Systems Interchange Modification Report (SIMR) Re-evaluation

I-95 (SR 9) from north of I-10 to south of Martin Luther King Jr. Parkway (SR 115/US 1)

Duval County, Florida

FPID: 442778-1

October 2024

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Prepared for:

Florida Department of Transportation
District Two

1109 South Marion Avenue
Lake City, Florida 32020

October 2024

System Interchange Modification Report(SIMR)

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SIMR Re-evaluation

442778-1

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.

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District Two

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SYSTEMS IMPLEMENTATION OFFICE

QUALITY CONTROL CERTIFICATION FOR INTERCHANGE ACCESS REQUEST SUBMITTAL

Submittal Date: 10/23/2024

FM Number: 442778-1

Project Title: I-95 (SR 9) from north of I-10 to south of Martin Luther King Jr. Parkway (SR 115/US 1) Systems Interchange Modification Report (SIMR) Re-evaluation

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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)

Completed document with appendices and model files.

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: ______________________________ Date: ____________
David Tyler, P.E., AICP

IRC: ______________________________ Date: ____________
David Tyler, P.E., AICP

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 to operate 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-95 (SR 9) from north of I-10 to south of Martin Luther King Jr. Parkway (SR 115/US 1) Systems Interchange Modification Report (SIMR) Re-evaluation

LOCATION: Duval County, FL

FPID NUMBER: 442778-1

This report includes a summary of the data collection effort, safety analysis, operational analysis, discussion of build 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 judgment and experience.

Name: Kavita Parikh, P.E., PTOE

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Signature: K Parikh

Date: 10/31/2024

KAVITA PARIKH
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EXECUTIVE SUMMARY

The purpose of this Systems Interchange Modification Report (SIMR) Re-evaluation is to provide the required technical documentation for obtaining Federal Highway Administration (FHWA) approval of a re-evaluation of the approved January 2023 I-95 from north of I-10 to south of Martin Luther King Jr. Parkway (SR 115/US 1) Systems Interchange Modification Report (SIMR). Modifications are being proposed to the I-95 mainline and I-95 C-D road number of lanes. In addition, modifications are being proposed at interchanges and intersections along the corridor.

The primary reason for this re-evaluation is due to a design change to the approved Original SIMR Build Alternative, which will result in operational changes within the study area. Per the 2022 Interchange Access Request User's Guide (IARUG), the re-evaluation shall show that the revised concept satisfies the safety, operational and engineering (SO&E) acceptability requirements and FHWA's policy points. This means the re-evaluation shall demonstrate that the proposed concept satisfies the measures of effectiveness (MOEs) used in the evaluation of the approved Original SIMR Build Alternative.

Since the approval of the Original SIMR and Methodology Letter of Understanding (MLOU) for re-evaluation, the project implementation plan has been revised, the project will now be delivered in two phases. Concept Phase 1, herein known as Phase 1, includes improvements in the SIMR from I-10 interchange to Kings Road (**Figure 1**), which will be implemented in 2025. Concept Phase 2, herein known as Phase 2, includes the remaining portion of the I-95 corridor, from north of Kings Road to south of Martin Luther King Jr. Parkway, which will be implemented at a future date.

This re-evaluation documents proposed design changes for Phase 1. The two alternatives evaluated and documented in this SIMR Re-evaluation are the Original SIMR No-Build Alternative (since the re-evaluation does not include the entire limits of the approval SIMR) and Phase 1. The Original SIMR concept, approved in 2023, will be re-evaluated against Phase 2 later when construction phase is programmed by FDOT District 2.

Phase 1: This SIMR Re-evaluation alternative has various design changes to the I-95 mainline, C-D roadway and study interchanges from the I-10 interchange to Kings Road and aligns with the approved 2023 Original SIMR. Mainline sections, associated ramps and interchange ramp terminal intersections (including the nearest signalized intersection to the east and west) are analyzed. There are six interchanges within the area of influence (AOI) that provide connections to arterial facilities from I-10 to

8th Street that have been analyzed. Adjacent ramps at I-10 and 8th Street within the AOI are also analyzed - the I-10 eastbound to I-95 northbound off-ramp, I-95 southbound to I-10 westbound/southbound C-D road, I-95 at 8th Street northbound off-ramp and I-95 at 8th Street at southbound on-ramp. Where the interchanges connect to one-way streets or are not controlled by signalized intersections, only the on and off-ramp connections along the I-95 mainline are analyzed. Phase 1 improvements are funded for construction in Fiscal Year (FY) 2025 – 2026 in FDOT's Five Year Work Program.

The methodology used in this SIMR Re-evaluation is documented in the MLOU, signed in October 2023. The MLOU was approved by the 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 IARUG. Traffic operational and safety analyses for this project were performed following the methodology approved in the MLOU. The primary basis for traffic projections is version 3 of the adopted Northeast Regional Planning Activity-Based Model (NERPM-AB1v3) which has a base year of 2010 and a horizon year of 2040. The analysis years for this study is Opening Year 2025 and Design Year 2045. The operational analysis for this study is performed using microsimulation (Vissim). The traffic development, operational analysis procedures and MOEs are consistent with the previously approved Original SIMR.

A comparative assessment was conducted between the Original SIMR No-Build Alternative and Phase 1 Alternative for Opening Year 2025 and Design Year 2045.

The analysis shows that the Phase 1 alternative performs similar or better than the Original SIMR No-Build Alternative. The acceptable level of service (LOS) target for the freeway, ramps, and intersections within the area of interest (AOI) in this SIMR is LOS D.

During the AM and PM peak hours in the Opening Year 2025, the I-95 mainline Phase 1 Alternative will operate at LOS D or better for all segments within the limits of Phase 1 improvements. All I-95 C-D road segments during the Phase 1 alternative are expected to operate at LOS C or better. These results are better than the Original SIMR No-Build Alternative in which the I-95 mainline is forecast to operate at LOS E or better, and the I-95 C-D road is forecast to operate at LOS D or better.

In the Opening Year 2025, the Phase 1 Alternative will offer operational benefits over the Original SIMR No-Build Alternative. Overall, the total delay along the network will decrease by an average of 35 percent. The average speed in the network will increase by an average of six percent, and the total travel time will decrease by an average of 14 percent. In the Opening Year 2025, all the Phase 1 Alternative intersections are expected to operate at LOS D or better. These improvements will help process traffic traveling along I-95 and to and from the study interchanges.

During the AM and PM peak hours in the Design Year 2045, the Phase 1 Alternative results in better operations than the Original SIMR No-Build Alternative. The I-95 mainline southbound during the AM peak hour will operate at LOS D or better south of the Kings Road exit. These results are better than the Original SIMR No-Build Alternative which is forecast to operate with failing segments (LOS F) south of the Kings Road exit. Phase 1 Alternative northbound operations are additionally forecast to operate better than the Original SIMR No-Build Alternative during the AM Peak Hour. The segments between the I-95 C-D road entrance and Kings Road exit will operate at LOS C compared to LOS E and LOS F in the Original No-Build Alternative. During the PM peak hour, both the Phase 1 Alternative and the Original SIMR No-Build Alternative northbound will operate at LOS F for all segments within the Phase 1 limits. The Phase 1 Alternative northbound will operate at an average estimated density of 75 pc/mi/ln and the Original SIMR No-Build Alternative will operate at an average estimated density of 86 pc/mi/ln. This shows that even though they are both operating at LOS F, the Phase 1 Alternative will reduce the density along I-95 northbound by approximately 12.9%. The Phase 1 Alternative will operate at LOS C or better southbound south of the Kings Road exit compared to the Original SIMR No-Build Alternative which will operate at LOS F just south of the Kings Road exit.

An analysis was performed to determine the failure year for the Phase 1 Alternative. The failure year analysis was conducted for the northbound direction to identify when the Phase 1 Alternative will begin to fail. Operational issues are expected in the northbound direction where the Phase 1 Alternative improvements tie-in with the existing geometry. The southbound direction traffic that is restricted from entering the network north of the Kings Road interchange is consistent with the Original SIMR No-Build Alternative and will therefore have consistent results. It was determined that the northbound direction will experience higher densities and failure throughout the project area close to Year 2035. **Section 7.3.3** includes the 2035 Failure Year analysis lane schematic. A separate Interchange Access Request (IAR) will be prepared at a later date requesting approval of the Phase 2 concept to address operational concerns north of Kings Road.

In the Design Year 2045, two of the six study area intersections are expected to operate at LOS F in Original SIMR No-Build Alternative - Forest Street at Park Street and Kings Road at N Davis Street. All intersections in the Phase 1 Alternative are expected to operate at LOS D or better.

In the Design Year 2045, the Phase 1 Alternative will offer operational benefits over the Original SIMR No-Build Alternative. Overall, the total delay along the network will decrease by 13 percent and 29 percent in AM and PM peak respectively when compared to the Original SIMR No Build Alternative. The average speed in the network will increase by three percent and 15 percent in AM and PM peak, respectively. The total travel time will decrease by six percent and 17 percent in AM and PM peak periods, respectively. These improvements will help process traffic traveling along I-95 and to and from the study interchanges.

A comparison of the latest crash data from 2018 to 2023 with the Original SIMR No-Build Alternative data was prepared to see if any new patterns of fatal and serious injury crashes were occurring within the study area. No new patterns of fatal and serious injury crashes were revealed. A detailed Predictive Safety Analysis was conducted for this project to evaluate the Phase 1 Alternative. Overall, the Phase 1 Alternative reduces crashes within the study area by 1.41 crashes per year compared to the Original SIMR No-Build Alternative. It should be noted that additional qualitative safety benefits occur because of the proposed modifications. These are further discussed, in detail, in **Section 7.4.1**.

In conclusion, the Phase 1 Alternative showed operational improvements over the Original SIMR No-Build Alternative in the Opening Year 2025 and Design Year 2045. Based on the safety and traffic operations benefits of the SIMR Re-evaluation Alternatives, Phase 1 is considered the preferred alternative for this SIMR and recommended for approval.

This SIMR Re-evaluation has been developed in accordance with relevant procedures and processes contained in the latest FDOT Project Traffic Forecasting Handbook (2019), FDOT Traffic Analysis Handbook (2021), FDOT Interchange Access Request User's Guide (2022) and FDOT Design Manual (2024).

E.1 Compliance with FHWA General Requirements

The proposed modifications to I-95 will provide traffic relief and enhance safety within the AOI. For this project, the preferred Phase 1 alternative will operate better than the Original SIMR No-Build alternative.

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.

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 SIMR Re-evaluation proposed improvements in Phase 1 when compared to the Original SIMR No-Build Alternative.

Several performance measures were used to compare the traffic operations and safety of the existing system under Build conditions. Key measures include freeway densities, freeway volume to capacity (V/C) ratios, intersection delays, level of service (LOS), max queue lengths, crash rates and frequency, predominant crash patterns, expected crashes and potential crash reduction.

The Opening Year 2025 operational analysis results show that the Phase 1 Alternative improved traffic operations within the I-95 study area compared to the Original SIMR No-Build Alternative. The Phase 1 Alternative decreases the total delay, increases the speed and decreases the total travel time along the network. In terms of intersection delay, the Phase 1 Alternative decreased the overall delay at the study intersections. Similar to the Original SIMR No-Build Alternative, all intersections operate at LOS D or better.

The Design Year 2045 operational analysis results show that the Phase 1 Alternative improved traffic operations within the I-95 study area compared to the Original SIMR No-Build Alternative. The Phase 1 Alternative decreases the total delay, increases the speed and decreases the total travel time along the network. In terms of intersection delay, the Phase 1 Alternative had similar or decreased delay at the study intersections. All intersections in the Phase 1 Alternative are expected to operate at LOS D or better. In the Original SIMR No-Build Alternative, two intersections are operating with an unacceptable delay.

Overall, the Phase 1 alternative should improve safety based on the quantitative and qualitative safety analysis. Phase 1 shows a small reduction in crashes of 1.41 crashes/year compared to the Original SIMR No-Build condition. There are additional qualitative safety benefits that could not be analyzed using the quantitative methods due to HSM safety analysis limitations and these benefits area further discussed below and in **Section 7.4.1**.

Lastly, several interchanges and intersection improvements are proposed that cannot be accounted for using the HSM Part C methodology or CMF methodology. The proposed improvements are at the I-95 at Forest Street interchange, I-95 southbound at Union Street interchange and I-95 southbound at I-95 C-D road system. As a result, a qualitative safety analysis was performed and concluded the overall safety benefits of these improvements:

- Reduction of conflict points and improved operations at intersections
- Reduced crash severity and due to elimination of crash types that occur with Original SIMR No-Build Alternative geometry

Overall, the proposed improvements under the Phase 1 alternative in this SIMR Re-evaluation will benefit the study corridor (I-95) with a reduction in density, delay and crashes for future traffic conditions, thereby enhancing traffic operations and safety. Therefore, this SIMR Re-evaluation requests approval of the Phase 1 alternative. A separate IAR will be prepared at a later date requesting approval of the Phase 2 concept. The Phase 1 improvements will begin to fail around 2035 and the Department will need to program future Phase 2 improvements at this time.

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 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-95 is a public facility and all interchanges within the study area provide full access (interchanges at Forsyth Street/Bay Street, Monroe Street/Adams Street and Union Street connect to one-way streets) and will continue to do so with the Phase 1 alternative. The Phase 1 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 Phase 1 alternative were designed to meet current standards for federal-aid projects on the interstate system and conform to American Association of State Highway and Transportation Officials (AASHTO) and the FDOT Design Manual (FDM).

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1 INTRODUCTION

Interstate 95 (I-95) is in the City of Jacksonville, Duval County. I-95 is a significant component of the Strategic Intermodal System (SIS) and the National Highway System (NHS) 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-95 is a north-south limited access facility that provides the main entryway to the City of Jacksonville's Central Business District. I-95 also serves as a major emergency evacuation route for the state, as it connects to other major arterials and highways of the state evacuation route such as I-10, SR 9B and I-295.

1.1 Background

The Applicant, Florida Department of Transportation (FDOT) District Two, requests the Federal Highway Administration (FHWA) approval of a re-evaluation of the previously approved January 2023 I-95 (SR 9) from north of I-10 to south of Martin Luther King Jr. Parkway (SR 115/US 1) Systems Interchange Modification Report (SIMR). The previously approved January 2023 I-95 (SR 9) from north of I-10 to south of Martin Luther King Jr. Parkway (SR 115/US 1) Systems Interchange Modification Report (SIMR) is herein referred to as the Original SIMR. The design modifications proposed at I-95 mainline, collector-distributor (C-D) roadway and study interchanges necessitate a re-evaluation of the Original SIMR. This re-evaluation is herein referred to as the SIMR Re-evaluation. This SIMR Re-evaluation is being performed in two phases: a Phase 1 concept, herein referred to as Phase 1, from north of I-10 interchange to Kings Road and a Phase 2 concept from north of Kings Road to south of Martin Luther King Jr. Parkway, herein referred to as Phase 2. The focus of this SIMR Re-evaluation is on Phase 1. At a later date, a separate Interchange Access Request (IAR) document will be prepared for Phase 2 and will be compared to the Original SIMR Build Alternative. When Phase 2 is constructed, the Ultimate corridor configuration will be complete.

The Phase 1 proposed modifications have been analyzed, and the No-Build alternative from the Original SIMR was compared to the Phase 1 alternative. This SIMR Re-evaluation has been developed in accordance with relevant procedures and processes contained in the latest FDOT Project Traffic Forecasting Handbook (2019), FDOT Traffic Analysis Handbook (2021), FDOT Interchange Access Request User's Guide (2022) and FDOT Design Manual (2024). The Original SIMR is provided in **Appendix B**.

The I-95 capacity improvements are included in the North Florida Transportation Planning Organization's (TPO) Long Range Transportation Plan (LRTP). An Efficient Transportation Decision Making (ETDM) process has been completed for the project.

Currently, there are four general use lanes (GULs) on I-95 from south of Forest Street to north of Forsyth Street. The GULs then increase to six lanes and continue as six lanes past the northern AOI boundary. The additional lanes lead to connections to the southbound Collector-Distributor (C-D) road from Adams Street and connections from the northbound C-D road near the northbound Adams Street on-ramp. This project aims to reduce congestion and improve traffic operations and safety throughout the study area.

This SIMR Re-evaluation documents traffic operational analysis and safety evaluations for the proposed improvements along the I-95 corridor and at the interchanges listed below. The pair of interchange ramps along the I-95 mainline which allow reciprocating movements are listed as one interchange.

- Forest Street
- Forsyth Street/Bay Street
- Monroe Street/Adams Street
- Union Street
- Church Street/ W Beaver Street
- Kings Road

The adjacent ramps at the interchanges of I-95 at I-10 and I-95 at 8th Street, south and north of the project limits, respectively, are included within the AOI to understand their impacts to the mainline and other adjacent interchanges. These ramps include the I-10 eastbound to I-95 northbound off-ramp, the I-95 southbound to I-10 westbound/southbound C-D road, the I-95 at 8th Street southbound on-ramp and I-95 at 8th Street northbound off-ramp. No improvements are recommended at these two interchanges under this SIMR Re-evaluation.

1.2 Purpose and Need

The purpose and need for this SIMR Re-evaluation are consistent with the purpose and need from the Original SIMR.

The purpose of this study is to add capacity on I-95 from north of I-10 to Kings interchange to provide better travel time reliability, improve safety and enhance operations along the I-95 study corridor and interchanges.

The need for this project remains consistent with the approved Original SIMR and is driven by current peak hour congestion and forecasted volumes along this segment of the interstate with periods of congestion extending the peak periods of travel. Congestion 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, this segment of I-95 carried Annual Average Daily Traffic (AADT) volume of 151,000 vehicles north of the I-10 interchange at the beginning of the study corridor and 133,000 north of Kings Road. Based on existing year analysis, the I-95 southbound mainline segments from Kings Road entrance to the C-D road exit (Kings Road entrance to Church Street exit in the AM peak hour) and Kings Road exit to Union Street exit (AM peak hour), currently operate below the LOS D target. Many merge/diverge segments along the corridor also operate at lower speeds.

Downtown arterials comprise of one-way streets and roadways with one to two lanes in each travel direction. In 2019, Forest Street carried an AADT of 2,600 vehicles, Bay Street carried an AADT of 10,400 vehicles, Union Street carried an AADT of 7,600 vehicles, Adams Street carried an AADT of 5,700 vehicles, Monroe Street carried an AADT of 3,1600 vehicles, Church Street carried an AADT of 700 vehicles, Beaver Street carried an AADT of 11,900 vehicles, Union Street carried an AADT of 28,500 vehicles, and Kings Road carried an AADT of 26,000 vehicles.

The 2045 AADT forecast estimate for I-95 is 181,000 vehicles north of I-10 at the beginning of the study corridor, 168,000 north of Kings Road and 160,000 north of 8th Street interchange.

If no capacity improvements are made to the facilities, congestion within the corridor and at the interchanges will get progressively worse, with the periods of congestion extending the peak periods of travel, increasing the number of crashes and deteriorating the travel time reliability for the users.

Social/Economic Demand

I-95 is a major north-south corridor in central Jacksonville. Within the study limits, I-95 serves as the main entryway to the Jacksonville Central Business District (CBD) and connects suburban residential areas throughout the corridor to office, commercial, recreational and industrial areas. The communities of Brooklyn, LaVilla, Mixon Town, New Town, Hogan's Creek and Springfield are located adjacent to I-95 in the study area. Major employers are in the CBD such as CSX Corporation, TIAA Bank, Bank of America and Haskell. There are also tourism attractors downtown including but not limited to TIAA Bank Field (home of the Jacksonville Jaguars), the Baseball Grounds of Jacksonville, Jacksonville Veterans Memorial Arena, Prime F. Osborn III Convention Center and the Times-Union Center for the Performing Arts. North of the CBD and adjacent to the study area, UF Heath's Jacksonville complex attracts 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-95. Without any additional improvements, I-95 will begin to operate below FDOT target LOS D.

Modal Interrelationships

I-95 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-95 is a National Highway on FDOT's SIS, which is Florida's high-priority network of transportation facilities that is 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-95 provides direct access to JAXPORT's Talleyrand Marine Terminal (SIS Seaport) via Martin Luther King Jr. Parkway and the Hart Expressway (Talleyrand Connector is currently under construction) and is used to transport cargo to/from the Jacksonville International Airport and other intermodal facilities. Once the Talleyrand Connector is constructed and enhanced the Intelligent Transportation System (ITS) infrastructure along Martin Luther King Jr. Parkway is implemented, freight flow and accessibility to and from the Talleyrand Port District from I-95 will be improved.

In addition, connections from I-95 to W Forsyth Street and W Adams Street are designated SIS Strategic Growth Highway Connectors for the Jacksonville Greyhound bus station located on W Forsyth Street.

Safety

The spacing of interchanges has a significant effect on the operations and safety of any corridor. The close spacing of the interchanges is a result of construction of this segment as part of the Jacksonville Expressway System prior to the development of these standards. The spacing between ramps at several of the interchanges does not meet current standards. Also, several exit and entrance ramps are located on the left side of the mainline travel lanes in the segment between Myrtle Avenue and Kings Road, which also affect the operations and safety. This SIMR will consider safe connections to the interstate. Additionally, the capacity modifications will aid in reducing the number of crashes within the project limits.

The project is anticipated to improve emergency evacuation capabilities by enhancing connectivity and accessibility to major arterials designated on the state evacuation route. I-95 serves as part of the emergency evacuation route network designated by the Florida Division of Emergency Management and Duval County. I-95 is critical in facilitating traffic during emergency evacuation periods as it connects to other major arterials and highways of the state evacuation route network such as I-10, SR 9B and I-295. Without any improvements to I-95, evacuation clearance times will continue to increase and may discourage residents from evacuating, thus jeopardizing public safety.

FDOT has initiated this SIMR Re-evaluation to investigate alternatives for the I-95 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 City of Jacksonville’s CBD, in Duval County, Florida. The overall project limits are consistent with the Original SIMR, which begins north of the I-10 system-to-system interchange and ends south of the Martin Luther King Jr. Parkway interchange. The project implementation has been divided into two phases. The focus of this SIMR Re-evaluation is on Phase 1 from north of I-10 to Kings Road interchange. Phase 2 from north of Kings Road to south of Martin Luther King Jr. Parkway interchange will be discussed in a future IAR. The phases are shown in the project location and the study area map in **Figure**

1-1. The land use along the project study area is highly urbanized with predominantly residential, commercial and office land uses adjacent to the I-95 corridor.

1.4 Reason for Re-evaluation

The primary reason for this re-evaluation is due to several design modifications to the Original SIMR. This SIMR Re-evaluation recommends design changes to the I-95 mainline, C-D roadway and study interchanges. Per the 2022 Interchange Access Request User's Guide (IARUG), the re-evaluation shall show that the revised concept satisfies the safety, operational and engineering (SO&E) acceptability requirements and FHWA's policy points. This means the re-evaluation shall demonstrate that the proposed concept satisfies the MOEs used in the evaluation of the Original SIMR No-Build Alternative. The methods used in this SIMR Re-evaluation will conform to all relevant procedures and processes contained in the FDOT Project Traffic Forecasting Handbook, FDOT Traffic Analysis Handbook, FDOT IARUG, and FDOT Manual on Uniform Traffic Studies.

The following alternatives have been evaluated:

Original SIMR No-Build Alternative: This alternative will be the same as the approved 2023 Original SIMR 2025 and 2045 No-Build Alternative.

Phase 1: This SIMR Re-evaluation alternative has various design changes to the I-95 mainline, C-D roadway and study interchanges from north of I-10 interchange to Kings Road and is planned to be constructed in Fiscal Year 2025-2026. Mainline sections, associated ramps and interchange ramp terminal intersections (including the nearest signalized intersection to the east and west) are analyzed. There are six interchanges within the area of influence (AOI) that provide connections to arterial facilities from I-10 to 8th Street that have been analyzed. Adjacent ramps at I-10 and 8th Street interchanges are also included within the AOI - the I-10 eastbound to I-95 northbound off-ramp, I-95 southbound to I-10 westbound/southbound C-D road, I-95 at 8th Street northbound off-ramp and I-95 at 8th Street at southbound on-ramp. Where the interchanges connect to one-way streets or are not controlled by signalized intersections, only the on and off-ramp connections along the I-95 mainline are analyzed.

At a later date, a separate IAR will be prepared and the Phase 2 concept will be analyzed and compared to the Original SIMR Build Alternative. This phase will be an extension of the Phase 1 alternative to Martin

Luther King Jr. Parkway and is currently in the North Florida TPO's Long-Range Transportation Plan (LTRTP).

I-95 (SR 9) from north of I-10 to south of Martin Luther King Jr. Parkway (SR 115/US 1) SIMR Re-evaluation	Project Location and Study Area Map	Figure 1-1 Page 8

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 signed 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 (NERPM-AB1v3) which has a base year of 2010 and a horizon year of 2040.

2.2 Area of Influence

The area of influence (AOI) for this re-evaluation focuses on Phase 1. The limits of the Phase 1 AOI are from north of I-10 to Kings Road interchange, including the on and off ramps of adjacent interchanges of I-10 and 8th Street. Phase 2 (8th Street to south of Martin Luther King Jr. Parkway) will be analyzed in a future IAR and is not included in the AOI of this SIMR Re-evaluation. **Figure 2-1** depicts the AOI along I-95 and crossing roadways.

There are six study interchanges plus ramps at the adjacent interchanges of I-10 and 8th Street within the AOI along I-95. These six study interchanges are listed below.

- Forest Street
- Forsyth/Bay Street
- Monroe Street/Adams Street
- Union Street
- Church Street/W Beaver Street
- Kings Road

I-95 interchanges at Forsyth Street/Bay Street, Monroe Street/Adams Street, Union Street and Church Street/W Beaver Street connect to one-way streets or are not controlled by signalized intersections. For these interchanges, only on and off-ramp connections along the I-95 mainline were analyzed.

Along the arterials, the AOI includes the ramp terminal intersections and at least one signalized intersection adjacent to the ramp terminal intersections. There are seven study intersections within the AOI along the crossing roadways (three arterial intersections and four ramp terminal intersections). These study intersections are listed below:

Forest Street

- I-95 northbound ramp terminal
- I-95 southbound ramp terminal
- Park Street

Church Street

- I-95 southbound ramp terminal

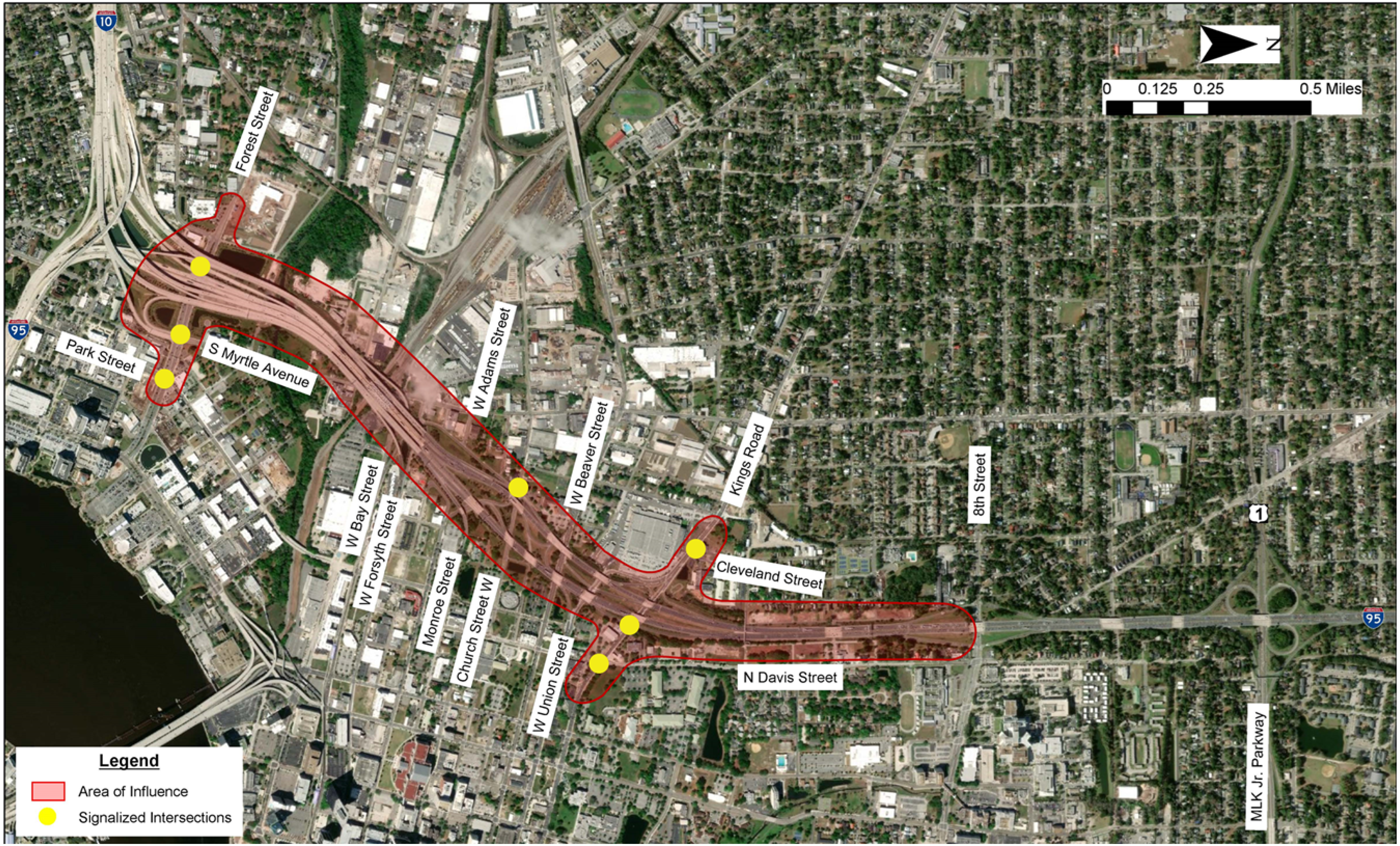
Kings Road

- I-95 northbound ramp terminal
- Cleveland Street
- N Davis Street

Adjacent Interchanges:

The listed adjacent interchange ramps below have been included in the traffic operational analysis per the guidance provided in the FDOT's IARUG:

- I-10 eastbound to I-95 Northbound off ramp
- I-95 southbound to I-10 westbound /southbound C-D road off-ramp
- I-95 at 8th Street northbound off-ramp
- I-95 at 8th Street southbound on-ramp



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Area of Influence

Figure 2-1

2.3 Data Collection

No additional data collection took place to prepare this re-evaluation. The analysis conducted for this SIMR utilizes the Original SIMR dataset which consists of a combination of data that includes recent data collection efforts and data available from FDOT Florida Traffic Online (FTO), straight-line diagrams and Google Earth aerial imagery. 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
        - Truck data
        - Length of acceleration/deceleration lanes
        - Extent and amount of curvature along mainline I-95
        - Posted speed limits
    - Control Data
        - Signal timing data
        - Stop/Yield signs
        - Regulatory/Advisory speed limits
        - Guide sign locations
- Existing and Historical Traffic Data
    - Traffic counts were collected in the field during May 2017 as part of the traffic data collection effort for the I-95 Express Lanes Feasibility Study from Interstate (I-10) to Florida/Georgia State Line, prior to the COVID-19 pandemic. This 2017 count data was adjusted by applying a growth rate to develop the Existing Year 2019 traffic used in this SIMR. This approach ensured that the base traffic used in the SIMR is not impacted by the COVID-19 pandemic in 2020. Daily vehicle machine counts were collected in 15-minute intervals on typical weekdays, Tuesday, Wednesday and Thursday for up to forty-eight

hours; peak hour turning movement counts were conducted from 6:00 a.m. to 10:00 a.m. and from 3:00 p.m. to 7:00 p.m. for the morning and evening peak hours, respectively.

