STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TECHNICAL REPORT COVERSHEET

650-050-38
ENVIRONMENTAL
MANAGEMENT
08/22

PROJECT TRAFFIC ANALYSIS REPORT

Florida Department of Transportation

District Five

I-75 PD&E South Auxiliary Lanes

Limits of Project: I-75 (SR 93) from South of SR 44 to SR 200

Sumter and Marion County, Florida

Financial Management Number: 452074-2

ETDM Number: 14541

Date: March 19, 2024

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.

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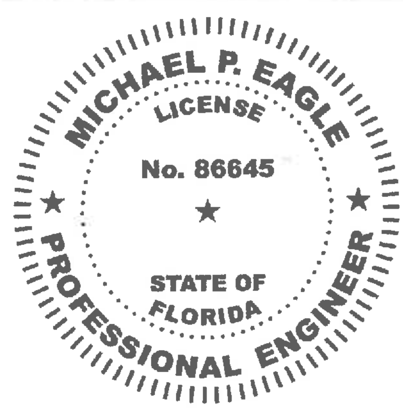

Michael P. Eagle, P.E. #86645

Michael P Eagle

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FDOT Financial Project Identification (FPID) 452074-2

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for proposed operational improvements to the I-75 corridor in Sumter and Marion County, Florida. These interim improvements were identified as part of a master planning effort for the I-75 corridor between Florida's Turnpike and County Road 234. The operational improvements being evaluated by this PD&E Study include construction of auxiliary lanes between interchanges for a 22.5-mile segment of I-75 between south of SR 44 and SR 200. These short-term improvements are needed to address safety and non-recurring congestion issues while FDOT continues to evaluate a longer-term solution. These improvements will be included as part of the Moving Florida Forward Infrastructure Initiative.

Within the study limits, I-75 is an urban principal arterial interstate that runs in a north and south direction with a posted speed of 70 miles per hour. I-75 is part of the Florida Intrastate Highway System, the Florida Strategic Intermodal System (SIS), and is designated by the Florida Department of Emergency Management as a critical link evacuation route. Within the study limits, I-75 is a six-lane limited access facility situated within approximately 300 feet of right-of-way. No transit facilities, frontage roads, or managed lanes are currently provided.

The following interchanges are included within the PD&E (South Section) study limits:

- SR 44
- CR 484
- SR 200

Purpose and Need

The purpose of this project is to evaluate short-term operational improvements on the mainline of I-75 from south of SR 44 to SR 200. No interchange improvements will be evaluated with this PD&E.

The primary needs for this project are to enhance current transportation safety and modal interrelationships while providing additional capacity between existing interchanges.

Existing Traffic Operations

The existing conditions analysis was conducted based on 2019 (Pre-COVID) traffic data. The existing conditions analysis evaluated typical recurring congestion patterns, the occurrence of nonrecurring congestion, and historical safety data in the study area. The results of the analysis included:

- The HCM Freeway Facilities analysis showed that on an average weekday, there is not recurring congestion along I-75 in each of the AM and PM peak periods. The analysis also showed acceptable operations along I-75 for the average weekend midday peak period.
- An evaluation of the 2019 National Performance Management Research Data Set (NPMRDS) data confirmed the findings of the HCM freeway analysis that the corridor congestion along I-75 is not a recurring congestion issue.
- The weekday Level of Travel Time Reliability (LoTTR) charts show that the corridor is reliable during the AM, midday, and PM peak periods in both directions. It is important to note that the travel time reliability results don't necessarily correlate to daily traffic volumes.
- An evaluation of the 2019 NPMRDS data showed that the weekend travel times in both directions are not as reliable as the weekdays. The heat maps show breakdowns along the I-75 corridor for special event weekends such as Spring Break, July 4th, Thanksgiving, Christmas, and New Year's.
- The LoTTR charts show that the corridor is unreliable in the northbound direction during the midday of the weekends. The southbound LoTTR charts show that the corridor is nearing unreliable conditions during the PM peak on the weekends.

Historical Safety Analysis

Crash records were obtained from the FDOT's Signal Four Analytics (S4) crash database for I-75 and associated interchanges within the study limits. The safety analysis was performed for the most recent five years of crash data (January 1, 2018 – December 31, 2022). Supplemental crash data from January 1, 2023 to March 31, 2023 were also analyzed to verify crash trends and patterns.

- The safety data showed a total of 1,384 reported crashes along I-75 northbound during this period, 384 of which (28 percent) resulted in 768 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 53 percent of the total crashes. Sideswipe (20 percent) and fixed object/run-off road (19 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 78 percent of the injury crashes.
- A total of 1,095 reported crashes were observed along I-75 southbound, 300 of which (27 percent) resulted in 644 injuries. Three fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 51 percent of the total crashes. Sideswipe (24 percent) and fixed object/run-off road (16 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounted for 71 percent of the injury crashes.

- A crash rate analysis was performed for I-75 northbound, I-75 southbound, and I-75 ramp terminal intersections and the following location is experiencing a statewide safety ratio >1:
  - I-75 Northbound, SR 44 to Marion County Weight Station (2018 & 2019); and
  - I-75 Southbound, Marion County Weight Station to SR 44 (2018 & 2019).

Existing Conditions Summary

The evaluation of typical recurring congestion patterns, the occurrence of nonrecurring congestion, and historical safety data showed that the existing congestion issues along the I-75 facility are primarily non-recurring congestion events such as incidents/crashes and special event traffic. This is further intensified for the weekends as multiple non-recurring congestion events have a higher likelihood of happening together (e.g., crash during a special event demand increase).

No-Build Operational Results – Freeway

Traffic operational analyses were conducted for the freeway mainline No-Build conditions using HCM 7th Edition methodologies as implemented by Highway Capacity Software (HCS2023). The analysis results indicated the following:

- **Northbound I-75**
  - **Opening Year (2030):** The northbound facility is expected to reach capacity (D/C ratio of 1.0) during the weekend midday peak hour; however, the average speed along the facility is expected to be 63 mph or higher. The northbound travel time is expected to increase by up to 1.9 minutes (approximately a 10% increase) versus the 2019 existing condition.
  - **Design Year (2040):** Additional mainline capacity will be needed between the SR 44 interchange and through the SR 200 interchange (end of the study limits). The additional capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040. Severe congestion (speeds lower than 25 mph) is expected to be present between CR 484 and SR 44, as well as SR 200 and CR 484. These are due to expected bottlenecks at the CR 484 and SR 200 interchanges. The northbound travel time is expected to increase by up to 27.4 minutes (approximately a 138% increase) versus the 2019 existing condition.

- **Southbound I-75**
  - **Opening Year (2030):** Additional mainline capacity will be needed between north of SR 200 (beginning of the study limits) to the CR 484 interchange. The additional

capacity is expected to be needed to accommodate average weekday PM peak period traffic in 2030. Severe congestion (speeds lower than 25 mph) is expected to be present between the beginning of the study limits and SR 200. These are due to expected bottlenecks at the SR 200 interchange. The southbound travel time is expected to increase by up to 3.3 minutes (approximately a 17% increase) versus the 2019 existing condition.

- **Design Year (2040):** Additional mainline capacity will be needed between north of SR 200 (beginning of the study limits) to the Turnpike interchange. The additional capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040. Severe congestion (speeds lower than 25 mph) is expected to be present between the beginning of the study limits and CR 484. These are due to expected bottlenecks at the SR 200 and CR 484 interchanges. The southbound travel time is expected to increase by up to 11.5 minutes (approximately a 59% increase) versus the 2019 existing condition.

No-Build Operational Results – Interchange

Traffic operational analyses were conducted for the interchange No Build conditions using HCM methodologies as implemented by Synchro 12 software. The analysis results indicated the following:

- **SR 44**
  - Each of the movements at the SR 44 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 peak hours analyzed. The 95th percentile queues along the SR 44 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed. The overall intersection LOS at the ramp terminal intersections is estimated to be LOS D or better in the 2040 No-Build AM, PM, and weekend peak hours analyzed.
- **CR 484**
  - Each of the movements at the CR 484 at I-75 ramp terminal intersections are expected to operate under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours. The CR 484 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during each AM, PM, and weekend peak hours. The 95th percentile queues along the CR 484 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed.

- **SR 200**
  - Each of the movements at the SR 200 at I-75 ramp terminal intersections are expected to operate under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours. The SR 200 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during the 2040 AM, PM, and weekend peak hours. The 95th percentile queues along the SR 200 off ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed.

Build Operational Results – Freeway

Traffic operational analyses were conducted for the freeway mainline Build alternative (auxiliary lanes) using HCM 7th Edition methodologies as implemented by Highway Capacity Software (HCS2023). The analysis results indicated the following:

- **Northbound I-75**
  - **Opening Year (2030):** The proposed Build Condition is anticipated to result in each of the study segments operating below capacity (D/C < 1.0) and LOS C or better during each of the analysis periods. Travel times are anticipated to improve by up to approximately 1.8 minutes over the No-Build condition (an approximately 8% improvement). The total network vehicle hours of delay is anticipated to be improved by up to 109 hours (an approximately 83% improvement) over the No-Build condition.
  - **Design Year (2040):** Additional capacity will be needed at the CR 484 merge and the SR 200 interchange. The additional capacity is expected to be needed to accommodate average weekday AM and weekend midday peak period traffic in 2040. Under the Build scenario travel times are anticipated to improve by up to approximately 25.4 minutes over the No-Build condition (an approximately 54% improvement). The total network vehicle hours of delay is anticipated to be improved by up to 5,964 hours (an approximately 89% improvement) over the No-Build condition.

- **Southbound I-75**
  - **Opening Year (2030):** The proposed Build Condition is anticipated to result in each of the study segments operating below capacity (D/C < 1.0) and LOS D or better during each of the analysis periods. Travel times are anticipated to improve by up to approximately 2.9 minutes over the No-Build condition (an approximately 13% improvement). The total network vehicle hours of delay is anticipated to be

improved by up to 631 hours (an approximately 79% improvement) over the No-Build condition.

- **Design Year (2040):** Additional capacity along I-75 will be needed to accommodate future demands at the SR 200 and CR 484 interchanges. Additional capacity is expected to be needed to accommodate average PM peak period traffic in 2040. Travel times are anticipated to improve by up to approximately 9.6 minutes over the No-Build condition (an approximately 31% improvement). The total network vehicle hours of delay is anticipated to be improved by up to 2,130 hours (an approximately 75% improvement) over the No-Build condition.

Build Operational Results – Interchange

Traffic operational analyses were conducted for the interchange Build conditions using HCM methodologies as implemented by Synchro 12 software. The geometries and operations at the ramp terminal intersections are consistent with the results presented previously in the No-Build section

Future Comparative Safety Analysis Results

- The results of the analysis show the proposed improvements are predicted to have a slightly higher crash cost (total present value) compared to the No-Build due to having 3.4 more predicted fatal crashes over the 10-year life cycle of the project (0.34 fatal crash increase per year). The proposed improvements are predicted to experience approximately 23 less injury and 94 less property damage only crashes per year over the 10-year life cycle of the project.
- The additional auxiliary lanes between interchanges will provide more capacity along the freeway mainline thus reducing the potential for re-occurring congestion along the I-75 mainline. Reducing the congestion has the potential to reduce high speed/high severity rear end crashes along the I-75 mainline.
- Based on NCHRP Report 687, the addition of an auxiliary lane between an entrance ramp and an exit ramp has the potential to reduce the number of multivehicle crashes by up to 20 percent. The reduction applies almost equally to both fatal, injury, and property damage only crashes.

Next Steps

This PTAR supports the ongoing Project Development & Environment (PD&E) Study. This auxiliary lane project is expected to provide short-term relief for the I-75 facility. Further evaluation is needed to identify the longer-term solution along the I-75 mainline. There is ongoing coordination with several key stakeholders including FDOT District 5, FDOT District 2, FDOT Central Office, and Florida's Turnpike Enterprise to continue to evaluate the I-75 corridor from a regional perspective.

INTRODUCTION

The Interstate 75 (I-75) corridor is one of the State's most important transportation facilities, critical to Florida's economic competitiveness and quality of life. As the primary north-south corridor in the Central Florida region, I-75 provides for the movement of people and freight, mobility between regional employment and population centers, system connectivity to Florida's Turnpike, and a thoroughfare for tourism and trade in Florida.

Individual projects along the I-75 corridor have been identified for construction and are included in part of the Moving Florida Forward Infrastructure Initiative. The Florida Department of Transportation (FDOT) is conducting Project Development & Environment (PD&E) Studies to support these projects. These projects are expected to provide short-term relief for the I-75 facility. Further evaluation is needed to identify the longer-term solution along the I-75 mainline. There is ongoing coordination with several key stakeholders including FDOT District 5, FDOT District 2, FDOT Central Office, and Florida's Turnpike Enterprise to continue to evaluate the I-75 corridor from a regional perspective.

This Project Traffic Analysis Report (PTAR) was prepared to support the Project Development and Environment (PD&E) Study for proposed short-term operational improvements to the Southern section I-75 corridor in the City of Ocala, Sumter County, and Marion County, Florida. These short-term improvements were identified as part of a master planning effort for the I-75 corridor between Florida's Turnpike and County Road 234.

The focus of this PTAR is on the I-75 Forward Southern Study (FPID #452074-2). A PTAR document has been prepared under separate cover to support the adjacent I-75 Forward Northern Study (FPID #452074-1).

PROJECT DESCRIPTION

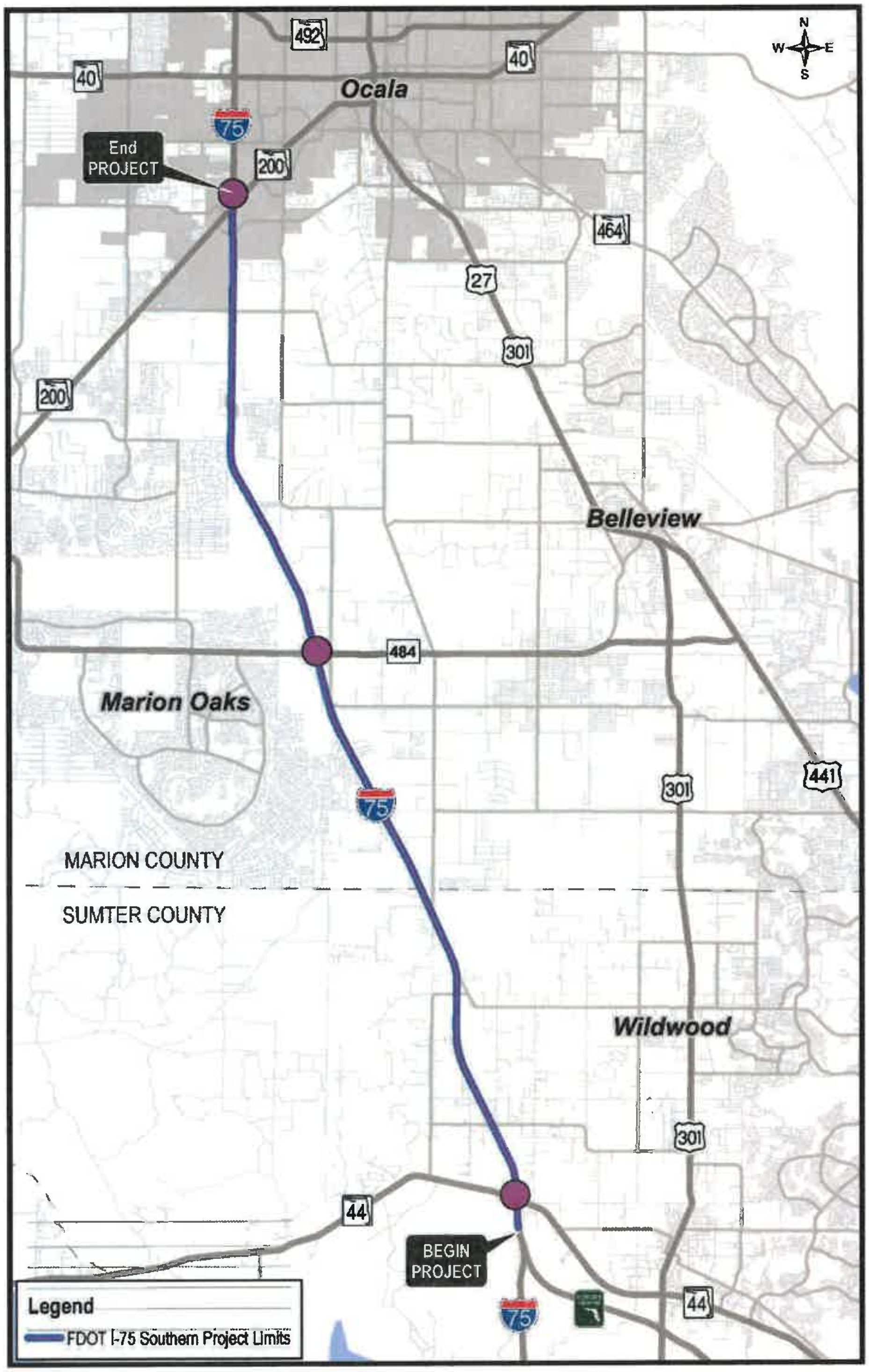
The operational improvements being evaluated by this PD&E Study include construction of an additional lane from North of Florida's Turnpike to SR 44 and auxiliary lanes between interchanges from SR 44 to SR 200. The limits of the project are shown in **Figure 1**. The Marion County Northbound and Ocala Southbound weigh stations are located within the study limits as well as a rest area north of CR 484 and south of SR 200. Within the study limits, I-75 is an urban principal arterial interstate that runs in a north and south direction with a posted speed of 70 miles per hour. I-75 is part of the Florida Intrastate Highway System, the Florida Strategic Intermodal System (SIS), and is designated by the Florida Department of Emergency Management as a critical link evacuation route. Within the study limits, I-75 is a six-lane limited access facility situated within approximately 300 feet of right-of-way. No transit facilities, frontage roads, or managed lanes are currently provided.

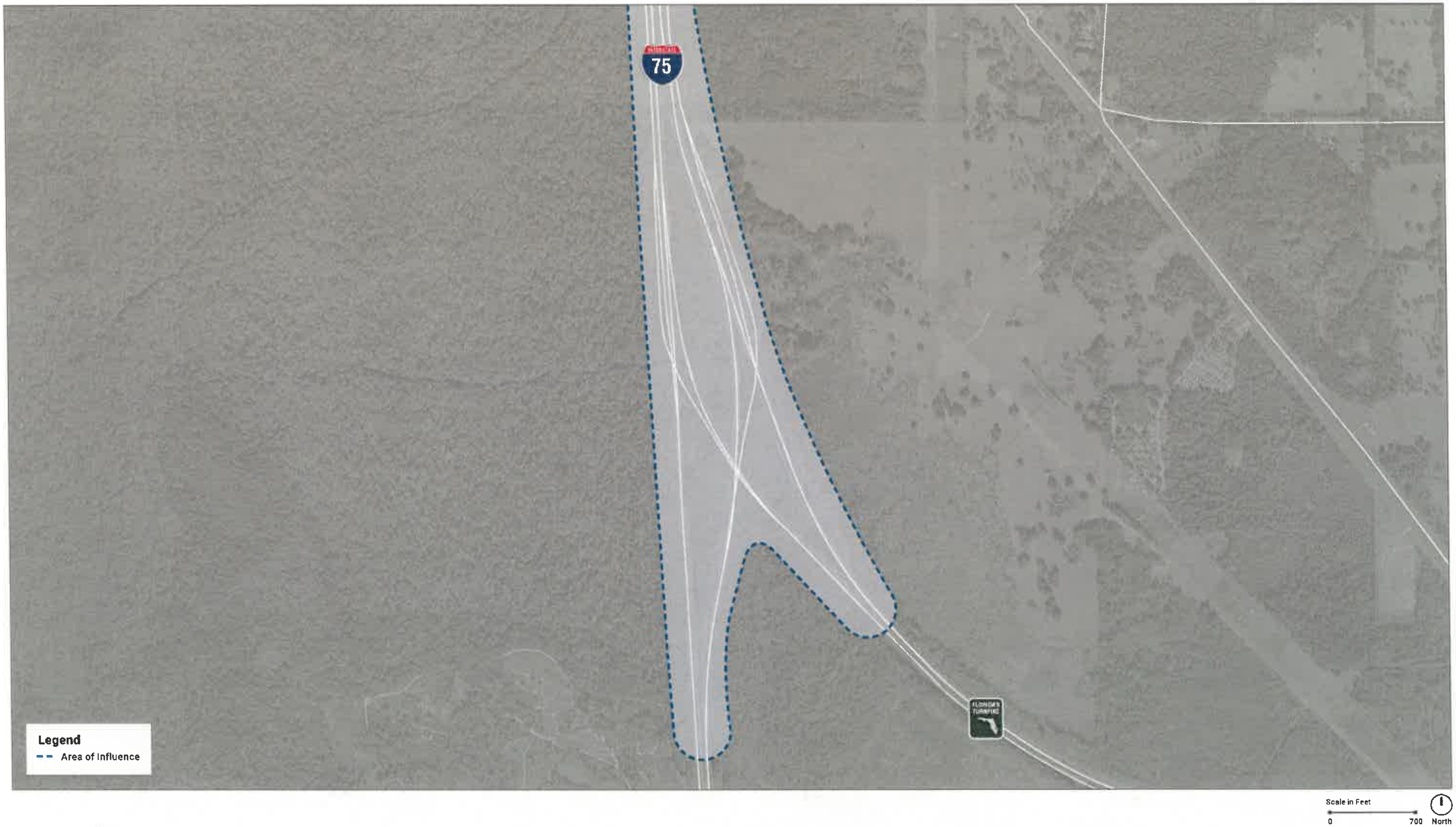
The following interchanges are Included within the study limits:

- SR 44
- CR 484
- SR 200

The specific study area of influence (AOI), including the study intersections, are illustrated in **Figure 2**.

Figure 1: I-75 Project Limits



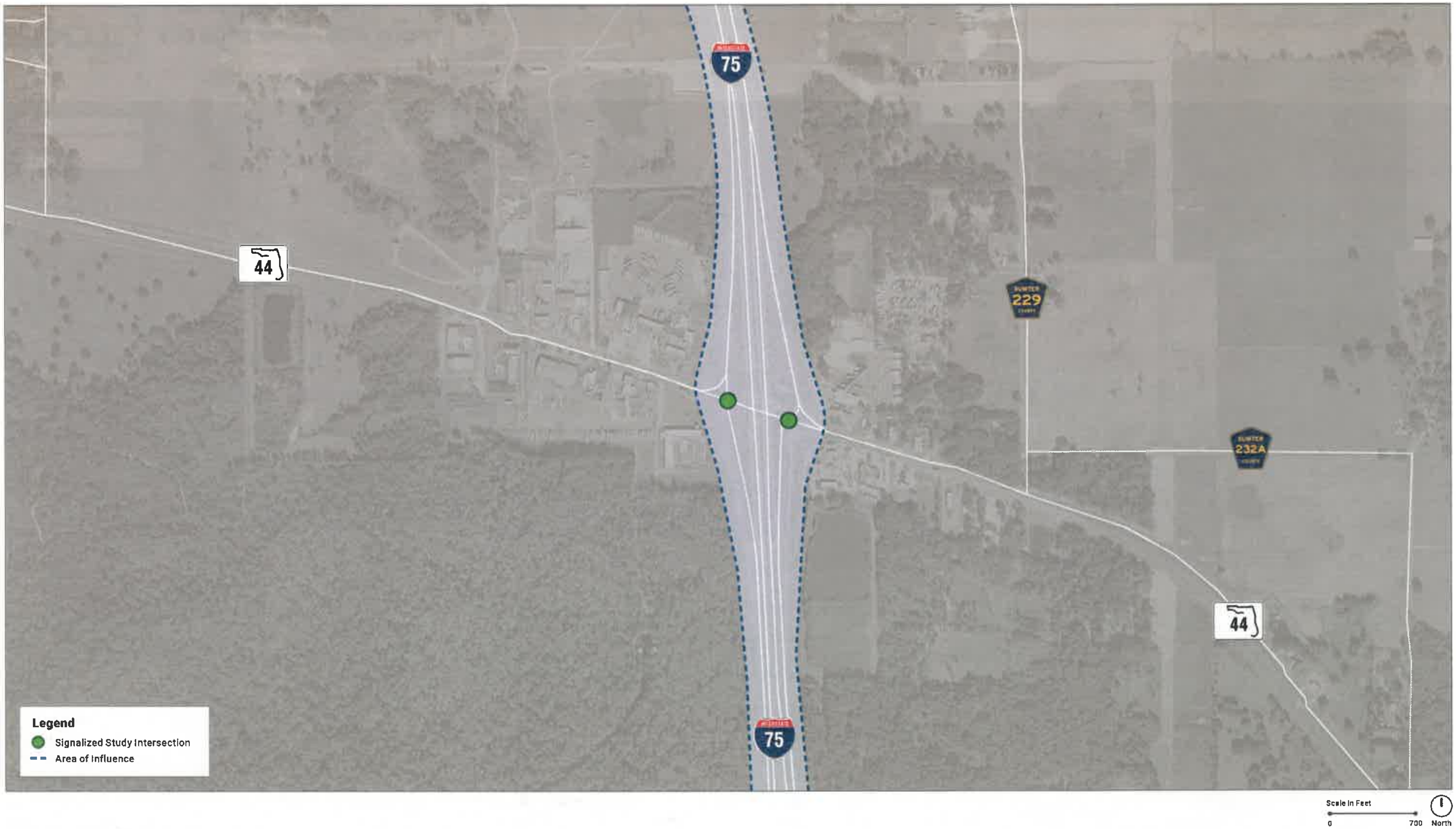


I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

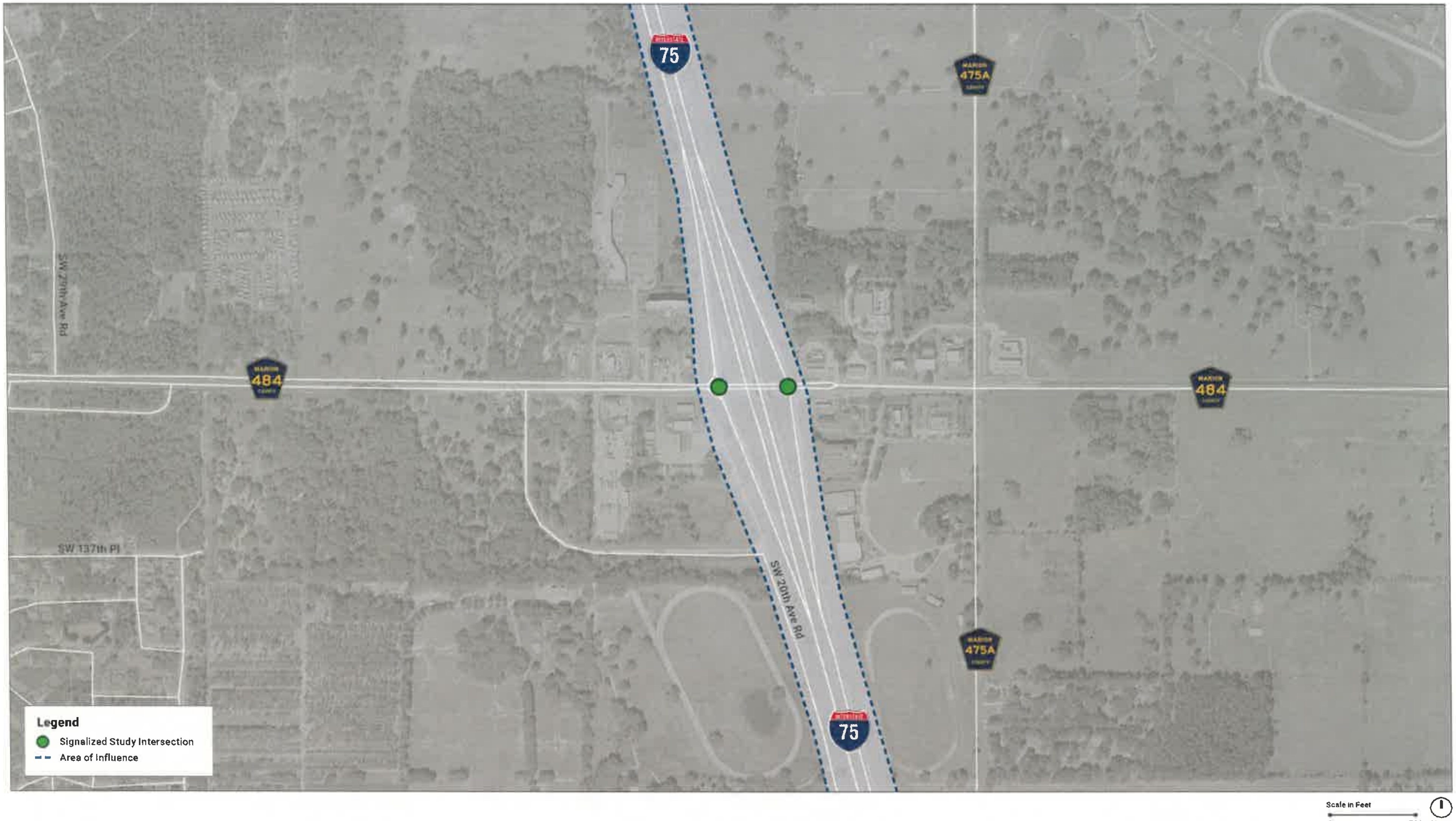
Study Limits

Figure 2 (1 of 4)



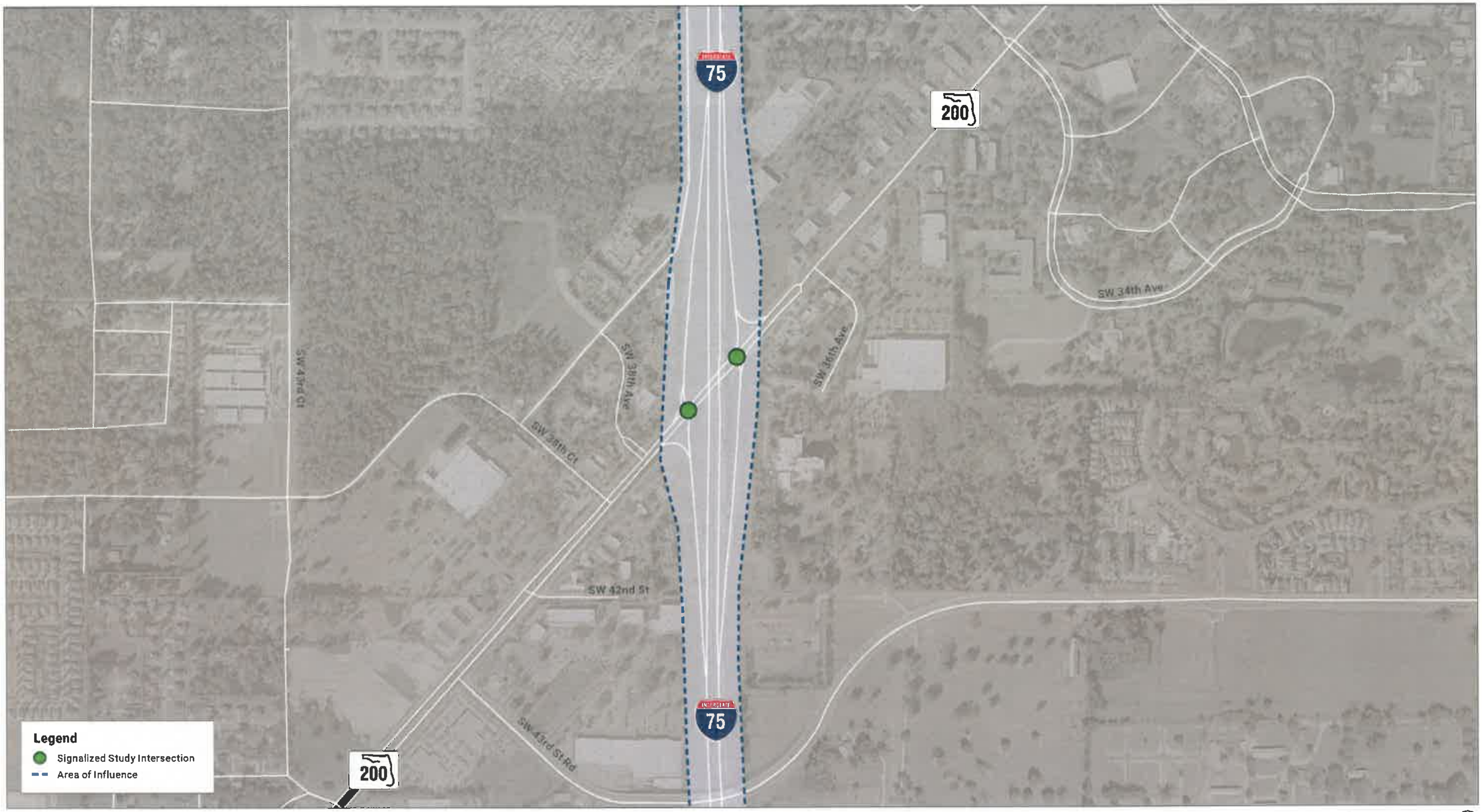
I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

Study Limits
Figure 2 (2 of 4)



I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

Study Limits
Figure 2 (3 of 4)



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I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

Study Limits

Figure 2 (4 of 4)

PURPOSE AND NEED

The following section summarizes the purpose and need (roadway capacity, area growth, roadway safety, hurricane evacuation, and freight) for the study.

PROJECT PURPOSE

The purpose of this project is to evaluate short-term operational improvements on the mainline of I-75 from south of SR 44 to SR 200. No interchange improvements will be evaluated with this PD&E.

PROJECT NEED

The primary needs for this project are to enhance current transportation safety and modal interrelationships while providing additional capacity between existing interchanges.

PROJECT STATUS

Improvements along the I-75 project corridor are included in the Lake-Sumter Metropolitan Planning Organization (MPO) 2045 Long Range Transportation Plan (LRTP) and the Ocala Marion Transportation Planning Organization (TPO) 2045 LRTP to address population and employment growth in the area. Sumter County anticipates 94% growth in population from 115,657 in 2015 to 223,979 in 2045, and Marion County anticipates 33% growth in population from 333,200 in 2015 to 444,900 in 2045. The employment growth rate from 2015 to 2045 in Sumter and Marion counties is projected at 137% and 57% respectfully.

The Lake-Sumter MPO 2045 LRTP Cost Feasible Plan includes widening I-75 from six to eight lanes from SR 44 to the Sumter/Marion County line and adding managed lanes from Florida's Turnpike to the Sumter/Marion County line. The implementation timeframe for these improvements is between 2036 and 2045.

The Ocala Marion 2045 LRTP Cost Feasible Plan includes widening I-75 from six to eight lanes from the Sumter/Marion County line to CR 318 in the 2031-2035 projects and adding managed lanes from the Sumter/Marion County line to CR 484 in the 2036-2040 projects.

This project is also consistent with the Draft I-75 Master Plan, which identifies future needs to improve safety, reliability, mobility, operational capacity, efficiency, and connectivity.

SAFETY

Historical crash data along I-75 was obtained from the Signal 4 Analytics crash database. The safety data showed a total of 1,384 reported crashes along I-75 northbound during this period, 384 of which (28 percent) resulted in 768 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 53 percent of the total crashes. Sideswipe (20 percent) and fixed object/run-off road (19 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 78 percent of the injury crashes.

A total of 1,095 reported crashes were observed along I-75 southbound, 300 of which (27 percent) resulted in 644 injuries. Three fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 51 percent of the total crashes. Sideswipe (24 percent) and fixed object/run-off road (16 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounted for 71 percent of the injury crashes.

A crash rate analysis was performed for I-75 northbound, I-75 southbound, and I-75 ramp terminal intersections and the following location is experiencing a statewide safety ratio >1:

- I-75 Northbound, SR 44 to Marion County Weight Station (2018 & 2019); and
- I-75 Southbound, Marion County Weight Station to SR 44 (2018 & 2019).

MODAL INTERRELATIONSHIPS

Truck traffic on I-75 is substantial and accounts for over 20 percent of all daily vehicle trips within the study limits based on the FDOT Traffic Characteristics Inventory. The segment of I-75 between SR 44 and CR 484 experiences the highest volume of trucks with more than 25 percent of the total trips made by trucks. Multiple existing and planned Intermodal Logistic Centers (ILC) and freight activity centers in Ocala contribute to the growth in truck volumes. These facilities include the Ocala/Marion County Commerce Park (Ocala 489), Ocala 275 ILC, and the Ocala International Airport and Business Park.

The interaction between heavy freight vehicles and passenger vehicles between interchanges contributes to both operational congestion and safety concerns.

CAPACITY/TRANSPORTATION DEMAND

Existing annual average daily traffic (AADT) on I-75 within the study limits ranges from 81,000 vehicles per day (vpd) to 97,000 vpd, with the highest volume of traffic occurring between CR 484 and SR 200. The AADT along I-75 between SR 44 and CR 484 is 81,000 vpd. I-75 northbound and southbound operates at level of service (LOS) C or better during the average weekday AM and PM peak hours. The LOS target for I-75 is D, as early as 2030, I-75 northbound and southbound between CR 484 and SR 200 is expected to operate at LOS F. By 2040, the Design Year, AADT's within the study limits will range between 102,000 and 143,000, with the highest volumes of traffic continuing to occur between CR 484 and SR 200. The traffic growth and reduction in LOS is related to two factors, forecast increases in population and employment (detailed above) and continued growth in tourism in Central and South Florida. I-75 and Florida's Turnpike are critical transportation links serving these markets. **Table 1** shows a summary of existing and forecast volumes along the Sumter and Marion County segments.

Table 1: Existing and Forecast Traffic Volumes

Segment	Existing (2019) AADT	Opening Year (2030) AADT	Design Year (2040) AADT
SR 44 and CR 484	81,000	102,000	121,000
CR 484 and SR 200	97,000	121,000	143,000

I-75 is a unique corridor that experiences substantial increases in traffic during holidays, peak tourism seasons, weekends, and special events and experiences frequent closures because of incidents leading to non-recurring congestion. I-75 is part of the emergency evacuation route network designated by the Florida Division of Emergency Management (FDEM).

ALTERNATIVES

NO-BUILD ALTERNATIVE

The No-Build Alternative is defined as the scenario in which the proposed activity would not take place. The existing six-lane I-75 facility and the existing interchange configurations are considered the No-Build Alternative. The No-Build Alternative does not address the purpose and need for this project; however, it serves as the baseline against which the build alternative is evaluated.

AUXILIARY LANES ALTERNATIVE

The Auxiliary Lanes Alternative is the sole build alternative evaluated in this PD&E study and is based on recommendations from previous master planning activities. The Auxiliary Lanes Alternative proposes to add one 12-foot auxiliary lane (additional lane between interchanges) to the outside of the general-purpose lanes in each direction. The auxiliary lanes would not impact the interchange bridges. The typical section is shown in **Figure 3**.

Figure 3: I-75 Typical Section

TRAFFIC ANALYSIS ASSUMPTIONS

The assumptions for input parameters including analysis years and periods are described below and are also summarized in the Project Traffic Assumption Form, Form No. 650-050-39 consistent with the Traffic Analysis Memorandum of Agreement (MOA) included in **Appendix A**.

ANALYSIS YEARS

The traffic analysis years evaluated in this PTAR include the following:

- Existing Year: 2019
- Opening Year: 2030
- Design Year: 2040

ANALYSIS PERIODS

The peak time periods evaluated for each analysis year include the following:

- Weekday AM peak (6:15 AM – 9:15 AM)
- Weekday PM peak (3:30 PM – 6:30 PM)
- Weekend midday peak (12:00 PM – 3:00 PM)

The individual peak hour of evaluation within each peak period were determined based on a review of the field collected data.

TRAFFIC ANALYSIS METHOD

The following summarizes the analysis tools, measures of effectiveness, level of service targets, data collection, and traffic forecasting methodology which is consistent with the Traffic Analysis Methodology of Agreement (MOA) included in **Appendix A**.

ANALYSIS TOOLS

The following traffic analysis tools are used in this study to analyze the study facilities (intersections and freeway segments):

- Synchro 12 software is used to evaluate the study intersections in the study area. Methodologies include:
  - Highway Capacity Manual (HCM) 7th Edition
  - Synchro 12
    - Note that Synchro 12 outputs are reported for intersection configurations and/or unique signal phasing/controller operations that cannot be evaluated using the latest HCM methodologies.
- Highway Capacity Software (HCS2023) software is used to evaluate the freeway segments in the study area (merges, diverges, weaving, and basic freeway segments).
  - The HCM 7th Edition Freeway Facilities methodologies was used as the results from the freeway facilities analysis and individual segment analyses are identical for segments that are below capacity, with the facility method offering mostly enhanced computational efficiency compared to individual segment analyses. For facilities with one or more segments at LOS F with a demand-to-capacity ratio (D/C) greater than 1.0, the facilities method explicitly models queue propagation and dissipation.
  - The freeway facilities method is implemented in the HCS2023 computational engine software tool This tool, developed by the McTrans Center at the University of Florida Transportation Institute (UFTI), is a faithful implementation of the freeway facilities method. The detailed methodology used for both transition analyses is documented in greater detail in the subsequent sections.

INPUT PARAMETERS

The following input parameters were used to develop models for traffic analysis:

- Roadway characteristics
- Traffic characteristics
- Control characteristics: signal timing data

Detailed information on key input parameters is included in the following sections and Appendices.

MEASURES OF EFFECTIVENESS

Both qualitative and quantitative measures of effectiveness (MOE's) were used to differentiate between the alternatives. The MOEs that were assessed from the HCS2023 and Synchro analyses include the following:

- Freeway Analysis: Demand to capacity ratios, average speeds, travel times, density, and LOS.
- Intersection Analysis: Total Delay, LOS, and 95th percentile queue lengths.

LEVEL OF SERVICE TARGETS

The Level of Service (LOS) targets for each roadway classification, including mainline, ramps, ramp terminal intersections, and the arterials beyond the interchange ramp terminal intersections are identified as follows.

Level of Service Targets per the State Highway System, Policy No. 000-525-006c, effective April 19, 2017 and the Ocala-Marion TPO 2040 Long Range Transportation Plan (LRTP) are summarized below:

- I-75 Mainline and Ramps: LOS D
- State Arterial Facilities: LOS D

DATA COLLECTION

The following summarizes the data collection efforts for this project including the field collected traffic counts and signal timing data.

TRAFFIC COUNTS

Seven-day vehicle classification counts were collected in addition to 8-hour intersection turning movement counts. The 7-day vehicle classification counts were collected during the following dates:

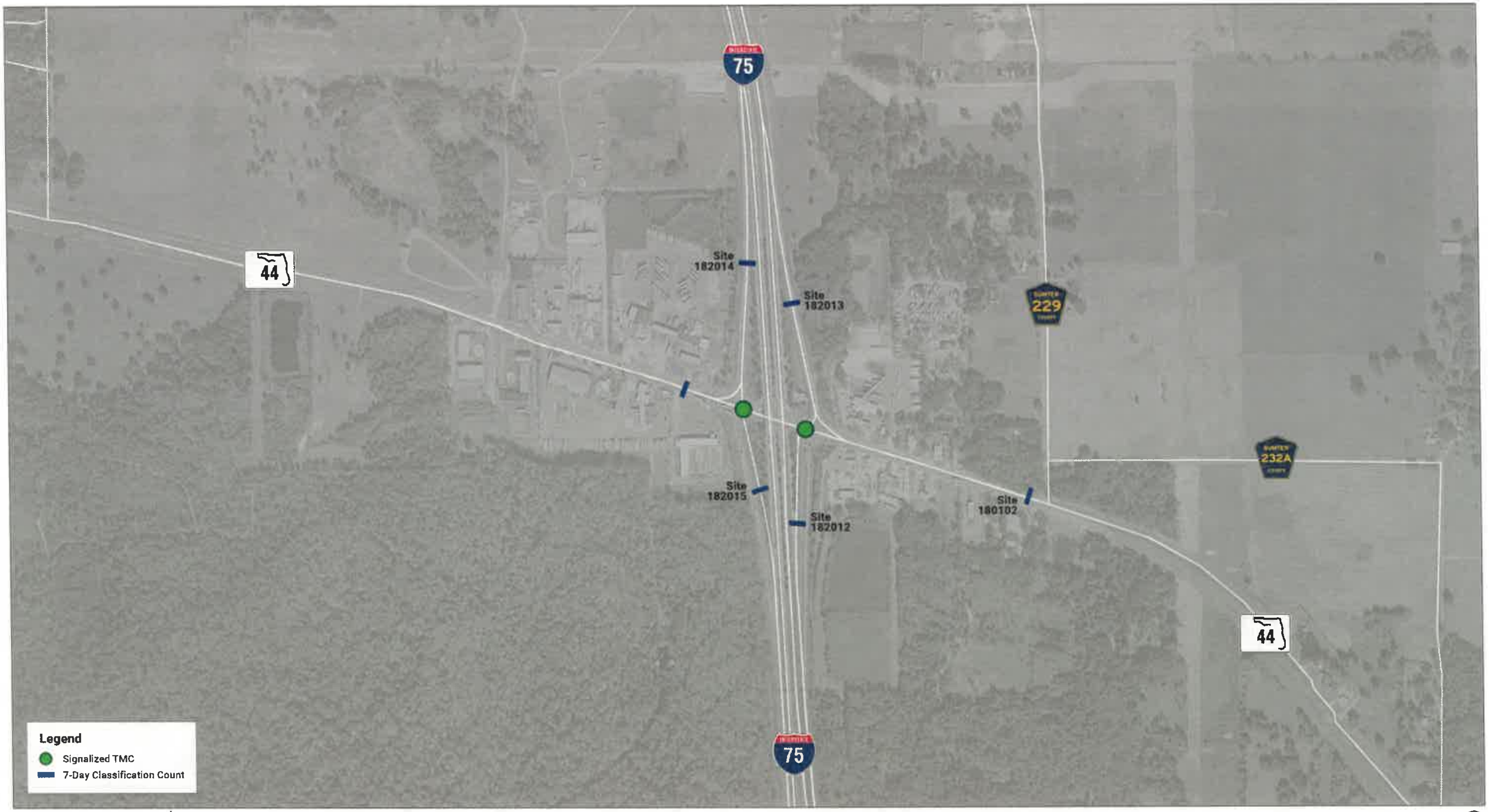
- December 8, 2019 – December 21, 2019
- January 9, 2020 – January 20, 2020 (recounts)

The 8-hour intersection turning movement counts were collected for the AM and PM peak periods of 7:00 – 10:00 AM and 3:30 – 6:30 PM on December 11, 2019. The weekend counts were collected between 1:00 – 3:00 PM on December 14, 2019 and December 21, 2019. Because there were only a few locations where data was collected in 2020, the existing year of 2019 was assumed for use in the analysis. The recounts were collected within one month of the original data, adjusted using the appropriate seasonal adjustment factors, and were assumed to be 2019 counts for consistency with the original 2019 data.

The specific data collection locations are illustrated in **Figure 4**. The raw classification data and raw intersection turning movement counts are included in **Appendix B**.

SIGNAL TIMING DATA

Signal timing data including time of day schedules, coordination splits, controller settings, and phasing sequences was requested from Sumter County, Marion County, and the City of Ocala for each of the signalized intersections in the study area. The signal timing data is provided in **Appendix C**.



I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

Data Collection Locations
Figure 4 (1 of 3)

FDOT

I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

Data Collection Locations
Figure 4 (2 of 3)

I-75 PD&E South | SR 200 Interchange
South of SR 44 to SR 200

Data Collection Locations
Figure 4 (3 of 3)

TRAFFIC FORECASTING METHODOLOGY

The traffic forecasting methodologies used in this study are consistent with the *2019 Project Traffic Forecasting Handbook* and the Project Traffic Forecasting Procedure Topic No. 525-030-120 and consistent with the methodologies described in the approved Traffic Analysis Memorandum of Agreement (MOA).

TRAVEL DEMAND MODEL SELECTION AND FORECASTING

The Florida Turnpike Statewide Model 2015 (TSM 2015) was used for the project. The TSM 2015 was selected for this project because the model spans the District 5 and District 2 boundary and best represents the study area (as compared to the adopted Central Florida Regional Planning Model – CFRPM). The TSM 2015 was selected for this project because it was used to develop the traffic projections that were utilized as part of the I-75 Master Plan. The traffic projections from the Master Plan were a basis for the traffic projections used in the PD&E study. The TSM 2015 has a base year of 2015 and a horizon year of 2045. The TSM 2015 was validated at the subarea level for use in the previous I-75 Master Plan. The future model scenarios include the following:

- No-Build; and
- Build (1 alternative).

GROWTH RATE EVALUATION

The following methods were used to evaluate potential traffic growth in the study area:

- A review of TSM daily model growth rates;
- A review of historical data (where available) to determine a historic growth rate; and
- A review of Bureau of Economic and Business Research (BEBR) population data to understand area-wide growth trends.

Traffic growth from each method was compared and a recommended growth evaluation methodology to forecast future traffic was determined. Once recommended growth rates were selected, they were applied to the existing year AADTs and grown to the design year (2040). Standard K and a directional factor were applied to the 2040 AADTs to estimate directional design hour volumes (DDHVs).

DESIGN TRAFFIC FACTORS

Standard K factors were obtained from the FDOT *Project Traffic Forecasting Handbook* (2019). At the time of the development of the traffic forecasts, the Standard K procedure was still the latest approach. It is recognized that the current FDOT K factor approach utilizes a recommended K factor range rather than Standard K factors. The factors are based on area type and facility type, with considerations to typical peak periods of the day. Directional (D) factors and truck factors

(T_{24} and DHT) were reviewed and recommended for use in the Design Traffic Forecasting process based on the field collected data. The 2015 model output conversion factors (MOCFs) were reviewed in the Marion and Alachua County Peak Season Factor Category reports and applied to the TSM peak season weekday average daily traffic (PSWADT) volumes to convert to model AADTs.

DEVELOPMENT OF FUTURE INTERSECTION TURNING MOVEMENT VOLUMES

A methodology that follows the iterative, growth-factoring procedures described in the *NCHRP Report 765* was used to convert future segment DDHVs into intersection turning movement volumes for the 2040 weekday AM, weekday PM, and weekend midday peak hours. The *NCHRP Report 765* methodology is consistent with the acceptable tools described in FDOT's *Project Traffic Forecasting Handbook* (2019).

In order to maintain the existing peak hour proportionality (consistent with existing travel patterns) for each ramp pair at the interchanges (e.g., I-75 southbound off-ramp to SR 200 and I-75 northbound on-ramp from SR 200), the existing volumes for each ramp pair were summed to determine a "D factor". The ramp pairs were then combined and treated as a traditional leg for forecasting purposes. The future AADTs for each ramp pair were added together and then Recommended K and the resulting D factor will be applied to estimate the future peak hour ramp volumes. This ensured the appropriate directionality between the two ramps is achieved during the peak hour while still capturing the growth at the daily level (Application of Standard K and D factor to the Design Year AADT). This approach is consistent with the way a regular 4-leg intersection is forecasted using the NCHRP 765 methodologies except the mainline freeway volume will not be included. This approach also offers an advantage of ensuring balanced volumes along the arterial between the ramp terminal intersections.

VOLUME BALANCING

The raw intersection turning movement volumes were reviewed against the existing turning movement volumes to ensure that volumes are not less in the future than the existing. Volumes along the arterials were balanced accordingly between ramp terminal intersections (as necessary) and between intersections where driveways don't exist. Volumes along the mainline of I-75 were balanced using an anchor point at each of the telemetered traffic monitoring sites. Volumes were anchored in the southbound direction at Site #269904 and in the northbound direction at Site #360317. The downstream and upstream mainline values along I-75 were calculated as ramp volumes exit or enter the mainline (off-ramp and on-ramps) to ensure balancing.

VOLUME SCENARIOS

Future volumes were developed for the following analysis periods future No-Build and Build geometric scenarios:

- Weekday AM peak hour;
- Weekday PM peak hour; and
- Weekend midday peak hour.

One future volume set was developed for the No-Build geometric scenario that can be applied to the Build geometric scenario as necessary. The opening year (2030) and design year (2040) volumes used in this PTAR were obtained from the I-75 Master Plan, in which the opening year (2030) and interim year (2040) volumes were estimated by linearly interpolating between the existing (2019) and design year (2050) volumes.

EXISTING CONDITIONS ANALYSIS

The following section summarizes the existing roadway characteristics, existing traffic characteristics, existing operational analysis results, and the historical safety analysis.

EXISTING ROADWAY CHARACTERISTICS

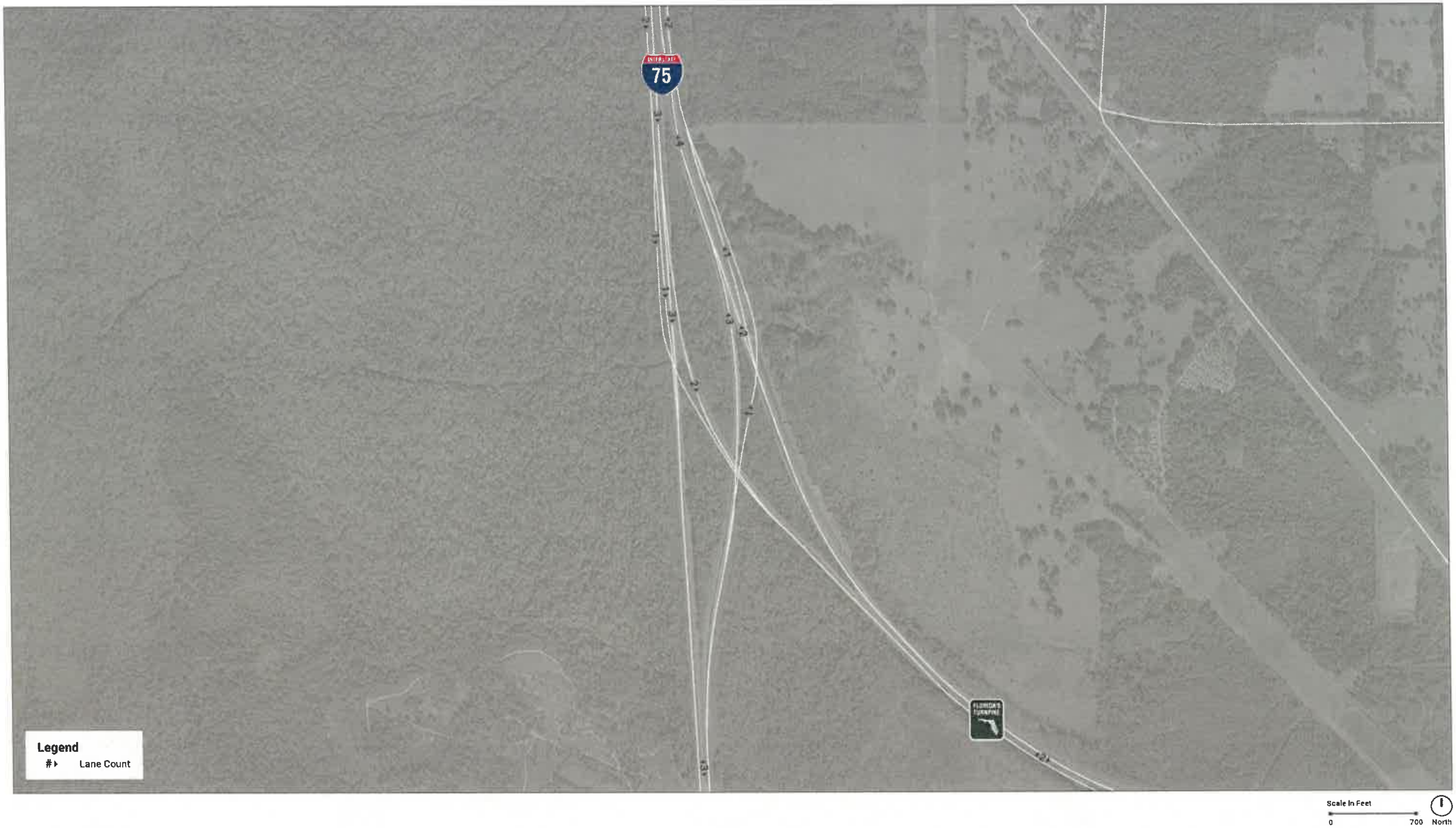
Roadway segment characteristics, including: road names, road ID, milepost, functional classification, SIS designation, speed limit, lane width, shoulder width, median, and FDOT access classification were reviewed using Straight Line Diagrams (SLDs), field evaluations, and aerial photography. The SLDs are included in **Appendix D**.

I-75 is classified as a rural principal arterial – interstate in Sumter County and both a rural and urban principal arterial – interstate in Marion County. I-75 is currently a six-lane divided interstate with a 40-foot vegetation median. It has a 70 mile-per-hour (mph) speed limit within the study limits. I-75 has approximately 10-foot paved shoulders with a 12-foot outside lawn shoulders. **Table 2** summarizes existing characteristics for the roadways in the study area including SR 44, CR 484, and SR 200.

Each of the interchanges in the study area are configured as diamond interchanges with signal control at each ramp terminal intersection. The adjacent interchange to the south is the I-75 at Florida's Turnpike system-to-system interchange. This interchange provides movements from northbound Turnpike to northbound I-75 and from southbound I-75 to southbound Turnpike. A braided ramp system exists for the SR 44 interchange and Florida's Turnpike. This configuration eliminated a weaving segment between the Turnpike to I-75 northbound on-ramp and the I-75 northbound off-ramp to SR 44 and a two-sided weaving maneuver between the southbound I-75 on-ramp from SR 44 to the Turnpike southbound off-ramp. The existing lane configurations along the I-75 mainline, at the gore points for each on-ramp and off-ramp, and at each of the study intersections are illustrated in **Figure 5**.

Table 2: Existing Roadway Characteristics

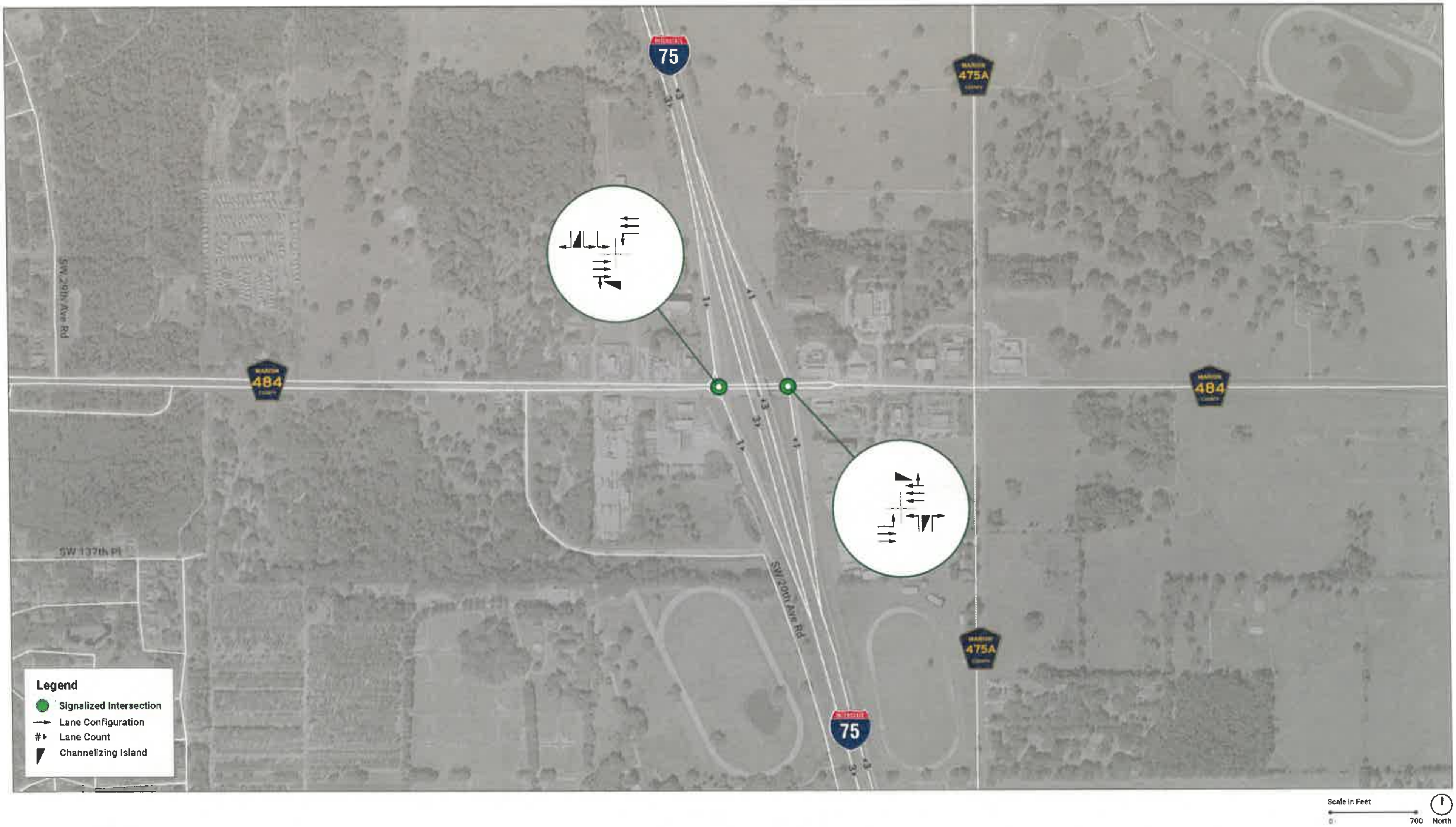
Characteristic	Roadway Segment				
	I-75 (Sumter)	I-75 (Marion)	SR 44	CR 484	SR 200
FDOT Roadway ID	18130000	36210000	18070000	N/A	36100000
Location (Milepost)	21.028 – 28.996	1.949 – 3.205	8.326-- 8.412	N/A	14.800 – 14.989
Functional Classification	Rural Principal Arterial-Interstate	Rural/Urban Principal Arterial-Interstate	Rural Principal Arterial-Other	N/A	Urban Principal Arterial-- Other
SIS Designation	SIS	SIS	SIS	N/A	Non-SIS
Speed Limit	70 mph	70 mph	45 mph	45 mph	45mph
Lane Width	12 feet	12 feet	12.5 feet	12 feet	12 feet
Shoulder Width	Average 10 ft paved shoulder with 12 ft outside lawn shoulder	Average 10 ft paved shoulder with 12 ft outside lawn shoulder	2 ft curb & gutter shoulder	5-foot paved shoulder	5-foot paved shoulder with 2 ft curb & gutter shoulder
Median	40-foot vegetation median	40-foot vegetation median	Curb & vegetation median (within Interchange area) Center, painted two-way left-turn lane (TWLTL) to the east and west of I-75	10-20 feet paved median & raised traffic separator median	15-foot vegetation median (W of I-75) 15-foot paved with barrier & raised traffic separator median (interchange area) 15-foot vegetation median (E of I-75)
FDOT Access Classification	1	1	3	1	3
Curb and Gutter	None	None	Yes	Yes	Yes
Sidewalks	None	None	None	Yes	Yes
Bike Lanes	None	None	None	None	Yes
Street Lighting	Present	Present	Present	Present	Present
Surrounding Land Uses	Rural, Agriculture	Industrial, Residential, Commercial	Agriculture, Commercial	Commercial	Commercial



I-75 PD&E South | South of SR 44
South of SR 44 to SR 200

Existing Lane Configurations
Figure 5 (1 of 4)

Existing Lane Configurations
Figure 5 (2 of 4)



I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

Existing Lane Configurations
Figure 5 (3 of 4)

I-75 PD&E South | SR 200 Interchange
South of SR 44 to SR 200

Existing Lane Configurations
Figure 5 (4 of 4)

The specific lane configurations at each ramp terminal intersection are summarized as follows:

SR 44 Interchange:

- Two continuous through lanes in each direction
- Dual left-turn lanes from the arterial to both I-75 on-ramps
- Single exclusive right-turn lane onto both I-75 on-ramps
  - The westbound right-turn lane is channelized
- Both the off-ramp approaches consist of dual left-turn lanes and a yield-controlled channelized right-turn lane

CR 484 Interchange:

- Two continuous through lanes in each direction
- Single exclusive left-turn lanes onto the I-75 on-ramps
- Single channelized right-turn lane onto the I-75 on-ramps
- The northbound off-ramp approach consists of a single left-turn lane and a yield controlled channelized right-turn lane
- The southbound off-ramp approach consists of dual left-turn lanes and a yield controlled channelized right-turn lane

SR 200 Interchange:

- Three continuous through lanes in each direction
- Single exclusive left-turn lanes onto the I-75 on-ramps
- Single channelized right-turn lane onto the northbound or southbound I-75 on-ramps
- The northbound off-ramp approach consists of a single left-turn lane and a channelized right-turn lane under signal control
- The southbound off-ramp approach consists of dual left-turn lanes and dual channelized right-turn lanes under signal control

EXISTING TRANSIT SERVICES

Existing transit services were reviewed within the study area. The study area includes two main transit services and they are summarized as follows:

SUMTER COUNTY

In coordination with the Sumter County Board of County Commissioners and the Florida Commission for Transportation Disadvantaged, Sumter County provides door-to-door services between the hours of 8:30 AM – 3:00 PM, Monday through Friday. A transportation disadvantaged qualifying application is required to receive door-to-door services[1].

In addition, Sumter County provides shuttle services along two designated routes on Mondays, Wednesdays, and Fridays. A shuttle route travels from bus stop to bus stop. The shuttle can deviate off the route a short distance (3/4 of a mile) to pick up or drop off. Reservations and an application are required for all deviations. The detailed route locations and arrival times of these two routes (Orange/South Sumter Route and Wildwood Circulator) are provided in **Appendix E**.

SUNTRAN

SunTran is the dedicated transit agency available in Marion County and has provided transit services since 1998. SunTran is a cooperative effort of the Ocala/Marion County Transportation Planning Organization, Marion County, the City of Ocala, the Florida Department of Transportation, and the Federal Transportation Administration (FTA). Routes operate 5:00 AM – 10:00 PM on weekdays and Saturdays[2].

SunTran provides fixed-schedule service on seven routes, mostly centered in Ocala. Among the seven routes, there are 3 routes that operates transit in the project areas: Purple (SR 40), Orange (SR 200), and Silver (US 27). However, none of the routes operates directly along the I-75 corridor. SunTran operates the Purple and Orange routes on approximately 70-minute headways while the silver route is operated at up to 140-minute headways. The detailed route locations and arrival times of these three routes are also included in **Appendix E**.

[1] https://www.sumtercountyfl.gov/184/Reservations-Shuttle-Schedules
[2] https://www.suntran.org/about-us/overview-and-services/suntran

EXISTING TRAFFIC CHARACTERISTICS

The following section summarizes the existing traffic characteristics including the estimation of system peak hours, existing traffic volumes/adjustments, and existing freeway average daily traffic (ADT) trends.

EXISTING SYSTEM PEAK HOURS

The field collected data was reviewed to determine a system peak hour for the purposes of balancing counts and evaluating a consistent peak hour for the operational analyses (Synchro and HCS2023). The total entering intersection volume for each intersection was summed for the entire study area for each 15-minute bin collected. The 15-minute bins were summed together to determine the max total network hourly volume for each period collected. The resulting system peak hours are as follows and are summarized in **Table 3**.

- AM Peak Hour: 7:15 AM – 8:15 AM
- PM Peak Hour: 4:30 PM – 5:30 PM
- Weekend Midday Peak Hour: 1:00 PM – 2:00 PM

EXISTING TRAFFIC VOLUMES

The collected intersection turning movement counts and vehicle classification counts were adjusted using a seasonal adjustment factor obtained from the 2018 Florida Traffic Online (most current at the time of count post processing) to estimate 2019 average daily traffic (ADT) volumes and Annual Average Daily Traffic (AADTs). An axle correction factor was not needed for the tube counts as vehicle classification counts were collected. The raw ADTs, seasonal factors, and resulting 2019 AADTs collected for the SR 44, CR 484, and SR 200 study limits are summarized in **Table 4**, **Table 5**, and **Table 6**, respectively. The peak season factor category reports are provided in **Appendix F**.

The Florida Traffic Online was used to summarize the existing AADTs for the I-75 mainline stations and Turnpike. Volumes along the mainline of I-75 were balanced using an anchor point at each of the telemetered traffic monitoring sites. Volumes were anchored in the southbound direction at Site #269904 and in the northbound direction at Site #360317. The downstream and upstream mainline values along I-75 were calculated as ramp volumes exit or enter the mainline (off-ramp and on-ramps) to ensure balancing. Volume balancing adjustments were made along the ramps where necessary to create a balanced set of volumes that aligned with the anchor points along I-75. The 2019 AADTs within the study area are shown in **Figure 6**. It is important to note the ramp AADTs shown in **Figure 6** may not match those summarized in **Table 4** - **Table 6** due to the balancing adjustments conducted.

The existing raw AM, PM, and weekend peak hour volumes collected in the field, including peak-to-daily ratios and directional (D) percentages, are summarized in **Table 7**, **Table 8**, and **Table 9**. The seasonally adjusted intersection turning movement volumes used in the existing conditions analysis for the AM, PM, and Weekend midday peak hours are illustrated in **Figure 7**, **Figure 8**, and **Figure 9**, respectively.

Table 3: Existing (2019) System Peak Hour Summary

AM Peak				PM Peak				Weekend Midday Peak			
Start Time	Total Network Entering Intersection Volume	Total Hourly Network Entering Intersection Volume	Peak Hour	Start Time	Total Network Entering Intersection Volume	Total Hourly Network Entering Intersection Volume	Peak Hour	Start Time	Total Network Entering Intersection Volume	Total Hourly Network Entering Intersection Volume	Peak Hour
7:00 AM	20,407			3:30 PM	27,520			1:00 PM	26,377		
7:15 AM	24,341			3:45 PM	27,742			1:15 PM	26,550		
7:30 AM	25,889			4:00 PM	29,078			1:30 PM	26,463		
7:45 AM	26,545	97,182	7:00 AM-8:00 AM	4:15 PM	28,632	112,972	3:30 PM-4:30 PM	1:45 PM	26,147	**105,537**	**1:00 PM-2:00 PM**
8:00 AM	23,036	**99,811**	**7:15 AM-8:15 AM**	4:30 PM	29,614	115,066	3:45 PM-4:45 PM	2:00 PM	25,887	105,047	1:15 PM-2:15 PM
8:15 AM	21,887	97,357	7:30 AM-8:30 AM	4:45 PM	28,327	115,651	4:00 PM-5:00 PM	2:15 PM	25,423	103,920	1:30 PM-2:30 PM
8:30 AM	22,160	93,628	7:45 AM-8:45 AM	5:00 PM	29,582	116,155	4:15 PM-5:15 PM	2:30 PM	25,701	103,158	1:45 PM-2:45 PM
8:45 AM	21,544	88,627	8:00 AM-9:00 AM	5:15 PM	30,617	**118,140**	**4:30 PM-5:30 PM**	2:45 PM	26,325	103,336	2:00 PM-3:00 PM
9:00 AM	19,991	85,582	8:15 AM-9:15 AM	5:30 PM	28,429	116,955	4:45 PM-5:45 PM				
9:15 AM	20,529	84,224	8:30 AM-9:30 AM	5:45 PM	26,625	115,253	5:00 PM-6:00 PM				
9:30 AM	21,164	83,228	8:45 AM-9:45 AM	6:00 PM	24,846	110,517	5:15 PM-6:15 PM				
9:45 AM	21,737	83,421	9:00 AM-10:00 AM	6:15 PM	23,368	103,268	5:30 PM-6:30 PM				

Source: 2019 field collected intersection turning movement data

Table 4: Existing (2019) Daily Volumes – SR 44

Roadway	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	ADT	ADT	Seasonal Adj. Factor	2019 AADT	2019 AADT
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Weekday	Weekend		Weekday	Weekend
SR 44 west of I-75	11,706	11,969	11,862	12,091	12,393	10,896	8,828	11,974	10,896	0.97	11,500	10,500
I-75 SB Off-Ramp to SR 44	6,543	6,230	6,661	7,047	7,568	6,233	5,581	6,646	6,233	1.00	6,600	6,200
I-75 NB On-Ramp from SR 44	5,929	6,017	6,116	6,253	6,659	5,122	4,189	6,129	5,122	0.97	5,900	5,000
I-75 SB On-Ramp from SR 44	7,248	6,729	7,386	7,699	8,082	7,252	6,622	7,271	7,252	0.97	7,100	7,000
I-75 NB Off-Ramp to SR 44	7,071	6,878	7,121	7,230	7,651	6,495	5,560	7,076	6,495	0.97	6,900	6,300
SR 44 east of I-75	20,053	22,072	20,133	20,404	20,713	16,809	14,038	20,870	16,809	0.97	20,000	16,500

Table 5: Existing (2019) Daily Volumes – CR 484

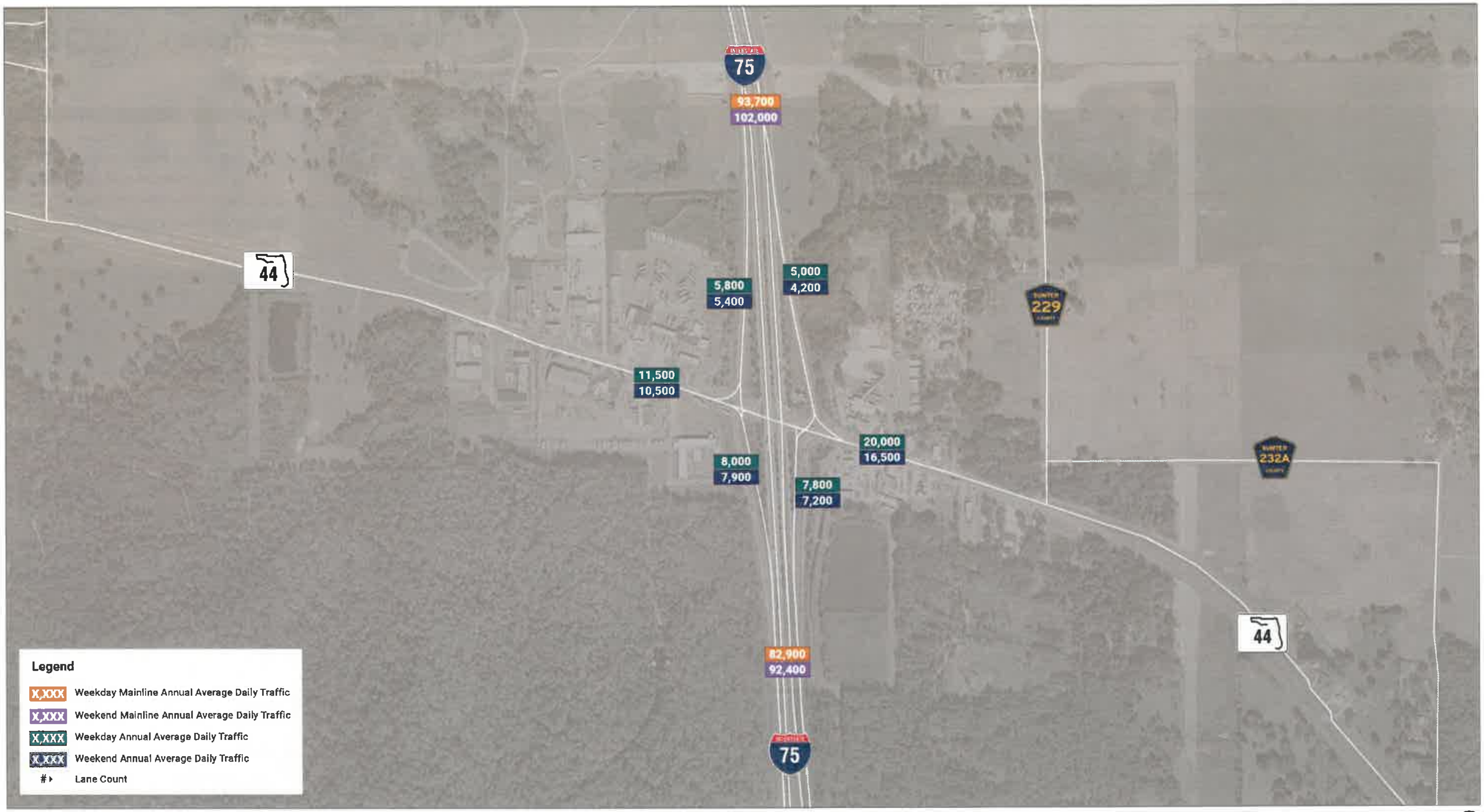
Roadway	Day 1 Monday	Day 2 Tuesday	Day 3 Wednesday	Day 4 Thursday	Day 5 Friday	Day 6 Saturday	Day 7 Sunday	ADT Weekday	ADT Weekend	Seasonal Adj. Factor	2019 AADT Weekday	2019 AADT Weekend
Hwy 484 east of McDonald's Dwy	30,606	28,127	15,625	31,438	33,576	29,372	24,864	29,783	29,372	1.00	30,000	29,500
I-75 SB Off-Ramp to Hwy 484	7,864	8,269	8,527	8,267	9,024	7,600	5,935	8,354	7,600	1.00	8,400	7,600
I-75 NB On-Ramp from Hwy 484	9,391	9,121	9,816	9,484	10,207	8,853	7,918	9,474	8,853	1.00	9,500	8,900
I-75 SB On-Ramp from Hwy 484	5,105	5,197	5,234	5,472	6,260	6,130	5,134	5,301	6,130	1.00	5,300	6,100
I-75 NB Off-Ramp to Hwy 484	6,152	5,819	5,792	6,388	6,827	7,732	6,384	6,000	7,732	1.00	6,000	7,700
Hwy 484 west of SW 17th Ct	25,624	25,908	26,111	26,387	27,295	25,382	21,945	26,135	25,382	1.00	26,000	25,500

Table 6: Existing (2019) Daily Volumes – SR 200

Roadway	Day 1 Monday	Day 2 Tuesday	Day 3 Wednesday	Day 4 Thursday	Day 5 Friday	Day 6 Saturday	Day 7 Sunday	ADT Weekday	ADT Weekend	Seasonal Adj. Factor	2019 AADT Weekday	2019 AADT Weekend
SR 200 east of SW 38th Ct	32,859	34,562	34,980	34,630	35,683	33,743	29,770	34,724	33,743	1.05	36,500	35,500
I-75 SB Off-Ramp to SR 200	7,582	7,780	7,856	7,868	8,302	7,279	6,053	7,835	7,279	1.00	7,800	7,300
I-75 NB On-Ramp from SR 200	7,763	7,603	8,053	8,303	8,935	7,754	6,425	7,986	7,754	1.00	8,000	7,800
I-75 SB On-Ramp from SR 200	7,555	7,430	7,582	7,802	8,479	7,930	6,570	7,605	7,930	1.00	7,600	7,900
I-75 NB Off-Ramp to SR 200	7,503	7,535	7,578	7,784	8,063	7,178	5,924	7,632	7,178	1.03	7,900	7,400
SR 200 east of SW 36th Ave	21,926	41,540	44,334	44,273	46,025	44,027	37,279	43,382	44,027	1.00	43,500	44,000

I-75 PD&E South | South of SR 44
South of SR 44 to SR 200

Existing Annual Average Daily Traffic Volumes
Figure 6 (1 of 4)



FDOT

I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

Existing Annual Average Daily Traffic Volumes
Figure 6 (2 of 4)

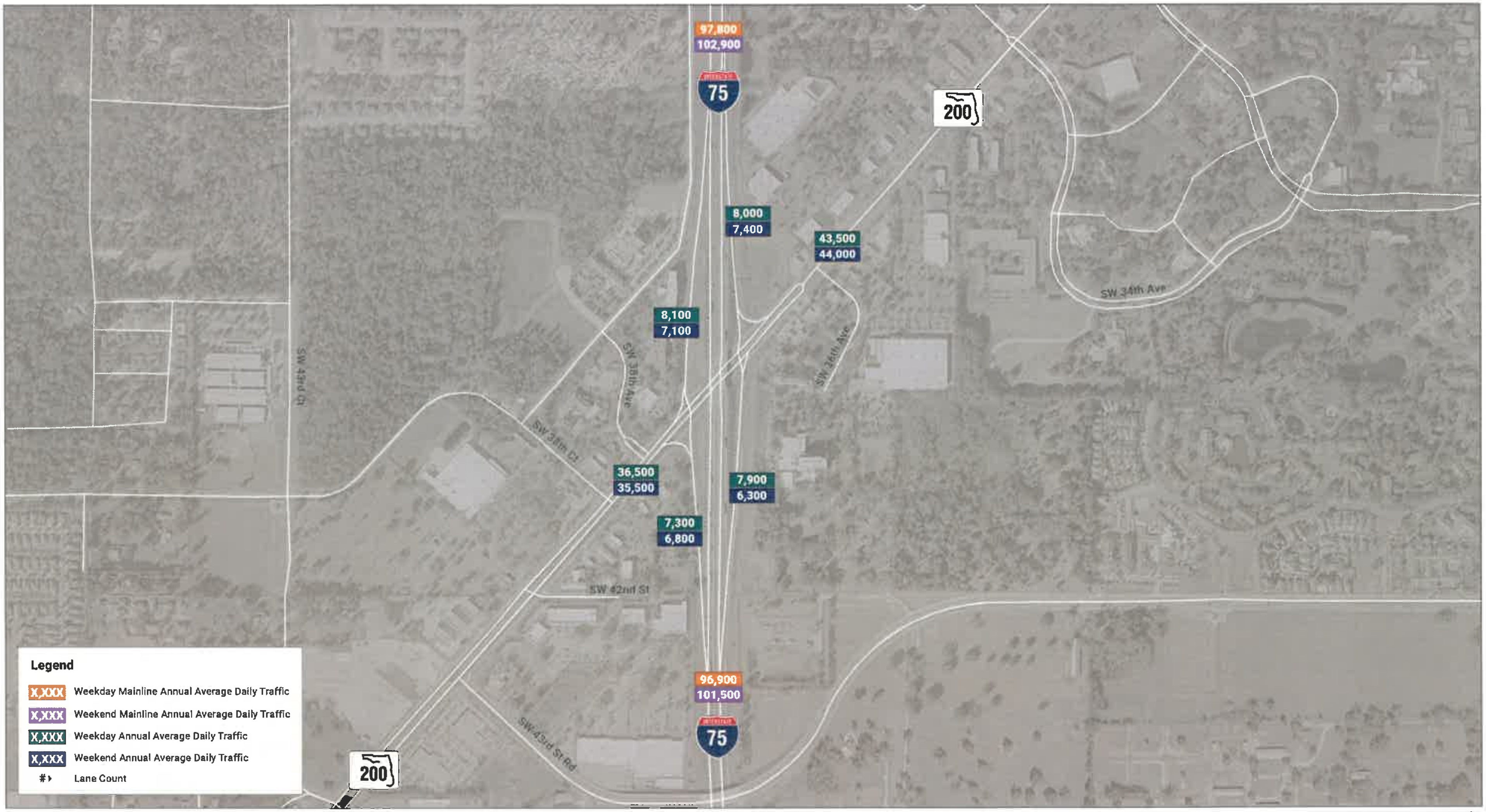
FDOT

I-75 PD&E South | CR 484 Interchange

South of SR 44 to SR 200

Existing Annual Average Daily Traffic Volumes

Figure 6 (3 of 4)



FDOT

I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

Existing Annual Average Daily Traffic Volumes

Figure 6 (4 of 4)

Table 7: Existing (2019) Peak Hour Traffic Characteristics – SR 44

Roadway	AM Peak Hour: 7:15- 8:15 AM					PM Peak Hour: 4:30- 5:30 PM					Weekend Peak Hour: 1:00- 2:00 PM				
	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D
SR 44 west of I-75	898	652	246	7.50%	0.73	975	352	623	8.14%	0.64	716	366	350	6.57%	0.51
I-75 Ramps (North of SR 44)	808	386	422	6.33%	0.52	961	490	471	7.53%	0.51	797	352	445	7.02%	0.56
I-75 SB Off-Ramp to SR 44	422	0	422	6.35%	1.00	471	0	471	7.09%	1.00	445	0	445	7.14%	1.00
I-75 NB On-Ramp from SR 44	386	386	0	6.30%	1.00	490	490	0	8.00%	1.00	352	352	0	6.87%	1.00
I-75 Ramps (South of SR 44)	944	455	489	6.58%	0.52	1,032	507	525	7.19%	0.51	960	428	532	6.98%	0.55
I-75 SB On-Ramp from SR 44	489	0	489	6.72%	1.00	525	0	525	7.22%	1.00	532	0	532	7.33%	1.00
I-75 NB Off-Ramp to SR 44	455	455	0	6.43%	1.00	507	507	0	7.16%	1.00	428	428	0	6.59%	1.00
SR 44 east of I-75	1,464	874	590	7.01%	0.60	1,588	564	1,025	7.61%	0.65	1,165	557	608	6.93%	0.52

Table 8: Existing (2019) Peak Hour Traffic Characteristics – CR 484

Roadway	AM Peak Hour: 7:15- 8:15 AM					PM Peak Hour: 4:30- 5:30 PM					Weekend Peak Hour: 1:00- 2:00 PM				
	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D
Hwy 484 east of McDonald's Dwy	2,054	1,320	734	6.90%	0.64	2,147	594	1,553	7.21%	0.72	1,966	1,007	959	6.69%	0.51
I-75 Ramps (North of Hwy 484)	1,378	936	442	7.73%	0.68	1,302	480	822	7.30%	0.63	1,139	634	505	6.92%	0.56
I-75 SB Off-Ramp to Hwy 484	442	0	442	5.29%	1.00	822	0	822	9.84%	1.00	505	0	505	6.64%	1.00
I-75 NB On-Ramp from Hwy 484	936	936	0	9.88%	1.00	480	480	0	5.06%	1.00	634	634	0	7.16%	1.00
I-75 Ramps (South of Hwy 484)	698	269	429	6.17%	0.61	820	535	286	7.26%	0.65	923	483	441	6.66%	0.52
I-75 SB On-Ramp from Hwy 484	429	0	429	8.09%	1.00	286	0	286	5.39%	1.00	441	0	441	7.19%	1.00
I-75 NB Off-Ramp to Hwy 484	269	269	0	4.48%	1.00	535	535	0	8.91%	1.00	483	483	0	6.24%	1.00
Hwy 484 west of SW 17th Ct	2,032	1,144	888	7.77%	0.56	1,526	1,029	497	5.84%	0.67	1,763	879	884	6.94%	0.50

Table 9: Existing (2019) Peak Hour Traffic Characteristics – SR 200

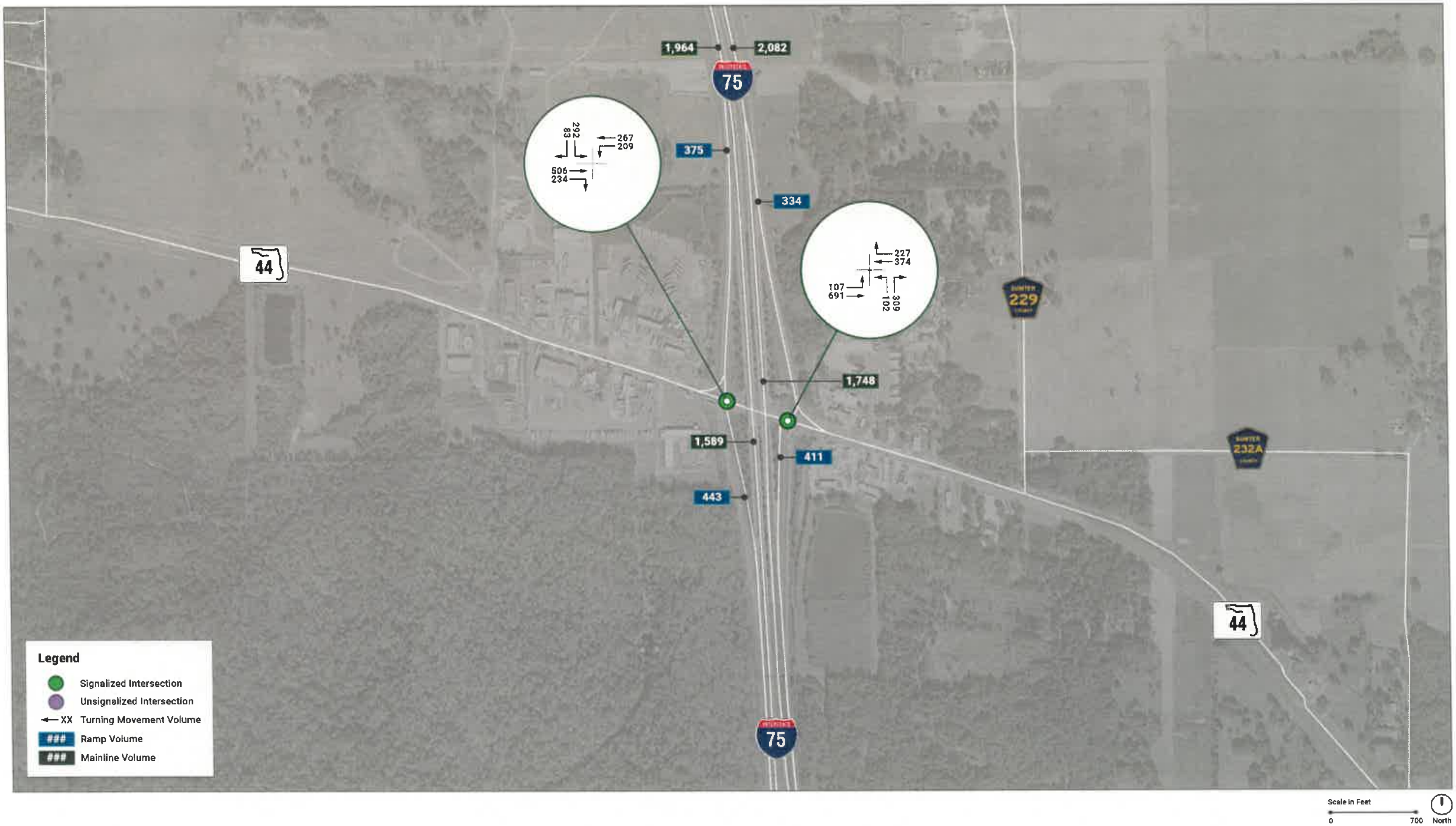
Roadway	AM Peak Hour: 7:15- 8:15 AM					PM Peak Hour: 4:30- 5:30 PM					Weekend Peak Hour: 1:00- 2:00 PM				
	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D
SR 200 east of SW 38th Ct	2,326	1,428	898	6.70%	0.61	2,183	1,199	983	6.29%	0.55	2,192	1,267	925	6.50%	0.58
I-75 Ramps (North of SR 200)	1,074	582	492	6.79%	0.54	1,199	602	598	7.58%	0.50	1,084	553	532	7.21%	0.51
I-75 SB Off-Ramp to SR 200	492	0	492	6.28%	1.00	598	0	598	7.63%	1.00	532	0	532	7.30%	1.00
I-75 NB On-Ramp from SR 200	582	582	0	7.28%	1.00	602	602	0	7.53%	1.00	553	553	0	7.13%	1.00
I-75 Ramps (South of SR 200)	1,029	652	377	6.75%	0.63	1,171	480	691	7.68%	0.59	1,035	512	523	6.85%	0.51
I-75 SB On-Ramp from SR 200	377	0	377	4.96%	1.00	691	0	691	9.08%	1.00	523	0	523	6.60%	1.00
I-75 NB Off-Ramp to SR 200	652	652	0	8.54%	1.00	480	480	0	6.29%	1.00	512	512	0	7.13%	1.00
SR 200 east of SW 36th Ave	2,553	1,781	772	5.89%	0.70	3,048	1,513	1,535	7.03%	0.50	2,894	1,663	1,231	6.57%	0.57

I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

2019 AM Peak Hour Turning Movement Volumes

Figure 7 (1 of 4)



