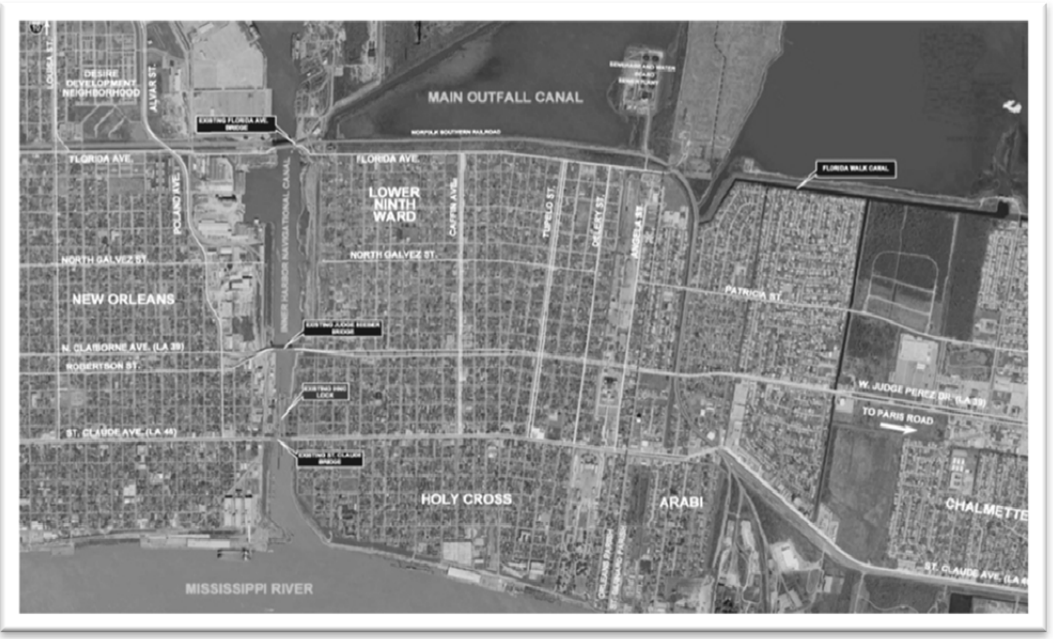
# Stage 0 Report




**Florida Avenue**

**Feasibility Study**

**Stage 0**
**Feasibility Study**

**State Project No:**
**H.005720**

**Prepared For:**
LADOTD

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# Executive Summary

A comprehensive Stage 0 Feasibility Study, in accordance with the Louisiana Department of Transportation and Development (LADOTD) Stage 0 Manual of Standard Practice, has been conducted for a new bridge across the Inner Harbor Navigational Canal (IHNC) at Florida Avenue in Orleans Parish. In addition to assessing a new Florida Avenue Bridge, concepts were developed for the upgrade and extension of Florida Avenue into St. Bernard Parish. The alternatives begin at Elysian Fields Avenue (LA 3021) and extend to Paris Road (LA 47). In addition, one existing (Tupelo Street) and three new North-South alignments have been evaluated to extend from Florida Avenue to St. Claude Avenue (LA 46). The presented alternatives have been developed with construction phasing in mind in order to satisfy the mandate and make associated improvements as funding allows.

The purpose of this study is to re-evaluate the proposed action presented in the *2007 Final Environmental Assessment (EA) - New Florida Bridge over the Inner Harbor Navigational Canal* and analyze additional bridge alternatives to identify cost savings.

The purpose of this study is as follows:

1. To re-evaluate the proposed action presented in the *2007 Final Environmental Assessment (EA)- New Florida Bridge over the Inner Harbor Navigational Canal* and analyze additional bridge alternatives to identify overall cost savings.

2. To present a reliable Florida Avenue connection from Elysian Fields Avenue to Paris Road and provide access to I-10 and I-610 from St. Bernard Parish.

3. Identify a north-south route that provides the optimum intermodal connection to the Port of St. Bernard.

The project needs were developed through an evaluation of existing data (marine traffic, bridge tender reports, etc.), review of previous studies and reports, review of master plan documents for industrial facilities within the project area, and coordination with the project team and other agencies.

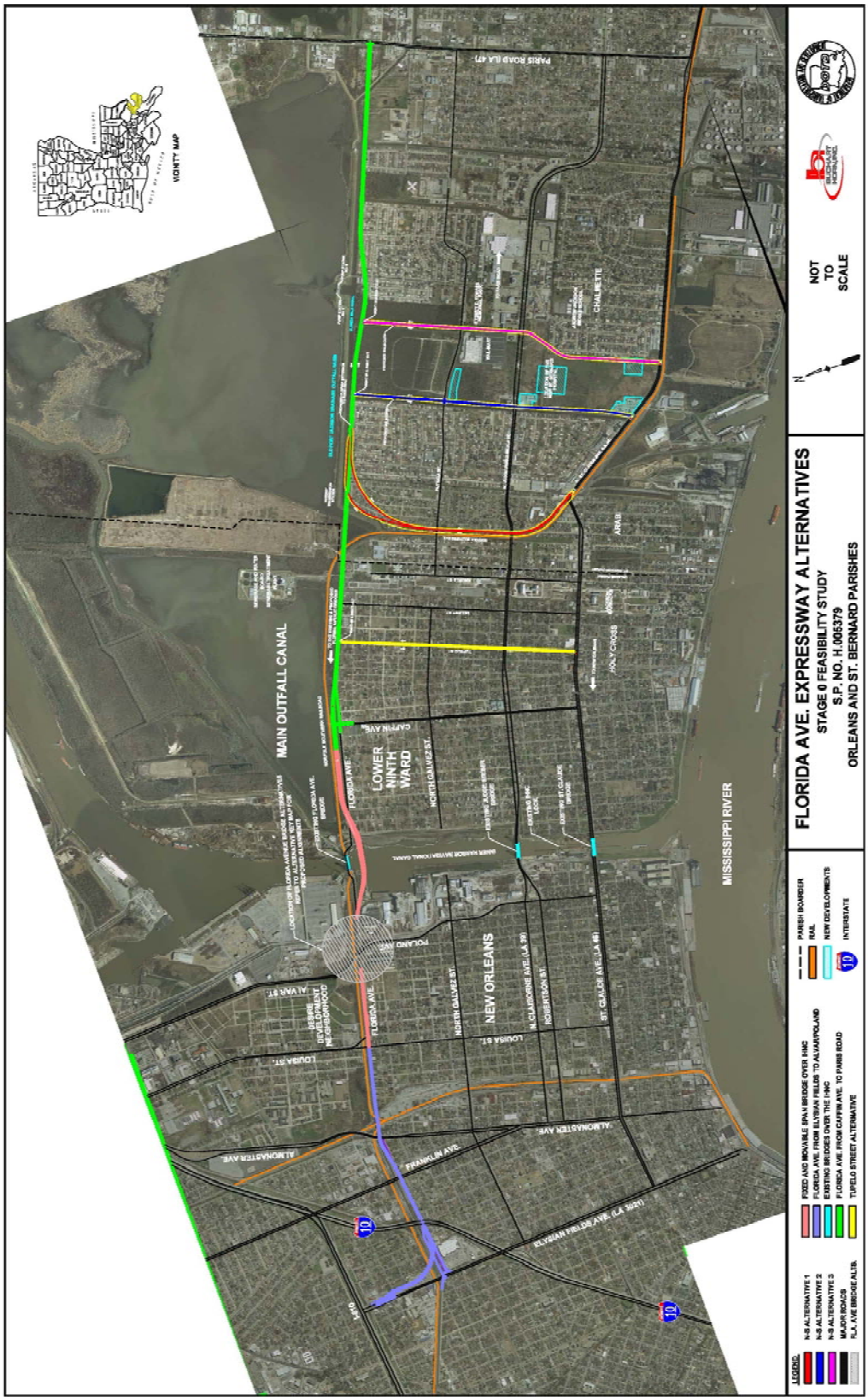
Three primary needs have been identified that the completion of the proposed bridge would address:

- State TIMED Legislation Mandate - Fulfill the requirements of Louisiana Legislature. As stated in the *2007 EA* and the *2012 Marine Study*, the Louisiana Legislature created the Transportation Infrastructure Model for Economic Development (TIMED) program which identified sixteen (16) highway, bridge and multi-modal projects to be completed through funding by a fuel tax at four cents per gallon. The "New Florida Avenue Bridge over the Industrial Canal" is one of these sixteen identified projects. The Louisiana Department of Transportation and Development (LADOTD), with consideration for the provisions of the TIMED legislation, proposed to build a new bridge to provide reliable vehicular access over the Inner Harbor Navigation Canal (IHNC) in the Florida Avenue corridor through Orleans and St. Bernard parishes.

- Reliable Vehicular Crossing- A reliable vehicular crossing must be provided over the IHNC through the use of a fixed or moveable bridge. The new bridge will assist in hurricane evacuation by providing an additional evacuation route for Orleans and St. Bernard parishes. The *2007 EA* states that the flood gates of the existing Florida Avenue Bridge close in the event of tidal storm surges which leaves the bridge totally inaccessible for vehicles during a hurricane evacuation. This compounds the traffic congestion for the remaining evacuation routes, St. Claude and Claiborne Avenue Bridges, over the IHNC. Therefore, the proposed crossing must provide reliable access unimpeded by frequent bridge openings for: (1) residents and area citizens to employment, shopping, businesses and medical services, (2) local hurricane evacuation needs, and (3) for emergency vehicles traveling to and from either side of the canal.

- System Linkage- Improve connectivity between major roadways and interstate routes. This will facilitate the movement of goods to commercial businesses and industrial facilities within the New Orleans metropolitan area.

