DOTD is exploring different potential approaches to fund a reliable bridge over the GIWW on LA 23 (Belle Chasse Highway). In addition to the *Highway Bridge Replacement and Rehabilitation* (HBRRP) program (23 CFR 650) and other standard federal/state funding programs, DOTD has submitted a federal *Infrastructure for Rebuilding America* (INFRA) grant, which has been preliminarily approved by the US Department of Transportation. DOTD is also evaluating the possibility of entering into a Public-Private Partnership (P3). The latter would potentially involve imposition of some level of tolls on the GIWW crossing for a yet-to-be determined period.

In the past, some federally funded projects have had a disproportionate impact on minority and low-income populations. To address this, the 1994 presidential Executive Order (E.O.) 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was promulgated.[1] It focuses on the potential environmental effects or impacts of federal actions on minority and low-income populations. It further directs federal agencies (FHWA in the case of this project) to identify and address disproportionately high adverse health or environmental impacts on minority and low-income populations, to the greatest extent practicable. The Belle Chasse Bridge and Tunnel project will use federal (FHWA) funds as part of the mix to build a new bridge. Therefore the E.O. applies to the project and the purpose of the following analyses is to determine whether there is a potential disproportionate impact on minority and low-income populations on the West Bank of Plaquemines Parish.

While no decisions regarding the funding mix have been made, the potential impacts of tolling on the residents of the West Bank of Plaquemines Parish are hereby evaluated, with particular attention on potential impacts to the low-income / minority populations to assist in determining whether there are potential environmental justice (EJ) concerns. Because the final design and cost of the bridge, as well as the actual funding mix are unknown, this evaluation is necessarily general. These unknowns affect the necessity of applying a toll, and if so, the level and duration of a toll.

[1] Federal Register, Vol. 59, No. 32. Wednesday, February 16, 1994.

POTENTIAL TOLL FUNDING

The DOTD commissioned an initial general study to investigate the feasibility of using tolls to fund projects across the state. That report, *Task 2 Feasibility of Tolling Priority A and B Megaprojects*[2] identified the Belle Chasse bridge as a potential candidate project to be partially funded by tolls.

In 2017, the Louisiana Department of Transportation (LADOTD, i.e. the Department) initiated the Public Private Partnership process (P3) with Legislative approval as an option to procure funding for the Belle Chasse Bridge & Tunnel replacement project. The project will replace the Judge Perez Bridge movable bridge and the Belle Chasse tunnel with one 4-lane, fixed span bridge, with pedestrian and bicycle accommodations over the Gulf Intracoastal Waterway (GIWW).

The DOTD conducted a subsequent toll funding feasibility study[3] which focused solely on the proposed Belle Chasse bridge to determine the feasibility of using tolls to fund part of the structure's construction and operation and maintenance costs. That study, in its entirety is contained in Appendix G. It is important to note that this is financial feasibility analysis and not a Department policy.

The Public Private Partnership (P3) project delivery model is a contractual agreement between public and private entities who agree to engage in a long-term partnership in order to fund, design, build, and maintain a public asset for any given length of time where the private partner assumes the risk and management responsibility of the asset. The P3 process allows for public assets, such as transportation infrastructure, to be constructed without, or with minimal capital funds contributions on behalf of the public entity. This model is an opportunity to fill a financial void in the state in terms of the replacement of the bridge and tunnel. Without the public and private contributions, including tolls, there is no predetermined time that this project would be completed. State law authorizes, the DOTD to determine the acceptance of a public partner and the terms of that agreement provided a hearing is held with the Joint Transportation committees for Highways and Public Works of the Louisiana Legislature. The details of the preferred agreement will be presented to the public prior to a final negotiated agreement.

If P3 is selected as the optimum procurement method to deliver the Belle Chasse project, the Department has committed to providing the public with the lowest possible toll for the shortest amount of time. There will be no prohibition to the state providing additional dollars to eliminate tolls commitments early. The procedure for early elimination of tolls is a negotiated term.

The current cost estimate to design and construct this project is approximately $149,000,000.00. Right of Way and Utility relocation services will be funded by other state sources at a cost of approximately $13,000,000.00 which reduces the P3 cost to approximately $136,000,000.00. As a measure to reduce toll rates, the Department in conjunction with the New Orleans Regional Planning Commission has committed to contribute $83,200,000.00 of capital costs to the project; therefore, reducing the required

[2] Prepared for the Louisiana Department of Transportation and Development. Prepared by HDR Engineering, Inc. and Alliance Transportation Group, Inc. December 2017.

[3] LA 23 Belle Chasse Bridge and Tunnel Replacement Level 2 Traffic and Revenue Study (FINAL). Prepared for the Louisiana Department of Transportation and Development. Prepared by HDR Engineering, Inc. and Alliance Transportation Group, Inc. September 2018.

P3 contribution to approximately $53,000,000.00. Capital costs include a $45,000,000.00 Federally generated INFRA Grant for viable toll infrastructure.

To ensure a competitive negotiation with P3 Proposers, while considering public interests, the Department will not consider a toll concession greater than 30 years. Toll rates, toll concession terms, direction of tolling (northbound and southbound), and potential exemptions for users of the facility will be suggested by each P3 Proposer and subject to negotiation with the Department in keeping with our goal of the lowest possible toll for the shortest amount of time. Louisiana Law allows non-revenue user exemptions for firefighters, volunteer firefighters, emergency vehicles, law enforcement, organized militia of the state, disabled American veterans, public vehicles, mass transportation, school buses, and students. These exemptions as well as other suggestions for pricing such as reduced or free tolls for parish residents, the elderly, Medicaid recipients, low income households, multiple vehicle daily trips, and increased tolls for non-residents and additional axles requested by the public will not be prohibited and subject to negotiation.

It is expected that toll rates could range from $0.50 to $1.50 for autos and up to $3.00 to $9.00 for multi-unit trucks. With this range of toll rates, diversion rates to other facilities, such as LA 406 Woodland Highway, could receive between 7% and 50% additional traffic volume. The existing Judge Perez Bridge opens for maritime traffic approximately 10 times daily, estimated to be approximately 110 minutes per day. Each bridge opening employs cost to the traveling user because of the time delay causing the proposed alternative routes to be used in the current condition.

Toll collection methods have not been determined by the Department and will also be subject to Proposer suggestions and negotiation. Cash collection is not prohibited, but the industry standard and preferred method of collection is an all-electronic roadside system where vehicles are allowed to maintain traffic flow through the facility without slowing or stopping.

For those opting to not pay a toll, two distinct un-tolled routes exist, both utilizing LA 406 Woodland Highway to LA 407. The user has a choice to either continue from LA 407 to either LA 428 or US 90B. Improvements on those routes will continue to be the responsibility of the state Department of Transportation and Development and subject to available funds.

Other options include using the un-tolled bicycle or pedestrian facility located on the proposed Belle Chasse Bridge. In addition to these options, a free public transit service is operated by the Plaquemines Parish Government Community Action Agency. There are no restrictions to who can use this service. On the West Bank of the Parish the demand response service covers the area between Boothville and Belle Chasse and includes the Ochsner Hospital West Bank with operation times from 6:30 am to 5:00 pm.

Instituting tolls on the proposed facility may have an impact on low income households. When un-tolled routes are used, travel times will increase due to longer vehicle miles travelled. The alternate route user could see an increase of up to 7 miles and 12 minutes as compared to the tolled route. The low-income household would be presented with considering the additional vehicle wear and fuel costs of the alternate route versus paying a toll to cross the new facility. Vehicle miles travelled has the ability to affect Value of Time for the individual or family. Either alternate route proposes a decision to the low-income user, with regards to cost. Both choices, tolled or un-tolled will increase the user cost for the individual or

family. With rising markets and inflation, increased user costs may affect not only necessary budget items such as groceries and utilities, but will most likely affect disposable income the most.

GIWW CROSSING ALTERNATIVES

An important component of evaluating the potential impact of tolling a bridge or highway is the availability of alternative toll-free routes (aka: toll avoidance routes) and the comparative travel times and distances. In this case the LA 407 (General De Gaulle Drive) bridge located about 3.2 miles and 3.5 minutes north of the Belle Chasse tunnel and bridge via LA 406 (Woodland Highway) is the toll-free route to cross the GIWW. It provides comparable capacity and reliability to the proposed bridge in that is it is a four-lane fixed span which is always open to vehicular traffic. Like LA 23, it provides a direct connection to US 90 B (West Bank Expressway) and the Crescent City Connection (CCC) bridge over the Mississippi River. The latter bridge is the only direct vehicular commuter route between the New Orleans CBD and the West Bank sections of Jefferson, Orleans and Plaquemines parishes.

To evaluate the viability of the LA 407 bridge as a toll-free alternative two routes and scenarios are presented below. For each of the two toll-free routes described below the maximum car technique was used to determine the beginning point to end travel time and distance. Three trips were made on each route during a normal (school in session, non-holiday, no unusual weather) mid-day weekday. The maximum car technique calls for the driver to travel at the posted speed limit, unless impeded by traffic and observe all other traffic laws.

Local Trips – Many Plaquemines West Bank residents frequent shopping, employment, health care and other establishments located in Jefferson Parish in the LA 23 corridor between the GIWW and US 90 B. Major retail outlets, large grocery stores, national drug store chains, a variety of restaurants and a hospital are all located there. These establishments are not present on the south side of the GIWW in Plaquemines Parish.

Figure EJ-1 depicts the Local Trip routes, mileage and travel time between the LA 23/LA 406 intersection on the south side of the GIWW and the LA 23/LA 428 intersection on the north side. The former intersection and trip end point is the point at which north-bound drivers must decide between the tolled or toll-free route. It is likewise the point at which south-bound drivers on either route come back together on LA 23. The LA 23/LA 428 intersection is the other trip end. It is a relatively convenient re-entry and departure point for local north and south-bound traffic respectively. Many of the establishments which are local traffic generators are located near this intersection. Figure EJ-1 provides a comparison of the two alternative local trip routes. As that Figure indicates, the local trip time and distance on the tolled route is 5 minutes and 2.3 miles, while the figures for the toll-free route are 17 minutes and 8.9 miles.



Tolled Route = 5 Minutes / 2.3 Miles
Toll-Free Route = 17 Minutes / 8.9 Miles

Figure EJ-1:
Local Trips: Tolled vs. Toll-Free Alternative Routes

External Trips – Traffic count data collected as part of the traffic study indicated a relatively balanced AM and PM commuter traffic flow. Residents traveling northward towards US 90B and the CCC accessing the New Orleans CBD are balanced by the inflow of workers going to the petrochemical employment centers.

Figure EJ-2 depicts the External Trip routes, mileage and travel time between the LA 23/LA 406 intersection, the south side of the GIWW end point and the US 90B/LA 407 interchange, the north side end point. The south side end point was selected for the same reason as stated above in the Local Trips section. The north side end point interchange is the beginning/end of the Crescent City Connection Bridge. As the gateway to the East Bank, CBD, I-10 east and west-bound it is the single most heavily trafficked interchange/intersection on the West Bank and therefore the most logical end point for external trips. Figure EJ-2 provides a comparison of the two alternative external trip routes. As that Figure indicates, the local trip time and distance on the tolled route is 13 minutes and 6.8 miles, while the figures for the toll-free route are 15 minutes and 7.6 miles.

DEMOGRAPHIC ANALYSIS OF THE WEST BANK OF PLAQUEMINES PARISH

Geography – The settlement patterns and distribution of population in Plaquemines Parish are largely shaped by its unique geography. The Mississippi River divides the Parish in half lengthwise. The protected area between the River and hurricane flood protection levee system is very narrow. The Census Bureau has estimated the 2017 Parish population at 23,584, with 22,213 people (94%) residing on the West Bank and 1,371 residing on the East Bank. There are no incorporated towns on either side of the River. Only two local ferries span the mile-wide river, connecting the East and West banks at Belle Chasse and Pointe a la Hache. This geography results in east and west bank sections of the Parish that are functionally separate.

While the West Bank is home to most of the population, it is largely concentrated at the northern end, in the Belle Chasse area. From the GIWW in Belle Chasse, it is approximately 70 miles south on LA 23 to land's end in Venice. The remaining West Bank population is spread along that highway and thin ribbon of land between the levees south of Belle Chasse.

Basis of Analysis – The GIWW is a geographic line that residents and workers on the West Bank of the Parish must cross for both every day and special trip purposes. Whether a person lives in Belle Chasse or in Venice access to the closest hospital, large grocery store, big-box home improvement center, Interstate highway system, airport, etc. require crossing the GIWW. Therefore, for the purposes of the following demographic analyses, the entire West Bank of Plaquemines Parish is the key geographic area of analysis. For comparison and context purposes statistics are also provided for the threshold jurisdiction, Plaquemines Parish as a whole, the East Bank and the eight-parish Metropolitan Statistical Area (MSA).

West Bank Demographic Profile - As table EJ-1 indicates, the West Bank has 94% of the population and households in the Parish. The total West Bank population breaks down and compares to the Parish and MSA as follows:



Tolled Route = 13 Minutes / 6.8 Miles
Toll-Free Route = 15 Minutes / 7.6 Miles

Figure EJ-2:
Tolled vs. Toll-Free External Trips: Alternative Routes

- The number, concentration and location of minority populations is one of the two key factors considered when evaluating potential EJ concerns. Of the total 22,213 West Bank residents, 5,947 or 26.8% are classified as being minority by Census Bureau standards. This is about 3% lower than the Parish at 30.5%. While the East Bank total population is very low (1,371 people), just over 91% are classified as minority and this high concentration drives the Parish percent minority population. Note that the West Bank minority population is substantially lower than the MSA at 41.8%.

- People who identify as Hispanic or Latino make up 6.6% of the West Bank population, compared to the Parish at 6.2% of the population. Only 0.6% of the East Bank population identifies as Hispanic. The West Bank figure is lower than the 8.4% of the MSA population which identifies Hispanic.

- 150 Parish households reported limited English language proficiency. All are located on the West Bank.

- According to the Census Bureau, 11.8% of the West Bank population is classified as elderly, which is about the same as that of the Parish and roughly 3% lower than the East Bank and 2% lower than the MSA.

West Bank Socio-Economic Profile – Income, specifically as represented by poverty, as defined by the Census Bureau is a second key factor considered when evaluating potential EJ concerns. The poverty threshold of a family includes all income earned by the members living together in one household and the threshold varies by size of family. The income considered includes earnings, rents, unemployment benefits and other monetary compensation. It does not include non-monetary benefits such as public housing, food stamps or Medicaid. Certain populations are excluded from the Census Bureau poverty determination. One such population that is present on West Bank are the members of the armed forces living in the barracks at the Naval Air Station / Joint Reserve Base in Belle Chasse. The poverty thresholds do not vary geographically. They are periodically revised for inflation using the Consumer Price Index. Additional information on how the Census Bureau measure poverty can be found at: https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html

As indicated in Table EJ-2 the median household income and households in poverty statistics for the Parish are disproportionately affected by the small number of people and households on the East Bank. The East Bank only has 479 households, but median household income is much higher than for the West Bank or the MSA. At the same time the East Bank also has a disproportionately high (27.8%) percent of households in poverty. This unique situation is driven by a proportionately small number of households with very high-income levels and a proportionately large number of households in poverty. To an extent, this situation drives the median household income and households in poverty percentages for the Parish as a whole, but it bears no resemblance to that of the West Bank, which is the focus of this analysis.

Table EJ-1

Plaquemines Parish West Bank Demographic Profile

	Baseline Population and Households				2017 Minority		2017 Hispanic/Latino		2017 Limited English		2017 Elderly	
	2017 Total		2017 Total									
	Population	%	Household	%	Population	%	Population	%	Household	%	Population	%
Metro. Statistical Area	1,250,247	100.0%	479,206	100.0%	522,869	41.8%	105,601	8.4%	13,990	2.9%	171,143	13.7%
Plaquemines Parish	23,584	100.0%	8,644	100.0%	7,199	30.5%	1,465	6.2%	150	1.7%	2,825	12.0%
West Bank	22,213	94.2%	8,165	94.5%	5,947	26.8%	1,457	6.6%	150	1.8%	2,618	11.8%
East Bank	1,371	5.8%	479	5.5%	1,252	91.3%	8	0.6%	0	0.0%	207	15.1%

Data Sources: 1) New Orleans Regional Planning Commission, June 2018 using US Census Bureau ACS data (see note 4).

2) MSA = US Census Bureau 2013 Metropolitan Statistical Area - Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John the Baptist & St. Tammany Parishes.

3) Minority = All races other than White; Hispanic is not a race, but an ethnicity & therefore calculated separately for Title VI purposes.

4) Minority, elderly, median income & limited english proficiency per US Census Bureau American Community Survey 2016 (pub 2017) 5 year estimates (2012-2016).

Table EJ-2

Plaquemines Parish West Bank Socio-Economic Profile

	2017 Median Income		Households in Poverty		Food Stamp Recipients	
	Household	%	Household	%	Population	%
Metro. Statistical Area	$ 48,319	--	85,237	17.8%	94,057	7.5%
Plaquemines Parish	$ 50,251	--	1,588	18.4%	1,134	4.8%
West Bank	$ 45,221	90.0%	1,455	17.8%	1,038	4.7%
East Bank	$ 55,322	110.1%	133	27.8%	96	7.0%

Data Sources: 1) New Orleans Regional Planning Commission, June 2018 using US Census Bureau ACS data & LA DSS data (detailed sources below).

2) MSA = US Census Bureau 2013 Metropolitan Statistical Area - Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John the Baptist & St. Tammany Parishes.

3) Food Stamp Recipients from the Louisiana Department of Child & Family Services, 2017 summarized by Census Block.

4) Households In Poverty and Median HH Income Data per US Census Bureau American Community Survey 2016 (pub 2017) 5 year estimates (2012-2016). Median HH Income reported in 2016 inflation-adjusted dollars.

5) Note - for WB Average Median HH Income Data since HH level is supressed. EB Median HH Income from 2016 annual data for Census Tract (EB is one tract). MSA & parish median HH income is published.

In general, the West Bank of Plaquemines Parish is a more diverse area in terms of housing choices, population makeup and income levels. Looking at both median household income and households in poverty, the West Bank resembles the MSA. When examining the West Bank median household income, note that it is close to the MSA at $45,221 per year. The West Bank also has an identical 17.8% of households in poverty, like the MSA.

The number of food stamp recipients in an area is a secondary indicator of potential poverty and is included in Table EJ-2 for that reason. Note that the percent of West Bank food stamp recipients is noticeably lower than the MSA and East Bank and just below the Parish as a whole.

Geographic Distribution of Minority and Low-Income Populations – In order to put the foregoing demographic and socio-economic discussions into a geographic context the RPC broke down the very large Census Tracts covering Plaquemines Parish West Bank into Block Group sub-areas which the Census Bureau refers to as GEOIDs. Each has a numeric code that uniquely identifies geographic areas for which the Census Bureau tabulates data.

Whereas potential EJ impacts are partially determined by the presence of both a disproportionately large percent minority population and a disproportionately high percent of households in poverty level, the RPC cross-tabulated and overlaid these two factors to identify if and where such areas exist. Observations include:

- None of the GEOIDs which cover Belle Chasse, the highest population density area on the West Bank and in the Parish. Belle Chasse is also the area around the project bridge covered by this EA.

- The six cross-hatched GEOIDs on Figure EJ-3 identify the broad West Bank areas which meet both the poverty and minority thresholds of 18.37% and 30.52% respectively. Even though these GEOIDs are sub-areas of Census Tracts, note that two (ending in numbers …4001 and …6001) still cover large areas, most of which are open marsh with very few inhabitants.

- These six GEOIDs account for a total of 5,744 people or 26% of the total West Bank population. The minority subset of 3,363 people represents 57% of the West Bank minority population, indicating relatively high concentrations in those GEOIDs.

- The six cross-hatched GEOIDs also account for 1,940 total households or 24% of the total number on the West Bank. Of these, 36% or 699 households are in poverty. Those 699 households represent 48% of all West Bank households in poverty, indicating relatively high concentrations in those areas.

Geographic Distribution of Hispanic and Low-Income Populations – Hispanic or Latino ethnicity is a secondary consideration in an EJ analysis. Figure EJ-4 depicts the two GEOIDs where Hispanic ethnicity and households in poverty are both over the Parish thresholds. Observations include:

- Neither of the two GEOIDs are in the Belle Chasse area, near the Bridge and Tunnel Project.

GEOID: 220750502001
Total Pop: 2292
Per Minority: 0.83%
Per Poverty HH: 4.61%

GEOID: 220750502005
Total Pop: 948
Per Minority: 16.98%
Per Poverty HH: 22.49%

GEOID: 220750502003
Total Pop: 1738
Per Minority: 8.29%
Per Poverty HH: 4.34%

GEOID: 220750502002
Total Pop: 1816
Per Minority: 7.32%
Per Poverty HH: 12.52%

GEOID: 220750502004
Total Pop: 1735
Per Minority: 16.66%
Per Poverty HH: 0.00%

Belle Chasse

GEOID: 220750503001
Total Pop: 2815
Per Minority: 28.31%
Per Poverty HH: 5.18%

GEOID: 220750503002
Total Pop: 1508
Per Minority: 12.67%
Per Poverty HH: 21.81%

GEOID: 220750503003
Total Pop: 857
Per Minority: 17.27%
Per Poverty HH: 4.53%

GEOID: 220750504002
Total Pop: 2581
Per Minority: 44.98%
Per Poverty HH: 35.78%

GEOID: 220750505001
Total Pop: 367
Per Minority: 87.19%
Per Poverty HH: 64.29%

GEOID: 220750505002
Total Pop: 647
Per Minority: 87.33%
Per Poverty HH: 42.93%

GEOID: 220750505003
Total Pop: 418
Per Minority: 48.09%
Per Poverty HH: 15.56%

GEOID: 220759900000
Total Pop: 0
Per Minority: NA
Per Poverty HH: NA

GEOID: 220750507002
Total Pop: 268
Per Minority: 8.58%
Per Poverty HH: 24.29%

GEOID: 220750506001
Total Pop: 604
Per Minority: 30.30%
Per Poverty HH: 32.31%

GEOID: 220750508002
Total Pop: 732
Per Minority: 38.93%
Per Poverty HH: 33.57%

GEOID: 220750507001
Total Pop: 124
Per Minority: 16.13%
Per Poverty HH: 0.00%

GEOID: 220750507004
Total Pop: 275
Per Minority: 20.73%
Per Poverty HH: 27.35%

Mississippi River

GEOID: 220750504001
Total Pop: 1095
Per Minority: 71.78%
Per Poverty HH: 24.51%

GEOID: 220750506002
Total Pop: 322
Per Minority: 76.40%
Per Poverty HH: 40.74%

GEOID: 220750507003
Total Pop: 597
Per Minority: 18.93%
Per Poverty HH: 27.95%

Mississippi River

GEOID: 220750508001
Total Pop: 474
Per Minority: 22.15%
Per Poverty HH: 36.54%

Disclaimer: The data herein, including but not limited to geographic data, tabular data, analytical data, electronic data structures or files, are provided "as is" without warranty of any kind, either expressed or implied, or statutory, including, but not limited to, the implied warranties or merchantability and fitness for a particular purpose. The entire risk as to the quality and performance of the data is assumed by the user. No guarantee of accuracy is granted, nor is any responsibility for reliance thereon assumed. In no event shall the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist, St. Tammany and Tangipahoa Parishes (RPC) be liable for direct, indirect, incidental, consequential or special damages of any kind, including, but not limited to, loss of anticipated profits or benefits arising out of use of or reliance on the data. The RPC does not accept liability for any damages or misrepresentation caused by inaccuracies in the data or as a result of changes to the data caused by system transfers or other transformations or conversions, nor is there responsibility assumed to maintain the data in any manner or form. These data have been developed from the best available sources. Although efforts have been made to ensure that the data are accurate and reliable, errors and variable conditions originating from physical sources used to develop the data may be reflected in the data supplied. Users must be aware of these conditions and bear responsibility for the appropriate use of the information with respect to possible errors, scale, resolution, rectification, positional accuracy, development methodology, time period, environmental and climatic conditions and other circumstances specific to these data. The user is responsible for understanding the accuracy limitations of the data provided herein. The burden for determining fitness for use lies entirely with the user. The user should refer to the accompanying metadata notes for a description of the data and data development procedures. Although these data have been processed successfully on computers at the RPC, no guarantee, expressed or implied, is made by RPC regarding the use of these data on any other system, nor does the act of distribution constitute or imply any such warranty. Distribution of these data is intended for information purposes and should not be considered authoritative for navigational, engineering, legal and other site-specific uses.

KEY

- Poverty HH >18.37% AND Minority > 30.52%
- Plaquemines Parish
- **Existing Belle Chasse Bridge Location 2018**

Source Data: American Community Survey Data (ACS) 2016 5 year estimates (which estimates population and demographics between 2012 and 2016) block group dataset. These data are subject to significant error and should only be used as approximate guides for information on these variables.

