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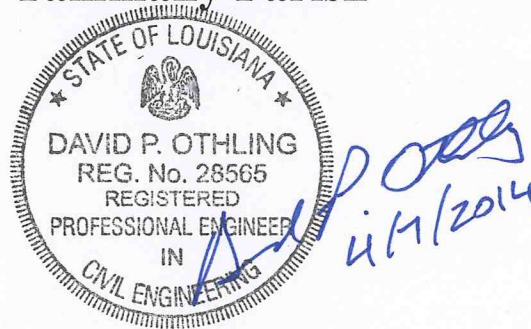
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LA 1088 Corridor Study Traffic Report

S.P. No. 4400002630

T.O. No. H.010116.1

St. Tammany Parish



Prepared for:

**Louisiana Department of Transportation
and Development**

FINAL

April 7, 2014

This document and the information contained herein is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads which may be implemented utilizing federal aid highway funds; and is therefore exempt from discovery or admission into evidence pursuant to 23 U.S.C. 409.

Table of Contents

1.	Introduction.....	1
2.	Existing Conditions.....	5
3.	No-Build Alternative	8
4.	Build Alternative 1.....	11
5.	Build Alternative 2.....	15
6.	Comparison of Alternatives	19
7.	Conclusions.....	22

Appendix A: Summary of LA 1088 Field Observations & Travel Time Runs

Appendix B: Existing & No-Build Alternative Traffic Volumes

Appendix C: Traffic Signal Warrant Analysis

Appendix D: SIDRA Intersection Analysis Results: 2013 Existing Peak Hour

Appendix E: SIDRA Intersection Analysis Results: 2033 No-Build Peak Hour

Appendix F: Build Alternative 1A & 1B Concept Plans & Traffic Volumes

Appendix G: SIDRA Intersection Analysis Results: 2013 & 2033 Build Alternative 1
Peak Hour

Appendix H: Build Alternative 2 Concept Plans & Traffic Volumes

Appendix I: SIDRA Intersection Analysis Results: 2013 & 2033 Build Alternative 2
Peak Hour

Appendix J: Detailed Cost Estimates

Appendix K: Comments from December 11, 2013 Public Information Meeting

List of Report Figures

Figure 1	Study Corridor.....	2
Figure 2	Study Intersections	3

List of Report Tables

Table 1	Summary of LA 59 Traffic Signal Warrant Analysis: 2013 Existing.....	7
Table 2	Summary of SIDRA Intersection Analysis Results: 2013 Existing	8
Table 3A	Summary of SIDRA Intersection Analysis Results: 2033 No-Build Alternative	9
Table 3B	Summary of SIDRA Intersection Analysis Results: 2033 No-Build Alternative	10
Table 4A	Summary of SIDRA Intersection Analysis Results: 2013 Build Alternative 1	12
Table 4B	Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 1	13
Table 4C	Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 1	14
Table 5A	Summary of SIDRA Intersection Analysis Results: 2013 Build Alternative 2	16
Table 5B	Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 2	17
Table 5C	Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 2	18
Table 6	Intersection Types	19
Table 7	Traffic Operations and Safety Comparison: Alternative 1 vs. No-Build Alt.....	20
Table 8	Traffic Operations and Safety Comparison: Alternative 2 vs. No-Build Alt.....	22
Table 9	Estimated Opinion of Probable Construction Costs	23
Table 10	Project Need Based on Comments from Public Information Meeting	24

List of Appendix Figures

Figure B-1 2013 Existing Peak Hour Volumes

Figure B-2 2033 No-Build Peak Hour Volumes

Figure F-1 2013 Build Alternative 1 Peak Hour Volumes

Figure F-2 2033 Build Alternative 1 Peak Hour Volumes

Figure H-1 2013 Build Alternative 2 Peak Hour Volumes

Figure H-2 2033 Build Alternative 2 Peak Hour Volumes

1. INTRODUCTION

This study was performed by Neel-Schaffer, Inc. for the Louisiana Department of Transportation and Development (DOTD) under the Statewide Retainer Contract for Traffic Engineering (State Project No. 4400002630; Task Order No. H.010116.1; Purchase Order No. 2-31400). Copies of the study data, analysis, concept alternatives, appendices and report are included in the **CD** located inside of the back cover of this document.

1.1. Study Purpose and Location

The primary purpose of this study is to develop and compare concept alternatives for installing roundabouts or traditional signals with the possibility of a sidewalk or shared-use path along the LA 1088 corridor from LA 59 to the I-12 westbound ramps (see **Figure 1**), a distance of approximately 3.5 miles. The goal of the recommended Concept Plan is to improve the capacity of the LA 1088 corridor.

