DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Systems Interchange Modification Report (SIMR)

I-295 from Town Center Parkway to Merrill Road

Duval County, Florida

FPID: 209301-4, 209301-8 and 209301-9

August 2021

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Systems Interchange Modification Report (SIMR)

I-295 from Town Center Parkway to Merrill Road
Duval County, Florida

FPID: 209301-4, 209301-8 and 209301-9

Prepared for:

Florida Department of Transportation
District Two

1109 South Marion Avenue
Lake City, Florida 32020

August 2021

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Interchange Modification Report (IMR)

I-295 from Town Center Parkway to Merrill Road

Systems Interchange Modification Report (SIMR)

209301-4, 209301-8 and 209301-9

Florida Department of Transportation

Determination of Safety, Operational and Engineering Acceptability

Acceptance of this document indicates successful completion of the review and determination of safety, operational and engineering acceptability of the Interchange Access Request. Approval of the access request is contingent upon compliance with applicable Federal requirements, specifically the National Environmental Policy Act (NEPA) or Department's Project Development and Environment (PD&E) Procedures. Completion of the NEPA/PD&E process is considered approval of the project location design concept described in the environmental document.

Requestor	DocuSigned by: 718194A7584B44F... David Tyler, P.E., AICP District Two	9/8/2021 | 9:22 AM EDT Date
Interchange Review Coordinator	DocuSigned by: 718194A7584B44F... David Tyler, P.E., AICP District Two	9/8/2021 | 9:22 AM EDT Date
Systems Management Administrator	DocuSigned by: Jenna Bowman 4AD03E6A337F4C1... Jenna Bowman, P.E. Systems Implementation Office – Central Office	9/27/2021 | 6:49 AM EDT Date
State Chief Engineer	DocuSigned by: 022E6284290B41A... Will Watts, P.E. Central Office	9/27/2021 | 8:49 AM EDT Date

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

SYSTEMS IMPLEMENTATION OFFICE

QUALITY CONTROL CERTIFICATION FOR INTERCHANGE ACCESS REQUEST SUBMITTAL

Submittal Date: August 2021

FM Number: 209301-4, 209301-8 and 209301-9

Project Title: I-295 from Town Center Parkway to Merrill Road Systems Interchange Modification Report (SIMR)

District: Two

Requestor: David Tyler, P.E., AICP Phone: 386/961-7842

District IRC: David Tyler, P.E., AICP Phone: 386/961-7842

Document Type: ☐ MLOU ☐ IJR ☐ IMR ☐ IOAR ☒ OTHER SIMR

Status of Document (Only complete documents will be submitted for review; however, depending on the complexity of the project, interim reviews may be submitted as agreed upon in the MLOU)

Quality Control (QC) Statement

This document has been prepared following FDOT Procedure Topic No. 525-030-160 (New or Modified Interchanges) and complies with the FHWA two policy requirements. Appropriate District level quality control reviews have been conducted and all comments and issues have been resolved to their satisfaction. A record of all comments and responses provided during QC review is available in the project file or Electronic Review Comments (ERC) system.

Requestor DocuSigned by: [SIGN NAME] Date: 9/8/2021 | 9:22 AM EDT

IRC DocuSigned by: [SIGN NAME] Date: 9/8/2021 | 9:22 AM EDT

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with BW Engineers and Planners Inc., a Florida corporation authorized under the provisions of Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes by the State of Florida Board of Professional Engineers and I have prepared or approved the evaluation, findings, opinions, conclusions or technical advice hereby reported for:

PROJECT: I-295 from Town Center Parkway to Merrill Road Systems Interchange Modification Report (SIMR)

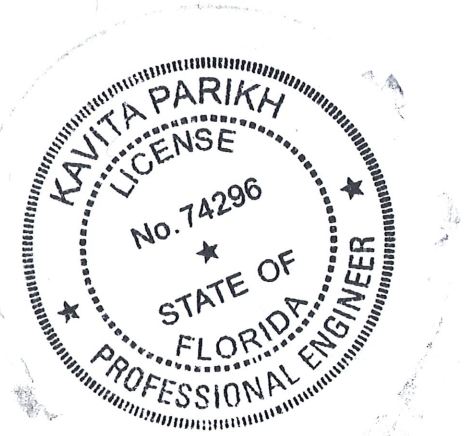
LOCATION: Duval County, FL

FINANCIAL PROJECT ID: 209301-4, 209301-8 and 209301-9

This report includes a summary of data collection effort, traffic analysis, discussion of preferred alternative and summary of conclusions. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering and planning as applied through professional judgement and experience.

Name: Kavita Parikh, P.E., PTOE

Florida P.E. No.: 74296



Signature: Kavita Parikh

Date: 09/02/2021

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study for the project limits concurrently with this Systems Interchange Modification Report (SIMR). The Interstate 295 (I-295) SIMR limits extend from south of the Town Center Parkway interchange to north of the Merrill Road (SR 116) interchange, approximately seven miles. FDOT is proposing to widen the I-295 mainline to add one general purpose lane in each direction. In addition, modifications are proposed at several interchanges along the corridor to address capacity deficiencies, enhance safety and upgrade roadway design elements to meet current standards.

The purpose of this project is to add capacity, improve operations and safety along the I-295 corridor and at the study interchanges. The need for this project is driven by current peak hour congestion and speeds well below the posted speed limits during the peak hours along this segment of the interstate. This project will also provide improved system-to-system connectivity with adjacent facilities of J.T Butler (SR 202) and Southside Connector.

The methodology used in this SIMR is documented in the Methodology Letter of Understanding (MLOU), signed March 2021. The MLOU was approved by FDOT District Two Interchange Review Coordinator (IRC) and FDOT Central Office. The MLOU outlines the criteria, assumptions, processes, analyses and documentation requirements for the project. The MLOU was prepared in accordance with the FDOT's Interchange Access Request User's Guide (IARUG). Traffic operational and safety analyses for this project were performed in accordance with the approved MLOU.

I-295 is a north-south limited access facility that provides an eastern and western bypass around the City of Jacksonville. I-295 between Town Center Parkway and Merrill Road consists primarily of four travel lanes (two in each direction). One auxiliary lane in each direction is present from SR 202 to Town Center Parkway and from Town Center Parkway to Beach Boulevard. The I-295 corridor within the study area is functionally classified as a Divided Urban Principal Arterial Interstate and has a posted speed limit of 65 miles per hour. There are six interchanges within the area of influence that provide connection to arterial facilities.

In 2019, this segment of I-295 carried an Annual Average Daily Traffic (AADT) volume that ranged from 111,500 vehicles between SR 202 and Town Center Parkway at the southern end of the project to 77,800

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

vehicles north of Merrill Road at the northern end of the project. In addition to I-295 carrying heavy traffic, Town Center Parkway carried an AADT of 44,000 vehicles in 2019, Beach Boulevard carried an AADT between 53,500 and 56,500 vehicles, St. Johns Bluff Road carried an AADT of 27,500 vehicles, Monument Road carried an AADT of 28,000 vehicles and Merrill Road carried an AADT of 29,000 vehicles.

A comparative assessment performed for the No-Build and Build Alternatives for the Design Year 2045 shows that the Build Alternative performs better than the No-Build Alternative. By providing an additional general use lane, the Build Alternative increases the overall capacity and reduces the densities at each segment along the I-295 within the study area. The acceptable LOS target for the freeway, ramps and intersections within the area of influence in this SIMR is LOS D. In the Design Year 2045 during the AM peak hour, the I-295 mainline Build Alternative will operate at LOS D or better for all segments except one segment north of Merrill Road that will operate LOS E during PM peak hour. For the same time period, the No-Build Alternative will have six I-295 segments at LOS E and 14 segments at LOS F. A similar pattern is noticed for the I-295 mainline PM peak hour operations. Like the I-295 mainline, the ramp terminals also show substantial improvement under the Build Alternative compared to the No-Build Alternative. In Design Year 2045, all ramp terminals at study interchanges of Town Center Parkway, St. Johns Bluff Road, Monument Road and Merrill Road will operate at LOS D or better with the Build Alternative during the AM and PM peak hours. During the AM and PM peak hours, the No-Build Alternative will have four and six ramp terminals, respectively, operating below the LOS target of D.

Crash data from the most recent five years (2014-2018) indicated that approximately 1,457 crashes occurred along the I-295 project corridor, including 4 fatalities and 676 injuries. Rear-end crashes are the most predominant crash type within the study area and indicate stop-and-go conditions reflective of bottlenecks. A detailed Predictive Safety Analysis was conducted for this project to evaluate the No-Build Alternative and the Build Alternative that adds general use lane in the northbound (NB) and southbound (SB) direction along the I-295 within the study areas. The Build Alternative will reduce crashes by approximately 12.6 percent compared to the No-Build Alternative.

In conclusion, the Build Alternative showed significant operational improvements over the No-Build in Opening Year 2025 and the Design Year 2045. Based on the safety and traffic operations benefits of the Build, it is considered the preferred alternative for this SIMR.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

This SIMR has been developed in accordance with FDOT Policy No. 000-525-015: Approval of New or Modified Access to Limited Access Highways on the State Highway System (SHS), FDOT Procedure No. 525-030-160: New or Modified Interchanges, 2020 IARUG and the 2019 FDOT Traffic Forecasting Handbook (Procedure No. 525-030-120).

E.1 Compliance with FHWA General Requirements

The proposed modifications to I-295 will provide traffic relief and enhance safety within the area of influence. The preferred Build Alternative will operate better than the No-Build Alternative for this project.

E.1.1 FHWA Policy Point 1

An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

An in-depth operational and safety analysis was conducted to study the operational and safety benefits offered by the proposed improvements when compared to the No-Build Alternative.

Several performance measures were used to compare the traffic operations and safety of the existing system under No-Build and Build conditions. Key measures include freeway densities, freeway volume to

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

capacity (V/C) ratios, intersection delays, level of service (LOS), 95th percentile queue lengths, crash rates and frequency, predominant crash patterns, expected crashes and potential crash reduction.

During the Opening Year 2025, the No-Build Alternative analysis showed that traffic operations are expected to degrade significantly, and several freeway segments will operate at unacceptable LOS E or worse during the AM and PM peak hours. These operational deficiencies are due to the increase in traffic within the study area by 2025. The Build Alternative, which provides general use lane capacity improvements through the extent of the study area, shows significant improvements over the No-Build, with all the freeway segments operating at acceptable LOS D or better in both AM and PM peak hours in Opening Year 2025. Crossing roadways will also benefit from the proposed improvements. The ramp terminal intersections along the cross roadways at study interchanges of Town Center Parkway, St. Johns Bluff Road, Monument Road and Merrill Road will operate at an overall LOS D or better in both AM and PM peak hours under the Build Alternative. The proposed improvements at the study intersections indicate a significant reduction in 95th percentile queue length under the 2025 Build Alternative, where most of the proposed storage can accommodate the queues.

The Design Year 2045 operational analysis results show that the Build Alternative improved traffic operations within the I-295 study area compared to the No-Build Alternative. By providing an additional general use lane, the Build Alternative increases the overall capacity and reduces the densities along I-295 within the study area. In terms of intersection delay, the Build Alternative decreased overall delay at the study intersections. The ramp terminal intersections with LOS F in the 2045 No-Build Alternative improve to LOS D or better in the 2045 Build Alternative at the study interchanges of Town Center Parkway, St. Johns Bluff Road, Monument Road and Merrill Road.

A total of over 1,457 crashes occurred within the study area in the recent five-years (2014-2018), which included 4 fatalities and 676 injuries along the project corridor. A detailed Predictive Safety Analysis was conducted for this project for the period 2025 to 2045 to evaluate the No-Build Alternative and the Build Alternative that adds general use lane in the northbound (NB) and southbound (SB) direction along the I-295 within the study areas. This analysis indicated that the predicted yearly average crashes for this period under the No-Build Alternative will be approximately 239.3 crashes whereas the Build Alternative is predicted to have approximately 222.1 crashes per year. The Build Alternative will reduce crashes by approximately 7 percent compared to the No-Build Alternative. In addition to the improvements along I-

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

295, improvements at the I-295 and St. Johns Bluff Road interchange should reduce the number of crashes by 5.9 crashes/year. Also, the conversion of the diamond interchange to partial cloverleaf and the additional interchange improvements at the I-295 and Monument Road interchange should provide a substantial reduction in crashes of 14.3 crashes/year. Lastly, it is also proposed that the existing Single Point Urban Interchange (SPUI) be converted to a DDI at the I-295 and Town Center Parkway interchange. This improvement cannot be accounted for using the HSM Part C methodology or CMF methodology. As a result, a qualitive safety analysis was performed and concluded the safety benefits of a diverging diamond interchange (DDI) interchange include:

- Reduction of conflict points (14 conflict points in the DDI compared to the 24 conflict points found in the SPUI) and improved sight distance at the turns.
- Reduction in crash severity due to lower design speeds compared to other interchange designs.
- Traffic calming effect that reduces vehicular speed (while maintaining the capacity) due to the small geometric deflection introduced by the DDI for through traffic.
- Elimination of the wrong-way movements into ramps from the DDI interchange design.
- The DDI provides more efficient operations when the left turns are heavy at the interchange.
- Shorter crossing distance in the DDI compared to the SPUI.

In summary, the proposed improvements will benefit the study corridor (I-295) with a reduction in density, delay and crashes for future traffic conditions. Therefore, the proposed improvements will enhance the traffic operations and safety of the study corridor (I-295).

E.1.2 FHWA Policy Point 2

The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2) and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.

I-295 is a public facility and all interchanges within the study area except St. Johns Bluff Road interchange, provide full access and will continue to do so with the Build Alternative. The Build alternative will maintain and provide all interchange accesses catering to all traffic movements to/from existing interchanges within the study limits.

The proposed improvements under the Build Alternative were designed to meet current standards for federal-aid projects on the interstate system and conform to the American Association of State Highway and Transportation Officials (AASHTO) and the FDOT Design Manual (FDM).

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table of Contents

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

List of Figures

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

List of Tables

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

List of Appendices

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

1. INTRODUCTION

Interstate 295 (I-295) is in the City of Jacksonville, Duval County. The Florida Department of Transportation (FDOT) District Two requests the Federal Highway Administration's (FHWA's) approval of this Systems Interchange Modification Report (SIMR) for Improvements to a portion of the I-295 eastern beltway from south of the Town Center Parkway interchange to north of the Merrill Road (SR 116) interchange, approximately seven miles in length. The SIMR has been developed in accordance with FDOT Policy No. 000-525-015, FDOT Procedure No. 525-030-160, FDOT Interchange Access Request User's Guide (IARUG) and the FDOT Traffic Forecasting Handbook (Procedure No. 525-030-120).

1.1 Background

I-295 is a significant component of the Strategic Intermodal System (SIS) and provides a key transportation element linking the major ports, airports and railways that handle Florida's passenger and freight traffic throughout the region. I-295 is a north-south limited access facility that provides an eastern and western bypass around the City of Jacksonville. Currently, there are four general use lanes (GULs) on I-295 from south of the Town Center Parkway interchange to north of the Merrill Road Interchange. In addition, one auxiliary lane in each direction is present from J.T. Butler (SR 202) to Town Center Parkway and from Town Center Parkway to Beach Boulevard. The I-295 eastern beltway is an important link in the state's interstate system and provides a major north-south traffic corridor around the Jacksonville urban area. This project aims to add capacity to the I-295 corridor and enhance operations at the study interchanges to improve safety and operations throughout the study area.

FDOT is conducting a Project Development and Environment (PD&E) study for the project limits concurrently with this SIMR project. At this time, the PD&E study is ongoing and currently scheduled to be completed in year 2021. South of SR 202, the project will connect with the I-295 East Express Phase I project that is currently under construction and includes two express lanes (ELs) in each direction between SR 9B interchange and the SR 202 interchange.

This SIMR documents traffic operational analysis and safety evaluations for the proposed improvements along I-295 corridor and at the Town Center Parkway, St. Johns Bluff Road, Monument Road and Merrill Road interchanges. The interchanges of Beach Boulevard and Atlantic Boulevard with I-295 are included within the area of influence to understand their impacts to the mainline and other adjacent interchanges. No improvements are recommended at the Beach Boulevard and Atlantic Boulevard interchanges as part

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

of this SIMR. Changes were considered at the Beach and Atlantic interchanges with I-295, but those could not be accommodated within the right of way. Land use around these interchanges is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. The operations at Beach and Atlantic interchanges remain the same under No-Build and Build conditions and they do not impact the Build alternative recommended in this SIMR. I-295 mainline is being widened through these interchanges and merge/diverge areas are anticipated to operate at acceptable LOS through design year. The SIMR contains detailed information that fulfills the purpose and need for the project.

1.2 Purpose and Need

The purpose of this project is to add capacity, improve operations and safety to accommodate Duval County's projected growth on the I-295 corridor from SR 202 to Southside Connector (SR 113).

This segment of the interstate currently experiences peak hour congestion and operates at speeds well below the posted speed limits in the peak hour. This problem is expected to get worse in the future as the state of Florida and Jacksonville area continue to grow. The University of Florida's Bureau of Economic and Business Research (BEBR) has a Duval County 2020 population of 982,080. The BEBR data also projects Duval County's 2045 estimated population to be 1,192,500 (medium projection). This represents an increase of approximately 210,420 (21.4%) residents from 2020 to 2045.

Mobility

In 2019, the study segment of I-295 carried an Annual Average Daily Traffic (AADT) volume that ranged from 111,500 vehicles between SR 202 and Town Center Parkway at the southern end of the project to 77,802 vehicles north of Merrill Road at the northern end of the project. Based on existing year analysis, the I-295 mainline segments from SR 202 to Town Center Parkway, Beach Boulevard to St. Johns Bluff Road, St. Johns Bluff Road to Atlantic Boulevard and Atlantic Boulevard to Monument Road currently operate below the LOS D target. In addition to the mainline, many merge/diverge segments along the corridor also operate below the LOS target. In addition to I-295 carrying heavy traffic, Town Center Parkway in 2019, carried an AADT of 44,000 vehicles in 2019, Beach Boulevard carried an AADT between 53,500 and 56,500 vehicles, St. Johns Bluff Road carried an AADT of 27,500 vehicles, Monument Road carried an AADT of 28,000 vehicles and Merrill Road carried an AADT of 29,000 vehicles.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

The 2045 traffic projections on I-295 utilize the latest planning assumptions on land use, population and employment. If no capacity improvements are made to facilities, congestion within the corridor and at the interchanges will get progressively worse, the entire segment of I-295 within the study limits will operate at LOS F during peak hours by 2045 with the periods of congestion extending the peak periods of travel, increasing the number of crashes and deteriorating the interchange operations. Because the corridor has limited right-of-way and purchasing new right-of-way is cost prohibitive in this area, it is important that the added capacity be accommodated within the existing right-of-way and that it provides long term benefits.

Social/Economic DemandI-295 is a major north-south corridor around central Jacksonville. Within the study limits, I-295 connects suburban residential areas throughout the corridor to office, commercial, recreational and industrial areas. St. Johns Town Center, a super-regional open-air mall and the University of North Florida are located adjacent to I-295 and regularly attract significant traffic from the surrounding areas. The population of Duval County is expected to increase by approximately 29% and employment is expected to increase by 43% from 2015 to 2045 (Source: North Florida Transportation Planning Organization (North Florida TPO) 2045 Long Range Transportation Plan (LRTP)). This increase in population and employment will result in higher traffic volumes on I-295. Without any additional improvements, I-295 will begin to operate below FDOT target LOS D.

Model Interrelationships

I-295 serves as a key transportation element in linking the major ports, airports and railways that handle Florida's passenger and freight traffic throughout the region. Additionally, I-295 is a designated highway on FDOT's SIS, which is Florida's high-priority network of transportation facilities important to the state's economy and mobility. SIS facilities are the workhorses of Florida's transportation system and account for a dominant share of the people and freight movement to, from and within Florida.

I-295 provides direct access to Jacksonville ports (Dames Point and Blount Island) and is used to transport cargo to/from the Jacksonville ports and Jacksonville International Airport. In addition, the ongoing Jacksonville Harbor Channel Project will deepen the Jacksonville shipping channel from its current depth of 40 feet to 47 feet. A deeper channel will allow larger cargo ships transiting the Panama Canal to deliver cargo to Jacksonville ports and increase truck traffic on I-295. Improvements on I-295 are needed to

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

ensure reliable cargo delivery to seaports and airports to maintain Jacksonville's competitive edge with surrounding seaports and airports.

Safety

Crash data from 2014-2018 shows that a total of 1,457 crashes were reported over the five-year period resulting in 456 injury crashes and four fatalities. The predominant collision type was "Front to Rear" crashes in the study area. Common factors that contribute to "Front to Rear" crashes are congestion, tailgating and driver distractions. Most of the congestion occurs during the morning and afternoon peak periods, which although accounting for only four-five hours, serve the highest volume of traffic in a day. Therefore, the number of crashes on I-295 within the study area may be closely related to the level of congestion caused due to various attractions throughout the corridor. Without any improvements, the congestion on I-295 during the morning and afternoon peak hours will worsen and may lead to an increasing number of crashes.

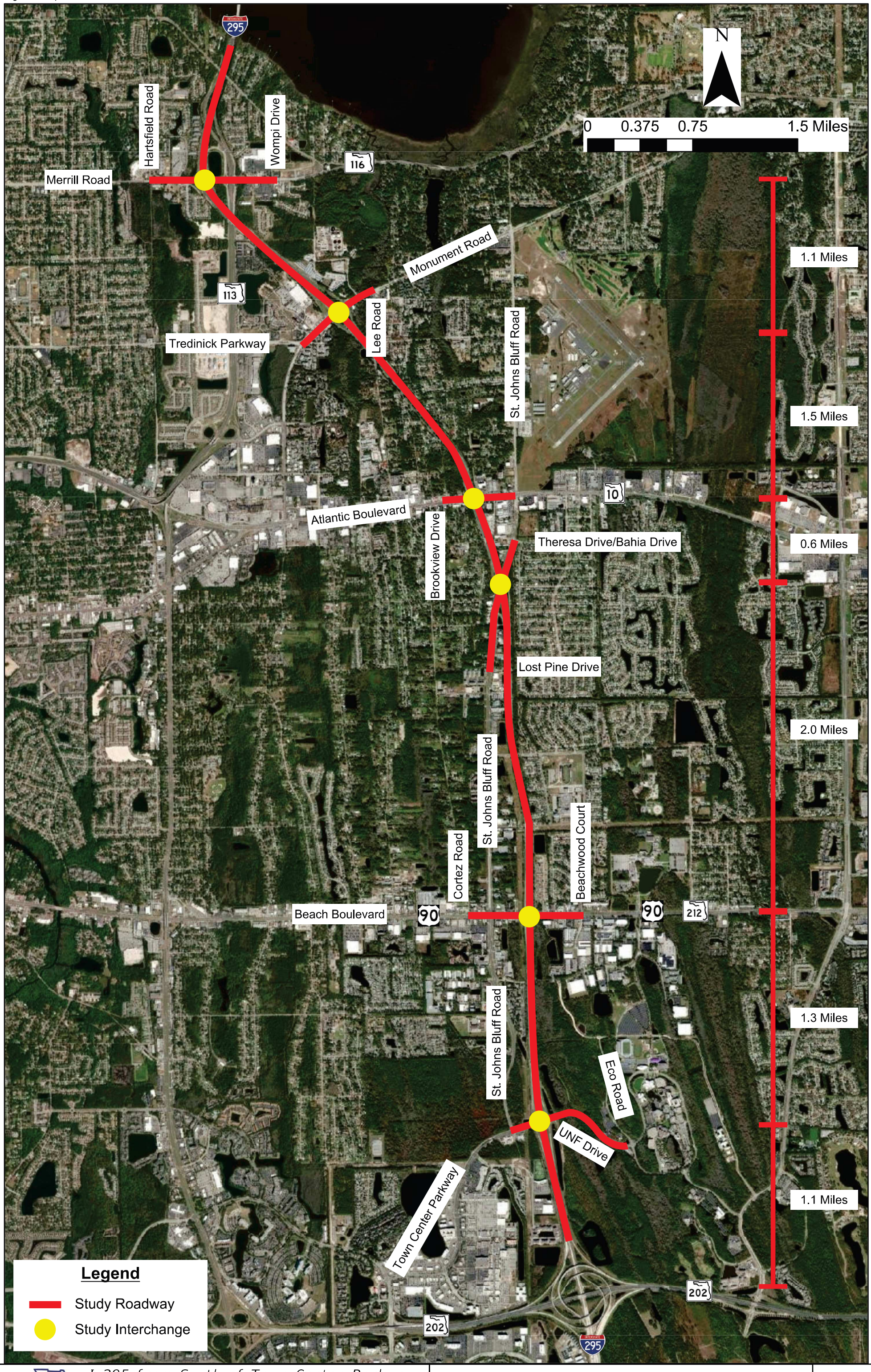
The entirety of I-295 in Duval County is designated as an evacuation route and is used to evacuate residents west and north during hurricane and other emergency evacuations. As the population of Duval County continues to increase, evacuating these residents in a timely manner becomes more challenging. Without any improvements to I-295, evacuation clearance times will continue to increase and may discourage residents from evacuating, thus jeopardizing public safety.

FDOT has initiated this SIMR to investigate alternatives for the I-295 facility that will help alleviate congestion and enhance safety and operations at the study interchanges to improve safety and operations throughout the study area.

1.3 Project Location

The project is in the eastern area of the City of Jacksonville, in Duval County, Florida. The project begins south of the I-295 at Town Center Parkway interchange and ends north of the Merrill Road interchange. The land use along the project study area is highly urbanized with predominantly residential, commercial and office land uses adjacent to the I-295 corridor. The project location and the study area are shown in **Figure 1-1**.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D



FDOT

I-295 from South of Town Center Parkway to North of Merrill Road Systems Interchange Modification Report

Project Location and Study Area Map

Figure 1-1

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

2. METHODOLOGY

2.1 Overview

A Methodology Letter of Understanding (MLOU) was prepared to document the methodology used for the analysis and evaluation in this SIMR. The MLOU is provided in **Appendix A**. The following sections summarize the methodology as set forth in the MLOU.

The methodology used for travel demand forecasting and development of design hour traffic is consistent with the FDOT Project Traffic Forecasting Handbook. The primary basis for traffic projections is version 3 of the adopted Northeast Regional Planning Activity-Based Model (NERPMAB1v3) which has a base year of 2010 and a horizon year of 2040.

2.2 Analysis Years

The MLOU establishes the following study years for the analysis of this SIMR:

- Existing Year: 2020
- Opening Year: 2025
- Design Year: 2045

In addition, the travel demand model years of evaluation were established as:

- Base Year: 2010
- Horizon Year: 2040

2.3 Area of Influence

The area of influence (AOI) is along I-295, from south of Town Center Parkway to north of Merrill Road. **Figure 2.1** depicts the area of influence along I-295 and crossing roadways.

There are six study interchanges plus the adjacent interchange of SR 202 within the area of influence along I-295. These six study interchanges are listed below.

- Town Center Parkway
- Beach Boulevard
- St. Johns Bluff Road
- Atlantic Boulevard
- Monument Road
- Merrill Road

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

The interchanges of Beach Boulevard and Atlantic Boulevard with I-295 are included within the area of influence to understand their impacts to the mainline and other adjacent interchanges. No improvements are recommended at the Beach Boulevard and Atlantic Boulevard interchanges as part of this SIMR. Changes were considered at the Beach and Atlantic interchanges with I-295, but those could not be accommodated within the right of way. Land use around these interchanges is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. The operations at Beach and Atlantic interchanges remain the same under No-Build and Build conditions and they do not impact the Build alternative recommended in this SIMR. I-295 mainline is being widened through these interchanges and merge/diverge areas are anticipated to operate at acceptable LOS through design year.

Along the arterials, the area of influence includes the ramp terminal intersections and at least one signalized intersection adjacent to the ramp terminal intersections. There are 22 study intersections within the area of influence along the crossing roadways (13 arterial intersections and 9 ramp terminal intersections). These study intersections are listed below:

Town Center Parkway from St. Johns Bluff to Eco Road

- Town Center Parkway at St. Johns Bluff Road
- Town Center Parkway at I-295 Southbound/ Northbound Ramps
- University of North Florida Drive at Eco Road

Beach Boulevard from Cortez Road to Beachwood Court

- Beach Boulevard at Cortez Road
- Beach Boulevard at St. Johns Bluff Road
- Beach Boulevard at I-295 Southbound/ Northbound Ramps
- Beach Boulevard at Beachwood Court

St. Johns Bluff Road from Lost Pine Drive to Theresa Drive/Bahia Drive

- St. Johns Bluff Road at Lost Pine Drive
- St. Johns Bluff Road at I-295 Southbound On-Ramp
- St. Johns Bluff Road at I-295 Northbound Off-Ramp
- St. Johns Bluff Road at Theresa Drive/Bahia Drive

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Atlantic Boulevard from Brookview Drive to St. Johns Bluff Road

- Atlantic Boulevard at Brookview Drive (not analyzed in the SIMR)
- Atlantic Boulevard at I-295 Southbound/ Northbound Ramps
- Atlantic Boulevard at St. Johns Bluff Road (not analyzed in the SIMR)

The intersections along Atlantic Boulevard adjacent to the ramp terminals were not analyzed after discussions with FDOT as no improvements were evaluated at this interchange.

Monument Road from Tredinick Parkway to Lee Road

- Monument Road at Tredinick Parkway
- Monument Road at I-295 Southbound Ramps
- Monument Road at I-295 Northbound Ramps
- Monument Road at Lee Road

Merrill Road from Hartsfield Road to Wompi Drive

- Merrill Road at Hartsfield Road
- Merrill Road at I-295 Southbound Ramps
- Merrill Road at SR 113 (Southside Connector)/I-295 Northbound Ramps
- Merrill Road at Wompi Drive
- Merrill Road at Jane Street unsignalized directional median opening – Included in AOI for Build analysis only

Adjacent Interchanges:

The below listed adjacent interchange will be included in the traffic operational analysis per the guidance provided in the FDOT's IARUG:

South of the project limit:

- I-295 at SR 202
  - SR 202 & I-295 Northbound On-Ramp
  - SR 202 & I-295 Southbound Off-Ramp

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

N

0 0.375 0.75 1.5 Miles

Hartsfield Road
Wompi Drive
Merrill Road
Jane Street
116
Monument Road
113
Lee Road
Tredinick Parkway
St. Johns Bluff Road
Atlantic Boulevard
Brookview Drive
10
Theresa Drive/Bahia Drive
Lost Pine Drive
St. Johns Bluff Road
Cortez Road
Beachwood Court
212
90
90
212
Beach Boulevard
St. Johns Bluff Road
Eco Road
UNF Drive
Town Center Parkway
202
202
295

Legend

Area of Influence

Study Intersections

FDOT	*I-295 from South of Town Center Parkway to North of Merrill Road Systems Interchange Modification Report*	*Area of Influence*
		Figure 2-1

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

2.4 Data Collection

The analysis conducted for this SIMR is based on a combination of data that includes recent data collection efforts and data available from FDOT Florida Traffic Online (FTO). The data collection effort conformed to the Project Traffic Forecasting Handbook (Chapter Two – Traffic Data Sources and Factors) and Procedure 525-030-120. Additional existing conditions data that was necessary to understand recent land use changes was completed for this project. This includes the following data identified in the MLOU.

- Transportation System Data
    - Roadway Characteristics Data
        - Roadway geometry information
        - Functional Classification
        - Number of lanes
        - Length of acceleration/deceleration lanes
        - Extent and amount of curvature along mainline I-295
        - Posted speed limits
    - Control Data
        - Signal timing data
        - Stop/Yield signs
        - Regulatory/Advisory speed limits
        - Guide sign locations
    - Origin/Destination data (Bluetooth)
        - The I-95 and I-295/SR 9A Bluetooth Data Analysis Report, dated January 2013 prepared by the Department. The report contained preliminary origin-destination (OD) information along the I-295 corridor with the area of influence. The report also contained travel time and speed data along the I-295 corridor.
- Existing and Historical Traffic Data
    - Existing 2020 daily vehicle counts and turning movement counts (TMCs) were scheduled to be conducted within the study area. However, due to the COVID-19 related lockdowns and consequently the significant reduction in traffic on the roadway network, the planned data collection effort had to be abandoned. In lieu of the 2020 data, the 2019 data from FTO in conjunction with validated and calibrated traffic volumes from the 2015 subarea

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

model were used to develop the Existing Year 2020 daily and AM and PM peak hour volumes.

  - Traffic growth owing to recent developments like IKEA and other commercial developments around SR 202.

- Land Use Data
  - Land use data was obtained from the Florida Geographic Data Library (FGDL).
- Environmental Data
  - Environmental data were produced using the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST). This project will be constructed within the existing right-of-way, so significant environmental impacts are not anticipated.
- Planned and Programmed Projects
  - The project area of influence also includes a portion of I-295 East Express Phase I project. I-295 East Express Phase I project limits are along I-295 from SR 202 to State Road 9B. This project is currently under construction and is expected to be completed in Fall 2021. I-295 East Express Phase I project, for the overlapping project limits in the northbound direction will widen I-295 from existing three-lanes section to five-lanes section from SR 202 to Town Center Parkway and widen Town Center Parkway off ramp to two-lanes. In the southbound direction this project will widen I-295 from existing three-lanes section to four-lanes from SR 202 to Town Center Parkway and add one express lane within the Town Center Parkway interchange. This project will also widen I-295 from existing three-lanes section to four -lanes section between Town Center Parkway and Beach Boulevard in both directions.

2.5 Design Traffic Factors

The factors used for design traffic analysis include the Standard K (K) factor, Directional (D) factor, T_{Daily} factor and Peak Hour Factor (PHF).

- The K factor is the proportion of the AADT estimated to occur during the design hours of the Opening Year and Design Year, depending upon the area type and facility type.
- The D factor is the proportion of the 30th highest hour of the design year traveling in the peak direction.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- The T_{Daily} factor is the adjusted, annual daily percentage of truck traffic. The Design Hour Truck (DHT) factor is the percentage of truck traffic during the peak hour and can be estimated as half of the T_{Daily} factor.
- The PHF is applied to convert hourly flow to peak 15-minute flow rate for capacity analysis.

The traffic factors used in this SIMR are presented in **Table 2-1** as obtained from the approved MLOU.

Table 2-1: Summary of Traffic Factors

Roadway	K	D	T_{24}	DHT	PHF	MOCF
I-295	8.0%	55.9%	10.2%	5.1%	0.95	0.98
Town Center Parkway	9.0%	55.9%	1.2%	0.6%	0.95	0.98
Beach Boulevard	9.0%	54.7%	1.4%	0.7%	0.95	0.98
St. Johns Bluff Road	9.0%	55.9%	1.2%	0.6%	0.95	0.98
Atlantic Boulevard	9.0%	55.9%	2.1%	1.6%	0.95	0.98
Monument Road	9.0%	55.9%	1.2%	0.6%	0.95	0.98
Merrill Road	9.0%	55.9%	2.6%	1.3%	0.95	0.98
SR 202 Northbound On-Ramp	8.0%	99.9%	6.0%	3.0%	0.95	0.98
SR 202 Southbound Off-Ramp	8.0%	99.9%	10.2%	5.1%	0.95	0.98

Source: 2020 FTO

2.6 Travel Demand Forecasting

2.6.1 Selected Travel Demand Model

The NERPMAB1v3 was used for the development of existing and future year daily and peak hour traffic projections within the study area. The NERPMAB1v3 model is based on the Florida Standard Urban Transportation Modeling Structure (FSUTMS) and is recognized by FDOT District Two, FHWA and the North Florida Transportation Planning Organization (TPO) as an acceptable travel demand forecasting tool. Regional model base year 2010 and horizon year 2040 were run and the subarea OD trip table matrix at a daily level and AM and PM peak period were extracted.

2.6.2 Project Traffic Forecast Development Methodology

The methodology used for travel demand forecasting and development of design hour traffic volumes is consistent with the FDOT Project Traffic Forecasting Handbook. The primary basis for traffic projections is the NERPMAB1v3, which has a Base Year of 2010 and a Horizon Year of 2040.

The traffic forecasting for this project was completed following the steps listed below:

Step 1 The NERPMAB1v3 Base Year 2010 daily model was used to first develop the 2015 and 2019 models for the study area. The year 2015 and year 2019 daily traffic counts available from FDOT FTO were compiled along the study area. These FDOT FTO traffic counts were used to calibrate model daily traffic

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

volume for 2015 and 2019 models at the subarea level by validating the volume to count ratio. Model calibration was conducted through the matrix estimation and manipulation methodology to project a traffic volume within an acceptable range as compared to collected traffic counts and traffic turning movement percentages.

First, traffic volumes of the 2015 subarea model were calibrated. The calibrated 2015 subarea daily OD matrix was then used to develop the 2019 subarea daily OD matrix and validated by comparing to 2019 traffic counts available from FDOT FTO. Since peak hour traffic counts were not collected for 2019, this study followed a methodology to produce 2019 AM and PM traffic by applying the daily growth rates between the subarea models for 2015 and 2019. Daily growth rates between calibrated subarea model for 2015 and 2019 were calculated and applied to grow the calibrated subarea 2015 AM and PM OD matrices to 2019 AM and PM trip tables. Model calibration/validation was performed through the OD matrix adjustments and thus the resulted traffic volumes on mainline and ramps were balanced through all subarea links. Annual growth rates, K factor and D factor were reviewed and adjusted for reasonableness check.

Step 2 - The traffic forecasting for year 2045 was based on the 2019 calibrated volumes developed in Step 1 and the NERPMAB1v3 model growth. Annual growth rates within subarea were calculated and applied to the 2019 calibrated trip tables to develop the year 2045 traffic. Future traffic volumes were estimated for both daily AADTs and AM/PM peak hour Directional Design Hourly Volumes (DDHVs). Growth rates were reviewed and adjusted to make sure of positive growth for all subarea segments.

The future year 2045 No-Build and Build projections were developed for this project. The Opening Year 2025 AADT values were calculated by interpolation between the existing and 2045 AADT volumes. Population projections and historic growth trends were obtained to check the reasonableness of the volumes. Future traffic projection methodology is discussed further in **Section 5** of this SIMR.

2.6.3 Validation Methodology

The NERPMAB1v3 Base Year 2010 daily model was adjusted to represent years 2015 and 2019. The models were calibrated using the FDOT FTO Year 2015 and 2019 count data. Peak hour volumes from the NERPMAB1v3 model were adjusted to represent the year 2015 and validated using the 2015 collected counts. Volume to count ratio, turning movement percentages and K and D factors were the validation criteria. Model updates to the travel demand models include modifications to the facility type and area type for links and modifications to socio-economic data.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

2.7 Measures of Effectiveness

FDOT Topic No. 525-000-006 provides level of service (LOS) targets for the State Highway System (SHS). The acceptable LOS target from this document for the area of influence is LOS "D" for the intersections, freeway and ramps. The following Measures of Effectiveness (MOEs) were used to evaluate the performance of the No-Build and Build Alternative considered and are reported as listed below:

- Mainline freeway segments – Density (pc/mi/ln), and LOS
- Freeway ramps (merge and diverge) – Density (pc/mi/ln), Volume/Capacity Ratio (V/C) and LOS
- Weaving segments – Density (pc/mi/ln) and LOS
- Intersections - Delay (sec/veh), LOS and 95th percentile queue length (feet)

2.8 Safety Analysis

A quantitative safety analysis based on the procedures in the Highway Safety Manual (HSM) was also performed as part of the SIMR. Crash data was obtained from the FDOT safety office for the most recent five-year period on the mainline, interchanges and major cross streets within the area of influence. The data collected included the number, type and location of crashes, the crash severity and estimates of property damage. Utilizing the information obtained from the crash data, the evaluation identified needs associated with the safety of the existing facility. The SIMR identified the source of the crash data, documented crash rates and compared to the statewide averages for similar corridors. It also provided tables and figures summarizing the analysis results. The following MOEs were used to evaluate the safety performance of the No-Build and Build Alternatives.

- Crash rate
- Crash frequency
- Predicted reduction in crashes

2.9 Analysis Procedures

AM and PM peak hour operations within the study area were assessed under existing, No- Build and Build conditions. Analysis of I-295 and the arterials, including the interchange ramps and the adjacent signalized intersections, were based on criteria and policies detailed in the FDOT Traffic Analysis Handbook, March 2014 Edition. The methods, tools and assumptions are described in this section.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Capacity analysis of the I-295 mainline, merge/diverge and ramp segments within the study area were conducted using the most recent version of the Highway Capacity Software (HCS) to determine densities, V/C and LOS. The HCS analysis was performed using the AM and PM peak hour volumes and the lane configuration for I-295 and the ramps.

The intersection analysis was conducted using the Synchro software (version 10). The delay, LOS and 95th percentile queues for intersections were reported based on Synchro methodology. The intersections within the study area are all signalized except for I-295 at St. Johns Bluff Road northbound off ramp and the analysis was performed using balanced turning movement volumes and intersection lane configuration for existing, No-Build and proposed Build Alternative. The PHFs used for the existing conditions analysis were based on count data and for future conditions, a PHF of 0.95 was used for AM and PM peak hour analysis.

For queuing analysis performed in this SIMR, the 95th percentile queue length in feet, along with any special notes from Synchro, have been reported along with the available storage. The available storage for the turn movements, measured from the stop bar to the taper, has been reported in tables for comparison with the queue length. At the off ramp terminal intersections, the queue length has been reported in tables along with the storage length for the left and right turn lanes. In addition to the available turn lane storage, the total ramp length, measured from stop bar to the gore point with the freeway, has been discussed in the document. Finally, if queues extend beyond the storage for off ramp movements, then the potential for queues to back up on the mainline has also been discussed.

2.10 Alternatives Considered

The following scenarios were considered for this project:

- Existing Year 2020 – AM and PM peak hours
- No-Build Alternative – Opening Year 2025 and Design Year 2045 – AM and PM peak hours
- Build Alternative – Opening Year 2025 and Design Year 2045 – AM and PM peak hours

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

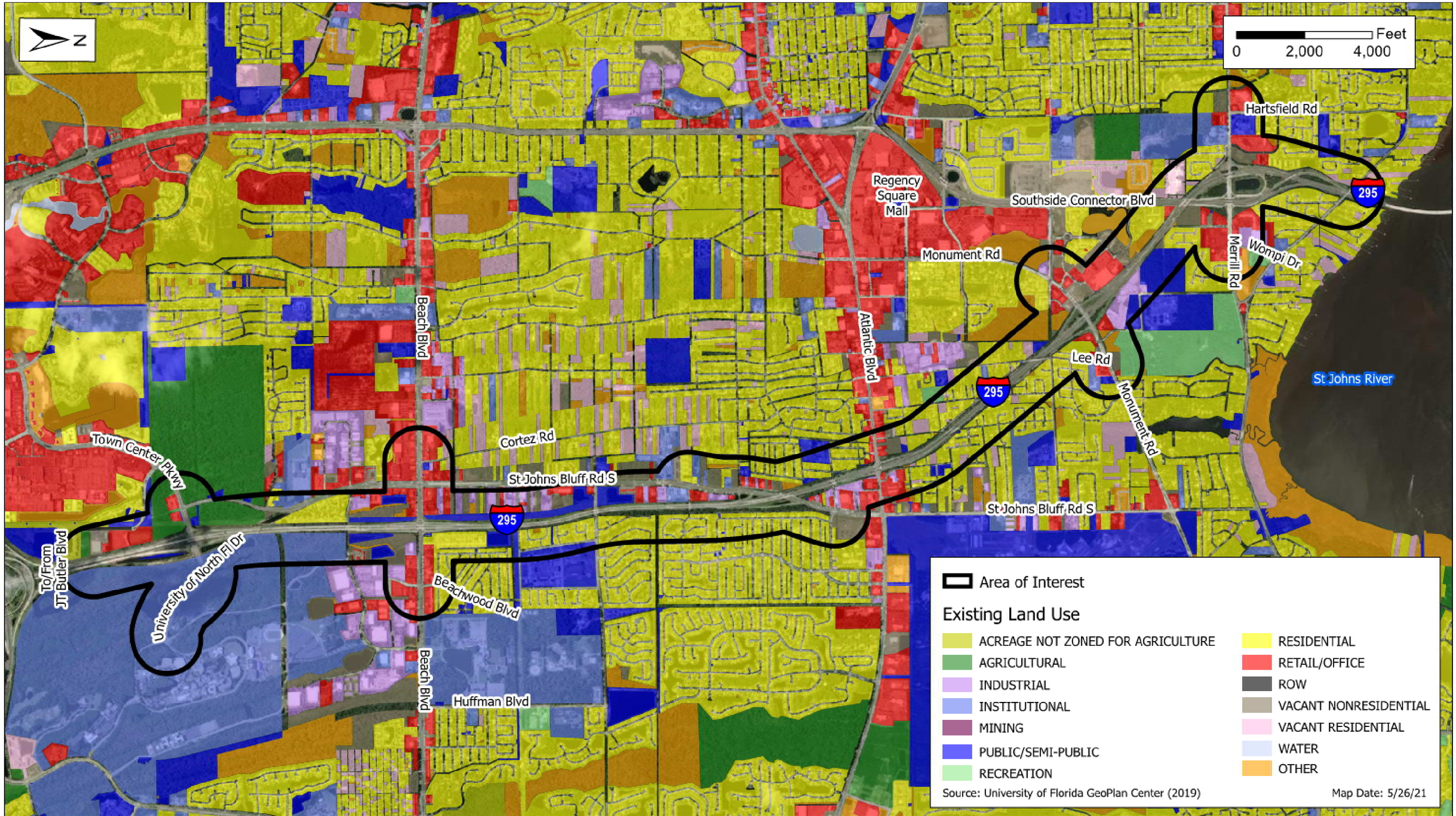
3. EXISTING CONDITIONS

The following section provides a brief discussion and evaluation of the existing conditions within the area of influence for the I-295 SIMR project. This discussion includes existing land use data, transportation systems data, existing traffic data and existing operating conditions.