Following the review of existing data and the incorporation of both technical and administrative input from LADOTD, resource agencies, stakeholders, and the project team, two (2) moveable and three (3) fixed bridge alternatives were developed. In addition to evaluating the moveable and fixed span bridge alternatives, new Florida Avenue connections from Elysian Fields Avenue to Poland Avenue/Alvar Street and Caffin Avenue to Paris Road were developed in conjunction with the evaluation of four (4) north-south corridors. The build alternatives are shown in the figure on the following page.




**Build Alternatives**

A preliminary cost estimate has been prepared for the alternatives using average cost information in accordance with the LADOTD Project Delivery Manual. The costs include construction, right-of-way, relocations, engineering, and contingency as expressed in 2013 dollars. The total cost for each build alternative is shown below.

- Florida Ave (West)- Elysian Fields Ave to Alvar/Poland Ave: **$56,177,903**
- Florida Ave to Elysian Fields Ave-Elevated Intersection: **$63,618,451**
- Fixed Bridge – Alternative A: **$207,710,706**
- Fixed Bridge – Alternative B: **$250,556,736**
- Fixed Bridge – Alternative C: **$271,034,471**
- Moveable Bridge – Alternative A: **$162,282,651**
- Moveable Bridge – Alternative B: **$165,654,650**
- Florida Ave (East) – Caffin Ave to Paris Rd: **$92,849,013**
- North-South Alternative 1 (N-S 1): **$27,760,950**
- North-South Alternative 2 (N-S 2): **$21,479,700**
- North-South Alternative 3 (N-S 3): **$22,401,000**
- Tupelo St Improvements: **$6,463,501**

Based on the conducted analysis for each alternative, the environmental summary, and preliminary cost estimates, it was determined that Moveable Bridge-Alternative A has the least amount of environmental impacts and the lowest overall cost amongst bridge alternatives.

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# 1.0 Introduction

A comprehensive Stage 0 Feasibility Study, in accordance with the Louisiana Department of Transportation and Development (LADOTD) Stage 0 Manual of Standard Practice, has been conducted for a new bridge across the Inner Harbor Navigational Canal (IHNC) at Florida Avenue in Orleans Parish. In addition to assessing a new Florida Avenue Bridge, concepts were developed for the upgrade and extension of Florida Avenue into St. Bernard Parish. The existing Florida Avenue begins at Moss Street near the LSU School of Dentistry and extends southeasterly to cross over the IHNC and terminate at the Orleans-St. Bernard Parish border. The concepts developed in this study for Florida Avenue will begin at Elysian Fields (LA 3021) and extend southeasterly to terminate at Paris Road (LA 47). In conjunction to the upgrade of Florida Avenue on both the east and west sides of the IHNC, an evaluation of one existing (Tupelo Street) and three new at-grade roadway concepts (truck routes), running north-south, will begin at Florida Avenue and terminate at St. Claude Avenue (LA 46). See **Figure 1** below for the project area.

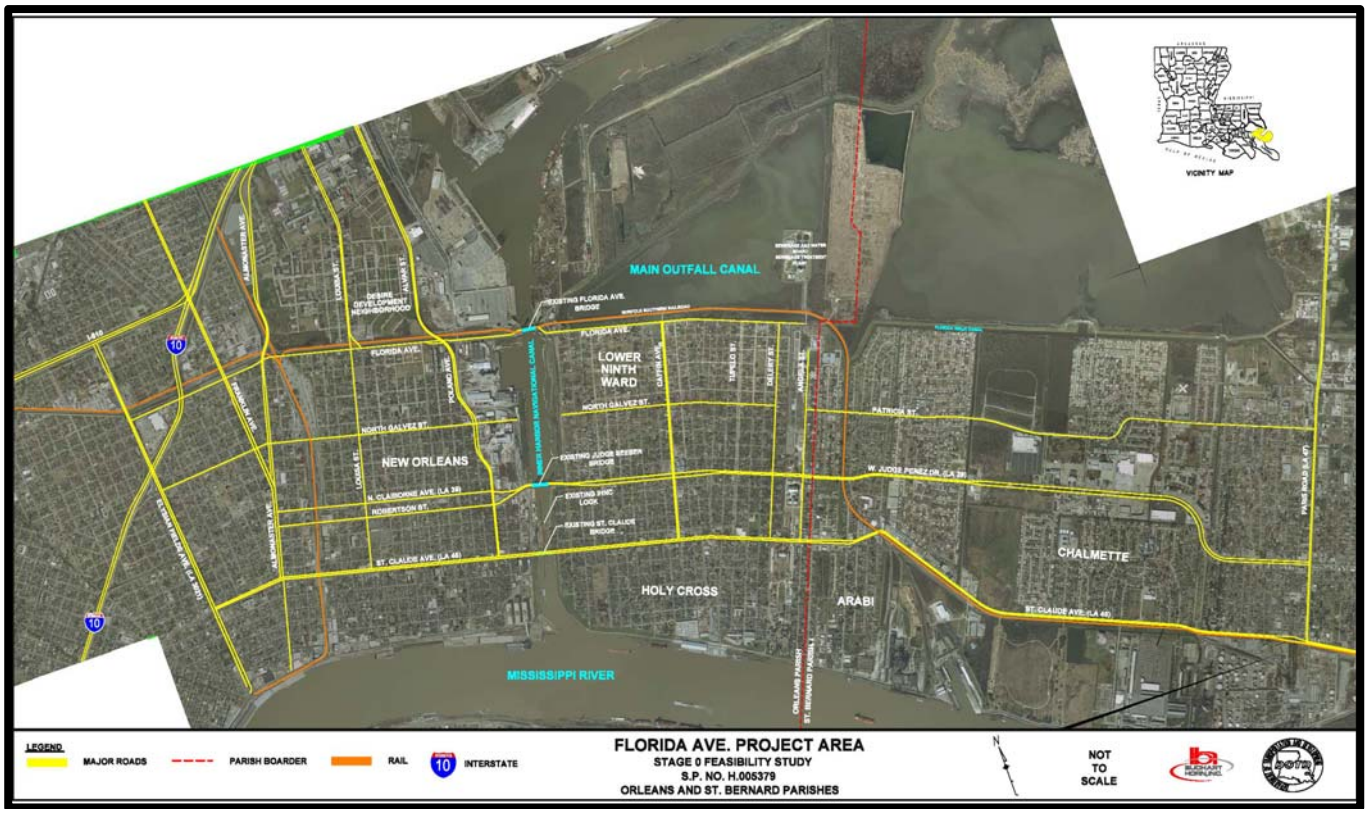


**Figure 1: Project Area**

Information used for this study was collected by document and records review, meetings and coordination with the Port of New Orleans, state and local officials, stakeholders, and site surveys. The concepts evaluated as part of this study were developed for the purpose of determining practical feasibility with respect the re-evaluation of previous bridge alternatives and current conditions within the project area. The concepts were developed to an appropriate level of detail as to provide a rational basis for the evaluation and comparison of the technical, environmental, and financial aspects of each concept. However, any concepts presented in this report will be further evaluated per the National Environmental Policy Act (NEPA) requirements.

The purpose of this study is as follows:

- To re-evaluate the proposed action presented in the *2007 Final Environmental Assessment (EA)- New Florida Bridge over the Inner Harbor Navigational Canal* and analyze additional bridge alternatives to identify overall cost savings.

- To present a reliable Florida Avenue connection from Elysian Fields Avenue to Paris Road and provide access to I-10 and I-610 from St. Bernard Parish.

- Identify a north-south route that provides the optimum intermodal connection to the Port of St. Bernard.

## 2.0 Background

In 1989, the Louisiana Legislature created the Transportation Infrastructure Model for Economic Development (TIMED) program which identified sixteen (16) highway, bridge and multi-modal projects to be completed through funding by a fuel tax at four cents per gallon. The New Florida Avenue Bridge over the Industrial Canal is one of these sixteen identified projects. The Louisiana Department of Transportation and Development (LADOTD), with consideration for the provisions of the TIMED legislation, proposed to build a new bridge to provide reliable vehicular access over the Inner Harbor Navigation Canal (IHNC) in the Florida Avenue corridor through Orleans and St. Bernard Parishes.

In 2007, a proposed alternative was identified in the *Final Environmental Assessment (EA)- New Florida Bridge over the Inner Harbor Navigational Canal* to provide a reliable vehicular crossing. Based on the primary evaluation criteria established in *Chapter III- Alternative Development, Evaluation and Screening* of the EA, Alternative APF-3 (Alvar/Poland to Paris Road, Fixed span after Tupelo Street North of the Levee) was selected as the proposed action.

This alternative began at the existing Poland Avenue/Alvar Street overpass and followed the existing Florida Avenue right-of-way to cross the IHNC with a fixed span bridge. The fixed span bridge provided a vertical clearance of 156’ over a maximum high water level elevation of +5.0

NVGD. The bridge then transitioned to a divided at-grade roadway and continued to the signalized intersections at Caffin Avenue and Tupelo Street. The roadway continued eastward to cross over the existing Norfolk Southern Railroad via an overpass and continue on structure over the Sewage Treatment Plant access road and Crescent Acres Landfill site. It then becomes an at-grade roadway before terminating at Paris Road.

This alternative was selected after significant approval among local citizens and elected officials from Orleans and St. Bernard parishes. The alternative also scored well in the technical criteria evaluation which included traffic impacts, access, capacity and use of bridge structures and roadways, hurricane evacuation, operation and maintenance cost, visual and noise impact, and utility and infrastructure relocation. However, due to budget limitations in 2010, LADOTD recommended the bridge be reevaluated to identify cost savings in construction.