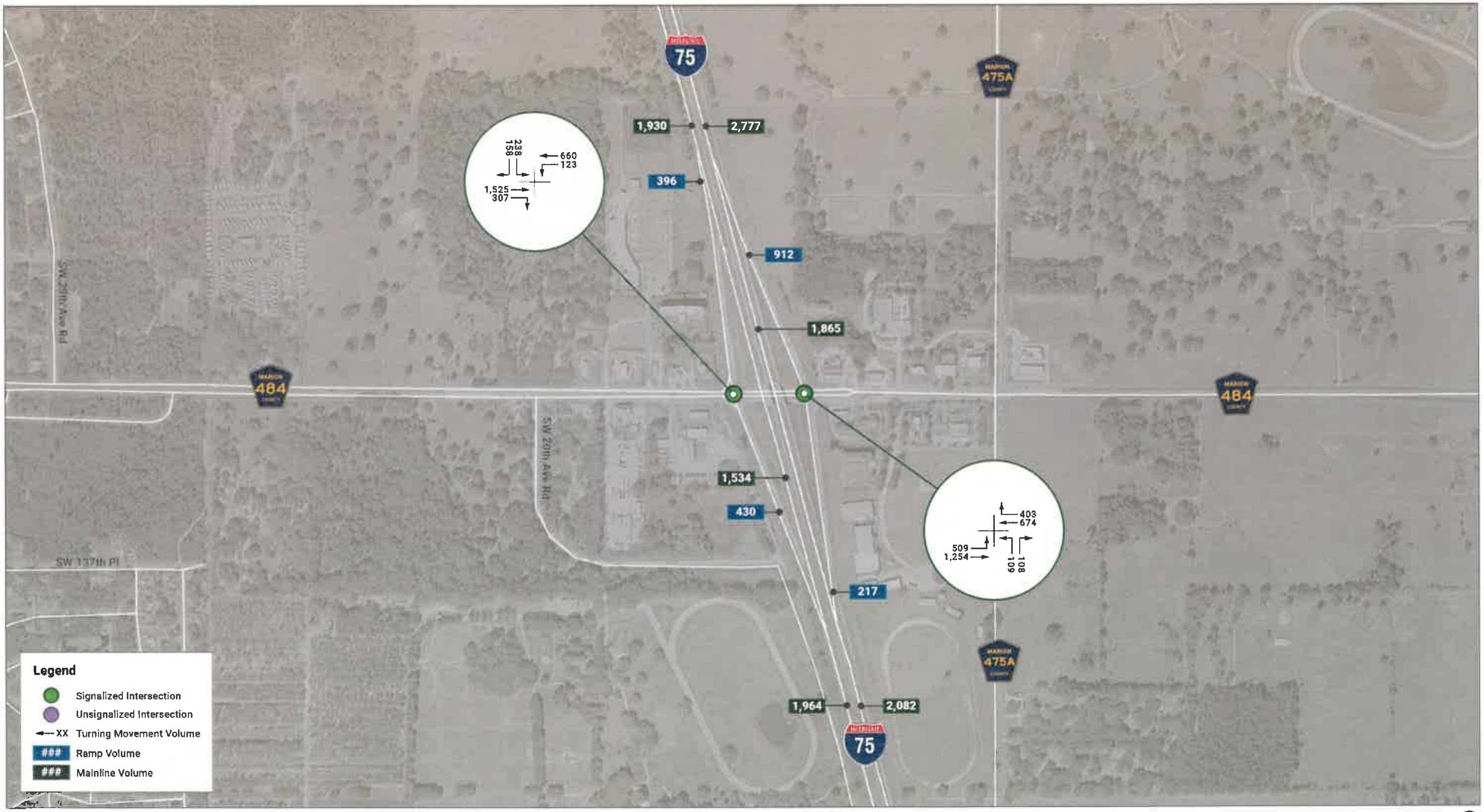
FDOT

I-75 PD&E South | SR 44 Interchange

South of SR 44 to SR 200

2019 AM Peak Hour Turning Movement Volumes

Figure 7 (2 of 4)

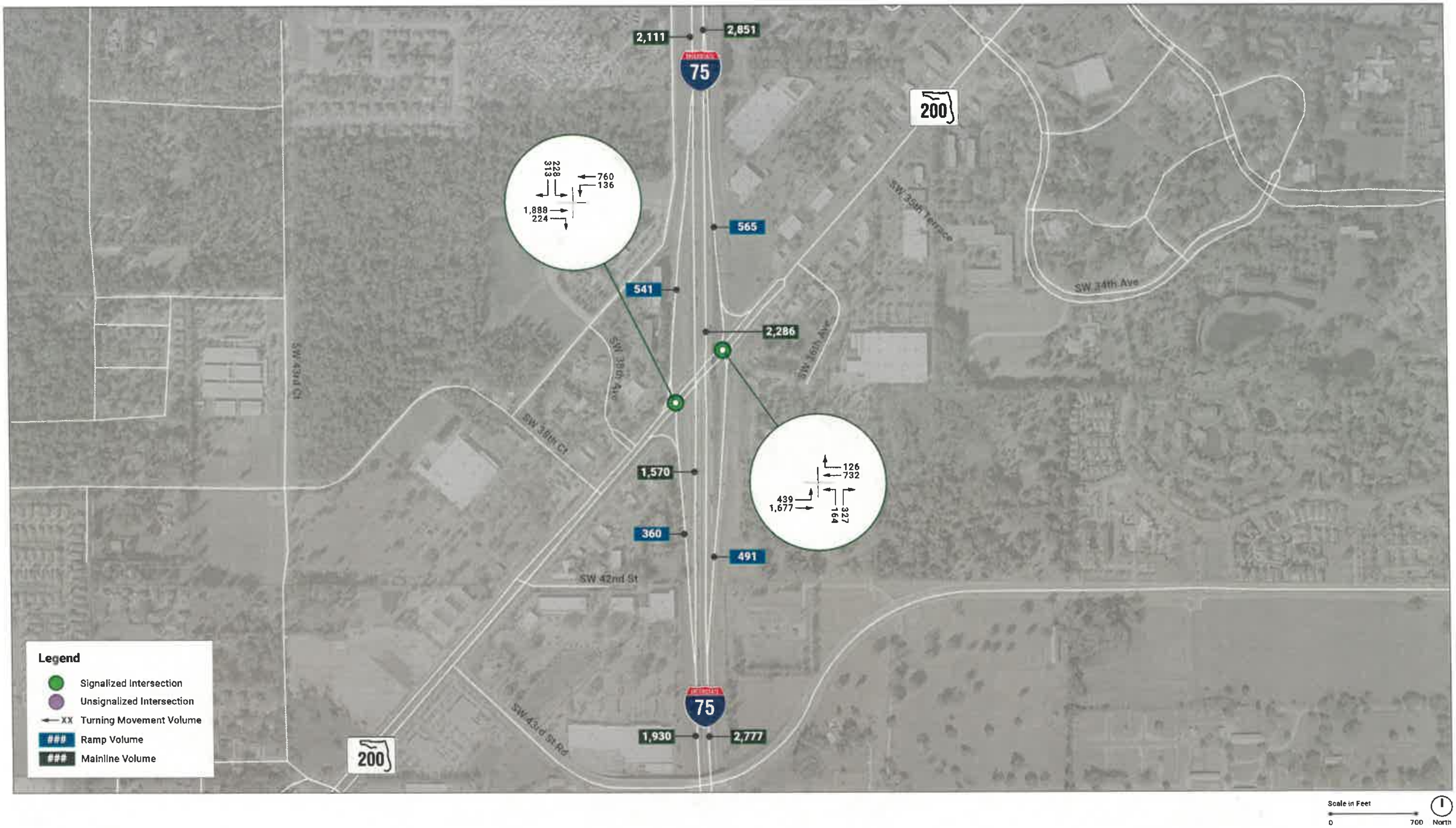


FDOT **I-75 PD&E South** | CR 484 Interchange

South of SR 44 to SR 200

2019 AM Peak Hour Turning Movement Volumes

Figure 7 (3 of 4)



FDOT

I-75 PD&E South | SR 200 Interchange

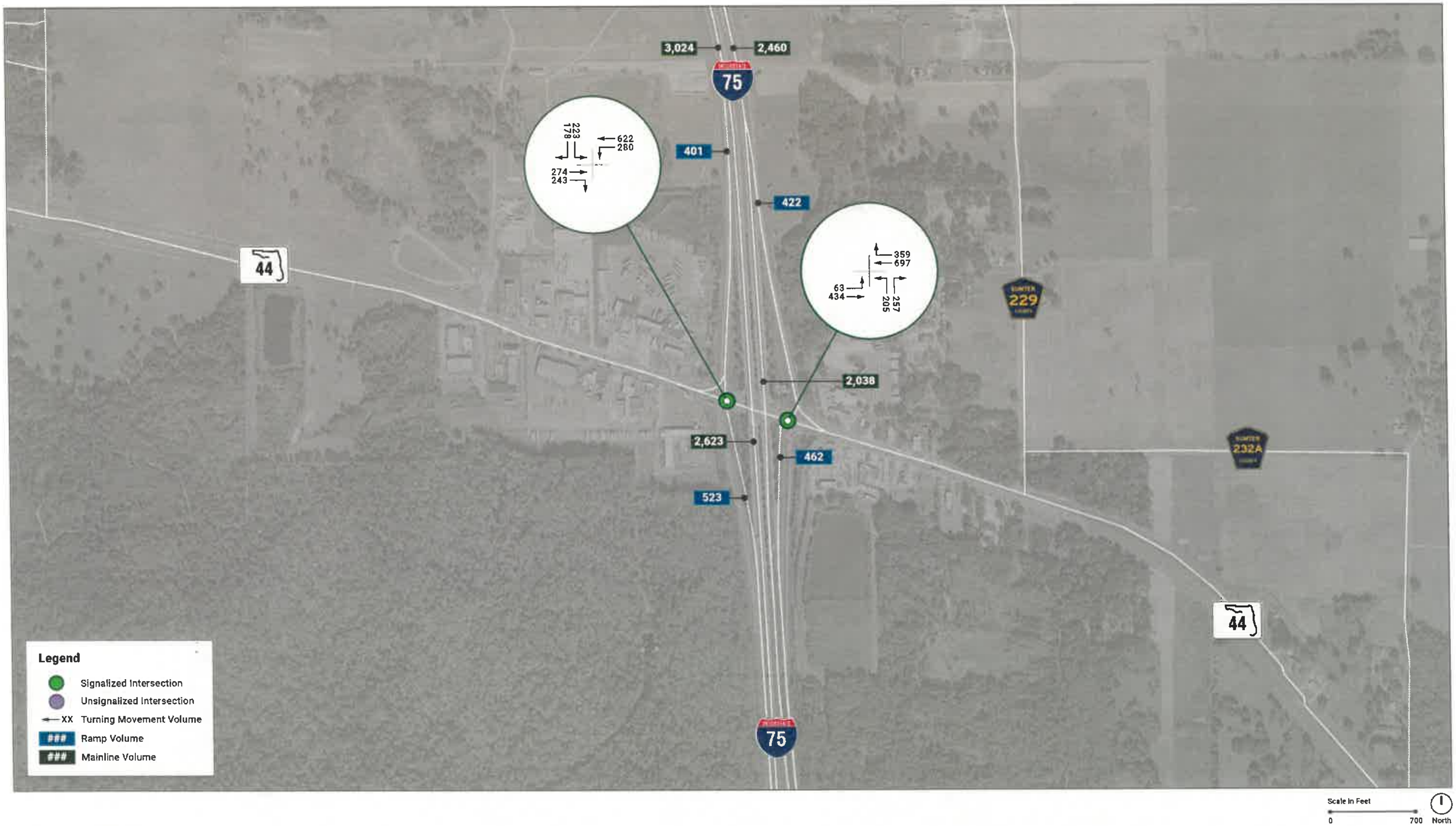
South of SR 44 to SR 200

2019 AM Peak Hour Turning Movement Volumes

Figure 7 (4 of 4)

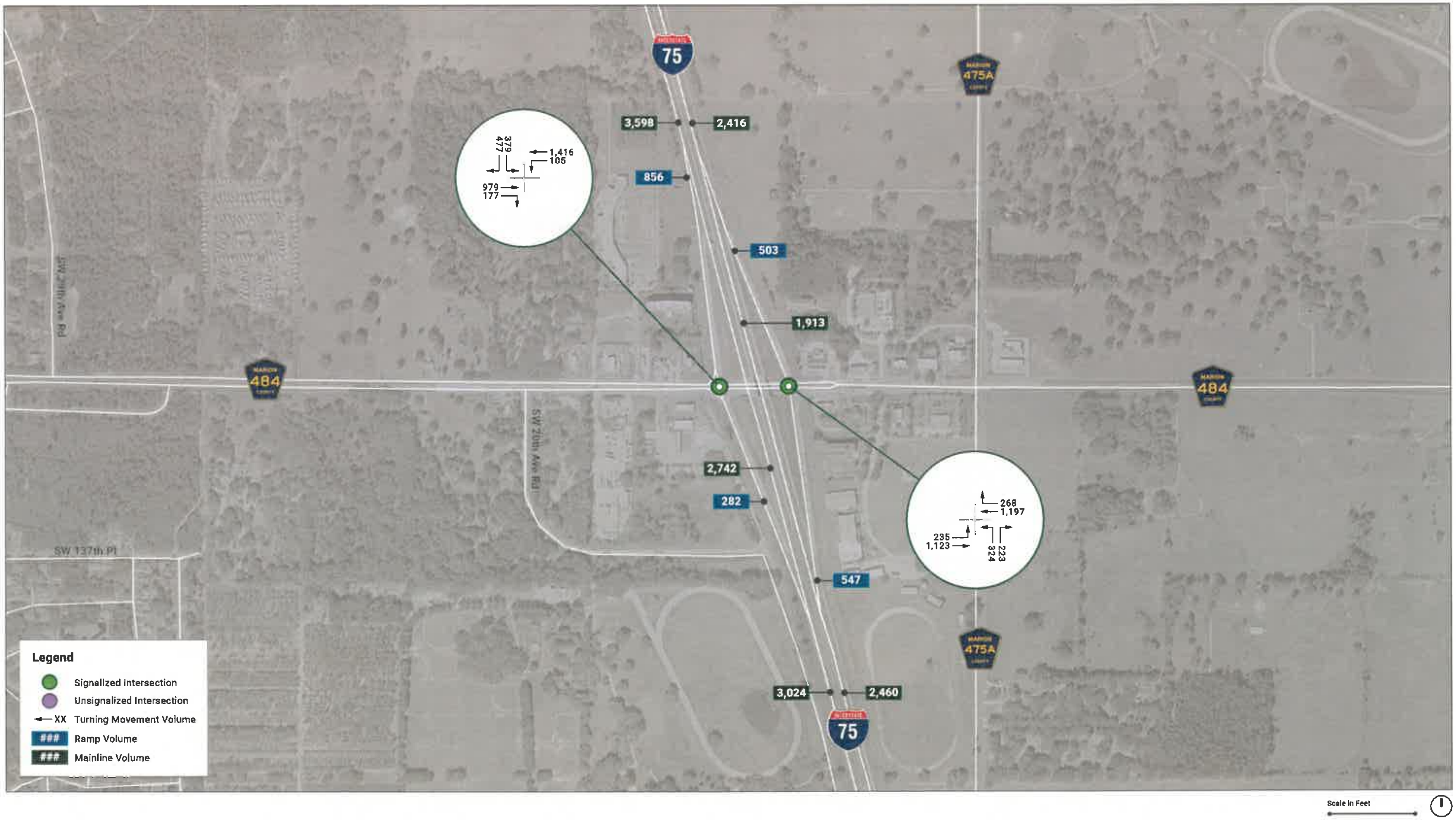
I-75 PD&E South | South of SR 44
South of SR 44 to SR 200

2019 PM Peak Hour Turning Movement Volumes
Figure 8 (1 of 4)



I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

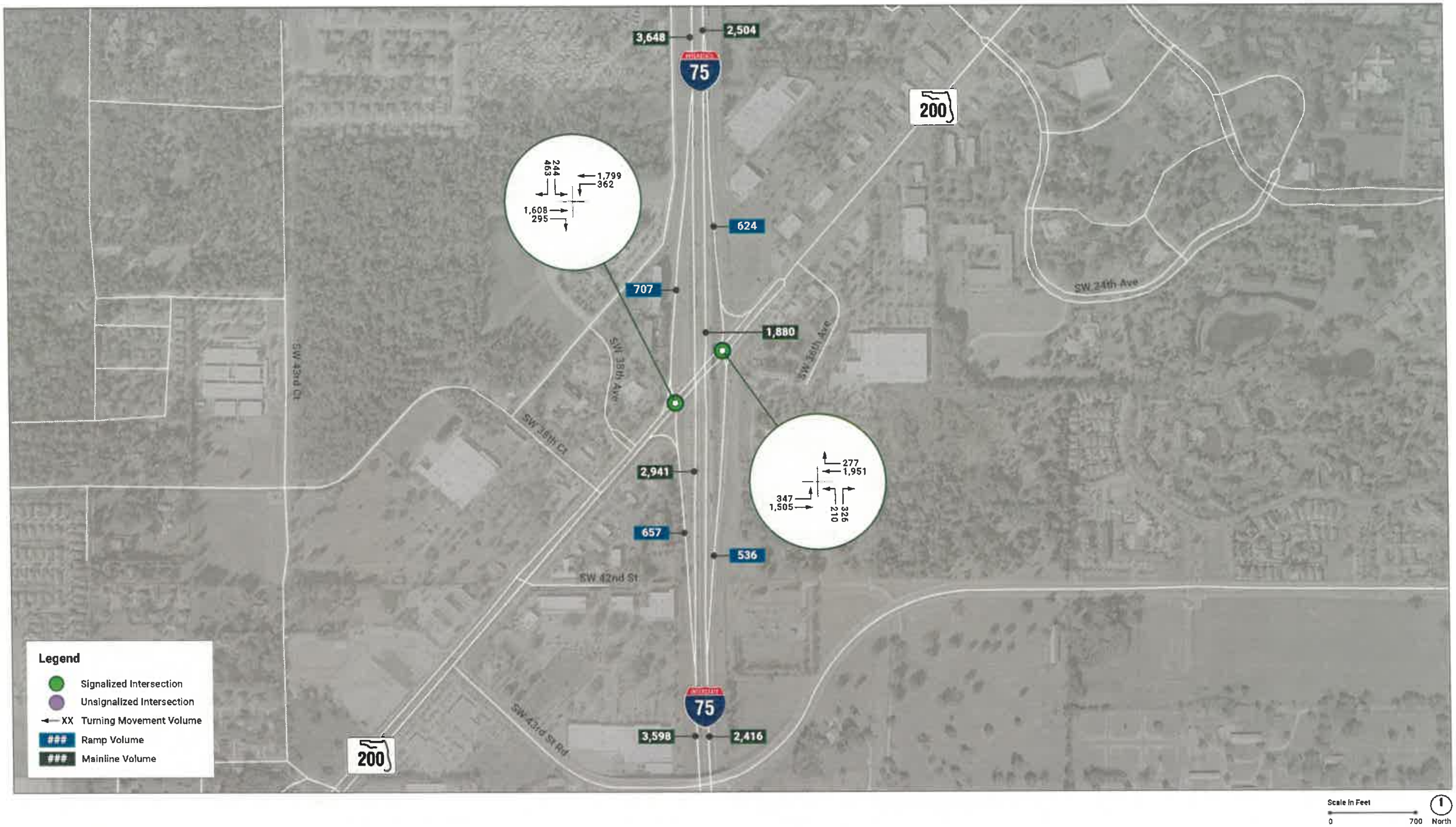
2019 PM Peak Hour Turning Movement Volumes
Figure 8 (2 of 4)



FDOT

I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

2019 PM Peak Hour Turning Movement Volumes
Figure 8 (3 of 4)



I-75 PD&E South | SR 200 Interchange
South of SR 44 to SR 200

2019 PM Peak Hour Turning Movement Volumes
Figure 8 (4 of 4)

I-75 PD&E South | South of SR 44
South of SR 44 to SR 200

2019 Weekend Midday Peak Hour Turning Movement Volumes
Figure 9 (1 of 4)

FDOT

I-75 PD&E South | SR 44 Interchange

South of SR 44 to SR 200

2019 Weekend Midday Peak Hour Turning Movement Volumes

Figure 9 (2 of 4)

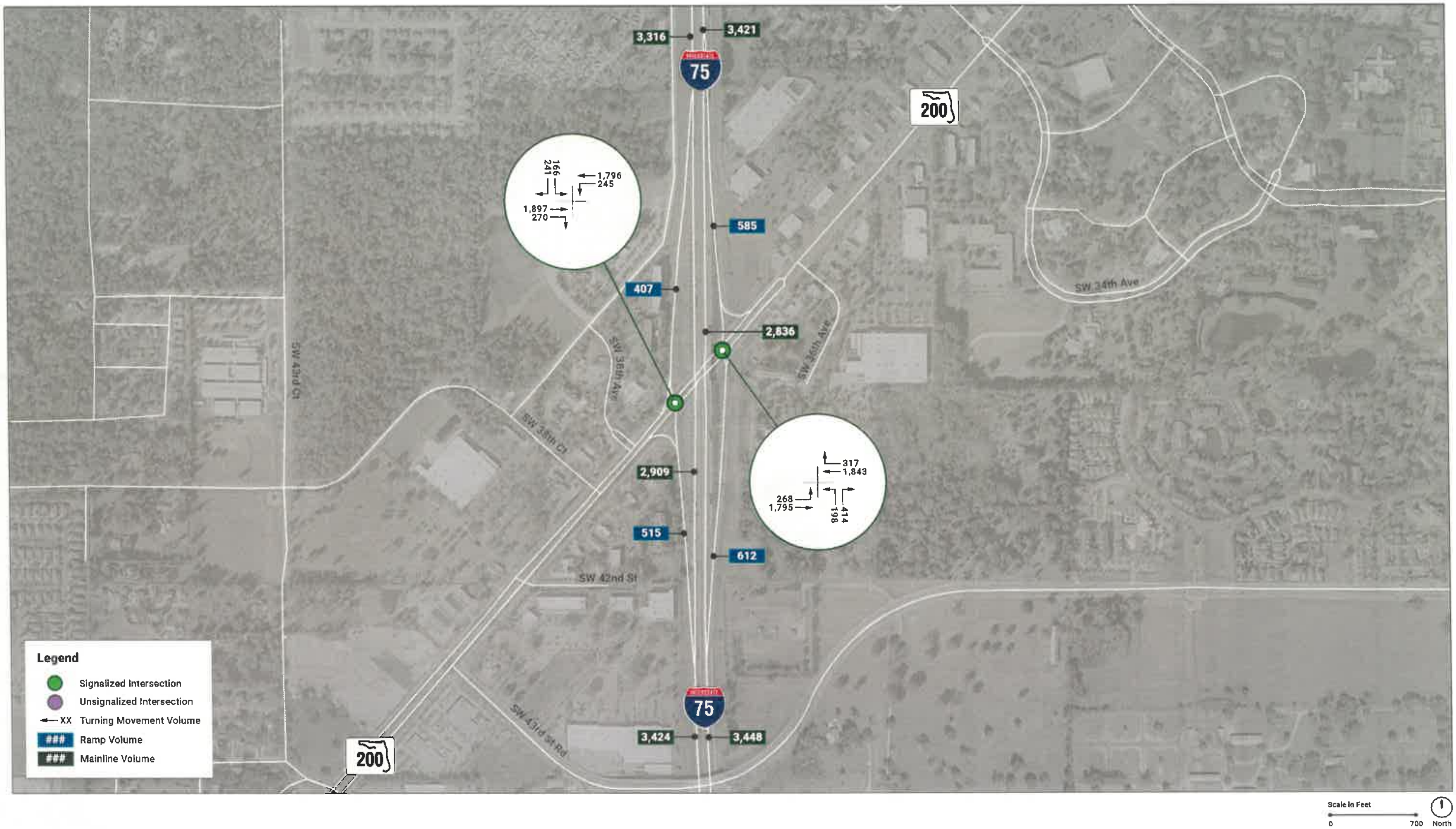
FDOT

I-75 PD&E South | CR 484 Interchange

South of SR 44 to SR 200

2019 Weekend Midday Peak Hour Turning Movement Volumes

Figure 9 (3 of 4)



I-75 PD&E South | SR 200 Interchange
South of SR 44 to SR 200

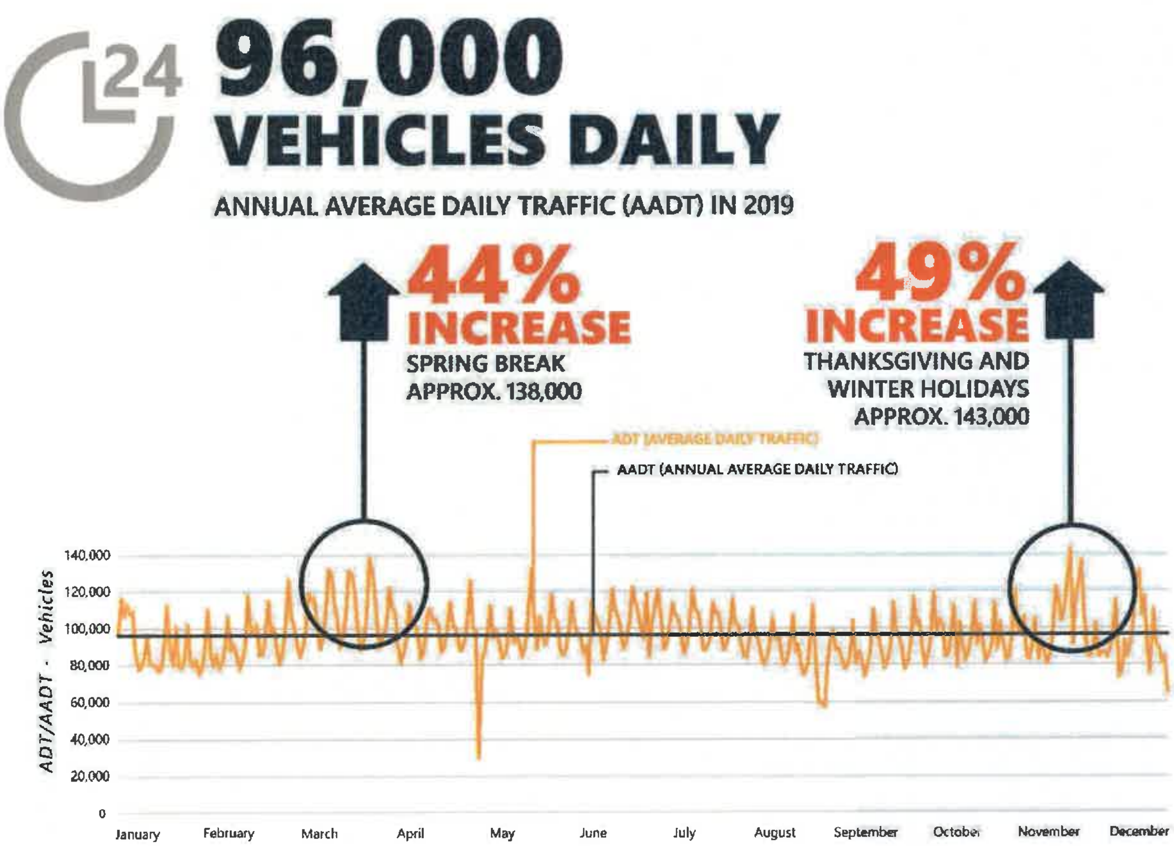
2019 Weekend Midday Peak Hour Turning Movement Volumes
Figure 9 (4 of 4)

EXISTING FREEWAY ADT TRENDS

Data was gathered from the telemetered count station within the study limits (Site 360317) for 2019 to review ADT trends over the course of the year. The following summarizes the ADT peaking throughout the year and how that compares to the AADT observed at the station (illustrated in **Figure 10**.

- AADT is approximately 96,000
- Peaking is observed around Spring Break – approximately 138,000 ADT (~44% increase)
- Peaking is observed around the Thanksgiving and Winter Holidays – approximately 143,000 ADT (~49% increase)
- The peaking observed occurs primarily on the weekend as well as Fridays for long holiday weekends.

Figure 10: ADT Trends for Site 360317 (2019 Data)



Source: I-75 Presentation prepared by FDOT D5 for Public Involvement

EXISTING CONDITIONS OPERATIONAL ANALYSIS

The following section summarizes the existing operational analysis results for the freeway and intersection evaluations.

HCS2023

The technical methodology for this evaluation is based on the Freeway Facilities Analysis as outlined in the Highway Capacity Manual (HCM) 7th Edition. The freeway facilities methodology integrates all freeway segment chapter methodologies, including analysis of basic freeway segments, freeway merge and diverge segments, and freeway weaving segments. The freeway facilities analysis further provides the ability to evaluate multiple time periods, up to a 24-hour analysis. For this analysis, weekday AM, weekday PM, and weekend peak periods were analyzed in 15-minute intervals over a three-hour period.

ANALYSIS YEARS AND EVALUATION PERIODS

- 2019 Weekday AM
  - 6:15 – 9:15 AM
- 2019 Weekday PM
  - 3:30 – 6:30 PM
- 2019 Weekend Midday
  - 12:00 – 3:00 PM

ASSUMPTIONS

- Peak Hour Truck Percentages
  - 11.9% trucks (2.9% single unit trucks, 9.0% tractor trailer trucks) in the peak periods along northbound I-75 based on available vehicle classification data from the Florida Traffic Online.
  - 10.1% trucks (2.0% single unit trucks, 8.1% tractor trailer trucks) in the peak periods along southbound I-75 based on available vehicle classification data from the Florida Traffic Online.
- Ramp truck percentages were used based on the vehicular classification counts collected along each ramp (Ramp truck percentages are included in **Appendix G**).
  - A combined truck percentage (single unit trucks/buses plus tractor trailer truck) was utilized for analysis purposes per the HCM 7th Edition based on existing classification data.
- Three-hour analysis for each peak period with shoulder period volumes estimated by applying 24-hour traffic profiles. The traffic volume profiles applied are included in **Appendix G**.

- Base Free-flow speed of 75 mi/h for all mainline segments based on posted speed plus 5 mph.
- Base Ramp free-flow speed of 45 mi/h for diamond interchange ramps.
- Driver Population Factors – Assumed "Balanced Mix" (Exhibit 26-9 of the HCM)
  - Capacity adjustment factor $(CAF)_{pop}$ = 0.939
  - Speed adjustment factor $(SAF)_{pop}$ = 0.950
- Florida-specific "default" Capacity Adjustment Factors (University of Florida Research). These CAFs were applied to the merges/diverges as follows:
  - Three-lane merge/diverge freeway segments:
    - Florida-specific CAF = 0.875
  - Four-lane merge/diverge freeway segments:
    - Florida-specific CAF = 0.833
- Note that HCS 2023 provides one input field for merge/diverge freeway segment capacity adjustments (Freeway Capacity Adjustment Factor). Therefore, the CAF_{pop} and Florida-specific CAF were multiplied together and entered as one value into HCS.
- Notes were provided in the individual HCS files to provide explanations to applicable information warnings.

FREEWAY SEGMENTATION

The freeway facility in each direction (northbound and southbound) was segmented into basic freeway segments, merge, and diverge segments based on the HCM Freeway Facilities Methodologies. The northbound facility consists of 24 analysis segments (**Figure 11**) and the southbound facility consists of 23 analysis segments (**Figure 12**). There are relatively long basic freeway segments (longer than 10 miles) that were split into smaller, homogeneous basic freeway segments modeled as 1,500-foot segments (same length as merge/diverge influence areas) to capture the potential impact and extent of potential queues or breakdowns in speed along the facility. For example, the segment between SR 44 On Ramp and CR 484 Off Ramp in the northbound direction was 10.2 miles in length. This was broken down into two 1,500-foot segments, one 47,899-foot segment and two more 1,500-foot segments. The total northbound facility length is approximately 23.0 miles and the total southbound facility length is approximately 22.8 miles.

Figure 11: Northbound Freeway Facility Segmentation

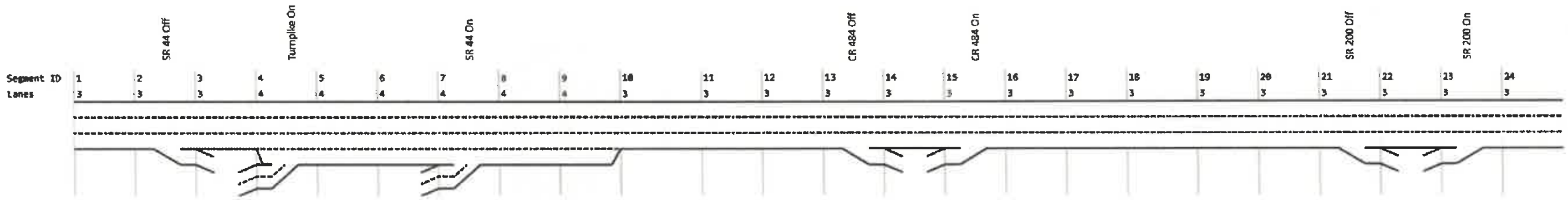
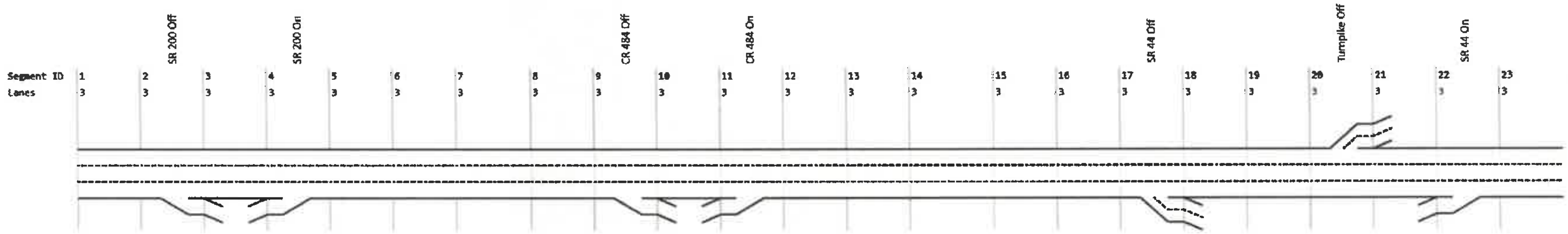


Figure 12: Southbound Freeway Facility Segmentation



OPERATIONAL RESULTS

A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 10**. The HCS output reports are provided in **Appendix G**. The facility operates at LOS C or better during the AM, PM and weekend peak periods for both the northbound and southbound directions. The maximum D/C ratio observed in the northbound direction is 0.70 during the weekend peak period while the maximum D/C ratio observed in the southbound direction is 0.71 during the PM peak period. The average speeds on this facility are above 69 mph. It is important to note that these results are for average peak hour and do not represent volume spikes previously discussed and shown in **Figure 10** and do not account for operations during incidents.

The D/C, speed, and LOS contours for each analysis facility and peak period are illustrated in the following figures:

- Northbound AM – **Figure 13**
- Northbound PM – **Figure 14**
- Northbound Weekend – **Figure 15**
- Southbound AM – **Figure 16**
- Southbound PM – **Figure 17**
- Southbound Weekend – **Figure 18**

Table 10: Freeway Operations Summary – 2019 Existing Conditions

Performance Metric	South Section – AM		South Section – PM		South Section – Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	23.0	22.8	23.0	22.8	23.0	22.8
Average Travel Time (min)	19.5	19.4	19.5	19.5	19.8	19.6
Total VHD (veh-h)	16.6	14.4	18.7	47.2	65.1	70.5
Space Mean Speed (mph)	70.6	70.6	70.6	70.1	69.8	69.7
Reported Density (pc/mi/ln)	10.8	9.2	12.2	16.1	17.1	17.9
Max D/C	0.56	0.43	0.53	0.71	0.70	0.69

Figure 13: Northbound 2019 AM Existing Condition – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 6:15 - 6:30	0.13	0.15	0.08	0.17	0.14	0.14	0.20	0.17	0.17	0.22	0.22	0.22
#2 6:30 - 6:45	0.15	0.17	0.09	0.19	0.16	0.16	0.23	0.19	0.19	0.25	0.25	0.25
#3 6:45 - 7:00	0.17	0.20	0.11	0.22	0.19	0.19	0.27	0.22	0.22	0.30	0.30	0.30
#4 7:00 - 7:15	0.20	0.22	0.13	0.25	0.21	0.21	0.31	0.25	0.25	0.34	0.34	0.34
#5 7:15 - 7:30	0.18	0.21	0.12	0.24	0.20	0.20	0.29	0.24	0.24	0.32	0.32	0.32
#6 7:30 - 7:45	0.19	0.21	0.12	0.24	0.20	0.20	0.29	0.24	0.24	0.32	0.32	0.32
#7 7:45 - 8:00	0.21	0.24	0.13	0.27	0.23	0.23	0.33	0.28	0.28	0.37	0.37	0.37
#8 8:00 - 8:15	0.21	0.24	0.13	0.27	0.22	0.22	0.32	0.27	0.27	0.36	0.36	0.36
#9 8:15 - 8:30	0.20	0.23	0.13	0.26	0.22	0.22	0.32	0.26	0.26	0.35	0.35	0.35
#10 8:30 - 8:45	0.20	0.23	0.13	0.26	0.22	0.22	0.31	0.26	0.26	0.35	0.35	0.35
#11 8:45 - 9:00	0.20	0.22	0.13	0.25	0.21	0.21	0.31	0.25	0.25	0.34	0.34	0.34
#12 9:00 - 9:15	0.19	0.21	0.12	0.24	0.20	0.20	0.29	0.24	0.24	0.32	0.32	0.32

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	0.25	0.20	0.33	0.29	0.29	0.29	0.29	0.29	0.33	0.24	0.34	0.30
#2 6:30 - 6:45	0.29	0.22	0.37	0.33	0.33	0.33	0.33	0.33	0.38	0.27	0.38	0.34
#3 6:45 - 7:00	0.34	0.26	0.44	0.39	0.39	0.39	0.39	0.39	0.44	0.32	0.45	0.40
#4 7:00 - 7:15	0.39	0.30	0.50	0.44	0.44	0.44	0.44	0.44	0.51	0.37	0.51	0.45
#5 7:15 - 7:30	0.36	0.28	0.47	0.42	0.42	0.42	0.42	0.42	0.48	0.35	0.48	0.43
#6 7:30 - 7:45	0.37	0.29	0.48	0.42	0.42	0.42	0.42	0.42	0.48	0.35	0.49	0.43
#7 7:45 - 8:00	0.42	0.33	0.55	0.48	0.48	0.48	0.48	0.48	0.55	0.40	0.56	0.49
#8 8:00 - 8:15	0.41	0.32	0.53	0.47	0.47	0.47	0.47	0.47	0.53	0.39	0.54	0.48
#9 8:15 - 8:30	0.40	0.31	0.52	0.46	0.46	0.46	0.46	0.46	0.53	0.38	0.54	0.47
#10 8:30 - 8:45	0.40	0.31	0.52	0.46	0.46	0.46	0.46	0.46	0.52	0.38	0.53	0.47
#11 8:45 - 9:00	0.39	0.30	0.50	0.45	0.45	0.45	0.45	0.45	0.51	0.37	0.52	0.45
#12 9:00 - 9:15	0.37	0.29	0.48	0.42	0.42	0.42	0.42	0.42	0.48	0.35	0.49	0.43

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 6:15 - 6:30	71.2	63.4	70.9	66.9	70.9	71.2	68.1	70.9	71.2	71.2	71.2	71.2
#2 6:30 - 6:45	71.2	63.4	70.9	66.8	70.9	71.2	68.1	70.9	71.2	71.2	71.2	71.2
#3 6:45 - 7:00	71.2	63.1	70.9	66.7	70.9	71.2	68.1	70.9	71.2	71.2	71.2	71.2
#4 7:00 - 7:15	71.2	63.2	70.9	66.6	70.9	71.2	67.9	70.9	71.2	71.2	71.2	71.2
#5 7:15 - 7:30	71.2	63.2	70.9	66.7	70.9	71.2	68.0	70.9	71.2	71.2	71.2	71.2
#6 7:30 - 7:45	71.2	63.2	70.9	66.7	70.9	71.2	68.0	70.9	71.2	71.2	71.2	71.2
#7 7:45 - 8:00	71.2	63.1	70.9	66.6	70.9	71.2	67.8	70.9	71.2	71.2	71.2	71.2
#8 8:00 - 8:15	71.2	63.1	70.9	66.4	70.9	71.2	67.9	70.9	71.2	71.2	71.2	71.2
#9 8:15 - 8:30	71.2	63.1	70.9	66.5	70.9	71.2	67.9	70.9	71.2	71.2	71.2	71.2
#10 8:30 - 8:45	71.2	63.2	70.9	66.6	70.9	71.2	67.9	70.9	71.2	71.2	71.2	71.2
#11 8:45 - 9:00	71.2	63.2	70.9	66.6	70.9	71.2	67.9	70.9	71.2	71.2	71.2	71.2
#12 9:00 - 9:15	71.2	63.2	70.9	66.7	70.9	71.2	68.0	70.9	71.2	71.2	71.2	71.2

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	64.8	71.0	65.3	70.7	71.2	71.2	71.2	71.2	64.4	71.1	66.0	70.7
#2 6:30 - 6:45	64.8	71.0	65.2	70.7	71.2	71.2	71.2	71.2	64.4	71.1	65.9	70.7
#3 6:45 - 7:00	64.9	71.0	64.9	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.6	70.7
#4 7:00 - 7:15	64.9	71.0	64.7	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.4	70.7
#5 7:15 - 7:30	64.9	71.0	64.8	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.5	70.7
#6 7:30 - 7:45	65.0	71.0	64.8	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.5	70.7
#7 7:45 - 8:00	65.0	71.0	64.5	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.1	70.7
#8 8:00 - 8:15	65.0	71.0	64.6	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.2	70.7
#9 8:15 - 8:30	65.0	71.0	64.6	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.3	70.7
#10 8:30 - 8:45	64.9	71.0	64.6	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.3	70.7
#11 8:45 - 9:00	64.9	71.0	64.7	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.4	70.7
#12 9:00 - 9:15	65.0	71.0	64.8	70.6	71.2	71.2	71.2	71.2	64.4	71.1	65.5	70.7

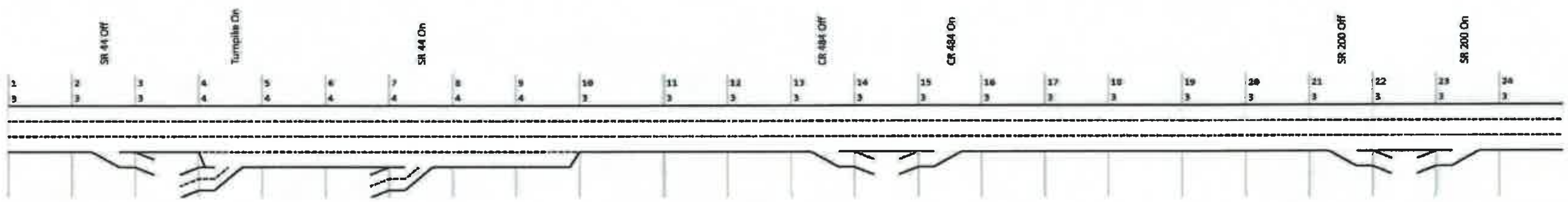
Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 6:15 - 6:30	A	A	A	A	A	A	A	A	A	A	A	A
#2 6:30 - 6:45	A	A	A	A	A	A	A	A	A	A	A	A
#3 6:45 - 7:00	A	A	A	A	A	A	A	A	A	A	A	A
#4 7:00 - 7:15	A	A	A	A	A	A	A	A	A	A	A	A
#5 7:15 - 7:30	A	A	A	A	A	A	A	A	A	A	A	A
#6 7:30 - 7:45	A	A	A	A	A	A	A	A	A	A	A	A
#7 7:45 - 8:00	A	A	A	A	A	A	A	A	A	B	B	B
#8 8:00 - 8:15	A	A	A	A	A	A	A	A	A	B	B	B
#9 8:15 - 8:30	A	A	A	A	A	A	A	A	A	B	B	B
#10 8:30 - 8:45	A	A	A	A	A	A	A	A	A	A	A	A
#11 8:45 - 9:00	A	A	A	A	A	A	A	A	A	A	A	A
#12 9:00 - 9:15	A	A	A	A	A	A	A	A	A	A	A	A

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	A	A	B	A	A	A	A	A	B	A	A	A
#2 6:30 - 6:45	A	A	B	A	A	A	A	A	B	A	B	A
#3 6:45 - 7:00	B	A	B	B	B	B	B	B	B	A	B	B
#4 7:00 - 7:15	B	A	B	B	B	B	B	B	C	B	B	B
#5 7:15 - 7:30	B	A	B	B	B	B	B	B	C	A	B	B
#6 7:30 - 7:45	B	A	B	B	B	B	B	B	C	B	B	B
#7 7:45 - 8:00	B	A	B	B	B	B	B	B	C	B	B	B
#8 8:00 - 8:15	B	A	B	B	B	B	B	B	C	B	B	B
#9 8:15 - 8:30	B	A	B	B	B	B	B	B	C	B	B	B
#10 8:30 - 8:45	B	A	B	B	B	B	B	B	C	B	B	B
#11 8:45 - 9:00	B	A	B	B	B	B	B	B	C	B	B	B
#12 9:00 - 9:15	B	A	B	B	B	B	B	B	C	B	B	B

Figure 14: Northbound 2019 PM Existing Condition – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	0.25	0.29	0.16	0.34	0.28	0.28	0.42	0.35	0.35	0.46	0.46	0.46	0.53	0.36	0.52	0.46	0.46	0.46	0.46	0.46	0.52	0.36	0.53	0.47
#2 15:45 - 16:00	0.24	0.27	0.15	0.32	0.27	0.27	0.40	0.33	0.33	0.44	0.44	0.44	0.50	0.34	0.49	0.43	0.43	0.43	0.43	0.43	0.49	0.34	0.50	0.45
#3 16:00 - 16:15	0.24	0.28	0.16	0.33	0.28	0.28	0.41	0.34	0.34	0.45	0.45	0.45	0.51	0.35	0.51	0.45	0.45	0.45	0.45	0.45	0.51	0.35	0.52	0.46
#4 16:15 - 16:30	0.23	0.26	0.15	0.31	0.25	0.26	0.39	0.32	0.32	0.42	0.42	0.42	0.48	0.33	0.48	0.42	0.42	0.42	0.42	0.42	0.48	0.33	0.49	0.43
#5 16:30 - 16:45	0.20	0.23	0.13	0.27	0.22	0.22	0.33	0.27	0.27	0.36	0.36	0.36	0.41	0.28	0.41	0.36	0.36	0.36	0.36	0.36	0.41	0.28	0.42	0.37
#6 16:45 - 17:00	0.22	0.25	0.14	0.30	0.25	0.25	0.37	0.30	0.30	0.41	0.41	0.41	0.46	0.32	0.46	0.40	0.40	0.40	0.40	0.40	0.46	0.31	0.47	0.41
#7 17:00 - 17:15	0.23	0.26	0.15	0.31	0.26	0.26	0.38	0.31	0.31	0.42	0.42	0.42	0.48	0.33	0.47	0.41	0.41	0.41	0.41	0.41	0.47	0.32	0.48	0.43
#8 17:15 - 17:30	0.23	0.27	0.15	0.32	0.26	0.26	0.39	0.32	0.32	0.43	0.43	0.43	0.49	0.34	0.49	0.43	0.43	0.43	0.43	0.43	0.49	0.33	0.49	0.44
#9 17:30 - 17:45	0.23	0.26	0.14	0.30	0.25	0.25	0.38	0.31	0.31	0.41	0.41	0.41	0.47	0.32	0.47	0.41	0.41	0.41	0.41	0.41	0.47	0.32	0.48	0.42
#10 17:45 - 18:00	0.21	0.24	0.14	0.29	0.24	0.24	0.36	0.29	0.29	0.39	0.39	0.39	0.45	0.31	0.44	0.39	0.39	0.39	0.39	0.39	0.44	0.30	0.45	0.40
#11 18:00 - 18:15	0.21	0.24	0.13	0.28	0.23	0.23	0.35	0.29	0.29	0.38	0.38	0.38	0.44	0.30	0.43	0.38	0.38	0.38	0.38	0.38	0.43	0.30	0.44	0.39
#12 18:15 - 18:30	0.20	0.22	0.12	0.26	0.22	0.22	0.33	0.27	0.27	0.36	0.36	0.36	0.41	0.28	0.41	0.35	0.35	0.35	0.35	0.35	0.41	0.28	0.41	0.37

Speed Contours

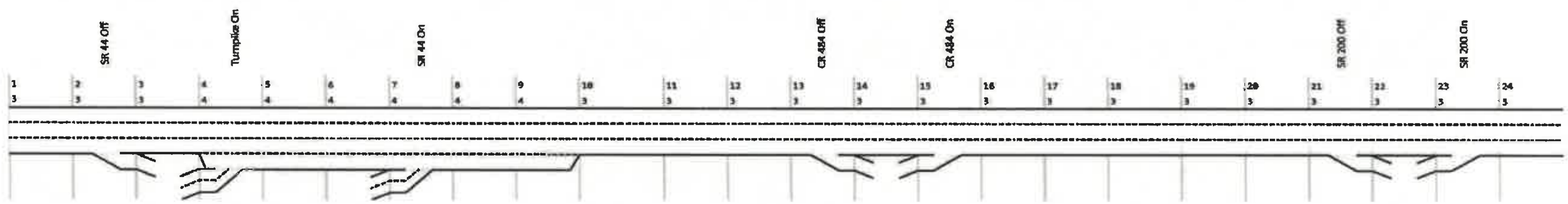
Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	71.2	62.9	70.9	66.3	70.9	71.2	67.5	70.9	71.2	71.2	71.2	71.2	64.0	71.0	64.8	70.6	71.2	71.2	71.2	71.2	64.0	71.1	65.2	70.7
#2 15:45 - 16:00	71.2	62.9	70.9	66.4	70.9	71.2	67.5	70.9	71.2	71.2	71.2	71.2	64.0	71.0	65.0	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.3	70.7
#3 16:00 - 16:15	71.2	63.0	70.9	66.4	70.9	71.2	67.5	70.9	71.2	71.2	71.2	71.2	63.9	71.0	64.9	70.6	71.2	71.2	71.2	71.2	64.0	71.1	65.2	70.7
#4 16:15 - 16:30	71.2	63.0	70.9	66.4	70.9	71.2	67.6	70.9	71.2	71.2	71.2	71.2	63.9	71.0	65.1	70.7	71.2	71.2	71.2	71.2	63.9	71.0	65.4	70.7
#5 16:30 - 16:45	71.2	63.1	70.9	66.6	70.9	71.2	67.8	70.9	71.2	71.2	71.2	71.2	63.9	71.0	65.1	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.3	70.7
#6 16:45 - 17:00	71.2	63.0	70.9	66.5	70.9	71.2	67.6	70.9	71.2	71.2	71.2	71.2	64.0	71.0	65.1	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.5	70.7
#7 17:00 - 17:15	71.2	63.0	70.9	66.5	70.9	71.2	67.6	70.9	71.2	71.2	71.2	71.2	63.9	71.0	65.1	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.4	70.7
#8 17:15 - 17:30	71.2	63.0	70.9	66.4	70.9	71.2	67.6	70.9	71.2	71.2	71.2	71.2	64.0	71.0	65.0	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.4	70.7
#9 17:30 - 17:45	71.2	63.0	70.9	66.5	70.9	71.2	67.6	70.9	71.2	71.2	71.2	71.2	63.9	71.0	65.1	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.5	70.7
#10 17:45 - 18:00	71.2	63.1	70.8	66.5	70.9	71.2	67.7	70.9	71.2	71.2	71.2	71.2	63.9	71.0	65.2	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.6	70.7
#11 18:00 - 18:15	71.2	63.0	70.9	66.5	70.9	71.2	67.8	70.9	71.2	71.2	71.2	71.2	64.0	71.0	65.2	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.6	70.7
#12 18:15 - 18:30	71.2	63.1	70.9	66.6	70.9	71.2	67.8	70.9	71.2	71.2	71.2	71.2	64.0	71.0	65.4	70.7	71.2	71.2	71.2	71.2	64.0	71.1	65.7	70.7

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	A	A	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B
#2 15:45 - 16:00	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	C	A	B	B
#3 16:00 - 16:15	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B
#4 16:15 - 16:30	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	C	A	B	B
#5 16:30 - 16:45	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	A	B	B
#6 16:45 - 17:00	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	A	B	B
#7 17:00 - 17:15	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	C	A	B	B
#8 17:15 - 17:30	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	C	A	B	B
#9 17:30 - 17:45	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	A	B	B
#10 17:45 - 18:00	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	A	B	B
#11 18:00 - 18:15	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	A	B	B
#12 18:15 - 18:30	A	A	A	A	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	A	B	B

Figure 15: Northbound 2019 Weekend Existing Condition – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	0.43	0.49	0.34	0.49	0.41	0.41	0.56	0.46	0.46	0.61	0.61	0.61	0.70	0.50	0.70	0.62	0.62	0.62	0.62	0.62	0.70	0.51	0.69	0.61
#2 12:15 - 12:30	0.43	0.49	0.34	0.49	0.41	0.41	0.56	0.46	0.46	0.61	0.61	0.61	0.70	0.50	0.70	0.62	0.62	0.62	0.62	0.62	0.70	0.51	0.69	0.61
#3 12:30 - 12:45	0.43	0.49	0.34	0.49	0.41	0.41	0.56	0.46	0.46	0.61	0.61	0.61	0.70	0.50	0.70	0.62	0.62	0.62	0.62	0.62	0.70	0.51	0.69	0.61
#4 12:45 - 13:00	0.43	0.49	0.34	0.49	0.41	0.41	0.56	0.46	0.46	0.61	0.61	0.61	0.70	0.50	0.70	0.62	0.62	0.62	0.62	0.62	0.70	0.51	0.69	0.61
#5 13:00 - 13:15	0.39	0.44	0.31	0.45	0.38	0.38	0.51	0.42	0.42	0.56	0.56	0.56	0.64	0.46	0.64	0.56	0.56	0.56	0.56	0.56	0.64	0.47	0.63	0.56
#6 13:15 - 13:30	0.39	0.44	0.31	0.45	0.38	0.38	0.51	0.42	0.42	0.56	0.56	0.56	0.64	0.46	0.64	0.56	0.56	0.56	0.56	0.56	0.64	0.47	0.63	0.56
#7 13:30 - 13:45	0.39	0.44	0.31	0.45	0.38	0.38	0.51	0.42	0.42	0.56	0.56	0.56	0.64	0.46	0.64	0.56	0.56	0.56	0.56	0.56	0.64	0.47	0.63	0.56
#8 13:45 - 14:00	0.39	0.44	0.31	0.45	0.38	0.38	0.51	0.42	0.42	0.56	0.56	0.56	0.64	0.46	0.64	0.56	0.56	0.56	0.56	0.56	0.64	0.47	0.63	0.56
#9 14:00 - 14:15	0.35	0.40	0.27	0.40	0.34	0.34	0.45	0.38	0.38	0.50	0.50	0.50	0.57	0.41	0.58	0.50	0.50	0.50	0.50	0.50	0.58	0.42	0.56	0.50
#10 14:15 - 14:30	0.35	0.40	0.27	0.40	0.34	0.34	0.45	0.38	0.38	0.50	0.50	0.50	0.57	0.41	0.58	0.50	0.50	0.50	0.50	0.50	0.58	0.42	0.56	0.50
#11 14:30 - 14:45	0.35	0.40	0.27	0.40	0.34	0.34	0.45	0.38	0.38	0.50	0.50	0.50	0.57	0.41	0.58	0.50	0.50	0.50	0.50	0.50	0.58	0.42	0.56	0.50
#12 14:45 - 15:00	0.35	0.40	0.27	0.40	0.34	0.34	0.45	0.38	0.38	0.50	0.50	0.50	0.57	0.41	0.58	0.50	0.50	0.50	0.50	0.50	0.58	0.42	0.56	0.50

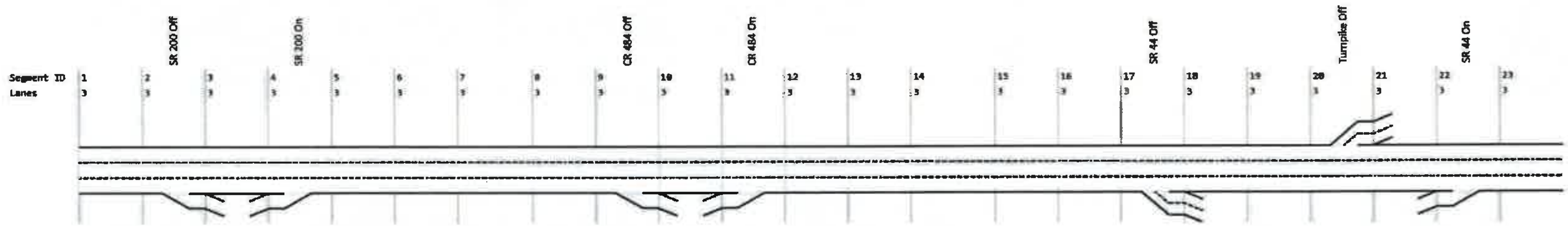
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	71.2	64.1	70.9	65.5	70.9	71.2	67.0	70.8	71.2	69.1	69.1	69.1	63.5	71.0	63.9	69.1	69.1	69.1	69.1	69.1	64.3	70.9	64.5	69.4
#2 12:15 - 12:30	71.2	64.1	70.9	65.5	70.9	71.2	67.0	70.8	71.2	69.1	69.1	69.1	63.5	71.0	63.9	69.1	69.1	69.1	69.1	69.1	64.3	70.9	64.5	69.4
#3 12:30 - 12:45	71.2	64.1	70.9	65.5	70.9	71.2	67.0	70.8	71.2	69.1	69.1	69.1	63.5	71.0	63.9	69.1	69.1	69.1	69.1	69.1	64.3	70.9	64.5	69.4
#4 12:45 - 13:00	71.2	64.1	70.9	65.5	70.9	71.2	67.0	70.8	71.2	69.1	69.1	69.1	63.5	71.0	63.9	69.1	69.1	69.1	69.1	69.1	64.3	70.9	64.5	69.4
#5 13:00 - 13:15	71.2	64.0	70.9	66.7	70.9	71.2	67.2	70.8	71.2	70.3	70.3	70.3	63.7	71.0	64.3	70.3	70.3	70.3	70.3	70.3	64.4	71.1	64.8	70.8
#6 13:15 - 13:30	71.2	64.0	70.9	66.7	70.9	71.2	67.2	70.8	71.2	70.3	70.3	70.3	63.7	71.0	64.3	70.3	70.3	70.3	70.3	70.3	64.4	71.1	64.8	70.8
#7 13:30 - 13:45	71.2	64.0	70.9	66.7	70.9	71.2	67.2	70.8	71.2	70.3	70.3	70.3	63.7	71.0	64.3	70.3	70.3	70.3	70.3	70.3	64.4	71.1	64.8	70.8
#8 13:45 - 14:00	71.2	64.0	70.9	66.7	70.9	71.2	67.2	70.8	71.2	70.3	70.3	70.3	63.7	71.0	64.3	70.3	70.3	70.3	70.3	70.3	64.4	71.1	64.8	70.8
#9 14:00 - 14:15	71.2	64.1	70.9	66.9	70.9	71.2	67.5	70.9	71.2	71.0	71.0	71.0	63.8	71.0	64.7	70.6	71.0	71.0	71.0	71.0	64.4	71.1	65.3	[illegible]
#10 14:15 - 14:30	71.2	64.1	70.9	66.9	70.9	71.2	67.5	70.9	71.2	71.0	71.0	71.0	63.8	71.0	64.7	70.6	71.0	71.0	71.0	71.0	64.4	71.1	65.3	[illegible]
#11 14:30 - 14:45	71.2	64.1	70.9	66.9	70.9	71.2	67.5	70.9	71.2	71.0	71.0	71.0	63.8	71.0	64.7	70.6	71.0	71.0	71.0	71.0	64.4	71.1	65.3	[illegible]
#12 14:45 - 15:00	71.2	64.1	70.9	66.9	70.9	71.2	67.5	70.9	71.2	71.0	71.0	71.0	63.8	71.0	64.7	70.6	71.0	71.0	71.0	71.0	64.4	71.1	65.3	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	B	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	B	C
#2 12:15 - 12:30	B	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	B	C
#3 12:30 - 12:45	B	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	B	C
#4 12:45 - 13:00	B	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	B	C
#5 13:00 - 13:15	B	B	A	B	B	B	A	B	B	B	B	B	C	B	C	C	C	C	C	C	C	B	B	B
#6 13:15 - 13:30	B	B	A	B	B	B	A	B	B	B	B	B	C	B	C	C	C	C	C	C	C	B	B	B
#7 13:30 - 13:45	B	B	A	B	B	B	A	B	B	B	B	B	C	B	C	C	C	C	C	C	C	B	B	B
#8 13:45 - 14:00	B	B	A	B	B	B	A	B	B	B	B	B	C	B	C	C	C	C	C	C	C	B	B	B
#9 14:00 - 14:15	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B
#10 14:15 - 14:30	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B
#11 14:30 - 14:45	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B
#12 14:45 - 15:00	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B

Figure 16: Southbound 2019 AM Existing Condition – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Lanes	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11
#1 6:15 - 6:30	0.27	0.26	0.17	0.25	0.21	0.21	0.21	0.21	0.24	0.17	0.25
#2 6:30 - 6:45	0.25	0.28	0.19	0.26	0.23	0.23	0.23	0.23	0.26	0.18	0.27
#3 6:45 - 7:00	0.28	0.31	0.21	0.29	0.25	0.25	0.25	0.25	0.29	0.20	0.29
#4 7:00 - 7:15	0.30	0.35	0.23	0.32	0.28	0.28	0.28	0.28	0.32	0.22	0.32
#5 7:15 - 7:30	0.32	0.36	0.24	0.34	0.29	0.29	0.29	0.29	0.34	0.23	0.34
#6 7:30 - 7:45	0.35	0.40	0.26	0.37	0.32	0.32	0.32	0.32	0.37	0.25	0.37
#7 7:45 - 8:00	0.37	0.42	0.28	0.39	0.34	0.34	0.34	0.34	0.39	0.27	0.39
#8 8:00 - 8:15	0.34	0.39	0.26	0.36	0.32	0.32	0.32	0.32	0.36	0.25	0.37
#9 8:15 - 8:30	0.33	0.38	0.25	0.35	0.31	0.31	0.31	0.31	0.35	0.24	0.35
#10 8:30 - 8:45	0.34	0.39	0.26	0.36	0.32	0.32	0.32	0.32	0.36	0.25	0.37
#11 8:45 - 9:00	0.38	0.43	0.28	0.40	0.35	0.35	0.35	0.35	0.40	0.28	0.40
#12 9:00 - 9:15	0.36	0.41	0.27	0.38	0.33	0.33	0.33	0.33	0.38	0.26	0.38

Analysis Period	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	0.22	0.22	0.22	0.22	0.22	0.25	0.17	0.17	0.20	0.08	0.16	0.14
#2 6:30 - 6:45	0.23	0.23	0.23	0.23	0.23	0.27	0.19	0.19	0.21	0.09	0.17	0.15
#3 6:45 - 7:00	0.26	0.26	0.26	0.26	0.26	0.29	0.21	0.21	0.24	0.10	0.19	0.16
#4 7:00 - 7:15	0.28	0.28	0.28	0.28	0.28	0.32	0.23	0.23	0.26	0.11	0.21	0.18
#5 7:15 - 7:30	0.30	0.30	0.30	0.30	0.30	0.34	0.24	0.24	0.27	0.12	0.22	0.19
#6 7:30 - 7:45	0.32	0.32	0.32	0.32	0.32	0.37	0.26	0.26	0.30	0.13	0.24	0.21
#7 7:45 - 8:00	0.34	0.34	0.34	0.34	0.34	0.39	0.28	0.28	0.32	0.13	0.26	0.22
#8 8:00 - 8:15	0.32	0.32	0.32	0.32	0.32	0.37	0.26	0.26	0.30	0.12	0.24	0.21
#9 8:15 - 8:30	0.31	0.31	0.31	0.31	0.31	0.35	0.25	0.25	0.29	0.12	0.23	0.20
#10 8:30 - 8:45	0.32	0.32	0.32	0.32	0.32	0.37	0.26	0.26	0.30	0.13	0.24	0.21
#11 8:45 - 9:00	0.35	0.35	0.35	0.35	0.35	0.40	0.28	0.28	0.33	0.14	0.26	0.23
#12 9:00 - 9:15	0.34	0.34	0.34	0.34	0.34	0.38	0.27	0.27	0.31	0.13	0.25	0.22

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11
#1 6:15 - 6:30	71.2	63.8	71.0	66.3	70.8	71.2	71.2	71.2	64.1	71.0	66.0
#2 6:30 - 6:45	71.2	63.8	71.0	66.3	70.8	71.2	71.2	71.2	64.1	71.0	66.0
#3 6:45 - 7:00	71.2	63.7	71.0	66.2	70.8	71.2	71.2	71.2	64.1	71.0	66.0
#4 7:00 - 7:15	71.2	63.7	71.0	66.2	70.8	71.2	71.2	71.2	64.1	71.0	65.8
#5 7:15 - 7:30	71.2	63.7	71.0	66.1	70.8	71.2	71.2	71.2	64.1	71.0	65.8
#6 7:30 - 7:45	71.2	63.7	71.0	66.0	70.7	71.2	71.2	71.2	64.1	71.0	65.7
#7 7:45 - 8:00	71.2	63.7	71.0	65.9	70.7	71.2	71.2	71.2	64.1	71.0	65.8
#8 8:00 - 8:15	71.2	63.7	71.0	66.0	70.7	71.2	71.2	71.2	64.1	71.0	65.8
#9 8:15 - 8:30	71.2	63.7	71.0	66.0	70.7	71.2	71.2	71.2	64.1	71.0	65.8
#10 8:30 - 8:45	71.2	63.7	71.0	66.0	70.7	71.2	71.2	71.2	64.1	71.0	65.8
#11 8:45 - 9:00	71.2	63.7	71.0	65.9	70.7	71.2	71.2	71.2	64.1	71.0	65.6
#12 9:00 - 9:15	71.2	63.7	71.0	65.9	70.7	71.2	71.2	71.2	64.1	71.0	65.7

Analysis Period	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	70.7	71.2	71.2	71.2	71.2	67.2	71.1	71.2	63.3	[illegible]	64.9	70.6
#2 6:30 - 6:45	70.7	71.2	71.2	71.2	71.2	67.2	71.1	71.2	63.3	[illegible]	64.9	70.6
#3 6:45 - 7:00	70.7	71.2	71.2	71.2	71.2	67.2	71.1	71.2	63.2	[illegible]	64.8	70.6
#4 7:00 - 7:15	70.7	71.2	71.2	71.2	71.2	67.1	71.1	71.2	62.9	[illegible]	64.8	70.6
#5 7:15 - 7:30	70.7	71.2	71.2	71.2	71.2	67.1	71.1	71.2	62.9	[illegible]	64.8	70.6
#6 7:30 - 7:45	70.7	71.2	71.2	71.2	71.2	67.0	71.1	71.2	62.7	[illegible]	64.8	70.6
#7 7:45 - 8:00	70.7	71.2	71.2	71.2	71.2	67.0	71.1	71.2	62.6	[illegible]	64.7	70.6
#8 8:00 - 8:15	70.7	71.2	71.2	71.2	71.2	67.0	71.1	71.2	62.7	[illegible]	64.8	70.6
#9 8:15 - 8:30	70.7	71.2	71.2	71.2	71.2	67.0	71.1	71.2	62.8	[illegible]	64.8	70.6
#10 8:30 - 8:45	70.7	71.2	71.2	71.2	71.2	67.0	71.1	71.2	62.7	[illegible]	64.8	70.6
#11 8:45 - 9:00	70.7	71.2	71.2	71.2	71.2	66.9	71.1	71.2	62.1	[illegible]	64.7	70.6
#12 9:00 - 9:15	70.7	71.2	71.2	71.2	71.2	67.0	71.1	71.2	62.6	[illegible]	64.7	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11
#1 6:15 - 6:30	A	B	A	A	A	A	A	A	A	A	A
#2 6:30 - 6:45	A	B	A	A	A	A	A	A	A	A	A
#3 6:45 - 7:00	A	B	A	A	A	A	A	A	A	A	A
#4 7:00 - 7:15	A	B	A	A	A	A	A	A	B	A	A
#5 7:15 - 7:30	A	B	A	A	A	A	A	A	B	A	B
#6 7:30 - 7:45	A	B	A	A	A	A	A	A	B	A	B
#7 7:45 - 8:00	B	B	A	B	A	A	A	A	B	A	B
#8 8:00 - 8:15	A	B	A	A	A	A	A	A	B	A	B
#9 8:15 - 8:30	A	B	A	A	A	A	A	A	B	A	B
#10 8:30 - 8:45	A	B	A	A	A	A	A	A	B	A	B
#11 8:45 - 9:00	B	B	A	B	A	A	A	A	B	A	B
#12 9:00 - 9:15	B	B	A	B	A	A	A	A	B	A	B

Analysis Period	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	A	A	A	A	A	A	A	A	A	A	A	A
#2 6:30 - 6:45	A	A	A	A	A	A	A	A	A	A	A	A
#3 6:45 - 7:00	A	A	A	A	A	A	A	A	A	A	A	A
#4 7:00 - 7:15	A	A	A	A	A	A	A	A	A	A	A	A
#5 7:15 - 7:30	A	A	A	A	A	A	A	A	A	A	A	A
#6 7:30 - 7:45	A	A	A	A	A	A	A	A	A	A	B	A
#7 7:45 - 8:00	A	A	A	A	A	A	A	A	A	A	B	A
#8 8:00 - 8:15	A	A	A	A	A	A	A	A	A	A	B	A
#9 8:15 - 8:30	A	A	A	A	A	A	A	A	A	A	A	A
#10 8:30 - 8:45	A	A	A	A	A	A	A	A	A	A	B	A
#11 8:45 - 9:00	B	B	B	B	B	A	A	A	A	A	B	A
#12 9:00 - 9:15	A	A	A	A	A	A	A	A	A	A	B	A

Figure 17: Southbound 2019 PM Existing Condition – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Lanes	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Ramp		SR 200 Off		SR 200 On					CR 484 Off		CR 484 On						SR 44 Off			Turnpike Off		SR 44 On	

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	0.59	0.68	0.48	0.67	0.58	0.58	0.58	0.58	0.67	0.44	0.56	0.49	0.49	0.49	0.49	0.49	0.56	0.42	0.42	0.48	0.18	0.32	0.28
#2 15:45 - 16:00	0.57	0.65	0.46	0.64	0.56	0.56	0.56	0.56	0.64	0.43	0.54	0.47	0.47	0.47	0.47	0.47	0.54	0.41	0.41	0.46	0.18	0.31	0.27
#3 16:00 - 16:15	0.62	0.71	0.50	0.70	0.61	0.61	0.61	0.61	0.70	0.46	0.59	0.51	0.51	0.51	0.51	0.51	0.59	0.44	0.44	0.50	0.19	0.34	0.29
#4 16:15 - 16:30	0.59	0.68	0.48	0.66	0.58	0.58	0.58	0.58	0.67	0.44	0.56	0.49	0.49	0.49	0.49	0.49	0.56	0.42	0.42	0.48	0.18	0.32	0.28
#5 16:30 - 16:45	0.62	0.71	0.50	0.70	0.61	0.61	0.61	0.61	0.70	0.47	0.59	0.52	0.52	0.52	0.52	0.52	0.59	0.44	0.44	0.51	0.19	0.34	0.29
#6 16:45 - 17:00	0.57	0.65	0.46	0.64	0.56	0.56	0.56	0.56	0.64	0.43	0.54	0.47	0.47	0.47	0.47	0.47	0.54	0.41	0.41	0.47	0.18	0.31	0.27
#7 17:00 - 17:15	0.59	0.67	0.47	0.66	0.58	0.58	0.58	0.58	0.66	0.44	0.56	0.49	0.49	0.49	0.49	0.49	0.56	0.42	0.42	0.48	0.18	0.32	0.27
#8 17:15 - 17:30	0.59	0.68	0.48	0.67	0.59	0.59	0.59	0.59	0.67	0.45	0.57	0.49	0.49	0.49	0.49	0.49	0.56	0.42	0.42	0.48	0.18	0.33	0.28
#9 17:30 - 17:45	0.56	0.64	0.45	0.62	0.55	0.55	0.55	0.55	0.63	0.42	0.53	0.46	0.46	0.46	0.46	0.46	0.53	0.40	0.40	0.45	0.17	0.30	0.26
#10 17:45 - 18:00	0.54	0.61	0.43	0.60	0.53	0.53	0.53	0.53	0.60	0.40	0.51	0.44	0.44	0.44	0.44	0.44	0.51	0.38	0.38	0.44	0.17	0.29	0.25
#11 18:00 - 18:15	0.55	0.63	0.44	0.62	0.54	0.54	0.54	0.54	0.62	0.41	0.52	0.46	0.46	0.46	0.46	0.46	0.52	0.39	0.39	0.45	0.17	0.30	0.25
#12 18:15 - 18:30	0.51	0.58	0.41	0.57	0.50	0.50	0.50	0.50	0.57	0.38	0.48	0.42	0.42	0.42	0.42	0.42	0.48	0.36	0.36	0.41	0.15	0.28	0.24

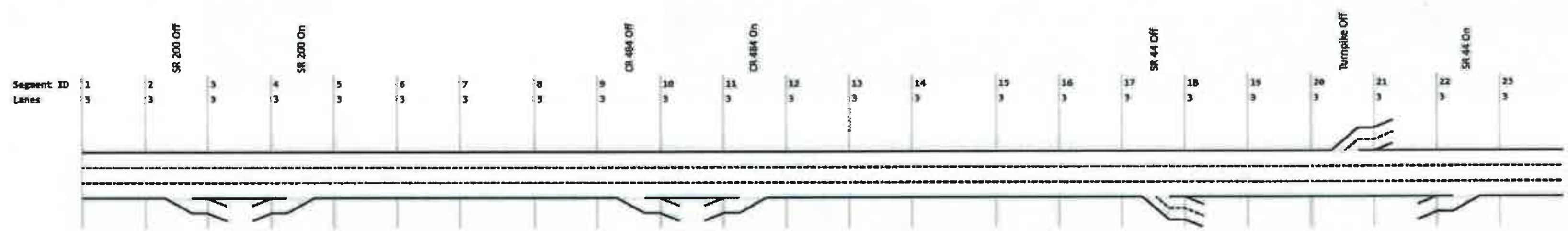
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	[illegible]	64.1	71.1	64.6	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.4	[illegible]	[illegible]	60.8	[illegible]	64.8	[illegible]
#2 15:45 - 16:00	[illegible]	64.1	71.1	64.8	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.5	[illegible]	[illegible]	60.8	[illegible]	64.9	[illegible]
#3 16:00 - 16:15	[illegible]	64.0	71.0	64.4	[illegible]	[illegible]	[illegible]	[illegible]	63.5	[illegible]	65.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.3	[illegible]	[illegible]	60.4	[illegible]	64.8	[illegible]
#4 16:15 - 16:30	[illegible]	64.0	71.0	64.6	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.4	[illegible]	[illegible]	60.6	[illegible]	64.8	[illegible]
#5 16:30 - 16:45	[illegible]	64.0	71.0	64.4	[illegible]	[illegible]	[illegible]	[illegible]	63.4	[illegible]	65.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.3	[illegible]	[illegible]	60.4	[illegible]	64.8	[illegible]
#6 16:45 - 17:00	[illegible]	64.1	71.1	64.8	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.5	[illegible]	[illegible]	60.8	[illegible]	64.9	[illegible]
#7 17:00 - 17:15	[illegible]	64.1	71.1	64.7	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.2	[illegible]	[illegible]	60.5	[illegible]	64.9	[illegible]
#8 17:15 - 17:30	[illegible]	64.0	71.0	64.6	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.4	[illegible]	[illegible]	60.6	[illegible]	64.8	[illegible]
#9 17:30 - 17:45	[illegible]	64.2	71.1	64.9	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.6	[illegible]	[illegible]	60.9	[illegible]	64.9	[illegible]
#10 17:45 - 18:00	[illegible]	64.2	71.1	65.0	[illegible]	[illegible]	[illegible]	[illegible]	63.7	[illegible]	65.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.6	[illegible]	[illegible]	61.0	[illegible]	64.9	[illegible]
#11 18:00 - 18:15	[illegible]	64.2	71.1	64.9	[illegible]	[illegible]	[illegible]	[illegible]	63.6	[illegible]	65.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.6	[illegible]	[illegible]	60.9	[illegible]	64.9	[illegible]
#12 18:15 - 18:30	[illegible]	64.2	71.1	65.1	[illegible]	[illegible]	[illegible]	[illegible]	63.7	[illegible]	65.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.8	[illegible]	[illegible]	61.2	[illegible]	64.9	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	C	C	B	B	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#2 15:45 - 16:00	C	C	B	B	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	A	A	B	A
#3 16:00 - 16:15	C	C	B	C	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#4 16:15 - 16:30	C	C	B	B	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#5 16:30 - 16:45	C	C	B	C	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#6 16:45 - 17:00	C	C	B	B	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	A	A	B	A
#7 17:00 - 17:15	C	C	B	B	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#8 17:15 - 17:30	C	C	B	B	C	C	C	C	C	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#9 17:30 - 17:45	B	C	B	B	B	B	B	B	C	B	B	B	B	B	B	B	A	B	B	A	A	B	A
#10 17:45 - 18:00	B	C	B	B	B	B	B	B	C	B	B	B	B	B	B	B	A	B	B	A	A	B	A
#11 18:00 - 18:15	B	C	B	B	B	B	B	B	C	B	B	B	B	B	B	B	A	B	B	A	A	B	A
#12 18:15 - 18:30	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	A	A	B	A

Figure 18: Southbound 2019 Weekend Existing Condition – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 12:00 - 12:15	0.51	0.59	0.45	0.60	0.53	0.53	0.53	0.53	0.60	0.47	0.64	0.56
#2 12:15 - 12:30	0.51	0.59	0.45	0.60	0.53	0.53	0.53	0.53	0.60	0.47	0.64	0.56
#3 12:30 - 12:45	0.51	0.59	0.45	0.60	0.53	0.53	0.53	0.53	0.60	0.47	0.64	0.56
#4 12:45 - 13:00	0.51	0.59	0.45	0.60	0.53	0.53	0.53	0.53	0.60	0.47	0.64	0.56
#5 13:00 - 13:15	0.54	0.62	0.48	0.63	0.56	0.56	0.56	0.56	0.64	0.49	0.67	0.59
#6 13:15 - 13:30	0.54	0.62	0.48	0.63	0.56	0.56	0.56	0.56	0.64	0.49	0.67	0.59
#7 13:30 - 13:45	0.54	0.62	0.48	0.63	0.56	0.56	0.56	0.56	0.64	0.49	0.67	0.59
#8 13:45 - 14:00	0.54	0.62	0.48	0.63	0.56	0.56	0.56	0.56	0.64	0.49	0.67	0.59
#9 14:00 - 14:15	0.55	0.63	0.48	0.65	0.57	0.57	0.57	0.57	0.65	0.50	0.69	0.60
#10 14:15 - 14:30	0.55	0.63	0.48	0.65	0.57	0.57	0.57	0.57	0.65	0.50	0.69	0.60
#11 14:30 - 14:45	0.55	0.63	0.48	0.65	0.57	0.57	0.57	0.57	0.65	0.50	0.69	0.60
#12 14:45 - 15:00	0.55	0.63	0.48	0.65	0.57	0.57	0.57	0.57	0.65	0.50	0.69	0.60

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	0.56	0.56	0.56	0.56	0.64	0.50	0.50	0.58	0.25	0.40	0.35
#2 12:15 - 12:30	0.56	0.56	0.56	0.56	0.64	0.50	0.50	0.58	0.25	0.40	0.35
#3 12:30 - 12:45	0.56	0.56	0.56	0.56	0.64	0.50	0.50	0.58	0.25	0.40	0.35
#4 12:45 - 13:00	0.56	0.56	0.56	0.56	0.64	0.50	0.50	0.58	0.25	0.40	0.35
#5 13:00 - 13:15	0.59	0.59	0.59	0.59	0.67	0.53	0.53	0.61	0.26	0.42	0.37
#6 13:15 - 13:30	0.59	0.59	0.59	0.59	0.67	0.53	0.53	0.61	0.26	0.42	0.37
#7 13:30 - 13:45	0.59	0.59	0.59	0.59	0.67	0.53	0.53	0.61	0.26	0.42	0.37
#8 13:45 - 14:00	0.59	0.59	0.59	0.59	0.67	0.53	0.53	0.61	0.26	0.42	0.37
#9 14:00 - 14:15	0.60	0.60	0.60	0.60	0.69	0.54	0.54	0.62	0.27	0.43	0.37
#10 14:15 - 14:30	0.60	0.60	0.60	0.60	0.69	0.54	0.54	0.62	0.27	0.43	0.37
#11 14:30 - 14:45	0.60	0.60	0.60	0.60	0.69	0.54	0.54	0.62	0.27	0.43	0.37
#12 14:45 - 15:00	0.60	0.60	0.60	0.60	0.69	0.54	0.54	0.62	0.27	0.43	0.37

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 12:00 - 12:15	70.9	65.0	71.1	65.1	70.7	70.8	70.8	70.8	65.0	71.0	64.6	70.4
#2 12:15 - 12:30	70.9	65.0	71.1	65.1	70.7	70.8	70.8	70.8	65.0	71.0	64.6	70.4
#3 12:30 - 12:45	70.9	65.0	71.1	65.1	70.7	70.8	70.8	70.8	65.0	71.0	64.6	70.4
#4 12:45 - 13:00	70.9	65.0	71.1	65.1	70.7	70.8	70.8	70.8	65.0	71.0	64.6	70.4
#5 13:00 - 13:15	70.6	64.9	71.1	64.9	70.4	70.4	70.4	70.4	64.9	71.0	64.4	69.8
#6 13:15 - 13:30	70.6	64.9	71.1	64.9	70.4	70.4	70.4	70.4	64.9	71.0	64.4	69.8
#7 13:30 - 13:45	70.6	64.9	71.1	64.9	70.4	70.4	70.4	70.4	64.9	71.0	64.4	69.8
#8 13:45 - 14:00	70.6	64.9	71.1	64.9	70.4	70.4	70.4	70.4	64.9	71.0	64.4	69.8
#9 14:00 - 14:15	70.5	64.9	71.1	64.8	70.2	70.2	70.2	70.2	65.0	71.0	64.3	69.6
#10 14:15 - 14:30	70.5	64.9	71.1	64.8	70.2	70.2	70.2	70.2	65.0	71.0	64.3	69.6
#11 14:30 - 14:45	70.5	64.9	71.1	64.8	70.2	70.2	70.2	70.2	65.0	71.0	64.3	69.6
#12 14:45 - 15:00	70.5	64.9	71.1	64.8	70.2	70.2	70.2	70.2	65.0	71.0	64.3	69.6

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	70.4	70.4	70.4	70.4	66.3	71.0	71.0	60.9	69.6	64.7	70.6
#2 12:15 - 12:30	70.4	70.4	70.4	70.4	66.3	71.0	71.0	60.9	69.6	64.7	70.6
#3 12:30 - 12:45	70.4	70.4	70.4	70.4	66.3	71.0	71.0	60.9	69.6	64.7	70.6
#4 12:45 - 13:00	70.4	70.4	70.4	70.4	66.3	71.0	71.0	60.9	69.6	64.7	70.6
#5 13:00 - 13:15	69.8	69.8	69.8	69.8	66.1	70.7	70.7	60.8	69.6	64.6	70.6
#6 13:15 - 13:30	69.8	69.8	69.8	69.8	66.1	70.7	70.7	60.8	69.6	64.6	70.6
#7 13:30 - 13:45	69.8	69.8	69.8	69.8	66.1	70.7	70.7	60.8	69.6	64.6	70.6
#8 13:45 - 14:00	69.8	69.8	69.8	69.8	66.1	70.7	70.7	60.8	69.6	64.6	70.6
#9 14:00 - 14:15	69.6	69.6	69.6	69.6	66.1	70.6	70.6	60.7	69.5	64.6	70.6
#10 14:15 - 14:30	69.6	69.6	69.6	69.6	66.1	70.6	70.6	60.7	69.5	64.6	70.6
#11 14:30 - 14:45	69.6	69.6	69.6	69.6	66.1	70.6	70.6	60.7	69.5	64.6	70.6
#12 14:45 - 15:00	69.6	69.6	69.6	69.6	66.1	70.6	70.6	60.7	69.5	64.6	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 12:00 - 12:15	B	C	B	B	B	B	B	B	B	B	B	B
#2 12:15 - 12:30	B	C	B	B	B	B	B	B	B	B	B	B
#3 12:30 - 12:45	B	C	B	B	B	B	B	B	B	B	B	B
#4 12:45 - 13:00	B	C	B	B	B	B	B	B	B	B	B	B
#5 13:00 - 13:15	B	C	B	B	B	B	B	B	C	B	B	C
#6 13:15 - 13:30	B	C	B	B	B	B	B	B	C	B	B	C
#7 13:30 - 13:45	B	C	B	B	B	B	B	B	C	B	B	C
#8 13:45 - 14:00	B	C	B	B	B	B	B	B	C	B	B	C
#9 14:00 - 14:15	B	C	B	B	C	C	C	C	C	B	C	C
#10 14:15 - 14:30	B	C	B	B	C	C	C	C	C	B	C	C
#11 14:30 - 14:45	B	C	B	B	C	C	C	C	C	B	C	C
#12 14:45 - 15:00	B	C	B	B	C	C	C	C	C	B	C	C

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	B	B	B	B	A	B	B	B	A	B	A
#2 12:15 - 12:30	B	B	B	B	A	B	B	B	A	B	A
#3 12:30 - 12:45	B	B	B	B	A	B	B	B	A	B	A
#4 12:45 - 13:00	B	B	B	B	A	B	B	B	A	B	A
#5 13:00 - 13:15	C	C	C	C	B	B	B	B	A	B	B
#6 13:15 - 13:30	C	C	C	C	B	B	B	B	A	B	B
#7 13:30 - 13:45	C	C	C	C	B	B	B	B	A	B	B
#8 13:45 - 14:00	C	C	C	C	B	B	B	B	A	B	B
#9 14:00 - 14:15	C	C	C	C	B	B	B	B	A	B	B
#10 14:15 - 14:30	C	C	C	C	B	B	B	B	A	B	B
#11 14:30 - 14:45	C	C	C	C	B	B	B	B	A	B	B
#12 14:45 - 15:00	C	C	C	C	B	B	B	B	A	B	B

SYNCHRO

The following section summarizes the existing (2019) weekday AM, PM, and weekend midday peak hour intersection operations. Intersections were analyzed using *Highway Capacity Manual* (HCM) 7th Edition methodologies, as implemented in Synchro 12 software. The Synchro output reports are provided in **Appendix H**.

Figure 19 illustrates the overall intersection delay and LOS for the signalized intersections in the study area. Detailed summary tables showing volume to capacity (v/c) ratios, delay, and LOS by movement are included in **Appendix H** for reference.

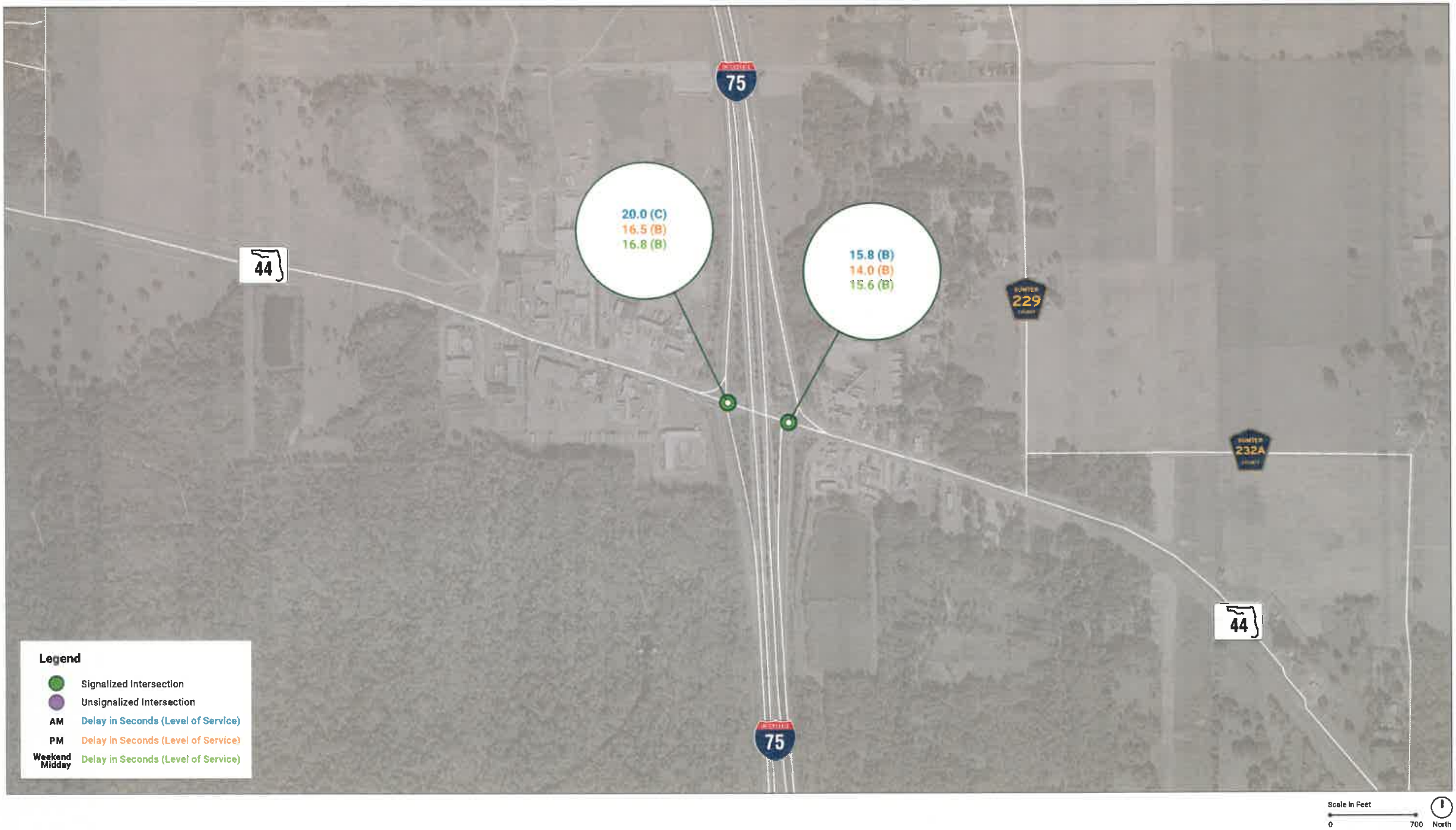
SR 44

All movements at the SR 44 at I-75 ramp terminal intersections operate at LOS E or better and are under capacity (v/c ratio less than 1.0) during each of the existing conditions peak hours analyzed. The 95th percentile queues along the SR 44 off-ramps do not extend into the portion of the ramps designated for deceleration during the 2019 peak hours analyzed. The overall intersection LOS at the ramp terminal intersections is estimated to be LOS B under all existing peak hours analyzed.