3.1 Existing Land Use

The project study area is in the Jacksonville Metropolitan Statistical Area and within Duval County. The I-295 corridor from Town Center Parkway to Merrill Road is primarily a commuter corridor for traffic to and from residences in St. Johns County and southeast Duval County to employment centers located near the St. Johns Town Center region, the University of North Florida (UNF) and the Regency Square. **Figure 3-1** shows the major land use types along the study corridor of I-295.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D



FDOT

I-295 SIMR from Town Center Parkway to Merrill Road

Existing Land Use

Figure 3-1

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

3.2 Existing Transportation Network

3.2.1 Existing Roadway Network

Table 3-1 lists the functional classification, speed limit and number of lanes for the roadways within the area of influence.

Table 3-1: Functional Classification of Area Roadways

Roadway	Functional Classification[1]	Posted Speed Limit (mph)	Number of Lanes
I-295	11 – Urban Principal Arterial – Interstate	65	4
Town Center Parkway	17 – Urban Major Collector	45	4-6
Beach Boulevard	14 – Urban Principal Arterial - Other	45	6
St. Johns Bluff Road	16 – Urban Minor Arterial	45	4
Atlantic Boulevard	14 – Urban Principal Arterial -Other	45	6
Monument Road	16 – Urban Minor Arterial	45	4
Merrill Road	16 – Urban Minor Arterial	45	4
SR 202	12 – Urban Principal Arterial – Freeway and Expressway	65	8

[1]Source: Census 2010 Functional Classification and Urban Boundary based map for Duval County.

I-295 – I-295 within the study area is primarily a four-lane, north-south, limited-access facility with auxiliary lanes from SR 202 to Town Center Parkway and from Town Center Parkway to Beach Boulevard (two lanes in both northbound and southbound direction). The median width in this section of I-295 varies from 22 feet to 32 feet. I-295 forms service interchanges with Town Center Parkway, Beach Boulevard, St. Johns Bluff Road, Atlantic Boulevard, Monument Road and Merrill Road and a system-to-system interchange with SR 202.

SR 202 – SR 202 is primarily an eight-lane, east-west, limited-access expressway within the study area. SR 202 forms a system-to-system interchange with I-295.

Arterial corridor

There are six existing study interchanges within the project limits. **Figure 3-2** depicts the existing lane geometry and configuration.

Town Center Parkway – This corridor consists of six lanes west of I-295 (three lanes in each direction) and four lanes east of I-295 (two lanes in each direction). Within the study area, Town Center Parkway has a posted speed of 45 mph with three signalized intersections and a Single Point Urban Interchange (SPUI). Town Center Parkway is functionally classified as an Urban Major Collector.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Beach Boulevard – This corridor consists of six lanes, three lanes in each direction, with a posted speed of 45 mph, four signalized intersections and a SPUI. Beach Boulevard is functionally classified as an Urban Principal Arterial -Other.

St. Johns Bluff Road – This corridor consists of four lanes, two lanes in each direction, with a posted speed of 45 mph, three signalized intersections and a Partial Diamond Interchange. St. Johns Bluff Road is SR 202 is functionally classified as an Urban Minor Arterial.

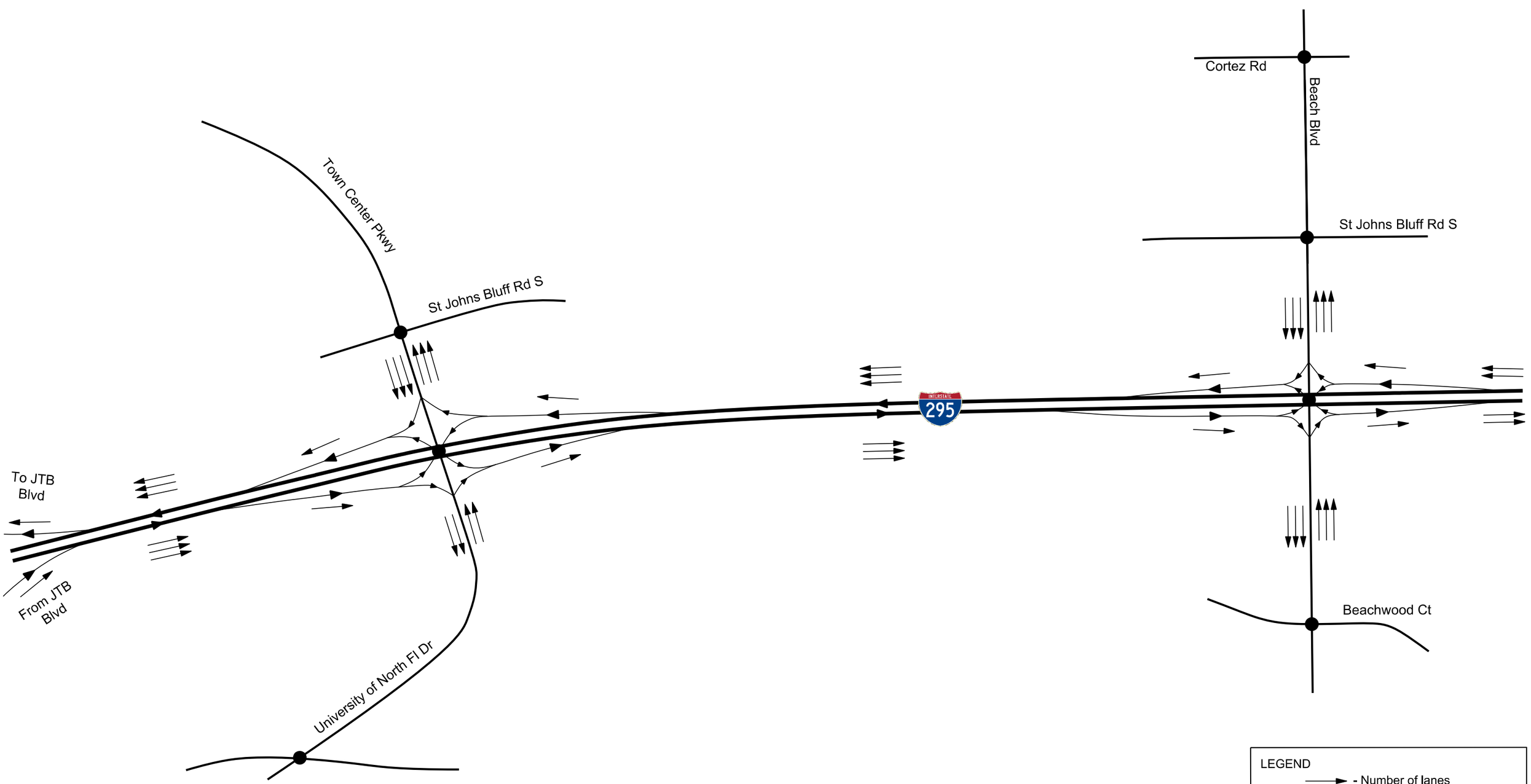
Atlantic Boulevard – This corridor consists of six lanes, three lanes in each direction, with a posted speed of 45 mph, one signalized intersection and a SPUI. Atlantic Boulevard is functionally classified as an Urban Principal Arterial-Other.

Monument Road – This corridor consists of four lanes, two lanes in each direction, with a posted speed of 45 mph, four signalized intersections and a Diamond Interchange. Monument Road is functionally classified as an Urban Minor Arterial.

Merrill Road – This corridor consists of four lanes, two lanes in each direction, with a posted speed of 45 mph, four signalized intersections and a Partial Diamond Interchange. Merrill Road is functionally classified as an Urban Minor Arterial.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

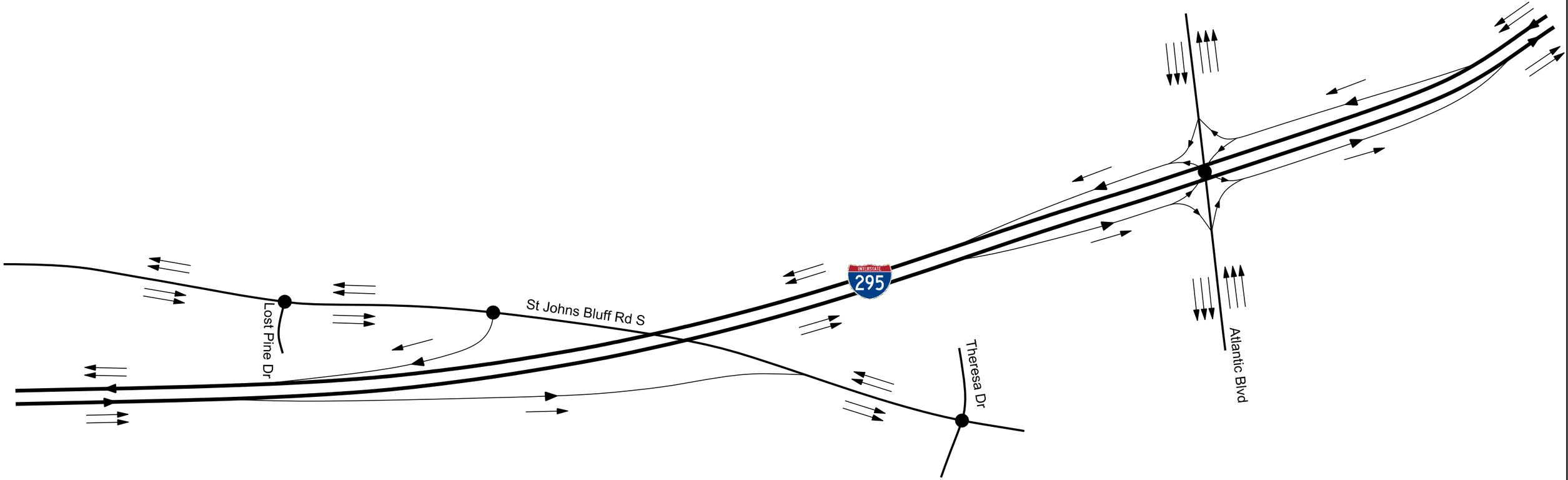
N.T.S



FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	Existing Year 2020 Lane Configuration	Figure 3-2 Sheet 1/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

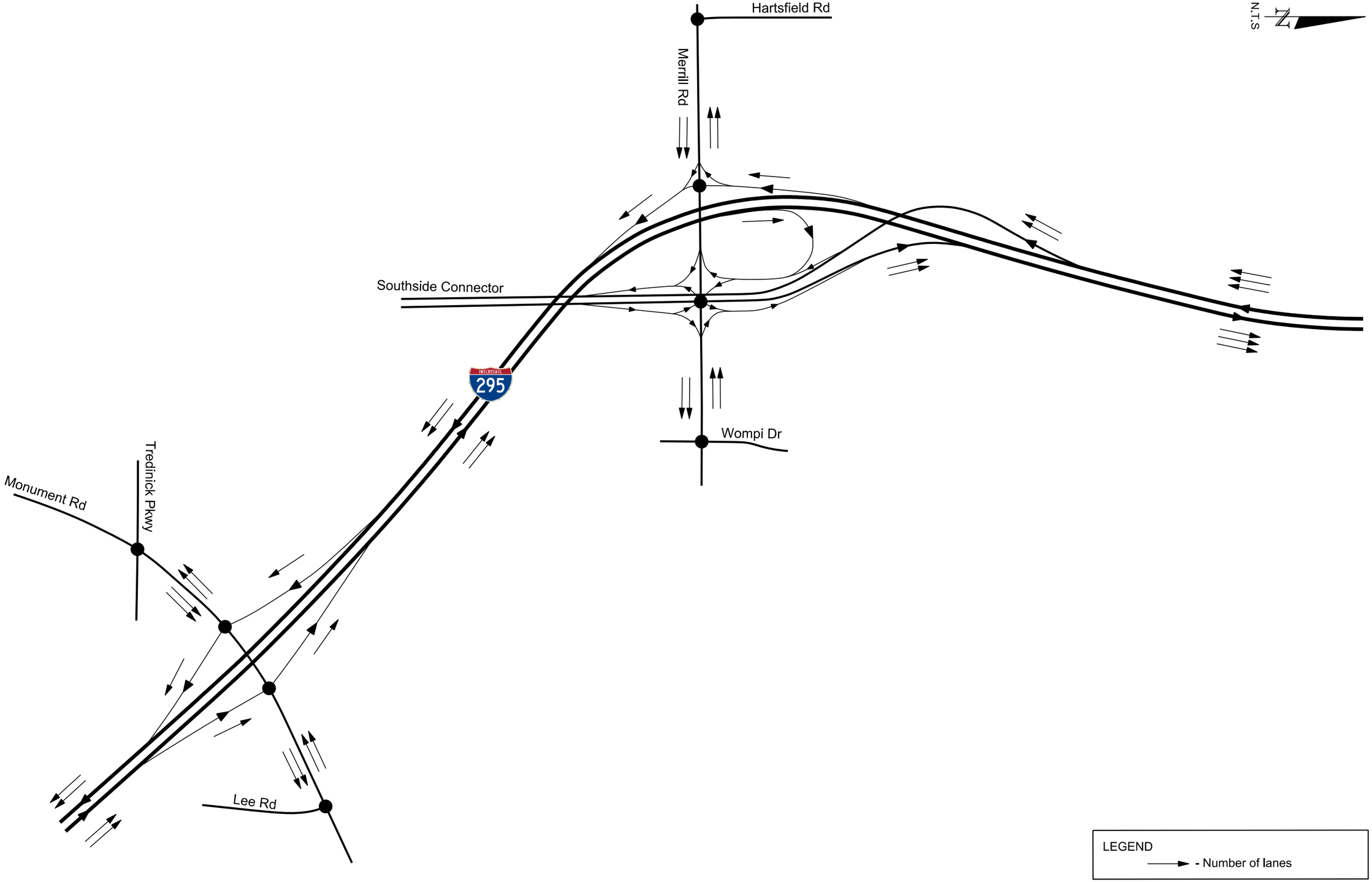
N.T.S



LEGEND
→ - Number of lanes

FDOT	*I-295 SIMR from Town Center Parkway to Merrill Road*	Existing Year 2020 Lane Configuration	Figure 3-2 Sheet 2/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D



I-295 SIMR from Town Center Parkway to Merrill Road

Existing Year 2020 Lane Configuration

Figure 3-2
Sheet 3/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

3.3 Alternative Travel Modes

The I-295 corridor is an urban limited-access facility, bicyclists and pedestrians are prohibited from using this facility. Jacksonville Transportation Authority (JTA) buses have a fixed route service that runs along I-295 between SR 202 and Town Center Parkway within the study area. JTA has bus services that serve the major arterials within the project limits along Town Center Parkway, Beach Boulevard, St. Johns Bluff Road and Atlantic Boulevard. No alternate travel mode is considered implementable enough to impact traffic and will not change in vehicle demand on I-295 within the study area.

3.4 Interchanges

The project area of influence includes six study interchanges along I-295. The adjacent interchange south of the project limit (I-295 at SR 202 system-system interchange) was included in the traffic operational analysis per the guidance provided in the FDOT's IARUG. **Table 3-2** provides the interchange locations, mileposts and descriptions. I-295 within the study area is a SIS facility.

Table 3-2: Interchange Data

Freeway/Limited Access Facility	Interchange	Description	Milepost	Interchange Spacing (miles)
I-295	SR 202	System-to-System	17.827	-
	Town Center Parkway	SPUI	16.708	1.1
	Beach Boulevard	SPUI	15.438	1.3
	St. Johns Bluff Road	Partial Diamond Interchange	13.394	2.0
	Atlantic Boulevard	SPUI	12.846	0.6
	Monument Road	Diamond Interchange	11.395	1.5
	Merrill Road	Partial Diamond Interchange	10.255	1.1

3.5 Existing Operational Performance

This section summarizes the existing traffic and operational analysis performed within the area of influence to assess the traffic and mobility conditions. This facility accommodates interstate and regional mobility for commuter and freight traffic.

3.5.1 Existing Traffic Data

The existing traffic volumes were developed for the entire study area by following the process below:

- Calibration of Year 2015 subarea OD trip tables: NERPM Subarea model was extracted for year 2015 and validated against the 2015 counts obtained from FTO.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- Development of 2019 daily and AM/PM peak traffic: The validated 2015 subarea daily OD matrix was then used to develop the 2019 subarea daily OD matrix and validated by comparing to 2019 traffic counts available from FDOT FTO. Since peak hour traffic counts were not collected for 2019, this study followed a methodology to produce 2019 AM and PM traffic by applying the daily growth rates between the subarea models for 2015 and 2019. 2019 subarea AM and PM peak OD matrices were estimated by applying the daily growth rates from year 2015 to 2019 and preserving the 2015 K and D factors. Annual growth rates, K and D factors were reviewed and adjusted during reasonableness check. The 2019 AM and PM peak traffic was further calibrated to the 2019 FTO AM and PM counts obtained from the synopsis report.

The 2019 volumes explained in the previous paragraph were used as the Existing Year 2020 volumes. This is because of the COVID-19 pandemic impact on traffic volumes and travel patterns in year 2020. The final Existing Year 2020 volumes used for the SIMR were checked for reasonableness and adjusted and balanced as needed.

Figure 3-3 illustrates the peak hour volumes and LOS results for Existing Year 2020.

3.5.2 I-295 Operational Analysis

The Highway Capacity Software (HCS) version 7 and Synchro 10 were used for operational analysis in this study. HCS is based on the Highway Capacity Manual (HCM), 6th Edition methodologies. Operational analyses were performed on freeway basic segments, ramp merge/diverge junctions, weaving sections, ramp terminals and intersections. HCS was used for the freeway basic segments, ramp merge/diverge junctions and weaving sections. Synchro was used for the evaluation of the study intersections.

This section presents the analysis results for the existing lane configuration under existing traffic conditions. An existing traffic operational analysis was conducted for the 2020 base condition for the freeway mainline and interchange ramps to determine the current conditions under which the freeway mainline is operating and the current operating conditions of the ramps entering and exiting the freeway.

The freeway, weaving and ramp junction analysis results for northbound and southbound directions are summarized in **Table 3-3**. HCS analyses reports can be found in **Appendix B**.

Mainline Analysis – Basic Segments

The results of the operational analysis show that all segments along I-295 operate at LOS D or better except the following segments (marked as red in **Table 3-3**):

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- I-295 NB from Beach Boulevard to St. Johns Bluff Road at LOS F (PM peak hour)
- I-295 NB from St. Johns Bluff Road to Atlantic Boulevard at LOS E (PM peak hour)
- I-295 NB from Atlantic Boulevard to Monument Road at LOS E (PM peak hour)
- I-295 SB from Beach Boulevard to St. Johns Bluff Road at LOS E or worse (AM and PM peak hours)
- I-295 SB from Atlantic Boulevard to Monument Road at LOS E (AM peak hour)

Ramp Analysis – Merge and Diverge Segments

The ramp analysis shows that the following merge and diverge segments will operate at an unacceptable LOS (marked as red in **Table 3-3**):

- I-295 NB On-Ramp from Beach Boulevard at LOS E (PM peak hour)
- I-295 NB Off-Ramp to St. Johns Bluff Road at LOS E (AM and PM peak hours)
- I-295 NB Off-Ramp to Atlantic Boulevard at LOS E (PM peak hour)
- I-295 NB Off-Ramp to Monument Road at LOS E (AM and PM peak hours)
- I-295 SB Off-Ramp to Beach Boulevard at LOS E or worse (AM and PM peak hours)
- I-295 SB On-Ramp from St. Johns Bluff Road at LOS E (AM peak hour)

Weaving Analysis – Weave Segments

The weaving analysis shows that the following two weave segments will operate at an unacceptable LOS (marked as red in **Table 3-3**):

- I-295 NB weave between SR 202 and Town Center Parkway at LOS F (PM peak hour)
- I-295 SB weave between SR 202 and Town Center Parkway at LOS F (AM and PM peak hours)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-3: Existing Year 2020 Freeway Analysis Results

Directions	Segments	Analysis Type	# of Lanes	AM Peak Hour			PM Peak Hour		
				Volume	Density*	LOS	Volume	Density*	LOS
I-295 Northbound	South of Town Center Parkway	Weave	3	4,340	30.7	D	4,870	-- **	F
	From Town Center Parkway to Beach Boulevard	Weave	3	3,920	25.9	C	4,670	33.1	D
	I-295 On-Ramp from Beach Boulevard	Merge	1	540	31.5	D	660	36.3	E
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	2	3,730	35	D	4,300	-- **	F
	I-295 Off-Ramp to St. Johns Bluff Road South	Diverge	1	340	37.3	E	510	42.7	E
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	2	3,390	30.1	D	3,790	35.8	E
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	590	31.7	D	520	35.6	E
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	690	25.7	C	730	30.1	D
	From Atlantic Boulevard to Monument Road	Basic Segment	2	3,490	31.4	D	4,000	39.5	E
	I-295 Off-Ramp to Monument Road	Diverge	1	570	35.7	E	810	40.5	E
	I-295 On-Ramp from Monument Road	Merge	1	400	31.7	D	420	34.2	D
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	2	3,320	29.1	D	3,610	33	D
	I-295 Off-Ramp to Merrill Road	Diverge	1	870	24.8	C	1,170	27.6	C
	I-295 On-Ramp from Southside Connector	Merge	2	1,220	26.8	C	1,600	29.7	D
	North of Merrill Road/Southside Connector	Basic Segment	3	3,670	20.4	C	4,040	22.6	C
I-295 Southbound	North of Merrill Road/Southside Connector	Basic Segment	3	4,050	22.7	C	3,910	21.9	C
	I-295 Off-Ramp to Southside Connector	Diverge	2	1,330	14.8	B	1,170	13.4	B
	From Merrill/Southside Connector Off-Ramp to Merrill Off-Ramp	Basic Segment	2	2,720	22.7	C	2,740	22.9	C
	I-295 Off-Ramp to Merrill Road	Diverge	1	320	28.5	D	480	28.7	D
	I-295 On-Ramp from Merrill Road	Merge	1	1,070	30.2	D	920	27.8	C
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	2	3,470	31.1	D	3,180	27.6	D
	I-295 Off-Ramp to Monument Road	Diverge	1	290	34.4	D	520	31.7	D
	I-295 On-Ramp from Monument Road	Merge	1	600	32	D	800	29.1	D
	From Atlantic Boulevard to Monument Road	Basic Segment	2	3,780	35.8	E	3,460	31.1	D
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	610	34.7	D	820	31.7	D
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	550	32.1	D	730	28.9	D
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	2	3,720	34.7	D	3,370	29.8	D
	I-295 On-Ramp from St. Johns Bluff Road South	Merge	1	620	36.6	E	500	32.6	D
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	2	4,340	-- **	F	3,870	37.3	E
	I-295 Off-Ramp to Beach Boulevard	Diverge	1	600	43.8	F	590	39.3	E
	From Town Center Parkway to Beach Boulevard	Weave	3	4,840	34.3	D	4,220	28.9	D
	South of Town Center Parkway	Weave	3	4,830	--**	F	4,550	-- **	F

*Density = passenger cars/mile/lane

**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Intersection Analysis

The Existing Year 2020 intersection analysis results are summarized in **Tables 3-4, 3-5, 3-6** and **3-7**. All study intersections are signalized (except I-295 northbound at St. Johns Bluff Road) and were analyzed using existing turning movement volumes, existing lane geometry, field signal timing and phasing plans for AM and PM peak hours. Traffic signal timing information were obtained from the City of Jacksonville Traffic Engineering Division for the study intersections. No signal optimization was performed when analyzing Existing Year 2020 conditions. Output Synchro reports, signal phasing and timing plans are provided in **Appendix B**.

Town Center Parkway

In Existing Year 2020, the results summarized in **Table 3-4** indicate several operational deficiencies along Town Center Parkway within the study area. Town Center Parkway at St. Johns Bluff Road S intersection operates at LOS F during the PM peak hour.

There are several individual movements at the study intersections along Town Center Parkway that operate at LOS F. These movements are listed below:

Town Center Parkway at St. Johns Bluff Road S

- EB left-turn lane (AM and PM peak hours)
- NB left-turn lane (PM peak hour)
- NB through lane (PM peak hour)
- SB left-turn lane (AM and PM peak hours)
- SB right-turn lane (AM and PM peak hours)

Town Center Parkway at I-295 Ramps

- EB left-turn lane (AM and PM peak hours)
- NB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Town Center Parkway. For the ramp terminal intersections at Town Center Parkway interchange, the I-295 northbound and southbound off-ramp lengths are approximately 2,000 feet long.

In the existing year, the existing storage accommodates the 95th Percentile queue at all intersection approaches along Town Center Parkway except the following (marked as red in **Table 3-4**):

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- EB left-turn lane at Town Center Parkway and St. Johns Bluff Road S (PM peak hour)
- EB left-turn lane at Town Center Parkway and I-295 Ramps (PM peak hour)
- EB right-turn lane at Town Center Parkway and I-295 Ramps (PM peak hour)

Table 3-4: Town Center Parkway - Existing Year 2020 Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Town Center Parkway & St. Johns Bluff Road S (Node 101)	Eastbound	Left	164.4 (1225.5)	F (F)	2/525'	#271' (#981')
		Through	12.7 (23.8)	B (C)	3/NA	215' (589')
		Right	0 (0)	A (A)	1/265'	0' (0')
	Westbound	Left	62.2 (59.7)	E (E)	1/250'	m16' (m12')
		Through	11.8 (11.7)	B (B)	3/600’	291' (m281')
		Right	2.1 (2.4)	A (A)	1/390'	25' (m206')
	Northbound	Left	78 (92)	E (F)	1/100'	34' (59')
		Through	0 (88.2)	A (F)	1/ NA	0' (37')
		Right	0.2 (0.3)	A (A)	1/100'	0' (0')
	Southbound	Left	95.2 (94.1)	F (F)	2/800'	#290' (#331')
		Through	64.7 (A)	E (A)	1/ NA	32' (0')
		Right	171 (105.3)	F (F)	1/800'	#669' (#576')
	Overall Intersection		***52.8 (219.7)***	***D (F)***	-	-
Town Center Parkway & I-295 (Node 102)	Eastbound	Left	144 (128.1)	F (F)	2/460'	m#305' (#467')
		Through	17.8 (18)	B (B)	3/ NA	m68' (m147')
		Right	9.9 (23.3)	A (C)	1/525'	m300' (678')
	Westbound	Left	37.4 (39.8)	D (D)	2/450'	60' (155')
		Through	18.3 (20.2)	B (C)	3/ NA	81' (50')
		Right	4.4 (4.7)	A (A)	1/525'	39' (37')
	Northbound	Left	31.4 (82.6)	C (F)	2/725'	194' (#396')
		Right	5.8 (6.6)	A (A)	1/725'	60' (55')
	Southbound	Left	22 (27.8)	C (C)	2/750'	42' (48')
		Right	13.2 (8.9)	B (A)	1/750'	161' (105')
	Overall Intersection		***32.0 (48.5)***	***C (D)***	-	-
University of North Florida Drive & Eco Road (Node 103)	Eastbound	Left	14.1 (13)	B (B)	1/2800’	110' (102')
		Through	21.5 (20.1)	C (C)	1/2800’	198' (155')
		Right	0.2 (0.4)	A (A)	1/250’	0' (0')
	Westbound	Left	13 (12)	B (B)	1/75'	42' (48')
		Through/ Right	23.3 (21.6)	C (C)	2/NA	102' (102')
	Northbound	Left	28.8 (27.7)	C (C)	1/320'	203' (170')
		Through/ Right	12.5 (11.7)	B (B)	1/NA	62' (62')
	Southbound	Left	21.3 (20.4)	C (C)	1/150'	15' (15')
		Through	43.1 (38.4)	D (D)	1/NA	55' (52')
		Right	2.1 (12.2)	A (B)	1/150'	0' (58')
	Overall Intersection		***17.3 (15.0)***	***B (B)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Beach Boulevard

In Existing Year 2020, the results summarized in **Table 3-5** indicate several operational deficiencies along Beach Boulevard within the study area. The following study intersections operate at LOS E or worse:

- Beach Boulevard at Cortez Road (PM peak hour)
- Beach Boulevard at St. Johns Bluff Road (AM and PM peak hours)

There are several individual movements at the study intersections along Beach Boulevard that operate at LOS F. These movements are listed below:

Beach Boulevard at Cortez Road

- EB left-turn lane (AM and PM peak hours)
- WB left-turn lane (AM and PM peak hours)
- WB through/right lane (PM peak hour)
- NB through/left lane (AM and PM peak hours)
- SB through/left lane (AM and PM peak hours)

Beach Boulevard at St. Johns Bluff Road

- EB left-turn lane (AM and PM peak hours)
- EB through lane (PM peak hour)
- WB left-turn lane (AM peak hour)
- NB left-turn lane (PM peak hour)
- NB through lane (PM peak hour)
- SB left-turn lane (AM and PM peak hours)

Beach Boulevard at I-295 Northbound/Southbound Ramps

- EB left-turn lane (PM peak hour)
- WB left-turn lane (AM and PM peak hours)
- NB left-turn lane (PM peak hour)

Beach Boulevard at Beachwood Court

- EB left-turn lane (PM peak hour)
- NB left-turn lane (AM and PM peak hours)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Beach Boulevard. For the ramp terminal intersections,

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

the length of the I-295 northbound off ramp is approximately 1,900 feet and southbound off ramp is approximately 1,400 feet.

In the existing year, the existing storage accommodates the 95th Percentile queue at all intersection approaches along Beach Boulevard except the following (marked as red in **Table 3-5**):

- WB through/right lane at Beach Boulevard and Cortez Road (AM and PM peak hours)
- EB left-turn lane at Beach Boulevard and St. Johns Bluff Road (PM peak hour)
- NB left-turn lane at Beach Boulevard and St. Johns Bluff Road (PM peak hour)
- EB left-turn lane at Beach Boulevard and Beachwood Court (PM peak hour)
- SB left-turn lane at Beach Boulevard and Beachwood Court (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-5: Beach Boulevard - Existing Year 2020 Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Beach Boulevard at Cortez Road (Node 201)	Eastbound	Left	82.4 (104.5)	F (F)	1/350'	70' (153')
		Through/ Right	11.3 (73.5)	B (E)	3/NA	599' (1350')
	Westbound	Left	85.2 (80.9)	F (F)	1/125'	102' (m112')
		Through/ Right	16.3 (87.9)	B (F)	3/700'	766' (m1004')
	Northbound	Through/ Left	91.2 (108.2)	F (F)	1/NA	93' (250')
		Right	1.4 (15.1)	A (B)	1/NA	0' (48')
	Southbound	Through/ Left	84 (91.1)	F (F)	1/NA	79' (128')
		Right	6.1 (8.6)	A (A)	1/350'	12' (26')
	Overall Intersection		***16.0 (79.7)***	***B (E)***	-	-
Beach Boulevard at St. Johns Bluff Road (Node 202)	Eastbound	Left	95.3 (97.5)	F (F)	2/430'	#297' (m#487')
		Through	43.7 (104.9)	D (F)	3/NA	605' (#1394')
		Right	14.9 (20)	B (B)	1/275'	251' (m243')
	Westbound	Left	84.7 (63.7)	F (E)	2/275'	#274' (184')
		Through	75.7 (38.6)	E (D)	3/1250'	#1005' (480')
		Right	15.6 (14.9)	B (B)	1/1250'	156' (194')
	Northbound	Left	76.4 (875.4)	E (F)	2/350'	196' (#570')
		Through	55.3 (84.7)	E (F)	2/NA	168' (406')
		Right	19.3 (20.8)	B (C)	1/275'	161' (212')
	Southbound	Left	84.1 (100.8)	F (F)	2/NA	#262' (231')
		Through	64.6 (71)	E (E)	2/NA	323' (214')
		Right	60.7 (72.5)	E (E)	1/NA	#470' (405')
	Overall Intersection		***60.0 (124.2)***	***E (F)***	-	-
Beach Boulevard at I-295 NB/SB Ramps (Node 203)	Eastbound	Left	79.3 (96.2)	E (F)	2/680'	108' (m124')
		Through	18.5 (18.2)	B (B)	3/NA	376' (m960')
		Right	3.1 (2.7)	A (A)	1/1250'	55' (m20')
	Westbound	Left	328.1 (168.6)	F (F)	2/600'	m#391' (#440')
		Through	25.3 (26.1)	C (C)	3/NA	m854' (433')
		Right	5.3 (5.8)	A (A)	1/680'	m127' (101')
	Northbound	Left	74.3 (88)	E (F)	2/550'	317' (432')
		Right	0.2 (0.5)	A (A)	1/350'	0' (0')
	Southbound	Left	67 (73.8)	E (E)	2/500'	262' (302')
		Right	0.2 (0.2)	A (A)	1/425'	0' (0')
	Overall Intersection		***45.0 (36.7)***	***D (D)***	-	-
Beach Boulevard at Beachwood Court (Node 204)	Eastbound	Left	46 (249.3)	D (F)	1/510'	#289' (#734')
		Through/ Right	28.2 (35.4)	C (D)	3/1500'	631' (1310')
	Westbound	Left	19.1 (38.9)	B (D)	1/200'	58' (67')
		Through/ Right	34.5 (23.0)	C (C)	3/NA	1054' (626')
	Northbound	Left	381.5 (140.6)	F (F)	1/400'	#203' (#306')
		Through	0 (0)	A (A)	1/NA	0' (0')
		Right	0.5 (0.7)	A (A)	1/400'	0' (0')
	Southbound	Left	61.4 (74.6)	E (E)	1/150'	138' (197')
		Through/ Right	64.9 (30.7)	E (C)	1/NA	313' (152')
	Overall Intersection		***38.8 (45.0)***	***D (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

St. Johns Bluff Road

In Existing Year 2020, the results summarized in **Table 3-6** indicate several operational deficiencies along St. Johns Bluff Road within the study area. St. Johns Bluff Road at Bahia Drive/Theresa Drive intersection operates at LOS E during the AM and PM peak hours.

There are several individual movements at the St. Johns Bluff Road and Bahia Drive/Theresa Drive intersection that operate at LOS F. These movements are listed below:

- WB through/left turn lane (AM peak hour)
- NB left-turn lane (AM and PM peak hours)
- NB through lane (PM peak hour)
- SB left-turn lane (AM and PM peak hours)
- SB through lane (AM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along St. Johns Bluff Road. For the ramp terminal intersections, the length of the I-295 northbound off ramp at St. Johns Bluff Road interchange is approximately 2,700 feet.

In the existing year, the existing storage accommodates the 95th Percentile queue at all intersection approaches along St. Johns Bluff Road except the following (marked as red in **Table 3-6**):

- EB left-turn lane at St. Johns Bluff Rd and Bahia Drive/ Theresa Drive (AM and PM peak hours)
- NB left-turn lane at St. Johns Bluff Rd and Bahia Drive/ Theresa Drive (AM peak hour)
- NB through lane at St. Johns Bluff Rd and Bahia Drive/ Theresa Drive (PM peak hour)
- NB right-turn lane at St. Johns Bluff Rd and Bahia Drive/ Theresa Drive (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-6: St. Johns Bluff Road - Existing Year 2020 Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
St. Johns Bluff Road at Lost Pine Drive (Node 301)	Westbound	Left	34.1 (38.6)	C (D)	1/NA	238' (135')
		Right	9.2 (9.1)	A (A)	1/100'	62' (36')
	Northbound	Through	16.7 (23.8)	B (C)	2/1850'	308' (#622')
		Right	2.6 (3.9)	A (A)	1/200'	28' (61')
	Southbound	Left	9.5 (28.2)	A (C)	1/285'	33' (#136')
		Through	15.7 (5.8)	B (A)	2/1850'	457' (167')
	Overall Intersection		***16.5 (17.1)***	***B (B)***	-	-
St. Johns Bluff Road at I-295 SB Ramp (Node 302)	Northbound	Through/ Right	16 (26.4)	B (C)	2/1500'	274' (#510')
	Southbound	Left	23.2 (24.3)	C (C)	2/700'	#249' (#204')
		Through	0.6 (0.3)	A (A)	2/1500'	0' (0')
	Overall Intersection		***9.2 (16.7)***	***A (B)***	-	-
St. Johns Bluff Road at Bahia Drive/ Theresa Drive (Node 304)	Eastbound	Left	43.4 (35.2)	D (D)	1/50'	99' (124')
		Through/ Right	14 (28.2)	B (C)	1/NA	105' (206')
	Westbound	Through/ Left	145 (50.7)	F (D)	1/NA	#615' (#243')
		Right	5.7 (5.6)	A (A)	1/235'	42' (50')
	Northbound	Left	281.6 (90)	F (F)	1/250'	#257' (#227')
		Through	37 (104.7)	D (F)	2/900'	572' (#1019')
		Right	11.4 (16)	B (B)	1/125'	75' (177')
	Southbound	Left	117.6 (93.4)	F (F)	1/360'	#261' (#219')
		Through	99.4 (39.8)	F (D)	2/NA	#1052' (#640')
		Right	7.9 (6)	A (A)	1/100'	51' (34')
	Overall Intersection		***79.4 (64.7)***	***E (E)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.

Atlantic Boulevard

In Existing Year 2020, the results summarized in **Table 3-7** indicate that the Atlantic Boulevard and I- 295 northbound/southbound ramps operate at acceptable LOS D or better during the AM and PM peak hours.

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Atlantic Boulevard. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Atlantic Boulevard interchange are approximately 1,200 feet and 1,300 feet long, respectively.

In the existing year, the existing storage accommodates the 95th Percentile queue at all study intersection approaches except the following (marked as red in **Table 3-7**):

- WB right-turn lane at Atlantic Boulevard and I- 295 Northbound/Southbound Ramps (AM and PM peak hours)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-7: Atlantic Boulevard - Existing Year 2020 Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Atlantic Boulevard at I-295 NB/SB Ramp (Node 401)	Eastbound	Left	52.2 (60.4)	D (E)	1/240'	93' (118')
		Through	26.1 (65.5)	C (E)	3/ NA	351' (#753')
		Right	0.4 (0.6)	A (A)	1/500'	0' (0')
	Westbound	Left	49.7 (77.1)	D (E)	1/330'	#167' (#284')
		Through	30.7 (21.8)	C (C)	3/NA	#622' (375')
		Right	9.1 (7.5)	A (A)	1/165'	199' (183')
	Northbound	Left	42.9 (40.5)	D (D)	2/650'	193' (174')
		Right	0.1 (0.1)	A (A)	1/650'	0' (0')
	Southbound	Left	52.9 (70.2)	D (E)	2/500'	#258' (#392')
		Right	0.1 (0.1)	A (A)	1/500'	0' (0')
	Overall Intersection		***28.4 (41)***	***C (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.

Monument Road

In Existing Year 2020, the results summarized in **Table 3-8** indicate several operational deficiencies along Monument Road within the study area. Monument Road at I-295 northbound ramps intersection operates at LOS E during the PM peak hour.

There are several individual movements at the study intersections along Monument Road that operate at LOS F. These movements are listed below:

Monument Road at Tredinick Parkway

- EB left-turn lane (PM peak hour)

Monument Road at I-295 Northbound Ramps

- WB through/right lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Monument Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Monument Road interchange are approximately 1,450 and 1,700 feet long, respectively.

In the existing year, the existing storage accommodates the 95th Percentile queue at all intersection approaches along Monument Road except the following (marked as red in **Table 3-8**):

- SB right-turn at Monument Road and I-295 Southbound Ramps (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- EB left-turn lane at Monument Road and I-295 Northbound Ramps (AM peak hour)
- NB right-turn lane at Monument Road and I-295 Northbound Ramps (PM peak hour)
- NB left-turn lane at Monument Road and Lee Road (AM and PM peak hours)

For the off ramps, the northbound right turn lane queues that extend beyond the storage length, do not back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-8: Monument Road - Existing Year 2020 Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Monument Road at Tredinick Parkway (Node 501)	Eastbound	Left	39.2 (89.2)	D (F)	2/ NA	248' (#451')
		Through	34.7 (40)	C (D)	1/ NA	71' (62')
		Right	7.9 (9.9)	A (A)	1/305’	58' (50')
	Westbound	Left	49.6 (54.6)	D (D)	1/350’	55' (68')
		Through	49.1 (53.9)	D (D)	1/ NA	66' (68')
		Right	16.1 (17.4)	B (B)	1/225’	60' (61')
	Northbound	Left	49.4 (48.3)	D (D)	1/335’	120' (220')
		Through	29.9 (34.1)	C (C)	2/NA	343' (426')
	Southbound	Left	48.7 (50.5)	D (D)	1/225’	139' (197')
		Through	29.1 (34.6)	C (C)	2/NA	351' (377')
		Right	1.1 (1.2)	A (A)	1/225’	22' (23')
	Overall Intersection		***25.9 (39.2)***	***C (D)***	-	-
Monument Road at I-295 SB Ramps (Node 502)	Eastbound	Through	23.3 (28.1)	C (C)	2/NA	371' (513')
		Right	3 (4)	A (A)	1/NA	44' (71')
	Westbound	Left	25.4 (59.1)	C (E)	1/365'	m147' (m207')
		Through	6.7 (3.5)	A (A)	2/750’	m172' (m73')
	Southbound	Left	40.9 (42.8)	D (D)	1/1700’	113' (177')
		Right	29.5 (61.4)	C (E)	1/150'	114' (#396')
	Overall Intersection		***15.9 (23.5)***	***B (C)***	-	-
Monument Road at I-295 NB Ramps (Node 503)	Eastbound	Left	25.9 (33.4)	C (C)	1/150'	m158' (m134')
		Through	0.5 (22.5)	A (C)	2/750’	2' (425')
	Westbound	Through/ Right	49.3 (107.3)	D (F)	2/NA	#640' (#904')
	Northbound	Left	55.6 (43.8)	E (D)	1/1450’	#316' (354')
		Right	22.1 (61.1)	C (E)	1/175'	150' (#521')
	Overall Intersection		***31.7 (64.4)***	***C (E)***	-	-
Monument Road at Lee Road (Node 504)	Eastbound	Through	21.1 (21.2)	C (C)	2/1100’	363' (551')
		Right	8.3 (2.6)	A (A)	1/450’	117' (m44')
	Westbound	Left	9.5 (18.3)	A (B)	2/330’	36' (33')
		Through	8.7 (8.5)	A (A)	2/NA	267' (273')
	Northbound	Left	47.5 (68.8)	D (E)	1/150’	221' (#353')
		Right	8.3 (9)	A (A)	1/NA	36' (49')
	Overall Intersection		***16.0 (18.4)***	***B (B)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

Merrill Road

In Existing Year 2020, the results summarized in **Table 3-9** indicate several operational deficiencies along Merrill Road within the study area. Merrill Road at Southside Connector intersection operates at LOS F during the AM peak hour and LOS E during the PM peak hour.

There are several individual movements at the intersections along Merrill Road that operate at LOS F. These movements are listed below:

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Merrill Road and I-295 Southbound Ramp

- SB right-turn lane (AM and PM peak hours)

Merrill Road and Southside Connector

- EB left-turn lane (AM peak hour)
- WB left-turn lane (AM peak hour)
- SB left-turn lane (AM peak hour)
- SB right-turn lane (PM peak hour)

Merrill Road and Wompi Drive

- EB left-turn lane (PM peak hour)
- NB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Merrill Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Merrill Road interchange are approximately 1,650 and 2,000 feet long, respectively.