1.2. Methodology

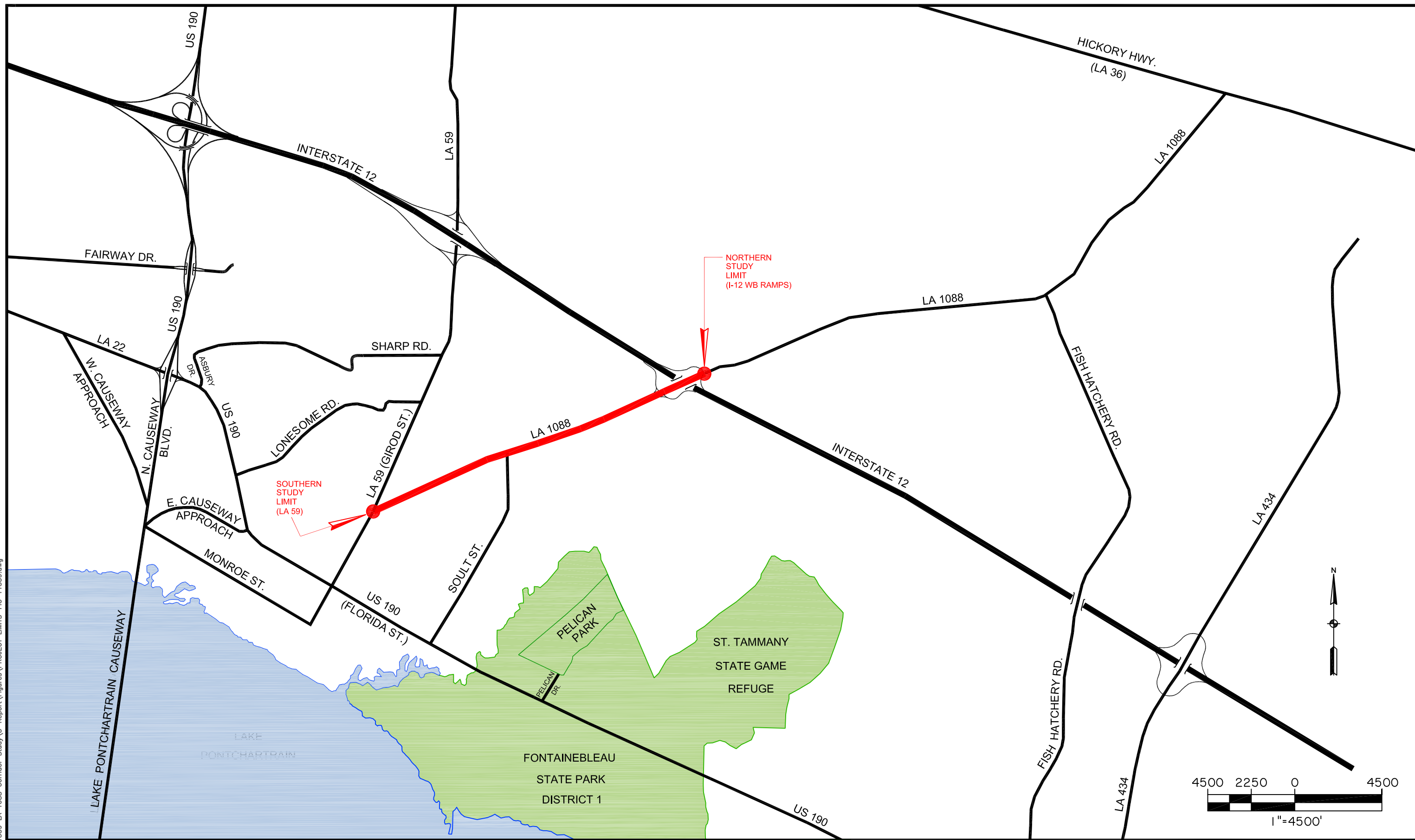
Roadway Network and Traffic Control

The LA 1088 study corridor is a suburban two-lane highway generally running in an east-west direction. LA 1088 is undivided from LA 59 to west of the Hickory St./Mulberry St. intersection (approximately 2.7 miles) where it transitions to a four-lane divided section. The study intersections are shown in **Figure 2**. Of these, 18 were considered intersections requiring analysis. One is signalized (LA 59), one is all-way stop-controlled (Soult St./Viola St.) and 14 are full-access side street stop-controlled. The remaining two intersections (Cypress St. and Holly St.) are right-only, side street stop-controlled in the existing median-divided section. LA 1088 is 45 mph from LA 59 to east of Forest Brook Blvd. and 55 mph from east of Forest Brook Blvd. to north of the I-12 westbound ramps. A 35 mph school zone directly serving Magnolia Trace Elementary School and Lake Harbor Middle school is in effect during the AM peak hour near Spring Blvd. (between Emerald Pines Ct. to the east and Casa Bella Ct. to the west). For the purposes of this study, the Existing (2013) and No-Build (2033) roadway network and traffic control are the same.

Traffic Volumes

Traffic counts were conducted in January 2013 by Quality Counts, LLC. The corridor weekday morning (AM) and evening (PM) peak hours selected for analysis are based on peak hour frequency weighted average hourly volumes over a three-day (Tuesday, Wednesday and Thursday) period: 7:00 a.m.–8:00 a.m. and 5:00 p.m.–6:00 p.m. The turning movement counts (TMC's) were then balanced and used for the Existing Conditions intersection analysis. Traffic forecasts were developed for the 2033 Design Year intersection analysis using the New Orleans Regional Planning Commission (RPC) travel demand model. Model results indicate a steady

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LEGEND

█ STUDY CORRIDOR

FIGURE 1
STUDY CORRIDOR

LA 1088 CORRIDOR STUDY
MANDEVILLE, LA
ST. TAMMANY PARISH



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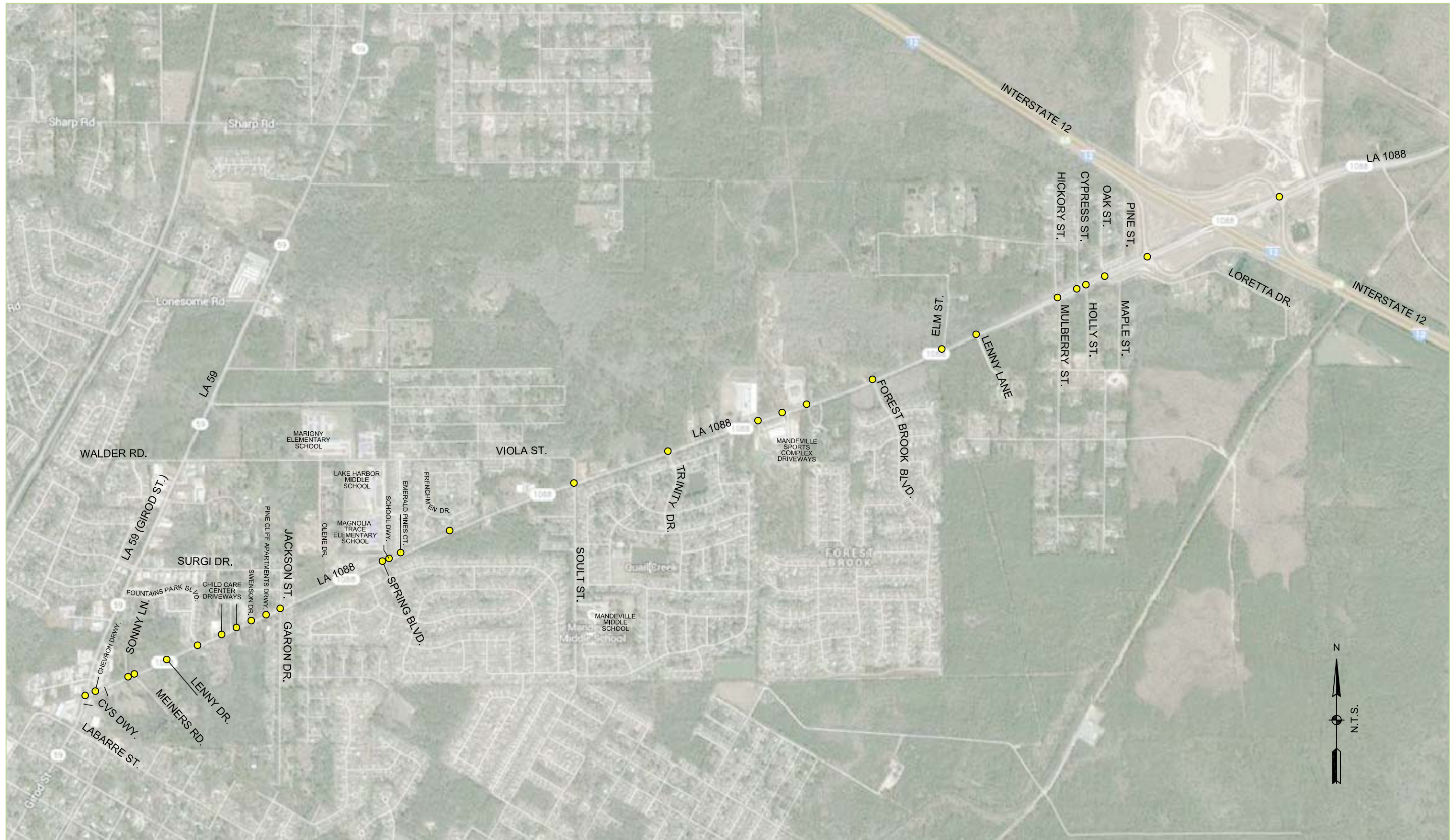


FIGURE 2
STUDY INTERSECTIONS

LEGEND
● STUDY INTERSECTION

increase in traffic demand from 2013 to 2033 (ranging from about 2.5 percent to about 4.5 percent compounded annual growth) within the study area because of the anticipated future land use development and roadway improvements in the surrounding area. The annually-compounded growth rate used for the LA 1088 study corridor was approximately three percent.