CR 484

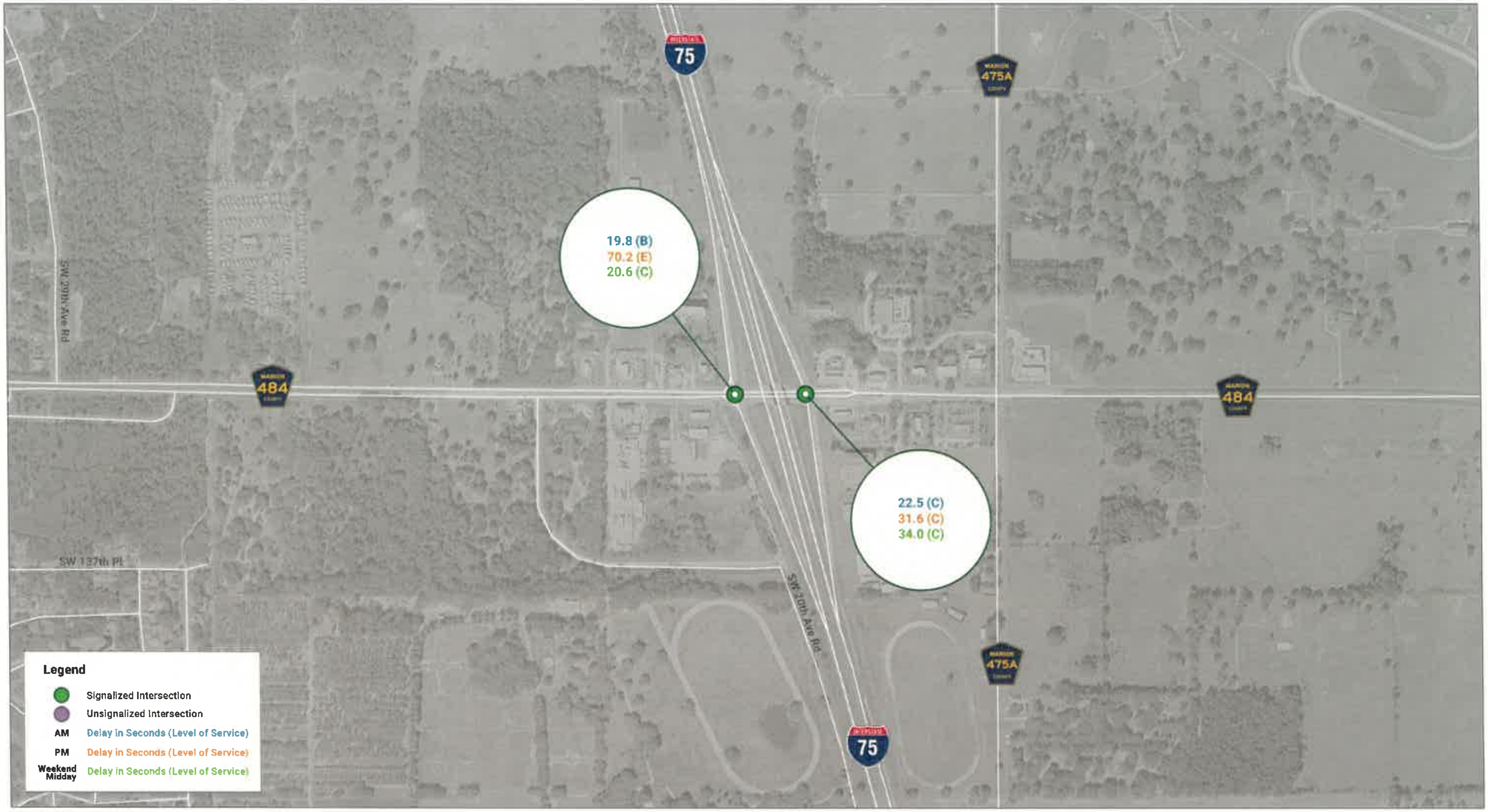
All movements at the CR 484 at I-75 ramp terminal intersections operate at LOS E or better and are under capacity (v/c ratio less than 1.0) during each of the existing conditions peak hours analyzed except for the following:

- CR 484 at I-75 Southbound Ramp
  - The southbound left-turn movement operates at LOS F during the AM and PM peak hours with delays ranging from 85.1 to 97.2 seconds.
  - The southbound right-turn movement operates at LOS F and overcapacity (v/c ratio greater than 1.0) during the PM peak hour with a delay of greater than 300 seconds.
  - The overall intersection LOS at the ramp terminal is estimated to be LOS E during the PM peak hour and LOS C or better during the AM and weekend peak hours.
  - The existing southbound off-ramp is approximately 1,250 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
    - Remaining distance for storage – approximately 635 feet
    - The maximum 95th percentile queue length during the analysis peak hours extends approximately 1,000 feet during the PM peak hour. The PM peak hour 95th percentile queue extends into the portion of the ramp designated for deceleration.



I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

2019 Peak Hour Intersection Operations
Figure 19 (1 of 3)



I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

2019 Peak Hour Intersection Operations
Figure 19 (2 of 3)

I-75 PD&E South | SR 200 Interchange
South of SR 44 to SR 200

2019 Peak Hour Intersection Operations
Figure 19 (3 of 3)

- CR 484 at I-75 Northbound Ramp
  - The northbound left-turn movement operates at LOS F with delays ranging from 106.1 to 146.0 seconds during the AM, PM, and weekend peak hours evaluated.
    - This movement operates overcapacity (v/c ratio greater than 1.0) during the existing PM and weekend midday peak hours.
  - The overall intersection LOS at the ramp terminal intersection is estimated to be LOS C during each of the existing peak hours analyzed.
  - The existing northbound off-ramp is approximately 1,250 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
    - Remaining distance for storage – approximately 635 feet
    - The maximum 95th percentile queue length during the analysis peak hours extends approximately 625 feet during the PM peak hour.

SR 200

All movements at the SR 200 at I-75 ramp terminal intersections operate at LOS E or better and are under capacity (v/c ratio less than 1.0) during each of the existing conditions peak hours analyzed except for the following:

- SR 200 at I-75 Southbound Ramps
  - The southbound right-turn movement operates at LOS F during the AM and PM peak hours with delays ranging from 80.7 to 96.4 seconds.
  - The westbound left-turn movement operates at LOS F with a delay of 88.1 seconds during the weekend peak hour and the westbound through movement operates at LOS F with an 81.1 second delay during the PM peak hour.
  - The overall intersection LOS at the ramp terminal intersection is estimated to be LOS E during the PM peak hour and LOS C during the AM and weekend midday peak hours.
  - The existing southbound off-ramp is approximately 1,750 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
    - Remaining distance for storage – approximately 1,135 feet
    - The maximum 95th percentile queue length during the analysis peak hours extends approximately 400 feet during the PM peak hour.

- SR 200 at I-75 Northbound Ramps
  - The northbound left-turn movement operates at LOS F with a 130.9 second delay during the PM peak hour and the right-turn movement operates at LOS F with delays ranging from 92.5 to 118.0 seconds during the PM and weekend peak hours.
  - The overall intersection LOS at the ramp terminal intersection is estimated to be LOS D during the PM and weekend peak hours and LOS C during the AM peak hour.
  - The existing northbound off-ramp is approximately 1,675 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
    - Remaining distance for storage – approximately 1,060 feet
    - The maximum 95th percentile queue length during the analysis peak hours extends approximately 700 feet during the weekend peak hour.

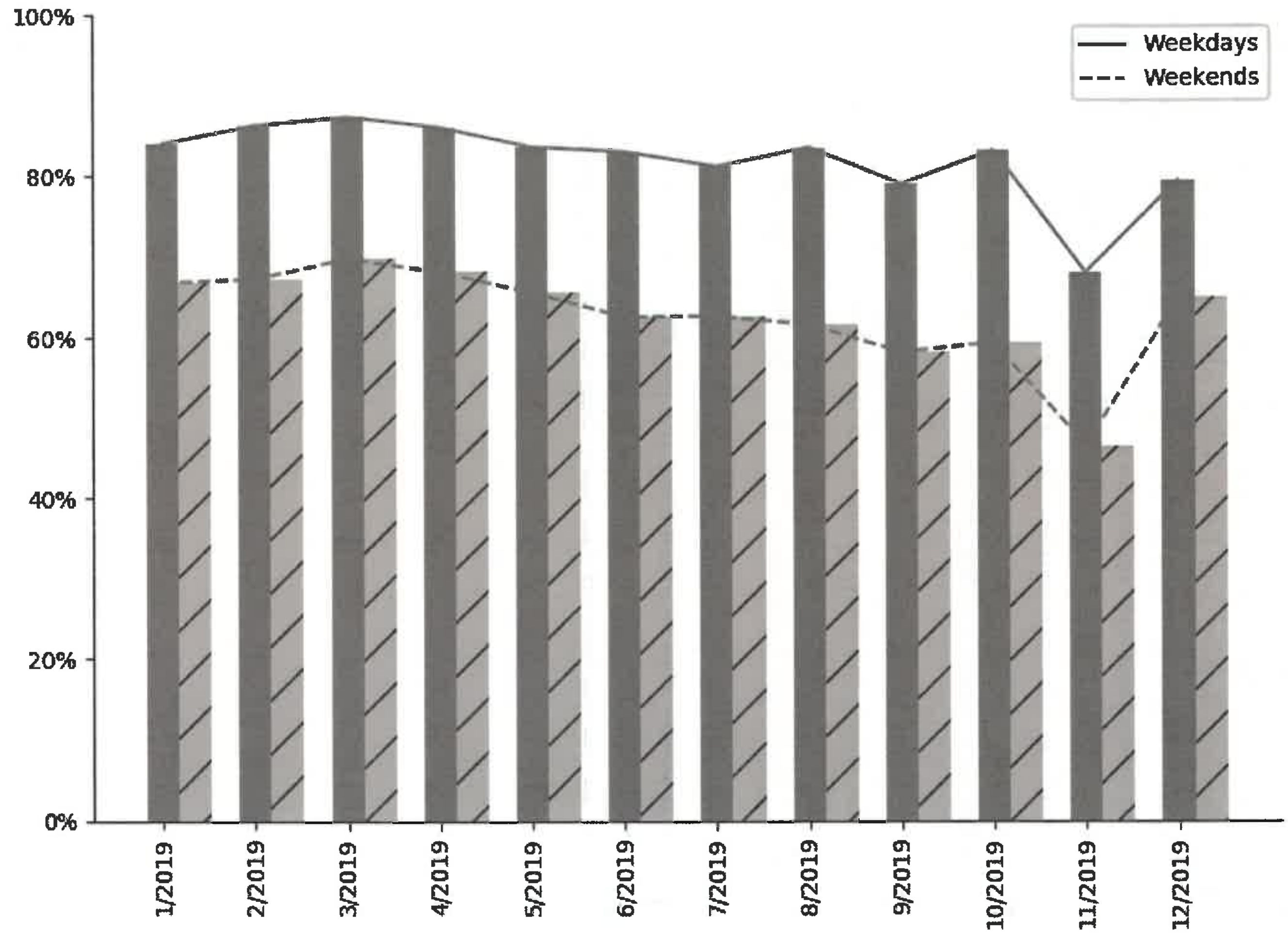
TRAVEL TIME RELIABILITY ASSESSMENT

The National Performance Management Research Data Set (NPMRDS) is an archived data set of travel times for the National Highway System (NHS) that the Federal Highway Administration (FHWA) makes available to federal, state, and MPO agencies per the specifications of the Federal Highway Administration. The NPMRDS data set consists of probe data collected by two primary providers, HERE (formerly Navteq) and INRIX. HERE provides data from October 1, 2011 to January 31, 2017 and INRIX provides data starting from January 1, 2016 to the present. The dataset consists of observed mean passenger vehicle and truck travel times for the NHS. Freight vehicles includes only FHWA vehicles classes 7 and 8 (single unit trucks with 4 or more axles and single trailer combination trucks with 3 or 4 axles). There is no data imputation and minimal filtering meaning data gaps can exist. Sample sizes are not fully reported, but a "data density" field reporting an approximate measure of the sample size can optionally be included when available.

Data is reported for Traffic Message Channel (TMC) segments that generally run interchange to interchange. Corridor speed and travel times are determined from these by aggregating across spatially connected TMC segments and creating summed "instantaneous" travel times for the observation period (generally a 5-minute or 15-minute reporting period).

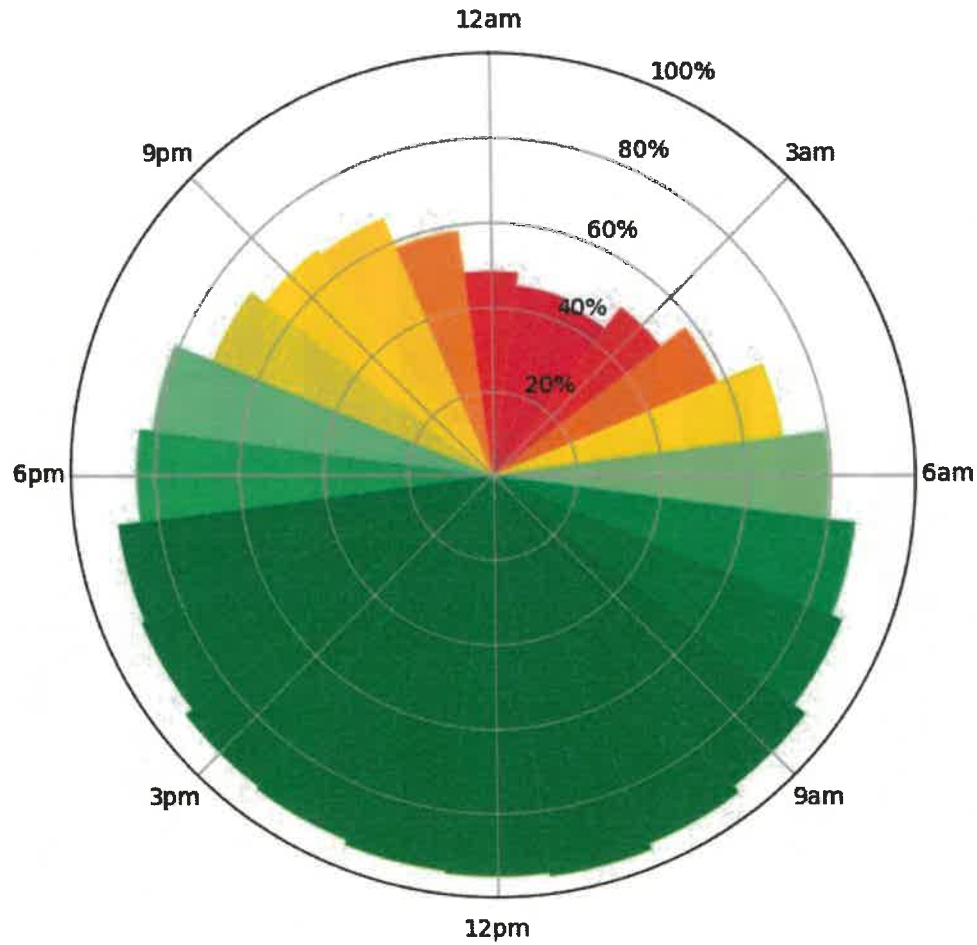
The raw data was extracted for the entire study corridor for the full year of 2019. The data was then sorted by each Master Plan segment limit. The percent of monthly data available and the percent of data available by time of day is summarized for the northbound direction in **Figure 20** and **Figure 21** and for the southbound direction in **Figure 22** and **Figure 23**.

Figure 20: Percent of Monthly Data Available – Northbound



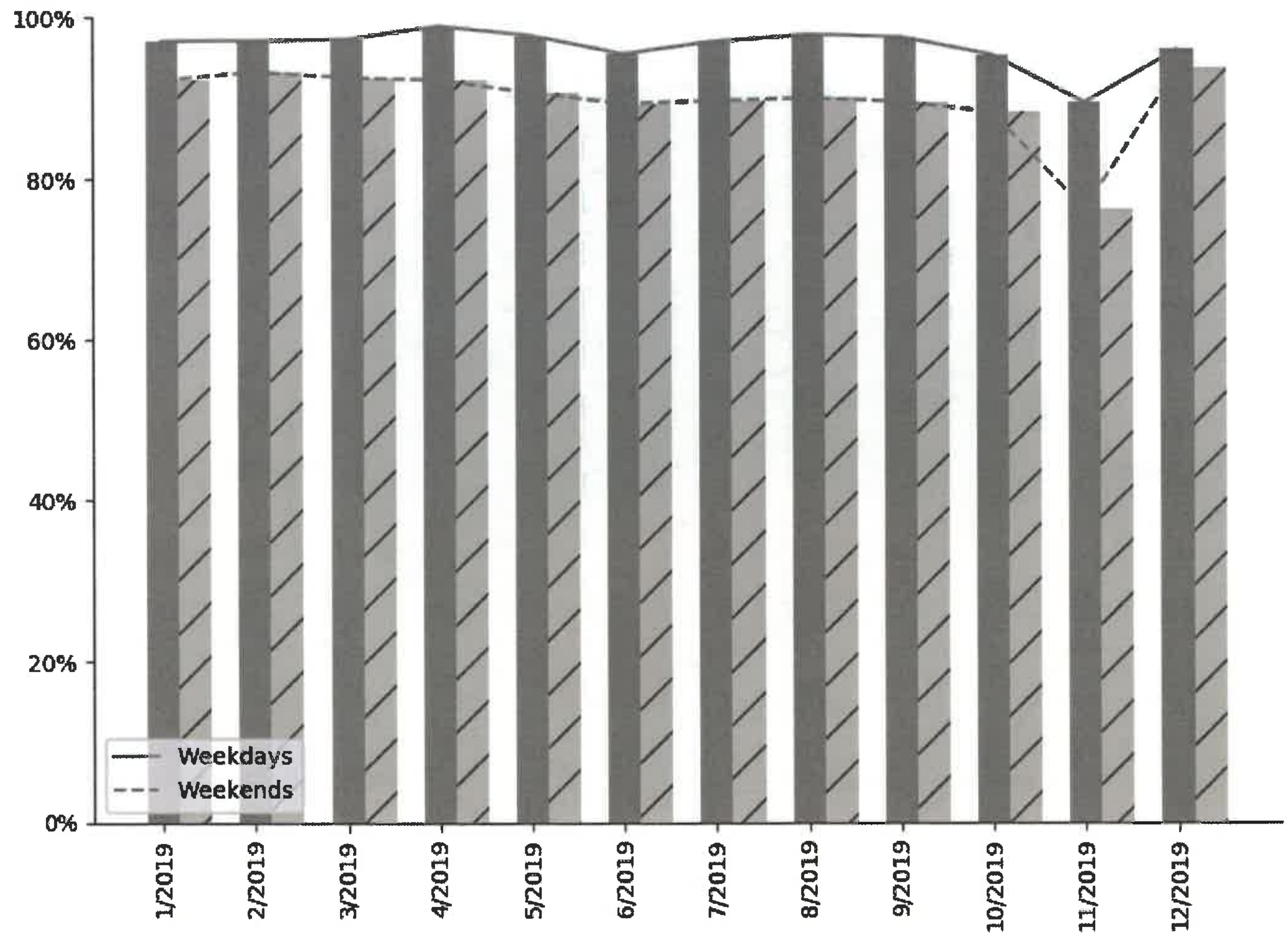
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 21: Percent of Data Available by Time of Day – Northbound



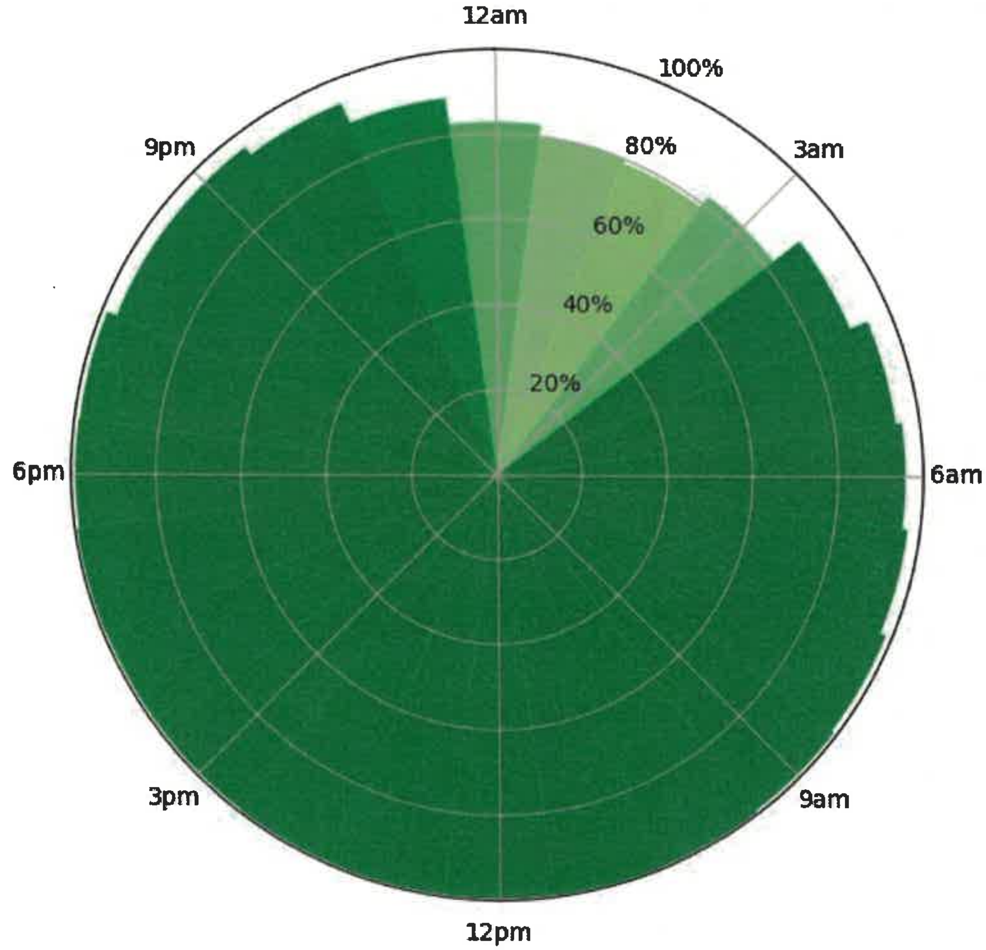
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 22: Percent of Monthly Data Available – Southbound



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 23: Percent of Data Available by Time of Day – Southbound



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

SPATIAL HEATMAPS

An effective way of inspecting this kind of data is using "spatial heatmaps" to gauge daily performance for peak periods. These figures visualize the data as a heatmap matrix where each row corresponds to a TMC along the analysis route, and each column represents a single day of the overall study period (e.g., a heatmap for a full year will have 365 columns). The speeds are aggregated for a peak period (e.g., AM, PM or Midday) and presented either as the median or average speed during that time. The resulting "cells" (TMC and day pair) are color coded to show the corresponding aggregated speed. These charts provide a straightforward method for visually identifying both recurring congestion patterns and congestion outliers, the latter of which can be caused by non-recurring events such as incidents, severe weather events, or temporary work zones.

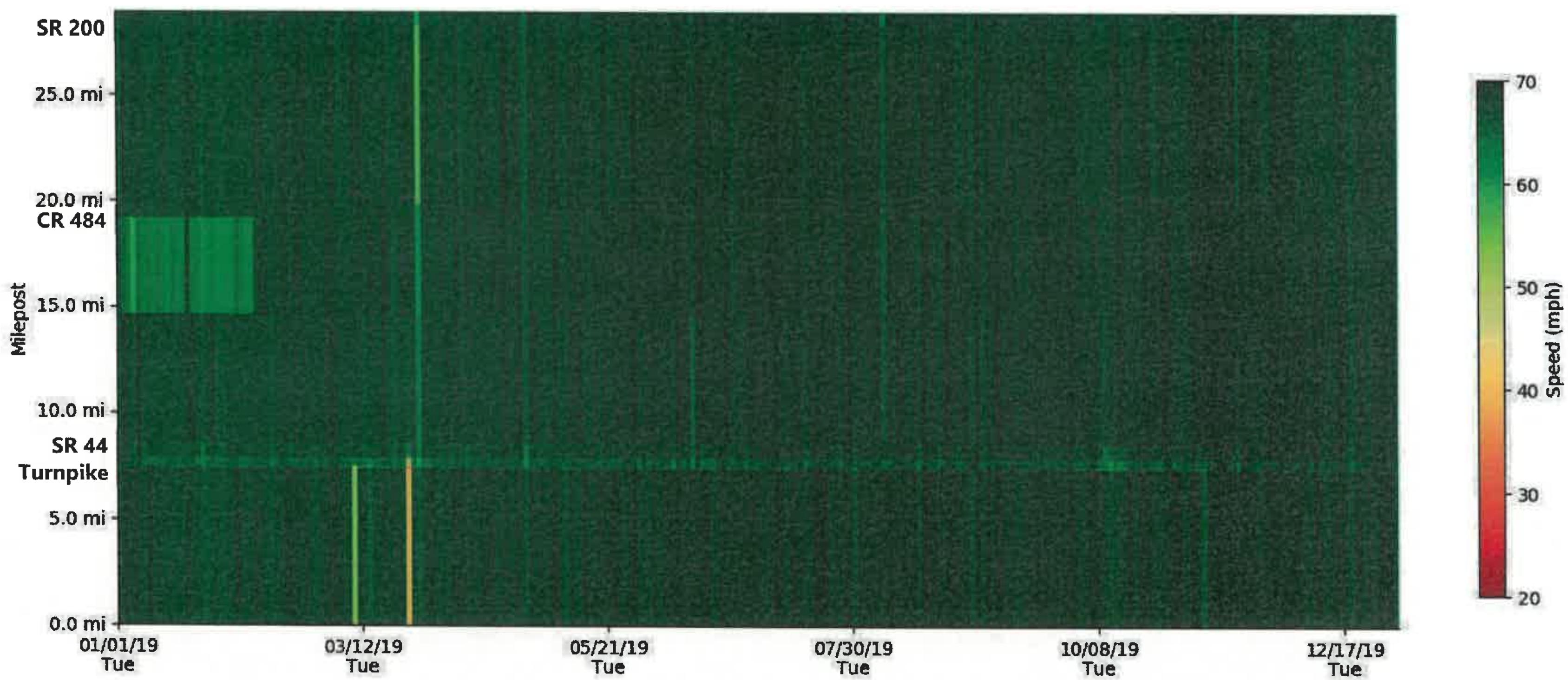
Weekday (Monday – Friday) and/or weekend (Saturday and Sunday) groups can be "sliced" out of the heatmaps to get a better sense of conditions related to just those days of the week. The following two sections summarize the data for the weekday and weekends for both directions of the study limits.

WEEKDAY SPEED HEAT MAPS

The data was summarized in the northbound direction for the AM, midday, and PM periods for the weekdays (Monday – Friday) and are illustrated in **Figure 24**, **Figure 25**, and **Figure 26**, respectively. The southbound weekday heat maps are summarized in **Figure 27**, **Figure 28**, and **Figure 29**.

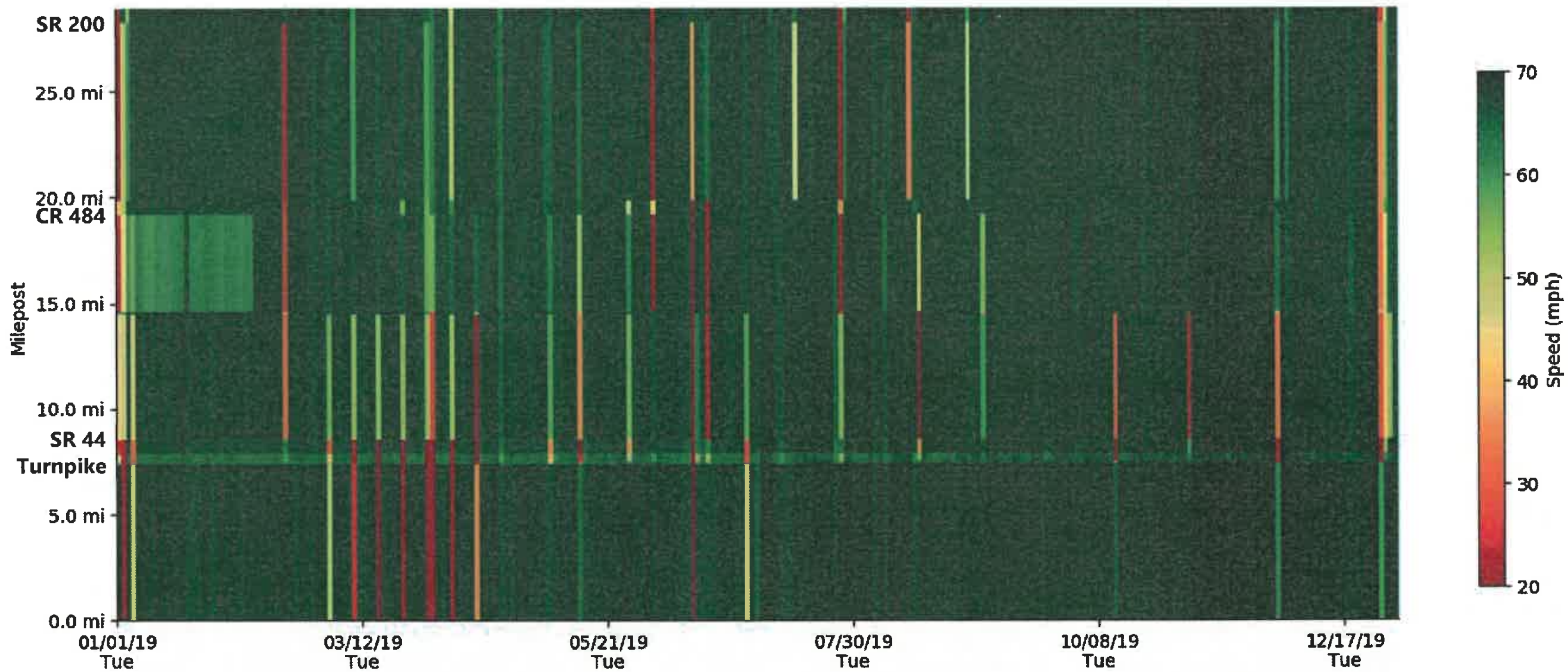
The heat maps show that the study limits did not experience recurring congestion during the AM peak period in both the northbound and southbound directions. The midday peak period heat maps show some breakdowns near the Turnpike and SR 44 interchanges in the northbound direction around the New Years and Spring Break (March 2019) periods. Congestion was experienced in PM peak period near the SR 200 interchange in the southbound direction.

Figure 24: Northbound AM (Weekdays) Speed Heat Map



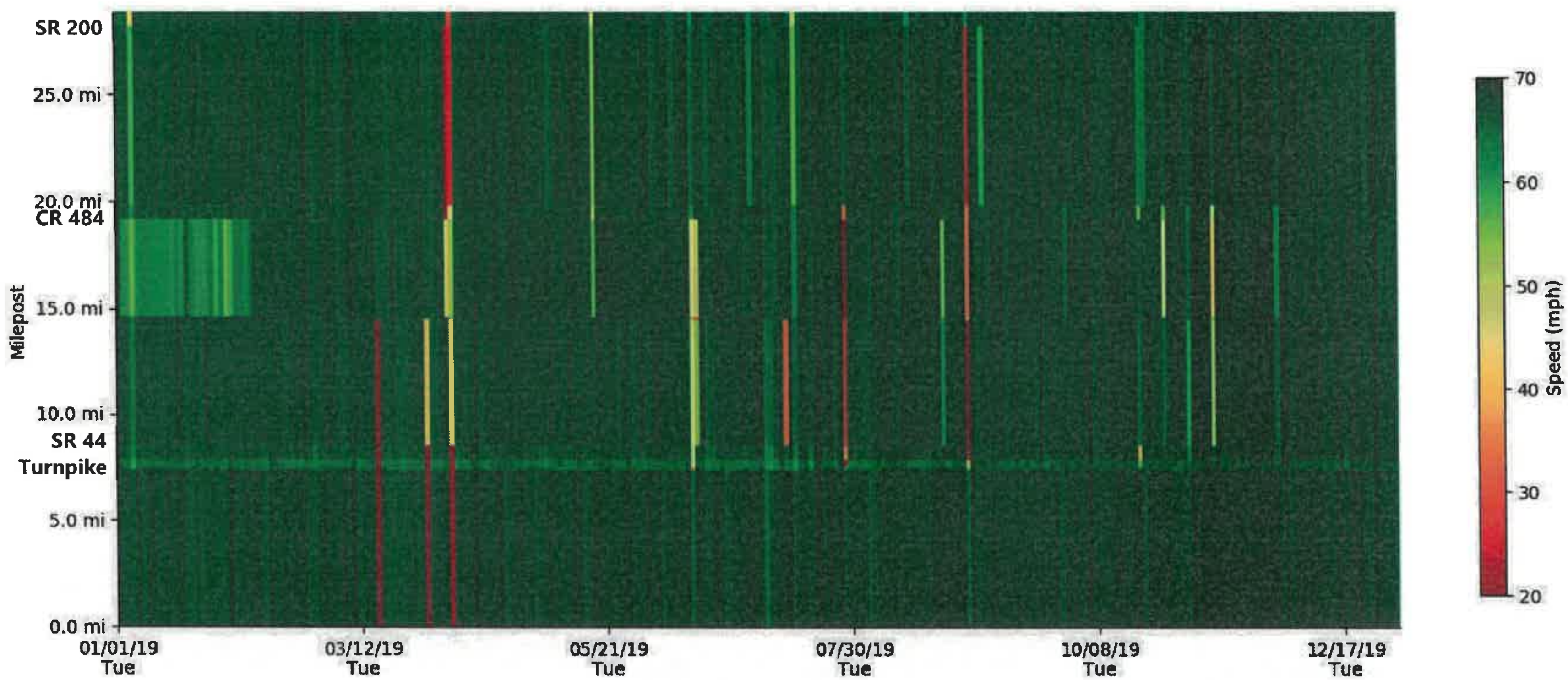
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 25: Northbound Midday (Weekdays) Speed Heat Map



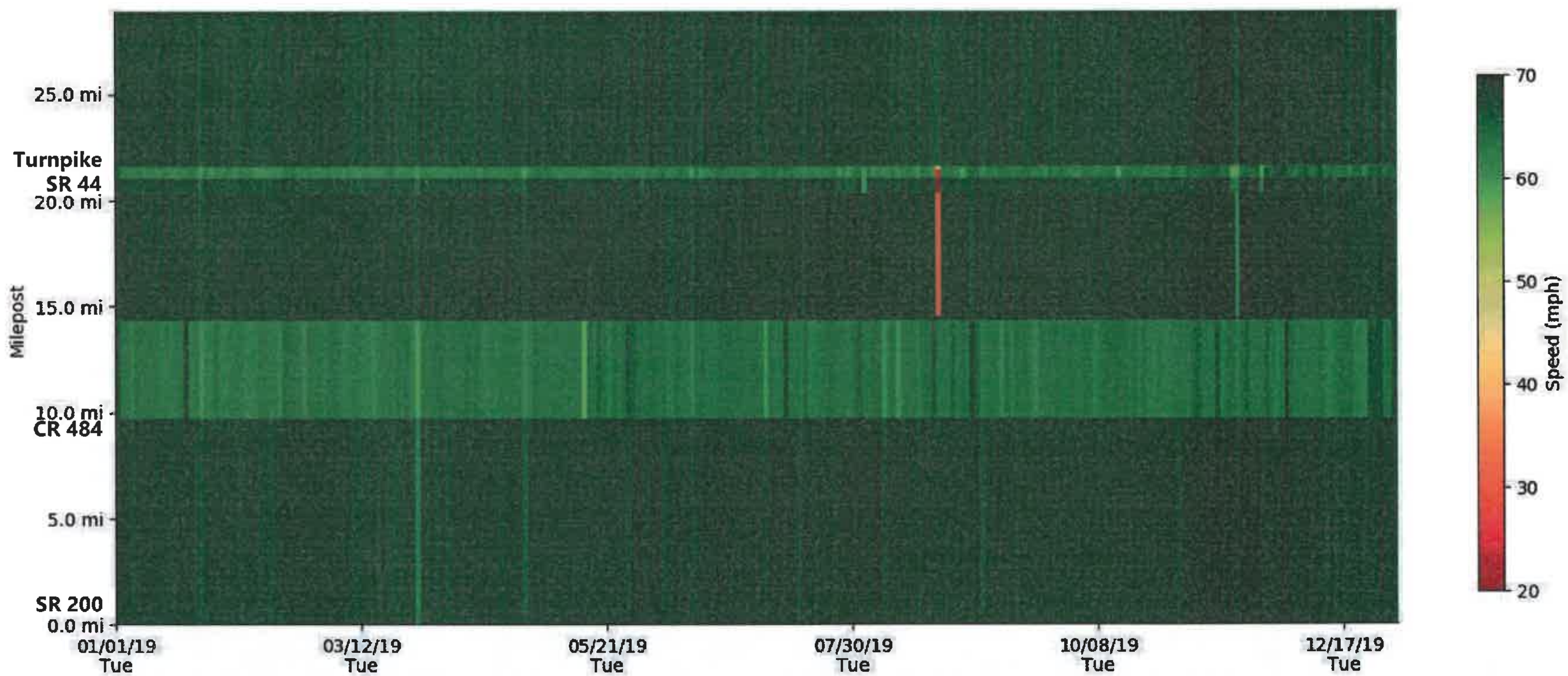
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 26: Northbound PM (Weekdays) Speed Heat Map



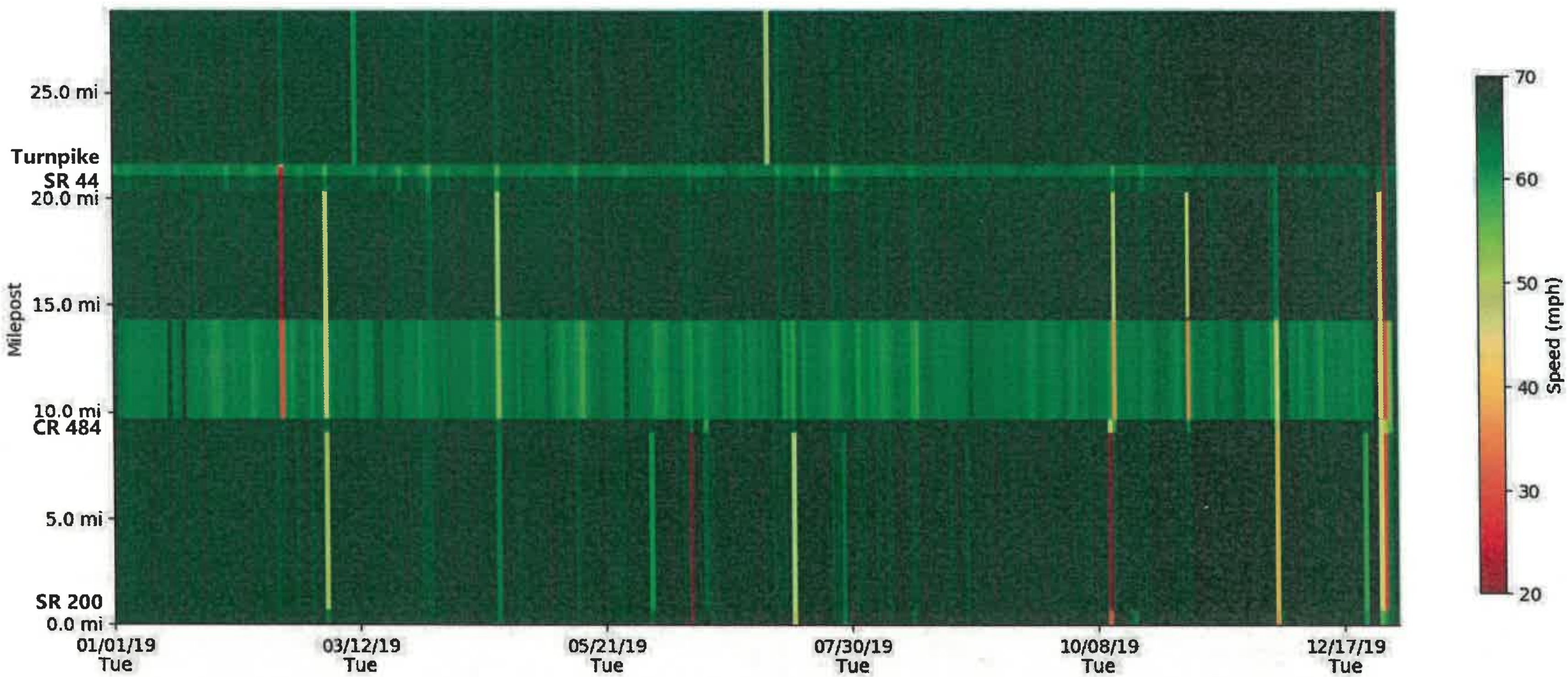
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 27: Southbound AM (Weekdays) Speed Heat Map



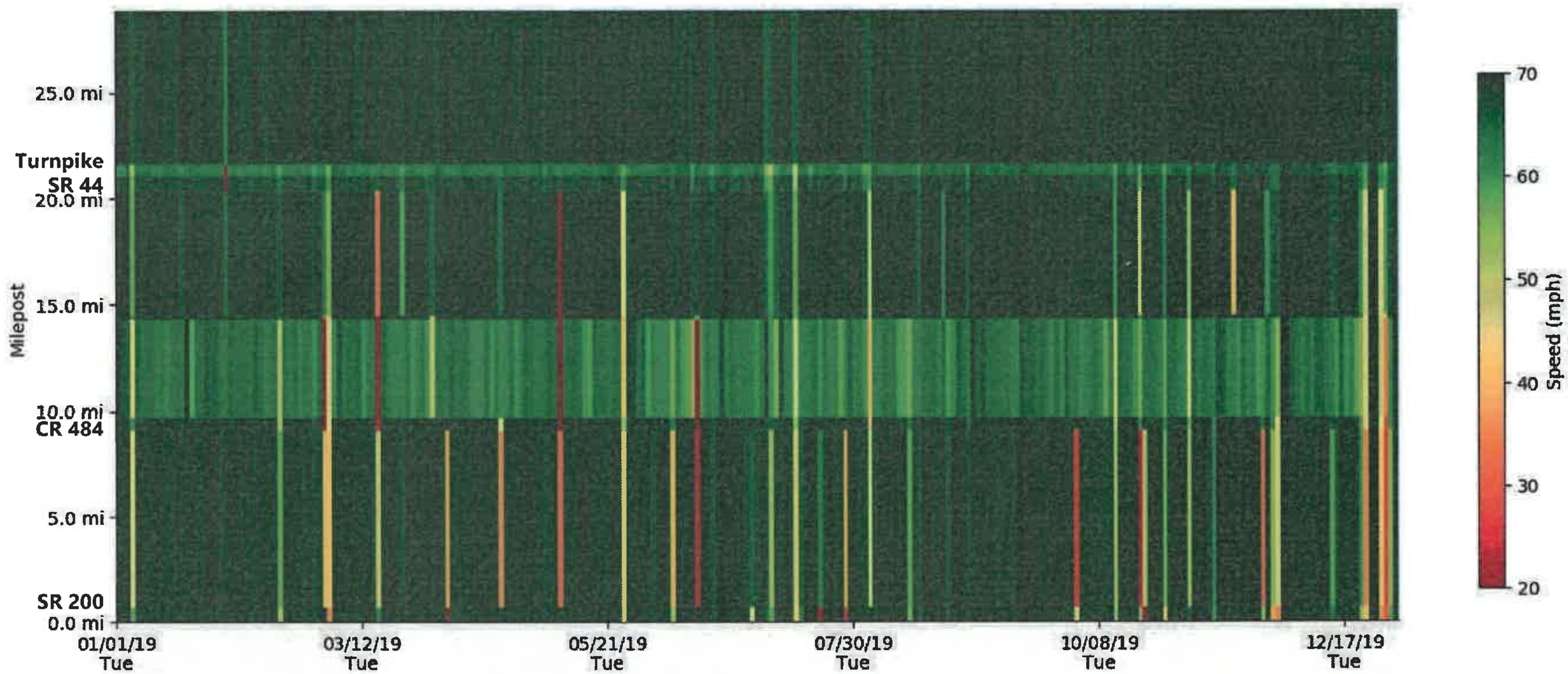
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 28: Southbound Midday (Weekdays) Speed Heat Map



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 29: Southbound PM (Weekdays) Speed Heat Map



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

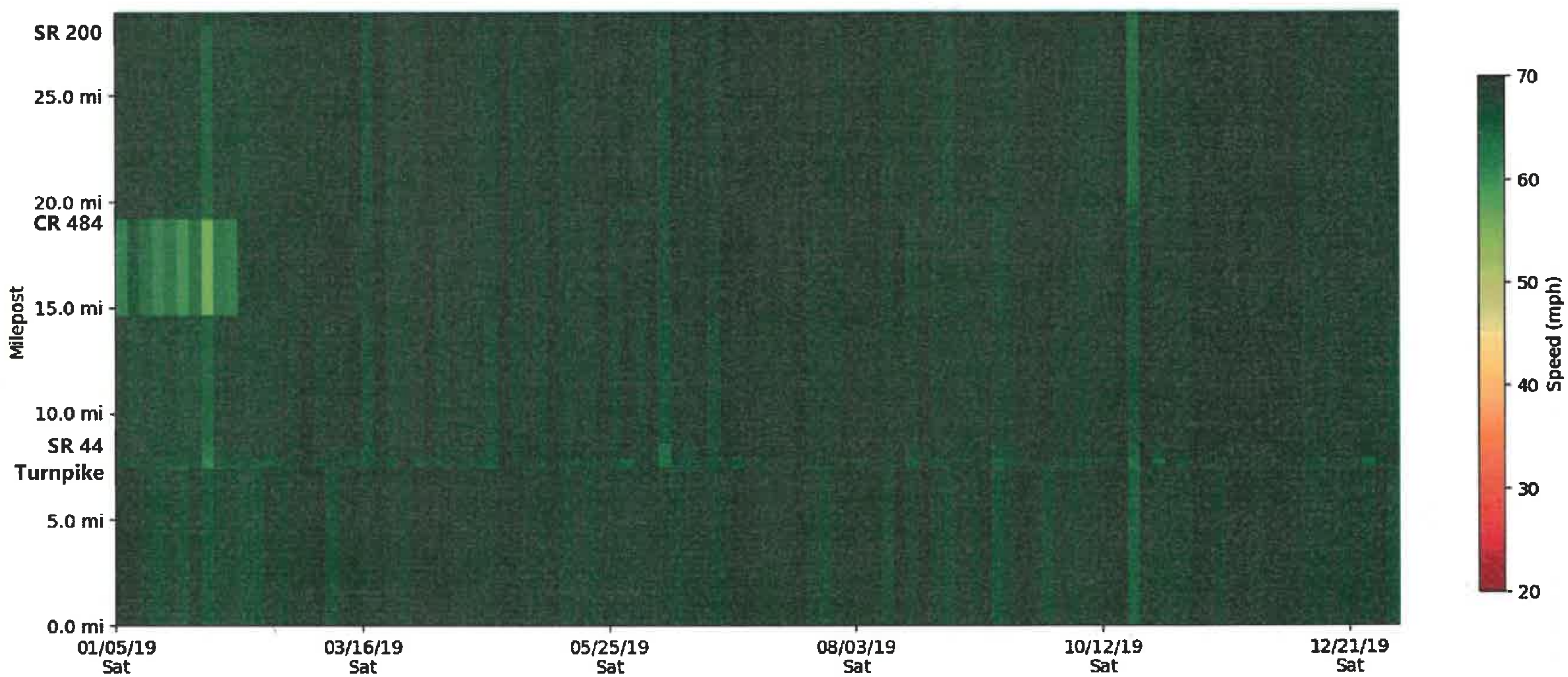
WEEKEND SPEED HEAT MAPS

The data was also summarized in the northbound direction for the AM, midday, and PM periods for the weekends (Saturday and Sunday) and are illustrated in **Figure 30**, **Figure 31**, and **Figure 32**, respectively. The southbound weekend heat maps are summarized in **Figure 33, Figure 34**, and **Figure 35**.

The AM peak period heat maps show little congestion for the entire year (consistent with the weekday AM contours). The northbound facility experienced congestion and breakdowns along I-75 during the midday peak period at the Turnpike and SR 44 interchanges. **Figure 31** shows speeds under 30 mph during key weekends throughout the year including New Years, Spring Break, July 4th, and Thanksgiving. The congestion experienced is likely due to incidents and/or a combination of extreme demand levels.

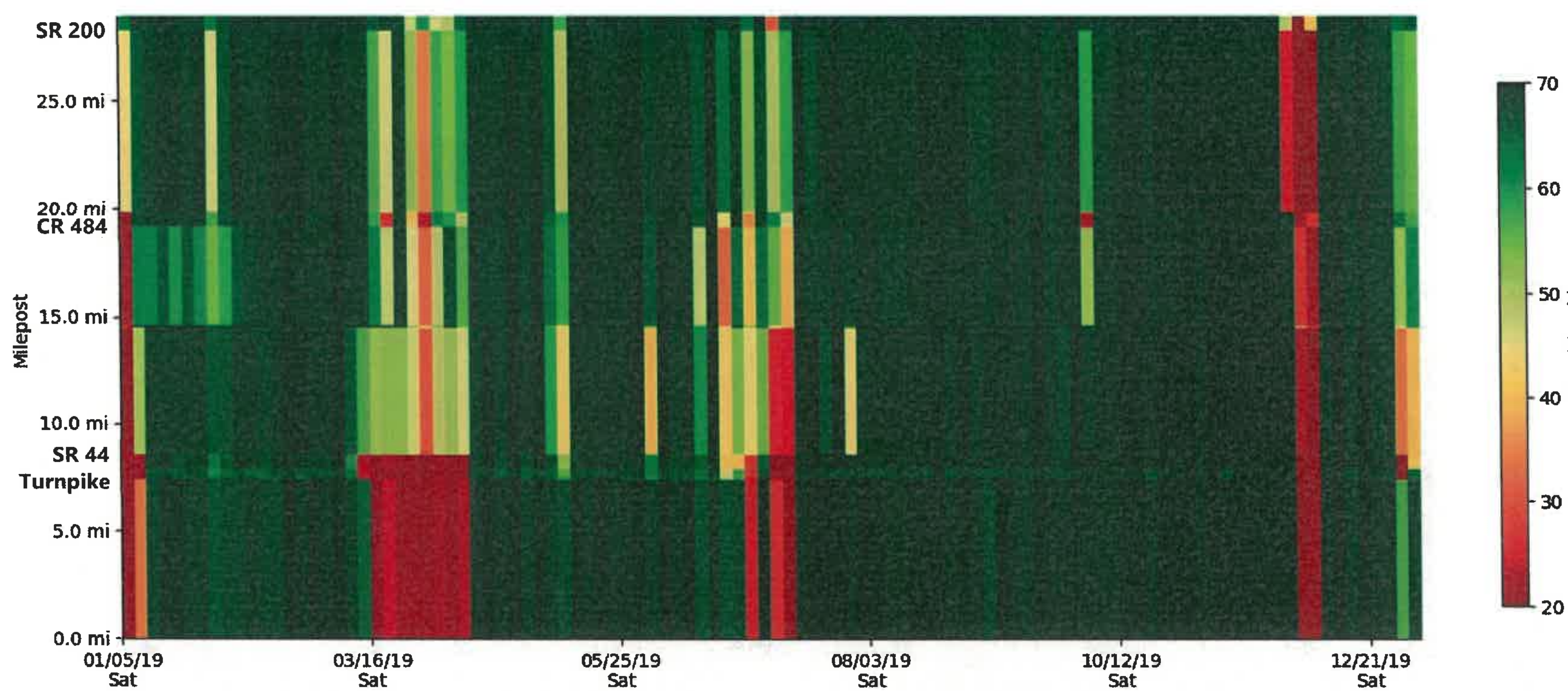
The southbound direction experiences congestion during the weekend PM peak periods (**Figure 35**). Breakdowns occurred along I-75 southbound at SR 200 and CR 484 during Spring Break, July 4th, Thanksgiving, and Christmas. Again, these are due to non-recurring congestion events such as incidents or extreme demand levels.

Figure 30: Northbound AM (Weekends) Speed Heat Map



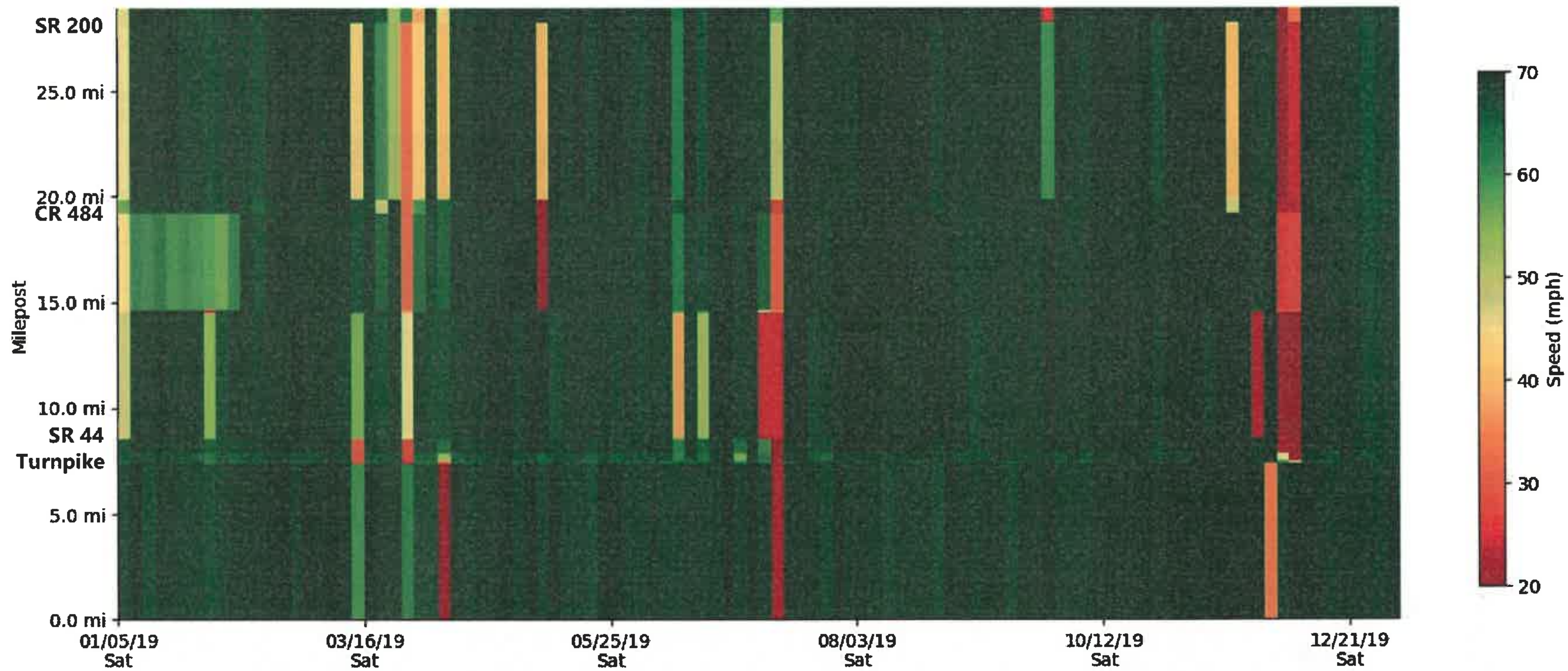
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 31: Northbound Midday (Weekends) Speed Heat Map



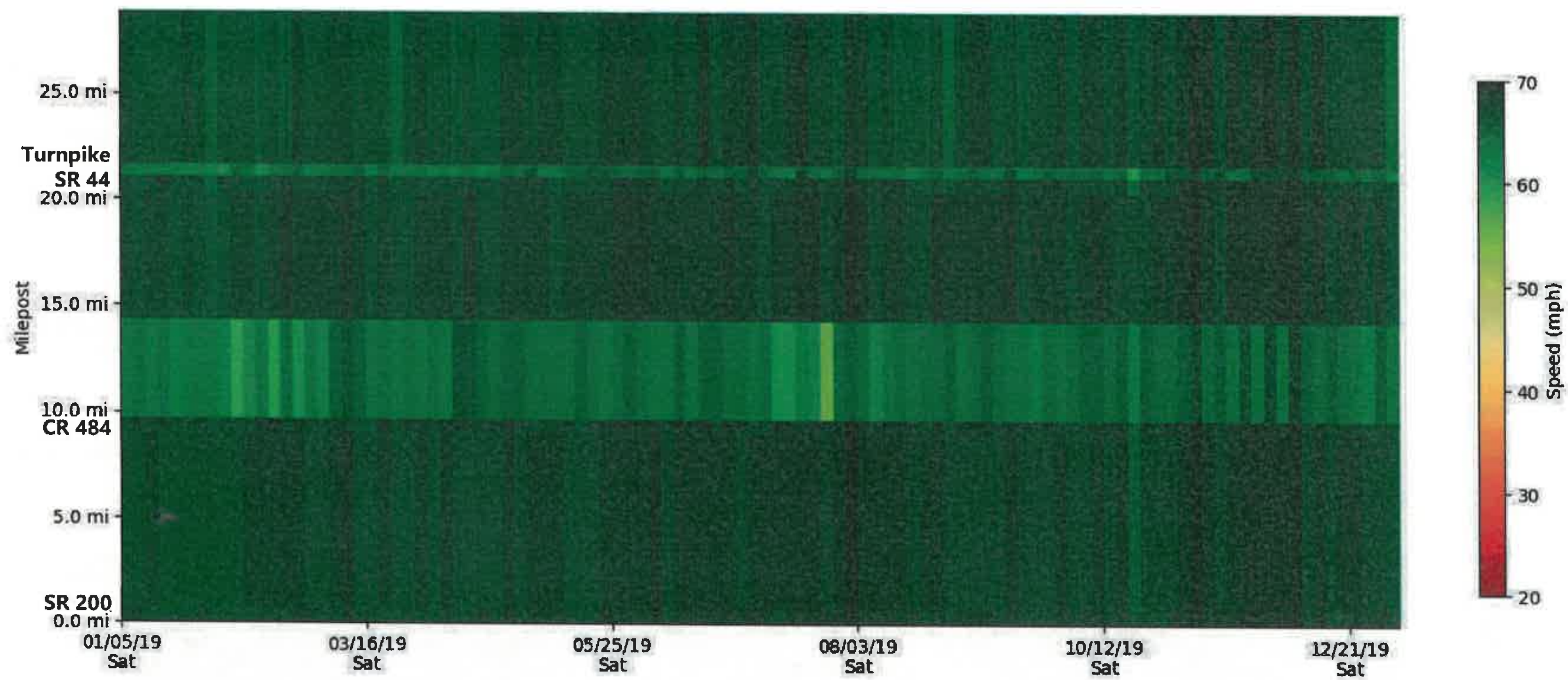
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 32: Northbound PM (Weekends) Speed Heat Map



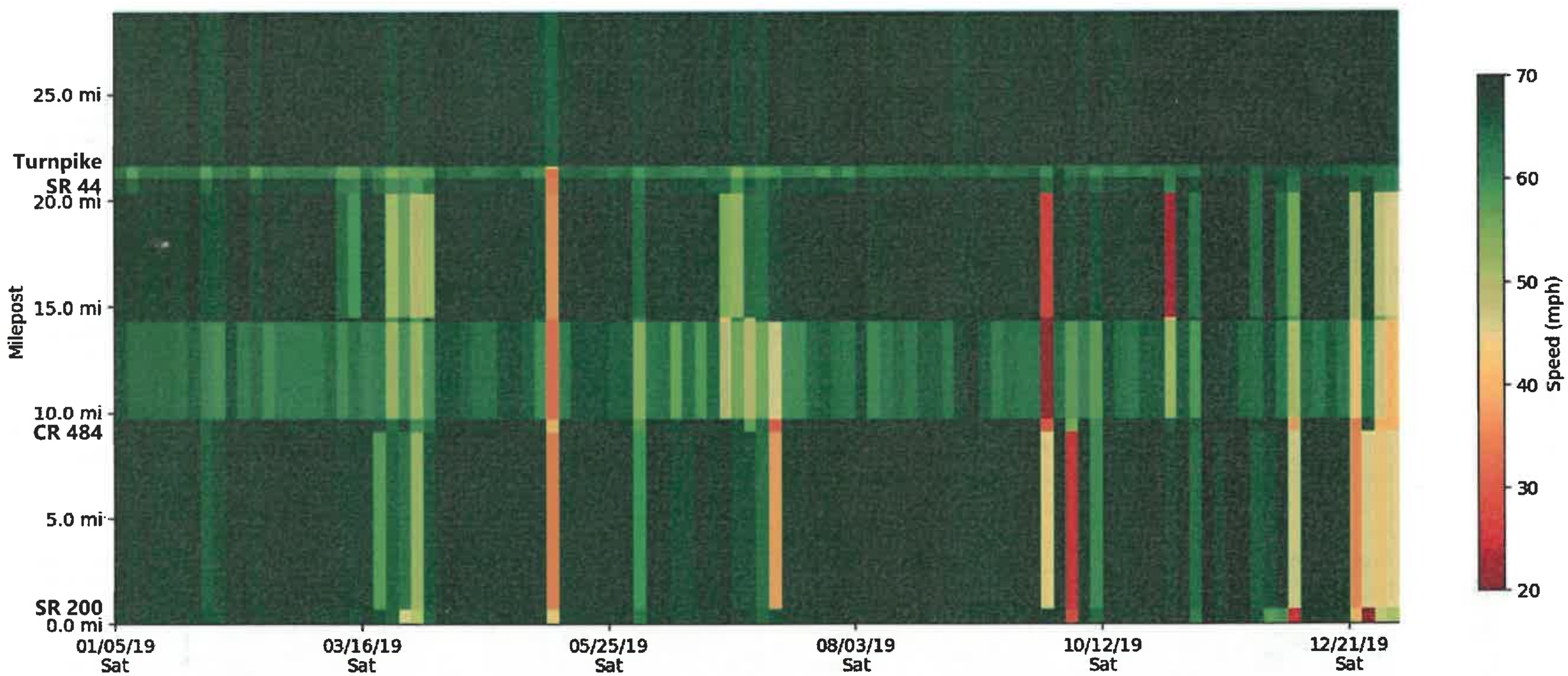
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 33: Southbound AM (Weekends) Speed Heat Map



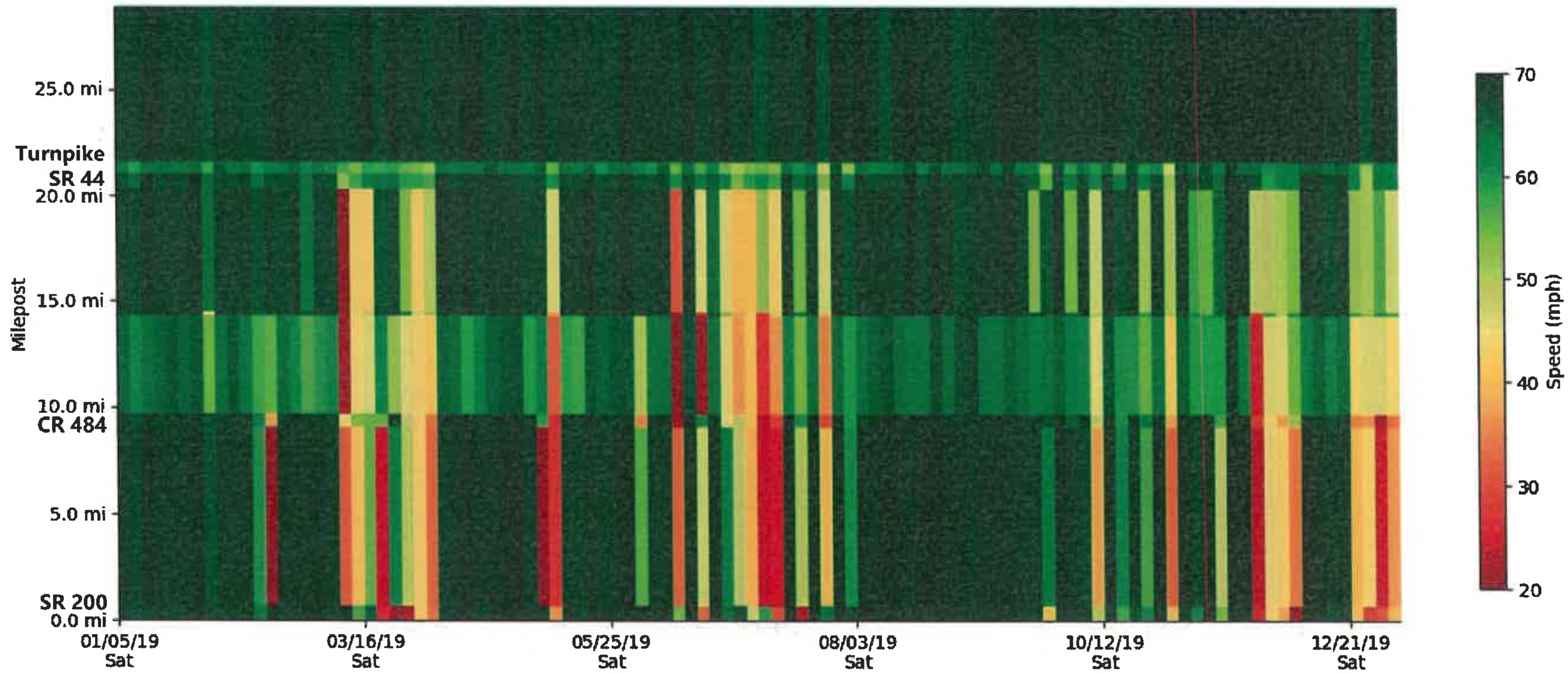
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 34: Southbound Midday (Weekends) Speed Heat Map



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 35: Southbound PM (Weekends) Speed Heat Map



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

TRAVEL TIME CONFIDENCE BANDS

The NPMRDS data can also be used to help assess the reliability of a corridor by looking at travel times across varying percentiles. The following travel time confidence band visualizations show the median travel time of the corridor, as well as bands showing the range of travel times from the 80th – 20th percentiles and the range of times from the 95th – 5th percentiles. These bands can be used to interpret the data in several ways. First, 60% of all travel times fall within the 20th-80th bands, and 90% of travel times fall within the 5th-95th bands. Additionally, the upper boundaries of the bands can be thought of as the time a driver should allow if they desire to be "on time" X% of the time. Specifically, the upper limit of the 80th band gives the travel time a driver should allow to be on time 80% of the time, and the upper limit of the 95th band gives the travel time a driver should allow to be on time 95% of the time.

NORTHBOUND TRAVEL TIME CONFIDENCE BANDS

The northbound travel time confidence bands for the weekday and weekend are shown in **Figure 36** and **Figure 37**, respectively. The travel time confidence chart shows a median northbound travel time of approximately 26 minutes throughout the day. The 20th-80th and 5th-95th bans show travel times very close to the median from midnight to approximately 10:00 AM and from approximately 5:30 PM to midnight. Drivers can expect to travel the corridor northbound in less than 30 minutes 95% of the time during the weekdays throughout most of the day. Between 10:00 AM and 5:30 PM during the weekdays, drivers would need to allow up to approximately 37 minutes of time to travel the corridor in the northbound direction to be on time 95% of the time.

The weekend travel time confidence bands for the northbound direction show a peak of 40 minutes needed for 80% confidence and up to nearly 80 minutes for 95% confidence in arriving on time during the weekends. The increase in travel times is present between approximately 10:00 AM and 7:00 PM with the peak occurring around noon. These charts further highlight the non-recurring congestion issues along the I-75 corridor, especially on the weekends.

SOUTHBOUND TRAVEL TIME CONFIDENCE BANDS

The southbound travel time confidence bands for the weekday and weekend are shown in **Figure 38** and **Figure 39**, respectively. The travel time confidence chart shows a median southbound travel time of approximately 26 minutes throughout the day. The 20th-80th and 5th-95th bans show travel times very close to the median from midnight to approximately 1:00 PM and from 7:00 PM to midnight. Drivers can expect to travel the corridor southbound in less than 28 minutes 95% of the time during the weekdays throughout most of the day. Between 1:00 PM and 7:00 PM during the weekdays, drivers would need to allow up to approximately 32 minutes of time to travel the corridor in the southbound direction to be on time 95% of the time.

Figure 36: Weekday Northbound Travel Time Confidence Bands (Tuesday – Thursday)

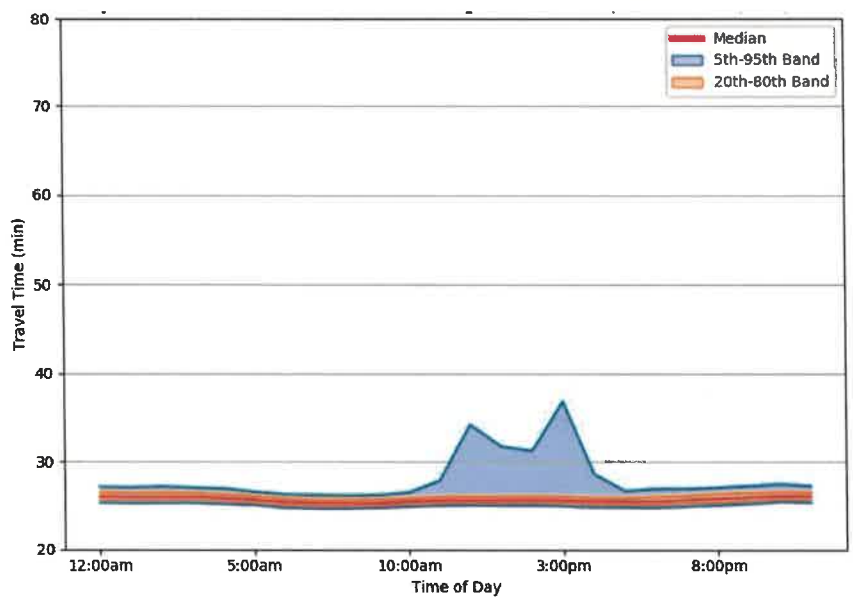
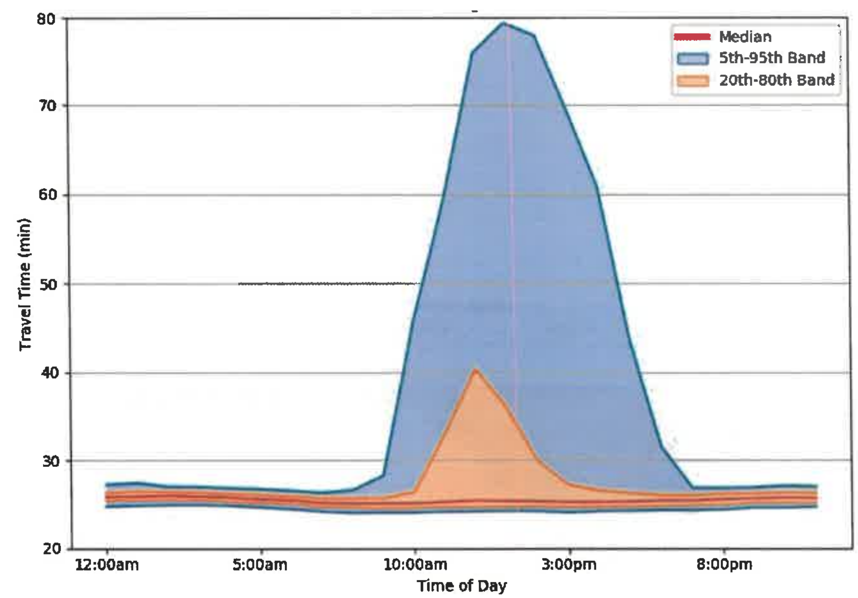


Figure 37: Weekend Northbound Travel Time Confidence Bands (Saturday and Sunday)



Source: January 1 – December 31, 2019 NPMRDS Data

Figure 38: Weekday Southbound Travel Time Confidence Bands (Tuesday – Thursday)

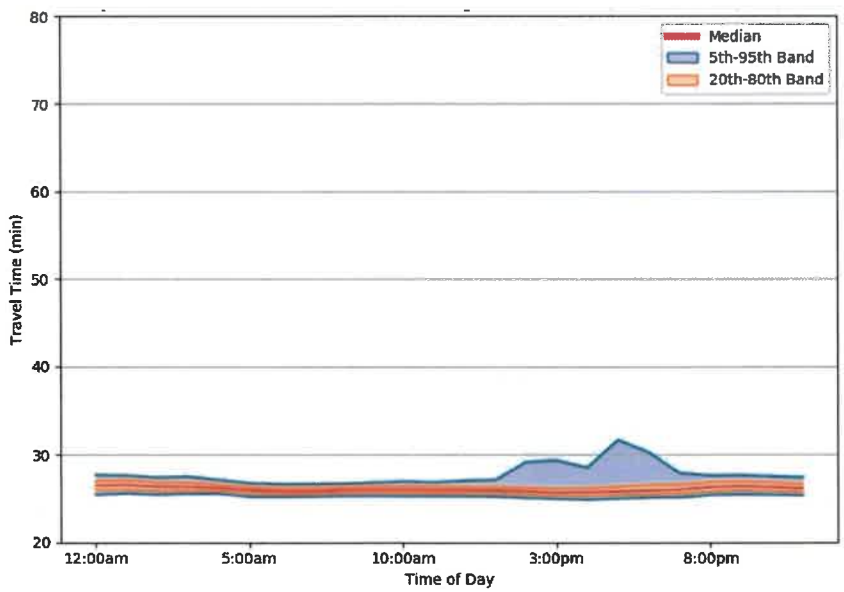
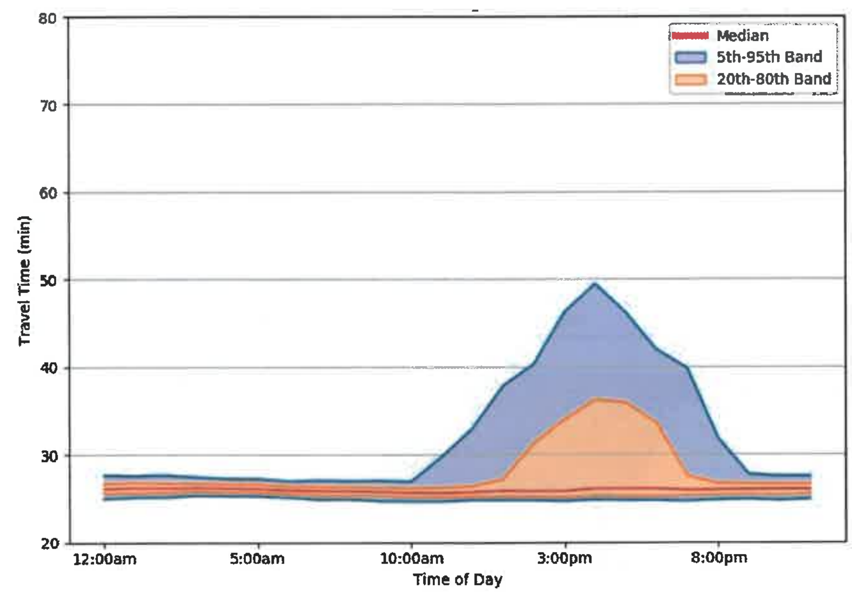


Figure 39: Weekend Southbound Travel Time Confidence Bands (Saturday and Sunday)



Source: January 1 – December 31, 2019 NPMRDS Data

The weekend travel time confidence bands for the northbound direction show a peak of 36 minutes needed for 80% confidence and up to nearly 50 minutes for 95% confidence in arriving on time during the weekends.

CORRIDOR LEVEL OF TRAVEL TIME RELIABILITY (LOTTR)

An additional reliability metric that can help to understand operations on a corridor is the level of travel time reliability (LoTTR). The LoTTR of a corridor is the ratio of the 80th percentile travel time to the 50th percentile (median) travel time. This metric is a variant of a performance measure originally included in FHWA rule-making guidance with instructions for local agencies to set target thresholds for the ratio (e.g. 1.5) as a goal of measuring whether corridors or segments of the NHS can be considered "reliable".

It is important to note that LoTTR identifies variability of travel times as opposed to congested travel times. If a corridor is "reliably congested" – say an urban commuter corridor – then the LoTTR will likely be close to a value of 1 as the 80th percentile is likely often not far off of the median, despite the median travel time being significantly higher than free-flow conditions. Alternatively, LoTTR identifies when the 20% worst travel times vary highly from the average conditions – due to non-recurring congestion for things like incidents, severe weather, or severe fluctuations in demand (seasonal or event).

NORTHBOUND LOTTR

Figure 40 illustrates the LoTTR for the northbound facility during the weekday period (Tuesday – Thursday). The 80th percentile travel time is very similar to the median travel time during this period. However, the LoTTR for the northbound facility during the weekend (Saturday and Sunday) tells a different story (**Figure 41**). The 80th percentile travel time exceeds the reliability threshold (approximately 39 minutes) at noon meaning that the facility could be deemed as unreliable during the weekend based on the FHWA thresholds.

SOUTHBOUND LOTTR

The LoTTR for the southbound facility during the weekday and weekend periods are shown in **Figure 42** and **Figure 43**. Similar to the northbound facility, the southbound LoTTR for the weekday period is similar to the median travel time (reliable). The 80th percentile travel time for southbound facility does not exceed the reliability threshold (approximately 40 minutes) on the weekend, but it does get close between 4:00 and 6:00 PM (approximately 36 minutes).

Figure 40: Weekday Northbound Level of Travel Time Reliability (Tuesday – Thursday)

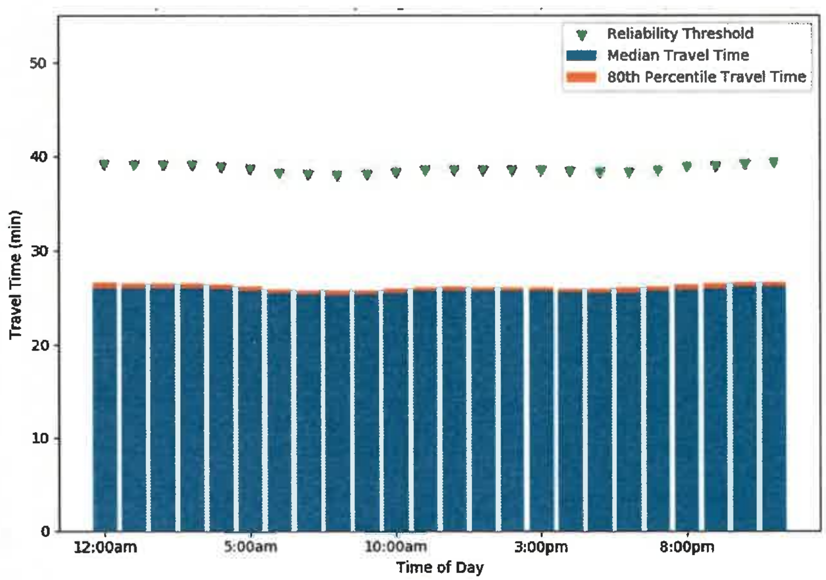
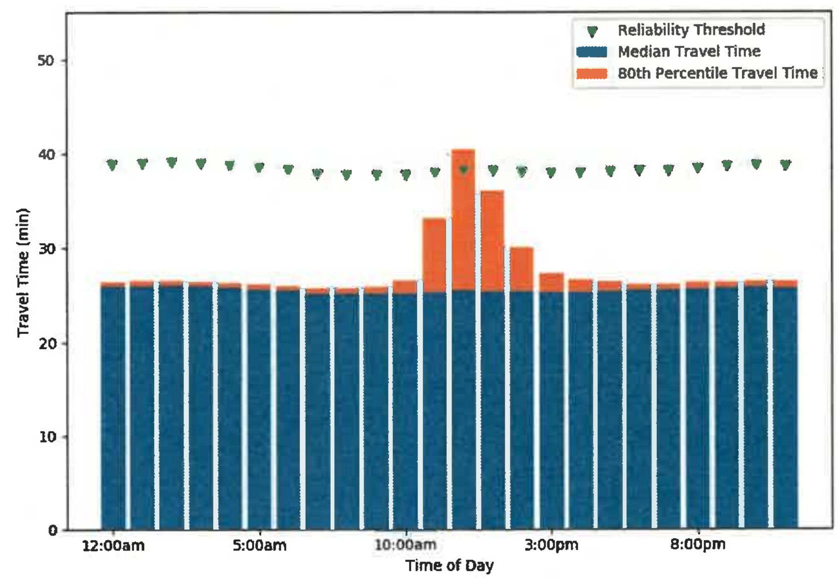


Figure 41: Weekend Northbound Level of Travel Time Reliability (Saturday and Sunday)



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 42: Weekday Southbound Level of Travel Time Reliability (Tuesday – Thursday)

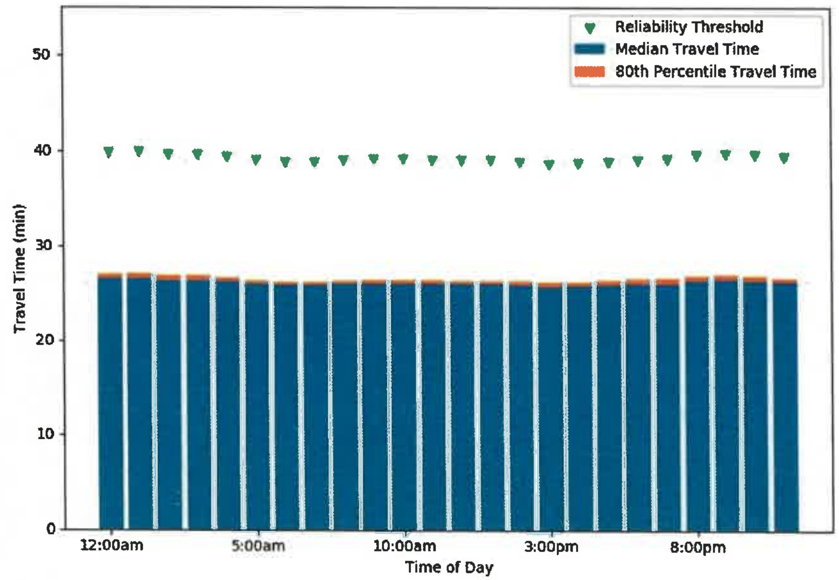
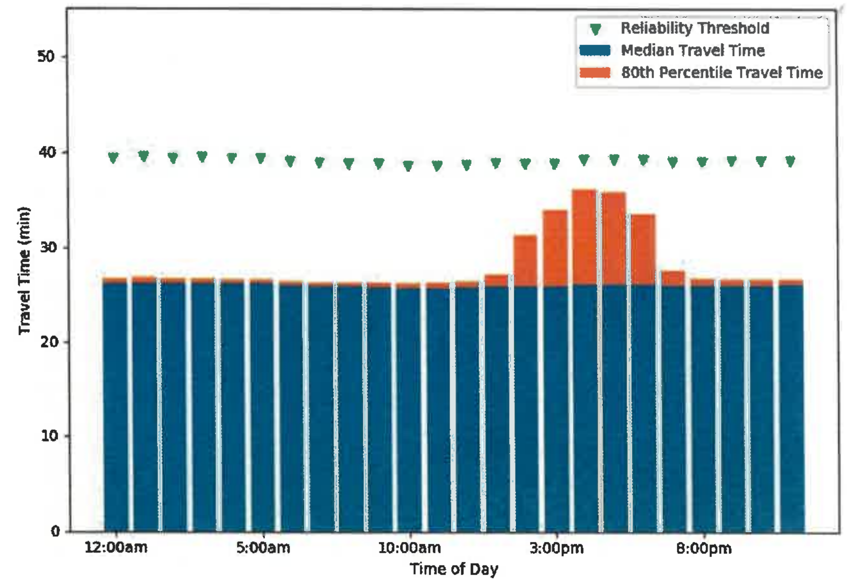


Figure 43: Weekend Southbound Level of Travel Time Reliability (Saturday and Sunday)



Source: January 1, 2019 – December 31, 2019 NPMRDS Data

HISTORICAL CRASH ANALYSIS

Crash records were obtained from the FDOT's Signal Four Analytics (S4) crash database for I-75 and associated interchanges within this PTAR's AOI. The safety analysis was performed for the most recent five years of crash data (January 1, 2018 – December 31, 2022). Supplemental crash data from January 1, 2023 to March 31, 2023 were also analyzed to verify crash trends and patterns. This is consistent with the approved methodology for this study and with guidance from the 2023 FDOT Safety Crash Data Guidance published by the State Safety Office[3].

This section summarizes the safety analysis conducted for I-75 northbound, I-75 southbound, the interchange ramps, and the interchange ramp terminal intersections within the study's AOI. The study segments are shown in **Table 11** and **Figure 44**. A more detailed summary of the 2018 to 2022 crash data and supplemental 2023 crash data sets in tabular and graphical format are also provided in **Appendix I**.

A safety analysis was not performed for I-75 mainline, ramps, and interchange ramp terminal intersections at Turnpike and SR 44. The interchange area at I-75 and Turnpike/SR 44 was under construction for a new Turnpike interchange and ramp system to/from SR 44, thus the historical crash records are not representative of the current geometric configuration of the interchange.

[3]State Safety Office, Florida Department of Transportation. (04/17/2023). Safety Crash Data Guidance. https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/safety/11a-safetyengineering/crash-data/25998_crash-data-process_v18.pdf?sfvrsn=b50e9f4e_2

Table 11: I-75 Mainline Study Segments

Location	Roadway ID 1	Begin MP 1	End MP 1	Roadway ID 2	Begin MP 2	End MP 2	Total Length
I-75 Northbound							
SR 44 to Marion County Weigh Station	18130000	23.507	28.996	36210000	0.000	1.957	7.446
Marion County Weight Station	36210000	1.957	3.259	-	-	-	1.302
Marion County Weight Station to CR 484	36210000	3.259	4.660	-	-	-	1.401
CR 484 Interchange Area	36210000	4.660	5.351	-	-	-	0.691
CR 484 to Rest Area	36210000	5.351	9.665	-	-	-	4.314
Rest Area Interchange Area	36210000	9.665	10.503	-	-	-	0.838
Rest Area to SR 200	36210000	10.503	13.672	-	-	-	3.169
SR 200 Interchange Area	36210000	13.672	14.353	-	-	-	0.681
I-75 Southbound							
SR 200 Interchange Area	36210000	14.353	13.540	-	-	-	0.813
SR 200 to Rest Area	36210000	13.540	10.535	-	-	-	3.005
Rest Area Interchange Area	36210000	10.535	9.740	-	-	-	0.795
Rest Area to SR 484	36210000	9.740	5.316	-	-	-	4.424
SR 484 Interchange Area	36210000	5.316	4.628	-	-	-	0.688
SR 484 to Marion County Weight Station	36210000	4.628	3.209	-	-	-	1.419
Marion County Weight Station	36210000	3.209	1.931	-	-	-	1.278
Marion County Weight Station to SR 44	36210000	1.931	0.000	18130000	28.996	23.218	7.709

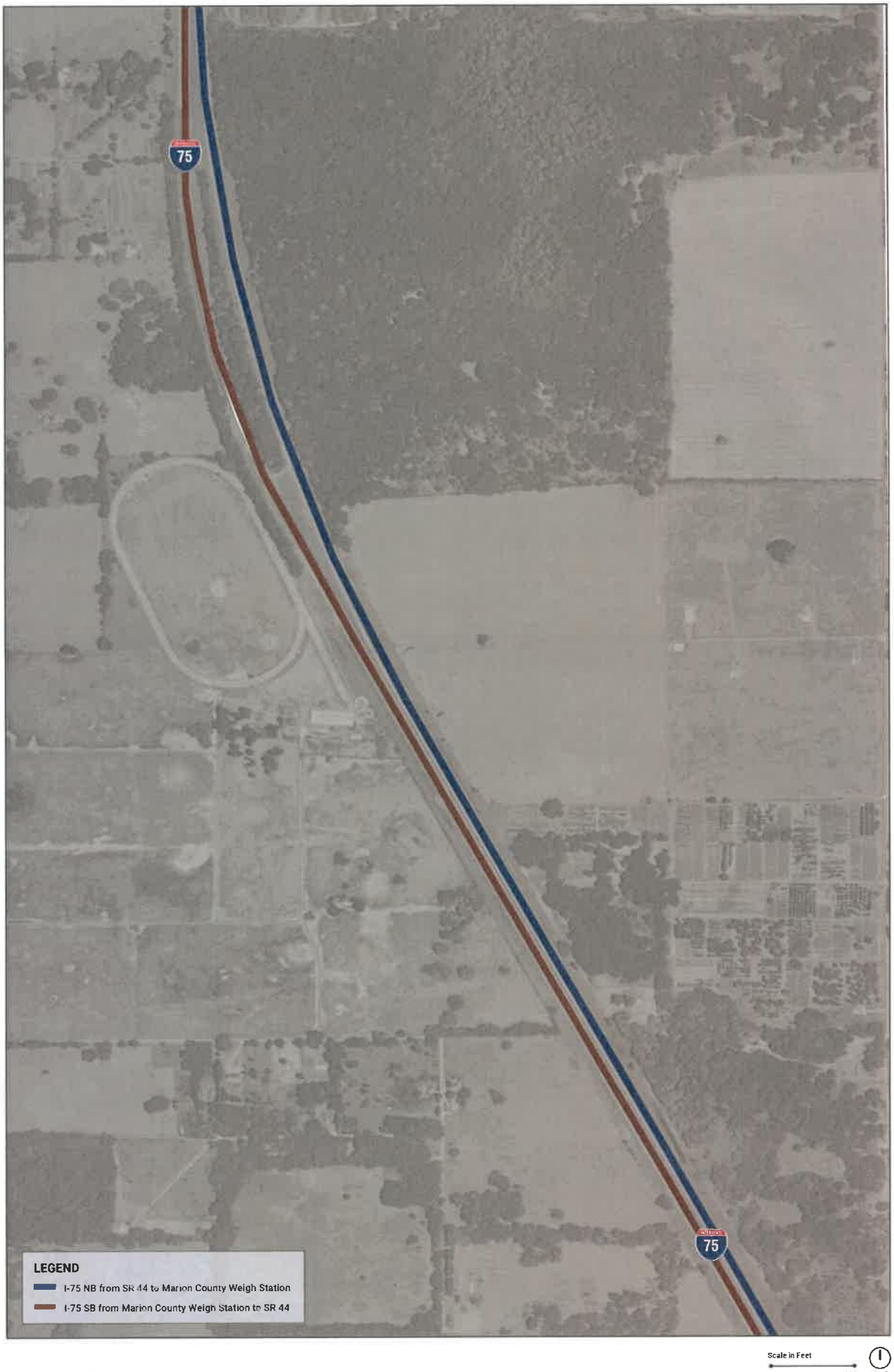

44
75
A historical safety analysis was not performed for I-75 mainline, ramps, and interchange ramp terminal intersections at SR 91 and SR 44 due to construction.
75
FLORIDA'S TURNPIKE
Scale in Feet
0
600
North

FDOT

I-75 PD&E South

Mainline Safety and Crash Rate Analysis Limits

Figure 44 (2 of 13)



Mainline Safety and Crash Rate Analysis Limits
Figure 44 (3 of 13)

Scale in Feet
0 600
North

I-75 PD&E South

Mainline Safety and Crash Rate Analysis Limits

Figure 44 (4 of 13)

Scale in Feet
0 600
North

FDOT

I-75 PD&E South

Mainline Safety and Crash Rate Analysis Limits

Figure 44 (5 of 13)

Scale in Feet
0 600
North

Scale in Feet
0 600
North

Mainline Safety and Crash Rate Analysis Limits

Figure 44 (8 of 13)

Figure 44 (9 of 13)

I-75 PD&E South

Mainline Safety and Crash Rate Analysis Limits

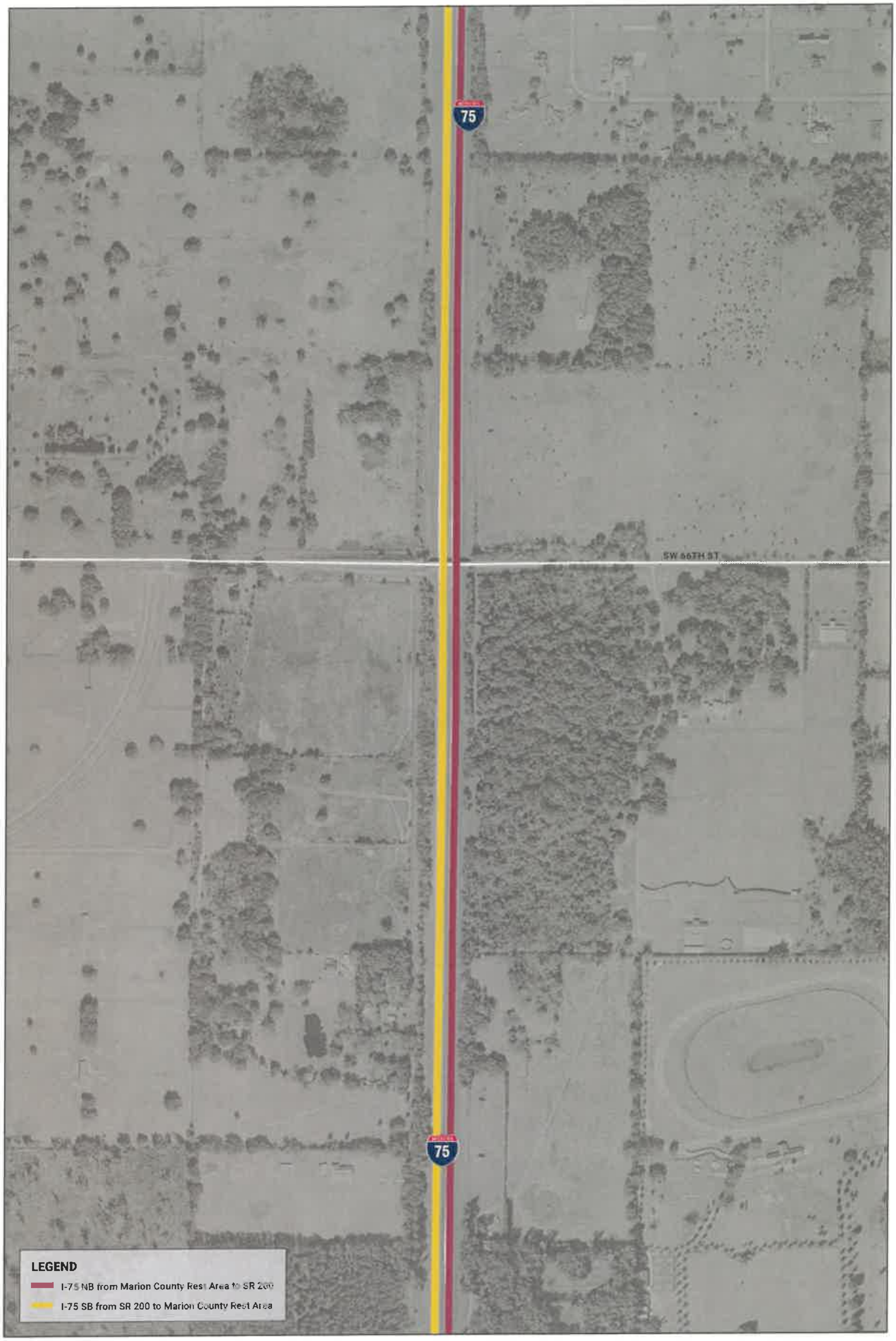
Figure 44 (10 of 13)

FDOT

I-75 PD&E South

Mainline Safety and Crash Rate Analysis Limits

Figure 44 (11 of 13)



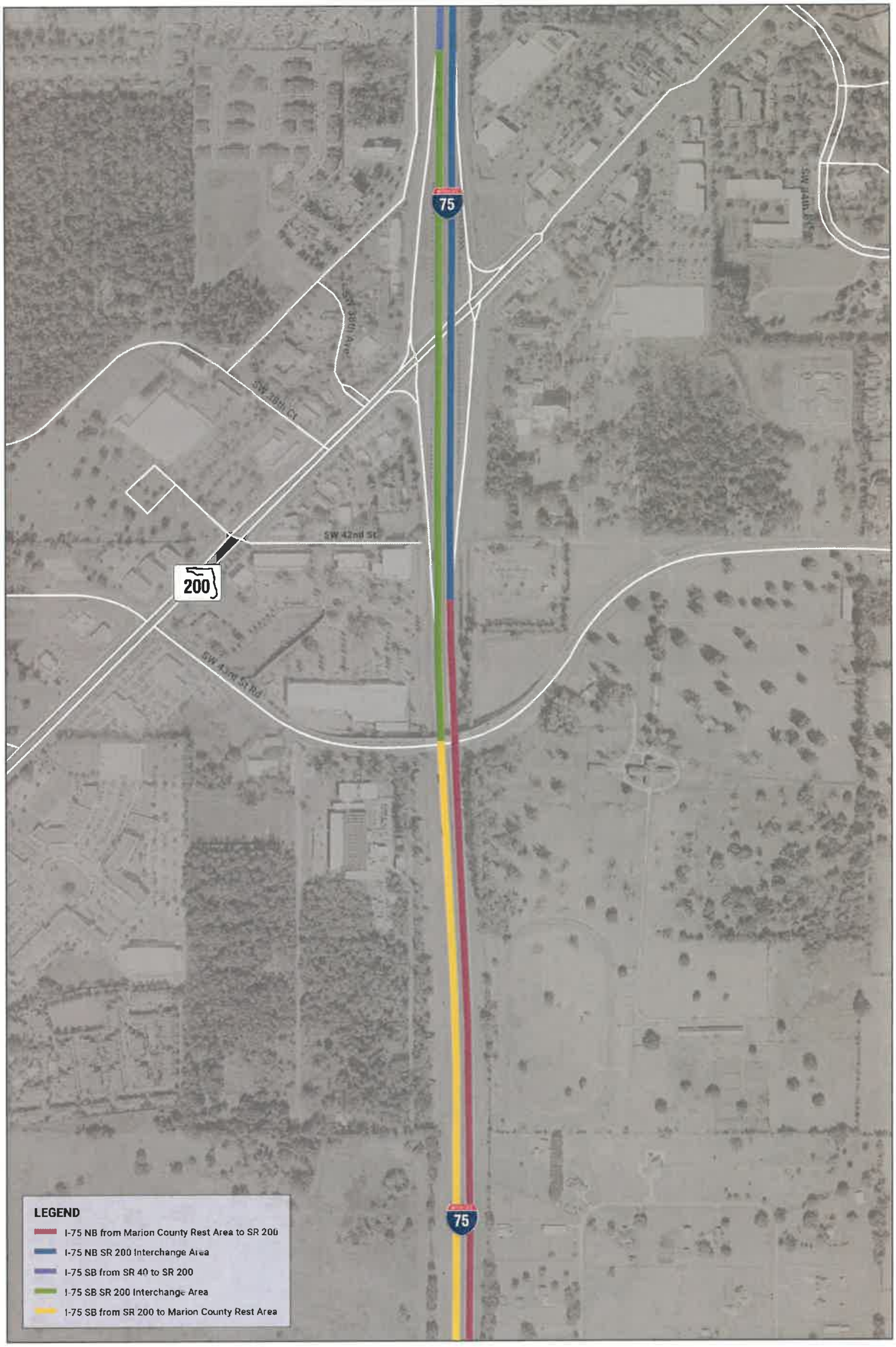
Scale in Feet
0 600
North

FDOT

I-75 PD&E South

Mainline Safety and Crash Rate Analysis Limits

Figure 44 (12 of 13)



Mainline Safety and Crash Rate Analysis Limits

Figure 44 (13 of 13)

I-75 NORTHBOUND CRASH STATISTICS

Figure 45 displays a summary of crash frequency by year along with their respective severity for the study period along I-75 northbound. There was a total of 1,384 reported crashes during this period, 384 of which (28 percent) resulted in 768 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The fatal crashes are further described in **Section: Review of Fatal Crashes**. As displayed in **Figure 45**, the crashes per year along the corridor ranged between 275 and 283 crashes pre-COVID (2018-2019). An approximate 28 percent reduction in crashes was observed in 2020 (202 crashes) largely due to the travel restrictions during COVID-19. Post COVID-19 pandemic saw an increase in crashes from 2020 in 2021 (276 crashes), and in 2022 (258 crashes). There were 90 crashes in the first three months of 2023 when the crash data was obtained.