In the existing year, the existing storage accommodates the 95th Percentile queue at all intersection approaches along Merrill Road except the following (marked as red in **Table 3-9**):

- SB left-turn lane at Merrill Road and Hartsfield Road (AM peak hour)
- SB right-turn lane at Merrill Road and I-295 Southbound Ramps (PM peak hour)
- SB right-turn lane at Merrill Road and Southside Connector (PM peak hour)
- EB through/right lane at Merrill Road and Wompi Drive (PM peak hour)
- NB left-turn lane at Merrill Road and Wompi Drive (PM peak hour)

For the off ramps, the southbound right turn lane queues that extend beyond the storage length, do not back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-9: Merrill Road - Existing Year 2020 Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Merrill Road at Hartsfield Road (Node 601)	Eastbound	Left	14.4 (32.2)	B (C)	1/200’	61' (#100')
		Through	14.5 (9.1)	B (A)	2/NA	407' (220')
	Westbound	Through	21.6 (34)	C (C)	2/1400’	342' (#810')
		Right	1.9 (4.2)	A (A)	1/1400’	42' (149')
	Southbound	Left	70.7 (57.3)	E (E)	2/350’	#367' (#321')
		Right	12.5 (26.5)	B (C)	1/460’	57' (129')
	Overall Intersection		***25.3 (25.9)***	***C (C)***	-	-
Merrill Road at I-295 SB Ramp (Node 602)	Eastbound	Through	10.5 (9.9)	B (A)	2/NA	338' (190')
		Right	6.5 (3)	A (A)	1/300'	210' (41')
	Westbound	Left	7.3 (5)	A (A)	1/325'	25' (31')
		Through	3.7 (11.4)	A (B)	2/1150’	141' (522')
	Southbound	Left	0 (0)	A (A)	1/375'	0' (0')
		Right	212.8 (359.1)	F (F)	1/400’	#411' (#736')
	Overall Intersection		***23.3 (48.6)***	***C (D)***	-	-
Merrill Road at Southside Connector (Node 603)	Eastbound	Left	96.1 (70.4)	F (E)	2/330'	#271' (#226')
		Through	16.7 (27)	B (C)	2/1100’	123' (96')
		Right	3.5 (5.1)	A (A)	1/600'	54' (60')
	Westbound	Left	419.5 (50.6)	F (D)	2/560'	#390' (191')
		Through	19.1 (27.4)	B (C)	2/NA	119' (240')
		Right	4.3 (5)	A (A)	1/600'	62' (74')
	Northbound	Left	34 (37.5)	C (D)	2/550'	132' (261')
		Right	11.9 (32)	B (C)	1/550'	127' (#506')
	Southbound	Left	88.5 (76.3)	F (E)	2/750’	#363' (#532')
		Right	47.1 (142.1)	D (F)	1/750'	#398' (#847')
	Overall Intersection		***84.2 (56.0)***	***F (E)***	-	-
Merrill Road at Wompi Drive (Node 604)	Eastbound	Left	53.1 (95.6)	D (F)	2/400’	44' (#140')
		Through/ Right	25.7 (36.6)	C (D)	2/900’	#814' (#1091')
	Westbound	Left	55.2 (60.5)	E (E)	1/335’	95' (103')
		Through	18.1 (18.6)	B (B)	2/NA	513' (535')
		Right	0.1 (0.1)	A (A)	1/385’	0' (0')
	Northbound	Left	40.3 (125.3)	D (F)	1/150’	62' (#240')
		Through/ Right	25.7 (25.3)	C (C)	1/NA	64' (74')
	Southbound	Left	36.9 (42)	D (D)	1/NA	61' (75')
		Through/ Right	20.9 (24.7)	C (C)	1/NA	74' (62')
	Overall Intersection		***23.5 (36.7)***	***C (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.

N.T.S

Cortez Rd

Beach Blvd

St Johns Bluff Rd S

Town Center Pkwy

Beachwood Ct

University of North Fl Dr

To JTB Blvd

From JTB Blvd

INTERSTATE 295

1,990 (2,070)

4,830 (4,550)

4,340 (4,870)

750 (1,290)

980 (1,030)

670 (1,090)

680 (760)

4,840 (4,220)

3,920 (4,670)

560 (830)

730 (1,030)

1,100 (940)

600 (590)

540 (660)

B (E): 35 (60), 2,380 (2,855), 30 (70); 40 (45), 6 (15), 30 (45); 40 (115), 5 (20), 20 (60); 50 (70), 2,770 (2,240), 30 (80)

E (F): 470 (300), 1,590 (2,210), 370 (450); 430 (370), 500 (270), 350 (260); 280 (490), 260 (510), 290 (380); 360 (270), 2,140 (1,530), 250 (330)

D (F): 10 (10), 810 (1,450), 260 (740); 480 (410), 10 (0), 350 (390); 10 (20), 0 (10), 10 (10); 10 (10), 1,240 (1,150), 330 (530)

C (D): 540 (690), 220 (460), 410 (700); 560 (650), 120 (110); 610 (820), 370 (210); 130 (400), 410 (220), 150 (130)

D (D): 690 (540), 1,410 (2,090), 130 (220); 200 (190), 400 (400); 480 (560), 250 (470); 410 (400), 2,070 (1,380), 410 (440)

B (B): 210 (370), 290 (220), 210 (190); 140 (230), 40 (40), 10 (10); 280 (240), 40 (40), 60 (70); 70 (80), 270 (280), 10 (10)

D (D): 110 (70), 1,800 (2,600), 150 (290); 280 (160), 10 (0), 90 (110); 70 (140), 0 (0), 40 (80); 80 (50), 2,540 (1,920), 110 (90)

LEGEND

XXXX (XXXX) - AM (PM) Peak Hour Volume

● - Signalized Intersection

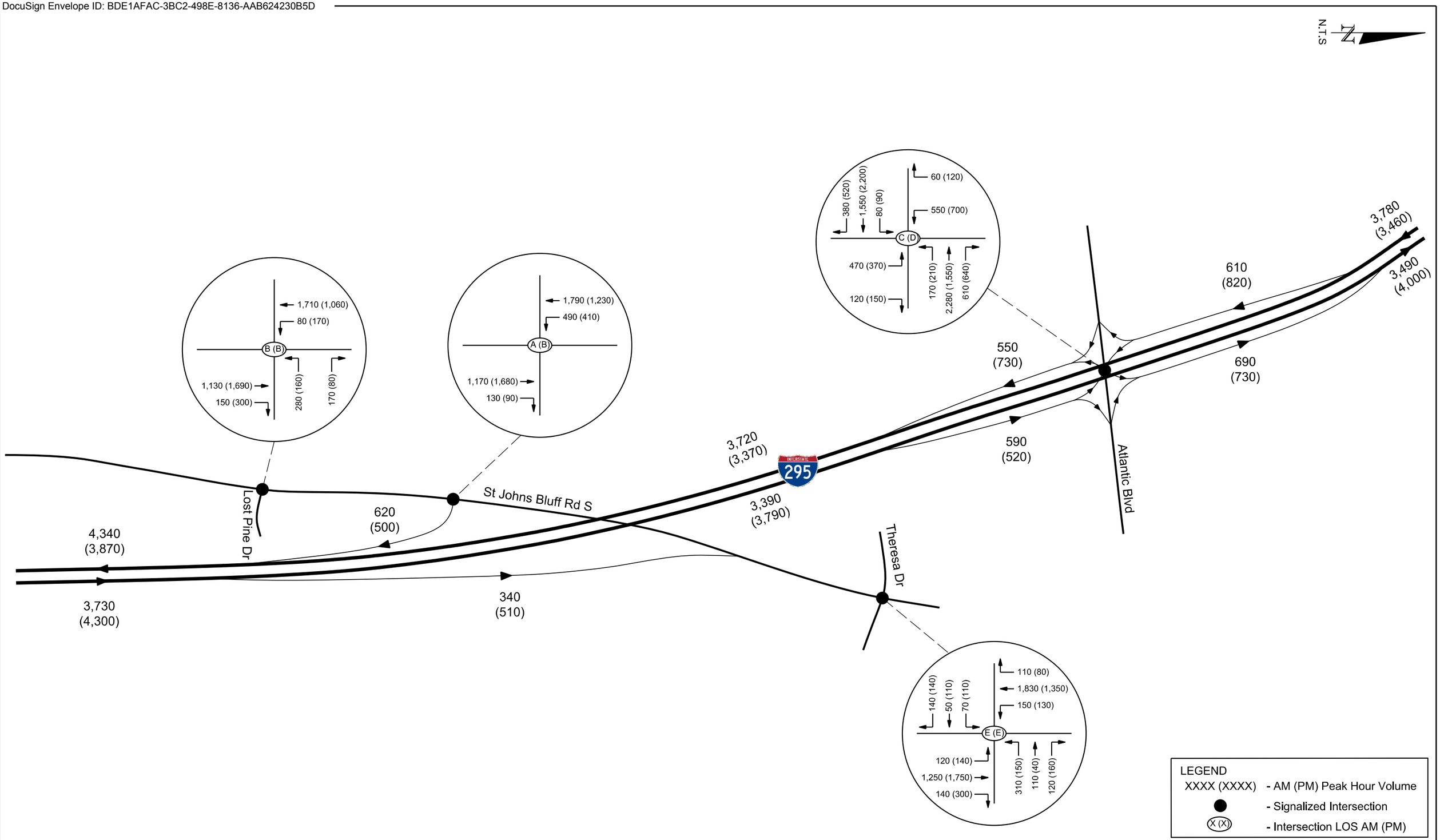
X (X) - Intersection LOS AM (PM)

I-295 SIMR from Town Center Parkway to Merrill Road

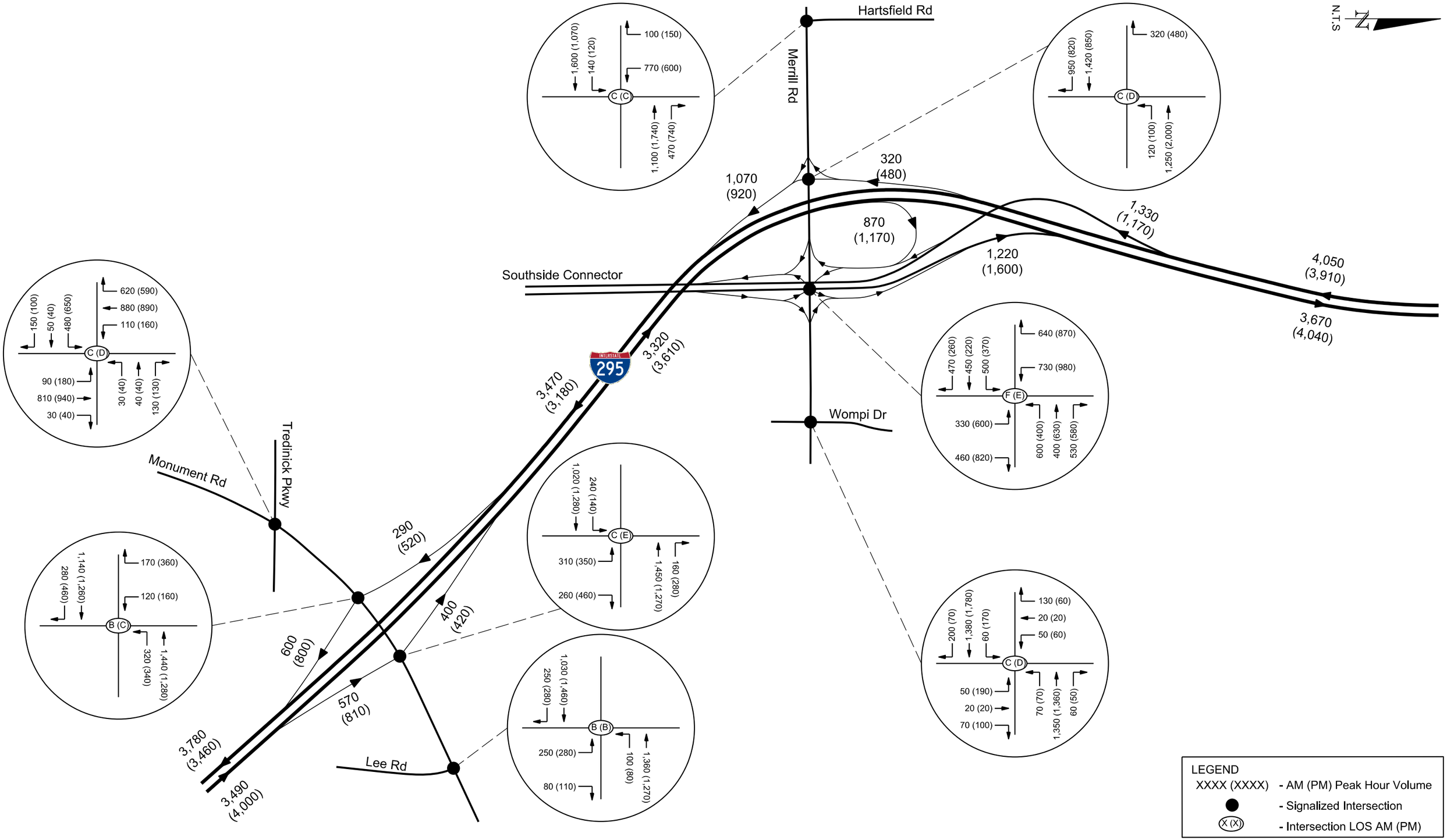
Existing Year 2020 Peak Hour Volumes and LOS
Mainline, Ramps and Intersections

Figure 3-3
Sheet 1/3

N.T.S



FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	Existing Year 2020 Peak Hour Volumes and LOS Mainline, Ramps and Intersections	Figure 3-3 Sheet 2/3



LEGEND

XXXX (XXXX) - AM (PM) Peak Hour Volume

● - Signalized Intersection

X (X) - Intersection LOS AM (PM)

FDOT	*I-295 SIMR from Town Center Parkway to Merrill Road*	Existing Year 2020 Peak Hour Volumes and LOS Mainline, Ramps and Intersections	Figure 3-3 Sheet 3/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

3.6 Crash and Safety Information

Vehicular crash data along I-295 mainline, study interchanges and cross streets within the area of influence were obtained from the FDOT State Safety Office Map Based Query Tool (SSOGis). SSOGis is a database maintained by FDOT for crashes reported along the SHS. The database provides information on various characteristics associated with each crash including collision type, severity, weather conditions, road surface conditions and date/time information. The crash data was collected for the most recent five years available (2014- 2018). The crashes were analyzed to assess safety conditions along I-295, study interchanges and signalized intersections within the project limits. The existing crash analysis performed for the SIMR is consistent with the methods outlined in the IARUG Safety Guidance. The raw crash data is provided in **Appendix C**. The following sections summarize the crash analysis performed.

3.6.1 I-295 Mainline

A safety analysis was conducted for I-295 between Town Center Parkway and Merrill Road. Over the five-year span (2014-2018), this area experienced a total of 1,457 crashes, of which 4 were fatal and 456 were severe injury crashes. Of these crashes, 69 percent (997 crashes) involved property damage. **Table 3-10** summarizes the crash data for the study area.

Table 3-10: Study Area Crash Data Summary – I-295

Injury Type	2014	2015	2016	2017	2018	Total	Percent of Total
Number of Property Damage Only Crashes	158	165	206	231	237	997	69%
Number of Crashes with Injuries	77	79	84	109	107	456	31%
Number of Crashes with Fatalities	2	1	0	0	1	4	0%
Total	***237***	***245***	***290***	***340***	***345***	***1457***	***100%***
Number of Injuries	114	117	122	162	161	676	
Number of Fatalities	2	1	0	0	1	4	

Crash types within the study area were evaluated to determine the most predominant crash type and its causes. **Table 3-11** summarizes all crash types observed within the study area. Each of these crash types have different manners of collision, of which front to rear (rear-end) crashes were most prominent manner of 56 percent (805). The high number of rear-end crashes can be attributed to the congestion and stop-and-go conditions experienced by the study area during the peak hours. Other (26 percent) and sideswipe crashes (14 percent) are the second and third most predominant crash types within the study

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

area. Sideswipe crashes are a result of lane changing near merge or diverge locations and in weave segments.

Table 3-11: Manner of Collision – I-295

Crash Type	Number of Crashes					Total	Percent of Total	Mean Crashes Per Year
	2014	2015	2016	2017	2018			
Front to Rear (Rear End)	110	132	166	197	200	805	56%	161
Front to Front	1	3	3	0	3	10	1%	2
Angle	9	11	15	5	9	49	3%	9.8
Sideswipe, same direction	35	28	41	53	53	210	14%	42
Sideswipe, opposite direction	0	0	1	0	0	1	0%	0.2
Rear to Side	0	0	0	0	0	0	0%	0
Rear to Rear	1	1	0	0	0	2	0%	0.4
Other	80	70	62	83	80	375	26%	75
Unknown	1	0	2	2	0	5	0%	1
Total Crashes	***237***	***245***	***290***	***340***	***345***	***1457***	***100%***	***291.4***

3.6.2 Crash Frequencies and Rates

I-295 mainline between Town Center Parkway and Merrill Road was divided into 11 segments as presented in **Table 3-12**. The crossroads were divided into signalized intersections and segments between each signalized intersection. This was done to further analyze the crash frequencies and rates at different segments along I-295 and crossroads within the project limits to provide a better understanding of the existing crash patterns. **Table 3-13** provides the existing crash frequencies and rates along the different segments.

After segmenting I-295 and crossroads, the crash frequency and crash rates were calculated for each segment. The 'Average Crash Rate Method' of crash analysis, based on segment length, AADT and number of crashes occurred, was used for calculating the actual crash rate for the roadway segments and the study intersections. The actual crash rate for the study corridors from year 2014 to 2018 was compared with the statewide average crash rate for the same type of facility. Based on the analysis presented in **Table 3-13**, the following signalized intersections have higher actual crash rates compared to the statewide average crash rates:

- Monument Road at I-295 Northbound Ramps
- Merrill Road at I-295 Southbound Ramps
- Merrill Road at SR 113 (Southside Connector)/I-295 Northbound Ramps

Thus, these intersections are considered a high crash location for the years 2014 to 2018.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-12: Roadway Segmentation for Crash Analysis

Segment #	Description	Segment #	Description
1	I-295 from SR 202 to Town Center Parkway	28	St. Johns Bluff Road from Lost Pine Drive to I-295 SB Ramp Terminal
2	I-295 between Town Center Parkway Ramps	29	I-295 SB Ramp Terminal at St. Johns Bluff Road
3	I-295 from Town Center Parkway to Beach Boulevard	30	St. Johns Bluff Road from I-295 Ramp Terminals
4	I-295 between Beach Boulevard Ramps	31	I-295 NB Ramp Terminal at St. Johns Bluff Road
5	I-295 between Beach Boulevard and St. Johns Bluff Road	32	St. Johns Bluff Road from I-295 NB Ramp Terminal to Theresa Drive
6	I-295 from St. Johns Bluff Road to Atlantic Boulevard	33	St. Johns Bluff Road at Theresa Drive
7	I-295 between Atlantic Boulevard Ramps	34	Atlantic Boulevard at Brookview Drive
8	I-295 from Atlantic Boulevard to Monument Road	35	I-295 at Atlantic Boulevard Ramp Terminal
9	I-295 between Monument Road Ramps	36	Atlantic Boulevard from I-295 to St. Johns Bluff Road
10	I-295 from Monument Road to Merrill Road	37	Atlantic Boulevard at St. Johns Bluff Road
11	I-295 between Merrill Ramps	38	Monument Road at Tredinick Parkway
18	Town Center Parkway at St. Johns Bluff Road	39	Monument Road from Tredinick to I-295
19	I-295 at Town Center Parkway Ramp Terminal	40	I-295 SB Ramp Terminal at Monument Road
20	University of North Florida Drive from I-295 to ECO Road	41	I-295 NB Ramp Terminal at Monument Road
21	University of North Florida Drive at ECO Road	42	Monument Road from I-295 to Lee Road
22	Beach Boulevard at Cortez Road	43	Monument Road at Lee Road
23	Beach Boulevard at St. Johns Bluff Road	44	Merrill Road at Hartsfield Road
24	I-295 at Beach Boulevard Ramp Terminal	45	Merrill Road from Hartsfield Road to I-295
25	Beach Boulevard from I-295 to Beachwood Court	46	I-295 SB Ramp Terminal at Merrill Road
26	Beach Boulevard at Beachwood Court	47	I-295 NB Ramp Terminal/Southside Connector at Merrill Road
27	St. Johns Bluff Road at Lost Pine Drive	48	Merrill Road from I-295 to Wompi Drive
28	St. Johns Bluff Road from Lost Pine Drive to I-295 SB Ramp Terminal	49	Merrill Road at Wompi Drive

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-13: Existing Crash Frequencies and Rates

Category	Segment	Number of Crashes	Crash Frequency (crashes/year) *	Crash Rate*	Statewide Crash Rate	High Crash Location
I-295	I-295 from JTB to Town Center Parkway	54	10.8	0.162	0.993	No
	I-295 between Town Center Parkway Ramps	213	42.6	0.369	0.993	No
	I-295 from Town Center Parkway to Beach Boulevard	40	8	0.079	0.993	No
	I-295 between Beach Boulevard Ramps	176	35.2	0.332	0.993	No
	I-295 between Beach Boulevard and St. Johns Bluff Road	151	30.2	0.134	0.993	No
	I-295 from St. Johns Bluff Road to Atlantic Boulevard	160	32	0.288	0.993	No
	I-295 between Atlantic Boulevard Ramps	122	24.4	0.298	0.993	No
	I-295 from Atlantic Boulevard to Monument Road	76	15.2	0.120	0.993	No
	I-295 between Monument Road Ramps	198	39.6	0.450	0.993	No
	I-295 from Monument Road to Merrill Road	163	32.6	0.302	0.993	No
	I-295 between Merrill Ramps	104	20.8	0.161	0.993	No
Town Center Parkway/University of North Florida Drive	Town Center Parkway at St. Johns Bluff Road	86	17.2	0.154	0.925	No
	I-295 at Town Center Parkway Ramp Terminal	160	32	0.385	0.925	No
	University of North Florida Drive from I-295 to ECO Road	8	1.6	0.051	7.058	No
	University of North Florida Drive at ECO Road	11	2.2	0.027	0.835	No
Beach Boulevard	Beach Boulevard at Cortez Road	134	26.8	0.264	0.925	No
	Beach Boulevard at St. Johns Bluff Road	320	64	0.627	0.925	No
	I-295 at Beach Boulevard Ramp Terminal	186	37.2	0.547	0.925	No
	Beach Boulevard from I-295 to Beachwood Court	35	7	0.439	4.903	No
	Beach Boulevard at Beachwood Court	164	32.8	0.305	0.925	No

*Intersection: crashes per million entering vehicles; Segment: crashes per million vehicle miles traveled.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-13: Existing Crash Frequencies and Rates (Continued)

Category	Segment	Number of Crashes	Crash Frequency (crashes/year) *	Crash Rate*	Statewide Crash Rate	High Crash Location
St. Johns Bluff Road	St. Johns Bluff Road at Lost Pine Drive	9	1.8	0.035	0.682	No
	St. Johns Bluff Road from Lost Pine Drive to I-295 SB Ramp Terminal	14	2.8	0.221	3.786	No
	I-295 SB Ramp Terminal at St. Johns Bluff Road	17	3.4	0.066	0.579	No
	St. Johns Bluff Road between I-295 Ramp Terminals	1	0.2	0.019	3.786	No
	I-295 NB Ramp Terminal at St. Johns Bluff Road	21	4.2	0.079	0.579	No
	St. Johns Bluff Road from I-295 NB Ramp Terminal to Theresa Dr.	4	0.8	0.189	3.786	No
	St. Johns Bluff Road at Theresa Drive	27	5.4	0.092	0.621	No
Atlantic Boulevard	Atlantic Boulevard at Brookview Drive	164	32.8	0.339	0.727	No
	I-295 at Atlantic Boulevard Ramp Terminal	192	38.4	0.580	0.925	No
	Atlantic Boulevard from I-295 to St. Johns Bluff Road	31	6.2	0.602	4.903	No
	Atlantic Boulevard at St. Johns Bluff Road	223	44.6	0.407	0.925	No
Monument Road	Monument Road at Tredinick Parkway	70	14	0.153	0.649	No
	Monument Road from Tredinick Parkway to I-295	7	1.4	0.189	3.786	No
	I-295 SB Ramp Terminal at Monument Road	118	23.6	0.398	0.431	No
	I-295 NB Ramp Terminal at Monument Road	190	38	0.612	0.431	Yes
	Monument Road from I-295 to Lee Road	13	2.6	0.350	3.786	No
	Monument Road at Lee Road	38	7.6	0.132	0.431	No
Merrill Road	Merrill Road at Hartsfield Road	81	16.2	0.362	0.579	No
	Merrill Road from Hartsfield Road to I-295	29	5.8	1.071	6.110	No
	I-295 SB Ramp Terminal at Merrill Road	144	28.8	0.732	0.431	Yes
	I-295 NB Ramp Terminal/Southside Connector at Merrill Road	232	46.4	0.771	0.649	Yes
	Merrill Road from I-295 to Wompi Drive	14	2.8	0.651	3.786	No
	Merrill Road at Wompi Drive	48	9.6	0.225	0.649	No

*Intersection: crashes per million entering vehicles; Segment: crashes per million vehicle miles traveled.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

3.6.3 I-295 Segments

I-295 within the study area was divided into 11 segments as presented in **Table 3-12.** The findings and observations from this analysis are presented below.

I-295 from SR 202 to the Town Center Parkway

The segment between SR 202 and the Town Center Parkway on-ramp experienced 54 crashes in five years. Rear-end and sideswipe crashes are the most predominant crash types, indicating stop-and-go conditions and lane changing crash patterns.

No fatalities occurred on this segment. The actual average crash rate for the I-295 mainline segment from SR 202 to the Town Center Parkway on-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 between the Town Center Parkway on-ramp and off-ramp

The segment between the Town Center Parkway on-ramp and off-ramp experienced 213 crashes in five years. The predominant crash type is rear-end crashes, indicating stop-and-go operations.

One fatal crash occurred within this segment and was attributed to careless driving (see **Figure 3-3**). The actual average crash rate for the I-295 mainline segment between Town Center Parkway on-ramp and off-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 from the Town Center Parkway off-ramp to Beach Boulevard off-ramp

The segment between the Town Center Parkway off-ramp and Beach Boulevard off-ramp experienced 40 crashes in five years. The most predominant type of crashes in this location are rear-end crashes, Other crashes and sideswipe crashes, which indicates stop-and go conditions and high-speed differentials.

I-295 between the Beach Boulevard off-ramp and on-ramp

The segment between the Beach Boulevard off-ramp and on-ramp experienced 176 crashes in five years. The predominant crash type is rear-end crashes, indicating stop-and-go operations.

One fatal crash occurred within this segment was attributed to failure to yield right-of-way (see **Figure 3-3**). The actual average crash rate for the I-295 mainline segment from Town Center Parkway off-ramp to

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Beach Boulevard off-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 between Beach Boulevard on-ramp and St. Johns Bluff Road off-ramp

The segment between Beach Boulevard on-ramp and St. Johns Bluff Road off-ramp experienced 151 crashes in five years. The most predominant type of crashes in this location are rear-end crashes, Other crashes and sideswipe crashes, which indicates stop-and go conditions and high-speed differentials.

Two fatal crashes occurred within the segment; one involved a single vehicle crash and was attributed to careless driving and the other involved an angle crash and was attributed to failure to yield right-of-way (see **Figure 3-3**). The actual average crash rate for the I-295 mainline segment from Beach Boulevard on-ramp to St. Johns Bluff Road off-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 between St. Johns Bluff Road off-ramp and Atlantic Boulevard off-ramp

The segment between the St. Johns Bluff Road off-ramp and Atlantic Boulevard off-ramp experienced 160 crashes in five years. The most predominant type of crashes in this location are rear-end crashes, Other crashes and sideswipe crashes, which indicates stop-and go conditions and high-speed differentials.

No fatalities occurred on this segment. The actual average crash rate for the I-295 mainline segment from St. Johns Bluff Road off-ramp to Atlantic Boulevard off-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 between Atlantic Boulevard off-ramp and on-ramp

The segment of I-295 between the Atlantic Boulevard off-ramp and on-ramp experienced 122 crashes in five years. The predominant crash type is rear-end crashes, indicating stop-and-go operations.

No fatalities occurred on this segment. The actual average crash rate for the I-295 mainline segment between Atlantic Boulevard off-ramp and on-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

I-295 between Atlantic Boulevard on-ramp and Monument Road off-ramp

The segment between the Atlantic Boulevard on-ramp and Monument Road off-ramp experienced 76 crashes in five years. The most predominant type of crashes in this location are rear-end crashes, Other crashes and sideswipe crashes, which indicates stop-and go conditions and high-speed differentials.

No fatalities occurred on this segment. The actual average crash rate for the I-295 mainline segment from Atlantic Boulevard on-ramp to Monument Road off-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 between Monument Road off-ramp and on-ramp

The segment between the Monument Road off-ramp and on-ramp experienced 198 crashes in five years. The predominant crash type is rear-end crashes, indicating stop-and-go operations.

No fatalities occurred on this segment. The actual average crash rate for the I-295 mainline segment between Monument Road off-ramp and on-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 between Monument Road on-ramp and Merrill Road off-ramp

The segment between the Monument Road on-ramp and Merrill Road off-ramp experienced with 163 crashes in five years. The most predominant type of crashes in this location are rear-end crashes, Other crashes and sideswipe crashes, which indicates stop-and go conditions and high-speed differentials.

No fatalities occurred on this segment. The actual average crash rate for the I-295 mainline segment from Monument Road on-ramp to Merrill Road off-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

I-295 between Merrill Road off-ramp and on-ramp

The segment between the Merrill Road off-ramp and on-ramp experienced 104 crashes in five years. The predominant crash type is rear-end crashes, indicating stop-and-go operations.

No fatalities occurred on this segment. The actual average crash rate for the I-295 mainline segment between Merrill Road off-ramp and on-ramp is lower than the statewide average crash rate for the years 2014-2018 indicating that this segment is not a high crash location (**Table 3-13**).

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

3.6.4 I-295 Ramps

A safety analysis was conducted for the I-295 ramps between Town Center Parkway and Merrill Road. Over the five-year span (2014-2018), this area experienced a total of 317 crashes, of which 1 was fatal and 94 were severe injury crashes. Of these crashes, 70 percent (222 crashes) involved property damage. **Table 3-14** summarizes the crash data for the study area.

Table 3-14: Study Area Crash Data Summary – I-295 Ramp

Injury Type	2014	2015	2016	2017	2018	Total	Percent of Total
Number of Property Damage Only Crashes	50	46	41	47	38	222	70%
Number of Crashes with Injuries	12	26	13	23	20	94	30%
Number of Crashes with Fatalities	0	1	0	0	0	1	0%
Total	***62***	***73***	***54***	***70***	***58***	***317***	***100%***
Number of Injuries	18	34	18	43	27	140	
Number of Fatalities	0	3	0	0	0	3	

Crash types within the study area were evaluated to determine the most predominant crash type and its causes. **Table 3-15** summarizes all crash types observed within the study area. Each of these crash types have different manners of collision, of which front to rear (rear-end) crashes were most prominent manner of 65 percent (204). The high number of rear-end crashes can be attributed to the congestion and stop-and-go conditions experienced by the study area during the peak hours. Other (24 percent) and sideswipe crashes (7 percent) are the second and third most predominant crash types within the study area. Sideswipe crashes are a result of lane changing near merge or diverge locations and in weave segments.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 3-15: Manner of Collision – I-295 Ramps

Crash Type	Number of Crashes					Total	Percent of Total	Mean Crashes Per Year
	2014	2015	2016	2017	2018			
Front to Rear (Rear End)	41	47	35	45	36	204	65%	40.8
Front to Front	0	0	0	1	1	2	1%	0.4
Angle	2	4	0	1	4	11	3%	2.2
Sideswipe, same direction	6	4	4	3	4	21	7%	4.2
Sideswipe, opposite direction	0	1	0	0	0	1	0%	0.2
Rear to Side	0	0	0	0	0	0	0%	0
Rear to Rear	1	0	0	0	0	1	0%	0.2
Other	12	16	15	20	13	76	24%	15.2
Unknown	1	0	0	0	0	1	0%	0.2
Total Crashes	***63***	***72***	***54***	***70***	***58***	***317***	***100%***	***63.4***

3.6.5 Town Center Parkway

The crash analysis results reveal that there was a total of 265 crashes on Town Center Parkway within the study area during the five study years (2014-2018). Of these 265 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 193 (73 percent) of total crashes followed by 23 angle crashes accounting for (9 percent) and 23 other crashes (single vehicle 9 percent).

No fatalities occurred within the study limits during the five-year period. Property Damage Only (PDO) crashes accounted for 193 (73 percent) of all crashes; 72 crashes resulted in Injury. Among the contributing causes documented in the crash data, “carelessness of negligent manner” (172 crashes), resulted in the most crashes. Other contributing causes included “failed to yield right-of-way” (12 crashes), “followed too closely” (12 crashes), “failed to keep in proper lane (5 crashes), “ran red light” (3 crashes). A significant number of crashes were documented to have been the result of “no contributing action” (26 crashes) and “other contributing action” (8 crashes). **Table 3-13** shows the crash summary along Town Center Parkway within the study area.

3.6.6 Beach Boulevard

The crash analysis results reveal that there was a total of 839 crashes on Beach Boulevard within the study area during the five study years (2014-2018). Of these 839 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 529 (63 percent) of total crashes followed by 123 angle crashes accounting for (15 percent) and 76 other crashes (single vehicle 9 percent).

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

A total of 6 fatal crashes occurred within the study limits during the five-year period. Property Damage Only (PDO) crashes accounted for 529 (63 percent) of all crashes; 304 crashes resulted in Injury. Among the contributing causes documented in the crash data, "carelessness of negligent manner" (152 crashes), resulted in the most crashes. Other contributing causes included "failed to yield right-of-way" (31 crashes), "followed too closely" (11 crashes), "failed to keep in proper lane (3 crashes), "ran red light" (17 crashes). A significant number of crashes were documented to have been the result of "no contributing action" (33 crashes) and "other contributing action" (12 crashes). **Table 3-13** shows the crash summary along Beach Boulevard within the study area.

3.6.7 St. Johns Bluff Road

The crash analysis results reveal that there was a total of 93 crashes on St. Johns Bluff Road within the study area during the five study years (2014-2018). Of these 93 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 28 (30 percent) of total crashes followed by 27 other crashes (single vehicle 29 percent) and 24 angle crashes accounting for (26 percent).

A total of 3 fatal crashes occurred within the study limits; two involved other crashes (single vehicle crashes) and was attributed to careless driving. Property Damage Only (PDO) crashes accounted for 47 (51 percent) of all crashes; 43 crashes resulted in Injury. Among the contributing causes documented in the crash data, "carelessness of negligent manner" (36 crashes), resulted in the most crashes. Other contributing causes included "failed to yield right-of-way" (16 crashes), "followed too closely" (3 crashes), "failed to keep in proper lane (1 crash), "ran red light" (2 crashes). A significant number of crashes were documented to have been the result of "no contributing action" (12 crashes) and "other contributing action" (2 crashes). **Table 3-13** shows the crash summary along St. Johns Bluff Road within the study area.

3.6.8 Atlantic Boulevard

The crash analysis results reveal that there was a total of 610 crashes on Atlantic Boulevard within the study area during the five study years (2014-2018). Of these 610 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 336 (55 percent) of total crashes followed by 134 angle crashes accounting for (22 percent) and 82 sideswipe crashes accounting for (13 percent).

One fatal crash occurred within the study limits. Property Damage Only (PDO) crashes accounted for 427 (70 percent) of all crashes; 182 crashes resulted in Injury. Among the contributing causes documented in the crash data, "carelessness of negligent manner" (266 crashes), resulted in the most crashes. Other

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

contributing causes included “failed to yield right-of-way” (96 crashes), “followed too closely” (27 crashes), “failed to keep in proper lane (27 crash), “ran red light” (19 crashes). A significant number of crashes were documented to have been the result of “no contributing action” (58 crashes) and “wrong way” (1 crash). **Table 3-13** shows the crash summary along Atlantic Boulevard within the study area.

3.6.9 Monument Road

The crash analysis results reveal that there was a total of 436 crashes on Monument Road within the study area during the five study years (2014-2018). Of these 436 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 279 (64 percent) of total crashes followed by 85 angle crashes accounting for (19 percent) and 30 other crashes accounting for (7 percent).

No fatalities occurred within the study limits during the five-year period. Property Damage Only (PDO) crashes accounted for 299 (69 percent) of all crashes; 137 crashes resulted in Injury. Among the contributing causes documented in the crash data, “carelessness of negligent manner” (235 crashes), resulted in the most crashes. Other contributing causes included “failed to yield right-of-way” (48 crashes), “followed too closely” (36 crashes), “failed to keep in proper lane (3 crash), “improper turn” (4 crashes), “improper backing” (2 crashes), “ran red light” (23 crashes). A significant number of crashes were documented to have been the result of “no contributing action” (39 crashes) and “ran off roadway” (4 crashes). **Table 3-13** shows the crash summary along Atlantic Boulevard within the study area.

3.6.10 Merrill Road

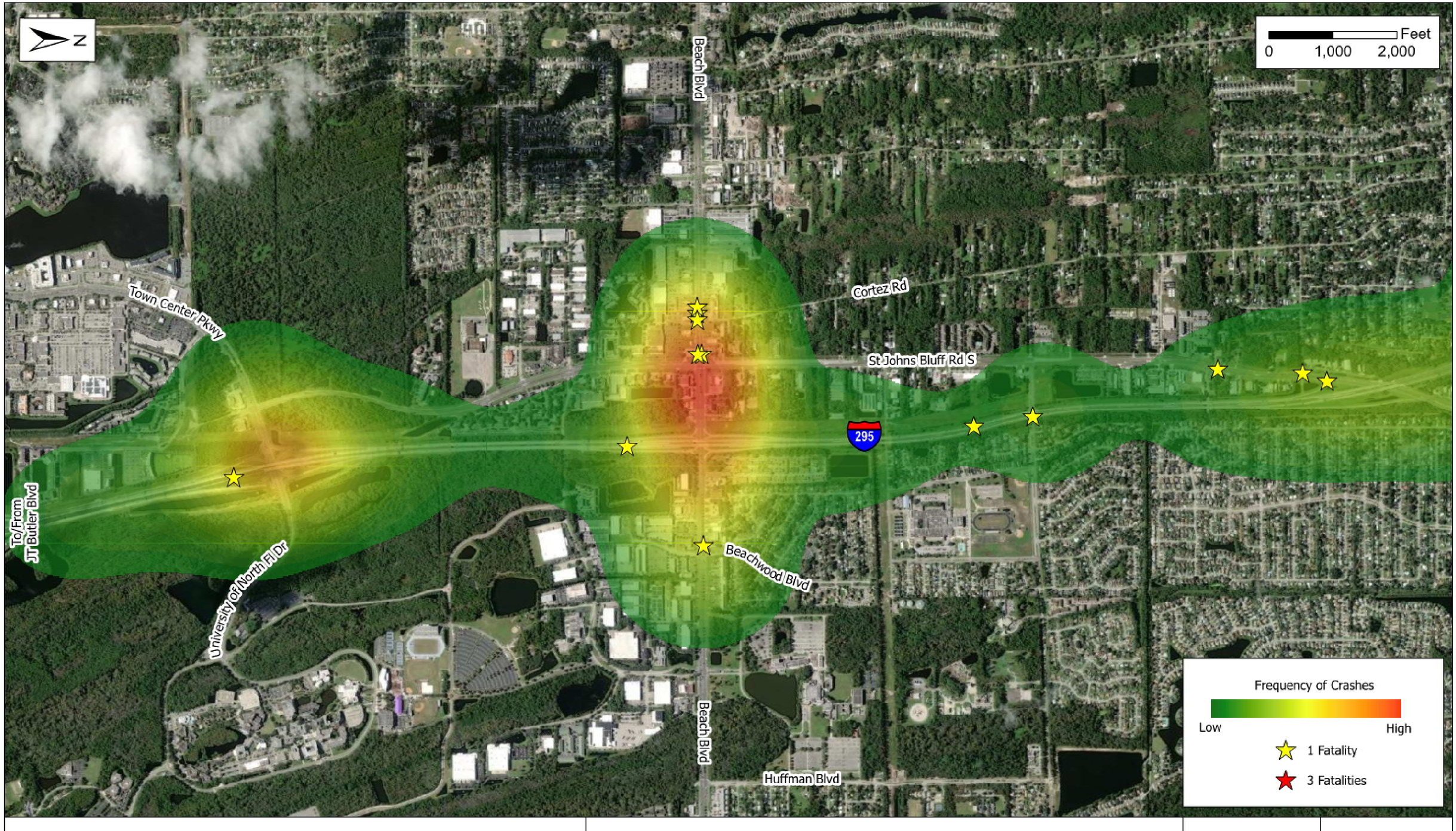
The crash analysis results reveal that there was a total of 548 crashes on Merrill Road within the study area during the five study years (2014-2018). Of these 548 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 383 (70 percent) of total crashes followed by 56 angle crashes accounting for (10 percent) and 46 sideswipe crashes accounting for (8 percent).

One fatal crash occurred within the study limits during the five-year period. Property Damage Only (PDO) crashes accounted for 385 (70 percent) of all crashes; 162 crashes resulted in Injury. Among the contributing causes documented in the crash data, “carelessness of negligent manner” (285 crashes), resulted in the most crashes. Other contributing causes included “failed to yield right-of-way” (33 crashes), “followed too closely” (49 crashes), “failed to keep in proper lane (11 crashes), “improper turn” (4 crashes), “improper passing” (4 crashes), “ran red light” (17 crashes). A significant number of crashes

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

were documented to have been the result of "no contributing action" (54 crashes) and "other contributing action" (15 crashes). **Table 3-13** shows the crash summary along Merrill Road within the study area.

A summary of the crash analysis results is provided in **Appendix C**. In addition, a heat map (**Figure 3-4**) was developed to identify crash hot spots. A hot spot was defined as an area that had a high frequency of crashes compared to the entire segment, where the red and orange spots indicate a high frequency of crashes.



FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	Historical Crash Data Heat Map (2014 - 2018)	Figure 3-4	Page 1 of 2

FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	Historical Crash Data Heat Map (2014 - 2018)	Figure 3-4	Page 2 of 2

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

3.7 Consistency with Master Plans, LRTP, Developments of Regional Impact and Projects

This SIMR considers all programmed and planned roadway improvements within the study area. The proposed capacity improvements are consistent with the following studies:

- North Florida TPO Year 2040 LRTP
- North Florida TPO Transportation Improvement Program (TIP)
- North Florida TPO Cost Feasible Plan
- City of Jacksonville Comprehensive Plan
- FDOT Five-Year Work Program
- I-295 East Express Phase I Project (currently under construction)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

4. NEED

The purpose of this I-295 SIMR project is to add capacity along I-295 corridor from south of Town Center Parkway to interchange to north of Merrill Road interchange to improve operations and safety. South of this SIMR study limits, two express lanes along with GULs in each direction are currently being constructed along I-295 between SR 9B and SR 202. This ongoing construction will provide six/eight lanes along I-295 in both the northbound and southbound directions south of SR 202.

The need for the project in this SIMR is based on the following factors:

Traffic Volume Growth Due to Recent Developments – The segment of I-295 from south of Town Center Parkway interchange to north of Merrill Road interchange currently experiences heavy peak period congestion with speeds well below the posted speed limits.

In 2019, the segment of I-295 carried an AADT volume that ranged from 111,500 vehicles between SR 202 and Town Center Parkway at the southern end of the project to 77,802 vehicles north of Merrill Road at the northern end of the project. Based on existing year analysis, the I-295 mainline from SR 202 to Town Center Parkway, Beach Boulevard to St. Johns Bluff Road, St. Johns Bluff Road to Atlantic Boulevard and Atlantic Boulevard to Monument Road currently operate below the LOS target, LOS D. Several merge/diverge segments along the corridor also operate below the LOS target. In addition to I-295 carrying heavy traffic, Town Center Parkway carried an AADT of 44,000 vehicles in 2019, Beach Boulevard carried an AADT between 53,500 and 56,500 vehicles, St. Johns Bluff Road carried an AADT of 27,500 vehicles, Monument Road carried an AADT of 28,000 vehicles and Merrill Road carried an AADT of 29,000 vehicles.

The 2045 traffic projections on I-295 utilize the latest planning assumptions on land use, population and employment. If no capacity improvements are made to facilities, congestion within the corridor and at the interchanges will get progressively worse, the entire segment of I-295 within the study limits will operate at LOS F during peak hours by 2045 with the periods of congestion extending the peak periods of travel, increasing the number of crashes and deteriorating the interchange operations. Because the corridor has limited right-of-way and purchasing new right-of-way is cost prohibitive in this area, it is important that the added capacity be accommodated within the existing right-of-way and that it provides long term benefits.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Social/Economic Demand – I-295 is a major north-south corridor around central Jacksonville. Within the study limits, I-295 connects suburban residential areas throughout the corridor to office, commercial, recreational and industrial areas. St. Johns Town Center, a super-regional open-air mall and the University of North Florida are located adjacent to I-295 and regularly attract significant traffic from the surrounding areas. The population of Duval County is expected to increase by approximately 29% and employment is expected to increase by 43% from 2015 to 2045 (Source: North Florida TPO 2045 LRTP). This increase in population and employment will result in higher traffic volumes on I-295. Without any additional improvements, I-295 will begin to operate below FDOT target LOS D.

In today's competitive environment, an efficient transportation infrastructure is needed to provide access to employment hubs and improve regional mobility to deliver goods and services. Without any improvements to I-295, the City of Jacksonville will lose its competitive edge over surrounding seaports, airports and other employments hubs.