Traffic Signal Warrants

Traffic signal warrant analysis was conducted at the signalized LA 59/LA 1088 intersection using HCS 2010 Warrants (Version 6.40). Approach volumes were analyzed using the nine 2009 *Manual on Uniform Traffic Control Devices* (MUTCD) warrants for signal installation. The peak hour approach volumes utilized were from approach tube counts conducted Thursday, January 24, 2013.

Intersection Analysis

The intersection analysis for the worst-case weekday AM and PM peak hours was performed for 2013 (the Base Year) and 2033 (the Design Year) using SIDRA Intersection (Version 5.1.13.2093). The Existing Conditions and future No-Build Conditions analyses reflect results based on Traffic Signal Inventories (TSI's) provided by the DOTD. The evaluation was conducted in accordance with the LADOTD *EDSM VI.1.1.5 Roundabout Study and Approval* guidelines and the *Roundabout Analysis: Required Settings and Standards for Sidra 5.1* brochure. The primary intent of the analysis is to determine the lane configuration and traffic control that could best accommodate the projected Design Year 2033 AM and PM peak hour traffic. A field visit by a Professional Engineer (P.E.)/Professional Traffic Operations Engineer (P.T.O.E.) was performed Wednesday, March 6, 2013 to collect and verify data required for the intersection analysis. In addition, SIDRA Design Life analysis was conducted for all locations with intersection or approach levels-of-service (LOS) E or LOS F. The Design Life analysis objective is to predict the last year before any of the subject intersection movements exceed a volume-to-capacity ratio (V/C) of 1.0 (i.e., capacity).

Roadway Segment Operations

The 2010 *Highway Capacity Manual* (HCM) does not provide a direct method for comparing the widening of LA 1088 to the existing two-lane undivided section due to the short segment lengths resulting from the all-way stop-controlled Soult St./Viola St. intersection. Therefore, the need for widening LA 1088 is based on the traffic operations (LOS and associated delay) of the 18 study intersections.

Safety Analysis

A safety analysis of each Concept Alternative was performed by comparing the number of conflict points as well as the combined crash modification factors (CMF's) from the *Highway Safety Manual*.

Concept Alternatives

Four corridor concepts were initially considered for the LA 1088 corridor:

- Two-lane segment with full access
- Two-lane segment with a median
- Three-lane segment with full access
- Four-lane divided roadway with limited access from side streets utilizing U-turns and/or roundabouts

Intersection alternatives that were considered included:

- Roundabouts
- Traditional signals

Based on initial analysis results, two corridor concepts were selected for detailed evaluation and concept plan development and comparison to the No-Build Alternative:

- Alternative 1: Two-lane segment with Roundabouts and no median
- Alternative 2: Two-lane segment with Roundabouts and a new median

To accommodate projected traffic demand, both alternatives include a new four-lane divided section from west of Forest Brook Blvd. to the east.

Comparison of Alternatives

Conceptual horizontal geometry for each alternative was developed on the latest available (2010) geo-referenced aerial base. The Build Conditions intersection geometry is based on the results from the SIDRA intersection analysis. Modified or new median openings were designed in accordance with the DOTD *Access Connections Policy* (October 2012) and the DOTD *EDSM IV.2.1.4 Multi-lane Roadways and Median Openings*. The conceptual roundabouts and roadway modifications were developed in accordance with the DOTD *EDSM VI.1.1.6 Roundabout Design and Minimum Design Guidelines for Urban Arterial Roads and Streets*.

2. EXISTING CONDITIONS

2.1. Field Observations

A P.E./P.T.O.E. observed existing traffic conditions and performed travel time runs on Wednesday, March 6, 2013 during the AM (7:00 a.m.-8:00 a.m.), Noon (12:00 a.m.-1:00 p.m.) and PM (5:00 p.m.-6:00 p.m.) corridor peak hours determined from the traffic counts. Details of the observations and a summary of the travel time runs are located in **Appendix A**.

The primary traffic operational deficiencies observed during the AM peak hour were at the Forest Brook Blvd. (exiting traffic), LA 59 (northbound approach), and Soult St./Viola St. (northbound Soult St. and westbound LA 1088 approaches) intersections.

The primary traffic operational deficiencies observed during the PM peak hour were at the Soult St./Viola St. (westbound LA 1088 approach, including a number of vehicles not coming to a complete stop) and LA 59 intersections (northbound approach). No significant PM peak hour queues were caused by LA 1088 westbound or eastbound left turns (e.g., drivers returning home) blocking LA 1088 through traffic. During the Noon peak hour, the deficiencies were at the LA 59/LA 1088 signalized intersection, but were relatively minor compared to the AM and PM peak hours. Therefore the analyses focus on the AM and PM peak hours.

2.2. Traffic Volumes

The 2013 Existing peak hour traffic volumes used for the Existing Conditions analysis are summarized in **Figure B-1** located in **Appendix B**.

2.3. Traffic Signal Warrants

LA 59 is the only intersection within the study corridor that is signalized. The warrant analysis results indicate that the following warrants are currently met: Warrant 1 (Eight-Hour Vehicular Volume Conditions A and B); Warrant 2 (Four-Hour Vehicular Volume); Warrant 3 (Peak Hour Vehicular Volume) and Warrant 7 (Crash Experience per 80% volumes for Warrant 1). Accordingly the LA 59 traffic signal is not considered a good candidate for removal in its current lane configuration (i.e., traditional “T” intersection with full access). A summary of the Traffic Signal Warrant analysis is shown in **Table 1**. The traffic signal warrant analysis results are included in **Appendix C**.

Table 1
Summary of LA 59 Traffic Signal Warrant Analysis: 2013 Existing

MUTCD Warrants ¹	LA 59 at LA 1088
Warrant 1: 8-Hour Vehicular Volume (Condition A)	✓
Warrant 1: 8-Hour Vehicular Volume (Condition B)	✓
Warrant 1: 8-Hour Vehicular Volume (Combination of Conditions A & B)	✓
Warrant 2: 4-Hour Vehicular Volume	✓
Warrant 3: Peak-Hour	✓
Warrant 4: Pedestrian Volume	N/A
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	✓
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

✓ = Warrant Satisfied

N/A = Warrant not applicable or not satisfied

¹Approach volumes analyzed using the 2009 Manual on Uniform Traffic Control Devices (MUTCD) warrants for signal installation and 24-hour approach counts performed on January 24, 2013.