N E S W

0 5 10 20 Miles

Figure EJ-3 Plaquemines Parish - West Bank Demographic Analysis

Minority Population and Households in Poverty by Census Block Groups 2017

Prepared by the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist, St. Tammany and Tangipahoa Parishes, June, 2018

RPC Task: UPWP A1.18
& Belle Chasse Tunnel Bridge Replacement

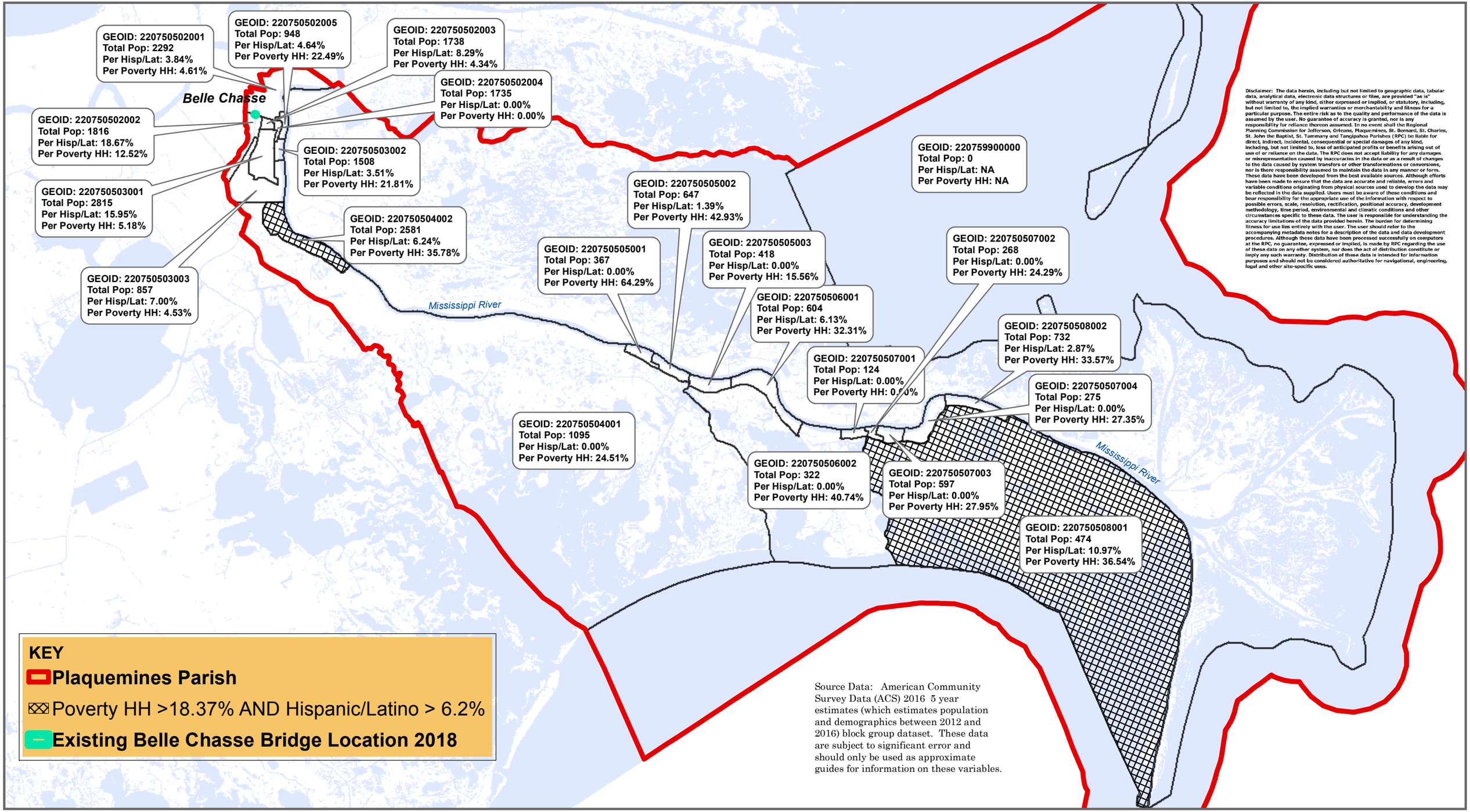


Figure EJ-4 Plaquemines Parish - West Bank Demographic Analysis

Hispanic/Latino Ethnicity Population and Households in Poverty by Census Block Groups 2017

Prepared by the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist, St. Tammany and Tangipahoa Parishes, June, 2018

RPC Task: UPWP A1.18
& Belle Chasse Tunnel Bridge Replacement

- Unlike the GEOIDs having both minority populations and households in poverty over the thresholds, Hispanic population in the two GEOIDs is very near the Parish threshold.

COMMUNITY SURVEY

Background - To obtain a wider sample of public input related to a potential funding mechanism for the proposed Belle Chasse bridge on LA 23, DOTD and their consultant developed a community questionnaire. Stakeholder interviews helped to form the set of questions in the public survey. The survey included questions about race and income to identify basic demographic and socio-economic characteristics and relate those to the EJ analysis.

The survey sought to capture content across 22 data points. Five questions asked respondents to provide insights about their usage of the existing bridge and tunnel, 10 questions asked perspectives about tolling mechanisms and features, and seven were demographic in nature. Appendix EJ contains a blank copy of the survey and frequencies for all responses to questions. The following is a summary description of the survey questions:

1. How often do you use the Belle Chasse Tunnel or Bridge?
2. How do you usually cross the GIWW?
3. Why do you cross the GIWW?
4. If a new bridge is built, what should be the most important considerations?
5. Which route do you most often take to cross the GIWW?
6. If 100% funding is not available for project funding, how willing would you be to pay a toll?
7. If tolls are used to pay for part of the bridge, how important is each of the following features –
    a. Purchasing passes at a convenient location
    b. Managing pass payments online
    c. Ability to combine multiple vehicles in one pass account
    d. Availability of a customer service line
    e. Dedicating toll revenue to the construction and maintenance of the bridge
    f. Providing a discount to Plaquemines Parish residents
    g. Ability to access information about your toll account
    h. The toll collection process should not slow down or stop traffic
8. In what Zip Code do you live?
9. If you own a business in Plaquemines Parish, in what Zip Code is it located?
10. If you work outside of the home, in what Zip Code do you work?
11. What do you identify your race to be?
12. Are you a student?
13. How many people live in your household?
14. What is your approximate yearly household income?

To maximize opportunities public participation, the online survey opportunity employed varying marketing strategies:

- The online survey was linked from the DOTD Facebook page
- Notices with link information were placed in the *Plaquemines Gazette* newspaper

- E-mail requests to parish stakeholders for dissemination to constituent bases
- Various Parish elected officials, news entities and stakeholders within the project area posted the survey web-link on their respective websites/social media or distributed via email

DOTD's consultant monitored response rates and continued to encourage stakeholders to disseminate the survey to the public throughout the survey period. Given that Plaquemines Parish, based on 2016 U.S. Census data, has a racial makeup of 70% white residents, 20% black residents, 7% Hispanic residents and 4% Asian residents, the team monitored response rates to determine whether the survey was sufficiently reaching the parish's various populations.

This analysis revealed that mid-way into the survey period, 5% or fewer of any one minority population within the parish identified themselves as having responded, yielding the opportunity for additional recruiting within these populations for participation.

More aggressive supplemental contacts were conducted within these constituencies during the remaining survey period as a result, including multiple layers of outreach to faith-based organizations, governmental entities and non-profit partners representing these minority populations.

During the final week of the survey's open period, the consultant conducted a grassroots community-based outreach event at the grocery store in Belle Chasse to provide a personal opportunity for individuals to complete the survey who may not have received online notifications. This effort successfully garnered another 86 responses from area residents, increasing the response rate of participants to 8% amongst the black population, 3% Hispanic respondents and 2% Native American.

Responses for the Belle Chasse Bridge & Tunnel Survey totaled 2,015.

The survey was a good effort to involve a broad range of people living and working on the West Bank of Plaquemines Parish. However, the results should be viewed carefully. Unlike one-on-one surveys or those administered to a selected group in a controlled setting, this community survey was open to all. Questions were asked about income to provide insights regarding travel patterns and purposes, these data points may be skewed. In the income cross-tabbed tables, the survey question regarding "student" status showed 31% of respondents who said they are students (98 individuals) classified their income levels above $50,000 per year, while 10% of those who stated they are students (39 individuals) classified their income levels at over $100,000 per year. These may be accurate statements, but usually students are not in these income brackets and this outlier may reflect respondents' discomfort with the question. Approximately 8% of survey respondents chose not to answer the income question overall.

Summary Results – It is apparent that the survey responses are very much (disproportionately) rooted in the Belle Chasse area and this should be considered when interpreting and drawing conclusions from the results. As noted below, responses to question 11, regarding race or ethnicity included many write-in responses questioning the need for the question, as well as many non-responses. This calls into question the validity of the survey results for that EJ indicator, including cross-tabulation of race with other responses.

The following are selected observations from the survey results which may provide information which is relevant to the EJ discussion. Frequency of responses provides the following information:

- 65% of respondents make at least 1 round trip per day using the Belle Chasse Tunnel/Bridge pair, with 1 – 5 trips per day being the modal response category.

- Single occupancy vehicle trips across the GIWW account for over 80% of responses.

- The reasons for trips crossing the GIWW are many, with Work, Grocery Shopping, Visit Family and Friends, Other Shopping and Medical all being checked (check all that apply question) by over 50% of respondents. The many reasons to cross correlates strongly with the high number of trips per day.

- By far, reducing traffic congestion and travel time is the most common reason people have for supporting a new bridge.

- Just over 90% of respondents indicated that they use the Belle Chasse Tunnel/Bridge pair when crossing the GIWW.

- Just under 48% of respondents indicated that they were "Not willing at all" to pay a toll to pay for a new bridge. Conversely a combined 24% indicating that they would be "Very Willing" or "Somewhat Willing" to support tolls.

- When asked to rate how important the eight potential features of a toll system might be (question 7), only "customer service line", at 49% was checked by fewer than half of respondents as being "Very Important", with the other seven factors all being checked as "Very Important" by 60% or more of respondents.

- 71% of respondents indicated that they live in Belle Chasse, a concentration that roughly approximates the population distribution of the Parish. However, West Bank residents in the more southerly areas (Port Sulphur, Venice, etc.) were somewhat under-represented in the responses.

- Likewise, 84% of people indicating that they own a business in Plaquemines Parish, indicated that it is in Belle Chasse.

- Question 11, "What do you identify your race to be?" indicated that 84% of respondents were White and 8% Black. The question also inspired a large number of respondents to either not answer or write-in something.

- About 8% of respondents indicated that they are students.

- Over 75% of respondents live in households with between 2 and 4 persons. The larger household size (and probably vehicles) would seem to be linked to the relatively high number of trips per day across the GIWW.

- Over 57% of respondents indicated an annual household income of $75,000 or higher, while 9% indicated household income of under $25,000. This is roughly half of the percent indicated as being below the federal poverty level by the Census, indicating that lower income persons did not participate in the survey proportionately.

Cross tabulating race and ethnicity (question 11) with selected other questions reveals the following information.

- Regardless of race or ethnicity, the Belle Chasse Tunnel/Bridge pair is the GIWW crossing choice and clearly preferred over the General De Gaulle Bridge. Likewise, the reasons to cross the GIWW (work, grocery shopping, etc.) do not vary appreciably along racial lines.

- All racial groups surveyed feel that traffic congestion relief is by far the most important reason to consider in the proposal for a new bridge over the GIWW.

- By a wide margin, regardless of race or ethnicity, most people indicated that they would be "Not Willing At All" to pay tolls. 46% of Whites, the predominant response racial sub-group indicated that they would be "Not Willing At All" to pay tolls. For Blacks, which make up the next largest racial sub-group that same statistic was 52%.

- White respondents tended to rate each of the toll-related features in question 7 as "Very Important" more so than the other racial and ethnic sub-groups.

- Except for those indicating themselves to be of "Another Race" most respondents in all of the other sub-groups lived in Belle Chasse. Likewise, regardless of race or ethnicity business owner respondents indicated Belle Chasse as the location of their business and Belle Chasse is also the location where most respondents work.

- Over 8% of all respondents indicated that they were students.

- Household size varied somewhat across the sub-groups. Whites had the highest percent of 2-person households, while the minority populations had a noticeably higher percentage of households in the "5 or more" category.

- The total number of respondents living in poverty (for the purposes of the survey, under $25,000 annual household income) is clearly concentrated in respondents identifying as White. However, a much higher percentage of Black respondents indicated that their households were in poverty than any other sub-group.

Income, which is a factor in determining behaviors or attitudes in some situations, did not seem to be as much of a separating factor in the community survey, which displayed more uniformity in the responses than diversity. The lack of major differences in the responses makes it difficult to ascertain income-related trends. Cross tabulating income (question14) with selected other questions reveals the following information.

- There was no readily apparent relationship or trend between household income and frequency of trips across the GIWW.

- Most people across all income categories drove across the GIWW in single-occupant vehicles and there was no apparent income-related trend.

- Regardless of income the three top reasons to cross the GIWW were "Work", "Grocery Shopping" and "Visit Friends".

- Reducing congestion and reducing travel time was, by far the most important consideration by all income groups in the new bridge.

- The over $150,000 households did display a noticeably higher percent preference for crossing on the General De Gaulle Bridge. This is likely attributable to the presence of larger and more expensive homes in the Woodland Hwy. corridor leading to that bridge.

- By a wide margin, the most modal response for all income categories to the question asking "…how willing would you be to pay a toll to help…" was "Not willing at all".

- Responses to question 7 were very uniform across all income brackets regarding convenient bridge pass purchase locations, online account management multiple vehicle passes, customer service line, dedication of toll revenue to the Belle Chasse Bridge construction and management, discounts for Parish residents. For each, "Very Important" was the modal response selected by all groups. Having toll revenue dedicated to the Belle Chasse Bridge only garnered the highest total number of "Very Important" votes.

- Most respondents, regardless of income lived in the Belle Chasse area. Whereas the demographic analysis showed that the low-income population tended to be in the area south of Belle Chasse, the responses would seem to indicate that the geographic distribution of the survey responses does not mirror the population distribution.

- The majority of respondent business owners and people working outside of the home indicated that Belle Chasse is where their businesses are located or where they work.

FINDINGS AND CONCLUSION

A key factor in determining whether a project may have potential EJ concerns is whether low-income/minority populations are present in disproportionately high numbers and/or disproportionately impacted. As the foregoing analysis indicates, the West Bank of Plaquemines Parish has a lower percent minority population than either the Parish or the MSA and its percent of households in poverty is below that of the Parish and identical to the MSA. None of the GEOIDs which exhibit both minority populations and households in poverty above the Parish threshold are in Belle Chasse, in close proximity to the bridge site. Finally, all West Bank residents, regardless of income or race have the same access to a toll-free

route across the GIWW via Woodland Hwy. and the General De Gaulle Bridge. These results do not seem to indicate that the minority / low income population will be disproportionately impacted by the construction of the preferred alternative or the imposition of tolls.

BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH

As related to State Project No. H.004791

Community Input Survey

The State of Louisiana is seeking your input as it works to improve transportation in your area. Potential improvements are under consideration for the LA 23 crossing of the Gulf Intracoastal Waterway located in Belle Chasse. The proposed project would replace the tunnel and moveable bridge with a single four-lane fixed bridge. Your input will assist us in creating the most appropriate vendor relationships moving forward.

1. How often do you use the Belle Chasse Tunnel or Bridge?

- ◯ 1 round trip each day
- ◯ 1 round trip each week
- ◯ 2-4 round trips each week
- ◯ 1-5 round trips per day
- ◯ More than 5 round trips per day

2. How do you usually cross the Intracoastal Waterway? (Choose one)

- ☐ Drive alone
- ☐ Taxi/Vanpool
- ☐ With someone else/carpool
- ☐ Uber/lyft
- ☐ Other (please specify)

3. Why do you usually cross the Intracoastal Waterway? (Check all that apply)

- ☐ Work
- ☐ Grocery Shopping
- ☐ School
- ☐ Vist friends & family (recreation)
- ☐ Other shopping
- ☐ Medical
- ☐ Business (delivery/pick-up)
- ☐ Other

4. If a new bridge is built to replace the Belle Chasse Tunnel and Bridge, which of the following should be the most important consideration? (Choose one)

- ☐ Reduce traffic congestion/save travel time
- ☐ Improve safety
- ☐ Improve evacuation capacity, efficiency & reliability

5. **Which route** do you most often take to cross the Intracoastal Waterway? (Choose one)

- ◯ LA 23 (Belle Chasse Bridge) & Tunnel
- ◯ General De Gaulle Drive

6. If 100% of project funding is not available, how willing would you be to pay a toll to help cover a portion of the bridge construction/maintenance cost to assure the bridge is replaced, and as quickly as possible?

- ◯ Very Willing
- ◯ Somewhat Willing
- ◯ Neutral
- ◯ Somewhat unwilling
- ◯ Not Willing at All

7. If tolls are used to help pay for part of the bridge construction/maintenance, how important is each of the following to you?

	Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Not Important at All
An option of purchasing bridge passes at convenient locations	☐	☐	☐	☐	☐
An option to manage bridge pass payments online (For example, using web or phone app tied to your vehicle's license plate)	☐	☐	☐	☐	☐
An option to combine multiple vehicles on one bridge pass account	☐	☐	☐	☐	☐
A customer service line available to assist with toll questions	☐	☐	☐	☐	☐
That any toll revenue will only be dedicated to paying for the construction/maintenance of the Belle Chasse bridge	☐	☐	☐	☐	☐
That a discount could be provided, if you are a Plaquemines Parish resident	☐	☐	☐	☐	☐
To have accesses to reports related to your own toll payments (documenting dates, locations, costs of tolls in a given period by vehicle)	☐	☐	☐	☐	☐
That any toll collection process does not force vehicles to slow down or stop while crossing the bridge	☐	☐	☐	☐	☐

This polling data will assist the State of Louisiana as it works to improve transportation efforts in your area. Thank you for providing your input below. All answers are confidential.

8. In what zip code do you live?

- [ ] 70037
- [ ] 70038
- [ ] 70041
- [ ] 70050
- [ ] 70081
- [ ] 70082
- [ ] 70083
- [ ] 70091
- [ ] 70093
- [ ] 70143
- [ ] Other (please specify)

9. If you own a business in Plaquemines Parish, in what zip code is that business located?

- [ ] 70037
- [ ] 70038
- [ ] 70041
- [ ] 70050
- [ ] 70081
- [ ] 70082
- [ ] 70083
- [ ] 70091
- [ ] 70093
- [ ] 70143

10. If you work outside the home, in what zip code you do you primarily work?

- [ ] 70037
- [ ] 70038
- [ ] 70041
- [ ] 70050
- [ ] 70081
- [ ] 70082
- [ ] 70083
- [ ] 70091
- [ ] 70093
- [ ] 70143
- [ ] Other (please specify)

11. What do you identify your race to be?

- ◯ White or Caucasian
- ◯ Black or African American
- ◯ Hispanic or Latino
- ◯ Asian or Asian American
- ◯ American Indian or Alaska Native
- ◯ Native Hawaiian or other Pacific Islander
- ◯ Another race

12. Are you a student?

- ◯ Yes
- ◯ No

13. How many people live in your household?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 or more

14. What is your approximate yearly household income?

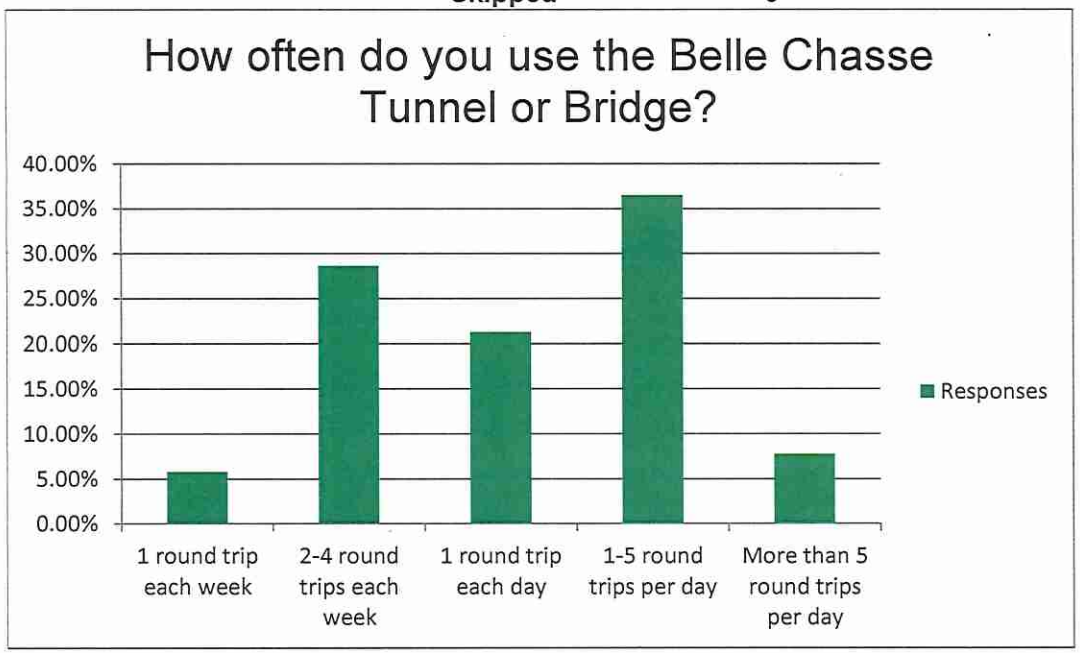
- ☐ Under $24,999
- ☐ Between $25,000 and $34,999
- ☐ Between $35,000 and $49,999
- ☐ Between $50,000 and $74,999
- ☐ Between $75,000 and $99,999
- ☐ Between $100,000 and $150,000
- ☐ Over $150,000

THANK YOU FOR YOUR PARTICIPATION!

BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

How often do you use the Belle Chasse Tunnel or Bridge?

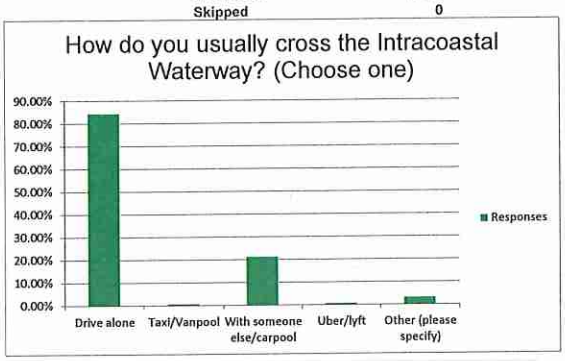
Answer Choices	Responses		
1 round trip each week	5.81%	117	
2-4 round trips each week	28.64%	577	
1 round trip each day	21.29%	429	65.56%
1-5 round trips per day	36.48%	735	
More than 5 round trips per day	7.79%	157	
	Answered	**2015**	
	Skipped	**0**	



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

How do you usually cross the Intracoastal Waterway? (Choose one)

Answer Choices	Responses	
Drive alone	84.27%	1698
Taxi/Vanpool	0.55%	11
With someone else/carpool	21.09%	425
Uber/lyft	0.60%	12
Other (please specify)	3.08%	62
Answered		**2015**
Skipped		**0**