Model Interrelationships – I-295 serves as a key transportation element in linking the major ports, airports and railways that handle Florida's passenger and freight traffic throughout the region. Additionally, I-295 is a designated highway on FDOT's SIS, which is Florida's high-priority network of transportation facilities important to the state's economy and mobility. SIS facilities are the workhorses of Florida's transportation system and account for a dominant share of the people and freight movement to, from and within Florida.

I-295 provides direct access to Jacksonville ports (Dames Point and Blount Island) and is used to transport cargo to/from the Jacksonville ports and Jacksonville International Airport. In addition, the ongoing Jacksonville Harbor Channel Project will deepen the Jacksonville shipping channel from its current depth of 40 feet to 47 feet. A deeper channel will allow larger cargo ships transiting the Panama Canal to deliver cargo to Jacksonville ports and increase truck traffic on I-295. Improvements on I-295 are needed to ensure reliable cargo delivery to seaports and airports to maintain Jacksonville's competitive edge with surrounding seaports and airports.

Safety – A crash analysis was conducted as part of the I-295 SIMR. The crash data used in the SIMR was obtained from the FDOT State Safety Office Map Based Query Tool (SSOGis). A total of 1,457 crashes were reported over the five-year period from 2014 to 2018 resulting in 456 injury crashes and four fatalities. The predominant collision type was "Front to Rear" crashes (56%) in the study area. Common factors that

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

contribute to "Front to Rear" crashes are congestion, tailgating and driver distractions. Most of the congestion occurs during the morning and afternoon peak periods, which although accounting for only four-five hours, serve the highest volume of traffic in a day. Therefore, the number of crashes on I-295 within the study area may be closely related to the level of congestion caused due to various attractions throughout the corridor. Without any improvements, the congestion on I-295 during the morning and afternoon peak hours will worsen and may lead to an increasing number of crashes.

The entirety of I-295 in Duval County is designated as an evacuation route and is used to evacuate residents west and north during hurricane and other emergency evacuations. As the population of Duval County continues to increase, evacuating these residents in a timely manner becomes more challenging. Without any improvements to I-295, evacuation clearance times will continue to increase and may discourage residents from evacuating, thus jeopardizing public safety.

FDOT has initiated this SIMR to investigate alternatives for the I-295 facility that will help alleviate congestion and enhance safety and operations at the study interchanges to improve safety and operations throughout the study area.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

5. Future Traffic Forecasts

The future year traffic forecasts for Opening Year 2025 and Design Year 2045 were developed in accordance with the procedures outlined in FDOT Project Traffic Forecasting Handbook and the methodology documented in the approved MLOU for this SIMR provided in **Appendix A.** The NERPMAB1v3 was used for the development of future year daily and peak hour traffic projections within the study area. The NERPMAB1v3 model is based on the Florida Standard Urban Transportation Modeling Structure (FSUTMS) and is recognized by FDOT District Two, FHWA and the North Florida TPO as an acceptable travel demand forecasting tool. The NERPMAB1v3 model is the locally approved travel demand model validated for the region. It encompasses the northeast Florida region, specifically St. Johns and Duval Counties. It has a Base Year of 2010 with a Horizon Year of 2040.

This section discusses the details of the traffic forecasting methodology utilized to obtain future traffic volumes:

5.1 Future Roadway Network

The North Florida TPO is responsible for maintaining the FSUTMS based NERPM travel demand model. Updates to the roadway network in NERPM were based on projects identified in the TPO's current adopted LRTP Cost Feasible Plan. Projects planned within the area of influence that add capacity along I-295 are listed below.

- I-295 East Express Phase I from SR 9B to SR 202 (under construction).

The major network improvements along the mainline within the area of influence included in the future No-Build scenario of NERPMAB1v3 model are listed below. These changes reflect the most current design under construction by FDOT, approved as I-295 East Express Phase I SIMR General Purpose Reevaluation project.

- I-295 from SR 9B merge to Baymeadows Road interchange: 2 ELs, and 3 GULs in both directions.
- I-295 from Baymeadows Road to Gate Parkway interchange: 2 ELs, and 4 GULs in both directions.
- I-295 from Gate Parkway to SR 202 interchange: 2 ELs and 4 GULs in Northbound, 1 EL and 6 GULs in Southbound direction.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- I-295 from SR 202 to Town Center Parkway interchange: 5 GULs Northbound, 1 EL and 4 GULs Southbound.
- I-295 from Town Center Parkway to Beach Boulevard: 4 GULs in each direction.

The future Build scenario network improvements included all the updates from the No-Build scenario listed above plus the following additional mainline improvements:

- I-295 from Beach Boulevard to Southside Connector merge: 3 GULs in each direction.

5.2 Socioeconomic Data

In addition to the future roadway improvements, all other recently constructed or major approved developments within the project area vicinity were included in the NERPMAB1v3 No-Build and Build models to ensure that model output was reasonable. The population and socioeconomic data within the study area for the Horizon Year 2040 model was evaluated and adjusted to ensure accuracy of new traffic projections. There are three recently constructed (IKEA, TopGolf, West of TCP at St. Johns Town Center) and three major proposed developments within the study area (E-town development, Kernan development and Skinner parcel development) which required adjustment of socioeconomic data to accurately capture growth for the study area. All these developments primarily present residential and commercial land uses.

5.3 Development of Design Year 2045 No-Build and Build Traffic Volumes

- NERPMAB1v3 future year 2040 Build and No-Build scenarios model runs were conducted to incorporate the land use growth and network improvements.
- Year 2019 calibrated volumes were developed as discussed earlier in **Section 2.6**. Design Year 2045 traffic projections were based on the 2019 calibrated volumes and the NERPMAB1v3 model growth. Annual growth rates within the subarea were calculated between 2019 calibrated volumes and Horizon Year 2040 model volumes. Annual growth rates within subarea at zonal level were calculated and applied to the 2019 calibrated trip tables to develop the Design Year 2045 traffic. Future traffic volumes were estimated for both daily AADTs and AM/PM peak hour Directional Design Hourly Volumes (DDHVs).
- The 2045 daily, AM and PM peak traffic volumes were compared with 2019 daily, AM and PM peak traffic volumes for reasonableness check and growth rates. This check was done to ensure

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

that a growth rate of at least 1% is applied along I-295 from Beach Boulevard to north of Merrill Road. I-295 south of Beach Boulevard is expected to experience higher growth. A growth rate of 2% was ensured along I-295 south of Beach Boulevard. A minimum growth rate of 0.5% was ensured for all the project area ramps daily, AM and PM peak hour volumes.

- The 2045 daily AM and PM peak traffic volumes were also compared with 2020 daily, AM and PM peak traffic volumes for consistent K and D factors.
- Consistent demand is expected for ramps between No-Build and Build alternatives for daily, AM and PM peak hours. The difference in demand on the I-295 mainline between No-Build and Build alternatives remains consistent throughout the corridor.
- The subarea AM and PM OD trip tables that provided the future AM and PM peak hour volumes were used to develop turning movement volumes at the intersections. The future turning movement percentages were also compared with the Existing Year 2020 turning movement volumes for reasonableness check.
- Traffic volumes along the arterials were balanced by adding and subtracting turns and maintaining a minimum 0.5% growth rate for the arterial approach volumes.

5.4 Development of Opening Year 2025 No-Build and Build Traffic

The Opening Year 2025 No-Build and Build AADTs, DDHVs and intersection turning movements were developed by interpolating between Existing Year 2020 and Design Year 2045 No-Build and Build volumes.

Figures 6-2 and 6-3 show the mainline, ramps and intersections volumes for Opening Year 2025 and Design Year 2045 No-Build condition.

Figures 8-1 and 8-2 show the mainline, ramps and intersections volumes for Opening Year 2025 and Design Year 2045 Build condition.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

6. NO-BUILD CONDITIONS

This section documents the future conditions along I-295 within the study area for the No-Build Alternative. The No-Build Alternative assumes the existing plus any programmed improvements with future traffic. Currently, there is one project considered in the No Build Alternative; I-295 East Express Lane I (FPID #: 209301-3-52-01). I-295 East Express Phase I project, for the overlapping project limits in the northbound direction will widen I-295 from existing three lanes section to five lanes section between SR 202 to Town Center Parkway. In the southbound direction this project will widen I-295 from existing three lanes section to four lanes section between SR 202 to Town Center Parkway and add one express lane within Town Center Parkway interchange. This project will also widen I-295 from existing three lanes section to four lanes section between Town Center Parkway to Beach Boulevard in both directions. The analysis years considered under the No-Build Alternative are Opening Year 2025 and Design Year 2045. The primary purpose for this analysis was to establish the No-Build operational conditions along I-295 and at the study interchanges and intersections. The No-Build lane configuration is provided in **Figure 6-1**.

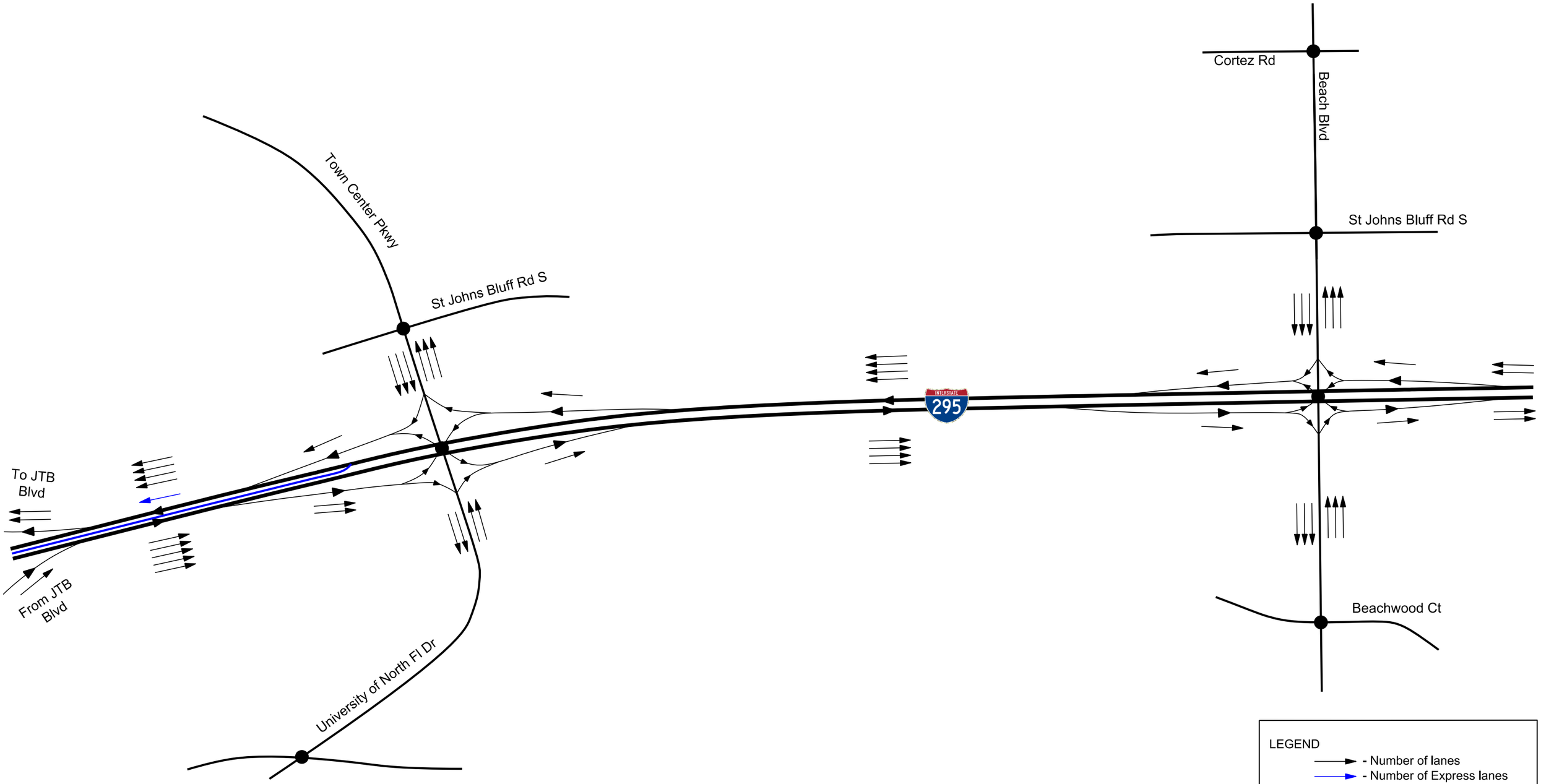
6.1 Individual Element No-Build Operational Analysis

An individual element operational analysis was conducted for the No-Build Alternative using HCM methodologies. HCS 7 was used to evaluate the I-295 segments based on input factors such as geometric configuration, traffic volumes and traffic factors. Synchro 10 was used to analyze the study intersections. The results of this detailed analysis are presented in the following sections**.** The existing signal timings were optimized for the No-Build intersections analysis to account for traffic growth and demand. **Tables 6-1** to **6-8** show the results of the I-295 operational analysis for the 2025 and 2045 No-Build conditions.

For queuing analysis performed in this SIMR, the 95th percentile queue length in feet, along with any special notes from Synchro, have been reported along with the available storage. The available storage for the turn movements, measured from the stop bar to the taper, has been reported in tables for comparison with the queue length. At the off-ramp terminal intersections, the queue length has been reported in tables along with the storage length for the left and right turn lanes. In addition to the available turn lane storage, the total ramp length, measured from stop bar to the gore point with the freeway, has been discussed in the document. Finally, if queues extend beyond the storage for off ramp movements, then the potential for queues to back up on the mainline has also been discussed.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

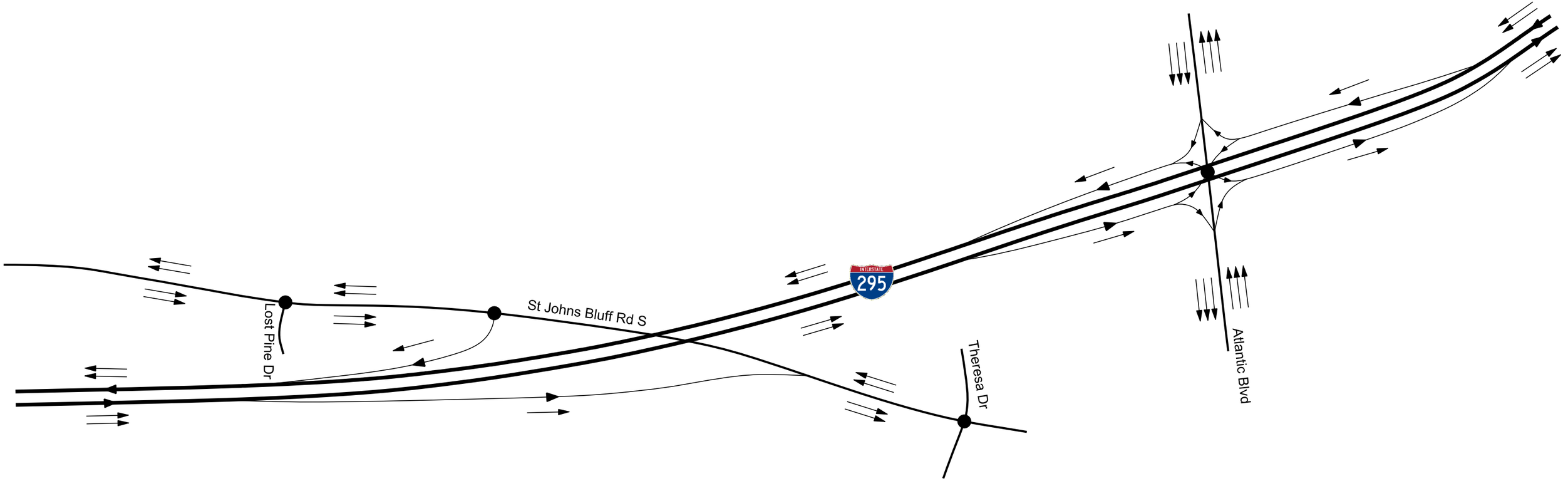
N.T.S



FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	No-Build Alternative Lane Configuration	Figure 6-1 Sheet 1/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

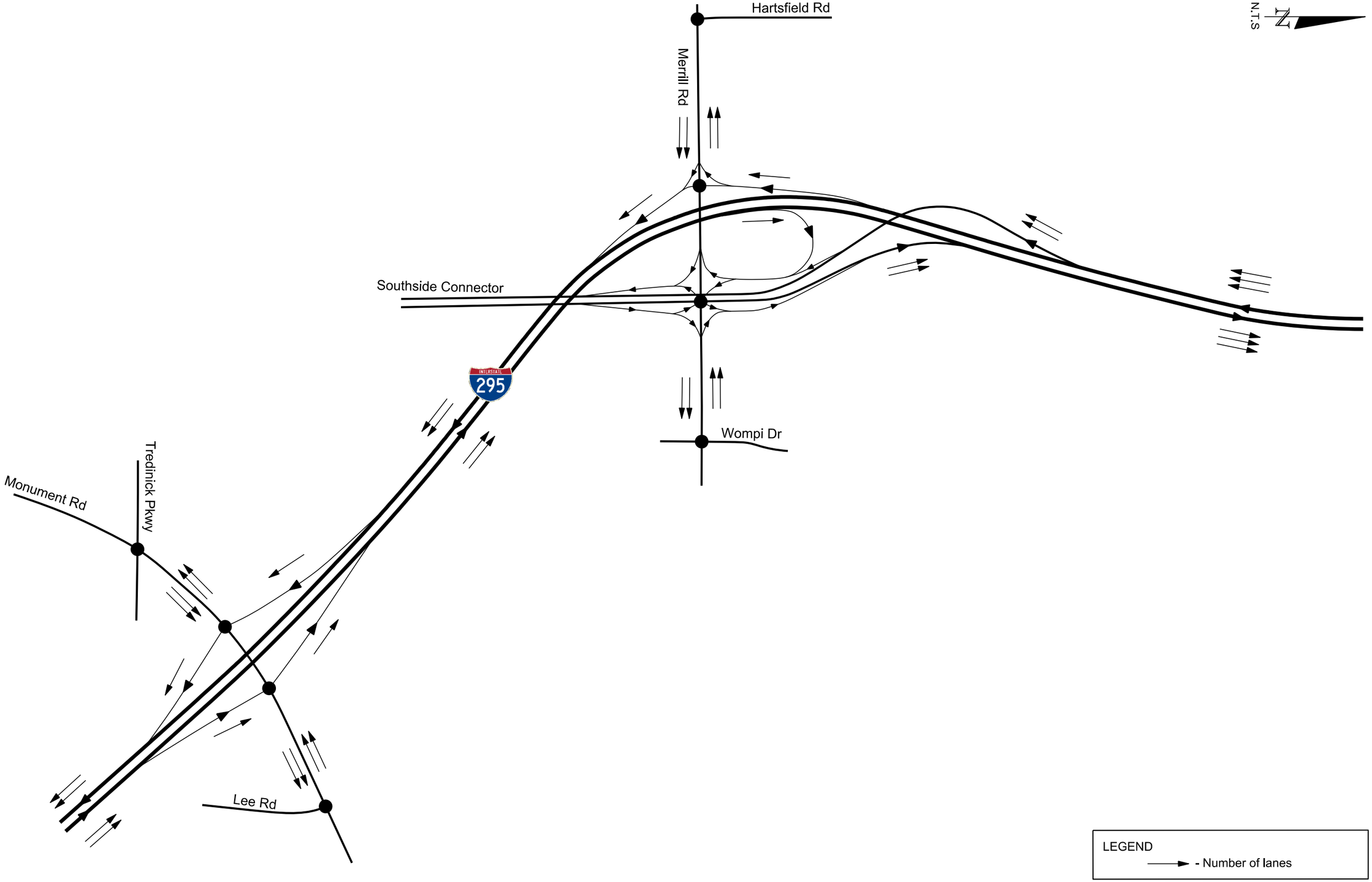
N.T.S



LEGEND
→ - Number of lanes

FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	No-Build Alternative Lane Configuration	Figure 6-1 Sheet 2/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D



FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	No-Build Alternative Lane Configuration	Figure 6-1 Sheet 3/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

6.1.1 2025 No-Build Operational Analysis

Density, V/C Ratio and LOS of each freeway segment were used as MOEs to evaluate the 2025 No-Build freeway conditions. The Opening Year 2025 No-Build Alternative mainline/basic, weaving and ramp merge/diverge analysis results are discussed below. **Tables 6-1a** and **6-1b** summarize the results. Output HCS reports are provided in **Appendix D**.

Figure 6-2 illustrates the peak hour volumes and LOS results for the 2025 No-Build operational analysis. Documentation for the No-Build Alternative analysis is provided in **Appendix D**.

Mainline Analysis – Basic Segments

The mainline analysis shows that four basic segments northbound and three basic segments southbound will operate at an unacceptable LOS by the year 2025 within the area of influence. These segments are listed below (marked as red in **Tables 6-1a** and **6-1b**):

- I-295 NB from Beach Boulevard to St. Johns Bluff Road at LOS E or worse (AM and PM peak hours)
- I-295 NB from St. Johns Bluff Road to Atlantic Boulevard at LOS E (PM peak hour)
- I-295 NB from Atlantic Boulevard to Monument Road at LOS E (PM peak hour)
- I-295 NB from Monument Road to Merrill Road/Southside Connector at LOS E (PM peak hour)
- I-295 SB from Beach Boulevard to St. Johns Bluff Road at LOS E or worse (AM and PM peak hours)
- I-295 SB from St. Johns Bluff Road to Atlantic Boulevard at LOS E (AM peak hour)
- I-295 SB from Atlantic Boulevard to Monument Road at LOS E (AM peak hour)

Ramp Analysis – Merge and Diverge Segments

The ramp analysis shows that the following merge and diverge segments will operate at an unacceptable LOS (marked as red in **Tables 6-1a** and **6-1b**):

- I-295 NB On-Ramp from Beach Boulevard at LOS F (PM peak hour)
- I-295 NB Off-Ramp to St. Johns Bluff Road at LOS E or worse (AM and PM peak hours)
- I-295 NB Off-Ramp to Atlantic Boulevard at LOS E (PM peak hour)
- I-295 NB Off-Ramp to Monument Road at LOS E (AM and PM peak hours)
- I-295 NB On-Ramp from Monument Road at LOS E (PM peak hour)
- I-295 SB Off-Ramp to Monument Road at LOS E (AM peak hour)
- I-295 SB Off-Ramp to Atlantic Boulevard at LOS E (AM peak hour)
- I-295 SB On-Ramp from St. Johns Bluff Road at LOS F (AM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- I-295 SB Off-Ramp to Beach Boulevard at LOS E or worse (AM and PM peak hours)

Weaving Analysis – Weave Segments

The weave analysis shows that all weave segments will operate at acceptable LOS as shown in **Tables 6-1a** and **6-1b**:

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-1a: Opening Year 2025 No-Build I-295 Northbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	SR 202 WB to I-295 NB On-Ramp	Ramp Roadway	1	870	N/A	0.47	N/A	1,390	N/A	0.75	N/A
	I-295 Off-Ramp to Town Center Parkway	Major Diverge – Upstream	5	4,670	N/A	0.42	N/A	5,200	N/A	0.47	N/A
		Major Diverge – Diverging	2	1,210	17.6	0.28	B	1,180	20.0	0.28	B
		Major Diverge – Downstream	4	3,460	N/A	0.39	N/A	4,020	N/A	0.45	N/A
	From Town Center Parkway to Beach Boulevard	Weave	4	4,090	19.8	N/A	B	4,970	25.8	N/A	C
	I-295 On-Ramp from Beach Boulevard	Merge	1	600	32.9	N/A	D	730	38.6	N/A	F
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	2	3,890	37.6	N/A	E	4,570	--**	N/A	F
	I-295 Off-Ramp to St. Johns Bluff Road South	Diverge	1	360	38.8	N/A	E	540	45.3	N/A	F
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	2	3,530	31.9	N/A	D	4,030	40	N/A	E
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	640	33.1	N/A	D	570	37.8	N/A	E
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	720	26.7	N/A	C	760	32	N/A	D
	From Atlantic Boulevard to Monument Road	Basic Segment	2	3,610	33.1	N/A	D	4,220	44.1	N/A	E
	I-295 Off-Ramp to Monument Road	Diverge	1	630	36.8	N/A	E	860	42.6	N/A	E
	I-295 On-Ramp from Monument Road	Merge	1	420	32.3	N/A	D	450	35.9	N/A	E
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	2	3,400	30.1	N/A	D	3,810	36	N/A	E

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-1a: Opening Year 2025 No-Build I-295 Northbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	I-295 Off-Ramp to Merrill Road	Diverge	1	900	25.6	N/A	C	1,220	29.5	N/A	D
	I-295 On-Ramp from Southside Connector	Merge	2	1,360	28.3	N/A	D	1,730	32	N/A	D
	North of Merrill Road/Southside Connector	Basic Segment	3	3,860	21.5	N/A	C	4,320	24.3	N/A	C

*Density = passenger cars/mile/lane
**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-1b: Opening Year 2025 No-Build I-295 Southbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	North of Merrill Road/Southside Connector	Basic Segment	3	4,280	24.2	N/A	C	4,060	22.8	N/A	C
	I-295 Off-Ramp to Southside Connector	Diverge	2	1,430	16.3	N/A	B	1,250	14.4	N/A	B
	From Merrill/Southside Connector Off-Ramp to Merrill Off-Ramp	Basic Segment	2	2,850	23.9	N/A	C	2,810	23.5	N/A	C
	I-295 Off-Ramp to Merrill Road	Diverge	1	330	29.7	N/A	D	510	29.3	N/A	D
	I-295 On-Ramp from Merrill Road	Merge	1	1,130	31.7	N/A	D	960	28.5	N/A	D
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	2	3,650	33.7	N/A	D	3,260	28.5	N/A	D
	I-295 Off-Ramp to Monument Road	Diverge	1	310	36.2	N/A	E	540	32.4	N/A	D
	I-295 On-Ramp from Monument Road	Merge	1	660	33.9	N/A	D	850	30	N/A	D
	From Atlantic Boulevard to Monument Road	Basic Segment	2	4,000	39.6	N/A	E	3,570	32.6	N/A	D
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	650	36.8	N/A	E	860	32.7	N/A	D
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	590	34	N/A	D	770	29.9	N/A	D
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	2	3,940	38.4	N/A	E	3,480	31.3	N/A	D
	I-295 On-Ramp from St. Johns Bluff Road South	Merge	1	690	39	N/A	F	530	33.8	N/A	D
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	2	4,630	--**	N/A	F	4,010	39.9	N/A	E
	I-295 Off-Ramp to Beach Boulevard	Diverge	1	670	46.5	N/A	F	650	40.6	N/A	E

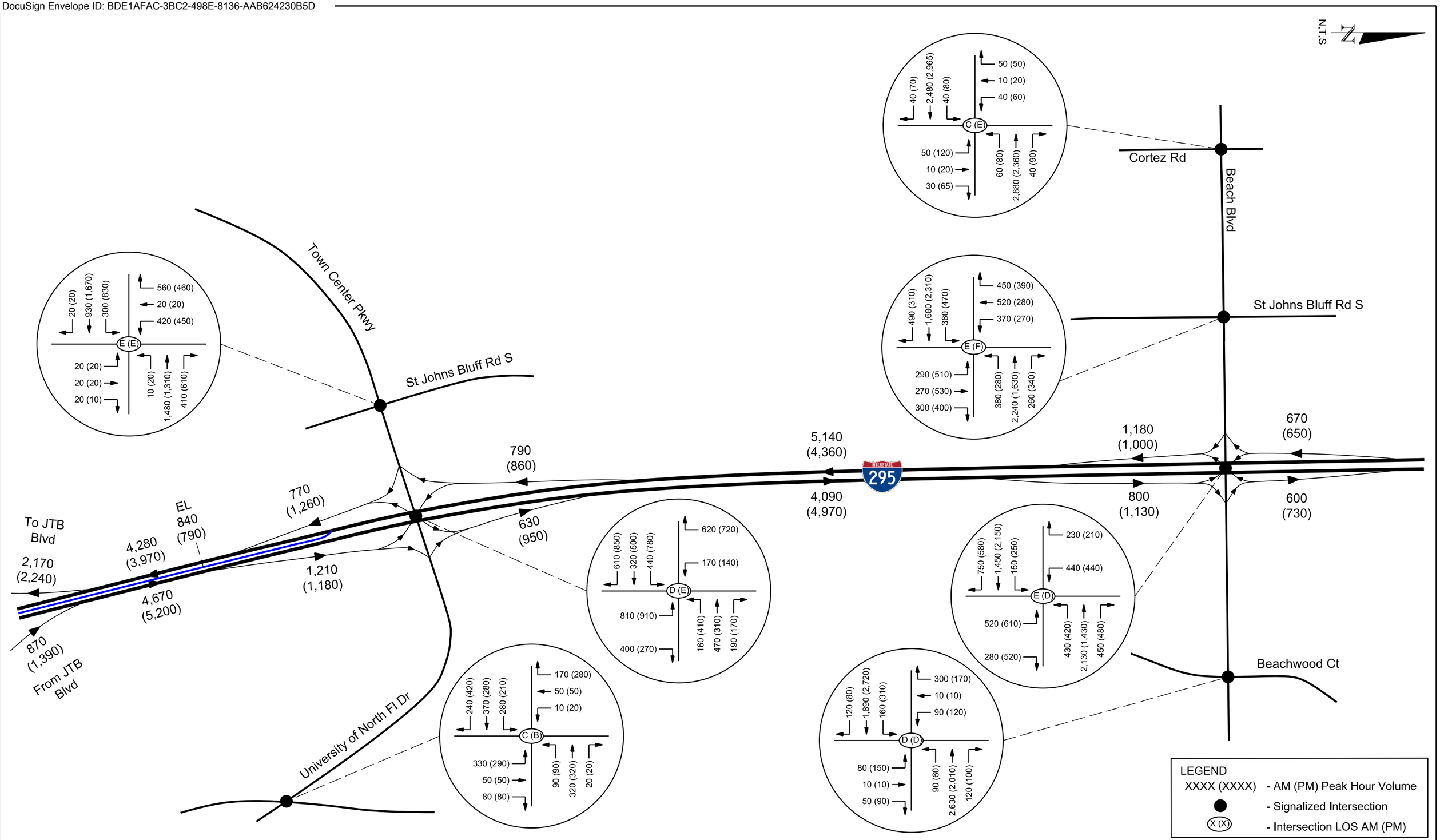
DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-1b: Opening Year 2025 No-Build I-295 Southbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	From Town Center Parkway to Beach Boulevard	Weave	4	5,140	26.4	N/A	C	4,360	21.8	N/A	C
	I-295 Southbound GUL to I-295 Southbound EL Off-Ramp	Diverge	1	840	28.5	N/A	D	790	23.9	N/A	C
	I-295 On-Ramp from Town Center Parkway	Ramp Roadway	1	770	N/A	0.41	N/A	1,260	N/A	0.67	N/A
	I-295 Off-Ramp to SR 202	Major Diverge – Upstream	4	4,280	N/A	0.48	N/A	3,970	N/A	0.45	N/A
		Major Diverge – Diverging	2	2,170	20.2	0.52	C	2,240	18.8	0.54	B
		Major Diverge – Downstream	3	2,110	N/A	0.32	N/A	1,730	N/A	0.26	N/A

*Density = passenger cars/mile/lane

**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

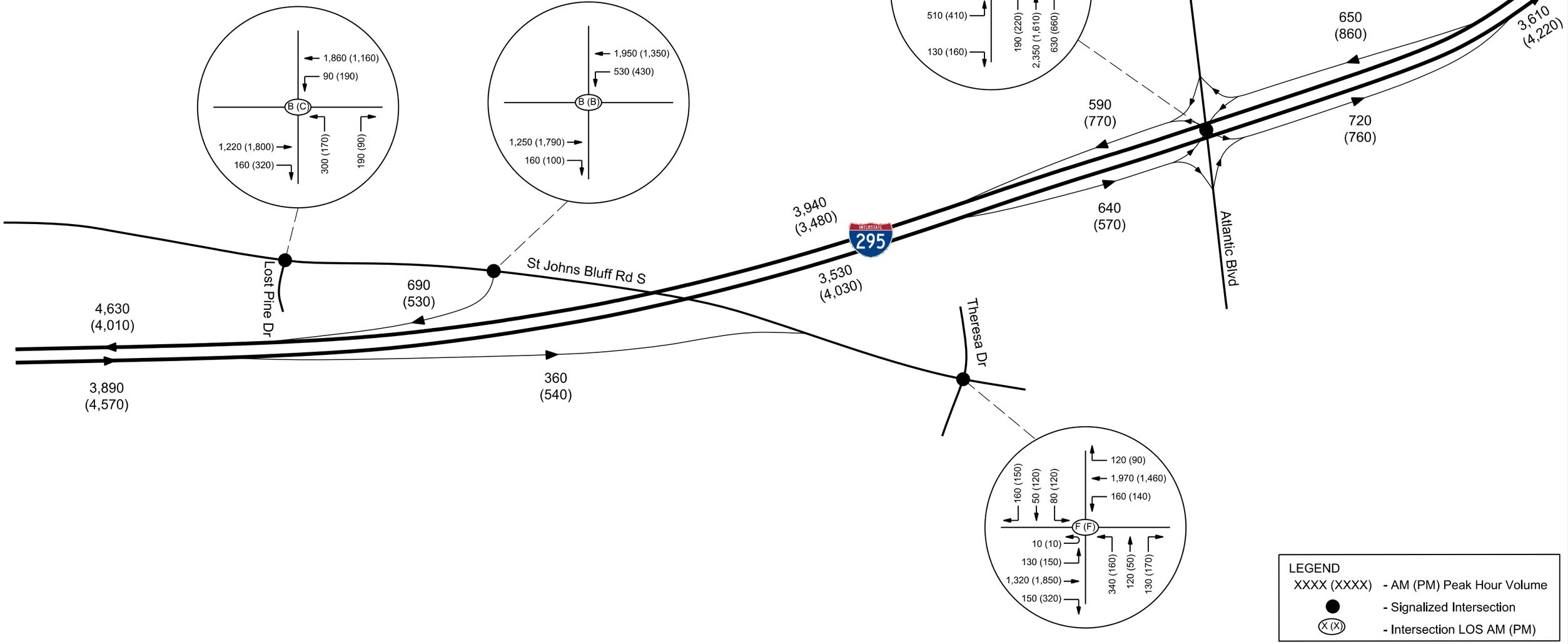


I-295 SIMR from Town Center Parkway to Merrill Road

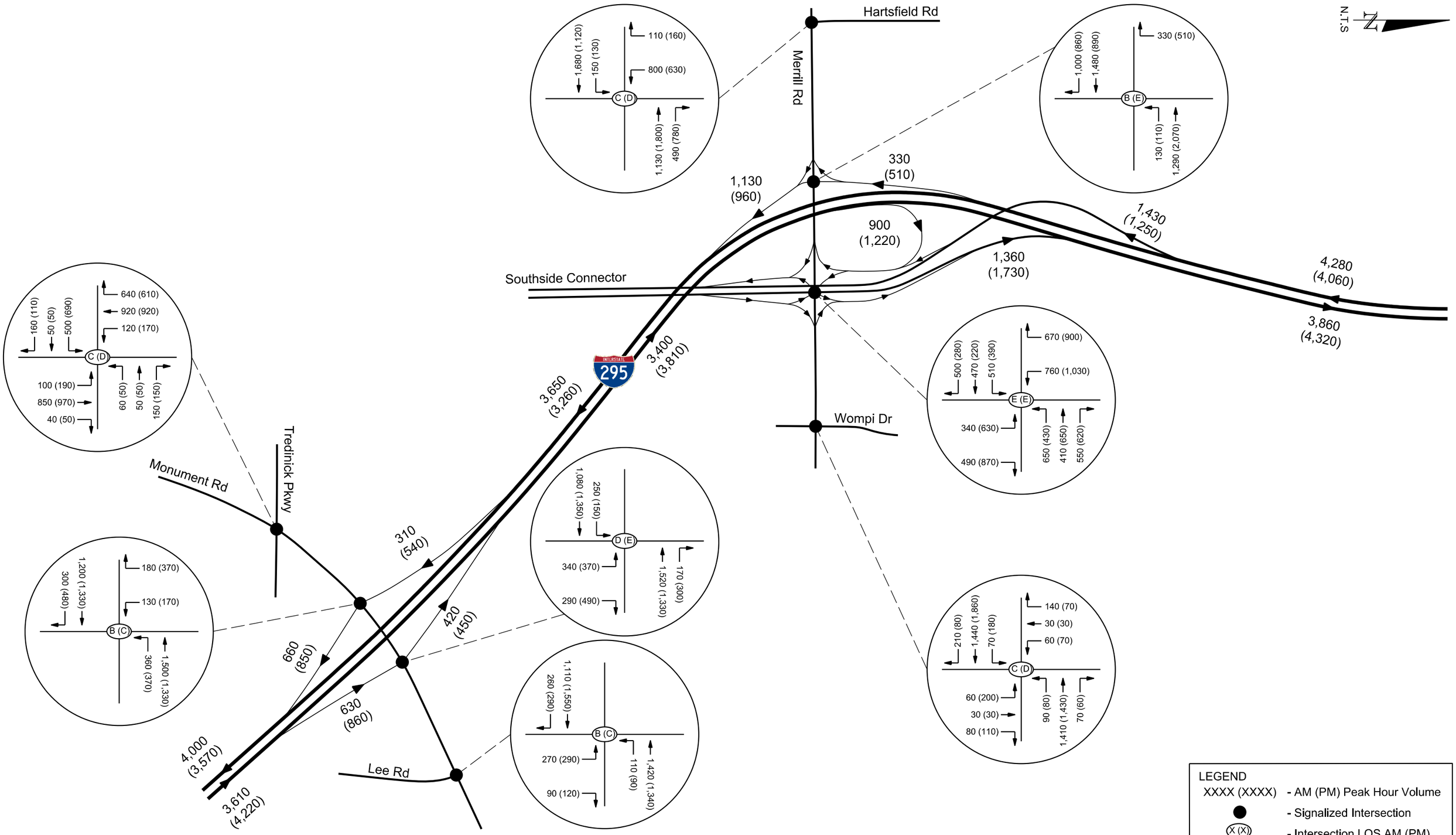
Opening Year 2025 No-Build Peak Hour Volumes and LOS
Mainline, Ramps and Intersections

Figure 6-2
Sheet 1/3

N.T.S



FDOT	*I-295 SIMR from Town Center Parkway to Merrill Road*	Opening Year 2025 No-Build Peak Hour Volumes and LOS Mainline, Ramps and Intersections	Figure 6-2 Sheet 2/3



I-295 SIMR from Town Center Parkway to Merrill Road	Opening Year 2025 No-Build Peak Hour Volumes and LOS Mainline, Ramps and Intersections	Figure 6-2 Sheet 3/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Intersection Analysis

LOS, delay and 95th percentile queue lengths were used as MOEs to evaluate the Opening Year 2025 No-Build intersection conditions. **Tables 6-2** to **6-7** document the intersections operational analysis along the crossing roadways. Output Synchro reports are provided in **Appendix D**.

Town Center Parkway

As shown in **Table 6-2**, two intersections along Town Center Parkway will operate at a LOS E and one intersection that will operate at a LOS C or better during the AM and PM peak hours in the 2025 No-Build Alternative. The following study intersections operate at LOS E:

- Town Center Parkway at St. Johns Bluff Road S (AM and PM peak hours)
- Town Center Parkway at I-295 (PM peak hour)

There are several individual movements at the study intersections along Town Center Parkway that will operate at LOS F. These movements are listed below:

Town Center Parkway at St. Johns Bluff Road S

- EB left-turn lane (AM and PM peak hours)
- WB left-turn lane (AM and PM peak hours)
- NB left-turn lane (AM and PM peak hours)
- NB through lane (PM peak hour)
- SB left-turn lane (AM and PM peak hours)

Town Center Parkway at I-295 Ramps

- EB left-turn lane (AM peak hour)
- WB left-turn lane (AM and PM peak hours)
- NB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Town Center Parkway. For the ramp terminal intersections at Town Center Parkway interchange, the I-295 northbound and southbound off-ramp lengths are approximately 2,000 feet long. In the Opening Year 2025, the 95th Percentile queue length will exceed the storage at the following intersection approaches marked as red in **Table 6-2**:

- EB left-turn lane at Town Center Parkway and St. Johns Bluff Road (PM peak hour)
- WB through lane at Town Center Parkway and St. Johns Bluff Road (AM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- EB left-turn lane at Town Center Parkway and I-295 Ramps (PM peak hour)
- NB left-turn lane at Town Center Parkway and I-295 Ramps (PM peak hour)
- EB right-turn lane at Town Center Parkway and I-295 Ramps (PM peak hour)
- WB left-turn lane at University of North Florida Drive and Eco Road (AM peak hour)

Table 6-2: Town Center Parkway - Opening Year 2025 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Town Center Parkway & St. Johns Bluff Road S (Node 101)	Eastbound	Left	133.8 (169.7)	F (F)	2/525'	#311' (#787')
		Through	29.1 (14.2)	C (B)	3/NA	358' (507')
		Right	0.1 (0.1)	A (A)	1/265'	0' (0')
	Westbound	Left	98.6 (101.7)	F (F)	1/250'	m25' (m32')
		Through	71.5 (20)	E (C)	3/600'	744' (m536')
		Right	26.8 (5.3)	C (A)	1/390'	276' (m72')
	Northbound	Left	102.3 (88)	F (F)	1/100'	60' (59')
		Through	51 (82.1)	D (F)	1/ NA	45' (54')
		Right	0.2 (0.4)	A (A)	1/100'	0' (0')
	Southbound	Left	91.3 (239.2)	F (F)	2/800'	#409' (#501')
		Through	38.5 (71.8)	D (E)	1/ NA	39' (51')
		Right	66.3 (21.8)	E (C)	1/800'	#709' (164')
	Overall Intersection		***62.8 (58.6)***	***E (E)***	-	-
Town Center Parkway & I-295 Ramps (Node 102)	Eastbound	Left	91.5 (73.7)	F (E)	2/460'	m355' (m501')
		Through	22.9 (36.2)	C (D)	3/ NA	m86' (m201')
		Right	13.2 (31.9)	B (C)	1/525'	m245' (m773')
	Westbound	Left	90.2 (85.6)	F (F)	2/450'	142' (311')
		Through	35.4 (40.8)	D (D)	3/ NA	194' (134')
		Right	5.4 (6.2)	A (A)	1/525'	61' (60')
	Northbound	Left	65.6 (122.1)	E (F)	2/725'	526' (#796')
		Right	6.1 (7.7)	A (A)	1/725'	81' (81')
	Southbound	Left	45.8 (53.4)	D (D)	2/750'	106' (104')
		Right	17.3 (17.8)	B (B)	1/750'	302' (321')
	Overall Intersection		***38.6 (56.3)***	***D (E)***	-	-
University of North Florida Drive & Eco Road (Node 103)	Eastbound	Left	26.5 (14.1)	C (B)	1/2800’	205' (112')
		Through	23.9 (22.9)	C (C)	1/2800’	274' (203')
		Right	0.2 (0.4)	A (A)	1/250’	0' (0')
	Westbound	Left	49.3 (12.6)	D (B)	1/75'	#109' (53')
		Through/ Right	37.1 (23.9)	D (C)	2/NA	154' (125')
	Northbound	Left	31.9 (30.3)	C (C)	1/320'	258' (192')
		Through/ Right	13.1 (13.2)	B (B)	1/NA	79' (70')
	Southbound	Left	23.7 (18.9)	C (B)	1/150'	16' (21')
		Through	51 (35.3)	D (D)	1/NA	72' (57')
		Right	3.7 (12.7)	A (B)	1/150'	0' (67')
	Overall Intersection		***24.4 (16.6)***	***C (B)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

The queue length for northbound off ramp left turn lane that extends beyond the storage is not anticipated to back up to the mainline.

Beach Boulevard

As shown in **Table 6-3**, all study intersections along Beach Boulevard will operate at a LOS E or worse except for one intersection that will operate at a LOS D during the AM and PM peak hours in the 2025 No-Build Alternative. The following study intersections will operate at LOS E or worse:

- Beach Boulevard at Cortez Road (PM peak hour)
- Beach Boulevard at St. Johns Bluff Road (AM and PM peak hours)
- Beach Boulevard at I-295 Northbound/Southbound Ramps (AM peak hour)

There are several individual movements at the study intersections along Beach Boulevard that will operate at LOS F. These movements are listed below:

Beach Boulevard at Cortez Road

- EB left-turn lane (AM and PM peak hours)
- WB left-turn lane (PM peak hour)
- NB through/left lane (AM and PM peak hours)
- SB through/left lane (AM and PM peak hours)

Beach Boulevard at St. Johns Bluff Road

- EB left-turn lane (AM peak hour)
- EB through lane (PM peak hour)
- WB left-turn lane (PM peak hour)
- WB through lane (AM and PM peak hours)
- NB left-turn lane (AM and PM peak hours)
- NB through lane (PM peak hour)
- SB left-turn lane (PM peak hour)
- SB through lane (PM peak hour)
- SB right-turn lane (AM peak hour)

Beach Boulevard at I-295 Northbound/Southbound Ramps

- EB left-turn lane (AM peak hour)
- WB left-turn lane (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- NB left-turn lane (AM and PM peak hours)

Beach Boulevard at Beachwood Court

- EB left-turn lane (PM peak hour)
- NB left-turn lane (AM and PM peak hours)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Beach Boulevard. For the ramp terminal intersections, the length of the I-295 northbound off ramp is approximately 1,900 feet and southbound off ramp is approximately 1,400 feet.