  - Historical traffic volume information from FDOT FTO was used to supplement additional data needs and understand traffic growth since May 2017 to develop the Existing Year 2019 volumes.
  - In May 2017, a Bluetooth Origin and Destination Survey was conducted along the corridor with the objective of understanding the major origins and destinations of the study area and identifying potential corridor improvements. This data was utilized to gain an understanding of the popular routes being taken within the project area and traffic patterns.
- 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 IMR for the I-95 at Martin Luther King Jr. Parkway interchange (not within the AOI for Phase 1) PD&E study was approved in October 2018, and the project is currently in the design phase. The IMR recommended eliminating the northwest quadrant loop ramp, signalizing movements at the I-95 southbound on/off-ramps terminal intersection, signalizing the I-95 northbound on-ramp intersection, extending the deceleration lane for the I-95 southbound off-ramp to Martin Luther King Jr. Parkway eastbound and I-95 northbound off-ramp to Martin Luther King Jr. Parkway westbound and repositioning the I-95 southbound off-ramp to Martin Luther King Jr. Parkway westbound.

2.4 Design Traffic Factors

Base traffic data and traffic factors utilized in this SIMR Re-evaluation are consistent with the Original SIMR. 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 traffic factors used in this SIMR Re-evaluation 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-95	8.5%	60.0%	8.0%	4.0%	N/A	N/A
Arterials	N/A	N/A	4.0%	2.0%	N/A	N/A

Source: 2019 FTO and May 2017 field counts

2.5 Travel Demand Forecasting

The travel demand forecasting performed in the Original SIMR remains unchanged in this SIMR Re-evaluation. The Opening Year 2025 and Design Year 2045 projected volumes for the Original SIMR and SIMR Re-evaluation alternative are the same. A summary of the travel demand forecasting process including the travel demand model used and volume development is discussed below.

2.5.1 Project Traffic Forecast Development Methodology

The travel demand modeling and the future year 2025 and 2045 AADT forecasts developed by the Department as part of the I-95 from Interstate 10 (I-10) to Florida/Georgia State Line Express Lanes Feasibility Study were utilized in this SIMR.

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 NERPM-AB1v3, which has a Base Year of 2010 and a Horizon Year of 2040.

A minimum compounded growth rate was developed for the Existing Year 2019 volumes by comparing the growth between the 2017 AADTs and 2025 AADTs obtained from the I-95 from Interstate 10 (I-10) to Florida/Georgia State Line Express Lanes Feasibility Study and by comparing the growth between 2017 AADTs and 2019 AADTs obtained from FTO on all available roadway links in the study area.

2.5.2 Selected Travel Demand Model

The travel demand modeling and future year AADT forecasts for this study were developed by the Department as part of the I-95 from Interstate 10 (I-10) to Florida/Georgia State Line Express Lanes Feasibility Study. The NERPM-AB1v3, with Base Year 2010 and Horizon Year 2040, was used to estimate the future years' daily forecasts for the study area. The NERPM-AB1v3 model is based on the Florida Standard Urban Transportation Modeling Structure (FSUTMS) and is recognized by both FDOT District Two, as well as the North Florida TPO as an acceptable travel demand forecasting tool which has been used to develop Design Traffic for several recent interchange improvement projects. The daily forecasts projected were used in the development of the Directional Design Hour Volumes (DDHV).

2.5.3 Validation Methodology

The NERPM-AB1v3 is validated to base year 2010. The base year and horizon year model validation was performed by the Department and daily forecasts were developed as part of I-95 from Interstate 10 (I-10) to Florida/Georgia State Line Express Lanes Feasibility Study. No further modifications or validation of the travel demand model were performed as part of this SIMR. However, the future daily volumes and travel patterns were checked for reasonableness. Any changes made to the model volumes were submitted to the Department for review and approval.

2.6 Analysis Years

Opening Year and Design Year analysis was performed for the Original SIMR No-Build and Phase 1 alternatives.

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

- Opening Year: 2025
- Design Year: 2045

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

- Base Year: 2010
- Horizon Year: 2040

The analysis year for future conditions is consistent with I-95 from Interstate 10 (I-10) to Florida/Georgia State Line Express Lanes Feasibility Study.

2.7 Measures of Effectiveness

Measures of Effectiveness (MOEs) were used to assess the traffic operation conditions by comparing MOEs between the Original SIMR and SIMR Re-evaluation alternatives. The following MOEs used to evaluate the performance of the alternatives considered are listed below:

- Network-wide Output: Average speed (mph), total travel time (hr), total delay time (hr), latent demand, latent delay (hr) and vehicles arrived.
- Freeway Segments: Estimated Level of Service (LOS), Operating speed (mph), volume and estimated density in hourly intervals (pc/mi/ln), density heat diagrams for 15-min intervals to

illustrate any operational concerns along the freeway mainline segments.

- Intersections/ interchange performance: Volume, delay and max queue length (ft) for ramp movements.

FDOT Topic No. 525-000-006 provides LOS targets for the State Highway System (SHS). The acceptable LOS target from this document for the AOI is LOS “D” for the intersections, freeways and ramps.

Link based density obtained from the microsimulation model is in vehicles per mile. Methodology recommended in Traffic Analysis Handbook (2021) to convert microsimulation model density to passenger cars per mile per lane was utilized to document hourly density.

2.8 Safety Analysis

A quantitative safety analysis based on the procedures in the Highway Safety Manual (HSM) was also performed as part of this SIMR Re-evaluation. The safety analysis is consistent with the Original SIMR and was performed for the proposed modifications. Crash data was obtained from an approved FDOT safety office source, Signal Four Analytics, for the five-year period (January 1, 2018 to September 6, 2023) on the mainline, interchanges and major cross streets within the AOI. The data collected included the number, type and location of crashes, the crash severity and estimates of property damage. The raw crash data is provided in **Appendix C**. Using the latest data, serious injury and fatal crashes were reviewed for the identification of new hot spots.

The predictive safety analysis complies with the guidelines of the FDOT IARUG and includes the use of Safety Performance Functions to determine the estimated change in the expected number of crashes due to the proposed changes. The predictive safety analysis performed in this re-evaluation focuses on comparing the areas where the proposed changes are recommended.

This SIMR Re-evaluation also provides tables and figures summarizing the analysis results. The following MOEs were used to evaluate the safety performance of the alternative.

- Crash frequency
- Predicted reduction in crashes

2.9 Analysis Procedures

AM and PM peak hour operations within the study area were assessed under Build conditions. Analysis of I-95 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, 2021 Edition. The methods, tools and assumptions are described in this section.

The operational analysis for this study was performed using Vissim 2020. Vissim microsimulation was used to assess the study area on a network-wide basis. In addition, it was used to assess the traffic operation conditions of individual facilities, such as the freeway mainline, ramps and signalized intersections. Synchro 11 was used for the execution of existing timing plans to aid in signal timing optimization for the alternatives.

The microsimulation analysis using Vissim software was conducted to evaluate the system-wide operational performance. Microsimulation analysis enhances the capability of capturing the network-wide vehicular interaction between the individual roadway elements (mainline segments, ramp junctions and arterial intersections). The Vissim analysis files from the Original SIMR were used to maintain calibration parameters for this SIMR Re-evaluation. The microsimulation was performed consistently with guidelines provided in the FDOT 2021 Traffic Analysis Handbook. Individual link flow targets are 15% of field traffic flows for more than 85% of cases. The target of the GEH statistic is less than 5 for more than 85% of the links. Travel time targets are within 15% of the field measured speeds for more than 85% of cases. Travel speed profiles were used to compare RITIS speed with the simulation output to make sure that the simulation model replicates the field conditions and areas of congestion.

Vissim is a stochastic model that produces different results by changing the random seed numbers. To ensure model variation does not skew the results, a certain number of model runs is required. A sample size of 10 runs was used for the initial test and the results from these runs were averaged. The number of required runs was calculated from the Student’s t-test using a 95% confidence level with a 10% allowable error.

2.10 Alternatives Considered

The Vissim models were developed for the AM and PM peak periods for the Opening Year 2025 and Design Year 2045 of the following scenarios:

- Original SIMR No-Build Alternative
- Phase 1 Alternative

2.11 Model Spatial Limits

The VISSIM model spatial limits are the same as the Original SIMR's AOI. The AOI typically includes adjacent interchanges that could be affected by the construction of the proposed project or future improvements to adjacent interchanges that could influence how the proposed project is constructed.

The following segments were included in the AOI for the Vissim analysis:

- I-95 from north of I-10 to south of Martin Luther King Jr. Parkway
- I-95 C-D road from I-10 to I-95 northbound entrance/southbound exit
- All interchanges and intersections within these limits

2.12 Model Temporal Limits

The temporal limits of the modeling period relate to the location of the project, the length of peak periods and the duration of the expected congestion. Field observations and RITIS data were used to determine the temporal limits and develop speed profiles for this project.

The model temporal limit assumed for this study was a three-hour AM and three-hour PM peak period for existing calibration and a three-hour AM and three-hour PM peak period for future year models. The three-hour AM and PM peak period models were achieved by developing "shoulder hours" to the AM and PM peaks, which were based on the existing traffic counts in the study area. The shoulder hours allowed the modeling to capture the buildup to the congestion, the potential failure and the recovery of the transportation network in the AOI for this study. Additionally, a thirty-minute seed period was used to load traffic prior to the start of the three-hour period. Fifteen-minute volumes were developed for each hour of the peak period.

2.13 Model Calibration

Traffic simulation software Vissim 2020 was utilized for simulating the project area. VISSIM models were constructed and calibrated to existing conditions. The simulation calibration incorporated guidance and criteria from FDOT's Traffic Analysis Handbook. Traffic volume data, project corridor speed data from RITIS and field observations were used for calibrating the VISSIM models.

The calibration of the existing AM and PM peak-period models targeted the thresholds indicated in the FDOT's Traffic Analysis Handbook. Individual link flow targets are 15% of field traffic flows for more than 85% of cases. The target of the GEH statistics is less than five for more than 85% of the links. Travel time targets are within 15% of the field measured speeds for more than 85% of cases. The target of the modeled average link speeds to be within the ±10 mph of field-measured speeds on at least 85% of all network links Travel speed profiles compared RITIS speed with the simulation output to make sure that the simulation model replicates the field conditions and areas of congestion.

Visual audits of the simulation were performed to the analyst's satisfaction to observe speed-flow relationships for individual links and appropriate queuing at bottlenecks. Average travel speeds, individual link speeds and peak period speed profiles for both directions were used to replicate the congestion and assess the performance of the freeway segments. The calibration effort was documented in detail in the Vissim Existing Conditions Model Development and Calibration Report provided in the Original SIMR **Appendix B.**

All future year 2045 models in the Original SIMR were created from the calibrated 2019 existing model. The SIMR Re-evaluation Vissim models were created by using the Original SIMR future year model as a starting point. The future conditions assumed that all viable enhancements to the traffic control devices and signal timing optimizations are executed. Synchro 11 was used for signal timing optimization for future conditions. These timings were implemented within the Vissim models and adjusted if necessary.

3 EXISTING CONDITIONS

This SIMR Re-evaluation did not perform a new existing year conditions analysis. For existing conditions information such as the existing transportation network, existing traffic data, existing operational analysis and existing crash and safety information, refer to the Original SIMR in **Appendix B**.

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

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

- North Florida TPO Year 2045 Long-Range Transportation Plan (LRTP)
- North Florida TPO Transportation Improvement Program (TIP)
- North Florida TPO Cost Feasible Plan
- City of Jacksonville Comprehensive Plan
- FDOT Five-Year Work Program

4 NEED

The purpose and need for this SIMR Re-evaluation are consistent with the purpose and need from the Original SIMR.

The purpose of this I-95 SIMR Re-evaluation project is to add capacity on I-95 from north of I-10 to Kings Road interchange to provide better travel time reliability, improve safety and enhance operations along the I-95 study corridor and interchanges.

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

Mobility

The need for this SIMR Re-evaluation remains consistent with the Original SIMR. In 2019, this segment of I-95 carried Annual Average Daily Traffic (AADT) volume of 151,000 vehicles north of the I-10 interchange at the beginning of the study corridor and 133,000 north of Kings Road interchange. Based on existing year analysis, the I-95 southbound mainline segments from Kings Road entrance to the C-D road exit (Kings Road entrance to Church Street exit in the AM peak hour only) and Kings Road exit to Union Street exit (AM peak hour only), currently operate below the LOS D target. Many merge/diverge segments along the corridor also operate at lower speeds.

Arterials in downtown comprise of one-way streets and roadways with one to two lanes in each travel direction. In 2019, Forest Street carried an AADT of 2,600 vehicles, Bay Street carried an AADT of 10,400 vehicles, Union Street carried an AADT of 7,600 vehicles, Adams Street carried an AADT of 5,700 vehicles, Monroe Street carried an AADT of 3,100 vehicles, Church Street carried an AADT of 700 vehicles, Beaver Street carried an AADT of 11,900 vehicles, Union Street carried an AADT of 28,500 vehicles and Kings Road carried an AADT of 26,000 vehicles.

The 2045 AADT forecast estimate for I-95 is 181,000 vehicles north of I-10 at the beginning of the study corridor, 168,000 north of Kings Road, and 160,000 north of 8th Street interchange.

If no capacity improvements are made to the facilities, congestion within the corridor and at the interchanges will get progressively worse, with the periods of congestion extending the peak periods of travel, increasing the number of crashes and deteriorating the travel time reliability for the users.

Social/Economic Demand

I-95 is a major north-south corridor around central Jacksonville. Within the study limits, I-95 serves as the main entryway to the Jacksonville Central Business District (CBD) and connects suburban residential areas throughout the corridor to office, commercial, recreational and industrial areas. The communities of Brooklyn, LaVilla, Mixon Town, New Town, Hogan's Creek and Springfield are located adjacent to I-95 in the study area. Major employers are in the CBD such as CSX Corporation, TIAA Bank, Bank of America and Haskell. There are also tourism attractors downtown including but not limited to TIAA Bank Field (home of the Jacksonville Jaguars), the Baseball Grounds of Jacksonville, Jacksonville Veterans Memorial Arena, Prime F. Osborn III Convention Center and the Times-Union Center for the Performing Arts. North of the CBD and adjacent to the study area, UF Heath's Jacksonville complex attracts 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-95. Without any additional improvements, I-95 will begin to operate below FDOT target LOS D.

Modal Interrelationships

I-95 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-95 is a National Highway System (NHS) on FDOT's Strategic Intermodal System (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-95 provides direct access to JAXPORT's Talleyrand Marine Terminal (SIS Seaport) via Martin Luther King Jr. Parkway and the Hart Expressway (Talleyrand Connector is currently under construction) and is used to transport cargo to/from the Jacksonville International Airport and other intermodal facilities. Once the Talleyrand Connector is constructed and enhanced ITS infrastructure along Martin Luther King Jr. Parkway is implemented, freight flow and accessibility to and from the Talleyrand Port District from I-95 will be improved.

In addition, connections from I-95 to W Forsyth Street and W Adams Street are designated SIS Strategic Growth Highway Connectors for the Jacksonville Greyhound bus station located on W Forsyth Street.

Safety

The project is anticipated to improve emergency evacuation capabilities by enhancing connectivity and accessibility to major arterials designated on the state evacuation route. I-95 serves as part of the emergency evacuation route network designated by the Florida Division of Emergency Management and Duval County. I-95 is critical in facilitating traffic during emergency evacuation periods as it connects to other major arterials and highways of the state evacuation route network such as I-10, SR 9B and I-295. Without any improvements to I-95, evacuation clearance times will continue to increase and may discourage residents from evacuating, thus jeopardizing public safety.

FDOT has initiated this SIMR Re-evaluation to investigate alternatives for the I-95 facility that will help alleviate congestion and enhance safety and operations at the study interchanges to improve safety and operations throughout the study area.

5 FUTURE TRAFFIC FORECASTS

The future year traffic forecasts utilized in the 2023 approved Original SIMR remain unchanged in this SIMR Re-evaluation. A traffic validation was conducted as documented in the approved MLOU to ensure that the traffic volumes available from the Original SIMR still reflect the project area's travel conditions and pattern for the SIMR Re-evaluation. The traffic validation analysis indicated that the travel demand forecasts from the Original SIMR still reflect the project area's growth and therefore no new traffic development was conducted for this SIMR Re-evaluation. This section documents the future conditions within the study area of influence, including the transportation improvements programmed for the area roadways. The operational analysis includes the future year daily and peak hour traffic forecasts for the area of influence.

5.1 Future Roadway Network

The North Florida TPO is responsible for maintaining the FSUTMS based NERPM-AB1v3 travel demand model. Updates to the roadway network in NERPM-AB1v3 were based on projects identified in the TPO's current adopted LRTP Cost Feasible Plan.

5.2 Development of Opening Year 2025 and Design Year 2045 Traffic Volumes

Opening Year 2025 and Design Year 2045 volumes used in Phase 1 analysis are consistent with the approved Original SIMR Build volumes. No changes were made to these volumes for analysis of the Phase 1 Concept in this SIMR Re-evaluation. The approved Original SIMR is included in **Appendix B** for additional information related to the traffic development methodology.

Figure 7-1 and **Figure 7-2** show the mainline, ramps and intersections volumes for the Opening Year 2025 condition for the Original SIMR No-Build and Phase 1 alternatives, respectively.

Figure 7-3 and **Figure 7-4** show the mainline, ramps and intersections volumes for the Design Year 2045 condition for the Original SIMR No-Build and Phase 1 alternatives, respectively.

6 ALTERNATIVES

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

- Original SIMR No-Build Alternative
- Phase 1 Alternative

The alternatives were analyzed to assess their effectiveness in meeting the future travel demand of the area, as well as the physical impacts and safety associated with each alternative. The alternatives are described below. The Original SIMR No-Build Alternative is to be compared with the Phase 1 Alternative.

6.1 Original SIMR No-Build Alternative

The first alternative is the Original SIMR No-Build Alternative. The Original SIMR No-Build Alternative considers the existing configuration plus any programmed improvements with future traffic as discussed in the approved Original SIMR.

The lane configuration for the Original SIMR No-Build Alternative is provided in **Figure 6-1**. **Appendix B** contains the Original SIMR.

6.2 Phase 1 Alternative

The second alternative is the Phase 1 Alternative that is evaluated in this Re-evaluation. All the changes proposed and listed below are for Phase 1 limits only from I-10 to north of the Kings Road interchange. The Phase 1 Alternative is consistent with the Original SIMR No-Build Alternative north of Kings Road interchange to north of the 8th Street interchange.

The lane configuration for the Phase 1 Alternative is provided in **Figure 6-2**.

I-95 Mainline Improvements:

- Two additional lanes along I-95 Northbound from C-D road entrance to S of Adams St Entrance
- Two additional lanes along I-95 Southbound from between Kings Road entrance and C-D road exit
- Reconfigure I-95 Northbound exit to Union Steet & Beaver Street that drops 2-lanes from the I-95 mainline. The I-95 northbound mainline continues as 5-lanes downstream of the exit.
- Add one inside lane south of Union Steet and Church Street exit resulting in 4-lanes on I-95 southbound mainline.
- Reconfigure Kings Road on-ramp to I-95 southbound mainline as a 2-lanes entrance and relocate this entrance to I-95 southbound mainline.

- Relocate and reconfigure I-95 southbound C-D road exit to downstream of Kings Road entrance with 5-lanes exiting to southbound C-D road and 2-lanes continuing on I-95 southbound mainline.
- Relocate Beaver Street entrance to I-95 southbound mainline downstream of the C-D road exit.

I-95 C-D Road:

- One additional lane on I-95 northbound C-D road to Forest Street entrance.
- Two additional lanes on I-95 northbound C-D road from Forest Street entrance to C-D road entrance on I-95 Northbound.
- Three additional lanes along southbound C-D road at beginning of the C-D road.
- Two additional lanes on the I-95 southbound C-D road from Kings Road entrance to south of Bay Street entrance/end of the project.
- Reconfigure Forest Street entrance to Northbound C-D road with acceleration lane resulting in 4-lanes on Northbound C-D road.
- Reconfigure Northbound C-D road entrance to I-95 Northbound mainline as 4-lanes.
- Add a lane drop on southbound C-D road downstream of the exit from I-95 southbound mainline resulting in 4-lanes on the southbound C-D road.

I-95 at Forest Street Interchange Improvements:

- Restrict southbound through and southbound left turn movements at Forest Street at Myrtle Avenue intersection.
- Provide dual left turn lanes northbound, exclusive right turn lane eastbound and exclusive southbound left turn lane at Forest Street at Park Street intersection.

I-95 Northbound off-ramp terminal intersection:

- In the northbound direction, provide one northbound shared through left-turn lane and dual right turn lanes.
- In the westbound direction, provide three through lanes.

I-95 Northbound on-ramp terminal intersection:

- Relocate I-95 northbound on-ramp entrance to a proposed signalized intersection west of Myrtle Avenue. The proposed intersection consists of two eastbound through lanes and one eastbound right turn lane (for on-ramp) and one westbound left turn lane (controlled by signal) and two westbound through lanes (uncontrolled).

I-95 at Monroe Street/Adams Street Ramp Improvements:

- Remove and reconfigure the existing I-95 southbound entrance from Beaver Street and Adams Street.

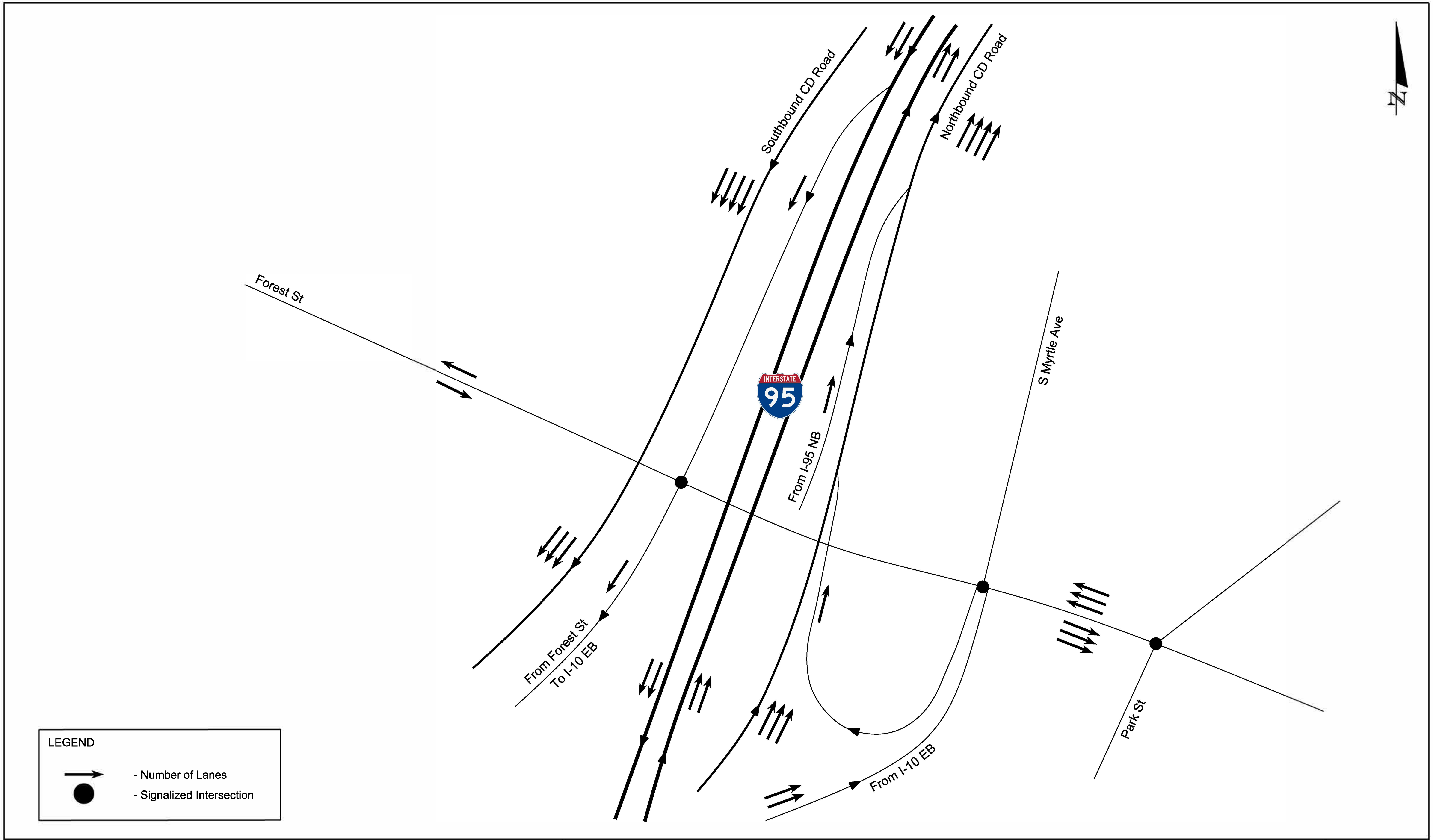
I-95 at Church Street Interchange Improvements:

- Remove and reconfigure the existing I-95 southbound exit to Church Street.

I-95 at Union Street Interchange Improvements:

- Provide a new I-95 northbound terminal intersection at Union Street.

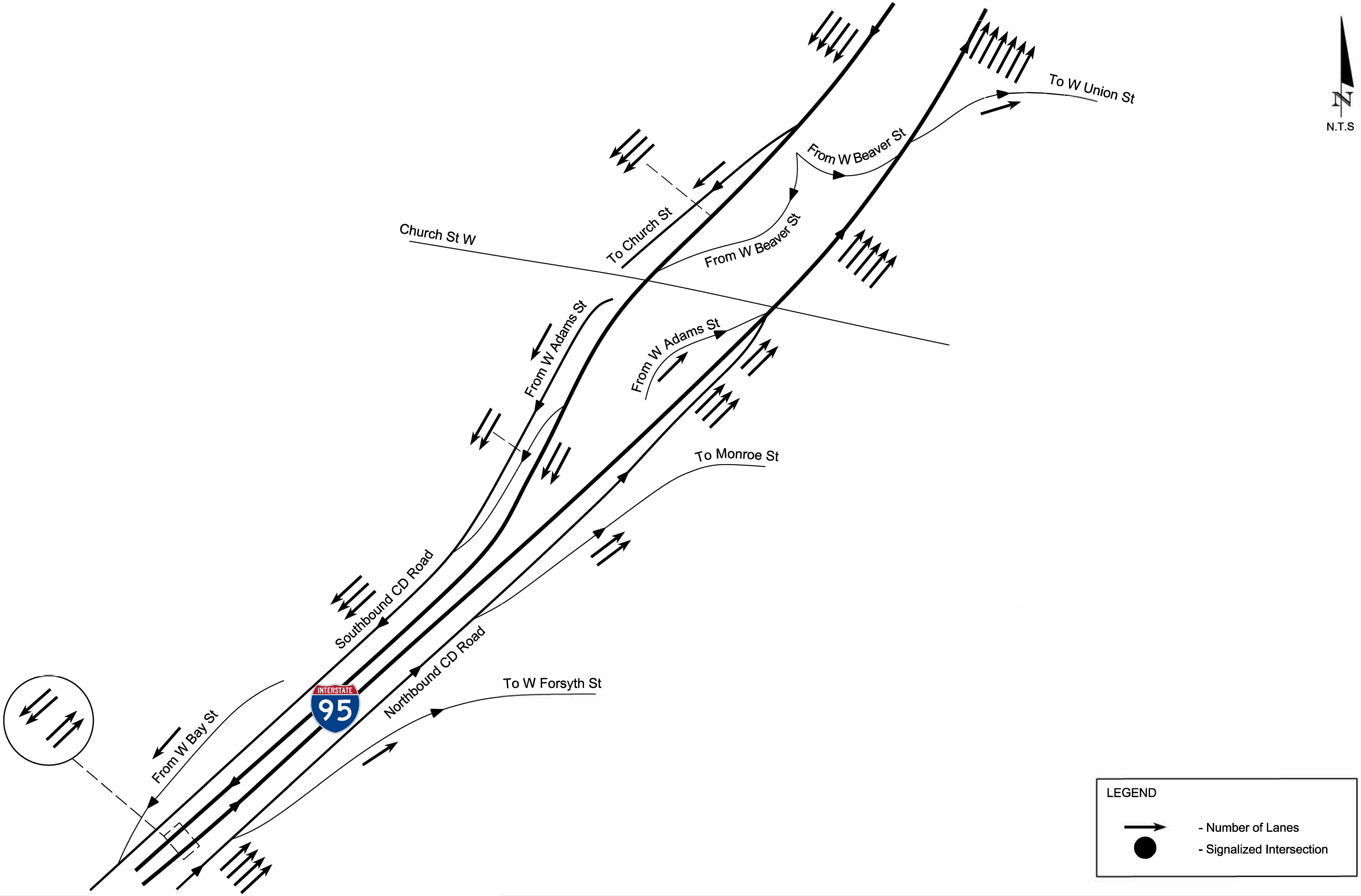
The lane configuration for the Phase I Alternative is provided in **Figure 6-2. Appendix K** shows the concept plans for the SIMR Re-evaluation alternative.