During the initial re-scoping of the project, it was determined that the study should evaluate a high rise fixed span bridge with a vertical clearance of 156'. In January 2012, the *Florida Avenue Corridor Study –Study of Marine Traffic through the Inner Harbor Navigational Canal at Florida Avenue* was added to the project scope to determine a reasonable vertical clearance for a mid-level moveable span bridge. In an effort to determine whether a lower vertical clearance was feasible, the marine study reevaluated marine traffic patterns and compiled information on the current and anticipated navigational needs of commercial and private marine industries along the IHNC at Florida Avenue. As a result of the marine study and feedback from the district, the Metropolitan Planning Organization (MPO), locals, and the coast guard, a mid-level moveable span bridge with 75' and 85' vertical clearances was added to the range of evaluated alternatives. The reductions in bridge clearance and span length were viable factors to evaluate if the mid-level moveable span bridge would ultimately reduce the cost in bridge construction. Therefore, it was determined that both moveable and fixed span bridges would be evaluated in this study.

Refer to **Appendix D- 2012 Marine Study.**

## 3.0 Need

The project needs were developed through an evaluation of existing data (marine traffic, bridge tender reports, etc.), review of previous studies and reports, current conditions, review of master plan documents for industrial facilities within the project area, and coordination with the project team and other agencies.

Three primary needs have been identified for a new bridge over the IHNC:

- State TIMED Legislation Mandate - Fulfill the requirements of Louisiana Legislature. As stated in the *2007 EA* and the *2012 Marine Study*, the Louisiana Legislature created the Transportation Infrastructure Model for Economic Development (TIMED) program which identified sixteen (16) highway, bridge and multi-modal projects to be completed through funding by a fuel tax at four cents per gallon. The "New Florida Avenue Bridge over the Industrial Canal" is one of these

sixteen identified projects. The Louisiana Department of Transportation and Development (LADOTD), with consideration for the provisions of the TIMED legislation, proposed to build a new bridge to provide reliable vehicular access over the Inner Harbor Navigation Canal (IHNC) in the Florida Avenue corridor through Orleans and St. Bernard parishes.

- Reliable Vehicular Crossing- A reliable vehicular crossing must be provided over the IHNC through the use of a fixed or moveable bridge. The new bridge will assist in hurricane evacuation by providing an additional evacuation route for Orleans and St. Bernard parishes. The *2007 EA* states that the flood gates of the existing Florida Avenue Bridge close in the event of tidal storm surges which leaves the bridge totally inaccessible for vehicles during a hurricane evacuation. This compounds the traffic congestion for the remaining evacuation routes, St. Claude and Claiborne Avenue Bridges, over the IHNC. Therefore, the proposed crossing must provide reliable access unimpeded by frequent bridge openings for: (1) residents and area citizens to employment, shopping, businesses and medical services, (2) local hurricane evacuation needs and, (3) for emergency vehicles traveling to and from either side of the canal.

- System Linkage- Improve connectivity between major roadways and interstate routes. This will facilitate the movement of goods to commercial businesses and industrial facilities within the New Orleans metropolitan area.

# 4.0 Existing Conditions

## 4.1 Land Use

The identified land use within the study area is highly integrated with residential, commercial, and industrial development. The majority of land west of the IHNC and south of the existing Florida Avenue is currently occupied by single and multiple family homes. Since Hurricane Katrina, a portion the existing homes have yet to be reconstructed. In other sections, existing homes have been restored and new housing developments have been constructed. Chapter III of the *2007 Final Environmental Assessment (EA)- New Florida Bridge over the Inner Harbor Navigational Canal* discusses the Housing Authority of New Orleans (HANO) revitalization plan for two housing projects on Florida Avenue and Desire Parkway. Since then, HANO has constructed the housing development on the Desire Parkway.

Commercial businesses are primarily located along St. Claude Avenue (LA 46), North Robertson Street (LA 39), North Claiborne Avenue (LA 39), and N Galvez Street. Other commercial properties are scattered throughout the residential areas. The remaining land is utilized in industrial operations. The Port of New Orleans provides facilities for containerized cargo on the west bank of the IHNC and along the mouth of the Mississippi River. These facilities are used for importing coffee, frozen chicken, rubber, plywood, steel, and other goods. Norfolk Southern has a terminal located between Florida Avenue and St. Claude Avenue (LA 46). This terminal disperses rail throughout the project area and distributes freight from New Orleans to Austell, Georgia;

Birmingham, Alabama; Charlotte, North Carolina; Greensboro, North Carolina; and Savannah, Georgia.

The land east of the IHNC, which is mainly the Lower Ninth Ward and Chalmette, LA, is also an integration of residential, commercial, and industrial development. The majority of land is designated for residential use with single-family neighborhoods located throughout the east side of the project area. Multiple family residences have also been developed just south of West Judge Perez Street and north of St. Claude Avenue near Pirate Drive.

Several commercial, federal, and state property developments exist within the area. Just east of Delery Street is Jackson Barracks, the current Headquarters for the Louisiana National Guard. Just east of Jackson Barracks are several commercial and industrial facilities along St. Claude Avenue and West Judge Perez Street. In addition, construction has begun for the new St. Bernard Parish Hospital, which will be accessed from West Judge Perez Street (LA 39).

The majority of the existing industrial facilities are located south of St. Claude Avenue (LA 46) along the banks of the Mississippi River. The primary industrial facilities located within this area are Chalmette Refining, which accessed from St. Claude Avenue, Paris Road (LA 47), and the Mississippi River, and Domino Sugar Corporation, accessed from St. Claude Avenue.

### 4.2 Geometric Layout

The existing Florida Avenue is a local road with a posted speed of 30 MPH. It is a 2-lane undivided roadway with 11' lanes and barrier curb. The segment of Florida Avenue between Moss Street and St. Bernard Avenue provide 4' sidewalks, 10' parking lanes, and pedestrian crosswalks. The existing Florida Avenue Bridge has a moveable span and provides rail and two lanes for vehicular traffic. A portion of Florida Avenue west of the IHNC provides access from Port facilities.

Elysian Fields Avenue is a principal arterial roadway with a posted speed of 35 MPH. It is a 6-lane divided highway with 12' lanes, 10' parking lanes, and a median that varies in width. The roadway provides an overpass at Florida Avenue and signalized intersections at St. Claude Avenue (LA 46) and North Claiborne Avenue (LA 39). Access is also provided to Interstate 10 and Interstate 610 from this roadway.

North Claiborne Avenue is a principal arterial roadway with a posted speed of 30 MPH. It is a 4-lane divided highway with 12' lanes, 10' parking lanes, and median that varies in width. This roadway provides access across the IHNC and intersects with Tupelo Street and Paris Road at a signalized intersection.

St. Claude Avenue is a principal arterial roadway with a posted speed of 35 MPH. It is a 4-lane divided highway with 12' lanes, 4' bicycle lanes, 10' parking lanes, and a median that varies in width. This roadway provides access across the IHNC and intersects with Tupelo Street and Paris Road at a signalized intersection. The roadway also provides access to commercial and industrial facilities located along the Mississippi River.

Tupelo Street is a major collector road with a posted speed of 35 MPH. It is a 4-lane divided roadway with 11' lanes, 10' parking lanes and 24' median. This roadway serves as an existing truck route and provides access to Florida Avenue, North Claiborne Avenue, St. Claude Avenue bridges.
Paris Road is a principal arterial roadway with a posted speed of 40 MPH. It is a 4-lane roadway with 12' lanes divided by a 14' two-way left turn lane. The roadway provides access to commercial and industrial facilities along the Mississippi River and the Gulf Intracoastal Waterway (GIWW). Access is also provided to Interstate 10, Interstate 510, and LA 90.

## 5.0 Description of Build Alternatives

An existing topographic survey obtained from a previous study was primarily used for the development of concepts beginning west of the IHNC. However, the majority of the existing ground elevations identified for each build alternative are based on Light Detection and Radar (LIDAR) data. It should be noted that finished grades of each alignment should be re-evaluated when a topographic survey is performed. Following the review of existing data and the incorporation of both technical and administrative input from LADOTD, resource agencies, stakeholders, and the project team, two (2) moveable and three (3) fixed span bridge alternatives were developed. In addition to evaluating the moveable and fixed span bridge alternatives, new Florida Avenue connections from Elysian Fields Avenue to Poland Avenue/Alvar Street and Caffin Avenue to Paris Road were developed in conjunction with the evaluation of three (3) new north-south corridors. The feasibility of each alternative was examined in reference to its capability of meeting the purpose and need. In addition to evaluating each build alternative, the "No-Build" alternative was evaluated to assess the effects on the project area without the proposed improvements. **Figure 2,** shows the proposed build alternatives described in this section of the report.

Refer to **Appendix A**- **Alternative Exhibits** for the exhibits of each build alternative.