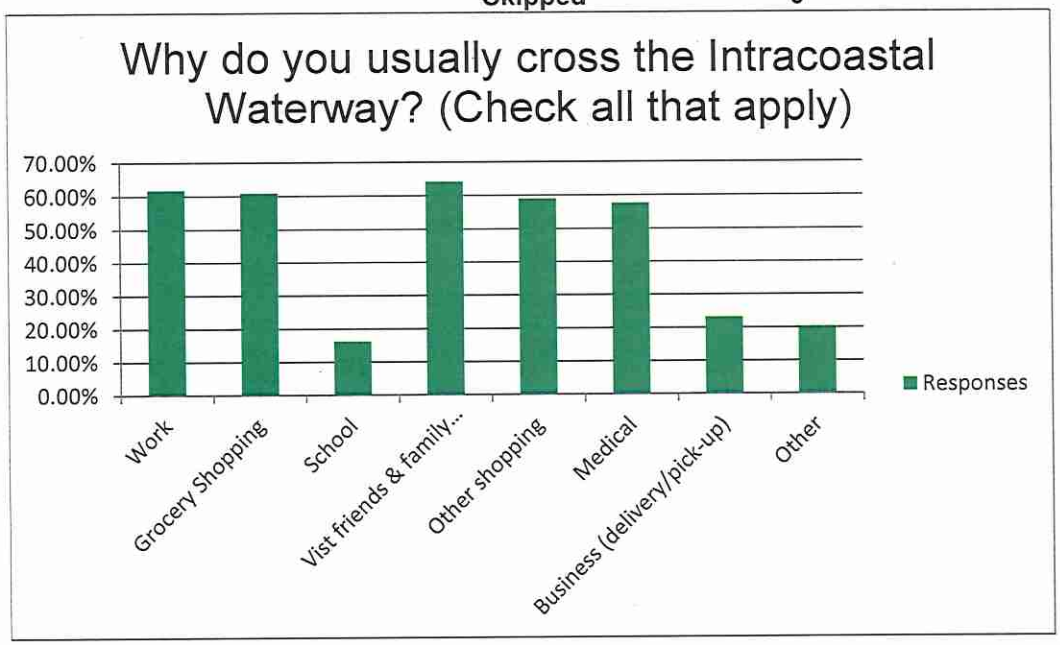


Respondents	Response Date	Other (please specify)	Tags
1	May 10 2018	both alone and with others	
2	May 09 2018	With family	
3	Apr 24 2018	0 With children	
4	Apr 20 2018	0 With my spouse. We are retired.	
5	Apr 19 2018	1 Drive senior citizens to the market	
6	Apr 19 2018	1 Family members	
7	Apr 19 2018	1 Family members	
8	Apr 19 2018	0 sometimes alone other with spouse	
9	Apr 18 2018	1 Family outing	
10	Apr 18 2018	0 With my family (3 kids)	
11	Apr 18 2018	0 Y'all legit crazy ! Noone is paying a toll ever !!! Straight crazy!	
12	Apr 18 2018	0 I will use alternative route if we have a toll. The entire parish feels the same.	
13	Apr 18 2018	0 Sometimes alone, sometimes passengers	
14	Apr 17 2018	1 sometimes drive with other family members	
15	Apr 17 2018	0 Drive with my daughter in the car	
16	Apr 17 2018	0 Family	
17	Apr 17 2018	0 Family	
18	Apr 17 2018	1 Family	
19	Apr 17 2018	0 Family	
20	Apr 17 2018	0 Me and family members	
21	Apr 17 2018	0 Full of fear of toothless swamp trash	
22	Apr 17 2018	0 In a bucket truck towing a trailer	
23	Apr 17 2018	0 With family	
24	Apr 16 2018	0 With my family	
25	Apr 16 2018	0 Some times with family	
26	Apr 16 2018	0 Bridge	
27	Apr 16 2018	0 Family travel	
28	Apr 16 2018	0 I drive alone, but I also drive to Venice a few times a week for work.	
29	Apr 16 2018	0 We own a transportation company.	
30	Apr 16 2018	0 With family	
31	Apr 16 2018	0 Me And my children , sometimes my boyfriend	
32	Apr 16 2018	0 With family	
33	Apr 16 2018	0 Leisure is 2 people	
34	Apr 16 2018	0 All of the above except Uber/Lyft. It's equal in use. 1/3 to each.	
35	Apr 16 2018	0 Drive with kids/family	
36	Apr 16 2018	0 Company vehicle	
37	Apr 16 2018	0 Dropping and picking up kids from school in Gretna	
38	Apr 16 2018	0 Me and my child	
39	Apr 16 2018	0 Either alone or with someone else, depending on whether it's a weekday or weekend	
40	Apr 16 2018	0 Way of transportation for me and my spouse to work and children for school	
41	Apr 16 2018	0 Not relevant, neither is my income...	
42	Apr 16 2018	0 With kids	
43	Apr 16 2018	0 Alone and/with others	
44	Apr 16 2018	1 With children	
45	Apr 16 2018	1 Sometimes alone and sometimes with others.	
46	Apr 16 2018	1 With family, kids to various events and sports	
47	Apr 16 2018	1 Some days I may have my family and/or friends	
48	Apr 16 2018	1 Family	
49	Apr 16 2018	1 Ni	
50	Apr 16 2018	1 sometimes up to three passengers	
51	Apr 16 2018	1 schoolbus	
52	Apr 16 2018	1 With my kids	
53	Apr 16 2018	1 It depends, sometimes alone sometimes with kids back and forth for school	
54	Apr 16 2018	1 My family	
55	Apr 16 2018	1 Family vehicle	
56	Apr 16 2018	1 With all 4 kids across woodland bridge to avoid hwy 23. 2-3 times a day	
57	Apr 16 2018	1 Family	
58	Apr 16 2018	1 With my family	
59	Apr 16 2018	0 Family	
60	Apr 16 2018	0 Fmily	
61	Apr 16 2018	0 Family	
62	Apr 16 2018	0 Children	

BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

Why do you usually cross the Intracoastal Waterway? (Check all that apply)

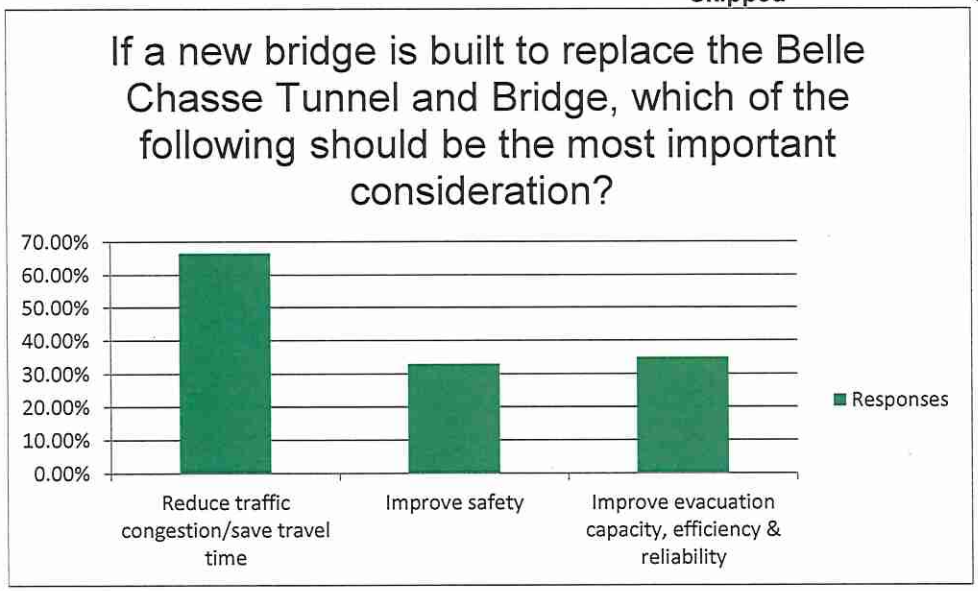
Answer Choices	Responses	
Work	61.79%	1245
Grocery Shopping	60.89%	1227
School	16.23%	327
Vist friends & family (recreation)	64.22%	1294
Other shopping	59.06%	1190
Medical	57.67%	1162
Business (delivery/pick-up)	23.18%	467
Other	20.20%	407
	Answered	**2015**
	Skipped	**0**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

If a new bridge is built to replace the Belle Chasse Tunnel and Bridge, which of the following should be the most important consideration?

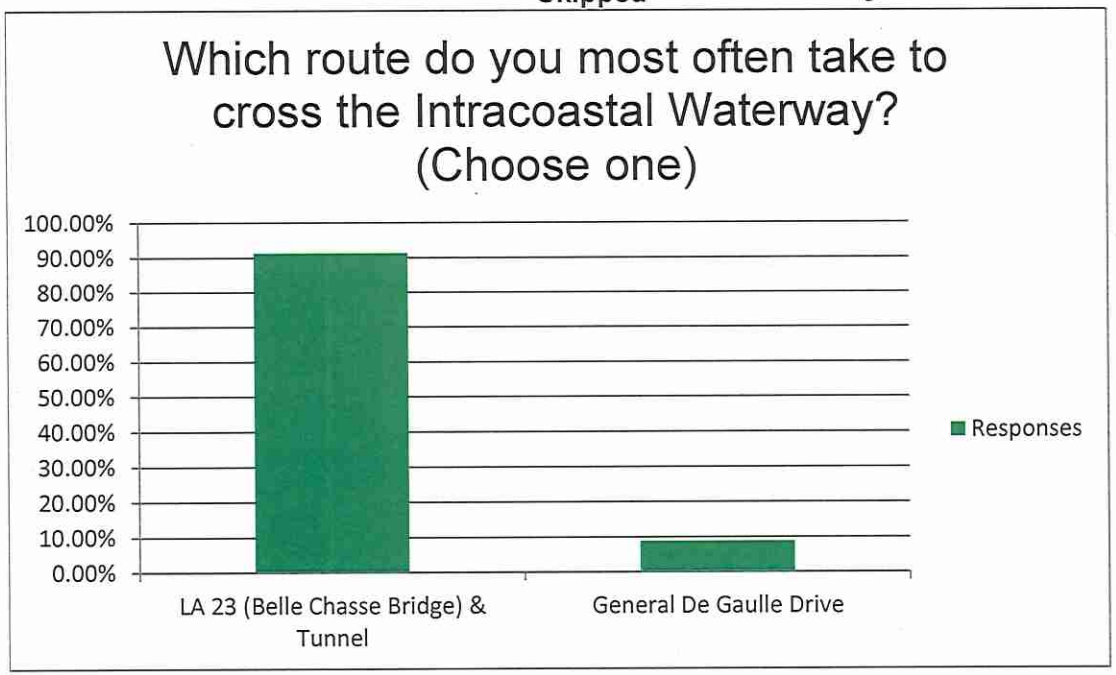
Answer Choices	Responses	
Reduce traffic congestion/save travel time	66.55%	1341
Improve safety	33.00%	665
Improve evacuation capacity, efficiency & reliability	34.94%	704
	Answered	**2015**
	Skipped	**0**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

Which route do you most often take to cross the Intracoastal Waterway? (Choose one)

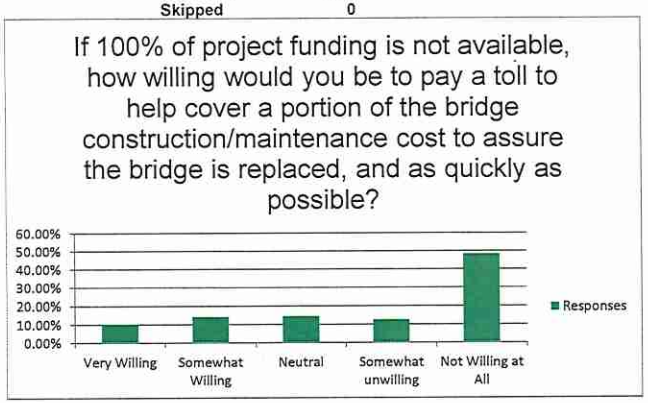
Answer Choices	Responses	
LA 23 (Belle Chasse Bridge) & Tunnel	91.27%	1839
General De Gaulle Drive	8.73%	176
	Answered	**2015**
	Skipped	**0**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

If 100% of project funding is not available, how willing would you be to pay a toll to help cover a portion of the bridge construction/maintenance cost to assure the bridge is replaced, and as quickly as possible?

Answer Choices	Responses	
Very Willing	10.27%	207
Somewhat Willing	14.14%	285
Neutral	14.64%	295
Somewhat unwilling	12.61%	254
Not Willing at All	48.34%	974
Answered		**2015**
Skipped		**0**



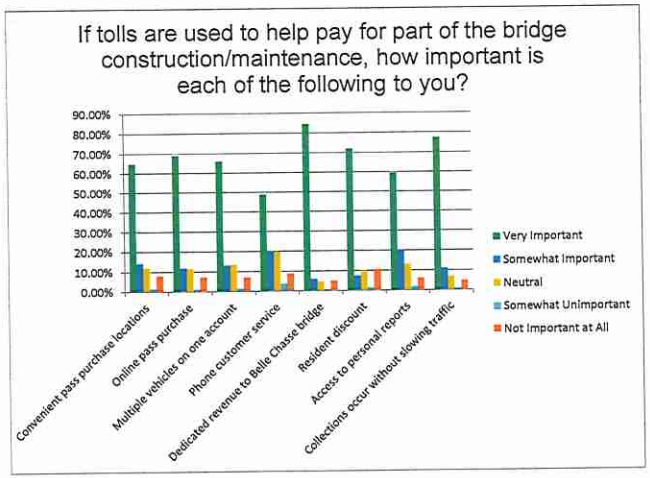
51.66% Very willing, somewhat willing, neutral, or somewhat unwilling

39.05% Very willing, somewhat willing, or neutral on topic

BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

If tolls are used to help pay for part of the bridge construction/maintenance, how important is each of the following to you?

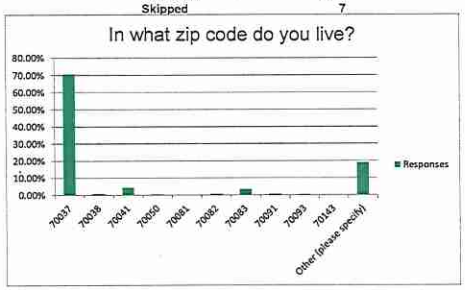
	Very Important		Somewhat Important		Neutral		Somewhat Unimportant		Not Important at All		Total	
Convenient pass purchase locations	64.81%	1306	14.29%	288	12.16%	245	1.59%	32	7.89%	159	2015	An option of purchasing bridge passes at convenient locations
Online pass purchase	69.08%	1392	11.86%	239	11.51%	232	1.09%	22	7.10%	143	2015	An option to manage bridge pass payments online (For example, using web or phone app tied to your vehicle's license plate)
Multiple vehicles on one account	65.96%	1329	13.15%	265	13.40%	270	1.39%	28	7.05%	142	2015	An option to combine multiple vehicles on one bridge pass account
Phone customer service	48.83%	984	19.85%	400	19.65%	396	3.77%	76	8.78%	177	2015	A customer service line available to assist with toll questions
Dedicated revenue to Belle Chasse bridge	84.47%	1702	6.05%	122	4.67%	94	0.60%	12	4.86%	98	2015	That any toll revenue will only be dedicated to paying for the construction/maintenance of the Belle Chasse bridge
Resident discount	71.91%	1449	7.49%	151	9.38%	189	1.39%	28	10.52%	212	2015	That a discount could be provided, if you are a Plaquemines Parish resident
Access to personal reports	59.50%	1199	20.00%	403	13.15%	265	1.89%	38	6.05%	122	2015	To have accesses to reports related to your own toll payments (documenting dates, locations, costs of tolls in a given period by vehicle)
Collections occur without slowing traffic	77.27%	1557	11.07%	223	6.90%	139	0.74%	15	4.71%	95	2015	That any toll collection process does not force vehicles to slow down or stop while crossing the bridge
										Answered	**2015**	
										Skipped	**0**	



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

In what zip code do you live?

Answer Choices	Responses		
70037	70.72%	1420	Belle Chasse
70038	0.75%	15	Boothville, Venice
70041	4.38%	88	Buras, Empire
70050	0.40%	8	Empire
70081	0.10%	2	Pilottown
70082	0.65%	13	Port Sulphur, Pointe a la Hache
70083	3.59%	72	Port Sulphur, Woodland
70091	0.55%	11	Pilottown, Port Eads
70093	0.40%	8	Belle Chasse
70143	0.30%	6	Belle Chasse
Other (please specify)	19.02%	382	
	Answered	**2008**	
	Skipped	**7**	



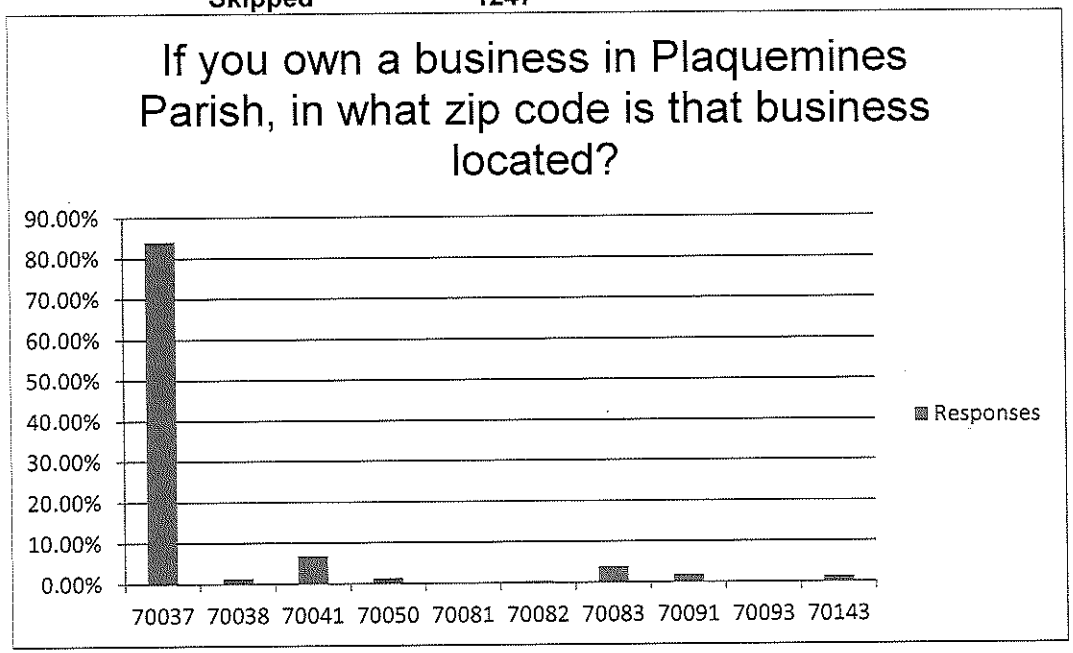
Respondents	Response Date	Other (please specify)	Tags
1	May 15 2018	70056	Gretna, Terrytown

BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

If you own a business in Plaquemines Parish, in what zip code is that business located?

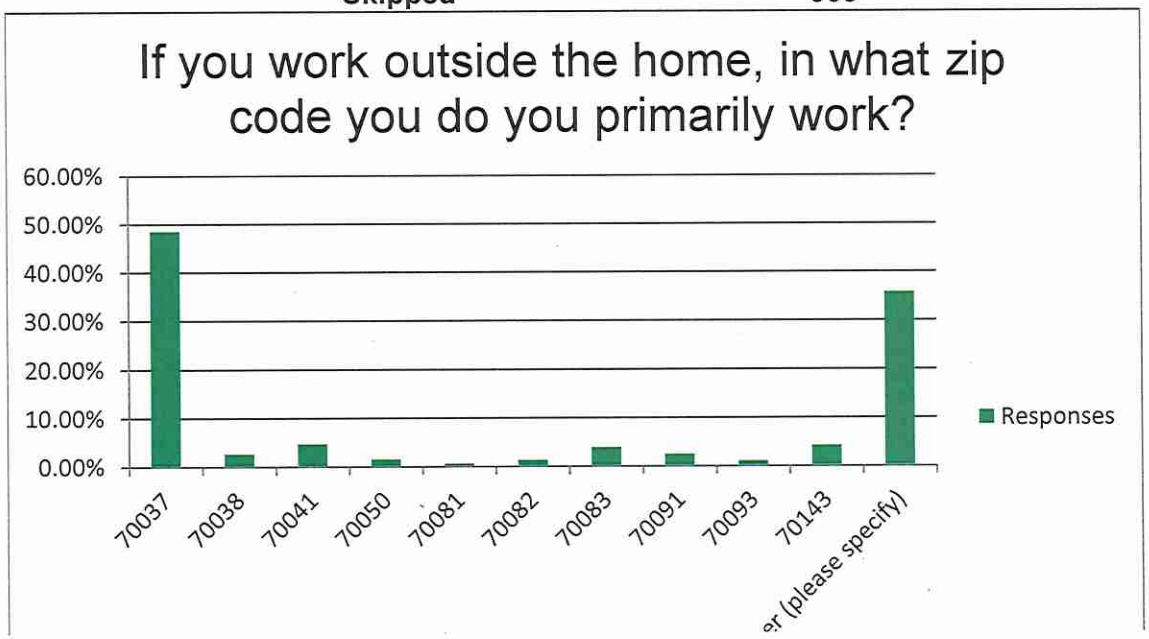
Answer Choices	Responses	
70037	84.11%	646
70038	1.43%	11
70041	6.77%	52
70050	1.43%	11
70081	0.13%	1
70082	0.39%	3
70083	3.91%	30
70091	1.82%	14
70093	0.13%	1
70143	1.43%	11
Answered		**768**
Skipped		**1247**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Inpu

If you work outside the home, in what zip code you do you primarily work?

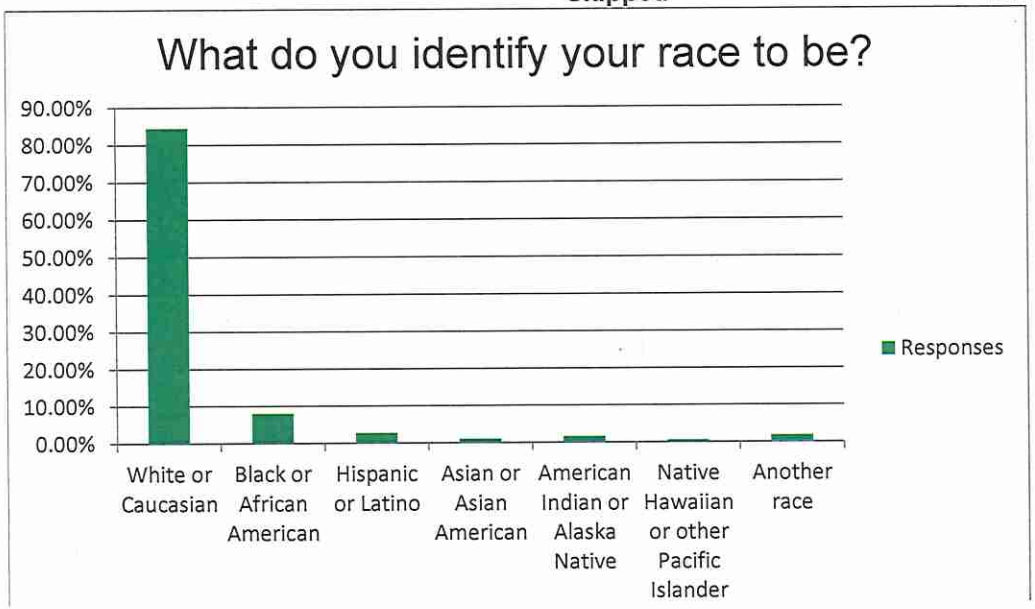
Answer Choices	Responses	
70037	48.49%	801
70038	2.60%	43
70041	4.60%	76
70050	1.45%	24
70081	0.54%	9
70082	1.27%	21
70083	3.81%	63
70091	2.42%	40
70093	1.03%	17
70143	4.18%	69
Other (please specify)	35.77%	591
	Answered	**1652**
	Skipped	**363**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

What do you identify your race to be?

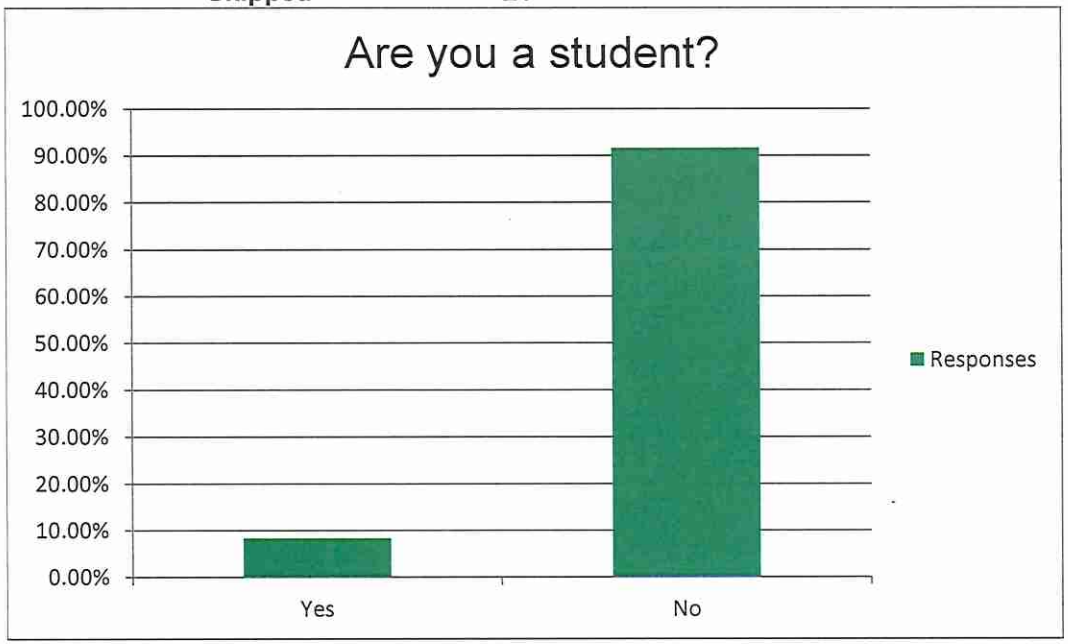
Answer Choices	Responses	
White or Caucasian	84.35%	1563
Black or African American	7.99%	148
Hispanic or Latino	2.70%	50
Asian or Asian American	1.03%	19
American Indian or Alaska Native	1.67%	31
Native Hawaiian or other Pacific Islander	0.49%	9
Another race	1.78%	33
Other (please specify)		93
	Answered	**1853**
	Skipped	**162**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

Are you a student?

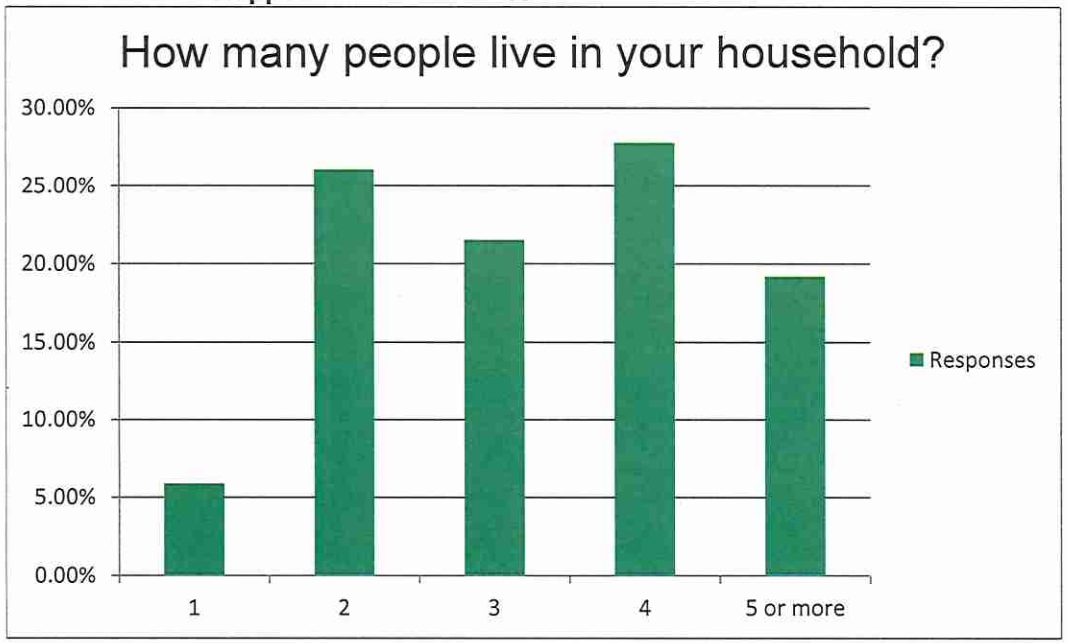
Answer Choices	Responses	
Yes	8.38%	167
No	91.62%	1827
Answered		**1994**
Skipped		**21**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

How many people live in your household?