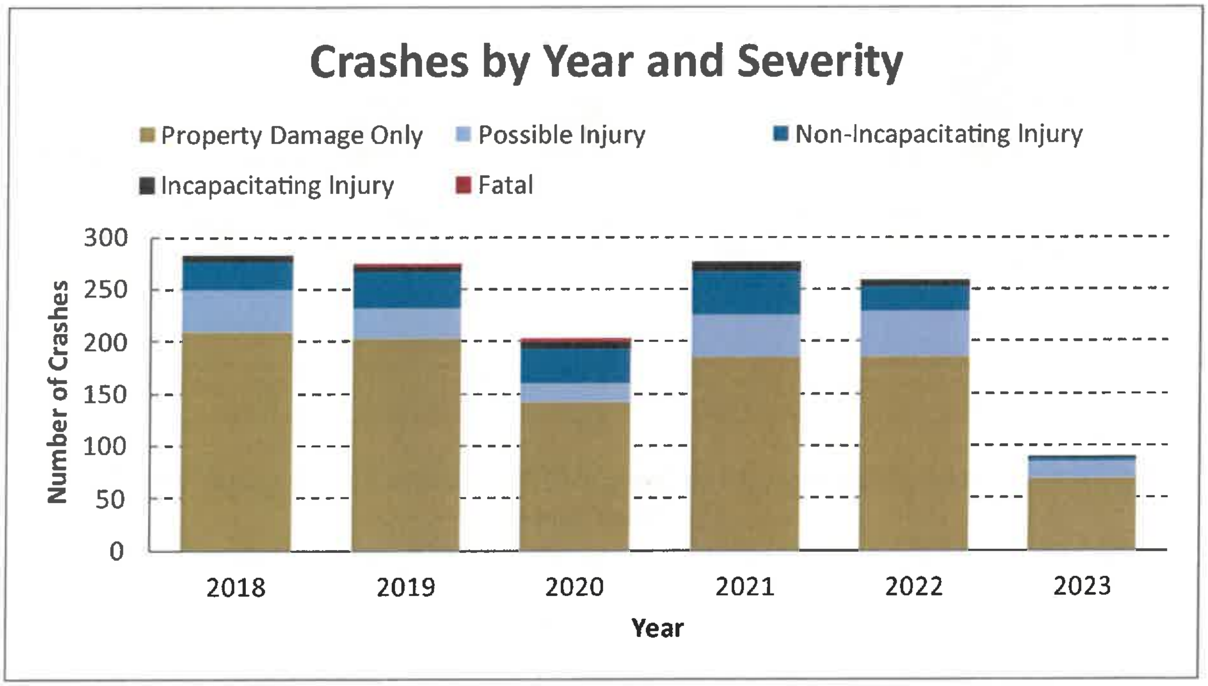


Figure 45: Historical (January 2018-March 2023) Crashes per Year – I-75 Northbound

Figure 46 displays the crashes along I-75 northbound by type and severity for the study period. The highest crash type observed was rear end, comprising 53 percent of the total crashes. Sideswipe (20 percent) and fixed object/run-off road (19 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 78 percent of the injury crashes.

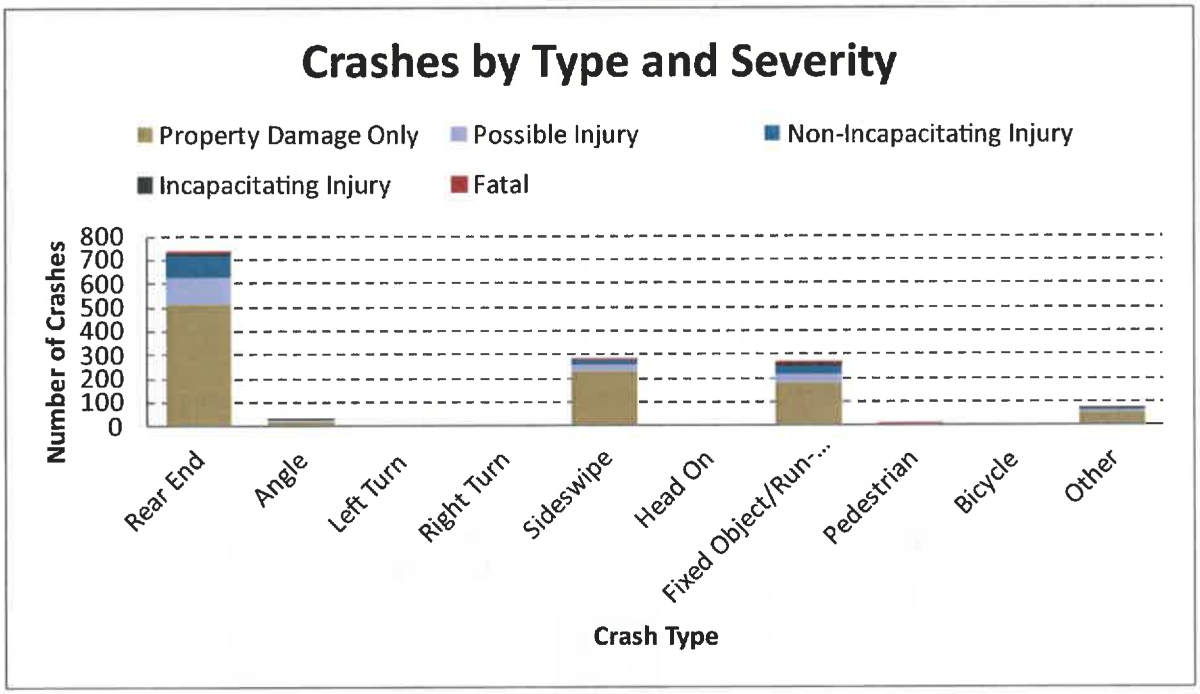


Figure 46: Historical (January 2018-March 2023) Crashes by Type and Severity – I-75 Northbound

I-75 SOUTHBOUND CRASH STATISTICS

Figure 47 displays a summary of crash frequency by year along with their respective severity for the study period along I-75 southbound. There was a total of 1,095 reported crashes, 300 of which (27 percent) resulted in 644 injuries. Three fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The fatal crashes are further described in **Section: Review of Fatal Crashes**. As displayed in **Figure 47**, the crashes per year along the corridor ranged between 204 and 228 crashes pre-COVID (2018-2019) but an approximate 25 percent reduction in crashes was observed in 2020 (163 crashes) largely due to the travel restrictions during COVID. Post-COVID crash frequency increased in 2021 (203 crashes) and peaked in 2022 (247 crashes). There were 50 crashes in the first three months of 2023 when the crash data was obtained.

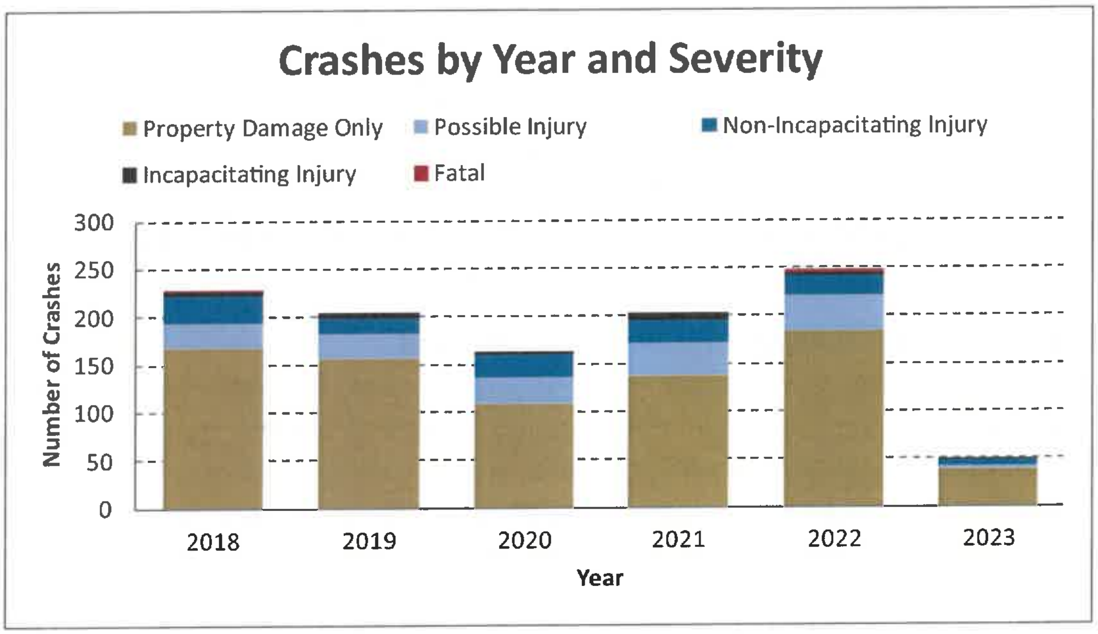


Figure 47: Historical (January 2018-March 2023) Crashes per Year – I-75 Southbound

Figure 48 displays the crashes along I-75 southbound by type and severity for the study period. The highest crash type observed was rear end, comprising 51 percent of the total crashes. Sideswipe (24 percent) and fixed object/run-off road (16 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounted for 71 percent of the injury crashes.

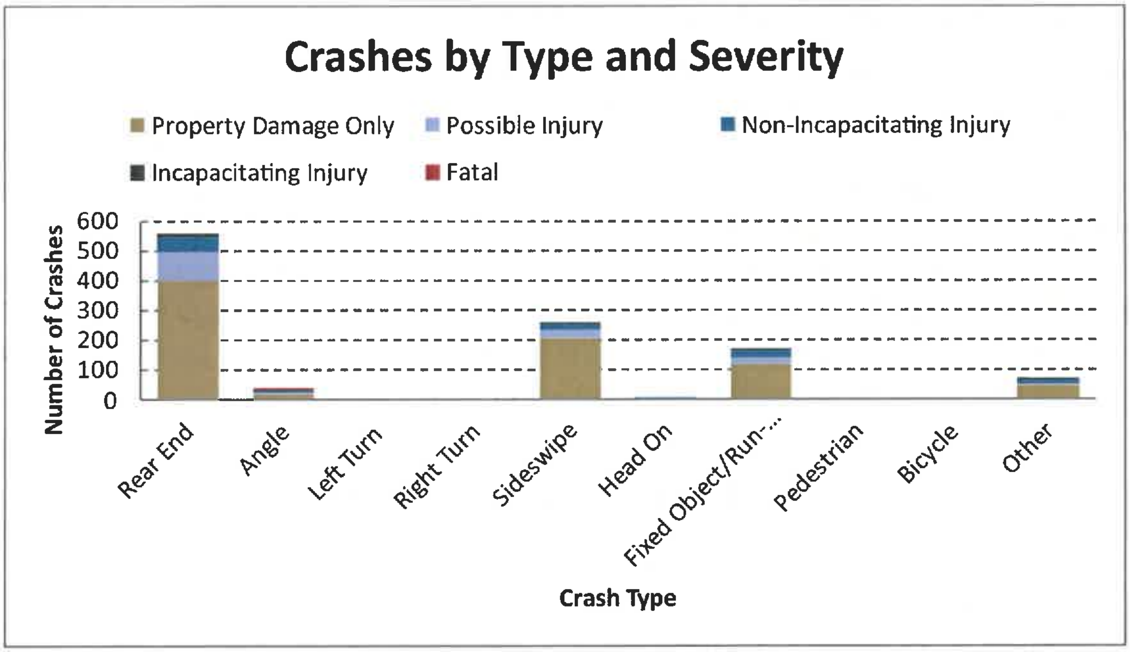


Figure 48: Historical (January 2018-March 2023) Crashes by Type and Severity – I-75 Southbound

INTERCHANGE RAMP CRASH STATISTICS

In addition to the I-75 mainline study segments, interchange ramp crashes were summarized to identify high crash ramps based on crash frequency. **Table 12** displays each of the ramps, the total number of crashes, and the total number of injury crashes (no fatal crashes were observed). I-75 northbound ramps to/from Marion County Weigh Station had a higher ramp crash frequency compared to the southbound ramps. I-75 southbound Off-Ramp to CR 484 had the highest ramp crash frequency of each of the four ramps at the interchange. I-75 northbound ramps to/from Marion County Rest Area had a higher ramp crash frequency compared to the southbound ramps. I-75 northbound Off-Ramp to SR 200 had the highest ramp crash frequency of each of the ramps at the interchange.

Table 12: Historical (January 2018-March 2023) Interchange Ramp Crash Statistics

Interchange	Ramps	Total Number of Crashes	Total Number of Injury Crashes
Marion County Weigh Station	**I-75 NB Ramps**	**2**	**0**
	I-75 SB Ramps	0	0
CR 484	I-75 NB Off-Ramp	26	8
	I-75 NB On-Ramp	19	2
	I-75 SB Off-Ramp	**68**	**10**
	I-75 SB On-Ramp	21	14
Rest Area	**I-75 NB Ramps**	**7**	**1**
	I-75 SB Ramps	4	0
SR 200	**I-75 NB Off-Ramp**	**51**	**19**
	I-75 NB On-Ramp	11	1
	I-75 SB Off-Ramp	21	7
	I-75 SB On-Ramp	19	5
Total		249	67

Bold indicates the ramp with the highest crash frequency

INTERCHANGE RAMP TERMINAL CRASH STATISTICS

In addition to the I-75 mainline study segments and interchange ramps, interchange ramp terminal intersection crashes were summarized to identify high crash ramp terminal intersections based on crash frequency. **Table 13** displays each of the ramp terminal intersections, the total number of crashes, and the total number of injury crashes (no fatal crashes were observed). As displayed in the table, I-75 and CR 484 southbound ramp terminal (181 crashes) and I-75 and SR 200 southbound ramp terminal (143 crashes) had the highest intersection crash frequencies. Rear end was the highest crash type for all of the ramp terminal intersections. Left turn and sideswipe was the second highest crash type for of the ramp terminal intersections.

Table 13: Historical (January 2018-March 2023) Ramp Terminal Intersection Crash Frequency

Interchange	Ramp Terminal	Total Number of Crashes	Total Number of Injury Crashes	Highest Crash Type 1	Highest Crash Type 2
CR 484	**I-75 SB Ramp Terminal**	**181**	**33**	**Rear End – 37%**	**Left Turn – 23%**
	I-75 NB Ramp Terminal	39	9	Rear End – 33%	Sideswipe – 31%
SR 200	**I-75 SB Ramp Terminal**	**143**	**32**	**Rear End – 58%**	**Left Turn – 16%**
	I-75 NB Ramp Terminal	63	27	Rear End – 62%	Sideswipe – 11%

Bold indicates the intersection with the highest crash frequency

CONTRIBUTING FACTORS

The following summarizes the contributing factors for the I-75 mainline ramps, interchange ramps, and ramp terminal intersections.

I-75 MAINLINE

As discussed in the previous sections, rear end was the highest crash type for both I-75 northbound and southbound. Sideswipe and fixed object/run-off road were either the second or third highest crash type along I-75 northbound and southbound. Potential contributing factors relating to these crash types are discussed below:

- **Rear End and Sideswipe**
  - Reoccurring congestion related to AM and PM peak hour traffic volumes;
  - Non-reoccurring congestion related to crashes, disabled vehicles, etc.;
  - Abrupt speed changes and slow-downs related to the vertical curves from the bridges over CR 484 and SR 200; and
  - Near merge/diverge areas where vehicles traveling at different speeds are interacting.
- **Fixed Object/Run-Off Road**
  - Inadequate roadway lighting between interchanges;
  - Unexpected horizontal curves along long straight mainline segments causing disruption to driver expectations;

- Vehicles traveling at high speeds not being able to recover within the paved/grass shoulder; and
- Obstructions near the roadside (light poles) and no roadside guardrail.

INTERCHANGE RAMPS

The highest crash type for off-ramps was rear end and the highest crash types for on-ramps were rear end and sideswipe. The type of ramp can contribute to crash type trends and potential contributing factors relating to these crash types as discussed below:

- **Off-Ramps**
  - Rear end crashes can occur due to high exiting speed of vehicles combined with congestion/queueing from the ramp terminal with the crossing arterial.
- **On-Ramps**
  - Rear end and sideswipe crashes can occur due to high vehicle speeds combined with congestion along the freeway mainline as vehicles approach the end of the merge lane.

RAMP TERMINAL INTERSECTIONS

Rear end was the highest crash type for the ramp terminal intersections and left turn/sideswipe was the second highest crash type for the ramp terminal intersections. Potential contributing factors relating to these crash types are discussed below:

- **Rear End and Sideswipe**
  - Reoccurring congestion related to AM and PM peak hour traffic volumes;
  - Insufficient signage/wayfinding approaching the terminals contributing to incorrect lane usage and sudden lane changes as drivers attempt to position themselves in the correct lane; and
  - High vehicle operating speeds leading to higher intersection approach speeds.
- **Left Turn**
  - High vehicle operating speeds leading to higher intersection approach speeds; and
  - Protected/permissive left turn signal timing and low number of gaps in traffic leading to drivers making turning movements with less space between oncoming vehicles.

REVIEW OF FATAL CRASHES

Nine fatal crashes occurred on I-75 mainline resulting in 12 fatalities. The following section describes the fatal crashes in more detail:

- **Crash Number 87103692–**
  The fatal crash occurred on July 6, 2018 at 1:30 PM on I-75 southbound at MP 23.545. The angle crash involved two vehicles on dry road surface during cloudy daylight conditions. One vehicle was traveling southbound in the inside lane and the second vehicle was travelling southbound in the outside lane. While traveling, the first vehicle lost control, entered onto the inside shoulder before drifting into the path of the second vehicle and collided with its right rear portion. The crash resulted in one fatality.

- **Crash Number 88138955 –**
  The fatal crash occurred on June 13, 2019 at 9:50 AM on I-75 northbound, north of CR 484 at MP 6.994. The crash involved two motorcycles and two vehicles on dry road surface during cloudy daylight conditions. The first collision occurred when a motorcycle lost control and overturned when approaching slow moving traffic. The second motorcycle, travelling behind the first one, also lost control and overturned. Both drivers fell from their respective motorcycles into the path of a truck trailer, which was unable to avoid the drivers. The crash resulted in the two motorcyclists' fatalities.

- **Crash Number 88153145–**
  The fatal crash occurred on June 18, 2019 at 12:31 PM on I-75 northbound at the CR 484 interchange at MP 4.908. The rear end crash involved two vehicles on dry road surface during cloudy daylight conditions. The first vehicle was traveling northbound on I-75 in the outside travel lane. The second vehicle was stopped northbound I-75 in the center travel lane with other traffic due to another incident ahead. The first vehicle failed to safely stop when approaching the stopped traffic, resulting in striking the rear of the second vehicle. The crash resulted in one fatality.

- **Crash Number 88253537–**
  The fatal crash occurred on November 14, 2019 at 11:00 PM on I-75 northbound south of SR 200 at MP 11.235. The rear end crash involved two vehicles on dry road surface during cloudy dark-not lighted conditions. The first vehicle was traveling northbound in the center lane while the second vehicle was travelling northbound in the right outside lane. The first vehicle drifted into the path of the second vehicle and collided with its rear left. The collision caused the second vehicle to run off the roadway and overturn before coming to the final rest on the east grass shoulder. The second vehicle driver was ejected from the vehicle and was pronounced deceased at the scene. It was reported that the driver of the

first vehicle was under the influence of drugs when the crash occurred. The crash resulted in one fatality.

- **Crash Number 88225277–**
  The fatal crash occurred on November 16, 2019 at 3:55 PM on I-75 northbound, north of CR 484 at MP 6.194. The fixed object/run-off road crash involved a single vehicle on dry road surface during cloudy daylight conditions. The vehicle with trailer and vehicle in tow was traveling northbound on I-75 in the outside lane when the driver lost control while driving through a curve. The vehicle ran off the roadway and overturned before coming to final rest on the east grass shoulder of I-75 northbound. While overturing, a passenger was ejected from the vehicle, resulting in one fatality.

- **Crash Number 87230237–**
  The fatal crash occurred on June 9, 2020 at 3:00 AM on I-75 northbound, north of the Marion County Rest Area at MP 11.852. This was a hit and run crash involving a pedestrian on wet road surface during cloudy dark-not lighted conditions. The pedestrian was walking on I-75 northbound when struck by a vehicle, which resulted in pedestrian fatality.

- **Crash Number 88385925–**
  The fatal crash occurred on October 9, 2020 at 11:55 AM on I-75 northbound, north of CR 484 at MP 8.994. The sideswipe crash involved two vehicles on dry road surface during cloudy daylight conditions. The first vehicle was traveling northbound in the center lane while the second vehicle was travelling northbound in the right outside lane. The first vehicle drifted into the path of the second vehicle while attempting to change into the outside right lane and collided with its left side. The collision caused the second vehicle to run off the roadway and overturn before coming to the final rest on the east grass shoulder. It was reported that the first vehicle's driver was under the influence of drugs when the crash occurred. The crash resulted in one fatality.

- **Crash Number 24890825–**
  The fatal crash occurred on February 7, 2022 at 12:58 AM on I-75 southbound, at the Marion County Rest Area interchange area at MP 9.940. The crash involved three vehicles and a pedestrian on a wet road surface during dark-lighted conditions. The first vehicle was traveling on I-75 south in the inside southbound travel lane. A pedestrian was walking east crossing the southbound lanes of I-75, south of the first vehicle. The pedestrian was struck by the front of the vehicle and landed in the middle of southbound lane and was struck again by two other vehicles. The crash resulted in one pedestrian fatality.

- **Crash Number 25012275–**
  The fatal crash occurred on October 26, 2022 at 1:10 PM on I-75 southbound near the Marion County Weigh Station at MP 2.550. The crash involved six vehicles on dry road surface during clear daylight conditions. Three vehicles were traveling on I-75 southbound and the other three vehicles were travelling on I-75 northbound. The initial crash occurred on I-75 southbound when a driver failed to maintain the vehicle in a proper lane and struck another vehicle, which initiated a chain of collisions. Two vehicles initially travelling on I-75 southbound struck the guardrail in the center median and crossed over onto I-75 northbound causing collisions with three other vehicles. The crash resulted in three fatalities.

CRASH RATE ANALYSIS

A crash rate analysis was performed for I-75 northbound, I-75 southbound, and I-75 ramp terminal intersections. Note that as 2020-2022 average crash rates are not yet available, crash rate analyses were limited to 2018 and 2019 data. A crash rate analysis was not performed for the interchange ramps because no statewide average crash rates are available for ramps.

Actual crash rates, expressed as number of crashes per million vehicle miles traveled (MVMT), were calculated from the total number of crashes in a year, AADT, and the length of the roadway segment based on the equation below:

Actual Crash Rate = (Number of crashes per year x 1,000,000) / (ADT x 365 x segment length)

Actual Crash rates for intersections is calculated from the total number of crashes in a year, Daily Entering Vehicles (DEV), and the length of the segment (assumed to be 1 for intersections) based on the equation below:

Actual Crash Rate = (Number of crashes per year x 1,000,000) / (365 x DEV x segment length (assumed to be 1))

Traffic data, such as functional classification and AADTs, were obtained from the FDOT Florida Traffic Online (FTO) website and the Ocala Marion Transportation Planning Organization (TPO) 2023 Traffic Counts Report. The traffic data utilized for the crash rate analysis is provided in **Appendix J**. The calculated actual crash rates were compared to the critical crash rate to find the safety ratio for each I-75 segment and ramp terminal intersection. The critical crash rate is calculated using the statewide average crash rates for similar facilities/intersections based on the equation[4] below:

Critical Crash Rate = Average Crash Rate + (K Factor x SQRT { Average Crash Rate / Vehicle Exposure}) + (0.5 / Vehicle Exposure)

Where Vehicle Exposure for Segments = (ADT x 365 x Segment Length) / 1,000,000
Vehicle Exposure for Intersections = (DEV x 365) / 1,000,000

Safety Ratio = Actual Crash Rate / Critical Crash Rate

The facility types and statewide average crash rates for study segments and intersections are summarized in **Table 14**. **Table 15** and **Table 16** provide a statewide crash rate and safety ratio summary for the I-75 segments and the ramp terminal intersections.

The following locations are experiencing a statewide safety ratio >1:

- I-75 Northbound, SR 44 to Marion County Weight Station (2018 & 2019); and
- I-75 Southbound, Marion County Weight Station to SR 44 (2018 & 2019).

The detailed crash rate analysis for each of the segments and intersections can be found in **Appendix J**.

Table 14: Roadway Segment/Intersection Types and Average Crash Rates

Segment/Intersection	Type	Facility Type	Statewide Year	
			2018	2019
I-75 Mainline, SR 44 to Marion County Weight Station	Segment	Interstate Rural	0.440	0.406
I-75 Mainline, Marion County Weight Station to SR 200	Segment	Interstate Urban	0.980	0.956
I-75 & CR 484 NB Ramp Terminal	Intersection	Ramp Urban, 3-leg	1.455	1.293
I-75 & CR 484 SB Ramp Terminal	Intersection	Ramp Urban, 3-leg	1.455	1.293
I-75 & SR 200 NB Ramp Terminal	Intersection	Ramp Urban, 3-leg	1.455	1.293
I-75 & SR 200 SB Ramp Terminal	Intersection	Ramp Urban, 3-leg	1.455	1.293

[4] Critical Crash Rate Equation (4-11) derived from the Highway Safety Manual (HSM) in Chapter 4, Page 4-44.
American Association of State Highway Transportation Officials (AASHTO). (2010). *The Highway Safety Manual*

Table 15: I-75 Segment Statewide Crash Rates and Safety Ratios

I-75 Segment	2018 Actual Crash Rate	2018 Critical Crash Rate	Safety Ratio	2019 Actual Crash Rate	2019 Critical Crash Rate	Safety Ratio
I-75 Northbound, SR 44 to Marion County Weight Station	**0.975**	**0.546**	**1.788**	**0.820**	**0.507**	**1.618**
I-75 Northbound, Marion County Weight Station	0.636	1.725	0.369	0.532	1.687	0.315
I-75 Northbound, Marion County Weight Station to CR 484	0.728	1.697	0.429	0.450	1.660	0.271
I-75 Northbound, CR 484 Interchange Area	1.242	1.994	0.623	1.887	1.941	0.973
I-75 Northbound, CR 484 to Rest Area	1.082	1.368	0.791	0.857	1.329	0.645
I-75 Northbound, Rest Area Interchange Area	0.776	1.880	0.413	0.668	1.821	0.367
I-75 Northbound, Rest Area to SR 200	0.466	1.434	0.325	0.795	1.392	0.571
I-75 Northbound, SR 200 Interchange Area	1.068	2.043	0.523	1.186	1.934	0.613
I-75 Southbound, SR 200 Interchange Area	1.085	1.926	0.564	0.742	1.825	0.407
I-75 Southbound, SR 200 to Rest Area	0.597	1.442	0.414	0.473	1.407	0.336
I-75 Southbound, Rest Area Interchange Area	0.145	1.895	0.077	0.999	1.851	0.540
I-75 Southbound, Rest Area to CR 484	0.811	1.359	0.597	0.796	1.326	0.600
I-75 Southbound, CR 484 Interchange Area	0.945	2.029	0.466	0.837	1.983	0.422
I-75 Southbound, CR 484 to Marion County Weight Station	0.782	1.750	0.447	0.515	1.711	0.301
I-75 Southbound, Marion County Weight Station	0.753	1.793	0.420	0.572	1.753	0.326
I-75 Southbound, Marion County Weight Station to SR 44	**0.778**	**0.552**	**1.409**	**0.597**	**0.513**	**1.164**

Bold Rows display roadway segments with crash rates higher than rates of similar facilities.

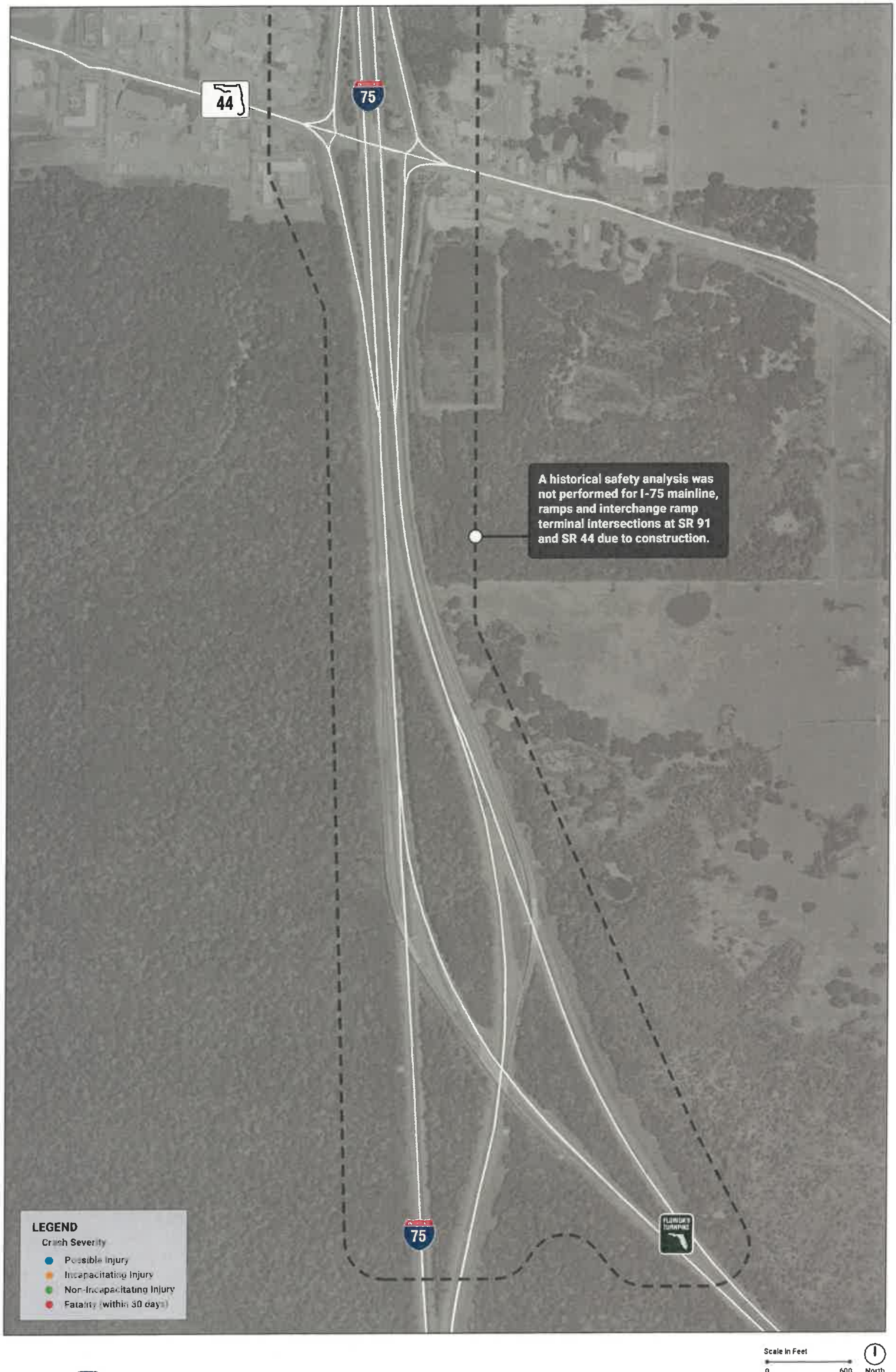
Table 16: Ramp Terminal Intersections Crash Rates and Safety Ratios

Ramp Terminal Intersection	2018 Actual Crash Rate	2018 Critical Crash Rate	Safety Ratio	2019 Actual Crash Rate	2019 Critical Crash Rate	Safety Ratio
I-75 & CR 484 NB Ramp Terminal	0.208	2.285	0.091	0.312	2.051	0.152
I-75 & CR 484 SB Ramp Terminal	0.847	2.272	0.373	1.102	2.041	0.540
I-75 & SR 200 NB Ramp Terminal	0.655	2.453	0.267	0.860	2.187	0.393
I-75 & SR 200 SB Ramp Terminal	2.180	2.447	0.891	1.596	2.182	0.731

Bold Rows display roadway segments with crash rates higher than rates of similar facilities.

HISTORICAL CRASH ANALYSIS SUMMARY

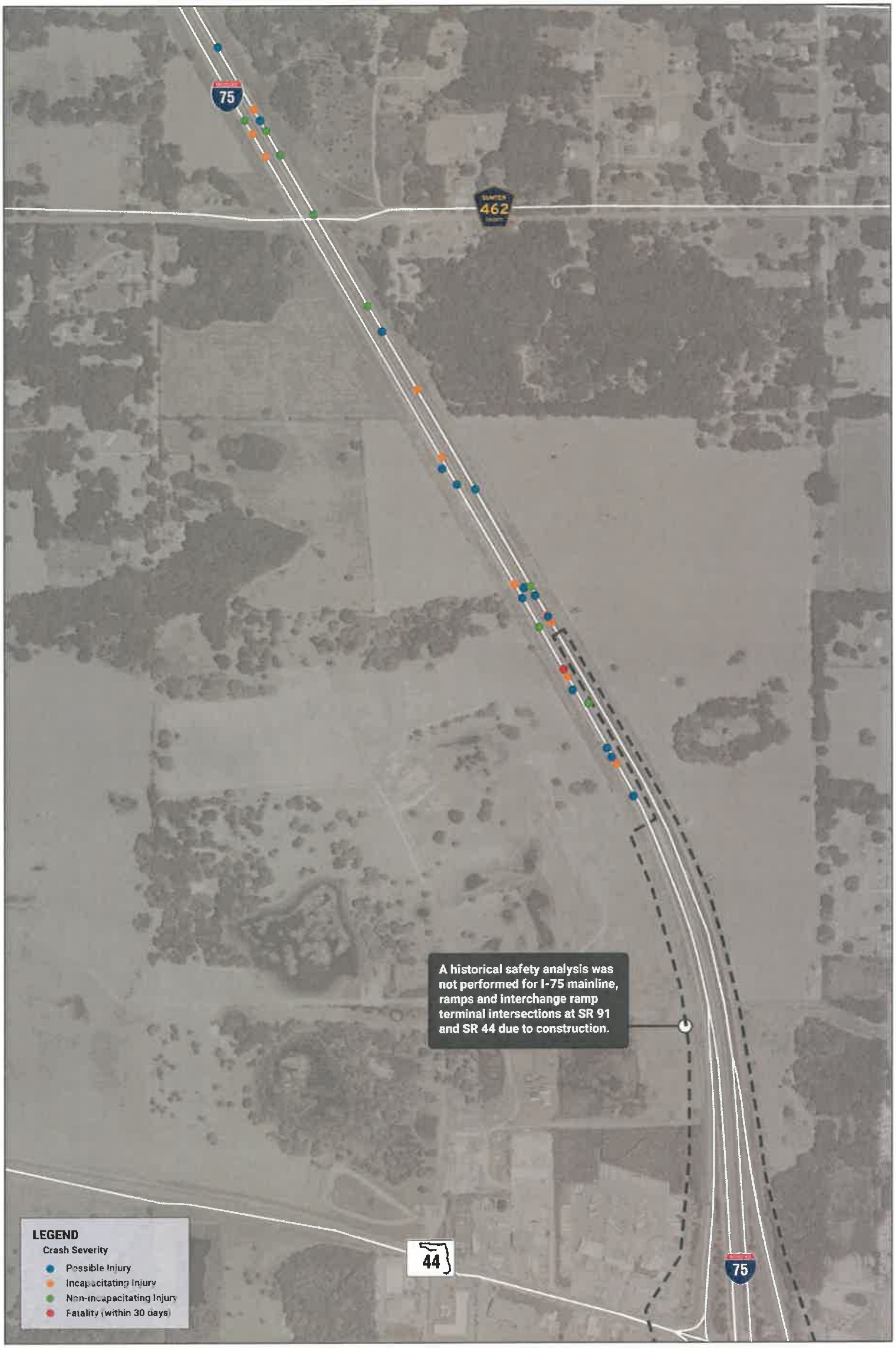
Figure 49 shows the injury and fatal crashes by location and **Figure 50** shows the crashes by location and type for the I-75 mainline.



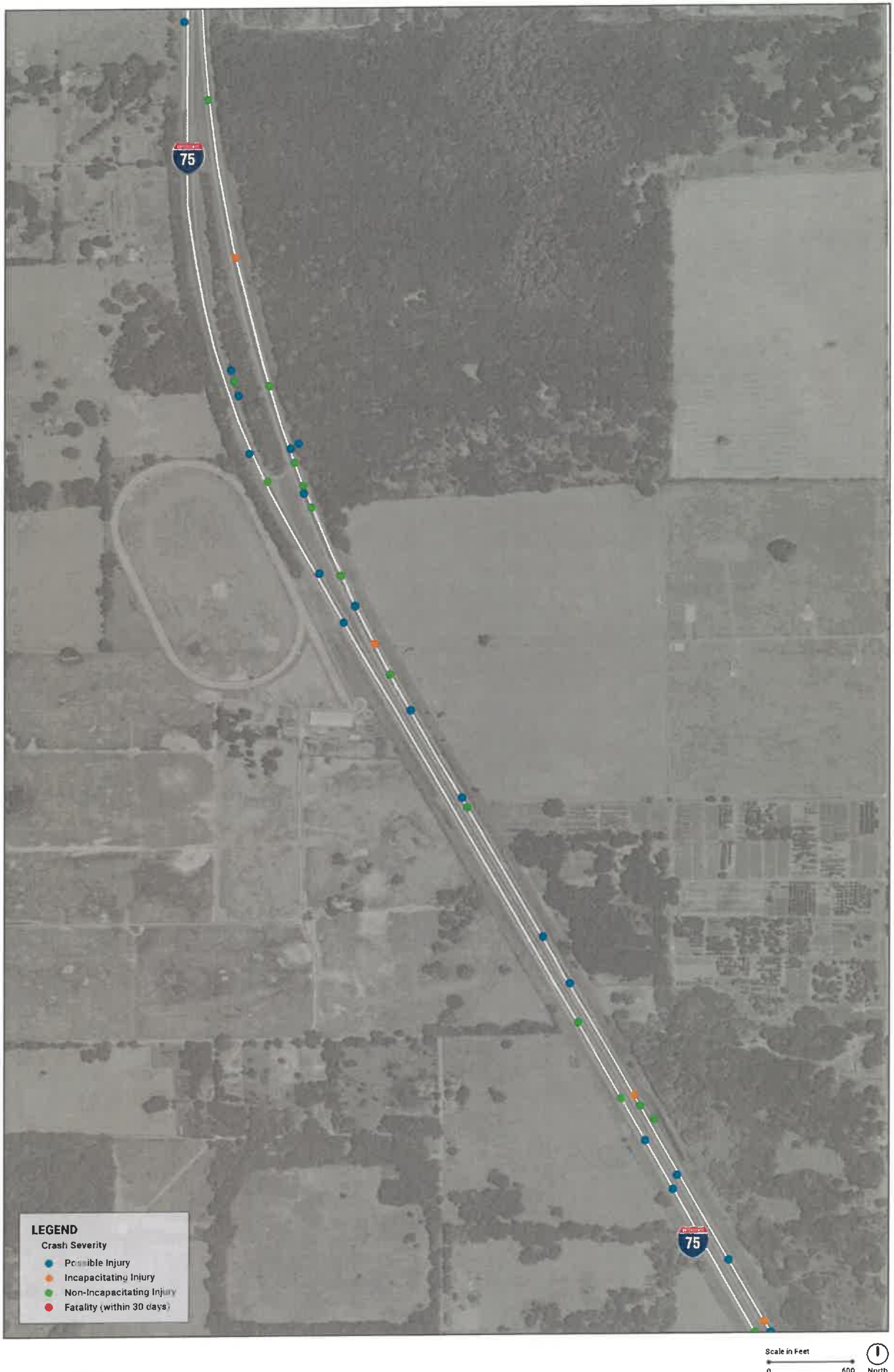
I-75 PD&E South

Mainline Injury and Fatal Crashes by Location

Figure 49 (1 of 13)



Mainline Injury and Fatal Crashes by Location
Figure 49 (2 of 13)



I-75 PD&E South

Mainline Injury and Fatal Crashes by Location
Figure 49 (3 of 13)

FDOT

I-75 PD&E South

Mainline Injury and Fatal Crashes by Location

Figure 49 (4 of 13)

FDOT I-75 PD&E South

Mainline Injury and Fatal Crashes by Location
Figure 49 (5 of 13)

Mainline Injury and Fatal Crashes by Location

Figure 49 (6 of 13)

Figure 49 (7 of 13)

Scale in Feet
0 600
North

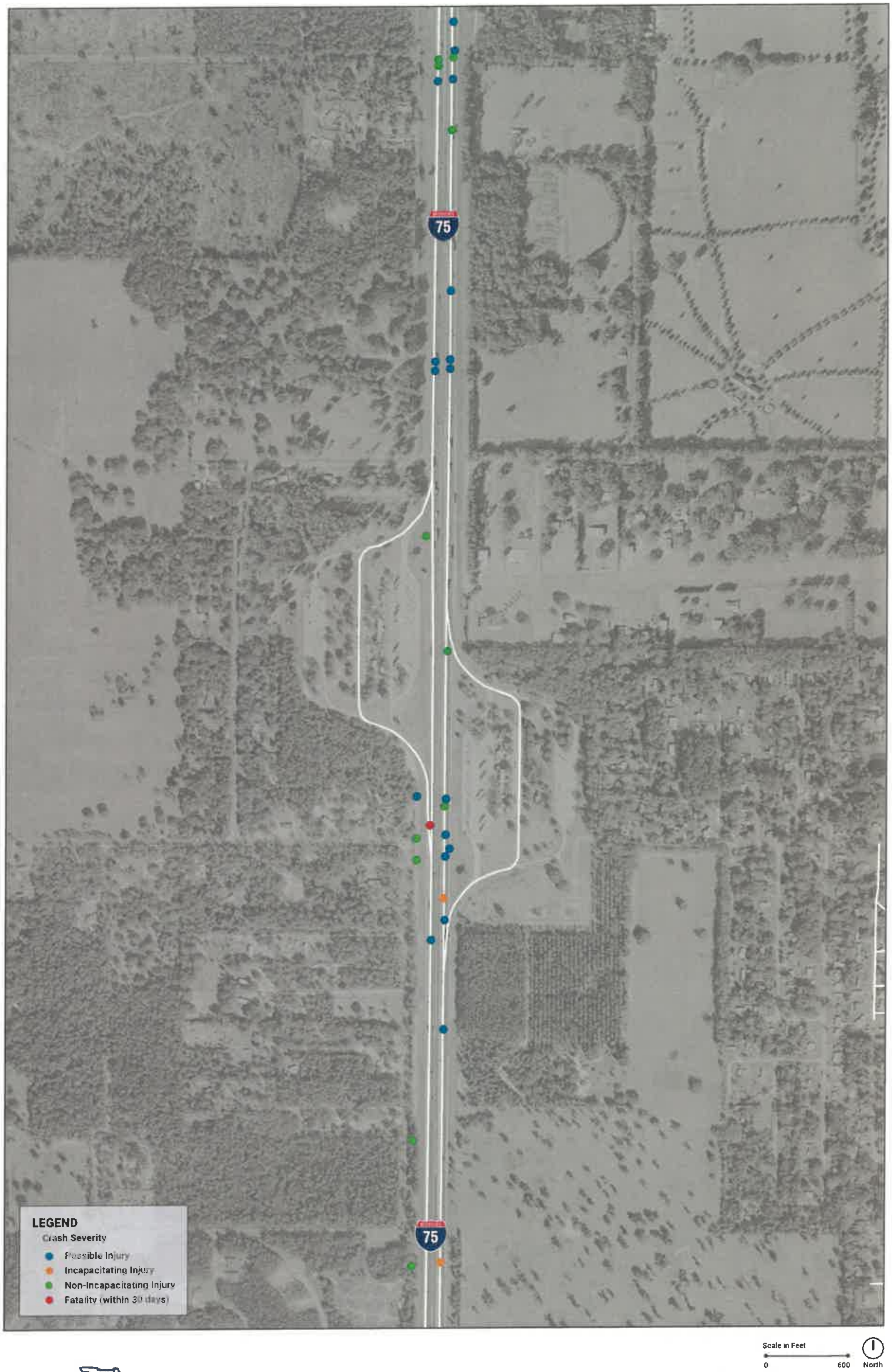
FDOT

I-75 PD&E South

Mainline Injury and Fatal Crashes by Location

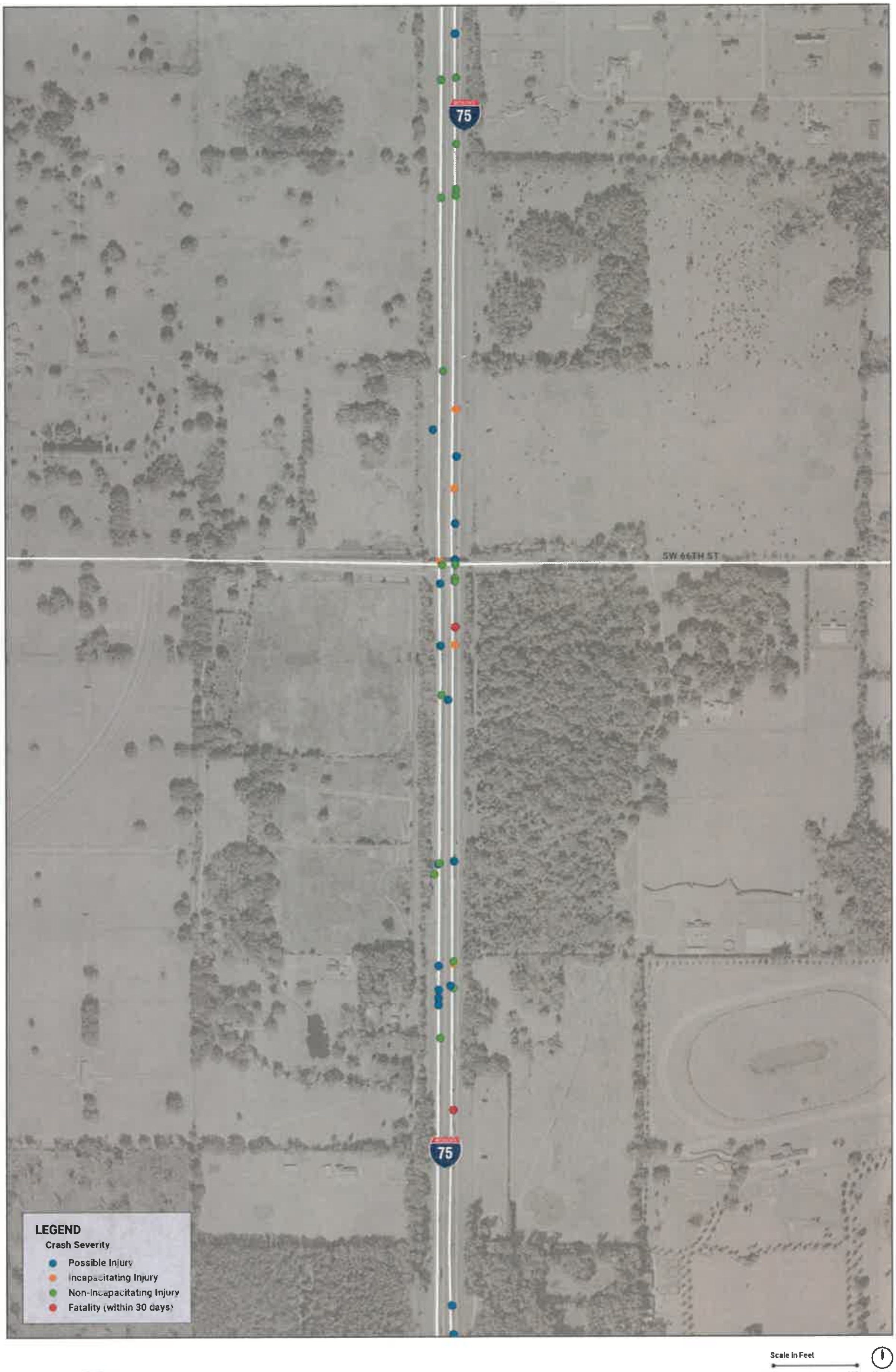
Figure 49 (9 of 13)

75
75
LEGEND
Crash Severity
Possible Injury
Incapacitating Injury
Non-incapacitating Injury
Fatality (within 30 days)
Scale in Feet
0
600
North



I-75 PD&E South

Mainline Injury and Fatal Crashes by Location
Figure 49 (11 of 13)



FDOT

I-75 PD&E South

Mainline Injury and Fatal Crashes by Location

Figure 49 (12 of 13)

Mainline Injury and Fatal Crashes by Location
Figure 49 (13 of 13)

Figure 50 (1 of 13)

75
462
A historical safety analysis was not performed for I-75 mainline, ramps and interchange ramp terminal intersections at SR 91 and SR 44 due to construction.
44
75
LEGEND
Crash Type
Rear-End Crash
Sideswipe Crash
Fixed Object/Run-Off Road Crash
Angle Crash
Other
Head On Crash
Pedestrian Crash
Scale in Feet
0
600
North

Mainline Crashes by Location and Type

Figure 50 (3 of 13)

FDOT

I-75 PD&E South

Mainline Crashes by Location and Type

Figure 50 (4 of 13)

Mainline Crashes by Location and Type
Figure 50 (5 of 13)

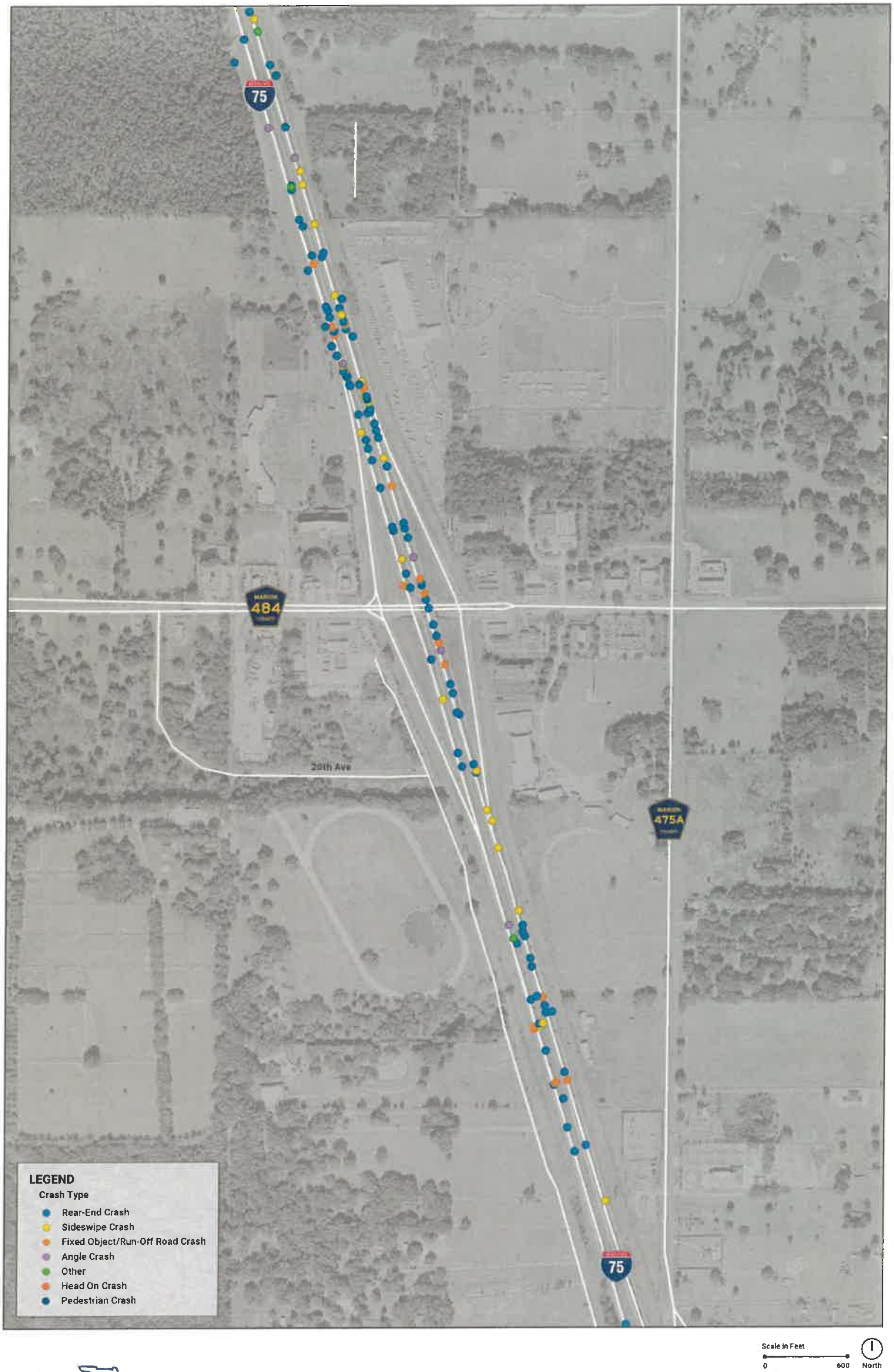
Mainline Crashes by Location and Type
Figure 50 (6 of 13)

FDOT

I-75 PD&E South

Mainline Crashes by Location and Type

Figure 50 (7 of 13)

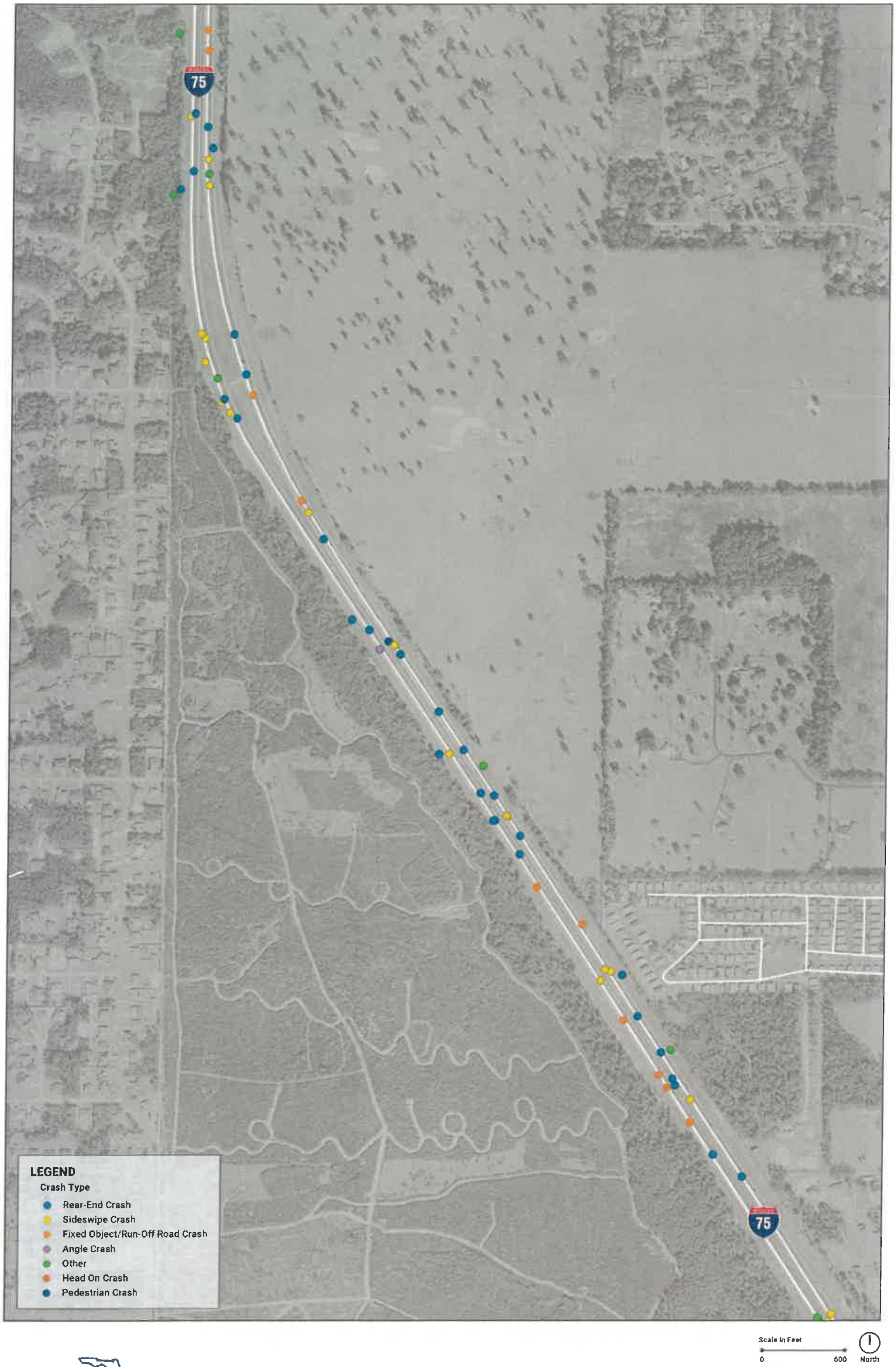

75
484
20th Ave
475A
75
LEGEND
Crash Type
Rear-End Crash
Sideswipe Crash
Fixed Object/Run-Off Road Crash
Angle Crash
Other
Head On Crash
Pedestrian Crash
Scale in Feet
0
600
North

FDOT

I-75 PD&E South

Mainline Crashes by Location and Type

Figure 50 (9 of 13)

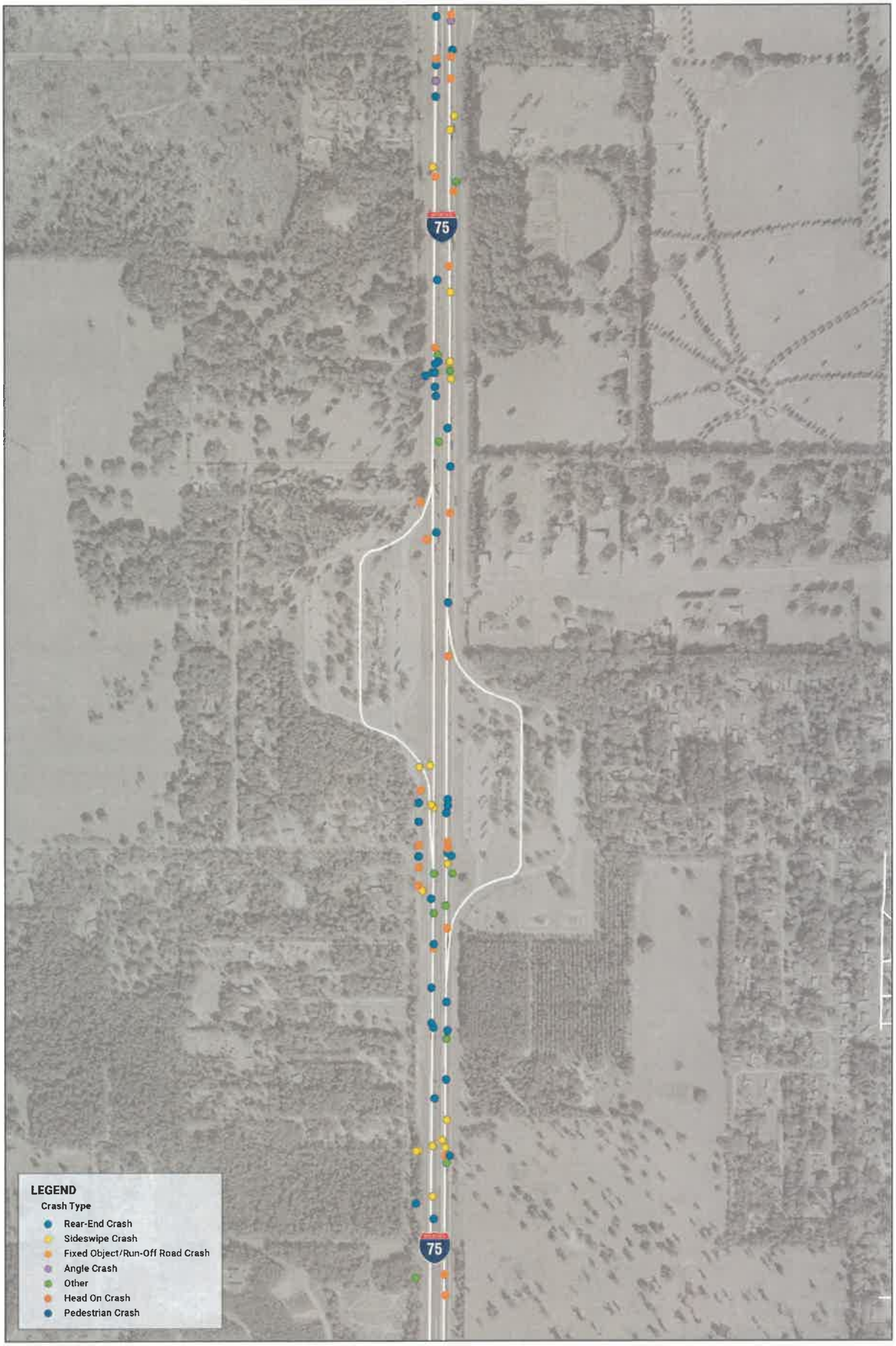


FDOT

I-75 PD&E South

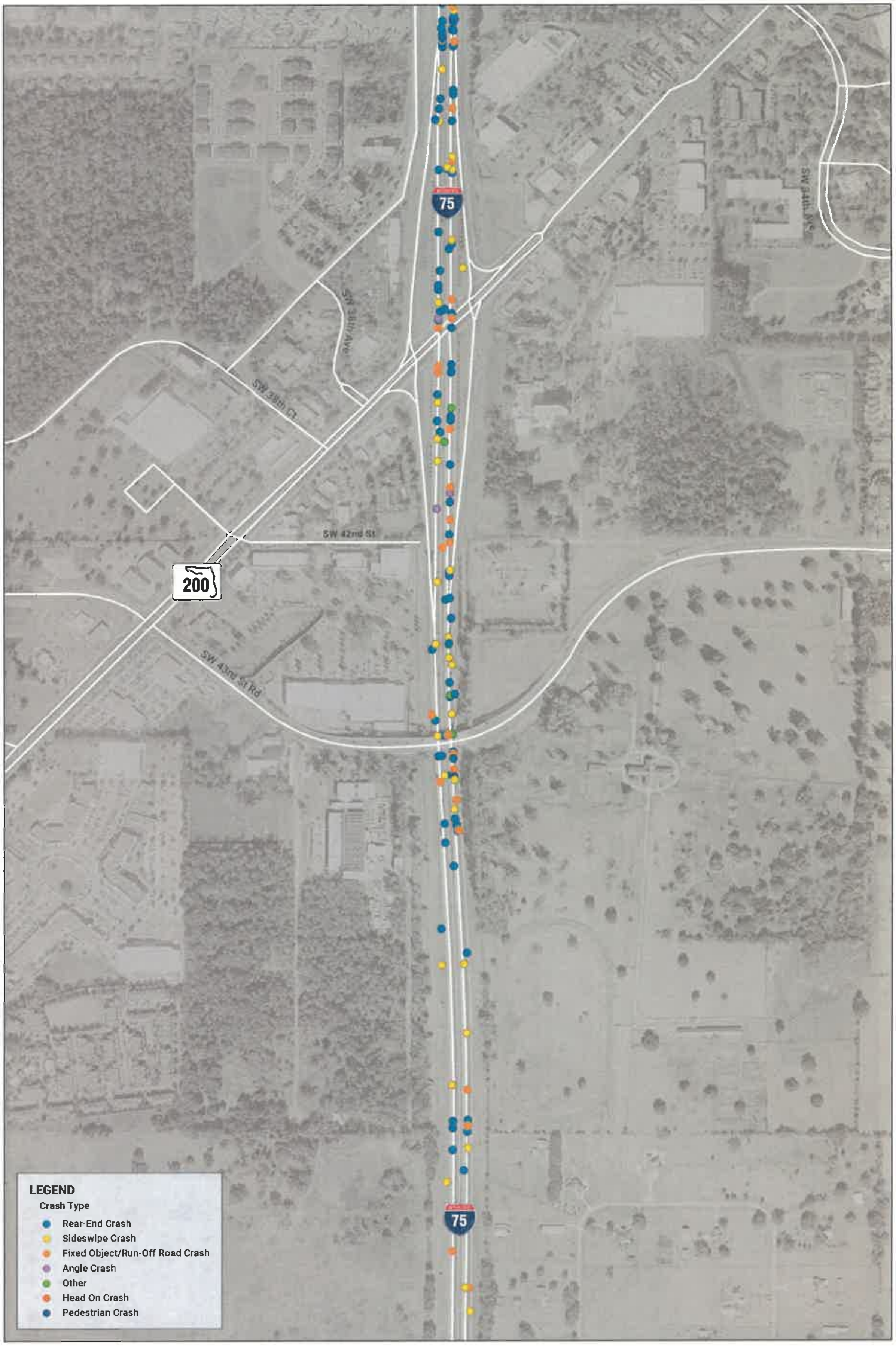
Mainline Crashes by Location and Type

Figure 50 (10 of 13)


75
75
LEGEND
Crash Type
Rear-End Crash
Sideswipe Crash
Fixed Object/Run-Off Road Crash
Angle Crash
Other
Head On Crash
Pedestrian Crash
Scale in Feet
0
600
North

Mainline Crashes by Location and Type

Figure 50 (12 of 13)



75
SW 38th Ave
SW 38th Ct
SW 34th Ave
SW 42nd St
200
SW 43rd St Rd
75
LEGEND
Crash Type
Rear-End Crash
Sideswipe Crash
Fixed Object/Run-Off Road Crash
Angle Crash
Other
Head On Crash
Pedestrian Crash
Scale in Feet
0
600
North

EXISTING CONDITIONS SUMMARY

The existing conditions analysis evaluated typical recurring congestion patterns, the occurrence of nonrecurring congestion, and historical safety data in the study area. The results of the analysis included:

RECURRING CONGESTION (HCM ANALYSIS)

- The HCM Freeway Facilities analysis showed that on an average weekday, there is not recurring congestion along I-75 in each of the AM and PM peak periods. The analysis also showed acceptable operations along I-75 for the average weekend midday peak period.

NONRECURRING CONGESTION (TRAVEL TIME RELIABILITY ANALYSIS)

- An evaluation of the 2019 NPMRDS data confirmed the findings of the HCM freeway analysis that the corridor congestion along I-75 is not a recurring congestion issue.
- The weekday Level of Travel Time Reliability (LoTTR) charts show that the corridor is reliable during the AM, midday, and PM peak periods in both directions. It is important to note that the travel time reliability results don't necessarily correlate to daily traffic volumes.
- An evaluation of the 2019 NPMRDS data showed that the weekend travel times in both directions are not as reliable as the weekdays. The heat maps show breakdowns along the I-75 corridor for special event weekends such as Spring Break, July 4th, Thanksgiving, Christmas, and New Year's.
- The LoTTR charts show that the corridor is unreliable in the northbound direction during the midday of the weekends. The southbound LoTTR charts show that the corridor is nearing unreliable conditions during the PM peak on the weekends.

HISTORICAL SAFETY ANALYSIS

- The safety data showed a total of 1,384 reported crashes along I-75 northbound during this period, 384 of which (28 percent) resulted in 768 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 53 percent of the total crashes. Sideswipe (20 percent) and fixed object/run-off road (19 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 78 percent of the injury crashes.
- A total of 1,095 reported crashes were observed along I-75 southbound, 300 of which (27 percent) resulted in 644 injuries. Three fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 51 percent of the total crashes. Sideswipe (24 percent) and fixed object/run-off road (16 percent) were the second and third highest crash types. Rear end and fixed

object/run-off road were the highest injury crash types, accounted for 71 percent of the injury crashes.

- A crash rate analysis was performed for I-75 northbound, I-75 southbound, and I-75 ramp terminal intersections and the following location is experiencing a statewide safety ratio >1:
  - I-75 Northbound, SR 44 to Marion County Weight Station (2018 & 2019); and
  - I-75 Southbound, Marion County Weight Station to SR 44 (2018 & 2019).

SUMMARY

The evaluation of typical recurring congestion patterns, the occurrence of nonrecurring congestion, and historical safety data showed that the existing congestion issues along the I-75 facility are primarily non-recurring congestion events such as incidents/crashes and special event traffic. This is further intensified for the weekends as multiple non-recurring congestion events have a higher likelihood of happening together (e.g., crash during a special event demand increase).

DEVELOPMENT OF TRAFFIC FORECASTS

As documented in the approved MOA, the volume projections from the previously completed I-75 Master Plan will be used in this PTAR to support the ongoing auxiliary lane PD&E. The following sections document the development of traffic forecasts as part of the I-75 Master Plan and summarize the relevant information for this PTAR. It is important to note that changes were not made to the travel demand model or the Design Traffic projections from the Master Plan.

MODEL DEVELOPMENT

The overall I-75 Master Plan included two separate segments of I-75 and were separated accordingly for documentation purposes. However, the travel demand modeling efforts considered the overall study corridor rather than breaking it up into two separate subarea models. This was done for consistency between the two studies as the traffic volumes were forecasted for the overall study limits with volumes in specific segments reported in their corresponding reports.

The following summarizes the existing year subarea model validation results and future year subarea model development efforts. A subarea model validation report was reviewed and approved by FDOT District 5. The validation report is included in **Appendix K**.

The study segments included 44 miles of freeway sections on I-75 from Turnpike to CR 234, as shown in **Figure 51**. The subarea model boundary was selected to include the major facilities in the vicinity of the study segments as well as the next adjacent interchange to the study endpoints. The boundary generally includes the area bounded by the I-75 & CR 470 interchange to the south, I-75 & SR 331 interchange to the north, US 27 to the west, and SR 35 to the east.

SUBAREA MODEL VALIDATION

Figure 52 shows the base year (2015) volume-to-count (VC) comparisons of the 342 traffic count locations within the subarea. The coefficient of determination (R^2) value was 0.99 at the end of the final assignment, which indicates the model is closely approximating the counts. Typical model validation efforts have R^2 values from 0.85 to 0.90.

Percent root mean square error (RMSE%) was also calculated between the 2015 model volumes and counts. The results were compared with the standards outlined in Table 2-11 of the FSUTMS-Cube Model Calibration and Validation Standards. **Table 17** shows the RMSE% on the daily level. The subarea model's RMSE% for all the volume groups are better than FSUTMS's preferable standards.

Figure 51: Subarea Model Boundaries

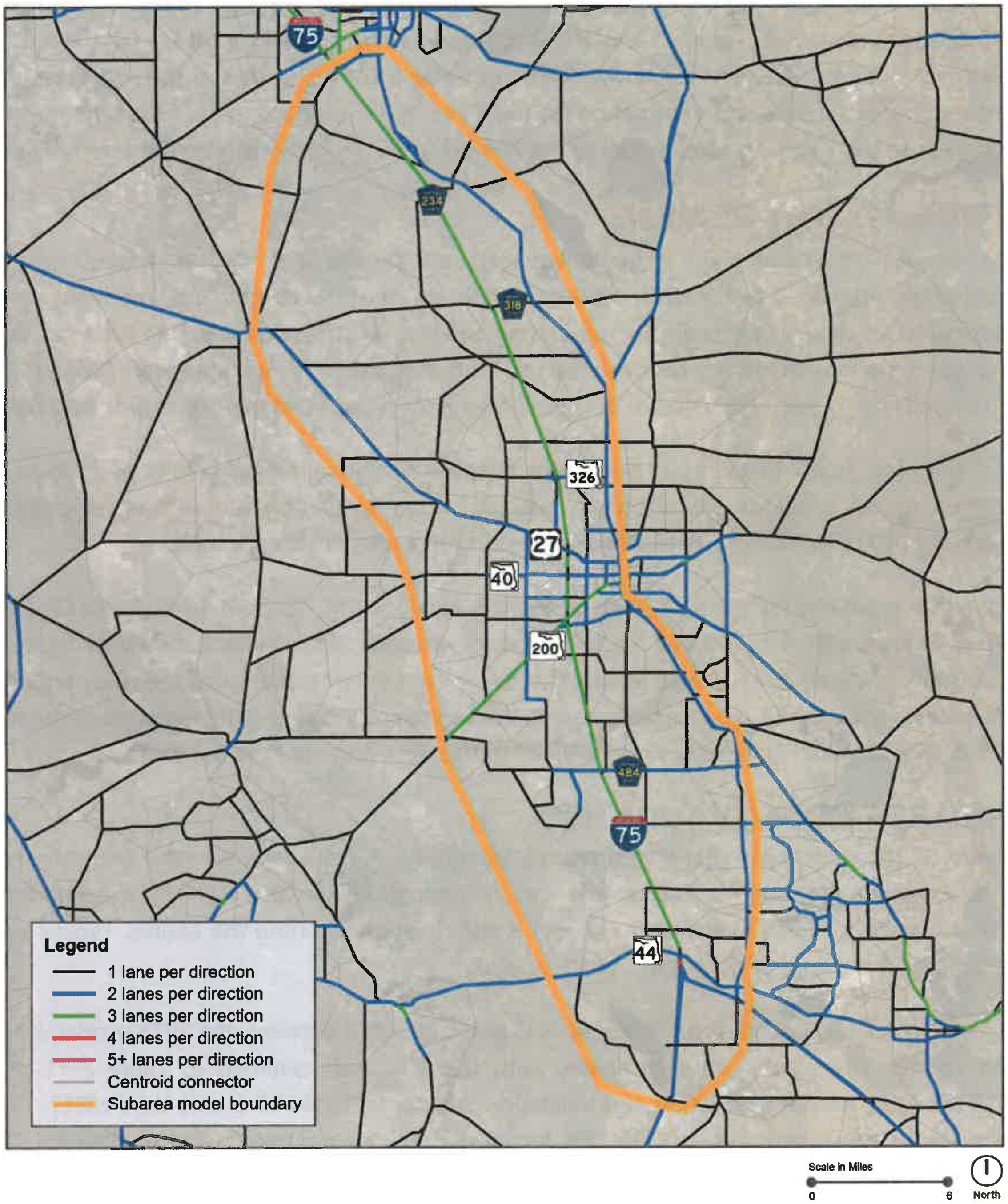


Figure 52: Base Year (2015) Volume-to-Count Comparisons

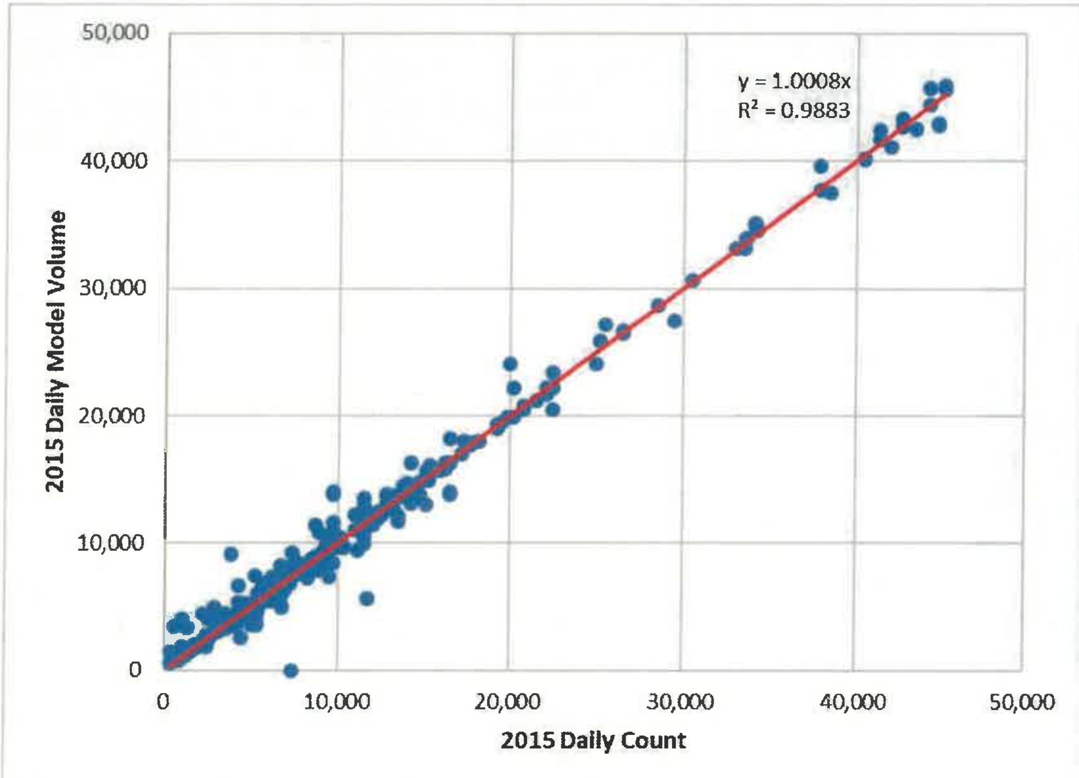


Table 17: RMSE% by Daily Volume Group of the Calibrated Subarea Model

Group	Volume Range (Vehicles/day)	FSUTMS Standards		# of Counts	RMSE%
		Acceptable	Preferable		
1	Less than 5,000	100%	45%	95	32%
2	5,000 - 9,999	45%	35%	115	16%
3	10,000 - 14,999	35%	27%	64	8%
4	15,000 - 19,999	30%	25%	23	6%
5	20,000 - 29,999	27%	15%	19	6%
6	30,000 - 49,999	25%	15%	26	2%
7	50,000 - 59,999	20%	10%	0	N/A
8	More than 60,000	19%	10%	0	N/A
Total		**45%**	**35%**	**342**	**10%**

The VC ratios of all facility types also meet the criteria on the daily level, as shown in **Table 18**. The VC ratio statistics for all facilities meet the criteria.

Table 18: VC Ratios by Facility Type of the Calibrated Subarea Model

Facility Type	# of Counts	Criteria	Count	Volume	V/C Diff%	Meets Criteria
Freeway	26	+/- 7%	926,900	925,612	-0.14%	YES
Arterial	192	+/- 15%	1,975,654	1,984,298	0.44%	YES
Collector	83	+/- 25%	693,300	689,956	-0.48%	YES
All	**342**	**+/-5%**	**3,802,054**	**3,827,410**	**0.67%**	**YES**

Table 19 shows how the subarea model performs along I-75 Master Plan project study segments and the adjacent mainline segments. All directional volumes on the mainline within the study limits are within ±4 percent of the observed 2015 counts.

Table 19: I-75 Mainline Daily Volume versus Count

I-75 Mainline Segments		Northbound			Southbound			Both Directions		
From	To	Volume	Count	VC Ratio	Volume	Count	VC Ratio	Volume	Count	VC Ratio
South of SR 91		20,537	22,500	0.91	23,429	22,500	1.04	43,966	45,000	0.98
SR 91	SR 44	42,749	42,700	1.00	43,329	42,700	1.01	86,078	85,400	1.01
SR 44	CR 484	41,744	41,350	1.01	42,416	41,350	1.03	84,160	82,700	1.02
CR 484	S.R. 200	44,461	44,300	1.00	45,676	44,300	1.03	90,137	88,600	1.02
SR 200	S.R. 40	45,865	45,200	1.01	45,602	45,200	1.01	91,467	90,400	1.01
SR 40	U.S. 27	42,871	44,800	0.96	42,784	44,800	0.96	85,655	89,600	0.96
U.S. 27	S.R. 326	40,085	40,450	0.99	40,229	40,450	0.99	80,314	80,900	0.99
SR 326	C.R. 318	34,919	34,150	1.02	35,137	34,150	1.03	70,056	68,300	1.03
CR 318	C.R. 234	34,819	34,200	1.02	34,571	34,200	1.01	69,390	68,400	1.01
North of CR 234		33,952	33,600	1.01	33,939	33,600	1.01	67,891	67,200	1.01

A manual review of all the ramp volumes within the I-75 Master Plan study limits was also conducted. Among the 37 count locations on the ramps within the study area, 51% (19) locations have a volume within ±10 percent of the count, 84% (31) locations have volume within ±25 percent of the count. Locations where the model volume was outside the range of ±25 percent of the count, were reviewed in greater detail when selecting a recommended growth rate. Greater consideration for historical trends was used at these locations.

Based on the statistics discussed in this section, the subarea meets the RMSE% and VC ratio criteria at the daily level and the study corridor shows a close match to the counts. Therefore, the subarea model is considered validated and could be used to support the study area volume forecast.

FUTURE YEAR SUBAREA MODEL DEVELOPMENT

To support the design year traffic analysis and forecasts, a future year (2045) subarea model was developed based on the TSM 2045 scenario. Two future model scenarios, No Build and Build, were developed.

Reviews of network geometry were conducted along the I-75 study corridor for the future year. Network modifications made for the model base year (2015) were applied in the model future year (2045) scenarios. The 2045 TSM included two new interchanges along I-75 at SW 95th Street and at NW 49th Street. A review of the FDOT Five Year Work Program (2020-2025) indicated that there is no current funding for the proposed interchange at I-75/SW 95th Street. The Ocala-Marion TPO 2045 Long Range Transportation Plan (LRTP) was under development during future year subarea model development.

Per discussions with FDOT District 5 and the Project Teams, it was decided to remove the interchange of I-75 and SW 95th Street from the 2045 TSM. Written confirmation of this decision is included in the appendix of the validation report.

TRAFFIC FORECASTING

The following sections describe the different traffic forecasting elements utilized in this study for future volume development including recommended design traffic factor development, historical growth rate review, population growth rate review, travel demand model growth rate review, recommended growth rate selection, and future volume estimates.

RECOMMENDED DESIGN TRAFFIC FACTORS

The procedures contained in FDOT's *2019 Project Traffic Forecasting Handbook* result in initial estimates of future daily traffic volumes that would occur during the average day of the year. Several factors are then used to convert from daily volumes to the "design hour" volumes used for analysis. This section of the PTAR documents pertinent data used for selecting the traffic factors to be applied in preparing the design hour volumes. These factors are important as they play a role in determining the appropriate number of lanes along a facility or design features such as pavement thicknesses. Key traffic factors include K-factor, D-factor, and T-factor, which are further described as follows.

In general terms, the K-factor is the percentage of the daily traffic volume that occurs during the peak hour of the day. Specifically, the K-factor is used to convert an Annual Average Daily Traffic (AADT) volume into a two-way design hour volume (DHV) for a given roadway segment. The FDOT has implemented the use of K-factor ranges, consistent with the adopted FDOT Context Classification System, to be used in traffic forecasting statewide. The recommended K-factor selection is dependent upon the area type and facility type for a given project. A K-factor of 9.0%

is typically used for urban arterials. This means that 9% of the daily traffic occurs in the design hour. A K-factor of 10.5% is typically used for most rural freeways and a K-factor of 9.5% is used for most rural arterials.

The D-factor represents the percentage of traffic traveling in each direction along a roadway segment during the design hour. For example, a D-Factor of 60% would represent 60% of the traffic traveling in the peak direction and the remaining 40% of traffic traveling in the opposite direction. By applying a D-factor to the previously developed two-way design hour volume, the directional design hourly volumes (DDHVs) are calculated for a given roadway segment. These segment DDHVs for each leg of an intersection are then utilized in developing design hour intersection volumes.

The ratio of passenger vehicles and larger trucks is also important in the analysis and design of roadway improvements. T-factors identify the percentage of truck traffic utilizing the roadway during the design hour (DHT) as well as over the entire typical day (T_{24}).

K FACTORS

Existing peak to daily ratio and the highest 200-hour reports were reviewed at the telemetered Sites 36-3017 and 26-9904 along the study corridor. The highest 200-hour reports are included in **Appendix L**. The results of the analysis were discussed and coordinated with FDOT District 5 and FDOT Central Office as part of the I-75 Master Plan. Standard K factors were obtained from the FDOT *Project Traffic Forecasting Handbook* (2019). At the time of the development of the traffic forecasts, the Standard K procedure was still the latest approach. It is recognized that the current FDOT K factor approach utilizes a recommended K factor range. A K factor of 9.0 percent was recommended for all study roadway segments (arterials, freeway, and ramps) except for the Florida's Turnpike Enterprise mainline and ramps. A K factor of 9.5 percent is recommended for the Florida's Turnpike Enterprise (FTE) mainline and ramps, as agreed upon with FTE.

DIRECTIONAL (D) FACTORS

A comprehensive review of the 7-day classification counts and the approach and departure volumes from the turning movement counts was completed to estimate the recommended D factors for the weekday and weekend midday peak hours. The D factors were compared and reviewed for opportunities to use the same D factor along an arterial to the west and east of I-75 and in these cases the field collected D factors were average along the arterial. The recommended D factors for I-75 and each major arterial interchange are summarized in **Table 20** and were based upon the field collected data. Upon reviewing the data, there are several locations where the directional factor direction was consistent between the AM and PM peak hours and many instances where the magnitude of the AM peak hour D factor is higher than the PM. These indicate that the use of a reciprocal methodology for the AM peak hour could result in under projections or unrealistic traffic patterns. The raw data and recommended D factors for each approach to each study intersection in the study area is included in **Appendix L**.

Table 20: Recommended D Factors

Roadway	Recommended D-Factor					
	AM Peak Hour		PM Peak Hour		Weekend Peak Hour	
	D	Direction	D	Direction	D	Direction
I-75	51.0%	NB/EB	55.5%	SB/WB	51.2%	NB/EB
Turnpike	53.5%	NB/EB	55.9%	SB/WB	57.8%	SB/WB
SR 44 west of I-75	70.1%	NB/EB	62.3%	SB/WB	50.8%	NB/EB
SR 44 east of I-75	61.2%	NB/EB	62.5%	SB/WB	51.5%	NB/EB
CR 484 west of I-75	69.2%	NB/EB	66.2%	SB/WB	51.4%	NB/EB
CR 484 east of I-75	57.2%	NB/EB	59.2%	NB/EB	51.6%	NB/EB
SR 200 west of I-75	62.8%	NB/EB	55.2%	SB/WB	52.0%	SB/WB
SR 200 east of I-75	66.5%	NB/EB	54.1%	SB/WB	52.9%	NB/EB

TRUCK FACTORS

The recommended T_{24} factors for the weekday and weekend midday peak hours are based on the truck percentages from the field-collected classification counts. The Design Hour Truck (DHT) factors represent 50% of the T_{24} factors as noted in the *2019 Project Traffic Forecasting Handbook*.

The recommended T_{24} factors for the weekday and weekend midday peak hours are based on the truck percentages from the field-collected classification counts collected. The Design Hour Truck (DHT) factors represent 50% of the T_{24} factors as noted in the *2019 Project Traffic Forecasting Handbook*. The recommended truck factors (T_{24} and DHT) for I-75 and each major arterial interchange are summarized in **Table 21**. The arterial truck percentages are based off 2019 field-collected data and the I-75 truck factors are based on data available on the Florida Traffic Online database.