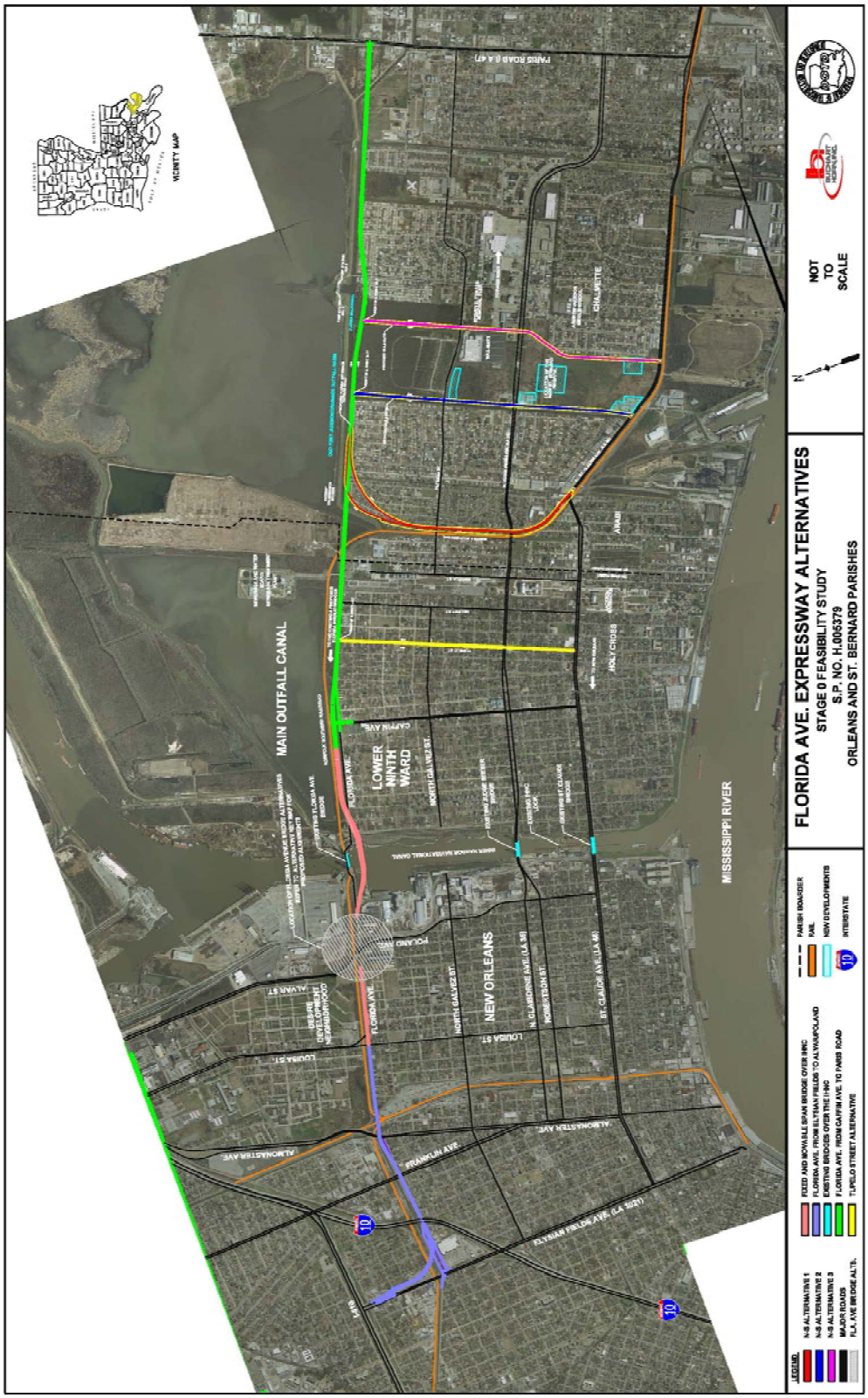


**Figure 2: Build Alternatives**

The conceptual design of the roadway, ramps, and bridges for each alternative complies with the LADOTD Urban Arterial-1 (UA-1) design criteria and the LADOTD Road Design Manual. **Table 1** lists the design criteria roadway sections.

**Table 1: Roadway Design Criteria**

| ITEM NO. | DESIGN ITEM | URBAN |
|---|---|---|
| | | UA-1 |
| 1 | Design Speed (mph) | 40 |
| 2 | Level of Service | C |
| 3 | Number of Travel Lanes (minimum) | 2 (min) – 4(typ) |
| 4 | Width of Travel Lanes (ft) | 12 |
| 5 | Width of Shoulders (ft) [1] | |
| | (A) Inside (On Multilane Facilities/ Ramps) | N/A |
| | (B) Outside | 8 |
| 6 | Outside Shoulder Type | Paved |
| 7 | Parking Lane Width (ft) | 10-12 |
| 8 | Width of Median (ft) | |
| | (A) Depressed | N/A |
| | (B) Raised | 6-30 |
| | (C) Two Way Left Turn lane | 11-14 typ. |
| Width of Sidewalk (min.) (where used) (ft) [2] | | |
| 9 | (a) When offset from curb | 4 |
| | (b) When adjacent to curb | 6 |
| 10 | Fore slope Ratio (vertical-horizontal) | 1:3(min)-1:4(des) |
| 11 | Back slope Ratio (vertical-horizontal) | 1:3 |
| 12 | Pavement Cross Slope (%) | 2.5 |
| 13 | Minimum Stopping Sight Distance (ft) | 305 |
| 14 | Maximum Superelevation (ft per ft) | 4 |
| 15 | Min. Radius (With Full Super Elev.) (ft) [3,4] | 500 |
| 16 | Maximum Grade (%) | 7 |
| 17 | Minimum Vertical Clearance (ft) [5] | 16 |
| 18 | Minimum Clear Zone (ft) from edge of travel lane | 18[6] |
| 19 | Bridge Design Live Load[7] | AASHTO |
| 20 | Width of Bridges (min) (face to face of bridge rail at gutter line) (ft) | |
| | (a) Curbed Facilities (without sidewalks) | Traveled way plus 8'[8] |
| | (b) Shoulder Facilities | Roadway Width |
| 21 | Guardrail Required at Bridge Ends | [8] |

*Notes*:
[1]Curb may be used in place of shoulders on UA-1 and UA-2 facilities.
[2]Sidewalks must be separated from the shoulder and should be placed as near the right of way line as possible. On high speed facilities, they should preferably be placed outside the minimum clear zone.
[3]It may be necessary to increase the radius of the curve and/or increase the shoulder width (max of 12 ft) to provide adequate stopping sight distance on structure.

[4]The following radii apply at divisional islands. The radius selected must match the design speed of the road. These radii also apply to the other guidelines where divisional islands are mentioned.
[5]An additional 6 inches should be added for additional future surfacing.
[6] Applies to facilities with shoulders. Refer to the Roadside Design Guide when 1:3 fore slopes are used or for slopes flatter than 1:4.
[7] LRFD for bridge design.
[8] Refer to EDSM II.3.1.4 when sidewalks will be provided and for guardrail requirements.

## 5.1 East/West Corridor- Florida Avenue

### A. Florida Ave. (West) - Elysian Fields to Alvar/Poland Avenue

In accordance with the purpose of the study, the Florida Avenue from Elysian Fields to Alvar/Poland alternative (shown in purple on **Figure 3**) proposes to improve access from Florida Avenue to Elysian Fields Avenue by providing an overpass across the existing Norfolk Southern Rail. The alternative is 1.6 miles in length and provides a 2-lane divided roadway with a 30' raised median on at-grade sections. The overpass is a 2-lane roadway bridge with 8-foot inside shoulders and a 2-foot median barrier. In reference to study's purpose and need, the initial roadway configuration was reduced from a four-lane divided section to a two-lane divided section as a cost savings measure. However, right-of-way will be acquired to expand to four lanes when necessary.

The alignment begins just south of the I-610 interchange at Elysian Fields Avenue near Treasure Street and Abundance Street. A signalized intersection at Elysian Fields Avenue controls access onto the overpass. The northbound exit off the overpass provides a storage lane that requires vehicles to yield to oncoming traffic. The alignment continues southeasterly to cross the existing Norfolk Southern Rail and then transitions to Florida Avenue at-grade. The roadway continues east to cross Interstate 10, Almonaster Avenue and portions of Norfolk Southern Rail. Once the alignment reaches the intersection at Desire Street, improvements for this alternative terminate and bridge alternatives begin.

### B. Florida Ave. (West) – Elevated Intersection

The Florida Avenue elevated intersection was evaluated in regards to providing a reliable connection to Elysian Fields Avenue. This alternative provides an elevated section from Florida Avenue to connect to the Elysian Fields Avenue with a elevated intersection. The existing overpass on Elysian Fields will be reconstructed with lower grades for the intersection approaches and adequate sight distance.

### C. Alvar/Poland to Caffin Ave.

#### 1. Moveable Bridges

Moveable bridges were evaluated in this study as a result of the *2012 Florida Avenue Corridor Study- Study of Marine Traffic through the Inner Harbor Navigational Canal at Florida Avenue.* The study analyzed marine traffic patterns and compiled information on the navigational needs of all commercial and industrial facilities along the IHNC. This

was performed to determine whether a lower bridge clearance was feasible in an effort to identify cost savings. The marine traffic analysis identified a reduction in vessels requiring a 156' vertical clearance due to the closure of the Mississippi River Gulf Outlet (MRGO) and the limits of the existing IHNC lock. As a result of the marine study, it was determined that approximately 98% and 99% of marine traffic can pass under a 75' and 85' vertical clearance, respectively. For this reason and the potential cost savings due to lower bridge clearances and span lengths, a mid-level moveable bridge with 75' and 85' vertical clearances was evaluated in this study.

**a. Alternative A- 75' Clearance**

Alternative A is a 1.55 miles alignment that provides a vertical lift span bridge. The proposed bridge provides a 75' vertical clearance over the Inner Harbor Navigational Canal (IHNC) in the closed position and a 156' vertical clearance in the open position. A 300' horizontal clearance is provided between the existing fenders to accommodate for marine traffic.

The alternative begins approximately 1500' west of the existing Alvar/Poland Ave. overpass. A single-lane roundabout is provided in an effort to maintain reasonable traffic flow operations to and from the new bridge and other connecting roadways. The roundabout was also added as a lower cost option to consider compared to the more expensive ramp options. A southbound exit ramp from Alvar Street provides access to Florida Avenue, Poland Avenue, the existing Florida Avenue Bridge and the new bridge via the proposed roundabout. The alignment continues at-grade to pass under Alvar Street and then transitions to bridge structure. The bridge continues southeast across the IHNC and then shifts northeast over existing Florida Avenue before transitioning back to an at-grade roadway section. Approximately 1200' after transitioning to an at-grade roadway, the alternative terminates and the Florida Avenue extension to Paris Road begins.

**b. Alternative B- 85' Clearance**

Alternative B is a 1.55 miles alignment that provides a vertical lift span bridge. The configuration of this alternative is similar to the 75' moveable bridge with the exception of vertical clearance and approach grades.