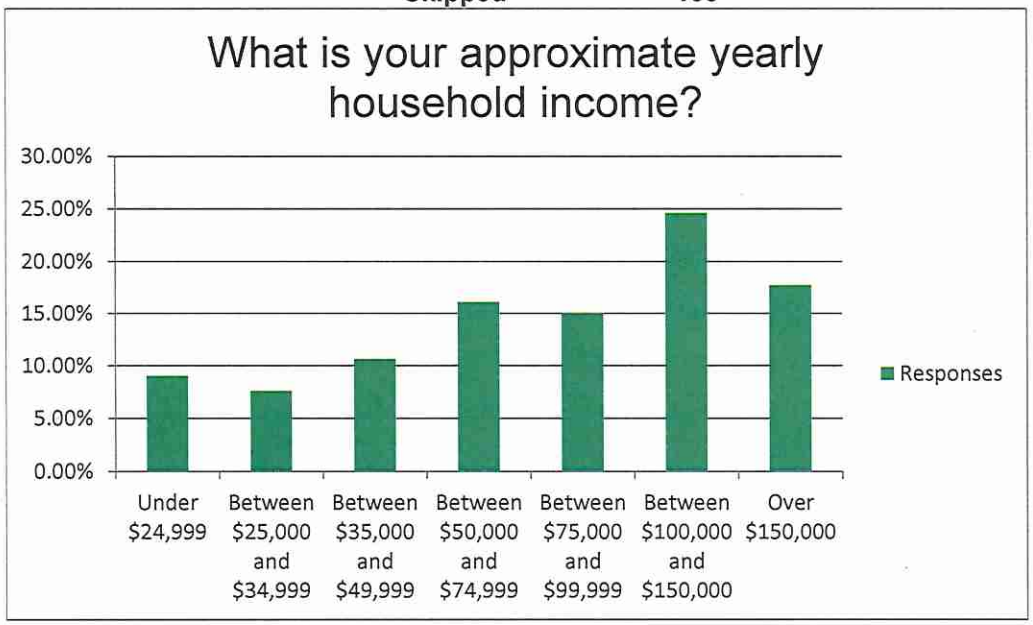
Answer Choices	Responses	
1	5.89%	118
2	26.07%	522
3	21.53%	431
4	27.77%	556
5 or more	19.18%	384
	Answered	**2002**
	Skipped	**13**



BELLE CHASSE BRIDGE PUBLIC OUTREACH PLAQUEMINES PARISH As related to State Project No. H.004791 Community Input Survey

What is your approximate yearly household income?

Answer Choices	Responses	
Under $24,999	9.07%	168
Between $25,000 and $34,999	7.61%	141
Between $35,000 and $49,999	10.64%	197
Between $50,000 and $74,999	16.09%	298
Between $75,000 and $99,999	15.01%	278
Between $100,000 and $150,000	24.57%	455
Over $150,000	17.71%	328
	Answered	**1852**
	Skipped	**163**



Appendix I
Line and Grade Study

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LA 23: Belle Chasse Bridge & Tunnel (HBI)

Belle Chasse Highway (LA 23), Jefferson and Plaquemines Parishes, LA

LADOTD Project No. H.004791
Federal Aid Project No. 3806500

Line and Grade Study

Final

Prepared for

New Orleans Regional Planning Commission (NORPC)

Plaquemines Parish and

Louisiana Department of Transportation and Development (LADOTD)

September 7, 2018

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

U.S. Department of Transportation
Federal Highway Administration

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Appendix A -Preliminary Typical Sections

Appendix B – Preliminary Plan and Profile Drawings

Appendix C – Construction Cost Estimate

Appendix D – Design Report Form

Appendix E – Example of Proposed Traffic Signal Phasing

1. Acronyms and Abbreviations

EA	Environmental Assessment
GIWW	Gulf Intracoastal Waterway
LA 23	Belle Chasse Highway
LA 3017	Engineers Road
LA 406	Woodland Highway
LA 428	Behrman Highway
LADOTD	Louisiana Department of Transportation and Development
mph	miles per hour
NAVD	North American Vertical Datum of 1988
NOGCRR	New Orleans Gulf Coast Railway
PPG	Plaquemines Parish Government
RPC	Regional Planning Commission
US-90	Westbank Expressway
USACOE	United States Army Corps of Engineers
USCG	United States Coast Guard

2. Executive Summary

Belle Chasse Highway (LA 23) is a state maintained, urban arterial route located in Plaquemines and Jefferson Parishes, Louisiana on the west bank of the Mississippi River. LA 23 is the primary arterial roadway of Plaquemines Parish; it is the primary evacuation route for upper Plaquemines and the only hurricane evacuation route for lower Plaquemines Parish. The Regional Planning Commission (RPC) and the Louisiana Department of Transportation and Development (LADOTD) are preparing an Environmental Assessment (EA) for this project, which includes an evaluation of alternatives for the existing LA 23 crossing of the Gulf Intracoastal Waterway (GIWW). Fixed Bridge Alternative, Option 4A, has the least amount of impact based upon the outcome of the alternative analysis. The advancement of Option 4A within the context of this report comes with concurrence of the RPC and the LADOTD, as documented in the EA.

Option 4A would replace the existing LA 23 couplet crossing of the GIWW, comprised of the Judge Perez Bridge (vertical lift bridge) constructed in 1967 northbound and the Belle Chasse Tunnel constructed in 1956 southbound, with a new four-lane fixed high level bridge. Option 4A begins at the east end of the Barataria Outfall Canal Bridge and ends just before the Barriere Road intersection.

The main components of Option 4A are (see Figure 2, Page 6):

- New four-lane fixed high level bridge providing clearance over the channel.
- Improvements to Engineers Road (LA 3017) and LA 23 intersection.
- Extension of Railroad Street.
- Closure of two railroad crossings.
- Connector streets under the new bridge (Q Street and X Street).
- Removal of the existing vertical lift bridge.
- Decommission the existing tunnel.

The proposed roadway and bridge improvements associated with Option 4A would be constructed in phases to meet the following objectives:

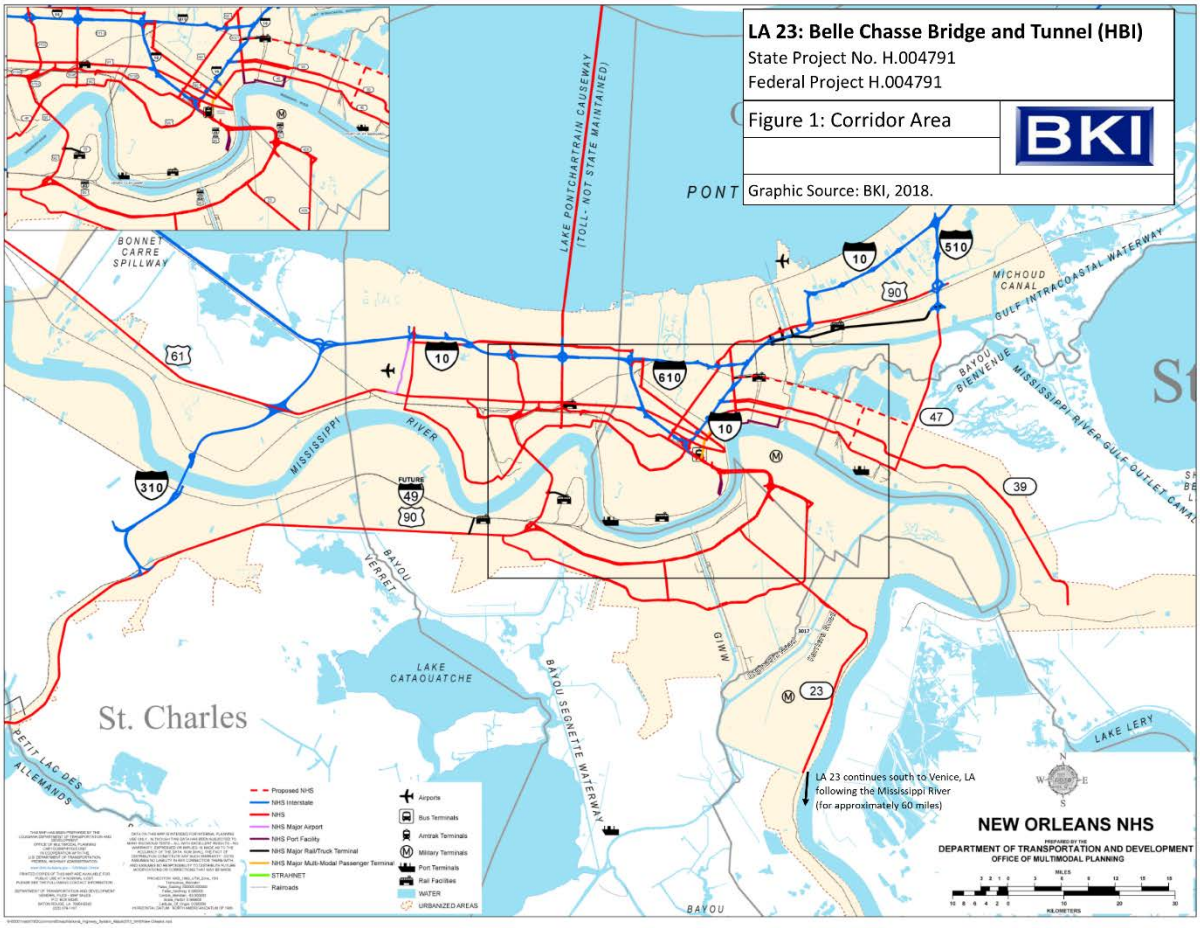
- Minimize delays to regional traffic flow on LA 23.
- Maintain access to local residences and businesses.

The total estimated cost for Option 4A is approximately $149.8 million. The cost includes construction, right-of-way and relocations, utility relocation, professional services, and a 10% contingency.

3. Introduction

LA 23 is a State maintained, urban arterial route located in Jefferson and Plaquemines Parishes, Louisiana. Except for the portion running through the community of Port Sulphur it is a four-

lane divided non-controlled-access highway. LA 23 is the primary arterial roadway of Plaquemines Parish on the west bank of the Mississippi River. As shown in Figure 1, LA 23 runs from Burmaster Street (LA 428) in the City of Gretna, south along Franklin Avenue, south along Stumpf Boulevard, then east along US-90 frontage roads, south to the Westbank Expressway (US-90) and ends at the community of Venice. The total length of the route is approximately 74 miles. LA 23 is the only hurricane evacuation route for lower Plaquemines Parish and is the primary evacuation route for upper Plaquemines Parish. The prominent bottleneck along this corridor is the crossing of the GIWW in Plaquemines Parish. The GIWW, a 1,300-mile inland commercial waterway, connects established maritime-dependent businesses in the project area with a broad local, regional, national and international clientele via the numerous commercial port facilities oriented to the waterway as well as along the Mississippi River.



The existing LA 23 couplet crossing of the GIWW is comprised of the northbound Judge Perez Bridge (vertical lift bridge) constructed in 1967 and the southbound Belle Chasse Tunnel constructed in 1956. The bridge has a 28 foot clear roadway width while the tunnel has a 22 foot wide roadway with 14 feet of vertical clearance. In the closed position, the existing bridge provides 40 feet of vertical clearance for marine traffic. Drivers currently experience traffic interruption in the northbound direction when the bridge opens for marine traffic, along with frequent closures of the tunnel for maintenance which requires the vertical lift bridge to operate with two-way traffic. On average, the bridge opens 10 times a day with a duration of 7 minutes per opening. The tunnel prohibits oversized trucks and vehicles transporting hazardous cargo from utilizing the LA 23 GIWW crossing in the southbound direction.

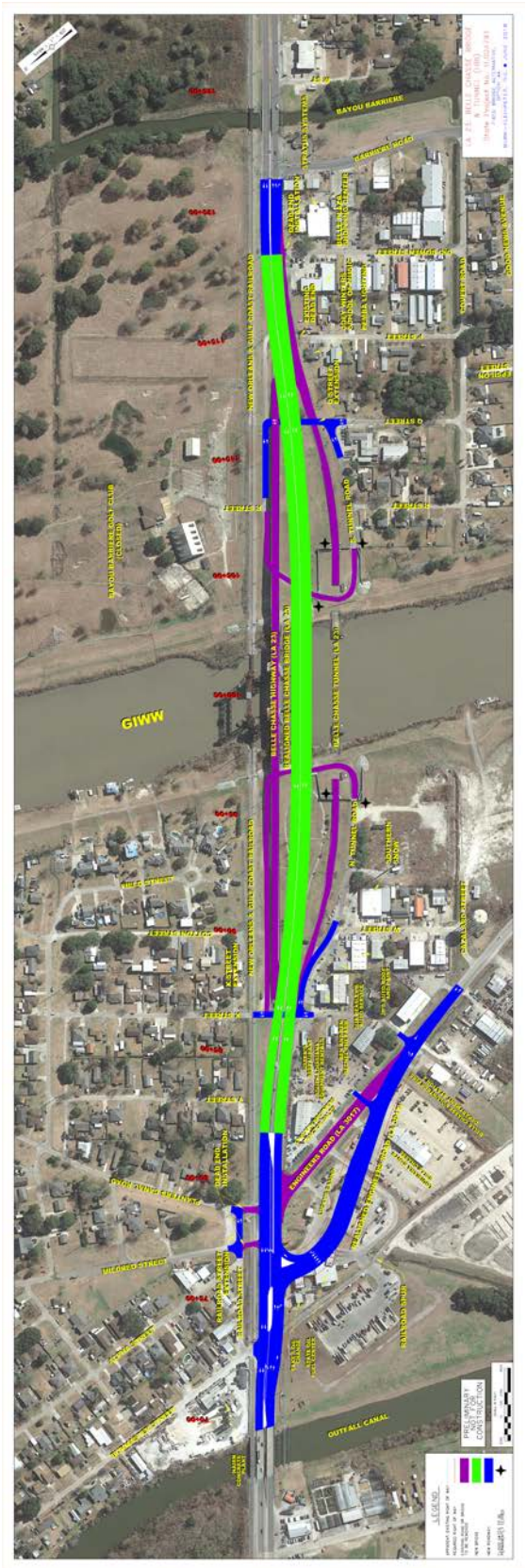
The RPC and the LADOTD are preparing an EA for this project, which includes an evaluation of alternatives for the existing crossing of the GIWW. Build alternatives considered for the crossing include: a 100 foot fixed high level, a 70 foot movable, a 60 foot movable, and a 73 foot fixed high level bridge, all include four lanes and 5% approach grades; a four lane 73 foot fixed high level bridge with 6% approach grades; six-lane 73 foot fixed high level bridge with approach grades of 3%, 4% and 5%; rehabilitation of the existing tunnel and bridge; and possibly increasing the clearance of the existing bridge by raising it to 70 feet in the closed position. Option 4A has potentially the least amount of impact based on the alternative analysis outcome. The advancement of Option 4A within the context of this report comes with concurrence of the RPC and the LADOTD as documented in the EA. Option 4A will improve connectivity in the LA 23 corridor between Lapalco Boulevard in Jefferson Parish and the Woodland Highway (LA 406) in Plaquemines Parish. This alternative is a fixed four-lane bridge with a 73 foot vertical clearance and 5% approach grades that would replace the existing couplet, eliminate bridge interruptions and tunnel closures.

As shown in Figure 2, Option 4A begins at the east end of the Barataria Outfall Canal Bridge and ends just before the Barriere Road intersection. The new bridge will be on new alignment approximately midway between the existing lift bridge and the tunnel. This alignment was chosen for constructability and maintenance of LA 23 traffic crossing the GIWW.

The main components of Option 4A are (see Figure 2, Page 6):

- New four-lane fixed high level bridge providing 73 feet of vertical and 150 feet of horizontal clearances between fender faces.
- Realignment of and improvements to the LA 3017 and LA 23 intersection.
- Extension of Railroad Street.
- Closure of the railroad crossings at Mildred Street and Planters Canal Road.
- Connector streets under the new bridge (Q Street and X Street).
- Removal of the existing vertical lift bridge.
- Decommission the existing tunnel.

Figure 2: Option 4A Layout



4. Design Guidelines

The LADOTD Minimum Design Guidelines dated March 6, 2017 were followed for developing the Line and Grades for the proposed improvements. Appendix D contains the LA 23: Belle Chasse Bridge & Tunnel (HBI) completed Design Report for the 2017 Minimum Design Guidelines.

LA 23 is classified as an Urban Arterial with a design speed of 50 miles per hour (mph) and a posted speed of 45 mph. The proposed roadway is a continuation of the four-lane divided highway onto the new bridge structure over the GIWW. The new structure replaces an existing couplet crossing the GIWW that consists of a vertical lift bridge northbound and a tunnel southbound.

After discussion with associations representing the maritime industries, it was determined that a clearance of 150 feet horizontally between the fenders and 73 feet vertically over the GIWW would meet their needs. The profile of the bridge was set to maintain 73 feet of vertical clearance should the bridge be widened to six-lanes in the future.

5. Typical Roadway Sections

5.1 Typical Sections LA 23

LA 23 is a state highway under the jurisdiction of the LADOTD and is commonly known as Belle Chasse Highway. It is a four-lane divided highway, defined as an Urban Principal Arterial Road by the LADOTD Functional Classification System Map. At the GIWW, the east-bound traffic crosses under the waterway via the Belle Chasse Tunnel and the west-bound traffic crosses over the Belle Chasse Bridge. The proposed improvements to LA 23 start at the east end of the Barataria Outfall Canal Bridge and extend to Barriere Road. The improvements are represented by the following sections:

Near the Barataria Outfall Canal Bridge (represented by STA 71+00 TYPICAL SECTION LA 23), LA 23 shall consist of four 12-foot travel lanes with 8-foot shoulders and a raised paved median that transitions into a left turn lane at Burmaster Street. This section of roadway begins by matching the existing roadway and cross slopes.

Just north of the LA 3017 intersection (represented by STA 74+00 TYPICAL SECTION LA 23), LA 23 shall consist of four 12-foot travel lanes with 8-foot outer shoulders and 4-foot interior shoulders, a raised paved median, and a 12-foot right turn lane onto LA 3017.

Just south of the LA 3017 intersection (represented by STA 78+00 TYPICAL SECTION LA 23), LA 23 shall consist of four 12-foot travel lanes with two left turns onto LA 3017, 8-foot shoulders, and a raised paved median.

Approaching the bridge (represented by STA 81+00 TYPICAL SECTION LA 23), LA 23 shall consist of four 12-foot travel lanes, 8-foot outer shoulders, 4-foot interior shoulders, and a raised paved median. This section of roadway is a section in which LA 23 is transitioning from the width and slope of the existing roadway into what is needed to approach the new bridge.

The bridge approaching the main span (represented by STA 90+00 TYPICAL SECTION LA 23) shall consist of four 12-foot travel lanes with 8-foot outer shoulders and 4-foot interior shoulders, and a barricade. Slab spans and concrete girders shall be used to support the bridge deck. Two options are shown for the pedestrian access across the GIWW:

- Option 1 - 6-foot wide pedestrian lane separated by a barrier rail along the southbound lanes.
- Option 2 – 5-foot raised sidewalks on both sides of the bridge

The main spans of the bridge (represented by STA 99+00 TYPICAL SECTION LA 23) shall be consistent with that described at STA 90+00. Steel girders shall be used to support the bridge deck.

Transitioning off of the bridge (represented by STA 119+00 TYPICAL SECTION LA 23) shall consist of four 12-foot travel lanes, 8-foot outer shoulders, 4-foot interior shoulders, and a raised paved median. This section of roadway is a section in which LA 23 is transitioning from the width and slope of the new bridge into the existing roadway.

As LA 23 transitions back to grade before reaching Barriere Road (represented by STA 121+00 TYPICAL SECTION LA 23), the roadway shall consist of four 12-foot travel lanes with 4-foot interior shoulders, a raised paved median, an 8-foot north-bound shoulder, a 12-foot right turn lane onto Barriere Road, and a curb along the south-bound turn lane.

5.2 Typical Sections LA 3017

LA 3017 is a road under the jurisdiction of the LADOTD and is defined as an Urban Minor Arterial by the LADOTD Functional Classification System Map. It is a two-lane road with paved shoulders and heavy truck traffic. The proposed realignment of the intersection of LA 3017 and LA 23 will be located west of the current intersection. The proposed improvements to LA 3017 start near the intersection with “X” Street. The improvements are represented by the following sections:

At the beginning of the transition from the current alignment to the proposed alignment (represented by STA 506+00 TYPICAL SECTION LA 3017), LA 3017 shall consist of two 12-

foot travel lanes with 8-foot outer shoulders and a striped median (not elevated to allow fire truck crossings).

As LA 3017 approaches the intersection with LA 23 (represented by STA 512+00 TYPICAL SECTION LA 3017), LA 3017 shall consist of two north-bound 12-foot travel lanes, two south-bound 12-foot travel lanes, a 12-foot wide right turn lane onto LA 23, and 8-foot paved shoulders.

5.3 Typical Section Railroad Street

Railroad Street is a road under the jurisdiction of the Plaquemines Parish Government (PPG) and is defined as a Local Urban Road by the LADOTD Functional Classification System Map. Railroad Street currently extends from Burmaster Street to Alpha Street and is a two-lane unstriped concrete road with curbs that serves the neighborhood. The proposed improvements will extend the paved road from Alpha Street to Planters Canal Road. The improvements are represented by TYPICAL SECTION LOCAL URBAN ROAD and shall consist of two 11-foot wide travel lanes with curbs.

5.4 Typical Section X Street

"X" Street is a road under the jurisdiction of the PPG and is defined as a Local Urban Road by the LADOTD Functional Classification System Map. It is currently a two-lane unstriped concrete road with curbs, that crosses LA 23 prior to LA 23 elevating to the Judge Perez Bridge. "X" Street will continue to connect the neighborhoods on either side of LA 23, but the proposed improvements will move "X" Street under the elevated portion of LA23 causing the two to no longer intersect. The improvements are represented by TYPICAL SECTION LOCAL URBAN ROAD and shall consist of two 11-foot travel lanes with curbs.

5.5 Typical Section N. Tunnel Road (South)

N. Tunnel Road (South) is a road under the jurisdiction of the PPG and is defined as a Local Urban Road by the LADOTD Functional Classification System Map. N. Tunnel Road (South) is a two-lane striped road. The proposed improvements will start at the intersection with "X" Street and continue to just past "W" Street. The improvements are represented by TYPICAL SECTION LOCAL URBAN ROAD and shall consist of two 11-foot wide travel lanes with curbs.

5.6 Typical Section S. Tunnel Road (North)

S. Tunnel Road (North) is a road under the jurisdiction of the PPG and is defined as a Local Urban Road by the LADOTD Functional Classification System Map. S. Tunnel Road (North) is a two-lane unstriped road with limited access. The proposed improvements will start at the intersection with "Q" Street and continue to just before "R" Street. The

improvements are represented by TYPICAL SECTION LOCAL URBAN ROAD and shall consist of two 11-foot travel lanes with curbs.

5.7 Typical Section Q Street

"Q" Street is a road under the jurisdiction of the PPG and is defined as a Local Urban Road by the LADOTD Functional Classification System Map. It is a two-lane unstriped concrete road with curbs that currently exists only south of LA 23. The proposed improvements will realign existing S. Tunnel Road with the extended "Q" Street. The improvements are represented by TYPICAL SECTION LOCAL URBAN ROAD and shall consist of two 11-foot travel lanes with curbs.

5.8 Typical Section S. Tunnel Road (South)

S. Tunnel Road (South) is a road under the jurisdiction of the PPG and is defined as a Local Urban Road by the LADOTD Functional Classification System Map. S. Tunnel Road (South) is a two-lane striped road. The proposed improvements will start at the intersection with "Q" Street and continue to where it intersects with existing pavement. The improvements are represented by TYPICAL SECTION LOCAL URBAN ROAD and shall consist of two 11-foot travel lanes with curbs.

6. Proposed Roadway Improvements

6.1 LA 23

This segment begins at the east end of the Barataria Outfall Canal Bridge. The new alignment will extend for 1.003 miles to the west side of the Barriere Road intersection. The roadway is being realigned to accommodate the required alignment of the proposed bridge: between the existing bridge to the north and the existing tunnel to the south. The pavement and sub-surface utilities (drainage, sanitary sewer and water) in the existing right-of-way shall be removed and disposed of legally. Fill shall be placed in areas of the removed existing pavement where the proposed roadway shall not be constructed.

The alignment will include turn lanes in the following locations:

South Bound:

- Left turn lane at Burmaster Street.
- Right turn lane at LA 3017.
- Right turn lane at Barriere Road.