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative Opening Year 2025 and Design Year 2045
Lane Configuration

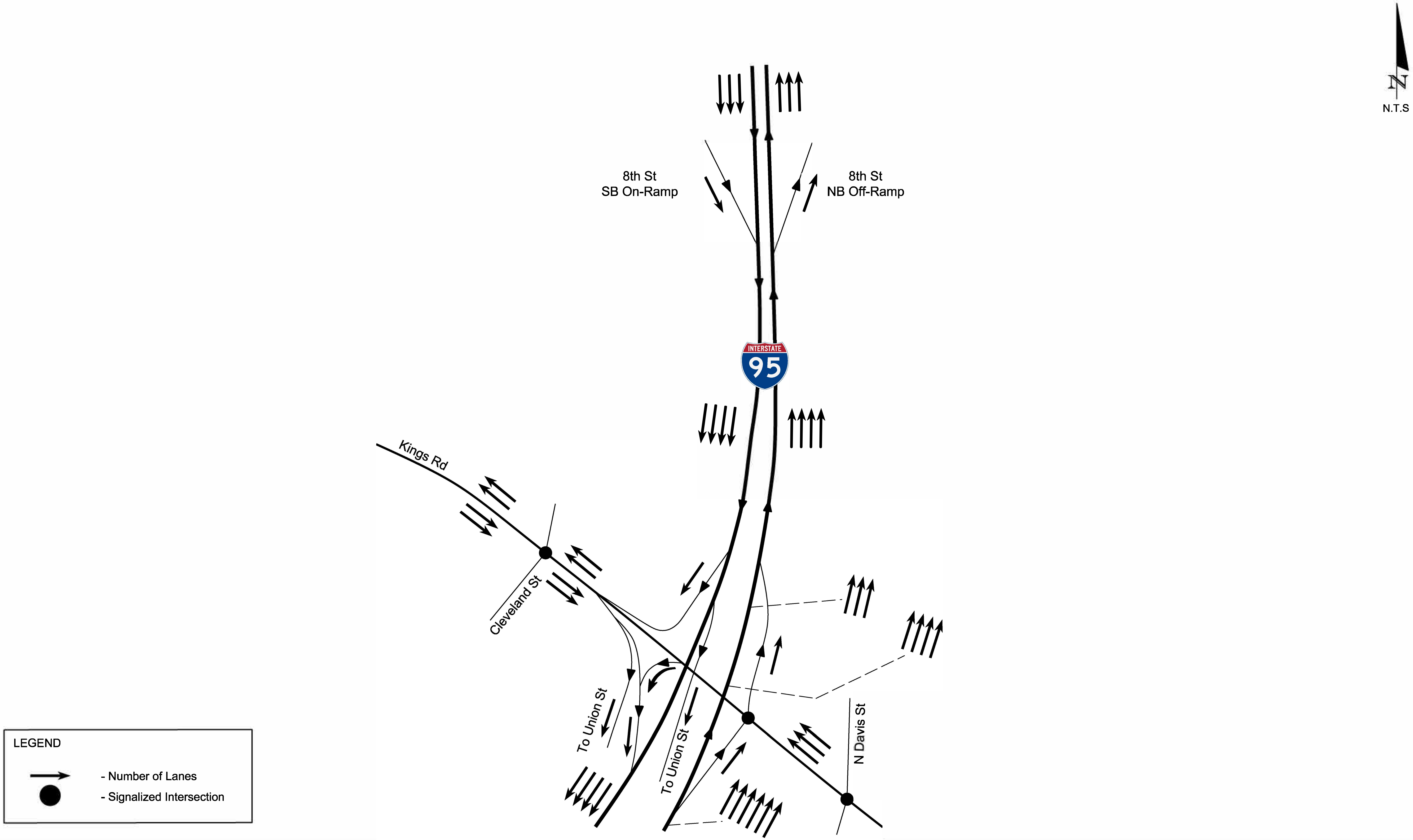
Figure 6-1
Sheet 1/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative Opening Year 2025 and Design Year 2045
Lane Configuration

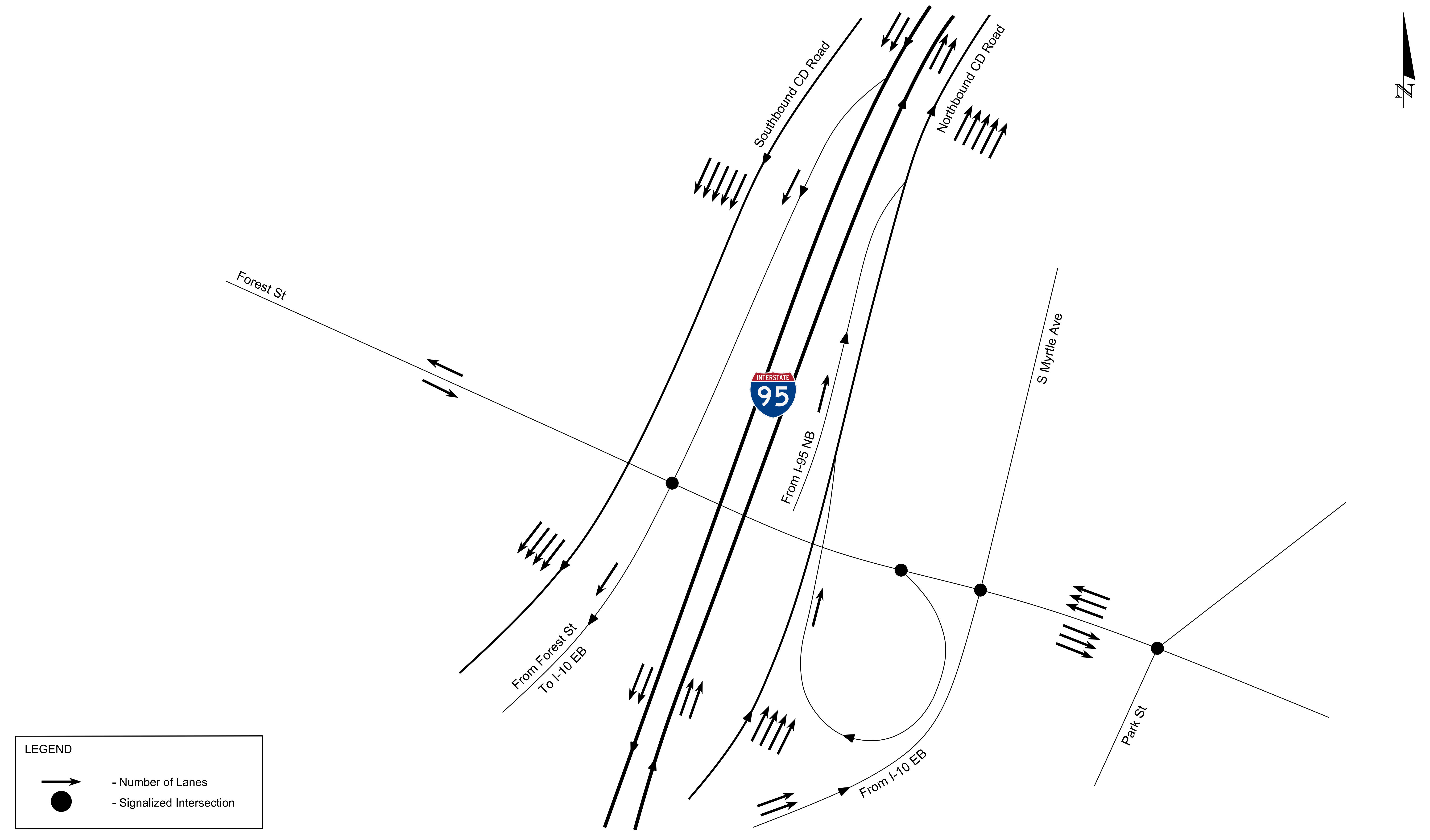
Figure 6-1
Sheet 2/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative Opening Year 2025 and Design Year
2045 Lane Configuration

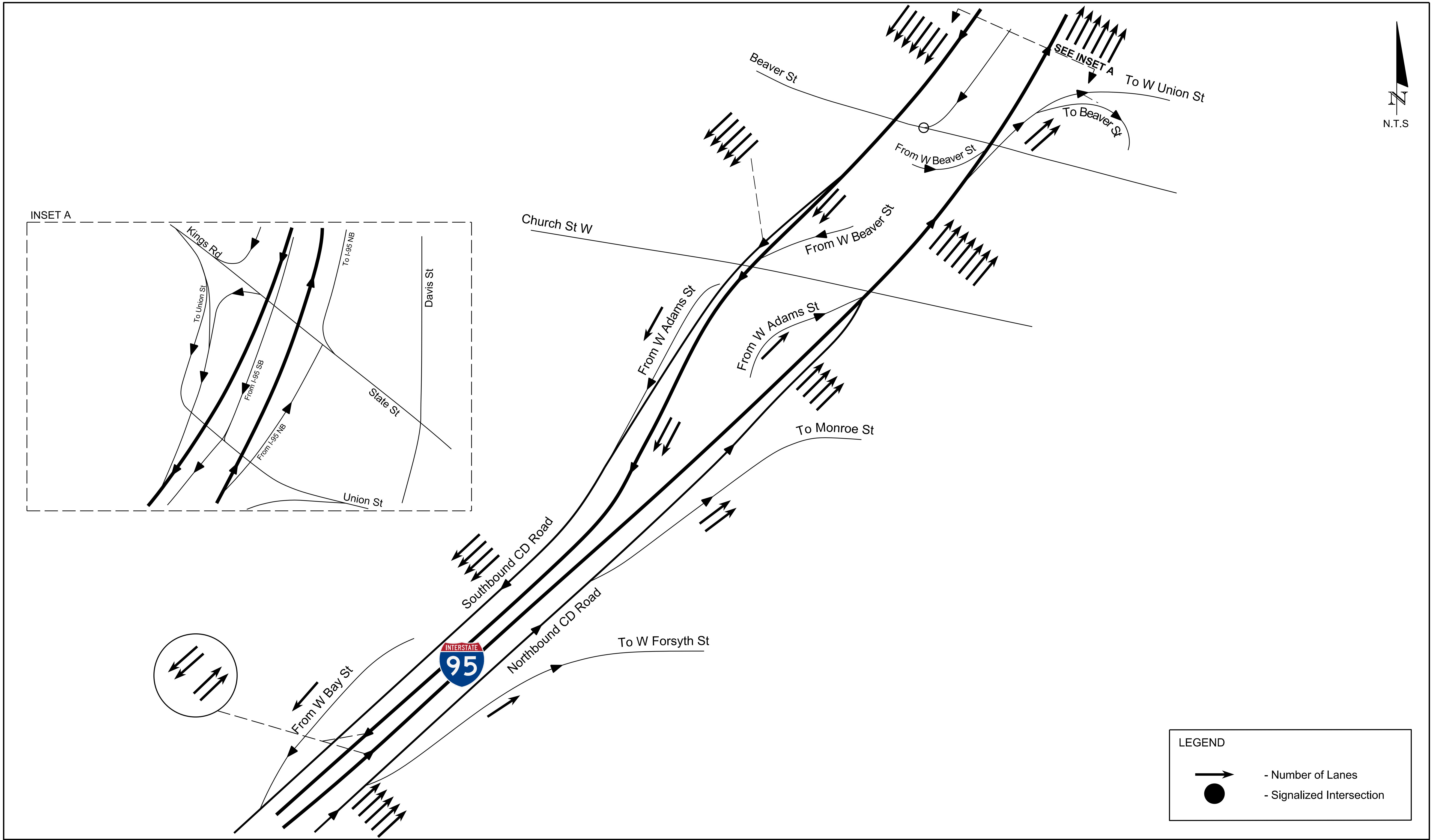
Figure 6-1
Sheet 3/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative Opening Year 2025 and Design Year 2045
Lane Configuration

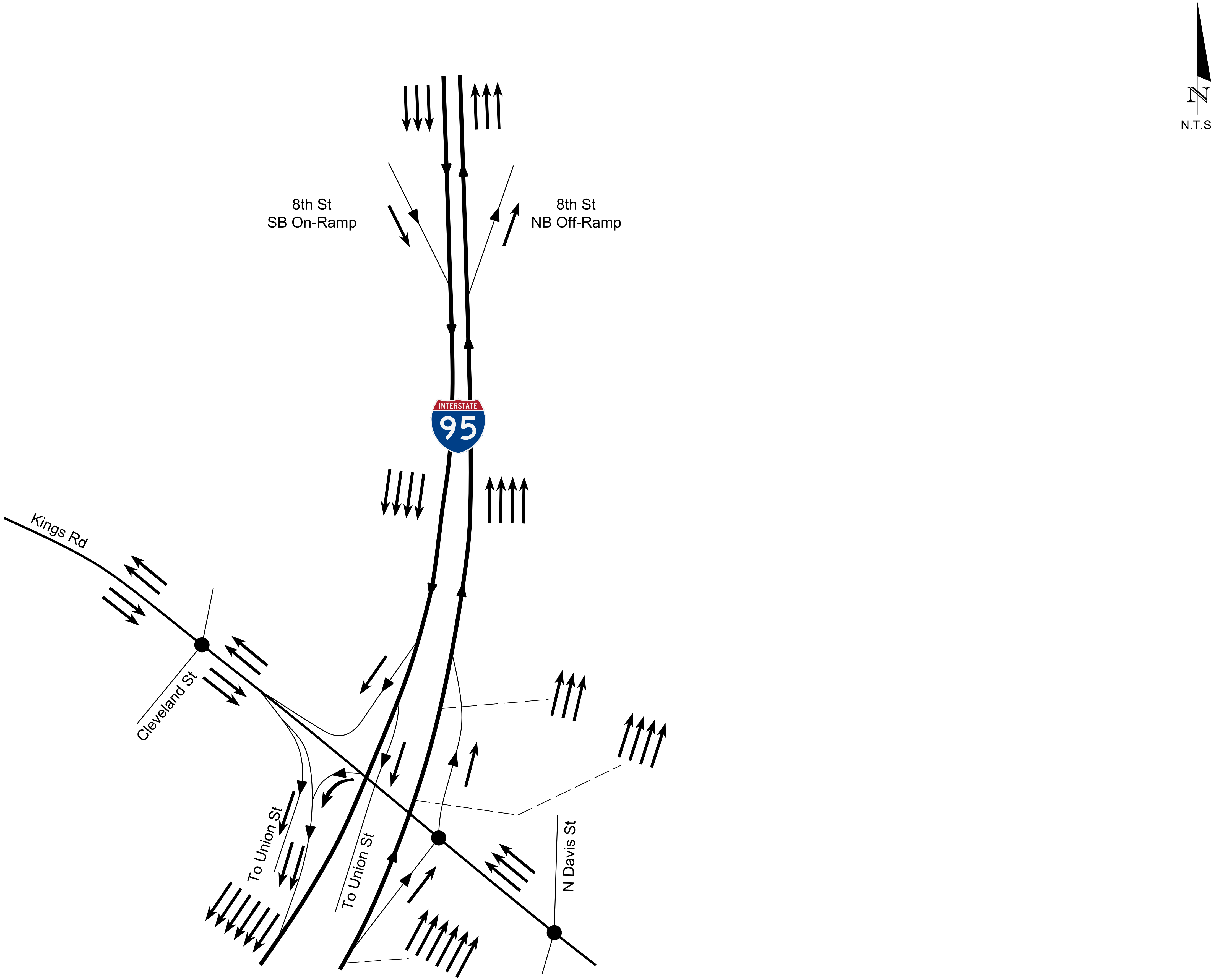
Figure 6-2
Sheet 1/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative Opening Year 2025 and Design Year 2045
Lane Configuration

Figure 6-2
Sheet 2/3



LEGEND

→ - Number of Lanes

● - Signalized Intersection

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative Opening Year 2025 and Design Year 2045
Lane Configuration

Figure 6-2
Sheet 3/3

6.3 Opening Year 2025 and Design Year 2045 Traffic

The alternative design traffic development for the Opening Year 2025 and Design Year 2045 is discussed in **Section 5** of this SIMR Re-evaluation.

The AM and PM peak hour volumes for Opening Year 2025 and Design Year 2045 are presented in **Section 7** of this SIMR. The Original SIMR No-Build Alternative AM and PM peak hour volumes for Opening Year 2025 are presented in **Figure 7-1**. The Phase 1 Alternative AM and PM peak hour volumes for Opening Year 2025 are presented in Error! Reference source not found.. The Original SIMR No-Build Alternative AM and PM peak hour volumes for Design Year 2045 are presented in **Figure 7-3**. The Phase 1 Alternative AM and PM peak hour volumes for Design Year 2045 are presented in **Figure 7-4**.

7 EVALUATION OF ALTERNATIVES

This section discusses the analysis of alternatives based on safety, operational and engineering factors of the I-95 corridor. The Opening Year 2025 and Design Year 2045 analysis of the Original SIMR No-Build Alternative and comparison with Phase 1 Alternative are 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

7.1 Conformance with Local, Regional and State Transportation Plans

This SIMR Re-evaluation is consistent with the LRTP for the area. Additional I-95 capacity within the study limits is listed as one of the cost feasible projects in the North Florida TPO 2045 Cost Feasible Plan.

7.2 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.

7.3 Alternative Operational Analysis

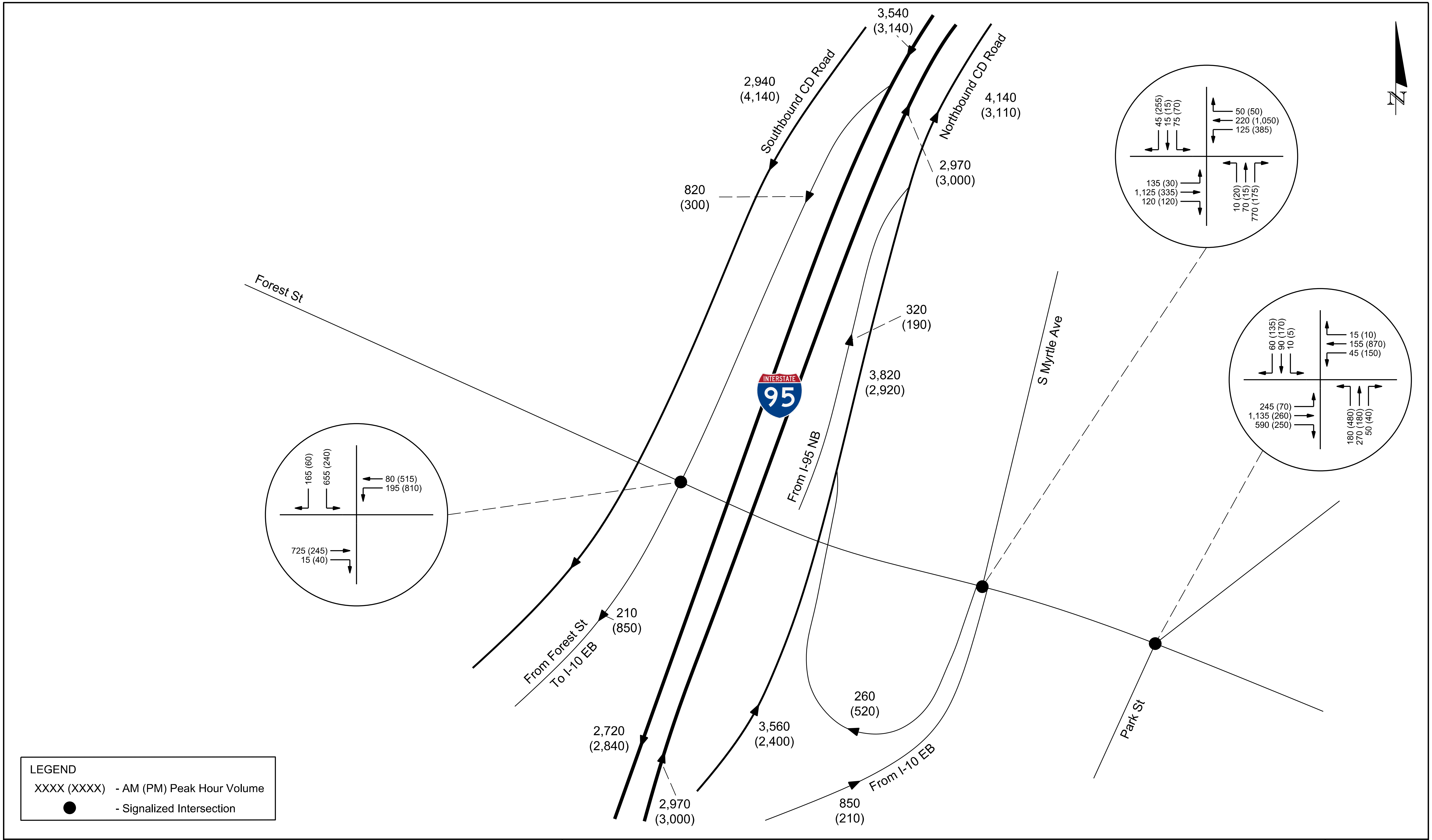
The Phase 1 alternative being considered for this SIMR Re-evaluation along I-95 is described in detail in **Section 6**.

A detailed microsimulation analysis using Vissim 2020 was conducted to evaluate the system-wide operational performance of the study area. Vissim was used to analyze the AM and PM peak periods for the following alternatives comparisons:

- Original SIMR No-Build Alternative and Phase 1 Alternative (Opening Year 2025)
- Original SIMR No-Build Alternative and Phase 1 Alternative (Design Year 2045)

The primary objective of this analysis was to establish the alternatives’ operational conditions along I-95, study interchanges and intersections.

The alternatives' AM and PM peak hour volumes were developed using the methodology described in **Section 5**. The Original SIMR No-Build Alternative AM and PM peak hour volumes for Opening Year 2025 are presented in **Figure 7-1**. The Phase 1 Alternative AM and PM peak hour volumes for Opening Year 2025 are presented in Error! Reference source not found.. The Original SIMR No-Build Alternative AM and PM peak hour volumes for Design Year 2045 are presented in **Figure 7-3**. The Phase 1 Alternative AM and PM peak hour volumes for Design Year 2045 are presented in **Figure 7-4**.

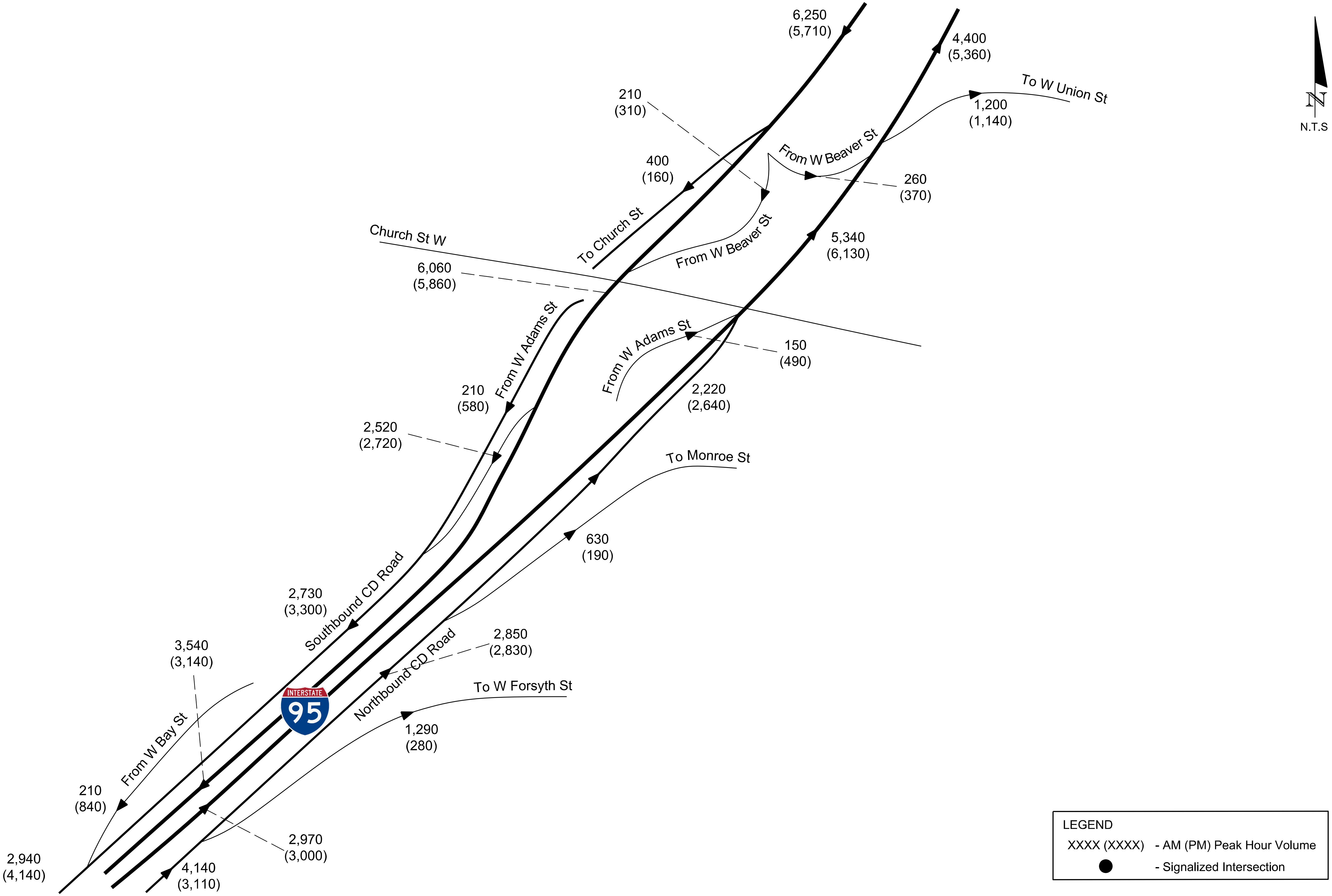


FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative - Opening Year 2025 AM(PM) Peak Hour Volumes

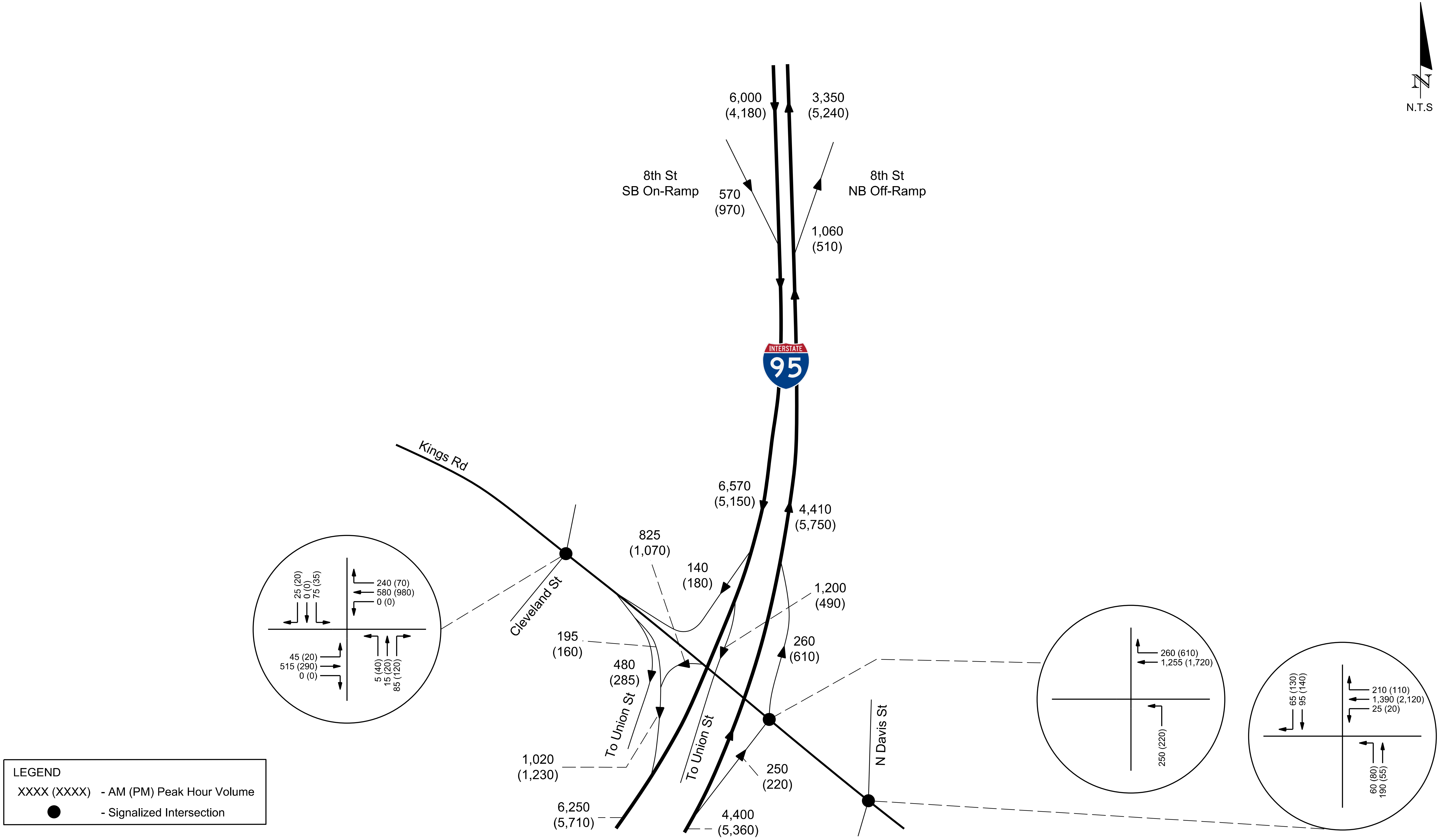
Figure 7-1
Sheet 1/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative - Opening Year 2025 AM(PM) Peak Hour Volumes

Figure 7-1
Sheet 2/3

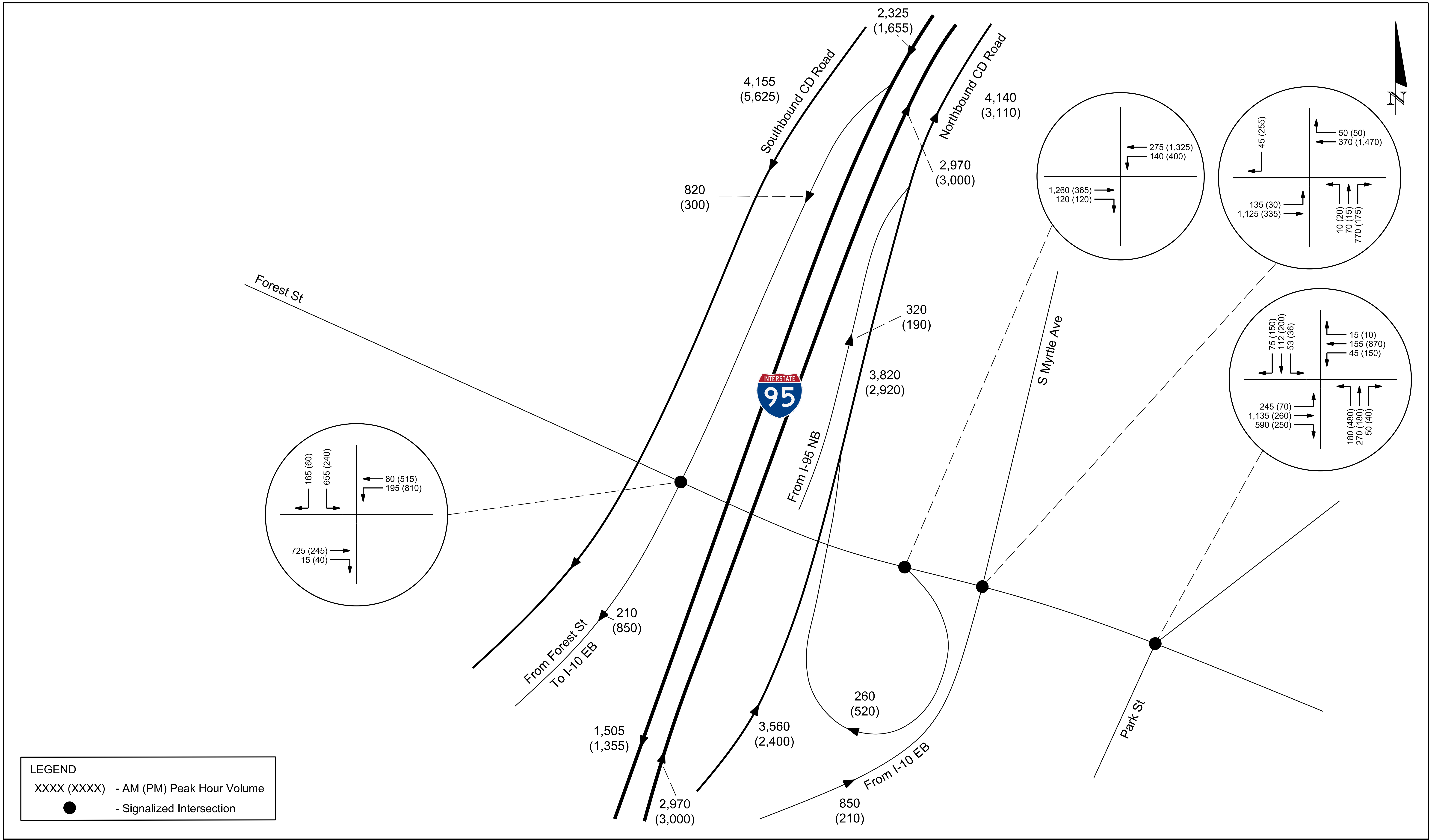


FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative - Opening Year 2025 AM(PM) Peak Hour Volumes