2.4. Intersection Analysis

The detailed intersection analysis results are shown in **Appendix D. Table 2** summarizes the results. The all-way stop-controlled Soult St./Viola St. intersection is the only one operating at an overall LOS E or LOS F. However, seven of 18 (approximately 39 percent) of the intersections have LOS E/F operations on at least one approach (northbound side streets in the AM and westbound LA 1088 in the PM). It should be noted that these intersections typically operate with a LOS E/F only for a 15-minute period during either the AM or PM peak hours.

Table 2
Summary of SIDRA Intersection Analysis Results: 2013 Existing

LA 1088 Intersection	Intersection Type	Intersection LOS “E” or “F”?		Approach LOS “E” or “F”?	
		AM	PM	AM	PM
*LA 59	Signalized full-access	No	No	No	Yes (WB)
Fountains Park Blvd.	Stop-controlled full-access	--	--	No	No
Swenson Dr.	Stop-controlled full-access	--	--	No	No
Garon Dr./Jackson St.	Stop-controlled full-access	--	--	No	No
Spring Blvd.	Stop-controlled full-access	--	--	No	No
Magnolia Trace School.	Stop-controlled full-access	--	--	No	No
Emerald Pines Ct.	Stop-controlled full-access	--	--	No	No
Frenchmen Dr.	Stop-controlled full-access	--	--	No	No
Soult St./Viola St.	All-way stop-controlled full-access	Yes	Yes	Yes (NB)	Yes (WB)
Trinity Dr.	Stop-controlled full-access	--	--	Yes (NB)	No
Forest Brook Blvd.	Stop-controlled full-access	--	--	Yes (NB)	Yes (WB)
Elm St.	Stop-controlled full-access	--	--	No	No
Hickory St./Mulberry St.	Stop-controlled full-access	--	--	Yes (NB)	No
Cypress St.	Stop-controlled right-only	--	--	No	No
Holly St.	Stop-controlled right-only	--	--	No	No
Oak St./Loretta Dr.	Stop-controlled full-access	--	--	Yes (NB)	No
I-12 Eastbound Ramp	Stop-controlled full-access	--	--	No	No
I-12 Westbound Ramp	Stop-controlled full-access	--	--	Yes (NB)	No

*Signalized intersection

“Red” indicates an intersection or approach is LOS “E” or “F”; NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on average peak hour LOS.

3. NO-BUILD ALTERNATIVE

3.1. Concept Plans

For the purposes of this study, the No-Build Condition lane geometry within the study area is the same as for the Existing Condition. The No-Build Condition, as with the Existing Condition, is comprised of one traffic signal, one all-way stop-controlled intersection, 14 stop-controlled full access intersections and two stop-controlled right-only intersections.

3.2. Intersection Analysis

The traffic volumes used for the No-Build traffic analysis are summarized in **Figure B-2** in **Appendix B**, alongside the Existing Condition volumes. The No-Build intersection analysis results are shown in **Appendix E**. **Table 3A** and **Table 3B** summarize the results. By 2033, the all-way stop-controlled Soult St./Viola St. and signalized LA 59 intersections are LOS E/F overall. The increase in traffic over existing conditions results in all intersections, except Emerald Pines Ct., having at least one approach at LOS E/F.

Table 3A
Summary of SIDRA Intersection Analysis Results: 2033 No-Build Alternative

LA 1088 Intersection	Intersection Type	Intersection LOS “E” or “F”?		Approach LOS “E” or “F”?	
		AM	PM	AM	PM
LA 59	Signalized full-access	Yes	Yes	Yes (NB, WB)	Yes (NB, WB)
Fountains Park Blvd.	Stop-controlled full-access	--	--	Yes (SB)	Yes (SB)
Swenson Dr.	Stop-controlled full-access	--	--	Yes (SB)	No
Garon Dr./Jackson St.	Stop-controlled full-access	--	--	Yes (NB, SB)	Yes (NB, SB)
Spring Blvd.	Stop-controlled full-access	--	--	Yes (NB)	Yes (NB)
Magnolia Trace School	Stop-controlled full-access	--	--	Yes (SB)	Yes (SB)
Emerald Pines Ct.	Stop-controlled full-access	--	--	No	No
Frenchmen Dr.	Stop-controlled full-access	--	--	Yes (SB)	Yes (SB)
Soult St./Viola St.	All-way stop-controlled full-	Yes	Yes	Yes (NB, WB,	Yes (NB, WB,
Trinity Dr.	Stop-controlled full-access	--	--	Yes (NB)	Yes (NB)
Forest Brook Blvd.	Stop-controlled full-access	--	--	Yes (NB)	Yes (NB)
Elm St.	Stop-controlled full-access	--	--	Yes (SB)	Yes (SB)
Hickory St./Mulberry St.	Stop-controlled full-access	--	--	Yes (NB, SB)	Yes (NB, SB)
Cypress St.	Stop-controlled right-only	--	--	No	Yes (SB)
Holly St.	Stop-controlled right-only	--	--	Yes (NB)	No
Oak St./Loretta Dr.	Stop-controlled full-access	--	--	Yes (NB, SB)	Yes (NB, SB)
I-12 Eastbound Ramp	Stop-controlled full-access	--	--	Yes (SB)	Yes (SB)
I-12 Westbound Ramp	Stop-controlled full-access	--	--	Yes (NB)	Yes (NB)

“Red” indicates an intersection or approach is LOS “E” or “F”; NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on average peak hour LOS.

Table 3B
Summary of SIDRA Intersection Analysis Results: 2033 No-Build Alternative

LA 1088 Intersection	Intersection Type	Intersection V/C		Queue Length (feet) ¹	
		AM	PM	AM	PM
LA 59	Signalized full-access	1.5	1.6	2,823	4,659
Fountains Park Blvd.	Stop-controlled full-access	0.5	0.6	--	--
Swenson Dr.	Stop-controlled full-access	0.5	0.5	--	--
Garon Dr./Jackson St.	Stop-controlled full-access	1.5	1.2	524	360
Spring Blvd.	Stop-controlled full-access	2.7	1.5	1,574	445
Magnolia Trace School	Stop-controlled full-access	0.6	0.5	--	--
Emerald Pines Ct.	Stop-controlled full-access	0.5	0.4	--	--
Frenchmen Dr.	Stop-controlled full-access	0.5	0.5	--	--
Soult St./Viola St.	All-way stop-controlled full-access	3.1	5.7	2,988	1,879
Trinity Dr.	Stop-controlled full-access	2.6	1.2	1,903	645
Forest Brook Blvd.	Stop-controlled full-access	5.6	2.6	3,315	1,276
Elm St.	Stop-controlled full-access	0.9	0.7	--	--
Hickory St./Mulberry St.	Stop-controlled full-access	1.0	0.7	--	--
Cypress St.	Stop-controlled right-only	0.5	0.7	--	--
Holly St.	Stop-controlled right-only	0.5	0.7	--	--
Oak St./Loretta Dr.	Stop-controlled full-access	1.1	0.5	212	--
I-12 Eastbound Ramp	Stop-controlled full-access	2.6	2.4	2,230	4,111
I-12 Westbound Ramp	Stop-controlled full-access	3.8	1.6	1,904	1,182

"Red" indicates an intersection has a Volume-to-Capacity (V/C) ratio over 1.0 (i.e., over capacity); NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on average peak hour V/C.