North Bound:

- Dual left turn lane at LA 3017

The existing bridge shall be removed and salvaged and/or disposed of legally. The existing tunnel shall be decommissioned and rendered unable to be used in the future.

6.2 LA 3017 Realignment and Intersection

This segment begins at the south side of the LA 23 roadway pavement. The proposed alignment is being relocated to a point west of the existing alignment. This allows for a dual left turn lane for west bound LA 23 to be constructed past the west end of the proposed bridge structure. The pavement and sub-surface utilities (drainage, sanitary sewer and water) in the existing right-of-way shall be removed and disposed of legally. Fill shall be placed in areas of the removed existing pavement where the proposed roadway shall not be constructed.

The alignment will include turn lanes in the following locations:

North Bound:

Dual left turn lane at LA 23.
Right turn lane at LA 23.

South Bound:

Left turn lane at West X Street.

The intersection of Burmaster St. and LA 23 will be signalized to provide full access for traffic movements to the neighborhood north of the railroad tracks. The signalization of this intersection should be incorporated with a signal at the Engineers and LA 23 intersection and use a common traffic signal controller (meaning both intersections should be phased to run off the same traffic signal controller).

The phasing of the intersection movements will be more complicated than a typical 4-legged intersection and will need the use of overlaps and must include a conflict monitor in the controller. The signal may be phased as to allow concurrent movements to occur to reduce and clear the queueing that would be present in the roadway between the Burmaster St. and Engineers Rd. intersections. An example of how this could be accomplished in the controller phasing is shown in Appendix E; however, this is just an example and the phasing should be modified or checked during traffic signal design. Any proposed traffic signal phasing would require a railroad pre-emption plan.

6.3 Railroad Street

This segment begins east of Alpha Street continuing through Mildred Street and ends east of the Planters Canal Road intersection, for a length of 211'. The roadway is being constructed to provide access from Planters Canal Road, Mildred Street, and Alpha Street to Burmaster Street. This will allow vehicles to cross the existing New Orleans Gulf Coast Railway (NOGCRR) railroad tracks and access LA 23. The existing NOGCRR track crossings at Mildred Street and Planters Canal Road will be removed because of decreased visibility due to the proposed bridge structure and realignment of LA 23.

6.4 X Street and N. Tunnel Road (South)

The X Street segment begins south of the N. Tunnel Road (South) intersection and continues north to the existing crossing of the NOGCRR tracks for a length of 250'. The proposed X Street roadway will be constructed below the proposed elevated bridge structure in order to provide continued access from X Street north of the tracks to the LA 3017 intersection and on to LA 23, both east and west bound. The existing roadway crosses the existing LA 23 mainline at grade.

The N. Tunnel Road (South) segment begins at the X Street intersection and continues east within the proposed right-of-way to the location where it connects to the existing roadway pavement for a length of 435'.

6.5 Q Street, S. Tunnel Road (North) and S. Tunnel Road (South)

The Q Street segment begins south of the S. Tunnel Road (South) intersection and continues north to the existing S. Tunnel Road (North) intersection for a length of 348'. The extended Q Street roadway will be constructed below the proposed elevated bridge structure in order to provide continued access from Q Street north to the S. Tunnel Road (North) intersection and south to Covert Road, Barriere Road and on to LA 23, both east and west bound.

The S. Tunnel Road (South) segment begins at the Q Street intersection and continues west within the proposed right-of-way to the location where it connects to the existing roadway pavement for a length of 148'.

The S. Tunnel Road (North) segment begins at the Q Street intersection and continues west within the proposed right-of-way to the location where it connects to the existing roadway pavement for a length of 305'.

6.6 Barriere Road

There is no proposed work in the Barriere Road/LA 23 intersection.

7. Proposed Bridge over the GIWW

The proposed bridge over the GIWW will be a fixed high-level bridge that provides 73 feet of vertical clearance and 150 feet of horizontal clearance between fender faces. The proposed bridge profile was set to allow for future widening of the structure to six lanes while maintaining the minimum 73 feet of vertical clearance. The 73 foot minimum vertical clearance is from a high-water elevation of +3.0 North American Vertical Datum (NAVD). This water elevation is the maximum allowed with navigation in this reach of the GIWW. The West Closure Structure gates shut when the water elevation reaches +3.0 NAVD. The approach grades are set at 5 percent with an estimated overall bridge length of 3,850 feet.

The ends of the bridge will be thirteen 20-foot slab spans on pile bents with curtain walls. Adjacent to the slab spans will be six 65-foot concrete girder (LG-36) spans. Ten 100-foot concrete girder (LG-63) spans will be located between the LG-36 and the main span unit. The main span unit is a 520-foot three span steel plate girder (160'-200'-160') with an estimated structure depth of 6.5 feet. The girder spans are supported on concrete column bents founded on precast concrete piling. The two bents within the waterway will be constructed on above water footings and designed for vessel impact loading.

The bridge will carry the four lanes of traffic on LA 23 and provide pedestrian access.

8. Utilities

This project will impact underground and aboveground utilities in the vicinity. Potential utilities include communication lines, electric lines, gas, water, and sewer. Research identified the following potential utilities and owners:

Table 1: Coordination with Utilities in the Corridor

Utility Type	Utility Owner	Comments
Communication Lines (Phone/Cable/Data)	COX Communications	No information received. Assumed does not exist in project vicinity.
	AT&T	Information received.
	New Wave Communications	No information received. Assumed same as AT&T.
Electric Lines (Overhead)	Entergy	Information received.
Electric Lines (Underground)	Entergy	Information received. Does not exist in project vicinity.
Gas Lines	Entergy	No information received. Assumed does not exist in project vicinity.
	Atmos Energy	Information received.
	Bridgeline Holdings LP	Information received. Does not exist in project vicinity.
	Gulf South Pipeline	Information received. Does not exist in project vicinity.
Water Distribution System	Plaquemines Parish Government, operated by Inframark (formerly Severn Trent)	Information received.
Sewer Collection System		Information received.
Sewer Force Main		Information received.

Multiple attempts were made to contact each utility owner and gather information about their utility in the vicinity of this project.

- No response was received from Cox Communications. A survey of Belle Chasse residents indicated that Cox Communications is not available in the area, therefore, it is assumed that Cox Communications does not exist in the project vicinity.

- No information was received from New Wave Communications. A survey of Belle Chasse residents indicated that this is a communications provider in the Belle Chasse area. It was assumed that the New Wave infrastructure is similar in quantity and nature to that of AT&T Communication Lines.
- Entergy provided PDF maps of their GIS system. Review of this information indicated that no underground electric lines are in the project vicinity.
- No response was received from Entergy regarding gas service in the project vicinity. A recent topographic and subsurface utility survey on a project in this area showed gas lines, and when compared to the information provided by Atmos Energy, appeared to cover all gas lines in the area. Therefore, it is assumed that Entergy has no gas lines in the project vicinity.
- Bridgeline Holdings and Gulf South Pipeline have gas lines outside of the area impacted by this project. Therefore, it is assumed there will be no impact to these gas lines.

9. Decommissioning of the Belle Chasse Tunnel

Decommissioning of the existing tunnel will need to be done in place due to constructability and the needs of the maritime community. Removal of the tunnel from the channel would require shutting down the GIWW for an extended period in order to cofferdam off the tunnel and remove it. Since the tunnel was constructed before the levees and channel, the excavation of the tunnel may affect the stability of the levees on either side of the GIWW. Based on DOTD's discussions with the United States Army Corps of Engineers (USACOE), the tunnel can be decommissioned in place with the following requirements:

- Sealing the portals with a material meeting the UASCOE permeability requirements.
- Permanently closing the floodgates across LA 23, N Tunnel Road, and S Tunnel Road.
- Degrading the levee flood side of the LA 23 flood gates in the area of the tunnel portals to drain into the GIWW.
- Removal of the tunnel approach retaining walls to two feet below the ground line and filling the abandoned depressed roadway.

Decommissioning will include items such as removal of all electrical and mechanical equipment, removal of the approach retaining walls, backfilling the depressed approach roadways, and removing the ventilation buildings so that the tunnel is rendered unable to be used in the future.

10. Suggested Construction Sequencing and Maintenance of Traffic

10.1 Construction Impacts and Sequencing

The main impacts anticipated during construction will be difficulties associated with accessing LA 23 from connecting roadways and delays caused by slow moving traffic along LA 23. Furthermore, indirect impacts can be expected on connecting roads, particularly

Woodland Highway (LA 406), as motorists seeking to avoid delays on LA 23 opt for other routes of travel.

Closing LA 23 completely to allow for construction was not considered. Maintaining continuity in the LA 23 corridor is important for several reasons. First, this maintains the continuity of LA 23, a principal arterial in the state's highway network. This is the route of choice for commercial and residential traffic between Plaquemines Parish and the rest of the greater New Orleans area. Removing this link would increase travel time and associated costs with conducting business in Plaquemines Parish for the duration of the construction period.

Next, closure of the LA 23 corridor would reduce pass-by traffic and visibility for the 27 commercial businesses on the west side of LA 23 between the GIWW and Woodland Highway. Of these establishments, 25 are businesses which would typically rely on drive-up traffic to bring customers. This includes fast food restaurants with and without drive-up windows, gas stations with convenience stores, retail establishments (including dry cleaners, auto parts sales and cell phone sales), salons, coffee shops and gas stations.

Failing to maintain continuity in the LA 23 corridor would potentially impact fire protection and emergency response times for Plaquemines Parish. Plaquemines Parish maintains its main volunteer fire station on the LA 23 corridor 2.77 miles southeast of the GIWW. Volunteers and vehicles from this station respond to emergency calls (fire and emergency/rescue) in all of the Belle Chasse area including locations on the north side of the GIWW east of the railroad tracks and along Engineers Road. Removing the ability to cross the GIWW would add travel time and distance to all responses as vehicles would need to travel an additional 8 miles (Via Woodland Highway to General DeGaulle Boulevard and Behrman Highway back to LA 23) to reach points just north of the GIWW in Plaquemines Parish.

While such a detour might be acceptable to motorists, adding this to emergency response trips is not practical or safe. It would diminish the quality of service and response enjoyed by Parish businesses and residents. Limited finances and resources prevent the fire department from fully staffing two facilities on both sides of the GIWW.

The suggested sequence of construction for Option 4A is to maintain four-lanes of travel on LA 23 for as long as possible by constructing all improvements which do not encroach on the existing four lanes of travel. A minimum of two-lanes of traffic will be maintained during construction activities encroaching on the four-lanes of travel. Two-way traffic can be maintained over the existing Belle Chasse Bridge for a portion of the new bridge in later phases of construction. Pile driving and other construction-related activities near the Belle Chasse Tunnel may result in temporary closure or restricted use of the tunnel. Should the tunnel need to be closed during construction, it will be monitored during pile driving and assessed if it can be reopened to traffic.

10.2 Suggested Construction Sequencing and Maintenance of Traffic

Phase I The existing four lanes of traffic, two lanes southbound through the tunnel and two lanes northbound on the bridge, will be maintained. If temporary tunnel closures during pile driving operations near the tunnel are required, the existing bridge will be rerouted to handle two-way traffic. Coordination with the United States Coast Guard (USCG) and the United States Army Corps of Engineers (USACOE) will occur in order to minimize impacts to marine operations on the GIWW.

A full width segment of the new bridge from W Street to Q Street will be built. The LA 3017 realignment and intersection along with the Railroad Street extension will also be constructed at this time.

Phase II The LA 3017 realignment and the Railroad Street extension will be opened to traffic. The tunnel will be closed permanently, and two-way traffic will be maintained on the existing northbound lanes over the bridge. The railroad crossings at Mildred Street and Planters Canal Road will also be closed. The Mildred Street, Planters Canal Road, railroad crossings/connections to LA 23, and the tunnel approach roadways will be removed. The abandoned portion of LA 3017 will also be removed, and the southernmost driveway extended to serve both Chauvin Brothers Tractor Sales and South Louisianan Equipment Rentals.

The approaches for the southbound lanes of the new bridge will be constructed. The tunnel will be decommissioned. Refer to Section 9 Decommissioning of the Tunnel for more details concerning the permanent closure of the tunnel.

Phase III Two-way traffic will be diverted to the southbound lanes of the new bridge. The remaining approaches for the northbound lanes of the new bridge, X Street, N. Tunnel Road (South), Q Street, S. Tunnel Road (North), and S. Tunnel Road (South) will be constructed. Demolition of the existing bridge and approaches will begin.

Phase IV Traffic will be placed in its final four-lane configuration. Demolition of the existing bridge is to be completed.

11. Cost Estimate

The total estimated project cost of Option 4A, as shown in Table 2, is $149,751,219. This estimated cost includes the roadway and bridge construction, right-of-way and relocations, utility relocation, and professional fees. This also includes a 10% contingency. Cost can be expected to change as more details are developed. The cost estimate is considered accurate to the level of detail of the study performed to date. Unit cost information from LADOTD has been used to develop this estimate.

Table 2: Option 4A Conceptual Cost Estimate

Construction	$111,509,171
Right of Way and Relocation	$7,615,000
Utility Relocation	$5,897,000
Professional Services	$11,116,300
Option 4A Subtotal:	$136,137,471
10% Contingency:	$13,613,747
Option 4A Total Estimated Project Cost:	**$149,751,219**

For the new roadway costs, the following roadway section was assumed; 12 inches of Nonplastic Embankment, 8 inches of Class II Base Course (crushed stone), and 10 inches of Portland Cement Concrete. A unit cost per square foot for new roadway was developed by applying the LADOTD unit cost to the assumed quantities per square foot.

For the bridge cost estimate, unit costs per square foot were developed for the various span types using the average height of the span type for the substructure costs. Appendix C contains the calculated unit cost for the following span types; Slab Spans on Pile Bents with Curtain Walls, Precast-Prestressed Concrete Girders (Type LG-36), Precast-Prestressed Concrete Girders (Type LG-63), and Continuous Steel Plate Girders on Column Bents. For all three girder span types, the following assumptions were used for the bridge typical framing section; 8.5” thick deck, 3’-9” overhangs, and eight girder lines spaced 11’-0” on center.

Drainage assumes a subsurface system with a catch basin or grate inlet every 250 feet on 24-inch to 48-inch trunk lines.

Utilities were broken down into private utilities and municipal utilities. Private utilities within the LADOTD right-of-way by permit (no prior rights), will be responsible for all costs associated with their utility relocations. It appears that the communication and gas lines are in LADOTD right-of-way by permit. It is assumed that the communication lines will be allowed to mount on the new bridge across the GIWW. A cost for coordinating the relocation of any permitted private utilities is included. It is assumed that the electrical lines in the area have prior rights based on similar projects in Plaquemines Parish and will be borne by the project.

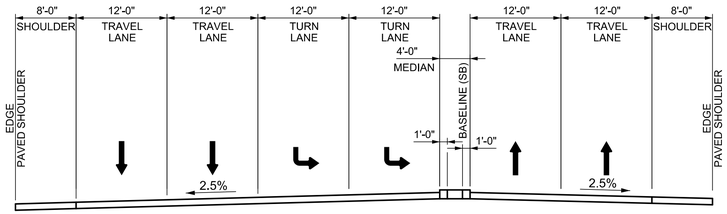
Assumptions made for estimating the water system costs include; fire hydrants spaced every 500 feet, water valves every 500 feet, and dual 12-inch waterlines that will be allowed to mount to the bridge across the GIWW including 6 valves to loop the system.

The sewer system assumes placing manholes every 250 feet (including at start and finish).

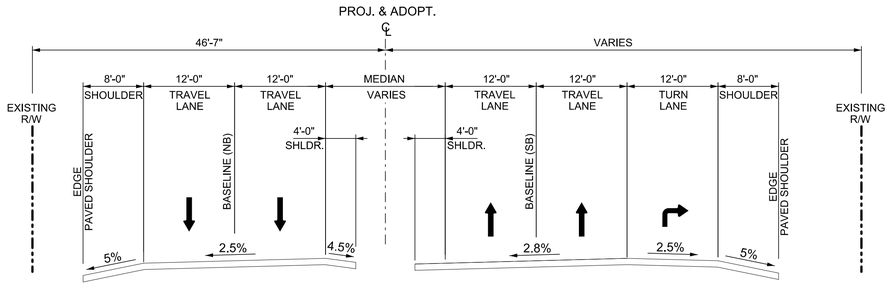
See Appendix C for full details on the utility cost estimate.

Appendix A

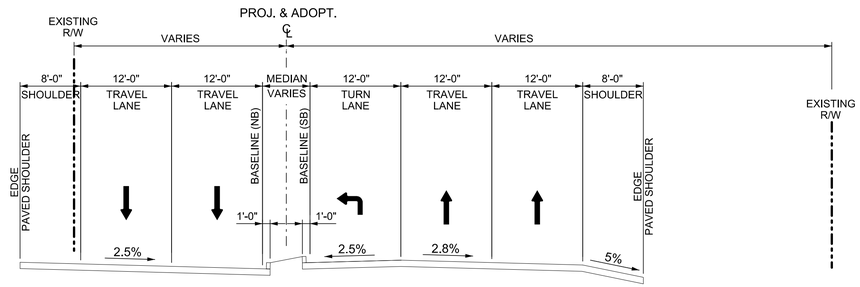
Preliminary Typical Sections



PROJ. & ADOPT. ℄ STA. 78+00
TYPICAL SECTION LA 23
N.T.S.



PROJ. & ADOPT. ℄ STA. 74+00
TYPICAL SECTION LA 23
N.T.S.



PROJ. & ADOPT. ℄ STA. 71+00
TYPICAL SECTION LA 23
N.T.S.

LINE & GRADE STUDY

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	LICENSE: 35639
	DATE: 8/10/2018

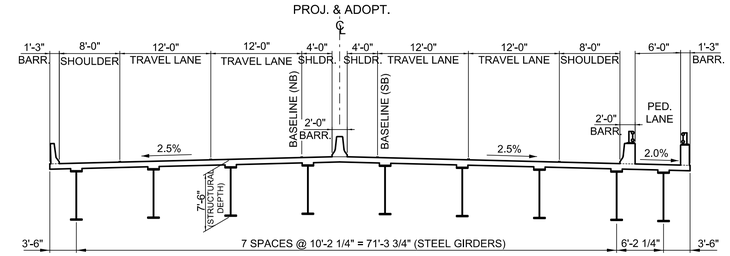
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STATE PROJECT H.004791

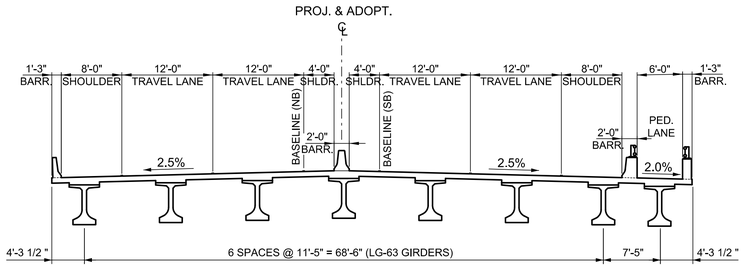
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REVISION OR CHANGE ORDER DESCRIPTION
NO. DATE

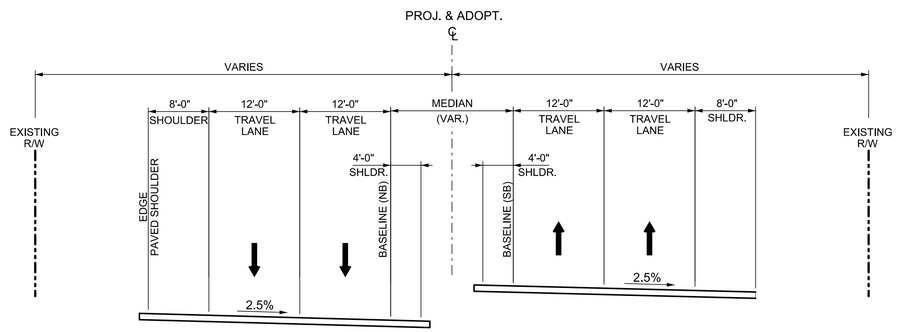
TYPICAL SECTIONS
LA 23: BELLE CHASSE TUNNEL & BRIDGE (HB1)



PROJ. & ADOPT ℄ STA. 99+00
TYPICAL SECTION LA 23
MAIN SPANS (OPTION 1)
N.T.S.



PROJ. & ADOPT ℄ STA. 90+00
TYPICAL SECTION LA 23
CONCRETE GIRDER SPANS (OPTION 1)
N.T.S.



PROJ. & ADOPT ℄ STA. 81+00
TYPICAL SECTION LA 23
N.T.S.

LINE & GRADE STUDY

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	ENGINEER: REGINA CASSANOVA
	LICENSE: 35639
	DATE: 8/10/2018

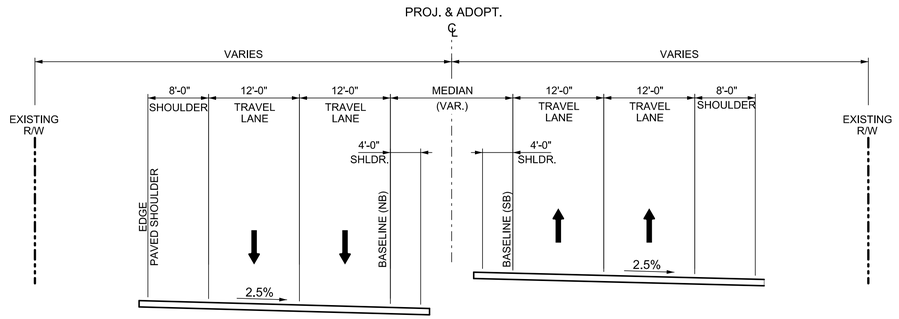
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STATE PROJECT H.004791

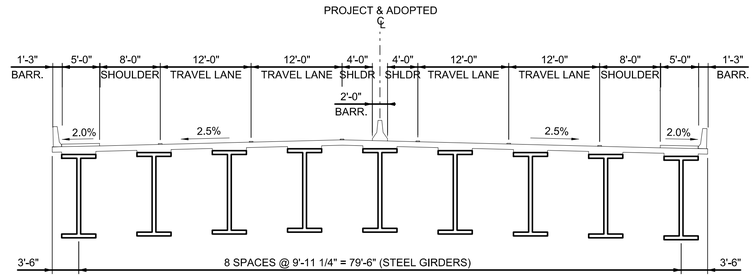
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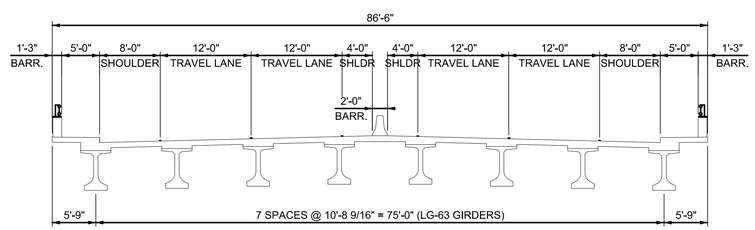
TYPICAL SECTIONS
LA 23: BELLE CHASSE TUNNEL & BRIDGE (HB1)



PROJ. & ADOPT ℄ STA. 119+00
TYPICAL SECTION LA 23
N.T.S.



PROJ. & ADOPT ℄ STA. 99+00
TYPICAL SECTION LA 23
MAIN SPANS (OPTION 2)
N.T.S.



PROJ. & ADOPT ℄ STA. 90+00
TYPICAL SECTION LA 23
CONCRETE GIRDER SPANS (OPTION 2)
N.T.S.

LINE & GRADE STUDY

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	LICENSE: 35639
	DATE: 8/10/2018

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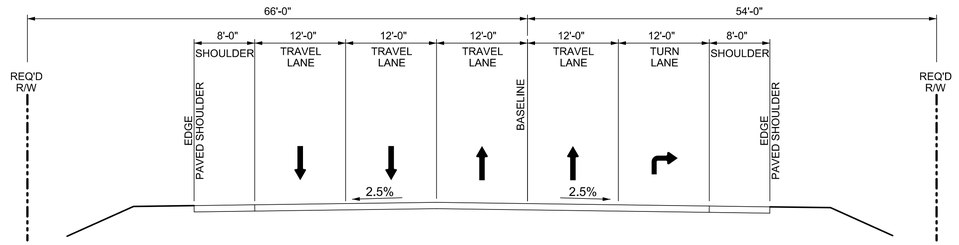
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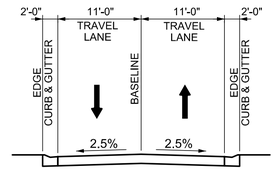
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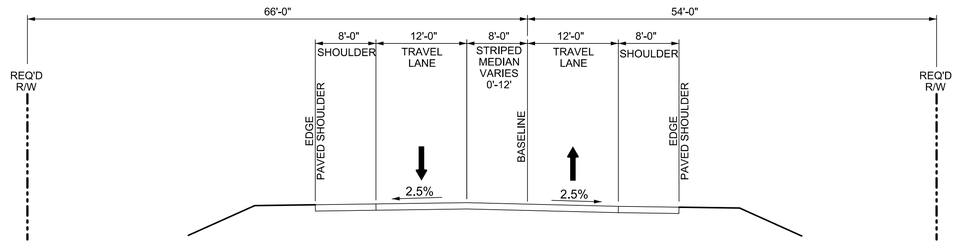
LA 23: BELLE CHASSE TUNNEL & BRIDGE (HBI)



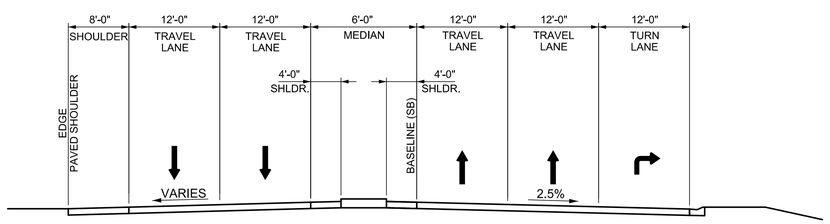
STA. 512+00
TYPICAL SECTION ENGINEERS ROAD (LA 3017)
N.T.S.