Figure 7-1
Sheet 3/3

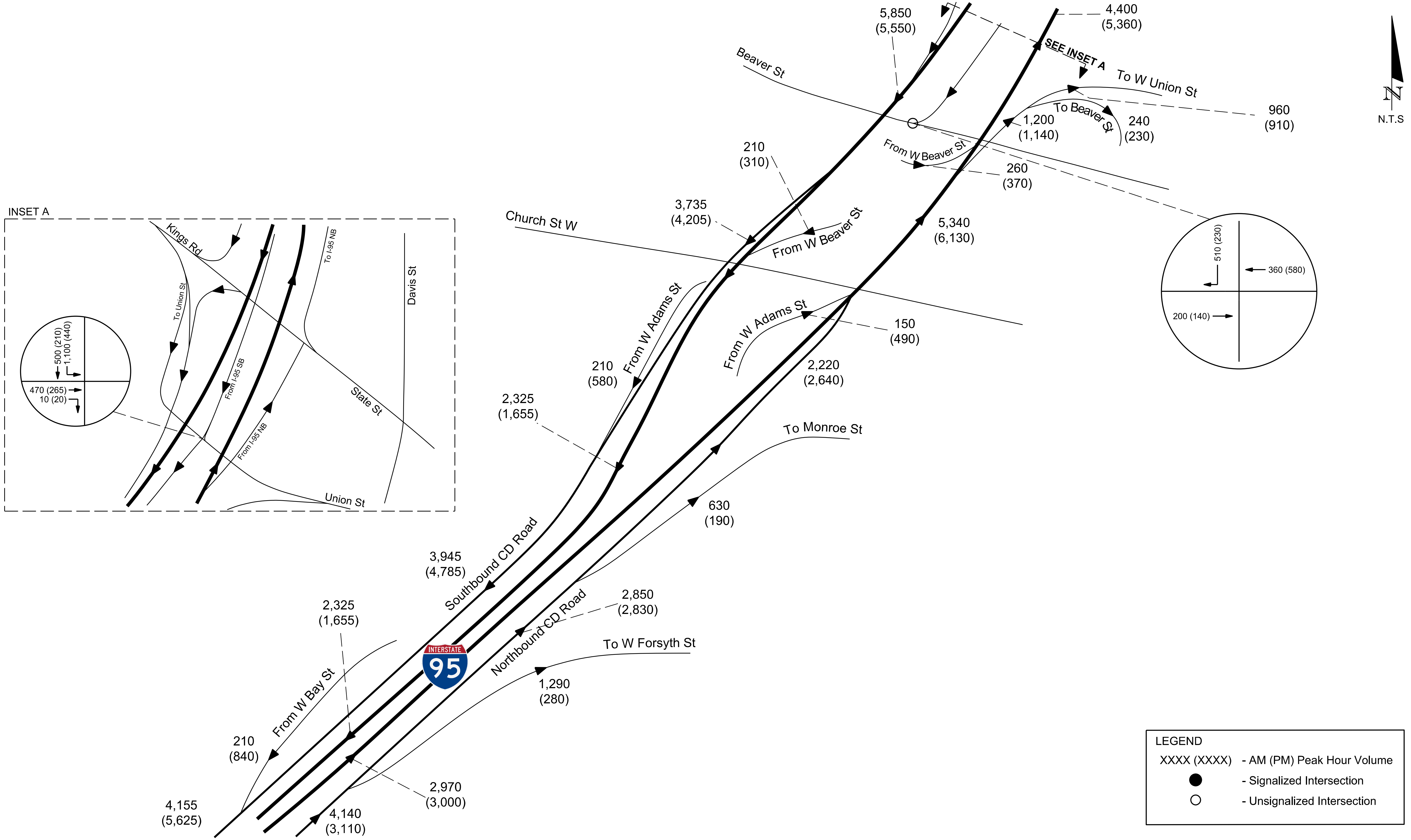


FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative - Opening Year 2025 AM(PM) Peak Hour Volumes

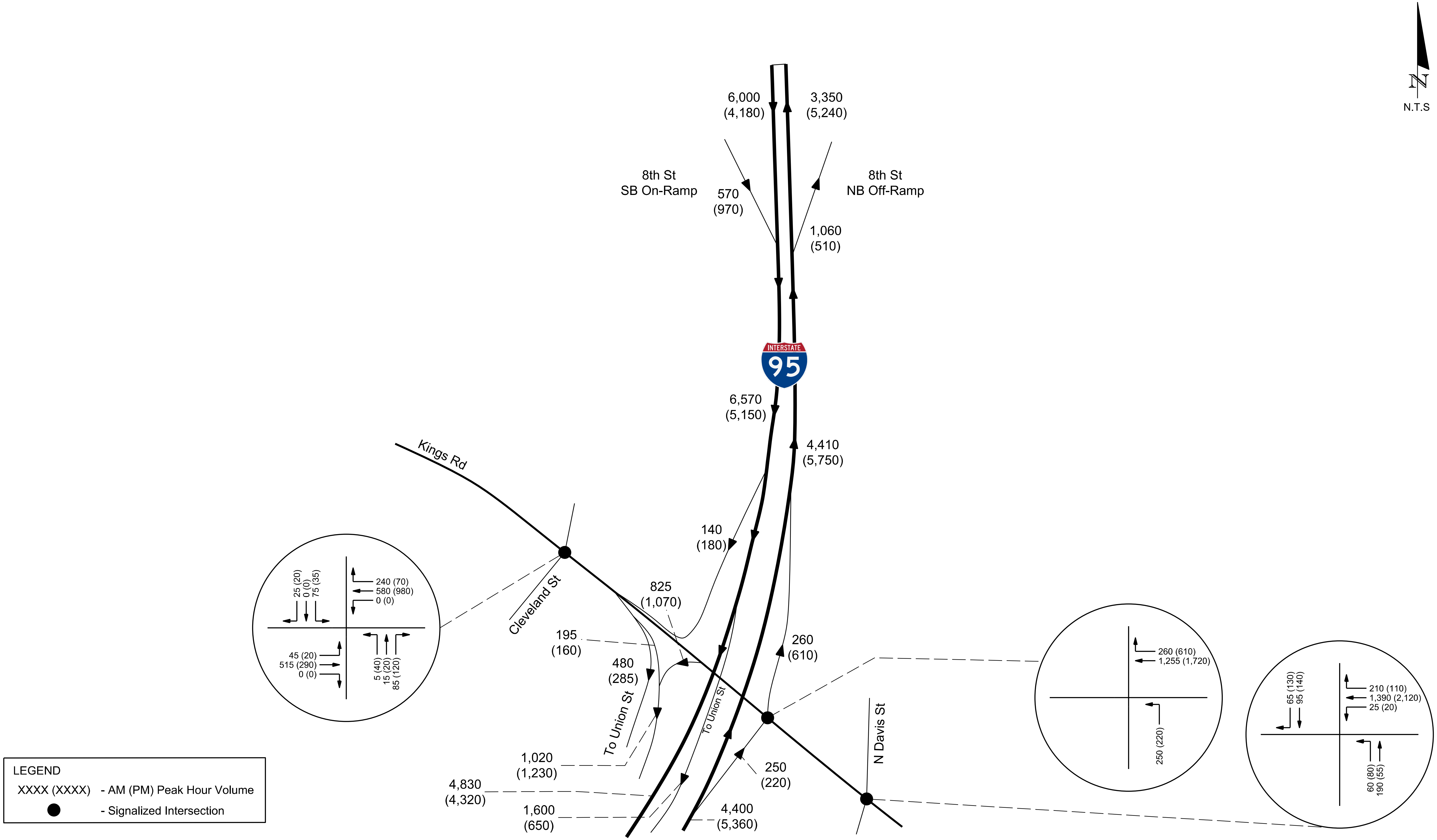
Figure 7-2
Sheet 1/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative - Opening Year 2025 AM(PM) Peak Hour Volumes

Figure 7-2
Sheet 2/3

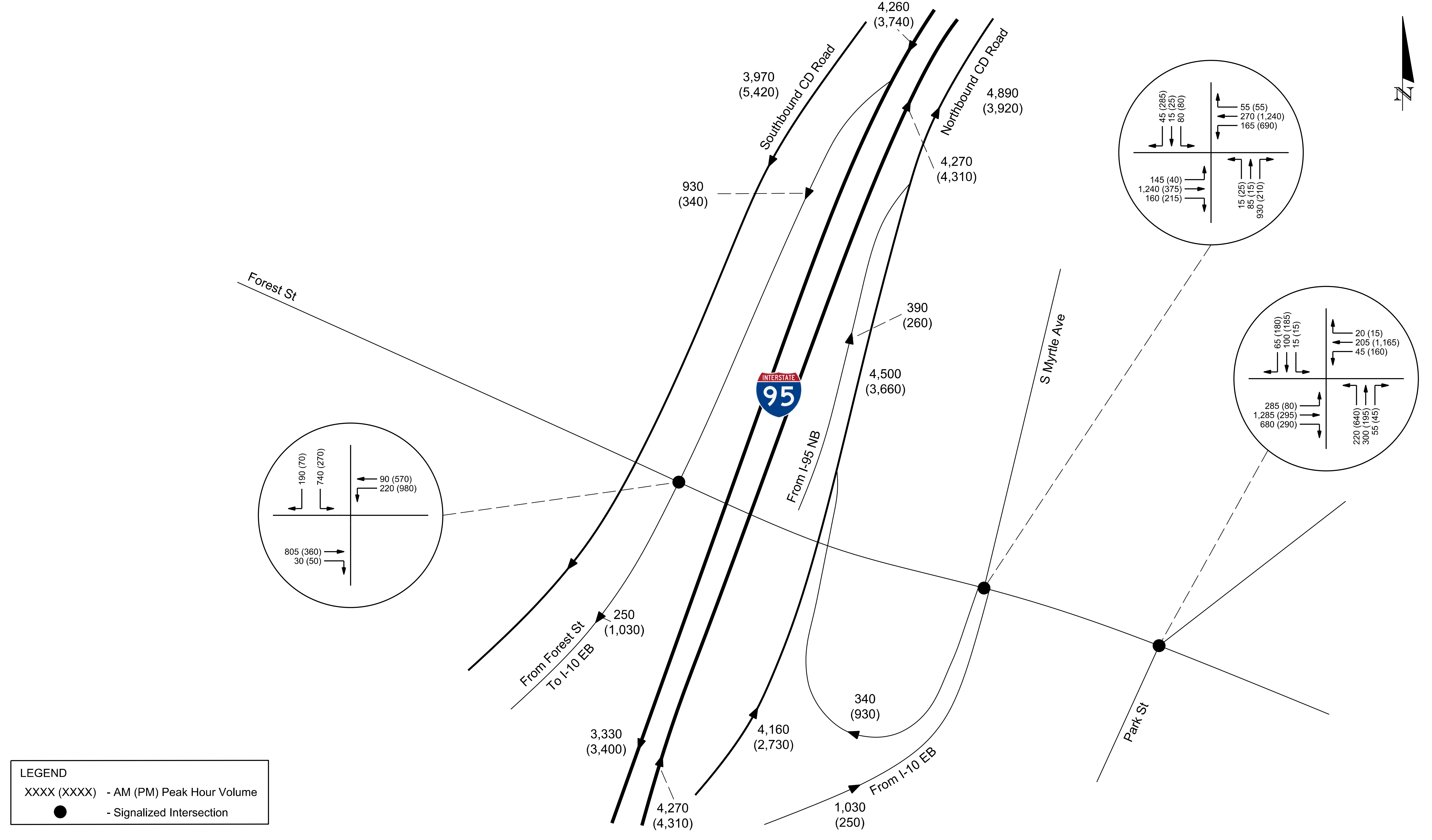


FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative - Opening Year 2025 AM(PM) Peak Hour Volumes

Figure 7-2
Sheet 3/3

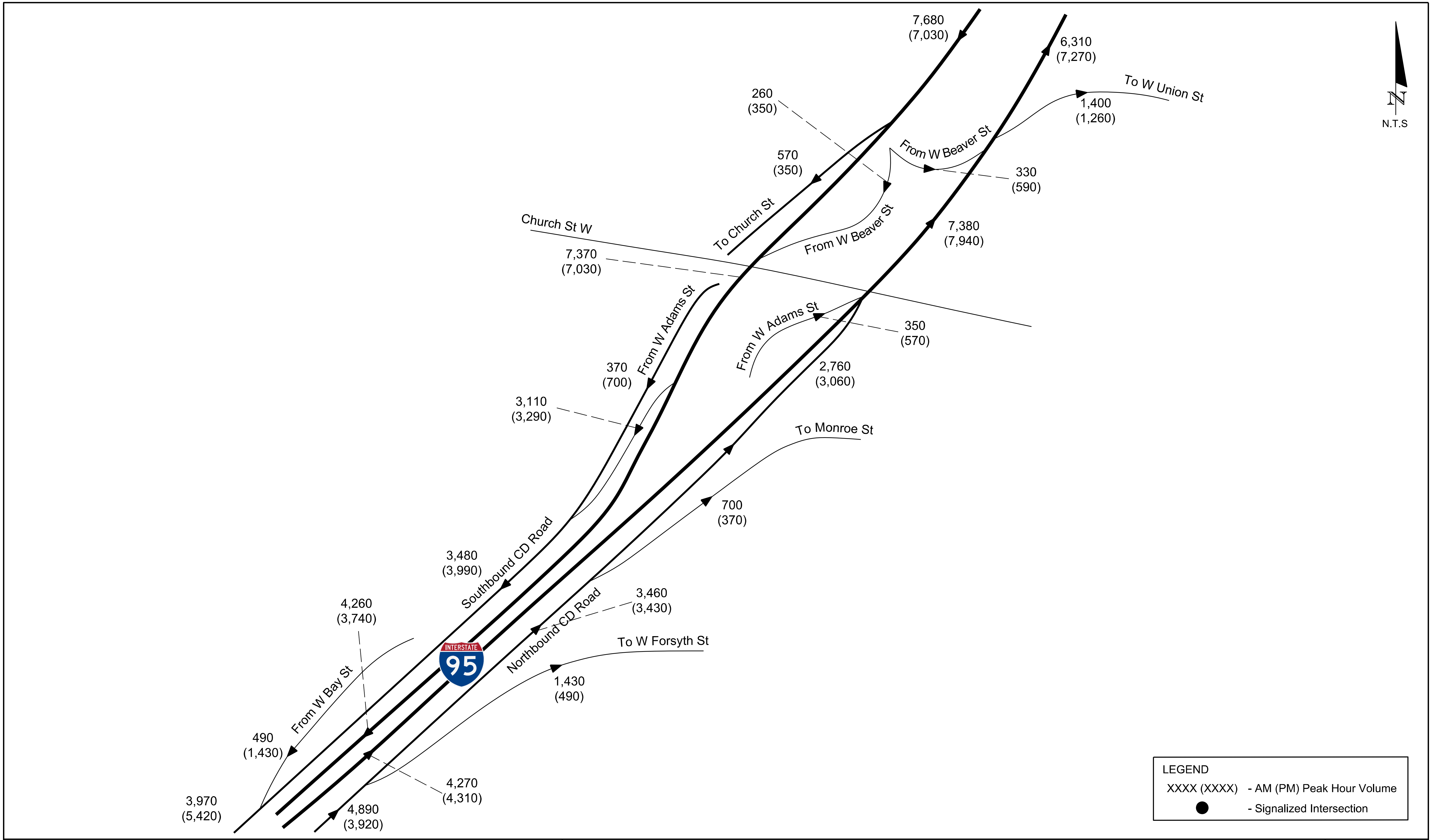


FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative - Design Year 2045 AM(PM) Peak Hour Volumes

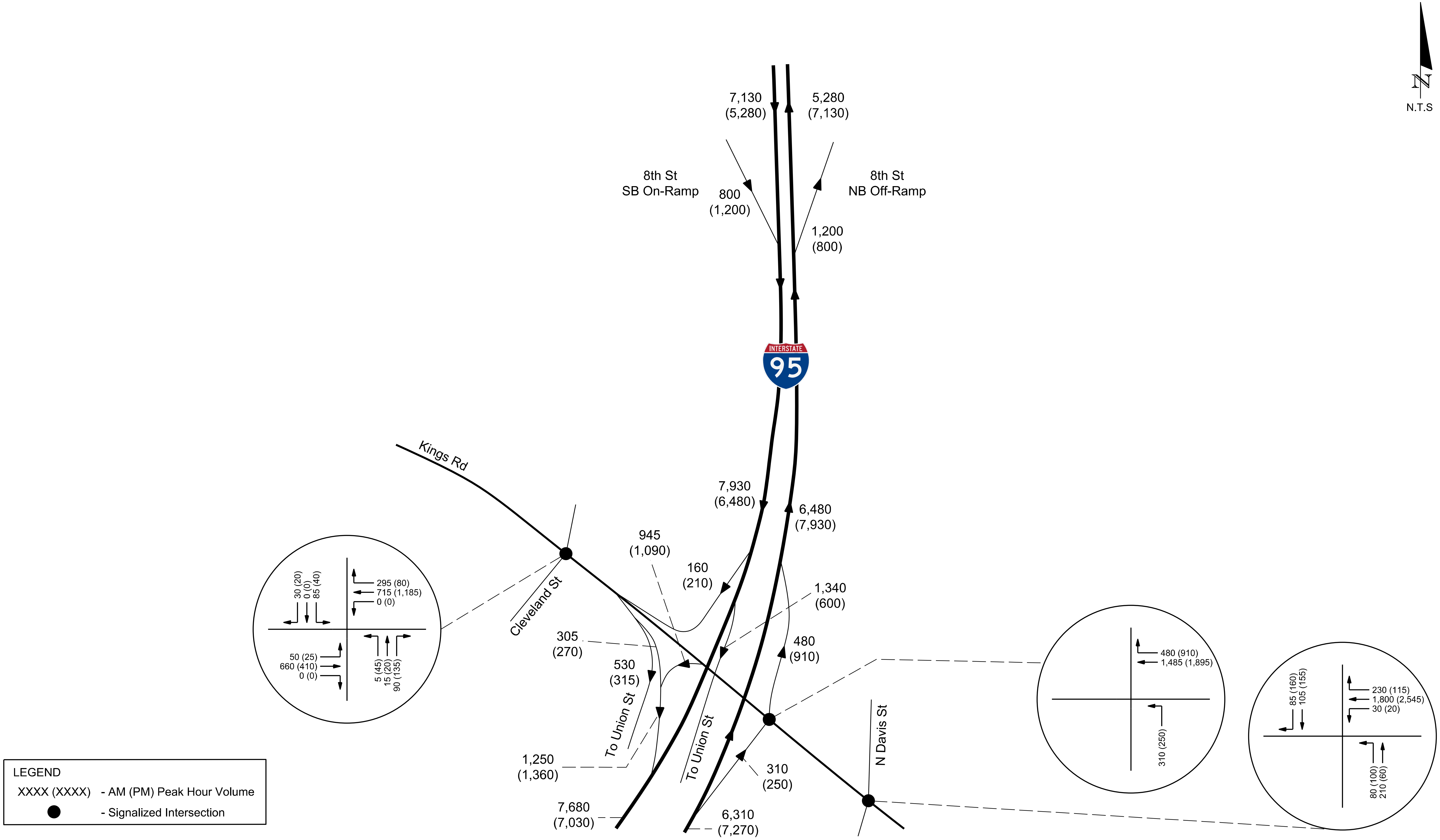
Figure 7-3
Sheet 1/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative - Design Year 2045 AM(PM) Peak Hour Volumes

Figure 7-3
Sheet 2/3

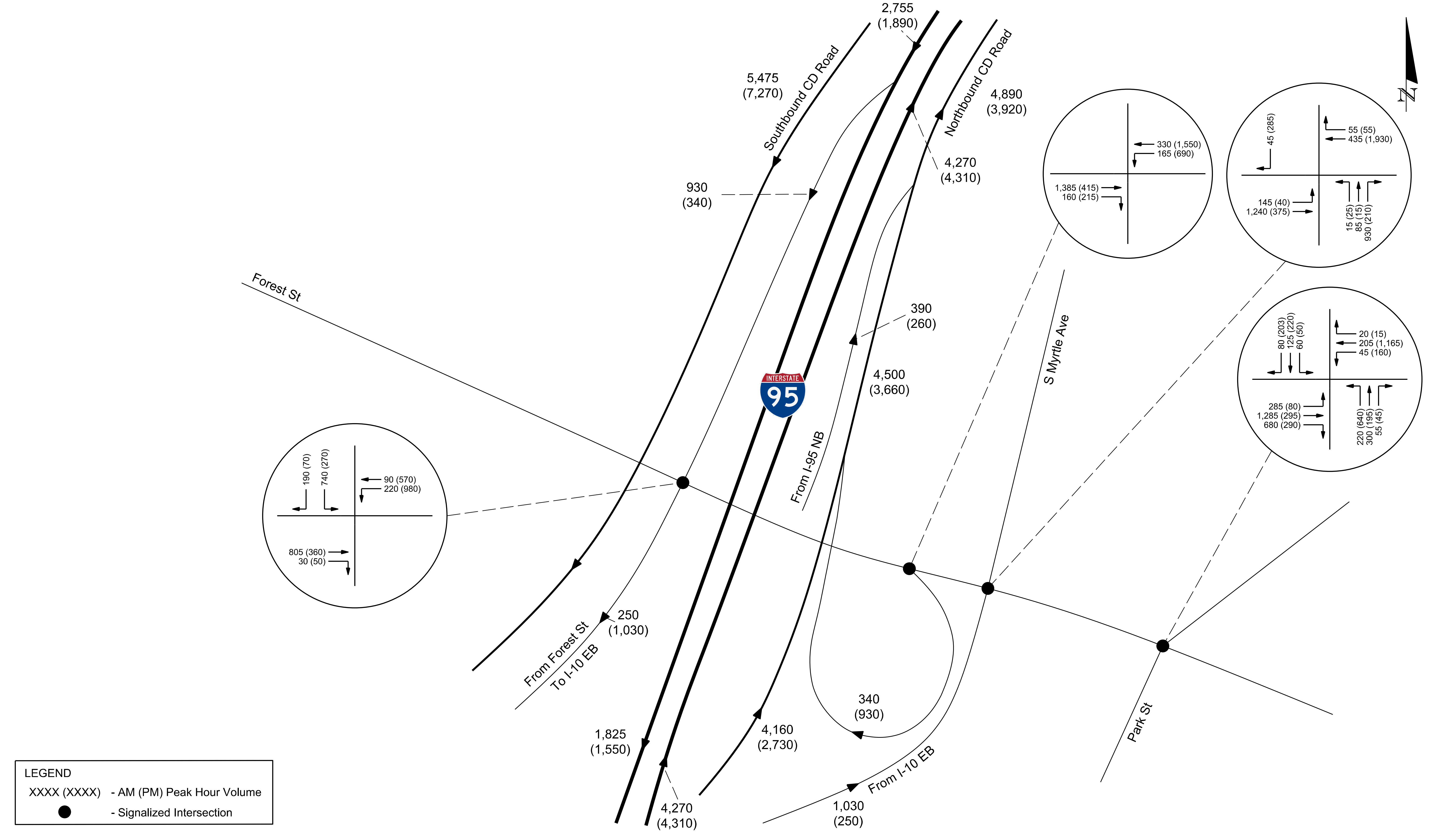


FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative - Design Year 2045 AM(PM) Peak Hour Volumes

Figure 7-3
Sheet 3/3

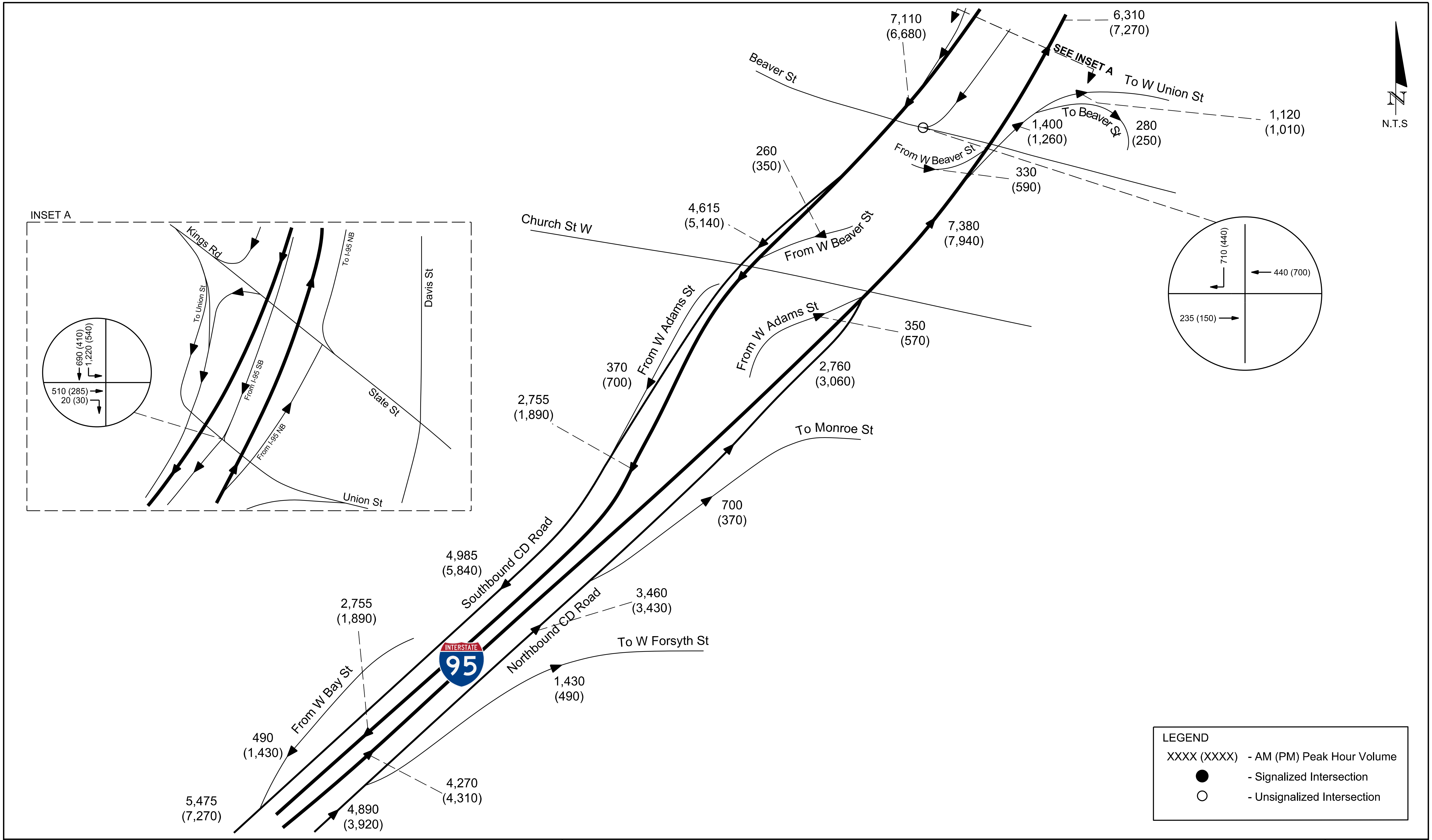


FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative - Design Year 2045 AM(PM) Peak Hour Volumes

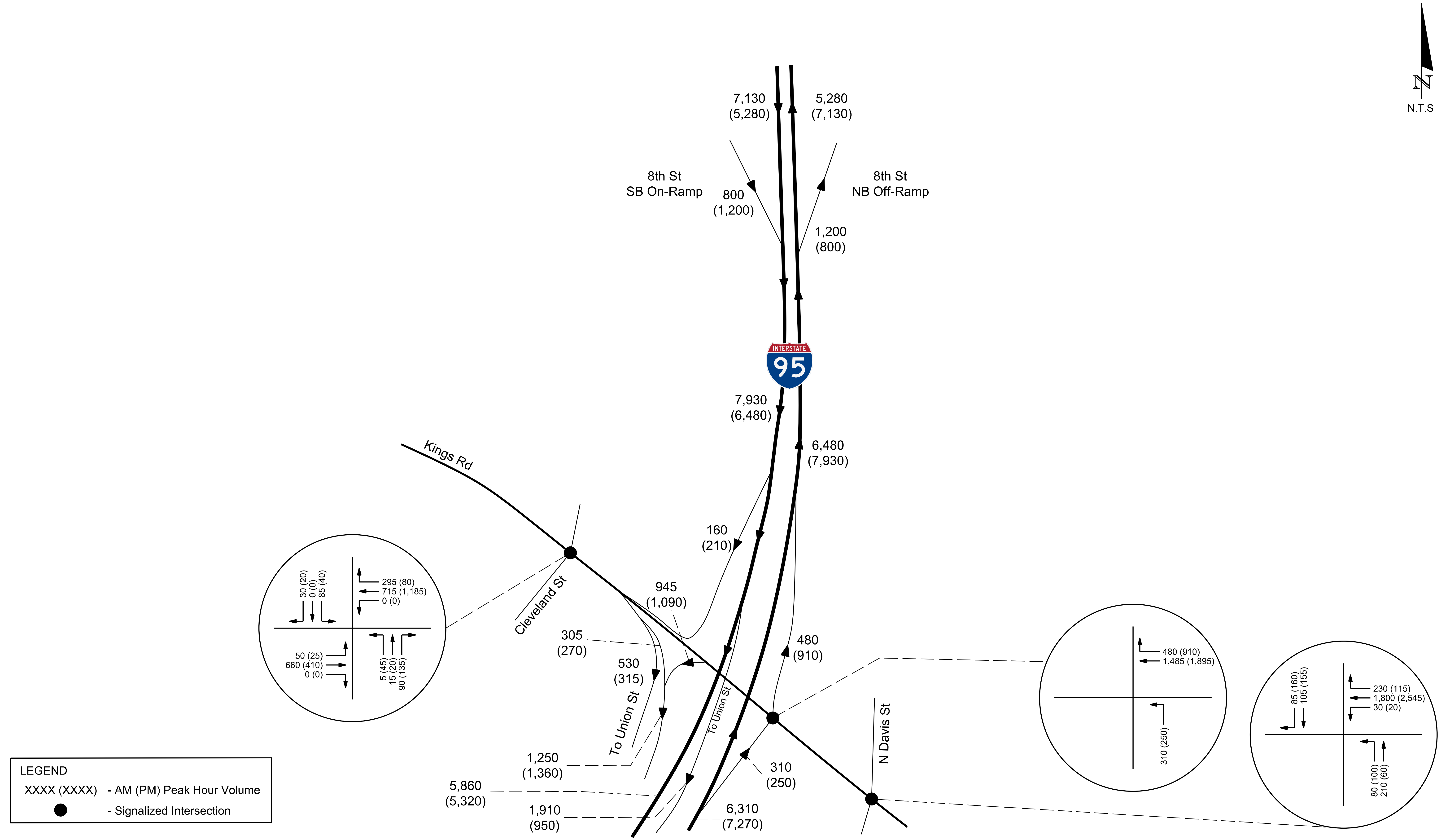
Figure 7-4
Sheet 1/3



I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative - Design Year 2045 AM(PM) Peak Hour Volumes

Figure 7-4
Sheet 2/3



FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative - Design Year 2045 AM(PM) Peak Hour Volumes

Figure 7-4
Sheet 3/3

7.3.1 2025 Operational Analysis

A detailed microsimulation analysis using Vissim 2020 was conducted to evaluate the system-wide operational performance of the alternatives. Original SIMR No-Build Alternative Vissim outputs for Opening Year 2025 are included in **Appendix E**. Phase 1 Alternative Vissim outputs are included in **Appendix F**. The Opening Year 2025 operational analysis was conducted and documented along I-95 from I-10 to the Kings Road interchange. No improvements were evaluated under the Phase 1 Alternative north of the Kings Road interchange; therefore the operations will remain consistent with the Original SIMR No-Build Alternative north of Kings Road. The lane schematics and other comparison of results are provided only within the AOI limits of Phase 1 from I-10 to Kings Road, including the adjacent ramps of I-10 and 8th Street. All the volume and operations along I-95 north of 8th Street are expected to remain the same as the Original SIMR No-Build Alternative and are not included for the results presentation.