The alternative begins approximately 1500' west of the existing Alvar/Poland Ave. overpass. A single-lane roundabout is provided in an effort to maintain reasonable traffic flow operations to and from the new bridge and other connecting roadways. The roundabout was also added as a lower cost option to consider compared to the more expensive ramp options. A southbound exit ramp from Alvar Street provides access to Florida Avenue, Poland Avenue, the existing Florida Avenue Bridge and the new bridge via the proposed roundabout. The alignment continues at-grade to pass under Alvar Street and then transitions to bridge structure. The bridge continues southeast across the IHNC and then shifts northeast over existing Florida Avenue

before transitioning back to an at-grade roadway section. Approximately 1200' after transitioning to an at-grade roadway, the alternative terminates and the Florida Avenue extension to Paris Road begins.

**2. Fixed Bridges**

The fixed bridge alternatives include a high-rise bridge with a 156' vertical clearance above the minimum high water level elevation of +5.0 NVGD for the Inner Harbor Navigational Canal (IHNC) beginning just west of the Alvar/Poland Ave overpass. A 300' horizontal clearance is provided between the existing fenders to accommodate for marine traffic. These alternatives were evaluated with respect to satisfying the need for identifying a reliable crossing over the IHNC.

**a. Alternative A**

Alternative A is a 1.38 miles alignment that provides a fixed high-rise bridge. The alignment begins just west of the Alvar/Poland Ave overpass. A single-lane roundabout is provided in an effort to maintain reasonable traffic flow operations to and from the new bridge and other connecting roadways. The roundabout was also considered as a lower cost option compared to the previous ramp configurations evaluated in 2007. A northbound and southbound exit ramp provides access to and from Alvar Street. The southbound exit ramp provides access to Florida Avenue, Industry Street, and the new bridge via the proposed roundabout. The northbound ramp provides access from the new bridge on to Alvar Street. The alignment continues at-grade to pass under the Alvar/Poland Ave. overpass and then transitions to bridge structure. The alignment crosses over portions of Norfolk Southern Rail and existing Florida Avenue and then shifts southeast over the IHNC. After crossing the IHNC, the alignment shifts northeast over existing Florida Avenue before transitioning back to an at-grade roadway. Approximately 700' after transitioning to an at-grade roadway, the alternative terminates and the Florida Avenue extension to Paris Road begins.

**b. Alternative B**

Alternative B has a combined length of approximately 3.00 miles. Access to and from the new bridge is provided by two (2) one-lane on-ramps and two (2) exit-ramps. Ramp A is an eastbound on-ramp that is accessed from Alvar Street. The ramp crosses over Norfolk Southern Rail and the Alvar/Poland Avenue overpass before connecting to the main bridge. Ramp B is a loop ramp that is accessed from Poland Avenue. The ramp crosses over existing Florida Avenue, Norfolk Southern Rail, a drainage canal, ramp D, and an existing transportation facility before connecting to the main bridge.

The westbound mainline and Ramp D off-ramps provide access the new bridge and on to Florida Avenue and Alvar Street. The on-ramps and off-ramps connect to the mainline bridge on the west side of the canal. Once the main bridge crosses the IHNC, it then shifts northeast over Florida Avenue before transitioning back to an at-

grade roadway. Approximately 800' after transitioning to an at-grade roadway, the alternative terminates and the Florida Avenue extension to Paris Road begins.

**c. Alternative C**

Alternative C has a combined length of approximately 3.60 miles. The ramp configurations and main bridge access is identical to Alternative B with the exception of Ramp C. Ramp C provides access from Florida Avenue just west of the Alvar/Poland Ave. overpass. The ramp crosses over existing Florida Avenue and Norfolk Southern Rail before merging with ramp A.

**D. Florida Ave. (East) - Caffin Ave. to Paris Rd**

The Florida Avenue extension from Caffin Avenue to Paris Road is a two-lane divided roadway that provides eastbound and westbound access across the main bridge. In reference to study's purpose, the initial roadway configuration was reduced from a four-lane divided section to a two-lane divided section as a cost savings measure. However, right-of-way will be acquired to expand to four lanes when necessary. In addition, the two-lane divided section provides access management along the corridor to give the locals the "expressway" type facility that they expressed interest in. The majority of this extension is at-grade roadway. This Florida Avenue connection to Paris Road satisfies the project need by facilitating system linkage throughout the project boundary and surrounding areas.

The alignment begins west of Caffin Avenue between the existing Florida Avenue and Norfolk Southern Rail. In an effort to maintain access to the new bridge and other facilities, the new Florida Avenue extension will not intersect with Caffin Avenue. Instead, a portion of the existing Florida Avenue will tie into the new Florida Avenue extension and provide eastbound access from Caffin Avenue. All other north-south connections to the extension will only provide right-in and right-out access. Bulb-outs placed every half-mile will allow for median u-turns and provide access to connecting side roads.

Approximately half a mile east of Caffin Avenue, the alignment transitions from an at-grade roadway to bridge structure. The bridge crosses over existing Norfolk Southern Rail and an existing levee system located on the Old Port Jackson Drainage Outfall Basin. The alignment continues east and parallels the Florida Walk Canal and then crosses an existing canal with an at-grade bridge. The alignment then shifts southeast to avoid an existing water treatment facility and crosses two additional canals. The alignment then transitions to an elevated bridge structure to cross the Chalmette Back Levee. After crossing the levee, the alignment transitions to an at-grade roadway and then terminates at Paris Road with an at-grade intersection. The Paris Road connection provides access to Interstate 510, LA 90, and industrial facilities located along the Mississippi River.

## 5.2 North/South Corridors

With respect the purpose and need, the north-south alignments were evaluated in this study to identify an optimum intermodal connection for the Port of St. Bernard and facilitate system linkage. Three (3) new alignments and one (1) existing roadway were evaluated.

### A. New Alignments

#### 1. NS-1

The NS-1 alternative is located east of the existing Norfolk Southern railroad. This alternative connects to the proposed Florida Avenue extension with individual eastbound and westbound ramps that transition to a four-lane divided roadway. The alignment provides a 53' depressed median that will allow for median U-turns every ½ mile and right-in and right-out access to side streets. The alignment will also provide access to W. Judge Perez Drive (LA 38) and St. Claude Avenue (LA 46) with a signalized intersection.

#### 2. NS-2

The NS-2 alternative begins with a signalized intersection at LA 46. This alternative connects to LA 39 and the proposed Florida Avenue extension with a right-in and right-out intersection. In addition, bulb-outs placed every half-mile will allow for median U-turns and provide access to connecting side streets with right-in and right-out access.

#### 3. NS-3

The NS-3 alternative begins with a signalized intersection at LA 46. The section of alignment between LA 46 and LA 39 is positioned just west of an existing neighborhood and shifts northeast to minimize impact to residential property. The alignment continues north between an existing Wal-Mart and park before connecting with the new Florida Avenue extension. The alignment connects to the proposed Florida Avenue extension with a right-in and right-out intersection. In addition, bulb-outs placed every half-mile will be provide to allow for median U-turns and provide access to connecting side streets with right-in and right-out access.

Refer to **Appendix A: Alternative Exhibits** for the North-South alignments layout.

### B. Tupelo Street Improvements

Improvements to Tupelo Street will include resurfacing and restriping the existing pavement. Striping for existing street parking will be defined so travel lanes and the parking lane can be delineated. The existing widths for the raised median and sidewalks will be maintained for the entire roadway. This alternative will be used temporarily while the permanent north-south alignment phase is constructed.

### 5.3 Phase Implementation

A phasing plan has been developed in the event that funding is insufficient to fully construct the new Florida Avenue Bridge and all corresponding components of the project. The alternatives have been developed with construction phasing in an effort to both satisfy the legislative mandate and make associated improvements when funding becomes available. There are four (4) proposed phases. Phase I will construct the main bridge across the IHNC and all corresponding bridge approaches and ramps to meet the intent of the legislative mandate. This phase will terminate at the beginning of the Florida extension to Paris Road. A temporary intersection at Caffin Road and the proposed Florida Avenue will need to be constructed to provide access to and from the bridge. This intersection will be maintained until the Florida Avenue extension to Paris Road has been constructed. Phase II will construct the improvements from Elysian Fields Avenue to Alvar/Poland Avenue and all improvements to Tupelo Street. Phase III will complete the Florida Avenue extension to Paris Road. Phase IV will construct the proposed north-south alignment. Refer to **Figure 3**, page 17 for Phasing Implementation Plan.