TYPICAL SECTION LOCAL URBAN ROAD
RAILROAD ST., X ST.,
N. TUNNEL RD., S. TUNNEL NORTH RD.,
Q ST., S. TUNNEL SOUTH RD.
N.T.S.



STA. 506+00
TYPICAL SECTION ENGINEERS ROAD (LA 3017)
N.T.S.



PROJ. & ADOPT ℄ STA. 121+00
TYPICAL SECTION LA 23
N.T.S.

LINE & GRADE STUDY

PRELIMINARY NOT FOR CONSTRUCTION	*TRIGON*
	ENGINEER: REGINA CASSANOVA
	LICENSE: 35639
	DATE: 8/10/2018

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PARISH PLAQUEMINES
CONTROL SECTION 062-02
STATE PROJECT H.004791

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DETAILED ES
CHECKED RIC
SERIES NUMBER 4 OF 4

NO. DATE REVISION OR CHANGE ORDER DESCRIPTION

TYPICAL SECTIONS

LA 23: BELLE CHASSE TUNNEL & BRIDGE (HB1)

Appendix B

Preliminary Plan and Profile Drawings

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PRELIMINARY PLANS
\\batw00\jobs\58302 Belle Chasse\cadd\highway\Plan_Shts\04_PlanProf\004_PlanProf.dgn
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LEGEND - EXISTING TOPOGRAPHY

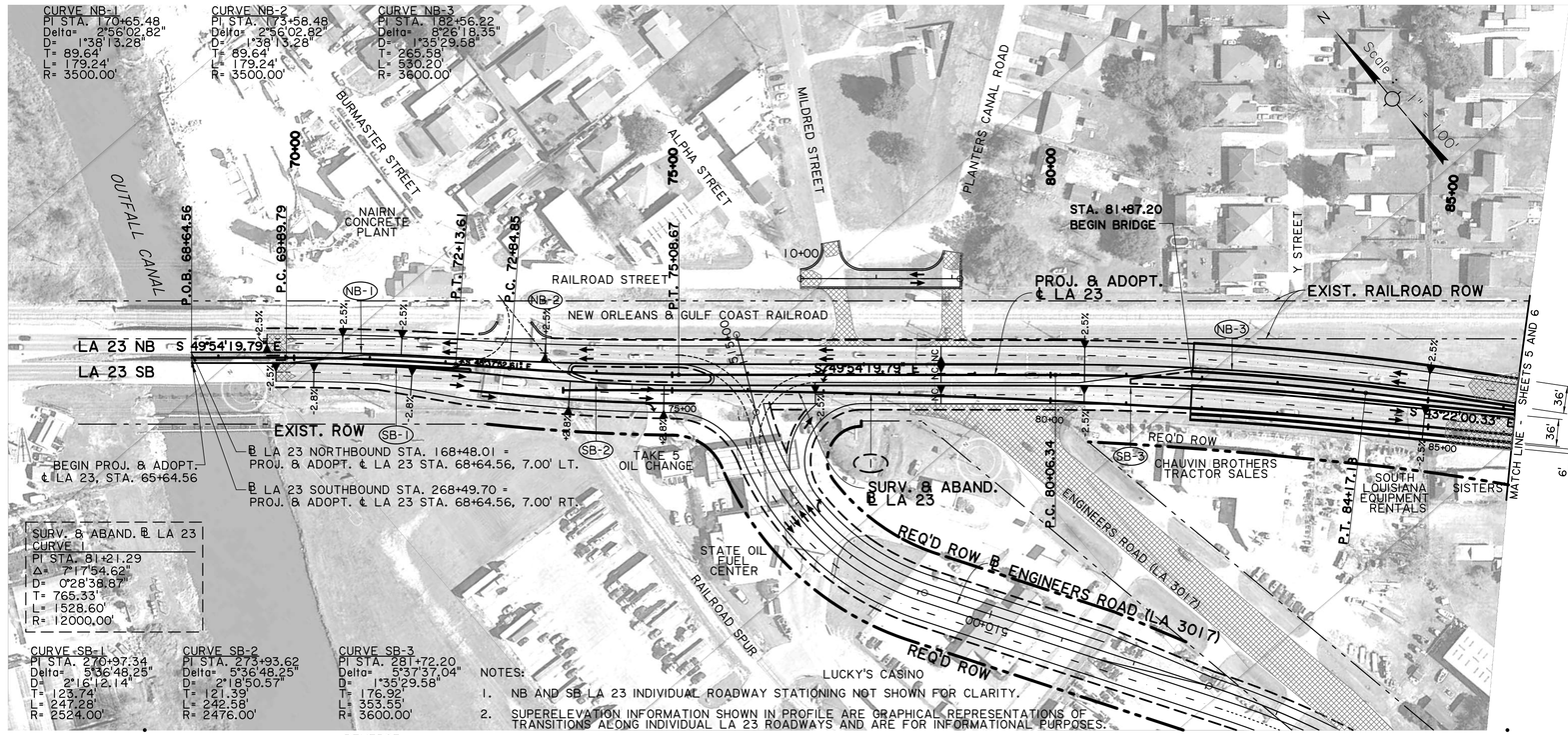
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TEMPORARY BENCH MARK
PHOTO TARGET
PAVEMENT EDGE
SHOULDER EDGE
SLOPE TOE
GUARDRAIL TOP
HIGH BANK
WATER'S EDGE
HIGH WATER MARK
BOX CULVERT
PIPE CULVERT
CATCH BASIN TOP (ROUND)
DROP INLET TOP (ROUND)
DRAINAGE MANHOLE TOP
LEVEE TOP
DITCH CENTERLINE
TREE
WOODS EDGE
MARSH LINE
SWAMP LINE
TREE CLUSTER
HEDGE
BUSH
TREE LINE
FENCE LINE
GATE
CATTLE GUARD
PROPERTY CORNER
RIGHT OF WAY MONUMENT
SECTION CORNER
FENCE CORNER
TELEVISION CABLE
TELEVISION PEDESTAL
POWER POLE
DEADMAN
POWER LINE
POWER JUNCTION BOX
POWER VAULT
TRANSFORMER
COMBINATION POLE
POWER DROP
PIPELINE
PIPELINE VENT
PIPELINE REGULATOR
GAS WELL
HAY BALES
SILT FENCE
INLET SILT TRAP

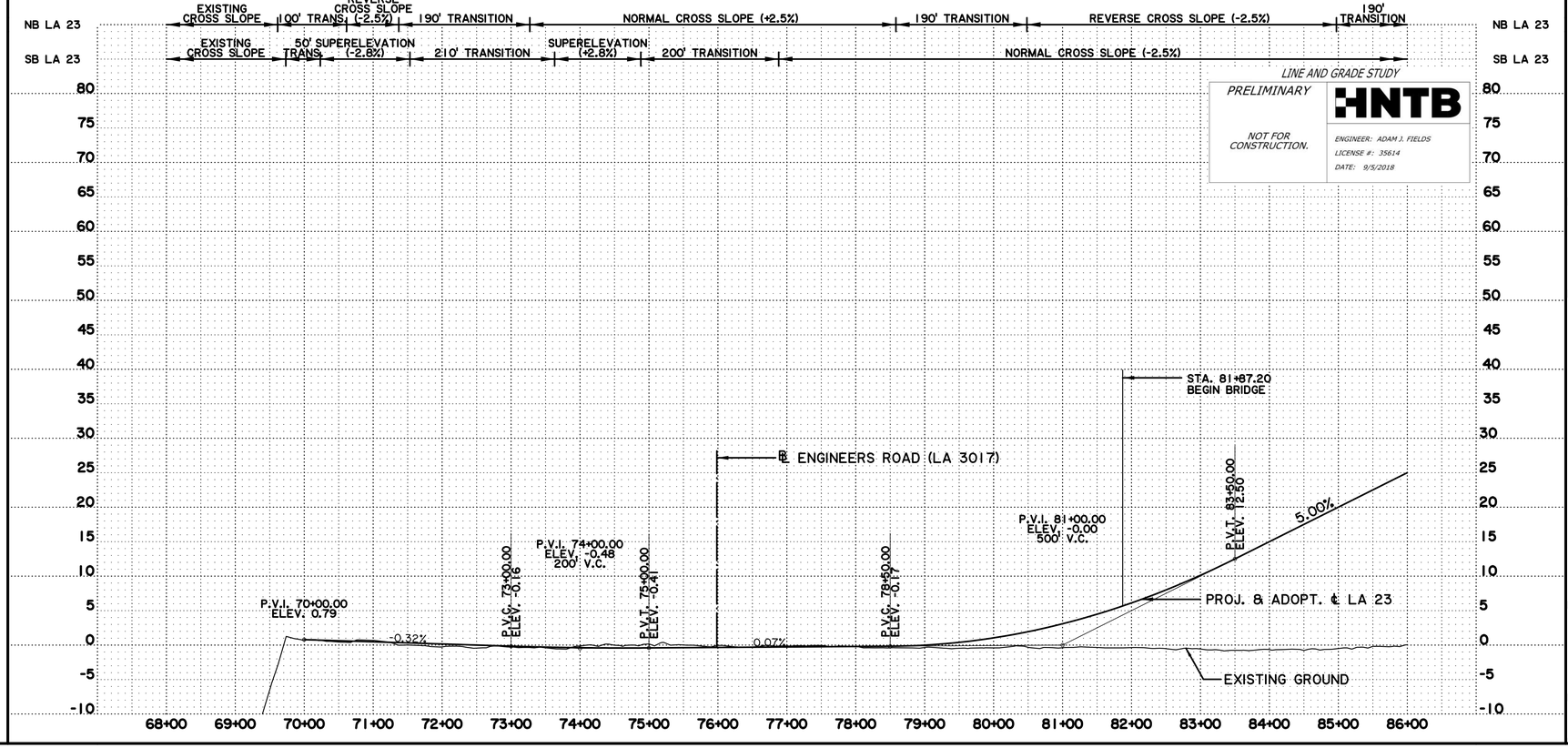
GAS LINE
GAS METER
GAS SERVICE (NO METER)
GAS REGULATOR
GAS RISER
GAS TEST BOX
GAS VALVE
GAS LINE/CASING
GAS VENT
RAILROAD MILEPOST
RAILROAD SIGNAL
RAILROAD SWITCH
RAILROAD TRACK
RR TRAFFIC SIGNAL BOX
SEWER LINE
SEWER MANHOLE TOP
SEWER BLOWOUT VALVE
SEWER CLEANOUT
SEPTIC TANK
SEWER PUMP (PRIVATE)
SEWER TREATMENT (INDIVIDUAL)
FEDERAL AID MARKER
TRAFFIC CONTROLLER BOX
TRAFFIC COUNTER
TRAFFIC SIGNAL
TRAFFIC SIGNAL SUPPORT POLE
LIGHT POLE
LIGHT PEDESTAL
LIGHT POWER VAULT
TRAFFIC SIGN
PARKING METER
TELEPHONE POLE
TELEPHONE LINE
TELEPHONE BOOTH
TELE CROSS CONNECT BOX
TELEPHONE PEDESTAL
TELEPHONE PRESSURE BOX
WATER LINE
WATER LINE/CASING
WATER CLEANOUT
WATER METER
WATER VALVE
WATER VALVE VAULT
WATER WELL
FIRE HYDRANT
BILLBOARD
FUEL PUMP
POST
SIGN POST
STORAGE TANK (ROUND)
GRAVE
MAILBOX
ORNAMENTAL LIGHT
FLAG POLE
GRAVE

APPARENT EXISTING ROW

PROPOSED LEGEND:

PROPOSED EDGE OF PAVEMENT
PROPOSED EDGE OF PAVED SHOULDER
PROPOSED CURB AND GUTTER
PROPOSED REQUIRED ROW
DIRECTION OF TRAFFIC
PROPOSED ROADWAY REMOVAL
PROPOSED PAVEMENT CROSS SLOPE





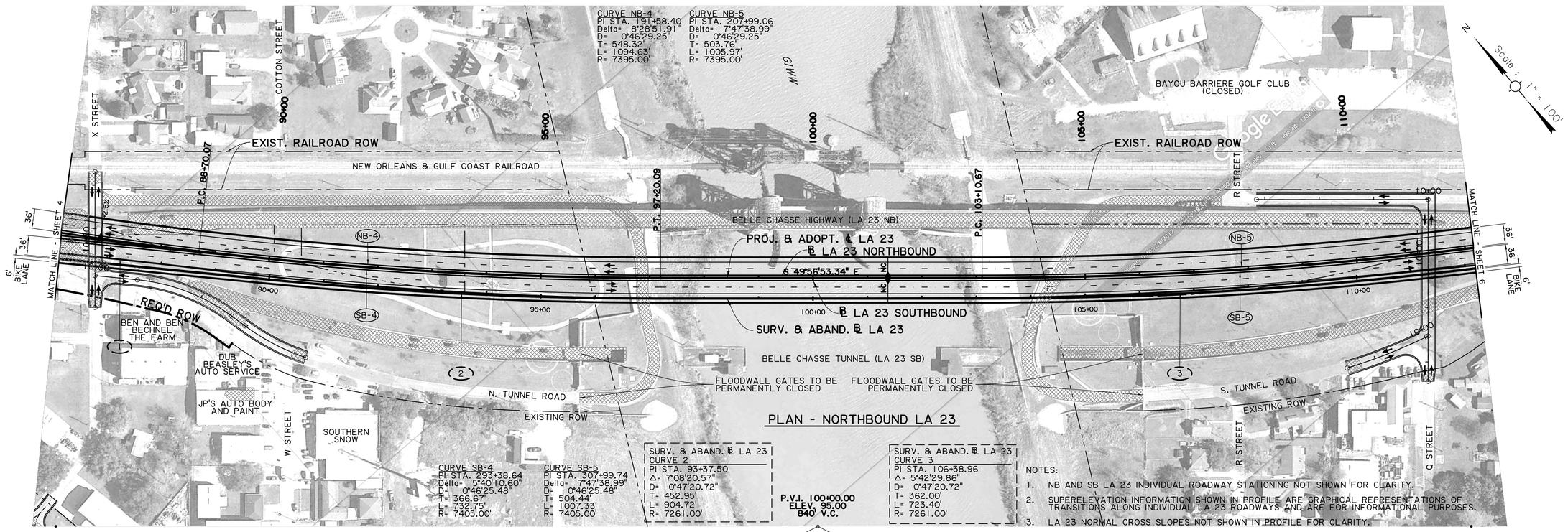
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SERIES NUMBER	1 OF 6

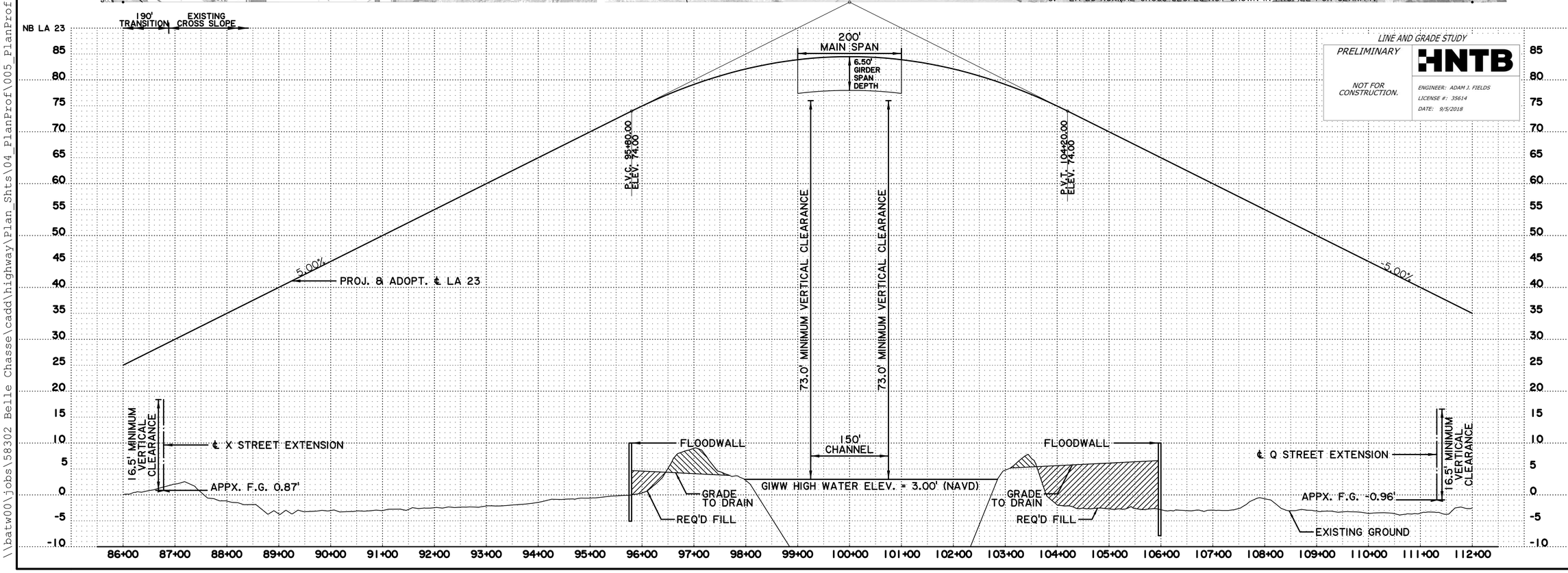
REVISION OR CHANGE ORDER DESCRIPTION | BY | NO. | DATE

PLAN AND PROFILE

LA 23: BELLE CHASSE BRIDGE AND TUNNEL (HBI)

PRELIMINARY PLANS
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SHEET NUMBER	5
PARISH	PLAQUEMINES
CONTROL SECTION	062-02
STATE PROJECT	H.004791
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CHECKED	C. HATHAWAY
DETAILED	B. GAUTREAU
CHECKED	A. FIELDS
SERIES NUMBER	2 OF 6

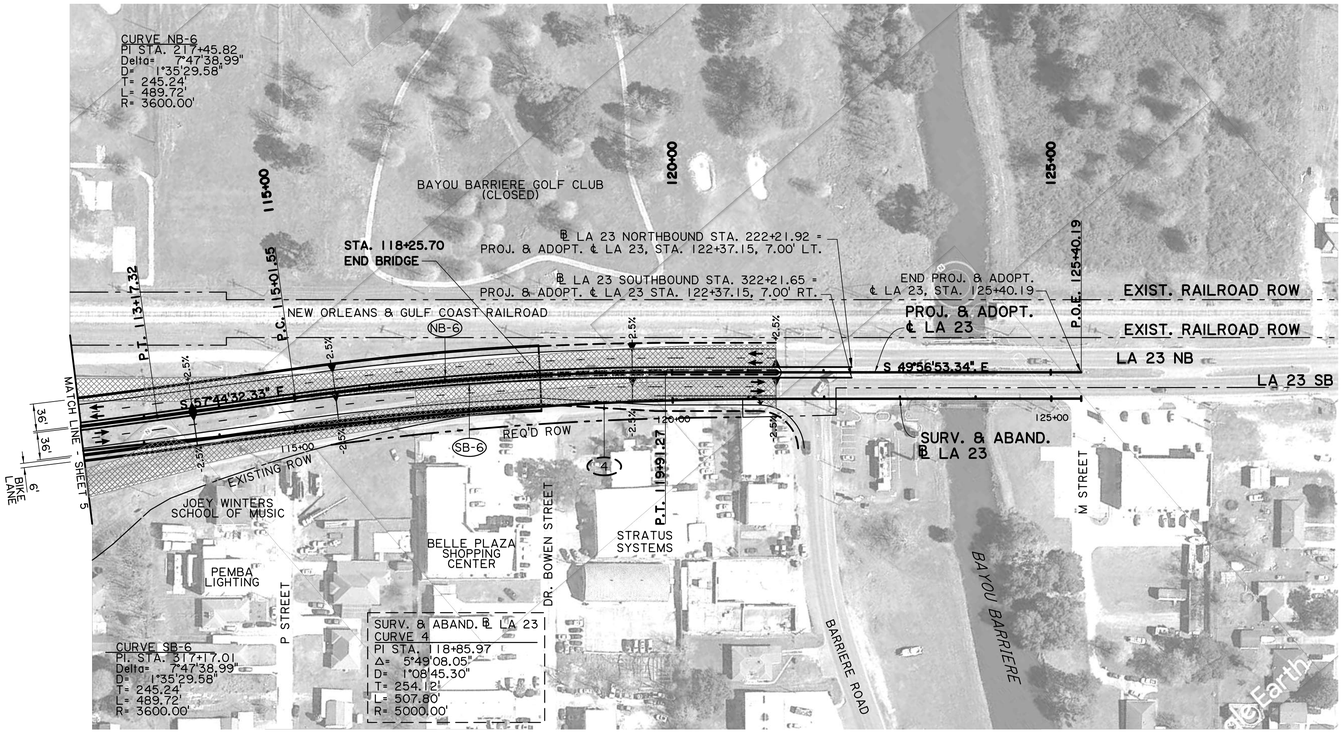
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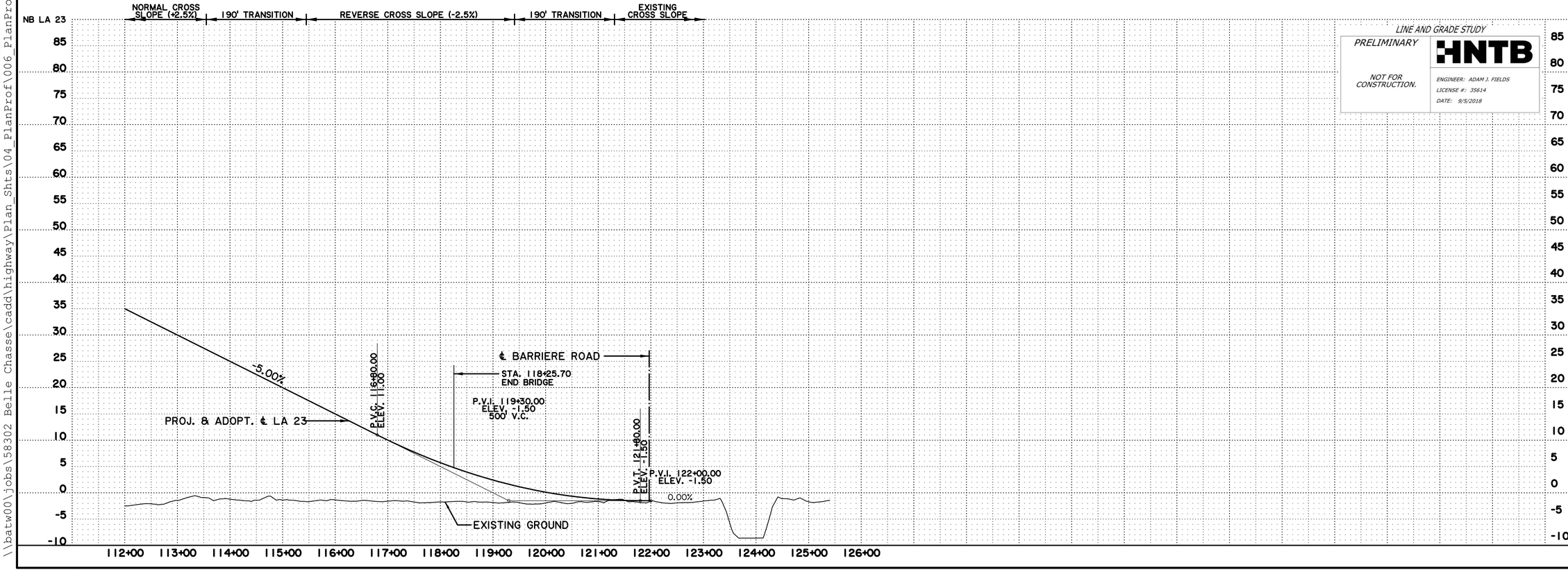
PLAN AND PROFILE
(LA 23 NORTHBOUND)
LA 23; BELLE CHASSE BRIDGE AND TUNNEL (HBJ)

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

HNTB

PRELIMINARY PLANS
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NOTES:

1. NB AND SB LA 23 INDIVIDUAL ROADWAY STATIONING NOT SHOWN FOR CLARITY.
2. SUPERELEVATION INFORMATION SHOWN IN PROFILE ARE GRAPHICAL REPRESENTATIONS OF TRANSITIONS ALONG INDIVIDUAL LA 23 ROADWAYS AND ARE FOR INFORMATIONAL PURPOSES.
3. SB LA 23 NORMAL CROSS SLOPE (-2.5%) NOT SHOWN IN PROFILE FOR CLARITY.