The Opening Year 2025 Vissim models analyzed three-hour AM and PM peak periods. Peak-hour traffic forecasts were developed using NERPM-AB1v3 as discussed in **Section 5.2**. Fifteen-minute flow rates were used to develop the three-hour AM and PM peak period Vissim models. The Opening Year 2025 simulation model parameters are based on those used for the Existing Year 2019 calibrated model. The simulation time consisted of a 30-minute seed time to load traffic into the network, followed by a 3-hour peak period consisting of a preceding shoulder hour, the peak hour and one subsequent off-peak hour. The purpose of the off-peak hours was to allow all or most of the congestion built during the peak hour to subside during the simulation period.

The following MOEs were used to evaluate the network’s operational performance:

- Freeways
    - Freeway estimated LOS
    - Operating speed
    - Demand and simulated volume in hourly interval
    - Estimated density in hourly interval
    - Density heat diagrams for 15-min interval
- Intersections
    - Intersection volume
    - Intersection delay

  - Maximum queue length

- Network-Wide Performance
  - Total network delay
  - Average network speed
  - Total network travel time
  - Latent demand
  - Latent delay
  - Vehicles arrived

2025 Peak Hour Results Overview

The lane schematics for the Original SIMR No-Build Alternative for Opening Year 2025 AM and PM peak hours are presented in **Figure 7-5** and **Figure 7-6**, respectively. The lane schematics for the Phase 1 AM and PM peak hours are presented in **Figure 7-7** and **Figure 7-8**, respectively. The lane schematics provide an operational overview representing the overall speed, estimated density, estimated LOS and demand and simulated volume comparison of I-95 and the I-95 C-D road during the peak hour.

Original SIMR No-Build Alternative

The AM peak hour results for the Original SIMR No-Build Alternative for Opening Year 2025 show congestion south of the Union Street exit through the Forest Street exit. The I-95 southbound mainline estimated LOS is D or better. I-95 northbound congestion occurs between Adams Street and Union Street. The observed speed in this area is less than 50 mph with an estimated density of 34 to 37 pc/mi/ln and a total simulated volume of 5,510 vph. The estimated LOS is E between W Beaver Street entrance and Union Street exit.

Speeds on I-95 southbound C-D road in the AM peak hour were consistent through the study area. Speeds here average 49 mph, a density between 13 and 16 pc/mi/ln and operates at LOS B. The total simulated volume averages 2,200 vph. Speeds northbound are slower, beginning at the Forest Street entrance and continuing past the Monroe Street exit. The slowest speed is from the I-95 mainline entrance to Forsyth Street exit and after the Monroe Street exit. Speeds in these areas are 45 mph with a density of 30 pc/mi/ln and 16 pc/mi/ln, respectively. Total simulated volume ranges from 4,110 vph to 2,195 vph.

The PM peak hour results for the Original SIMR No-Build Alternative for the Opening Year 2025, shown in **Figure 7-6**, indicate significant congestion on I-95 southbound between the Kings Road entrance and Beaver Street entrance. Speeds in this area average 47 mph, with the lowest speed of 46 mph occurring between the Church Street exit and Beaver Street entrance. The density observed between the Church Street exit and Beaver Street entrance is 40 pc/mi/ln with a total simulated volume of 5,625 vph and operates at LOS E. Slower speeds occur in a similar location northbound between the Beaver Street entrance and Union Street exit. The average speed in this area is 50 mph with an estimated density range of 38 to 42 pc/mi/ln. The total simulated volume between the Beaver Street entrance and Union Street Exit is 6,384 vph. The estimated LOS is E.

Similar to the AM peak hour, speeds on the I-95 southbound C-D road are slowest in the PM peak hour before the Adams Street entrance. Speeds here average 48 mph, a density of 28 pc/mi/ln, a total simulated volume of 2,682 vph and operates at LOS C. Speeds northbound are slower after the Monroe Street exit. Speeds in this area average 44 mph with a density of 19 pc/mi/ln, a total simulated volume of 2,585 vph and estimated LOS C.

The density heat maps in **Appendix E** show the density levels for the AM and PM peak periods, respectively. On I-95 southbound during the AM peak period, higher density (32 vpmpl) is observed near the diverge to Union Street and also between the Beaver Street entrance and southbound C-D road exit. I-95 northbound depicted higher density between the northbound I-95 C-D road merge and the Union Street off ramp. Similar to the AM peak period, I-95 southbound during the PM peak period has higher density between the Beaver Street entrance and southbound C-D road exit (40 vpmpl), extending north of the Kings Road entrance. I-95 northbound also depicted higher density between the northbound I-95 C-D road merge and the Union Street off ramp during the PM peak period. Significant hot spots were not observed on the I-95 C-D road during the AM and PM peak periods.

Phase 1 Alternative

The AM peak hour results for the Phase 1 Alternative for Opening Year 2025 show that I-95 southbound operates at an average speed of 52 mph with the lowest speed of 40 mph occurring north of the 8th Street entrance at the beginning of the network. In the Original SIMR No-Build Alternative, this segment of I-95 operates at speed of 55 mph and density 27 pc/mi/ln, but the No-Build Alternative processes lower volume compared to the Phase 1 Alternative. The simulated volume on I-95 southbound north of the 8th Street exit during the Phase 1 Alternative is 5,753 vph compared to the simulated volume 4,556 vph in the Original SIMR No-Build Alternative. All I-95 southbound segments are expected to operate at an estimated LOS D or better in the AM peak hour, within the limits of Phase 1 Alternative improvements. The segment north of the 8th Street entrance will operate below LOS F and is outside the Phase 1 improvement limits. The I-95 northbound operates at an average speed of 60 mph with the lowest speed of 55 mph occurring at the beginning of the network. The total simulated volume of 2,961 vph and density of 26 pc/mi/ln was observed for this segment of I-95. The I-95 northbound segments upstream of northbound C-D road entrance were observed to operate at an estimated LOS C in the AM peak hour. These segments operate at an average of 56 mph indicating nearly free flow speed. These segments of I-95 are approximately 13,000 feet in length and were simulated mainly to load traffic in the project area and confirm that the improvements in the project area do not adversely impact operations. There are no capacity improvements proposed in these segments. The segments just north of the northbound C-D road entrance operate at LOS B or better, which is an improvement from the Original SIMR No-Build Alternative operations of LOS D and LOS E in the same area. All I-95 northbound segments with the Phase 1 Alternative operate at LOS C or better during the AM peak hour.

Speeds on I-95 southbound C-D road improved during the Phase 1 Alternative compared to the Original SIMR No-Build Alternative. In the AM peak hour, I-95 southbound C-D road operates at an average speed of 50 mph with the lowest speeds averaging 48 mph between the Adams Street entrance to downstream of the Bay Street entrance. The total simulated volume of 4,098 vph and density of 16 pc/mi/ln was observed south of the Bay Street entrance. I-95 northbound C-D road operations also improved compared to the Original SIMR No-Build Alternative. An average speed of 48 mph with the slowest speed of 47 mph observed after the I-95 mainline entrance. The total simulated volume of 4,126 vph and density of 17 pc/mi/ln were observed for this segment. All I-95 C-D road segments operate at LOS B or better during the AM peak hour.

The PM peak hour results for the Phase 1 Alternative for Opening year 2025, shown in **Figure 7-8,** indicate I-95 southbound operates at an average speed of 55 mph with the lowest speed of 49 mph occurring between Union St exit and the Kings Road exit at the beginning of the network. The total simulated volume north of the Kings Road exit is 5,125 vph with an estimated density 26 pc/mi/ln. All I-95 southbound segments are expected to operate at an estimated LOS C or better in the PM peak hour. The I-95 northbound operates at an average speed of 59 mph with the lowest speed of 55 mph occurring upstream of the northbound C-D road entrance. I-95 northbound segments upstream of the northbound C-D road entrance were observed to operate at an estimated LOS C in the PM peak hour. These segments of I-95 are approximately 13,000 feet in length and were simulated mainly to load traffic in the project area and I-95 northbound segments downstream of the Adams Street entrance were observed to operate at an estimated LOS B in the PM peak hour until the Kings Road exit, which was observed to operate at an estimate LOS C.

In the PM peak hour, the I-95 southbound C-D road operates at an average speed of 49 mph with the lowest speed of 48 mph occurring south of the Adams Street entrance. The density observed is 24 pc/mi/ln, and the total simulated volume observed is 4,762 vph between the Adams Street and Bay Street entrances and 5,597 vph from the Bay Street entrance through the end of the C-D road network. All I-95 southbound C-D road segments are expected to operate at LOS C or better in the PM peak hour. The I-95 northbound C-D road operates at an average speed of 49 mph, with the slowest speed observed downstream of the Monroe Street exit. Here the observed speed is 47 mph with a total simulated volume of 2,588 vph and density of 13 pc/mi/ln. All I-95 northbound C-D road segments are expected to operate at LOS B or better in the PM peak hour.

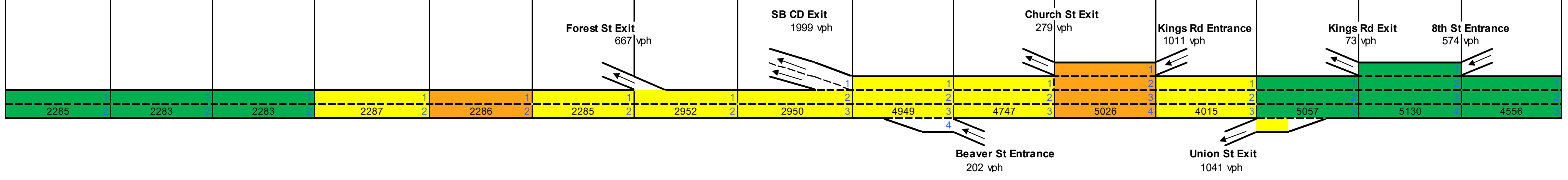
The density heat maps in **Appendix F** show the density levels for the AM and PM peak periods. During the AM peak period, I-95 southbound operates at densities less than 50 vpmpl during the entire simulation period in the Phase 1 Alternative. I-95 northbound depicted the highest density of 28 vpmpl in the beginning of the network and operated with densities 22 vpmpl or lower north of the I-95 northbound C-D road entrance. Like the Original SIMR No-Build Alternative, no congestion was observed on the I-95 C-D roads in the AM peak period. All I-95 northbound and southbound C-D road segments with the Phase 1 Alternative improvements operate at densities 21 vpmpl or lower.

PM peak density heat maps depicted similar operations as the AM peak hour. During the PM peak period, I-95 southbound operates at densities 28 vpmpl or lower during the entire simulation period which is lower than the southbound Original SIMR No-Build Alternative densities. The Phase 1 Alternative also results in lower density levels northbound when compared to the Original No-Build SIMR Alternative. I-95 northbound depicted the highest density of 27 vpmpl in the beginning of the network and operated with densities 21 vpmpl or lower north of the I-95 northbound C-D road entrance. Similar to the Original SIMR, no congestion was observed on the I-95 C-D roads in the PM peak period. All I-95 northbound and southbound C-D road segments with the Phase 1 Alternative improvements operate at densities 25 vpmpl or lower.

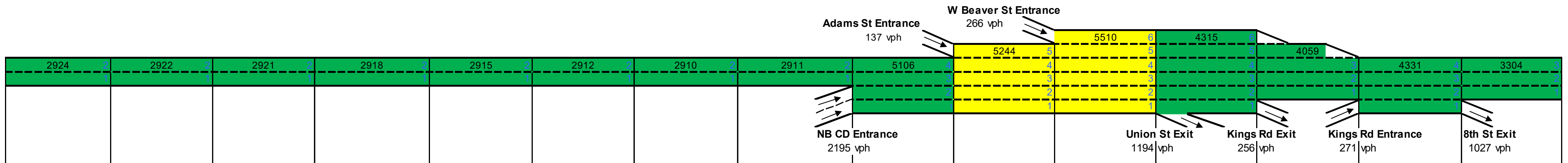
I-95 Southbound

	184	183	182	181	180	179	178	177	174	173	170	169	168	159	158
Distance (ft)	2005	2000	2006	2000	2000	2000	1514	884	352	883	596	589	700	1963	1784
Speed (mph)	61	61	60	51	47	52	49	50	51	49	48	52	54	58	55
Estimated Density (pc/mi/ln)	9	12	12	14	16	11	15	19	32	31	34	25	30	29	27
Estimated LOS	A	B	B	B	B	A	B	C	D	D	D	C	D	D	D
Total Demand Volume (vph)	2720	2720	2720	2720	2720	2720	3540	3540	6060	5850	6250	5230	6430	6570	6000
Total Simulated Volume (vph)	2285	2283	2283	2287	2286	2285	2952	2950	4949	4747	5026	4015	5057	5130	4556

Simulated Volumes



Simulated Volumes



Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1457	124	481	101	101	1868	1802	1857
Speed (mph)	57	56	56	56	56	55	56	65	55	50	49	60	65	64	67
Estimated Density (pc/mi/ln)	24	25	25	25	25	25	25	22	30	34	37	24	20	22	16
Estimated LOS	C	C	C	C	C	C	C	C	D	D	E	C	C	C	B
Total Demand Volume (vph)	2970	2970	2970	2970	2970	2970	2970	2970	5190	5340	5600	4400	4150	4410	3350
Total Simulated Volume (vph)	2924	2922	2921	2918	2915	2912	2910	2911	5106	5244	5510	4315	4059	4331	3304
	100	101	102	103	104	105	106	107	108	109	110	121	122	123	126

I-95 Northbound

LEGEND

(###) Travel Time Segment Number

Freeway Coloring

Speed (mph)			**Density (Veh/Mi/Ln)**		
43		below	75		and above
43	-	48	55	-	75
48	-	53	45	-	55
53		and above	45		and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative
Opening Year 2025
AM Peak Hour Lane Schematics

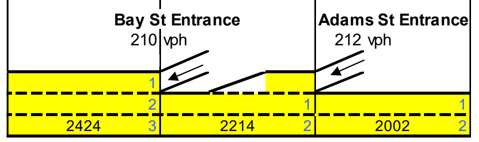
Figure 7-5

Sheet 1 of 2

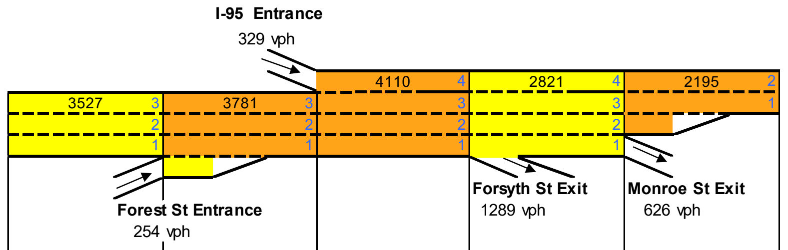
I-95 SB C-D Road

	507	506	505
Distance (ft)	1264	1567	608
Speed (mph)	49	49	49
Estimated Density (pc/mi/ln)	16	15	13
Estimated LOS	B	B	B
Total Demand Volume (vph)	2940	2730	2520
Total Simulated Volume (vph)	2424	2214	2002

Simulated Volumes



Simulated Volumes



	508	501	502	503	504
Distance (ft)	909	965	992	1167	1263
Speed (mph)	48	46	45	47	45
Estimated Density (pc/mi/ln)	18	27	30	19	16
Estimated LOS	B	C	D	B	B
Total Demand Volume (vph)	3560	3820	4140	2850	2220
Total Simulated Volume (vph)	3527	3781	4110	2821	2195

I-95 NB C-D Road

LEGEND

(###) Travel Time Segment Number

Freeway Coloring

Speed (mph)
🟥 42 below
🟧 42 - 47
🟨 47 - 50
🟩 50 and above

Estimated Density (pc/mi/ln)
75 and above
55 - 75
45 - 55
45 and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative
Opening Year 2025
AM Peak Hour Lane Schematics

Figure 7-5

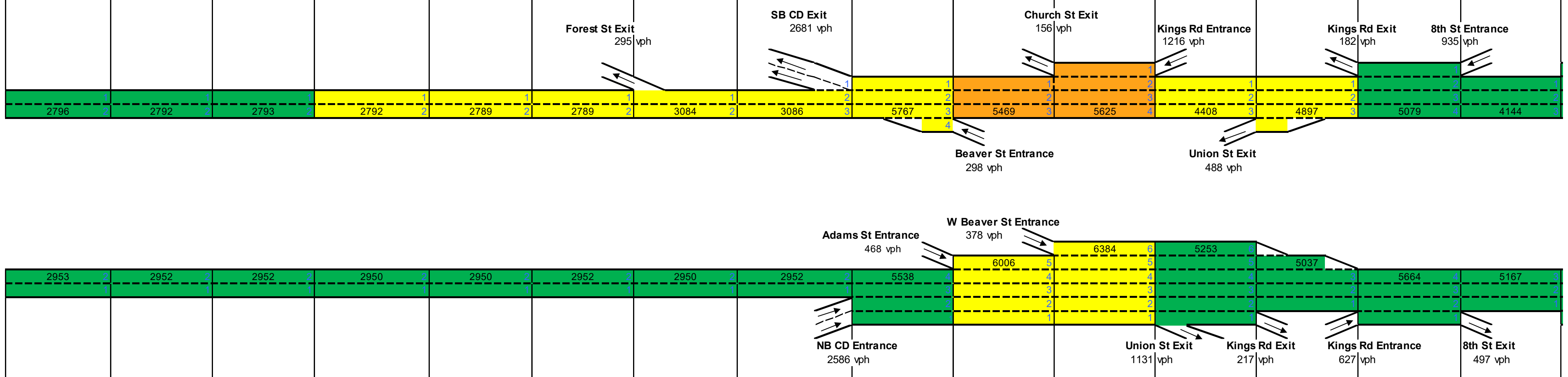
Sheet 2 of 2

I-95 Southbound

	184	183	182	181	180	179	178	177	174	173	170	169	168	159	158
Distance (ft)	2005	2000	2006	2000	2000	2000	1514	854	382	883	596	589	700	1963	1784
Speed (mph)	60	60	60	51	51	52	51	51	49	48	46	51	52	58	61
Estimated Density (pc/mi/ln)	11	15	15	18	18	13	15	20	38	37	40	28	31	29	22
Estimated LOS	B	B	B	B	B	B	B	C	E	E	E	D	D	D	C
Total Demand Volume (vph)	2840	2840	2840	2840	2840	2840	3140	3140	5860	5550	5710	4480	4970	5150	4180
Total Simulated Volume (vph)	2796	2792	2793	2792	2789	2789	3084	3086	5767	5469	5625	4408	4897	5079	4144

Simulated Volumes

Simulated Volumes



	100	101	102	103	104	105	106	107	108	109	110	121	122	123	126
Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1457	124	481	110	101	1868	1802	1857
Speed (mph)	57	56	56	56	56	55	56	65	55	52	49	57	60	55	62
Estimated Density (pc/mi/ln)	25	25	25	25	26	26	25	22	33	38	42	30	27	33	27
Estimated LOS	C	C	C	C	C	C	C	C	D	E	E	D	D	D	D
Total Demand Volume (vph)	3000	3000	3000	3000	3000	3000	3000	3000	5640	6130	6500	5360	5140	5750	5240
Total Simulated Volume (vph)	2953	2952	2952	2950	2950	2952	2950	2952	5538	6006	6384	5253	5037	5664	5167

I-95 Northbound

LEGEND

(###) Travel Time Segment Number

Speed (mph)

43		below
43	-	48
48	-	53
53		and above

Freeway Coloring Density (Veh/Mi/Ln)

75		and above
55	-	75
45	-	55
45		and below

Simulated volume highlighted if difference > 10% of demand volume

FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative
Opening Year 2025
PM Peak Hour Lane Schematics

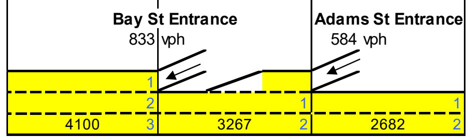
Figure 7-6

Sheet 1 of 2

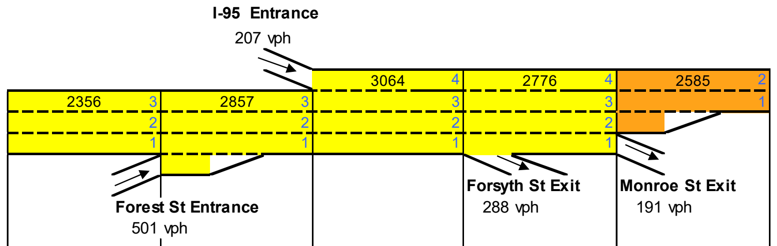
I-95 SB C-D Road

	507	506	505
Distance (ft)	1264	1567	585
Speed (mph)	48	48	48
Estimated Density (pc/mi/ln)	28	22	28
Estimated LOS	C	C	C
Total Demand Volume (vph)	4140	3300	2720
Total Simulated Volume (vph)	4100	3267	2682

Simulated Volumes



Simulated Volumes



Distance (ft)	2000	1949	992	1167	1263
Speed (mph)	50	49	48	47	44
Estimated Density (pc/mi/ln)	12	19	21	19	19
Estimated LOS	B	B	C	B	C
Total Demand Volume (vph)	2400	2920	3110	2830	2640
Total Simulated Volume (vph)	2356	2857	3064	2776	2585
	508	501	502	503	504

I-95 NB C-D Road

LEGEND

(###) Travel Time Segment Number

Freeway Coloring

Speed (mph)
🟥 42 below
🟧 42 - 47
🟨 47 - 50
🟩 50 and above

Estimated Density (pc/mi/ln)
🟪 75 and above
🟦 55 - 75
🟩 45 - 55
⬜ 45 and below

Simulated volume highlighted if difference > 10% of demand volume

FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

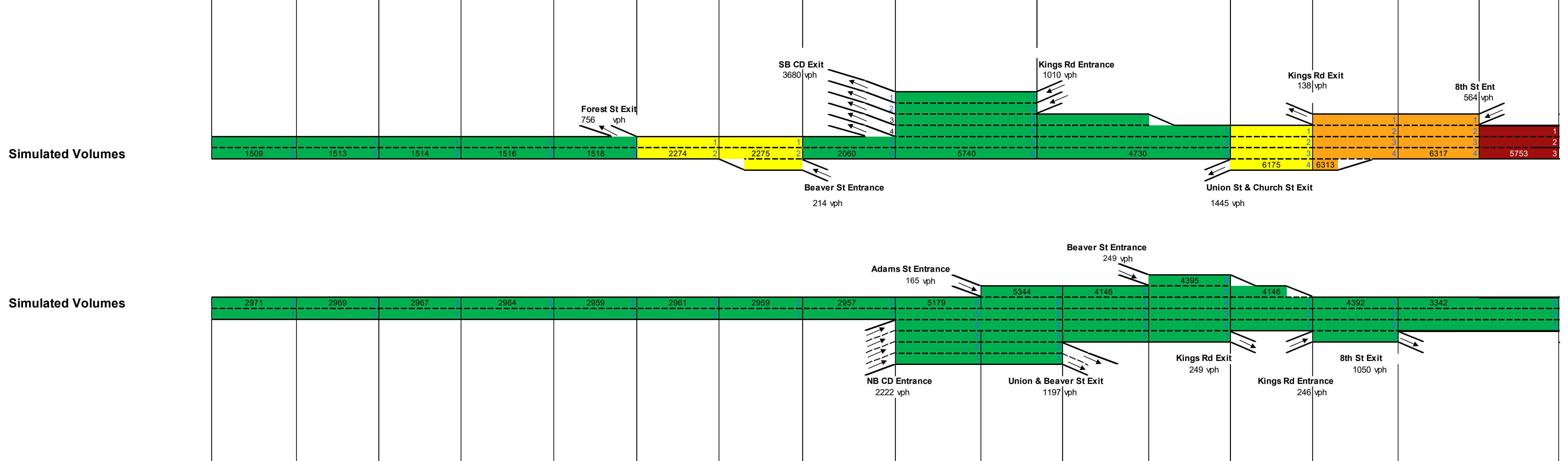
Original SIMR No-Build Alternative
Opening Year 2025
PM Peak Hour Lane Schematics

Figure 7-6

Sheet 2 of 2

I-95 Southbound

	184	183	182	181	180	179	169	178	177	174	170	168	159	158	173
Distance (ft)	2000	2006	2000	2000	2014	1184	1504	692	617	813	714	577	1429	2177	
Speed (mph)	63	61	53	53	54	49	52	53	54	54	50	47	45	40	
Estimated Density (pc/mi/ln)	12	12	14	14	14	18	20	17	18	22	30	33	34	47	
Estimated LOS	B	B	B	B	B	B	C	B	B	C	D	D	D	F	
Total Demand Volume (vph)	1505	1505	1505	1505	1505	2325	2325	2115	5850	4830	6430	6570	6570	6000	
Total Simulated Volume (vph)	1509	1513	1514	1516	1518	2274	2275	2060	5740	4730	6175	6313	6317	5753	



Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1156	383	524	47	164	1861	1816	2357
Speed (mph)	57	56	56	56	56	55	56	64	57	58	61	61	65	67	67
Estimated Density (pc/mi/ln)	25	26	26	26	26	26	26	22	15	13	13	14	21	16	17
Estimated LOS	C	C	C	C	C	C	C	C	B	B	B	B	C	B	B
Total Demand Volume (vph)	2970	2970	2970	2970	2970	2970	2970	2970	5190	5340	4140	4400	4150	4410	3350
Total Simulated Volume (vph)	2971	2969	2967	2964	2959	2961	2959	2957	5179	5344	4146	4395	4146	4392	3342
	100	101	102	103	104	105	106	107	108	109	110	121	122	123	126

I-95 Northbound

LEGEND

(###) Travel Time Segment Number

Speed (mph)

🟥 43	below	
🟧 43	-	48
🟨 48	-	53
🟩 53	and above	

Freeway Coloring Density (Veh/Mi/Ln)

🟪 75	and above	
55	-	75
45	-	55
45	and below	

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Opening Year 2025
AM Peak Hour Lane Schematics

Figure 7-7

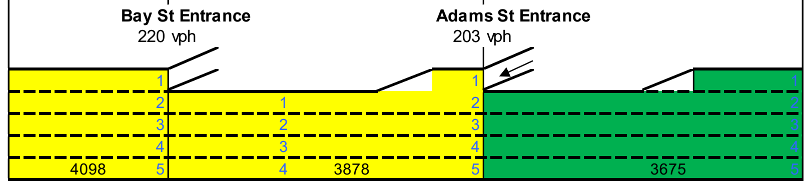
Sheet 1 of 2

I-95 SB C-D Road

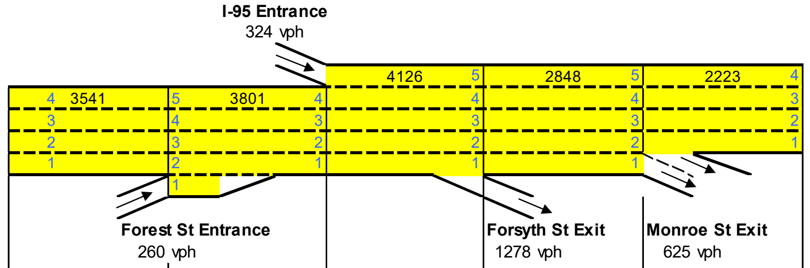
507 506 505

Distance (ft)	1404	1461	1595
Speed (mph)	49	48	52
Estimated Density (pc/mi/ln)	16	20	17
Estimated LOS	B	B	B
Total Demand Volume (vph)	4155	3945	3735
Total Simulated Volume (vph)	4098	3878	3675

Simulated Volumes



Simulated Volumes



Distance (ft)	672	1124	1199	1167	836
Speed (mph)	50	48	47	49	48
Estimated Density (pc/mi/ln)	17	19	17	11	11
Estimated LOS	B	B	B	B	B
Total Demand Volume (vph)	3560	3820	4140	2850	2220
Total Simulated Volume (vph)	3541	3801	4126	2848	2223

508 501 502 503 504

I-95 NB C-D Road

LEGEND

Travel Time Segment Number

Freeway Coloring

Speed (mph)	**Estimated Density (pc/mi/ln)**
🟥 42 below	75 and above
🟧 42 - 47	55 - 75
🟨 47 - 50	45 - 55
🟩 50 and above	45 and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Opening Year 2025
AM Peak Hour Lane Schematics

Figure 7-7

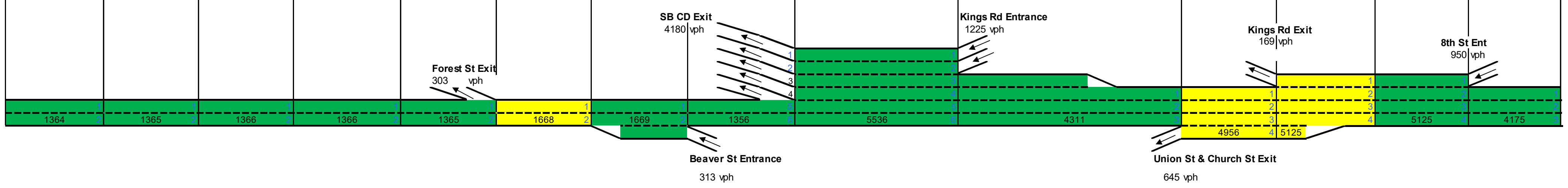
Sheet 2 of 2

I-95 Southbound

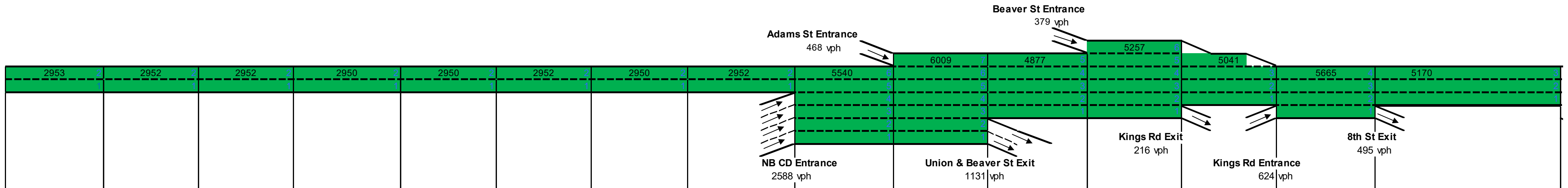
184 183 182 181 180 179 169 178 177 174 170 168 159 158 173

Distance (ft)	2000	2006	2000	2000	2014	1184	1504	692	617	813	714	577	1429	2177
Speed (mph)	63	62	53	53	54	52	53	54	53	53	49	50	61	61
Estimated Density (pc/mi/ln)	11	11	13	12	12	16	15	12	17	20	25	26	21	22
Estimated LOS	B	B	B	B	B	B	B	B	B	C	C	C	C	C
Total Demand Volume (vph)	1355	1355	1355	1355	1355	1655	1655	1345	5550	4320	4970	5150	5150	4180
Total Simulated Volume (vph)	1364	1365	1366	1366	1365	1668	1669	1356	5536	4311	4956	5125	5125	4175

Simulated Volumes



Simulated Volumes



Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1156	383	524	47	164	1861	1816	2357
Speed (mph)	57	56	56	56	56	55	56	65	56	56	58	58	63	66	67
Estimated Density (pc/mi/ln)	25	26	25	26	26	26	26	22	16	15	16	17	19	20	20
Estimated LOS	C	C	C	C	C	C	C	C	B	B	B	B	C	C	C
Total Demand Volume (vph)	3000	3000	3000	3000	3000	3000	3000	3000	5640	6130	4990	5360	5140	5750	5240
Total Simulated Volume (vph)	2953	2953	2952	2950	2950	2952	2950	2952	5540	6009	4877	5257	5041	5665	5170

100 101 102 103 104 105 106 107 108 109 110 121 122 123 126

I-95 Northbound

LEGEND

(###) Travel Time Segment Number

Speed (mph)	
🟥 43	below
🟧 43 -	48
🟨 48 -	53
🟩 53	and above

Freeway Coloring Density (Veh/Mi/Ln)	
🟪 75	and above
55 -	75
45 -	55
45	and below

Simulated volume highlighted if difference > 10% of demand volume

FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Opening Year 2025
PM Peak Hour Lane Schematics

Figure 7-8

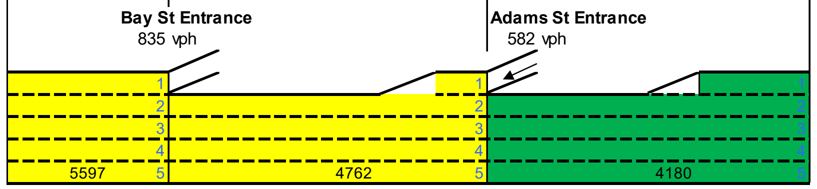
Sheet 1 of 2

I-95 SB C-D Road

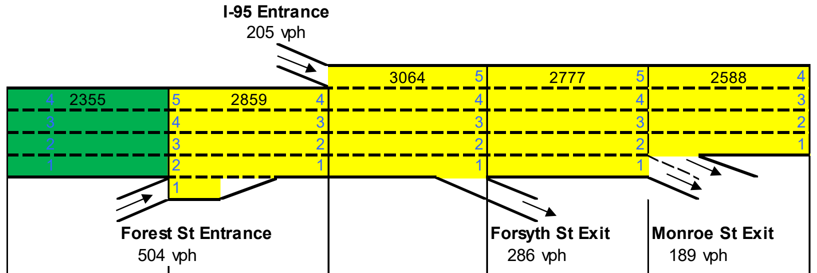
507 506 505

Distance (ft)	1404	1461	1595
Speed (mph)	48	48	52
Estimated Density (pc/mi/ln)	23	24	20
Estimated LOS	C	C	C
Total Demand Volume (vph)	5625	4785	4205
Total Simulated Volume (vph)	5597	4762	4180

Simulated Volumes



Simulated Volumes



Distance (ft)	672	1124	1199	1167	836
Speed (mph)	51	49	49	49	47
Estimated Density (pc/mi/ln)	11	14	12	11	13
Estimated LOS	B	B	B	B	B
Total Demand Volume (vph)	2400	2920	3110	2830	2640
Total Simulated Volume (vph)	2355	2859	3064	2777	2588

508 501 502 503 504

I-95 NB C-D Road

LEGEND

(###) Travel Time Segment Number

Freeway Coloring

Speed (mph)	**Estimated Density (pc/mi/ln)**
🟥 42 below	🟪 75 and above
🟧 42 - 47	🟦 55 - 75
🟨 47 - 50	🟩 45 - 55
🟩 50 and above	⬜ 45 and below

🟥 ### Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Opening Year 2025
PM Peak Hour Lane Schematics

Figure 7-8

Sheet 2 of 2

2025 Freeway Travel Time

Travel time and speed results for the AM and PM peak hours on the I-95 mainline and I-95 C-D road during Opening Year 2025 were evaluated for the Original SIMR No-Build Alternative and Phase 1 Alternative. The travel time measurements were performed for three segments on I-95 (I-10 to the I-95 C-D road, I-95 C-D road to Kings Road and Kings Road to north of 8th Street). The total travel time on I-95 northbound and southbound are also provided. For the I-95 C-D road travel time, the entire length of the I-95 C-D in the study area was used for the travel time calculation.