In the Opening Year 2025 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along Beach Boulevard except the following (marked as red in **Table 6-3**):

- WB through/right lane at Beach Boulevard and Cortez Road (AM and PM peak hours)
- EB right-turn lane at Beach Boulevard and St. Johns Bluff Road (AM and PM peak hours)
- WB left-turn lane at Beach Boulevard and St. Johns Bluff Road (AM peak hour)
- NB left-turn lane at Beach Boulevard and St. Johns Bluff Road (PM peak hour)
- NB right-turn lane at Beach Boulevard and St. Johns Bluff Road (PM peak hour)
- SB left-turn lane at Beach Boulevard and Beachwood Court (AM and PM peak hours)

Table 6-3: Beach Boulevard – Opening Year 2025 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Beach Boulevard at Cortez Road (Node 201)	Eastbound	Left	93.2 (104.8)	F (F)	1/350'	95' (167')
		Through/ Right	14 (77.8)	B (E)	3/NA	705' (#1618')
	Westbound	Left	72.2 (94.7)	E (F)	1/125'	m69' (m100')
		Through/ Right	34.4 (77.3)	C (E)	3/700’	m812' (m979')
	Northbound	Through/ Left	104.8 (114.8)	F (F)	1/NA	130' (260')
		Right	2.2 (17.8)	A (B)	1/NA	3' (48')
	Southbound	Through/ Left	95.9 (194.4)	F (F)	1/NA	111' (162')
		Right	14.4 (11.6)	B (B)	1/350'	35' (36')
	Overall Intersection		***27.1 (79.4)***	***C (E)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-3: Beach Boulevard – Opening Year 2025 No-Build Intersection Analysis Summary (Continued)

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Beach Boulevard at St. Johns Bluff Road (Node 202)	Eastbound	Left	105.3 (67.3)	F (E)	2/430'	#374' (m289')
		Through	69 (107.5)	E (F)	3/NA	830' (#1227')
		Right	27.2 (31.5)	C (C)	1/275'	529' (m280')
	Westbound	Left	71.8 (89.8)	E (F)	2/275'	m294' (#262')
		Through	87.5 (82.5)	F (F)	3/1250’	#1172' (#735')
		Right	37.1 (11.5)	D (B)	1/1250'	m237' (171')
	Northbound	Left	157.1 (120)	F (F)	2/350'	#248' (#490')
		Through	78.5 (81.6)	E (F)	2/NA	206' (416')
		Right	49.1 (65.1)	D (E)	1/275'	260' (#490')
	Southbound	Left	74.6 (117.7)	E (F)	2/NA	#363' (#279')
		Through	77.1 (83.3)	E (F)	2/NA	400' (237')
		Right	120.3 (44)	F (D)	1/NA	#632' (278')
	Overall Intersection		***79.3 (85.0)***	***E (F)***	-	-
Beach Boulevard at I-295 NB/SB Ramps (Node 203)	Eastbound	Left	84 (58.3)	F (E)	2/680'	m121' (m178')
		Through	50.1 (23)	D (C)	3/NA	619' (m#1121')
		Right	36.8 (7.8)	D (A)	1/1250’	657' (m86')
	Westbound	Left	71.7 (93.1)	E (F)	2/600'	m290' (m300')
		Through	72.9 (65.6)	E (E)	3/NA	m994' (771')
		Right	22.1 (27.4)	C (C)	1/680'	m229' (m448')
	Northbound	Left	86.8 (82.8)	F (F)	2/550'	392' (453')
		Right	0.3 (0.6)	A (A)	1/350'	0' (0')
	Southbound	Left	76.9 (70.4)	E (E)	2/500'	328' (318')
		Right	0.2 (0.2)	A (A)	1/425'	0' (0')
	Overall Intersection		***56.8 (41.8)***	***E (D)***	-	-
Beach Boulevard at Beachwood Court (Node 204)	Eastbound	Left	69.5 (90.4)	E (F)	1/510'	242' (m396')
		Through/ Right	21.2 (30.8)	C (C)	3/1500'	941' (1427')
	Westbound	Left	53.1 (63.5)	D (E)	1/200'	130' (#101')
		Through/ Right	61.1 (43.7)	E (D)	3/NA	#1469' (1020')
	Northbound	Left	304.3 (138.9)	F (F)	1/400'	#245' (#348')
		Through	53.6 (59.5)	D (E)	1/NA	30' (32')
		Right	0.7 (9.8)	A (A)	1/400'	0' (50')
	Southbound	Left	62.9 (72)	E (E)	1/150'	153' (212')
		Through/ Right	22.5 (11.8)	C (B)	1/NA	201' (87')
	Overall Intersection		***47.6 (41.8)***	***D (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

St. Johns Bluff Road

As shown in **Table 6-4**, the 2025 No-Build operational analysis results indicate that St. Johns Bluff Road and Bahia Drive/ Theresa Drive intersection will operate at LOS F during the AM and PM peak hours.

There are several individual movements at the study intersections along St. Johns Bluff Road that will operate at LOS F. These movements are listed below:

St. Johns Bluff Road at Bahia Drive/ Theresa Drive

- EB left-turn lane (AM peak hour)
- WB through/left lane (AM peak hour)
- NB left-turn lane (AM and PM peak hours)
- NB through lane (PM peak hour)
- SB left-turn lane (AM and PM peak hours)
- SB through lane (AM peak hour)

In the Opening Year 2025 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along St. Johns Bluff Road except the following (marked as red in **Table 6-4**):

- WB right-turn lane at St. Johns Bluff Road and Lost Pine Drive (AM peak hour)
- EB left-turn lane at St. Johns Bluff Road and Bahia Drive/ Theresa Drive (AM and PM peak hours)
- NB left-turn lane at St. Johns Bluff Road and Bahia Drive/ Theresa Drive (AM and PM peak hours)
- NB through lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (PM peak hour)
- NB right-turn lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (PM peak hour)
- SB left-turn lane at St. Johns Bluff Road and Bahia Drive/ Theresa Drive (AM peak hours)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along St. Johns Bluff Road. For the ramp terminal intersections, the length of the I-295 northbound off ramp at St. Johns Bluff Road interchange is approximately 2,700 feet long.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-4: St. Johns Bluff Road - Opening Year 2025 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
St. Johns Bluff Road & Lost Pine Drive (Node 301)	Westbound	Left	43.4 (63)	D (E)	1/NA	324' (239')
		Right	16 (17.4)	B (B)	1/100’	113' (63')
	Northbound	Through	16.9 (29.7)	B (C)	2/1850’	400' (930')
		Right	2.7 (6.8)	A (A)	1/200’	33' (123')
	Southbound	Left	11.9 (47.8)	B (D)	1/285’	44' (189')
		Through	18.5 (5.7)	B (A)	2/1850’	667' (208')
	Overall Intersection		***19.0 (22.4)***	***B (C)***	-	
St. Johns Bluff Road & I-295 SB Ramp (Node 302)	Northbound	Through/ Right	19.8 (16.8)	B (B)	2/1500’	431' (547')
	Southbound	Left	31.7 (75.6)	C (E)	2/700’	#379' (#559')
		Through	0.7 (0.3)	A (A)	2/1500’	0' (0')
	Overall Intersection		***11.8 (17.6)***	***B (B)***	-	
St. Johns Bluff Road & Bahia Drive/ Theresa Drive (Node 304)	Eastbound	Left	103.8 (36.8)	F (D)	1/50’	#205' (135')
		Through/ Right	27.6 (29.7)	C (C)	1/NA	193' (227')
	Westbound	Through/ Left	276.4 (61.9)	F (E)	1/NA	#1023' (#296')
		Right	17.5 (9.7)	B (A)	1/235’	99' (76')
	Northbound	Left	1250.6 (841.4)	F (F)	1/250’	#470' (#364')
		Through	40.6 (104.4)	D (F)	2/900’	791' (#1070')
		Right	17 (14.9)	B (B)	1/125’	115' (181')
	Southbound	Left	210.1 (204.9)	F (F)	1/360’	#410' (#275')
		Through	119.5 (40.4)	F (D)	2/NA	#1640' (#735')
		Right	15.3 (6.4)	B (A)	1/100’	90' (39')
	Overall Intersection		***136.3 (93.5)***	***F (F)***	-	

95th percentile volume exceeds capacity, queue maybe longer.

Atlantic Boulevard

As shown in **Table 6-5**, the 2025 No-Build operational analysis results indicate that Atlantic Boulevard and I-295 ramp terminal intersections will operate at LOS D or better during the AM and PM peak hours. No operational issues are observed at these intersections in the Opening Year 2025 No-Build Alternative. Adjacent intersections were not analyzed along Atlantic Boulevard after discussions with FDOT as this SIMR did not recommend any improvements at the Atlantic Boulevard interchange.

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Atlantic Boulevard. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Atlantic Boulevard interchange are approximately 1,200 feet and 1,300 feet long respectively.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

In the Opening Year 2025 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along Atlantic Boulevard except the following (marked as red in **Table 6-5**):

- WB right-turn lane at Atlantic Boulevard and I-295 Northbound/Southbound Ramps (AM and PM peak hours)

Table 6-5: Atlantic Boulevard - Opening Year 2025 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Atlantic Boulevard & I-295 Ramps (Node 401)	Eastbound	Left	77.2 (75.2)	E (E)	1/240'	#154' (152')
		Through	28.9 (78.7)	C (E)	3/ NA	455' (#1033')
		Right	0.4 (0.7)	A (A)	1/500'	0' (0')
	Westbound	Left	70.9 (78.8)	E (E)	1/330'	#267' (295')
		Through	34.5 (28.3)	C (C)	3/NA	#797' (510')
		Right	13.8 (15.4)	B (B)	1/165'	328' (396')
	Northbound	Left	50.6 (48.3)	D (D)	2/650'+ 500' (To Gore)	256' (229')
		Right	0.1 (0.1)	A (A)	1/650'	0' (0')
	Southbound	Left	56.5 (69.1)	E (E)	2/500'+ 700' (To Gore)	295' (#456')
		Right	0.1 (0.1)	A (A)	1/500'	0' (0')
	Overall Intersection		***32.9 (48.2)***	***C (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.

Monument Road

As shown in **Table 6-6**, the 2025 No-Build operational analysis results indicate that Monument Road and I-295 northbound ramp terminal intersection will operate at LOS E during the PM peak hour. All other intersections will operate at LOS D or better.

There are a couple of individual movements at the study intersections along Monument Road that will operate at LOS F. These movements are listed below:

Monument Road at I-295 Northbound Ramps

- WB through/right lane (PM peak hour)
- NB left-turn lane (AM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Monument Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Monument Road interchange are approximately 1,450 and 1,700 feet long, respectively.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

In the Opening Year 2025 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along Monument Road except the following (marked as red in **Table 6-6**):

- SB left-turn lane at Monument Road and Tredinick Parkway Cortez Road (PM peak hour)
- SB right-turn at Monument Road and I-295 Southbound Ramps (AM and PM peak hours)
- EB left-turn at Monument Road and I-295 Northbound Ramps (AM peak hour)
- NB right-turn at Monument Road and I-295 Northbound Ramps (AM and PM peak hours)
- NB left-turn lane at Monument Road and Lee Road (AM and PM peak hours)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-6: Monument Road - Opening Year 2025 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Monument Road & Tredinick Parkway Cortez Road (Node 501)	Eastbound	Left	43.8 (55)	D (D)	2/ NA	301' (467')
		Through	41.1 (70.6)	D (E)	1/ NA	81' (105')
		Right	8.4 (15.2)	A (B)	1/305’	62' (66')
	Westbound	Left	61.2 (43.6)	E (D)	1/350’	110' (84')
		Through	61.1 (77.6)	E (E)	1/ NA	96' (105')
		Right	17.6 (20.4)	B (C)	1/225’	73' (78')
	Northbound	Left	59.4 (72)	E (E)	1/335’	161' (297')
		Through	33.9 (48.7)	C (D)	2/NA	476' (664')
	Southbound	Left	58.3 (73.2)	E (E)	1/225’	185' (272')
		Through	32.8 (46.8)	C (D)	2/NA	482' (592')
		Right	1 (1.1)	A (A)	1/225’	21' (25')
	Overall Intersection		***29.8 (42.9)***	***C (D)***	-	-
Monument Road & I-295 SB Ramps (Node 502)	Eastbound	Through	30.4 (34.6)	C (C)	2/NA	554' (623')
		Right	5.5 (7.1)	A (A)	1/NA	81' (138')
	Westbound	Left	13.5 (65.7)	B (E)	1/365'	m96' (m#212')
		Through	3.2 (10.4)	A (B)	2/750’	m151' (m191')
	Southbound	Left	60.4 (40)	E (D)	1/1700’ (To Gore)	164' (179')
		Right	46.3 (58.5)	D (E)	1/150'	166' (#396')
	Overall Intersection		***17.4 (28.6)***	***B (C)***	-	-
Monument Road & I-295 NB Ramps (Node 503)	Eastbound	Left	43.4 (32.7)	D (C)	1/150'	m189' (m76')
		Through	2.6 (5.8)	A (A)	2/750’	34' (78')
	Westbound	Through/ Right	48.3 (133.4)	D (F)	2/NA	#449' (#1011')
	Northbound	Left	85.6 (41.7)	F (D)	1/1500’ (To Gore)	#466' (367')
		Right	33.3 (60.7)	C (E)	1/175'	227' (#559')
	Overall Intersection		***36.7 (69.0)***	***D (E)***	-	-
Monument Road & Lee Road (Node 504)	Eastbound	Through	14.6 (34.1)	B (C)	2/1100’	575' (#751')
		Right	1.4 (4.6)	A (A)	1/450’	27' (m75')
	Westbound	Left	10 (29.1)	A (C)	2/330’	57' (70')
		Through	11.1 (10.1)	B (B)	2/NA	428' (338')
	Northbound	Left	56.1 (62.3)	E (E)	1/150’	280' (320')
		Right	8 (8)	A (A)	1/NA	41' (48')
	Overall Intersection		***15.1 (24.3)***	***B (C)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

The queue length for southbound off ramp right turn lane that extends beyond the storage is not anticipated to back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Merrill Road

As shown in **Table 6-7**, the 2025 No-Build operational analysis results indicate that two study intersections along Merrill Road two listed below will operate at LOS E or worse:

- Merrill Road at I-295 Southbound Ramp (PM peak hour)
- Merrill Road at Southside Connector (AM and PM peak hours)

There are several individual movements at the intersections along Merrill Road that will operate at LOS F. These movements are listed below:

Merrill Road and I-295 Southbound Ramp

- SB right-turn lane (AM and PM peak hours)

Merrill Road and Southside Connector

- EB left-turn lane (PM peak hour)
- SB left-turn lane (AM peak hour)
- SB right-turn lane (PM peak hour)

Merrill Road and Wompi Drive

- EB left-turn lane (AM and PM peak hours)
- WB left-turn lane (AM peak hour)
- NB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Merrill Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Merrill Road interchange are approximately 1,650 and 2,000 feet long, respectively.

In the Opening Year 2025 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along Merrill Road and Hartsfield Road except the following (marked as red in **Table 6-7**):

- SB left-turn lane at Merrill Road and Hartsfield Road (AM peak hour)
- EB right-turn lane at Merrill Road and I-295 Southbound Ramp (AM peak hour)
- SB right-turn lane at Merrill Road and I-295 Southbound Ramp (AM and PM peak hours)
- EB through/right lane at Merrill and Wompi Drive (AM and PM peak hours)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- NB left-turn lane at Merrill Road and Wompi Drive (PM peak hour)
- SB left-turn lane at Merrill Road and Southside Connector (AM peak hour)
- SB right-turn lane at Merrill Road and Southside Connector (PM peak hour)

The queue length for southbound off ramp right turn lane that extends beyond the storage is not anticipated to back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-7: Merrill Road - Opening Year 2025 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Merrill Road at Hartsfield Road (Node 601)	Eastbound	Left	22.7 (36.6)	C (D)	1/200’	115' (#126')
		Through	26.7 (12.6)	C (B)	2/NA	923' (290')
	Westbound	Through	39 (69.6)	D (E)	2/1400’	730' (#947')
		Right	2.6 (4.9)	A (A)	1/1400’	m75' (186')
	Southbound	Left	68.6 (43.6)	E (D)	2/350’	544' (282')
		Right	23.8 (23.2)	C (C)	1/460’	100' (126')
	Overall Intersection		***34.7 (38.8)***	***C (D)***	-	-
Merrill Road at I-295 SB Ramp (Node 602)	Eastbound	Through	18.7 (10.1)	B (B)	2/NA	720' (201')
		Right	8.5 (3.2)	A (A)	1/300'	523' (41')
	Westbound	Left	28.3 (5.1)	C (A)	1/325'	m67' (m33')
		Through	7.5 (15)	A (B)	2/1150’	m235' (m346')
	Southbound	Right	87.4 (405.6)	F (F)	1/400’	#504' (#794')
	Overall Intersection		***18.5 (56.4)***	***B (E)***	-	-
Merrill Road at Southside Connector (Node 603)	Eastbound	Left	63.5 (118.4)	E (F)	2/330'	318' (#292')
		Through	21.5 (26.5)	C (C)	2/1100’	149' (112')
		Right	7 (18)	A (B)	1/600'	165' (182')
	Westbound	Left	55.7 (62.8)	E (E)	2/560'	472' (m233')
		Through	14.8 (34.1)	B (C)	2/NA	145' (m268')
		Right	9.3 (10.3)	A (B)	1/600'	438' (m201')
	Northbound	Left	77.1 (35.7)	E (D)	2/550'	267' (279')
		Right	12.4 (41.2)	B (D)	1/550'	128' (#647')
	Southbound	Left	261 (55.9)	F (E)	2/750’	#794' (#556')
		Right	32.3 (143.2)	C (F)	1/750'	#436' (#975')
	Overall Intersection		***64.6 (59.4)***	***E (E)***	-	-
Merrill Road at Wompi Drive (Node 604)	Eastbound	Left	123.1 (101.4)	F (F)	2/400’	m53' (m#82')
		Through/ Right	19.6 (55.4)	B (E)	2/900’	m922' (m#1101')
	Westbound	Left	95.4 (60.4)	F (E)	1/335’	175' (115')
		Through	18.6 (21.2)	B (C)	2/NA	681' (575')
		Right	1.2 (0.1)	A (A)	1/385’	12' (0')
	Northbound	Left	71.3 (101.2)	E (F)	1/150’	107' (#260')
		Through/ Right	48.6 (23)	D (C)	1/NA	126' (88')
	Southbound	Left	68 (42.5)	E (D)	1/NA	107' (85')
		Through/ Right	51.7 (27)	D (C)	1/NA	159' (76')
	Overall Intersection		***26.7 (45.2)***	***C (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

6.1.2 2045 No-Build Operational Analysis

Density, V/C Ratio and LOS of freeway segments were used as MOEs to evaluate Design Year 2045 No-Build conditions. The No-Build Alternative 2045 mainline/basic, weaving and ramp merge/diverge analysis results are summarized below. **Tables 6-8a** and **6-8b** summarize the results. **Figure 6-3** illustrates the peak hour volumes and LOS results for the 2045 No-Build operational analysis. Output HCS reports are included in **Appendix D**.

Mainline Analysis – Basic Segments

The mainline analysis shows that four basic segments northbound and four basic segments southbound will operate at an unacceptable LOS by the year 2045 within the area of influence. These segments are listed below (marked as red in **Tables 6-8a** and **6-8b**):

- I-295 NB from Beach Boulevard to St. Johns Bluff Road at LOS F (AM and PM peak hours)
- I-295 NB from St. Johns Bluff Road to Atlantic Boulevard at LOS E or worse (AM and PM peak hours)
- I-295 NB from Atlantic Boulevard to Monument Road at LOS E or worse (AM and PM peak hours)
- I-295 NB from Monument Road to Merrill Road/Southside Connector at LOS F (PM peak hour)
- I-295 SB from Beach Boulevard to St. Johns Bluff Road at LOS F (AM and PM peak hours)
- I-295 SB from St. Johns Bluff Road to Atlantic Boulevard at LOS E or worse (AM and PM peak hours)
- I-295 SB from Atlantic Boulevard to Monument Road at LOS E or worse (AM and PM peak hours)
- I-295 NB from Monument Road to Merrill Road/Southside Connector at LOS F (AM peak hour)

Ramp Analysis – Merge and Diverge Segments

The ramp analysis shows that the following merge and diverge segments will operate at an unacceptable LOS (marked as red in **Tables 6-8a** and **6-8b**):

- I-295 NB On-Ramp from Beach Boulevard at LOS F (AM and PM peak hours)
- I-295 NB Off-Ramp to St. Johns Bluff Road at LOS F (AM and PM peak hours)
- I-295 NB Off-Ramp to Atlantic Boulevard at LOS E or worse (AM and PM peak hours)
- I-295 NB On-Ramp from Atlantic Boulevard at LOS F (PM peak hour)
- I-295 NB Off-Ramp to Monument Road at LOS E or worse (AM and PM peak hours)
- I-295 NB On-Ramp from Monument Road at LOS F (PM peak hour)
- I-295 NB Off-Ramp to Merrill Road at LOS F (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- I-295 NB On-Ramp from Merrill Road at LOS F (AM and PM peak hours)
- I-295 SB On-Ramp from Merrill Road at LOS E (AM peak hour)
- I-295 SB Off-Ramp to Monument Road at LOS E or worse (AM and PM peak hours)
- I-295 SB On-Ramp from Monument Road at LOS F (AM peak hour)
- I-295 SB Off-Ramp to Atlantic Boulevard at LOS E or worse (AM and PM peak hours)
- I-295 SB On-Ramp from Atlantic Boulevard at LOS F (AM peak hour)
- I-295 SB On-Ramp from St. Johns Bluff Road at LOS F (AM and PM peak hours)
- I-295 SB Off-Ramp to Beach Boulevard at LOS F (AM and PM peak hours)

Weaving Analysis – Weave Segments

The results of the operational analysis show that one southbound weave segment will operate at an unacceptable LOS in Design Year 2045 under No-Build (marked as red in **Tables 6-8a** and **6-8b**).

- I-295 SB weave between Town Center Parkway and Beach Boulevard at LOS E (AM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-8a: Design Year 2045 No-Build I-295 Northbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	SR 202 WB to I-295 NB On-Ramp	Ramp Roadway	1	1,340	N/A	0.69	N/A	1,810	N/A	0.93	N/A
	I-295 Off-Ramp to Town Center Parkway	Major Diverge – Upstream	5	5,990	N/A	0.54	N/A	6,520	N/A	0.59	N/A
		Major Diverge – Diverging	2	2,110	22.6	0.50	C	1,800	24.6	0.42	C
		Major Diverge – Downstream	4	3,880	N/A	0.44	N/A	4,720	N/A	0.53	N/A
	From Town Center Parkway to Beach Boulevard	Weave	4	4,770	24.1	N/A	C	6,160	34.5	N/A	D
	I-295 On-Ramp from Beach Boulevard	Merge	1	830	38.3	N/A	F	1,010	47.8	N/A	F
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	2	4,540	--**	N/A	F	5,660	--**	N/A	F
	I-295 Off-Ramp to St. Johns Bluff Road South	Diverge	1	460	45	N/A	F	640	55.7	N/A	F
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	2	4,080	41.1	N/A	E	5,020	--**	N/A	F
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	850	38.3	N/A	E	760	47.3	N/A	F
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	830	30.5	N/A	D	850	39.6	N/A	F
	From Atlantic Boulevard to Monument Road	Basic Segment	2	4,060	40.6	N/A	E	5,110	--**	N/A	F
	I-295 Off-Ramp to Monument Road	Diverge	1	870	41.1	N/A	E	1,070	51.1	N/A	F
	I-295 On-Ramp from Monument Road	Merge	1	500	34.8	N/A	D	560	42.6	N/A	F
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	2	3,690	34.1	N/A	D	4,600	--**	N/A	F

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-8a: Design Year 2045 No-Build I-295 Northbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	I-295 Off-Ramp to Merrill Road	Diverge	1	1,040	28.3	N/A	D	1,420	37	N/A	F
	I-295 On-Ramp from Southside Connector	Merge	2	1,900	33.8	N/A	F	2,230	41	N/A	F
	North of Merrill Road/Southside Connector	Basic Segment	3	4,550	25.9	N/A	C	5,410	32.9	N/A	D

*Density = passenger cars/mile/lane

**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-8b: Design Year 2045 No-Build I-295 Southbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	North of Merrill Road/Southside Connector	Basic Segment	3	5,210	31.2	N/A	D	4,680	26.9	N/A	D
	I-295 Off-Ramp to Southside Connector	Diverge	2	1,830	22.3	N/A	C	1,580	18.8	N/A	B
	From Merrill/Southside Connector Off-Ramp to Merrill Off-Ramp	Basic Segment	2	3,380	29.7	N/A	D	3,100	26.5	N/A	D
	I-295 Off-Ramp to Merrill Road	Diverge	1	370	34.8	N/A	D	620	32.1	N/A	D
	I-295 On-Ramp from Merrill Road	Merge	1	1,380	37.9	N/A	E	1,140	31.4	N/A	D
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	2	4,390	--**	N/A	F	3,620	33.2	N/A	D
	I-295 Off-Ramp to Monument Road	Diverge	1	390	43.2	N/A	F	630	35.9	N/A	E
	I-295 On-Ramp from Monument Road	Merge	1	920	41.6	N/A	F	1,050	33.9	N/A	D
	From Atlantic Boulevard to Monument Road	Basic Segment	2	4,920	--**	N/A	F	4,040	40.4	N/A	E
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	820	45.6	N/A	F	1,020	37.2	N/A	E
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	750	41.7	N/A	F	940	33.9	N/A	D
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	2	4,850	--**	N/A	F	3,960	38.7	N/A	E
	I-295 On-Ramp from St. Johns Bluff Road South	Merge	1	950	48.9	N/A	F	640	38.8	N/A	F
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	2	5,800	--**	N/A	F	4,600	--**	N/A	F
	I-295 Off-Ramp to Beach Boulevard	Diverge	1	930	57.7	N/A	F	900	46.2	N/A	F

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-8b: Design Year 2045 No-Build I-295 Southbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	From Town Center Parkway to Beach Boulevard	Weave	4	6,360	35.5	N/A	E	4,920	25.8	N/A	C
	I-295 Southbound GUL to I-295 Southbound EL Off-Ramp	Diverge	1	1,070	32.7	N/A	D	1,040	25.3	N/A	C
	I-295 On-Ramp from Town Center Parkway	Ramp Roadway	1	1,160	N/A	0.58	N/A	1,960	N/A	0.99	N/A
	I-295 Off-Ramp to SR 202	Major Diverge – Upstream	4	5,320	N/A	0.60	N/A	4,570	N/A	0.51	N/A
		Major Diverge – Diverging	2	2,900	25.1	0.70	C	2,940	26.1	0.71	C
		Major Diverge – Downstream	3	2,420	N/A	0.36	N/A	1,730	N/A	0.26	N/A

*Density = passenger cars/mile/lane
**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

N.T.S

Town Center Pkwy

St Johns Bluff Rd S

Cortez Rd

Beach Blvd

St Johns Bluff Rd S

Beachwood Ct

University of North Fl Dr

INTERSTATE 295

To JTB Blvd

From JTB Blvd

EL 1,070 (1,040)

2,900 (2,940)

5,320 (4,570)

5,990 (6,520)

1,340 (1,810)

1,160 (1,960)

2,110 (1,800)

1,220 (1,270)

890 (1,440)

6,360 (4,920)

4,770 (6,160)

1,490 (1,220)

930 (900)

1,060 (1,510)

830 (1,010)

F (F): 30 (20), 1,420 (2,550), 480 (1,070), 890 (650), 20 (20), 700 (680), 30 (30), 30 (30), 30 (30), 20 (30), 2,400 (2,020), 750 (910)

D (F): 50 (80), 2,920 (3,440), 45 (90), 60 (60), 15 (25), 50 (70), 55 (130), 15 (30), 40 (70), 70 (90), 3,320 (2,780), 50 (100)

F (F): 550 (350), 2,020 (2,700), 440 (530), 510 (450), 590 (310), 430 (325), 340 (570), 310 (600), 360 (475), 460 (330), 2,590 (1,950), 320 (400)

E (F): 870 (1,500), 700 (680), 580 (1,080), 870 (990), 350 (280), 1,600 (1,290), 510 (510), 290 (460), 700 (680), 310 (360)

E (E): 970 (740), 1,630 (2,380), 210 (380), 330 (280), 600 (620), 670 (790), 390 (720), 520 (480), 2,370 (1,610), 620 (630)

D (D): 380 (630), 640 (530), 540 (310), 270 (480), 90 (90), 30 (30), 540 (510), 90 (90), 140 (140), 150 (150), 490 (510), 30 (30)

F (E): 160 (100), 2,270 (3,240), 190 (380), 370 (200), 30 (30), 100 (130), 100 (170), 30 (30), 60 (100), 110 (70), 3,040 (2,350), 140 (120)

LEGEND

XXXX (XXXX) - AM (PM) Peak Hour Volume

● - Signalized Intersection

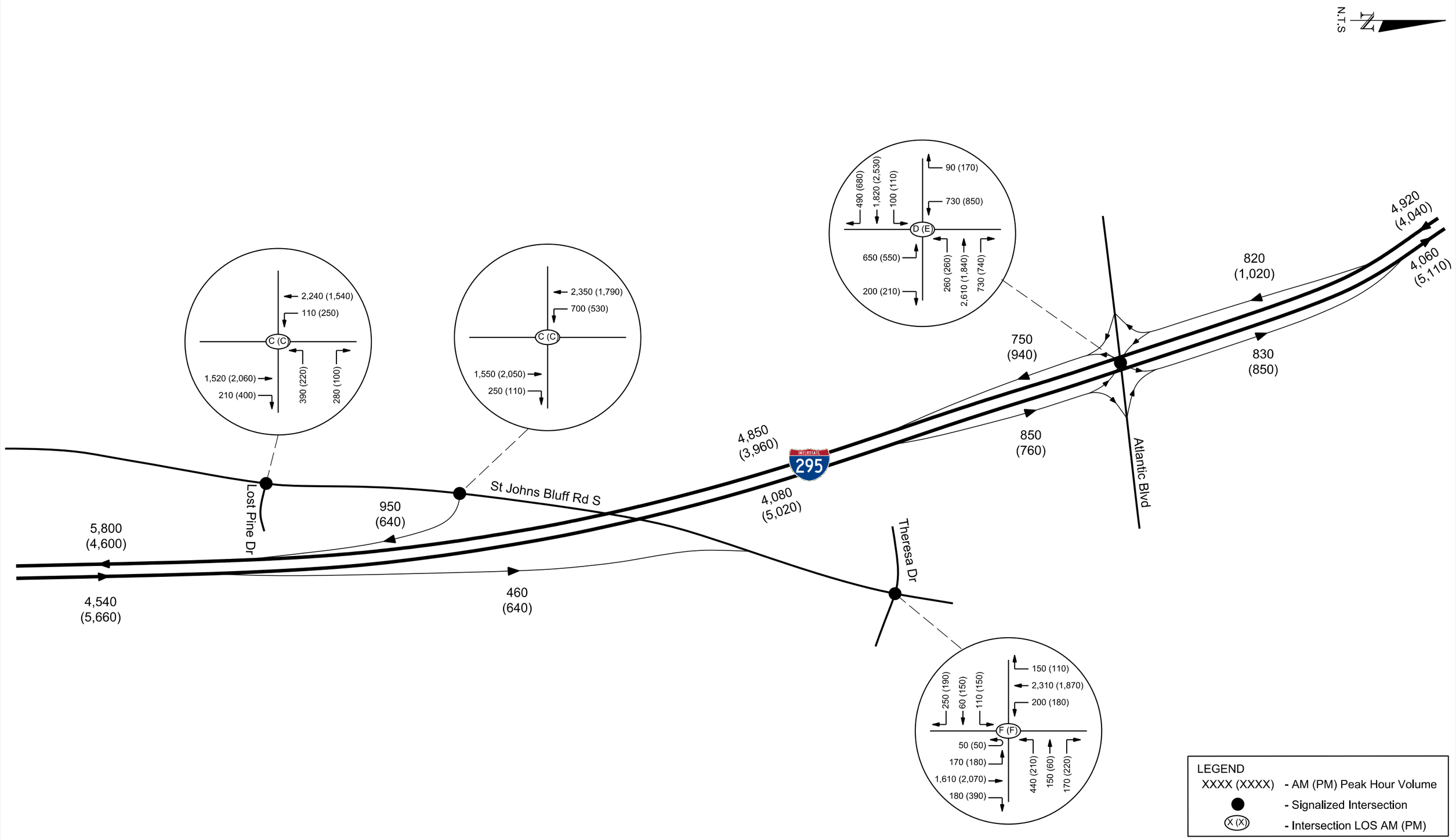
X (X) - Intersection LOS AM (PM)

FDOT

I-295 SIMR from Town Center Parkway to Merrill Road

Design Year 2045 No-Build Peak Hour Volumes and LOS
Mainline, Ramps and Intersections

Figure 6-3
Sheet 1/3


N.T.S
2,240 (1,540)
110 (250)
C (C)
1,520 (2,060)
210 (400)
390 (220)
280 (100)
2,350 (1,790)
700 (530)
C (C)
1,550 (2,050)
250 (110)
490 (680)
1,820 (2,530)
100 (110)
90 (170)
730 (850)
D (E)
650 (550)
200 (210)
260 (260)
2,610 (1,840)
730 (740)
4,920
(4,040)
4,060
(5,110)
820
(1,020)
830
(850)
750
(940)
850
(760)
4,850
(3,960)
4,080
(5,020)
295
Atlantic Blvd
St Johns Bluff Rd S
Lost Pine Dr
Theresa Dr
950
(640)
5,800
(4,600)
4,540
(5,660)
460
(640)
150 (110)
2,310 (1,870)
200 (180)
250 (190)
60 (150)
110 (150)
F (F)
50 (50)
170 (180)
1,610 (2,070)
180 (390)
440 (210)
150 (60)
170 (220)
LEGEND
XXXX (XXXX) - AM (PM) Peak Hour Volume
- Signalized Intersection
X (X) - Intersection LOS AM (PM)

N.T.S

Hartsfield Rd

Merrill Rd

Southside Connector

Wompi Dr

Tredinick Pkwy

Monument Rd

Lee Rd

I-295

370 (620)

1,380 (1,140)

1,040 (1,420)

1,830 (1,580)

1,900 (2,230)

5,210 (4,680)

4,550 (5,410)

3,690 (4,600)

4,390 (3,620)

390 (630)

500 (560)

920 (1,050)

870 (1,070)

4,920 (4,040)

4,060 (5,110)

D (D)
1,960 (1,340)
170 (140)
120 (180)
940 (750)
1,320 (2,100)
570 (920)

D (F)
1,210 (1,020)
1,690 (1,070)
370 (620)
170 (120)
1,520 (2,400)

F (E)
640 (360)
530 (260)
520 (450)
820 (1,040)
890 (1,190)
370 (750)
610 (1,060)
860 (570)
500 (730)
600 (770)

D (D)
190 (120)
60 (60)
580 (780)
740 (710)
1,080 (1,060)
140 (190)
110 (210)
1,020 (1,110)
50 (60)
60 (60)
50 (60)
150 (170)

C (E)
1,350 (1,490)
400 (570)
230 (420)
160 (210)
520 (480)
1,730 (1,540)

F (F)
1,210 (1,520)
300 (180)
440 (450)
1,810 (1,570)
200 (380)
430 (610)

C (C)
1,340 (1,800)
300 (330)
330 (340)
120 (100)
1,680 (1,610)
110 (130)

D (E)
240 (90)
1,700 (2,200)
90 (220)
170 (80)
40 (40)
70 (80)
80 (250)
40 (40)
90 (120)
110 (90)
1,710 (1,740)
80 (70)

LEGEND
XXXX (XXXX) - AM (PM) Peak Hour Volume
- Signalized Intersection
X (X) - Intersection LOS AM (PM)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Intersection Analysis

LOS, delay and 95th percentile queue lengths were used as MOEs to evaluate the Design Year 2055 No-Build intersection conditions. **Tables 6-9** to **6-14** document the intersections operational analysis along the crossing roadways. Output Synchro reports are provided in **Appendix D**.

Town Center Parkway

As shown in **Table 6-9**, two intersections along Town Center Parkway will operate at LOS E or worse and one intersection will operate at LOS D during the AM and PM peak hours in the 2045 No-Build Alternative. The following study intersections operate at LOS E or worse:

- Town Center Parkway at St. Johns Bluff Road S
- Town Center Parkway at I-295

There are several individual movements at the study intersections along Town Center Parkway that will operate at LOS F. These movements are listed below:

Town Center Parkway at St. Johns Bluff Road S

- EB left-turn lane (AM and PM peak hours)
- WB left-turn lane (AM and PM peak hours)
- WB through lane (AM and PM peak hours)
- WB right-turn lane (PM peak hour)
- NB left-turn lane (AM and PM peak hours)
- NB through lane (AM and PM peak hours)
- SB left-turn lane (PM peak hour)
- SB right-turn lane (AM and PM peak hours)

Town Center Parkway at I-295 Ramps

- EB left-turn lane (AM peak hour)
- EB right-turn lane (PM peak hour)
- WB left-turn lane (AM and PM peak hours)
- NB left-turn lane (AM and PM peak hours)
- SB right-turn lane (PM peak hour)

University of North Florida Drive at Eco Road

- WB left-turn lane (AM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- NB left-turn lane (AM and PM peak hours)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Town Center Parkway. For the ramp terminal intersections at Town Center Parkway interchange, the I-295 northbound and southbound off-ramp lengths are approximately 2,000 feet long.

In the Design Year 2045 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along Town Center Parkway except the following (marked as red in **Table 6-9**):

- EB left-turn lane at Town Center Parkway and St. Johns Bluff Road (AM and PM peak hours)
- WB through lane at Town Center Parkway and St. Johns Bluff Road (AM and PM peak hours)
- WB right-turn lane at Town Center Parkway and St. Johns Bluff Road (PM peak hour)
- NB left-turn lane at Town Center Parkway and St. Johns Bluff Road (AM peak hour)
- SB right-turn lane at Town Center Parkway and St. Johns Bluff Road (AM peak hour)
- EB left-turn lane at Town Center Parkway and I-295 Ramps (PM peak hour)
- EB right-turn lane at Town Center Parkway and I-295 Ramps (AM and PM peak hours)
- NB left-turn lane at Town Center Parkway and I-295 Ramps (AM and PM peak hours)
- SB right-turn lane at Town Center Parkway and I-295 Ramps (AM and PM peak hours)
- WB left-turn lane at University of North Florida Drive and Eco Road (AM and PM peak hours)
- NB left-turn lane at University of North Florida Drive and Eco Road (AM and PM peak hours)
- SB right-turn lane at University of North Florida Drive and Eco Road (PM peak hour)

The queue lengths for northbound off ramp left turn lane and southbound off ramp right turn lane that extend beyond the storage are not anticipated to back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-9: Town Center Parkway - Design Year 2045 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Town Center Parkway & St. Johns Bluff Road S (Node 101)	Eastbound	Left	342.5 (160.5)	F (F)	2/525'	#564' (#974')
		Through	40.9 (34.4)	D (C)	3/NA	591' (1075')
		Right	0.1 (0.1)	A (A)	1/265'	0' (0')
	Westbound	Left	110.2 (107.1)	F (F)	1/250'	m29' (m40')
		Through	189.7 (87.5)	F (F)	3/600'	m#1391' (m#923')
		Right	36.2 (118.6))	D (F)	1/390'	m212' (m#1108')
	Northbound	Left	178.6 (96.6)	F (F)	1/100'	#115' (79')
		Through	93.3 (98.8)	F (F)	1/ NA	78' (80')
		Right	1 (1)	A (A)	1/100'	0' (0')
	Southbound	Left	51.1 (278.9)	D (F)	2/800'	455' (#732')
		Through	36 (69.8)	D (E)	1/ NA	38' (54')
		Right	161.6 (83.5)	F (F)	1/800'	#1471' (#654')
	Overall Intersection		***131.7 (99.3)***	***F (F)***	-	-
Town Center Parkway & I-295 (Node 102)	Eastbound	Left	80.8 (46.6)	F (D)	2/460'	413' (m638')
		Through	49.4 (27.3)	D (C)	3/ NA	341' (m196')
		Right	33.4 (246.7)	C (F)	1/525'	566' (m#2484')
	Westbound	Left	88.4 (88.7)	F (F)	2/450'	232' (354')
		Through	62.9 (76.2)	E (E)	3/ NA	335' (347')
		Right	8 (10)	A (A)	1/525'	88' (103')
	Northbound	Left	104.6 (130.3)	F (F)	2/725'	#1351' (#1104')
		Right	5.9 (14.4)	A (B)	1/725'	119' (251')
	Southbound	Left	33 (43.6)	C (D)	2/750'	188' (171')
		Right	27.3 (80.4)	C (F)	1/750'	#839' (#972')
	Overall Intersection		***57.3 (102.4)***	***E (F)***	-	-
University of North Florida Drive & Eco Road (Node 103)	Eastbound	Left	65 (33.5)	E (C)	1/2800’	#576' (#235')
		Through	44.4 (53)	D (D)	1/2800’	#615' (#516')
		Right	0.4 (0.8)	A (A)	1/250’	0' (0')
	Westbound	Left	101.1 (34.4)	F (C)	1/75'	#221' (#128')
		Through/ Right	48.8 (33.8)	D (C)	2/NA	#252' (211')
	Northbound	Left	92.9 (85.4)	F (F)	1/320'	#533' (#527')
		Through/ Right	22.9 (18.6)	C (B)	1/NA	164' (140')
	Southbound	Left	25.7 (17.8)	C (B)	1/150'	33' (28')
		Through	66.3 (33.4)	E (C)	1/NA	#129' (89')
		Right	16 (36.9)	B (D)	1/150'	#77' (#286')
	Overall Intersection		***50.3 (37.6)***	***D (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Beach Boulevard

As shown in **Table 6-10**, all study intersections along Beach Boulevard will operate at LOS E or worse except for one intersection that will operate at LOS D during the AM peak hour in the 2045 No-Build Alternative. The following study intersections will operate at LOS E or worse:

- Beach Boulevard at Cortez Road (PM peak hour)
- Beach Boulevard at St. Johns Bluff Road (AM and PM peak hours)
- Beach Boulevard at I-295 Northbound/Southbound Ramps (AM and PM peak hours)
- Beach Boulevard at Beachwood Court (AM and PM peak hours)

There are several individual movements at the study intersections along Beach Boulevard that will operate at LOS F. These movements are listed below:

Beach Boulevard at Cortez Road

- EB left-turn lane (AM and PM peak hours)
- EB through/right lane (PM peak hour)
- WB through/right lane (PM peak hour)
- NB through/left lane (AM and PM peak hours)
- SB through/left lane (AM and PM peak hours)

Beach Boulevard at St. Johns Bluff Road

- EB left-turn lane (AM peak hour)
- EB through lane (AM and PM peak hours)
- WB left-turn lane (AM and PM peak hours)
- WB through lane (AM and PM peak hours)
- NB left-turn lane (AM and PM peak hours)
- NB through lane (PM peak hour)
- NB right-turn lane (PM peak hour)
- SB left-turn lane (AM and PM peak hours)
- SB through lane (AM and PM peak hours)
- SB right-turn lane (AM and PM peak hours)

Beach Boulevard at I-295 Northbound/Southbound Ramps

- EB left-turn lane (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- EB through lane (PM peak hour)
- WB left-turn lane (AM and PM peak hours)
- WB through lane (AM peak hour)
- NB left-turn lane (AM peak hour)
- SB left-turn lane (AM peak hour)

Beach Boulevard at Beachwood Court

- EB left-turn lane (PM peak hour)
- WB left-turn lane (PM peak hour)
- WB through/right lane (AM and PM peak hours)
- NB left-turn lane (AM and PM peak hours)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Beach Boulevard. For the ramp terminal intersections, the length of the I-295 northbound off ramp is approximately 1,900 feet and southbound off ramp is approximately 1,400 feet.