The raw data and recommended T factors for each approach to each study intersection in the study area is included in **Appendix L**.

Table 21: Recommended Truck Factors

Roadway	Weekday		Weekend	
	T	DHT	T	DHT
I-75	21.6%	10.3%	21.6%	10.3%
Turnpike	17.8%	8.9%	17.8%	8.9%
SR 44 west of I-75	16.7%	8.4%	9.1%	4.6%
SR 44 east of I-75	18.5%	9.2%	10.2%	5.1%
CR 484 west of I-75	8.0%	4.0%	5.6%	2.8%
CR 484 east of I-75	11.8%	5.9%	7.6%	3.8%
SR 200 west of I-75	8.8%	4.4%	6.7%	3.3%
SR 200 east of I-75	9.9%	4.9%	8.1%	4.1%

HISTORICAL GROWTH RATES

Historical AADTs were obtained from the 2018 FDOT Florida Traffic Online (latest data available at the time of conducting this historical growth rate analysis). Historic growth rates were evaluated using FDOT standard spreadsheets for linear trend analysis. Evaluations were conducted for 21 FDOT count locations within the study area. The FDOT Historical AADT reports and trends analyses for each count station are provided in **Appendix M**.

Table 22 shows a summary of the historical AADT data along with the linear historical growth rates and respective R^2 values at each station along the I-75 mainline and the I-75 ramps between the I-75 and Turnpike facilities. The historical AADTs, linear historical growth rates, and respective R^2 values for each station along SR 44 and its I-75 ramps are summarized in **Table 23**. The historical AADT and linear trends information is also presented in **Table 24** and **Table 25** for CR 484 and SR 200, respectively.

Table 22: Historical AADTs and Historical Growth Rates – I-75 Mainline and Turnpike

Year	I-75, SOUTH OF TURNPIKE	I-75, SOUTH OF SR 44	I-75, NORTH OF SR 44	I-75, SOUTH OF SR 200	I-75, NORTH OF SR 200	TURNPIKE, SOUTHEAST OF I-75
	Site 189920	Site 180186	Site 180188	Site 360317	Site 360440	Site 972210
2018	53,000	74,500	80,000	93,705	76,000	45,300
2017	49,000	73,500	78,000	94,509	78,500	43,500
2016	46,500	68,000	72,500	90,745	74,500	40,400
2015	44,301	67,000	75,500	87,000	59,000	37,000
2014	42,323	61,500	66,500	80,753	60,500	33,000
2013	40,900	60,000	64,000	77,544	69,000	33,000
2012	39,544	58,500	62,500	74,915	60,000	34,000
2011	41,424	59,000	67,500	75,099	65,500	35,000
2010	41,116	61,500	65,000	77,324	71,000	33,700
2009	41,311	58,500	61,500	76,098	67,000	33,200
2008	40,398	71,500	68,000	74,631	69,000	34,800
2007	43,616	73,000	69,500	82,749	84,500	35,500
2006	44,532	70,000	60,500	82,191	78,500	35,400
2005	44,205	64,500	62,500	79,869	82,000	-
2004	44,109	61,500	65,500	78,815	74,500	-
2003	41,722	60,500	62,500	75,474	78,000	-
Annual Linear Growth Rate	0.9%	0.6%	1.5%	1.3%	-0.8%	2.2%
R^2	24.01%	8.12%	54.51%	43.82%	14.57%	46.59%

Source: 2018 Florida Traffic Online

Table 23: Historical AADTs and Historical Growth Rates – SR 44 Arterial and Ramps

Year	I-75 NB OFF-RAMP TO SR 44	I-75 NB ON-RAMP FROM SR 44	I-75 SB OFF-RAMP TO SR 44	I-75 SB ON-RAMP FROM SR 44	SR 44, WEST OF I-75	SR 44, EAST OF I-75
	Site 182012	Site 182013	Site 182014	Site 182015	Site 180202	Site 180102
2018	7,800	7,000	6,500	7,500	10,900	19,200
2017	7,700	6,900	6,400	7,400	10,900	18,400
2016	7,200	6,400	6,000	6,900	8,900	16,700
2015	6,700	6,400	5,800	6,300	8,700	15,000
2014	7,000	6,700	5,700	5,900	8,000	15,100
2013	6,700	5,700	6,000	5,900	7,900	14,400
2012	7,300	6,500	5,400	6,700	7,700	14,000
2011	7,200	6,200	5,600	6,500	7,700	14,300
2010	7,500	6,400	5,700	5,700	8,100	13,900
2009	6,900	6,500	4,800	6,400	8,100	13,800
2008	-	6,600	-	-	7,800	14,800
2007	7,300	7,200	6,100	6,700	8,100	14,800
2006	8,100	7,500	6,700	7,600	7,400	13,600
2005	8,400	8,100	6,900	7,900	8,200	16,000
2004	7,200	6,500	6,100	6,700	7,400	13,700
2003	7,100	6,700	5,600	6,500	7,700	13,700
Annual Linear Growth Rate	-0.3%	-0.6%	0.0%	-0.2%	2.4%	1.8%
R^2	3.14%	11.66%	0.01%	0.44%	52.34%	46.67%

Source: 2018 Florida Traffic Online

Table 24: Historical AADTs and Historical Growth Rates – CR 484 Arterial and Ramps

Year	I-75 NB OFF-RAMP TO CR 484	I-75 NB ON-RAMP FROM CR 484	I-75 SB OFF-RAMP TO CR 484	I-75 SB ON-RAMP FROM CR 484
	Site 362000	Site 362001	Site 362002	Site 362003
2018	5,700	9,600	7,800	4,700
2017	5,600	9,400	7,700	4,600
2016	5,300	8,900	7,300	4,400
2015	5,200	8,800	7,000	4,200
2014	4,500	8,500	7,900	4,200
2013	4,300	8,500	7,000	4,200
2012	4,300	7,500	6,200	3,700
2011	4,400	8,100	7,000	4,200
2010	4,600	8,300	5,600	4,200
2009	4,100	7,500	6,200	3,900
2008	4,200	7,300	6,400	3,800
2007	5,100	8,400	7,000	4,300
2006	4,100	7,300	6,400	4,200
2005	4,200	7,500	6,300	4,000
2004	4,000	6,900	6,200	3,700
2003	3,800	6,600	5,900	3,500
Annual Linear Growth Rate	2.6%	2.5%	1.9%	1.4%
R^2	63.46%	81.12%	56.97%	55.05%

Source: 2018 Florida Traffic Online

Table 25: Historical AADTs and Historical Growth Rates – SR 200 Arterial and Ramps

Year	I-75 NB OFF-RAMP TO SR 200	I-75 NB ON-RAMP FROM SR 200	I-75 SB OFF-RAMP TO SR 200	I-75 SB ON-RAMP FROM SR 200	SR 200, EAST OF I-75
	Site 362004	Site 362005	Site 362006	Site 362007	Site 360001
2018	8,000	8,700	8,500	7,500	38,000
2017	7,900	8,500	8,300	7,400	47,500
2016	7,500	8,100	7,900	7,000	45,500
2015	7,600	7,700	7,400	6,600	43,500
2014	7,000	7,400	7,300	6,500	44,500
2013	6,400	7,300	7,200	6,000	43,000
2012	6,400	6,800	7,000	5,700	47,500
2011	6,500	7,100	6,900	5,800	48,500
2010	6,300	7,600	7,300	6,000	48,500
2009	6,100	7,100	7,300	5,300	48,000
2008	6,000	7,100	7,100	5,700	49,500
2007	6,400	8,100	8,300	5,700	52,000
2006	6,400	8,500	8,300	5,700	51,500
2005	5,900	7,600	7,200	5,500	50,500
2004	5,800	7,600	7,500	4,100	-
2003	5,900	7,600	7,300	5,100	-
Annual Linear Growth Rate	2.5%	0.5%	0.5%	3.6%	-1.5%
R^2	81.12%	6.93%	7.21%	80.54%	68.55%

Source: 2018 Florida Traffic Online

BEBR POPULATION GROWTH RATES

The University of Florida's Bureau of Business and Economic Research (BEBR) projections (Volume 53, Bulletin 186, January 2020) were obtained for Sumter County and Marion County. The BEBR projections show an estimate for 2019 and projections for 2020 to 2045. The low, medium, and high projections for 2045 are summarized in **Table 26**. Growth rates range from approximately 0.31 percent to 4.25 percent. BEBR population study data is included in **Appendix N**.

Table 26: BEBR Population Growth Rates

County and Estimation	2019 Estimate	2045 Projections	Annual Growth Rate, Growth/Year (%)
		Sumter County	
Low	128,633	158,800	1,160 (0.90%)
Medium		211,500	3,187 (2.48%)
High		270,800	5,468 (4.25%)
		Marion County	
Low	360,421	389,700	1,126 (0.31%)
Medium		460,800	3,861 (1.07%)
High		537,000	6,792 (1.88%)

Source: BEBR Volume 53, Bulletin 186, January 2020

It is important to note that the BEBR data accounts for countywide data and does not necessarily reflect expected growth on specific roadways or sub-areas of the County. It is useful in reviewing reasonableness of growth rates obtained from other sources such as travel demand models or historical AADT data.

TURNPIKE STATEWIDE MODEL GROWTH RATES

The subarea validated Turnpike Statewide Model (TSM) with base year 2015 and forecast year 2045 was utilized to estimate model volume growth. A sub-area validation was completed as part of this project as previously described. The peak season weekday average daily traffic (PSWADT) volumes were converted to model AADTs using the appropriate model output conversion factors (MOCF) for Marion County. Base year and horizon year model plots are included in **Appendix O**.

The model growth rates and annual model growth along the segments within the area of influence are summarized in each table for the 2045 model as follows:

- I-75 Mainline – **Table 27**
- SR 44 Arterial and Ramps – **Table 28**
- CR 484 Arterial and Ramps – **Table 29**
- SR 200 Arterial and Ramps – **Table 30**

The observed model growth rates trends are summarized below:

- I-75 Mainline
  - Approximately 2.4 percent per year south of Turnpike
  - Approximately 1.3 percent per year between Turnpike and SR 44
  - Approximately 2.2 percent per year between SR 44 and SR 200
  - Approximately 2.1 percent per year north of SR 200
- Turnpike
  - Approximately 2.9 percent per year east of I-75
- SR 44 Arterial and Ramps
  - Approximately 10.1 percent per year on SR 44 west of I-75
  - Approximately 1.5 to 1.9 percent per year on the ramps north of SR 44
  - Approximately 4.6 to 4.9 percent per year on the ramps south of SR 44
  - Approximately 1.3 percent per year on SR 44 east of I-75
- CR 484 Arterial and Ramps
  - Approximately 1.0 percent per year on CR 484 west of I-75
  - Approximately 1.4 to 1.6 percent per year on the ramps north of CR 484
  - Approximately 0.8 to 1.1 percent per year on the ramps south of CR 484
  - Approximately 0.9 to 1.3 percent per year on CR 484 east of I-75
- SR 200 Arterial and Ramps
  - Approximately 0.5 to 0.7 percent per year on SR 200 west of I-75
  - Approximately 1.3 to 1.5 percent per year on the ramps north of SR 200
  - Approximately 1.9 percent per year on the ramps south of SR 200
  - Approximately 0.8 percent per year on SR 200 east of I-75

Table 27: Turnpike Statewide Model Growth Rates – I-75 Mainline

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
I-75 South of SR 91	42,647	73,351	1,023	2.4%
Turnpike East of I-75	40,849	76,840	1,200	2.9%
I-75 from SR 91 to SR 44	83,496	115,896	1,080	1.3%
I-75 from SR 44 to CR 484	81,635	134,518	1,763	2.2%
I-75 from CR 484 to SR 200	87,433	144,660	1,908	2.2%
I-75 from SR 200 to SR 40	88,723	144,604	1,863	2.1%

Table 28: Turnpike Statewide Model Growth Rates – SR 44 Arterial and Ramps

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
SR 44 West of I-75	11,123	44,664	1,118	10.1%
I-75 SB Off-Ramp to SR 44	6,176	8,915	91	1.5%
I-75 NB On-Ramp from SR 44	6,135	9,707	119	1.9%
I-75 NB Off-Ramp to SR 44	7,110	17,467	345	4.9%
I-75 SB On-Ramp from SR 44	7,061	16,829	326	4.6%
SR 44 East of I-75	15,983	22,017	201	1.3%

Table 29: Turnpike Statewide Model Growth Rates – CR 484 Arterial and Ramps

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
CR 484 West of I-75	27,309	35,349	268	1.0%
I-75 SB Off-Ramp to CR 484	8,357	12,248	130	1.6%
I-75 NB On-Ramp from CR 484	8,323	11,872	118	1.4%
I-75 NB Off-Ramp to CR 484	5,687	7,106	47	0.8%
I-75 SB On-Ramp from CR 484	5,195	6,871	56	1.1%
CR 484 East of I-75	26,573	33,635	235	0.9%

Table 30: Turnpike Statewide Model Growth Rates – SR 200 Arterial and Ramps

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
SR 200 East of SW 38th Ave	44,186	53,132	298	0.7%
I-75 SB Off-Ramp to SR 200	7,191	10,091	97	1.3%
I-75 NB On-Ramp from SR 200	7,933	11,594	122	1.5%
I-75 NB Off-Ramp to SR 200	6,571	10,331	125	1.9%
I-75 SB On-Ramp from SR 200	7,262	11,411	138	1.9%
SR 200 West of SW 36th Ave	41,199	51,367	339	0.8%

RECOMMENDED GROWTH RATES AND AADTS

Recommended growth rates were determined based on a comprehensive evaluation of historic, BEBR, and model growth rates. The applied linear growth rates and the AADT growth per year are summarized in the following tables.

- I-75 Mainline – **Table 31**
- SR 44 Arterial and Ramp – **Table 32**
- CR 484 Arterial and Ramps – **Table 33**
- SR 200 Arterial and Ramps – **Table 34**

Generally, the model growth per year was applied to the existing year counts. The determination between model slope and model growth rate was made based on the impacts each has on the future AADT. Due to differences in the magnitude of existing AADT versus the base year AADT in the model, use of the model growth rate or model slope may result in an unrealistically low or high future year AADT projection. These AADT projections using both methods were reviewed prior to selecting one approach over another. For instances where the model growth and slope result in unreasonable AADT projections, the historical growth rates were considered and used.

Notes regarding which source was used to select each of the recommended growth rates for each segment are included in the tables. The following summarizes the growth rates that were selected for the arterials and mainline:

- I-75 Mainline
  - 2.20 percent per year
  - The growth rate and resulting AADTs along I-75 were reviewed, coordinated, and approved by Florida's Turnpike Enterprise (FTE) staff. The resulting I-75 mainline balanced AADT calculations and coordination emails are included in **Appendix P**.
- SR 44 Arterial and Ramps
  - 2.35 percent per year along SR 44 west of I-75
  - 1.03 percent per year along SR 44 east of I-75
- CR 484 Arterial and Ramps
  - 1.00 percent per year along CR 484 east/west of I-75
- SR 200 Arterial and Ramps
  - 0.75 percent per year along SR 200 east/west of I-75

It is important to note that the AADTs and DDHVs summarized in **Table 31** through **Table 34** are those developed and approved for the 2050 Design Year of the I-75 Master Plan. These growth rates and resulting 2050 volumes were reviewed and approved by the District and Florida's Turnpike Enterprise as part of the I-75 Master Plan. These Master Plan projections were revisited as part of a traffic validation exercise when developing the Traffic Analysis Memorandum of Agreement. The 2050 volumes are summarized for reference purposes.

The 2030 and 2040 AADT/DDHV forecasts for this PTAR are based on a linear interpolation of 2019 and 2050 AADT/DDHV forecasts developed in the Master Plan. This approach is consistent with the approved MOA for this study. The applied linear growth rates and AADT growth per year assumptions are consistent between the analysis year 2030/2040 AADT/DDHVs and the Master Plan 2050 AADT/DDHVs.

The 2030 and 2040 AADTs are illustrated in **Figure 53** and **Figure 54**, respectively. It is important to note that the demand volumes for No-Build and Build conditions are the same. Graphics developed to illustrate the approved 2050 AADTs from the Master Plan are included in **Appendix P** for reference purposes.

Table 31: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – I-75 Mainline and Turnpike

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday				Weekend		
				Existing Year AADT**	Future AADT	Future DDHV		Existing Year AADT**	Future AADT	Future DDHV
						AM Peak Hour	PM Peak Hour			
					2050	2050	2050		2050	2050
I-75 S of SR 91 (Turnpike)	N/A	N/A	Model Growth Rate	54,000	N/A	N/A	N/A	59,500	N/A	N/A
I-75 between SR 91 and SR 44	N/A	N/A		98,700	N/A	N/A	N/A	107,500	N/A	N/A
I-75 between SR 44 and CR 484	N/A	N/A		93,700	N/A	N/A	N/A	102,000	N/A	N/A
I-75 between CR 484 and SR 200*	2.20%	2,180		96,900	164,000	8,708	8,679	101,500	169,000	7,788
I-75 between SR 200 and SR 40	N/A	N/A		97,800	N/A	N/A	N/A	102,900	N/A	N/A
Turnpike SB	#	#	#	22,350	44,500	3,889	4,566	24,500	45,500	4,643
Turnpike NB	#	#		22,350	44,500	4,566	3,889	23,500	45,000	3,955

*Anchor point location
**The result of balancing and selected in coordination with Florida's Turnpike Enterprise staff.
#The 2050 volumes along the Turnpike mainline and ramps were reviewed, coordinated, and approved by Florida's Turnpike Enterprise staff.
N/A – future volumes determined based on balancing along the I-75 mainline from the anchor point location.

Table 32: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – SR 44 Arterial and Ramps

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday				Weekend		
				Existing Year AADT	Future AADT	Future DDHV		Existing Year AADT	Future AADT	Future DDHV
						AM Peak Hour	PM Peak Hour			
					2050	2050	2050		2050	2050
SR 44 west of I-75	2.35%	270	Historical Growth Rate	11,500	20,000	1,262	1,121	10,500	19,000	868
I-75 SB Off-Ramp to SR 44	1.57%	91	Model Slope	5,800	8,600	825	769	5,400	8,200	768
Total On-Ramp Volume from SR 44	2.75%	220	I-75 Mainline Growth Rate*	8,000	15,000	1,235	1,240	7,900	14,500	1,276
I-75 SB On-Ramp from SR 44	-	-	*	-	10,000	*	*	-	9,700	*
Turnpike SB On-Ramp from SR 44	-	-	*	-	5,000	*	*	-	4,800	*
I-75 NB On-Ramp from SR 44	2.40%	120	Model Slope	5,000	8,700	750	806	4,200	7,900	672
Total Off-Ramp Volume to SR 44*	1.60%	125	I-75 Mainline Growth Rate*	7,800	11,500	1,150	1,145	7,200	11,000	1,019
I-75 NB Off-Ramp to SR 44	-	-	*	-	7,500	*	*	-	7,200	*
Turnpike NB Off-Ramp to SR 44	-	-	*	-	4,000	*	*	-	3,800	*
SR 44 east of I-75	1.03%	205	Model Slope	20,000	26,500	1,460	1,491	16,500	23,000	1,065

*Note: Origin-Destination data from existing Streetlight data used to estimate the proportion of traffic to/from SR 44 and to/from I-75/Turnpike.

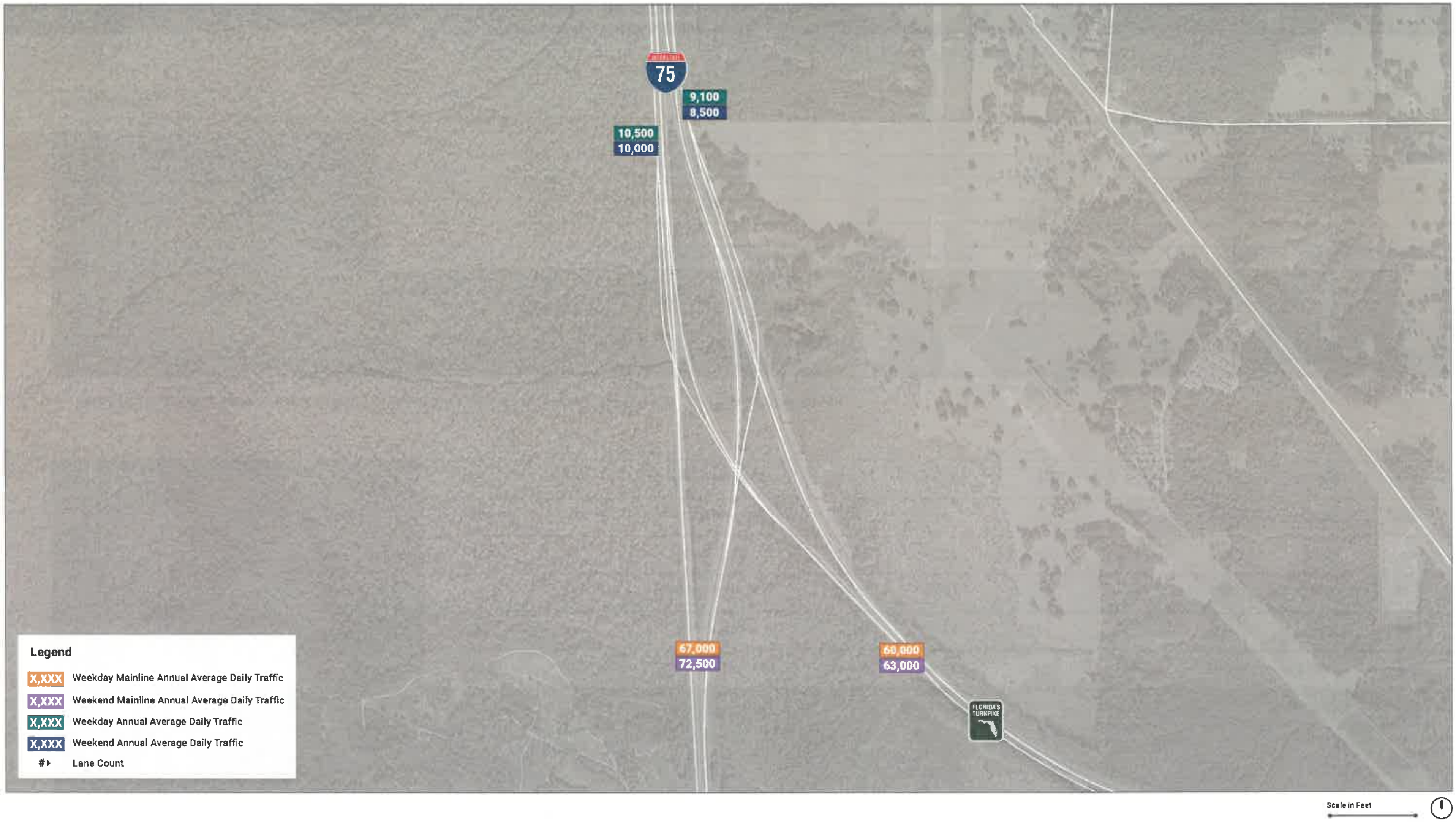
Table 33: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – CR 484 Arterial and Ramps

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday				Weekend		
				Existing Year AADT	Future AADT	Future DDHV		Existing Year AADT	Future AADT	Future DDHV
					2050	AM Peak Hour 2050	PM Peak Hour 2050		2050	2050
CR 484 between SW 20th Ave Rd and I-75 SB ramps	1.00%	300	Model Growth Rate	30,000	39,500	2,460	2,353	29,500	39,000	1,804
I-75 SB Off-Ramp to CR 484	1.80%	135	Model Slope	7,500	11,500	674	1,365	6,800	11,000	746
I-75 SB On-Ramp from CR 484	1.13%	70	Model Growth Rate	6,200	8,400	981	529	6,900	9,100	924
I-75 NB On-Ramp from CR 484	1.44%	125	Model Slope	8,700	12,500	1,486	795	8,100	12,000	1,324
I-75 NB Off-Ramp to CR 484	0.88%	60	Model Growth Rate	6,800	8,700	549	1,001	8,500	10,500	831
CR 484 between SW 17th Ct and I-75 NB ramps	1.00%	260	Model Growth Rate	26,000	34,000#	1,830	2,190	25,500	33,500#	1,754

Table 34: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – SR 200 Arterial and Ramps

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday				Weekend		
				Existing Year AADT	Future AADT	Future DDHV		Existing Year AADT	Future AADT	Future DDHV
					2050	AM Peak Hour 2050	PM Peak Hour 2050		2050	2050
SR 200 between SW 38th Ave and I-75 SB ramps	0.75%	275	Model Growth Rate	36,500#	45,000#	2,449	2,815	35,500#	44,000#	2,704
I-75 SB Off-Ramp to SR 200	1.23%	100	Model Slope	8,100	11,000	979	1,093	7,100	10,000	792
I-75 SB On-Ramp from SR 200	1.92%	140	Model Slope	7,300	11,500	838	1,206	6,800	11,000	867
I-75 NB On-Ramp from SR 200	1.56%	125	Model Slope	8,000	12,000	1,091	977	7,400	11,500	1,143
I-75 NB Off-Ramp to SR 200	1.58%	125	Model Slope	7,900	12,000	1,277	909	6,300	10,000	1,023
SR 200 between I-75 NB ramps and SW 36th Ave	0.75%	325	Model Growth Rate	43,500	53,500	3,202	2,605	44,000	54,000	2,571

- Tube counts collected unreasonably low volumes when compared to the TMCs and were not used for estimating AADTs or for forecasting. The approach/departures from the peak hour TMCs were grown to estimate future DDHVs.



FDOT

I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

2030 Annual Average Daily Traffic Volumes

Figure 53 (1 of 4)

I-75 PD&E South | SR 44 Interchange

South of SR 44 to SR 200

2030 Annual Average Daily Traffic Volumes

Figure 53 (2 of 4)

I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

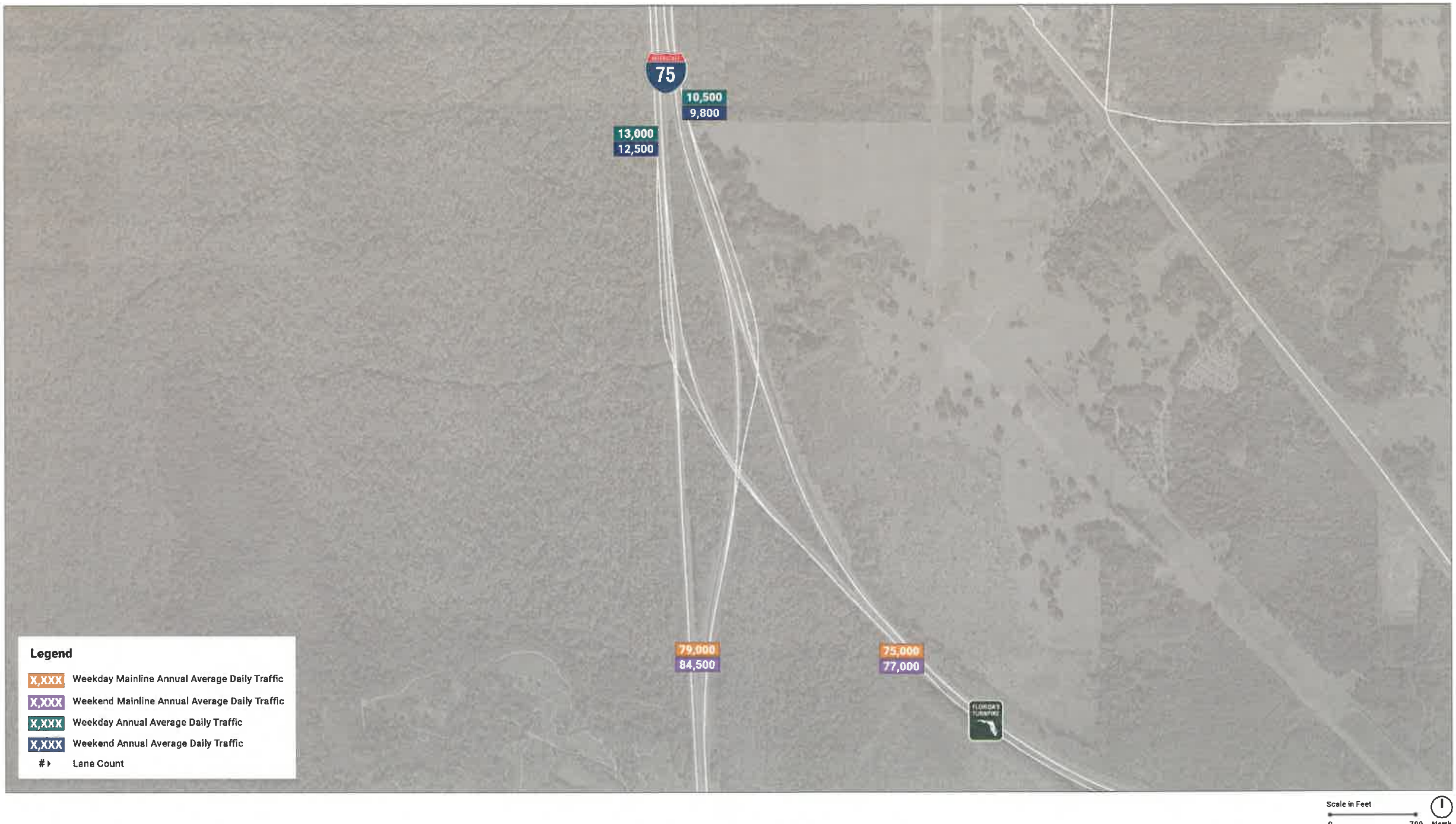
2030 Annual Average Daily Traffic Volumes
Figure 53 (3 of 4)

I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

2030 Annual Average Daily Traffic Volumes

Figure 53 (4 of 4)

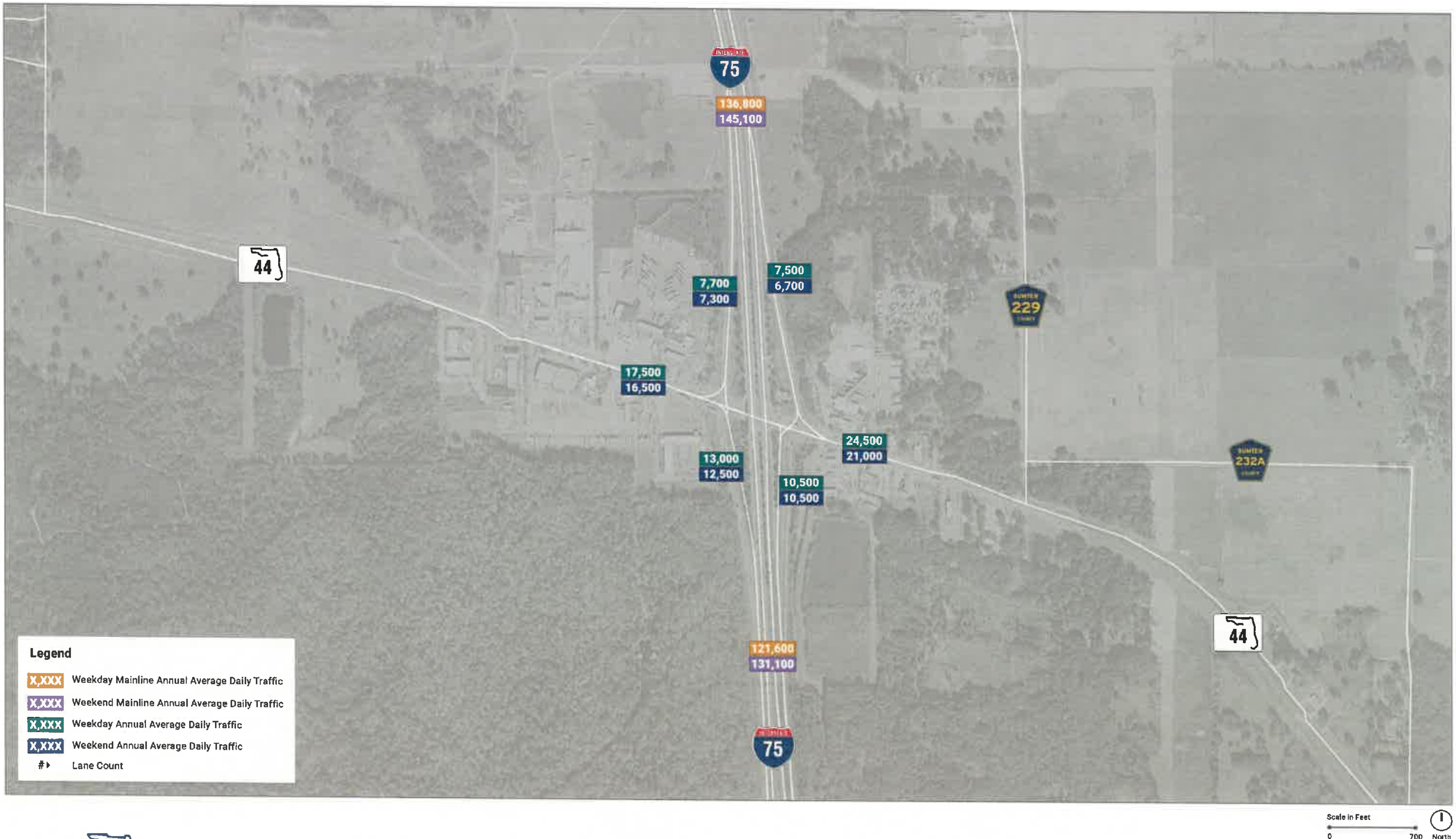


I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

2040 Annual Average Daily Traffic Volumes

Figure 54 (1 of 4)

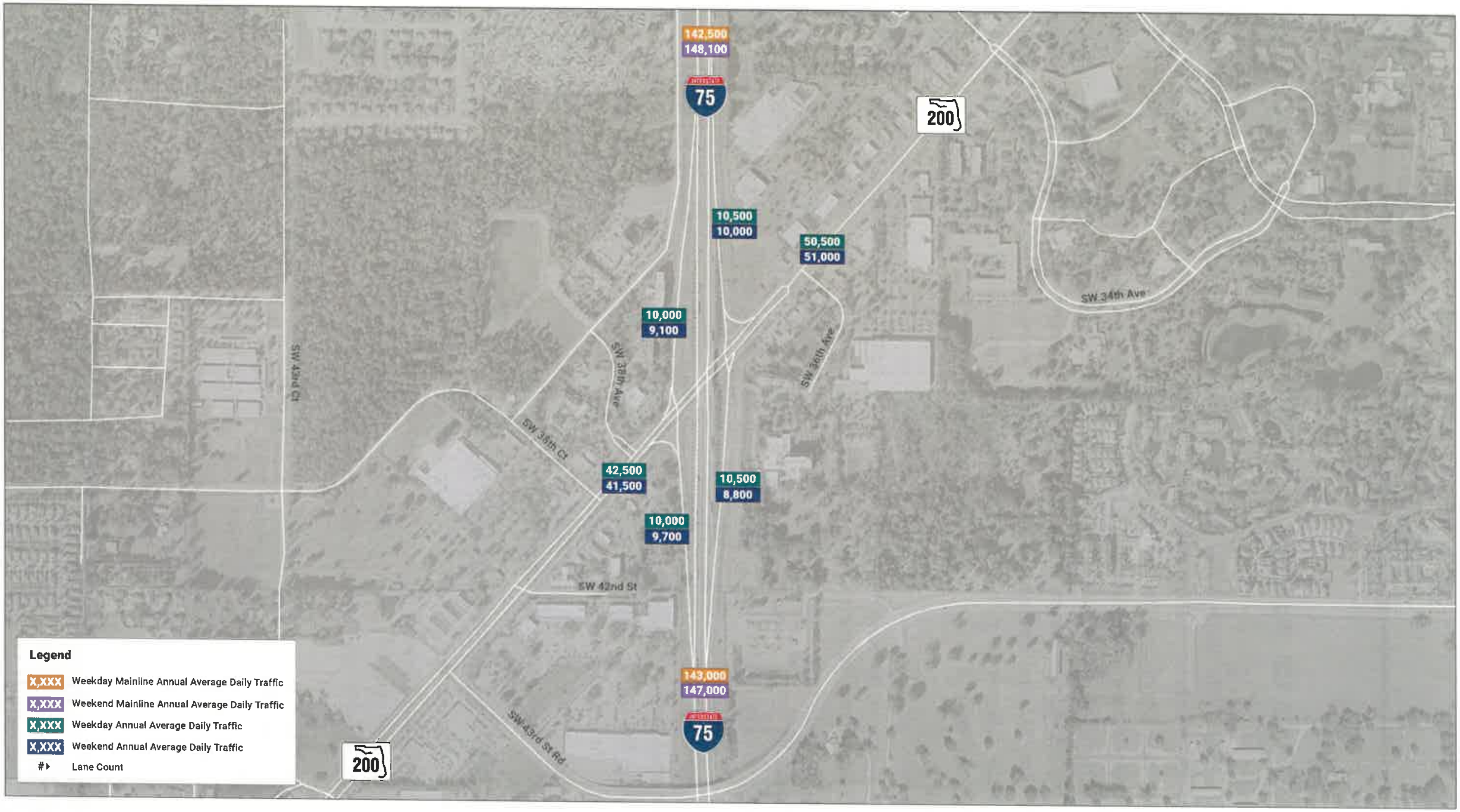


I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

2040 Annual Average Daily Traffic Volumes
Figure 54 (2 of 4)

I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

2040 Annual Average Daily Traffic Volumes
Figure 54 (3 of 4)



I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

2040 Annual Average Daily Traffic Volumes

Figure 54 (4 of 4)

DEVELOPMENT OF FUTURE INTERSECTION TURNING MOVEMENT VOLUMES

Design Year design-hour turning movement volumes were developed for three peak hours (i.e., AM, PM, and weekend midday). Standard K and D factors were applied to the Design Year AADTs to estimate Directional Design Hour Volumes (DDHVs). A methodology that follows the iterative, growth-factoring procedures described in the *NCHRP Report 765,* which is a method consistent with the acceptable tools described in FDOT's *Project Traffic Forecasting Handbook* (2019), was used to convert future segment DDHVs into intersection turning movement volumes for the 2050 AM, PM, and weekend midday peak hours in the approved Master Plan. 2030 and 2040 peak hour volumes were developed based on an interpolation of 2019 existing and 2050 Master Plan volumes The inputs and raw outputs from the forecasting spreadsheet are included in **Appendix Q**.

In order to maintain the existing peak hour proportionality (consistent with existing travel patterns) for each ramp pair at the interchanges (e.g., I-75 southbound off-ramp to SR 200 and I-75 northbound on-ramp from SR 200), the existing volumes for each ramp pair were summed to determine a "D factor". The ramp pairs were combined and treated as a traditional leg for forecasting purposes. The future AADTs for each ramp pair were added together and then Recommended K and the resulting D factor were applied to estimate the future peak hour ramp volumes. This ensures the appropriate directionality between the two ramps is achieved during the peak hour while still capturing the growth at the daily level (Application of Recommended K and D factor to the Design Year AADT). This approach is consistent with the way a regular 4-leg intersection is forecasted using the NCHRP 765 methodologies, except the mainline freeway volumes are not included. This approach also offers an advantage of ensuring balanced volumes along the arterial between the ramp terminal intersections.

VOLUME ADJUSTMENTS/BALANCING

The raw intersection turning movement volumes developed using the NCHRP 765 methodologies were reviewed against the existing turning movement volumes to ensure that volumes were not less in the future than the existing. Volumes along the arterials were balanced accordingly between ramp terminal intersections and between intersections where driveways do not exist.

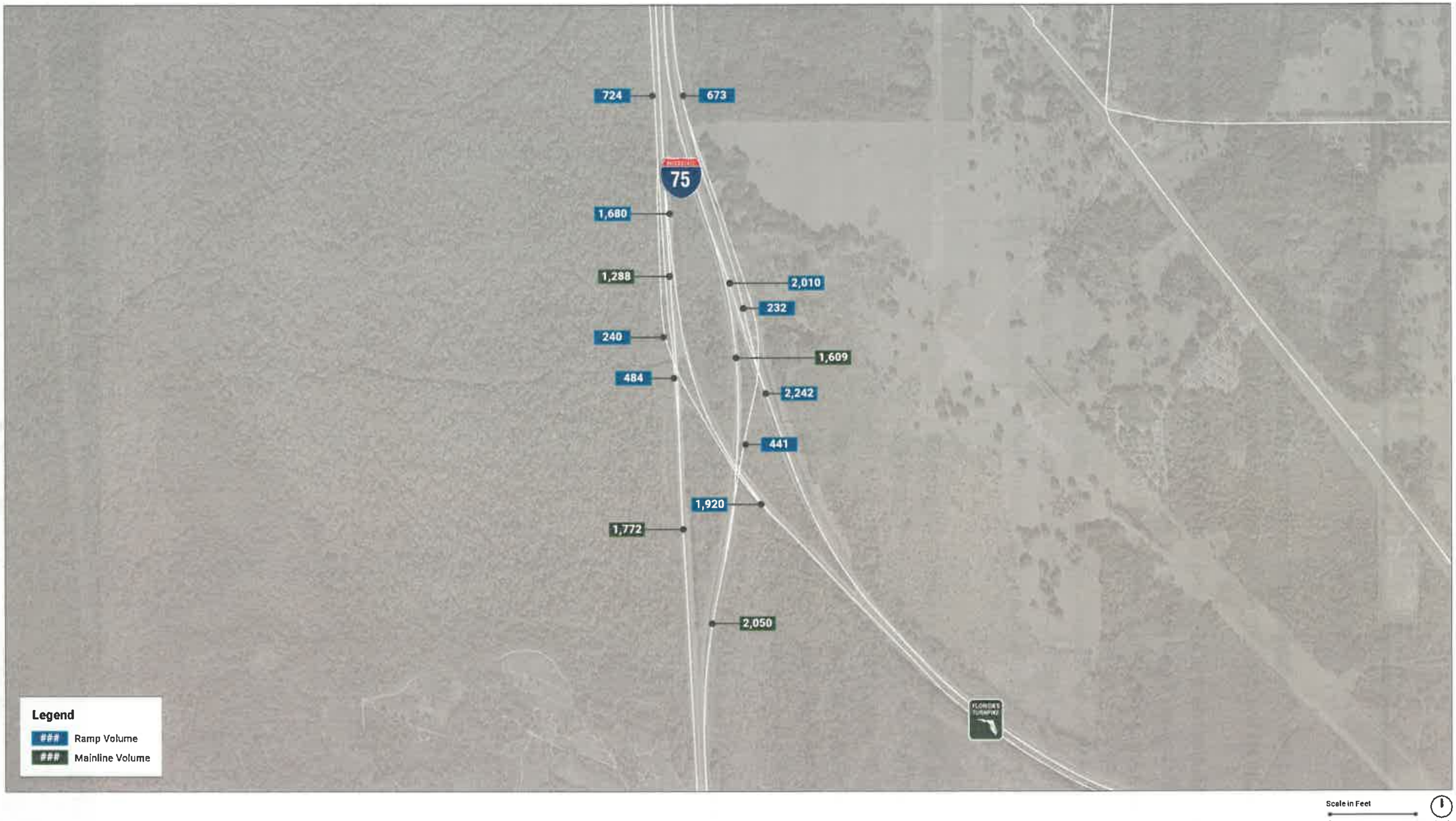
One set of peak hour volumes were developed for the Master Plan 2050 AM, PM, and weekend midday peak hours which were balanced along the mainline of I-75 using an anchor point along the facility. The I-75 mainline segment between CR 484 and SR 200 (FDOT Telemetered Site #360317) was selected as the anchor point for balancing along I-75 based on coordination with FTE staff. The forecasted DDHV along I-75 (between CR 484 and SR 200) was anchored at this point and the downstream and upstream mainline values were calculated as ramp volumes exited or entered the mainline at the study interchanges.

Similar to development of 2030 and 2040 AADT/DDHV volumes described in the previous section, 2030 and 2040 peak hour volumes were estimated by interpolating linearly between the 2019 existing year and Master Plan design year balanced peak hour volume sets.

One set of peak hour volumes were developed for each of the 2030 and 2040 AM, PM, and weekend midday peak hours. The following figures summarize the balanced Opening Year (2030) and Design Year (2040) AM, PM, and weekend midday peak hour volumes for the future scenarios evaluated in this PTAR:

- 2030 AM Peak Hour Volumes – **Figure 55**
- 2030 PM Peak Hour Volumes – **Figure 56**
- 2030 Weekend Midday Peak Hour Volumes – **Figure 57**
- 2040 AM Peak Hour Volumes – **Figure 58**
- 2040 PM Peak Hour Volumes – **Figure 59**
- 2040 Weekend Midday Peak Hour Volumes – **Figure 60**

2050 Master Plan peak hour volumes are provided in **Appendix P** for reference purposes.



2030 AM Peak Hour Volumes

Figure 55 (1 of 4)

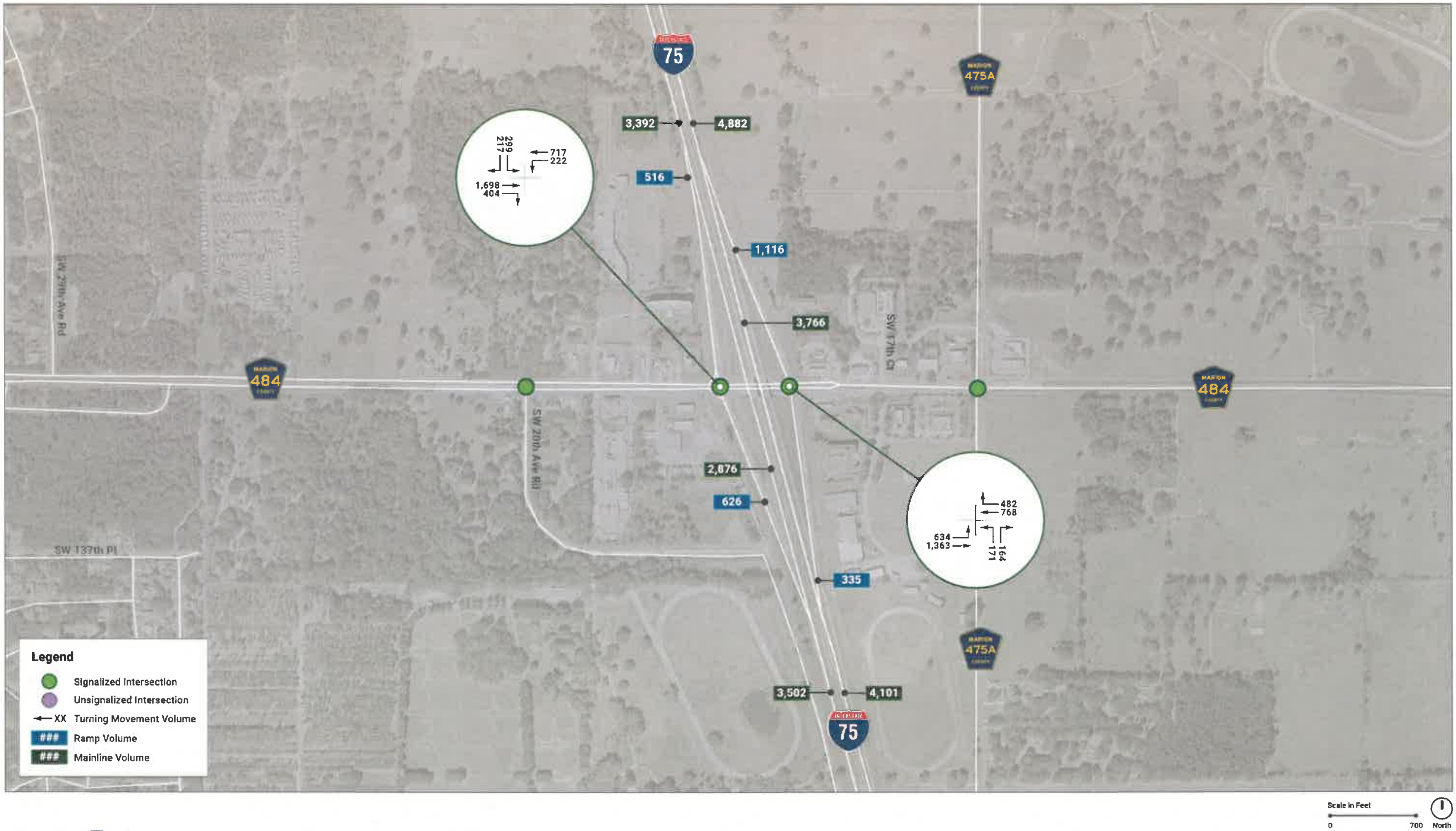
FDOT

I-75 PD&E South | SR 44 Interchange

South of SR 44 to SR 200

2030 AM Peak Hour Volumes

Figure 55 (2 of 4)

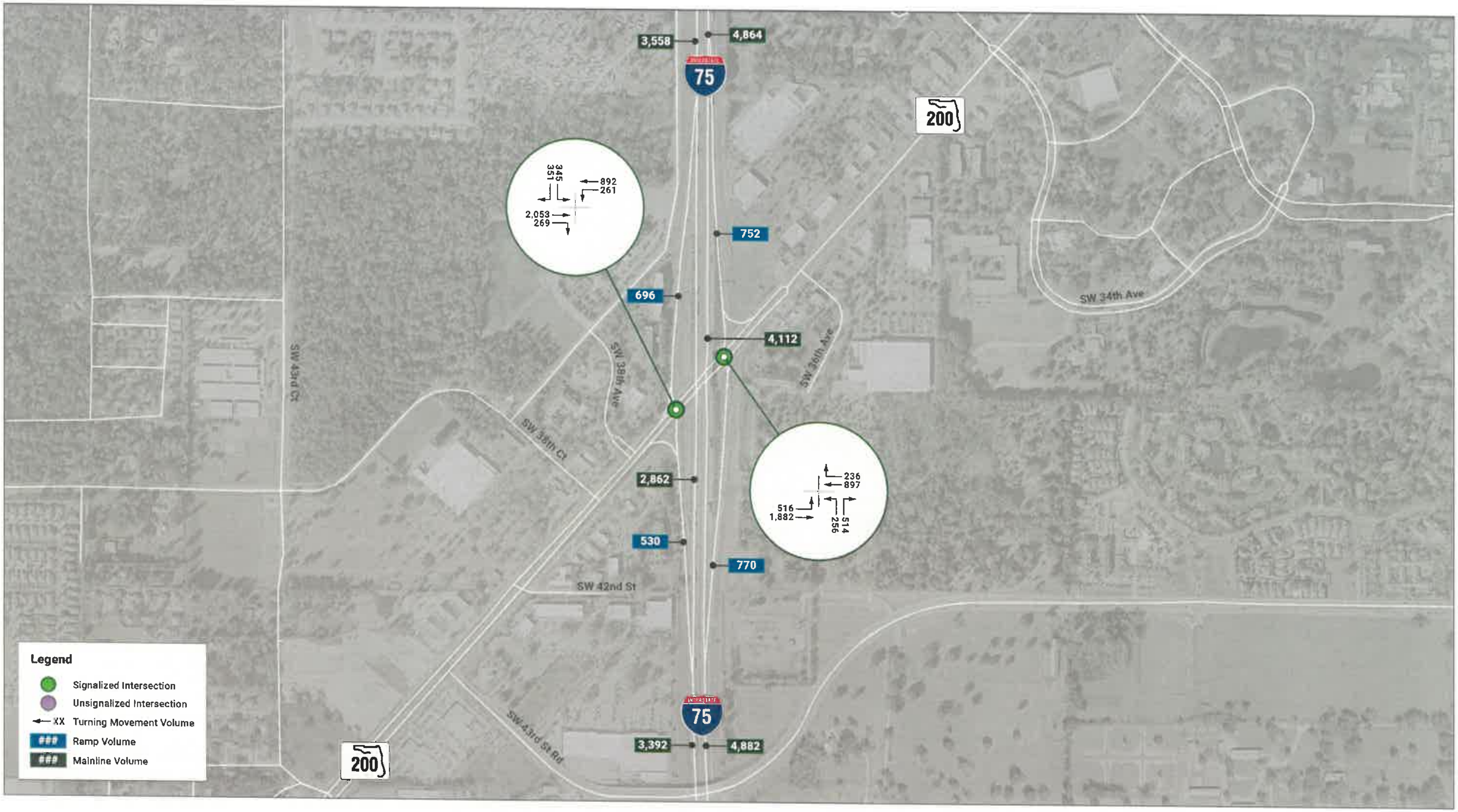


I-75 PD&E South | CR 484 Interchange

South of SR 44 to SR 200

2030 AM Peak Hour Volumes

Figure 55 (3 of 4)

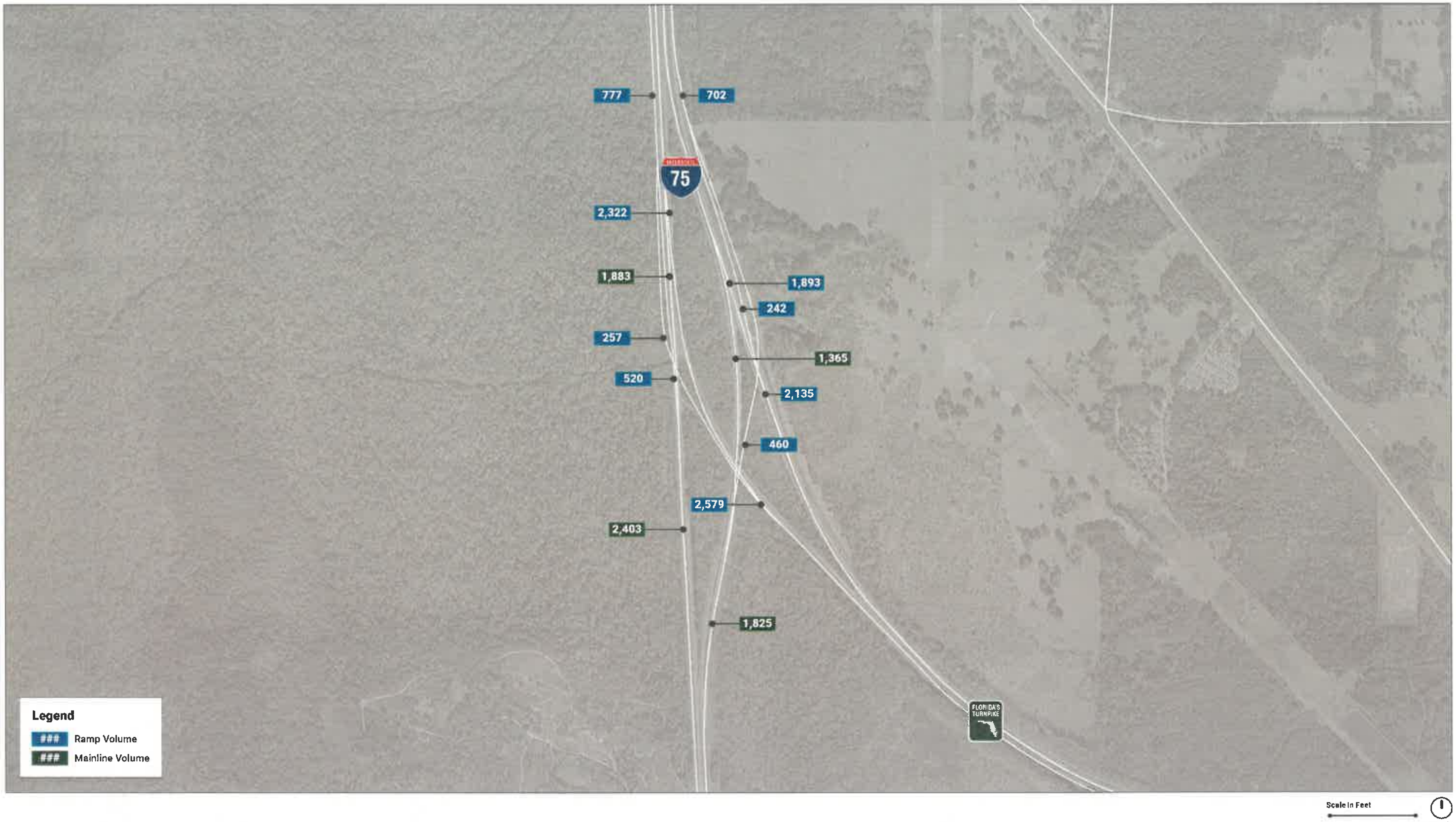


I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

2030 AM Peak Hour Volumes

Figure 55 (4 of 4)



I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

2030 PM Peak Hour Volumes

Figure 56 (1 of 4)

FDOT

I-75 PD&E South | SR 44 Interchange

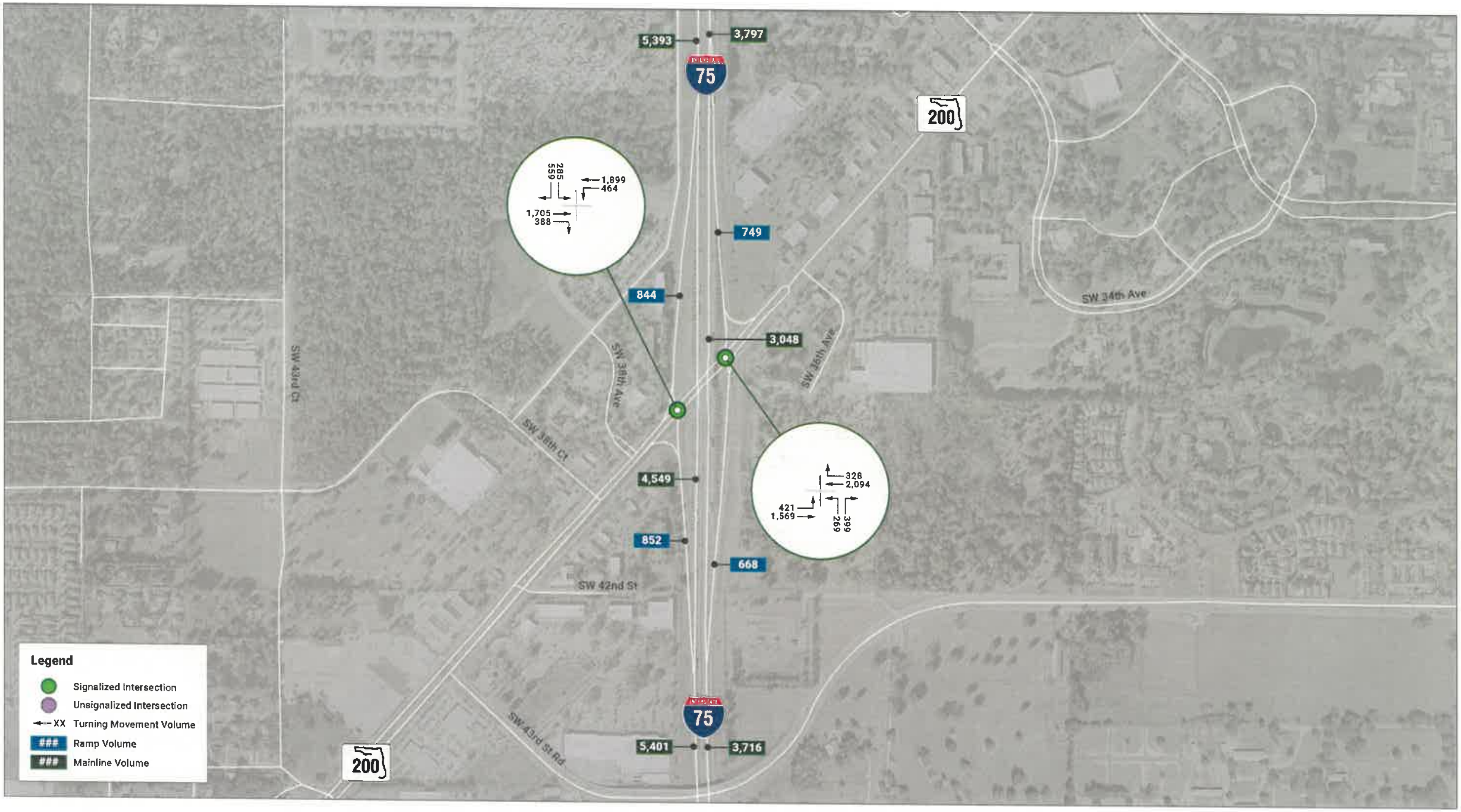
South of SR 44 to SR 200

2030 PM Peak Hour Volumes

Figure 56 (2 of 4)

I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

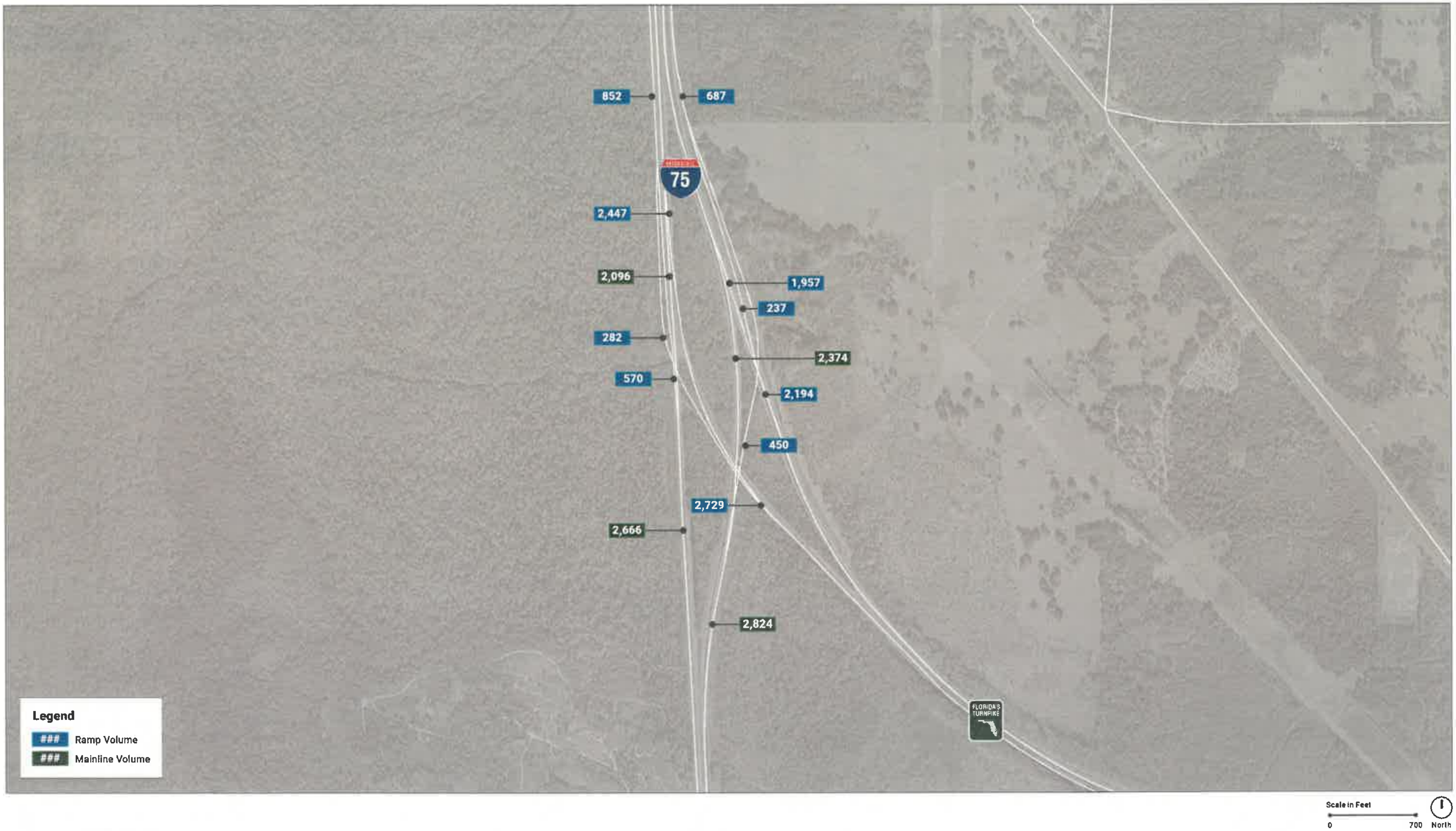
2030 PM Peak Hour Volumes
Figure 56 (3 of 4)



FDOT

I-75 PD&E South | SR 200 Interchange
South of SR 44 to SR 200

2030 PM Peak Hour Volumes
Figure 56 (4 of 4)

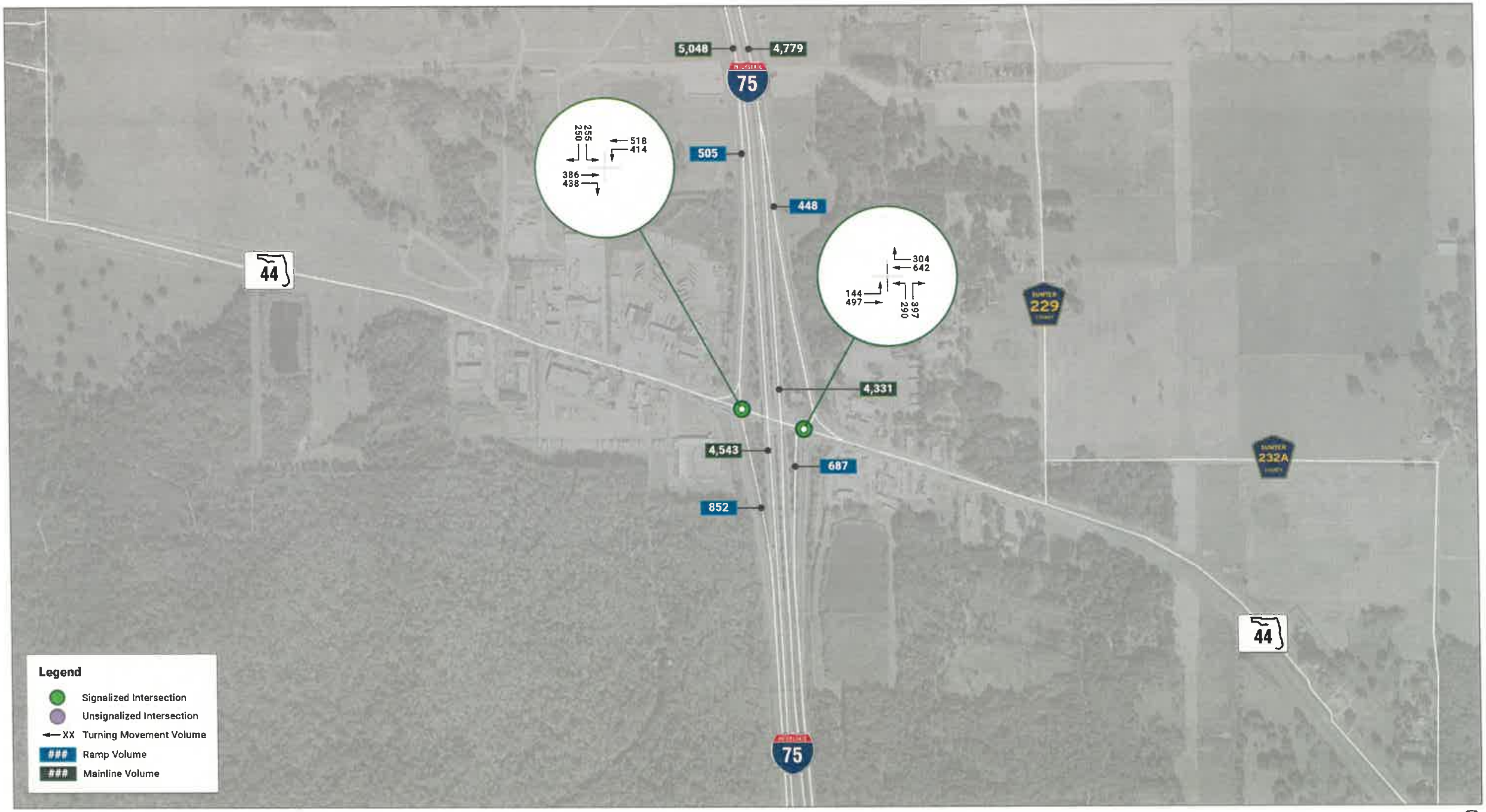


I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

2030 Weekend Midday Peak Hour Volumes

Figure 57 (1 of 4)



FDOT

I-75 PD&E South | SR 44 Interchange

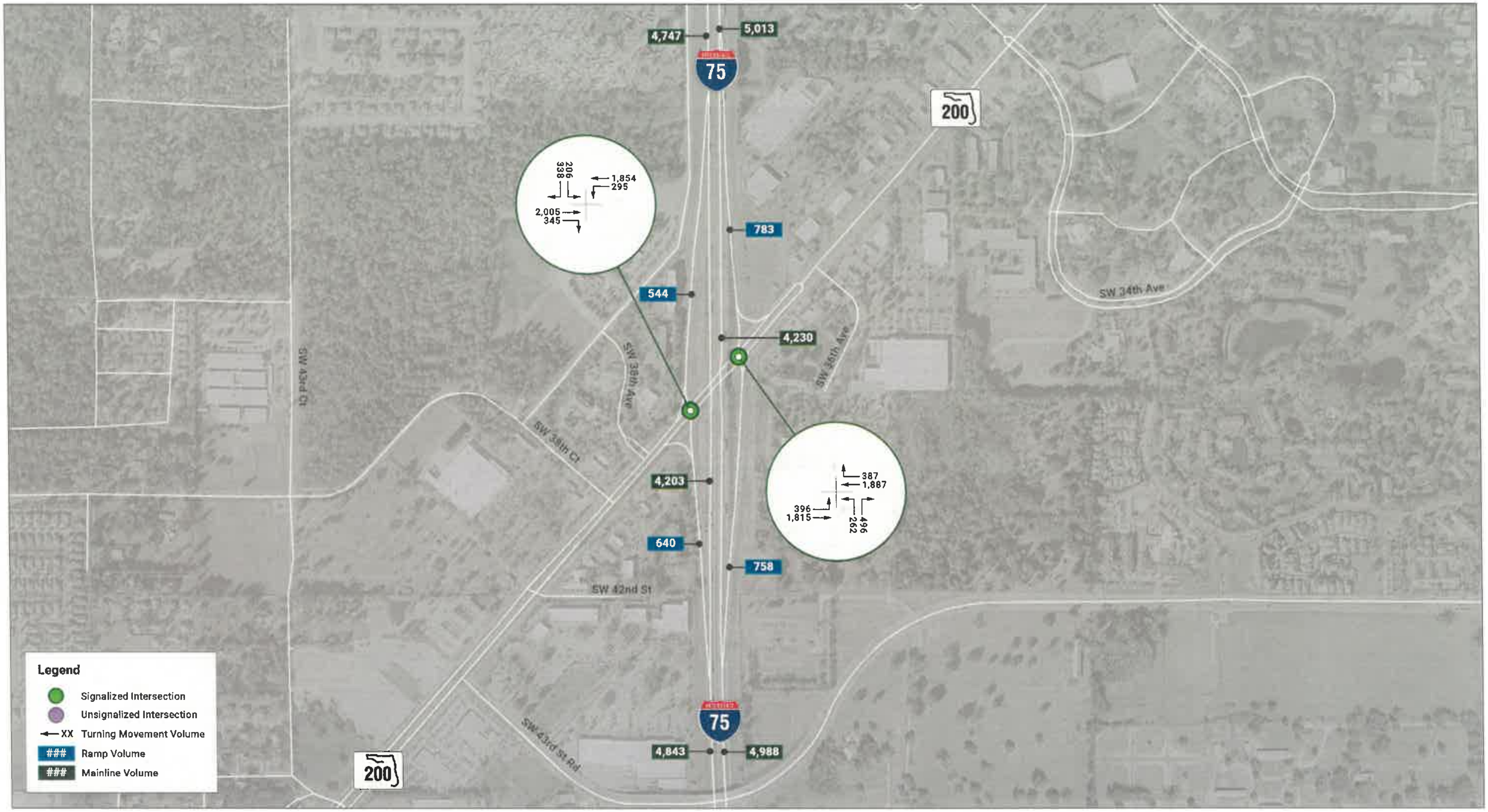
South of SR 44 to SR 200

2030 Weekend Midday Peak Hour Volumes

Figure 57 (2 of 4)

I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

2030 Weekend Midday Peak Hour Volumes
Figure 57 (3 of 4)



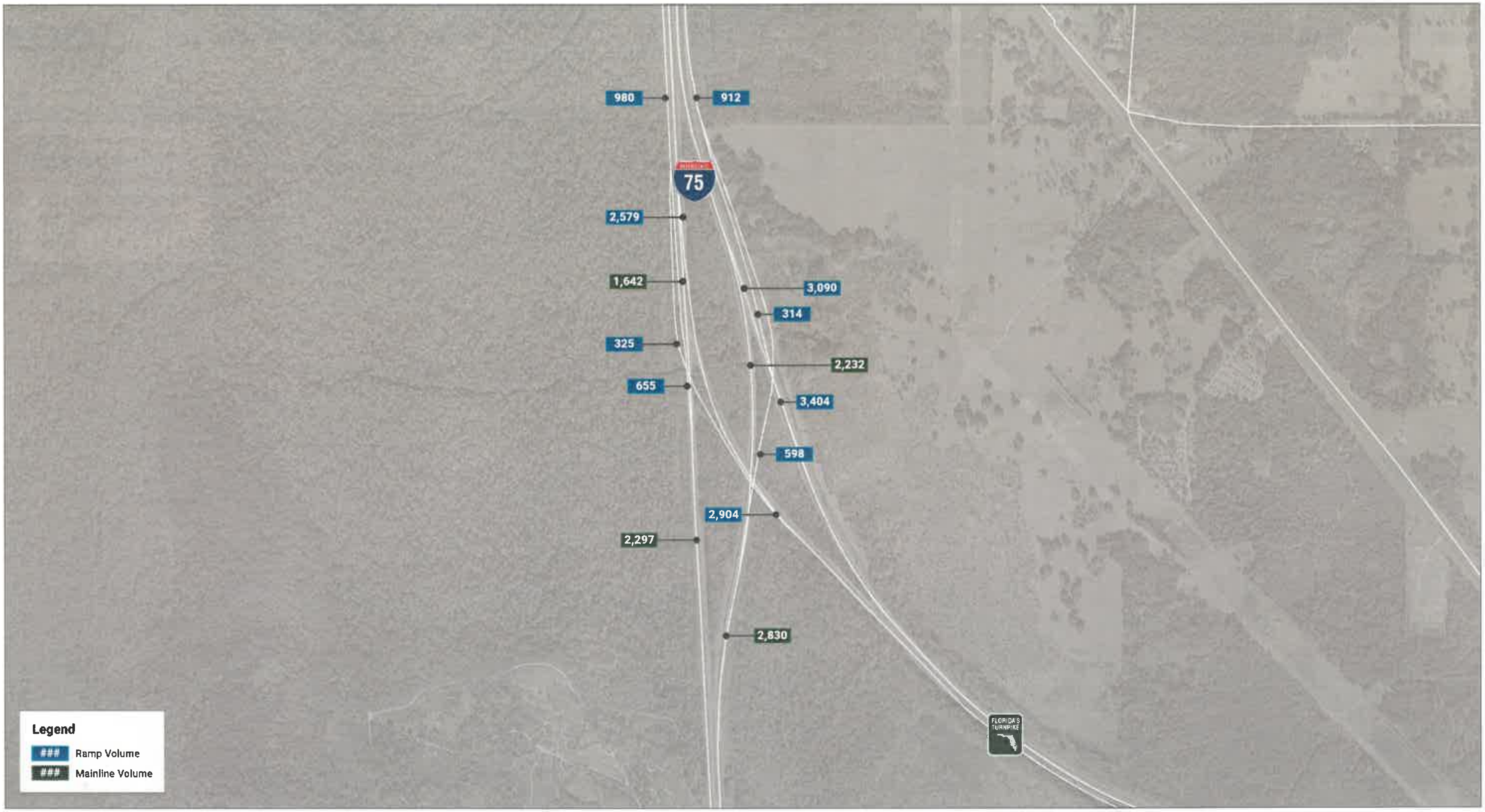
FDOT

I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

2030 Weekend Midday Peak Hour Volumes

Figure 57 (4 of 4)



I-75 PD&E South | South of SR 44

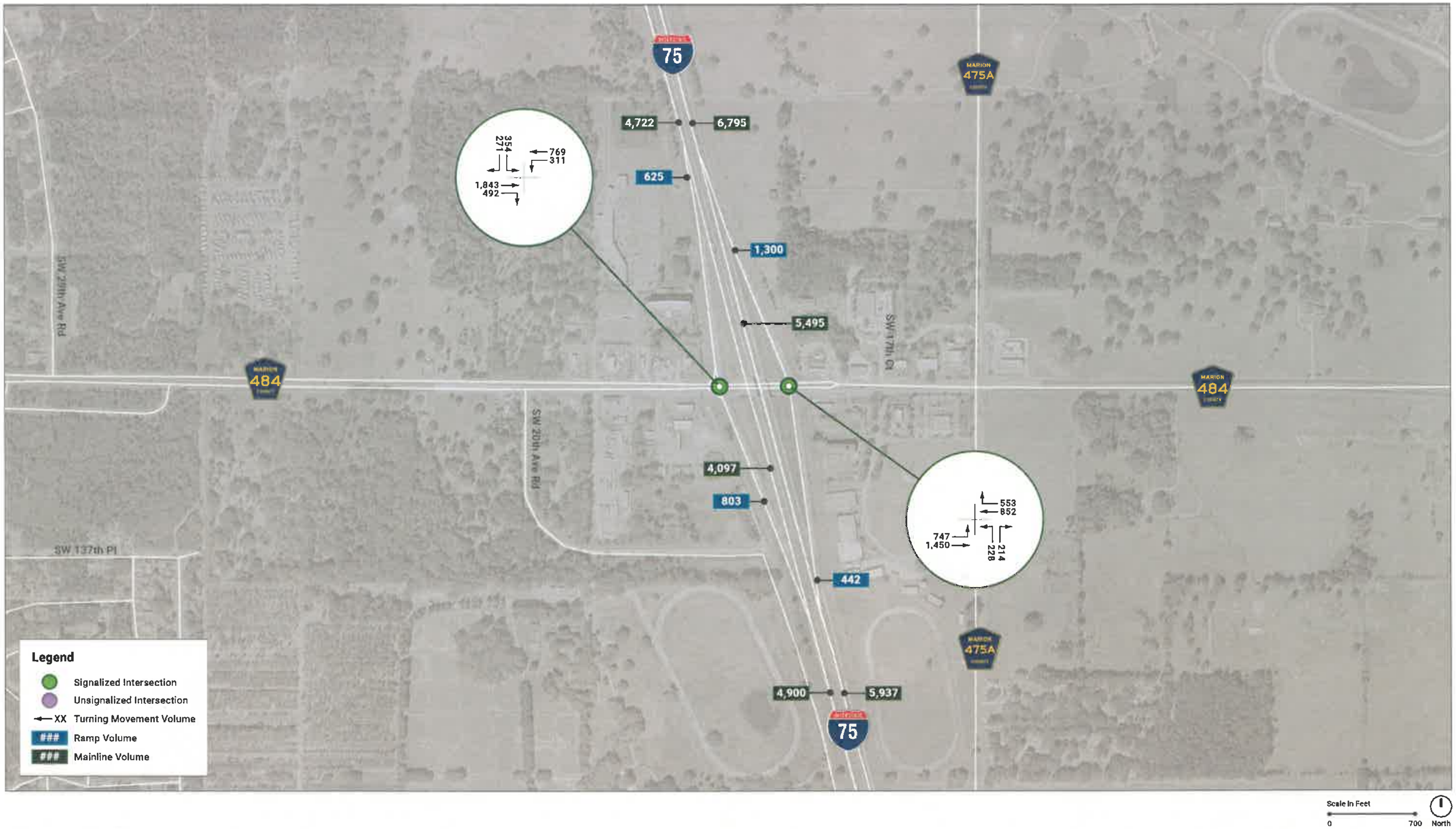
South of SR 44 to SR 200

2040 AM Peak Hour Volumes

Figure 58 (1 of 4)

I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

2040 AM Peak Hour Volumes
Figure 58 (2 of 4)

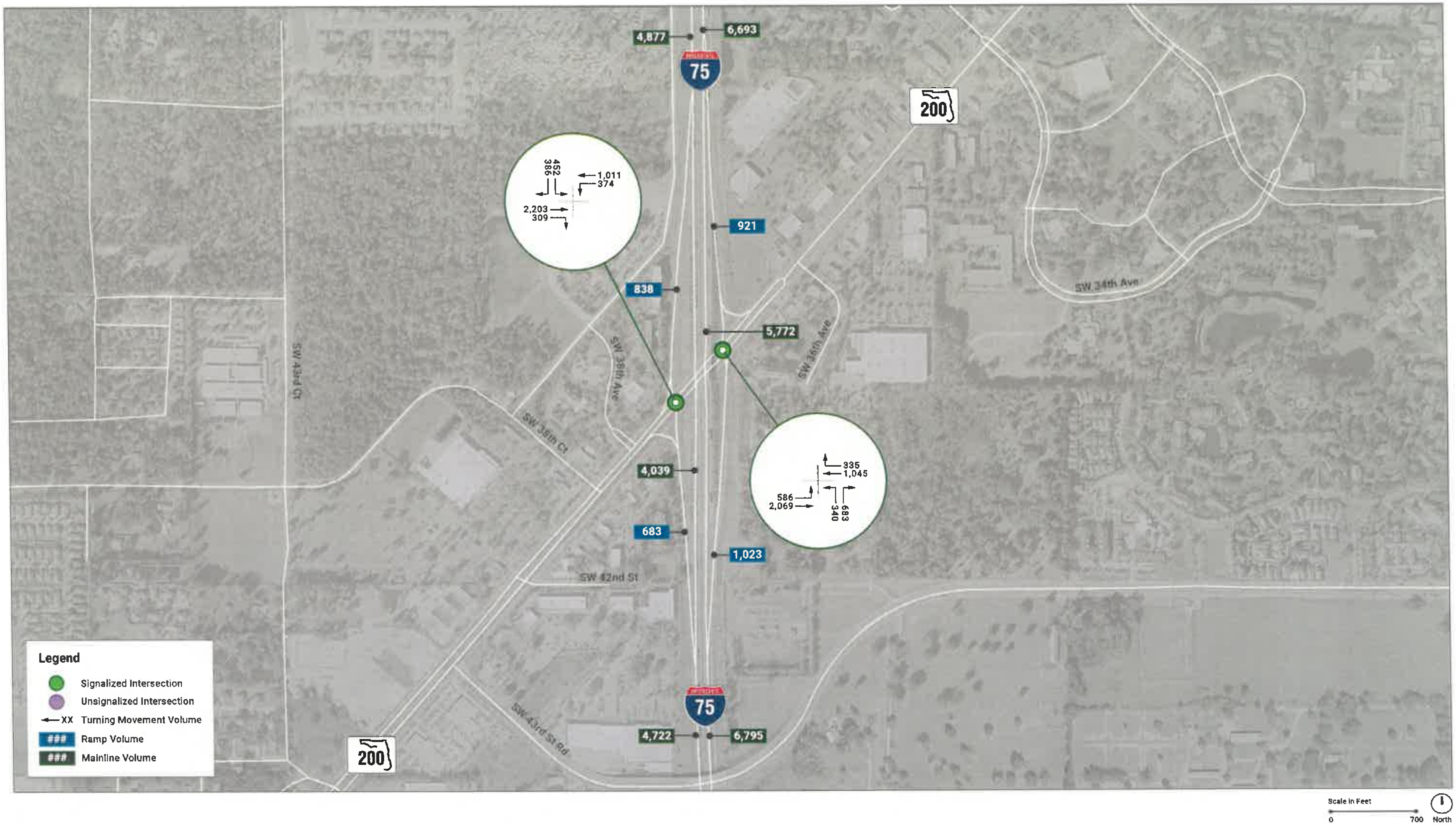


I-75 PD&E South | CR 484 Interchange

South of SR 44 to SR 200

2040 AM Peak Hour Volumes

Figure 58 (3 of 4)



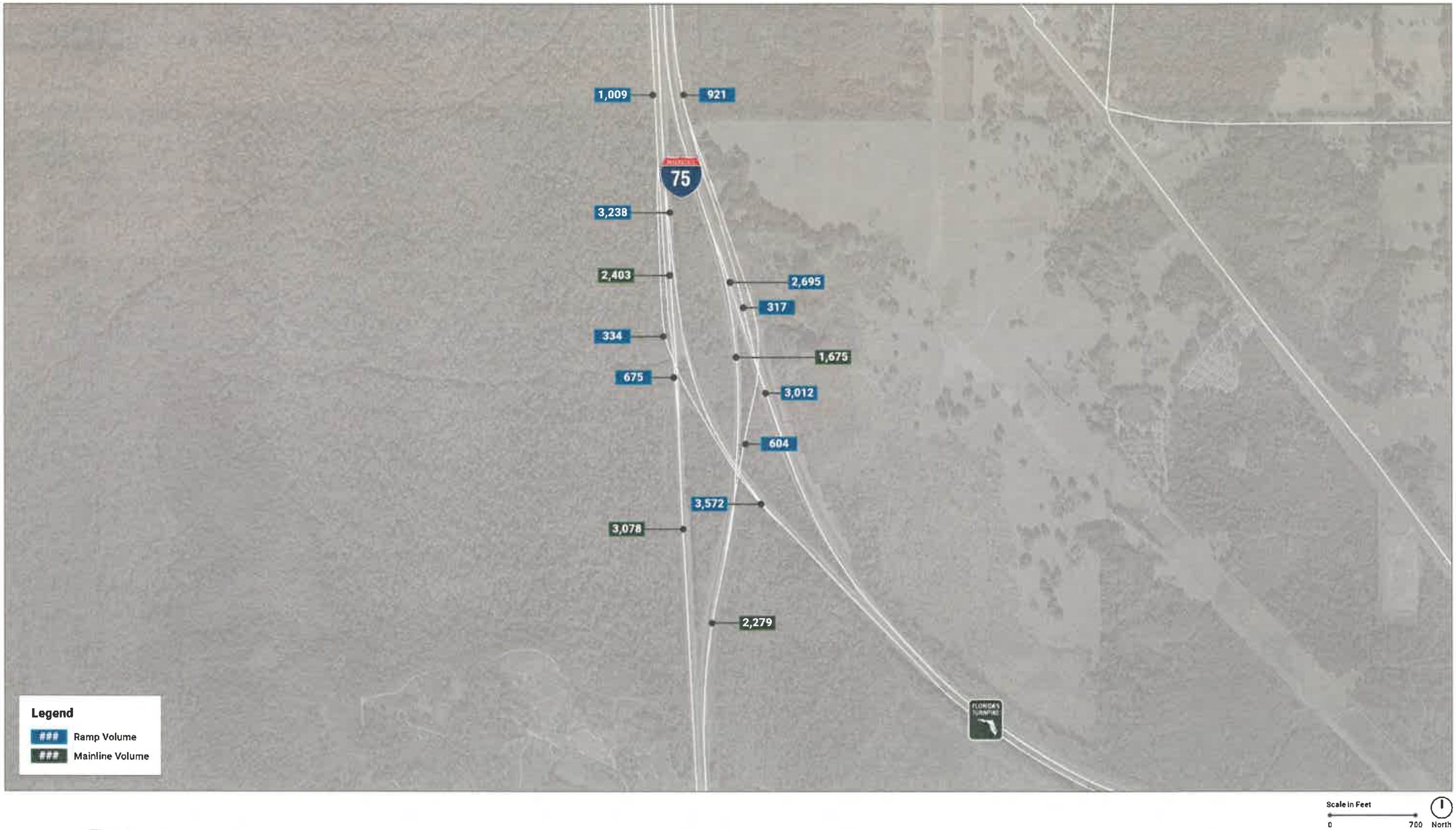
FDOT

I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

2040 AM Peak Hour Volumes

Figure 58 (4 of 4)



I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

2040 PM Peak Hour Volumes

Figure 59 (1 of 4)

I-75 PD&E South | SR 44 Interchange

South of SR 44 to SR 200

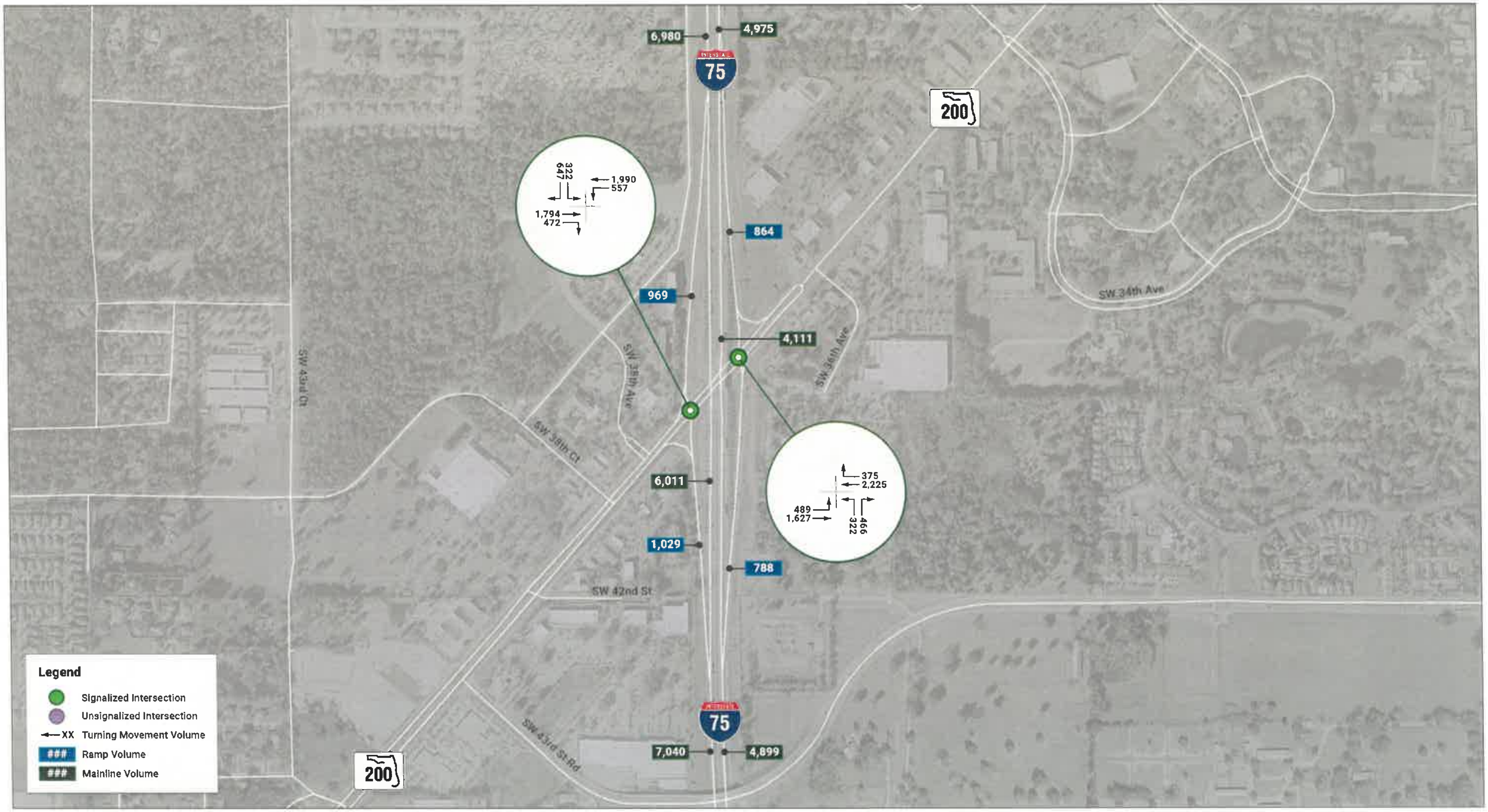
2040 PM Peak Hour Volumes

Figure 59 (2 of 4)