¹Design Year (2033) 95th Percentile Back of Queue for intersections with V/C's over 1.0

4. BUILD ALTERNATIVE 1

4.1. Concept Plans

Conceptual plan view drawings of Alternative 1 are included in **Appendix F**. Alternative 1 is comprised of eight roundabouts, four stop-controlled full access intersections and five stop-controlled right-only intersections. Note that due to their proximity to each other, the Spring Blvd. and school driveway approaches are incorporated into one roundabout. Alternative 1 is presented in two sets of drawings as Alternative 1A and Alternatives 1B, the primary difference being the inclusion of pedestrian and bicycle features in Alternative 1B. One set of analyses (Alternative 1) was performed since there is no significant difference in the vehicular traffic operations. The description of each alternative is as follows:

- Alternative 1A – Utilizes the existing roadway section with roundabout improvements at eight existing intersections: LA 59 (Girod St.), Garon Dr./Jackson St., Spring Blvd/Magnolia Trace School, Soult St./Viola St., Trinity Dr., Forest Brook Blvd., I-12 Eastbound ramps and the I-12 Westbound ramps. Entry and exit of Roundabouts are designed to accommodate the future roadway section in Alternative 2 without any modifications at the roundabouts except for the complete streets (pedestrian and bicycle) component. A new 4-lane divided section is necessary from Forest Brook Blvd. to the interstate interchange with roundabouts replacing the interchange intersections.
- Alternative 1B – Utilizes the existing roadway section with roundabout improvements at eight existing intersections: LA 59 (Girod St.), Garon Dr./Jackson St., Spring Blvd/Magnolia Trace School, Soult St./Viola St., Trinity Dr., Forest Brook Blvd., I-12 Eastbound ramps and the I-12 westbound ramps. Utilizes the existing roadway width (LA 59 to Forest Brook Blvd.) with addition of 5' bike lanes on both sides of the road that will be adjacent to the through lanes with curb & gutter. A sidewalk will be added to the north to meet the complete streets design. A new 4-lane divided section is necessary from Forest Brook Blvd. to the interstate interchange with roundabouts replacing the interchange intersections.

4.2. Intersection Analysis

The lane configurations and traffic control shown on the concept drawings, along with the traffic volumes shown on appendix **Figure F-1** and **Figure F-2** were used for the intersection analysis. The intersection analysis results are shown in **Appendix G. Table 4A, Table 4B** and

Table 4C summarize the results. The results show that if the new intersections were installed today (2013), none would be LOS E/F overall (versus one) with the Existing/No-Build geometry. In addition, only one intersection approach (versus seven with the existing geometry) would be LOS E/F. In 2033, one intersection would be LOS E/F overall (versus two with the No-Build geometry) and eight intersection approaches (versus 17 with the No-Build geometry) would be LOS E/F. The results show that all of the intersections will operate under capacity (i.e., V/C less than or equal to 1.0).

Table 4A
Summary of SIDRA Intersection Analysis Results: 2013 Build Alternative 1

LA 1088 Intersection	Intersection Type	Intersection LOS “E” or “F”?		Approach LOS “E” or “F”?	
		AM	PM	AM	PM
LA 59	Roundabout	No	No	No	No
Fountains Park Blvd.	Stop-controlled full-access	--	--	No	No
Swenson Dr.	Stop-controlled full-access	--	--	No	No
Garon Dr./Jackson St.	Roundabout	No	No	No	No
Spring Blvd.	Roundabout	No	No	No	No
Magnolia Trace School					
Emerald Pines Ct.	Stop-controlled right-only	--	--	No	No
Frenchmen Dr.	Stop-controlled full-access	--	--	No	No
Soult St./Viola St.	Roundabout	No	No	No	No
Trinity Dr.	Roundabout	No	No	No	No
Forest Brook Blvd.	Roundabout	No	No	No	No
Elm St.	Stop-controlled right-only	--	--	No	No
Hickory St./Mulberry St.	Stop-controlled right-only	--	--	No	No
Cypress St.	Stop-controlled right-only	--	--	No	No
Holly St.	Stop-controlled right-only	--	--	No	No
Oak St./Loretta Dr.	Stop-controlled right-only	--	--	Yes (NB)	No
I-12 Eastbound Ramp	Roundabout	No	No	No	No
I-12 Westbound Ramp	Roundabout	No	No	No	No

“Red” indicates an intersection or approach is LOS “E” or “F”; NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on average peak hour LOS.

Table 4B
Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 1

LA 1088 Intersection	Intersection Type	Intersection LOS “E” or “F”?		Approach LOS “E” or “F”?	
		AM	PM	AM	PM
LA 59	Roundabout	No	No	No	No
Fountains Park Blvd.	Stop-controlled full-access	--	--	Yes (SB)	Yes (SB)
Swenson Dr.	Stop-controlled full-access	--	--	No	No
Garon Dr./Jackson St.	Roundabout	No	No	No	No
Spring Blvd.	Roundabout	No	No	No	No
Magnolia Trace School					
Emerald Pines Ct.	Stop-controlled right-only	--	--	No	No
Frenchmen Dr.	Stop-controlled full-access	--	--	No	No
Soult St./Viola St.	Roundabout	No	No	No	No
Trinity Dr.	Roundabout	No	No	No	No
Forest Brook Blvd.	Roundabout	No	No	No	No
Elm St.	Stop-controlled right-only	--	--	No	No
Hickory St./Mulberry St.	Stop-controlled right-only	--	--	Yes (NB, SB)	Yes (SB)
Cypress St.	Stop-controlled right-only	--	--	No	Yes (SB)
Holly St.	Stop-controlled right-only	--	--	Yes (NB)	No
Oak St./Loretta Dr.	Stop-controlled right-only	--	--	Yes (NB)	Yes (SB)
I-12 Eastbound Ramp	Roundabout	No	No	No	No
I-12 Westbound Ramp	Roundabout	No	No	No	No

“Red” indicates an intersection or approach is LOS “E” or “F”; NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on average peak hour LOS.

Table 4C
Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 1

LA 1088 Intersection	Intersection Type	Intersection V/C		Queue Length (feet) ¹	
		AM	PM	AM	PM
LA 59	Roundabout	1.4	1.1	2,688 (SB)	1,519 (SB)
Fountains Park Blvd.	Stop-controlled full-access	0.5	0.6	--	--
Swenson Dr.	Stop-controlled full-access	0.5	0.5	--	--
Garon Dr./Jackson St.	Roundabout	0.7	0.7	--	--
Spring Blvd.	Roundabout	0.8	0.7	--	--
Magnolia Trace School					
Emerald Pines Ct.	Stop-controlled right-only	0.5	0.4	--	--
Frenchmen Dr.	Stop-controlled full-access	0.5	0.5	--	--
Soult St./Viola St.	Roundabout	0.8	0.9	--	--
Trinity Dr.	Roundabout	0.8	0.8	--	--
Forest Brook Blvd.	Roundabout	0.7	0.8	--	--
Elm St.	Stop-controlled right-only	0.5	0.4	--	--
Hickory St./Mulberry St.	Stop-controlled right-only	0.7	0.4	--	--
Cypress St.	Stop-controlled right-only	0.5	0.4	--	--
Holly St.	Stop-controlled right-only	0.5	0.4	--	--
Oak St./Loretta Dr.	Stop-controlled right-only	1.0	0.4	--	--
I-12 Eastbound Ramp	Roundabout	0.8	0.7	--	--
I-12 Westbound Ramp	Roundabout	0.8	0.4	--	--

“Red” indicates an intersection Volume-to-Capacity (V/C) ratio is greater than 1.0 (i.e., capacity); NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on V/C or queues

¹Design Year (2033) 95th Percentile Back of Queue for intersections with V/C's over 1.0.