Original SIMR No-Build Alternative

Travel time results for the AM and PM peak hours on the I-95 mainline and I-95 C-D road during Design Year 2045 are presented in **Table 7-1**.

Table 7-1: Original SIMR No-Build Alternative - Opening Year 2025 I-95 Peak Hour Travel Time

AM Peak			**Travel Time (min)**
I-95	**NB**	I-10 to C-D Road	1.8
		C-D Road to Kings Road	0.5
		Kings Road to north of 8th Street	0.7
		Total Travel Time (min)	**3.0**
	SB	North of 8th Street to Kings Road	0.4
		Kings Road to C-D Road	0.7
		C-D Road to I-10	1.5
		Total Travel Time (min)	**2.6**
C-D Road	**NB**	**Total Travel Time (min)**	**1.3**
	SB	**Total Travel Time (min)**	**0.8**
PM Peak			**Travel Time (min)**
I-95	**NB**	I-10 to C-D Road	1.8
		C-D Road to Kings Road	0.5
		Kings Road to north of 8th Street	0.8
		Total Travel Time (min)	**3.1**
	SB	North of 8th Street to Kings Road	0.4
		Kings Road to C-D Road	0.7
		C-D Road to I-10	1.4
		Total Travel Time (min)	**2.5**
C-D Road	**NB**	**Total Travel Time (min)**	**1.3**
	SB	**Total Travel Time (min)**	**0.8**

Phase 1 Alternative

The Phase 1 Alternative exhibits decreased overall travel times northbound and southbound along the I-95 mainline and northbound along the C-D road during the AM and PM peak hours as compared to the Original SIMR No-Build Alternative. Due to the northward relocation of the C-D road exit in the Phase 1 Alternative, the southbound travel time from north of Kings Road to the C-D road exit has decreased compared to the Original SIMR No-Build Alternative, while the travel time from the C-D road exit to I-10 has increased. This is because vehicles are traveling a shorter distance to the C-D road exit but a longer distance to the I-10. The decrease and increase in travel times reflect the C-D road exit location change.

Travel time results for the AM and PM peak hours on I-95 mainline and I-95 C-D road during Opening Year 2025 are presented in **Table 7-2**.

Table 7-2: Phase 1 Alternative – Opening Year 2025 I-95 Peak Hour Travel Time

AM Peak			**Travel Time (min)**
I-95	**NB**	I-10 to C-D Road	1.7
		C-D Road to north of Kings Road	0.5
		Kings Road to north of 8th Street	0.7
		Total Travel Time (min)	**2.9**
	SB	North of 8th Street to Kings Road	0.2
		Kings Road to C-D Road	0.5
		C-D Road to I-10	1.6
		Total Travel Time (min)	**2.3**
C-D Road	**NB**	**Total Travel Time (min)**	**1.2**
	SB	**Total Travel Time (min)**	**1.0**
PM Peak			**Travel Time (min)**
I-95	**NB**	I-10 to C-D Road	1.7
		C-D Road to north of Kings Road	0.6
		Kings Road to north of 8th Street	0.7
		Total Travel Time (min)	**3.0**
	SB	North of 8th Street to Kings Road	0.1
		North of Kings Road to C-D Road	0.5
		C-D Road to I-10	1.6
		Total Travel Time (min)	**2.2**
C-D Road	**NB**	**Total Travel Time (min)**	**1.2**
	SB	**Total Travel Time (min)**	**1.0**

Study Intersection/Interchange Performance

The performance of the study area intersections was evaluated as part of the Vissim analysis. Signal optimization was performed to account for the 2025 peak-hour volumes. The Opening Year 2025 intersection delay results were analyzed for the Original SIMR No-Build Alternative and Phase 1 Alternative. Additional details for the intersection analysis are provided in **Appendix E** and **Appendix F**.

Original SIMR No-Build Alternative

The Opening Year 2025 intersection delay results for the Original SIMR No-Build Alternative are summarized in **Table 7-3**. In the Opening Year 2025, all intersections are expected to operate at LOS D or better.

Table 7-3: Original SIMR No-Build Alternative – Opening Year 2025 Intersection/Interchange Analysis Summary

Intersection	**Delay (seconds/vehicle)**	
	AM Peak	**PM Peak**
Forest Street @ I-95 southbound	39.5	33.2
Forest Street @ I-95 northbound	38.5	21.9
Forest Street @ Park Street	21.8	43.4
Kings Road @ Cleveland Street	48.1	6.0
Kings Road @ I-95 northbound	21.2	19.0
Kings Road @ N Davis Street	22.0	19.5

A queuing analysis was performed as part of the study to determine the adequacy of the proposed turn lane storage lengths for the study intersections and ramp terminal intersections. In the Original SIMR No-Build Alternative, the available storage will accommodate the max queue at all intersection approaches except the following:

- Forest Street at I-95 Southbound Ramps
    - Westbound left (PM peak)
- Forest Street at I-95 Northbound Ramps
    - Westbound left (PM peak)

  - Northbound right (AM peak) – The northbound right movement is beyond available storage but does not back up to the I-95 mainline. It is approximately 490 feet from impacting the I-95.
  - Southbound through and right (PM peak)
- Kings Road at I-95 Northbound Ramps
  - Westbound through and right (AM and PM peaks)

The max queues that are beyond storage are also marked as red in **Table 7-4**. Overall, the Original SIMR No-Build Alternative results in queues having no impact on the I-95 mainline. There are some locations where the queues exceed the available storage length, but they will not impact the I-95 mainline or adjacent intersections.

Table 7-4: Original SIMR No-Build Alternative – Opening Year 2025 Intersection Queuing Analysis Summary

Intersection			Eastbound			Westbound			Northbound			Southbound		
			EBL	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Forest Street at I-95 SB Ramps	**Ramp Length (ft)**		N/A			N/A			N/A			980		
	Available Storage (ft)			300		430	720					730		440
	Max Queue (ft)	**AM Peak**		266	292	148	61					362		222
		PM Peak		169	162	620	197					214		142
Forest Street at I-95 NB Ramps	**Ramp Length (ft)**		N/A			N/A			1,250			N/A		
	Available Storage		260	745		165	330		275	850	280	250		
	Max Queue (ft)	**AM Peak**	337	605	640	213	132	145	47	145	761	133	73	101
		PM Peak	99	269	304	474	287	169	77	70	146	153	421	448
Kings Road at I-95 NB Ramps	**Ramp Length (ft)**		N/A			N/A			930			N/A		
	Available Storage						435		680					
	Max Queue (ft)	**AM Peak**					545	545	339					
		PM Peak					543	543	280					

Phase 1 Alternative

The Opening Year 2025 intersection delay results for the Phase 1 Alternative are summarized in **Table 7-5**. Like the Original SIMR No-Build Alternative, all intersections are expected to operate at LOS D or better.

Table 7-5: Phase 1 Alternative - Opening Year 2025 Intersection/Interchange Analysis Summary

Intersection	Delay (seconds/vehicle)	
	AM Peak	PM Peak
Forest Street @ I-95 southbound	32.0	22.4
Forest Street @ I-95 northbound off-ramp	13.8	14.9
Forest Street @I-95 northbound on-ramp	16.3	12.8
Forest Street @ Park Street	23.3	35.1
Kings Road @ Cleveland Street	11.5	6.8
Kings Road @ I-95 northbound	7.8	6.9
Kings Road @ N Davis Street	17.4	18.4

A queuing analysis was performed as part of the study to determine the adequacy of the proposed turn lane storage lengths for the study intersections and ramp terminal intersections. In the Phase 1 Alternative, the available storage will accommodate the max queue at all intersection approaches except the following.

- Forest Street at I-95 Southbound Ramps
    - Eastbound through and right (AM peak)
- Forest Street at I-95 Northbound Off-Ramp
    - Eastbound through (AM peak)
    - Westbound through and right (PM peak)

The max queues beyond storage are also marked as red in **Table 7-6**. Overall, the Phase 1 Alternative accommodates intersection queues similarly to the Original SIMR No-Build Alternative. The new configuration at Forest Street at I-95 northbound off-ramp accommodates eastbound left-turn maximum queues better than the Original SIMR No-Build Alternative. There are some locations where the queues exceed the available storage length, but they will not impact the I-95 mainline or adjacent intersections.

Vissim link-based speed results for the peak hour for these intersections are included in **Appendix F.**

Table 7-6: Phase 1 Alternative – Opening Year 2025 Intersection Queuing Analysis Summary

Intersection			Eastbound			Westbound			Northbound			Southbound		
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Forest Street at I-95 SB Ramps	Ramp Length (ft)		N/A			N/A			N/A			980		
	Available Storage (ft)			300		430	530					730		440
	Max Queue (ft)	AM Peak		346	333	81	53					296		187
		PM Peak		171	182	278	97					242		170
Forest Street at I-95 NB Off-Ramp	Ramp Length (ft)		N/A			N/A			1,200			N/A		
	Available Storage (ft)		225	250			330		850		400			250
	Max Queue (ft)	AM Peak	267	356			241	290	155	155	250			40
		PM Peak	47	179			336	386	118	118	64			126
Forest Street at I-95 NB On-Ramp	Ramp Length (ft)		N/A			N/A			N/A			N/A		
	Available Storage (ft)			530		270								
	Max Queue (ft)	AM Peak		389	389	59								
		PM Peak		296	288	93								
Kings Road at I-95 NB Ramps	Ramp Length (ft)		N/A			N/A			930			N/A		
	Available Storage (ft)						435		680					
	Max Queue (ft)	AM Peak					152	152	309					
		PM Peak					249	249	284					

2025 Network-Wide Performance

The network-wide performance for the Original SIMR No-Build Alternative and Phase 1 Alternative are presented in **Table 7-7 and Table 7-8**, respectively, for the 2045 AM and PM peak periods.

Original SIMR No-Build Alternative

The Original SIMR operates with an average speed of 42 mph and 47 mph during the AM peak period and PM peak period, respectively. The total delay during the AM and PM peak periods is 545 hours and 398 hours, respectively.

Table 7-7: Original SIMR No-Build Alternative – Opening Year 2025 Network-Wide Performance

2025 No-Build	AM Peak	PM Peak
Average Speed (mph)	42	47
Total Travel Time (hr)	2,648	2,690
Total Delay (hr)	545	398
Latent Delay (hr)	2,709	2
Latent Demand	1,887	0
Vehicles Arrived	50,413	55,474

Phase 1 Alternative

The Phase 1 Alternative results are better than the Original SIMR No-Build Alternative results with performance improvements occurring during the AM and PM peak periods. The average speed in the network is higher. Travel time and delay (total and latent) are reduced and vehicles arrived has increased.

Table 7-8: Phase 1 Alternative – Opening Year 2025 Network-Wide Performance

Phase 1	AM Peak	PM Peak
Average Speed (mph)	47	47
Total Travel Time (hr)	2,249	2,355
Total Delay (hr)	289	308
Latent Delay (hr)	256	2
Latent Demand	70	0
Vehicles Arrived	54,500	57,151

7.3.2 2045 Operational Analysis

A detailed microsimulation analysis using Vissim 2020 was conducted to evaluate the system-wide operational performance of the alternatives. Original SIMR Vissim No-Build Alternative outputs for Design Year 2045 are included in **Appendix G**. The Phase 1 Alternative Vissim outputs for Design Year 2045 are included in **Appendix H**.

The Design Year 2045 Vissim models analyzed three-hour AM and PM peak periods. Peak-hour traffic forecasts were developed using NERPM-AB1v3 as discussed in **Section 5.2**. Fifteen-minute flow rates were used to develop the three-hour AM and PM peak period Vissim models. The Design Year 2045 simulation model parameters are based on those used for the Existing Year 2019 calibrated model. The simulation time consisted of a 30-minute seed time to load traffic into the network, followed by a 3-hour peak period consisting of a preceding shoulder hour, the peak hour and one subsequent off-peak hour. The purpose of the off-peak hours was to allow all or most of the congestion built during the peak hour to subside during the simulation period.

The following MOEs were used to evaluate the network's operational performance:

- Freeways
    - Freeway estimated LOS
    - Operating speed
    - Demand and simulated volume in hourly interval
    - Estimated density in hourly interval
    - Density heat diagrams for 15-min interval
- Intersections
    - Intersection volume
    - Intersection delay
    - Maximum queue length
- Network-Wide Performance
    - Total network delay
    - Average network speed
    - Total network travel time

  - Latent demand
  - Latent delay
  - Vehicles arrived

2045 Peak Hour Results Overview

The lane schematics for the Original SIMR No-Build Alternative for Design Year 2045 AM and PM peak hours are presented in **Figure 7-9** and **Figure 7-10**, respectively. The lane schematics for the Phase 1 Alternative for Design Year 2045 AM and PM peak hours are presented in **Figure 7-11** and **Figure 7-12**, respectively. The lane schematics provide an operational overview representing the overall speed, estimated density, estimated LOS and demand and simulated volume comparison of I-95 and the I-95 C-D road during the peak hour.

Original SIMR No-Build Alternative

The AM peak hour results for the Original SIMR No-Build Alternative for Design Year 2045 show significant congestion on I-95 southbound from north of 8th Street through the Forest Street exit. There is significant congestion and failing conditions throughout I-95 southbound caused by the insufficient capacity and heavy mainline and ramp volumes. The greatest total demand is 7,930 vph between the 8th Street entrance and Kings Road exit with an estimated density of 37 pc/mi/ln. Northbound congestion occurs south of the C-D road entrance until the 8th Street exit. The slowest speed observed northbound is 16 mph. This occurs between the Kings Road entrance and the 8th Street exit, with a total simulated volume of 4,348 vph. The total demand in this area is 6,480 vph, and the observed density is 65 pc/mi/ln with an estimated LOS F.

In the AM peak hour, I-95 southbound C-D road operates at an average speed of 48 mph north of the Adams Street entrance, with a density of 26 pc/mi/ln, total simulated volume of 2,570 vph and estimated LOS D. Speeds northbound are slow throughout the length of the I-95 C-D road. The slowest speed is observed after the Monroe Street exit, averaging 21 mph with a density of 53 pc/mi/ln, total simulated volume of 2,212 vph and estimated LOS F.

The PM peak hour results for the Design Year 2045 Original SIMR No-Build Alternative, shown in **Figure 7-10**, indicate significant congestion on I-95 southbound from north of 8th Street to the Beaver Street entrance. Speeds are slowest north of 8th Street, averaging 18 mph with an observed density of 86 pc/mi/ln, a total simulated volume of 5,280 vph and estimated LOS F. Slower speeds were observed northbound from south of the C-D road entrance to the 8th Street exit. The slowest speed was observed from Union Street exit to Kings Road exit, averaging 11 mph with an estimated density of 84 pc/mi/ln, a total simulated volume of 5,928 vph and estimated LOS F. Limited capacity north of 8th street results in northbound congestion and unmet demand.

In the PM peak hour, I-95 southbound C-D road are slowest in the PM peak hour before the Adams Street entrance. Speeds here average 47 mph, a total simulated volume of 2,989 vph, a density of 31 pc/mi/ln and estimated LOS D. Speeds northbound are slowest beginning at the Forsyth Street exit. The slowest speed observed is after the Monroe Street exit, 30 mph, with a density of 47 pc/mi/ln, total simulated volume of 2,863 vph and estimated LOS F.

The density heat maps in **Appendix G** show the density levels for the AM and PM peak periods, respectively. During the AM peak period, I-95 northbound is observed to have densities exceeding 75 vpmpl up to 167 vpmpl from the project limit starting point to the weaving segment between Kings Road and 8th Street. I-95 southbound is observed to have higher density at the beginning of the network and at Church Street. The I-95 northbound C-D road during the AM peak period depicted the highest density of 155 vpmpl after the Monroe Street exit. No significant hotspots were observed on the southbound C-D road.

During the PM peak period, I-95 northbound is observed to have densities exceeding 75 vpmpl up to 127 vpmpl from the project limit starting point to the weaving segment between Kings Road and 8th Street. Similar to the AM peak period, a hotspot was observed on the C-D road northbound after the Monroe Street exit (60 vpmpl), and I-95 southbound is observed to have higher density at the beginning of the network. Significant hot spots were not observed on I-95 southbound C-D road during the PM peak period.

Phase 1 Alternative

The AM peak hour results for the Phase 1 Alternative for Design Year 2045 show that I-95 southbound operates at an average speed of 50 mph with the lowest speed of 26 mph occurring south of the 8th Street entrance at the beginning of the network. In the Original SIMR No-Build Alternative, this segment of I-95 operates at speed of 42 mph and density 37 pc/mi/ln. The simulated volume on I-95 southbound south of the 8th Street entrance during the Phase 1 Alternative is 6,612vph compared to the simulated volume 6,511 vph in the Original SIMR No-Build Alternative. All I-95 southbound segments are expected to operate at an estimated LOS D or better in the AM peak hour, except for north of Kings Road which operates at LOS E and LOS F. I-95 northbound operates at an average speed of 47 mph with the lowest speed of 24 mph occurring between the Kings Road entrance and 8th Street exit. The total simulated volume of 6,328 vph and density of 51 pc/mi/ln was observed for this segment of I-95. The I-95 northbound segments upstream of northbound C-D road entrance were observed to operate at an estimated LOS E in the AM peak hour. These segments operate at an average of 53 mph indicating nearly free flow speed. These segments of I-95 are approximately 13,000 feet in length and were simulated mainly to load traffic in the project area and confirm that the improvements in the project area do not adversely impact operations. There are no capacity improvements proposed in these segments. The segments north of the northbound C-D road entrance to the Kings Road exit operate at LOS C, which is an improvement from the Original SIMR No-Build Alternative operations of LOS E and LOS F in the same area. All I-95 northbound and southbound segments with the Phase 1 Alternative operate at LOS D or better during AM peak hour, except north of the Kings Road which operates at LOS F. There are no improvements recommended north of Kings Road under the Phase 1 Alternative.

Speeds on I-95 southbound C-D road improved during the Phase 1 Alternative compared to the Original SIMR No-Build Alternative. In the AM peak hour, I-95 southbound C-D road operates at an average speed of 49 mph with the lowest speeds averaging 48 mph between the Adams Street entrance to downstream of the Bay Street entrance. The total simulated volume of 5,078 vph and density of 20 pc/mi/ln was observed south of the Bay Street entrance. I-95 northbound C-D road operations also improved compared to the Original SIMR No-Build Alternative. An average speed of 47 mph with the slowest speed of 46 mph observed after the I-95 mainline entrance. The total simulated volume of 4,904 vph and density of 21 pc/mi/ln were observed for this segment. All I-95 C-D road segments operate at LOS C or better during the AM peak hour.

The PM peak hour results for the Phase 1 Alternative for Design Year 2045, shown in **Figure 7-12,** indicate I-95 southbound operates at an average speed of 49 mph with the lowest speed of 19 mph occurring after the 8th Street entrance at the beginning of the network. The total simulated volume north of the Kings Road exit is 5,893 vph with an estimated density 36 pc/mi/ln. All I-95 southbound segments are expected to operate at an estimated LOS C or better south of the Kings Road exit in the PM peak hour. North of Kings Road is expected to operate at LOS E and LOS F. I-95 northbound operates at an average speed of 20 mph with the lowest speed of 13 mph occurring after the Union Street exit. All I-95 northbound segments were observed to operate at an estimated LOS F in the PM peak hour within the AOI of Phase 1 improvements. The Phase 1 Alternative northbound will operate at an average estimated density of 75 pc/mi/ln and the Original SIMR No-Build Alternative will operate at an average estimated density of 86 pc/mi/ln. This shows that even though they are both operating at LOS F, the Phase 1 Alternative will reduce the density along I-95 northbound by approximately 12.9%. The I-95 northbound segments upstream of the northbound C-D road entrance are approximately 13,000 feet in length and were simulated mainly to load traffic in the project area and confirm that the improvements in the project area do not adversely impact operations. There are no capacity improvements proposed in these segments.

In the PM peak hour, the I-95 southbound C-D road operates at an average speed of 49 mph with the lowest speed of 47 mph occurring south of the Adams Street entrance. The density observed is 30 pc/mi/ln, and the total simulated volume observed is 5,819 vph between the Adams Street and Bay Street entrances and 7,276 vph from the Bay Street entrance through the end of the C-D road network. All I-95 southbound C-D road segments are expected to operate at LOS D or better in the PM peak hour. The I-95 northbound C-D road operates at an average speed of 46 mph, with the slowest speed observed downstream of the Monroe Street exit. Here the observed speed is 32 mph with a total simulated volume of 2,961 vph and density of 22 pc/mi/ln. All I-95 northbound C-D road segments are expected to operate at LOS C or better in the PM peak hour.

The density heat maps in **Appendix H** show the density levels for the AM and PM peak periods, respectively. During the AM peak period, I-95 southbound operates at densities less than 67 vpmpl during the entire simulation period in the Phase 1 Alternative. I-95 northbound depicted the highest density of 80 vpmpl between the Kings Road ramps. This is an improvement from the Original SIMR No-Build Alternative in which the AM peak period was observed exceeding operations of 167 vpmpl at the same location. Like the Original SIMR No-Build Alternative, no congestion was observed on the I-95 C-D roads in the AM peak period. All I-95 northbound and southbound C-D road segments with the Phase 1 Alternative improvements operate at densities 24 vpmpl or lower.

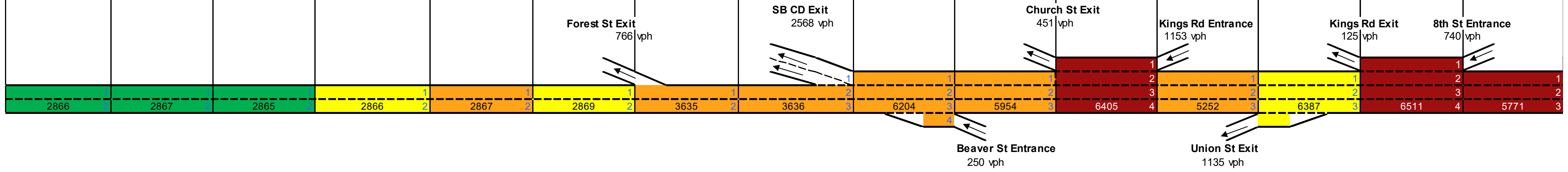
During the PM peak period, the I-95 southbound operates at densities 81 vpmpl or lower during the entire simulation period which is lower than the southbound Original SIMR No-Build Alternative densities. I-95 northbound depicted the highest density of 108 vpmpl between the Kings Road ramps. Unlike the Original SIMR which operates with high densities on the I-95 northbound C-D road, no congestion was observed on the I-95 northbound C-D road in the PM peak period with the Phase 1 Alternative. All I-95 northbound and southbound C-D road segments with the Phase 1 Alternative improvements operate at densities 31 vpmpl or lower.