FDOT

I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

2040 PM Peak Hour Volumes
Figure 59 (3 of 4)

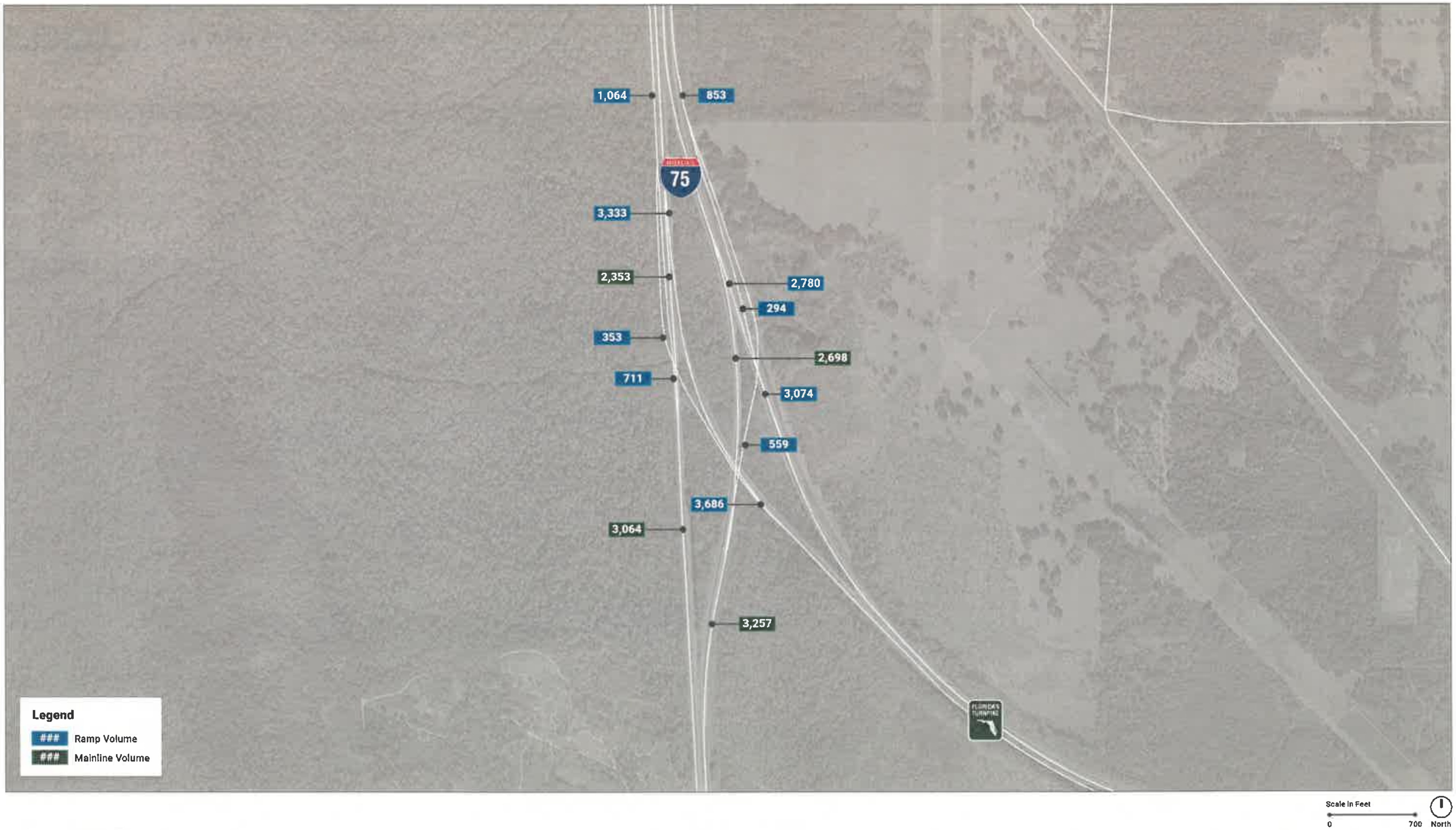


I-75 PD&E South | SR 200 Interchange

South of SR 44 to SR 200

2040 PM Peak Hour Volumes

Figure 59 (4 of 4)

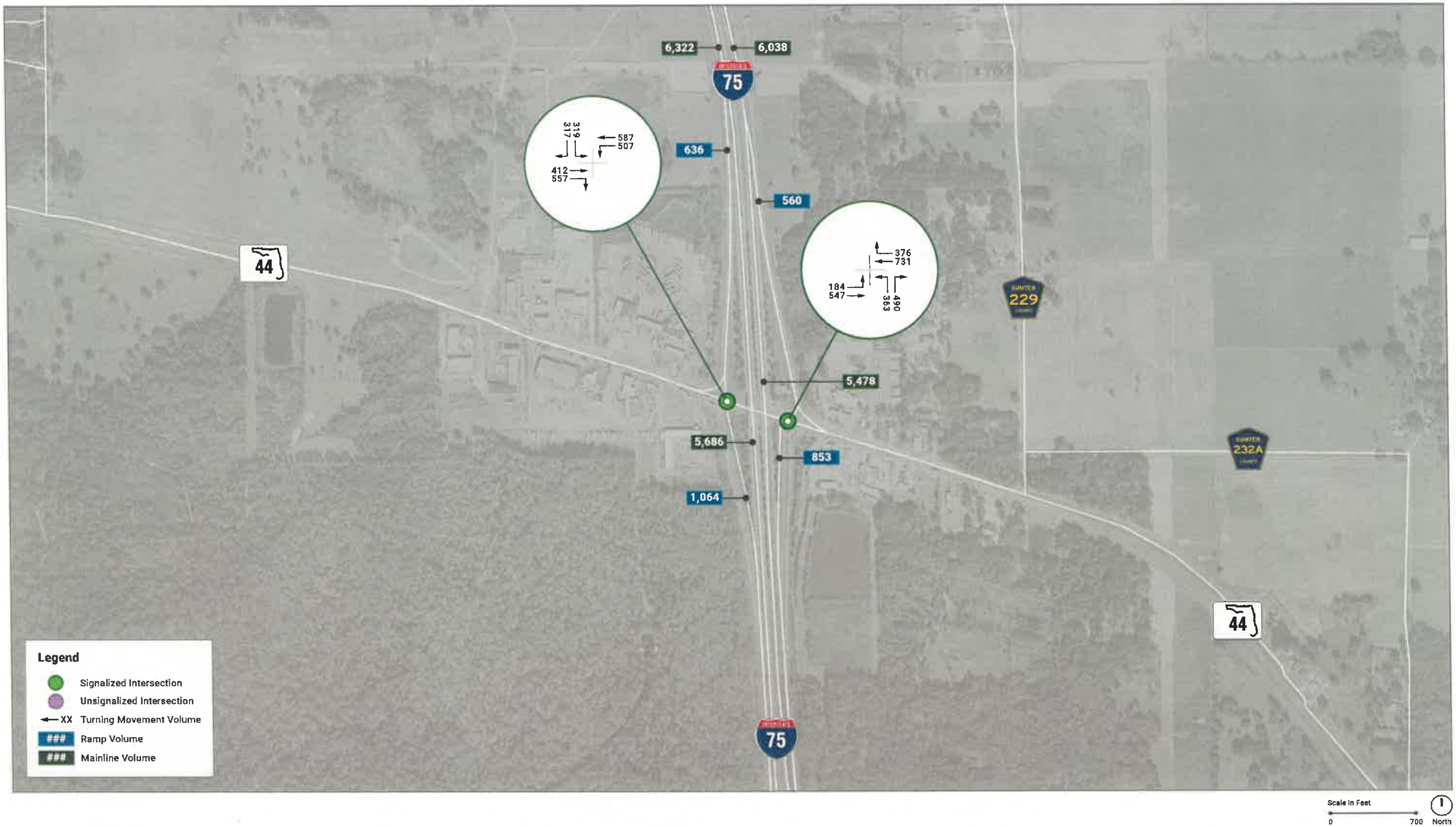


I-75 PD&E South | South of SR 44

South of SR 44 to SR 200

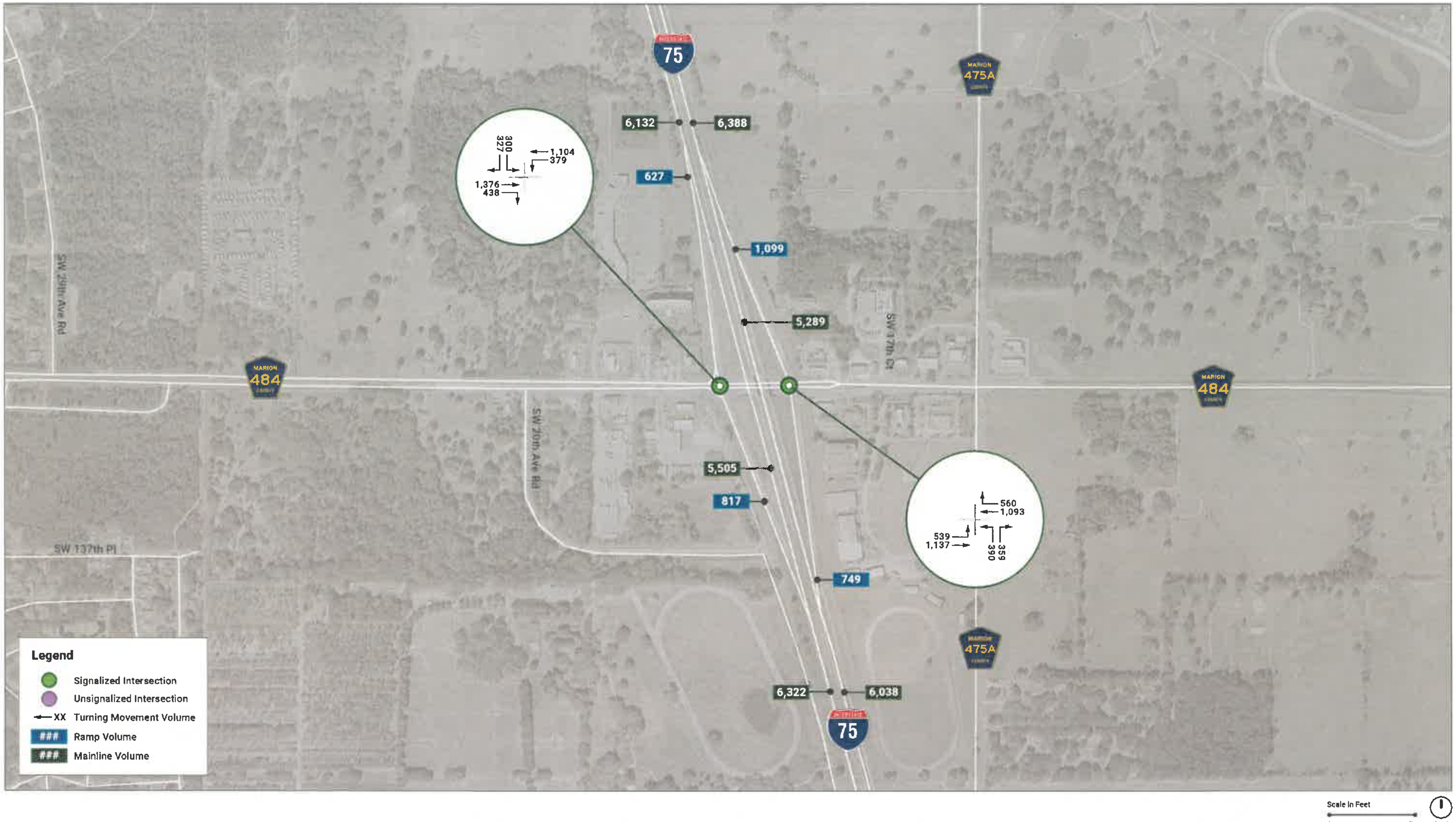
2040 Weekend Midday Peak Hour Volumes

Figure 60 (1 of 4)



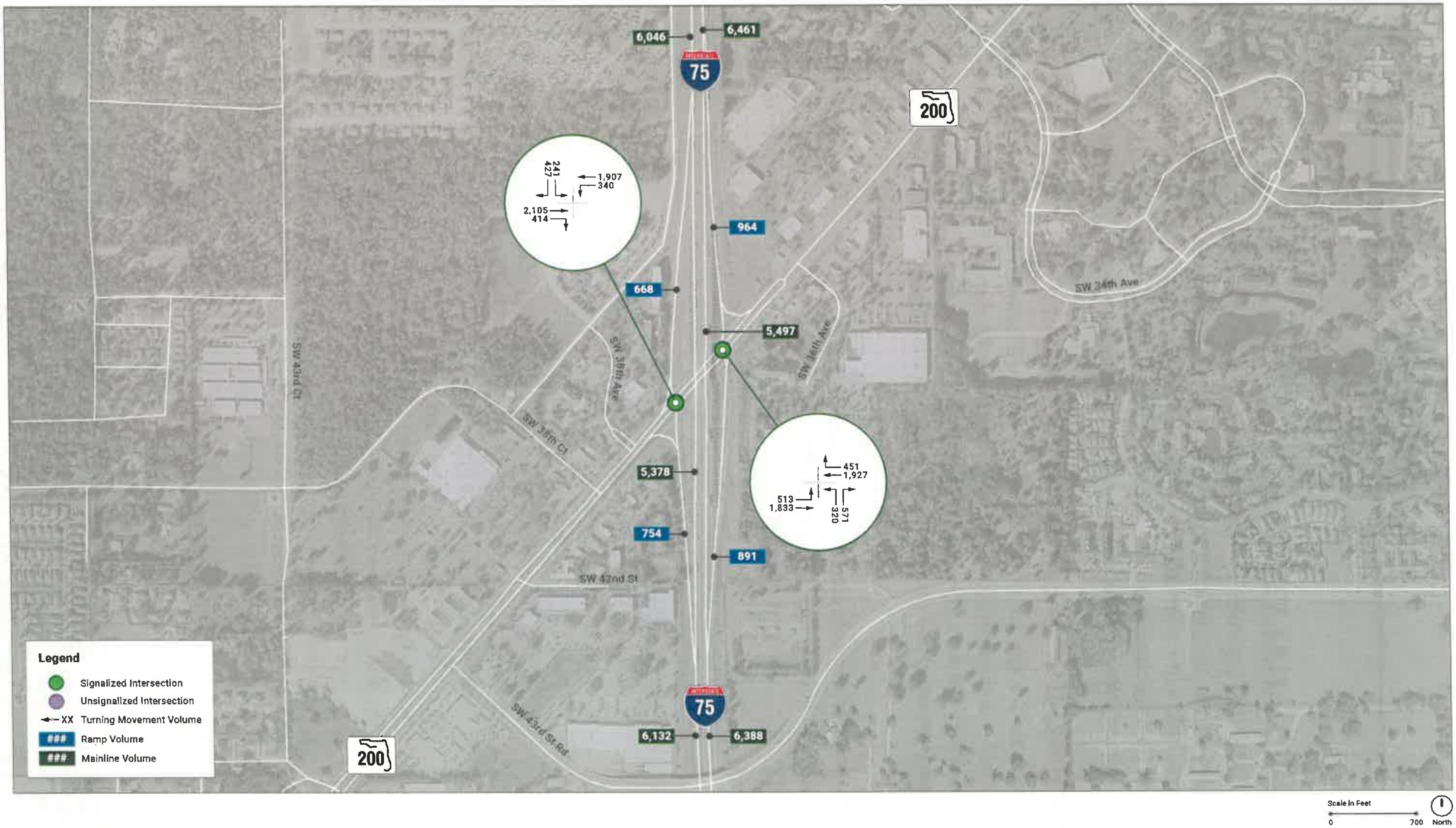
I-75 PD&E South | SR 44 Interchange
South of SR 44 to SR 200

2040 Weekend Midday Peak Hour Volumes
Figure 60 (2 of 4)



I-75 PD&E South | CR 484 Interchange
South of SR 44 to SR 200

2040 Weekend Midday Peak Hour Volumes
Figure 60 (3 of 4)



I-75 PD&E South | SR 200 Interchange
South of SR 44 to SR 200

2040 Weekend Midday Peak Hour Volumes
Figure 60 (4 of 4)

NO-BUILD ANALYSIS

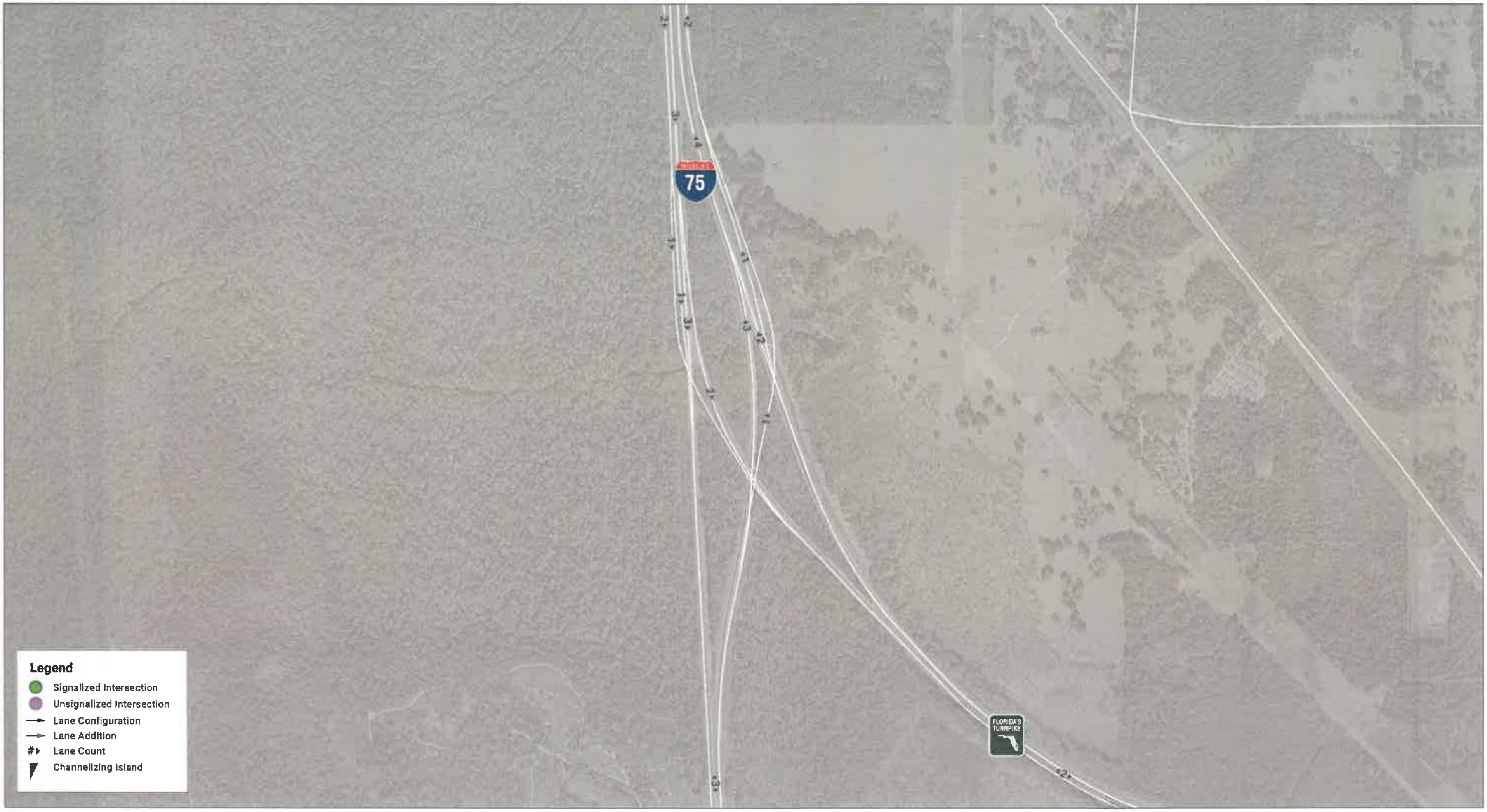
The following sections document the operational analyses conducted for the No-Build conditions analysis including the intersection and freeway analyses. It is important to note the projected traffic volumes used in this alternatives analysis were developed by following the guidance in the FDOT Project Traffic Forecasting Handbook and reflect an average condition. The forecasts do not account for volume spikes due to non-recurring congestion events.

FUTURE NO-BUILD LANE CONFIGURATIONS

Several geometric changes are underway or programmed between the 2019 existing condition and the No-Build condition in 2030. A summary of geometric changes for the No-Build condition is described below. The future No-Build lane configurations along the I-75 mainline, at the gore points for each on-ramp and off-ramp, and at each of the study intersections are illustrated in **Figure 61**.

- CR 484 (Improvements currently under construction)
    - I-75 Southbound Ramp at CR 484
        - Bring the southbound right-turn movement under signal control
        - Add a 2nd southbound right-turn lane
        - Provide additional storage for the downstream eastbound left-turn lanes at the I-75 northbound ramp
    - I-75 Northbound Ramp at CR 484
        - Add a 2nd eastbound left-turn lane
        - Add an exclusive westbound right-turn lane
        - Add a 2nd northbound left-turn lane
        - Widen the on-ramp to accommodate dual eastbound left-turn lanes
- SR 200 (Improvements constructed after 2019 traffic counts collected)
    - I-75 Southbound Ramp at SR 200
        - Add a 2nd westbound left-turn lane
        - Add an exclusive eastbound right-turn lane
        - Provide additional storage for the downstream eastbound left-turn lanes at the I-75 northbound ramp
        - Widen the on-ramp to accommodate dual westbound left-turn lanes
    - I-75 Northbound Ramp at SR 200
        - Add a 2nd eastbound left-turn lane
        - Add an exclusive westbound right-turn lane
        - Add a 2nd northbound left-turn lane
        - Add a 2nd northbound right-turn lane

- Provide additional storage for the downstream westbound left-turn lanes at the I-75 southbound ramp
- Widen the on-ramp to accommodate dual eastbound left-turn lanes



I-75 PD&E | South of SR 44

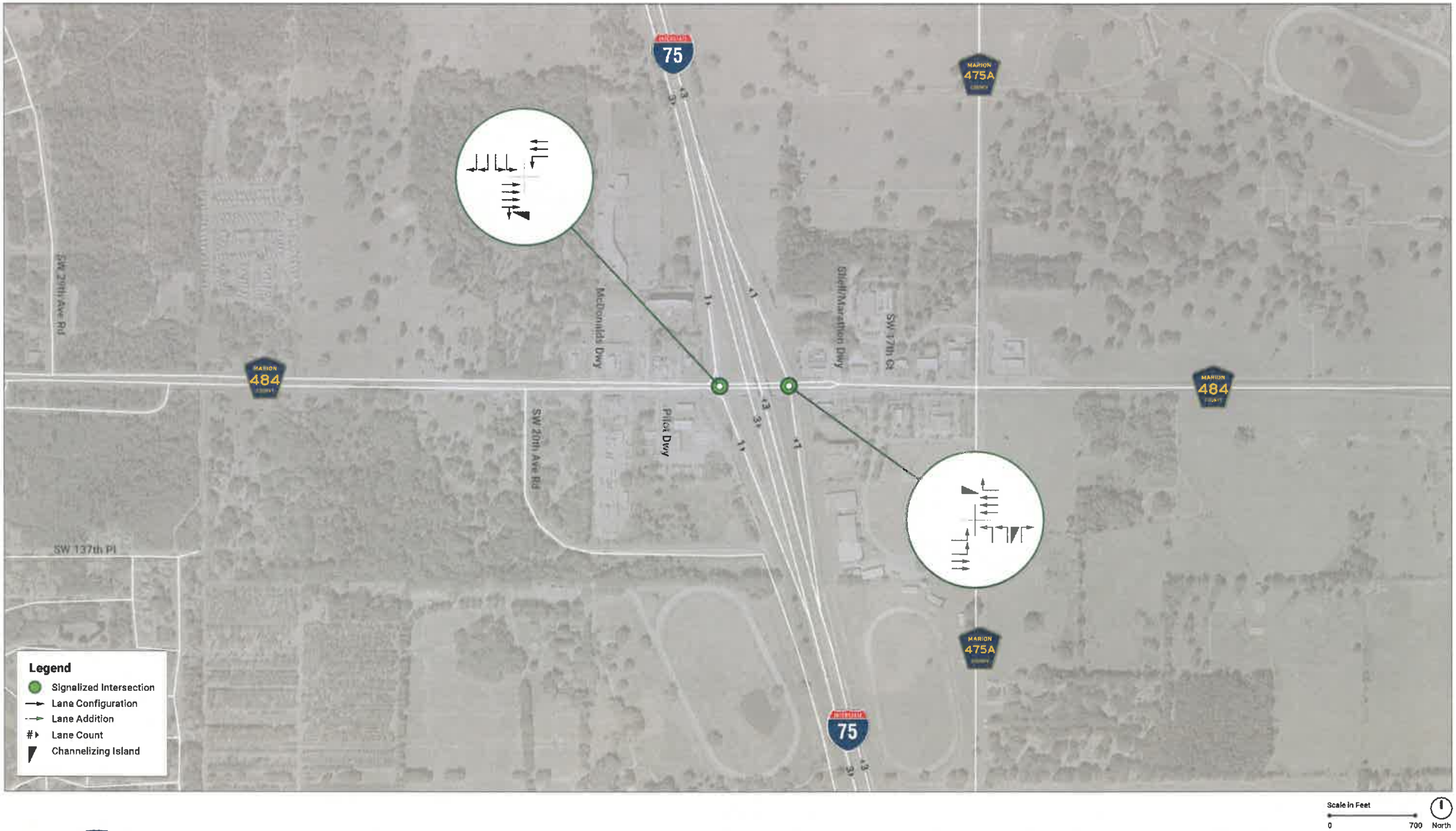
South of SR 44 to SR 200

Future No-Build Lane Configurations

Figure 61 (1 of 4)

I-75 PD&E | SR 44 Interchange
South of SR 44 to SR 200

Future No-Build Lane Configurations
Figure 61 (2 of 4)



I-75 PD&E | CR 484 Interchange
South of SR 44 to SR 200

Future No-Build Lane Configurations
Figure 61 (3 of 4)

I-75 PD&E | SR 200 Interchange
South of SR 44 to SR 200

Future No-Build Lane Configurations
Figure 61 (4 of 4)

2030 AND 2040 NO-BUILD OPERATIONAL ANALYSIS

The following section summarizes the 2030 and 2040 No-Build operational analysis results for the freeway and intersection evaluations for the weekday AM, weekday PM, and weekend midday peak hours.

NO-BUILD FREEWAY ANALYSIS

The technical methodology for this evaluation is based on the Freeway Facilities Analysis as outlined in the Highway Capacity Manual (HCM) 7th Edition. The freeway facilities methodology integrates all freeway segment chapter methodologies, including analysis of basic freeway segments, freeway merge and diverge segments, and freeway weaving segments. The freeway facilities analysis further provides the ability to evaluate multiple time periods, up to a 24-hour analysis. For these 2030 and 2040 No-Build analyses, the AM, PM, and weekend peak periods were analyzed in 15-minute intervals over a three-hour period.

ANALYSIS YEARS AND EVALUATION PERIODS

- 2030 and 2040 AM
    - 6:15 – 9:15 AM
- 2030 and 2040 PM
    - 3:30 – 6:30 PM
- 2030 and 2040 Weekend
    - 12:00 – 3:00 PM

ASSUMPTIONS

- The 2030 and 2040 peak hour volumes illustrated previously in **Figure 55** - **Figure 60** were used.
- The truck percentage assumptions along the I-75 mainline and the ramps for the 2030 and 2040 No-Build analyses are described in the **Traffic Forecasting Methodology** section of the report.
    - The recommended DHT for I-75, represents the DHT at the beginning locations of the I-75 mainline study area (southbound direction - north of SR 200, northbound direction – south of SR 44). The recommended DHT's were then applied directionally along the I 75 mainline within the study area and were determined for adjacent mainline segments based on heavy vehicle volumes entering and exiting the mainline.
- Volume profile assumptions used to develop three-hour analyses for each peak period and shoulder period volumes, base free-flow speeds, base ramp free-flow speeds, driver population mix, and Florida-specific "default" Capacity Adjustment Factor assumptions for 2030 and 2040 No-Build conditions analyses are consistent with existing conditions assumptions.

- Notes were provided in the individual HCS files to provide explanations to applicable information warnings.

FREEWAY SEGMENTATION

The freeway facility in each direction (northbound and southbound) was segmented into basic freeway segments, merge, and diverge segments based on the HCM Freeway Facilities Methodologies for the No-Build scenario. The study facility length and segmentation assumptions for 2030 and 2040 No-Build conditions are shown in **Figure 62** (northbound) and **Figure 63** (southbound). The total northbound facility length is approximately 23.0 miles and the total southbound facility length is approximately 22.8 miles.

Figure 62: No-Build Northbound Freeway Facility Segmentation

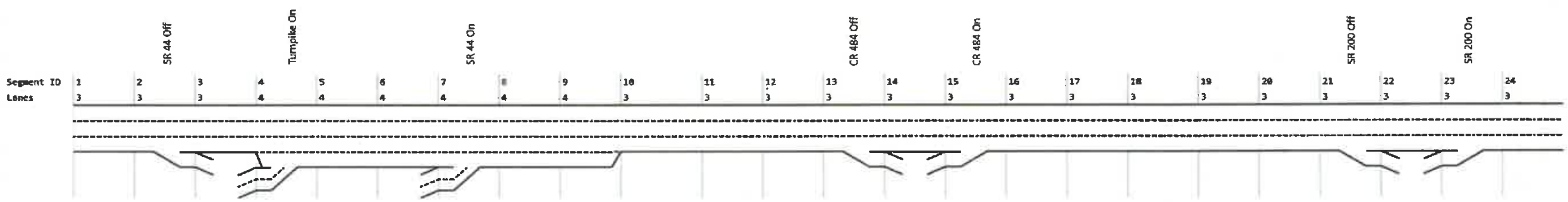
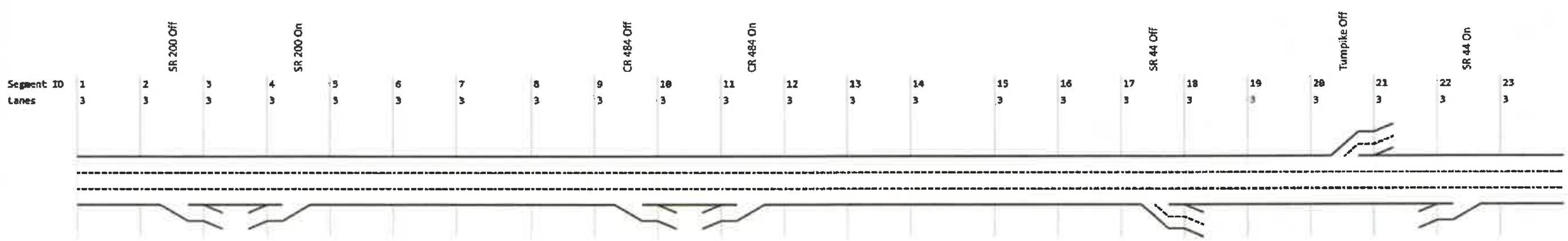


Figure 63: No-Build Southbound Freeway Facility Segmentation



2030 OPERATIONAL RESULTS

A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 35**. The HCS output reports are provided in **Appendix R**. Multiple segments along the facility will operate at F during the PM peak period in the southbound direction. Some spot locations are expected to experience heavy congestion under the No-Build condition during the 2030 AM, PM, and weekend peak periods.

The maximum D/C ratio in the northbound direction is estimated to be 1.00 during the weekend midday peak period while the maximum D/C ratio in the southbound direction is estimated to be 1.06 during the PM peak period. The average speeds on this facility are expected to be approximately 63 mph or faster in the northbound direction and 60 mph or faster in the southbound direction.

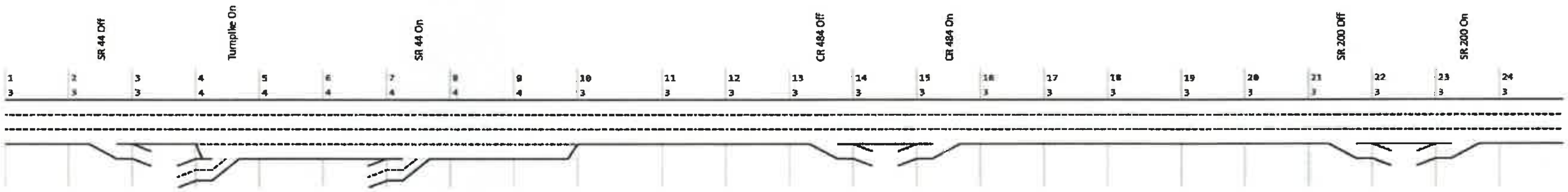
The D/C, speed, and LOS contours for each analysis facility and peak period are illustrated in the following figures:

- Northbound 2030 AM (No-Build) – **Figure 64**
- Northbound 2030 PM (No-Build) – **Figure 65**
- Northbound 2030 Weekend (No-Build) – **Figure 66**
- Southbound 2030 AM (No-Build) – **Figure 67**
- Southbound 2030 PM (No-Build) – **Figure 68**
- Southbound 2030 Weekend (No-Build) – **Figure 69**

Table 35: Freeway Operational Summary – 2030 No-Build

Performance Metric	South Section – AM		South Section – PM		South Section – Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	23.0	22.8	23.0	22.8	23.0	22.8
Average Travel Time (min)	20.7	19.6	20.1	22.8	21.7	21.7
Total VHD, (veh-h)	276.5	58.2	131.3	803.3	549.4	597.3
Space Mean Speed (mph)	66.5	69.8	68.7	60.1	63.5	63.0
Reported Density (pc/mi/ln)	21.4	16.5	19.1	27.7	26.2	27.8
Max D/C	0.97	0.73	0.81	1.06	1.00	0.96

Figure 64: Northbound 2030 AM (No-Build) – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	0.32	0.25	0.17	0.34	0.29	0.29	0.39	0.33	0.33	0.44	0.44	0.44	0.50	0.40	0.59	0.52	0.52	0.52	0.52	0.52	0.59	0.44	0.58	0.51
#2 6:30 - 6:45	0.25	0.28	0.20	0.39	0.32	0.32	0.44	0.37	0.37	0.49	0.49	0.49	0.56	0.45	0.66	0.58	0.58	0.58	0.58	0.58	0.66	0.49	0.65	0.58
#3 6:45 - 7:00	0.29	0.33	0.24	0.46	0.38	0.38	0.52	0.43	0.43	0.58	0.58	0.58	0.66	0.53	0.78	0.69	0.69	0.69	0.69	0.69	0.78	0.58	0.77	0.68
#4 7:00 - 7:15	0.33	0.38	0.26	0.52	0.44	0.44	0.60	0.50	0.50	0.66	0.66	0.66	0.76	0.61	0.89	0.78	0.78	0.78	0.78	0.78	0.89	0.66	0.88	0.78
#5 7:15 - 7:30	0.31	0.36	0.25	0.49	0.41	0.41	0.56	0.47	0.47	0.62	0.62	0.62	0.71	0.57	0.84	0.74	0.74	0.74	0.74	0.74	0.84	0.63	0.83	0.73
#6 7:30 - 7:45	0.32	0.36	0.25	0.50	0.47	0.42	0.57	0.47	0.47	0.63	0.63	0.63	0.72	0.58	0.85	0.75	0.75	0.75	0.75	0.75	0.85	0.63	0.84	0.74
#7 7:45 - 8:00	0.36	0.41	0.28	0.57	0.47	0.47	0.65	0.54	0.54	0.72	0.72	0.72	0.82	0.66	0.97	0.85	0.85	0.85	0.85	0.85	0.97	0.72	0.96	0.85
#8 8:00 - 8:15	0.35	0.40	0.27	0.55	0.46	0.46	0.63	0.52	0.52	0.70	0.70	0.70	0.80	0.64	0.94	0.82	0.82	0.82	0.82	0.82	0.94	0.70	0.93	0.82
#9 8:15 - 8:30	0.35	0.39	0.27	0.54	0.45	0.45	0.62	0.52	0.52	0.69	0.69	0.69	0.79	0.63	0.93	0.82	0.82	0.82	0.82	0.82	0.93	0.69	0.92	0.81
#10 8:30 - 8:45	0.34	0.39	0.27	0.54	0.45	0.45	0.61	0.51	0.51	0.68	0.68	0.68	0.78	0.63	0.91	0.80	0.80	0.80	0.80	0.80	0.92	0.68	0.91	0.80
#11 8:45 - 9:00	0.33	0.38	0.26	0.52	0.44	0.44	0.60	0.50	0.50	0.66	0.66	0.66	0.76	0.61	0.89	0.78	0.78	0.78	0.78	0.78	0.90	0.67	0.88	0.78
#12 9:00 - 9:15	0.32	0.36	0.25	0.50	0.42	0.42	0.57	0.47	0.47	0.63	0.63	0.63	0.72	0.58	0.85	0.75	0.75	0.75	0.75	0.75	0.85	0.63	0.84	0.74

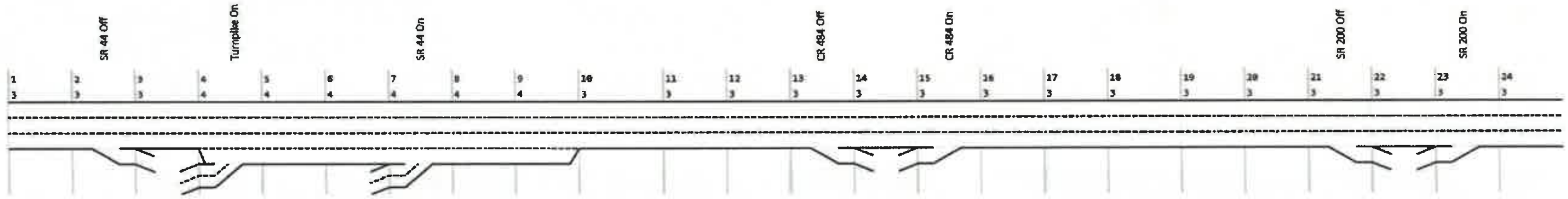
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	71.2	64.0	70.5	66.4	70.9	71.2	67.7	70.9	71.2	71.2	71.2	71.2	65.5	71.0	64.5	70.9	70.9	70.9	70.9	70.9	64.7	71.1	65.1	70.7
#2 6:30 - 6:45	71.2	64.0	70.5	66.2	70.9	71.2	67.4	70.9	71.2	71.1	71.1	71.1	65.4	71.0	64.1	70.0	70.0	70.0	70.0	70.0	64.5	71.1	64.7	70.1
#3 6:45 - 7:00	71.2	64.1	70.5	65.9	70.9	71.2	67.1	70.8	71.2	70.1	70.1	70.1	65.3	70.7	63.1	67.4	67.4	67.4	67.4	67.4	64.3	70.0	63.8	67.5
#4 7:00 - 7:15	71.2	64.0	70.5	65.4	70.8	71.2	66.7	70.8	71.1	68.1	68.1	68.1	65.2	69.5	61.7	63.5	63.5	63.5	63.5	63.5	64.0	68.0	62.7	63.7
#5 7:15 - 7:30	71.2	64.1	70.5	65.7	70.9	71.2	66.9	70.8	71.2	69.1	69.1	69.1	65.3	70.1	62.4	65.4	65.4	65.4	65.4	65.4	64.2	69.1	63.3	65.7
#6 7:30 - 7:45	71.2	64.1	70.5	65.6	70.9	71.2	66.9	70.8	71.2	68.9	68.9	68.9	65.3	70.0	62.3	65.1	65.1	65.1	65.1	65.1	64.1	68.9	63.2	65.1
#7 7:45 - 8:00	71.2	64.0	70.5	64.9	70.7	71.2	66.5	70.7	70.7	66.2	66.2	66.2	65.1	68.1	60.4	60.0	60.0	60.0	60.0	60.0	63.9	66.1	61.6	60.3
#8 8:00 - 8:15	71.2	64.0	70.5	65.1	70.8	71.2	66.6	70.8	70.8	67.0	67.0	67.0	65.2	68.7	61.0	61.4	61.4	61.4	61.4	61.4	63.9	66.9	62.1	61.7
#9 8:15 - 8:30	71.2	64.0	70.5	65.2	70.8	71.2	66.6	70.8	70.9	67.2	67.2	67.2	65.2	68.9	61.2	61.9	61.9	61.9	61.9	61.9	64.0	67.1	62.2	62.2
#10 8:30 - 8:45	71.2	64.1	70.5	65.3	70.8	71.2	66.7	70.8	71.0	67.5	67.5	67.5	65.2	69.1	61.3	62.4	62.4	62.4	62.4	62.4	64.0	67.4	62.4	62.7
#11 8:45 - 9:00	71.2	64.0	70.5	65.4	70.8	71.2	66.7	70.8	71.0	68.0	68.0	68.0	65.2	69.6	61.7	63.4	63.4	63.4	63.4	63.4	64.1	68.0	62.7	63.6
#12 9:00 - 9:15	71.2	64.1	70.5	65.6	70.9	71.2	66.9	70.8	71.2	68.9	68.9	68.9	65.3	70.0	62.3	65.0	65.0	65.0	65.0	65.0	64.2	68.9	63.2	65.2

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	A	A	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B
#2 6:30 - 6:45	A	A	A	B	A	A	A	B	B	B	B	B	B	B	C	C	C	C	C	C	C	B	B	C
#3 6:45 - 7:00	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	D	C	C	C
#4 7:00 - 7:15	A	B	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	C	C	D
#5 7:15 - 7:30	A	B	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C
#6 7:30 - 7:45	A	B	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C
#7 7:45 - 8:00	B	B	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	C	C	D
#8 8:00 - 8:15	A	B	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	C	C	D
#9 8:15 - 8:30	A	B	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	C	C	D
#10 8:30 - 8:45	A	B	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	C	C	D
#11 8:45 - 9:00	A	B	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	C	C	D
#12 9:00 - 9:15	A	B	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C

Figure 65: Northbound 2030 PM (No-Build) – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	0.34	0.39	0.26	0.55	0.45	0.45	0.65	0.53	0.53	0.71	0.71	0.71	0.81	0.58	0.79	0.69	0.69	0.69	0.69	0.69	0.79	0.57	0.80	0.71
#2 15:45 - 16:00	0.32	0.37	0.24	0.51	0.43	0.43	0.61	0.50	0.50	0.67	0.67	0.67	0.77	0.55	0.74	0.65	0.65	0.65	0.65	0.65	0.75	0.54	0.75	0.67
#3 16:00 - 16:15	0.33	0.38	0.25	0.53	0.44	0.44	0.63	0.52	0.52	0.69	0.69	0.69	0.79	0.57	0.77	0.67	0.67	0.67	0.67	0.67	0.77	0.56	0.77	0.68
#4 16:15 - 16:30	0.31	0.36	0.23	0.50	0.42	0.42	0.59	0.49	0.49	0.65	0.65	0.65	0.74	0.53	0.72	0.63	0.63	0.63	0.63	0.63	0.72	0.53	0.73	0.65
#5 16:30 - 16:45	0.27	0.31	0.20	0.43	0.36	0.36	0.51	0.42	0.42	0.56	0.56	0.56	0.64	0.46	0.62	0.54	0.54	0.54	0.54	0.54	0.62	0.45	0.62	0.55
#6 16:45 - 17:00	0.30	0.34	0.22	0.48	0.40	0.40	0.57	0.47	0.47	0.62	0.62	0.62	0.71	0.51	0.69	0.61	0.61	0.61	0.61	0.61	0.69	0.50	0.70	0.62
#7 17:00 - 17:15	0.31	0.35	0.23	0.49	0.41	0.41	0.58	0.48	0.48	0.64	0.64	0.64	0.73	0.53	0.71	0.62	0.62	0.62	0.62	0.62	0.71	0.52	0.72	0.64
#8 17:15 - 17:30	0.32	0.36	0.24	0.51	0.42	0.42	0.60	0.50	0.50	0.66	0.66	0.66	0.76	0.54	0.73	0.64	0.64	0.64	0.64	0.64	0.74	0.53	0.74	0.65
#9 17:30 - 17:45	0.31	0.35	0.23	0.49	0.41	0.41	0.58	0.48	0.48	0.64	0.64	0.64	0.73	0.52	0.71	0.62	0.62	0.62	0.62	0.62	0.71	0.51	0.71	0.63
#10 17:45 - 18:00	0.29	0.33	0.22	0.46	0.38	0.38	0.55	0.45	0.45	0.60	0.60	0.60	0.69	0.49	0.67	0.59	0.59	0.59	0.59	0.59	0.67	0.49	0.68	0.60
#11 18:00 - 18:15	0.28	0.32	0.21	0.45	0.37	0.37	0.53	0.44	0.44	0.59	0.59	0.59	0.67	0.48	0.65	0.57	0.57	0.57	0.57	0.57	0.65	0.47	0.66	0.58
#12 18:15 - 18:30	0.26	0.30	0.20	0.42	0.35	0.35	0.50	0.41	0.41	0.55	0.55	0.55	0.63	0.45	0.61	0.54	0.54	0.54	0.54	0.54	0.61	0.44	0.62	0.55

Speed Contours

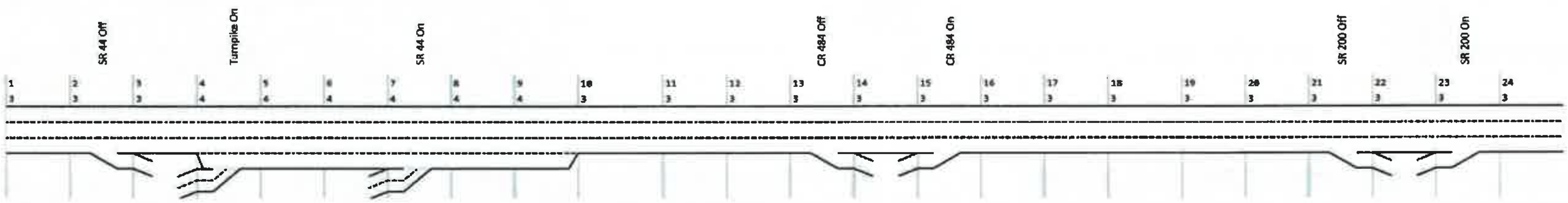
Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	71.2	63.7	70.8	65.0	70.8	71.2	66.5	70.7	70.7	66.4	66.4	66.4	63.9	70.0	63.9	67.1	67.1	67.1	67.1	67.1	64.0	70.1	63.5	66.7
#2 15:45 - 16:00	71.2	63.7	70.9	65.1	70.8	71.2	66.6	70.9	71.0	67.8	67.8	67.8	64.0	70.3	63.7	68.3	68.3	68.3	68.3	68.3	64.2	70.6	63.8	68.0
#3 16:00 - 16:15	71.2	63.7	70.9	65.2	70.8	71.2	66.5	70.9	70.9	67.1	67.1	67.1	64.0	70.4	63.5	67.7	67.7	67.7	67.7	67.7	64.1	70.4	63.6	67.4
#4 16:15 - 16:30	71.2	63.7	70.8	65.4	70.8	71.2	66.7	70.8	71.1	68.4	68.4	68.4	64.1	70.7	63.8	68.8	68.8	68.8	68.8	68.8	64.2	70.8	64.1	68.6
#5 16:30 - 16:45	71.2	63.8	70.9	65.9	70.6	71.3	67.1	70.8	71.2	70.4	70.4	70.4	64.3	71.0	64.5	70.6	70.6	70.6	70.6	70.6	64.4	71.1	64.8	70.3
#6 16:45 - 17:00	71.2	63.7	70.9	65.6	70.9	71.2	66.9	70.8	71.2	69.1	69.1	69.1	64.2	70.9	64.1	69.5	69.5	69.5	69.5	69.5	64.3	71.0	64.3	69.3
#7 17:00 - 17:15	71.2	63.7	70.9	65.5	70.9	71.2	66.8	70.8	71.1	68.6	68.6	68.6	64.1	70.8	63.9	69.1	69.1	69.1	69.1	69.1	64.3	70.9	64.1	68.8
#8 17:15 - 17:30	71.2	63.7	70.9	65.4	70.8	71.2	66.7	70.8	71.1	68.1	68.1	68.1	64.0	70.6	63.8	68.6	68.6	68.6	68.6	68.6	64.2	70.7	64.0	68.3
#9 17:30 - 17:45	71.2	63.7	70.9	65.5	70.8	71.2	66.8	70.8	71.1	68.7	68.7	68.7	64.1	70.8	63.9	69.2	69.2	69.2	69.2	69.2	64.3	70.9	64.2	68.8
#10 17:45 - 18:00	71.2	63.8	70.9	65.8	70.9	71.2	66.9	70.8	71.2	69.6	69.6	69.6	64.2	71.0	64.2	69.9	69.9	69.9	69.9	69.9	64.3	71.2	64.5	69.7
#11 18:00 - 18:15	71.2	63.7	70.9	65.8	70.9	71.2	67.0	70.8	71.2	69.9	69.9	69.9	64.2	71.0	64.3	70.2	70.2	70.2	70.2	70.2	64.3	71.1	64.6	70.0
#12 18:15 - 18:30	71.2	63.8	70.8	66.0	70.9	71.3	67.1	70.8	71.2	70.5	70.5	70.5	64.3	71.0	64.5	70.7	70.7	70.7	70.7	70.7	64.4	71.1	64.8	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	A	B	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C
#2 15:45 - 16:00	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	D	B	C	C
#3 16:00 - 16:15	A	B	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	B	C	C
#4 16:15 - 16:30	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	C	C
#5 16:30 - 16:45	A	A	A	B	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	C	B	B	B
#6 16:45 - 17:00	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	C	C
#7 17:00 - 17:15	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	C	C
#8 17:15 - 17:30	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	C	C
#9 17:30 - 17:45	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	C	C
#10 17:45 - 18:00	A	B	A	B	B	B	B	B	B	C	C	C	C	B	C	C	C	C	C	C	C	B	B	C
#11 18:00 - 18:15	A	B	A	B	B	B	B	B	B	C	C	C	C	B	B	C	C	C	C	C	C	B	B	C
#12 18:15 - 18:30	A	A	A	B	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	C	B	B	B

Figure 66: Northbound 2030 Weekend (No-Build) – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	0.50	0.58	0.43	0.69	0.58	0.58	0.76	0.64	0.64	0.85	0.85	0.85	0.97	0.73	0.99	0.87	0.87	0.87	0.87	0.87	1.00	0.75	0.99	0.88
#2 12:15 - 12:30	0.50	0.58	0.43	0.69	0.58	0.58	0.76	0.64	0.64	0.85	0.85	0.85	0.97	0.73	0.99	0.87	0.87	0.87	0.87	0.87	1.00	0.75	0.99	0.88
#3 12:30 - 12:45	0.50	0.58	0.43	0.69	0.58	0.58	0.76	0.64	0.64	0.85	0.85	0.85	0.97	0.73	0.99	0.87	0.87	0.87	0.87	0.87	1.00	0.75	0.99	0.88
#4 12:45 - 13:00	0.50	0.58	0.43	0.69	0.58	0.58	0.76	0.64	0.64	0.85	0.85	0.85	0.97	0.73	0.99	0.87	0.87	0.87	0.87	0.87	1.00	0.75	0.99	0.88
#5 13:00 - 13:15	0.46	0.53	0.39	0.63	0.53	0.53	0.70	0.58	0.58	0.78	0.78	0.78	0.89	0.66	0.91	0.80	0.80	0.80	0.80	0.80	0.91	0.68	0.91	0.80
#6 13:15 - 13:30	0.46	0.53	0.39	0.63	0.53	0.53	0.70	0.58	0.58	0.78	0.78	0.78	0.89	0.66	0.91	0.80	0.80	0.80	0.80	0.80	0.91	0.68	0.91	0.80
#7 13:30 - 13:45	0.46	0.53	0.39	0.63	0.53	0.53	0.70	0.58	0.58	0.78	0.78	0.78	0.89	0.66	0.91	0.80	0.80	0.80	0.80	0.80	0.91	0.68	0.91	0.80
#8 13:45 - 14:00	0.46	0.53	0.39	0.63	0.53	0.53	0.70	0.58	0.58	0.78	0.78	0.78	0.89	0.66	0.91	0.80	0.80	0.80	0.80	0.80	0.91	0.68	0.91	0.80
#9 14:00 - 14:15	0.41	0.47	0.35	0.57	0.47	0.47	0.63	0.52	0.52	0.70	0.70	0.70	0.79	0.59	0.81	0.71	0.71	0.71	0.71	0.71	0.82	0.61	0.81	0.72
#10 14:15 - 14:30	0.41	0.47	0.35	0.57	0.47	0.47	0.63	0.52	0.52	0.70	0.70	0.70	0.79	0.59	0.81	0.71	0.71	0.71	0.71	0.71	0.82	0.61	0.81	0.72
#11 14:30 - 14:45	0.41	0.47	0.35	0.57	0.47	0.47	0.63	0.52	0.52	0.70	0.70	0.70	0.79	0.59	0.81	0.71	0.71	0.71	0.71	0.71	0.82	0.61	0.81	0.72
#12 14:45 - 15:00	0.41	0.47	0.35	0.57	0.47	0.47	0.63	0.52	0.52	0.70	0.70	0.70	0.79	0.59	0.81	0.71	0.71	0.71	0.71	0.71	0.82	0.61	0.81	0.72

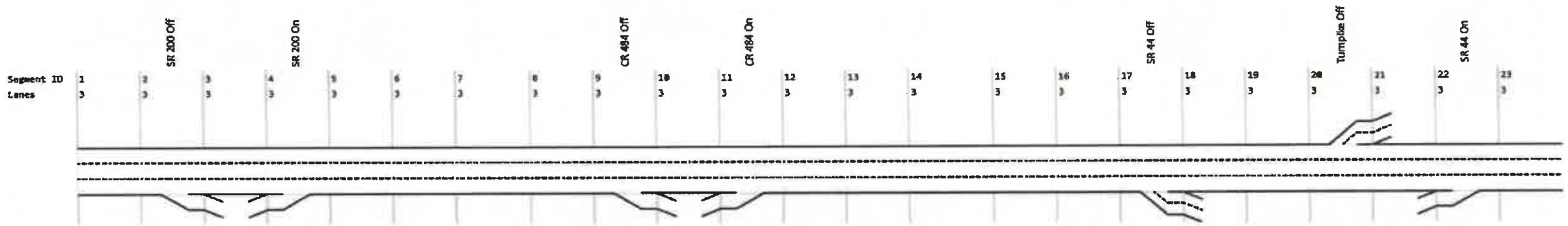
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	71.0	64.7	71.0	64.3	70.1	70.1	65.8	68.8	68.8	60.0	60.0	60.0	64.0	65.8	60.5	58.7	58.7	58.7	58.7	58.7	63.9	65.0	61.0	58.4
#2 12:15 - 12:30	71.0	64.7	71.0	64.3	70.1	70.1	65.8	68.8	68.8	60.0	60.0	60.0	64.0	65.8	60.5	58.7	58.7	58.7	58.7	58.7	63.9	65.0	61.0	58.4
#3 12:30 - 12:45	71.0	64.7	71.0	64.3	70.1	70.1	65.8	68.8	68.8	60.0	60.0	60.0	64.0	65.8	60.5	58.7	58.7	58.7	58.7	58.7	63.9	65.0	61.0	58.4
#4 12:45 - 13:00	71.0	64.7	71.0	64.3	70.1	70.1	65.8	68.8	68.8	60.0	60.0	60.0	64.0	65.8	60.5	58.7	58.7	58.7	58.7	58.7	63.9	65.0	61.0	58.4
#5 13:00 - 13:15	71.2	64.6	71.0	65.1	70.8	70.8	66.2	70.0	70.0	63.7	63.7	63.7	64.2	68.0	61.9	62.7	62.7	62.7	62.7	62.7	64.1	67.4	62.3	62.6
#6 13:15 - 13:30	71.2	64.6	71.0	65.1	70.8	70.8	66.2	70.0	70.0	63.7	63.7	63.7	64.2	68.0	61.9	62.7	62.7	62.7	62.7	62.7	64.1	67.4	62.3	62.6
#7 13:30 - 13:45	71.2	64.6	71.0	65.1	70.8	70.8	66.2	70.0	70.0	63.7	63.7	63.7	64.2	68.0	61.9	62.7	62.7	62.7	62.7	62.7	64.1	67.4	62.3	62.6
#8 13:45 - 14:00	71.2	64.6	71.0	65.1	70.8	70.8	66.2	70.0	70.0	63.7	63.7	63.7	64.2	68.0	61.9	62.7	62.7	62.7	62.7	62.7	64.1	67.4	62.3	62.6
#9 14:00 - 14:15	71.2	64.6	71.0	65.7	70.9	71.2	66.6	70.8	70.5	67.0	67.0	67.0	64.4	69.8	63.0	66.3	66.3	66.3	66.3	66.3	64.3	69.4	63.4	66.2
#10 14:15 - 14:30	71.2	64.6	71.0	65.7	70.5	71.2	66.6	70.8	70.5	67.0	67.0	67.0	64.4	69.8	63.0	66.3	66.3	66.3	66.3	66.3	64.3	69.4	63.4	66.2
#11 14:30 - 14:45	71.2	64.6	71.0	65.7	70.5	71.2	66.6	70.8	70.5	67.0	67.0	67.0	64.4	69.8	63.0	66.3	66.3	66.3	66.3	66.3	64.3	69.4	63.4	66.2
#12 14:45 - 15:00	71.2	64.6	71.0	65.7	70.9	71.2	66.6	70.8	70.5	67.0	67.0	67.0	64.4	69.8	63.0	66.3	66.3	66.3	66.3	66.3	64.3	69.4	63.4	66.2

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	B	B	B	C	C	C	B	C	C	D	D	D	D	C	D	D	D	D	D	D	D	C	D	D
#2 12:15 - 12:30	B	B	B	C	C	C	B	C	C	D	D	D	D	C	D	D	D	D	D	D	D	C	D	D
#3 12:30 - 12:45	B	B	B	C	C	C	B	C	C	D	D	D	D	C	D	D	D	D	D	D	D	C	D	D
#4 12:45 - 13:00	B	B	B	C	C	C	B	C	C	D	D	D	D	C	D	D	D	D	D	D	D	C	D	D
#5 13:00 - 13:15	B	B	B	B	B	B	B	C	C	D	D	D	C	C	C	D	D	D	D	D	D	C	C	D
#6 13:15 - 13:30	B	B	B	B	B	B	B	C	C	D	D	D	C	C	C	D	D	D	D	D	D	C	C	D
#7 13:30 - 13:45	B	B	B	B	B	B	B	C	C	D	D	D	C	C	C	D	D	D	D	D	D	C	C	D
#8 13:45 - 14:00	B	B	B	B	B	B	B	C	C	D	D	D	C	C	C	D	D	D	D	D	D	C	C	D
#9 14:00 - 14:15	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C
#10 14:15 - 14:30	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C
#11 14:30 - 14:45	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C
#12 14:45 - 15:00	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C

Figure 67: Southbound 2030 AM (No-Build) – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	0.39	0.45	0.32	0.42	0.37	0.37	0.37	0.37	0.43	0.32	0.44	0.39	0.39	0.39	0.39	0.39	0.44	0.33	0.33	0.37	0.14	0.23	0.20
#2 6:30 - 6:45	0.42	0.48	0.34	0.46	0.40	0.40	0.40	0.40	0.46	0.34	0.47	0.41	0.41	0.41	0.41	0.41	0.47	0.35	0.35	0.40	0.15	0.25	0.21
#3 6:45 - 7:00	0.46	0.53	0.38	0.51	0.45	0.45	0.45	0.45	0.51	0.38	0.52	0.46	0.46	0.46	0.46	0.46	0.53	0.39	0.39	0.44	0.17	0.27	0.24
#4 7:00 - 7:15	0.51	0.58	0.41	0.55	0.49	0.49	0.49	0.49	0.56	0.42	0.57	0.50	0.50	0.50	0.50	0.50	0.58	0.43	0.43	0.49	0.19	0.30	0.26
#5 7:15 - 7:30	0.54	0.61	0.44	0.58	0.51	0.51	0.51	0.51	0.59	0.44	0.60	0.53	0.53	0.53	0.53	0.53	0.61	0.45	0.45	0.51	0.20	0.32	0.27
#6 7:30 - 7:45	0.58	0.67	0.48	0.63	0.56	0.56	0.56	0.56	0.64	0.48	0.66	0.58	0.58	0.58	0.58	0.58	0.66	0.49	0.49	0.56	0.22	0.34	0.30
#7 7:45 - 8:00	0.62	0.71	0.51	0.68	0.60	0.60	0.60	0.60	0.68	0.51	0.70	0.62	0.62	0.62	0.62	0.62	0.70	0.52	0.52	0.60	0.23	0.37	0.32
#8 8:00 - 8:15	0.58	0.66	0.47	0.63	0.56	0.56	0.56	0.56	0.63	0.47	0.65	0.57	0.57	0.57	0.57	0.57	0.66	0.49	0.49	0.56	0.22	0.34	0.30
#9 8:15 - 8:30	0.56	0.64	0.45	0.61	0.53	0.53	0.53	0.53	0.61	0.45	0.63	0.55	0.55	0.55	0.55	0.55	0.63	0.47	0.47	0.53	0.21	0.33	0.29
#10 8:30 - 8:45	0.58	0.66	0.47	0.63	0.56	0.56	0.56	0.56	0.63	0.47	0.65	0.57	0.57	0.57	0.57	0.57	0.66	0.49	0.49	0.56	0.22	0.34	0.30
#11 8:45 - 9:00	0.64	0.73	0.52	0.69	0.61	0.61	0.61	0.61	0.70	0.52	0.72	0.63	0.63	0.63	0.63	0.63	0.72	0.53	0.53	0.61	0.24	0.37	0.33
#12 9:00 - 9:15	0.61	0.69	0.49	0.66	0.58	0.58	0.58	0.58	0.66	0.49	0.68	0.60	0.60	0.60	0.60	0.60	0.69	0.51	0.51	0.58	0.23	0.36	0.31

Speed Contours

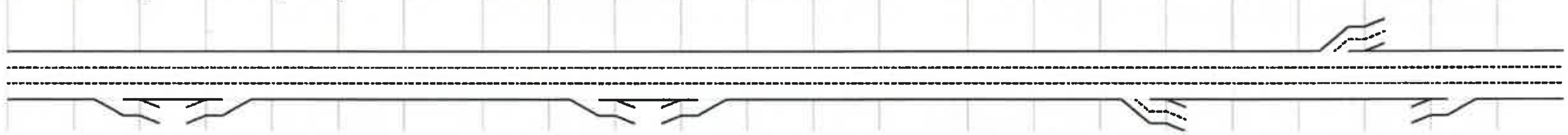
Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	71.2	64.1	[illegible]	65.5	70.3	71.2	71.3	71.3	64.6	71.0	65.5	70.7	71.2	71.2	71.2	71.2	66.9	71.3	71.2	61.6	[illegible]	65.1	70.7
#2 6:30 - 6:45	[illegible]	64.1	[illegible]	65.7	70.3	71.2	71.2	71.2	64.6	71.0	65.4	70.7	71.2	71.2	71.2	71.2	66.7	71.3	71.2	61.4	[illegible]	65.1	[illegible]
#3 6:45 - 7:00	71.2	64.3	[illegible]	65.6	70.9	71.2	71.2	71.2	64.7	71.0	65.2	[illegible]	71.2	71.2	71.3	71.2	66.5	71.3	71.2	61.1	[illegible]	65.1	70.7
#4 7:00 - 7:15	71.0	64.3	[illegible]	65.3	70.7	71.1	71.1	71.1	64.7	71.0	64.9	[illegible]	71.0	71.0	71.0	71.0	66.3	71.3	71.2	60.7	[illegible]	65.0	70.7
#5 7:15 - 7:30	[illegible]	64.3	[illegible]	65.1	70.7	70.8	70.8	70.8	64.7	71.0	64.8	70.6	70.8	70.8	70.8	70.8	66.1	71.3	71.2	60.5	[illegible]	65.0	[illegible]
#6 7:30 - 7:45	70.0	64.1	[illegible]	64.9	70.4	70.4	70.4	70.4	64.6	71.0	64.4	70.4	[illegible]	70.3	[illegible]	[illegible]	65.9	[illegible]	71.1	60.2	[illegible]	64.9	[illegible]
#7 7:45 - 8:00	69.2	64.1	71.0	64.6	69.7	69.7	69.7	69.7	64.6	71.0	64.1	69.3	[illegible]	69.3	69.3	69.3	65.7	70.9	70.9	59.9	[illegible]	64.9	70.6
#8 8:00 - 8:15	70.0	64.2	71.1	64.9	70.4	70.4	70.4	70.4	64.6	71.0	64.5	70.4	70.3	70.1	70.1	70.2	65.9	[illegible]	71.1	60.3	[illegible]	64.9	70.6
#9 8:15 - 8:30	70.4	64.2	71.1	65.0	70.7	70.7	70.7	70.7	64.5	71.0	64.6	70.5	70.5	70.5	70.5	70.5	66.0	71.1	71.2	60.4	69.5	65.0	70.7
#10 8:30 - 8:45	70.0	64.2	71.1	64.9	70.4	70.4	70.4	70.4	64.6	71.0	64.5	70.1	70.1	70.1	70.1	70.1	65.9	71.1	71.1	60.3	69.5	64.9	70.6
#11 8:45 - 9:00	68.6	64.0	70.8	64.5	69.4	69.4	69.4	69.4	64.5	70.9	64.0	68.9	68.9	68.9	68.9	68.9	65.6	70.7	70.7	59.8	[illegible]	64.8	70.5
#12 9:00 - 9:15	69.5	64.2	71.1	64.7	70.0	70.0	70.0	70.0	64.5	71.0	64.1	69.6	69.8	69.6	69.6	69.6	65.7	71.0	71.0	60.0	69.4	64.9	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	B	B	A	B	B	B	B	B	B	A	B	B	B	B	B	B	A	A	A	A	A	A	A
#2 6:30 - 6:45	B	B	A	B	B	B	B	B	B	A	B	B	B	B	B	B	A	B	B	A	A	A	A
#3 6:45 - 7:00	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	A	A	B	A
#4 7:00 - 7:15	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#5 7:15 - 7:30	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#6 7:30 - 7:45	C	C	B	B	B	B	B	B	C	B	B	C	C	C	C	C	A	B	B	B	A	B	A
#7 7:45 - 8:00	C	C	B	B	C	C	C	C	C	B	C	C	C	C	C	C	B	B	B	B	A	B	A
#8 8:00 - 8:15	C	C	B	B	B	B	B	B	C	B	B	C	C	C	C	C	A	B	B	B	A	B	A
#9 8:15 - 8:30	B	C	B	B	B	B	B	B	C	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#10 8:30 - 8:45	C	C	B	B	B	B	B	B	C	B	B	C	C	C	C	C	A	B	B	B	A	B	A
#11 8:45 - 9:00	C	C	B	B	C	C	C	C	C	B	C	C	C	C	C	C	B	B	B	B	A	B	A
#12 9:00 - 9:15	C	C	B	B	C	C	C	C	C	B	C	C	C	C	C	C	B	B	B	B	A	B	A

Figure 68: Southbound 2030 PM (No-Build) – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Lanes	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	0.88	1.00	0.75	1.00	0.88	0.88	0.88	0.88	1.01	0.71	0.88	0.77	0.77	0.77	0.77	0.77	0.88	0.69	0.69	0.79	0.31	0.46	0.40
#2 15:45 - 16:00	0.85	0.97	0.72	0.96	0.85	0.85	0.85	0.85	0.97	0.69	0.85	0.75	0.75	0.75	0.75	0.75	0.85	0.66	0.66	0.76	0.30	0.44	0.39
#3 16:00 - 16:15	0.92	1.05	0.78	1.04	0.92	0.92	0.92	0.92	1.05	0.75	0.92	0.81	0.81	0.81	0.81	0.81	0.92	0.72	0.72	0.82	0.33	0.48	0.42
#4 16:15 - 16:30	0.88	1.00	0.75	1.00	0.88	0.88	0.88	0.88	1.00	0.71	0.88	0.77	0.77	0.77	0.77	0.77	0.88	0.69	0.69	0.78	0.31	0.46	0.40
#5 16:30 - 16:45	0.92	1.05	0.78	1.05	0.93	0.93	0.93	0.93	1.06	0.75	0.93	0.81	0.81	0.81	0.81	0.81	0.93	0.72	0.72	0.82	0.33	0.48	0.42
#6 16:45 - 17:00	0.85	0.97	0.72	0.96	0.85	0.85	0.85	0.85	0.97	0.69	0.85	0.75	0.75	0.75	0.75	0.75	0.85	0.66	0.66	0.76	0.30	0.44	0.39
#7 17:00 - 17:15	0.87	0.99	0.74	0.99	0.87	0.87	0.87	0.87	1.00	0.71	0.88	0.77	0.77	0.77	0.77	0.77	0.88	0.68	0.68	0.78	0.31	0.46	0.40
#8 17:15 - 17:30	0.88	1.01	0.75	1.00	0.88	0.88	0.88	0.88	1.01	0.72	0.89	0.78	0.78	0.78	0.78	0.78	0.89	0.69	0.69	0.79	0.32	0.46	0.40
#9 17:30 - 17:45	0.82	0.94	0.70	0.94	0.83	0.83	0.83	0.83	0.94	0.67	0.83	0.73	0.73	0.73	0.73	0.73	0.83	0.64	0.64	0.74	0.29	0.43	0.38
#10 17:45 - 18:00	0.79	0.90	0.67	0.90	0.79	0.79	0.79	0.79	0.91	0.65	0.80	0.70	0.70	0.70	0.70	0.70	0.80	0.62	0.62	0.71	0.28	0.42	0.36
#11 18:00 - 18:15	0.81	0.93	0.69	0.93	0.82	0.82	0.82	0.82	0.93	0.66	0.82	0.72	0.72	0.72	0.72	0.72	0.82	0.64	0.64	0.73	0.29	0.43	0.37
#12 18:15 - 18:30	0.75	0.86	0.64	0.86	0.76	0.76	0.76	0.76	0.86	0.61	0.76	0.67	0.67	0.67	0.67	0.67	0.76	0.59	0.59	0.67	0.27	0.40	0.35

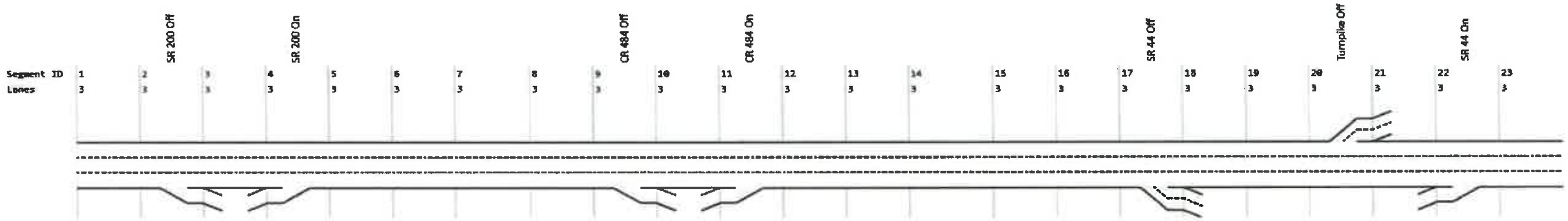
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	25.6	63.9	67.5	62.0	61.9	61.9	61.9	61.9	63.3	68.4	63.3	66.5	66.5	66.5	66.5	66.5	65.4	69.1	69.1	58.1	69.1	64.8	70.6
#2 15:45 - 16:00	25.5	63.5	67.3	62.0	62.0	62.0	62.0	62.0	63.4	68.1	63.4	66.2	66.2	66.2	66.2	66.2	65.4	68.7	68.7	58.8	69.2	64.8	70.6
#3 16:00 - 16:15	25.5	63.8	67.6	61.8	62.0	62.0	62.0	62.0	63.2	68.1	63.4	66.0	66.0	66.0	66.0	66.0	65.2	68.6	68.6	57.8	69.1	64.7	70.6
#4 16:15 - 16:30	25.5	63.9	28.4	62.0	62.0	62.0	62.0	62.0	63.3	68.1	63.4	66.1	66.1	66.1	66.1	66.1	65.3	68.7	68.7	58.4	69.2	64.7	70.6
#5 16:30 - 16:45	25.5	63.8	22.7	61.8	62.0	62.0	62.0	62.0	63.2	68.1	63.4	66.0	66.0	66.0	66.0	66.0	65.2	68.6	68.6	57.7	69.1	64.7	70.6
#6 16:45 - 17:00	25.5	63.9	19.6	62.1	62.0	62.0	62.0	62.0	63.4	68.1	63.4	66.2	66.2	66.2	66.2	66.2	65.4	68.9	68.9	58.8	69.2	64.8	70.6
#7 17:00 - 17:15	26.5	63.9	17.3	62.0	62.0	62.0	62.0	62.0	63.4	68.1	63.4	66.1	66.1	66.1	66.1	66.1	65.3	68.7	68.7	58.4	69.2	64.7	70.6
#8 17:15 - 17:30	24.3	31.5	16.8	62.0	62.0	62.0	62.0	62.0	63.3	68.2	63.4	66.1	66.1	66.1	66.3	66.1	65.3	68.7	68.7	58.3	69.2	64.7	70.6
#9 17:30 - 17:45	25.3	34.1	17.2	62.1	62.0	62.0	62.0	62.0	63.5	68.1	63.5	66.3	66.3	66.3	66.3	66.3	65.4	68.8	68.8	59.0	69.3	64.8	70.6
#10 17:45 - 18:00	25.7	33.9	17.5	62.1	62.0	62.0	62.0	62.0	63.6	68.1	63.5	66.3	66.3	66.3	66.3	66.3	65.5	68.8	68.8	59.5	69.3	64.8	70.6
#11 18:00 - 18:15	25.2	33.0	17.3	62.1	62.0	62.0	62.0	62.0	63.5	68.1	63.5	66.3	66.3	66.3	66.3	66.3	65.4	68.8	68.8	59.1	69.3	64.8	70.6
#12 18:15 - 18:30	26.3	35.9	17.8	62.1	62.0	62.0	62.0	62.0	63.7	68.1	63.5	66.4	66.4	66.4	66.4	66.4	65.5	68.9	68.9	60.0	69.4	64.8	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	F	D	F	C	D	D	D	D	F	C	C	C	C	C	C	C	B	C	C	C	A	B	A
#2 15:45 - 16:00	F	D	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#3 16:00 - 16:15	F	F	F	F	D	D	D	D	F	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#4 16:15 - 16:30	F	D	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#5 16:30 - 16:45	F	F	F	F	D	D	D	D	F	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#6 16:45 - 17:00	F	D	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#7 17:00 - 17:15	F	F	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#8 17:15 - 17:30	F	F	F	C	D	D	D	D	F	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#9 17:30 - 17:45	F	F	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	B	A	B	B
#10 17:45 - 18:00	F	F	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	B	A	B	B
#11 18:00 - 18:15	F	F	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	B	A	B	B
#12 18:15 - 18:30	F	F	F	C	D	D	D	D	D	C	C	C	C	C	C	C	B	C	C	B	A	B	B

Figure 69: Southbound 2030 Weekend (No-Build) – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Lanes	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	0.73	0.84	0.66	0.85	0.75	0.75	0.75	0.75	0.86	0.67	0.89	0.78	0.78	0.78	0.78	0.78	0.89	0.70	0.70	0.80	0.32	0.47	0.42
#2 12:15 - 12:30	0.73	0.84	0.66	0.85	0.75	0.75	0.75	0.75	0.86	0.67	0.89	0.78	0.78	0.78	0.78	0.78	0.89	0.70	0.70	0.80	0.32	0.47	0.42
#3 12:30 - 12:45	0.73	0.84	0.66	0.85	0.75	0.75	0.75	0.75	0.86	0.67	0.89	0.78	0.78	0.78	0.78	0.78	0.89	0.70	0.70	0.80	0.32	0.47	0.42
#4 12:45 - 13:00	0.73	0.84	0.66	0.85	0.75	0.75	0.75	0.75	0.86	0.67	0.89	0.78	0.78	0.78	0.78	0.78	0.89	0.70	0.70	0.80	0.32	0.47	0.42
#5 13:00 - 13:15	0.77	0.88	0.69	0.90	0.79	0.79	0.79	0.79	0.90	0.71	0.94	0.82	0.82	0.82	0.82	0.82	0.94	0.74	0.74	0.85	0.35	0.50	0.44
#6 13:15 - 13:30	0.77	0.88	0.69	0.90	0.79	0.79	0.79	0.79	0.90	0.71	0.94	0.82	0.82	0.82	0.82	0.82	0.94	0.74	0.74	0.85	0.35	0.50	0.44
#7 13:30 - 13:45	0.77	0.88	0.69	0.90	0.79	0.79	0.79	0.79	0.90	0.71	0.94	0.82	0.82	0.82	0.82	0.82	0.94	0.74	0.74	0.85	0.35	0.50	0.44
#8 13:45 - 14:00	0.77	0.88	0.69	0.90	0.79	0.79	0.79	0.79	0.90	0.71	0.94	0.82	0.82	0.82	0.82	0.82	0.94	0.74	0.74	0.85	0.35	0.50	0.44
#9 14:00 - 14:15	0.79	0.90	0.70	0.91	0.81	0.81	0.81	0.81	0.92	0.72	0.95	0.84	0.84	0.84	0.84	0.84	0.96	0.76	0.76	0.86	0.35	0.51	0.45
#10 14:15 - 14:30	0.79	0.90	0.70	0.91	0.81	0.81	0.81	0.81	0.92	0.72	0.95	0.84	0.84	0.84	0.84	0.84	0.96	0.76	0.76	0.86	0.35	0.51	0.45
#11 14:30 - 14:45	0.79	0.90	0.70	0.91	0.81	0.81	0.81	0.81	0.92	0.72	0.95	0.84	0.84	0.84	0.84	0.84	0.96	0.76	0.76	0.86	0.35	0.51	0.45
#12 14:45 - 15:00	0.79	0.90	0.70	0.91	0.81	0.81	0.81	0.81	0.92	0.72	0.95	0.84	0.84	0.84	0.84	0.84	0.96	0.76	0.76	0.86	0.35	0.51	0.45

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	65.6	64.7	68.1	63.2	65.0	65.0	65.0	65.0	64.8	67.7	62.5	63.6	63.6	63.6	63.6	63.6	65.2	66.8	66.8	58.8	67.2	64.6	70.6
#2 12:15 - 12:30	65.6	64.7	68.1	63.2	65.0	65.0	65.0	65.0	64.8	67.7	62.5	63.6	63.6	63.6	63.6	63.6	65.2	66.8	66.8	58.8	67.2	64.6	70.6
#3 12:30 - 12:45	65.6	64.7	68.1	63.2	65.0	65.0	65.0	65.0	64.8	67.7	62.5	63.6	63.6	63.6	63.6	63.6	65.2	66.8	66.8	58.8	67.2	64.6	70.6
#4 12:45 - 13:00	65.6	64.7	68.1	63.2	65.0	65.0	65.0	65.0	64.8	67.7	62.5	63.6	63.6	63.6	63.6	63.6	65.2	66.8	66.8	58.8	67.2	64.6	70.6
#5 13:00 - 13:15	63.9	64.7	67.2	62.7	63.2	63.2	63.2	63.2	64.6	66.5	61.9	61.5	61.5	61.5	61.5	61.5	65.0	65.3	65.3	58.4	67.2	64.5	70.6
#6 13:15 - 13:30	63.9	64.7	67.2	62.7	63.2	63.2	63.2	63.2	64.6	66.5	61.9	61.5	61.5	61.5	61.5	61.5	65.0	65.3	65.3	58.4	67.2	64.5	70.6
#7 13:30 - 13:45	63.9	64.7	67.2	62.7	63.2	63.2	63.2	63.2	64.6	66.5	61.9	61.5	61.5	61.5	61.5	61.5	65.0	65.3	65.3	58.4	67.2	64.5	70.6
#8 13:45 - 14:00	63.9	64.7	67.2	62.7	63.2	63.2	63.2	63.2	64.6	66.5	61.9	61.5	61.5	61.5	61.5	61.5	65.0	65.3	65.3	58.4	67.2	64.5	70.6
#9 14:00 - 14:15	63.2	64.6	66.7	62.4	62.4	62.4	62.4	62.4	64.6	66.0	61.6	60.7	60.7	60.7	60.7	60.7	64.9	64.7	64.7	58.3	67.2	64.4	70.6
#10 14:15 - 14:30	63.2	64.6	66.7	62.4	62.4	62.4	62.4	62.4	64.6	66.0	61.6	60.7	60.7	60.7	60.7	60.7	64.9	64.7	64.7	58.3	67.2	64.4	70.6
#11 14:30 - 14:45	63.2	64.6	66.7	62.4	62.4	62.4	62.4	62.4	64.6	66.0	61.6	60.7	60.7	60.7	60.7	60.7	64.9	64.7	64.7	58.3	67.2	64.4	70.6
#12 14:45 - 15:00	63.2	64.6	66.7	62.4	62.4	62.4	62.4	62.4	64.6	66.0	61.6	60.7	60.7	60.7	60.7	60.7	64.9	64.7	64.7	58.3	67.2	64.4	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	C	D	C	C	C	C	C	C	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#2 12:15 - 12:30	C	D	C	C	C	C	C	C	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#3 12:30 - 12:45	C	D	C	C	C	C	C	C	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#4 12:45 - 13:00	C	D	C	C	C	C	C	C	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#5 13:00 - 13:15	D	D	C	C	D	D	D	D	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#6 13:15 - 13:30	D	D	C	C	D	D	D	D	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#7 13:30 - 13:45	D	D	C	C	D	D	D	D	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#8 13:45 - 14:00	D	D	C	C	D	D	D	D	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#9 14:00 - 14:15	D	D	C	C	D	D	D	D	D	C	D	D	D	D	D	D	B	D	D	C	B	B	B
#10 14:15 - 14:30	D	D	C	C	D	D	D	D	D	C	D	D	D	D	D	D	B	D	D	C	B	B	B
#11 14:30 - 14:45	D	D	C	C	D	D	D	D	D	C	D	D	D	D	D	D	B	D	D	C	B	B	B
#12 14:45 - 15:00	D	D	C	C	D	D	D	D	D	C	D	D	D	D	D	D	B	D	D	C	B	B	B

The contours presented in **Figure 64** through **Figure 69** show the need for additional capacity along southbound I-75 in the opening year (2030). The following summarizes the locations of congestion and impacts in the 2030 No-Build scenario.

- Southbound I-75
  - Additional capacity will be needed at the SR 200 diverge and merge, and at the CR 484 diverge.
    - A D/C ratio of 1.05 is expected to occur during the 2030 PM peak period within Segment 2 (I-75 within the influence area of the off-ramp to SR 200) and within Segment 4 (I-75 within the influence area of the on-ramp from SR 200). A D/C ratio of 1.06 is expected to occur during the 2030 PM peak period within Segment 9 (I-75 within the influence area of the off-ramp to CR 484).
  - Additional capacity is expected to be needed to accommodate average weekday PM peak period traffic along southbound I-75 in 2030.
  - Severe congestion (speeds lower than 25 mph) is expected to be present between the beginning of the study limits and SR 200. These are due to expected bottlenecks at the SR 200 interchange.
    - It is important to note that a major active bottleneck in the southbound limits is metering the demand at the beginning of the study limits. Addressing only this first major bottleneck at the beginning of the southbound limits will still result in capacity constraints and congestion downstream at the influence area of the off-ramp to CR 484.
  - The southbound travel time is expected to increase by up to 3.3 minutes (approximately a 17% increase) versus the 2019 existing condition.

2040 OPERATIONAL RESULTS

A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 36**. The HCS output reports are provided in **Appendix S**. Multiple segments on the facility will operate at LOS E and F during each of the peak periods under the No-Build condition during the 2040 AM, PM and weekend peak periods for both the northbound and southbound directions. The maximum D/C ratio in the northbound direction is estimated to be 1.35 during the AM peak period while the maximum D/C ratio in the southbound direction is estimated to be 1.38 during the PM peak period. The average speeds on this facility are expected to be below 52 mph in the northbound direction and be below 65 mph in the southbound direction.