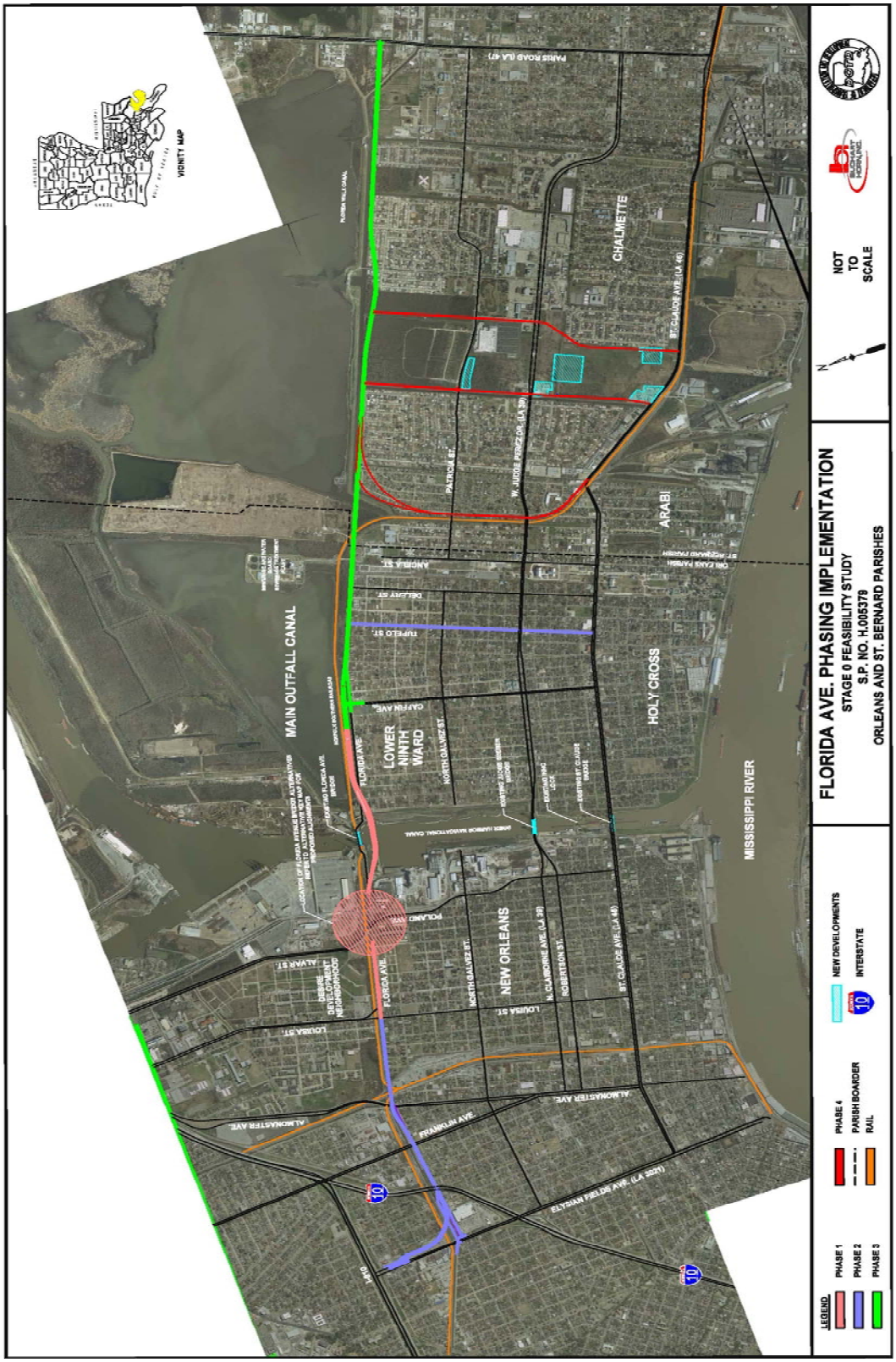


**Figure 3: Phasing Implementation**

# 6.0 Impacts

The right-of way and utility relocation impacts, along with potential impacts to the environment associated with the proposed alternatives will be summarized below.

## 6.1 Right-of-Way Acquisition

The required right-of-way acquisition for each build alternative was identified. The right-of-way for all sections of each build alternative were based on standards established by LADOTD and existing right-of-way widths identified in the *2007 New Florida Bridge Over the Inner Harbor Navigational Canal (IHNC) Final Environmental Assessment* .
**Table 2** provides the required right-of-way for each build alternative.

**Table 2: Required Right-of-Way**

| Build Alternative | Required Right-of-Way (Acres) |
|---|---|
| Florida Avenue (West)- Elysian Fields to Alvar Poland Ave. | 8.8 |
| Florida Avenue to Elysian Fields Ave. - Elevated Intersection Option | 5.7 |
| Fixed Bridge-Alternative A | 10.4 |
| Fixed Bridge-Alternative B | 12 |
| Fixed Bridge- Alternative C | 13.4 |
| Moveable Bridge-Alternative A | 2.25 |
| Moveable Bridge-Alternative B | 2.25 |
| Florida Avenue (East)- Caffin Ave. to Paris Road | 49 |
| North-South Alternative 1 | 34.2 |
| North-South Alternative 2 | 15.2 |
| North-South Alternative 3 | 15.8 |
| Tupelo Street Improvements | N/A |

It should be noted the control of access and right-of-way quantities listed are approximate and will require further evaluation in later stages.

## 6.2 Utility Impacts

There are several underground pipelines and utilities that exist within the project boundaries. The potential impact to these facilities, with respect to the proposed build alternatives, was evaluated based on the utility locations identified from the *2007 Final Environmental Assessment (EA)- New Florida Bridge over the Inner Harbor Navigational Canal*. Since then, the Sewerage and Water Board of New Orleans (S&WB) has performed extensive utility relocations based on the 2007 EA preferred alternative and the subsequent design plans. All necessary information regarding these utilities will need to be verified and

obtained by the S&WB in subsequent study stages to appropriately identify the impact that the proposed build alternatives have on these facilities.

### 6.3 Environmental

A summary of the potential environmental impacts for each of the build alternatives is summarized below. Refer to **Appendix B** for the Environmental Checklists and **Appendix C** for the full environmental summary report completed for this Stage 0 Study.
All proposed alternatives are located on prime farmland and lie within significant portions of the 100-year flood plain.

Potential environmental impacts for Florida Ave. (West) - Elysian Fields to Alvar/Poland Ave:

- Eight (8) potential residential relocations;
- One (1) church
- Two (2) commercial structures
- Two (2) underground storage tanks adjacent to existing ROW
- Two (2) water resources
- Two (2) Industrial relocations

Potential environmental impacts for Florida Ave. to Elysian Fields Avenue- Elevated Intersection:

- Seven (7) potential residential relocations;
- Four (4) commercial structures

Potential environmental impacts for Fixed Bridge-Alternative A:

- Two (2) potential residential relocations
- Two (2) potential commercial relocations
- Two (2) potential Industrial relocations
- Two (2) water resources

Potential environmental impacts for Fixed Bridge-Alternative B:

- Two (2) potential residential relocations
- Two (2) water resources
- Two (2) potential commercial relocations
- Two (2) potential Industrial relocations

Potential environmental impacts for Fixed Bridge-Alternative C:

- Two (2) potential residential relocations
- Four (4) water resources
- Two (2) potential commercial relocations
- Two (2) potential Industrial relocations

Potential environmental impacts for Moveable Bridge- Alternative A & B:

- Four (4) water resources
- Two (2) potential commercial relocations
- Two (2) potential Industrial relocations

Potential environmental impacts for Florida Ave (East)- Caffin Ave. to Paris R:

- Eighty-Five (85) potential residential relocations
- One (1) recreational area, Bayou Bienvenue
- Two (2) public facilities, former Waste Water Treatment Plant and an electric substation at the edge of ROW
- Significant trees east of Jean Lafitte Parkway
- Potential impact to a hazardous waste site (affect access to Crescent Acres Landfill)
- Four (4) water resources

Potential environmental impacts for N-S Alignments:

- Thirty-three (33) potential residential relocation for N-S Alternative 1
- Two (2) commercial structures for N-S Alternative 1
- One (1) church for N-S Alternative 1
- One (1) underground storage tank adjacent to N-S Alternative 2
- Five (5) potential residential relocations for N-S Alternative 3
- Three (3) oil and gas wells near N-S Alternative 3, none are permitted active
- One (1) water resource for N-S Alternative 1
- Significant trees within the N-S Alignment area

## 7.0 Preliminary Cost Estimates

A preliminary cost estimate has been prepared for the alternatives using average cost information in accordance with the LADOTD Project Delivery Manual. The costs include construction, right-of-way, relocations, engineering, and contingency as expressed in 2013 dollars. It should be noted that the intention of the preliminary cost estimate is to provide an initial review of the commitment required to construct the project. Also, any adjustment to these alignments in more detailed studies and survey in future stages in the LADOTD project development process may result in major changes to the cost estimate of these alternatives presented. See **Table 3 - 14** for Build Alternative Cost Estimates.

## Table 3: Florida Avenue (West) - Elysian Fields to Alvar/Poland Avenue

| FLORIDA AVENUE WEST- ELYSIAN FIELDS TO ALVAR/POLAND | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $1,854,845.00 | $1,854,845.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 211000 | SF | $10.00 | $2,110,000.00 |
| New At-Grade Roadway | 1 | LS | $9,440,000.00 | $9,440,000.00 |
| Railroad Crossings | 17750 | SF | $30.00 | $532,500.00 |
| Railroad Crossing Signals | 2 | EACH | $300,000.00 | $600,000.00 |
| Box Culvert | 0 | EACH | $25,000.00 | $0.00 |
| Florida/Elysian Fields Overpass Bridge: | | | | |
| Approach Slabs | 5120 | SF | $50.00 | $256,000.00 |
| Concrete Slab Spans | 13600 | SF | $70.00 | $952,000.00 |
| Concrete Girder Spans | 120560 | SF | $190.00 | $22,906,400.00 |
| TOTAL CONSTRUCTION | | | | $38,951,745.00 |
| Right of Way Acquisition | | | | |
| Right of Way | 8.78 | ACRE | $100,000.00 | $878,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $750,000.00 | $750,000.00 |
| Industrial Property | 2 | EACH | $200,000.00 | $400,000.00 |
| Commercial Property | 2 | EACH | $150,000.00 | $300,000.00 |
| Residential Property | 8 | EACH | $80,000.00 | $640,000.00 |
| Engineering and | | | | |
| Engineering Design | | | | $3,895,174.50 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $46,814,919.50 |
| | | | 20% CONTINGENCY: | $9,362,983.90 |
| | | | TOTAL COST: | $56,177,903.40 |

**Table 4: Florida Avenue to Elysian Fields Avenue-Elevated Intersection**

| FLORIDA AVENUE TO ELYSIAN FIELDS AVENUE ELEVATED INTERSECTION | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $2,144,160.00 | $2,144,160.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 13300 | SF | $10.00 | $133,000.00 |
| New At-Grade Roadway | 1 | LS | $6,400,000.00 | $6,400,000.00 |
| Proposed Bridge Components: | | | | |
| Approach Slabs | 20400 | SF | $50.00 | $1,020,000.00 |
| Concrete Slab Spans | 25500 | SF | $70.00 | $1,785,000.00 |
| Concrete Girder Spans | 175000 | SF | $190.00 | $33,250,000.00 |
| TOTAL CONSTRUCTION | | | | $45,032,160.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 5.7 | ACRE | $100,000.00 | $570,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $750,000.00 | $750,000.00 |
| Industrial Property | 0 | EACH | $200,000.00 | $0.00 |
| Commercial Property | 4 | EACH | $150,000.00 | $600,000.00 |
| Residential Property | 7 | EACH | $80,000.00 | $560,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $4,503,216.00 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $53,015,376.00 |
| | | | 20% CONTINGENCY: | $10,603,075.20 |
| | | | TOTAL COST: | $63,618,451.20 |