I-95 Southbound

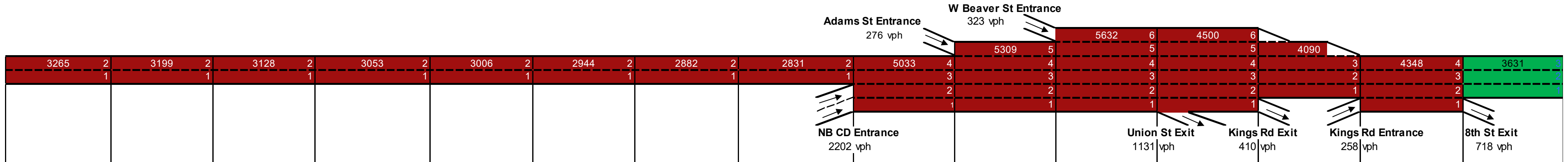
184 183 182 181 180 179 178 177 174 173 170 169 168 159 158

Distance (ft)	2005	2000	2006	2000	2000	2000	1514	884	352	883	596	589	700	1963	1784
Speed (mph)	60	60	60	51	47	52	47	48	47	44	36	45	50	42	39
Estimated Density (pc/mi/ln)	23	23	23	27	30	27	38	37	43	44	44	38	41	37	48
Estimated LOS	C	C	C	D	D	D	E	E	E	E	F	E	E	E	F
Total Demand Volume (vph)	3330	3330	3330	3330	3330	3330	4260	4260	7370	7110	7680	6430	7770	7930	7130
Total Simulated Volume (vph)	2866	2867	2865	2866	2867	2869	3635	3636	6204	5954	6405	5252	6387	6511	5771

Simulated Volumes



Simulated Volumes



Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1457	124	481	101	101	1868	1802	1857
Speed (mph)	37	37	36	34	33	32	30	31	25	21	20	20	21	16	60
Estimated Density (pc/mi/ln)	44	42	43	43	45	46	47	44	50	49	46	36	64	65	20
Estimated LOS	E	E	E	E	E	F	F	E	E	E	F	E	F	F	C
Total Demand Volume (vph)	4270	4270	4270	4270	4270	4270	4270	4270	7030	7380	7710	6310	6000	6480	5280
Total Simulated Volume (vph)	3265	3199	3128	3053	3006	2944	2882	2831	5033	5309	5632	4500	4090	4348	3631

100 101 102 103 104 105 106 107 108 109 110 121 122 123 126

I-95 Northbound

LEGEND

(###) Travel Time Segment Number

Speed (mph)

🟥	43 below
🟧	43 - 48
🟨	48 - 53
🟩	53 and above

Freeway Coloring Density (Veh/Mi/Ln)

🟪	75 and above
🟦	55 - 75
🟩	45 - 55
⬜	45 and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative
Design Year 2045
AM Peak Hour Lane Schematics

Figure 7-9

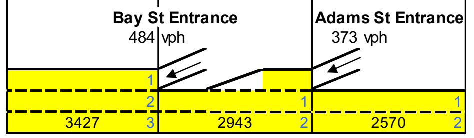
Sheet 1 of 2

← I-95 SB C-D Road

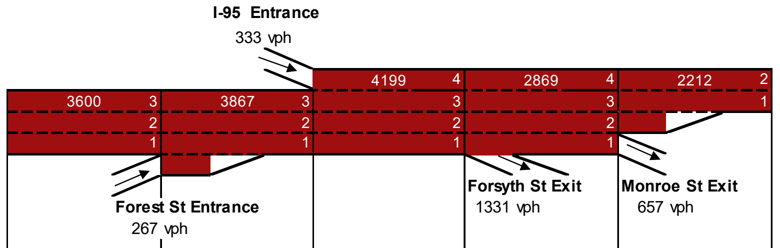
507 506 505

Distance (ft)	1264	1567	608
Speed (mph)	49	49	48
Estimated Density (pc/mi/ln)	23	30	26
Estimated LOS	C	D	D
Total Demand Volume (vph)	3970	3480	3110
Total Simulated Volume (vph)	3427	2943	2570

Simulated Volumes



Simulated Volumes



Distance (ft)	909	965	992	1167	1263
Speed (mph)	34	31	28	26	21
Estimated Density (pc/mi/ln)	34	40	37	27	53
Estimated LOS	D	E	E	C	F
Total Demand Volume (vph)	4160	4500	4890	3460	2760
Total Simulated Volume (vph)	3600	3867	4199	2869	2212

508 501 502 503 504

→ I-95 NB C-D Road

LEGEND

(###) Travel Time Segment Number

Freeway Coloring
Speed (mph)
- 🟥 42 below
- 🟧 42 - 47
- 🟨 47 - 50
- 🟩 50 and above

Estimated Density (pc/mi/ln)
- 🟪 75 and above
- 🟦 55 - 75
- 🟩 45 - 55
- 45 and below

🟥 ### Simulated volume highlighted if difference > 10% of demand volume

FDOT

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative
Design Year 2045
AM Peak Hour Lane Schematics

Figure 7-9

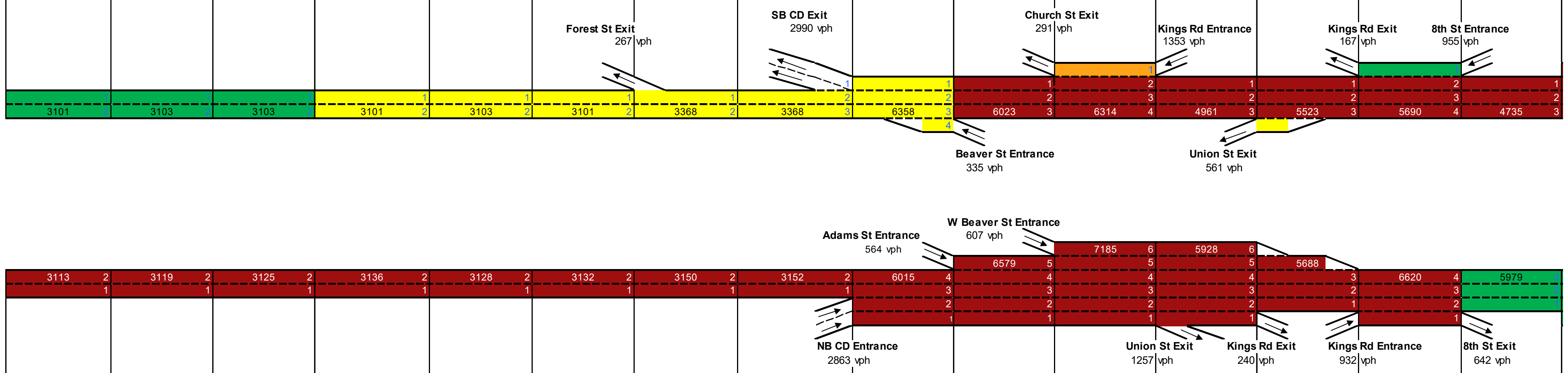
Sheet 2 of 2

I-95 Southbound

184 183 182 181 180 179 178 177 174 173 170 169 168 159 158

Distance (ft)	2005	2000	2006	2000	2000	2000	1514	884	352	883	596	589	700	1963	1784
Speed (mph)	60	60	60	51	51	52	50	50	48	42	25	24	26	21	18
Estimated Density (pc/mi/ln)	25	25	25	30	30	29	33	33	43	47	63	67	68	65	86
Estimated LOS	C	C	C	D	D	D	D	D	E	F	F	F	E	F	F
Total Demand Volume (vph)	3400	3400	3400	3400	3400	3400	3740	3740	7030	6680	7030	5670	6270	6480	5280
Total Simulated Volume (vph)	3101	3103	3103	3101	3103	3101	3368	3368	6358	6023	6314	4961	5523	5690	4735

Simulated Volumes



Simulated Volumes

Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1457	124	481	101	101	1868	1802	1857
Speed (mph)	18	18	18	18	18	18	18	18	20	13	13	11	16	22	55
Estimated Density (pc/mi/ln)	86	84	84	84	84	84	84	84	72	96	92	84	116	74	36
Estimated LOS	F	F	F	F	F	F	F	F	F	F	F	F	F	F	E
Total Demand Volume (vph)	4310	4310	4310	4310	4310	4310	4310	4310	7370	7940	8530	7270	7020	7930	7130
Total Simulated Volume (vph)	3113	3119	3125	3136	3128	3132	3150	3152	6015	6579	7185	5928	5688	6620	5979

100 101 102 103 104 105 106 107 108 109 110 121 122 123 126

I-95 Northbound

LEGEND

(###) Travel Time Segment Number

Speed (mph)	
🟥 43	below
🟧 43 -	48
🟨 48 -	53
🟩 53	and above

Freeway Coloring Density (Veh/Mi/Ln)	
🟪 75	and above
🟦 55 -	75
🟩 45 -	55
45	and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative
Design Year 2045
PM Peak Hour Lane Schematics

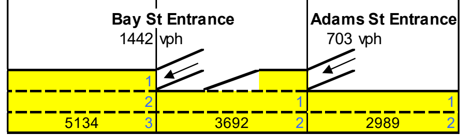
Figure 7-10

Sheet 1 of 2

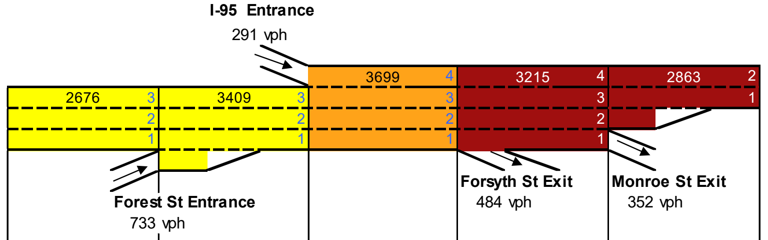
← I-95 SB C-D Road

	507	506	505
Distance (ft)	1264	1567	608
Speed (mph)	48	48	47
Estimated Density (pc/mi/ln)	35	38	31
Estimated LOS	D	E	D
Total Demand Volume (vph)	5420	3990	3290
Total Simulated Volume (vph)	5134	3692	2989

Simulated Volumes



Simulated Volumes



	508	501	502	503	504
Distance (ft)	909	965	992	1167	1263
Speed (mph)	49	48	45	40	30
Estimated Density (pc/mi/ln)	18	23	20	20	47
Estimated LOS	B	C	B	B	F
Total Demand Volume (vph)	2730	3660	3920	3430	3060
Total Simulated Volume (vph)	2676	3409	3699	3215	2863

I-95 NB C-D Road →

LEGEND

(###) Travel Time Segment Number

Freeway Coloring

Speed (mph)
42 below
42 - 47
47 - 50
50 and above

Estimated Density (pc/mi/ln)
75 and above
55 - 75
45 - 55
45 and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Original SIMR No-Build Alternative
Design Year 2045
PM Peak Hour Lane Schematics

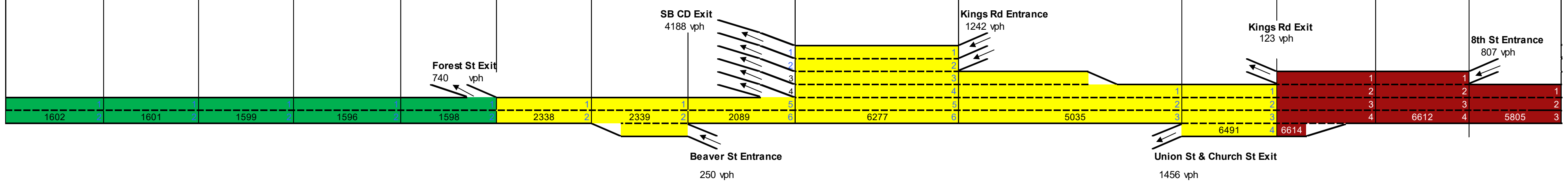
Figure 7-10

Sheet 2 of 2

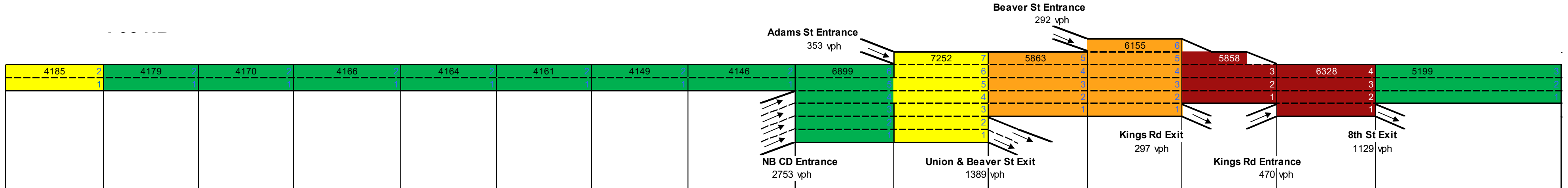
I-95 Southbound

	183	182	181	180	179	169	178	177	174	170	168	159	158	173
Distance (ft)	2000	2006	2000	2000	2014	1184	1504	692	617	813	714	577	1429	2177
Speed (mph)	63	61	53	53	54	50	52	53	53	53	50	40	26	32
Estimated Density (pc/mi/ln)	13	13	15	15	15	23	22	19	19	23	31	35	61	59
Estimated LOS	B	B	B	B	B	C	C	C	B	C	D	E	F	F
Density (veh/mi/ln)	13	13	15	15	15	24	22	20	20	24	32	35	63	61
Total Demand Volume (vph)	1825	1825	1825	1825	1825	2755	2755	2495	7110	5860	7770	7930	7930	7130
Total Simulated Volume (vph)	1602	1601	1599	1596	1598	2338	2339	2089	6277	5035	6491	6614	6612	5805

Simulated Volumes



Simulated Volumes



Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1156	383	524	47	164	1861	1816	2357
Speed (mph)	48	54	54	53	53	53	53	60	53	50	48	46	42	24	57
Estimated Density (pc/mi/ln)	42	38	38	38	38	38	38	34	21	20	24	22	45	51	30
Estimated LOS	E	E	E	E	E	E	E	D	C	C	C	C	F	F	C
Total Demand Volume (vph)	4270	4270	4270	4270	4270	4270	4270	4270	7030	7380	5980	6310	6000	6480	5280
Total Simulated Volume (vph)	4185	4179	4170	4166	4164	4161	4149	4146	6899	7252	5863	6155	5858	6328	5199
	100	101	102	103	104	105	106	107	108	109	110	121	122	123	126

I-95 Northbound

LEGEND

(###) Travel Time Segment Number

Speed (mph)	
🟥 43	below
🟧 43 -	48
🟨 48 -	53
🟩 53	and above

Freeway Coloring Density (Veh/Mi/Ln)	
🟪 75	and above
🟦 55 -	75
🟩 45 -	55
45	and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Design Year 2045
AM Peak Hour Lane Schematics

Figure 7-11

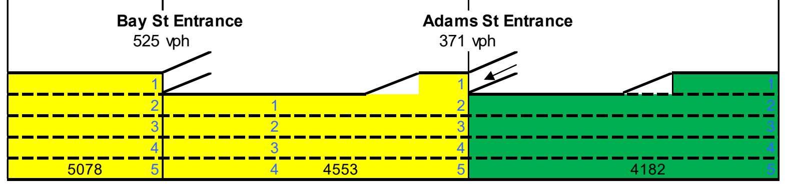
Sheet 1 of 2

← I-95 SB C-D Road

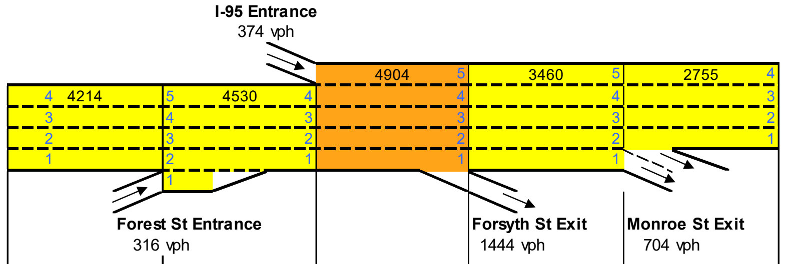
507 506 505

Distance (ft)	1404	1461	1595
Speed (mph)	48	48	52
Estimated Density (pc/mi/ln)	20	23	20
Estimated LOS	C	C	C
Total Demand Volume (vph)	5475	4985	4615
Total Simulated Volume (vph)	5078	4553	4182

Simulated Volumes



Simulated Volumes



Distance (ft)	672	1124	1199	1167	836
Speed (mph)	49	47	46	48	47
Estimated Density (pc/mi/ln)	21	24	21	14	14
Estimated LOS	C	C	C	B	B
Total Demand Volume (vph)	4160	4500	4890	3460	2760
Total Simulated Volume (vph)	4214	4530	4904	3460	2755

508 501 502 503 504

I-95 NB C-D Road →

LEGEND

(###) Travel Time Segment Number

Freeway Coloring

Speed (mph)	**Estimated Density (pc/mi/ln)**
🟥 42 below	75 and above
🟧 42 - 47	55 - 75
🟨 47 - 50	45 - 55
🟩 50 and above	45 and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Design Year 2045
AM Peak Hour Lane Schematics

Figure 7-11

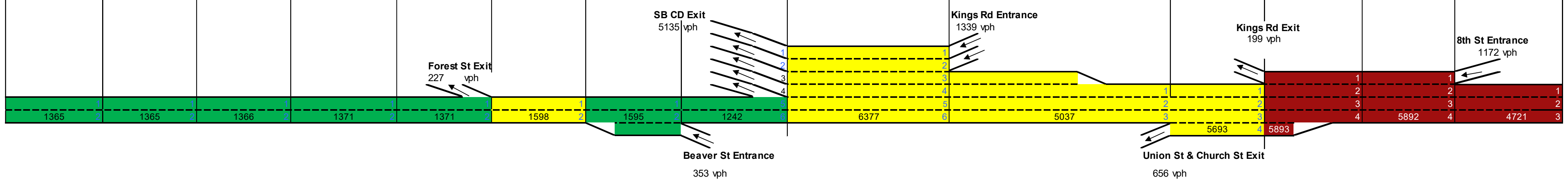
Sheet 2 of 2

← I-95 Southbound

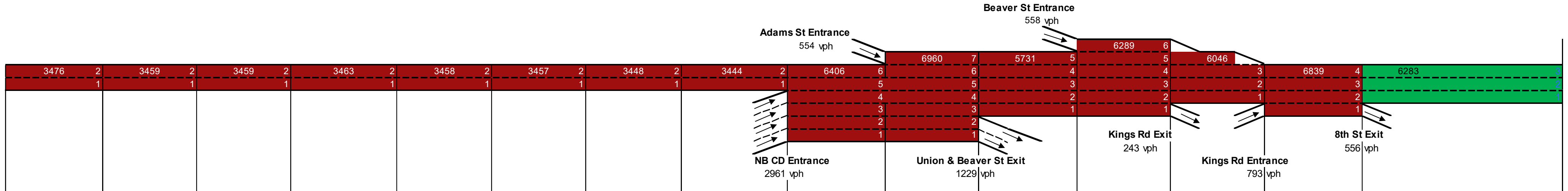
184 183 182 181 180 179 169 178 177 174 170 168 159 158 173

Distance (ft)	2000	2006	2000	2000	2014	1184	1504	692	617	813	714	577	1429	2177
Speed (mph)	63	62	53	53	53	52	53	54	52	52	50	41	19	20
Estimated Density (pc/mi/ln)	11	11	13	13	13	15	15	11	20	24	28	35	75	78
Estimated LOS	B	A	B	B	B	B	B	B	B	C	C	E	F	F
Density (veh/mi/ln)	11	11	13	13	13	15	15	12	20	24	28	36	76	80
Total Demand Volume (vph)	1550	1550	1550	1550	1550	1890	1890	1540	6680	5320	6270	6480	6480	5780
Total Simulated Volume (vph)	1365	1365	1366	1371	1371	1598	1595	1242	6377	5037	5693	5893	5892	4721

Simulated Volumes



Simulated Volumes



Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1156	383	524	47	164	1861	1816	2357
Speed (mph)	21	22	22	22	22	22	22	22	21	16	13	13	19	25	56
Estimated Density (pc/mi/ln)	79	76	77	77	77	77	77	78	50	61	88	77	104	60	36
Estimated LOS	F	F	F	F	F	F	F	F	F	F	F	F	F	F	E
Total Demand Volume (vph)	4310	4310	4310	4310	4310	4310	4310	4310	7370	7940	6680	7270	7020	7930	7130
Total Simulated Volume (vph)	3476	3459	3459	3463	3458	3457	3448	3444	6406	6960	5731	6289	6046	6839	6283

100 101 102 103 104 105 106 107 108 109 110 121 122 123 126

I-95 Northbound →

LEGEND

(###) Travel Time Segment Number

Speed (mph)

43	below	
43	-	48
48	-	53
53	and above	

Freeway Coloring Density (Veh/Mi/Ln)

75	and above	
55	-	75
45	-	55
45	and below	

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Design Year 2045
PM Peak Hour Lane Schematics

Figure 7-12

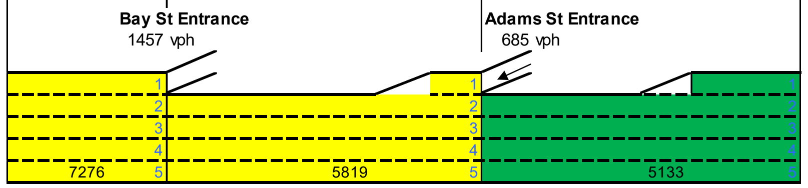
Sheet 1 of 2

I-95 SB C-D Road

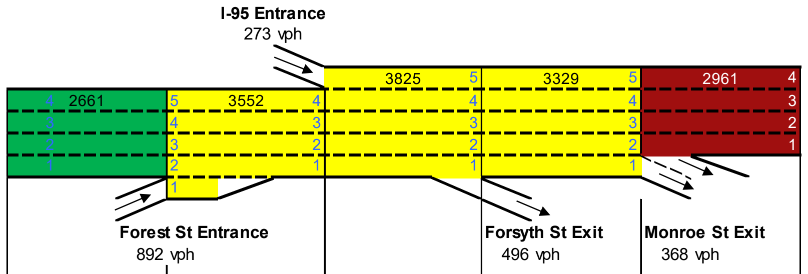
507 506 505

Distance (ft)	1404	1461	1595
Speed (mph)	47	47	51
Estimated Density (pc/mi/ln)	30	30	24
Estimated LOS	D	D	C
Total Demand Volume (vph)	7270	5840	5140
Total Simulated Volume (vph)	7276	5819	5133

Simulated Volumes



Simulated Volumes



Distance (ft)	672	1124	1199	1167	836
Speed (mph)	50	48	48	48	32
Estimated Density (pc/mi/ln)	13	18	16	14	22
Estimated LOS	B	B	B	B	C
Total Demand Volume (vph)	2730	3660	3920	3430	3060
Total Simulated Volume (vph)	2661	3552	3825	3329	2961

508 501 502 503 504

I-95 NB C-D Road

LEGEND

Travel Time Segment Number

Freeway Coloring

Speed (mph)			**Estimated Density (pc/mi/ln)**		
42		below	75		and above
42	-	47	55	-	75
47	-	50	45	-	55
50		and above	45		and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Design Year 2045
PM Peak Hour Lane Schematics

Figure 7-12

Sheet 2 of 2

2045 Freeway Travel Time

Travel time and speed results for the AM and PM peak hours on the I-95 mainline and I-95 C-D road during Design Year 2045 were evaluated for the Original SIMR No-Build Alternative and Phase 1 Alternative. The travel time measurements were performed for three segments on I-95 (I-10 to the I-95 C-D road, I-95 C-D road to Kings Road and Kings Road to north of 8th Street). The total travel time on I-95 northbound and southbound are also provided. For the I-95 C-D road travel time, the entire length of the I-95 C-D in the study area was used for the travel time calculation.

Original SIMR No-Build Alternative

Travel time results for the AM and PM peak hours on the I-95 mainline and I-95 C-D road for the Original SIMR No-Build Alternative during Design Year 2045 are presented in **Table 7-9**.

Table 7-9: Original SIMR No-Build Alternative - Design Year 2045 I-95 Peak Hour Travel Time

AM Peak			Travel Time (min)
I-95	**NB**	I-10 to C-D Road	6.9
		C-D Road to Kings Road	3.2
		Kings Road to north of 8th Street	2.6
		Total Travel Time (min)	**12.7**
	SB	North of 8th Street to Kings Road	1.1
		Kings Road to C-D Road	0.8
		C-D Road to I-10	1.5
		Total Travel Time (min)	**3.4**
C-D Road	**NB**	**Total Travel Time (min)**	**5.2**
	SB	**Total Travel Time (min)**	**0.8**
PM Peak			**Travel Time (min)**
I-95	**NB**	I-10 to C-D Road	5.9
		C-D Road to Kings Road	2.1
		Kings Road to north of 8th Street	1.4
		Total Travel Time (min)	**9.4**
	SB	North of 8th Street to Kings Road	2.2
		Kings Road to C-D Road	1.2
		C-D Road to I-10	1.4
		Total Travel Time (min)	**4.8**
C-D Road	**NB**	**Total Travel Time (min)**	**1.7**
	SB	**Total Travel Time (min)**	**0.8**

Phase 1 Alternative

The Phase 1 Alternative exhibits decreased overall travel times along the I-95 mainline and C-D road during the AM and PM peak hours in the northbound direction as compared to the Original SIMR No-Build Alternative. Due to the northward relocation of the C-D road exit in the Phase 1 Alternative, the southbound travel time from north of Kings Road to the C-D road exit has decreased compared to the Original SIMR No-Build Alternative, while the travel time from the C-D road exit to I-10 has increased. This is because vehicles are traveling a shorter distance to the C-D road exit but a longer distance to the I-10. The decrease and increase in travel times reflect the C-D road exit location change. Travel time results for the AM and PM peak hours on the I-95 mainline and I-95 C-D road during Design Year 2045 are presented in **Table 7-10**.

Table 7-10: Phase 1 Alternative - Design Year 2045 I-95 Peak Hour Travel Time

AM Peak			**Travel Time (min)**
I-95	**NB**	I-10 to C-D Road	1.8
		C-D Road to Kings Road	0.9
		Kings Road to north of 8th Street	1.3
		Total Travel Time (min)	**4.0**
	SB	North of 8th Street to Kings Road	2.1
		Kings Road to C-D Road	0.5
		C-D Road to I-10	1.6
		Total Travel Time (min)	**4.2**
C-D Road	**NB**	**Total Travel Time (min)**	**1.2**
	SB	**Total Travel Time (min)**	**1.0**
PM Peak			**Travel Time (min)**
I-95	**NB**	I-10 to C-D Road	4.5
		C-D Road to Kings Road	1.9
		Kings Road to north of 8th Street	1.3
		Total Travel Time (min)	**7.7**
	SB	North of 8th Street to Kings Road	2.3
		Kings Road to C-D Road	0.5
		C-D Road to I-10	1.6
		Total Travel Time (min)	**4.4**
C-D Road	**NB**	**Total Travel Time (min)**	**1.3**
	SB	**Total Travel Time (min)**	**1.0**

Study Intersection/Interchange Performance

The performance of the study area intersections was evaluated as part of the Vissim analysis. Signal optimization was performed to account for the 2045 peak-hour volumes. The Design Year 2045 intersection delay results were analyzed for the Original SIMR No-Build Alternative and Phase 1 Alternative. Additional details for the intersection analysis are provided in **Appendix G** and **Appendix H**.

Original SIMR No-Build Alternative

The Design Year 2045 intersection delay results for the Original SIMR No-Build Alternative are summarized in **Table 7-11**. In the Design Year 2045, two of the six study area intersections are expected to operate at LOS F with an excessive delay (> 80 seconds per vehicle). The intersections at LOS F are the following:

- Forest Street at Park Street (PM Peak)
- Kings Road at N Davis Street (AM Peak)

Table 7-11: Original SIMR No-Build Alternative - Design Year 2045 Intersection/Interchange Analysis Summary

Intersection	Delay (seconds/vehicle)	
	AM Peak	PM Peak
Forest Street @ I-95 southbound	41.5	39.2
Forest Street @ I-95 northbound	44.5	36.1
Forest Street @Park Street	23.2	279.0
Kings Road @ Cleveland Street	48.6	5.9
Kings Road @ I-95 northbound	56.4	22.9
Kings Road @ N Davis Street	81.5	43.0

A queuing analysis was performed as part of the study to determine the adequacy of the proposed turn lane storage lengths for the study intersections and ramp terminal intersections. In the Original SIMR No-Build Alternative, the available storage will accommodate the max queue at all intersection approaches except the following.

- Forest Street at I-95 Southbound Ramps
    - Eastbound through and right (AM peak)
    - Westbound left (PM peak)
- Forest Street at I-95 Northbound Ramps

    - Eastbound left, through and right (AM peak)
    - Westbound left (AM and PM peaks)
    - Westbound through and right (PM peak)
    - Northbound right (AM peak) – The northbound right movement is beyond available storage but does not back up to the I-95 mainline. It is approximately 300 feet from impacting I-95.
    - Southbound through and right (PM peak)
- Kings Road at I-95 Northbound Ramps
    - Westbound through and right (AM and PM peaks)

The max queues beyond storage are also marked as red in **Table 7-12**. Overall, the Original SIMR No-Build Alternative results in some locations where the queues exceed the available storage length, but they will not impact the I-95 mainline or adjacent intersections.

Table 7-12: Original SIMR No-Build Alternative - Design Year 2045 Intersection Queuing Analysis Summary

Intersection			**Eastbound**			**Westbound**			**Northbound**			**Southbound**		
			EBL	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Forest Street at I-95 SB Ramps	**Ramp Length (ft)**		N/A			N/A			N/A			980		
	Available Storage			300		430	720					730		440
	Max Queue (ft)	**AM Peak**		322	335	181	89					363		214
		PM Peak		295	281	667	204					247		137
Forest Street at I-95 NB Ramps	**Ramp Length (ft)**		N/A			N/A			1,250			N/A		
	Available Storage		260	745		165	330		275	850	280	250		
	Max Queue (ft)	**AM Peak**	509	785	820	280	137	147	49	130	949	151	79	106
		PM Peak	113	398	433	500	490	445	92	67	161	161	527	554
Kings Road at I-95 NB Ramps	**Ramp Length (ft)**		N/A			N/A			930			N/A		
	Available Storage						435		680					
	Max Queue (ft)	**AM Peak**					560	560	375					
		PM Peak					548	548	350					

Phase 1 Alternative

The Design Year 2045 intersection delay results for the Phase 1 Alternative are summarized in **Table 7-13**. In Design Year 2045, all intersections are expected to operate at LOS D or better.

Table 7-13: Phase 1 Alternative - Design Year 2045 Intersection/Interchange Analysis Summary

Intersection	**Delay (seconds/vehicle)**	
	AM Peak	**PM Peak**
Forest Street @ I-95 southbound	35.9	30.3
Forest Street @ I-95 northbound off-ramp	27.6	8.5
Forest Street @I-95 northbound on-ramp	28.6	15.2
Forest Street @Park Street	25.3	46.2
Kings Road @ Cleveland Street	5.4	7.1
Kings Road @ I-95 northbound	8.3	8.5
Kings Road @ N Davis Street	19.0	21.8

A queuing analysis was performed as part of the study to determine the adequacy of the proposed turn lane storage lengths for the study intersections and ramp terminal intersections. In the Phase 1 Alternative, the available storage will accommodate the max queue at all intersection approaches except the following.

- Forest Street at I-95 Southbound Ramps
    - Eastbound through and right (AM and PM peaks)
- Forest Street at I-95 Northbound Off-Ramp
    - Eastbound through (AM peak)
    - Westbound through and right (PM peak)
    - Northbound right (AM peak) – The northbound right movement is beyond available storage but does not back up to the I-95 mainline. There is an additional 920 feet on the off-ramp to accommodate the queue.

The max queues beyond storage are also marked as red in **Table 7-14**. Overall, the Phase 1 Alternative accommodates intersection similarly to the Original SIMR No-Build Alternative. The new configuration at Forest Street at I-95 northbound off-ramp accommodates eastbound left-turn and right-turn maximum queues better than the Original SIMR No-Build Alternative. There are some locations where the queues exceed the available storage length, but they will not impact the I-95 mainline or adjacent intersections.

Vissim link-based speed results for the peak hour for these intersections are included in **Appendix H.**

Table 7-14: Phase 1 Alternative - Design Year 2045 Intersection Queuing Analysis Summary

Intersection			Eastbound			Westbound			Northbound			Southbound		
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Forest Street at I-95 SB Ramps	**Ramp Length (ft)**		N/A			N/A			N/A			980		
	Available Storage (ft)			300		430	530					730		440
	Max Queue (ft)	**AM Peak**		403	400	172	67					275		181
		PM Peak		548	581	190	110					210		109
Forest Street at I-95 NB Off-Ramp	**Ramp Length (ft)**		N/A			N/A			1,200			N/A		
	Available Storage (ft)		225	250			330		850		400			250
	Max Queue (ft)	**AM Peak**	223	366			272	322	189	189	645			39
		PM Peak	65	141			500	549	116	116	100			193
Forest Street at I-95 NB On-Ramp	**Ramp Length (ft)**		N/A			N/A			N/A			N/A		
	Available Storage (ft)			530		270								
	Max Queue (ft)	**AM Peak**		329	329	7								
		PM Peak		360	360	187								
Kings Road at I-95 NB Ramps	**Ramp Length (ft)**		N/A			N/A			930			N/A		
	Available Storage (ft)						435		680					
	Max Queue (ft)	**AM Peak**					180	180	373					
		PM Peak					276	276	370					

2045 Network-Wide Performance

The network-wide performance for the Original SIMR No-Build Alternative and SIMR Phase 1 Alternative are presented in **Table 7-15** and **Table 7-16**, respectively, for the 2045 AM and PM peak periods.

Original SIMR No-Build Alternative

The Original SIMR No-Build Alternative operates with an average speed of 38 mph and 26 mph during the AM peak period and PM peak period, respectively. The total delay during the AM and PM peak periods is 968 hours and 2,787 hours, respectively.

Table 7-15: Original SIMR No-Build Alternative - Design Year 2045 Network-Wide Performance

Design Year 2045	AM Peak	PM Peak
Average Speed (mph)	38	26
Total Travel Time (hr)	3,532	5,345
Total Delay (hr)	968	2,787
Latent Delay (hr)	2,766	6,991
Latent Demand	1,920	4,051
Vehicles Arrived	64,214	66,519

Phase 1 Alternative

The Phase 1 Alternative results are better than the Original SIMR No-Build Alternative results, with many of the performance improvements occurring during the AM and PM peak periods. The average speed in the network is higher. Travel time and delay (total and latent) are reduced.

Table 7-16: Phase 1 Alternative - Design Year 2045 Network-Wide Performance

Design Year 2045	AM Peak	PM Peak
Average Speed (mph)	39	30
Total Travel Time (hr)	3,329	4,445
Total Delay (hr)	847	1,977
Latent Delay (hr)	2,863	4,490
Latent Demand	2,019	2,413
Vehicles Arrived	66,504	70,986

7.3.3 Failure Year Operational Analysis

An analysis was performed to determine the failure year for the Phase 1 Alternative. The failure year analysis was conducted to determine how long the Phase 1 Alternative will operate with an acceptable LOS and speeds within the AOI. As discussed in **Section 6.2**, the Phase 1 Alternative ties in with the existing geometry north of Kings Road interchange. By Design Year 2045, failures are expected in the northbound direction during the PM peak hour where the Phase 1 Alternative improvements ties-in with the existing geometry and beyond. No improvements are recommended north of Kings Road interchange under the Phase 1 Alternative. Improvements north of Kings Road to south of MLK will be evaluated as part of Phase 2 in a separate IAR at a later time. Phase 2 improvements are currently in the North Florida TPO's Long Range Transportation Plan between 2041 and 2050. Therefore, the failure year analysis was conducted for the northbound direction during the PM peak hour, which is the peak direction during the PM peak and can be used to identify when the Phase 1 Alternative will begin to fail. It was determined that the northbound direction will experience higher densities and failure close to Year 2035.