LINE AND GRADE STUDY
PRELIMINARY
NOT FOR CONSTRUCTION.
HNTB
ENGINEER: ADAM J. FIELDS
LICENSE #: 35614
DATE: 9/5/2018

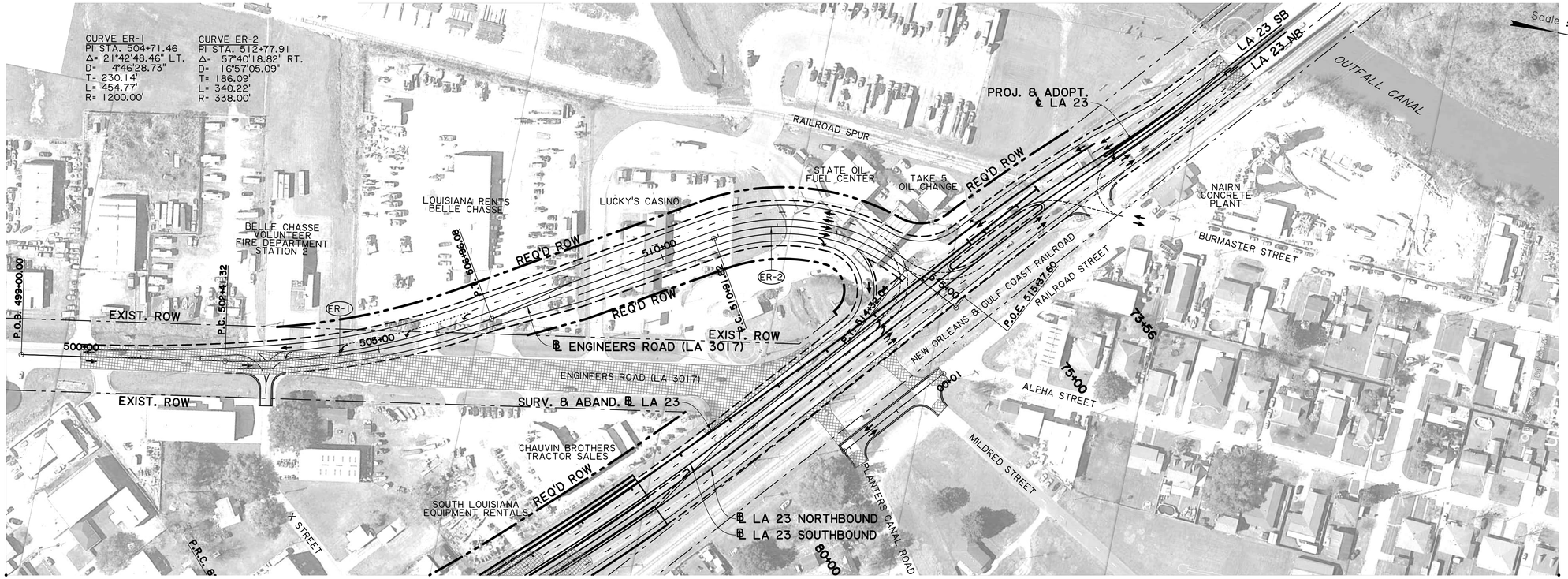
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CONTROL SECTION	062-02
STATE PROJECT	H.004791
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CHECKED	C. HATHAWAY
DETAILED	B. GAUTREAU
CHECKED	A. FIELDS
SERIES NUMBER	3 OF 6

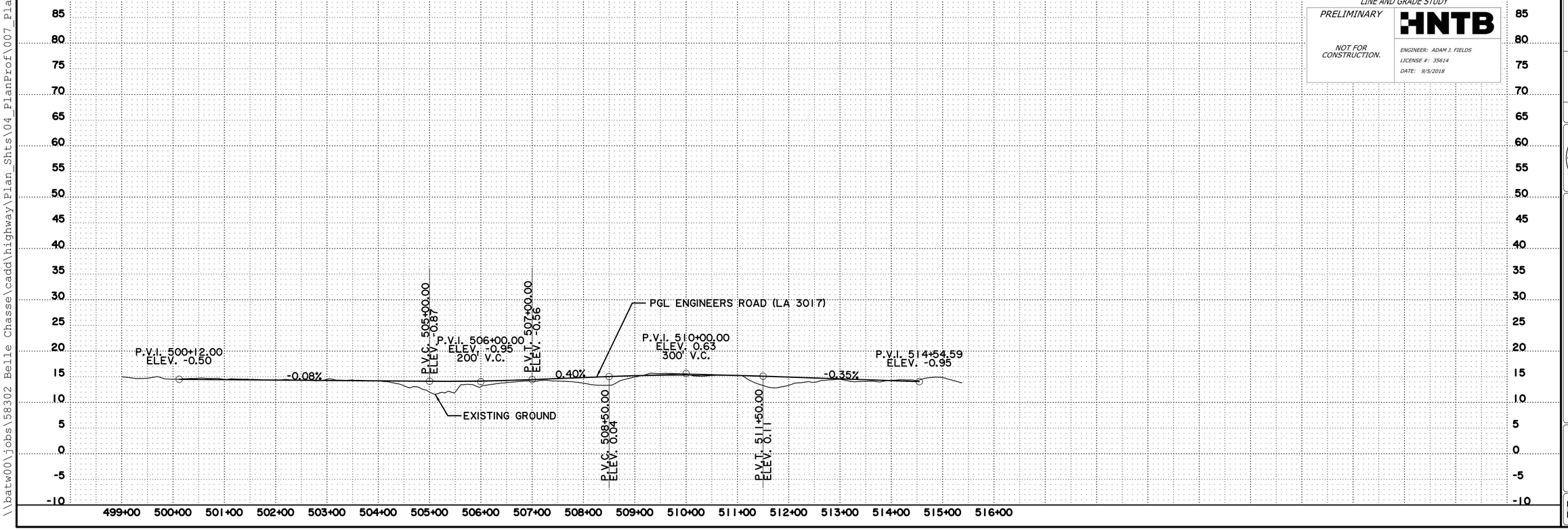
NO.	REVISION OR CHANGE ORDER DESCRIPTION	DATE	BY

PLAN AND PROFILE

LA 23; BELLE CHASSE BRIDGE AND TUNNEL (HBI)

PRELIMINARY PLANS
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LINE AND GRADE STUDY

PRELIMINARY

NOT FOR CONSTRUCTION.

HNTB

ENGINEER: ADAM J. FIELDS
LICENSE #: 35614
DATE: 9/5/2018

SHEET NUMBER	7
PARISH	PLAQUEMINES
CONTROL SECTION	062-02
STATE PROJECT	H.004791
DESIGNED	A. FIELDS
CHECKED	C. HATHAWAY
DETAILED	B. GAUTREAU
CHECKED	A. FIELDS
SERIES NUMBER	4 OF 6

NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION

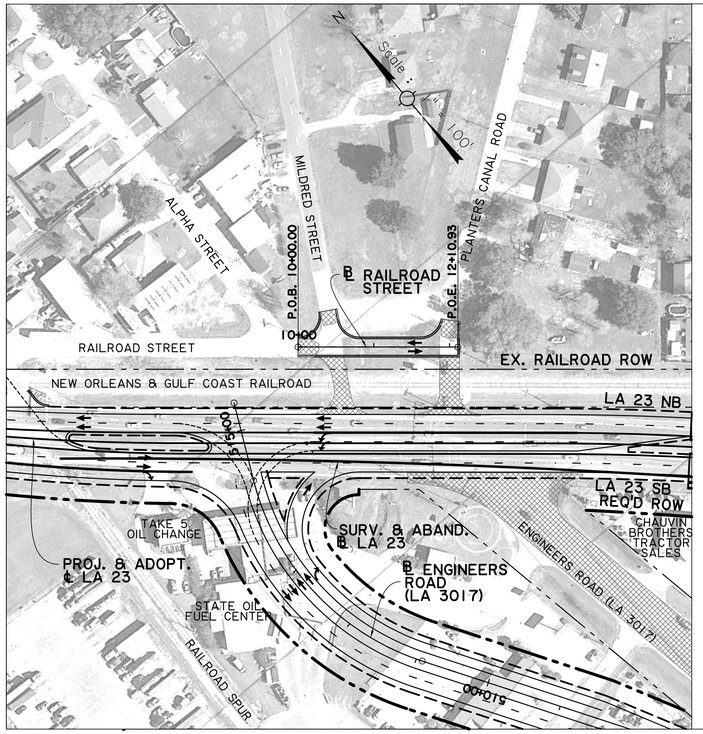
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LA 23; BELLE CHASSE BRIDGE AND TUNNEL (HBJ)

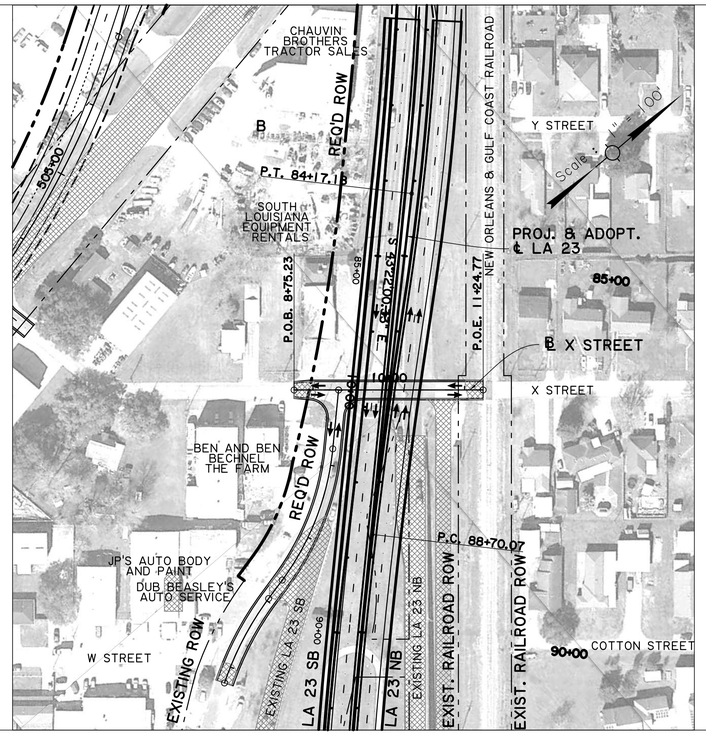
DOTD LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

HNTB

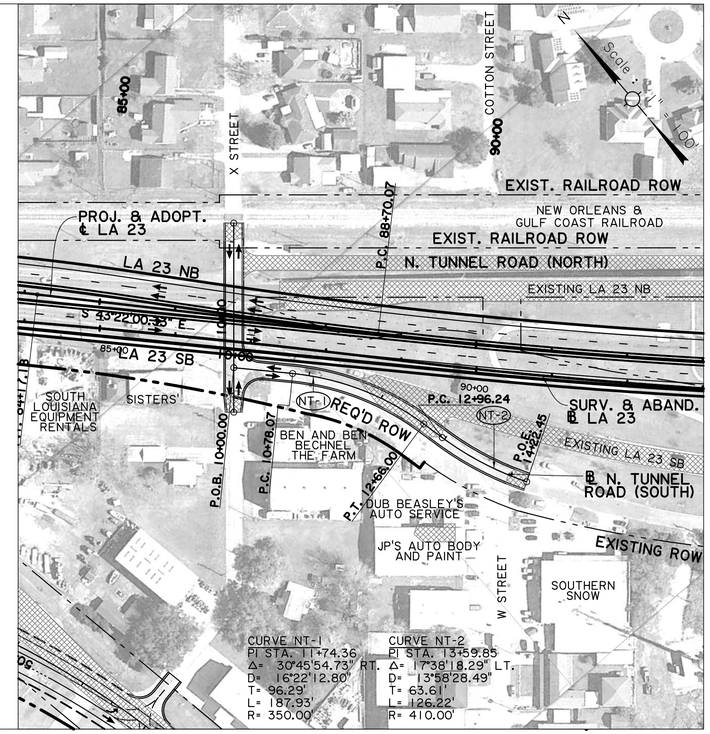
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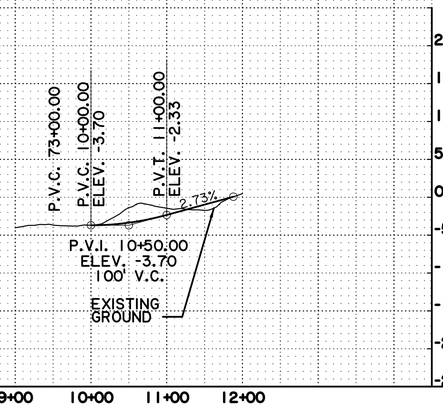
PLAN - RAILROAD STREET

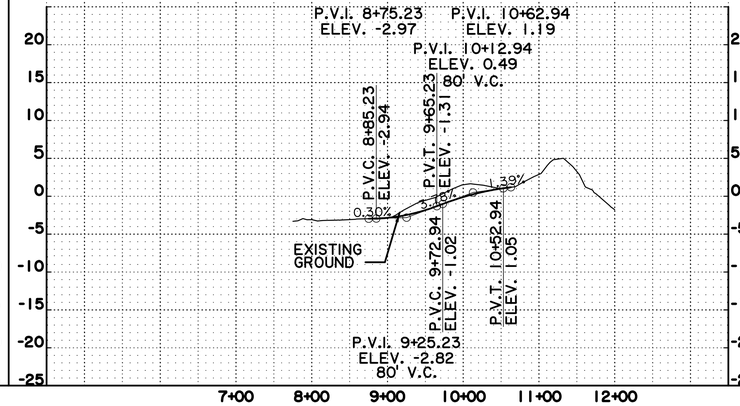


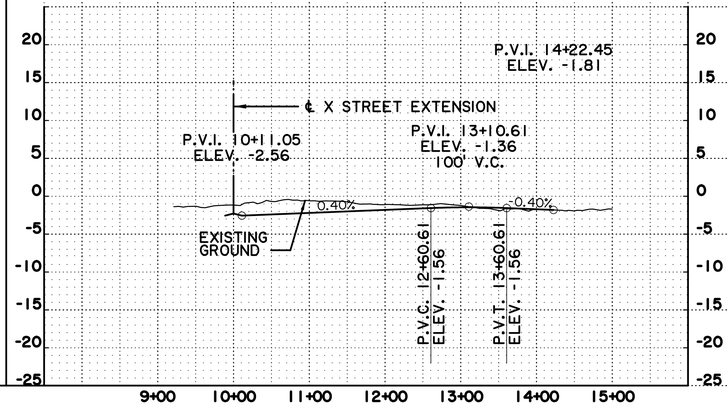
PLAN - X STREET EXTENSION



PLAN - N TUNNEL ROAD (SOUTH)







LINE AND GRADE STUDY

PRELIMINARY

NOT FOR CONSTRUCTION.

HNTB

ENGINEER: ADAM J. FIELDS
LICENSE #: 35614
DATE: 9/5/2018

NO.	DATE	BY	REVISION OR CHANGE ORDER DESCRIPTION

SHEET NUMBER	8
PARISH	PLAQUEMINES
CONTROL SECTION	062-02
STATE PROJECT	H.004791
DESIGNED	A. FIELDS
CHECKED	C. HATHAWAY
DETAILED	B. GAUTREAU
CHECKED	A. FIELDS
SERIES NUMBER	5 OF 6

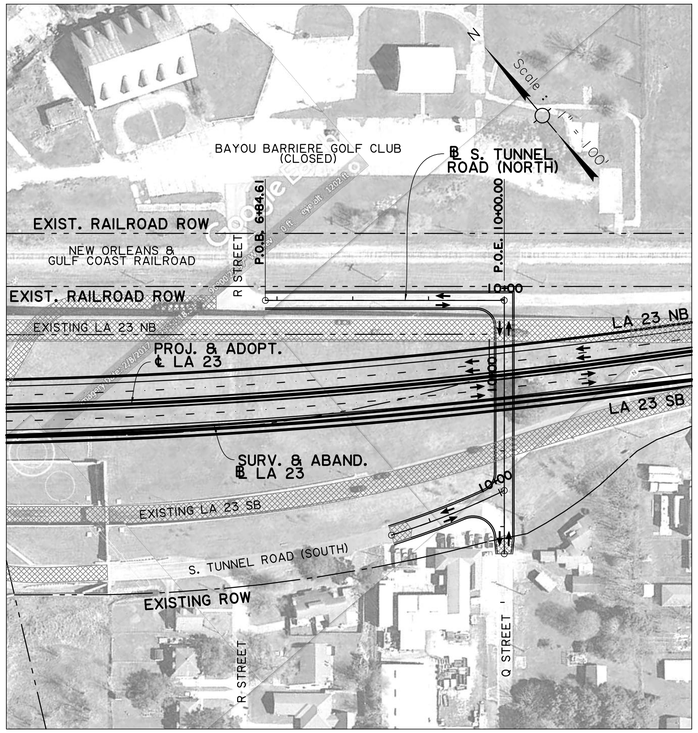
PLAN AND PROFILE

LA 23; BELLE CHASSE BRIDGE AND TUNNEL (HBI)

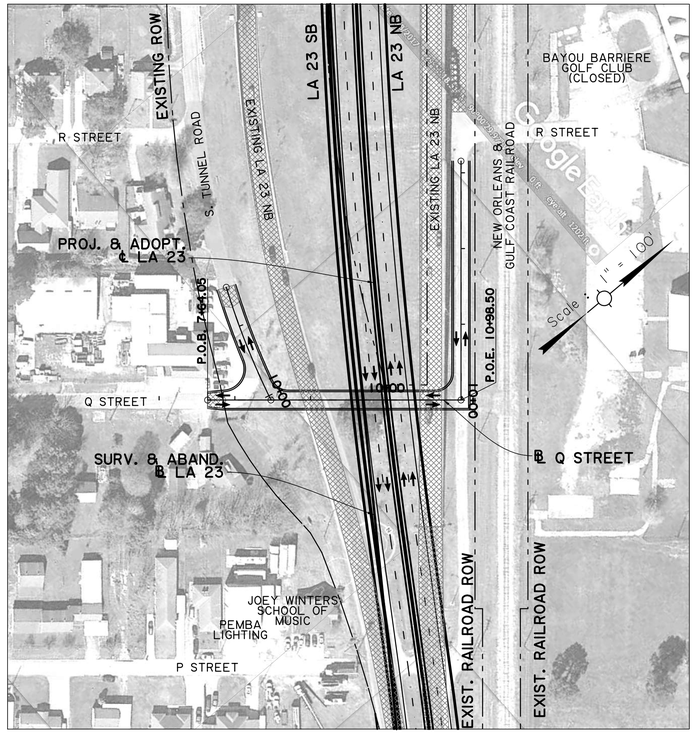
DOTD LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

HNTB

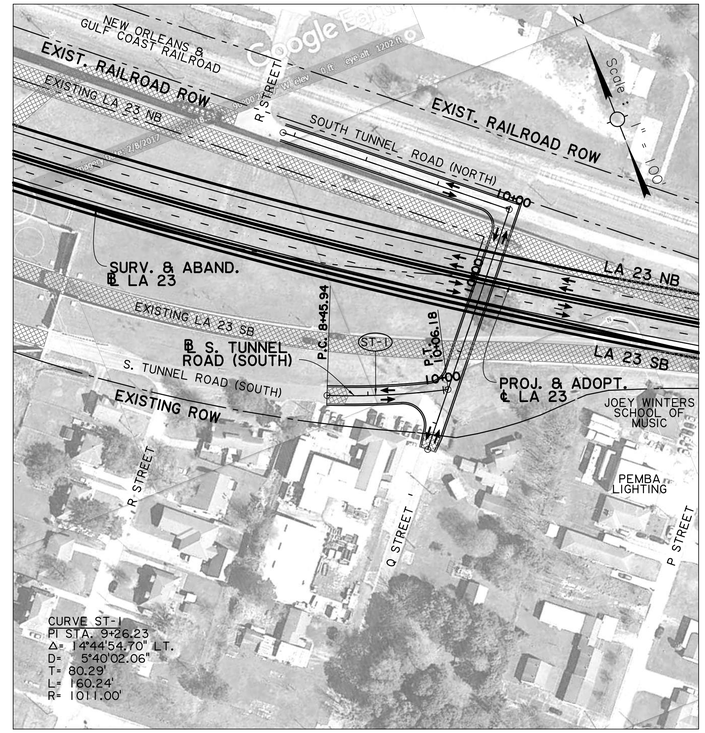
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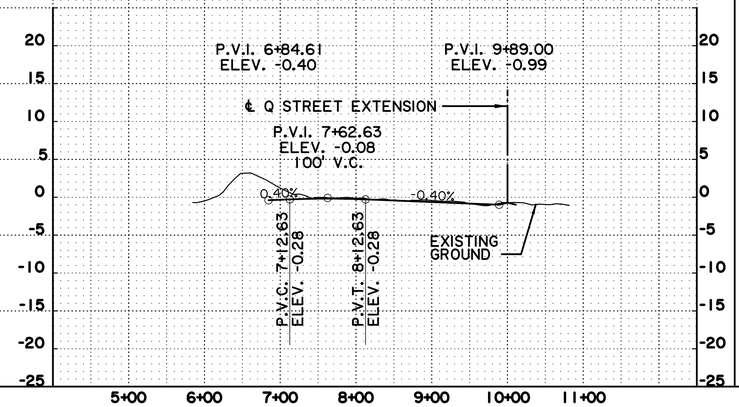
PLAN - S. TUNNEL ROAD (NORTH)

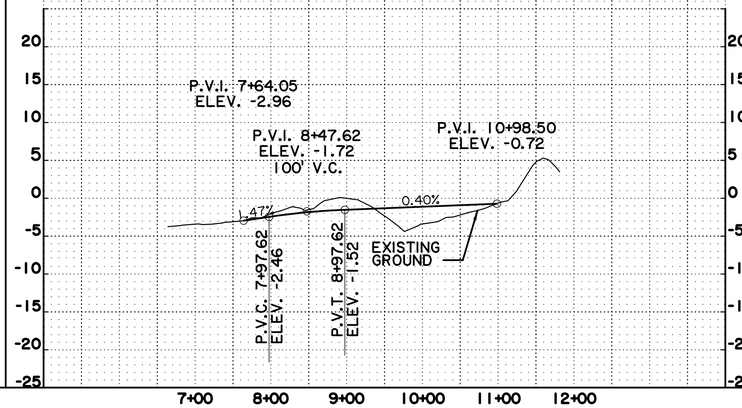


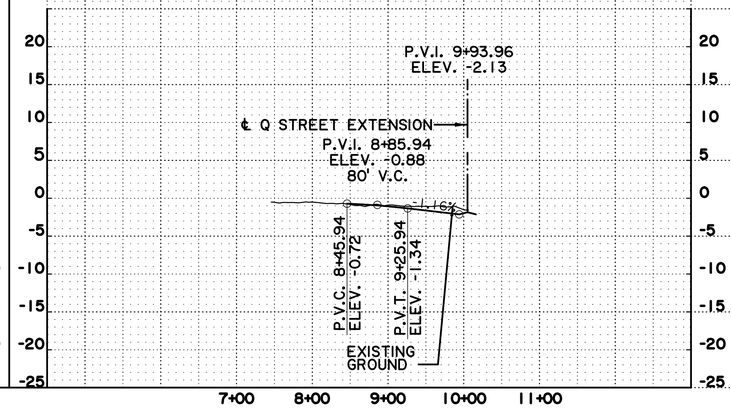
PLAN - Q STREET EXTENSION



PLAN - S. TUNNEL ROAD (SOUTH)







LINE AND GRADE STUDY

PRELIMINARY

NOT FOR CONSTRUCTION.