5. BUILD ALTERNATIVE 2

5.1. Concept Plans

Conceptual plan view drawings of Alternative 2 are included in **Appendix H**. Alternative 2 is comprised of eight roundabouts, one stop-controlled full-access intersection and eight stop-controlled right-only intersections. Note that due to their proximity to each other, the Spring Blvd. and school driveway approaches are incorporated into one roundabout. The description of Concept Alternative 2 is as follows:

- Alternative 2 – A new 2-lane divided curb & gutter section (LA 59 to Forest Brook Blvd.) with a 6' median (back of curb to back of curb) with 5' bike lanes on both sides of the road adjacent to the through lanes. A sidewalk will be added to the north to meet the complete streets design. A new 4-lane divided section is necessary from Forest Brook Blvd. to the interstate interchange with Roundabouts replacing the interchange intersections.

5.2. Intersection Analysis

The lane configurations and traffic control shown on the concept drawings, along with the traffic volumes shown on appendix **Figure H-1** and **Figure H-2** were used for the intersection analysis. The intersection analysis results are shown in **Appendix I**. **Table 5A**, **Table 5B** and **Table 5C** summarize the results. The results show that if the new intersections were installed today (2013), none would be LOS E/F overall (versus one with the existing geometry). In addition, only one intersection approach (versus seven with the existing geometry) would be LOS E/F. In 2033, no intersections would be LOS E/F overall (versus two with the No-Build geometry) and six intersection approaches (versus 17 with the No-Build geometry) would be LOS E/F.

Table 5A
Summary of SIDRA Intersection Analysis Results: 2013 Build Alternative 2

LA 1088 Intersection	Intersection Type	Intersection LOS "E" or F"?		Approach LOS "E" or "F"?	
		AM	PM	AM	PM
LA 59	Roundabout	No	No	No	No
Fountains Park Blvd.	Stop-controlled right-only	--	--	No	No
Swenson Dr.	Stop-controlled right-only	--	--	No	No
Garon Dr./Jackson St.	Roundabout	No	No	No	No
Spring Blvd.	Roundabout	No	No	No	No
Magnolia Trace School					
Emerald Pines Ct.	Stop-controlled right-only	--	--	No	No
Frenchmen Dr.	Stop-controlled right-only	--	--	No	No
Soult St./Viola St.	Roundabout	No	No	No	No
Trinity Dr.	Roundabout	No	No	No	No
Forest Brook Blvd.	Roundabout	No	No	No	No
Elm St.	Stop-controlled right-only	--	--	No	No
Hickory St./Mulberry St.	Stop-controlled right-only	--	--	No	No
Cypress St.	Stop-controlled right-only	--	--	No	No
Holly St.	Stop-controlled right-only	--	--	No	No
Oak St./Loretta Dr.	Stop-controlled full-access	--	--	Yes (NB)	No
I-12 Eastbound Ramp	Roundabout	No	No	No	No
I-12 Westbound Ramp	Roundabout	No	No	No	No

"Red" indicates an intersection or approach is LOS "E" or "F"; NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on average peak hour LOS.

Table 5B
Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 2

LA 1088 Intersection	Intersection Type	Intersection LOS "E" or "F"?		Approach LOS "E" or "F"?	
		AM	PM	AM	PM
LA 59	Roundabout	No	No	No	No
Fountains Park Blvd.	Stop-controlled right-only	--	--	No	No
Swenson Dr.	Stop-controlled right-only	--	--	No	No
Garon Dr./Jackson St.	Roundabout	No	No	No	No
Spring Blvd.	Roundabout	No	No	No	No
Magnolia Trace School					
Emerald Pines Ct.	Stop-controlled right-only	--	--	No	No
Frenchmen Dr.	Stop-controlled right-only	--	--	No	No
Soult St./Viola St.	Roundabout	No	No	No	No
Trinity Dr.	Roundabout	No	No	No	No
Forest Brook Blvd.	Roundabout	No	No	No	No
Elm St.	Stop-controlled right-only	--	--	No	No
Hickory St./Mulberry St.	Stop-controlled right-only	--	--	Yes (NB, SB)	Yes (SB)
Cypress St.	Stop-controlled right-only	--	--	No	Yes (SB)
Holly St.	Stop-controlled right-only	--	--	Yes (NB)	No
Oak St./Loretta Dr.	Stop-controlled full-access	--	--	Yes (NB)	Yes (SB)
I-12 Eastbound Ramp	Roundabout	No	No	No	No
I-12 Westbound Ramp	Roundabout	No	No	No	No

"Red" indicates an intersection or approach is LOS "E" or "F"; NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on average peak hour LOS.

Table 5C
Summary of SIDRA Intersection Analysis Results: 2033 Build Alternative 2

LA 1088 Intersection	Intersection Type	Intersection V/C		Queue Length (feet) ¹	
		AM	PM	AM	PM
LA 59	Roundabout	1.4	1.1	2,688 (SB)	1,590 (SB)
Fountains Park Blvd.	Stop-controlled right-only	0.6	0.6	--	--
Swenson Dr.	Stop-controlled right-only	0.5	0.6	--	--
Garon Dr./Jackson St.	Roundabout	0.8	0.8	--	--
Spring Blvd.	Roundabout	0.8	0.7	--	--
Magnolia Trace School					
Emerald Pines Ct.	Stop-controlled right-only	0.5	0.5	--	--
Frenchmen Dr.	Stop-controlled right-only	0.5	0.5	--	--
Soult St./Viola St.	Roundabout	0.8	0.9	--	--
Trinity Dr.	Roundabout	0.9	0.9	--	--
Forest Brook Blvd.	Roundabout	0.7	0.8	--	--
Elm St.	Stop-controlled right-only	0.5	0.4	--	--
Hickory St./Mulberry St.	Stop-controlled right-only	0.7	0.4	--	--
Cypress St.	Stop-controlled right-only	0.5	0.4	--	--
Holly St.	Stop-controlled right-only	0.5	0.4	--	--
Oak St./Loretta Dr.	Stop-controlled full-access	1.0	0.4	--	--
I-12 Eastbound Ramp	Roundabout	0.8	0.8	--	--
I-12 Westbound Ramp	Roundabout	0.8	0.4	--	--

“Red” indicates an intersection Volume-to-Capacity (V/C) ratio is greater than 1.0 (i.e., capacity); NOTE: The analysis is based on peak one-hour flow rates derived from 15-minute volumes. Therefore, the results shown are not indicative of operations during the entire peak hour or non-peak periods. Accordingly, the need for roadway and traffic control improvements (e.g., signals) is not solely based on V/C or queues.