In the Design Year 2045 No-Build Alternative, the 95th Percentile queue length will exceed the storage at following intersection approaches marked as red in **Table 6-10**:

- WB through/right lane at Beach Boulevard and Cortez Road (PM peak hour)
- EB left-turn lane at Beach Boulevard and St. Johns Bluff Road (AM peak hour)
- EB right-turn lane at Beach Boulevard and St. Johns Bluff Road (AM peak hour)
- WB left-turn lane at Beach Boulevard and St. Johns Bluff Road (AM and PM peak hours)
- NB left-turn lane at Beach Boulevard and St. Johns Bluff Road (PM peak hour)
- NB right-turn lane at Beach Boulevard and St. Johns Bluff Road (AM and PM peak hours)
- NB left-turn at Beach Boulevard and I-295 Ramps (AM and PM peak hours)
- EB through/right lane at Beach Boulevard and Beachwood Court (PM peak hour)
- NB left-turn lane at Beach Boulevard and Beachwood Court (PM peak hour)
- SB left-turn lane at Beach Boulevard and Beachwood Court (AM and PM peak hours)

The queue length for northbound off ramp left turn lane that extends beyond the storage is not anticipated to back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-10: Beach Boulevard – Design Year 2045 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Beach Boulevard at Cortez Road (Node 201)	Eastbound	Left	96.7 (106.4)	F (F)	1/350'	102' (185')
		Through/Right	51.3 (90.6)	D (F)	3/NA	1130' (#2050')
	Westbound	Left	79.3 (68.7)	E (E)	1/125'	m77' (m120')
		Through/Right	19.6 (98.7)	B (F)	3/700’	m399' (m#1223')
	Northbound	Through/Left	106.7 (114.9)	F (F)	1/NA	144' (291')
		Right	7.7 (4.9)	A (A)	1/NA	18' (22')
	Southbound	Through/Left	105 (101)	F (F)	1/NA	136' (187')
		Right	19.1 (2.5)	B (A)	1/350'	49' (8')
	Overall Intersection		***36.5 (93.0)***	***D (F)***	-	-
Beach Boulevard at St. Johns Bluff Road (Node 202)	Eastbound	Left	246.7 (72.1)	F (E)	2/430'	m#503' (m293')
		Through	93.7 (93.6)	F (F)	3/NA	#1028' (m#1261')
		Right	25.8 (7.8)	C (A)	1/275'	555' (m100')
	Westbound	Left	97.5 (152)	F (F)	2/275'	m297' (#364')
		Through	118.2 (109.8)	F (F)	3/1250’	m#1238' (#1064')
		Right	35.2 (30.4)	D (C)	1/1250’	m229' (343')
	Northbound	Left	110.4 (635.5)	F (F)	2/350'	#320' (#577')
		Through	77.8 (80.9)	E (F)	2/NA	236' (480')
		Right	47.4 (117.4)	D (F)	1/275'	298' (#802')
	Southbound	Left	81.4 (156.4)	F (F)	2/NA	#448' (#362')
		Through	84.9 (80.2)	F (F)	2/NA	#478' (262')
		Right	167.2 (106.9)	F (F)	1/NA	#877' (#481')
	Overall Intersection		***103.5 (129.1)***	***F (F)***	-	-
Beach Boulevard at I-295 NB/SB Ramps (Node 203)	Eastbound	Left	61.6 (88.8)	E (F)	2/680'	m130' (m225')
		Through	40.4 (83.5)	D (F)	3/NA	m677' (m#1129')
		Right	53.4 (30.4)	D (C)	1/1250’	m#1148' (m599')
	Westbound	Left	99.2 (95.7)	F (F)	2/600'	m255' (m276')
		Through	83.2 (78)	F (E)	3/NA	m548' (m756')
		Right	6.8 (31.4)	A (C)	1/680'	m78' (m370')
	Northbound	Left	107.1 (76)	F (E)	2/550'	#582' (564')
		Right	0.4 (1)	A (A)	1/350'	0' (0')
	Southbound	Left	88 (64.9)	F (E)	2/500'	#488' (423')
		Right	0.3 (0.3)	A (A)	1/425'	0' (0')
	Overall Intersection		***61.2 (63.4)***	***E (E)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-10: Beach Boulevard – Design Year 2045 No-Build Intersection Analysis Summary (Continued)

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Beach Boulevard at Beachwood Court (Node 204)	Eastbound	Left	64.2 (94.8)	E (F)	1/510'	m244' (m432')
		Through/Right	26.7 (60.9)	C (E)	3/1500'	704' (m#1639')
	Westbound	Left	60.6 (83.1)	E (F)	1/200'	159' (#138')
		Through/Right	148.1 (92)	F (F)	3/NA	#1838' (#1406')
	Northbound	Left	793.1 (217.4)	F (F)	1/400'	#345' (#456')
		Through	55.4 (60.4)	E (E)	1/NA	64' (68')
		Right	1.4 (12.3)	A (B)	1/400'	4' (62')
	Southbound	Left	61.8 (70.8)	E (E)	1/150'	170' (231')
		Through/Right	38.2 (26.1)	D (C)	1/NA	365' (191')
	Overall Intersection		***99.5 (76.2)***	***F (E)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

St. Johns Bluff Road

As shown in **Table 6-11**, the 2045 No-Build operational analysis results indicate that St. Johns Bluff Road and Bahia Drive/ Theresa Drive intersection will operate at LOS F during the AM and PM peak hours.

There are several individual movements at the study intersections along St. Johns Bluff Road that will operate at LOS F. These movements are listed below:

St. Johns Bluff Road at I-295 Southbound Ramp

- SB left-turn lane (AM and PM peak hours)

St. Johns Bluff Road at Bahia Drive/ Theresa Drive

- EB left-turn lane (AM peak hour)
- WB through/left lane (AM and PM peak hours)
- NB left-turn lane (AM and PM peak hours)
- NB through lane (PM peak hour)
- SB left-turn lane (AM and PM peak hours)
- SB through lane (AM and PM peak hours)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along St. Johns Bluff Road. For the ramp terminal intersections,

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

the length of the I-295 northbound off ramp at St. Johns Bluff Road interchange is approximately 2,700 feet long.

In the Design Year 2045 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along St. Johns Bluff Road except the following (marked as red in **Table 6-11**):

- WB right-turn lane at St. Johns Bluff Road and Lost Pine Drive (AM peak hour)
- SB left-turn lane at St. Johns Bluff Road and Lost Pine Drive (PM peak hour)
- EB left-turn lane at St. Johns Bluff Road and Bahia Drive/ Theresa Drive (AM and PM peak hours)
- NB left-turn lane at St. Johns Bluff Road and Bahia Drive/ Theresa Drive (AM and PM peak hours)
- NB through lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (AM and PM peak hours)
- NB right-turn lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (AM and PM peak hours)
- SB left-turn lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (AM peak hour)
- SB right-turn lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (AM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-11: St. Johns Bluff Road - Design Year 2045 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
St. Johns Bluff Road & Lost Pine Drive (Node 301)	Westbound	Left	71.2 (77.0)	E (E)	1/NA	#490 (296)
		Right	32.5 (21.9)	C (C)	1/100'	232 (81)
	Northbound	Through	22.3 (49.9)	C (D)	2/1850'	573 (#1258)
		Right	3.9 (8.6)	A (A)	1/200'	53 (169)
	Southbound	Left	47.7 (77.1)	D (E)	1/285'	#87 (#359)
		Through	36.6 (8.3)	D (A)	2/1850'	#1136 (380)
	Overall Intersection		***33.4 (34.4)***	***C (C)***	-	
St. Johns Bluff Road & I-295 SB Ramp (Node 302)	Northbound	Through/Right	47.9 (31.8)	D (C)	2/1500'	#742 (#1066)
	Southbound	Left	87.6 (130.2)	F (F)	2/700'	#646 (#686)
		Through	1.1 (0.6)	A (A)	2/1500'	0 (0)
	Overall Intersection		***31.0 (31.0)***	***C (C)***	-	
St. Johns Bluff Road & Bahia Drive/ Theresa Drive (Node 304)	Eastbound	Left	907.4 (46.0)	F (D)	1/50'	#334 (182)
		Through/Right	44.2 (34.3)	D (C)	1/NA	371 (302)
	Westbound	Through/Left	774.0 (223.3)	F (F)	1/NA	#1221 (#463)
		Right	23.6 (14.9)	C (B)	1/235'	147 (122)
	Northbound	Left	2159.7 (1359.5)	F (F)	1/250'	#707 (#504)
		Through	55.0 (161.9)	D (F)	2/900'	#1125 (#1264)
		Right	19.0 (17.0)	B (B)	1/125'	144 (237)
	Southbound	Left	320.0 (336.9)	F (F)	1/360'	#529 (#359)
		Through	202.1 (118.5)	F (F)	2/NA	#2087 (#1100)
		Right	17.6 (8.1)	B (A)	1/100'	118 (52)
	Overall Intersection		***286.4 (174.8)***	***F (F)***	-	

95th percentile volume exceeds capacity, queue maybe longer.

Atlantic Boulevard

As shown in **Table 6-12**, the 2045 No-Build operational analysis results indicate that Atlantic Boulevard and I-295 ramps intersection will operate at LOS E during the PM peak hour.

There are three individual movements at the Atlantic Boulevard and I-295 Ramp that will operate at LOS F. These movements are listed below:

- EB left-turn lane (AM and PM peak hours)
- EB through lane (PM peak hour)
- WB left-turn lane (AM and PM peak hours)

Adjacent intersections were not analyzed along Atlantic Boulevard after discussions with FDOT as this SIMR did not recommend any improvements at the Atlantic Boulevard interchange.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Atlantic Boulevard. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Atlantic Boulevard interchange are approximately 1,200 feet and 1,300 feet long respectively.

In the Design Year 2045 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at study intersection approaches except the following (marked as red in **Table 6-12**):

- WB left-turn lane at Atlantic Boulevard and I-295 Northbound/Southbound Ramps (AM and PM peak hours)
- WB right-turn lane at Atlantic Boulevard and I-295 Northbound/Southbound Ramps (AM and PM peak hours)
- SB left-turn lane at Atlantic Boulevard and I-295 Northbound/Southbound Ramps (PM peak hour)

Table 6-12: Atlantic Boulevard - Design Year 2045 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Atlantic Boulevard & I-295 (Node 401)	Eastbound	Left	89.6 (88.8)	F (F)	1/240'	#174' (#190')
		Through	35.6 (136.6)	D (F)	3/ NA	551' (#1167')
		Right	0.5 (0.9)	A (A)	1/500'	0' (0')
	Westbound	Left	124.8 (141.5)	F (F)	1/330'	#407' (#469')
		Through	69.4 (33.4)	E (C)	3/NA	#954' (602')
		Right	19.7 (21.1)	B (C)	1/165'	466' (517')
	Northbound	Left	55.5 (48.3)	E (D)	2/650'+ 500' (To Gore)	#354' (303')
		Right	0.2 (0.2)	A (A)	1/650'	0' (0')
	Southbound	Left	68.5 (72.6)	E (E)	2/500'+ 700' (To Gore)	#427' (#549')
		Right	0.1 (0.1)	A (A)	1/500'	0' (0')
	Overall Intersection		***50.5 (70.3)***	***D (E)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.

Monument Road

As shown in **Table 6-13**, the 2045 No-Build operational analysis results indicate that two study intersections along Monument Road listed below will operate at LOS E or worse:

- Monument Road at I-295 Southbound Ramps (PM peak hour)
- Monument Road at I-295 Northbound Ramps (AM and PM peak hours)

There are several individual movements at the study intersections along Monument Road that will operate at LOS F. These movements are listed below:

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Monument Road at Tredinick Parkway

- WB through lane (PM peak hour)
- NB left-turn lane (PM peak hour)
- SB left-turn lane (PM peak hour)

Monument Road at I-295 Southbound Ramps

- EB through lane (PM peak hour)
- WB left-turn lane (PM peak hour)

Monument Road at I-295 Northbound Ramps

- WB through/right lane (AM and PM peak hours)
- NB left-turn lane (AM peak hour)
- NB right-turn lane (AM and PM peak hours)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Monument Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Monument Road interchange are approximately 1,450 and 1,700 feet long, respectively.

In the Design Year 2045 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along St. Johns Bluff Road except the following (marked as red in **Table 6-13**):

- SB left-turn lane at Monument Road and Tredinick Parkway (AM and PM peak hours)
- SB right-turn at Monument Road and I-295 Southbound Ramps (AM and PM peak hours)
- EB left-turn at Monument Road and I-295 Northbound Ramps (AM peak hour)
- NB right-turn at Monument Road and I-295 Northbound Ramps (AM and PM peak hours)
- NB left-turn lane at Monument Road and Lee Road (AM and PM peak hours)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-13: Monument Road - Design Year 2045 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Monument Road & Tredinick Parkway (Node 501)	Eastbound	Left	51.1 (63.3)	D (E)	2/ NA	385' (#571')
		Through	46.1 (72.7)	D (E)	1/ NA	101' (121')
		Right	8 (14.6)	A (B)	1/305’	68' (69')
	Westbound	Left	74.5 (46)	E (D)	1/350’	122' (98')
		Through	74.2 (83.8)	E (F)	1/ NA	107' (121')
		Right	19.9 (20.4)	B (C)	1/225’	78' (81')
	Northbound	Left	72.6 (82.2)	E (F)	1/335’	196' (325')
		Through	40.8 (59.1)	D (E)	2/NA	664' (#894')
	Southbound	Left	72.3 (82.9)	E (F)	1/225’	241' (298')
		Through	38.2 (54.4)	D (D)	2/NA	657' (#780')
		Right	0.9 (2)	A (A)	1/225’	20' (47')
	Overall Intersection		***35.2 (49.7)***	***D (D)***	-	-
Monument Road & I-295 SB Ramps (Node 502)	Eastbound	Through	45 (92.2)	D (F)	2/NA	#713' (#805')
		Right	8.2 (10.2)	A (B)	1/NA	133' (215')
	Westbound	Left	23.3 (196.9)	C (F)	1/365'	m174' (m#331')
		Through	4.5 (7.4)	A (A)	2/750’	m152' (m114')
	Southbound	Left	59.5 (40.2)	E (D)	1/1700’	198' (219')
		Right	65.4 (68.3)	E (E)	1/150'	#276' (#498')
	Overall Intersection		***24.7 (60.8)***	***C (E)***	-	-
Monument Road & I-295 NB Ramps (Node 503)	Eastbound	Left	53.2 (46.6)	D (D)	1/150'	m183' (m127')
		Through	1.8 (64.4)	A (E)	2/750’	m33' (m709')
	Westbound	Through/ Right	127.2 (207.4)	F (F)	2/NA	#1185' (#1254')
	Northbound	Left	171 (47.7)	F (D)	1/1500’	#653' (#477')
		Right	106.8 (112.4)	F (F)	1/175'	#539' (#778')
	Overall Intersection		***90.0 (127.5)***	***F (F)***	-	-
Monument Road & Lee Road (Node 504)	Eastbound	Through	23.7 (42.4)	C (D)	2/1100’	m653' (m#895')
		Right	2.2 (1)	A (A)	1/450’	m34' (m10')
	Westbound	Left	19.4 (33.6)	B (C)	2/330’	84' (80')
		Through	16.5 (13.2)	B (B)	2/NA	650' (467')
	Northbound	Left	55 (68.1)	D (E)	1/150’	330' (#418')
		Right	6.7 (7.7)	A (A)	1/NA	42' (50')
	Overall Intersection		***21.0 (29.1)***	***C (C)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

The queue lengths for northbound off ramp right turn lane and southbound off ramp right turn lane that extend beyond the storage are not anticipated to back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Merrill Road

As shown in **Table 6-14**, the 2045 No-Build operational analysis results indicate of the four study intersections along Merrill Road, three intersections listed below will operate at LOS E or worse:

- Merrill Road at I-295 Southbound Ramp (PM peak hour)
- Merrill Road at Southside Connector (AM and PM peak hours)
- Merrill Road at Wompi Drive (PM peak hour)

There are several individual movements at the intersections along Merrill Road that will operate at LOS F. These movements are listed below:

Merrill Road and Hartsfield Road

- SB left-turn lane (PM peak hour)
- WB through lane (PM peak hour)
- SB left-turn lane (AM peak hour)

Merrill Road and I-295 Southbound Ramp

- SB right-turn lane (AM and PM peak hours)

Merrill Road and Southside Connector

- EB left-turn lane (PM peak hour)
- NB right-turn lane (PM peak hour)
- SB left-turn lane (AM peak hour)
- SB right-turn lane (AM and PM peak hours)

Merrill Road and Wompi Drive

- EB left-turn lane (AM and PM peak hours)
- WB left-turn lane (AM and PM peak hours)
- NB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the existing turn lane storage lengths for the study intersections along Merrill Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Merrill Road interchange are approximately 1,650 and 2,000 feet long, respectively.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

In the Design Year 2045 No-Build Alternative, the available storage will accommodate the 95th Percentile queue at all intersection approaches along Merrill Road except the following (marked as red in **Table 6-14**):

- SB left-turn lane at Merrill Road and Hartsfield Road (AM peak hour)
- EB right-turn lane at Merrill Road and I-295 Southbound Ramp (AM peak hour)
- SB right-turn lane at Merrill Road and I-295 Southbound Ramp (AM and PM peak hours)
- EB left-turn lane at Merrill Road and Southside Connector (AM and PM peak hours)
- EB right-turn lane at Merrill Road and Southside Connector (AM peak hour)
- WB left-turn lane at Merrill Road and Southside Connector (AM peak hour)
- NB right-turn lane at Merrill Road and Southside Connector (PM peak hour)
- SB left-turn lane at Merrill Road and Southside Connector (AM peak hour)
- SB right-turn lane at Merrill Road and Southside Connector (AM and PM peak hours)
- EB through/right lane at Merrill and Wompi Drive (AM and PM peak hours)
- NB left-turn lane at Merrill Road and Wompi Drive (PM peak hour)

The queue length for southbound off ramp right turn lane that extends beyond the storage is not anticipated to back up to the mainline.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 6-14: Merrill Road - Design Year 2045 No-Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Merrill Road at Hartsfield Road (Node 601)	Eastbound	Left	50.2 (121.1)	D (F)	1/200’	199' (#192')
		Through	35.9 (13.7)	D (B)	2/NA	1183' (360')
	Westbound	Through	30 (102.8)	C (F)	2/1400’	m634' (#1115')
		Right	4.6 (6.5)	A (A)	1/1400’	m157' (274')
	Southbound	Left	85.5 (47.7)	F (D)	2/350’	#742' (#347')
		Right	26.8 (26.1)	C (C)	1/460’	122' (151')
	Overall Intersection		***40.3 (54.8)***	***D (D)***	-	-
Merrill Road at I-295 SB Ramp (Node 602)	Eastbound	Through	28.6 (11.1)	C (B)	2/NA	m1006' (256')
		Right	44.2 (6.5)	D (A)	1/300'	m#1545' (154')
	Westbound	Left	56.3 (8.9)	E (A)	1/325'	m164' (m50')
		Through	11 (34.7)	B (C)	2/1150’	m290' (m691')
	Southbound	Right	132.7 (576.2)	F (F)	1/400’	#686' (#997')
	Overall Intersection		***35.7 (88.0)***	***D (F)***	-	-
Merrill Road at Southside Connector (Node 603)	Eastbound	Left	48.4 (196.5)	D (F)	2/330'	341' (#358')
		Through	20.8 (33.3)	C (C)	2/1100’	233' (95')
		Right	30.5 (6.4)	C (A)	1/600'	854' (39')
	Westbound	Left	61.8 (51.6)	E (D)	2/560'	#673' (m#294')
		Through	12.1 (71)	B (E)	2/NA	121' (m377')
		Right	5.5 (14.7)	A (B)	1/600'	138' (m368')
	Northbound	Left	79.4 (26.8)	E (C)	2/550' +560’ (To Gore)	290' (287')
		Right	22.7 (89.5)	C (F)	1/550'	#296' (#1015')
	Southbound	Left	362.4 (36.8)	F (D)	2/750’	#970' (532')
		Right	131.2 (127.1)	F (F)	1/750'	#945' (#1121')
	Overall Intersection		***93.3 (67.2)***	***F (E)***	-	-
Merrill Road at Wompi Drive (Node 604)	Eastbound	Left	119.6 (128)	F (F)	2/400’	m53' (m#128')
		Through/ Right	36.7 (52.8)	D (D)	2/900’	m1117' (m#1124')
	Westbound	Left	89.7 (257.5)	F (F)	1/335’	206' (#207')
		Through	29 (23.5)	C (C)	2/NA	1086' (766')
		Right	2.2 (0.1)	A (A)	1/385’	20' (0')
	Northbound	Left	71 (358.1)	E (F)	1/150’	129' (#434')
		Through/ Right	52.9 (25.2)	D (C)	1/NA	162' (99')
	Southbound	Left	62.1 (59.1)	E (E)	1/NA	116' (99')
		Through/ Right	63.8 (31.4)	E (C)	1/NA	228' (89')
	Overall Intersection		***38.9 (62.8)***	***D (E)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

7. ALTERNATIVES

This section offers a discussion on the alternatives considered as part of this SIMR, which are as follows:

- No-Build Alternative
- Build Alternative

The alternatives are described below:

7.1 No-Build Alternative

The No-Build Alternative provides a baseline for comparison to all study alternatives. This alternative represents the existing physical and operational conditions within the area of influence including all planned and programmed roadway improvements over the course of the analysis years. The basis for any interchange proposal is based on a comparison of the No-Build and Build Alternative, identification of the network that is considered in the No-Build Alternative in each analysis year is required.

At this time, the No-Build alternative considers the existing configuration plus any programmed improvements with future traffic as discussed earlier in **Section 5** of this SIMR. The No-Build Alternative does not satisfy the purpose and need for this project. The operational analysis results for the No-Build Alternative are provided in **Section 6**.

7.2 Build Alternative

A summary of the Build Alternative is discussed in this section.

I-295 mainline Improvements:

- In general, the project expands the existing four lane roadway to six lane roadway, by adding one lane in each direction along I-295.
- Widen to include an auxiliary lane between Beach Boulevard and St. Johns Bluff Road making it four lanes in each direction along I-295.

I-295 at Town Center Parkway Interchange Improvements:

- Reconfigure the interchange to a Diverging Diamond Interchange (DDI).
- Widen the northbound I-295 exit ramp to Town Center Parkway to provide a two-lane exit.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

- Widen the southbound I-295 exit ramp to Town Center Parkway to provide a two-lane exit.
- Widen the southbound I-295 entrance ramp from Town Center Parkway to provide a two-lane entrance.
- Reconfigure the intersection at Town Center Parkway and St. Johns Bluff Road.

I-295 at Beach Boulevard Interchange Improvements:

- No improvements are recommended at the Beach Boulevard interchange as part of this SIMR. Changes were considered at the Beach Boulevard interchange with I-295, but those could not be accommodated within the right of way. Land use around this interchange is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. The operations at Beach Boulevard interchange remain the same under No-Build and Build conditions and they do not impact the Build alternative recommended in this SIMR. I-295 mainline is being widened at this interchange and merge/diverge areas are anticipated to operate at acceptable LOS through design year.

I-295 at St. Johns Bluff Road Interchange Improvements:

- Provide signal control at I-295 northbound ramp terminal intersection.
- Add a left-turn movement from the exit ramp at I-295 northbound ramp terminal intersection.
- Add a through lane at the I-295 northbound ramp terminal intersection to Theresa Dr/Bahia Dr intersection. Reconfigure the Theresa Drive northbound approach from a thru/left and right to a left only and thru/right.

I-295 at Atlantic Boulevard Interchange Improvements:

- No improvements are recommended at the Atlantic Boulevard interchange as part of this SIMR. Changes were considered at the Atlantic Boulevard interchange with I-295, but those could not be accommodated within the right of way. Land use around this interchange is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. The operations at Atlantic Boulevard interchange remain the same under No-Build and Build conditions and they do not impact the Build alternative recommended

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

in this SIMR. I-295 mainline is being widened at this interchange and merge/diverge areas are anticipated to operate at acceptable LOS through design year.

I-295 at Monument Road Interchange Improvements:

- Reconfigure the interchange to diamond interchange with a turbo lane from eastbound and westbound Monument Road to northbound I-295 and a single loop ramp in the northwest quadrant.

I-295 at Merrill Road Interchange Improvements:

- Reconfigure the Southside Connector at Merrill Road from SPUI to One Quad Partial Cloverleaf Interchange with a single loop ramp in the northeast quadrant with a turbo lane from westbound Merrill Road to northbound I-295 and southbound southside connector.
- Modify intersection at Wompi Drive to only allow directional lefts from Wompi Drive onto Merrill Road. Restrict left turns from Merrill Road to Wompi Drive. Restrict northbound and southbound through movements from Wompi Drive.
- Signalize intersection at Jane Street and only allow directional lefts from Merrill Road. In existing condition, Jane Street is a two-way directional median opening with left turns lanes. Proposed modifications at Wompi Drive will redirect some traffic to Jane Street intersection. Jane Street intersection was included in the Build Alternative analysis to analyze the impact of this traffic shift under signal control. Traffic west of the Jane Street was kept the same between No Build and Build Alternatives. A request for signalization at Jane Street is being proposed in this SIMR with no change in access at this location. Operational analysis showed that the LOS at this intersection is expected to be at LOS A/B in design year and queues along Merrill are not anticipated to extend to the ramp terminal intersection.

Figure 7-1 shows the lane configuration for the Build Alternative.

7.3 Build Design Traffic

The Build Alternative design traffic development for Opening Year 2025 and Design Year 2045 is discussed in **Section 5** of this SIMR.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

N.T.S

N

Town Center Pkwy

St Johns Bluff Rd S

To JTB Blvd

From JTB Blvd

University of North Fl Dr

INTERSTATE 295

Cortez Rd

Beach Blvd

St Johns Bluff Rd S

Beachwood Ct

LEGEND

- Number of lanes
- Number of Express lanes

FDOT

I-295 SIMR from Town Center Parkway to Merrill Road

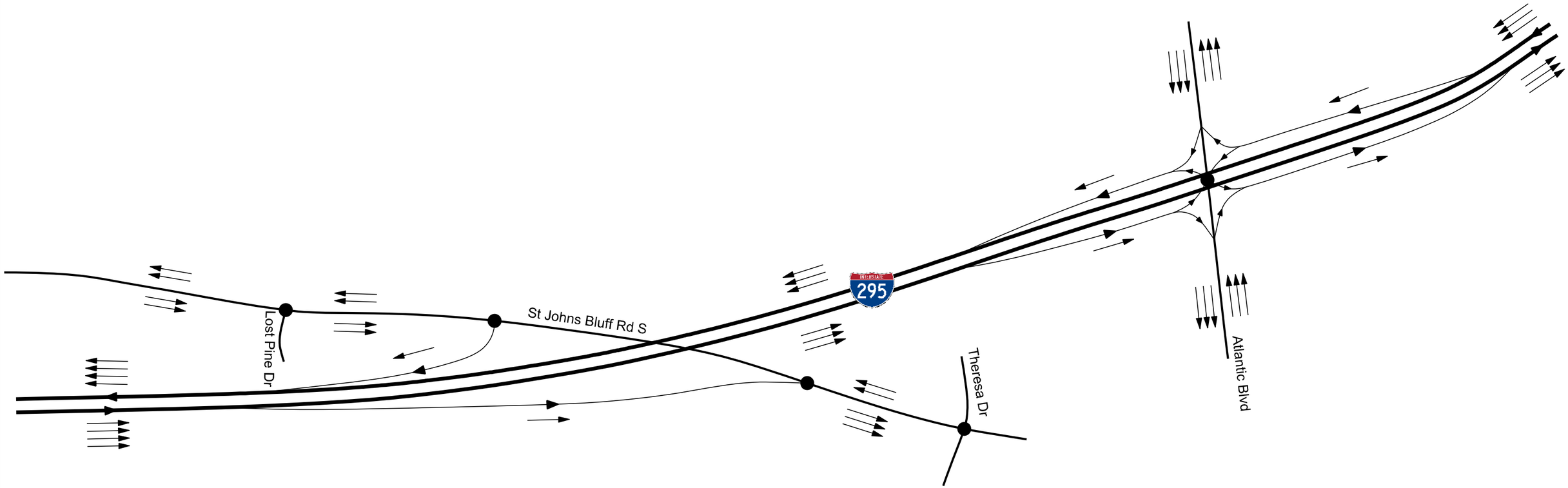
Build Alternative Lane Configuration

Figure 7-1
Sheet 1/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

N.T.S

N

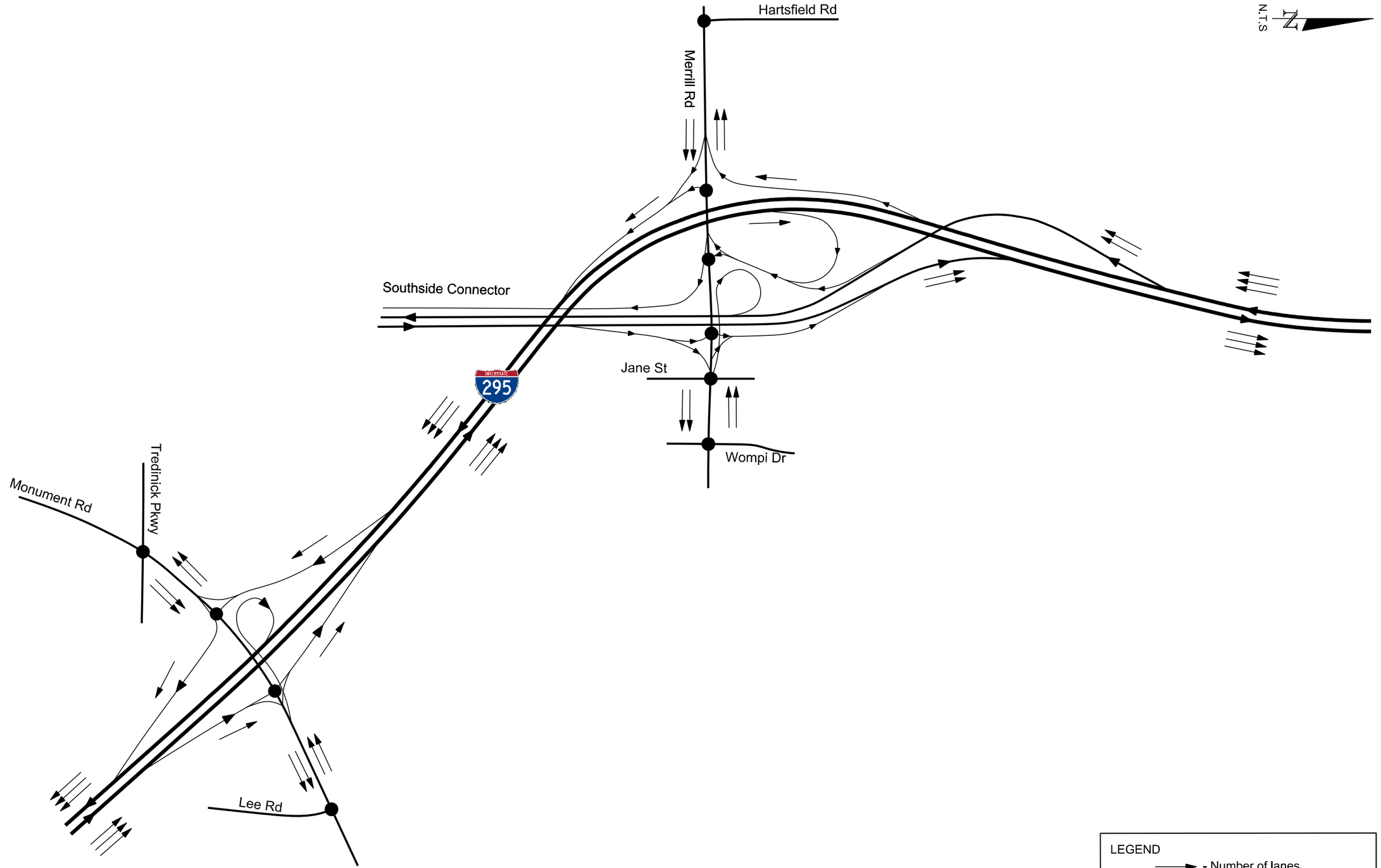


LEGEND

→ - Number of lanes

FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	Build Alternative Lane Configuration	Figure 7-1 Sheet 2/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D



FDOT *I-295 SIMR from Town Center Parkway to Merrill Road*	Build Alternative Lane Configuration	Figure 7-1 Sheet 3/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

8. EVALUATION OF ALTERNATIVES

This section discusses the analysis of alternatives based on safety, operational, engineering and financial factors of the I-295 corridor. The No-Build Alternative was evaluated in **Section 6.** The analysis of the Build Alternative and comparison with the No-Build Alternative is provided in this section. The evaluation criteria include:

- Conformance with Regional and State Transportation Plans
- Compliance with Policies and Engineering Standards
- Traffic Operational Performance
- Safety
- Achievement of Objectives

8.1 Conformance with Local, Regional and State Transportation Plans

This SIMR is consistent with the LRTP for the area. Additional I-295 capacity within the study limits is listed as one of the cost feasible projects in the North Florida TPO 2045 Cost Feasible Plan.

8.2 Compliance with Policies and Engineering Standards

The design criteria for this project are based on design parameters outlined in the FDOT Design Manual, the FDOT Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways and AASHTO's A Policy on Geometric Design of Highway and Streets published in 2011.

8.3 HCM Based Individual Element Build Operational Analysis

An individual element operational analysis was conducted for the Build Alternative using the HCM 6th Edition methodologies. The density, V/C Ratio and LOS for individual freeway segments were determined using HCS 7. Synchro 10 was used to analyze the study intersections. For queuing analysis performed in this SIMR, the 95th percentile queue length in feet, along with any special notes from Synchro, have been reported along with the available storage. The available storage for the turn movements, measured from the stop bar to the taper, has been reported in tables for comparison with the queue length. At the off ramp terminal intersections, the queue length has been reported in tables along with the storage length for the left and right turn lanes. In addition to the available turn lane storage, the total ramp length,

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

measured from stop bar to the gore point with the freeway, has been discussed in the document. Finally, if queues extend beyond the storage for off ramp movements, then the potential for queues to back up on the mainline has also been discussed. The results of this detailed analysis are presented in the following sections. Documentation for the Build Alternative analysis is provided in **Appendix E**.

8.4 Build Alternative Operational Analysis

The Build Alternative being considered for this SIMR along I-295 is described in detail in **Section 7**.

The No-Build Alternative operational analyses presented in **Section 6** of this SIMR, demonstrated that failing conditions are expected within the study area by Design Year 2045 if no infrastructure improvements are considered. To address these operational deficiencies, Build Alternative was developed and evaluated for the study area. The operational analysis for the Build Alternative was performed using HCM procedures and discussed in the sections below.

Figure 8-1 illustrates the peak hour volumes and LOS results for the 2025 Build operational analysis. Documentation for the Build Alternative analysis is provided in **Appendix E**.

8.4.1 2025 Build Operational Analysis

Density, V/C Ratio and LOS of freeway segments were used as MOEs to evaluate Opening Year 2025 Build conditions. The Build Alternative 2025 mainline/basic, weaving and ramp merge/diverge analysis results are summarized below. **Tables 8-1a** and **8-1b** summarize the results. Output HCS reports are provided in **Appendix E**.

Mainline Analysis – Basic Segments

The mainline analysis shows that all basic segments northbound and southbound will operate at LOS D or better by the year 2025 within the area of influence.

Ramp Analysis – Merge and Diverge Segments

The ramp analysis shows that all the merge and diverge segments will operate at LOS D or better by the year 2025 within the area of influence.

Weaving Analysis – Weave Segments

The weave analysis shows that all weave segments will operate at LOS D or better by year 2025 within the area of influence.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-1a: Opening Year 2025 Build I-295 Northbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	SR 202 WB to I-295 NB On-Ramp	Ramp Roadway	1	870	N/A	0.47	N/A	1,390	N/A	0.75	N/A
	I-295 Off-Ramp to Town Center Parkway	Major Diverge – Upstream	5	4,750	N/A	0.43	N/A	5,280	N/A	0.48	N/A
		Major Diverge – Diverging	2	1,210	18.0	0.28	B	1,180	20.0	0.28	B
		Major Diverge – Downstream	4	3,540	N/A	0.40	N/A	4,100	N/A	0.46	N/A
	From Town Center Parkway to Beach Boulevard	Weave	4	4,170	20.2	N/A	C	5,050	26.3	N/A	C
	I-295 On-Ramp from Beach Boulevard	Ramp Roadway	1	600	N/A	0.32	N/A	730	N/A	0.39	N/A
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	4	3,970	16.8	N/A	B	4,650	19.6	N/A	C
	I-295 Off-Ramp to St. Johns Bluff Road South	Ramp Roadway	1	360	N/A	0.19	N/A	540	N/A	0.29	N/A
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	3	3,610	20.2	N/A	C	4,110	23.1	N/A	C
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	640	22.7	N/A	C	570	25.0	N/A	C
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	720	17.7	N/A	B	760	21.9	N/A	C
	From Atlantic Boulevard to Monument Road	Basic Segment	3	3,690	20.7	N/A	C	4,300	24.3	N/A	C
	I-295 Off-Ramp to Monument Road	Diverge	1	630	26.6	N/A	C	860	30.1	N/A	D
	I-295 On-Ramp from Monument Road	Merge	1	420	22.0	N/A	C	450	25.2	N/A	C
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	3	3,480	19.4	N/A	C	3,890	21.7	N/A	C

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-1a: Opening Year 2025 Build I-295 Northbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	I-295 Off-Ramp to Merrill Road	Diverge	1	900	17.6	N/A	B	1,220	20.9	N/A	C
	I-295 On-Ramp from Southside Connector	Merge	2	1,360	19.5	N/A	B	1,730	22.8	N/A	C
	North of Merrill Road/Southside Connector	Basic Segment	3	3,940	22.0	N/A	C	4,400	24.8	N/A	C

*Density = passenger cars/mile/lane
**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-1b: Opening Year 2025 Build I-295 Southbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	North of Merrill Road/Southside Connector	Basic Segment	3	4,360	24.7	N/A	C	4,140	23.3	N/A	C
	I-295 Off-Ramp to Southside Connector	Diverge	2	1,430	16.6	N/A	B	1,250	14.8	N/A	B
	From Merrill/Southside Connector Off-Ramp to Merrill Off-Ramp	Basic Segment	3	2,930	16.3	N/A	B	2,890	16.1	N/A	B
	I-295 Off-Ramp to Merrill Road	Diverge	1	330	22.0	N/A	C	510	22.1	N/A	C
	I-295 On-Ramp from Merrill Road	Merge	1	1,130	22.8	N/A	C	960	21.0	N/A	C
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	3	3,730	21.0	N/A	C	3,340	18.8	N/A	C
	I-295 Off-Ramp to Monument Road	Diverge	1	310	26.0	N/A	C	540	24.3	N/A	C
	I-295 On-Ramp from Monument Road	Merge	1	360	17.2	N/A	B	370	14.0	N/A	B
	I-295 On-Ramp from Monument Road	Merge	1	300	21.3	N/A	C	480	20.1	N/A	C
	From Atlantic Boulevard to Monument Road	Basic Segment	3	4,080	23.2	N/A	C	3,650	20.7	N/A	C
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	650	24.6	N/A	C	860	24.4	N/A	C
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	590	23.3	N/A	C	770	21.4	N/A	C
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	3	4,020	22.7	N/A	C	3,560	20.0	N/A	C
	I-295 On-Ramp from St. Johns Bluff Road South	Ramp Roadway	1	690	N/A	0.35	N/A	530	N/A	0.27	N/A
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	4	4,710	19.9	N/A	C	4,090	17.3	N/A	B

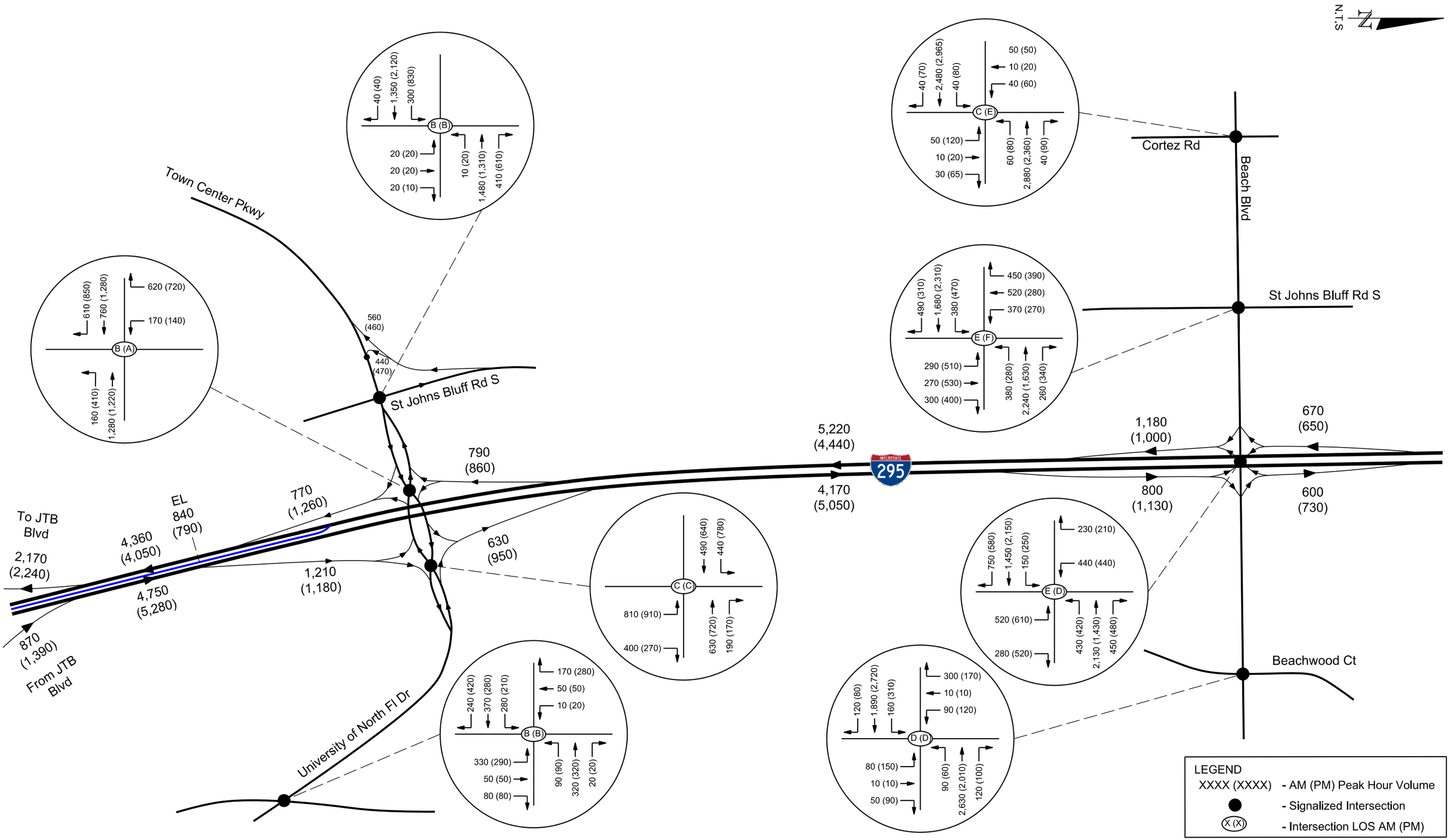
DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