**Table 5: Fixed Bridge- Alternative A**

| FLORIDA AVENUE FIXED BRIDGE OVER IHNC- ALVAR/POLAND TO CAFFIN AVE.- ALT A | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $7,281,050.00 | $7,281,050.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 75300 | SF | $10.00 | $753,000.00 |
| New At-Grade Roadway | 1 | LS | $8,440,000.00 | $8,440,000.00 |
| Railroad Crossings | 2200 | SF | $30.00 | $66,000.00 |
| Railroad Crossing Signals | 2 | EACH | $300,000.00 | $600,000.00 |
| Box Culvert | 3 | EACH | $25,000.00 | $75,000.00 |
| New Fixed High-Rise IHNC Bridge: | | | | |
| Approach Slabs | 10960 | SF | $50.00 | $548,000.00 |
| Concrete Slab Spans | 13700 | SF | $70.00 | $959,000.00 |
| Concrete Girder Spans | 110000 | SF | $190.00 | $20,900,000.00 |
| Steel Girder Spans | 146300 | SF | $300.00 | $43,890,000.00 |
| Main Steel Girder Spans | 147000 | SF | $470.00 | $69,090,000.00 |
| TOTAL CONSTRUCTION | | | | $152,902,050.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 10.4 | ACRE | $100,000.00 | $1,040,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $2,000,000.00 | $2,000,000.00 |
| Industrial Property | 2 | EACH | $200,000.00 | $400,000.00 |
| Commercial Property | 2 | EACH | $150,000.00 | $300,000.00 |
| Residential Property | 2 | EACH | $80,000.00 | $160,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $15,290,205.00 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $173,092,255.00 |
| | | | 20% CONTINGENCY: | $34,618,451.00 |
| | | | TOTAL COST: | $207,710,706.00 |

## Table 6: Fixed Bridge- Alternative B

| FLORIDA AVENUE FIXED BRIDGE OVER IHNC- ALVAR/POLAND TO CAFFIN AVE.- ALT B | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $8,820,230.00 | $8,820,230.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 75207 | SF | $10.00 | $752,070.00 |
| New At-Grade Roadway | 1 | LS | $5,040,000.00 | $5,040,000.00 |
| Railroad Crossings | 2200 | SF | $30.00 | $66,000.00 |
| Railroad Crossing Signals | 2 | EACH | $300,000.00 | $600,000.00 |
| Box Culvert | 3 | EACH | $25,000.00 | $75,000.00 |
| New Fixed High-Rise IHNC Bridge: | | | | |
| Approach Slabs | 12000 | SF | $50.00 | $600,000.00 |
| Concrete Slab Spans | 14950 | SF | $70.00 | $1,046,500.00 |
| Concrete Girder Spans | 103000 | SF | $190.00 | $19,570,000.00 |
| Steel Girder Spans | 265000 | SF | $300.00 | $79,500,000.00 |
| Main Steel Girder Spans | 146500 | SF | $470.00 | $68,855,000.00 |
| TOTAL CONSTRUCTION | | | | $185,224,800.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 11.9 | ACRE | $100,000.00 | $1,190,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $2,000,000.00 | $2,000,000.00 |
| Industrial Property | 2 | EACH | $200,000.00 | $400,000.00 |
| Commercial Property | 2 | EACH | $150,000.00 | $300,000.00 |
| Residential Property | 2 | EACH | $80,000.00 | $160,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $18,522,480.00 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $208,797,280.00 |
| | | | 20% CONTINGENCY: | $41,759,456.00 |
| | | | TOTAL COST: | $250,556,736.00 |

## Table 7: Fixed Bridge- Alternative C

| FLORIDA AVENUE FIXED BRIDGE OVER IHNC- ALVAR/POLAND TO CAFFIN AVE.- ALT C | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $9,552,903.00 | $9,552,903.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 75206 | SF | $10.00 | $752,060.00 |
| New At-Grade Roadway | 1 | LS | $5,240,000.00 | $5,240,000.00 |
| Railroad Crossings | 2200 | SF | $30.00 | $66,000.00 |
| Railroad Crossing Signals | 2 | EACH | $300,000.00 | $600,000.00 |
| Box Culvert | 3 | EACH | $25,000.00 | $75,000.00 |
| New Fixed High-Rise IHNC Bridge: | | | | |
| Approach Slabs | 14200 | SF | $50.00 | $710,000.00 |
| Concrete Slab Spans | 18000 | SF | $70.00 | $1,260,000.00 |
| Concrete Girder Spans | 130000 | SF | $190.00 | $24,700,000.00 |
| Steel Girder Spans | 295000 | SF | $300.00 | $88,500,000.00 |
| Main Steel Girder Spans | 146500 | SF | $470.00 | $68,855,000.00 |
| TOTAL CONSTRUCTION | | | | $200,610,963.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 13.3 | ACRE | $100,000.00 | $1,330,000.00 |
| Utility Relocation | | | | |
| Utility Relocation | 1 | LS | $2,000,000.00 | $2,000,000.00 |
| Industrial Property | 2 | EACH | $200,000.00 | $400,000.00 |
| Commercial Property | 2 | EACH | $150,000.00 | $300,000.00 |
| Residential Property | 2 | EACH | $80,000.00 | $160,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $20,061,096.30 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $225,862,059.30 |
| | | | 20% CONTINGENCY: | $45,172,411.86 |
| | | | TOTAL COST: | $271,034,471.16 |

## Table 8: Moveable Bridge- Alternative A

| FLORIDA AVENUE MOVEABLE BRIDGE OVER IHNC- ALVAR/POLAND TO CAFFIN AVE.- ALT A | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $5,597,859.00 | $5,597,859.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 219208 | SF | $10.00 | $2,192,080.00 |
| New At-Grade Roadway | 1 | LS | $12,040,000.00 | $12,040,000.00 |
| Railroad Crossings | 2820 | SF | $30.00 | $84,600.00 |
| Railroad Crossing Signals | 5 | EACH | $300,000.00 | $1,500,000.00 |
| Box Culvert | 3 | EACH | $2,500,000.00 | $7,500,000.00 |
| New Moveable 75' IHNC Bridge: | | | | |
| Approach Slabs | 10960 | SF | $50.00 | $548,000.00 |
| Concrete Slab Spans | 13700 | SF | $70.00 | $959,000.00 |
| Concrete Girder Spans | 229280 | SF | $190.00 | $43,563,200.00 |
| Steel Girder Spans | 54800 | SF | $200.00 | $10,960,000.00 |
| Moveable Span | 29729 | SF | $700.00 | $20,810,300.00 |
| Moveable Span (Mechanical & Electrical) | | | $11,500,000.00 | $11,500,000.00 |
| TOTAL CONSTRUCTION | | | | $117,555,039.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 2.25 | ACRE | $100,000.00 | $225,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $4,000,000.00 | $4,000,000.00 |
| Industrial Property | 2 | EACH | $200,000.00 | $400,000.00 |
| Commercial Property | 2 | EACH | $150,000.00 | $300,000.00 |
| Residential Property | 0 | EACH | $80,000.00 | $0.00 |
| Engineering | | | | |
| Engineering Design | | | | $11,755,503.90 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $135,235,542.90 |
| | | | 20% CONTINGENCY: | $27,047,108.58 |
| | | | TOTAL COST: | $162,282,651.48 |

## Table 9: Moveable Bridge- Alternative B

| FLORIDA AVENUE MOVEABLE BRIDGE OVER IHNC- ALVAR/POLAND TO CAFFIN AVE.- ALT B | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $5,719,504.00 | $5,719,504.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 219208 | SF | $10.00 | $2,192,080.00 |
| New At-Grade Roadway | 1 | LS | $12,040,000.00 | $12,040,000.00 |
| Railroad Crossings | 2820 | SF | $30.00 | $84,600.00 |
| Railroad Crossing Signals | 5 | EACH | $300,000.00 | $1,500,000.00 |
| Box Culvert | 3 | EACH | $2,500,000.00 | $7,500,000.00 |
| New Moveable 85' IHNC Bridge: | | | | |
| Approach Slabs | 10960 | SF | $50.00 | $548,000.00 |
| Concrete Slab Spans | 13700 | SF | $70.00 | $959,000.00 |
| Concrete Girder Spans | 230260 | SF | $190.00 | $43,749,400.00 |
| Steel Girder Spans | 66030 | SF | $200.00 | $13,206,000.00 |
| Moveable Span | 29730 | SF | $700.00 | $20,811,000.00 |
| Moveable Span (Mech & Elec) | | | $11,500,000.00 | $11,500,000.00 |
| TOTAL CONSTRUCTION | | | | $120,109,584.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 2.25 | LS | $100,000.00 | $225,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $4,000,000.00 | $4,000,000.00 |
| Industrial Property | 2 | EACH | $200,000.00 | $400,000.00 |
| Commercial Property | 2 | EACH | $150,000.00 | $300,000.00 |
| Residential Property | 0 | EACH | $80,000.00 | $0.00 |
| Engineering | | | | |
| Engineering Design | | | | $12,010,958.40 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $138,045,542.40 |
| | | | 20% CONTINGENCY: | $27,609,108.48 |
| | | | TOTAL COST: | $165,654,650.88 |