¹Design Year (2033) 95th Percentile Back of Queue for intersections with V/C's over 1.0.

6. COMPARISON OF ALTERNATIVES

The intersection types comprising each alternative are shown in **Table 6**. Both Alternative 1 and 2 have eight roundabouts and eliminate the LA 59 signal and the Soult St./Viola St. all-way stop. Alternative 2 eliminates all full-access side street intersections.

Table 6
Intersection Types

Intersection Type	No-Build Alternative (Existing)	Alternatives 1A & 1B (Roundabouts without new median)	Alternative 2 (Roundabouts with new median)
Signalized full-access	1	0	0
All-way stop-controlled full-access	1	0	0
Side street stop-controlled full-access	14	3	0
Yield-entry Roundabout	0	8	8
Stop-controlled right-only	2	6	9
TOTAL	18	17¹	17¹

¹Alternatives 1 and 2 have one less intersection than Existing because Spring Blvd. and the Magnolia Trace school driveway are combined into a single roundabout

6.1. Alternative 1 versus No-Build Alternative

The traffic operations and safety comparison is shown in **Table 7**. Compared to No-Build, Alternative 1 (that is, Alternatives 1A and 1B) has fewer (eight versus 17) intersections with an approach LOS E/F. Alternative 1 also reduces the total number of intersection conflict points from 230 to 156, a 32 percent reduction. Per the CMF, the crash reduction is 67 percent at the signalized LA 59 traffic signal when converted to a roundabout. At the all-way stop-controlled Soult St./Viola St. intersection, as well as six side street stop-controlled intersections, the crash reduction is 32 percent after conversion to a roundabout. At four of the side street stop-controlled full-access intersections, the crash reduction is 39 percent (0.61 CMF for median installation) after conversion to stop-controlled right-only intersections with median-divided approaches.

Table 7
Traffic Operations and Safety Comparison: Alternative 1 vs. No-Build Alternative

Intersection Modification			Alternative 1 vs. No-Build
From No-Build	To Alternative 1	Locations	
Signalized full-access	Yield-entry Roundabout	1	<ul style="list-style-type: none"> Alternative 1 reduces V/C at LA 59 intersection Alternative 1 reduces SB queues at LA 59 intersection (by 135 feet AM and 3,140 feet PM) Both alternatives have an approach LOS “E/F” in the Design Year 0.33 CMF; Alternative 1 increases the total number of intersection conflicts by 22% (11 versus 9) Alternative 1 reduces the LA 1088 and side street design speed to approximately 15 mph for all vehicles entering the roundabout² A roundabout (Alternative 1) requires less maintenance compared to a traffic signal (No-Build) Roundabout (Alternative 1) traffic control is not affected by power outages compared to a traffic signal (No-Build)
All-way stop-controlled full-access	Yield-entry Roundabout	1 ¹	<ul style="list-style-type: none"> Only No-Build has an approach LOS “E/F” in the Design Year 0.68 CMF; Alternative 1 reduces the total number of intersection conflict points by 66% (11 versus 32) Alternative 1 reduces the LA 1088 and side street design speed to approximately 15 mph for all vehicles entering the roundabout² A roundabout (Alternative 1) requires less maintenance compared to a traffic signal (No-Build) Roundabout (Alternative 1) traffic control is not affected by power outages compared to a traffic signal (No-Build)
Side street stop-controlled full-access	Yield-entry Roundabout	6	<ul style="list-style-type: none"> Alternative 1 has zero intersections (compared to six No-Build intersections) with an approach LOS “E/F” in the Design Year 0.68 CMF; Alternative 1 reduces the total number of intersection conflict points by 50% (49 versus 98) Alternative 1 reduces the LA 1088 and side street design speed to approximately 15 mph for all vehicles entering the roundabout² A roundabout (Alternative 1) requires less maintenance compared to a traffic signal (No-Build) Roundabout (Alternative 1) traffic control is not affected by power outages compared to a traffic signal (No-Build)
Side street stop-controlled full-access	Stop-controlled right-only	4	<ul style="list-style-type: none"> Alternative 1 has zero intersections (compared to three No-Build intersections) with an approach LOS “E/F” in the Design Year 0.61 CMF; Alternative 1 reduces the total number of intersection conflict points by 7% (85 versus 91) Both alternatives have the same LA 1088 and side street design speeds
Side street stop-controlled full-access	Side street stop-controlled full-access	3	<ul style="list-style-type: none"> No change
Stop-controlled right-only	Stop-controlled right-only	2	<ul style="list-style-type: none"> No change

CMF: Crash Modification Factor

¹Spring Blvd. and the Magnolia Trace school driveway are combined into a single roundabout

²Source: *Roundabout Design* (LADOTD EDSM No. VI.1.1.6, October 25, 2011)

6.2. Alternative 2 versus No-Build Alternative

The traffic operations and safety comparison is shown in **Table 8**. Compared to No-Build, Alternative 2 has fewer (four versus 17) intersections with an approach LOS E/F.

Alternative 2 also reduces the total number of intersection conflict points from 230 to 81, a 65 percent reduction. Per the CMF, the crash reduction is 80 percent (0.33 CMF for intersection modification times 0.61 CMF for median installation, for a combined CMF equal to 0.20) at the signalized LA 59 traffic signal when converted to a roundabout with a median-divided approach. At the all-way stop-controlled Soult St./Viola St. intersection as well as six side street stop-controlled full-access intersections, the crash reduction is 59 percent (0.68 CMF for intersection modification times 0.61 CMF for median installation, for a combined CMF equal to 0.41) after conversion to a roundabout with median-divided approaches. At the remaining seven side street stop-controlled full-access intersections, the crash reduction is 39 percent (0.61 CMF for median installation) after conversion to stop-controlled right-only intersections with median-divided approaches.