The D/C, speed, and LOS contours for each analysis facility and peak period are illustrated in the following figures:

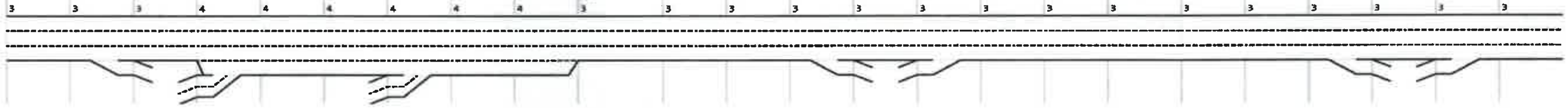
- Northbound 2040 AM (No-Build) – **Figure 70**
- Northbound 2040 PM (No-Build) – **Figure 71**
- Northbound 2040 Weekend (No-Build) – **Figure 72**
- Southbound 2040 AM (No-Build) – **Figure 73**
- Southbound 2040 PM (No-Build) – **Figure 74**
- Southbound 2040 Weekend (No-Build) – **Figure 75**

Table 36: Freeway Operational Summary – 2040 No-Build

Performance Metric	South Section – AM		South Section – PM		South Section – Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	23.0	22.8	23.0	22.8	23.0	22.8
Average Travel Time (min)	37.9	21.3	26.9	22.4	47.2	31.1
Total VHD, (veh-h)	4,258.3	460.9	1,787.2	782.3	6,686.9	2,826.3
Space Mean Speed (mph)	36.3	64.1	51.3	60.9	29.2	44.0
Reported Density (pc/mi/ln)	45.0	24.9	33.1	29.2	58.5	39.7
Max D/C	1.35	1.01	1.08	1.38	1.28	1.20

Figure 70: Northbound 2040 AM (No-Build) – Operational Contours

		SR 44 Off		Turnpike On			SR 44 On						CR 484 Off		CR 484 On						SR 200 Off		SR 200 On	
Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	0.30	0.34	0.24	0.51	0.42	0.42	0.57	0.47	0.47	0.63	0.63	0.63	0.72	0.58	0.82	0.72	0.72	0.72	0.72	0.72	0.82	0.61	0.80	0.71
#2 6:30 - 6:45	0.34	0.39	0.27	0.57	0.47	0.47	0.64	0.53	0.53	0.71	0.71	0.71	0.81	0.66	0.92	0.81	0.81	0.81	0.81	0.81	0.92	0.69	0.90	0.79
#3 6:45 - 7:00	0.40	0.46	0.32	0.67	0.56	0.56	0.76	0.63	0.63	0.84	0.84	0.84	0.96	0.78	1.08	0.95	0.95	0.95	0.95	0.95	1.09	0.82	1.06	0.94
#4 7:00 - 7:15	0.46	0.52	0.36	0.77	0.64	0.64	0.86	0.72	0.72	0.96	0.96	0.96	1.09	0.89	1.24	1.09	1.09	1.09	1.09	1.09	1.24	0.93	1.22	1.07
#5 7:15 - 7:30	0.43	0.49	0.34	0.72	0.60	0.60	0.81	0.68	0.68	0.90	0.90	0.90	1.03	0.84	1.17	1.03	1.03	1.03	1.03	1.03	1.17	0.88	1.15	1.01
#6 7:30 - 7:45	0.44	0.50	0.34	0.73	0.61	0.61	0.82	0.68	0.68	0.91	0.91	0.91	1.04	0.85	1.18	1.04	1.04	1.04	1.04	1.04	1.19	0.89	1.16	1.02
#7 7:45 - 8:00	0.50	0.57	0.39	0.83	0.70	0.70	0.94	0.78	0.78	1.04	1.04	1.04	1.19	0.96	1.35	1.19	1.19	1.19	1.19	1.19	1.35	1.01	1.32	1.17
#8 8:00 - 8:15	0.48	0.55	0.38	0.81	0.67	0.67	0.91	0.76	0.76	1.01	1.01	1.01	1.15	0.93	1.30	1.15	1.15	1.15	1.15	1.15	1.31	0.98	1.28	1.13
#9 8:15 - 8:30	0.48	0.54	0.38	0.80	0.67	0.67	0.90	0.75	0.75	1.00	1.00	1.00	1.14	0.92	1.29	1.13	1.13	1.13	1.13	1.13	1.30	0.97	1.27	1.17
#10 8:30 - 8:45	0.47	0.54	0.37	0.79	0.66	0.66	0.89	0.74	0.74	0.98	0.98	0.98	1.12	0.91	1.27	1.12	1.12	1.12	1.12	1.12	1.28	0.96	1.25	1.10
#11 8:45 - 9:00	0.46	0.52	0.36	0.77	0.64	0.64	0.87	0.72	0.72	0.96	0.96	0.96	1.10	0.89	1.24	1.09	1.09	1.09	1.09	1.09	1.25	0.93	1.22	1.08
#12 9:00 - 9:15	0.44	0.50	0.35	0.73	0.61	0.61	0.83	0.69	0.69	0.91	0.91	0.91	1.04	0.85	1.18	1.04	1.04	1.04	1.04	1.04	1.19	0.89	1.16	1.02

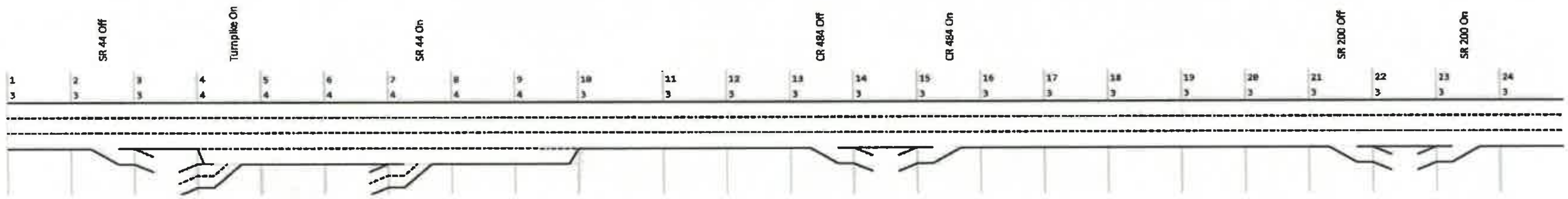
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	71.2	64.0	70.9	65.4	70.8	71.2	66.9	70.8	71.2	69.0	69.0	69.0	65.5	70.0	62.0	66.2	66.2	66.2	66.2	66.2	64.1	69.1	63.6	66.6
#2 6:30 - 6:45	71.3	64.1	70.9	64.7	70.8	71.2	66.5	70.8	70.8	66.6	66.6	66.6	65.1	68.3	61.6	62.3	62.3	62.3	62.3	62.3	64.1	67.2	62.6	63.0
#3 6:45 - 7:00	71.2	64.1	70.9	62.0	70.4	70.4	65.8	69.0	69.0	60.7	60.7	61.6	65.0	21.4	60.4	61.9	61.9	61.9	61.9	61.9	63.8	66.9	62.0	61.7
#4 7:00 - 7:15	71.2	64.1	70.9	60.0	68.7	68.7	65.1	66.2	66.2	36.4	21.6	20.1	24.8	16.7	59.5	62.0	62.0	62.0	62.0	62.0	63.4	67.0	61.5	60.8
#5 7:15 - 7:30	71.3	64.0	70.9	61.5	69.6	69.6	65.5	67.7	20.1	32.6	22.1	21.0	25.9	16.7	59.9	62.0	62.0	62.0	62.0	62.0	63.6	67.0	61.7	61.3
#6 7:30 - 7:45	71.2	64.0	70.9	61.2	69.4	69.4	65.4	21.9	16.7	27.5	20.0	20.1	24.0	16.7	59.9	62.0	62.0	62.0	62.0	62.0	63.6	67.0	61.7	61.2
#7 7:45 - 8:00	71.0	64.0	70.9	57.4	21.0	13.5	18.9	14.2	13.1	21.3	19.0	19.8	23.8	16.7	58.8	62.0	62.0	62.0	62.0	62.0	63.2	67.0	61.2	60.1
#8 8:00 - 8:15	71.1	64.1	70.9	13.1	10.2	8.9	15.0	12.0	11.3	21.6	20.4	20.6	25.7	16.7	59.0	62.0	62.0	62.0	62.0	62.0	63.3	67.0	61.3	60.4
#9 8:15 - 8:30	71.2	64.0	70.9	21.7	13.1	11.4	18.6	15.6	13.5	20.7	20.9	19.9	24.2	16.7	59.1	62.0	62.0	62.0	62.0	62.0	63.3	67.0	61.3	60.5
#10 8:30 - 8:45	71.2	64.0	70.9	15.4	10.6	10.3	15.5	11.3	12.5	20.3	21.1	20.0	24.2	16.7	59.3	62.0	62.0	62.0	62.0	62.0	63.4	67.0	61.4	60.6
#11 8:45 - 9:00	71.2	64.1	70.9	14.8	10.4	8.9	13.1	11.9	12.5	21.1	21.7	20.5	24.6	16.7	59.4	62.0	62.0	62.0	62.0	62.0	63.4	67.0	61.5	60.8
#12 9:00 - 9:15	71.2	64.0	70.9	12.2	9.8	9.3	15.1	13.2	11.8	22.2	21.3	20.7	25.5	16.7	59.9	62.0	62.0	62.0	62.0	62.0	63.6	67.0	61.7	61.1

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	A	B	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	D	C	C	C
#2 6:30 - 6:45	A	B	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	C	C	D
#3 6:45 - 7:00	B	B	A	C	B	B	B	C	C	D	D	F	F	F	F	D	D	D	D	D	F	C	F	D
#4 7:00 - 7:15	B	B	B	D	C	C	B	C	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F
#5 7:15 - 7:30	B	B	A	C	C	C	B	C	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F
#6 7:30 - 7:45	B	B	A	C	C	C	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F
#7 7:45 - 8:00	B	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#8 8:00 - 8:15	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F
#9 8:15 - 8:30	B	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F
#10 8:30 - 8:45	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F
#11 8:45 - 9:00	B	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F
#12 9:00 - 9:15	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	F

Figure 71: Northbound 2040 PM (No-Build) – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	0.43	0.49	0.31	0.73	0.61	0.61	0.85	0.71	0.71	0.94	0.94	0.94	1.08	0.79	1.04	0.91	0.91	0.91	0.91	0.91	1.04	0.77	1.05	0.92
#2 15:45 - 16:00	0.40	0.46	0.30	0.69	0.57	0.57	0.80	0.67	0.67	0.89	0.89	0.89	1.02	0.74	0.98	0.86	0.86	0.86	0.86	0.86	0.99	0.73	0.99	0.87
#3 16:00 - 16:15	0.41	0.47	0.30	0.71	0.59	0.59	0.83	0.69	0.69	0.92	0.92	0.92	1.05	0.76	1.01	0.89	0.89	0.89	0.89	0.89	1.01	0.75	1.02	0.90
#4 16:15 - 16:30	0.39	0.45	0.29	0.67	0.56	0.56	0.78	0.65	0.65	0.86	0.86	0.86	0.98	0.72	0.95	0.84	0.84	0.84	0.84	0.84	0.96	0.71	0.96	0.85
#5 16:30 - 16:45	0.33	0.38	0.25	0.57	0.48	0.48	0.67	0.55	0.55	0.74	0.74	0.74	0.84	0.62	0.81	0.72	0.72	0.72	0.72	0.72	0.82	0.61	0.82	0.72
#6 16:45 - 17:00	0.37	0.43	0.27	0.64	0.53	0.53	0.75	0.62	0.62	0.82	0.82	0.82	0.94	0.69	0.91	0.80	0.80	0.80	0.80	0.80	0.91	0.68	0.91	0.81
#7 17:00 - 17:15	0.38	0.44	0.28	0.66	0.55	0.55	0.77	0.64	0.64	0.85	0.85	0.85	0.97	0.71	0.94	0.82	0.82	0.82	0.82	0.82	0.94	0.70	0.94	0.83
#8 17:15 - 17:30	0.40	0.45	0.29	0.68	0.57	0.57	0.79	0.66	0.66	0.88	0.88	0.88	1.00	0.73	0.96	0.85	0.85	0.85	0.85	0.85	0.97	0.72	0.97	0.86
#9 17:30 - 17:45	0.38	0.44	0.28	0.65	0.55	0.55	0.76	0.63	0.63	0.84	0.84	0.84	0.96	0.70	0.93	0.82	0.82	0.82	0.82	0.82	0.93	0.69	0.94	0.83
#10 17:45 - 18:00	0.36	0.41	0.27	0.62	0.52	0.52	0.72	0.60	0.60	0.80	0.80	0.80	0.91	0.67	0.88	0.77	0.77	0.77	0.77	0.77	0.88	0.65	0.89	0.78
#11 18:00 - 18:15	0.35	0.40	0.26	0.60	0.50	0.50	0.70	0.58	0.58	0.78	0.78	0.78	0.89	0.65	0.86	0.75	0.75	0.75	0.75	0.75	0.86	0.64	0.86	0.76
#12 18:15 - 18:30	0.33	0.38	0.24	0.56	0.47	0.47	0.66	0.55	0.55	0.73	0.73	0.73	0.83	0.61	0.81	0.71	0.71	0.71	0.71	0.71	0.81	0.60	0.81	0.72

Speed Contours

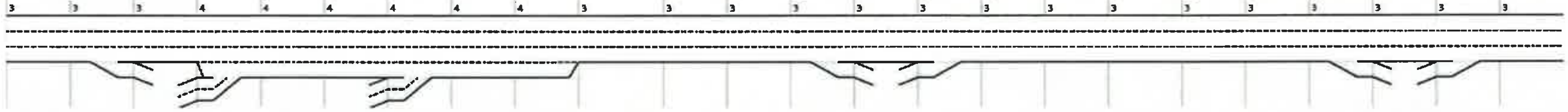
Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	71.2	63.5	70.9	60.4	69.5	69.1	65.1	66.6	66.6	60.1	26.6	26.3	63.5	68.1	62.1	63.3	63.3	63.3	63.3	63.3	63.8	68.5	62.0	62.8
#2 15:45 - 16:00	71.2	63.5	70.9	61.8	69.2	70.1	65.5	67.9	67.9	61.7	26.1	25.5	63.7	67.5	62.0	62.7	62.7	62.7	62.7	62.7	63.9	67.6	61.7	61.7
#3 16:00 - 16:15	71.2	63.5	70.9	61.2	69.8	69.8	65.3	67.3	67.3	36.6	25.6	25.5	63.6	67.1	61.9	62.5	62.5	62.5	62.5	62.5	63.8	67.5	61.6	61.3
#4 16:15 - 16:30	71.2	63.5	70.9	62.4	70.4	70.4	65.7	68.5	68.5	36.7	26.1	25.5	63.7	67.5	62.0	62.9	62.9	62.9	62.9	62.9	63.9	67.7	61.9	62.1
#5 16:30 - 16:45	71.2	63.6	70.9	64.3	70.8	71.2	66.4	70.5	70.5	61.6	26.6	25.6	64.0	67.5	62.4	63.7	63.7	63.7	63.7	63.7	64.2	68.2	62.6	63.7
#6 16:45 - 17:00	71.2	63.5	70.9	63.1	70.7	70.7	65.9	69.2	69.2	40.3	25.9	25.5	63.9	67.5	62.1	63.1	63.1	63.1	63.1	63.1	64.1	67.9	62.2	62.6
#7 17:00 - 17:15	71.2	63.6	70.9	62.6	70.5	70.5	65.8	68.8	68.8	38.0	25.5	25.5	63.8	67.5	62.0	63.0	63.0	63.0	63.0	63.0	64.0	67.8	62.0	62.3
#8 17:15 - 17:30	71.2	63.5	70.9	62.1	70.3	70.3	65.6	68.2	68.2	34.5	25.6	25.5	63.7	67.5	62.0	62.8	62.8	62.8	62.8	62.8	63.9	67.7	61.8	61.9
#9 17:30 - 17:45	71.2	63.6	70.9	62.7	70.9	70.8	65.8	68.9	68.9	34.3	25.7	25.5	63.8	67.5	62.1	63.0	63.0	63.0	63.0	63.0	64.0	67.8	62.0	62.3
#10 17:45 - 18:00	71.2	63.6	70.9	63.5	70.2	70.9	66.0	69.7	69.7	36.0	25.8	25.5	63.9	67.5	62.2	63.3	63.3	63.3	63.3	63.3	64.1	68.0	62.2	62.9
#11 18:00 - 18:15	71.2	63.6	70.9	63.8	70.7	71.0	66.1	70.0	70.0	38.2	25.6	25.5	64.0	67.5	62.2	63.4	63.4	63.4	63.4	63.4	64.1	68.0	62.4	63.2
#12 18:15 - 18:30	71.2	63.6	70.9	64.4	70.8	71.2	66.4	70.5	70.5	61.8	25.7	25.5	64.0	67.5	62.4	63.7	63.7	63.7	63.7	63.7	64.2	68.2	62.6	63.8

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	B	B	A	C	C	C	B	C	C	F	F	F	F	C	F	D	D	D	D	D	F	C	F	D
#2 15:45 - 16:00	B	B	A	C	C	C	B	C	C	F	F	F	F	C	C	D	D	D	D	D	D	C	C	D
#3 16:00 - 16:15	B	B	A	C	C	C	B	C	C	F	F	F	F	C	F	D	D	D	D	D	F	C	F	D
#4 16:15 - 16:30	B	B	A	C	B	B	B	C	C	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#5 16:30 - 16:45	A	B	A	C	B	B	B	B	B	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#6 16:45 - 17:00	B	B	A	C	B	B	B	C	C	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#7 17:00 - 17:15	B	B	A	C	B	B	B	C	C	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#8 17:15 - 17:30	B	B	A	C	C	C	B	C	C	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#9 17:30 - 17:45	B	B	A	C	B	B	B	C	C	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#10 17:45 - 18:00	B	B	A	C	B	B	B	C	C	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#11 18:00 - 18:15	B	B	A	C	B	B	B	C	C	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D
#12 18:15 - 18:30	A	B	A	C	B	B	B	B	B	F	F	F	D	C	C	D	D	D	D	D	D	C	C	D

Figure 72: Northbound 2040 Weekend (No-Build) – Operational Contours

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Ramp		SR 44 Off		Turnpike On			SR 44 On						CR 484 Off		CR 484 On						SR 200 Off		SR 200 On	
Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	0.58	0.66	0.49	0.87	0.73	0.73	0.97	0.80	0.80	1.07	1.07	1.07	1.23	0.93	1.27	1.12	1.12	1.12	1.12	1.12	1.28	0.97	1.28	1.13
#2 12:15 - 12:30	0.58	0.66	0.49	0.87	0.73	0.73	0.97	0.80	0.80	1.07	1.07	1.07	1.23	0.93	1.27	1.12	1.12	1.12	1.12	1.12	1.28	0.97	1.28	1.13
#3 12:30 - 12:45	0.58	0.66	0.49	0.87	0.73	0.73	0.97	0.80	0.80	1.07	1.07	1.07	1.23	0.93	1.27	1.12	1.12	1.12	1.12	1.12	1.28	0.97	1.28	1.13
#4 12:45 - 13:00	0.58	0.66	0.49	0.87	0.73	0.73	0.97	0.80	0.80	1.07	1.07	1.07	1.23	0.93	1.27	1.12	1.12	1.12	1.12	1.12	1.28	0.97	1.28	1.13
#5 13:00 - 13:15	0.53	0.61	0.44	0.80	0.67	0.67	0.88	0.74	0.74	0.98	0.98	0.98	1.12	0.85	1.16	1.02	1.02	1.02	1.02	1.02	1.17	0.89	1.17	1.01
#6 13:15 - 13:30	0.53	0.61	0.44	0.80	0.67	0.67	0.88	0.74	0.74	0.98	0.98	0.98	1.12	0.85	1.16	1.02	1.02	1.02	1.02	1.02	1.17	0.89	1.17	1.01
#7 13:30 - 13:45	0.53	0.61	0.44	0.80	0.67	0.67	0.88	0.74	0.74	0.98	0.98	0.98	1.12	0.85	1.16	1.02	1.02	1.02	1.02	1.02	1.17	0.89	1.17	1.01
#8 13:45 - 14:00	0.53	0.61	0.44	0.80	0.67	0.67	0.88	0.74	0.74	0.98	0.98	0.98	1.12	0.85	1.16	1.02	1.02	1.02	1.02	1.02	1.17	0.89	1.17	1.01
#9 14:00 - 14:15	0.47	0.54	0.40	0.71	0.60	0.60	0.79	0.66	0.66	0.88	0.88	0.88	1.00	0.76	1.04	0.91	0.91	0.91	0.91	0.91	1.04	0.79	1.05	0.92
#10 14:15 - 14:30	0.47	0.54	0.40	0.71	0.60	0.60	0.79	0.66	0.66	0.88	0.88	0.88	1.00	0.76	1.04	0.91	0.91	0.91	0.91	0.91	1.04	0.79	1.05	0.92
#11 14:30 - 14:45	0.47	0.54	0.40	0.71	0.60	0.60	0.79	0.66	0.66	0.88	0.88	0.88	1.00	0.76	1.04	0.91	0.91	0.91	0.91	0.91	1.04	0.79	1.05	0.92
#12 14:45 - 15:00	0.47	0.54	0.40	0.71	0.60	0.60	0.79	0.66	0.66	0.88	0.88	0.88	1.00	0.76	1.04	0.91	0.91	0.91	0.91	0.91	1.04	0.79	1.05	0.92

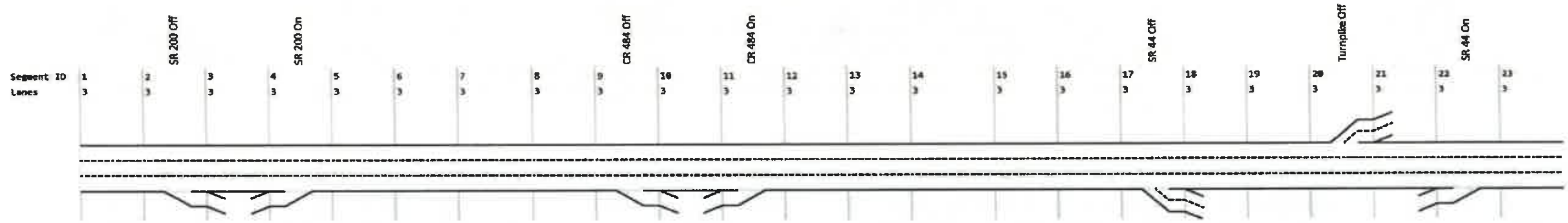
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	70.0	64.4	71.0	58.0	65.7	65.7	64.4	31.3	22.2	39.2	27.7	26.0	63.8	67.6	60.2	59.5	59.5	59.5	59.5	59.5	63.6	66.4	60.6	59.1
#2 12:15 - 12:30	70.0	64.4	71.0	58.0	66.1	23.9	28.5	20.8	20.8	30.7	25.5	25.5	63.8	66.5	59.5	58.6	58.6	58.6	43.7	39.9	42.2	20.5	61.3	61.9
#3 12:30 - 12:45	70.0	64.4	71.0	58.1	20.1	15.8	26.9	18.7	17.4	26.2	25.5	25.5	63.8	66.5	59.5	58.6	58.6	37.5	23.6	23.0	29.1	16.7	61.3	62.0
#4 12:45 - 13:00	70.0	64.4	71.0	16.3	11.3	10.8	16.4	13.6	13.6	25.5	25.5	25.5	63.8	66.5	59.5	58.6	58.6	31.7	23.0	23.0	29.1	16.7	61.3	62.0
#5 13:00 - 13:15	70.7	64.5	71.0	12.3	13.7	12.1	18.0	14.0	10.8	24.6	21.3	22.1	63.9	19.9	62.3	24.4	21.2	31.8	26.8	25.5	39.5	17.4	61.6	62.0
#6 13:15 - 13:30	70.7	64.5	71.0	8.2	5.6	4.1	6.4	6.8	7.8	26.1	23.7	22.1	27.4	15.5	61.4	61.1	62.2	36.5	23.1	23.0	29.2	16.7	61.6	62.0
#7 13:30 - 13:45	70.7	64.5	71.0	13.4	14.0	16.1	28.7	20.8	20.8	27.1	22.8	22.8	28.8	16.7	60.7	62.0	62.0	34.4	23.0	23.0	29.2	16.7	61.6	62.0
#8 13:45 - 14:00	70.7	64.5	71.0	23.6	16.2	14.6	23.1	16.5	15.4	23.1	22.8	22.8	28.8	16.7	60.7	62.0	62.0	32.6	23.0	23.0	29.2	16.7	61.6	62.0
#9 14:00 - 14:15	71.2	64.5	71.0	8.8	6.2	4.9	6.9	6.1	5.1	28.5	26.4	23.2	64.1	18.1	61.5	35.0	63.2	39.4	28.7	25.1	38.9	17.1	62.0	62.0
#10 14:15 - 14:30	71.2	64.5	13.1	7.8	8.8	10.5	15.9	14.5	16.5	36.9	27.0	25.9	64.1	25.3	60.3	58.4	58.4	35.1	23.0	23.0	29.2	16.7	62.0	62.0
#11 14:30 - 14:45	71.2	64.5	71.0	29.0	17.4	17.3	28.4	20.8	20.8	30.6	25.5	25.5	64.1	65.8	60.3	58.6	58.6	30.3	23.0	23.0	29.2	16.7	62.0	62.0
#12 14:45 - 15:00	71.2	64.5	71.0	21.8	17.7	16.4	24.9	18.8	17.3	26.1	25.5	25.5	64.1	66.3	60.5	58.6	58.6	26.7	23.0	23.0	29.2	16.7	62.0	62.0

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	C	C	B	D	C	C	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	F	F
#2 12:15 - 12:30	C	C	B	D	F	F	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	F	F	F
#3 12:30 - 12:45	C	C	B	F	F	F	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	F	F	F
#4 12:45 - 13:00	C	C	F	F	F	F	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	F	F	F
#5 13:00 - 13:15	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#6 13:15 - 13:30	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#7 13:30 - 13:45	B	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#8 13:45 - 14:00	B	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#9 14:00 - 14:15	B	B	F	F	F	F	F	F	F	F	F	F	C	F	F	F	D	F	F	F	F	F	F	D
#10 14:15 - 14:30	B	B	F	F	F	F	F	F	F	F	F	F	D	F	F	D	D	F	F	F	F	F	F	D
#11 14:30 - 14:45	B	B	F	F	F	F	F	F	F	F	F	F	D	F	F	D	D	F	F	F	F	F	F	D
#12 14:45 - 15:00	B	B	B	F	F	F	F	F	F	F	F	F	D	C	F	D	D	F	F	F	F	F	F	D

Figure 73: Southbound 2040 AM (No-Build) – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	0.54	0.61	0.45	0.59	0.52	0.52	0.52	0.52	0.59	0.45	0.62	0.54	0.54	0.54	0.54	0.54	0.62	0.47	0.47	0.53	0.19	0.30	0.26
#2 6:30 - 6:45	0.57	0.66	0.48	0.63	0.56	0.56	0.56	0.56	0.64	0.49	0.66	0.58	0.58	0.58	0.58	0.58	0.66	0.50	0.50	0.57	0.20	0.32	0.28
#3 6:45 - 7:00	0.64	0.73	0.53	0.70	0.62	0.62	0.62	0.62	0.71	0.54	0.73	0.64	0.64	0.64	0.64	0.64	0.73	0.55	0.55	0.63	0.22	0.35	0.31
#4 7:00 - 7:15	0.70	0.80	0.58	0.77	0.68	0.68	0.68	0.68	0.77	0.59	0.80	0.70	0.70	0.70	0.70	0.70	0.80	0.61	0.61	0.69	0.24	0.39	0.34
#5 7:15 - 7:30	0.73	0.84	0.61	0.81	0.71	0.71	0.71	0.71	0.81	0.62	0.84	0.74	0.74	0.74	0.74	0.74	0.85	0.64	0.64	0.73	0.25	0.41	0.36
#6 7:30 - 7:45	0.80	0.91	0.67	0.88	0.78	0.78	0.78	0.78	0.89	0.68	0.92	0.81	0.81	0.81	0.81	0.81	0.92	0.69	0.69	0.79	0.28	0.45	0.39
#7 7:45 - 8:00	0.85	0.97	0.71	0.94	0.83	0.83	0.83	0.83	0.95	0.72	0.98	0.86	0.86	0.86	0.86	0.86	0.98	0.74	0.74	0.85	0.29	0.47	0.41
#8 8:00 - 8:15	0.80	0.91	0.67	0.88	0.77	0.77	0.77	0.77	0.88	0.67	0.91	0.80	0.80	0.80	0.80	0.80	0.97	0.69	0.69	0.79	0.28	0.44	0.39
#9 8:15 - 8:30	0.76	0.87	0.64	0.84	0.74	0.74	0.74	0.74	0.85	0.65	0.88	0.77	0.77	0.77	0.77	0.77	0.88	0.66	0.66	0.76	0.26	0.43	0.37
#10 8:30 - 8:45	0.80	0.91	0.67	0.88	0.77	0.77	0.77	0.77	0.88	0.67	0.91	0.80	0.80	0.80	0.80	0.80	0.92	0.69	0.69	0.79	0.28	0.44	0.39
#11 8:45 - 9:00	0.87	1.00	0.73	0.96	0.85	0.85	0.85	0.85	0.97	0.74	1.00	0.88	0.88	0.88	0.88	0.88	1.01	0.76	0.76	0.87	0.30	0.49	0.42
#12 9:00 - 9:15	0.83	0.95	0.70	0.92	0.81	0.81	0.81	0.81	0.92	0.70	0.96	0.84	0.84	0.84	0.84	0.84	0.96	0.72	0.72	0.82	0.29	0.46	0.40

Speed Contours

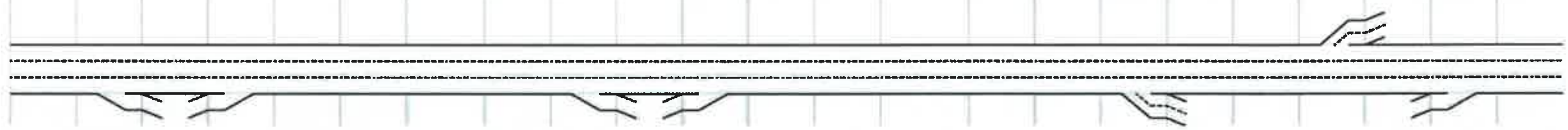
Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	70.7	64.5	71.1	65.1	70.7	70.7	70.7	70.8	64.9	71.6	64.7	70.6	70.6	70.6	70.6	70.6	66.1	73.1	73.1	59.6	70.4	65.0	70.7
#2 6:30 - 6:45	70.1	64.4	71.1	64.9	70.4	70.4	70.4	70.4	64.8	71.0	64.4	70.0	70.0	70.0	70.0	70.0	65.9	72.0	72.0	59.3	70.3	65.0	70.7
#3 6:45 - 7:00	68.9	64.3	70.7	64.4	69.2	69.2	69.2	69.2	64.7	70.7	63.9	68.6	68.6	68.6	68.6	68.6	65.6	70.5	70.5	58.8	70.3	64.9	70.6
#4 7:00 - 7:15	66.9	64.1	70.0	63.9	67.6	67.6	67.6	67.6	64.6	69.8	63.3	66.7	66.7	66.7	66.7	66.7	65.2	69.5	69.5	58.3	70.2	64.7	70.5
#5 7:15 - 7:30	65.6	64.1	69.3	63.6	66.4	66.4	66.4	66.3	64.5	69.2	62.9	65.3	65.3	65.3	65.3	65.3	65.0	68.8	68.8	57.9	70.1	64.7	70.6
#6 7:30 - 7:45	62.7	63.9	67.9	62.8	63.8	63.8	63.8	63.8	64.4	67.6	61.9	62.3	62.3	62.3	62.3	62.3	64.7	67.0	67.0	57.4	69.0	64.6	70.6
#7 7:45 - 8:00	59.9	63.8	65.8	62.0	61.3	61.3	61.3	61.3	64.3	66.1	61.0	59.5	59.5	59.5	59.5	59.5	64.4	65.4	65.4	56.9	68.9	64.5	70.4
#8 8:00 - 8:15	62.9	63.9	68.0	62.8	64.0	64.0	64.0	64.0	64.4	67.8	62.0	62.5	62.5	62.5	62.5	62.5	64.7	67.2	67.2	57.5	69.0	64.6	70.6
#9 8:15 - 8:30	64.3	64.0	68.7	63.2	65.2	65.2	65.2	65.2	64.5	68.5	62.5	64.0	64.0	64.0	64.0	64.0	64.9	68.0	68.0	57.7	70.1	64.6	70.6
#10 8:30 - 8:45	62.9	63.9	68.0	62.8	64.0	64.0	64.0	64.0	64.4	67.9	62.0	62.5	62.5	62.5	62.5	62.5	64.7	67.2	67.2	57.5	69.0	64.6	70.6
#11 8:45 - 9:00	58.7	63.7	65.7	61.5	60.2	60.2	60.2	60.2	64.2	27.2	61.6	61.9	61.9	61.9	61.9	61.9	64.6	66.8	66.8	56.3	68.8	64.4	70.4
#12 9:00 - 9:15	61.1	63.9	67.0	62.2	62.1	62.1	62.1	62.4	64.3	16.8	61.8	62.0	62.0	62.0	62.0	62.0	64.6	66.8	66.8	56.9	68.9	64.5	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#2 6:30 - 6:45	C	C	B	B	B	B	B	B	C	B	B	C	C	C	C	C	A	B	B	B	A	B	A
#3 6:45 - 7:00	C	C	B	B	C	C	C	C	C	B	C	C	C	C	C	C	B	B	B	B	A	B	A
#4 7:00 - 7:15	C	D	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	B	A	B	A
#5 7:15 - 7:30	C	D	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#6 7:30 - 7:45	D	D	C	C	D	D	D	D	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#7 7:45 - 8:00	D	D	C	C	D	D	D	D	D	C	D	D	D	D	D	D	B	C	C	C	A	B	B
#8 8:00 - 8:15	D	D	C	C	D	D	D	D	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#9 8:15 - 8:30	D	D	C	C	C	C	C	C	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#10 8:30 - 8:45	D	D	C	C	D	D	D	D	C	C	C	D	D	D	D	D	B	C	C	C	A	B	B
#11 8:45 - 9:00	D	D	C	C	D	D	D	D	D	[illegible]	D	D	D	D	D	D	[illegible]	C	C	C	A	B	B
#12 9:00 - 9:15	D	D	C	C	D	D	D	[illegible]	[illegible]	[illegible]	C	D	D	D	D	D	B	C	C	C	A	B	B

Figure 74: Southbound 2040 PM (No-Build) – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Ramp		SR 200 Off		SR 200 On					CR 484 Off		CR 484 On						SR 44 Off			Turnpike Off		SR 44 On	
Lanes	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	1.14	1.30	0.99	1.30	1.15	1.15	1.15	1.15	1.31	0.96	1.17	1.03	1.03	1.04	1.03	1.03	1.17	0.92	0.92	1.05	0.40	0.59	0.52
#2 15:45 - 16:00	1.09	1.25	0.95	1.26	1.11	1.11	1.11	1.11	1.26	0.92	1.13	0.99	0.99	0.99	0.99	0.99	1.13	0.89	0.89	1.01	0.39	0.57	0.50
#3 16:00 - 16:15	1.19	1.36	1.03	1.36	1.20	1.20	1.20	1.20	1.37	1.00	1.23	1.07	1.07	1.07	1.07	1.07	1.23	0.96	0.96	1.10	0.42	0.62	0.54
#4 16:15 - 16:30	1.13	1.30	0.98	1.30	1.14	1.14	1.14	1.14	1.32	0.95	1.17	1.03	1.03	1.04	1.03	1.03	1.17	0.92	0.92	1.05	0.40	0.59	0.51
#5 16:30 - 16:45	1.19	1.36	1.04	1.37	1.20	1.20	1.20	1.20	1.38	1.00	1.23	1.08	1.08	1.08	1.08	1.08	1.23	0.97	0.97	1.11	0.42	0.62	0.54
#6 16:45 - 17:00	1.10	1.25	0.95	1.26	1.11	1.11	1.11	1.11	1.26	0.92	1.13	0.99	0.99	0.99	0.99	0.99	1.13	0.89	0.89	1.02	0.39	0.57	0.50
#7 17:00 - 17:15	1.12	1.28	0.98	1.29	1.14	1.14	1.14	1.14	1.30	0.95	1.16	1.02	1.02	1.02	1.02	1.02	1.16	0.91	0.91	1.04	0.40	0.59	0.51
#8 17:15 - 17:30	1.14	1.30	0.99	1.31	1.15	1.15	1.15	1.15	1.31	0.96	1.18	1.03	1.03	1.03	1.03	1.03	1.18	0.92	0.92	1.06	0.40	0.59	0.52
#9 17:30 - 17:45	1.07	1.22	0.92	1.22	1.08	1.08	1.08	1.08	1.23	0.90	1.10	0.96	0.96	0.96	0.96	0.96	1.10	0.86	0.86	0.99	0.38	0.55	0.48
#10 17:45 - 18:00	1.02	1.17	0.89	1.18	1.04	1.04	1.04	1.04	1.18	0.86	1.06	0.93	0.93	0.93	0.93	0.93	1.06	0.83	0.83	0.95	0.36	0.53	0.47
#11 18:00 - 18:15	1.05	1.20	0.91	1.21	1.06	1.06	1.06	1.06	1.22	0.89	1.09	0.95	0.95	0.95	0.95	0.95	1.09	0.85	0.85	0.98	0.37	0.55	0.48
#12 18:15 - 18:30	0.98	1.11	0.83	1.12	0.99	0.99	0.99	0.99	1.13	0.82	1.01	0.88	0.88	0.88	0.88	0.88	1.01	0.79	0.79	0.90	0.34	0.51	0.44

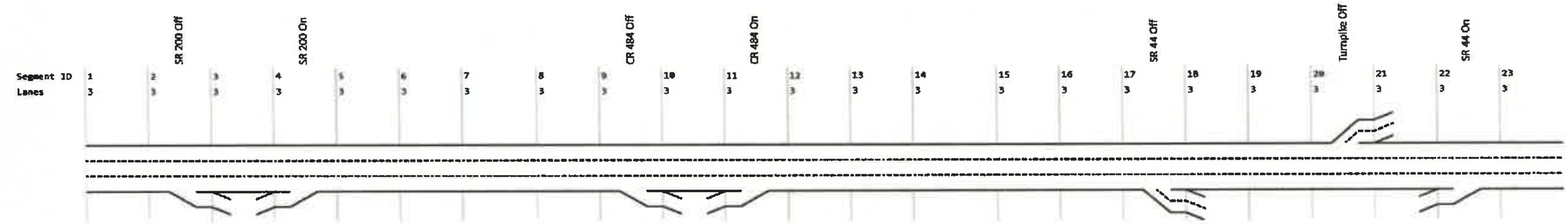
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	25.6	63.6	66.0	61.5	61.3	61.3	61.3	61.3	63.0	66.9	63.5	66.6	66.6	66.6	66.6	66.6	65.2	66.6	66.6	52.9	68.3	64.1	70.6
#2 15:45 - 16:00	25.5	63.7	66.6	60.9	59.4	59.4	59.4	59.4	63.0	66.2	62.6	63.3	63.3	63.1	63.3	63.1	64.9	66.6	66.6	54.8	68.6	64.1	70.6
#3 16:00 - 16:15	25.5	63.5	66.6	60.5	58.6	58.6	58.6	58.6	62.8	65.8	62.4	62.5	62.5	62.5	62.5	62.5	64.7	66.1	66.1	53.6	68.4	64.4	70.6
#4 16:15 - 16:30	25.5	63.6	66.6	60.7	59.1	59.1	59.1	59.1	63.0	66.0	62.5	62.9	62.9	62.9	62.9	62.9	64.8	66.4	66.4	54.3	68.5	64.3	70.6
#5 16:30 - 16:45	25.5	63.4	66.6	60.5	58.6	58.6	58.6	58.6	62.8	65.8	62.4	62.4	62.4	62.4	62.4	62.4	64.7	66.1	66.1	53.6	68.4	64.4	70.6
#6 16:45 - 17:00	25.5	63.7	66.6	60.9	59.4	59.4	59.4	59.4	63.0	66.2	62.6	63.2	63.2	63.2	63.2	63.2	64.9	66.6	66.6	54.5	68.6	64.5	70.6
#7 17:00 - 17:15	25.5	63.6	66.6	60.8	59.1	59.1	59.1	59.1	63.0	66.1	62.5	63.0	63.0	63.0	63.0	63.0	64.8	66.5	66.5	54.4	68.5	64.3	70.6
#8 17:15 - 17:30	25.5	63.6	66.6	60.7	59.0	59.0	59.0	59.0	62.9	66.0	62.5	62.9	62.9	62.9	62.9	62.9	64.8	66.4	66.4	54.3	68.5	64.5	70.6
#9 17:30 - 17:45	25.5	63.8	66.6	61.0	59.6	59.6	59.6	59.6	63.1	66.3	62.7	63.5	63.5	63.5	63.5	63.5	65.0	66.8	66.8	55.2	68.7	64.5	70.6
#10 17:45 - 18:00	25.5	63.9	66.6	61.2	59.9	59.9	59.9	59.9	63.2	66.5	62.8	63.9	63.9	63.9	63.9	63.9	65.1	67.0	67.0	55.7	68.7	64.5	70.6
#11 18:00 - 18:15	25.5	63.8	66.6	61.1	59.7	59.7	59.7	59.7	63.1	66.4	62.7	63.6	63.6	63.6	63.6	63.6	65.0	66.9	66.9	55.4	68.7	64.5	70.6
#12 18:15 - 18:30	25.5	64.0	66.6	61.4	60.3	60.3	60.3	60.3	63.3	66.7	62.9	64.3	64.3	64.3	64.3	64.3	65.1	67.5	67.3	56.4	68.9	64.6	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	F	F	C	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	C	F	A	B	A
#2 15:45 - 16:00	F	F	C	F	F	F	F	F	F	C	F	D	D	D	D	D	F	C	C	F	A	B	B
#3 16:00 - 16:15	F	F	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	C	F	A	B	B
#4 16:15 - 16:30	F	F	C	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	C	F	A	B	B
#5 16:30 - 16:45	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#6 16:45 - 17:00	F	F	C	F	F	F	F	F	F	C	F	D	D	D	D	D	F	C	C	F	A	B	B
#7 17:00 - 17:15	F	F	C	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	C	F	A	B	B
#8 17:15 - 17:30	F	F	C	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	C	F	A	B	B
#9 17:30 - 17:45	F	F	C	F	F	F	F	F	F	C	F	D	D	D	D	D	F	C	C	C	A	B	B
#10 17:45 - 18:00	F	F	C	F	F	F	F	F	F	C	F	D	D	D	D	D	F	C	C	C	A	B	B
#11 18:00 - 18:15	F	F	C	F	F	F	F	F	F	C	F	D	D	D	D	D	F	C	C	C	A	B	B
#12 18:15 - 18:30	F	F	C	F	D	D	D	D	F	C	F	D	D	D	D	D	F	C	C	C	A	B	B

Figure 75: Southbound 2040 Weekend (No-Build) – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	0.94	1.07	0.84	1.08	0.95	0.95	0.95	0.95	1.08	0.85	1.11	0.98	0.98	0.98	0.98	0.98	1.12	0.88	0.88	1.01	0.37	0.55	0.48
#2 12:15 - 12:30	0.94	1.07	0.84	1.08	0.95	0.95	0.95	0.95	1.08	0.85	1.11	0.98	0.98	0.98	0.98	0.98	1.12	0.88	0.88	1.01	0.37	0.55	0.48
#3 12:30 - 12:45	0.94	1.07	0.84	1.08	0.95	0.95	0.95	0.95	1.08	0.85	1.11	0.98	0.98	0.98	0.98	0.98	1.12	0.88	0.88	1.01	0.37	0.55	0.48
#4 12:45 - 13:00	0.94	1.07	0.84	1.08	0.95	0.95	0.95	0.95	1.08	0.85	1.11	0.98	0.98	0.98	0.98	0.98	1.12	0.88	0.88	1.01	0.37	0.55	0.48
#5 13:00 - 13:15	0.99	1.13	0.88	1.13	1.00	1.00	1.00	1.00	1.14	0.90	1.17	1.03	1.03	1.03	1.03	1.03	1.18	0.93	0.93	1.06	0.39	0.57	0.51
#6 13:15 - 13:30	0.99	1.13	0.88	1.13	1.00	1.00	1.00	1.00	1.14	0.90	1.17	1.03	1.03	1.03	1.03	1.03	1.18	0.93	0.93	1.06	0.39	0.57	0.51
#7 13:30 - 13:45	0.99	1.13	0.88	1.13	1.00	1.00	1.00	1.00	1.14	0.90	1.17	1.03	1.03	1.03	1.03	1.03	1.18	0.93	0.93	1.06	0.39	0.57	0.51
#8 13:45 - 14:00	0.99	1.13	0.88	1.13	1.00	1.00	1.00	1.00	1.14	0.90	1.17	1.03	1.03	1.03	1.03	1.03	1.18	0.93	0.93	1.06	0.39	0.57	0.51
#9 14:00 - 14:15	1.01	1.15	0.90	1.16	1.02	1.02	1.02	1.02	1.17	0.92	1.20	1.05	1.05	1.05	1.05	1.05	1.20	0.95	0.95	1.08	0.40	0.59	0.52
#10 14:15 - 14:30	1.01	1.15	0.90	1.16	1.02	1.02	1.02	1.02	1.17	0.92	1.20	1.05	1.05	1.05	1.05	1.05	1.20	0.95	0.95	1.08	0.40	0.59	0.52
#11 14:30 - 14:45	1.01	1.15	0.90	1.16	1.02	1.02	1.02	1.02	1.17	0.92	1.20	1.05	1.05	1.05	1.05	1.05	1.20	0.95	0.95	1.08	0.40	0.59	0.52
#12 14:45 - 15:00	1.01	1.15	0.90	1.16	1.02	1.02	1.02	1.02	1.17	0.92	1.20	1.05	1.05	1.05	1.05	1.05	1.20	0.95	0.95	1.08	0.40	0.59	0.52

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	25.6	64.4	66.7	62.1	61.9	61.9	61.9	61.9	64.5	32.8	61.8	61.9	61.9	61.9	61.9	61.9	64.8	66.7	66.7	54.7	68.6	64.6	[illegible]
#2 12:15 - 12:30	25.5	64.4	29.1	62.1	62.0	62.0	62.0	62.0	64.5	19.1	61.9	62.0	62.0	62.0	62.0	62.0	64.9	65.6	65.6	54.9	68.6	64.5	[illegible]
#3 12:30 - 12:45	25.7	64.4	20.4	62.1	62.0	62.0	63.3	24.2	27.5	17.3	61.9	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	54.9	68.6	64.5	[illegible]
#4 12:45 - 13:00	24.2	30.3	18.0	62.1	62.0	62.0	64.2	22.0	27.5	17.1	61.9	62.0	62.0	62.0	62.0	62.0	64.9	65.6	65.6	54.9	68.5	64.5	[illegible]
#5 13:00 - 13:15	18.2	25.6	16.3	63.0	64.8	64.8	34.2	21.8	27.4	17.0	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.0	65.6	54.0	68.5	64.5	[illegible]
#6 13:15 - 13:30	22.8	28.8	17.7	62.1	62.0	62.0	32.3	21.5	26.7	17.0	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	54.0	68.5	64.5	[illegible]
#7 13:30 - 13:45	22.8	28.8	17.7	62.1	62.0	62.0	29.8	21.5	26.7	17.0	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	54.0	68.5	64.5	[illegible]
#8 13:45 - 14:00	22.8	28.8	17.7	62.1	62.0	62.0	27.7	21.5	26.7	17.0	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	54.0	68.5	64.5	[illegible]
#9 14:00 - 14:15	16.9	24.1	15.2	63.2	65.5	65.5	27.8	22.0	26.6	16.9	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	53.6	68.4	64.4	[illegible]
#10 14:15 - 14:30	23.0	29.0	17.6	62.1	62.0	62.0	26.4	21.3	26.4	16.9	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	53.6	68.4	64.4	[illegible]
#11 14:30 - 14:45	22.6	28.5	17.6	62.1	62.0	62.0	24.7	21.3	26.4	16.9	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	53.6	68.4	64.4	[illegible]
#12 14:45 - 15:00	22.6	28.5	17.6	62.1	62.0	62.0	23.1	21.3	26.4	16.9	61.8	62.0	62.0	62.0	62.0	62.0	64.8	65.6	65.6	53.6	68.4	64.4	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	F	F	F	F	D	D	D	D	F	F	F	D	D	D	D	D	F	C	C	F	A	B	A
#2 12:15 - 12:30	F	F	F	F	D	D	D	F	F	F	F	D	D	D	D	D	F	C	C	F	A	B	B
#3 12:30 - 12:45	F	F	F	F	D	D	F	F	F	F	F	D	D	D	D	D	F	C	C	F	A	B	B
#4 12:45 - 13:00	F	F	F	F	D	D	F	F	F	F	F	D	D	D	D	D	F	C	C	F	A	B	B
#5 13:00 - 13:15	F	F	F	F	D	D	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#6 13:15 - 13:30	F	F	F	F	D	D	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#7 13:30 - 13:45	F	F	F	F	D	D	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#8 13:45 - 14:00	F	F	F	F	D	D	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#9 14:00 - 14:15	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#10 14:15 - 14:30	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#11 14:30 - 14:45	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B
#12 14:45 - 15:00	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	C	F	A	B	B

The contours presented in **Figure 70** through **Figure 75** show the need for additional capacity along I-75 in the design year (2040). The following summarizes the locations of congestion and impacts in the 2040 No-Build scenario.

- Northbound I-75
  - Additional mainline capacity will be needed from north of SR 44 through the SR 200 interchange (end of the study limits).
    - The D/C contours can be used to estimate the additional capacity needs to meet the projected demands. For example, the maximum D/C ratio in the AM peak hour is 1.35 in in Segment 15 (I-75 within the influence area of the on-ramp from CR 484) and Segment 21 (I-75 within the influence area of the off-ramp to SR 200). There are three lanes along I-75 at these locations, so based on the demand at these locations, approximately 1.1 lanes worth of capacity would be needed.
  - Additional mainline capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040.
  - Severe congestion (speeds lower than 25 mph) is expected to be present between CR 484 and SR 44, as well as SR 200 and CR 484. These are due to expected bottlenecks at the CR 484 and SR 200 interchanges.
  - The northbound travel time is expected to increase by up to 27.4 minutes (approximately a 138% increase) versus the 2019 existing condition.

- Southbound I-75
  - Additional mainline capacity will be needed between north of SR 200 (beginning of the study limits) to the Turnpike interchange.
    - The maximum D/C ratio of 1.38 is expected to occur during the 2040 PM peak period within Segment 9 (I-75 within the influence area of the off-ramp to CR 484). There are three lanes along I-75 at this location so based on the demand at this location, approximately 1.1 lanes worth of capacity would be needed.
  - Additional mainline capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040.
  - Severe congestion (speeds lower than 25 mph) is expected to be present between the beginning of the study limits and CR 484. These are due to expected bottlenecks at the SR 200 and CR 484 interchanges.
    - It is important to note that a major active bottleneck in the southbound limits is metering the demand at the beginning of the study limits. Addressing only this first major bottleneck at the beginning of the

southbound limits will still result in capacity constraints and severe congestion downstream.

- The southbound travel time is expected to increase by up to 11.5 minutes (approximately a 59% increase) versus the 2019 existing condition.

NO-BUILD INTERSECTION ANALYSIS

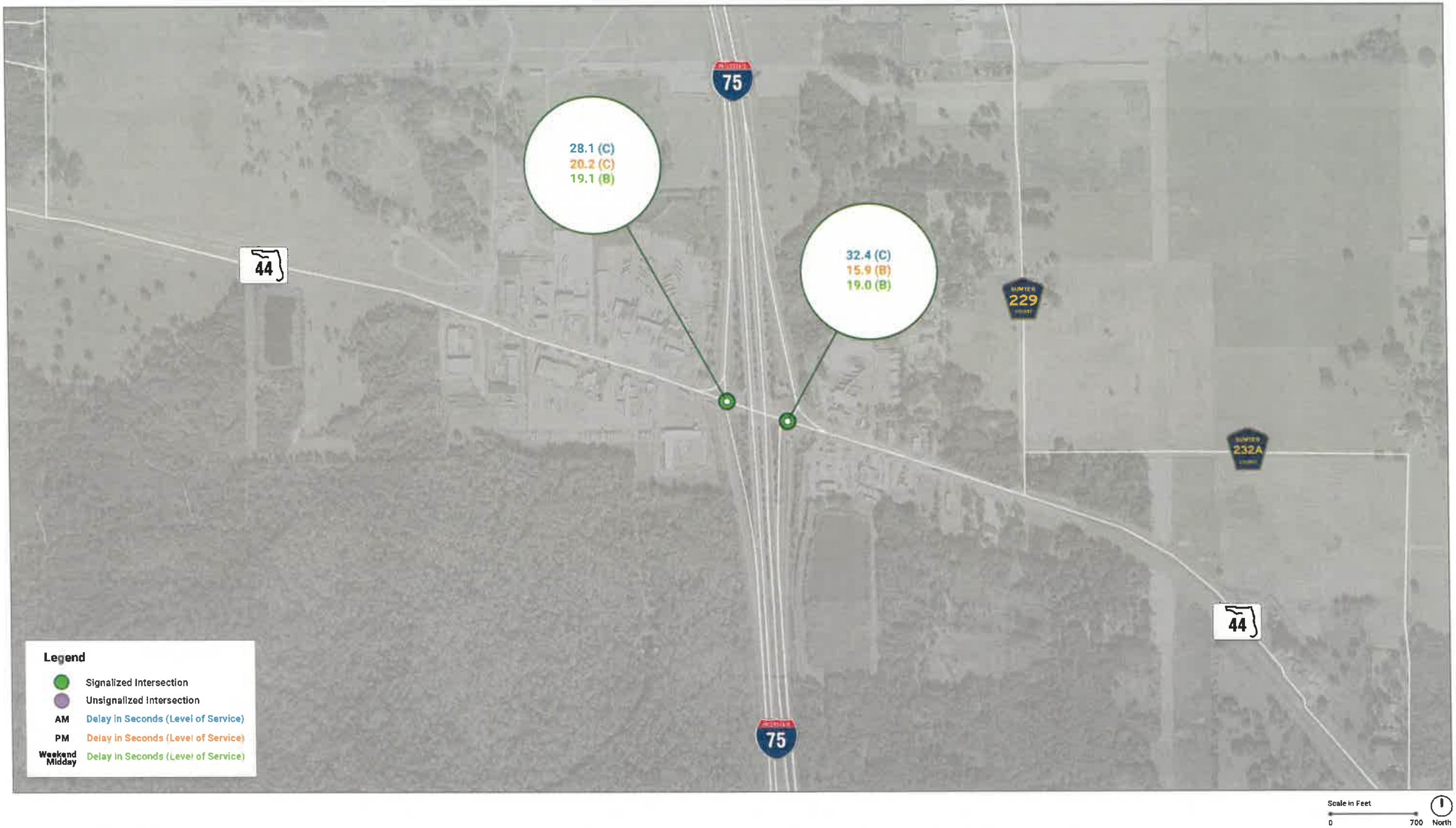
The following section summarizes the 2030 and 2040 No-Build weekday AM, PM, and weekend midday peak hour intersection operations. The 2030 and 2040 Synchro models reflect the lane configurations/geometries described in the Future No-Build Lane Configurations section. Signal timing optimization (cycle length, splits, and offsets) were considered for 2030 and 2040 conditions.

Intersections were analyzed using *Highway Capacity Manual* (HCM) 7th Edition methodologies, as implemented in Synchro 12 software. A peak hour factor (PHF) of 0.95 was assumed at each study intersection that had an existing PHF less than 0.95. For each study intersection with an existing PHF greater than 0.95, the existing PHF was assumed for analysis. Truck percentages assumed in the 2030 and 2040 No-Build intersection analyses were described previously in the Design Traffic Factors section of this report.

For intersections with channelized right-turn lanes, results are reported using Synchro methodologies to account for the operations (delay, volume to capacity ratios, and queue lengths) at the channelized right-turns as the Synchro software does not account for and do not report this condition in the HCM reports. The Synchro output reports are provided in **Appendix T** and **Appendix U**.

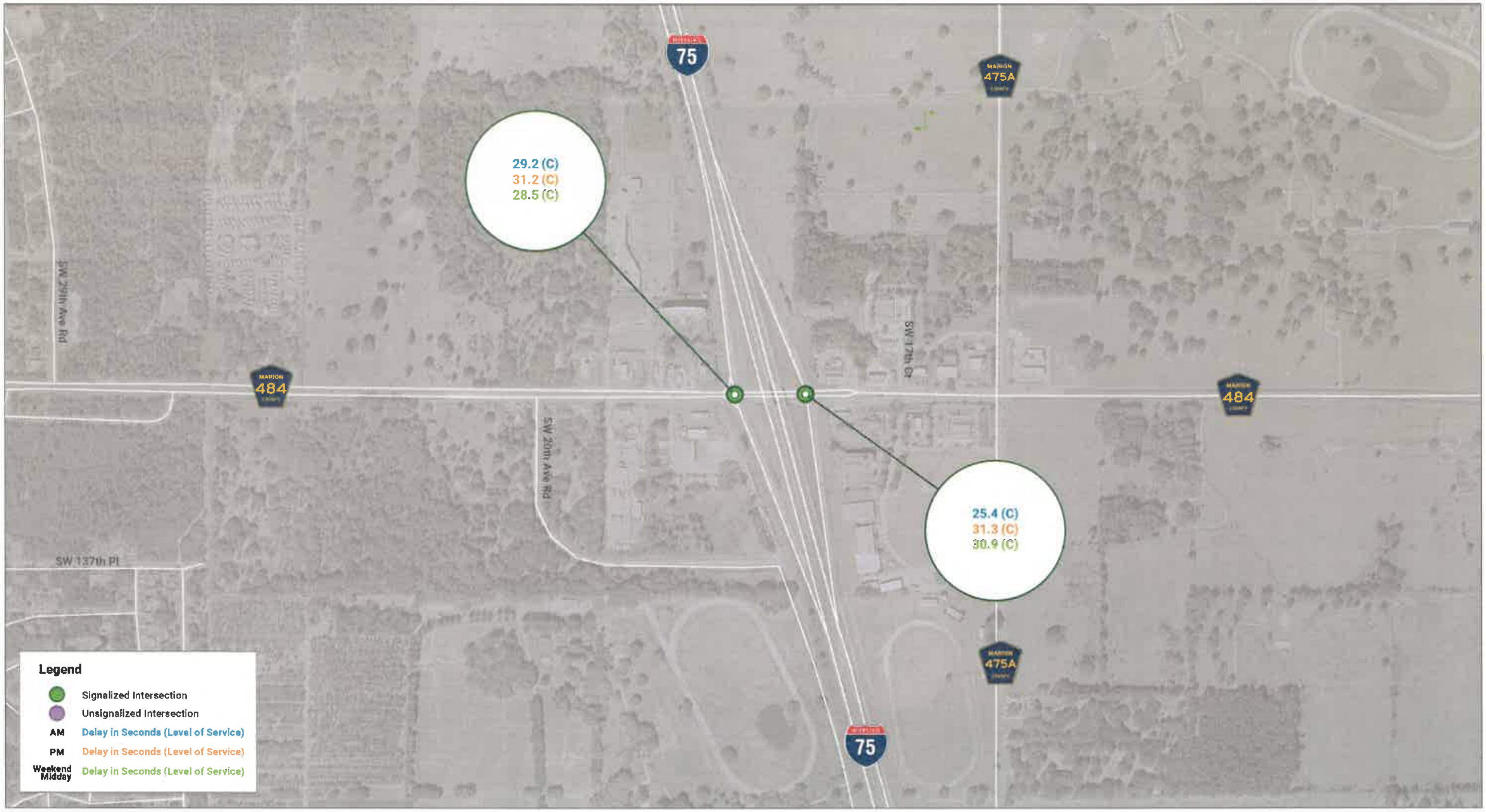
Figure 76 illustrates the overall intersection delay and LOS the signalized intersections in the study area for the 2030 peak hours. Detailed summary tables showing volume to capacity (v/c) ratios, delay, and LOS by movement are included in **Appendix T** for reference.

Figure 77 illustrates the overall intersection delay and LOS for the signalized intersections in the study area for the 2040 peak hours. Detailed summary tables showing v/c ratios, delay, and LOS by movement are included in **Appendix U** for reference.



I-75 PD&E | SR 44 Interchange
South of SR 44 to SR 200

2030 No-Build Peak Hour Intersection Operations
Figure 76 (1 of 3)

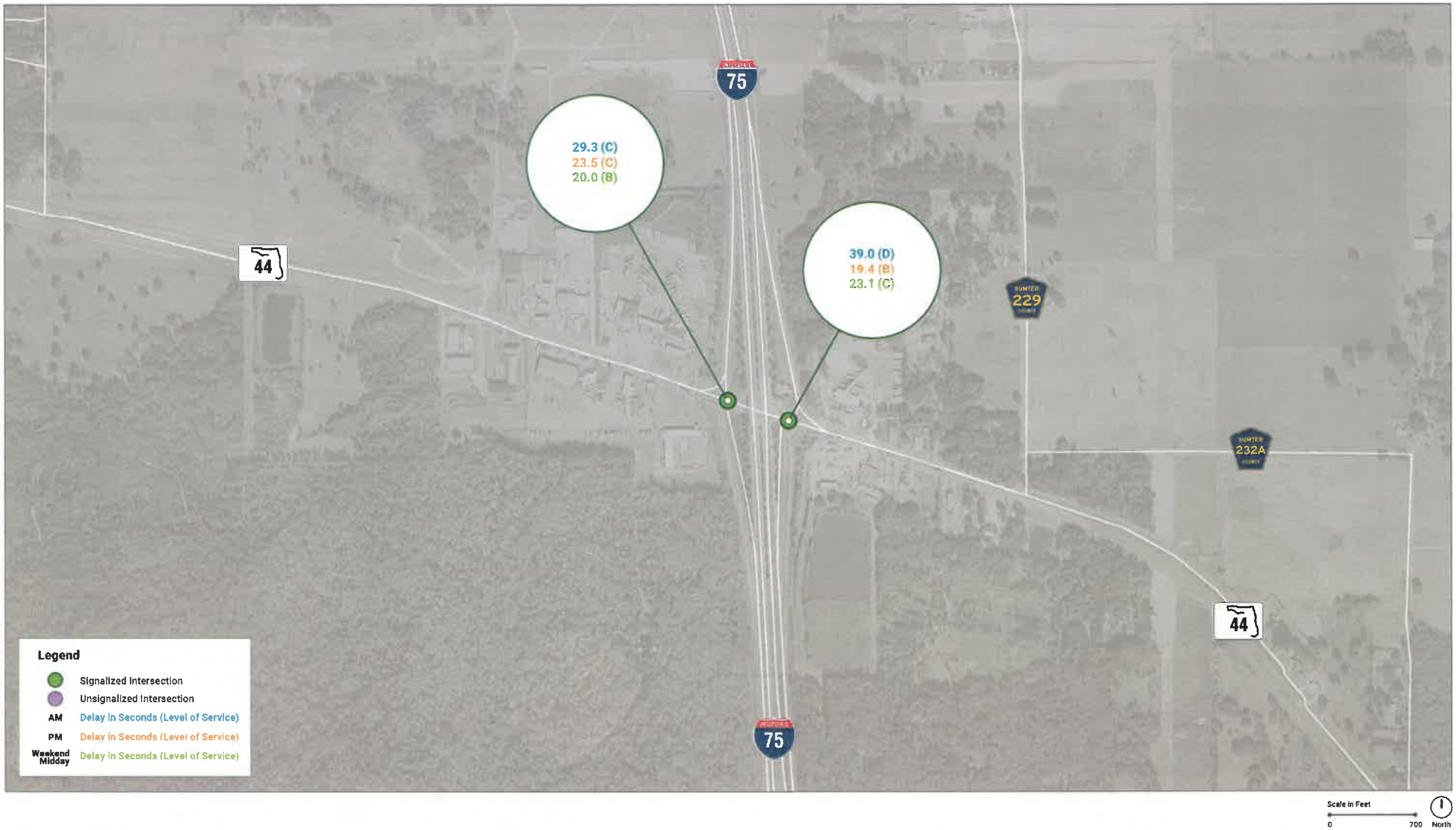


I-75 PD&E | CR 484 Interchange
South of SR 44 to SR 200

2030 No-Build Peak Hour Intersection Operations
Figure 76 (2 of 3)

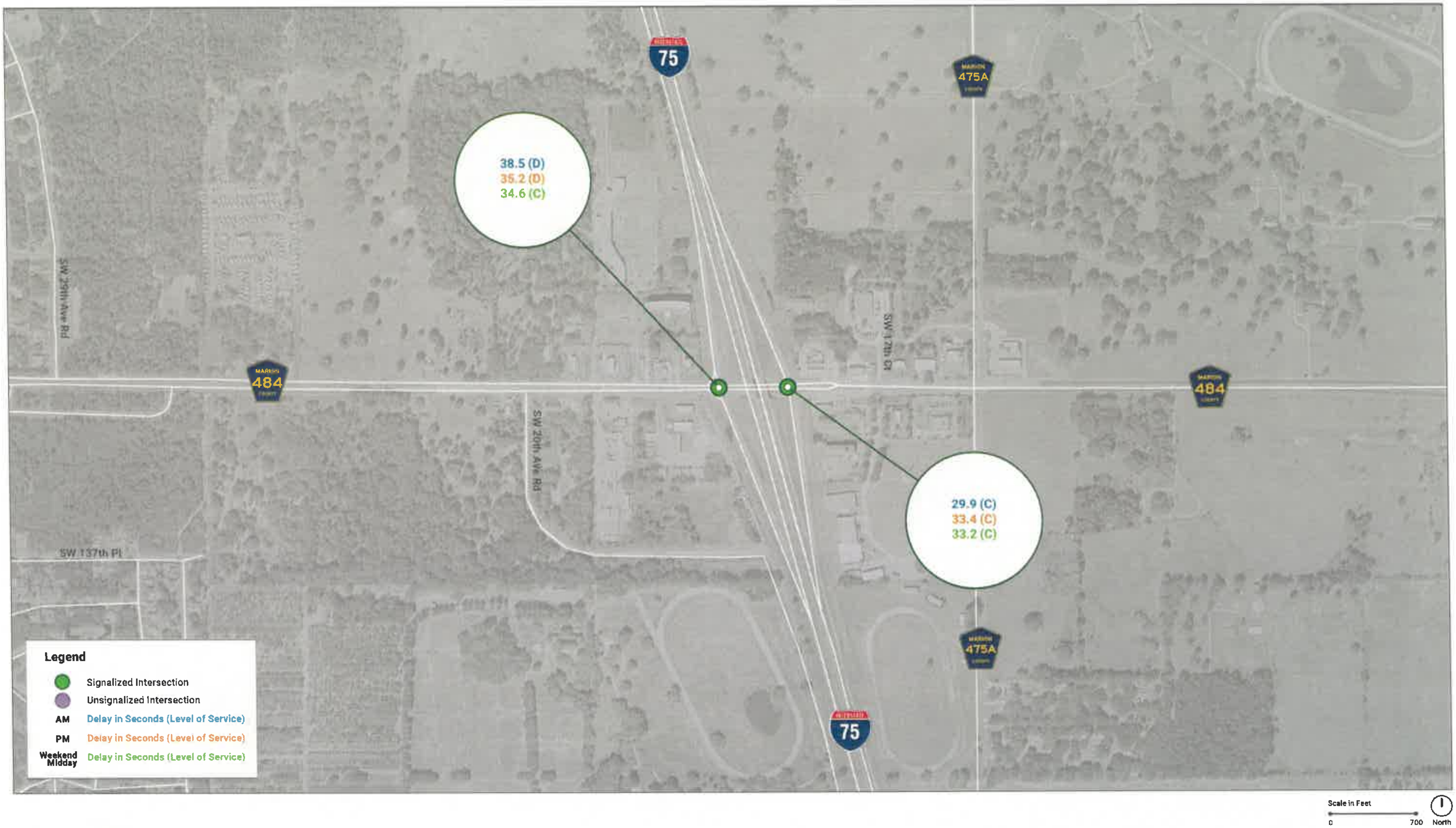
I-75 PD&E | SR 200 Interchange
South of SR 44 to SR 200

2030 No-Build Peak Hour Intersection Operations
Figure 76 (3 of 3)



I-75 PD&E | SR 44 Interchange
South of SR 44 to SR 200

2040 No-Build Peak Hour Intersection Operations
Figure 77 (1 of 3)



FDOT

I-75 PD&E | CR 484 Interchange

South of SR 44 to SR 200

2040 No-Build Peak Hour Intersection Operations

Figure 77 (2 of 3)

2040 No-Build Peak Hour Intersection Operations

Figure 77 (3 of 3)

2030 NO-BUILD INTERSECTION SUMMARY

The following summarizes the key intersections or movements and focuses on locations that are expected to operate at LOS F or overcapacity during the 2030 No-Build peak hours based on the Synchro analysis conducted.

SR 44

Each of the movements at the SR 44 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2030 peak hours analyzed. The 95th percentile queues along the SR 44 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2030 No-Build peak hours analyzed. The overall intersection LOS at the ramp terminal intersections is estimated to be LOS C or better in the 2030 No-Build AM, PM, and weekend peak hours analyzed.

CR 484

Each of the movements at the CR 484 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2030 No-Build peak hours except for the following:

- CR 484 at I-75 Southbound Ramp
    - The westbound left-turn movement is anticipated to operate at LOS F during the 2030 AM, PM, and weekend peak hours with delays ranging from 80.4 to 93.2 seconds.

The CR 484 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at an overall intersection LOS C during the 2030 AM, PM, and weekend peak hours analyzed. The 95th percentile queues along the CR 484 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2030 No-Build peak hours analyzed.

SR 200

Each of the movements at the SR 200 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2030 No-Build peak hours except for the following:

- SR 200 at I-75 Southbound Ramps
    - The southbound right-turn movement is expected to operate at LOS F during the 2030 PM peak hour with 94.3 seconds of delay.
    - The westbound left-turn movement is expected to operate at LOS F with a delay of 80.4 seconds during the 2030 weekend midday peak hour.

- The overall intersection LOS at the ramp terminal intersection is estimated to be LOS D during the PM peak hour and LOS C during the AM and weekend peak hours.
- The southbound off-ramp is approximately 1,750 feet long to the I-75 gore point.
  - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
  - Remaining distance for storage – approximately 1,135 feet
  - The maximum 95th percentile queue length during the analysis peak hours extends approximately 575 feet during the PM peak hour.

The SR 200 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during the 2030 AM, PM, and weekend peak hours. The 95th percentile queues along the SR 200 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2030 No-Build peak hours analyzed.

2040 NO-BUILD INTERSECTION SUMMARY

The following summarizes the key intersections or movements expected to operate at LOS F or overcapacity during the 2040 No-Build peak hours based on the Synchro analyses conducted.

SR 44

Each of the movements at the SR 44 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 peak hours analyzed. The 95th percentile queues along the SR 44 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed. The overall intersection LOS at the ramp terminal intersections is estimated to be LOS D or better in the 2040 No-Build AM, PM, and weekend peak hours analyzed.

CR 484

Each of the movements at the CR 484 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours except for the following:

- CR 484 at I-75 Southbound Ramp
  - The overall intersection LOS at the ramp terminal intersection is estimated to be LOS D or better during the AM, PM, and weekend peak hours.
  - The westbound left-turn movement is anticipated to operate at LOS F during the 2040 AM and PM peak hours with delays ranging from 97.1 to 104.8 seconds.

The CR 484 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during each AM, PM, and weekend peak hours.

The 95th percentile queues along the CR 484 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed.

SR 200

Each of the movements at the SR 200 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours except for the following:

- SR 200 at I-75 Southbound Ramps
  - The southbound right-turn movement is anticipated to operate at LOS F during the 2040 AM and PM peak hours with delays ranging from 82.5 to 91.2 seconds.
  - The overall LOS at the ramp terminal intersection is estimated to be LOS D during the PM peak hour and LOS C during the AM and weekend peak hours.
  - The southbound off-ramp is approximately 1,750 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
    - Remaining distance for storage – approximately 1,135 feet
    - The maximum 95th percentile queue length during the analysis peak hours extends approximately 600 feet during the PM peak hour.

The SR 200 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during the 2040 AM, PM, and weekend peak hours. The 95th percentile queues along the SR 200 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2030 No-Build peak hours analyzed.

RAMP CAPACITY ANALYSIS

A ramp capacity analysis was conducted to determine if, based upon Highway Capacity Manual 7th Edition (HCM 7th) Exhibits 12-25 and 14-12, as well as Equations 12-10 and 14-1, any study ramps would need two or more lanes.

The base single-lane ramp capacity published in HCM 7th ranges from 1,800 pc/h for ramps with free flow speed (FFS) less than 20 mph up to 2,200 pc/h for FFS greater than 50 mph. A Passenger Car Equivalency (PCE) factor of 2.0 was assumed (level terrain type) and a peak hour factor of 0.95 was assumed for each ramp.

As shown in **Table 37** and **Table 38**, each of the existing study ramps are projected to provide sufficient capacity based on the 2030 and 2040 No-Build conditions.

Table 37: Ramp HCM Capacity Analysis – 2030 No-Build

Ramp	Weekday Volume		Weekend Volume	Weekday Heavy Vehicles		Weekend Heavy Vehicles	Ramp Free Flow Speed (FFS)	Existing Number of Ramp Lanes (at Gore Point)	Maximum Demand Flow Rate, vi (pc/h)**	Single-Lane Ramp Capacity (pc/h)*	Two-Lane Ramp Capacity (pc/h)*	How Many Lanes Needed?	Additional Ramp Capacity Needed at Gore Point?
	AM Peak Hour	PM Peak Hour	Midday Peak Hour	AM Peak Hour	PM Peak Hour	Midday Peak Hour							
	2030	2030	2030	2030	2030	2030							
I-75 SB Off-Ramp to SR 44	534	529	505	11.2%	11.2%	8.4%	35	2	625	2,000	4,000	1	No
I-75 SB On-Ramp from SR 44	484	520	570	14.9%	14.9%	9.0%	45	1	654	2,100	4,200	1	No
I-75 NB On-Ramp from SR 44	482	559	448	13.1%	13.1%	8.6%	45	2	666	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 44	441	460	450	9.7%	9.7%	5.6%	50	1	531	2,200	4,400	1	No
I-75 SB Off-Ramp to CR 484	516	1,037	506	8.3%	8.3%	7.4%	35	1	1,182	2,000	4,000	1	No
I-75 SB On-Ramp from CR 484	626	370	711	9.2%	9.2%	7.3%	45	1	803	2,100	4,200	1	No
I-75 NB On-Ramp from CR 484	1,116	607	875	6.4%	6.4%	4.3%	45	1	1,250	2,100	4,200	1	No
I-75 NB Off-Ramp to CR 484	335	708	666	7.3%	7.3%	14.7%	35	1	804	2,000	4,000	1	No
I-75 SB Off-Ramp to SR 200	696	844	544	5.1%	5.1%	3.9%	35	1	934	2,000	4,000	1	No
I-75 SB On-Ramp from SR 200	530	852	640	6.2%	6.2%	4.3%	45	1	952	2,100	4,200	1	No
I-75 NB On-Ramp from SR 200	752	749	783	3.4%	3.4%	2.4%	45	1	844	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 200	770	668	758	5.2%	5.2%	3.0%	35	1	853	2,000	4,000	1	No

*Based on HCM 7th Edition Exhibit 14-12

**Based on HCM 7th Edition Equation 14-1, Equation 12-10, and Exhibit 12-25.

Table 38: Ramp HCM Capacity Analysis – 2040 No-Build

Ramp	Weekday Volume		Weekend Volume	Weekday Heavy Vehicles		Weekend Heavy Vehicles	Ramp Free Flow Speed (FFS)	Existing Number of Ramp Lanes (at Gore Point)	Maximum Demand Flow Rate, vi (pc/h)**	Single-Lane Ramp Capacity (pc/h)*	Two-Lane Ramp Capacity (pc/h)*	How Many Lanes Needed?	Additional Ramp Capacity Needed at Gore Point?
	AM Peak Hour	PM Peak Hour	Midday Peak Hour	AM Peak Hour	PM Peak Hour	Midday Peak Hour							
	2040	2040	2040	2040	2040	2040							
I-75 SB Off-Ramp to SR 44	679	648	636	11.2%	11.2%	8.4%	35	2	795	2,000	4,000	1	No
I-75 SB On-Ramp from SR 44	655	675	711	14.9%	14.9%	9.0%	45	1	816	2,100	4,200	1	No
I-75 NB On-Ramp from SR 44	615	682	560	13.1%	13.1%	8.6%	45	2	812	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 44	598	604	559	9.7%	9.7%	5.6%	50	1	697	2,200	4,400	1	No
I-75 SB Off-Ramp to CR 484	625	1,200	627	8.3%	8.3%	7.4%	35	1	1,368	2,000	4,000	1	No
I-75 SB On-Ramp from CR 484	803	449	817	9.2%	9.2%	7.3%	45	1	923	2,100	4,200	1	No
I-75 NB On-Ramp from CR 484	1,300	701	1,099	6.4%	6.4%	4.3%	45	1	1,456	2,100	4,200	1	No
I-75 NB Off-Ramp to CR 484	442	854	749	7.3%	7.3%	14.7%	35	1	965	2,000	4,000	1	No
I-75 SB Off-Ramp to SR 200	838	969	668	5.1%	5.1%	3.9%	35	1	1,072	2,000	4,000	1	No
I-75 SB On-Ramp from SR 200	683	1,029	754	6.2%	6.2%	4.3%	45	1	1,150	2,100	4,200	1	No
I-75 NB On-Ramp from SR 200	921	864	964	3.4%	3.4%	2.4%	45	1	1,039	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 200	1,023	788	891	5.2%	5.2%	3.0%	35	1	1,133	2,000	4,000	1	No

*Based on HCM 7th Edition Exhibit 14-12.

**Based on HCM 7th Edition Equation 14-1, Equation 12-10, and Exhibit 12-25.

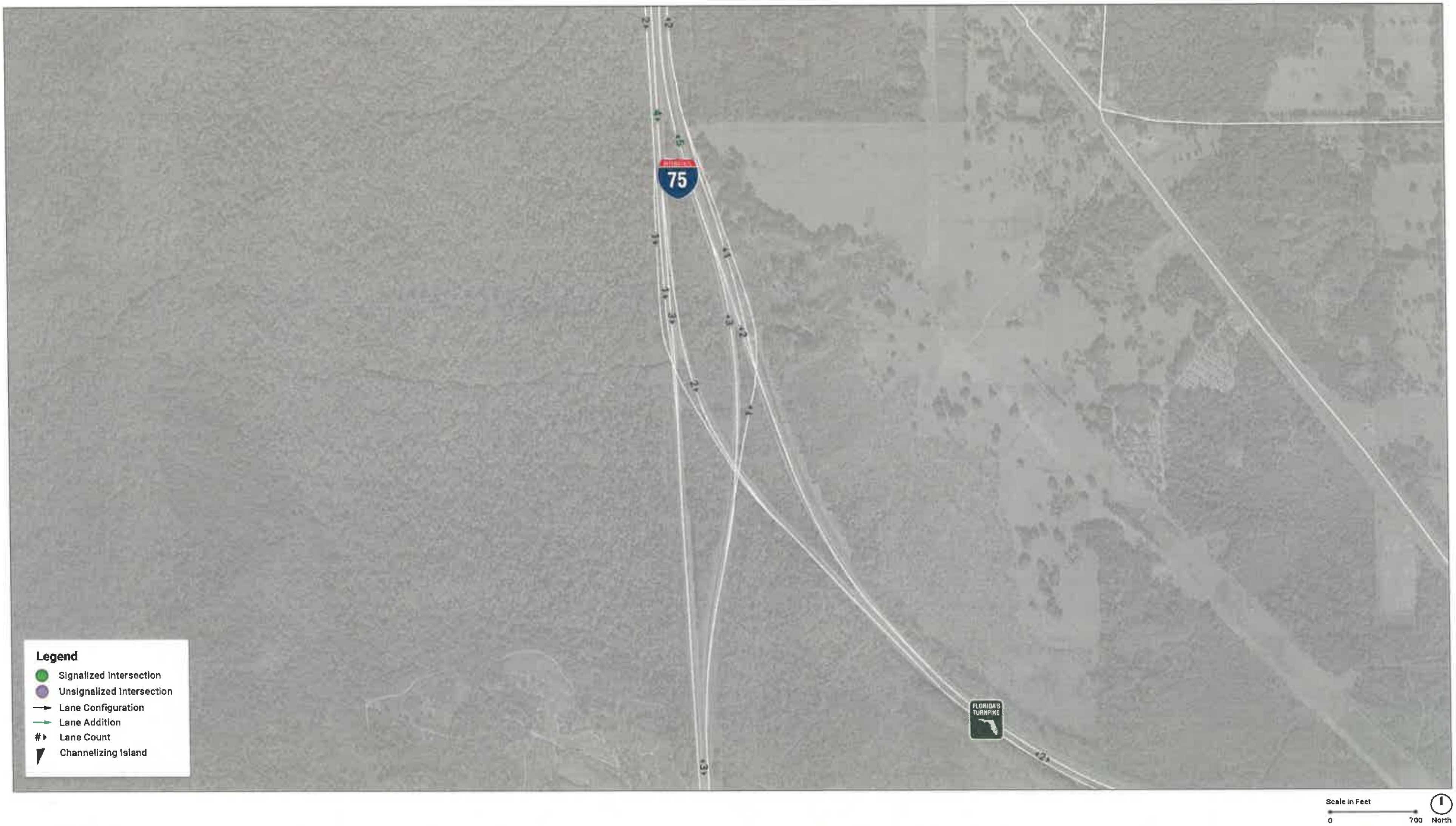
BUILD ANALYSIS

The following sections document the operational analyses conducted for the Opening Year (2030) and Design Year (2040) Build conditions analysis and includes freeway mainline analyses and ramp terminal intersection analyses. It is important to note the projected traffic volumes used in this alternatives analysis were developed by following the guidance in the FDOT Project Traffic Forecasting Handbook and reflect an average condition. The forecasts do not account for volume spikes due to non-recurring congestion events.

The Build condition consists of the following I-75 mainline improvements:

- Northbound
  - An auxiliary lane from south of SR 44 through the SR 44 interchange
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the SR 44 interchange and the SR 200 interchange
- Southbound
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the SR 200 interchange and SR 44 interchange
  - An auxiliary lane south of the SR 44 off-ramp to north of Turnpike

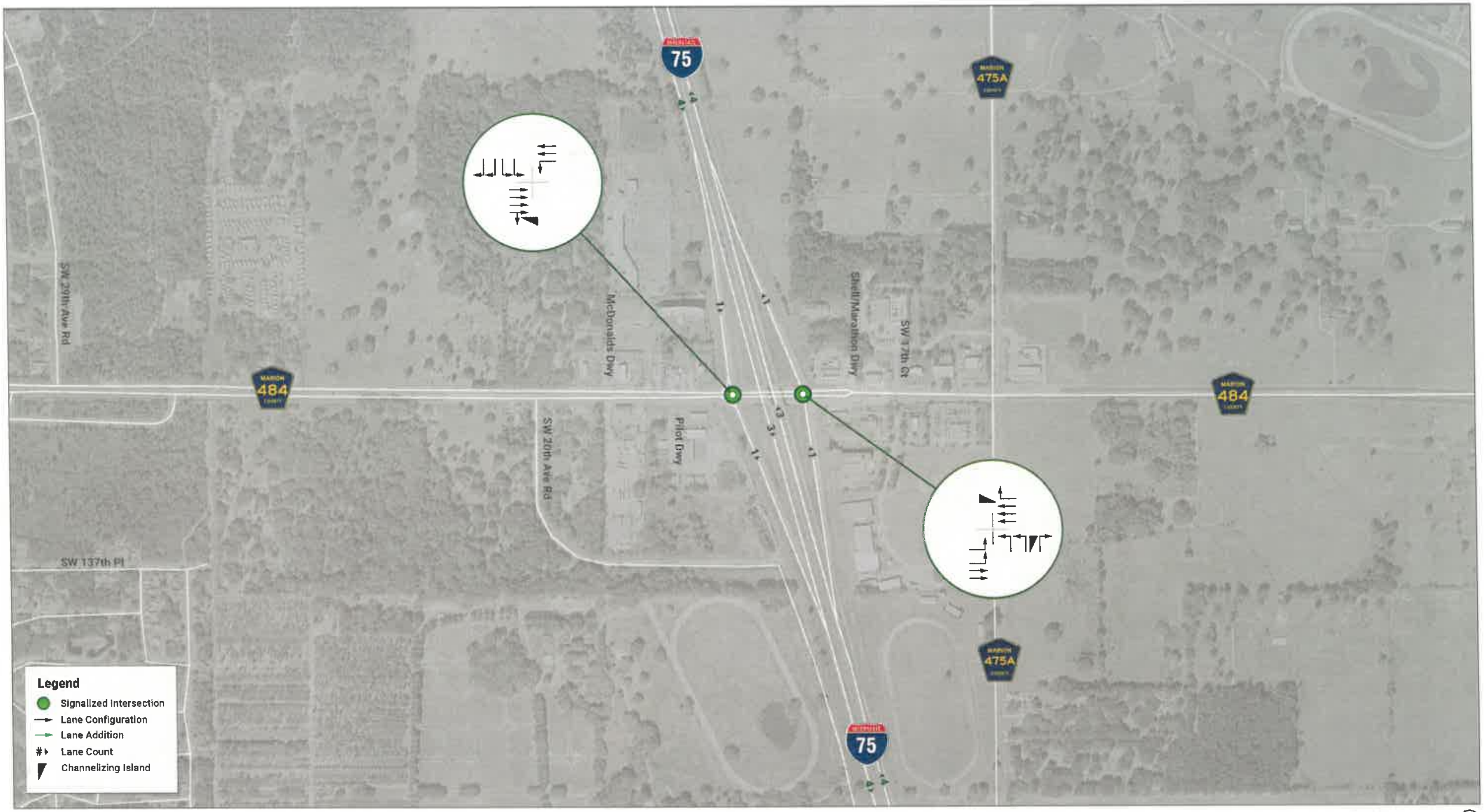
Figure 78 shows the lane configurations for the Future Build Condition. Build Conditions concepts are included in **Appendix V**. A conceptual signing plan consistent with the Manual on Uniform Traffic Devices (MUTCD) is also included in **Appendix V**.



Future Build Lane Configurations
Figure 78 (1 of 4)

I-75 PD&E | SR 44 Interchange
South of SR 44 to SR 200

Future Build Lane Configurations
Figure 78 (2 of 4)



I-75 PD&E | CR 484 Interchange
South of SR 44 to SR 200

Future Build Lane Configurations
Figure 78 (3 of 4)

I-75 PD&E | SR 200 Interchange
South of SR 44 to SR 200

Future Build Lane Configurations
Figure 78 (4 of 4)

2030 AND 2040 BUILD OPERATIONAL ANALYSIS

The following sections summarize the 2030 and 2040 Build operational analysis results for the freeway and intersection evaluations for the weekday AM, weekday PM, and weekend midday peak hours.

BUILD FREEWAY ANALYSIS

The technical methodology for this evaluation is based on the Freeway Facilities Analysis as outlined in the Highway Capacity Manual (HCM) 7th Edition. The freeway facilities methodology integrates all freeway segment chapter methodologies, including analysis of basic freeway segments, freeway merge and diverge segments, and freeway weaving segments. The freeway facilities analysis further provides the ability to evaluate multiple time periods, up to a 24-hour analysis. For this Build analysis, the AM, PM, and weekend peak periods were analyzed in 15-minute intervals over three-hour periods.

ANALYSIS YEARS, EVALUATION PERIODS, AND ASSUMPTIONS

The evaluation periods and methodology/data assumptions are consistent with the No-Build analysis years, evaluation periods, and methodology/data assumptions described in the **Traffic Analysis Methodology** and **No-Build Analysis** chapters of this report.

FREEWAY SEGMENTATION

The freeway facility in each direction (northbound and southbound) was segmented into basic freeway segments, merge, and diverge segments based on the HCM Freeway Facilities Methodologies for the Build scenario.

The Build condition consists of the following I-75 mainline improvements within the study area:

- Northbound
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the Turnpike interchange and through the SR 200 interchange.
- Southbound
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the Turnpike interchange and the SR 200 interchange.

The northbound facility consists of 24 analysis segments (**Figure 79**) and the southbound facility consists of 23 analysis segments (**Figure 80**).

Figure 79: Northbound Freeway Facility Segmentation – Build Condition

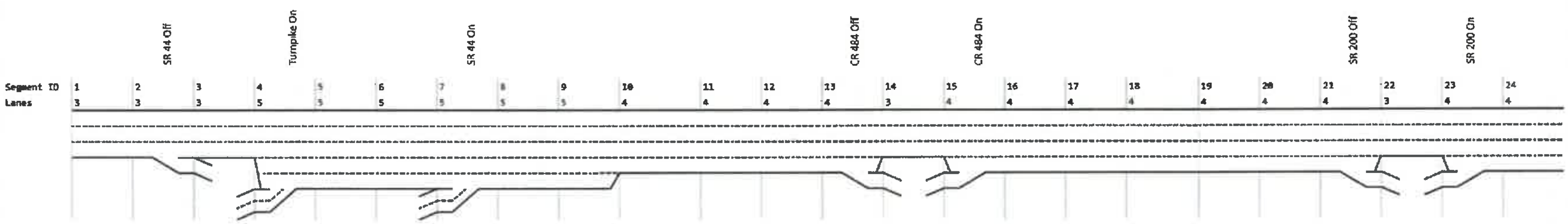
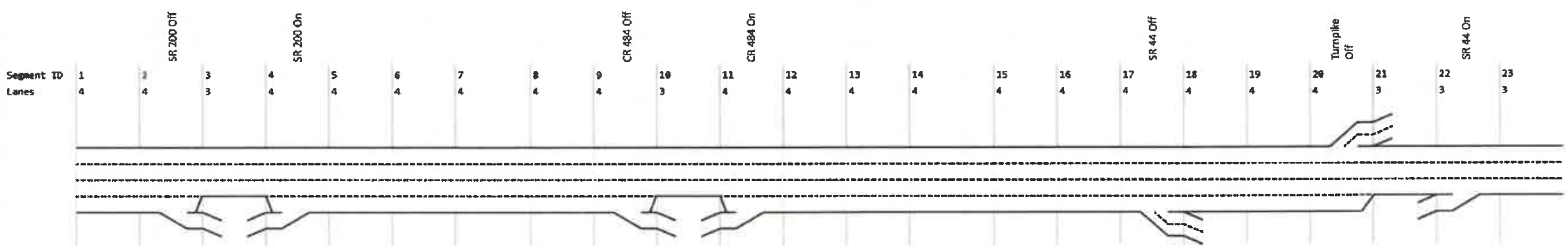


Figure 80: Southbound Freeway Facility Segmentation – Build Condition



2030 FREEWAY OPERATIONAL RESULTS

The 2030 peak period freeway operational analysis results for the Build Conditions (Auxiliary Lane) are summarized in this section.

A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 39**. The HCS output reports are provided in **Appendix W.** The facility is anticipated to operate at LOS D or better during the 2030 AM, PM, and weekend peak periods for both the northbound and southbound directions. The maximum D/C ratio observed in the northbound direction is estimated to be 0.79 during the weekend peak period while the maximum D/C ratio is estimated to be 0.83 in the southbound direction during the PM peak period. The average speeds on this facility are expected to be above 68 mph in the northbound and southbound directions.