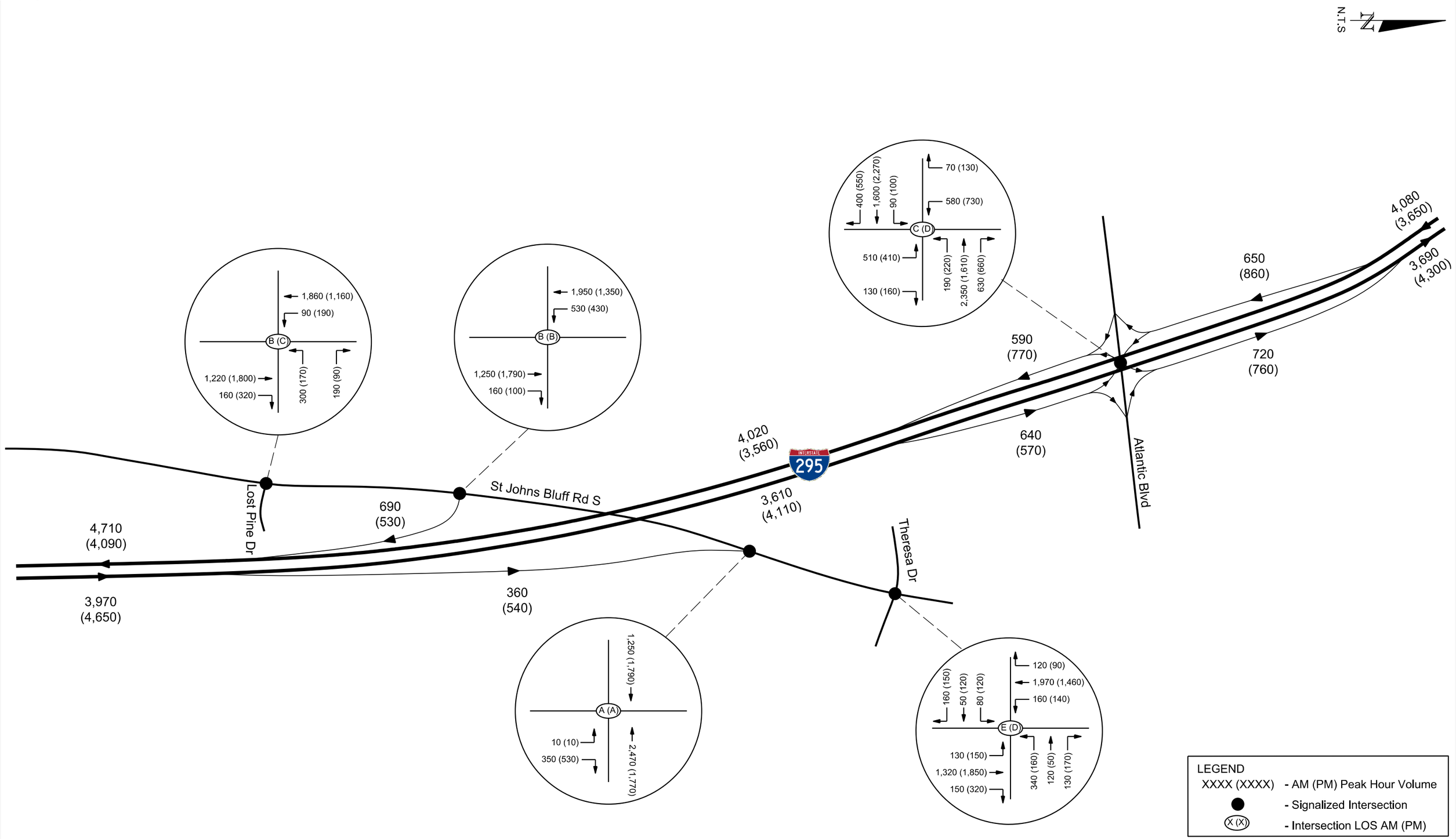
Table 8-1b: Opening Year 2025 Build I-295 Southbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	I-295 Off-Ramp to Beach Boulevard	Ramp Roadway	1	670	N/A	0.34	N/A	650	N/A	0.33	N/A
	From Town Center Parkway to Beach Boulevard	Weave	4	5,220	25.1	N/A	C	4,440	20.7	N/A	C
	I-295 Southbound GUL to I-295 Southbound EL Off-Ramp	Diverge	1	840	28.9	N/A	D	790	24.3	N/A	C
	I-295 On-Ramp from Town Center Parkway	Major Merge - Upstream	3	3,590	N/A	0.63	N/A	2,790	N/A	0.49	N/A
		Major Merge- Merging	2	770	N/A	0.18	N/A	1,260	N/A	0.29	N/A
		Major Merge - Downstream	4	4,360	N/A	0.58	N/A	4,050	N/A	0.54	N/A
	I-295 Off-Ramp to SR 202	Major Diverge – Upstream	4	4,360	N/A	0.49	N/A	4,050	N/A	0.46	N/A
		Major Diverge – Diverging	2	2,170	20.6	0.52	C	2,240	19.1	0.54	B
		Major Diverge – Downstream	3	2,190	N/A	0.33	N/A	1,810	N/A	0.27	N/A

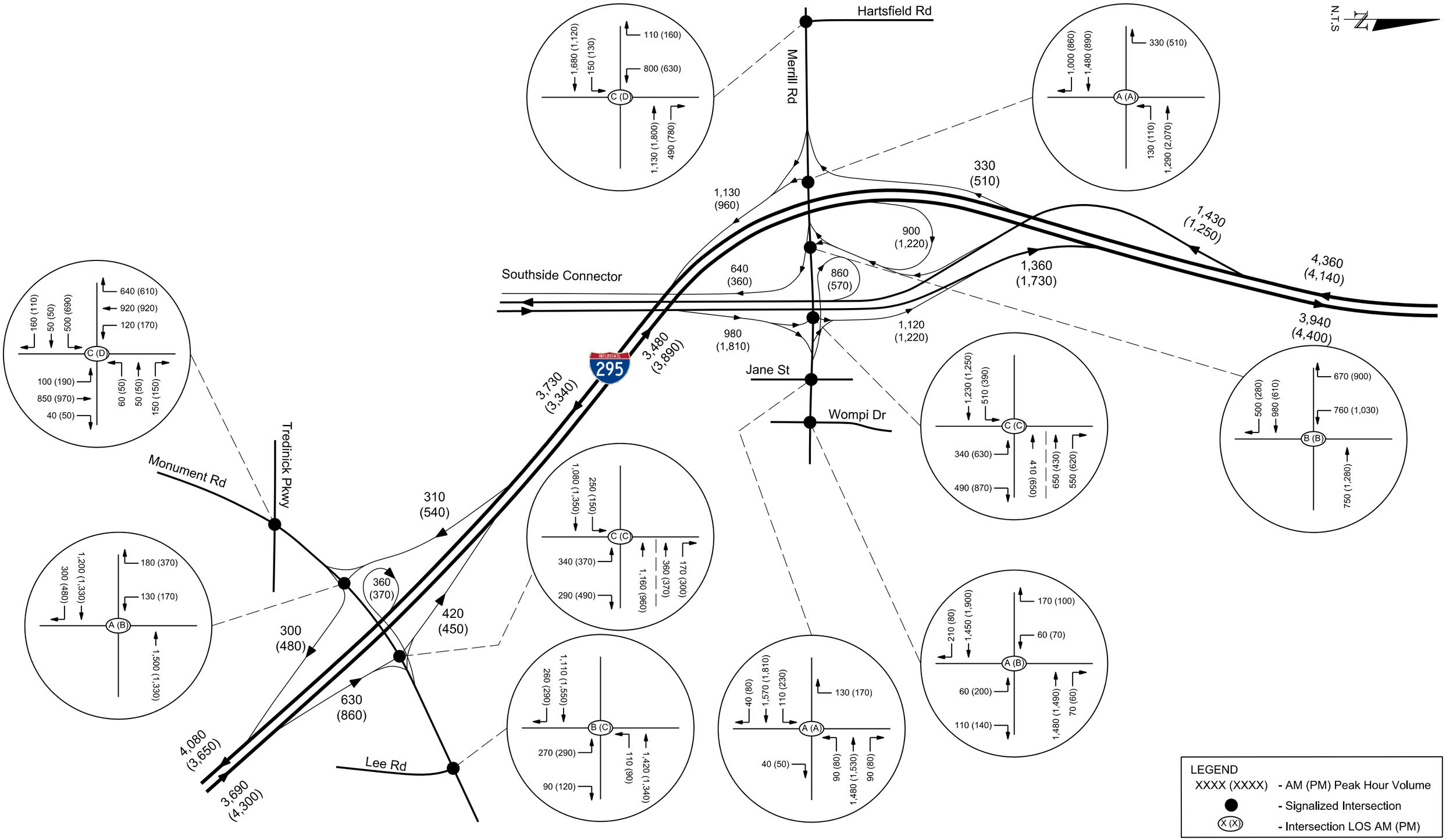
*Density = passenger cars/mile/lane

**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.


N.T.S
Town Center Pkwy
St Johns Bluff Rd S
Cortez Rd
Beach Blvd
St Johns Bluff Rd S
Beachwood Ct
University of North Fl Dr
To JTB Blvd
From JTB Blvd
INTERSTATE 295
B (B)
B (A)
C (E)
E (F)
C (C)
E (D)
B (B)
D (D)
560 (460)
440 (470)
790 (860)
770 (1,260)
630 (950)
1,210 (1,180)
4,750 (5,280)
4,360 (4,050)
2,170 (2,240)
870 (1,390)
EL 840 (790)
5,220 (4,440)
4,170 (5,050)
1,180 (1,000)
800 (1,130)
670 (650)
600 (730)
LEGEND
XXXX (XXXX) - AM (PM) Peak Hour Volume
- Signalized Intersection
X (X) - Intersection LOS AM (PM)



FDOT	*I-295 SIMR from Town Center Parkway to Merrill Road*	Opening Year 2025 Build Peak Hour Volumes and LOS Mainline, Ramps and Intersections
		Figure 8-1 Sheet 2/3



FDOT	*I-295 SIMR from Town Center Parkway to Merrill Road*	Opening Year 2025 Build Peak Hour Volumes and LOS Mainline, Ramps and Intersections	Figure 8-1 Sheet 3/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Intersection Analysis

Tables 8-2 to **8-5** document the intersections operational analysis along the crossing roadways. Output Synchro reports are provided in **Appendix E**.

Town Center Parkway

As shown in **Table 8-2**, all intersections along Town Center Parkway will operate at LOS D or better during the AM and PM peak hours. No operational issues are observed at any of these intersections in the Opening Year 2025 Build Alternative.

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along Town Center Parkway. For the ramp terminal intersections at Town Center Parkway interchange, the I-295 northbound and southbound off-ramp lengths are approximately 1,600 feet and 1,900 feet long respectively.

In the Opening Year 2025 Build Alternative, the 95th Percentile queue length does not exceed the proposed storage at any intersection approach.

Table 8-2: Town Center Parkway - Opening Year 2025 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Town Center Parkway at St. Johns Bluff Road Southbound (Node 101)	Eastbound	Through	14.8 (19.7)	B (B)	4/1010’	123’ (326’)
	Westbound	Through	1.0 (1.4)	A (A)	3/200’	2’ (28’)
	Southbound	Left	25.0 (24.1)	C (C)	1/500’+1/3600’	152’ (145’)
		Right	27.6 (24.1)	C (C)	1/950’+1/3600’	222’ (158’)
	Overall Intersection		***12.4 (15.5)***	***B (B)***	-	
Town Center Parkway at St. Johns Bluff Road Northbound (Node 102)	Eastbound	Left	23.0 (28.5)	C (C)	2/ (250’+ 200’ Defacto Left)	113’ (330’)
		Through/ Right	11.2 (9.3)	B (A)	4/250’	103’ (106’)
	Westbound	Left	39.1 (47.2)	D (D)	1/450’	m20’ (m33’)
		Through	24.7 (30.3)	C (C)	3/600’	419’ (#415’)
		Right	0.4 (1.5)	A (A)	1/400’	0’ (32’)
	Northbound	Left	46.4 (42.2)	D (D)	1/100’	37’ (35’)
		Through	46.1 (42.0)	D (D)	1/150’	37’ (35’)
		Right	0.5 (0.2)	A (A)	1/100’	0’ (0’)
	Overall Intersection		***16.8 (17.5)***	***B (B)***	-	

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-2: Town Center Parkway -Opening Year 2025 Build Intersection Analysis Summary (Continued)

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Town Center Parkway at I-295 Southbound & Northbound Ramps (Nodes 103/104/105 & 106/107/108)	Eastbound	Through	24.3 (5.0)	C (A)	4/650’	180’ (1’)
	Westbound	Through	14.5 (12.0)	B (B)	3/525’	161’ (113’)
	Southbound	Left	11.6 (15.2)	B (B)	2/700’	44’ (43’)
		Right	10.1 (9.2)	B (A)	3/800’	85’ (93’)
	Overall Intersection		***18.2 (8.4)***	***B (A)***	-	
	Eastbound	Through	20.8 (27.8)	C (C)	2/500’	183’ (285’)
	Westbound	Through	26.7 (21.8)	C (C)	2/200’+2/2800’	119’ (121’)
	Northbound	Left	13.4 (18.3)	B (B)	3/800’	128’ (171’)
		Right	0.4 (0.2)	A (A)	3/850’	0’ (0’)
	Overall Intersection		***24.1 (24.6)***	***C (C)***	-	
University of North Florida Drive at Eco Road (Node 109)	Eastbound	Left	19.4 (21.6)	B (C)	1/2800’	160’ (141’)
		Through	27.7 (28.1)	C (C)	1/2800’	280’ (229’)
		Right	0.2 (0.4)	A (A)	1/250’	0’ (0’)
	Westbound	Left	15.8 (20.0)	B (C)	1/75’	56’ (66’)
		Through/ Right	27.4 (31.7)	C (C)	1/NA	127’ (143’)
	Northbound	Left	27.6 (22.6)	C (C)	1/320’	228’ (196’)
		Through/ Right	11.0 (10.30	B (B)	1/NA	70’ (66’)
	Southbound	Left	19.6 (18.4)	B (B)	1/150’	14’ (21’)
		Through	41.4 (34.0)	D (C)	1/NA	64’ (62’)
		Right	2.5 (7.9)	A (A)	1/150’	0’ (70’)
	Overall Intersection		***19.7 (17.7)***	***B (B)***	-	

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

Beach Boulevard

No improvements are recommended at the Beach Boulevard interchange as part of this SIMR. Changes were considered at the Beach Boulevard interchange with I-295, but those could not be accommodated within the right of way. Land use around this interchange is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. Therefore, the intersection analysis results remain the same as the 2025 No-Build Alternative discussed in **Section 6.1.1**.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

St. Johns Bluff Road

As shown on **Table 8-3**, all four intersections along St. Johns Bluff Road will operate at a LOS D or better in the Opening Year 2025 Build Alternative except for St. Johns Bluff Road at Theresa Drive intersection that will operate at LOS E during the PM peak hour.

There are a few individual movements at one study intersection along St. Johns Bluff Road that will operate at LOS F. These movements are listed below:

St. Johns Bluff Road at Bahia Drive/ Theresa Drive

- WB left lane (AM peak hour)
- SB left-turn lane (AM peak hour)
- SB through lane (AM peak hour)
- EB through/right lane (AM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along St. Johns Bluff Road. For the ramp terminal intersections, the length of the I-295 northbound off ramp at St. Johns Bluff Road interchange is approximately 2,500 feet.

In the Opening Year 2025 Build Alternative, the proposed storage accommodates the 95th Percentile queue at all intersection approaches along St. Johns Bluff Road except the following (marked as red in **Table 8-3**):

- WB right-turn lane at St. Johns Bluff Road and Lost Pine Drive (AM peak hour)
- EB left-turn lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (AM and PM peak hours)
- WB through/right lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (AM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-3: St. Johns Bluff Road -Opening Year 2025 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
St. Johns Bluff Road at Lost Pine Drive (Node 301)	Westbound	Left	74.8 (73)	E (E)	1/NA	384' (#231')
		Right	32 (12.9)	C (B)	1/100’	172' (51')
	Northbound	Through	19.9 (24.3)	B (C)	2/1850’	540' (745')
		Right	5.4 (4.4)	A (A)	1/200’	61' (78')
	Southbound	Left	6.9 (73.1)	A (E)	1/285’	41' (#216')
		Through	10.1 (2.1)	B (A)	2/1850’	646' (42')
	Overall Intersection		***19.1 (20.1)***	***B (C)***	-	
St. Johns Bluff Road at I-295 SB On Ramps (Node 302)	Northbound	Through/Right	4.1 (7.9)	A (A)	2/1500’	74' (143')
	Southbound	Left	63.0 (51.4)	E (D)	2/700’	m306' (186')
		Through	0.4 (0.3)	A (A)	2/1500’	0' (0')
	Overall Intersection		***10.2 (10.2)***	***B (B)***		
St. Johns Bluff Road at I-295 NB Off Ramps (Node 303)	Northbound Off Ramp	Left	72.2 (52.1)	E (D)	1/800’	33' (27')
		Right	0.1 (0.6)	A (A)	2/800’	0' (0')
	Northbound	Through	2.9 (10.1)	A (B)	2/1500’	1' (897')
	Southbound	Through	10.1 (11.5)	B (B)	2/950’	m141' (13')
	Overall Intersection		***7.2 (9.6)***	***A (A)***	-	
St. Johns Bluff Road at Theresa Drive/Bahia Drive (Node 304)	Eastbound	Left	51.6 (43.6)	D (D)	1/50’	111' (128')
		Through/Right	136.0 (75.3)	F (E)	1/NA	#346' (#352')
	Westbound	Left	86.3 (73.0)	F (E)	1/NA	#554' (#205')
		Through/Right	62.6 (31.0)	E (C)	1/235’	#362’ (168')
	Northbound	Left	76.7 (55.1)	E (E)	1/250’	161' (#191')
		Through/Right	23.8 (46.7)	C (D)	2/900’	525’ (#759')
	Southbound	Left	82.5 (76.3)	F (E)	1/360’	239' (#203')
		Through	110.8 (34.8)	F (C)	2/NA	#1385' (658')
		Right	1.7 (1.2)	A (A)	1/100’	20' (11')
	Overall Intersection		***74.9 (45.0)***	***E (D)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

Atlantic Boulevard

No improvements are recommended at the Atlantic Boulevard interchange as part of this SIMR. Changes were considered at the Atlantic Boulevard interchange with I-295, but those could not be accommodated within the right of way. Land use around this interchange is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. Therefore, the intersection analysis remains the same as the 2025 No-Build Alternative discussed in **Section 6.1.1**.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Monument Road Interchange

As shown in **Table 8-4**, the 2025 Build operational results indicate that all intersections along Monument Road will operate at LOS D or better during the AM and PM peak hours. However, one individual movement within the study intersections will operate at LOS F. This movement is listed below:

Monument Road and Tredinick Parkway

- SB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along Monument Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Monument Road interchange are approximately 1,500 and 1,900 feet long, respectively.

In the Opening Year 2025 Build Alternative, the 95th Percentile queue length exceeds the proposed storage at the following intersection approaches (marked as red in **Table 8-4**):

- SB left-turn lane at Monument Road and Tredinick Parkway (PM peak hour)
- EB through lane at Monument Road and I-295 Southbound ramps (PM peak hour)
- WB through lane at Monument Road and Lee Road (AM and PM peak hours)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-4: Monument Road - Opening Year 2025 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Monument Road at Tredinick Parkway (Node 501)	Eastbound	Left	48.9 (64)	D (E)	2/ NA	237' (402')
		Through	34.4 (41.7)	C (D)	1/ NA	62' (75')
		Right	3.2 (7.4)	A (A)	1/305’	24' (46')
	Westbound	Left	64.9 (73)	E (E)	1/350’	89' (92')
		Through	54.3 (72.3)	D (E)	1/ NA	75' (92')
		Right	3.3 (17.1)	A (B)	1/225’	0' (61')
	Northbound	Left	67.5 (72.8)	E (E)	1/335’	#147' (263')
		Through/ Right	36 (42.1)	D (D)	2/NA	381' (571')
	Southbound	Left	62 (83.8)	E (F)	1/225’	#169' (#272')
		Through	21.8 (45.5)	C (D)	2/NA	286' (556')
		Right	2 (2.9)	A (A)	1/225’	26' (42')
	Overall Intersection		***27.8 (42.8)***	***C (D)***	-	-
Monument Road at I-295 SB Off/On Ramps (Node 502)	Eastbound	Through	12.5 (12.5)	B (B)	2/NA	477' (346')
		Right	4.3 (4.3)	A (A)	1/800’	m91' (m126')
	Westbound	Through	0.8 (1.9)	A (A)	2/500’	0' (125')
	Southbound	Left	45.2 (49.1)	D (D)	2/1100’	73' (103')
		Right	50.7 (62.9)	D (E)	2/500’	108' (242')
	Overall Intersection		***9.8 (14.4)***	***A (B)***	-	-
Monument Road at I-295 SB Off/On Ramps **Southern (Node 503)**	Eastbound	Left	51.8 (55.6)	D (E)	2/350’	129' (105')
		Through	12.5 (16.4)	B (B)	2/600’	447' (678')
	Westbound	Through	27.3 (30)	C (C)	2/1100’	391' (423')
	Northbound	Left	40.4 (42.4)	D (D)	2/700’	157' (196')
		Right	14.9 (49.2)	B (D)	2/700’	77' (305')
	Overall Intersection		***24.4 (29.8)***	***C (C)***	-	-
Monument Road at I-295 SB Off/On Ramps **Northern (Node 504)**	Westbound	Through	9.4 (7.9)	A (A)	1/1100’	225' (233')
		Right	3.4 (2.9)	A (A)	1/450’	62' (94')
	Overall Intersection		***5.1 (4.6)***	***A (A)***	-	-
Monument Road at Lee Road (Node 505)	Eastbound	Through	12.1 (26.3)	B (C)	2/1100’	392' (831')
		Right	1.2 (4.8)	A (A)	1/450’	6' (71')
	Westbound	Left	11.2 (22.3)	B (C)	2/330’	56' (74')
		Through	12.1 (12.2)	B (B)	2/NA	425' (441')
	Northbound	Left	51.9 (67.8)	D (E)	1/150’	261' (350')
		Right	7.7 (9.4)	A (A)	1/NA	39' (55')
	Overall Intersection		***14.4 (22.1)***	***B (C)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Merrill Road Interchange

As shown in **Table 8-5**, the 2025 Build operational results indicate that all six intersections along Merrill Road will operate at LOS D or better during the AM and PM peak hours. There are few individual movements at the study intersections along Merrill Road that will operate at LOS F. These movements are listed below (marked as red in **Table 8-5**):

Merrill Road and Wompi Drive

- NB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along Merrill Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Merrill Road interchange are approximately 1,300 and 1,800 feet long, respectively.

In the Opening Year 2025 Build Alternative, the 95th Percentile queue length will exceed the proposed storage at the following intersection approaches (marked as red in **Table 8-5**):

- SB left-turn lane at Merrill Road and Hartsfield Road (AM peak hour)
- NB left-turn lane at Merrill Road and Wompi Drive (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-5: Merrill Road -Opening Year 2025 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Merrill Road at Hartsfield Road (Node 601)	Eastbound	Left	34.6 (63.4)	C (E)	1/200’	125' (#164')
		Through	20.1 (15.7)	C (B)	2/NA	672' (435')
	Westbound	Through	36.8 (53.7)	D (D)	2/1400’	480' (#1308')
		Right	1.2 (3.5)	A (A)	1/1400’	6' (107')
	Southbound	Left	73.5 (54.1)	E (D)	2/350’	#543' (338')
		Right	16 (29.5)	B (C)	1/460’	84' (145')
	Overall Intersection		***32.5 (35.5)***	***C (D)***		
Merrill Road at I-295 SB Off Ramp (Node 602)	Eastbound	Through	0.2 (0.2)	A (A)	3/Free	0' (0')
	Westbound	Through	6.5 (4.7)	A (A)	2/600’	227' (139')
	Southbound	Right	45.6 (65.8)	D (E)	2/700’	152' (334')
	Overall Intersection		***5.8 (10.1)***	***A (B)***		
Merrill Road at I-295 SB On Ramp (Node 603)	Eastbound	Through	3.3 (12.0)	A (B)	2/700’	150' (312')
		Right	1.9 (2.3)	A (A)	1/200’	0' (24')
	Westbound	Left	4.2 (0.7)	A (A)	1/325’	17' (m0')
		Through	0.1 (0.2)	A (A)	3/Free	0' (0')
	Overall Intersection		***1.9 (3.3)***	***A (A)***		
Merrill Road at Southside Connector Boulevard SB Off/On Ramps (Node 604)	Eastbound	Through	9.2 (18.6)	A (B)	2/500’	308' (112')
		Right	0.5 (0.2)	A (A)	1/400’	0' (0')
	Westbound	Through	6.1 (7.7)	A (A)	2/Free	63' (458')
	Southbound	Left	59.4 (51.4)	E (D)	2/700’	429' (543')
		Right	0.9 (1.6)	A (A)	1/300’	0' (0')
	Overall Intersection		***16.3 (18.4)***	***B (B)***		
Merrill Road at Southside Connector NB Off/On Ramps **Southern (Node 605)**	Eastbound	Left	51.9 (48.6)	D (D)	2/360’	286' (188')
		Through	16.1 (11.5)	B (B)	2/600’	382' (291')
	Westbound	Through	38.9 (52.6)	D (D)	2/600’	215' (418')
	Northbound	Left	46.9 (46.3)	D (D)	2/450’	193' (345')
		Right	15.0 (15.6)	B (B)	2/700’	151' (296')
	Overall Intersection		***28.7 (29.1)***	***C (C)***		
Northern (Node 606)	Westbound	Through	16.0 (12.7)	B (B)	1/600’	475' (293')
		Right	0.6 (0.6)	A (A)	1/350’	0' (0')
	Overall Intersection		***6.3 (4.1)***	***A (A)***		
Merrill Road at Jane Street (Node 608)	Eastbound	Left	6.1 (22.2)	A (C)	1/400’	14’ (150’)
		Through/ Right	5.8 (4.4)	A (A)	2/400’	300’ (187’)
	Westbound	Left	3.3 (6.3)	A (A)	1/400’	m5’(m14’)
		Through/ Right	2.9 (4.1)	A (A)	2/500’	190’ (203’)
	Northbound	Right	0.0 (30.7)	A (C)	1/350’	0’ (50’)
	Southbound	Right	0.1 (71.1)	A (E)	1/500’	0’ (#221’)
	Overall Intersection		***4.2 (8.5)***	***A (A)***		-

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-5: Merrill Road -Opening Year 2025 Build Intersection Analysis Summary (Continued)

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Merrill Road at Wompi Drive (Node 607)	Eastbound	Through/ Right	2.3 (11.0)	A (B)	2/500’	87’ (363’)
	Westbound	Through	4.8 (8.4)	A (A)	2/NA	260’ (380’)
		Right	0.6 (1.2)	A (A)	1/385’	9’ (12’)
	Northbound	Left	71.5 (84.7)	E (F)	1/150’	108’ (290’)
		Right	27.6 (55.8)	C (E)	1/NA	89’ (182’)
	Southbound	Left	71.5 (58.7)	E (E)	1/220’	108’ (114’)
		Right	63.4 (26.5)	E (C)	1/NA	#197’ (92’)
	Overall Intersection		***9.3 (16.3)***	***A (B)***		

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

8.4.2 2045 Build Operational Analysis

A Design Year 2045 traffic operational analysis was performed for the AM and PM peak hours. Density and LOS of each freeway facility were used as MOEs, which is consistent with the existing conditions analysis. The mainline/basic, weaving and ramp merge/diverge analysis results for the Build Alternative are summarized below. **Tables 8-6a** and **8-6b** summarize the results. **Figure 8-2** illustrates the peak hour volumes and LOS results for the 2045 Build operational analysis. Output HCS reports are provided in **Appendix E**.

Mainline Analysis – Basic Segments

The mainline analysis shows that one basic segment northbound will operate at LOS E by the year 2045 within the area of influence. This segment is listed below (marked as red in **Tables 8-6a** and **8-6b**):

- I-295 NB from Monument Road to Merrill Road/Southside Connector (PM peak hour)

Ramp Analysis – Merge and Diverge Segments

The ramp analysis shows that the following diverge segment will operate at LOS E (marked as red in **Tables 8-6a** and **8-6b**):

- I-295 NB Off-Ramp to Monument Road (PM peak hour)

Weaving Analysis – Weave Segments

The results of the operational analysis show that one northbound weave segment will operate at LOS E (marked as red in **Tables 8-6a** and **8-6b**).

- I-295 NB weave between Town Center Parkway and Beach Boulevard (PM peak hour)

All the above listed freeway segments (basic, diverge and weave) will operate at a V/C ratio of less than 1.0. The I-295 mainline segment also carries higher traffic compared to the No-Build.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-6a: Design Year 2045 Build I-295 Northbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	SR 202 WB to I-295 NB On-Ramp	Ramp Roadway	1	1,340	N/A	0.69	N/A	1,810	N/A	0.93	N/A
	I-295 Off-Ramp to Town Center Parkway	Major Diverge – Upstream	5	6,390	N/A	0.57	N/A	6,920	N/A	0.62	N/A
		Major Diverge – Diverging	2	2,110	24.1	0.50	C	1,800	26.1	0.42	C
		Major Diverge – Downstream	4	4,280	N/A	0.48	N/A	5,120	N/A	0.58	N/A
	From Town Center Parkway to Beach Boulevard	Weave	4	5,170	26.4	N/A	C	6,560	37.3	N/A	E
	I-295 On-Ramp from Beach Boulevard	Ramp Roadway	1	830	N/A	0.45	N/A	1,010	N/A	0.55	N/A
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	4	4,940	20.9	N/A	C	6,060	26.1	N/A	D
	I-295 Off-Ramp to St. Johns Bluff Road South	Ramp Roadway	1	460	N/A	0.25	N/A	640	N/A	0.35	N/A
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	3	4,480	25.5	N/A	C	5,420	33.1	N/A	D
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	850	27.4	N/A	C	760	31.4	N/A	D
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	830	23.0	N/A	C	850	29.9	N/A	D
	From Atlantic Boulevard to Monument Road	Basic Segment	3	4,460	25.4	N/A	C	5,510	34.0	N/A	D
	I-295 Off-Ramp to Monument Road	Diverge	1	870	30.9	N/A	D	1,070	35.9	N/A	E
	I-295 On-Ramp from Monument Road	Merge	1	500	25.9	N/A	C	560	32.5	N/A	D
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	3	4,090	22.9	N/A	C	5,000	29.3	N/A	D

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-6a: Design Year 2045 Build I-295 Northbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Northbound	I-295 Off-Ramp to Merrill Road	Diverge	1	1,040	21.6	N/A	C	1,420	25.1	N/A	C
	I-295 On-Ramp from Southside Connector	Merge	2	1,900	26.0	N/A	C	2,230	31.2	N/A	D
	North of Merrill Road/Southside Connector	Basic Segment	3	4,950	28.8	N/A	D	5,810	37.0	N/A	E

*Density = passenger cars/mile/lane

**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-6b: Design Year 2045 Build I-295 Southbound Analysis Results

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	North of Merrill Road/Southside Connector	Basic Segment	3	5,610	35.0	N/A	D	5,080	30.0	N/A	D
	I-295 Off-Ramp to Southside Connector	Diverge	2	1,830	24.0	N/A	C	1,580	20.5	N/A	C
	From Merrill/Southside Connector Off-Ramp to Merrill Off-Ramp	Basic Segment	3	3,780	21.0	N/A	C	3,500	19.5	N/A	C
	I-295 Off-Ramp to Merrill Road	Diverge	1	370	26.6	N/A	C	620	25.6	N/A	C
	I-295 On-Ramp from Merrill Road	Merge	1	1,380	29.2	N/A	D	1,140	25.5	N/A	C
	From Monument Road to Merrill Road/Southside Connector	Basic Segment	3	4,790	27.9	N/A	D	4,020	22.7	N/A	C
	I-295 Off-Ramp to Monument Road	Diverge	1	390	31.3	N/A	D	630	28.0	N/A	C
	I-295 On-Ramp from Monument Road	Merge	1	520	23.5	N/A	C	480	18.0	N/A	B
	I-295 On-Ramp from Monument Road	Merge	1	400	29.0	N/A	D	570	25.2	N/A	C
	From Atlantic Boulevard to Monument Road	Basic Segment	3	5,320	32.4	N/A	D	4,440	25.5	N/A	C
	I-295 Off-Ramp to Atlantic Boulevard	Diverge	1	820	31.1	N/A	D	1,020	27.1	N/A	C
	I-295 On-Ramp from Atlantic Boulevard	Merge	1	750	30.0	N/A	D	940	25.9	N/A	C
	From St. Johns Bluff Road to Atlantic Boulevard	Basic Segment	3	5,250	31.7	N/A	D	4,360	24.8	N/A	C
	I-295 On-Ramp from St. Johns Bluff Road South	Ramp Roadway	1	950	N/A	0.48	N/A	640	N/A	0.32	N/A
	From Beach Boulevard to St. Johns Bluff Road	Basic Segment	4	6,200	26.9	N/A	D	5,000	21.1	N/A	C

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-6b: Design Year 2045 Build I-295 Southbound Analysis Results (Continued)

Direction	Segments	Analysis Type	# of Lanes	AM Peak Hour				PM Peak Hour			
				Volume	Density*	V/C Ratio	LOS	Volume	Density*	V/C Ratio	LOS
I-295 Southbound	I-295 Off-Ramp to Beach Boulevard	Ramp Roadway	1	930	N/A	0.47	N/A	900	N/A	0.45	N/A
	From Town Center Parkway to Beach Boulevard	Weave	4	6,760	34.1	N/A	D	5,320	25.4	N/A	C
	I-295 Southbound GUL to I-295 Southbound EL Off-Ramp	Diverge	1	1,070	34.5	N/A	D	1,040	27.4	N/A	C
	I-295 On-Ramp from Town Center Parkway	Major Merge - Upstream	3	4,470	N/A	0.79	N/A	3010	N/A	0.53	N/A
		Major Merge- Merging	2	1,160	N/A	0.27	N/A	1960	N/A	0.45	N/A
		Major Merge - Downstream	4	5,630	N/A	0.74	N/A	4970	N/A	0.66	N/A
	I-295 Off-Ramp to SR 202	Major Diverge – Upstream	4	5,630	N/A	0.63	N/A	4,970	N/A	0.56	N/A
		Major Diverge – Diverging	2	2,900	26.6	0.70	C	2,940	23.5	0.71	C
		Major Diverge – Downstream	3	2,730	N/A	0.41	N/A	2,030	N/A	0.30	N/A

*Density = passenger cars/mile/lane

**HCS analysis does not report densities for LOS F results for basic and weave segments. The missing densities have LOS F, as shown in the output files.

N.T.S

Town Center Pkwy

St Johns Bluff Rd S

Cortez Rd

Beach Blvd

St Johns Bluff Rd S

University of North Fl Dr

Beachwood Ct

To JTB Blvd

From JTB Blvd

EL

INTERSTATE 295

2,900 (2,940)

5,630 (4,970)

1,070 (1,040)

1,160 (1,960)

6,390 (6,920)

2,110 (1,800)

1,340 (1,810)

1,220 (1,270)

890 (1,440)

6,760 (5,320)

5,170 (6,560)

1,490 (1,220)

930 (900)

1,060 (1,510)

830 (1,010)

890 (650)

720 (700)

C (C)
50 (40) 2,120 (3,230) 480 (1,070)
30 (30) 30 (30) 30 (30)
20 (30) 2,400 (2,020) 750 (910)

C (B)
870 (1,500) 1,280 (1,760) 870 (990) 350 (280)
290 (460) 2,300 (1,970)

D (F)
50 (80) 2,920 (3,440) 45 (90) 60 (60) 15 (25) 50 (70)
55 (130) 15 (30) 40 (70)
70 (90) 3,320 (2,780) 50 (100)

F (F)
550 (350) 2,020 (2,700) 440 (530) 510 (450) 590 (310) 430 (325)
340 (570) 310 (600) 360 (475)
460 (330) 2,590 (1,950) 320 (400)

C (C)
1,050 (960) 580 (1,080)
1,600 (1,290) 510 (510)
990 (1,140) 310 (360)

E (E)
970 (740) 1,630 (2,380) 210 (380) 330 (280) 600 (620)
670 (790) 390 (720)
520 (480) 2,370 (1,610) 620 (630)

D (D)
380 (630) 640 (530) 540 (310) 270 (480) 90 (90) 30 (30)
540 (510) 90 (90) 140 (140)
150 (150) 490 (510) 30 (30)

F (E)
160 (100) 2,270 (3,240) 190 (380) 370 (200) 30 (30) 100 (130)
100 (170) 30 (30) 60 (100)
110 (70) 3,040 (2,350) 140 (120)

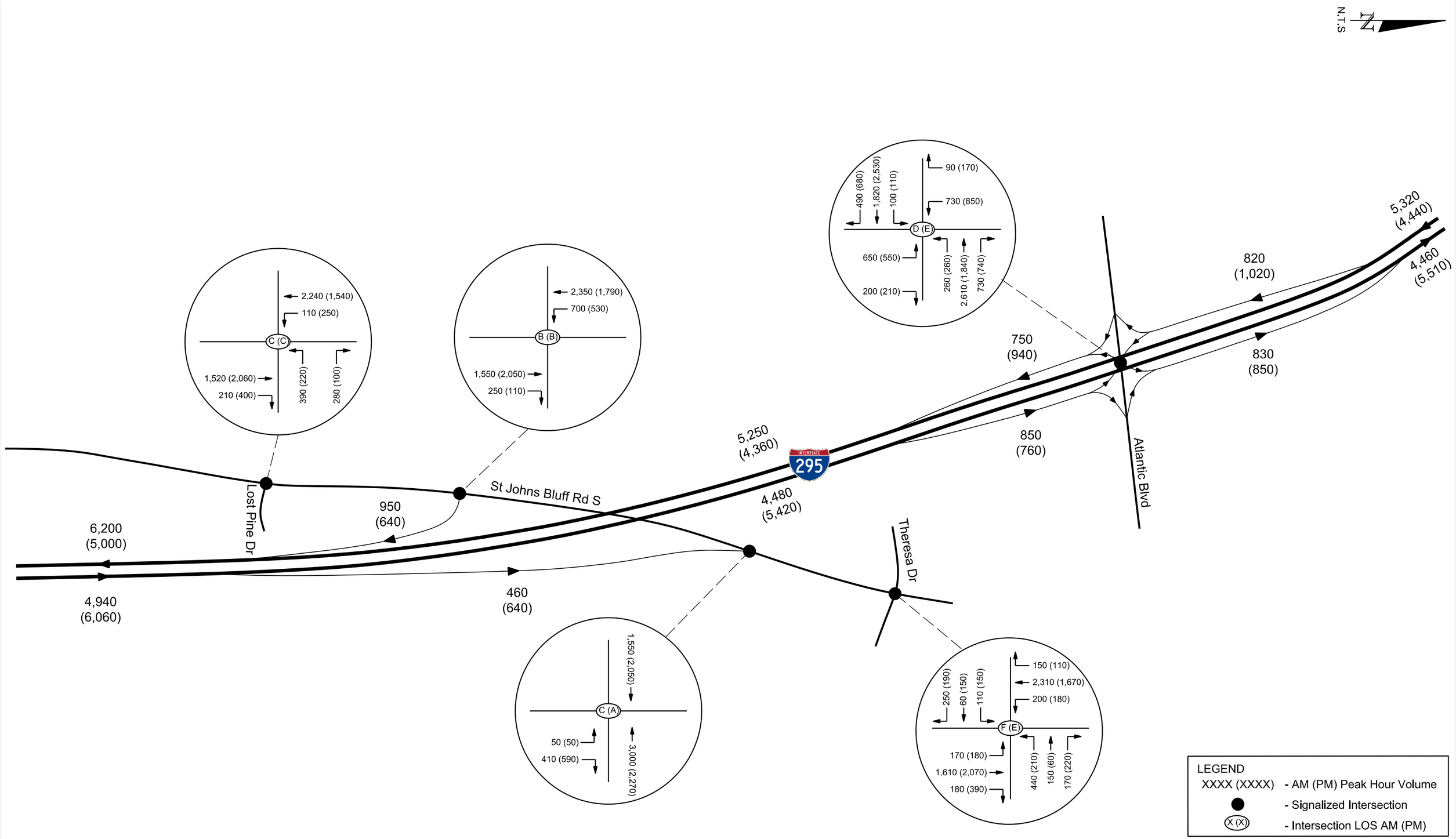
LEGEND
XXXX (XXXX) - AM (PM) Peak Hour Volume
● - Signalized Intersection
X (X) - Intersection LOS AM (PM)

FDOT

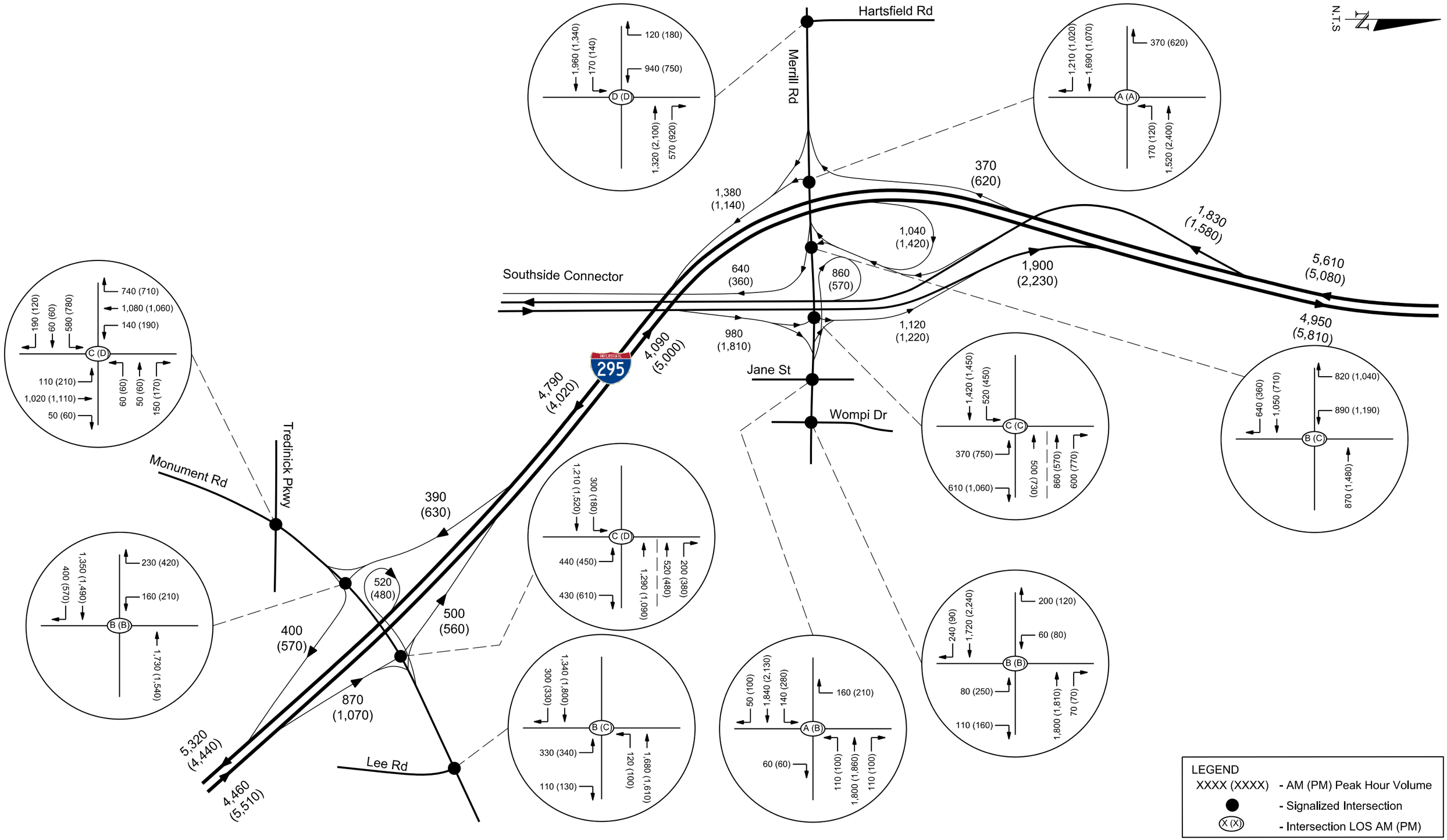
I-295 SIMR from Town Center Parkway to Merrill Road

Design Year 2045 Build Peak Hour Volumes and LOS
Mainline, Ramps and Intersections

Figure 8-2
Sheet 1/3



FDOT	*I-295 SIMR from Town Center Parkway to Merrill Road*	Design Year 2045 Build Peak Hour Volumes and LOS Mainline, Ramps and Intersections	Figure 8-2 Sheet 2/3



I-295 SIMR from Town Center Parkway to Merrill Road

Design Year 2045 Build Peak Hour Volumes and LOS
Mainline, Ramps and Intersections

Figure 8-2
Sheet 3/3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Intersection Analysis

Tables 8-7 to **8-10** document the intersections operational analysis along the crossing roadways. Output Synchro reports are provided in **Appendix E**.

Town Center Parkway

As shown in **Table 8-7**, all intersections along Town Center Parkway will operate at LOS D or better during the AM and PM peak hours versus the No-Build Alternative that will have failing LOS. No operational issues are observed at any of these intersections in the Design Year 2045 Build Alternative.

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along Town Center Parkway. For the ramp terminal intersections at Town Center Parkway interchange, the I-295 northbound and southbound off-ramp lengths are approximately 1,600 feet and 1,900 feet long respectively.