Table 8
Traffic Operations and Safety Comparison: Alternative 2 vs. No-Build Alternative

Intersection Modification			Alternative 2 vs. No-Build
From No-Build	To Alternative 2	Locations	
Signalized full-access	Yield-entry Roundabout	1	<ul style="list-style-type: none"> Alternative 2 reduces V/C at LA 59 intersection Alternative 2 reduces SB queues at LA 59 intersection (by 135 feet AM and 3,069 feet PM) Both alternatives have an approach LOS “E/F” in the Design Year 0.20 CMF; Alternative 2 increases the total number of intersection conflicts by 22% (11 versus 9) Alternative 2 reduces the LA 1088 and side street design speed to approximately 15 mph for all vehicles entering the roundabout² A roundabout (Alternative 2) requires less maintenance compared to a traffic signal (No-Build) Roundabout (Alternative 2) traffic control is not affected by power outages compared to a traffic signal (No-Build)
All-way stop-controlled full-access	Yield-entry Roundabout	1 ¹	<ul style="list-style-type: none"> Only No-Build has an approach LOS “E/F” in the Design Year 0.41 CMF; Alternative 2 reduces the total number of intersection conflict points by 66% (11 versus 32) Alternative 2 reduces the LA 1088 and side street design speed to approximately 15 mph for all vehicles entering the roundabout² A roundabout (Alternative 2) requires less maintenance compared to a traffic signal (No-Build) Roundabout (Alternative 2) traffic control is not affected by power outages compared to a traffic signal (No-Build)
Side street stop-controlled full-access	Yield-entry Roundabout	6	<ul style="list-style-type: none"> Alternative 2 has zero intersections (compared to six No-Build intersections) with an approach LOS “E/F” in the Design Year 0.41 CMF; Alternative 2 reduces the total number of intersection conflict points by 50% (49 versus 98) Alternative 2 reduces the LA 1088 and side street design speed to approximately 15 mph for all vehicles entering the roundabout² A roundabout (Alternative 2) requires less maintenance compared to a traffic signal (No-Build) Roundabout (Alternative 2) traffic control is not affected by power outages compared to a traffic signal (No-Build)
Side street stop-controlled full-access	Stop-controlled right-only	7	<ul style="list-style-type: none"> Alternative 2 has two intersections (compared to six No-Build intersections) with an approach LOS “E/F” in the Design Year 0.61 CMF; Alternative 2 reduces the total number of intersection conflict points by 88% (10 versus 85) Both alternatives have the same LA 1088 and side street design speeds
Stop-controlled right-only	Stop-controlled right-only	2	<ul style="list-style-type: none"> No change

CMF: Crash Modification Factor

¹Spring Blvd. and the Magnolia Trace school driveway are combined into a single roundabout

²Source: *Roundabout Design* (LADOTD EDSM No. VI.1.1.6, October 25, 2011)

7. CONCLUSIONS

Alternative 2, the “Roundabouts with a new median” alternative, is recommended from a traffic operations and safety perspective. As discussed in **Section 6.1** and **Section 6.2** above, Alternative 2 has no side-street stop-controlled full-access intersections and fewer intersection conflict points.

7.1. Cost Estimates

An estimated opinion of probable construction cost for Alternatives 1A, 1B and 2 is shown in **Table 9**. Detailed breakdowns are shown in **Appendix J**. The cost assumes that the existing pavement will be removed and replaced within the limits of the roundabouts to tie to existing pavement. The Right-of-way Acquisition includes the acquisition services required to obtain the necessary right-of-way. Some right-of-way may be necessary at the roundabout locations and it is assumed that additional utility or sidewalk servitude may be necessary to construct the sidewalks near the right-of-way line. The required servitude could be determined during the Environmental Assessment (EA) phase of the project where detailed cross sections can be investigated.

Table 9
Estimated Opinion of Probable Construction Costs

Cost Item	Alt. 1A	Alt. 1B	Alt. 2
Environmental (Document and Mitigation)	\$278,113	\$385,919	\$502,726
Engineering Design	\$1,112,453	\$1,543,678	\$2,010,902
Construction, Engineering and Inspection	\$1,390,567	\$1,929,597	\$2,513,628
Right-of-way Acquisition	\$1,575,000	\$2,250,000	\$2,703,000
Land Acquisition Services	\$157,500	\$225,000	\$270,300
Utility Relocation	\$1,080,000	\$1,675,000	\$2,150,000
Roadway Construction	\$13,905,668	\$19,295,969	\$25,136,281
TOTAL	\$19,499,301	\$27,305,163	\$35,286,837

7.2. Implementation Plan

The Project team currently envisions that the construction of the recommended alternative will be phased in as right-of-way is acquired. Pending the results of the Environmental phase, right-of-way to facilitate the build-out of Alternative 2 could be acquired on a continual basis. Options for implementation include, but are not limited to:

- Construction of a single roundabout (e.g., Soult St./Viola St. or Forest Brook Blvd.)
- Construction of a pair of roundabouts (e.g., Soult St./Viola St. and Forest Brook Blvd.)
- Construction of Alternative 1A, followed by Alternative 2
- Construction of Alternative 1B, followed by Alternative 2
- Construction of Alternative 2

7.3. Public Involvement

The Concept Alternatives were presented for agency and public review and comments on three separate occasions:

- *Elected Officials Meeting* on August 21, 2013 with Senator Jack Donahue and Representative Paul Hollis
- *Parish Meeting* on November 12, 2013 with St. Tammany Parish President Ms. Pat Brister et.al.
- *Public Information Meeting* on December 11, 2013 held at the St. Tammany Parish Council chambers

Note that copies of the written comments received are located in **Appendix K**. These comments are provided for use in the environmental phase. A total of 13 sets of comments were received from individuals and organizations. The comments are summarized in **Table 10**.

Table 10
Project Need
Based on Comments from Public Information Meeting

Comment Source No.	Summary of Comments	Project Needed? ¹
1	<ul style="list-style-type: none"> • Add a median opening 	Yes
2	<ul style="list-style-type: none"> • Address speeding problem (including considering a traffic signal at Forest Brook Blvd.) 	Yes
3	<ul style="list-style-type: none"> • Sidewalks are not needed (will be underutilized) 	Yes
4	<ul style="list-style-type: none"> • Roundabouts are a good idea (and preferable to a traffic signal at Forest Brook Blvd.) 	Yes
5	<ul style="list-style-type: none"> • Roundabouts are a good idea • The plan should include four-laning the entire corridor 	Yes
6	<ul style="list-style-type: none"> • Address impacts of proposed office park development at the I-12 interchange 	Yes
7	<ul style="list-style-type: none"> • Lessen the side street turnaround times (including considering striping to reduce the length of the raised barrier) 	Yes
8	<ul style="list-style-type: none"> • In favor of Alternatives 1A of 1B because they use existing right-of-way and are less expensive 	Yes
9	<ul style="list-style-type: none"> • In favor of Alternatives 1A and 1B • Does not favor roundabouts at Garon Dr./Jackson St., Trinity Dr. or at I-12 ramps • Four-lane Forest Brook Blvd. to I-12 section immediately • Sidewalks and bike lanes add cost and are not needed (can use the "Trace" instead) 	Yes
10	<ul style="list-style-type: none"> • Commence the Project ASAP (traffic through Quail Creek has increased due to LA 1088 congestion) 	Yes
11 & 12	<ul style="list-style-type: none"> • Alternative 2 offers the most comprehensive solution • Expedite improvements at the Soult St. and Forest Brook Blvd. intersections • Shift the Project alignment to the north between Soult St. and Forest Brook Blvd. (to mitigate property takings within the Quail Creek Subdivision) • Address impacts of a major new development proposed to access LA 1088 north of I-12 • Make Project funding the highest priority • Complete the Project within 36 months after construction begins 	Yes
13	<ul style="list-style-type: none"> • Shift the Soult St. roundabout north and slightly west to mitigate Quail Creek subdivision property taking 	Yes

¹The Summary of Comments and Need for the Project is based on Consultant review of the written comments

APPENDICES

(Two CD's)