**Table 10: Florida Avenue (East) - Extension from Caffin Ave. to Paris Road**

| FLORIDA AVENUE EAST- CAFFIN AVE. TO PARIS RD. | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $2,756,848.00 | $2,756,848.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 12300 | SF | $10.00 | $123,000.00 |
| New At-Grade Roadway | 1 | LS | $17,240,000.00 | $17,240,000.00 |
| Box Culvert | 2 | EACH | $25,000.00 | $50,000.00 |
| Overpass Bridges: | | | | |
| Approach Slabs | 32880 | SF | $50.00 | $1,644,000.00 |
| Concrete Slab Spans | 49320 | SF | $70.00 | $3,452,400.00 |
| Concrete Girder Spans | 359195 | SF | $90.00 | $32,327,550.00 |
| TOTAL CONSTRUCTION | | | | $57,893,798.00 |
| Right of Way Acquisition | | | | |
| Right of Way | 48.91 | ACRE | $100,000.00 | $4,891,000.00 |
| Utility Relocation | | | | |
| Utility Relocation | 1 | LS | $1,000,000.00 | $1,000,000.00 |
| Residential Property | 85 | EACH | $80,000.00 | $6,800,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $5,789,379.80 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $77,374,177.80 |
| | | | 20% CONTINGENCY: | $15,474,835.56 |
| | | | TOTAL COST: | $92,849,013.36 |

**Table 11: North-South Alternative 1**

| NORTH-SOUTH ALTERNATIVE 1 (N-S 1) | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $628,750.00 | $628,750.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 11500 | SF | $10.00 | $115,000.00 |
| New At-Grade Roadway | 1 | LS | $12,160,000.00 | $12,160,000.00 |
| TOTAL CONSTRUCTION | | | | $13,203,750.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 34.2 | ACRE | $100,000.00 | $3,420,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $1,250,000.00 | $1,250,000.00 |
| Commercial Property | 2 | EACH | $150,000.00 | $300,000.00 |
| Residential Property | 33 | EACH | $80,000.00 | $2,640,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $1,320,375.00 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $23,134,125.00 |
| | | | 20% CONTINGENCY: | $4,626,825.00 |
| | | | TOTAL COST: | $27,760,950.00 |

**Table 12: North-South Alternative 2**

| NORTH-SOUTH ALTERNATIVE 2 (N-S 2) | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $622,500.00 | $622,500.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 11000 | SF | $10.00 | $110,000.00 |
| New At-Grade Roadway | 1 | LS | $12,040,000.00 | $12,040,000.00 |
| TOTAL CONSTRUCTION | | | | $13,072,500.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 15.2 | ACRE | $100,000.00 | $1,520,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $1,000,000.00 | $1,000,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $1,307,250.00 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $17,899,750.00 |
| | | | 20% CONTINGENCY: | $3,579,950.00 |
| | | | TOTAL COST: | $21,479,700.00 |

**Table 13: North-South Alternative 3**

| NORTH-SOUTH ALTERNATIVE 3 (N-S 3) | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $625,000.00 | $625,000.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Removal of At-Grade Roads | 12000 | SF | $10.00 | $120,000.00 |
| New At-Grade Roadway | 1 | LS | $12,080,000.00 | $12,080,000.00 |
| TOTAL CONSTRUCTION | | | | $13,125,000.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | 15.8 | ACRE | $100,000.00 | $1,580,000.00 |
| Relocations | | | | |
| Utility Relocation | 1 | LS | $1,250,000.00 | $1,250,000.00 |
| Residential Property | 5 | EACH | $80,000.00 | $400,000.00 |
| Engineering | | | | |
| Engineering Design | | | | $1,312,500.00 |
| Environmental Assessment (EA) | | | | $1,000,000.00 |
| | | | SUBTOTAL: | $18,667,500.00 |
| | | | 20% CONTINGENCY: | $3,733,500.00 |
| | | | TOTAL COST: | $22,401,000.00 |

## Table 14: Tupelo Street Improvements

| Tupelo Street Improvements | | | | |
|---|---|---|---|---|
| **ITEM DESCRIPTION** | **UNIT QTY** | **UNIT PRICE** | **UNIT PRICE** | **AMOUNT** |
| Construction | | | | |
| Mobilization | 1 | LS | $194,210.00 | $194,210.00 |
| Construction Layout | 1 | LS | $300,000.00 | $300,000.00 |
| Resurfacing | 510000 | SF | $7.00 | $3,570,000.00 |
| Plastic Pavement Striping | 4 | MILE | $2,800.00 | $11,200.00 |
| Plastic Pavement Legends and Symbols (Arrow) | 8 | EACH | $175.00 | $1,400.00 |
| Plastic Pavement Legends and Symbols (Only) | 8 | EACH | $200.00 | $1,600.00 |
| Railroad Crossings | 0 | SF | $30.00 | $0.00 |
| TOTAL CONSTRUCTION | | | | $4,078,410.00 |
| Right of Way Acquisition | | | | |
| Required Right of Way | N/A | ACRE | $100,000.00 | N/A |
| Relocations | | | | |
| Utility Relocation | N/A | LS | $1,250,000.00 | N/A |
| Engineering | | | | |
| Engineering Design | | | | $407,841.00 |
| Environmental Assessment (EA) | | | | $900,000.00 |
| | | | SUBTOTAL: | $5,386,251.00 |
| | | | 20% CONTINGENCY: | $1,077,250.20 |
| | | | TOTAL COST: | $6,463,501.20 |

## 8.0 Alternative Comparison Summary

An Alternative Comparison Matrix is provided in **Table 15** and **Table 16** for a comparison of all Build Alternatives.

**Table 15: Bridge Alternatives Comparison Matrix**

| EVALUATION CRITERIA | | BRIDGE ALTERNATIVE SCENARIOS | | | | |
|---|---|---|---|---|---|---|
| | Existing Moveable Bridge | Moveable A | Moveable B | Fixed A | Fixed B | Fixed C |
| Maximum Grade | 0.0% | 5.0% | 5.8% | 6.0% | 5.2% | 5.2% |
| Vertical Clearance over the IHNC in Closed Position (feet) | 5 | 75 | 85 | 156 | 156 | 156 |
| Reliability[A] | Poor | Fair | Fair | Good | Good | Good |
| Openings per Week | 139 | 3 | 2 | 0 | 0 | 0 |
| Minutes per Opening | 9.3 | N/A | N/A | N/A | N/A | N/A |
| Free Flow Access to Bridge[B] | N/A | Good | Good | Good | Fair | Good |
| Operation and Maintenance[C] | High | Medium | Medium | Low | Low | Low |
| Visual Impact | N/A | Medium | Medium | Low | Low | Low |
| Right-of-Way Acquisition (Acres) | 0 | 2 | 2 | 10 | 12 | 13 |
| Total Estimated Cost | $0 | $162,282,651 | $165,654,650 | $207,710,706 | $250,556,736 | $271,034,471 |
| Potential Relocation of Structures [D] | | | | | | |
| Residential | 0 | 0 | 0 | 2 | 2 | 2 |
| Commercial | 0 | 2 | 2 | 2 | 2 | 2 |
| Industrial | 0 | 2 | 2 | 2 | 2 | 2 |
| Other Structures | 0 | 2 | 2 | 2 | 2 | 2 |
| Crossings | | | | | | |
| Water Body Crossings | 1 | 2 | 2 | 2 | 2 | 2 |
| New At Grade Railroad Crossings | 0 | 2 | 2 | 1 | 1 | 1 |

**NOTES:**

[A] Reliability is based on number of openings per week during normal times and emergency situations.

[B] Rating is based on alternatives ability to provide access to/from Florida Avenue and access to/from Alvar/Poland.

[C] Operation and Maintenance Rating is based on the anticipated number of openings and the deterioration of the structure due to the openings.

[D] These structures were first identified using aerial photography. Field confirmation was made where ROW was accessible; however, due to the new alignment and limited public access, some structures may not be accounted for. These numbers are an estimate, and the actual number depends on which of the alternative routes would be selected and how much redevelopment occurs prior to Stage 1.

## Table 16: Florida Ave and N-S Alternatives Comparison Matrix

| EVALUATION CRITERIA | N-S Build Alternatives | | | | Florida Ave to Elysian Fields Avenue | | Florida Ave (East) |
|---|---|---|---|---|---|---|---|
| | Tupelo Street | N-S Alternative 1 | N-S Alternative 2 | N-S Alternative 3 | Florida Ave (West) | Elevated Intersection Option | Caffin Ave to Paris Rd |
| Access to Bridge[A] | N/A | Good | Good | Good | Fair | Good | Good |
| Visual Impact[B] | Low | High | Medium | High | Medium | Low | High |
| Right-of-Way Acquisition (Acres) | 0 | 34.2 | 15.2 | 15.8 | 48.9 | 5.7 | 838 |
| Total Estimated Cost | $6,463,501 | $27,760,950 | $21,479,700 | $22,401,000 | $56,177,903 | $63,618,451 | $92,849,013 |
| Potential Relocation of Structures [C] | | | | | | | |
| Residential | 0 | 33 | 0 | 5 | 8 | 7 | 85 |
| Commercial | 0 | 2 | 0 | 0 | 0 | 4 | 0 |
| Industrial | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| Other Structures | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Crossings | | | | | | | |
| Water Body Crossings | 0 | 0 | 0 | 0 | 2 | 5 | 5 |
| New At Grade Railroad Crossings | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

[A] Rating is based on the alternatives ability to provide access to the proposed IHNC bridge.

[B] Rating is based on alternatives relative distance from existing neighborhoods and residential areas.

[C] These structures were first identified using aerial photography. Field confirmation was made where ROW was accessible; however, due to the new alignment and limited public access, some structures may not be accounted for. These numbers are an estimate, and the actual number depends on which alternative routes would be selected and how much redevelopment occurs prior to Stage 1.

## 9.0 References

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