HNTB

ENGINEER: ADAM J. FIELDS
LICENSE #: 35614
DATE: 9/5/2018

SHEET NUMBER	9
PARISH	PLAQUEMINES
CONTROL SECTION	062-02
STATE PROJECT	H.004791
DESIGNED	A. FIELDS
CHECKED	C. HATHAWAY
DETAILED	B. GAUTREAU
CHECKED	A. FIELDS
SERIES NUMBER	6 OF 6

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

PLAN AND PROFILE

LA 23: BELLE CHASSE BRIDGE AND TUNNEL (HBI)

DOTD LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

HNTB

Appendix C

Construction Cost Estimate

LA 23: Belle Chasse Bridge and Tunnel (HBI)
S. P. No. H.004791
Conceptual Cost Estimate

Option 4A (4-travel lanes/6'-Sidepath, 73' fixed high rise bridge 5% Grades) 8/15/2018

ITEM	DESCRIPTION	UNIT QTY	UNIT	UNIT PRICE	EXTENDED PRICE
Construction					
Mobilization		1	LS		$8,109,758
Construction Layout		1	LS		$2,027,439
Removal of At-Grade Roadway Pavement		36,960	SY	$12.00	$443,524
	LA 23 North	18,493	SY		
	LA 23 South	10,546	SY		
	Engineers Road	6,458	SY		
	Railroad Street	600	SY		
	Mildred Street Turn-out	236	SY		
	Planters Canal Road Turn-out	277	SY		
	Q Street	350	SY		
	North Tunnel Road	3,182	SY		
	South Tunnel Road	1,743	SY		
Removal of Tunnel Approach Retaining Walls		1,000	LF	$100.00	$100,000
Removal of Elevated Bridge Structures		80,411	SF	$25.00	$2,010,275
Removal of Vertical-Lift Span and Towers		1	LS		$750,000
Close Tunnel		1	LS		$3,500,000
New At-Grade Roadway Pavement		30,246	SY	$99.00	$2,994,350
	LA 23 North	10,551	SY		
	LA 23 South	3,423	SY		
	Engineers Road	10,365	SY		
	Engineers Road at West X Street Turn-out	227	SY		
	Railroad Street	600	SY		
	Railroad Street Extension	830	SY		
	X Street and Extension	1,964	SY		
	Q Street Extension	2,287	SY		
Removal of Drainage Structures		1	LS		$100,000
Drainage		1	LS		$1,860,000
New Fixed High-Rise GIWW Bridge:			SF		
	Concrete Approach Slabs	6,760	SF	$40.00	$270,400
	Concrete Girder Spans (Type LG-36)	65,910	SF	$136.00	$8,963,760
	Concrete Girder Spans (Type LG-63)	171,535	SF	$283.00	$48,544,405
	Steel Girder Spans w/ River Piers	43,940	SF	$562.00	$24,694,280
	Composite Fender System	1	LS		$2,000,000
	Concrete Slab Spans	43,940	SF	$117.00	$5,140,980
				Construction Subtotal	***$111,509,171***
Right of Way and Relocation					
Relocation					
	Commercial Relocations	**1**	LS		**$360,000**
Real Estate					
	Commercial	**1**	LS		**$7,255,000**
				Right-of-Way Subtotal	***$7,615,000***
Utility Relocation					
	Utility Relocation	1	LS		**$5,897,000**
				Utility Relocation Subtotal	***$5,897,000***
Professional Services					
Environmental and Permitting					$300,000
Engineering Design					$5,017,900
Survey					$648,000
Geotechnical					$690,000
CA and Inspection					$4,460,400
				Professional Services Subtotal	***$11,116,300***
				SUBTOTAL:	$136,137,471
				10% CONTINGENCY:	$13,613,747
			Option 4A	**TOTAL COST:**	**$149,751,219**

Main Span (520'-0" 3-Span Continuous Steel Plate Girders)

(Applicable to HNTB Profile)

	Item	Quantity	Unit	Unit Cost	Item Cost	Total Cost
Superstructure						
	Structural Steel	5,860,400	LB	$2.00	$11,720,800.00	
	Class A1 Concrete (Deck)	1,211	CY	$932.00	$1,128,652.00	
	Deck Reinforcing Steel	302,750	LB	$1.00	$302,750.00	
	Bridge Railing	1,560	LF	$135.00	$210,600.00	
	Bridge Railing (Median)	520	LF	$243.00	$126,360.00	
					Subtotal Superstructure	$13,489,162.00
				Cost per Square Foot (520'-0" x 84'-6")		$306.99
Substructure (4 Main Piers)						
	Structural Excavation (2 piers outside waterway)	1,953	CY	$32.00	$62,496.00	
	Precast Concrete Piles (36")	21,120	LF	$119.00	$2,513,280.00	
	Class A1 Concrete (Footing)	2,560	CY	$550.00	$1,408,000.00	
	Class A1 Concrete (Bents)	5,250	CY	$1,076.00	$5,649,000.00	
	Pier Reinforcing Steel	1,562,000	LB	$1.00	$1,562,000.00	
					Subtotal Substructure	$11,194,776.00
				Cost per Square Foot (520'-0" x 84'-6")		$254.77
	Total Cost per Square Foot Main Span (520'-0" 3-Span Continuous Steel Plate Girders)					**$562.00**

Belle Chasse Tunnel Bridge Replacement

100'-0" Concrete Girder Span (Type LG-63)

(Applicable to HNTB Profile)

	Item	Quantity	Unit	Unit Cost	Item Cost	Total Cost
Superstructure						
	Precast-Prestressed Concrete Girder (Type LG-63)	800	LF	$175.00	$140,000.00	
	Class A1 Concrete (Deck)	255	CY	$932.00	$237,660.00	
	Deck Reinforcing Steel	63,750	LB	$1.00	$63,750.00	
	Bridge Railing	300	LF	$135.00	$40,500.00	
	Bridge Railing (Median)	100	LF	$243.00	$24,300.00	
					Subtotal Superstructure	$506,210.00
				Cost per Square Foot (100'-0" x 84'-6")		$59.91
Substructure						
	Structural Excavation	768	CY	$32.00	$24,576.00	
	Precast Concrete Piles (24")	5,400	LF	$137.00	$739,800.00	
	Class A1 Concrete (Footing)	416	CY	$550.00	$228,800.00	
	Class A1 Concrete (Bents)	629	CY	$1,076.00	$676,804.00	
	Pier Reinforcing Steel	209,000	LB	$1.00	$209,000.00	
					Subtotal Substructure	$1,878,980.00
				Cost per Square Foot (100'-0" x 84'-6")		$222.36
	Total Cost per Square Foot 100'-0" Concrete Girder Span (Type LG-63)					**$283.00**

1091

Belle Chasse Tunnel Bridge Replacement

65'-0" Concrete Girder Span (Type LG-36)

(Applicable to HNTB Profile)

	Item	Quantity	Unit	Unit Cost	Item Cost	Total Cost
Superstructure						
	Precast-Prestressed Concrete Girder (Type LG-36)	520	LF	$140.00	$72,800.00	
	Class A1 Concrete (Deck)	166	CY	$932.00	$154,712.00	
	Deck Reinforcing Steel	41,500	LB	$1.00	$41,500.00	
	Bridge Railing	195	LF	$135.00	$26,325.00	
	Bridge Railing (Median)	65	LF	$243.00	$15,795.00	
					Subtotal Superstructure	$311,132.00
					Cost per Square Foot (65'-0" x 84'-6")	$56.65
Substructure						
	Structural Excavation	203	CY	$32.00	$6,496.00	
	Precast Concrete Piles (24")	1,500	LF	$137.00	$205,500.00	
	Class A1 Concrete (Footing)	86	CY	$550.00	$47,300.00	
	Class A1 Concrete (Bents)	124	CY	$1,076.00	$133,424.00	
	Pier Reinforcing Steel	42,000	LB	$1.00	$42,000.00	
					Subtotal Substructure	$434,720.00
					Cost per Square Foot (65'-0" x 84'-6")	$79.15
	Total Cost per Square Foot 65'-0" Concrete Girder Span (Type LG-36)					**$136.00**

Belle Chasse Tunnel Bridge Replacement

20'-0" Slab Span with Curtain Walls

(Applicable to HNTB Profile)

Item		Quantity	Unit	Unit Cost	Item Cost	Total Cost
Superstructure						
	Class A1 Concrete (Deck)	76	CY	$932.00	$70,832.00	
	Deck Reinforcing Steel	17,000	LB	$1.00	$17,000.00	
	Bridge Railing	60	LF	$135.00	$8,100.00	
	Bridge Railing (Median)	20	LF	$243.00	$4,860.00	
					Subtotal Superstructure	$100,792.00
				Cost per Square Foot (20'-0" x 84'-6")		$59.64
Substructure						
	Precast Concrete Piles (16")	600	LF	$74.00	$44,400.00	
	Class A1 Concrete (Bents)	21	CY	$1,076.00	$22,596.00	
	Bent Reinforcing Steel	5,000	LB	$1.00	$5,000.00	
					Subtotal Substructure	$71,996.00
				Cost per Square Foot (20'-0" x 84'-6")		$42.60
Curtain Walls						
	Structural Excavation	15	CY	$32.00	$480.00	
	Treated Timber Piles (Noncoastal Treatment)	260	LF	$56.00	$14,560.00	
	Class A1 Concrete (Footing)	4	CY	$550.00	$2,200.00	
	Class A1 Concrete (Curtain Walls)	7	CY	$725.00	$5,075.00	
	Curtain Wall Reinforcing	2,200	LB	$1.00	$2,200.00	
					Subtotal Curtain Walls	$24,515.00
				Cost per Square Foot (20'-0" x 84'-6")		$14.51
	Total Cost per Square Foot 20'-0" Slab Span with Curtain Walls					**$117.00**

BC Bridge / Line and Grade Study / Utility Relocation / OPCC
July 2018

Item No.	Item Description	Unit	Total Qty	Unit Price	Cost	Cost Note
1	Communication Lines - Relocation	LF	10400	$75	$780,000	2
2	Communication Lines - Installation of New	LF	11100	$50	$555,000	2
3	Communication Lines - Demolition of Existing	LF	20500	$5	$102,500	2
4	Electric Lines - Relocation (Overhead)	LF	4100	$150	$615,000	2
5	Electric Lines - Installation of New (Overhead)	LF	1500	$135	$202,500	2
6	Electric Lines - Demolition of Existing (Overhead)	LF	5100	$15	$76,500	2
7	Gas Lines - Relocation (≤ 4-inch)	LF	1500	$75	$112,500	2
8	Gas Lines - Installation of New (≤ 4-inch)	LF	1500	$50	$75,000	2
9	Gas Lines - Demolition of Existing (≤ 4-inch)	LF	2500	$5	$12,500	2
10	Water System - Installation of New 8-inch	LF	3500	$85	$297,500	3
11	Water System - Installation of New 12-inch	LF	11600	$115	$1,334,000	3
12	Water System - Installation of New 8-inch Valve and Valve Box	EA	20	$6,500	$130,000	3
13	Water System - Installation of New 12-inch Valve and Valve Box	EA	20	$9,500	$190,000	3
14	Water System - Installation of New Fire Hydrants	EA	20	$4,500	$90,000	3
15	Water System - Plug and Fill Existing Lines	LF	7200	$25	$180,000	3
16	Sewer System - Installation of New 8-inch	LF	750	$80	$60,000	3
17	Sewer System - Installation of New 10-inch	LF	2600	$90	$234,000	3
18	Sewer System - Installation of New Manhole	EA	20	$2,000	$40,000	3
19	Sewer System - Plug and Fill Existing Lines	LF	2800	$25	$70,000	3
20	Sewer System - Installation of New Pump/Lift Station	EA	1	$500,000	$500,000	3
21	Sewer System - Installation of New 6-inch Force Main	LF	2000	$120	$240,000	3
22	Drainage System - Installation of New Subsurface Lines (24 - 48")	LF	10300	$150	$1,545,000	3
23	Drainage System - Installation of New Catch Basins / Grates	EA	50	$4,500	$225,000	3
24	Drainage System - Plug and Fill Existing Lines OR Regrading	LF	3600	$25	$90,000	3
Utility Relocation OPCC					$7,757,000	

Notes and Assumptions for OPCC

1 Mobilization/Demobilization and contingency not included. This OPCC is a part of the entire Line and Grade Study, to which Mobilization will be added.
2 Cost based on information from utility company.
3 Cost based on engineer's experience of current market knowledge.
4 OPCC is a Class 5 estimate as defined by the Association for the Advancement of Cost Engineering International (AACEI). AACEI defines a Class 5 estimate as appropriate for conceptual screening with an expected accuracy in range of +100% to -50%.
5 Drainage cost of $1,860,000 separated out and include in the construction cost.

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Appendix D

Design Report Form

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LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Design Report
for
2017 Minimum Design Guidelines

Status:
- (•) *Preliminary*
- ( ) *Final*
- ( ) *Revised*

Project Information:

State Project No.	H.004791
Federal Aid Project No.	3806500
Control Section(s)	062-02
Project Name	LA 23: BELLE CHASSE BRIDGE & TUNNEL (HBI)
Route(s)	LA 23
Parish	PLAQUEMINES

Description of Work (or Revision Description)

Line and Grade Study for a new 4-lane fixed bridge at 73 ft. above the high water line of the Gulf Intracoastal Waterway (GIWW). The proposed project occurs at the site of the existing 2-lane Judge Perez Bridge and 2-lane Belle Chasse Tunnel. This project also includes minor modifications to the LA 23 corridor in Plaquemines Parish between the south approaches of the Barataria Outfall Canal bridges to Barriere Road.

Traffic

Control Section	062-02		
Current ADT 2012	39,480		
Design ADT 2044	48,200		
D	49% NB	51% SB	
K	8%		
T	10%		
TDDHV	2%		

Design Waivers

Design Exceptions

Route and Design Classification

☑ Urban ☐ Rural

☐ Freeway ☑ Arterial ☐ Collector ☐ Local ☐ Ramp

Work Classification

Work Type	System	Oversight
☑ New/Reconstruction	☐ NHS	☑ PoDI
☐ Major Rehabilitation	☑ Non NHS	☐ Assumed
☐ Structural Improvement		☐ None
☐ Spot Replacement		
☐ Minor Rehabilitation		
☐ Preventive Maintenance		

Recommended By:

Engineer of Record: Rene A. Chopin, III	Title: Vice President
Signature:	Date: July 3, 2018
DOTD Technical Task Manager (Road):	Title:
Signature:	Date:
DOTD Technical Task Manager (Bridge):	Title:
Signature:	Date:
DOTD Project Manager:	Title:
Signature:	Date:

PRELIMINARY

Design Guideline Waivers are approved as noted in the attached instructions. All Design Exceptions must be approved by the Chief Engineer with the Design Exception form.

Roadway Features:

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		50	50			
Lane Width (ft)	12	11	12			
Shoulder Width (ft)						
Inside	1	1	1			
Outside	8	1	8			8 feet existing outside shoulder
Shoulder Type						
Inside	PAVED	PAVED	PAVED			
Outside	PAVED	PAVED	PAVED			
Lateral Offset (ft)	8	1.5	8			
Clear Zone (ft)		N/A				urban arterial
Cross Slope (%)		2.5	2.5			
Longitudinal Grade		5	5			
Slopes (ft/ft)						
Fore Slope		4:1	4:1			
Back Slope		3:1	3:1			
Median Width (ft)	50	6	14	✓		14 feet raised, paved median to match existing at-grade roadway median

Stopping Sight Distance: *Vertical and horizontal distances must be met.*

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
☑ Yes ☐ No	☐	

Complete Streets: *Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.*

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
☑ Yes ☐ No	☐	

Horizontal Curves Radius/Superelevation:

Max Super-elevation rate (%) e_{max}	Design Speed (mph)	Required Minimum Radius (ft) Normal Crown	Reverse Crown	Full Super	Minimum radius and appropriate superelvation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
4	50	7246	3474	926	☑ Yes ☐ No	☐	
					☐ Yes ☐ No	☐	

Bridge Features:

Design Feature	*Preferred*	*Acceptable*	*Proposed Value*	*Design Waiver Required*	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
Bridge Width (ft)						
Curb				☐	☐	
Shoulder	74	62	74	☐	☐	4-lane bridge with 2 feet median barrier, 4 feet inside shoulders, 12 feet travel lanes, and 8 feet outside shoulders. The bridge will also have either a 6 feet side path for pedestrians separated by a roadway barrier (SB side only) or 5 feet sidewalks on 6

Structural Capacity:

Do all structures meet requirements for Structural Capacity?	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
☑ Yes ☐ No	☐	

Vertical Clearance:

Are minimum required roadway clearances met for all structure types?	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
☑ Yes ☐ No	☐	

Additional Comments:

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Design Report
for
2017 Minimum Design Guidelines

Status:
- (•) *Preliminary*
- ( ) *Final*
- ( ) *Revised*

Project Information:

State Project No.	H.004791
Federal Aid Project No.	3806500
Control Section(s)	838-01
Project Name	LA 23: BELLE CHASSE BRIDGE & TUNNEL (HBI)
Route(s)	LA 3017
Parish	PLAQUEMINES

Description of Work (or Revision Description)

The realignment of the intersection of LA 3017 with the LA 23 bridge approach. The proposed intersection will be located to the west of the current one. The proposed improvements to LA 3017 start near the intersection with "X" Street.

Traffic

Control Section	838-01		
Current ADT 2012	10,740		
Design ADT 2044	14,700		
D	49% NB	51% SB	
K	9%		
T	6%		
TDDHV	7%		

Design Waivers

Design Exceptions

Route and Design Classification

☑ Urban ☐ Rural

☐ Freeway ☑ Arterial ☐ Collector ☐ Local ☐ Ramp

Work Classification

Work Type	System	Oversight
☑ New/Reconstruction	☐ NHS	☑ PoDI
☐ Major Rehabilitation	☑ Non NHS	☐ Assumed
☐ Structural Improvement		☐ None
☐ Spot Replacement		
☐ Minor Rehabilitation		
☐ Preventive Maintenance		

Recommended By:

Engineer of Record: Rene A. Chopin, III	Title: Vice President
Signature:	Date: July 3, 2018
DOTD Technical Task Manager (Road):	Title:
Signature:	Date:
DOTD Technical Task Manager (Bridge):	Title:
Signature:	Date:
DOTD Project Manager:	Title:
Signature:	Date:

PRELIMINARY

Design Guideline Waivers are approved as noted in the attached instructions. All Design Exceptions must be approved by the Chief Engineer with the Design Exception form.

Roadway Features:

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		45	45			
Lane Width (ft)	12	11	12			
Shoulder Width (ft)						
Inside	N/A	N/A	N/A			Undivided highway
Outside	8	2	8			
Shoulder Type						
Inside	N/A	N/A	N/A			Undivided highway
Outside	PAVED	PAVED	PAVED			
Lateral Offset (ft)	12	4	8			
Clear Zone (ft)		N/A				Urban arterial
Cross Slope (%)		2.5	2.5			
Longitudinal Grade		5	5			
Slopes (ft/ft)						
Fore Slope		4:1	4:1			
Back Slope		3:1	3:1			
Median Width (ft)	N/A	N/A	N/A			Undivided highway

Stopping Sight Distance: *Vertical and horizontal distances must be met.*

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
☑ Yes ☐ No	☐	

Complete Streets: *Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.*

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
☑ Yes ☐ No	☐	

Horizontal Curves Radius/Superelevation:

Max Super-elevation rate (%) e_{max}	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelvation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
4	45	1080	772	711	☑ Yes ☐ No	☐	
					☐ Yes ☐ No	☐	

Bridge Features:

Design Feature	*Preferred*	*Acceptable*	*Proposed Value*	*Design Waiver Required*	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
Bridge Width (ft)						
Curb	N/A	N/A	N/A	☐	☐	
Shoulder	N/A	N/A	N/A	☐	☐	

Structural Capacity:

Do all structures meet requirements for Structural Capacity?	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
☐ Yes ☐ No	☐	

Vertical Clearance:

Are minimum required roadway clearances met for all structure types?	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
☐ Yes ☐ No	☐	

Additional Comments:

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Design Report
for
2017 Minimum Design Guidelines

Status:
- (•) *Preliminary*
- ( ) *Final*
- ( ) *Revised*

Project Information:

State Project No.	H.004791
Federal Aid Project No.	3806500
Control Section(s)	N/A
Project Name	LA 23: BELLE CHASSE BRIDGE & TUNNEL (HBI)
Route(s)	LOCAL ROADS
Parish	PLAQUEMINES

Description of Work (or Revision Description)

Realignment, relocation, and extension of local roads to keep access of local roads to LA 23 and LA 3017. Roads affected include: Railroad Street, Q Street, X Street, N. Tunnel South Road, S. Tunnel North Road, and S. Tunnel South Road.

Traffic

Control Section	N/A		
Current ADT 2012	N/A		
Design ADT 2044	N/A		
D	N/A		
K	N/A		
T	N/A		
TDDHV	N/A		

Design Waivers

Design Exceptions

Route and Design Classification

- [x] Urban
- [ ] Rural

- [ ] Freeway
- [ ] Arterial
- [ ] Collector
- [x] Local
- [ ] Ramp

Work Classification

Work Type	System	Oversight
[x] New/Reconstruction	[ ] NHS	[x] PoDI
[ ] Major Rehabilitation	[x] Non NHS	[ ] Assumed
[ ] Structural Improvement		[ ] None
[ ] Spot Replacement		
[ ] Minor Rehabilitation		
[ ] Preventive Maintenance		

Recommended By:

Engineer of Record: Rene A. Chopin, III	Title: Vice President
Signature:	Date: July 3, 2018
DOTD Technical Task Manager (Road):	Title:
Signature:	Date:
DOTD Technical Task Manager (Bridge):	Title:
Signature:	Date:
DOTD Project Manager:	Title:
Signature:	Date:

PRELIMINARY

Design Guideline Waivers are approved as noted in the attached instructions. All Design Exceptions must be approved by the Chief Engineer with the Design Exception form.

State Project No. H.004791 Route LOCAL ROADS Control Section N/A

Roadway Features:

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		20	20			
Lane Width (ft)	11	9	11			
Shoulder Width (ft)						
Inside	N/A	N/A	N/A			Undivided local
Outside	4	1	2			
Shoulder Type						
Inside	N/A	N/A	N/A			Undivided local
Outside	PAVED	PAVED	PAVED			
Lateral Offset (ft)	6	1.5	2			
Clear Zone (ft)		N/A	N/A			urban local
Cross Slope (%)		2.5	2.5			
Longitudinal Grade		5	5			
Slopes (ft/ft)						
Fore Slope		4:1	4:1			
Back Slope		3:1	3:1			
Median Width (ft)	N/A	N/A	N/A			Undivided local

Stopping Sight Distance: *Vertical and horizontal distances must be met.*

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
☑ Yes ☐ No	☐	

Complete Streets: *Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.*

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
☑ Yes ☐ No	☐	

Horizontal Curves Radius/Superelevation:

Max Super-elevation rate (%) e_{max}	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelvation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
4	20	109	91	86	☑ Yes ☐ No	☐	
					☐ Yes ☐ No	☐	

Bridge Features:

Design Feature	*Preferred*	*Acceptable*	*Proposed Value*	*Design Waiver Required*	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
Bridge Width (ft)						
Curb	N/A	N/A	N/A	☐	☐	
Shoulder	N/A	N/A	N/A	☐	☐	

Structural Capacity:

Do all structures meet requirements for Structural Capacity?	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
☐ Yes ☐ No	☐	

Vertical Clearance:

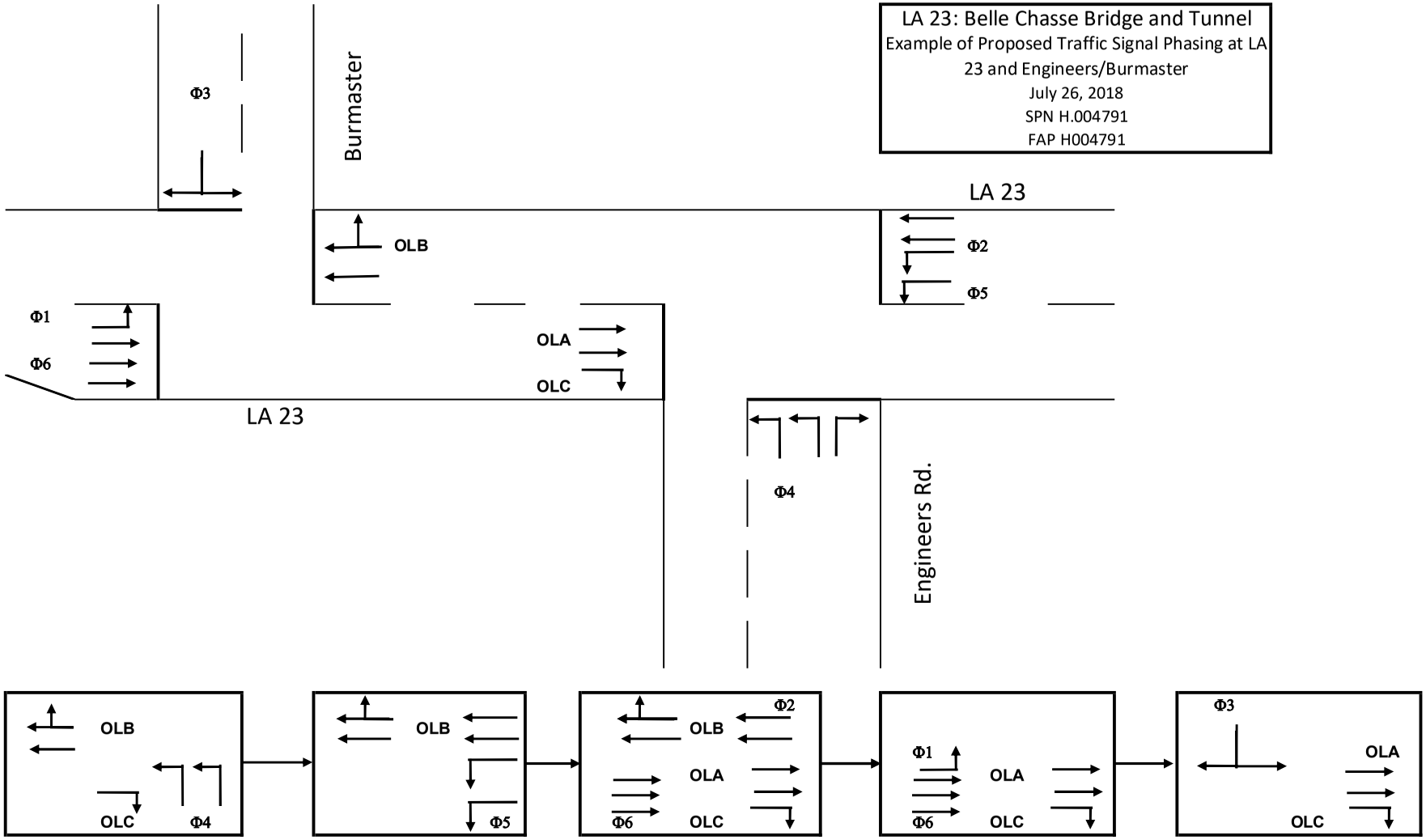
Are minimum required roadway clearances met for all structure types?	*Design Exception Required*	*Remarks or Explanation for Proposed Value*
☐ Yes ☐ No	☐	

Additional Comments:

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Appendix E

Example of Proposed Traffic Signal Phasing



Note: This traffic signal phasing is for planning purposes only and serves as an example phasing pattern to the proposed signal. The final design of traffic signal plans should modify or check the phasing to match design and field conditions.

BURK-KLEINPETER, INC.
In association with HNTB Engineering, Trigon Associates and Earth Search, Inc.
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