In the Design Year 2045 Build Alternative, the 95th Percentile queue length exceeds the proposed storage at the following intersection approaches (marked as red in **Table 8-7**):

- WB through lane at Town Center Parkway and St. Johns Bluff Road southbound (AM peak hour)
- EB left-turn lane at Town Center Parkway and St. Johns Bluff Road (PM peak hour)
- WB through lane at Town Center Parkway and St. Johns Bluff Road northbound (AM and PM peak hours)
- WB through lane at Town Center Parkway and I-295 ramps (AM peak hour)
- WB left-turn lane at University of North Florida Drive and Eco Road (AM and PM peak hours)
- NB left-turn lane at University of North Florida Drive and Eco Road (AM and PM peak hours)
- SB right-turn lane at University of North Florida Drive and Eco Road (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-7: Town Center Parkway -Design Year 2045 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Town Center Parkway at St. Johns Bluff Road Southbound (Node 101)	Eastbound	Through	15.8 (15.3)	B (B)	4/1010’	194’ (381’)
	Westbound	Through	13.5 (3.7)	B (A)	3/200’	#676’ (m1’)
	Southbound	Left	30.5 (43.6)	C (D)	1/500’+1/3600’	270’ (#297’)
		Right	55.1 (54.4)	E (D)	1/950’+1/3600’	#479’ (#357’)
	Overall Intersection		***22.5 (18.3)***	***C (B)***	-	
Town Center Parkway at St. Johns Bluff Road Northbound (Node 102)	Eastbound	Left	52.8 (73.1)	D (E)	2/(250’+200’ Defacto Left)	#243’ (#491’)
		Through/ Right	14.1 (11.1)	B (B)	4/250’	159’ (157’)
	Westbound	Left	37.2 (43.0)	D (D)	1/450’	m20’ (m39’)
		Through	26.7 (58.1)	C (E)	3/600’	m626’ (#653’)
		Right	0.9 (1.9)	A (A)	1/400’	m0’ (12’)
	Northbound	Left	56.8 (54.2)	E (D)	1/100’	51’ (51’)
		Through	55.7 (53.2)	E (D)	1/150’	51’ (51’)
		Right	1.8 (1.0)	A (A)	1/100’	51’ (51’)
	Overall Intersection		***21.1 (32.2)***	***C (C)***	-	
Town Center Parkway at I-295 Southbound & Northbound Ramps (Nodes 103/104/105 & 106/107/108)	Eastbound	Through	32.7 (18.5)	C (B)	4/650’	#323’ (317’)
	Westbound	Through	14.4 (18.4)	B (B)	3/525’	541’ (502’)
	Southbound	Left	8.1 (12.6)	A (B)	2/700’	65’ (71’)
		Right	71.6 (31.9)	E (C)	3/800’	#357’ (297’)
	Overall Intersection		***20.9 (18.4)***	***C (B)***	-	
	Eastbound	Through	18.7 (24.0)	B (C)	2/500’	413’ (402’)
	Westbound	Through	39.0 (29.3)	D (C)	2/200’+2/2800’	218’ (219’)
	Northbound	Left	11.5 (16.5)	B (B)	3/800’	232’ (228’)
		Right	8.3 (3.9)	A (A)	3/850’	73’ (44’)
	Overall Intersection		***28.6 (26.8)***	***C (C)***	-	
University of North Florida Drive at Eco Road (Node 109)	Eastbound	Left	74.1 (56.5)	E (E)	1/2800’	#587’ (#314’)
		Through	53.7 (67.0)	D (E)	1/2800’	#640’ (#606’)
		Right	0.4 (0.8)	A (A)	1/250’	0’ (0’)
	Westbound	Left	79.3 (65.2)	E (E)	1/75’	#210’ (#177’)
		Through/ Right	53.7 (42.5)	D (D)	1/NA	#266’ (253’)
	Northbound	Left	704 (38.0)	E (D)	1/320’	#638’ (#457’)
		Through/ Right	22.7 (16.8)	C (B)	1/NA	164’ (143’)
	Southbound	Left	48.9 (19.5)	D (B)	1/150’	50’ (30’)
		Through	76.3 (37.2)	E (D)	1/NA	#142’ (102’)
		Right	19.5 (41.0)	B (D)	1/150’	#107’ (#380’)
	Overall Intersection		***50.5 (38.0)***	***D (D)***	-	

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Beach Boulevard

No improvements are recommended at the Beach Boulevard interchange as part of this SIMR. Changes were considered at the Beach Boulevard interchange with I-295, but those could not be accommodated within the right of way. Land use around this interchange is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. Therefore, the intersection analysis remains the same as the 2045 No-Build Alternative discussed in **Section 6.1.2**.

St. Johns Bluff Road

As shown in **Table 8-8**, all four intersections along St. Johns Bluff Road will operate at LOS D or better except for one intersection that will operate at LOS F and LOS E during the AM and PM peak hours, respectively in the 2045 Build Alternative.

- St. Johns Bluff Road at Theresa Drive/Bahia Drive

There are several individual movements at the study intersections along St. Johns Bluff Road that will operate at LOS F. These movements are listed below:

St. Johns Bluff Road at Lost Pine Drive

- WB left-turn lane (PM peak hour)
- SB left-turn lane (PM peak hour)

St. Johns Bluff Road at Bahia Drive/ Theresa Drive

- EB left-turn lane (AM and PM peak hours)
- EB through/right lane (AM and PM peak hours)
- WB left lane (AM and PM peak hours)
- WB through/right-turn lane (AM peak hour)
- SB left-turn lane (PM peak hour)
- SB through lane (AM and PM peak hours)

The number of failing movements reduce under the Build Alternative as compared to the No-Build Alternative. Also, the delay at the above listed movements decreases due to the proposed improvements. The failing movements at the arterial intersections will not impact the operations at ramp terminal intersections.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along St. Johns Bluff Road. For the ramp terminal intersections, the length of the I-295 northbound off ramp at St. Johns Bluff Road interchange is approximately 2,500 feet.

In the Design Year 2045 Build Alternative, the proposed storage accommodates the 95th Percentile queue at all intersection approaches along St. Johns Bluff Road except the following (marked as red in **Table 8-8**):

- WB right-turn lane at St. Johns Bluff Road and Lost Pine Drive (AM peak hour)
- SB left-turn lane at St. Johns Bluff Road and Lost Pine Drive (PM peak hour)
- EB left-turn lane at St. Johns Bluff Road and Bahia Drive/ Theresa Drive (AM and PM peak hours)
- WB through/right-turn lane at St. Johns Bluff Road and Bahia Drive/ Theresa Drive (AM and PM peak hours)
- SB left-turn lane at St. Johns Bluff Road and Bahia Drive/Theresa Drive (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-8: St. Johns Bluff Road -Design Year 2045 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
St. Johns Bluff Road at Lost Pine Drive (Node 301)	Westbound	Left	79.6 (95.2)	E (F)	1/NA	#553' (#371')
		Right	38.4 (28.1)	D (C)	1/100'	296' (96')
	Northbound	U/Through	30.0 (45.3)	C (D)	2/1850'	772' (#1273')
		Right	8.2 (8.1)	A (A)	1/200'	93' (160')
	Southbound	Left	37.3 (97.4)	D (F)	1/285'	m98' (#411')
		Through	29.0 (6.1)	C (A)	2/1850'	#1405' (300')
	Overall Intersection		***33.3 (33.7)***	***C (C)***		
St. Johns Bluff Road at I-295 SB On Ramps (Node 302)	Northbound	Through/Right	9.6 (5.3)	A (A)	2/1500'	155' (m12')
	Southbound	Left	52.9 (65.9)	D (E)	2/700'	m327' (324')
		Through	0.1 (0.3)	A (A)	2/1500'	m0' (0')
	Overall Intersection		***11.3 (10.5)***	***B (B)***		
St. Johns Bluff Road at I-295 NB Off Ramps (Node 303)	Northbound Off Ramp	Left	78.8 (76.9)	E (E)	1/800'	97' (96')
		Right	0.1 (0.2)	A (A)	2/800'	0' (0')
	Northbound	Through	3.9 (1.1)	A (A)	2/1500'	246' (0')
	Southbound	Through	40.1 (10.5)	D (B)	2/950'	m300' (m336')
	Overall Intersection		***26.0 (7.8)***	***C (A)***	-	
St. Johns Bluff Road at Theresa Drive/Bahia Drive (Node 304)	Eastbound	Left	81.2 (102.4)	F (F)	1/50'	#171' (#249')
		Through/Right	190.8 (188.9)	F (F)	1/NA	#503' (#616')
	Westbound	Left	247.0 (213.6)	F (F)	1/NA	#786' (#398')
		Through/Right	85.7 (68.1)	F (E)	1/235'	#493' (#363')
	Northbound	Left	71.2 (72.8)	E (E)	1/250'	#236' (m#245')
		Through/Right	31.0 (21.0)	C (B)	2/900'	575' (740')
	Southbound	Left	65.8 (282.7)	E (F)	1/360'	285' (#415')
		Through	202.8 (68.8)	F (F)	2/NA	#1783' (#1248')
		Right	3.7 (4.0)	A (A)	1/100'	41' (36')
	Overall Intersection		***130.0 (67.1)***	***F (E)***	-	

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

The improvements recommended at the intersections along St. Johns Bluff Road reduce queues and prevent them from queuing up to the ramp terminal intersections. The queues exceeding the storage at the arterial intersection movements listed above will not impact the operations of the interchange.

Atlantic Boulevard

No improvements are recommended at the Atlantic Boulevard interchange as part of this SIMR. Changes were considered at the Atlantic Boulevard interchange with I-295, but those could not be accommodated within the right of way. Land use around this interchange is completely built out and any modifications to improve operations would have resulted in impacts. FDOT will continue to monitor operations at these interchanges and will evaluate improvements under a separate project in future. Therefore, the intersection analysis remains the same as the 2045 No-Build Alternative discussed in **Section 6.1.2**.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Monument Road Interchange

As shown on **Table 8-9**, the 2045 Build operational results indicate that all intersections along Monument Road will operate at LOS D or better during the AM and PM peak hours versus the No-Build Alternative that will have failing intersections along Monument Road. There will be one individual movement at the that will operate at LOS F under the Build Alternative. This movement improves in operation as compared to the No-Build and is listed below:

Monument Road and Tredinick Parkway

- SB left-turn lane (PM peak hour)

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along Monument Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Monument Road interchange are approximately 1,500 and 1,900 feet long, respectively.

In the Design Year 2045 Build Alternative, the 95th Percentile queue length exceeds the proposed storage at the following intersection approaches (marked as red in **Table 8-9**):

- SB left-turn lane at Monument Road and Tredinick Parkway (PM peak hour)
- EB through lane at Monument Road and I-295 Southbound Off/On Ramps (PM peak hour). This queue is along the arterial and not at the off-ramp movement.
- NB left-turn lane at Monument Road and Lee Road (AM and PM peak hours)

The above listed queues that are anticipated to exceed storage length are along the arterial and will not impact operations of the interchange.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-9: Monument Road -Design Year 2045 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Monument Road at Tredinick Parkway (Node 501)	Eastbound	Left	52.7 (72)	D (E)	2/ NA	#280' (#507')
		Through	34.3 (41.6)	C (D)	1/ NA	71' (85')
		Right	5.5 (7.8)	A (A)	1/305’	46' (52')
	Westbound	Left	64.9 (73.9)	E (E)	1/350’	89' (103')
		Through	54.3 (72.9)	D (E)	1/ NA	75' (103')
		Right	3.3 (18.9)	A (B)	1/225’	0' (74')
	Northbound	Left	73.2 (75.9)	E (E)	1/335’	#168' (#310')
		Through/ Right	45.4 (54.9)	D (D)	2/NA	#523' (#764')
	Southbound	Left	65 (86.4)	E (F)	1/225’	m#183' (#317')
		Through	27.5 (53.7)	C (D)	2/NA	#447' (#714')
		Right	2.2 (3.2)	A (A)	1/225’	42' (49')
	Overall Intersection		***32.6 (49.6)***	***C (D)***		-
Monument Road at I-295 SB Off/On Ramps (Node 502)	Eastbound	Through	15.9 (16.5)	B (B)	2/NA	m539' (m492')
		Right	4.8 (5)	A (A)	1/800’	m94' (m126')
	Westbound	Through	2.1 (2.6)	A (A)	2/500’	m17' (238')
	Southbound	Left	43.4 (47.4)	D (D)	2/1100’	84' (119')
		Right	50 (61.3)	D (E)	2/500’	130' (267')
	Overall Intersection		***11.7 (15.9)***	***B (B)***		-
Monument Road at I-295 SB Off/On Ramps **Southern (Node 503)**	Eastbound	Left	49.7 (55.9)	D (E)	2/350’	151' (123')
		Through	13.2 (20.3)	B (C)	2/600’	330' (773')
	Westbound	Through	39.3 (39.3)	D (D)	2/1100’	#628' (505')
	Northbound	Left	41.3 (43)	D (D)	2/700’	203' (240')
		Right	29.2 (53.9)	C (D)	2/700’	169' (394')
	Overall Intersection		***30.6 (35.3)***	***C (D)***	-	-
Monument Road at I-295 SB Off/On Ramps **Northern (Node 504)**	Westbound	Through	12.6 (10.8)	B (B)	1/1100’	358' (338')
		Right	3.6 (3.6)	A (A)	1/450’	m43' (115')
	Overall Intersection		***7.1 (6.3)***	***A (A)***		
Monument Road at Lee Road (Node 505)	Eastbound	Through	18.4 (34.5)	B (C)	2/1100’	631' (#1087')
		Right	1.9 (6.2)	A (A)	1/450’	22' (m104')
	Westbound	Left	23.6 (45.5)	C (D)	2/330’	87' (#129')
		Through	16.8 (16.5)	B (B)	2/NA	579' (606')
	Northbound	Left	54.4 (69.8)	D (E)	1/150’	323' (418')
		Right	6.9 (12.2)	A (B)	1/NA	42' (72')
	Overall Intersection		***19.4 (28.0)***	***B (C)***		-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Merrill Road Interchange

As shown on **Table 8-10**, all six intersections along Merrill Road will operate at LOS D or better except for one intersection that will operate at LOS E during the PM peak hour in the 2045 Build Alternative.

- Merrill Road at Wompi Drive

There are few individual movements at the study intersections along Merrill Road that will operate at LOS F. These movements are listed below (marked as red in **Table 8-10**):

Merrill Road and Hartsfield Road
- EB left-turn lane (PM peak hour)

Merrill Road and Wompi Drive
- NB left-turn lane (PM peak hour)

The operations at Merrill Road intersections will improve under the Build Alternative as compared to the No-Build Alternative with fewer failures and reduced delay times.

A queuing analysis was performed as part of the study to determine the adequacy of the available turn lane storage lengths for the study intersections along Merrill Road. For the ramp terminal intersections, the length of the I-295 northbound and southbound off ramps at Merrill Road interchange are approximately 1,300 and 1,800 feet long, respectively.

In the Design Year 2045 Build Alternative, the 95th Percentile queue length exceeds the proposed storage at the following intersection approaches:

- EB left-turn lane at Merrill Road and Hartsfield Road (AM and PM peak hours)
- SB left-turn lane at Merrill Road and Hartsfield Road (AM and PM peak hours)
- WB through lane at Merrill Road and Southern Connector Northbound Off/On Ramps Northern (AM peak hour)
- NB left-turn lane at Merrill Road and Wompi Drive (PM peak hour)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-10: Merrill Road - Design Year 2045 Build Intersection Analysis Summary

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Merrill Road at Hartsfield Road (Node 601)	Eastbound	Left	66.3 (98.8)	E (F)	1/200’	206' (#232')
		Through	47.2 (14.2)	D (B)	2/NA	#1246' (422')
	Westbound	Through	38.9 (66.5)	D (E)	2/1400’	#813' (#1393')
		Right	2.6 (4.6)	A (A)	1/1400’	93' (151')
	Southbound	Left	56.1 (77.9)	E (E)	2/350’	544' (#523’')
		Right	19.5 (37.6)	B (D)	1/460’	99' (204')
	Overall Intersection		***41.7 (44.6)***	***D (D)***	-	-
Merrill Road at I-295 SB Off Ramp (Node 602)	Eastbound	Through	0.2 (0.2)	A (A)	3/Free	m0' (m0')
	Westbound	Through	8.6 (6.6)	A (A)	2/600’	256' (165')
	Southbound	Right	58.8 (70.2)	E (E)	2/700’	213' (428')
	Overall Intersection		***7.4 (11.7)***	***A (B)***	-	-
Merrill Road at I-295 SB On Ramp (Node 603)	Eastbound	Through	7.6 (11.0)	A (B)	2/700’	400' (252')
		Right	4.3 (3.5)	A (A)	1/200’	31' (51')
	Westbound	Left	11.2 (0.8)	B (A)	1/325’	83' (m0')
		Through	0.2 (0.2)	A (A)	3/Free	0' (0')
	Overall Intersection		***4.4 (3.5)***	***A (A)***	-	-
Merrill Road at Southside Connector Boulevard SB Off/On Ramps (Node 604)	Eastbound	Through	11.9 (24.1)	B (C)	2/500’	369' (188')
		Right	0.6 (0.3)	A (A)	1/400’	0' (0')
	Westbound	Through	7.1 (15.3)	A (B)	2/Free	90' (562')
	Southbound	Left	56.2 (52.4)	E (D)	2/700’	489' (661')
		Right	1.3 (2.4)	A (A)	1/300’	0' (0')
	Overall Intersection		***16.5 (21.9)***	***B (C)***	-	-
Merrill Road at Southside Connector NB / **Southern (Node 605)**	Eastbound	Left	50.7 (53.4)	D (D)	2/360’	300' (m229')
		Through	19.0 (17.5)	B (B)	2/600’	508' (461')
	Westbound	Through	48.3 (48.0)	D (D)	2/600’	283' (457’)
	Northbound	Left	45.3 (48.4)	D (D)	2/450’	210' (423')
		Right	17.1 (18.3)	B (B)	2/700’	220' (421')
	Overall Intersection		***30.6 (31.6)***	***C (C)***	-	-
Merrill Road at Southside Connector NB / **Northern (Node 606)**	Westbound	Through	28.5 (24.3)	C (C)	1/600’	878' (582’)
		Right	0.5 (0.7)	A (A)	1/350’	m0' (0')
	Overall Intersection		***12.6 (8.1)***	***B (A)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-10: Merrill Road - Design Year 2045 Build Intersection Analysis Summary (Continued)

Intersection	Approach	Movement	Delay (sec)	LOS	Available Storage (Feet)	95th % Queue (Feet)
			AM (PM)	AM (PM)	# of Lanes/Length	AM (PM)
Merrill Road at Jane Street (Node 608)	Eastbound	Left	32.1 (62.9)	C (E)	1/400’	m115 (#326’)
		Through/Right	4.1 (5.5)	A (A)	2/400’	63 (154’)
	Westbound	Left	13.9 (31.2)	B (C)	1/400’	m29 (m63’)
		Through/Right	6.9 (8.7)	A (A)	2/500’	362 (385’)
	Northbound	Right	42.9 (55.8)	D (E)	1/350’	70 (87’)
	Southbound	Right	74.8 (77.4)	E (E)	1/500’	#207 (#295’)
	Overall Intersection		***9.7 (14.4)***	***A (B)***	-	-
Merrill Road at Wompi Drive (Node 607)	Eastbound	Through/Right	3.0 (9.8)	A (A)	2/500’	80’ (482’)
	Westbound	Through	9.7 (11.1)	A (B)	2/NA	514’ (520’)
		Right	1.0 (1.0)	A (A)	1/385’	12’ (12’)
	Northbound	Left	61.7 (102.7)	E (F)	1/150’	129’ (#433’)
		Right	41.6 (61.8)	D (E)	1/NA	129’(218’)
	Southbound	Left	59.5 (59.2)	E (E)	1/220’	102’(129’)
		Right	79.1 (45.6)	E (D)	1/NA	#276’ (148’)
	Overall Intersection		***12.2 (18.4)***	***B (B)***	-	-

95th percentile volume exceeds capacity, queue maybe longer.
m: Volume for 95th percentile queue is metered by upstream signal.

8.4.3 Comparison of No-Build Alternative and Build Alternative – Analysis

Tables 8-11 to **8-14** provide a comparative assessment of the HCM analyses for the No-Build Alternative (discussed under **Section 6.1**) and the Build Alternative (discussed under **Section 8.4**). **Table 8-11** summarizes comparison of all freeway basic segments. **Table 8-12** summarizes comparison of all freeway speed change segments such as merge/diverge areas and weaving segments. **Table 8-13** summarizes comparison of all arterial intersections. **Table 8-14** summarizes comparison of all ramp terminal intersections.

Table 8-11: Freeway Basic Segments Analysis – No-Build vs. Build Alternative

I-295 Freeway Segments									
Year	Alternative	AM Peak Hour				PM Peak Hour			
		Total Locations	LOS D or better	LOS E	LOS F	Total Locations	LOS D or better	LOS E	LOS F
2025	No-Build	11	7	3	1	11	6	4	1
	Build	11	11	0	0	11	11	0	0
2045	No-Build	11	4	2	5	11	4	2	5
	Build	11	11	0	0	11	10	1	0

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Table 8-12: Freeway Speed Change Segments Analysis – No-Build vs. Build Alternative

I-295 Speed Change Segments									
Year	Alternative	AM Peak Hour				PM Peak Hour			
		Total Locations*	LOS D or better	LOS E	LOS F	Total Locations	LOS D or better	LOS E	LOS F
2025	No-Build	22	16	4	2	22	16	4	2
	Build	20	20	0	0	20	20	0	0
2045	No-Build	22	9	4	9	22	10	2	10
	Build	20	20	0	0	20	18	2	0

*Includes freeway merge/diverge, major merge/diverge and weaving segments

Table 8-13: Arterial Intersections Analysis – No-Build vs. Build Alternative

I-295 Study Intersections									
Year	Alternative	AM Peak Hour				PM Peak Hour			
		Total Intersections	LOS D or better	LOS E	LOS F	Total Intersections	LOS D or better	LOS E	LOS F
2025	No-Build	19	15	3	1	19	13	4	2
	Build	26	25	1	0	26	26	0	0
2045	No-Build	19	11	2	6	19	6	6	7
	Build	26	25	0	1	26	25	1	0

Table 8-14: Ramp Terminal Intersections Analysis – No-Build vs. Build Alternative

I-295 Ramp Terminal Intersections									
Year	Alternative	AM Peak Hour				PM Peak Hour			
		Total Intersections	LOS D or better	LOS E	LOS F	Total Intersections	LOS D or better	LOS E	LOS F
2025	**No-Build**	7	5	2	0	7	3	4	0
	Build	6	6	0	0	6	6	0	0
2045	**No-Build**	7	3	2	2	7	1	3	3
	Build	6	6	0	0	6	6	0	0

As shown in the above comparison tables, the alternatives analysis results clearly indicate that the Build Alternative performs better than the No-Build Alternative. In the Design Year 2045 during the AM peak hour, the I-295 mainline Build Alternative operates at LOS D or better for all basic freeway and speed change segments. For the same period, the No-Build Alternative is anticipated to have several segments at LOS E and LOS F. A similar pattern is noticed for the I-295 mainline PM peak hour operations. Like the I-295 mainline, the ramp terminal intersections also show substantial improvements compared to the No-Build Alternative. In Design Year 2045, all ramp terminal intersections within the area of influence will operate at LOS D or better with the Build Alternative during the AM and PM peak hours. During the AM and PM peak hours, the No-Build Alternative has four and six ramp terminals, respectively, operating below the LOS target D in Design Year 2045.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

8.5 Safety

A predictive safety analysis was performed in the study area. The predictive safety analysis was performed per the guidelines in the American Association of State Highway and Transportation Officials (AASHTO) HSM and the IARUG Safety Analysis Guidance.

Predictive safety analysis was performed using a quantitative and qualitative approach. Quantitative safety analysis, using the Enhanced Interchange Safety Analysis Tool (ISATe), was performed where applicable in the study area. The quantitative safety analysis was performed for a 20-year design period from 2025 to 2045 for the No-Build and Build Alternative. For sections where the HSM Part C and CMF methodologies could not be applied, a qualitative safety analysis was performed. The following improvements were analyzed either quantitatively or qualitatively:

- Quantitative
    - Addition of one lane on I-295 in each direction and modification of speed change lanes
    - Improvements at St. Johns Bluff Road interchange ramp terminals
    - Conversion of a diamond interchange to a partial cloverleaf interchange at Monument Road
- Qualitative
    - The conversion of a SPUI to a DDI at Town Center Parkway
    - Intersection improvements at the Town Center Parkway and St. Johns Bluff Road intersection
    - Innovative interchange improvements at Merrill Road/Southside Connector

8.5.1 Quantitative Safety Analysis

A quantitative safety analysis was performed as part of this SIMR, where applicable. To perform the analysis, the ISATe tool was used. The ISATe tool is intended to apply the HSM Part C methodology to freeway facilities, including freeway segments and interchanges in urban and rural areas. ISATe was developed as part of the National Cooperative Highway Research Program (NCHRP) Project 17-45. To perform the safety analysis in ISATe, the study area, where improvements are being recommended, was segmented into homogenous sections. Once the study area was segmented, the applicable inputs were provided to produce a predicted number of crashes for the 2025 to 2045 study period. The total number of crashes were then distributed using the KABCO injury classification scale. The KABCO distribution provided in the FDM Chapter 122 was used.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

For the safety analysis, the No-Build alternative uses the existing roadway with the proposed improvements described in **Section 7.1**. The Build alternative uses the proposed improvements described in **Section 7.2**. The No-Build and Build Alternative predictive crash results were compared to determine the safety benefits of the proposed improvements. Since the Build alternative does require significant changes in the geometric configuration, the predictive safety analysis did not utilize the Empirical-Bayes Method for the No-Build or Build Alternative, as recommended in the Safety Guidance. The following quantitative safety analysis compares the No-Build and Build Alternative for the I-295 mainline, St. Johns Bluff Road interchange improvements and Monument Road interchange improvements. No improvements are recommended at the Beach Boulevard and Atlantic Boulevard interchanges as part of this SIMR, therefore a quantitative safety analysis was not performed. Improvements at these two interchanges will be explored and evaluated in future under separate projects in future which should improve operations and safety. The improvements recommended in this SIMR will not have any affect on safety conditions at Beach Boulevard and Atlantic Boulevard interchanges. **Appendix F** presents the input data used to perform the quantitative safety analysis and output summary for the No-Build and Build Alternatives.

I-295

Predictive safety analysis was performed for I-295 from SR 202 to North of Merrill Road. The addition of a general use lane along I-295 in each direction and modifications to the length of the merge and diverge lanes were coded for the Build alternative. **Table 8-15**, presented below, shows the expected crash frequencies for the No-Build and Build Alternative.

Table 8-15: Predicted Crash Frequency along I-295 Mainline (Crashes/Year)

Alternative	K	A	B	C	PDO	Total
No-Build	1.4	8.4	27	49.3	153.4	239.3
Build	1.3	7.8	25.1	45.8	142.4	222.1
Change	-0.1	-0.6	-1.9	-3.5	-11	-17.2

The analysis indicates the additional lane provided along I-295 should reduce the number of crashes along the I-295 mainline by 17.2 crashes/year.

St. Johns Bluff Road Interchange

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

Predictive safety analysis was performed for I-295 at St. Johns Bluff Road interchange. The improvements to the I-295 Northbound and Southbound ramp terminals were coded in the Build alternative. **Table 8-16**, presented below, shows the expected crash frequencies for the No-Build and Build Alternative.

Table 8-16: Predicted Crash Frequency at the I-295 and St. Johns Bluff Road Interchange (Crashes/Year)

Ramp Terminal	Alternative	K	A	B	C	PDO	Total
Northbound Ramp Terminal	No-Build	0.1	0.4	1.1	2	5.5	9
	Build	0	0.2	0.6	1	2.8	4.6
	Change	0	-0.2	-0.5	-1	-2.7	-4.4
Southbound Ramp Terminal	No-Build	0	0.2	0.5	0.8	2.3	3.7
	Build	0	0.1	0.3	0.5	1.3	2.2
	Change	0	-0.1	-0.2	-0.3	-1	-1.5
Total	No-Build	0.1	0.5	1.6	2.8	7.8	12.7
	Build	0	0.3	0.8	1.5	4.2	6.8
	Change	0	-0.2	-0.8	-1.3	-3.6	-5.9

The analysis shows the improvements provided at the Northbound ramp terminal should reduce the number of crashes by 4.4 crashes/year. The analysis also shows the improvements provided at the Southbound ramp terminal should reduce the number of crashes by 1.5 crashes/year. Overall, the improvements at the I-295 and St. Johns Bluff Road interchange should reduce the number of crashes by 5.9 crashes/year.

I-295 at Monument Road Interchange

Predictive safety analysis was performed for I-295 at Monument Road interchange. The conversion of the diamond interchange to a partial cloverleaf interchange and additional interchange improvements were coded in the Build alternative. **Table 8-17**, presented below, shows the expected crash frequencies for the No-Build and Build Alternative.

Table 8-17: Predicted Crash Frequency at the I-295 and Monument Road Interchange (Crashes/Year)

Ramp Terminal	Alternative	K	A	B	C	PDO	Total
Northbound Ramp Terminal	No-Build	0.2	0.9	2.9	5	14.1	23
	Build	0.2	0.9	2.9	5	14.8	23.7
	Change	0	0	0	0	0.7	0.7
Southbound Ramp Terminal	No-Build	0.2	0.9	2.8	4.8	13.6	22.2
	Build	0.1	0.3	0.9	1.6	4.4	7.2
	Change	-0.1	-0.6	-1.9	-3.2	-9.2	-15
Total	No-Build	0.4	1.8	5.7	9.8	27.7	45.2
	Build	0.3	1.2	3.8	6.6	19.2	30.9
	Change	-0.1	-0.6	-1.9	-3.2	-8.5	-14.3

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

The analysis shows the improvements provided at the Northbound ramp terminal should increase the number of crashes by 0.7 crashes/year. This slight increase in crashes is most likely a result of the additional northbound through lane because of the access from the Monument Road westbound to I-295 Southbound loop ramp. The analysis also shows the improvements provided at the Southbound ramp terminal should provide a significant reduction in crashes of 15.0 crashes/year. Overall, the conversion of the diamond interchange to partial cloverleaf and the additional interchange improvements at the I-295 and Monument Road interchange should provide a substantial reduction in crashes of 14.3 crashes/year.

Based on the proposed improvements, combined crashes for mainline and interchanges are expected to reduce by 37.4 crashes per year under the Build Alternative.

8.5.2 Qualitative Safety Analysis

The HSM Part C methodology and CMF methodology cannot always account for unique configurations and as a result, quantitative predictive safety analysis cannot be performed. However, to still account for the proposed improvements that cannot be analyzed using HSM Part C or with CMFs, a qualitative safety analysis has been performed for these applicable improvements.

I-295 at Town Center Parkway Interchange

It is proposed that the existing SPUI be converted to a DDI at the I-295 and Town Center Parkway interchange. This improvement cannot be accounted for using the HSM Part C methodology or CMF methodology. Since there are no other ways to quantify this improvement, a qualitative discussion has been provided. The qualitative safety benefits of a DDI interchange include:

- Reduction of conflict points from 24 conflict points in SPUI to 14 conflict points in DDI and improved sight distance at the turns.
- Reduction in crash severity due to lower design speeds compared to other interchange designs.
- Traffic calming effect that reduces vehicular speed (while maintaining the capacity) due to the small geometric deflection introduced by the DDI for through traffic.
- Elimination of the wrong-way movements into ramps from the DDI interchange design.
- The DDI provides more efficient operations when the left turns are heavy at the interchange.
- The DDI offers shorter pedestrian crossing distance compared to SPUI.

In addition to the general benefits of a DDI, it was noted the Build alternative should result in safety benefits because of reduced queuing along the off-ramps. For example, the northbound approach at the

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

interchange is expected to queue back up to I-295. Queues that back up to an interstate is a major safety concern because there are stopped vehicles while others are traveling at a high rate of speed that could cause major damage if collision occurs. Based on the Build alternative results, it is expected the northbound queues should reduce and no longer back up to I-295 eliminating this major safety concern.

Town Center Parkway/ St. Johns Bluff Road Intersection

The proposed design modifications at Town Center Parkway/St. Johns Bluff Road intersection will provide additional storage and reduce intersection delay and queue lengths. The additional storage and operational improvements should result in a reduction of crashes because of reduced congestion.

I-295 at Merrill Road/Southside Connector Interchange

The I-295 at Merrill Road/Southside Connector is a unique interchange. Three major roadways are coming together to create a unique interchange design. The improvements being recommended at this interchange will provide additional storage and improve the ramp terminal delays and queues. The additional storage and operational improvements should result in a reduction in the number of crashes because of reduced congestion. Like the Town Center Parkway interchange, queues backing up to the mainline is a safety concern at this interchange under the No-Build. It is expected that the Build alternative will reduce the off-ramp queues and should eliminate this major safety concern.

8.6 Project Cost

The anticipated cost of this project based on the FDOT Long Range Estimating (LRE) System is provided in **Appendix G**.

8.7 Conceptual Signing Plan

A conceptual signing plan was prepared for the preferred alternative in accordance with the IARUG requirements. **Appendix H** presents the conceptual signing plan for proposed modifications within the area of influence. No modifications are proposed at Beach Boulevard and Atlantic Boulevard interchanges as part of this SIMR. Existing signs at these two interchanges were reviewed and were found to be adequate. Improvements will be evaluated at the Beach Boulevard and Atlantic Boulevard interchanges in future and a signing plan will be prepared accordingly.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

8.8 Design Exceptions and Variations

Implementation of the proposed improvements will require the following design exceptions and variations:

1. Design Speed Variation
    a. Loop ramp from westbound Monument Road to southbound I-295
    b. Loop ramp from westbound Merrill Road to southbound Southside Connector
2. Shoulder Width Variation
    a. I-295 bridge over Town Center Parkway (inside & outside shoulders)
    b. I-295 bridge over Sawmill Slough (inside & outside shoulders)
    c. I-295 from north of Beach Boulevard to south of Brookview Drive (inside shoulders)
    d. I-295 from the Fort Caroline Road overpass crossing to south of the Dames Point Bridge (inside shoulders)
3. Shoulder Width Exception
    a. I-295 bridge over Beach Boulevard (inside & outside shoulders)
    b. I-295 bridge over St. Johns Bluff Road (inside & outside shoulders)
    c. I-295 bridge over Atlantic Boulevard (inside & outside shoulders)
    d. I-295 from south of the Dames Point Bridge to the Dames Point Bridge (inside shoulders)
4. Bridge Width Variation
    a. I-295 bridge over Beach Boulevard
    b. I-295 bridge over St. Johns Bluff Road
    c. I-295 bridge over Atlantic Boulevard
5. Median Width Variation
    a. I-295 from north of Beach Boulevard to south of Brookview Drive
    b. I-295 from the Fort Caroline Road overpass crossing to the Dames Point Bridge
6. Stopping Sight Distance (SSD) (Horizontal) Exception
    a. I-295 over St. Johns Bluff Road
    b. I-295 northbound between Atlantic Boulevard and Brookview Drive (inside lane to barrier wall)
    c. I-295 northbound at bridge over Southside Connector and over Merrill Road (outside lane to barrier wall)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

d. I-295 southbound at bridge over Southside Connector and over Merrill Road (inside lane to barrier wall)

7. Vertical Clearance Variation
    a. I-295 over Saints Road
    b. I-295 over Alden Road
    c. I-295 over Lost Pine Drive
8. Border Width Variation
    a. Adjacent to ramp from SB I-295 to Monument Road
    b. All locations where noise barriers are located within 10’ of the R/W
9. Maximum Grade Variation
    a. I-295 approach grade south of St. Johns Bluff Road
10. Vertical Alignment (SSD, Curve Length, K-value) Variation
    a. I-295 sag curve south of Town Center Parkway (curve length)
    b. I-295 crest curve over Town Center Parkway (curve length, SSD)
    c. I-295 sag curve north of Town Center Parkway (curve length)
    d. I-295 sag curve at begin bridge for Sawmill Slough (curve length)
    e. I-295 crest curve over Sawmill Slough (SSD)
    f. I-295 sag curve south of Beach Boulevard (curve length)
    g. I-295 crest curve over Beach Boulevard (curve length)
    h. I-295 sag curve north of Saints Road (curve length)
    i. I-295 sag curves (3) between Alden Road and Atlantic Boulevard (curve length, K-value (1^{st} and 3^{rd} sag curves))
    j. I-295 crest curve over Atlantic Boulevard (curve length)
    k. I-295 sag curves north of St. Johns Bluff Road (K-value)
    l. I-295 crest curve over Atlantic Boulevard (curve length, K-value)
    m. I-295 crest curve over Brookview Drive (SSD)
    n. I-295 crest curve between Brookview Drive and Monument Road (SSD)
    o. I-295 crest curve over Monument Road (curve length, SSD)
    p. I-295 crest curve over Merrill Road (curve length, SSD)
    q. I-295 crest curve north of Merrill Road (SSD)

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

11. Vertical Alignment (SSD, K-value) Exception
    a. I-295 sag curve south of Town Center Parkway (K-value)
    b. I-295 sag curve north of Town Center Parkway (K-value)
    c. I-295 crest curve over Beach Boulevard (K-value, SSD)
    d. I-295 crest curve over Saints Road (K-value, SSD)
    e. I-295 sag curve north of Saints Road (K-value)
    f. I-295 crest curve over Alden Road (K-value, SSD)
    g. I-295 sag curve north of Alden Road (K-value)
    h. I-295 crest curve over St. Johns Bluff Road (K-value, SSD)
    i. I-295 crest curve over Atlantic Boulevard (SSD)
    j. I-295 sag curve north of Atlantic Boulevard (K-value)
    k. I-295 crest curve of Southside Connector (SSD)
12. Horizontal Curve Length Variation
    a. I-295 southbound to Atlantic Boulevard ramp terminal
    b. Monument Road to I-295 northbound ramp terminal
    c. Merrill Road to I-295 southbound ramp terminal
    d. I-295 southbound to Merrill Road ramp terminal
13. Superelevation Exception
    a. I-295 horizontal curve north of Saints Road (superelevation rate)
    b. I-295 horizontal curve at Alden Road (superelevation rate)
    c. I-295 horizontal curve at St. Johns Bluff Road (superelevation rate)
    d. I-295 horizontal curve between Atlantic Boulevard and Brookview Drive (superelevation rate)
    e. I-295 horizontal curve at Merrill Road (superelevation rate)
    f. I-295 southbound south of Monument Road (superelevation transition length)
    g. I-295 southbound north of Merrill Road (superelevation transition length)
14. Temporary Shoulder Width
    a. TBD; anticipated at multiple locations along I-295 and ramps

The above design exceptions and variations will be processed and approved separate from this SIMR.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

8.9 Recommendation

The No-Build Alternative will not accommodate the travel demand along I-295 and at the study interchanges. In the Design Year 2045, significant operational deficiencies will exist with the No-Build Alternative. 57% of the I-295 freeway segments, 68% of the study intersections and 86% of the ramp terminals will operate at unacceptable LOS under the No-Build Alternative. These operational deficiencies are associated with high traffic demand and insufficient capacity.

The Build Alternative for this study performs substantially better than the No-Build alternative for all future years. The proposed improvements provide additional capacity along I-295 and at the Town Center Parkway, St. Johns Bluff Road, Monument Road and Merrill Road interchanges. In the Design Year 2045, significant operational benefits result with the Build Alternative. 92% of the I-295 freeway segments, 92% of the study intersections and 100% of the ramp terminals will operate at an acceptable LOS of D or better. The elements operating below the LOS target under the Build Alternative will have a V/C Ratio less than 1.0 indicating non congested conditions. These improvements will help process traffic travelling along I-295 and to and from the study interchanges.

A predicted quantitative safety analysis was also performed where applicable to determine if the Build Alternative addressed the existing safety concerns. Based on the proposed improvements, combined crashes for mainline and interchanges are expected to reduce by 37.4 crashes per year under the Build Alternative.

Considering all the analysis findings described in this SIMR, the Build Alternative is recommended for approval in this study.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

9. JUSTIFICATION

The proposed modifications to I-295 will provide traffic relief and enhance safety within the area of influence. The proposed Build Alternative will operate better than the No-Build Alternative for this project.

9.1 Compliance with FHWA General Requirements

The following requirements serve as the primary decision criteria used in the approval of interchange modification projects. Responses to each of the FHWA 2 policy points are provided to show that the proposed project is viable based on the conceptual analysis performed to date.

9.1.1 FHWA Policy Point 1

An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

An in-depth operational and safety analysis was conducted to study the operational and safety benefits offered by the proposed improvements when compared to the No-Build Alternative.

Several performance measures were used to compare the traffic operations and safety of the existing system under No-Build and Build conditions. Key measures include freeway densities, freeway V/C ratios,

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

intersection delays, level of service (LOS), 95th percentile queue lengths, crash rates and frequency, predominant crash patterns, expected crashes and potential crash reduction.

During the Opening Year 2025, the No-Build Alternative analysis showed that traffic operations are expected to degrade significantly, and several freeway segments will operate at unacceptable LOS E or worse during the AM and PM peak hours. These operation deficiencies are due to the increase in traffic within the study area by 2025. The Build Alternative, which provides general use lane capacity improvements through the extent of the study area, shows significant improvements over the No-Build, with all the freeway segments operating at acceptable LOS D or better in both AM and PM peak hours in Opening Year 2025. Crossing roadways will also benefit from the proposed improvements. The ramp terminal intersections along the cross roadways at study interchanges of Town Center Parkway, St. Johns Bluff Road, Monument Road and Merrill Road will operate at an overall LOS D or better in both AM and PM peak hours under the Build Alternative. The proposed improvements at the study intersection indicate a significant reduction in 95th percentile queue length under the 2025 Build Alternative, where most of the proposed storage can accommodate the queues.

The Design Year 2045 operational analysis results show that the Build Alternative improved traffic operations within the I-295 study area compared to the No-Build Alternative. By providing an additional general use lane, the Build Alternative increases the overall capacity and reduces the densities along I-295 within the study area. In terms of intersection delay, the Build Alternative decreased overall delay at the study intersections. The ramp terminal intersections with LOS F in the 2045 No-Build Alternative improve to LOS D or better in the 2045 Build Alternative at the study interchanges of Town Center Parkway, St. Johns Bluff Road, Monument Road and Merrill Road.

A total of over 1,457 crashes occurred within the study area in the recent five-years (2014-2018), which included 4 fatalities and 676 injuries along the project corridor. A detailed Predictive Safety Analysis was conducted for this project from 2025 to 2045 to evaluate the No-Build Alternative and the Build Alternative that adds general use lane in the northbound (NB) and southbound (SB) direction along I-295 within the study areas. For this five-year period, the analysis indicated that the predicted yearly average crashes under the No-Build Alternative will be approximately 239.3 crashes whereas the Build Alternative is predicted to have approximately 222.1 crashes per year. The Build Alternative will reduce crashes by approximately 7 percent compared to the No-Build Alternative. In addition to the improvements along I-295, improvements at the I-295 and St. Johns Bluff Road interchange should reduce the number of crashes

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

by 5.9 crashes/year. Also, the conversion of the diamond interchange to partial cloverleaf and the additional interchange improvements at I-295 and Monument Road interchange should provide a substantial reduction in crashes of 14.3 crashes/year. Lastly, it is also proposed that the existing SPUI be converted to a DDI at the I-295 and Town Center Parkway interchange. This improvement cannot be accounted for using the HSM Part C methodology or CMF methodology. As a result, a qualitive safety analysis was performed and concluded the safety benefits of a DDI interchange include:

- Reduction of conflict points (14 conflict points in DDI as compared to the 24 conflict points found in the SPUI) and improved sight distance at the turns.
- Reduction in crash severity due to lower design speeds compared to other interchange designs.
- Traffic calming effect that reduces vehicular speed (while maintaining the capacity) due to the small geometric deflection introduced by the DDI for through traffic.
- Elimination of the wrong-way movements into ramps from the DDI interchange design.
- Shorter pedestrian crossing distance in DDI versus the SPUI.

The DDI provides more efficient operations when the left turns are heavy at the interchange. In summary, the proposed improvements will benefit the study corridor (I-295) with a reduction in density, delay and crashes for future traffic conditions. Therefore, the proposed improvements will enhance the traffic operations and safety of the study corridor (I-295).

9.1.2 FHWA Policy Point 2

The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2) and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

I-295 is a public facility and all interchanges within the study area provide full access except St. Johns Bluff Road interchange and will continue to do so with the Build Alternative. The Build alternative will maintain and provide all interchange accesses catering to all traffic movements to/from existing interchanges within the study limits.

The proposed improvements under the Build Alternative were designed to meet current standards for federal-aid projects on the interstate system and conform to the AASHTO and the FDM.

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

10. CONCEPTUAL FUNDING PLAN/CONSTRUCTION SCHEDULE

The improvements proposed as part of the Build Alternative within the study area along I-295 from north of SR 202 to north of Merrill Road are performed under the Programmatic Agreement with FHWA. Therefore, FDOT Central Office will conduct necessary review and assessment of the justification for the proposed improvements. This project is funded for Fiscal Year (FY) 2021 to 2026 in FDOT's Five Year Work Program as Financial Project Identification Number (FPID) 209301-4. The funding for the project phases in the FDOT Five Year Work Program is shown in **Table 10-1**.

Table 10-1: Funding for FPID 209301-4 – I-295 (SR 9A) from Southside Connector (SR 113) to SR 202 (JTB)

Fiscal Year	2021	2022	2023	2024	2025	2026
Highways/PD&E						(On-Going)
Amount:	$57,657					
Highways/Preliminary Engineering						(On-Going)
Amount:	$77,423					
Highways/Right-of-Way						
Amount:		$2,883,250	$13,179,501	$2,870,085		
Highways/Environmental						(On-Going)
Amount:						
Item Total:	**$135,080**	**$2,883,250**	**$13,179,501**	**$2,870,085**		

DocuSign Envelope ID: BDE1AFAC-3BC2-498E-8136-AAB624230B5D

LIST OF APPENDICES