In addition to the 2035 analysis, segment analysis for I-95 northbound in the PM peak hour was performed for Year 2032. This analysis was performed to ensure that the majority of the I-95 northbound mainline segments operated acceptably and the year of failure was not prior to 2035. The I-95 northbound mainline will operate at LOS D or better with the Phase 1 Alternative in the Year 2032. The lane schematic of the 2032 analysis is provided at the end of **Appendix H**.

The insufficient capacity north of the Kings Road interchange restricts southbound traffic from entering the AOI. Once the traffic enters the AOI, I-95 southbound is expected to operate with an acceptable LOS during 2035. The southbound traffic that is restricted from entering the network north of the Kings Road interchange is consistent with the Original SIMR No-Build Alternative. Therefore, the results for I-95 southbound during the Phase 1 Alternative will be consistent with the Original SIMR No-Build Alternative.

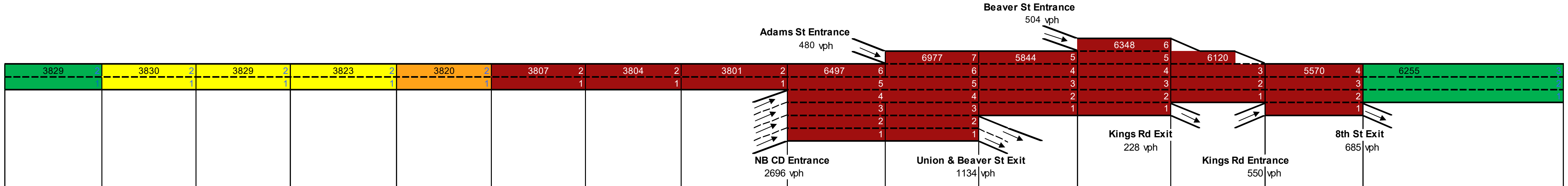
2035 Peak Hour Results Overview

The lane schematics for the Failure Year 2035 PM peak hour are presented in **Figure 7-13.** The lane schematics provide an operational overview representing the overall speed, estimated density, estimated LOS and demand and simulated volume comparison of I-95 during the PM peak hour.

Phase 1 Alternative

The PM peak hour results for the Phase 1 Alternative for Failure Year 2035, shown in **Figure 7-13,** indicate I-95 northbound operates at an average speed of 37 mph with the lowest speed of 22 mph occurring at between the Beaver Street entrance and Kings Road exit. The total simulated volume at this location is 6,348 vph and density of 47 pc/mi/ln. North of the I-95 C-D road entrance, all segments operate at an unacceptable level of service except for the segment between the I-95 C-D road entrance and Adams Street entrance, which operates at LOS D. The two lane drops that occur at the northern end of the AOI and the lane changes to access the 8th Street exit downstream causes lower speeds and densities upstream of the lane drops. The estimated densities along the corridor are expected to increase and worsen in future years.

Simulated Volumes



Distance (ft)	2000	2001	2000	1963	1502	2000	2002	1156	383	524	47	164	1861	1816	2357
Speed (mph)	54	53	51	49	46	43	41	41	36	28	23	22	23	27	56
Estimated Density (pc/mi/ln)	35	35	37	38	41	43	46	45	30	35	50	47	85	57	36
Estimated LOS	D	E	E	E	E	E	F	E	D	E	F	F	F	F	E
Total Demand Volume (vph)	3879	3879	3879	3879	3879	3879	3879	3879	6633	7146	6012	6543	6318	7137	6417
Total Simulated Volume (vph)	3829	3830	3829	3823	3820	3807	3804	3801	6497	6977	5844	6348	6120	5570	6255
	100	101	102	103	104	105	106	107	108	109	110	121	122	123	126

I-95 Northbound →

LEGEND

Travel Time Segment Number

Speed (mph)

🟥 43	below
🟧 43 -	48
🟨 48 -	53
🟩 53	and above

Freeway Coloring Density (Veh/Mi/Ln)

🟪 75	and above
🟦 55 -	75
🟩 45 -	55
45	and below

Simulated volume highlighted if difference > 10% of demand volume

I-95 (SR 9) from north of I-10 to south of
Martin Luther King Jr. Parkway (SR 115/US 1)
SIMR Re-evaluation

Phase 1 Alternative
Failure Year 2035
PM Peak Hour Lane Schematics

Figure 7-13

Sheet 1 of 1

7.3.4 Comparison of 2025 Original SIMR No-Build Alternative and Phase 1 Alternative Analysis

Table 7-17 summarizes the comparison of all freeway and C-D road basic segments for Opening Year 2025. Improvements are observed for the Phase 1 Alternative segments. During the AM and PM peak hours, all road segments exhibit similar or reduced travel times under the Phase 1 Alternative compared to the Original SIMR No-Build Alternative, except for I-95 southbound between the C-D road exit and I-10, I-95 northbound between the C-D road to Kings Rd (PM peak hour only) and I-95 southbound C-D road. The I-95 southbound travel time between the C-D road exit and I-10 is 0.1 minutes slower (7 percent) during the AM peak hour and 0.2 minutes slower (14 percent) during the PM peak hour. The southbound C-D road travel time is 0.2 minutes slower (25 percent) during the AM and PM peak hours in the Phase 1 Alternative compared to the Original SIMR No-Build Alternative.

Overall, the Phase 1 Alternative analysis shows that the total travel time northbound and southbound for I-95 remained similar or decreased during the AM and PM peak hours. The total travel time for the I-95 northbound C-D road decreased during AM and PM peak hours. The total travel time for the I-95 southbound C-D road increased during AM and PM peak hours.

Table 7-17: Opening Year 2025 I-95 Peak Hour Travel Time – Original SIMR No-Build Alternative vs. Phase 1 Alternative

AM Peak			**Travel Time (min)**		**Percent Difference**
			Original SIMR No-Build Alternative	**Phase 1 Alternative**	
I-95	**NB**	I-10 to C-D Road	1.8	1.7	-6%
		C-D Road to Kings Road	0.5	0.5	0%
		Kings Road to north of 8th Street	0.7	0.7	0%
		Total Travel Time	**3.0**	**2.9**	**-3%**
	SB	North of 8th Street to Kings Road	0.4	0.2	-50%
		Kings Road to C-D Road	0.7	0.5	-29%
		C-D Road to I-10	1.5	1.6	7%
		Total Travel Time	**2.6**	**2.3**	**-12%**
C-D Road	**NB**	**Total Travel Time**	**1.3**	**1.2**	**-8%**
	SB	**Total Travel Time**	**0.8**	**1.0**	**25%**
PM Peak			**Travel Time (min)**		**Percent Difference**
			Original SIMR No-Build Alternative	**Phase 1 Alternative**	
I-95	**NB**	I-10 to C-D Road	1.8	1.7	-6%
		C-D Road to north of Kings Road	0.5	0.6	20%
		Kings Road to north of 8th Street	0.8	0.7	-13%
		Total Travel Time	**3.1**	**3.0**	**-3%**
	SB	North of 8th Street to Kings Road	0.4	0.1	-75%
		Kings Road to C-D Road	0.7	0.5	-29%
		C-D Road to I-10	1.4	1.6	14%
		Total Travel Time	**2.5**	**2.2**	**-12%**
C-D Road	**NB**	**Total Travel Time**	**1.3**	**1.2**	**-8%**
	SB	**Total Travel Time**	**0.8**	**1.0**	**25%**

Table 7-18 compares the network-wide performance for the Original SIMR No-Build Alternative and Phase 1 Alternative during the AM and PM peak periods. The Phase 1 Alternative performs better than the Original SIMR No-Build Alternative during the AM and PM peak periods. The average speed has increased by 12 percent in the AM and remained unchanged in PM peak periods, and total delay decreases by 47

percent and 23 percent, respectively. Improvements are also observed regarding travel time, latent delay and latent demand.

Table 7-18: Opening Year 2025 Network-wide Performance – Original SIMR No-Build Alternative vs. Phase 1 Alternative

AM Peak	**Original SIMR No-Build Alternative**	**Phase 1 Alternative**	**Percent Difference**
Average Speed (mph)	42	47	12%
Total Travel Time (hr)	2,648	2,249	-15%
Total Delay (hr)	545	289	-47%
Latent Delay (hr)	2,709	256	-91%
Latent Demand (veh)	1,887	70	-96%
Vehicles Arrived	50,413	54,500	8%
PM Peak	**Original SIMR No-Build Alternative**	**Phase 1 Alternative**	**Percent Difference**
Average Speed (mph)	47	47	0%
Total Travel Time (hr)	2,690	2,355	-12%
Total Delay (hr)	398	308	-23%
Latent Delay (hr)	2	2	0%
Latent Demand (veh)	0	0	0%
Vehicles Arrived	55,474	57,151	3%

7.3.5 Comparison of 2045 Original SIMR No-Build Alternative and Phase 1 Alternative Analysis

Table 7-19 summarizes the comparison of all freeway and C-D road basic segments for Design Year 2045. Improvements are observed for the Phase 1 Alternative segments. The Phase 1 Alternative exhibits reduced overall travel times northbound along the I-95 and C-D roads during the AM and PM peak hours as compared to the Original SIMR No-Build Alternative. The southbound I-95 mainline travel time increased by 0.8 minutes (24 percent) during the AM peak hour and reduced by 0.4 minutes (8 percent) during the PM peak hour compared to the Original SIMR No-Build Alternative. The AM peak hour northbound I-95 mainline travel time decreased by 8.7 minutes (69 percent) compared to the Original SIMR No-Build Alternative. The I-95 northbound C-D road travel time is reduced by 4 minutes (77 percent) during the AM peak hour compared to the Original SIMR No-Build Alternative. The southbound C-D road exhibits increased travel times in AM and PM peak hours by 0.2 minutes (25 percent).

Table 7-19: Design Year 2045 I-95 Peak Hour Travel Time – Original SIMR No-Build Alternative vs. Phase 1 Alternative

AM Peak			**Travel Time (min)**		**Percent Difference**
			Original SIMR No-Build Alternative	**Phase 1 Alternative**	
I-95	**NB**	I-10 to C-D Road	6.9	1.8	-74%
		C-D Road to Kings Road	3.2	0.9	-72%
		Kings Road to north of 8th Street	2.6	1.3	-50%
		Total Travel Time	**12.7**	**4.0**	**-69%**
	SB	North of 8th Street to Kings Road	1.1	2.1	91%
		Kings Road to C-D Road	0.8	0.5	-38%
		C-D Road to I-10	1.5	1.6	7%
		Total Travel Time	**3.4**	**4.2**	**24%**
C-D Road	**NB**	**Total Travel Time**	**5.2**	**1.2**	**-77%**
	SB	**Total Travel Time**	**0.8**	**1.0**	**25%**
PM Peak			**Travel Time (min)**		**Percent Difference**
			Original SIMR No-Build Alternative	**Phase 1 Alternative**	
I-95	**NB**	I-10 to C-D Road	5.9	4.5	-24%
		C-D Road to Kings Road	2.1	1.9	-10%
		Kings Road to north of 8th Street	1.4	1.3	-7%
		Total Travel Time	**9.4**	**7.7**	**-18%**
	SB	North of 8th Street to Kings Road	2.2	2.3	5%
		Kings Road to C-D Road	1.2	0.5	-58%
		C-D Road to I-10	1.4	1.6	14%
		Total Travel Time	**4.8**	**4.4**	**-8%**
C-D Road	**NB**	**Total Travel Time**	**1.7**	**1.3**	**-24%**
	SB	**Total Travel Time**	**0.8**	**1.0**	**25%**

Table 7-20 compares the network-wide performance for the Original SIMR No-Build Alternative and Phase 1 Alternative during the AM and PM peak periods. The Phase 1 Alternative performs better than the Original SIMR No-Build Alternative during the AM and PM peak periods. The average speed has increased by three and 15 percent in the AM and PM peak periods, and total delay decreases by 13 percent and 29 percent, respectively. The latent delay and latent demand increased by four percent and five percent

respectively in the AM peak period and decreased by 36 percent and 40 percent respectively in the PM peak period. Improvements are also observed regarding travel time. The travel time decreased by six and 17 percent in the AM and PM peak period, respectively. Vehicles arrived decreased by four and seven percent in the AM and PM peak period, respectively.

Table 7-20: Design Year 2045 Network-wide Performance – Original SIMR No-Build Alternative vs. Phase 1 Alternative

AM Peak	**Original SIMR No-Build Alternative**	**Phase 1 Alternative**	**Percent Difference**
Average Speed (mph)	38	39	3%
Total Travel Time (hr)	3,532	3,329	-6%
Total Delay (hr)	968	847	-13%
Latent Delay (hr)	2,766	2,863	4%
Latent Demand (veh)	1,920	2,019	5%
Vehicles Arrived	64,214	66,504	4%
PM Peak	**Original SIMR No-Build Alternative**	**Phase 1 Alternative**	**Percent Difference**
Average Speed (mph)	26	30	15%
Total Travel Time (hr)	5,345	4,445	-17%
Total Delay (hr)	2,787	1,977	-29%
Latent Delay (hr)	6,991	4,490	-36%
Latent Demand (veh)	4,051	2,413	-40%
Vehicles Arrived	66,519	70,986	7%

7.4 Safety

The Original SIMR safety analysis utilized State Safety Office Geographic Information System (SSOGis) safety data from the FDOT Safety Office, as that was the approved procedure at the time of the analysis. The FDOT Safety Office recently updated the safety crash data guidance to use Signal Four Analytics as the official crash data source. Therefore, the crash data utilized in this SIMR Re-evaluation was collected using Signal 4 for the latest five-year period (January 1, 2018 to September 6, 2023) on the mainline, interchanges and major cross streets within the AOI. The serious injury and fatal crashes were reviewed, and no new hot spots of those injury levels were identified.

A quantitative or qualitative safety analysis consistent with the Original SIMR No-Build Alternative was performed for the proposed modifications. The safety analysis complies with the guidelines of the FDOT IARUG Chapter 6 Safety Analysis Guidance and the American Association of State Highway and Transportation Officials (AASHTO) HSM to determine the estimated change in the expected number of crashes due to the proposed changes. The predictive safety analysis performed in this SIMR Re-evaluation focused on the areas where proposed changes are recommended. It was assumed the areas that were unchanged would result in the same predictive safety analysis as presented in the Original SIMR No-Build Alternative.

The 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. The quantitative safety analysis was performed for a 20-year design period from 2025 to 2045 for the alternatives. 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 for the Phase I safety analysis:

- Quantitative
    - Modifications to the I-95 mainline
    - Modifications to the I-95 ramps
    - Modification of the I-95 at Union Street southbound ramp terminal intersection
    - Removal of the I-95 at Church Street southbound ramp terminal intersection

- Qualitative
    - Intersection improvements at Forest Street and Myrtle Avenue intersection
    - Intersection improvements at Forest Street and Park Street intersection
    - Modifications to the I-95 at Union Street southbound ramp terminal intersection
    - Improvements at I-95 southbound and I-95 C-D road off-ramp

7.4.1 Quantitative Safety Analysis

A quantitative safety analysis was performed as part of this SIMR Re-evaluation, 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 modifications from the Original SIMR No-Build Alternative 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 was then distributed using the KABCO injury classification scale. The KABCO distribution provided in the FDM Chapter 122 was used.

For the safety analysis, the Phase 1 Alternative uses the proposed improvements described in **Section 6.2**. The alternatives predictive crash results were compared to determine the safety benefits of the proposed modifications. The following quantitative safety analysis compares the Original SIMR No-Build Alternative and Phase 1 Alternative for the I-95 mainline, I-95 ramps, Union Street terminal intersection and Church Street terminal intersection modifications. Improvements at Forest Street and I-95 C-D road are discussed in the qualitative safety analysis. **Appendix I** presents the input data used to perform the quantitative safety analysis and output summary for alternatives.

I-95

A predictive safety analysis was performed for I-95 from north of I-10 to north of Kings Road. The proposed modifications along I-95 in each direction were coded for the Phase 1 Alternative. **Table 7-21**, presented below, shows the expected crash frequencies for the Original SIMR No-Build Alternative and Phase 1 Alternative.

Table 7-21: Predicted Crash Frequency along I-95 Mainline (Crashes/Year)

Alternative	K	A	B	C	PDO	Total
Original SIMR No-Build Alternative	0.20	0.40	2.30	6.50	22.50	31.90
Phase 1 Alternative	0.20	0.40	2.80	5.60	22.90	31.90
Change	0.00	0.00	0.50	-0.90	0.40	0.00

The analysis indicates the modifications provided along I-95 should result in no increase in the number of crashes along the I-95 mainline. Additionally, the analysis indicates a reduction of 3.10 crashes/year along the I-95 ramps as shown in **Table 7-22**.

Table 7-22: Predicted Crash Frequency along I-95 Ramps (Crashes/Year)

Alternative	K	A	B	C	PDO	Total
Original SIMR No-Build Alternative	0.09	0.27	1.24	1.92	4.48	8.00
Phase 1 Alternative	0.05	0.15	0.62	1.19	2.89	4.90
Change	-0.04	-0.12	-0.62	-0.73	-1.59	-3.10

Union Street Southbound Terminal Intersection

A predictive safety analysis was performed for I-95 at Union Street southbound terminal intersection. The predictive safety analysis was performed for this location mainly because of the increase in volume resulting from other Phase 1 improvements. The removal of Church Street southbound ramp in the Phase 1 Alternative along the I-95 mainline contributed to increased ramp volume at Union Street and an increase in the number of lanes on the off-ramp at the Union Street ramp terminal intersection. **Table 7-23**, presented below, shows the expected crash frequencies for the Original SIMR No-Build and Phase 1 Alternative.

Table 7-23: Predicted Crash Frequency at Union Street Southbound Terminal Intersection (Crashes/Year)

Ramp Terminal	Alternative	K	A	B	C	PDO	Total
Southbound Ramp Terminal	Original SIMR No-Build Alternative	0.05	0.32	0.97	1.69	4.77	7.80
	Phase 1 Alternative	0.07	0.42	1.26	2.21	6.23	10.19
	Change	0.02	0.10	0.29	0.52	1.46	2.39

The analysis shows the improvements provided at the southbound ramp terminal will increase the number of crashes by 2.39 crashes/year. As a result of the removal of ramps and volume redistribution, the crashes at the Union southbound ramp terminal do increase slightly. However, because of these improvements, it should be noted that there should also been a decrease in crashes on the I-95 ramps and Church Street Southbound ramp terminal intersection within the study area. Discussion for the Church Street Southbound ramp terminal intersection is provided below. There should also be in general a decrease in crashes due to less friction occurring along the I-95 mainline resulting in improved safety operations.

Church Street Southbound Terminal Intersection

By eliminating the Church Street Southbound ramp terminal intersection, the conflicts from the off-ramp will be eliminated, thereby improving safety. The quantitative analysis shows a reduction of 0.70 crashes/year. **Table 7-24**: **4**, presented below, shows the expected crash frequencies for the Original SIMR No-Build Alternative.

Table 7-24: Predicted Crash Frequency at Church Street Southbound Terminal Intersection (Crashes/Year)

Ramp Terminal	Alternative	K	A	B	C	PDO	Total
Southbound Ramp Terminal	Original SIMR No-Build Alternative	0.00	0.03	0.09	0.15	0.43	0.70
	Phase 1 Alternative	0.00	0.00	0.00	0.00	0.00	0.00
	Change	0.00	-0.03	-0.09	-0.15	-0.43	-0.70

Summary of Quantitative Safety Analysis

A quantitative safety analysis was performed for all applicable segments/intersections within the study area. **Table 7-25** summarizes the quantitative safety analysis for all segments/intersections analyzed. Overall, the Phase 1 Alternative will have a minor improvement in safety. The Phase 1 Alternative predictive safety analysis predicts a reduction in crashes by 1.41 crashes/year compared to the Original SIMR No-Build Alternative. The main reason for this decrease is the removal of the Church Street Southbound ramp and ramp terminal intersection. Additional modifications that could not be analyzed using quantitative safety analysis are discussed qualitatively in **Section 7.4.2**.

Table 7-25: Predicted Crash Frequency (Crashes/Year) Comparison – Original SIMR No-Build Alternative vs. Phase 1 Alternative

I-95 Segment/Interchange	Alternative	K	A	B	C	PDO	Total
I-95 Mainline	Original SIMR No-Build Alternative	0.20	0.40	2.30	6.50	22.50	31.90
	Phase 1 Alternative	0.20	0.40	2.80	5.60	22.90	31.90
	Change	**0.00**	**0.00**	**0.50**	**-0.90**	**0.40**	**0.00**
I-95 Ramps	Original SIMR No-Build Alternative	0.09	0.27	1.24	1.92	4.48	8.00
	Phase 1 Alternative	0.05	0.15	0.62	1.19	2.89	4.90
	Change	**-0.04**	**-0.12**	**-0.62**	**-0.73**	**-1.59**	**-3.10**
Union Street Southbound Terminal Intersection	Original SIMR No-Build Alternative	0.05	0.32	097	1.69	4.77	7.80
	Phase 1 Alternative	0.07	0.42	1.26	2.21	6.23	10.19
	Change	**0.02**	**0.10**	**0.29**	**0.52**	**1.46**	**2.39**
Church Street Southbound Terminal Intersection	Original SIMR No-Build Alternative	0.00	0.03	0.09	0.15	0.43	0.70
	Phase 1 Alternative	0.00	0.00	0.00	0.00	0.00	0.00
	Change	**0.00**	**-0.03**	**-0.09**	**-0.15**	**-0.43**	**-0.70**
Overall	Original SIMR No-Build Alternative	0.34	1.02	4.60	10.26	32.18	48.40
	Phase 1 Alternative	0.32	0.97	4.68	9.00	32.02	46.99
	Change	**-0.02**	**-0.05**	**0.08**	**-1.26**	**-0.16**	**-1.41**

7.4.2 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-95 at Forest Street Interchange

The I-95 at Forest Street interchange modifications cannot be analyzed using the HSM Part C methodology or CMF methodology due to the unique configuration that is being proposed. However, a qualitive discussion has been provided to discuss the potential safety impacts. The northbound ramp terminal (Forest Street at Myrtle Avenue intersection) will not allow southbound through and left turn movements from Myrtle Avenue. The elimination of these movements would create fewer conflict points at the intersection and improved intersection operations. In addition to this, the new concept has changed the southbound right channelized movement to a southbound right turn at an intersecting angle of 78 to 90 degrees with a low radius. This modification will help to achieve safer conditions at the ramp terminal.

This right angle slows traffic, improves sight distance and encourages yielding to pedestrians in the intersection. By reducing speeds and improving sight distance, drivers have more time to react and yield to vehicles and pedestrians.

The other major modification being recommended is relocating the westbound left to the new I-95 northbound on-ramp west of the Myrtle Avenue intersection. This shift of the westbound left provides two safety benefits. The first is the increased storage for the vehicles making westbound left turns. This increased storage should result in more capacity and less crashes should result. In addition, the previous concept put the I-95 northbound on and off-ramp accesses right next to each other. With the Original SIMR No-Build Alternative it was more likely that a vehicle could make a mistake and turn left to the I-95 northbound off-ramp. This is a major safety concern that the next concept should eliminate.

I-95 C-D Roadway System

The C-D road system improvements cannot be analyzed using the HSM Part C methodology or CMF methodology due to the complex geometry. The proposed modifications that are part of this SIMR Re-evaluation provide additional capacity along the C-D road in both the northbound and southbound directions. The increased capacity should reduce congestion and lane changes on the C-D road. These modifications should reduce crashes.

7.5 Project Cost

The anticipated cost of this project based on the FDOT Long Range Estimating (LRE) System is provided in **Appendix J**.

7.6 Conceptual Signing Plan

A conceptual signing plan was prepared for the preferred alternative in accordance with the IARUG requirements. **Appendix K** presents the conceptual signing plan for proposed modifications within the AOI for Phase 1. No modifications are proposed at the I-10 and 8th Street interchanges as part of this SIMR Re-evaluation.

7.7 Design Exceptions and Variations

Implementation of the proposed improvements will require the following design exceptions and variations:

1. Shoulder Width Variation

a. The southbound I-95 ramp from the non-truss bridge section to southbound I-95 has 2.5’ shoulders. The existing ramp structure currently operates as a single lane ramp.
b. Northbound outside mainline section south of the R/R crossing has 6’ shoulders to minimize the r/w impacts to Historic Allen Chapel AME Church.
c. All existing bridge shoulders are 10’.

7.8 Recommendation

The proposed improvements of the Phase 1 alternative provide additional capacity along the I-95 mainline and I-95 C-D road while improving traffic flow with ramp modifications and removals at interchanges. In the Design Year 2045, the Phase 1 Alternative will offer operational benefits over the Original SIMR No-Build Alternative. The total delay along the network decreased, the average speed increased and the total travel time decreased during the AM and PM peak. Overall, the total delay along the network will decrease by 13 percent and 29 percent in AM and PM peak respectively when compared to the Original SIMR No-Build Alternative. The average speed in the network will increase by three percent and 15 percent in AM and PM peak, respectively. The total travel time will decrease by six percent and 17 percent in AM and PM peak periods, respectively. These improvements will help process traffic traveling along I-95 and to and from the study interchanges.

An analysis was performed to determine the failure year for the Phase 1 Alternative. The failure year analysis was conducted for the northbound direction in PM peak to identify when the Phase 1 Alternative will begin to fail. Operational issues are expected in the northbound direction where the Phase 1 Alternative improvements ties-in with the existing geometry and north outside the limits of Phase 1 improvements. The southbound direction traffic that is restricted from entering the network north of the Kings Road interchange is consistent with the Original SIMR No-Build Alternative and will therefore have consistent results. It was determined that the northbound direction will experience higher densities and failure throughout the project area close to Year 2035.

A predicted quantitative safety analysis was also performed where applicable to determine if the Phase 1 alternative addressed the existing safety concerns. Overall, the Phase 1 alternative should have a minor improvement in safety based on the quantitative analysis and the qualitative safety discussion provided in earlier Sections. The Phase 1 predictive safety analysis predicts a reduction in crashes by 1.41 crashes/year compared to the Original SIMR No-Build Alternative.

Based on the safety and traffic operations benefits of the SIMR Re-evaluation Alternatives, Phase 1 is considered the preferred alternative for this SIMR Re-evaluation and recommended for approval.

8 JUSTIFICATION

The proposed modifications to I-95 will provide traffic relief and enhance safety within the Phase 1 AOI. The proposed Phase 1 alternative will operate better than the Original SIMR No-Build alternative for this project.

8.1 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.

8.1.1 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 SIMR Re-evaluation proposed improvements in Phase 1 when compared to the Original SIMR No-Build Alternative.

Several performance measures were used to compare the traffic operations and safety of the existing system under Build conditions. Key measures include freeway densities, freeway volume to capacity (V/C) ratios, intersection delays, level of service (LOS), max queue lengths, crash rates and frequency, predominant crash patterns, expected crashes and potential crash reduction.

The Opening Year 2025 operational analysis results show that the Phase 1 Alternative improved traffic operations within the I-95 study area compared to the Original SIMR No-Build Alternative. The Phase 1 Alternative decreases the total delay, increases the speed and decreases the total travel time along the network. In terms of intersection delay, the Phase 1 Alternative decreased the overall delay at the study intersections. Similar to the Original SIMR No-Build Alternative, all intersections operate at LOS D or better.

The Design Year 2045 operational analysis results show that the Phase 1 Alternative improved traffic operations within the I-95 study area compared to the Original SIMR No-Build Alternative. The Phase 1 Alternative decreases the total delay, increases the speed and decreases the total travel time along the network. In terms of intersection delay, the Phase 1 Alternative had similar or decreased delay at the study intersections. All intersections in the Phase 1 Alternative are expected to operate at LOS D or better. In the Original SIMR No-Build Alternative, two intersections are operating with an unacceptable delay.

Overall, the Phase 1 alternative should improve safety based on the quantitative and qualitative safety analysis. Phase 1 shows a small reduction in crashes of 1.41 crashes/year compared to the Original SIMR No-Build condition. There are additional qualitative safety benefits that could not be analyzed using the quantitative methods due to HSM safety analysis limitations and these benefits are further discussed below and in **Section 7.4.1**.

Lastly, several interchanges and intersection improvements are proposed that cannot be accounted for using the HSM Part C methodology or CMF methodology. The proposed improvements are to the I-95 at Forest Street interchange, I-95 southbound at Union Street interchange and I-95 southbound at I-95 C-D road system. As a result, a qualitative safety analysis was performed and concluded the overall safety benefits of these improvements:

- Reduction of conflict points and improved operations at intersections
- Reduced crash severity and due to elimination of crash types that occur with Original SIMR No-Build Alternative geometry

Overall, the proposed improvements under the Phase 1 alternative in this SIMR Re-evaluation will benefit the study corridor (I-95) with a reduction in density, delay and crashes for future traffic conditions, thereby enhancing traffic operations and safety. Therefore, this SIMR Re-evaluation requests approval of the Phase 1 alternative. The Phase 1 improvements will begin to fail around 2035 and the Department will need to program future Phase 2 improvements at this time.

8.1.2 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.

I-95 is a public facility and all interchanges within the study area provide full access (interchanges at Forsyth Street/Bay Street, Monroe Street/Adams Street and Union Street connect to one-way streets) and will continue to do so with the Phase 1 alternative. The Phase 1 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 Phase 1 alternative were designed to meet current standards for federal-aid projects on the interstate system and conform to American Association of State Highway and Transportation Officials (AASHTO) and the FDOT Design Manual (FDM).

9 CONCEPTUAL FUNDING PLAN/CONSTRUCTION SCHEDULE

The improvements proposed as part of the SIMR Re-evaluation within the study area along I-95 from north of I-10 to Kings Road interchange are performed under the Programmatic Agreement with FHWA. Therefore, FDOT Central Office will conduct the necessary review and assessment of the justification for the proposed improvements.

Phase 1 improvements are funded for construction in Fiscal Year (FY) 2025 – 2026 in FDOT's Five Year Work Program as Financial Project Identification Number (FPID) 442778-1 and shown in **Table 9-1** below.

Table 9-1: Funding for FPID 442778-1 – I-95 (SR 9) over Myrtle Avenue Ramp Bridge No. 720163 to Beaver Street

Fiscal Year	2025	2026	2027	2028	2029
Highways/Preliminary Engineering	$4,500,514	$2,583,848			
Highways/Right of Way	$1,725,244	$1,239,403			
Highways/Railroad & Utilities	$200,056	$16,757,039			
Highways/Construction		$381,167,258			
Highways/Environment	$142,500				
Item Total:	$6,568,314	$401,747,548			

The Phase 1 improvements will begin to fail around 2035 and the Department will need to program future Phase 2 improvements at this time.

10 LIST OF APPENDICES

Appendix A	Methodology Letter of Understanding
Appendix B	Original SIMR
Appendix C	Raw Crash Data
Appendix D	Vissim 15-minute Flow Rate
Appendix E	Original SIMR No-Build Alternative - Opening Year 2025 Vissim Outputs
Appendix F	Phase 1 Alternative – Opening Year 2025 Vissim Outputs
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Appendix I	Predictive Safety Analysis
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