The D/C, speed, and LOS contours for each analysis facility and peak period are illustrated in the following figures:

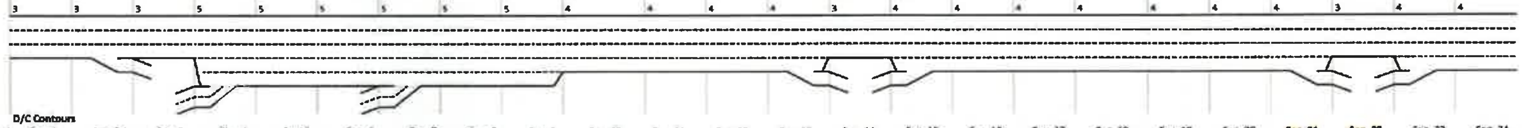
- Northbound 2030 AM – Build Condition – **Figure 81**
- Northbound 2030 PM – Build Condition – **Figure 82**
- Northbound 2030 Weekend – Build Condition – **Figure 83**
- Southbound 2030 AM – Build Condition – **Figure 84**
- Southbound 2030 PM – Build Condition – **Figure 85**
- Southbound 2030 Weekend – Build Condition – **Figure 86**

Table 39: Freeway Operations Summary – 2030 Build Condition

Performance Metric	South Section – AM		South Section – PM		South Section – Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	23.0	22.8	23.0	22.8	23.0	22.8
Average Travel Time (min)	19.7	19.3	19.5	19.9	19.9	19.8
Total VHD (veh-hr)	66.0	11.4	21.9	171.9	136.9	148.8
Space Mean Speed (mph)	70.0	70.9	70.8	68.6	69.1	69.0
Reported Density (pc/mi/ln)	15.6	12.4	14.2	19.5	18.4	19.5
Max D/C	0.77	0.57	0.64	0.83	0.79	0.76

Figure 81: Northbound 2030 AM Build Condition – Operational Contours

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Ramp		SR 44 Off		Turnpike On			SR 44 On						CR 484 Off		CR 484 On						SR 200 Off		SR 200 On	
Lanes	3	3	3	5	5	5	5	5	5	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	0.22	0.25	0.17	0.27	0.22	0.23	0.31	0.26	0.26	0.33	0.33	0.33	0.39	0.40	0.46	0.39	0.39	0.39	0.39	0.39	0.46	0.44	0.46	0.38
#2 6:30 - 6:45	0.25	0.28	0.20	0.31	0.25	0.26	0.35	0.29	0.29	0.37	0.37	0.37	0.44	0.45	0.52	0.43	0.43	0.43	0.43	0.43	0.52	0.49	0.51	0.43
#3 6:45 - 7:00	0.29	0.33	0.23	0.37	0.31	0.31	0.41	0.35	0.35	0.43	0.43	0.43	0.52	0.53	0.61	0.51	0.51	0.51	0.51	0.51	0.62	0.58	0.61	0.51
#4 7:00 - 7:15	0.33	0.38	0.26	0.42	0.35	0.35	0.48	0.40	0.40	0.50	0.50	0.50	0.60	0.61	0.70	0.59	0.59	0.59	0.59	0.59	0.71	0.66	0.69	0.58
#5 7:15 - 7:30	0.31	0.36	0.25	0.39	0.33	0.33	0.45	0.37	0.37	0.47	0.47	0.47	0.56	0.57	0.66	0.55	0.55	0.55	0.55	0.55	0.66	0.63	0.65	0.55
#6 7:30 - 7:45	0.32	0.36	0.25	0.40	0.33	0.33	0.46	0.38	0.36	0.47	0.47	0.47	0.57	0.58	0.67	0.56	0.56	0.56	0.56	0.56	0.67	0.63	0.66	0.56
#7 7:45 - 8:00	0.36	0.41	0.28	0.45	0.38	0.38	0.52	0.43	0.43	0.54	0.54	0.54	0.65	0.66	0.76	0.64	0.64	0.64	0.64	0.64	0.77	0.72	0.76	0.63
#8 8:00 - 8:15	0.35	0.40	0.27	0.44	0.37	0.37	0.50	0.42	0.42	0.52	0.52	0.52	0.63	0.64	0.74	0.62	0.62	0.62	0.62	0.62	0.74	0.70	0.73	0.61
#9 8:15 - 8:30	0.35	0.39	0.27	0.43	0.36	0.36	0.50	0.41	0.41	0.52	0.52	0.52	0.62	0.63	0.73	0.61	0.61	0.61	0.61	0.61	0.73	0.69	0.72	0.61
#10 8:30 - 8:45	0.34	0.39	0.27	0.43	0.36	0.36	0.49	0.41	0.41	0.51	0.51	0.51	0.61	0.63	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.68	0.71	0.60
#11 8:45 - 9:00	0.33	0.38	0.26	0.42	0.35	0.35	0.48	0.40	0.40	0.50	0.50	0.50	0.60	0.61	0.70	0.59	0.59	0.59	0.59	0.59	0.71	0.67	0.70	0.58
#12 9:00 - 9:15	0.32	0.36	0.25	0.40	0.33	0.33	0.46	0.38	0.38	0.47	0.47	0.47	0.57	0.58	0.67	0.56	0.56	0.56	0.56	0.56	0.67	0.63	0.66	0.56

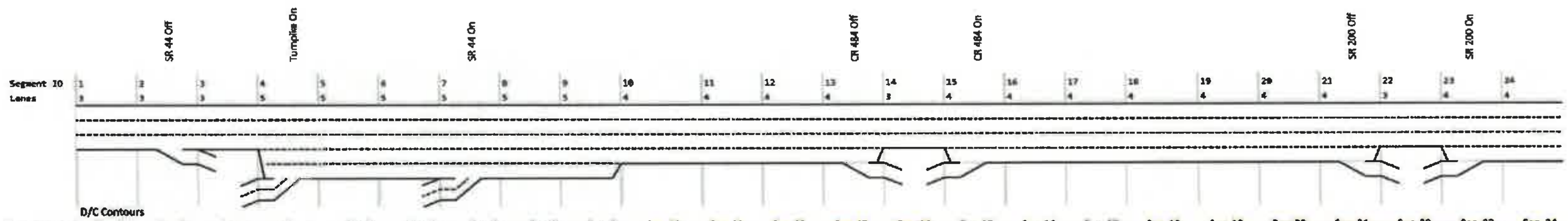
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	71.2	64.0	[illegible]	66.3	[illegible]	[illegible]	67.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70.8	71.2	[illegible]	[illegible]
#2 6:30 - 6:45	[illegible]	64.0	[illegible]	66.1	[illegible]	[illegible]	67.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	69.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	69.6	71.1	69.7	[illegible]
#3 6:45 - 7:00	[illegible]	64.1	[illegible]	65.8	[illegible]	[illegible]	67.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	69.6	[illegible]	66.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.8	[illegible]	67.1	[illegible]
#4 7:00 - 7:15	[illegible]	64.0	[illegible]	65.4	[illegible]	[illegible]	67.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	67.5	[illegible]	61.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	63.0	[illegible]	63.5	[illegible]
#5 7:15 - 7:30	[illegible]	64.1	[illegible]	65.6	[illegible]	[illegible]	67.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	68.6	[illegible]	65.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.9	[illegible]	65.3	[illegible]
#6 7:30 - 7:45	[illegible]	64.1	[illegible]	65.5	[illegible]	[illegible]	67.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	68.4	[illegible]	64.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.5	[illegible]	65.0	[illegible]
#7 7:45 - 8:00	[illegible]	64.0	[illegible]	65.1	[illegible]	[illegible]	67.1	[illegible]	[illegible]	70.7	[illegible]	[illegible]	65.6	[illegible]	59.9	68.7	68.7	68.7	68.7	68.7	59.6	[illegible]	60.3	[illegible]
#8 8:00 - 8:15	[illegible]	64.0	[illegible]	65.2	[illegible]	[illegible]	67.1	[illegible]	[illegible]	70.8	[illegible]	70.8	66.4	[illegible]	61.9	69.2	69.2	[illegible]	[illegible]	[illegible]	61.0	66.5	61.6	[illegible]
#9 8:15 - 8:30	[illegible]	64.0	[illegible]	65.3	[illegible]	[illegible]	67.2	[illegible]	[illegible]	70.9	[illegible]	[illegible]	66.7	[illegible]	61.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.5	67.1	62.0	[illegible]
#10 8:30 - 8:45	[illegible]	64.1	70.9	65.3	[illegible]	[illegible]	67.2	[illegible]	[illegible]	71.0	[illegible]	71.0	67.0	[illegible]	62.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.0	67.4	62.5	[illegible]
#11 8:45 - 9:00	[illegible]	64.0	[illegible]	65.4	[illegible]	[illegible]	67.3	[illegible]	[illegible]	71.0	[illegible]	[illegible]	67.5	[illegible]	63.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.9	[illegible]	63.4	[illegible]
#12 9:00 - 9:15	71.2	64.1	[illegible]	65.5	[illegible]	[illegible]	67.4	[illegible]	[illegible]	71.2	[illegible]	[illegible]	68.4	70.0	64.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.5	[illegible]	64.5	70.4

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 6:15 - 6:30	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B
#2 6:30 - 6:45	A	A	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#3 6:45 - 7:00	A	B	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B
#4 7:00 - 7:15	A	B	A	B	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C
#5 7:15 - 7:30	A	B	A	B	A	A	A	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	B
#6 7:30 - 7:45	A	B	A	B	A	A	A	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	B
#7 7:45 - 8:00	B	B	A	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C
#8 8:00 - 8:15	A	B	A	B	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C
#9 8:15 - 8:30	A	B	A	B	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C
#10 8:30 - 8:45	A	B	A	B	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C
#11 8:45 - 9:00	A	B	A	B	B	B	A	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C
#12 9:00 - 9:15	A	B	A	B	A	A	A	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	B

Figure 82: Northbound 2030 PM Build Condition – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	5	5	5	5	5	5	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	0.34	0.39	0.26	0.43	0.36	0.36	0.52	0.43	0.43	0.53	0.53	0.53	0.64	0.58	0.62	0.52	0.52	0.52	0.52	0.52	0.62	0.57	0.63	0.53
#2 15:45 - 16:00	0.32	0.37	0.24	0.41	0.34	0.34	0.49	0.40	0.40	0.50	0.50	0.50	0.61	0.55	0.59	0.49	0.49	0.49	0.49	0.49	0.59	0.54	0.59	0.50
#3 16:00 - 16:15	0.33	0.38	0.25	0.42	0.35	0.35	0.50	0.42	0.42	0.52	0.52	0.52	0.62	0.57	0.60	0.50	0.50	0.50	0.50	0.50	0.61	0.56	0.61	0.51
#4 16:15 - 16:30	0.31	0.36	0.23	0.40	0.33	0.33	0.47	0.39	0.39	0.49	0.49	0.49	0.59	0.53	0.57	0.48	0.48	0.48	0.48	0.48	0.57	0.53	0.57	0.48
#5 16:30 - 16:45	0.27	0.31	0.20	0.34	0.28	0.28	0.40	0.34	0.34	0.42	0.42	0.42	0.50	0.46	0.49	0.41	0.41	0.41	0.41	0.41	0.49	0.45	0.49	0.41
#6 16:45 - 17:00	0.30	0.34	0.22	0.38	0.32	0.32	0.45	0.37	0.37	0.47	0.47	0.47	0.56	0.51	0.54	0.46	0.46	0.46	0.46	0.46	0.55	0.50	0.55	0.46
#7 17:00 - 17:15	0.31	0.35	0.23	0.39	0.33	0.33	0.46	0.38	0.38	0.48	0.48	0.48	0.58	0.53	0.56	0.47	0.47	0.47	0.47	0.47	0.56	0.52	0.57	0.48
#8 17:15 - 17:30	0.32	0.36	0.24	0.40	0.34	0.34	0.48	0.40	0.40	0.50	0.50	0.50	0.60	0.54	0.58	0.48	0.48	0.48	0.48	0.48	0.58	0.53	0.58	0.49
#9 17:30 - 17:45	0.31	0.35	0.23	0.39	0.33	0.33	0.46	0.38	0.38	0.48	0.48	0.48	0.58	0.52	0.56	0.47	0.47	0.47	0.47	0.47	0.56	0.51	0.56	0.47
#10 17:45 - 18:00	0.29	0.33	0.22	0.37	0.31	0.31	0.44	0.36	0.36	0.45	0.45	0.45	0.54	0.49	0.53	0.44	0.44	0.44	0.44	0.44	0.53	0.49	0.53	0.45
#11 18:00 - 18:15	0.28	0.32	0.21	0.36	0.30	0.30	0.42	0.35	0.35	0.44	0.44	0.44	0.53	0.48	0.51	0.43	0.43	0.43	0.43	0.43	0.51	0.47	0.52	0.44
#12 18:15 - 18:30	0.28	0.30	0.20	0.34	0.28	0.28	0.40	0.33	0.33	0.41	0.41	0.41	0.50	0.45	0.48	0.40	0.40	0.40	0.40	0.40	0.48	0.44	0.49	0.41

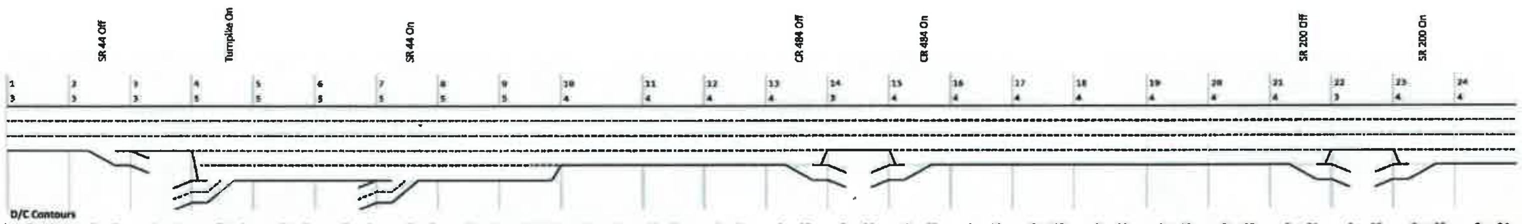
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2 15:45 - 16:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3 16:00 - 16:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#4 16:15 - 16:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#5 16:30 - 16:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#6 16:45 - 17:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#7 17:00 - 17:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#8 17:15 - 17:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#9 17:30 - 17:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#10 17:45 - 18:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#11 18:00 - 18:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#12 18:15 - 18:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	A	B	A	B	B	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	B	C	B	B
#2 15:45 - 16:00	A	B	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#3 16:00 - 16:15	A	B	A	B	B	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B
#4 16:15 - 16:30	A	B	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#5 16:30 - 16:45	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#6 16:45 - 17:00	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#7 17:00 - 17:15	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#8 17:15 - 17:30	A	B	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#9 17:30 - 17:45	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#10 17:45 - 18:00	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#11 18:00 - 18:15	A	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#12 18:15 - 18:30	A	A	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

Figure 83: Northbound 2030 Weekend Build Condition – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	5	5	5	5	5	5	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	0.50	0.58	0.43	0.55	0.46	0.46	0.61	0.51	0.51	0.64	0.64	0.64	0.77	0.73	0.78	0.66	0.66	0.66	0.66	0.66	0.79	0.75	0.78	0.66
#2 12:15 - 12:30	0.50	0.58	0.43	0.55	0.46	0.46	0.61	0.51	0.51	0.64	0.64	0.64	0.77	0.73	0.78	0.66	0.66	0.66	0.66	0.66	0.79	0.75	0.78	0.66
#3 12:30 - 12:45	0.50	0.58	0.43	0.55	0.46	0.46	0.61	0.51	0.51	0.64	0.64	0.64	0.77	0.73	0.78	0.66	0.66	0.66	0.66	0.66	0.79	0.75	0.78	0.66
#4 12:45 - 13:00	0.50	0.58	0.43	0.55	0.46	0.46	0.61	0.51	0.51	0.64	0.64	0.64	0.77	0.73	0.78	0.66	0.66	0.66	0.66	0.66	0.79	0.75	0.78	0.66
#5 13:00 - 13:15	0.46	0.53	0.39	0.51	0.42	0.42	0.56	0.47	0.47	0.58	0.58	0.58	0.70	0.66	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.68	0.72	0.60
#6 13:15 - 13:30	0.46	0.53	0.39	0.51	0.42	0.42	0.56	0.47	0.47	0.58	0.58	0.58	0.70	0.66	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.68	0.72	0.60
#7 13:30 - 13:45	0.46	0.53	0.39	0.51	0.42	0.42	0.56	0.47	0.47	0.58	0.58	0.58	0.70	0.66	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.68	0.72	0.60
#8 13:45 - 14:00	0.46	0.53	0.39	0.51	0.42	0.42	0.56	0.47	0.47	0.58	0.58	0.58	0.70	0.66	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.68	0.72	0.60
#9 14:00 - 14:15	0.41	0.47	0.35	0.45	0.38	0.38	0.50	0.42	0.42	0.52	0.52	0.52	0.63	0.59	0.64	0.54	0.54	0.54	0.54	0.54	0.64	0.61	0.64	0.54
#10 14:15 - 14:30	0.41	0.47	0.35	0.45	0.38	0.38	0.50	0.42	0.42	0.52	0.52	0.52	0.63	0.59	0.64	0.54	0.54	0.54	0.54	0.54	0.64	0.61	0.64	0.54
#11 14:30 - 14:45	0.41	0.47	0.35	0.45	0.38	0.38	0.50	0.42	0.42	0.52	0.52	0.52	0.63	0.59	0.64	0.54	0.54	0.54	0.54	0.54	0.64	0.61	0.64	0.54
#12 14:45 - 15:00	0.41	0.47	0.35	0.45	0.38	0.38	0.50	0.42	0.42	0.52	0.52	0.52	0.63	0.59	0.64	0.54	0.54	0.54	0.54	0.54	0.64	0.61	0.64	0.54

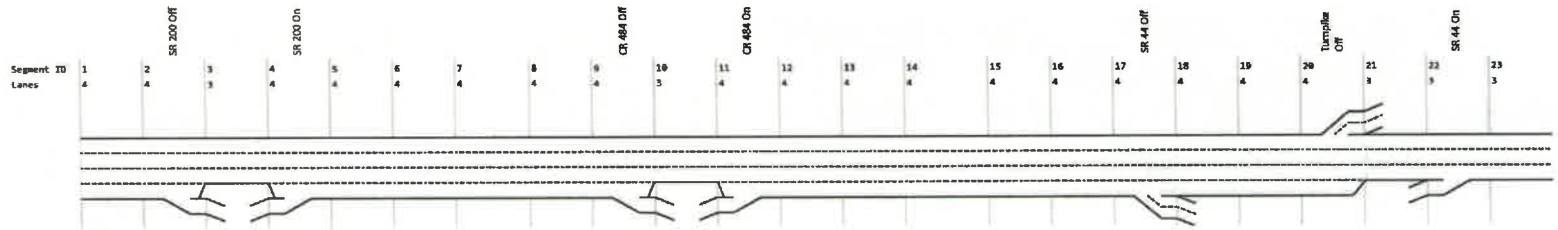
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	71.0	64.7	70.9	64.8	70.8	71.3	66.7	70.8	71.0	68.8	68.8	68.8	59.7	65.8	58.7	68.1	68.1	68.1	68.1	68.1	58.4	65.0	58.6	68.2
#2 12:15 - 12:30	71.0	64.7	70.9	64.8	70.8	71.3	66.7	70.8	71.0	68.8	68.8	68.8	59.7	65.8	58.7	68.1	68.1	68.1	68.1	68.1	58.4	65.0	58.6	68.2
#3 12:30 - 12:45	71.0	64.7	70.9	64.8	70.8	71.3	66.7	70.8	71.0	68.8	68.8	68.8	59.7	65.8	58.7	68.1	68.1	68.1	68.1	68.1	58.4	65.0	58.6	68.2
#4 12:45 - 13:00	71.0	64.7	70.9	64.8	70.8	71.3	66.7	70.8	71.0	68.8	68.8	68.8	59.7	65.8	58.7	68.1	68.1	68.1	68.1	68.1	58.4	65.0	58.6	68.2
#5 13:00 - 13:15	71.2	64.6	70.9	65.4	70.8	71.2	66.9	70.8	71.2	70.0	70.0	70.0	63.2	68.0	62.5	69.7	69.7	69.7	69.7	69.7	62.2	67.4	62.4	69.6
#6 13:15 - 13:30	71.2	64.6	70.9	65.4	70.8	71.2	66.9	70.8	71.2	70.0	70.0	70.0	63.2	68.0	62.5	69.7	69.7	69.7	69.7	69.7	62.2	67.4	62.4	69.6
#7 13:30 - 13:45	71.2	64.6	70.9	65.4	70.8	71.2	66.9	70.8	71.2	70.0	70.0	70.0	63.2	68.0	62.5	69.7	69.7	69.7	69.7	69.7	62.2	67.4	62.4	69.6
#8 13:45 - 14:00	71.2	64.6	70.9	65.4	70.8	71.2	66.9	70.8	71.2	70.0	70.0	70.0	63.2	68.0	62.5	69.7	69.7	69.7	69.7	69.7	62.2	67.4	62.4	69.6
#9 14:00 - 14:15	71.2	64.6	70.9	65.9	70.9	71.2	67.2	70.8	71.2	70.5	70.5	70.8	66.4	69.9	65.9	70.7	70.7	70.7	70.7	70.7	65.8	69.4	65.9	70.7
#10 14:15 - 14:30	71.2	64.6	70.9	65.9	70.9	71.2	67.2	70.8	71.2	70.5	70.5	70.8	66.4	69.9	65.9	70.7	70.7	70.7	70.7	70.7	65.8	69.4	65.9	70.7
#11 14:30 - 14:45	71.2	64.6	70.9	65.9	70.9	71.2	67.2	70.8	71.2	70.5	70.5	70.8	66.4	69.9	65.9	70.7	70.7	70.7	70.7	70.7	65.8	69.4	65.9	70.7
#12 14:45 - 15:00	71.2	64.6	70.9	65.9	70.9	71.2	67.2	70.8	71.2	70.5	70.5	70.8	66.4	69.9	65.9	70.7	70.7	70.7	70.7	70.7	65.8	69.4	65.9	70.7

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	B	B	B	C	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#2 12:15 - 12:30	B	B	B	C	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#3 12:30 - 12:45	B	B	B	C	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#4 12:45 - 13:00	B	B	B	C	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#5 13:00 - 13:15	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#6 13:15 - 13:30	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#7 13:30 - 13:45	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#8 13:45 - 14:00	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
#9 14:00 - 14:15	B	B	B	B	B	B	A	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	B
#10 14:15 - 14:30	B	B	B	B	B	B	A	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	B
#11 14:30 - 14:45	B	B	B	B	B	B	A	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	B
#12 14:45 - 15:00	B	B	B	B	B	B	A	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	B

Figure 84: Southbound 2030 AM Build Condition – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	0.29	0.35	0.32	0.33	0.28	0.28	0.28	0.28	0.34	0.32	0.35	0.29	0.29	0.29	0.29	0.29	0.35	0.25	0.25	0.29	[illegible]	0.23	0.20
#2 6:30 - 6:45	0.31	0.38	0.34	0.36	0.30	0.30	0.30	0.30	0.36	0.34	0.37	0.31	0.31	0.31	0.31	0.31	0.37	0.26	0.26	0.32	[illegible]	0.25	0.22
#3 6:45 - 7:00	0.35	0.42	0.38	0.40	0.33	0.33	0.33	0.33	0.40	0.38	0.41	0.35	0.35	0.35	0.35	0.35	0.41	0.29	0.29	0.35	[illegible]	0.27	0.24
#4 7:00 - 7:15	0.38	0.46	0.41	0.44	0.37	0.37	0.37	0.37	0.44	0.42	0.45	0.38	0.38	0.38	0.38	0.38	0.45	0.32	0.32	0.38	0.19	0.30	0.26
#5 7:15 - 7:30	0.40	0.48	0.44	0.46	0.38	0.38	0.38	0.38	0.46	0.44	0.48	0.40	0.40	0.40	0.40	0.40	0.48	0.34	0.34	0.40	0.20	0.32	0.27
#6 7:30 - 7:45	0.44	0.53	0.48	0.50	0.42	0.42	0.42	0.42	0.50	0.48	0.52	0.43	0.43	0.43	0.43	0.43	0.52	0.37	0.37	0.44	0.22	0.34	0.30
#7 7:45 - 8:00	0.47	0.56	0.51	0.53	0.45	0.45	0.45	0.45	0.54	0.51	0.55	0.46	0.46	0.46	0.46	0.46	0.55	0.39	0.39	0.47	0.23	0.37	0.32
#8 8:00 - 8:15	0.44	0.52	0.47	0.50	0.42	0.42	0.42	0.42	0.50	0.47	0.52	0.43	0.43	0.43	0.43	0.43	0.52	0.36	0.36	0.44	0.23	0.34	0.30
#9 8:15 - 8:30	0.42	0.50	0.45	0.48	0.40	0.40	0.40	0.40	0.48	0.45	0.50	0.41	0.41	0.41	0.41	0.41	0.50	0.35	0.35	0.42	0.21	0.33	0.29
#10 8:30 - 8:45	0.44	0.52	0.47	0.50	0.42	0.42	0.42	0.42	0.50	0.47	0.52	0.43	0.43	0.43	0.43	0.43	0.52	0.36	0.36	0.44	0.22	0.34	0.30
#11 8:45 - 9:00	0.48	0.57	0.52	0.55	0.46	0.46	0.46	0.46	0.55	0.52	0.57	0.47	0.47	0.47	0.47	0.47	0.57	0.40	0.40	0.48	0.24	0.37	0.33
#12 9:00 - 9:15	0.45	0.55	0.49	0.52	0.44	0.44	0.44	0.44	0.52	0.49	0.54	0.45	0.45	0.45	0.45	0.45	0.54	0.38	0.38	0.46	0.23	0.36	0.31

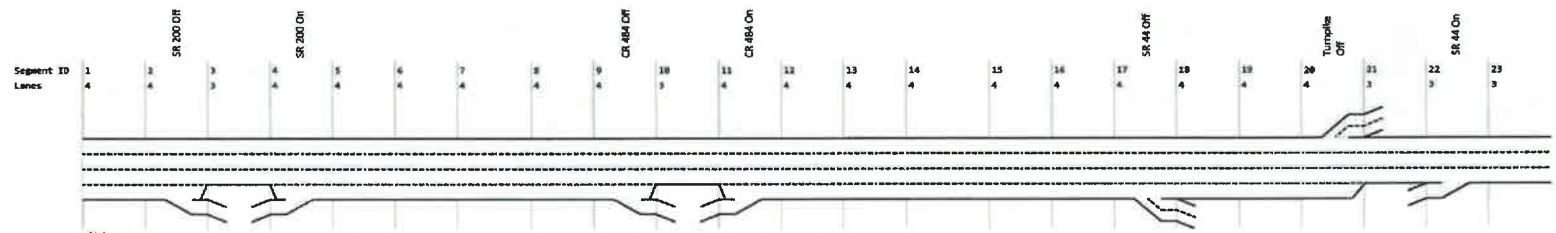
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.5	[illegible]	65.1	[illegible]
#2 6:30 - 6:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.3	[illegible]	65.1	[illegible]
#3 6:45 - 7:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.0	[illegible]	65.1	[illegible]
#4 7:00 - 7:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.7	[illegible]	65.0	[illegible]
#5 7:15 - 7:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.5	[illegible]	65.0	[illegible]
#6 7:30 - 7:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.2	[illegible]	64.9	[illegible]
#7 7:45 - 8:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	60.9	[illegible]	64.9	[illegible]
#8 8:00 - 8:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.2	[illegible]	64.9	[illegible]
#9 8:15 - 8:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.3	[illegible]	65.0	[illegible]
#10 8:30 - 8:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.2	[illegible]	64.9	[illegible]
#11 8:45 - 9:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	60.8	[illegible]	64.8	[illegible]
#12 9:00 - 9:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.0	[illegible]	64.9	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2 6:30 - 6:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3 6:45 - 7:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#4 7:00 - 7:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#5 7:15 - 7:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#6 7:30 - 7:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#7 7:45 - 8:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#8 8:00 - 8:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#9 8:15 - 8:30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#10 8:30 - 8:45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#11 8:45 - 9:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#12 9:00 - 9:15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Figure 85: Southbound 2030 PM Build Condition – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	0.66	0.79	0.75	0.79	0.66	0.66	0.66	0.66	0.79	0.71	0.70	0.58	0.58	0.58	0.58	0.58	0.70	0.52	0.52	0.62	0.31	0.46	0.40
#2 15:45 - 16:00	0.63	0.76	0.72	0.76	0.64	0.64	0.64	0.64	0.76	0.69	0.67	0.56	0.56	0.56	0.56	0.56	0.67	0.50	0.50	0.60	0.30	0.44	0.39
#3 16:00 - 16:15	0.69	0.83	0.78	0.82	0.69	0.69	0.69	0.69	0.83	0.75	0.73	0.61	0.61	0.61	0.61	0.61	0.73	0.54	0.54	0.65	0.33	0.48	0.42
#4 16:15 - 16:30	0.66	0.79	0.75	0.79	0.66	0.66	0.66	0.66	0.79	0.71	0.70	0.58	0.58	0.58	0.58	0.58	0.70	0.51	0.51	0.62	0.31	0.46	0.40
#5 16:30 - 16:45	0.69	0.83	0.78	0.83	0.69	0.69	0.69	0.69	0.83	0.75	0.73	0.61	0.61	0.61	0.61	0.61	0.73	0.54	0.54	0.65	0.33	0.48	0.42
#6 16:45 - 17:00	0.64	0.76	0.72	0.76	0.64	0.64	0.64	0.64	0.77	0.69	0.67	0.56	0.56	0.56	0.56	0.56	0.67	0.50	0.50	0.60	0.30	0.44	0.39
#7 17:00 - 17:15	0.65	0.78	0.74	0.78	0.65	0.65	0.65	0.65	0.79	0.71	0.69	0.58	0.58	0.58	0.58	0.58	0.69	0.51	0.51	0.61	0.31	0.46	0.40
#8 17:15 - 17:30	0.66	0.79	0.75	0.79	0.66	0.66	0.66	0.66	0.80	0.72	0.70	0.58	0.58	0.58	0.58	0.58	0.70	0.52	0.52	0.62	0.32	0.46	0.40
#9 17:30 - 17:45	0.62	0.74	0.70	0.74	0.62	0.62	0.62	0.62	0.74	0.67	0.65	0.54	0.54	0.54	0.54	0.54	0.65	0.48	0.48	0.58	0.29	0.43	0.38
#10 17:45 - 18:00	0.59	0.71	0.67	0.71	0.60	0.60	0.60	0.60	0.72	0.65	0.63	0.52	0.52	0.52	0.52	0.52	0.63	0.47	0.47	0.56	0.28	0.42	0.36
#11 18:00 - 18:15	0.61	0.73	0.69	0.73	0.61	0.61	0.61	0.61	0.74	0.66	0.65	0.54	0.54	0.54	0.54	0.54	0.65	0.48	0.48	0.57	0.29	0.43	0.37
#12 18:15 - 18:30	0.57	0.68	0.64	0.68	0.57	0.57	0.57	0.57	0.68	0.61	0.60	0.50	0.50	0.50	0.50	0.50	0.60	0.44	0.44	0.53	0.27	0.40	0.35

Speed Contours

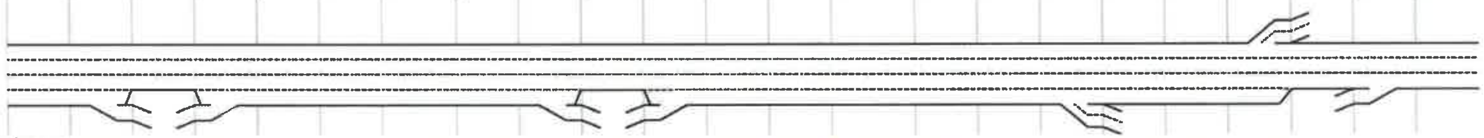
Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	68.2	58.2	65.1	58.3	68.1	68.1	68.2	68.1	58.0	[illegible]	63.8	70.0	70.0	70.0	70.0	70.0	[illegible]	70.9	70.9	59.8	[illegible]	64.7	[illegible]
#2 15:45 - 16:00	68.8	59.9	66.1	60.0	68.8	68.8	68.8	68.8	59.7	67.9	64.6	70.4	70.4	70.4	70.4	70.4	[illegible]	71.1	71.1	60.1	[illegible]	64.7	[illegible]
#3 16:00 - 16:15	67.3	55.9	63.6	56.0	67.2	67.2	67.2	67.2	55.7	65.1	61.8	69.5	69.5	69.5	69.5	69.5	68.5	70.7	70.7	59.6	[illegible]	64.6	[illegible]
#4 16:15 - 16:30	68.2	58.1	65.1	58.4	68.2	68.2	68.2	68.2	58.1	66.4	63.4	70.0	70.0	70.0	70.0	70.0	[illegible]	70.9	70.9	59.9	[illegible]	64.7	[illegible]
#5 16:30 - 16:45	67.1	55.6	63.4	55.7	67.1	67.1	67.1	67.1	55.3	64.9	61.6	69.4	69.4	69.4	69.4	69.4	68.5	70.6	70.6	59.5	[illegible]	64.6	[illegible]
#6 16:45 - 17:00	68.8	59.9	66.1	60.0	68.8	68.8	68.8	68.8	59.7	67.2	64.5	70.4	70.4	70.4	70.4	70.4	[illegible]	71.0	71.0	60.1	[illegible]	64.7	[illegible]
#7 17:00 - 17:15	68.3	58.7	65.3	58.8	68.3	68.3	68.3	68.1	58.5	66.6	63.7	70.1	70.1	70.1	70.1	70.1	[illegible]	71.0	71.0	59.9	[illegible]	64.7	[illegible]
#8 17:15 - 17:30	68.1	58.0	65.0	58.1	68.1	68.1	68.1	68.1	57.9	66.2	63.3	70.0	70.0	70.0	70.0	70.0	[illegible]	70.9	70.9	59.8	[illegible]	64.7	[illegible]
#9 17:30 - 17:45	[illegible]	61.1	66.2	61.2	69.2	69.2	69.2	69.2	60.9	67.8	65.4	70.6	70.6	70.6	70.6	70.6	[illegible]	71.1	71.1	60.2	[illegible]	64.8	[illegible]
#10 17:45 - 18:00	[illegible]	67.6	67.1	62.7	69.7	69.7	69.7	69.7	62.4	68.6	[illegible]	70.8	70.8	70.8	70.8	70.8	[illegible]	71.2	71.2	60.4	[illegible]	64.8	[illegible]
#11 18:00 - 18:15	[illegible]	61.5	67.2	61.6	69.4	69.4	69.4	69.4	61.4	68.0	65.6	70.7	70.7	70.7	70.7	70.7	[illegible]	71.1	71.1	60.2	[illegible]	64.8	[illegible]
#12 18:15 - 18:30	70.2	64.2	68.7	64.3	70.2	70.2	70.2	70.2	64.1	67.3	67.4	70.9	71.0	71.0	71.0	71.0	[illegible]	71.2	71.2	60.7	[illegible]	64.9	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	B	A	B	B
#2 15:45 - 16:00	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	A	B	B	B	A	B	B
#3 16:00 - 16:15	C	D	D	D	C	C	C	C	D	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#4 16:15 - 16:30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	B	A	B	B
#5 16:30 - 16:45	C	D	D	D	C	C	C	C	D	D	C	C	C	C	C	C	A	B	B	C	A	B	B
#6 16:45 - 17:00	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	A	B	B	B	A	B	B
#7 17:00 - 17:15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	B	A	B	B
#8 17:15 - 17:30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	B	A	B	B
#9 17:30 - 17:45	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	A	B	B	B	A	B	B
#10 17:45 - 18:00	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	A	B	B	B	A	B	B
#11 18:00 - 18:15	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	A	B	B	B	A	B	B
#12 18:15 - 18:30	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	A	B	B	B	A	B	A

Figure 86: Southbound 2030 Weekend Build Condition– Operational Contours

		SR 200 Off		SR 200 On					CR 484 Off		CR 484 On						SR 44 Off			Turnpike Off		SR 44 On	
Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Lanes	4	4	3	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	3	3	3



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	0.55	0.66	0.66	0.67	0.56	0.56	0.56	0.56	0.67	0.67	0.70	0.58	0.58	0.58	0.58	0.58	0.70	0.53	0.53	0.63	[illegible]	0.47	0.42
#2 12:15 - 12:30	0.55	0.66	0.66	0.67	0.56	0.56	0.56	0.56	0.67	0.67	0.70	0.58	0.58	0.58	0.58	0.58	0.70	0.53	0.53	0.63	[illegible]	0.47	0.42
#3 12:30 - 12:45	0.55	0.66	0.66	0.67	0.56	0.56	0.56	0.56	0.67	0.67	0.70	0.58	0.58	0.58	0.58	0.58	0.70	0.53	0.53	0.63	[illegible]	0.47	0.42
#4 12:45 - 13:00	0.55	0.66	0.66	0.67	0.56	0.56	0.56	0.56	0.67	0.67	0.70	0.58	0.58	0.58	0.58	0.58	0.70	0.53	0.53	0.63	[illegible]	0.47	0.42
#5 13:00 - 13:15	0.58	0.70	0.69	0.71	0.59	0.59	0.59	0.59	0.71	0.71	0.74	0.62	0.62	0.62	0.62	0.62	0.74	0.56	0.56	0.67	[illegible]	0.50	0.44
#6 13:15 - 13:30	0.58	0.70	0.69	0.71	0.59	0.59	0.59	0.59	0.71	0.71	0.74	0.62	0.62	0.62	0.62	0.62	0.74	0.56	0.56	0.67	[illegible]	0.50	0.44
#7 13:30 - 13:45	0.58	0.70	0.69	0.71	0.59	0.59	0.59	0.59	0.71	0.71	0.74	0.62	0.62	0.62	0.62	0.62	0.74	0.56	0.56	0.67	[illegible]	0.50	0.44
#8 13:45 - 14:00	0.58	0.70	0.69	0.71	0.59	0.59	0.59	0.59	0.71	0.71	0.74	0.62	0.62	0.62	0.62	0.62	0.74	0.56	0.56	0.67	[illegible]	0.50	0.44
#9 14:00 - 14:15	0.59	0.71	0.70	0.72	0.60	0.60	0.60	0.60	0.73	0.72	0.75	0.63	0.63	0.63	0.63	0.63	0.76	0.57	0.57	0.68	[illegible]	0.51	0.45
#10 14:15 - 14:30	0.59	0.71	0.70	0.72	0.60	0.60	0.60	0.60	0.73	0.72	0.75	0.63	0.63	0.63	0.63	0.63	0.76	0.57	0.57	0.68	[illegible]	0.51	0.45
#11 14:30 - 14:45	0.59	0.71	0.70	0.72	0.60	0.60	0.60	0.60	0.73	0.72	0.75	0.63	0.63	0.63	0.63	0.63	0.76	0.57	0.57	0.68	[illegible]	0.51	0.45
#12 14:45 - 15:00	0.59	0.71	0.70	0.72	0.60	0.60	0.60	0.60	0.73	0.72	0.75	0.63	0.63	0.63	0.63	0.63	0.76	0.57	0.57	0.68	[illegible]	0.51	0.45

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	[illegible]	65.0	[illegible]	64.6	[illegible]	[illegible]	[illegible]	[illegible]	64.4	67.7	63.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	60.0	[illegible]	64.6	[illegible]
#2 12:15 - 12:30	[illegible]	65.0	[illegible]	64.6	[illegible]	[illegible]	[illegible]	[illegible]	64.4	67.7	63.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	60.0	[illegible]	64.6	[illegible]
#3 12:30 - 12:45	[illegible]	65.0	[illegible]	64.6	[illegible]	[illegible]	[illegible]	[illegible]	64.4	67.7	63.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	60.0	[illegible]	64.6	[illegible]
#4 12:45 - 13:00	[illegible]	65.0	[illegible]	64.6	[illegible]	[illegible]	[illegible]	[illegible]	64.4	67.7	63.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	60.0	[illegible]	64.6	[illegible]
#5 13:00 - 13:15	[illegible]	63.4	67.2	62.9	[illegible]	[illegible]	[illegible]	[illegible]	62.7	66.5	61.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.5	[illegible]
#6 13:15 - 13:30	[illegible]	63.4	67.2	62.9	[illegible]	[illegible]	[illegible]	[illegible]	62.7	66.5	61.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.5	[illegible]
#7 13:30 - 13:45	[illegible]	63.4	67.2	62.9	[illegible]	[illegible]	[illegible]	[illegible]	62.7	66.5	61.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.5	[illegible]
#8 13:45 - 14:00	[illegible]	63.4	67.2	62.9	[illegible]	[illegible]	[illegible]	[illegible]	62.3	66.5	61.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.3	[illegible]
#9 14:00 - 14:15	[illegible]	62.7	66.7	62.2	[illegible]	[illegible]	[illegible]	[illegible]	61.9	66.0	60.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.4	[illegible]
#10 14:15 - 14:30	[illegible]	62.7	66.7	62.2	[illegible]	[illegible]	[illegible]	[illegible]	61.9	66.0	60.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.4	[illegible]
#11 14:30 - 14:45	[illegible]	62.7	66.7	62.2	[illegible]	[illegible]	[illegible]	[illegible]	61.9	66.0	60.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.4	[illegible]
#12 14:45 - 15:00	[illegible]	62.7	66.7	62.2	[illegible]	[illegible]	[illegible]	[illegible]	61.9	66.0	60.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.6	[illegible]	64.4	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	B	C	C	C	B	B	B	B	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#2 12:15 - 12:30	B	C	C	C	B	B	B	B	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#3 12:30 - 12:45	B	C	C	C	B	B	B	B	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#4 12:45 - 13:00	B	C	C	C	B	B	B	B	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#5 13:00 - 13:15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#6 13:15 - 13:30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#7 13:30 - 13:45	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#8 13:45 - 14:00	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#9 14:00 - 14:15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	B	B	B
#10 14:15 - 14:30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	B	B	B
#11 14:30 - 14:45	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	B	B	B
#12 14:45 - 15:00	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	B	B	B

The contours presented in **Figure 81** through **Figure 86** show that the proposed auxiliary lane improvements analyzed using HCS2023 software and HCM 7th Edition methodologies would result in operational improvements when compared to No-Build operational results. The proposed Build Condition is anticipated to result in all segments operating below capacity (D/C < 1.0) and LOS D or better during all analysis periods. The space mean speed for northbound and southbound directions are anticipated to be 68 mph and higher in all analysis periods and segments analyzed for Build Conditions. It is important to note the projected traffic volumes used in this alternatives analysis were developed by following the guidance in the FDOT Project Traffic Forecasting Handbook and reflect an average condition. The forecasts do not account for volume spikes due to non-recurring congestion events.

The following summarizes the improvements of the 2030 Build improvements versus the 2030 No-Build condition:

- Northbound I-75
  - The Build improvements provide an improvement over the No-Build condition for the following performance metrics:
    - Average travel time
      - Travel times improve by up to approximately 1.8 minutes over the No-Build condition (an approximately 8% improvement)
    - Total vehicle hours of delay
      - Total network vehicle hours of delay is improved by up to 109 hours (an approximately 83% improvement)
    - D/C ratios
- Southbound I-75
  - The Build improvements provide an improvement over the No-Build condition for the following performance metrics:
    - Average travel time
      - Travel times improve by up to approximately 2.9 minutes over the No-Build condition (an approximately 13% improvement)
    - Total vehicle hours of delay
      - Total network vehicle hours of delay is improved by up to 631 hours (an approximately 79% improvement)
    - D/C ratios

2040 FREEWAY OPERATIONAL RESULTS

The 2040 peak period freeway operational analysis results for the Build Conditions are summarized in this section.

A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 40** for the 2040 Build Conditions (Auxiliary Lane). The HCS output reports are provided in **Appendix X**. The facility is anticipated to have overcapacity (LOS F) segments with heavy congestion during the 2040 AM, PM, and weekend peak periods for the northbound and southbound directions. The maximum D/C ratio observed in the northbound direction is estimated to be 1.07 during the AM peak period while the maximum D/C ratio is estimated to be 1.09 in the southbound direction during the PM peak period. The average speeds on this facility are expected to be above 63 mph in the northbound and southbound directions.

Multiple segments on the facility are anticipated to operate at LOS E and LOS F during the 2040 AM and weekend peak periods in the northbound direction. Multiple segments are anticipated to operate at LOS E and/or LOS F during the 2040 PM and weekend peak periods in the southbound direction. The proposed improvements provide the capacity needed to service average peak period 2030 future volumes; however, deficiencies are anticipated with the 2040 future volume demand exceeding capacity at spot locations.

The D/C, speed, and LOS contours for each analysis facility and peak period are illustrated in the following figures:

- Northbound 2040 AM Build Condition – **Figure 87**
- Northbound 2040 PM Build Condition – **Figure 88**
- Northbound 2040 Weekend Build Condition – **Figure 89**
- Southbound 2040 AM Build Condition – **Figure 90**
- Southbound 2040 PM Build Condition – **Figure 91**
- Southbound 2040 Weekend Build Condition – **Figure 92**

Table 40: Freeway Operations Summary – 2040 Build Condition

Performance Metric	South Section – AM		South Section – PM		South Section – Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	23.0	22.8	23.0	22.8	23.0	22.8
Average Travel Time (min)	21.8	19.7	20.1	21.7	21.8	21.5
Total VHD (veh-hr)	687.2	110.8	191.5	724.2	722.9	696.8
Space Mean Speed (mph)	63.2	69.4	68.4	63.1	63.3	63.5
Reported Density (pc/mi/ln)	24.1	17.7	19.4	26.3	25.5	26.5
Max D/C	1.07	0.79	0.85	1.09	1.01	0.95

Figure 87: Northbound 2040 AM Build Condition – Operational Contours

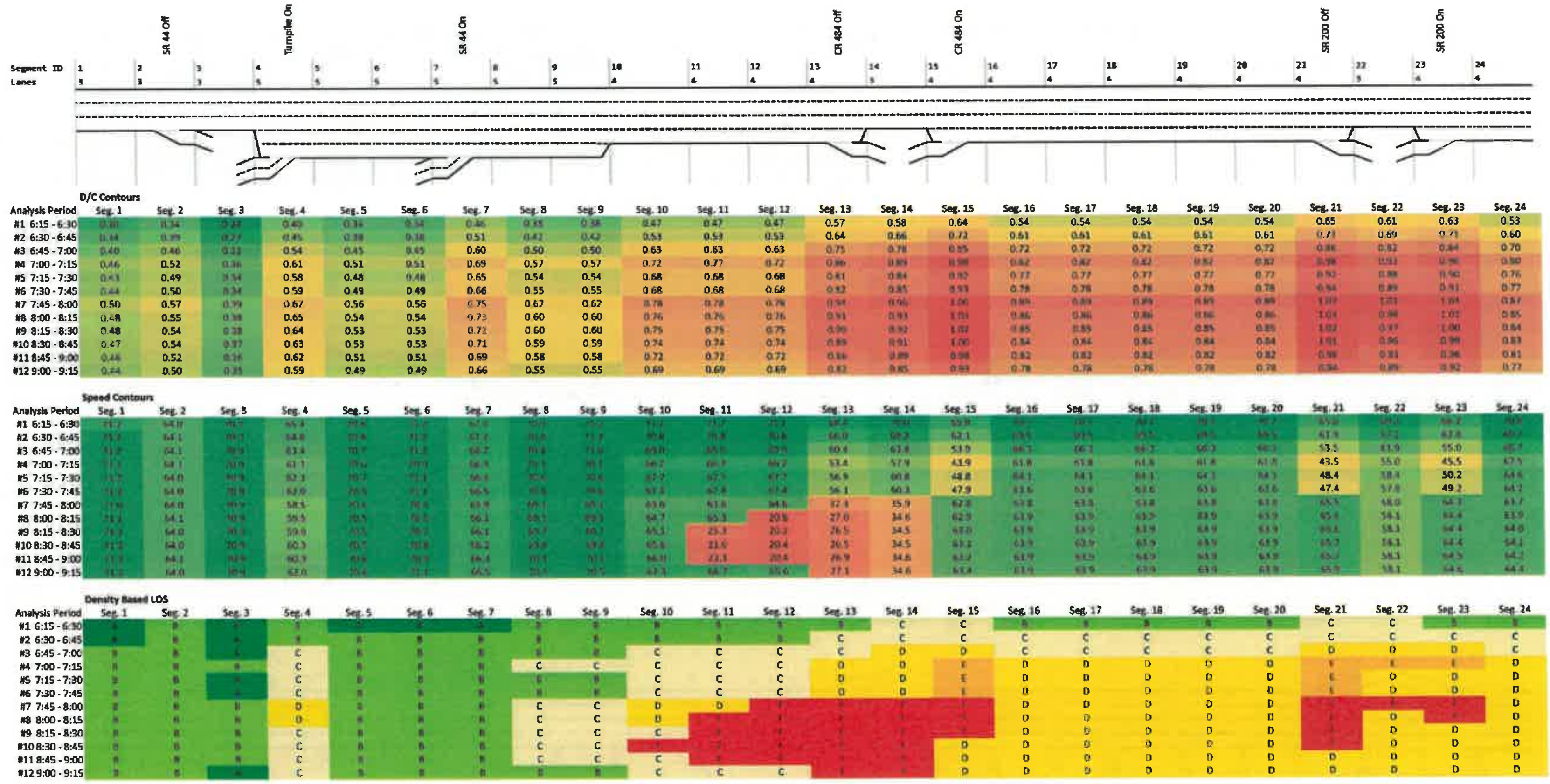
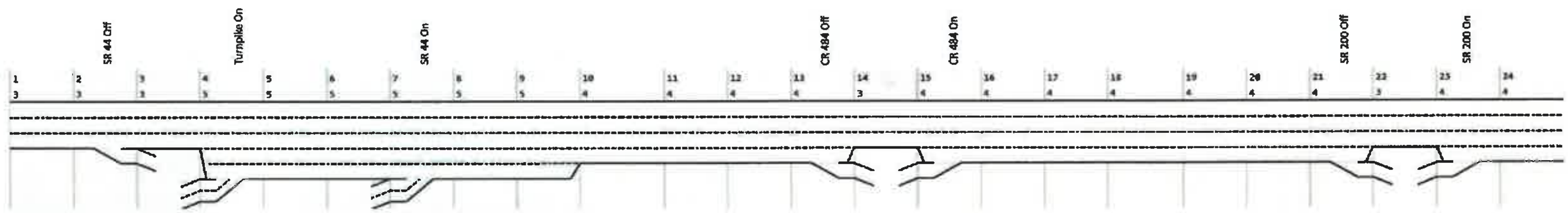


Figure 88: Northbound 2040 PM Build Condition – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	5	5	5	5	5	5	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 15:30 - 15:45	0.43	0.49	0.31	0.58	0.49	0.49	0.68	0.57	0.57	0.71	0.71	0.71
#2 15:45 - 16:00	0.40	0.46	0.30	0.55	0.46	0.46	0.64	0.53	0.53	0.67	0.67	0.67
#3 16:00 - 16:15	0.41	0.47	0.30	0.57	0.47	0.47	0.66	0.55	0.55	0.69	0.69	0.69
#4 16:15 - 16:30	0.39	0.45	0.29	0.53	0.45	0.45	0.62	0.52	0.52	0.65	0.65	0.65
#5 16:30 - 16:45	0.33	0.38	0.25	0.46	0.38	0.38	0.53	0.44	0.44	0.55	0.55	0.55
#6 16:45 - 17:00	0.37	0.43	0.27	0.51	0.43	0.43	0.60	0.49	0.49	0.62	0.62	0.62
#7 17:00 - 17:15	0.38	0.44	0.28	0.53	0.44	0.44	0.61	0.51	0.51	0.64	0.64	0.64
#8 17:15 - 17:30	0.40	0.45	0.29	0.54	0.45	0.45	0.63	0.53	0.53	0.66	0.66	0.66
#9 17:30 - 17:45	0.38	0.44	0.28	0.52	0.44	0.44	0.61	0.51	0.51	0.63	0.63	0.63
#10 17:45 - 18:00	0.36	0.41	0.27	0.49	0.41	0.41	0.58	0.48	0.48	0.60	0.60	0.60
#11 18:00 - 18:15	0.35	0.40	0.26	0.48	0.40	0.40	0.56	0.47	0.47	0.58	0.58	0.58
#12 18:15 - 18:30	0.33	0.38	0.24	0.45	0.38	0.38	0.53	0.44	0.44	0.55	0.55	0.55

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	0.85	0.79	0.82	0.69	0.69	0.69	0.69	0.69	0.82	0.77	0.82	0.69
#2 15:45 - 16:00	0.80	0.74	0.77	0.65	0.65	0.65	0.65	0.65	0.78	0.73	0.78	0.65
#3 16:00 - 16:15	0.82	0.76	0.80	0.67	0.67	0.67	0.67	0.67	0.80	0.75	0.80	0.67
#4 16:15 - 16:30	0.78	0.72	0.75	0.63	0.63	0.63	0.63	0.63	0.75	0.71	0.75	0.63
#5 16:30 - 16:45	0.67	0.62	0.64	0.54	0.54	0.54	0.54	0.54	0.65	0.61	0.65	0.54
#6 16:45 - 17:00	0.74	0.69	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.68	0.72	0.61
#7 17:00 - 17:15	0.76	0.71	0.74	0.62	0.62	0.62	0.62	0.62	0.74	0.70	0.74	0.62
#8 17:15 - 17:30	0.79	0.73	0.76	0.64	0.64	0.64	0.64	0.64	0.76	0.72	0.77	0.64
#9 17:30 - 17:45	0.76	0.70	0.73	0.61	0.61	0.61	0.61	0.61	0.74	0.69	0.74	0.62
#10 17:45 - 18:00	0.72	0.67	0.69	0.58	0.58	0.58	0.58	0.58	0.70	0.65	0.70	0.59
#11 18:00 - 18:15	0.70	0.65	0.67	0.56	0.56	0.56	0.56	0.56	0.68	0.64	0.68	0.57
#12 18:15 - 18:30	0.66	0.61	0.63	0.53	0.53	0.53	0.53	0.53	0.64	0.60	0.64	0.54

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 15:30 - 15:45	71.2	63.5	70.5	61.2	70.6	71.1	66.2	[illegible]	[illegible]	66.8	66.6	66.8
#2 15:45 - 16:00	71.2	63.5	70.5	62.3	70.7	71.1	66.3	70.7	70.7	67.9	67.9	67.9
#3 16:00 - 16:15	71.2	63.5	70.5	61.8	70.6	71.2	66.2	70.5	70.5	67.3	67.3	67.3
#4 16:15 - 16:30	71.2	63.5	70.5	62.9	70.7	71.2	66.5	70.8	70.5	68.5	68.5	68.5
#5 16:30 - 16:45	71.2	63.8	70.5	64.4	70.8	71.2	67.0	70.9	71.2	70.5	70.5	70.5
#6 16:45 - 17:00	71.2	63.5	70.5	63.4	70.7	71.2	66.6	70.8	71.0	69.2	69.2	69.2
#7 17:00 - 17:15	71.2	63.6	70.5	63.0	70.7	71.2	66.5	70.5	71.0	68.8	68.8	68.8
#8 17:15 - 17:30	71.2	63.5	70.5	62.6	70.7	71.2	66.4	70.8	70.8	68.2	68.2	68.2
#9 17:30 - 17:45	71.2	63.6	70.5	63.1	70.7	71.2	66.5	70.9	71.0	68.9	68.9	68.9
#10 17:45 - 18:00	71.2	63.6	70.5	63.7	70.7	71.2	66.7	70.8	71.1	69.7	69.7	69.7
#11 18:00 - 18:15	71.2	63.6	70.5	64.0	70.8	71.2	66.8	70.8	71.2	70.0	70.0	70.0
#12 18:15 - 18:30	71.2	63.6	70.5	64.5	70.8	71.2	67.0	70.8	71.2	70.5	70.5	70.5

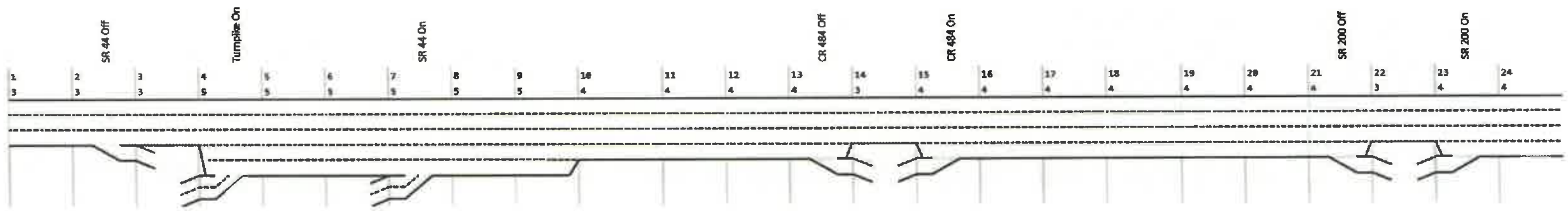
Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	54.3	63.3	56.3	67.3	67.3	67.3	67.3	67.3	56.0	63.9	56.0	67.2
#2 15:45 - 16:00	57.5	65.7	59.2	68.5	68.5	68.5	68.5	68.5	59.0	65.8	59.0	68.1
#3 16:00 - 16:15	56.0	64.3	57.9	68.0	68.0	68.0	68.0	68.0	57.6	64.9	57.5	67.7
#4 16:15 - 16:30	59.0	66.1	60.6	69.0	69.0	69.0	69.0	69.0	60.4	66.6	60.4	68.5
#5 16:30 - 16:45	64.8	69.5	65.8	70.7	70.7	70.7	70.7	70.7	65.7	69.5	65.7	70.6
#6 16:45 - 17:00	61.0	67.3	62.4	69.7	69.7	69.7	69.7	69.7	62.2	67.6	62.2	69.1
#7 17:00 - 17:15	59.7	66.5	61.2	69.3	69.3	69.3	69.3	69.3	61.1	67.0	61.0	69.1
#8 17:15 - 17:30	58.3	65.7	60.0	68.8	68.8	68.8	68.8	68.8	59.8	66.2	59.7	68.5
#9 17:30 - 17:45	60.0	66.7	61.5	69.3	69.3	69.3	69.3	69.3	61.3	67.1	61.3	69.2
#10 17:45 - 18:00	62.3	67.6	63.5	70.0	70.0	70.0	70.0	70.0	63.4	68.1	63.3	69.9
#11 18:00 - 18:15	63.1	68.5	64.4	70.3	70.3	70.3	70.3	70.3	64.3	68.8	64.2	70.2
#12 18:15 - 18:30	65.2	69.4	66.1	70.7	70.7	70.7	70.7	70.7	66.0	69.7	66.0	70.7

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12
#1 15:30 - 15:45	B	B	A	C	B	B	B	C	C	C	C	C
#2 15:45 - 16:00	B	B	A	C	B	B	B	B	B	C	C	C
#3 16:00 - 16:15	B	B	A	C	B	B	B	B	B	C	C	C
#4 16:15 - 16:30	B	B	A	C	B	B	B	B	B	C	C	C
#5 16:30 - 16:45	B	B	A	B	B	B	B	B	B	B	B	B
#6 16:45 - 17:00	B	B	A	C	B	B	B	B	B	C	C	C
#7 17:00 - 17:15	B	B	A	C	B	B	B	B	B	C	C	C
#8 17:15 - 17:30	B	B	A	C	B	B	B	B	B	C	C	C
#9 17:30 - 17:45	B	B	A	C	B	B	B	B	B	C	C	C
#10 17:45 - 18:00	B	B	A	C	B	B	B	B	B	C	C	C
#11 18:00 - 18:15	B	B	A	C	B	B	B	B	B	C	C	C
#12 18:15 - 18:30	B	B	A	B	B	B	B	B	B	B	B	B

Analysis Period	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 15:30 - 15:45	D	D	D	C	C	C	C	C	D	D	D	C
#2 15:45 - 16:00	D	C	C	C	C	C	C	C	C	C	C	C
#3 16:00 - 16:15	D	D	C	C	C	C	C	C	C	D	D	C
#4 16:15 - 16:30	C	C	C	C	C	C	C	C	C	C	C	C
#5 16:30 - 16:45	C	C	C	B	B	B	B	B	C	C	C	B
#6 16:45 - 17:00	C	C	C	C	C	C	C	C	C	C	C	C
#7 17:00 - 17:15	C	C	C	C	C	C	C	C	C	C	C	C
#8 17:15 - 17:30	C	C	C	C	C	C	C	C	C	C	C	C
#9 17:30 - 17:45	C	C	C	C	C	C	C	C	C	C	C	C
#10 17:45 - 18:00	C	C	C	C	C	C	C	C	C	C	C	C
#11 18:00 - 18:15	C	C	C	C	C	C	C	C	C	C	C	C
#12 18:15 - 18:30	C	C	B	B	B	B	B	B	C	C	C	B

Figure 89: Northbound 2040 Weekend Build Condition – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lanes	3	3	3	5	5	5	5	5	5	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	0.58	0.66	0.49	0.70	0.58	0.58	0.77	0.64	0.64	0.80	0.80	0.80	0.97	0.93	1.00	0.84	0.84	0.84	0.84	0.84	1.01	0.97	1.01	0.85
#2 12:15 - 12:30	0.58	0.66	0.49	0.70	0.58	0.58	0.77	0.64	0.64	0.80	0.80	0.80	0.97	0.93	1.00	0.84	0.84	0.84	0.84	0.84	1.01	0.97	1.01	0.85
#3 12:30 - 12:45	0.58	0.66	0.49	0.70	0.58	0.58	0.77	0.64	0.64	0.80	0.80	0.80	0.97	0.93	1.00	0.84	0.84	0.84	0.84	0.84	1.01	0.97	1.01	0.85
#4 12:45 - 13:00	0.58	0.66	0.49	0.70	0.58	0.58	0.77	0.64	0.64	0.80	0.80	0.80	0.97	0.93	1.00	0.84	0.84	0.84	0.84	0.84	1.01	0.97	1.01	0.85
#5 13:00 - 13:15	0.53	0.61	0.44	0.64	0.53	0.53	0.71	0.59	0.59	0.74	0.74	0.74	0.88	0.85	0.92	0.77	0.77	0.77	0.77	0.77	0.92	0.89	0.92	0.78
#6 13:15 - 13:30	0.53	0.61	0.44	0.64	0.53	0.53	0.71	0.59	0.59	0.74	0.74	0.74	0.88	0.85	0.92	0.77	0.77	0.77	0.77	0.77	0.92	0.89	0.92	0.78
#7 13:30 - 13:45	0.53	0.61	0.44	0.64	0.53	0.53	0.71	0.59	0.59	0.74	0.74	0.74	0.88	0.85	0.92	0.77	0.77	0.77	0.77	0.77	0.92	0.89	0.92	0.78
#8 13:45 - 14:00	0.53	0.61	0.44	0.64	0.53	0.53	0.71	0.59	0.59	0.74	0.74	0.74	0.88	0.85	0.92	0.77	0.77	0.77	0.77	0.77	0.92	0.89	0.92	0.78
#9 14:00 - 14:15	0.47	0.54	0.40	0.57	0.48	0.48	0.63	0.53	0.53	0.66	0.66	0.66	0.79	0.76	0.82	0.69	0.69	0.69	0.69	0.69	0.82	0.79	0.83	0.69
#10 14:15 - 14:30	0.47	0.54	0.40	0.57	0.48	0.48	0.63	0.53	0.53	0.66	0.66	0.66	0.79	0.76	0.82	0.69	0.69	0.69	0.69	0.69	0.82	0.79	0.83	0.69
#11 14:30 - 14:45	0.47	0.54	0.40	0.57	0.48	0.48	0.63	0.53	0.53	0.66	0.66	0.66	0.79	0.76	0.82	0.69	0.69	0.69	0.69	0.69	0.82	0.79	0.83	0.69
#12 14:45 - 15:00	0.47	0.54	0.40	0.57	0.48	0.48	0.63	0.53	0.53	0.66	0.66	0.66	0.79	0.76	0.82	0.69	0.69	0.69	0.69	0.69	0.82	0.79	0.83	0.69

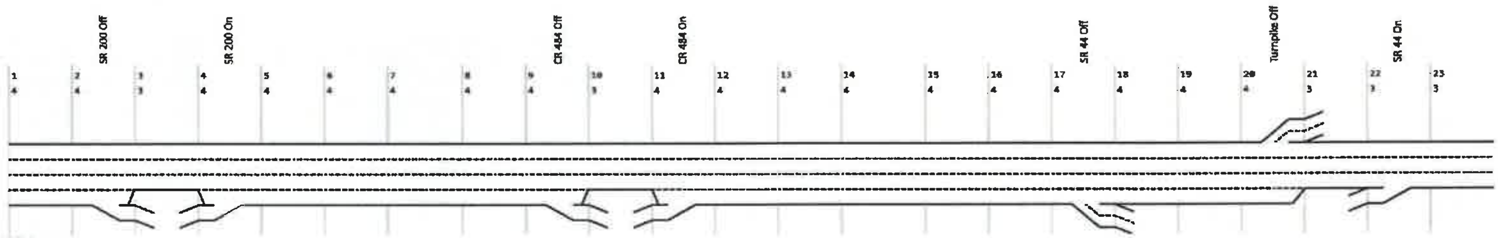
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	70.0	64.4	70.0	59.9	65.9	69.7	65.9	68.6	68.6	62.4	62.4	67.5	66.1	39.0	63.6	63.8	63.8	63.8	63.8	63.8	65.9	58.0	64.2	63.4
#2 12:15 - 12:30	70.0	64.4	70.0	59.9	65.9	69.7	65.9	68.6	68.6	62.4	62.6	30.7	32.2	34.5	63.6	63.9	63.9	63.9	63.9	63.9	65.9	57.3	64.1	63.1
#3 12:30 - 12:45	70.0	64.4	70.0	59.9	65.9	69.7	65.9	68.6	68.4	62.7	28.7	22.7	32.2	34.5	63.6	63.9	63.9	63.9	63.9	63.9	65.9	57.3	64.2	63.1
#4 12:45 - 13:00	70.0	64.4	70.0	59.9	65.9	69.7	65.9	68.6	68.4	63.7	22.7	27.7	32.2	34.5	63.6	63.9	63.9	63.9	63.9	63.9	65.9	57.3	64.3	63.1
#5 13:00 - 13:15	70.7	64.5	70.5	62.1	70.6	70.7	66.3	69.9	69.9	64.1	30.7	23.7	34.2	34.7	63.8	63.9	63.9	63.9	63.9	63.9	56.2	57.3	64.3	63.6
#6 13:15 - 13:30	70.7	64.5	70.5	62.1	70.6	70.7	66.3	69.9	69.9	65.5	65.4	64.3	65.1	34.5	63.8	63.9	63.9	63.9	63.9	63.9	58.2	57.3	64.3	63.6
#7 13:30 - 13:45	70.7	64.5	70.5	62.1	70.6	70.7	66.3	69.9	69.9	65.5	65.5	65.5	66.4	58.1	64.1	62.6	62.6	62.6	62.6	62.6	65.2	55.3	64.0	62.4
#8 13:45 - 14:00	70.7	64.5	70.5	62.1	70.6	70.7	66.3	69.9	69.9	65.5	65.5	65.5	66.4	59.8	64.1	61.0	61.0	61.0	61.0	61.0	66.1	52.8	63.7	61.0
#9 14:00 - 14:15	[illegible]	64.5	70.9	63.8	70.7	71.1	66.6	70.8	70.8	68.2	68.2	68.2	66.8	64.4	65.2	63.1	63.1	63.1	63.1	63.1	66.4	56.1	64.3	63.4
#10 14:15 - 14:30	[illegible]	64.5	70.9	63.8	70.7	71.1	66.6	70.8	70.8	68.2	68.2	68.2	66.8	64.4	65.2	65.7	65.7	65.7	65.7	65.7	66.5	60.3	64.9	65.7
#11 14:30 - 14:45	[illegible]	64.5	70.9	63.8	70.7	71.1	66.6	70.8	70.8	68.2	68.2	68.2	66.8	64.4	65.2	67.1	67.1	67.1	67.1	67.1	66.6	63.0	65.2	67.1
#12 14:45 - 15:00	[illegible]	64.5	70.9	63.8	70.7	71.1	66.6	70.8	70.8	68.2	68.2	68.2	66.8	64.2	65.2	67.1	67.1	67.1	67.1	67.1	66.6	63.0	65.2	67.1

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24
#1 12:00 - 12:15	C	C	B	D	C	C	B	C	C	D	D	F	F	F	D	D	D	D	D	D	F	D	F	D
#2 12:15 - 12:30	C	C	B	D	C	C	B	C	C	D	F	F	F	F	D	D	D	D	D	D	F	E	F	D
#3 12:30 - 12:45	C	C	B	D	C	C	B	C	C	F	F	F	F	F	D	D	D	D	D	D	F	E	F	D
#4 12:45 - 13:00	C	C	B	D	C	C	B	C	C	F	F	F	F	F	D	D	D	D	D	D	F	E	F	D
#5 13:00 - 13:15	B	B	B	C	B	B	B	C	C	D	F	F	F	F	D	D	D	D	D	D	D	E	D	D
#6 13:15 - 13:30	B	B	B	C	B	B	B	C	C	C	C	D	D	F	D	D	D	D	D	D	D	E	D	D
#7 13:30 - 13:45	B	B	B	C	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	E	D	D
#8 13:45 - 14:00	B	B	B	C	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	E	D	D
#9 14:00 - 14:15	B	B	B	C	B	B	B	B	B	C	C	C	C	D	C	D	D	D	D	D	D	E	D	D
#10 14:15 - 14:30	B	B	B	C	B	B	B	B	B	C	C	C	C	D	C	C	C	C	C	C	C	D	C	C
#11 14:30 - 14:45	B	B	B	C	B	B	B	B	B	C	C	C	C	D	C	C	C	C	C	C	C	D	C	C
#12 14:45 - 15:00	B	B	B	C	B	B	B	B	B	C	C	C	C	D	C	C	C	C	C	C	C	D	C	C

Figure 90: Southbound 2040 AM Build Condition – Operational Contours



Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Lanes	4	4	3	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	3	3	3

D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	0.40	0.48	0.45	0.47	0.39	0.39	0.39	0.39	0.47	0.45	0.49	0.41	0.41	0.41	0.41	0.41	0.49	0.35	0.35	0.42	0.19	0.30	0.26
#2 6:30 - 6:45	0.41	0.52	0.48	0.50	0.42	0.42	0.42	0.42	0.50	0.49	0.52	0.43	0.43	0.43	0.43	0.43	0.52	0.37	0.37	0.45	0.20	0.32	0.28
#3 6:45 - 7:00	0.48	0.57	0.53	0.55	0.46	0.46	0.46	0.46	0.56	0.54	0.58	0.48	0.48	0.48	0.48	0.48	0.58	0.41	0.41	0.50	0.22	0.35	0.31
#4 7:00 - 7:15	0.52	0.63	0.58	0.61	0.51	0.51	0.51	0.51	0.61	0.59	0.63	0.53	0.53	0.53	0.53	0.53	0.63	0.45	0.45	0.55	0.24	0.39	0.34
#5 7:15 - 7:30	0.55	0.66	0.61	0.64	0.53	0.53	0.53	0.53	0.64	0.62	0.67	0.56	0.56	0.56	0.56	0.56	0.67	0.48	0.48	0.57	0.25	0.41	0.36
#6 7:30 - 7:45	0.60	0.72	0.67	0.70	0.58	0.58	0.58	0.58	0.70	0.68	0.73	0.61	0.61	0.61	0.61	0.61	0.73	0.52	0.52	0.63	0.29	0.45	0.39
#7 7:45 - 8:00	0.64	0.77	0.71	0.74	0.62	0.62	0.62	0.62	0.75	0.72	0.77	0.64	0.64	0.64	0.64	0.64	0.77	0.55	0.55	0.67	0.29	0.47	0.41
#8 8:00 - 8:15	0.60	0.72	0.67	0.69	0.58	0.58	0.58	0.58	0.70	0.67	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.52	0.52	0.62	0.28	0.44	0.39
#9 8:15 - 8:30	0.57	0.69	0.64	0.66	0.56	0.56	0.56	0.56	0.67	0.65	0.69	0.58	0.58	0.58	0.58	0.58	0.69	0.50	0.50	0.60	0.26	0.43	0.37
#10 8:30 - 8:45	0.60	0.72	0.67	0.69	0.58	0.58	0.58	0.58	0.70	0.67	0.72	0.60	0.60	0.60	0.60	0.60	0.72	0.52	0.52	0.62	0.28	0.44	0.39
#11 8:45 - 9:00	0.65	0.79	0.73	0.76	0.64	0.64	0.64	0.64	0.76	0.74	0.79	0.66	0.66	0.66	0.66	0.66	0.79	0.57	0.57	0.68	0.30	0.49	0.42
#12 9:00 - 9:15	0.62	0.75	0.70	0.72	0.61	0.61	0.61	0.61	0.73	0.70	0.75	0.63	0.63	0.63	0.63	0.63	0.76	0.54	0.54	0.65	0.29	0.46	0.40

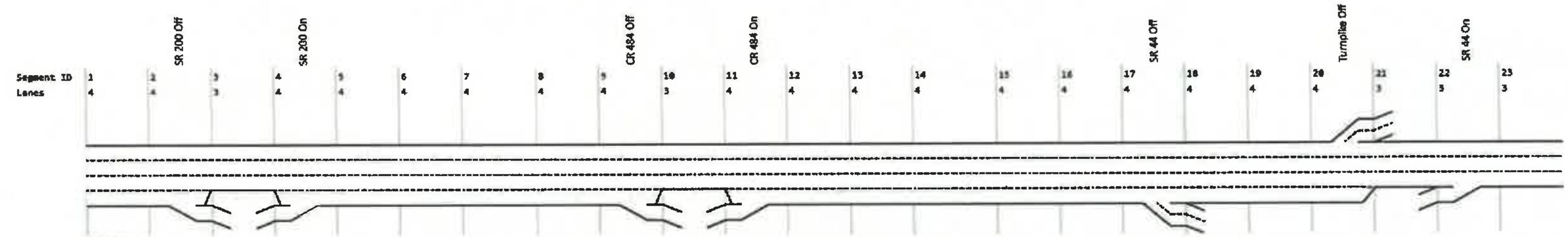
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	71.7	70.3	71.2	70.6	71.1	71.1	71.2	71.2	70.5	71.2	70.3	71.1	71.2	71.2	71.2	71.2	69.7	71.2	71.2	60.4	69.5	65.0	70.7
#2 6:30 - 6:45	71.2	69.7	71.1	70.6	71.1	71.1	71.2	71.2	70.0	71.1	69.6	71.2	71.2	71.2	71.2	71.2	69.5	71.2	71.2	60.1	69.4	65.0	70.7
#3 6:45 - 7:00	71.1	68.2	70.7	68.8	71.6	71.2	71.2	71.2	68.7	70.7	68.1	70.9	71.1	71.1	71.1	71.1	69.7	71.2	71.2	59.6	69.4	64.9	70.7
#4 7:00 - 7:15	70.8	66.3	70.0	67.1	70.8	71.0	71.0	71.0	67.0	69.8	66.2	70.8	70.8	70.8	70.8	70.8	68.8	71.2	71.2	59.1	69.3	64.7	70.6
#5 7:15 - 7:30	70.5	65.0	69.3	66.0	70.7	70.7	70.7	70.7	65.8	69.2	64.8	70.4	70.4	70.4	70.4	70.4	68.6	71.1	71.1	58.7	69.2	64.7	70.6
#6 7:30 - 7:45	69.8	62.2	67.9	63.4	70.0	70.0	70.0	70.0	63.2	67.6	62.0	69.5	69.5	69.5	69.5	69.5	68.1	70.9	70.9	58.2	69.1	64.6	70.6
#7 7:45 - 8:00	66.7	59.6	66.4	61.1	69.2	69.2	69.2	69.2	60.8	66.3	59.3	68.6	68.6	68.6	68.6	68.6	68.0	70.6	70.8	57.7	69.3	64.5	70.6
#8 8:00 - 8:15	69.7	62.4	68.0	63.6	70.0	70.0	70.0	70.0	63.4	67.8	62.2	69.6	69.6	69.6	69.6	69.6	68.4	70.9	70.9	58.3	69.2	64.6	70.6
#9 8:15 - 8:30	70.2	63.8	68.7	64.8	70.4	70.4	70.4	70.4	64.7	68.5	63.6	70.1	70.1	70.1	70.1	70.1	68.5	71.0	71.0	58.6	69.2	64.6	70.6
#10 8:30 - 8:45	69.7	62.4	68.0	63.6	70.0	70.0	70.0	70.0	63.4	67.8	62.2	69.6	69.6	69.6	69.6	69.6	68.4	70.9	70.9	58.3	69.2	64.6	70.6
#11 8:45 - 9:00	68.7	58.4	65.7	60.1	68.8	68.8	68.8	68.8	59.8	65.4	58.1	68.1	68.1	68.1	68.1	68.1	67.9	70.7	70.7	57.7	69.1	64.4	70.6
#12 9:00 - 9:15	69.1	60.7	67.0	62.1	69.5	69.5	69.5	69.5	61.8	66.8	60.4	69.0	69.0	69.0	69.0	69.0	68.2	70.6	70.8	57.9	69.1	64.5	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 6:15 - 6:30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B	A	B	A
#2 6:30 - 6:45	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#3 6:45 - 7:00	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	A	B	A
#4 7:00 - 7:15	B	B	C	B	B	B	B	B	B	C	B	B	B	B	B	B	A	B	B	B	A	B	A
#5 7:15 - 7:30	B	C	C	C	B	B	B	B	C	C	C	B	B	B	B	B	A	B	B	B	A	B	B
#6 7:30 - 7:45	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#7 7:45 - 8:00	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	B	B	C	A	B	B
#8 8:00 - 8:15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#9 8:15 - 8:30	C	C	C	C	B	B	B	B	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#10 8:30 - 8:45	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	C	A	B	B
#11 8:45 - 9:00	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	A	B	B
#12 9:00 - 9:15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	B	B	C	A	B	B

Figure 91: Southbound 2040 PM Build Condition – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	0.85	1.02	0.99	1.03	0.86	0.86	0.86	0.86	1.03	0.96	0.92	0.77	0.77	0.77	0.77	0.77	0.93	0.69	0.65	0.83	0.40	0.59	0.52
#2 15:45 - 16:00	0.82	0.99	0.95	0.99	0.83	0.83	0.83	0.83	1.00	0.97	0.89	0.74	0.74	0.74	0.74	0.74	0.89	0.67	0.67	0.80	0.39	0.57	0.50
#3 16:00 - 16:15	0.89	1.07	1.03	1.07	0.90	0.90	0.90	0.90	1.08	1.00	0.97	0.81	0.81	0.81	0.81	0.81	0.97	0.72	0.72	0.87	0.42	0.62	0.54
#4 16:15 - 16:30	0.85	1.03	0.99	1.04	0.86	0.86	0.86	0.86	1.03	0.95	0.92	0.77	0.77	0.77	0.77	0.77	0.92	0.69	0.69	0.83	0.40	0.59	0.51
#5 16:30 - 16:45	0.89	1.07	1.04	1.08	0.90	0.90	0.90	0.90	1.09	1.00	0.97	0.81	0.81	0.81	0.81	0.81	0.97	0.73	0.73	0.87	0.42	0.62	0.54
#6 16:45 - 17:00	0.82	0.99	0.95	0.99	0.83	0.83	0.83	0.83	1.00	0.97	0.89	0.74	0.74	0.74	0.74	0.74	0.89	0.67	0.67	0.80	0.39	0.57	0.50
#7 17:00 - 17:15	0.84	1.01	0.98	1.02	0.85	0.85	0.85	0.85	1.02	0.95	0.92	0.76	0.76	0.76	0.76	0.76	0.92	0.68	0.68	0.82	0.40	0.59	0.51
#8 17:15 - 17:30	0.85	1.03	0.99	1.03	0.86	0.86	0.86	0.86	1.04	0.96	0.93	0.77	0.77	0.77	0.77	0.77	0.93	0.69	0.69	0.83	0.40	0.59	0.52
#9 17:30 - 17:45	0.80	0.96	0.92	0.96	0.81	0.81	0.81	0.81	0.97	0.90	0.87	0.72	0.72	0.72	0.72	0.72	0.87	0.65	0.65	0.78	0.38	0.55	0.48
#10 17:45 - 18:00	0.77	0.92	0.89	0.93	0.78	0.78	0.78	0.78	0.93	0.86	0.81	0.70	0.70	0.70	0.70	0.70	0.84	0.62	0.62	0.75	0.36	0.53	0.47
#11 18:00 - 18:15	0.79	0.95	0.91	0.95	0.80	0.80	0.80	0.80	0.96	0.89	0.86	0.71	0.71	0.71	0.71	0.71	0.86	0.64	0.64	0.77	0.37	0.55	0.48
#12 18:15 - 18:30	0.73	0.88	0.85	0.88	0.74	0.74	0.74	0.74	0.89	0.82	0.79	0.66	0.66	0.66	0.66	0.66	0.80	0.59	0.59	0.71	[illegible]	0.51	0.44

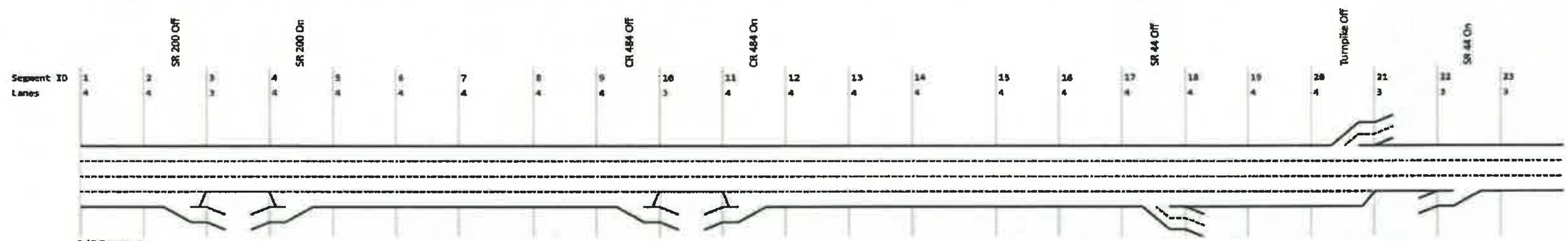
Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	22.5	65.9	58.1	64.2	63.4	63.4	63.4	63.4	65.2	59.9	65.4	67.1	67.1	67.1	67.1	67.1	67.9	[illegible]	[illegible]	56.0	[illegible]	64.5	[illegible]
#2 15:45 - 16:00	22.5	66.0	57.3	64.2	63.2	63.2	63.2	63.2	65.3	58.6	65.2	66.5	66.5	66.5	66.5	66.5	67.8	[illegible]	[illegible]	57.0	[illegible]	64.2	[illegible]
#3 16:00 - 16:15	22.5	65.8	57.3	64.0	62.8	62.8	62.8	62.8	65.0	57.9	65.1	66.1	66.1	66.1	66.1	66.1	67.7	[illegible]	[illegible]	55.7	[illegible]	64.2	[illegible]
#4 16:15 - 16:30	22.5	65.9	57.3	64.1	63.0	63.0	63.0	63.0	65.2	58.3	65.2	66.3	66.3	66.3	66.3	66.3	67.8	[illegible]	[illegible]	56.5	[illegible]	64.2	[illegible]
#5 16:30 - 16:45	22.5	65.7	57.3	63.9	62.7	62.7	62.7	62.7	65.0	57.9	65.1	66.0	66.0	66.0	66.0	66.0	67.7	[illegible]	[illegible]	55.7	[illegible]	64.1	[illegible]
#6 16:45 - 17:00	22.5	66.0	57.3	64.2	63.2	63.2	63.2	63.2	65.3	58.6	65.2	66.5	66.5	66.5	66.5	66.5	67.8	[illegible]	[illegible]	57.0	[illegible]	64.3	[illegible]
#7 17:00 - 17:15	22.5	65.9	57.3	64.1	63.1	63.1	63.1	63.1	65.2	58.4	65.2	66.4	66.4	66.4	66.4	66.4	67.8	[illegible]	[illegible]	56.6	[illegible]	64.2	[illegible]
#8 17:15 - 17:30	22.5	65.9	57.3	64.1	63.0	63.0	63.0	63.0	65.1	58.3	65.2	66.3	66.3	66.3	66.3	66.3	67.8	[illegible]	[illegible]	56.4	[illegible]	64.2	[illegible]
#9 17:30 - 17:45	22.5	66.1	57.3	64.2	63.4	63.4	63.4	63.4	65.4	58.8	65.3	66.7	66.7	66.7	66.7	66.7	67.9	[illegible]	[illegible]	57.5	[illegible]	64.3	[illegible]
#10 17:45 - 18:00	22.5	66.2	57.3	64.3	63.6	63.6	63.6	63.6	65.5	59.1	65.1	66.9	66.9	66.9	66.9	66.9	68.0	69.0	69.0	58.0	[illegible]	64.3	[illegible]
#11 18:00 - 18:15	22.5	66.1	57.3	64.2	63.4	63.4	63.4	63.4	65.4	58.9	65.3	66.7	66.7	66.7	66.7	66.7	67.9	[illegible]	[illegible]	57.7	[illegible]	64.1	[illegible]
#12 18:15 - 18:30	22.5	66.3	57.3	64.4	63.8	63.8	63.8	63.8	65.6	59.4	65.4	67.1	67.1	67.1	67.1	67.1	68.0	[illegible]	[illegible]	58.7	[illegible]	64.4	[illegible]

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 15:30 - 15:45	F	F	D	F	D	D	D	D	F	D	C	C	C	C	C	C	B	C	C	D	[illegible]	B	B
#2 15:45 - 16:00	F	D	E	D	D	D	D	D	D	D	C	C	C	C	C	C	B	C	C	D	B	B	B
#3 16:00 - 16:15	F	F	F	F	D	D	D	D	F	D	C	C	C	C	C	C	B	C	C	D	B	B	B
#4 16:15 - 16:30	F	F	E	F	D	D	D	D	F	D	C	C	C	C	C	C	B	C	C	D	B	B	B
#5 16:30 - 16:45	F	F	F	F	D	D	D	D	F	F	C	C	C	C	C	C	B	C	C	D	B	B	B
#6 16:45 - 17:00	F	D	E	D	D	D	D	D	D	D	C	C	C	C	C	C	B	C	C	D	B	B	B
#7 17:00 - 17:15	F	F	E	F	D	D	D	D	F	D	C	C	C	C	C	C	B	C	C	D	B	B	B
#8 17:15 - 17:30	F	F	E	F	D	D	D	D	F	D	C	C	C	C	C	C	B	C	C	D	B	B	B
#9 17:30 - 17:45	F	D	E	D	D	D	D	D	D	D	C	C	C	C	C	C	B	C	C	C	B	B	B
#10 17:45 - 18:00	F	D	E	D	D	D	D	D	D	D	C	C	C	C	C	C	B	C	C	C	B	B	B
#11 18:00 - 18:15	F	D	E	D	D	D	D	D	D	D	C	C	C	C	C	C	B	C	C	C	B	B	B
#12 18:15 - 18:30	F	D	E	D	D	D	D	D	D	D	C	C	C	C	C	C	B	C	C	C	B	B	B

Figure 92: Southbound 2040 Weekend Build Condition – Operational Contours



D/C Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	0.70	0.84	0.84	0.85	0.71	0.71	0.71	0.71	0.85	0.85	0.88	0.73	0.73	0.73	0.73	0.73	0.88	0.66	0.66	0.79	0.37	0.55	0.48
#2 12:15 - 12:30	0.70	0.84	0.84	0.85	0.71	0.71	0.71	0.71	0.85	0.85	0.88	0.73	0.73	0.73	0.73	0.73	0.88	0.66	0.66	0.79	0.37	0.55	0.48
#3 12:30 - 12:45	0.70	0.84	0.84	0.85	0.71	0.71	0.71	0.71	0.85	0.85	0.88	0.73	0.73	0.73	0.73	0.73	0.88	0.66	0.66	0.79	0.37	0.55	0.48
#4 12:45 - 13:00	0.70	0.84	0.84	0.85	0.71	0.71	0.71	0.71	0.85	0.85	0.88	0.73	0.73	0.73	0.73	0.73	0.88	0.66	0.66	0.79	0.37	0.55	0.48
#5 13:00 - 13:15	0.74	0.89	0.88	0.89	0.75	0.75	0.75	0.75	0.90	0.90	0.92	0.77	0.77	0.77	0.77	0.77	0.93	0.70	0.70	0.84	0.39	0.57	0.51
#6 13:15 - 13:30	0.74	0.89	0.88	0.89	0.75	0.75	0.75	0.75	0.90	0.90	0.92	0.77	0.77	0.77	0.77	0.77	0.93	0.70	0.70	0.84	0.39	0.57	0.51
#7 13:30 - 13:45	0.74	0.89	0.88	0.89	0.75	0.75	0.75	0.75	0.90	0.90	0.92	0.77	0.77	0.77	0.77	0.77	0.93	0.70	0.70	0.84	0.39	0.57	0.51
#8 13:45 - 14:00	0.74	0.89	0.88	0.89	0.75	0.75	0.75	0.75	0.90	0.90	0.92	0.77	0.77	0.77	0.77	0.77	0.93	0.70	0.70	0.84	0.39	0.57	0.51
#9 14:00 - 14:15	0.75	0.91	0.90	0.91	0.77	0.77	0.77	0.77	0.92	0.92	0.94	0.79	0.79	0.79	0.79	0.79	0.95	0.71	0.71	0.85	0.40	0.59	0.52
#10 14:15 - 14:30	0.75	0.91	0.90	0.91	0.77	0.77	0.77	0.77	0.92	0.92	0.94	0.79	0.79	0.79	0.79	0.79	0.95	0.71	0.71	0.85	0.40	0.59	0.52
#11 14:30 - 14:45	0.75	0.91	0.90	0.91	0.77	0.77	0.77	0.77	0.92	0.92	0.94	0.79	0.79	0.79	0.79	0.79	0.95	0.71	0.71	0.85	0.40	0.59	0.52
#12 14:45 - 15:00	0.75	0.91	0.90	0.91	0.77	0.77	0.77	0.77	0.92	0.92	0.94	0.79	0.79	0.79	0.79	0.79	0.95	0.71	0.71	0.85	0.40	0.59	0.52

Speed Contours

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	66.8	54.7	60.7	54.3	66.4	66.4	66.4	66.4	53.9	59.8	52.2	65.6	65.6	65.6	65.6	65.6	67.8	68.1	68.1	57.1	69.0	64.2	70.6
#2 12:15 - 12:30	66.8	54.7	60.7	54.3	66.4	66.4	66.4	66.4	53.9	59.8	52.2	65.6	65.6	65.6	65.6	65.6	67.8	68.1	68.1	57.1	69.0	64.2	70.6
#3 12:30 - 12:45	66.8	54.7	60.7	54.3	66.4	66.4	66.4	66.4	53.9	59.8	52.2	65.6	65.6	65.6	65.6	65.6	67.8	68.1	68.1	57.1	69.0	64.2	70.6
#4 12:45 - 13:00	66.8	54.7	60.7	54.3	66.4	66.4	66.4	66.4	53.9	59.8	52.2	65.6	65.6	65.6	65.6	65.6	67.8	68.1	68.1	57.1	69.0	64.2	70.6
#5 13:00 - 13:15	65.4	51.4	58.1	50.8	64.9	64.9	64.9	64.9	50.4	57.0	48.4	64.0	64.0	64.0	64.0	64.0	67.5	67.0	67.0	56.7	68.9	64.1	70.6
#6 13:15 - 13:30	65.4	51.4	58.1	50.8	64.9	64.9	64.9	64.9	50.4	57.0	48.4	64.0	64.0	64.0	64.0	64.0	67.5	67.0	67.0	56.7	68.9	64.1	70.6
#7 13:30 - 13:45	65.4	51.4	58.1	50.8	64.9	64.9	64.9	64.9	50.4	57.0	48.4	64.0	64.0	64.0	64.0	64.0	67.5	67.0	67.0	56.7	68.9	64.1	70.6
#8 13:45 - 14:00	65.4	51.4	58.1	50.8	64.9	64.9	64.9	64.9	50.4	57.0	48.4	64.0	64.0	64.0	64.0	64.0	67.5	67.0	67.0	56.7	68.9	64.1	70.6
#9 14:00 - 14:15	64.7	49.9	57.0	49.4	64.3	64.3	64.3	64.3	48.9	55.9	46.9	63.3	63.3	63.3	63.3	63.3	67.4	66.5	66.5	56.5	68.9	64.1	70.6
#10 14:15 - 14:30	64.7	49.9	57.0	49.4	64.3	64.3	64.3	64.3	48.9	55.9	46.9	63.3	63.3	63.3	63.3	63.3	67.4	66.5	66.5	56.5	68.9	64.1	70.6
#11 14:30 - 14:45	64.7	49.9	57.0	49.4	64.3	64.3	64.3	64.3	48.9	55.9	46.9	63.3	63.3	63.3	63.3	63.3	67.4	66.5	66.5	56.5	68.9	64.1	70.6
#12 14:45 - 15:00	64.7	49.9	57.0	49.4	64.3	64.3	64.3	64.3	48.9	55.9	46.9	63.3	63.3	63.3	63.3	63.3	67.4	66.5	66.5	56.5	68.9	64.1	70.6

Density Based LOS

Analysis Period	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23
#1 12:00 - 12:15	C	D	D	D	C	C	C	C	D	D	D	C	C	C	C	C	B	C	C	D	B	B	B
#2 12:15 - 12:30	C	D	D	D	C	C	C	C	D	D	D	C	C	C	C	C	B	C	C	D	B	B	B
#3 12:30 - 12:45	C	D	D	D	C	C	C	C	D	D	D	C	C	C	C	C	B	C	C	D	B	B	B
#4 12:45 - 13:00	C	D	D	D	C	C	C	C	D	D	D	C	C	C	C	C	B	C	C	D	B	B	B
#5 13:00 - 13:15	C	D	D	D	C	C	C	C	D	E	E	D	D	D	D	D	B	C	C	D	B	B	B
#6 13:15 - 13:30	C	D	D	D	C	C	C	C	D	E	E	D	D	D	D	D	B	C	C	D	B	B	B
#7 13:30 - 13:45	C	D	D	D	C	C	C	C	D	E	E	D	D	D	D	D	B	C	C	D	B	B	B
#8 13:45 - 14:00	C	D	D	D	C	C	C	C	D	E	E	D	D	D	D	D	B	C	C	D	B	B	B
#9 14:00 - 14:15	D	D	E	D	D	D	D	D	E	E	E	D	D	D	D	D	B	C	C	D	B	C	B
#10 14:15 - 14:30	D	D	E	D	D	D	D	D	E	E	E	D	D	D	D	D	B	C	C	D	B	C	B
#11 14:30 - 14:45	D	D	E	D	D	D	D	D	E	E	E	D	D	D	D	D	B	C	C	D	B	C	B
#12 14:45 - 15:00	D	D	E	D	D	D	D	D	E	E	E	D	D	D	D	D	B	C	C	D	B	C	B

The contours presented in **Figure 87** through **Figure 92** show the need for additional capacity along I-75 in northbound and southbound directions in 2040, based on HCS2023 software and HCM 7th Edition methodology analysis results. It is important to note the projected traffic volumes used in this alternatives analysis were developed by following the guidance in the FDOT Project Traffic Forecasting Handbook and reflect an average condition. The forecasts do not account for volume spikes due to non-recurring congestion events.

The following summarizes the locations of congestion in the 2040 Build Condition.

- Northbound I-75
    - Additional capacity will be needed at the CR 484 merge and the SR 200 interchange.
        - The D/C ratios suggest an additional lane worth of capacity is needed at these locations to accommodate 2040 demands along I-75.
    - The additional capacity is expected to be needed to accommodate average weekday AM and weekend midday peak period traffic in 2040.
    - Severe congestion (speeds lower than 35 mph) is expected to be present from the CR 484 interchange to south of the CR 484 interchange during the weekday AM and weekend midday peak periods in 2040 without additional improvements.
    - The Build improvements generally provide an improvement over the No-Build condition for the following performance metrics:
        - Average travel time
            - Travel times improve by up to approximately 25.4 minutes over the No-Build condition (an approximately 54% improvement)
        - Total vehicle hours of delay
            - Total network vehicle hours of delay is improved by up to 5,964 hours (an approximately 89% improvement)
        - D/C ratios
- Southbound I-75
    - Additional capacity along I-75 will be needed to accommodate future demands at the SR 200 and CR 484 interchanges.
        - The D/C ratios suggest an additional lane worth of capacity is needed at these locations to accommodate 2040 demands along I-75.
    - Additional capacity is expected to be needed to accommodate average PM peak period traffic in 2040.
    - Severe congestion (speeds lower than 25 mph) is expected to be experienced along the segment north of the SR 200 diverge.
    - The Build improvements generally provide an improvement over the No-Build condition for the following performance metrics:

- Average travel time
  - Travel times improve by up to approximately 9.6 minutes over the No-Build condition (an approximately 31% improvement)
- Total vehicle hours of delay
  - Total network vehicle hours of delay is improved by up to 2,130 hours (an approximately 75% improvement)
- D/C ratios

BUILD INTERSECTION ANALYSIS

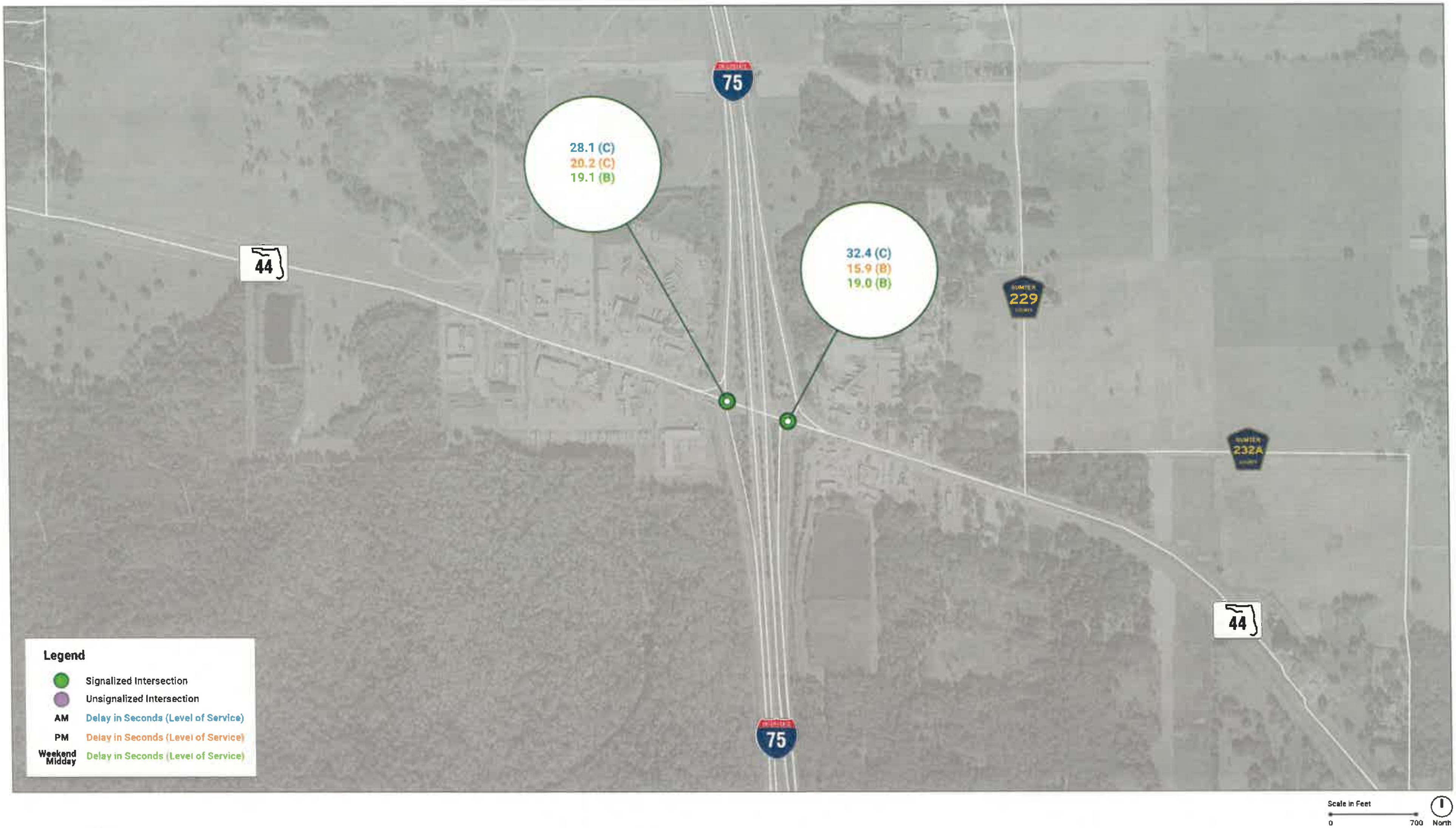
The following section summarizes the 2030 and 2040 Build weekday AM, PM, and weekend midday peak hour intersection operations. The 2030 and 2040 Synchro models reflect the lane configurations/geometries illustrated in **Figure 78**. The improvements in this project focus on mainline improvements described in the previous section; therefore, the geometries and operations at the ramp terminal intersections are consistent with the results presented previously in the No-Build Intersection Analysis section.

Intersections were analyzed using *Highway Capacity Manual* (HCM) 7th Edition methodologies, as implemented in Synchro 12 software. Consistent with the No-Build scenario, signal timing optimization (cycle length, splits, and offsets) were considered for 2030 and 2040 conditions. Also consistent with No-Build Conditions analyses, a peak hour factor (PHF) of 0.95 was assumed at each study intersection that had an existing PHF less than 0.95. For each study intersection with an existing PHF greater than 0.95, the existing PHF was assumed for analysis. Truck percentages assumed in the 2030 and 2040 intersection analyses were described previously in the Design Traffic Factors section of this report.

For intersections with channelized right-turn lanes, results are reported using Synchro methodologies to account for the operations (delay, volume to capacity ratios, and queue lengths) at the channelized right-turns as the Synchro software does not account for and do not report this condition in the HCM reports.

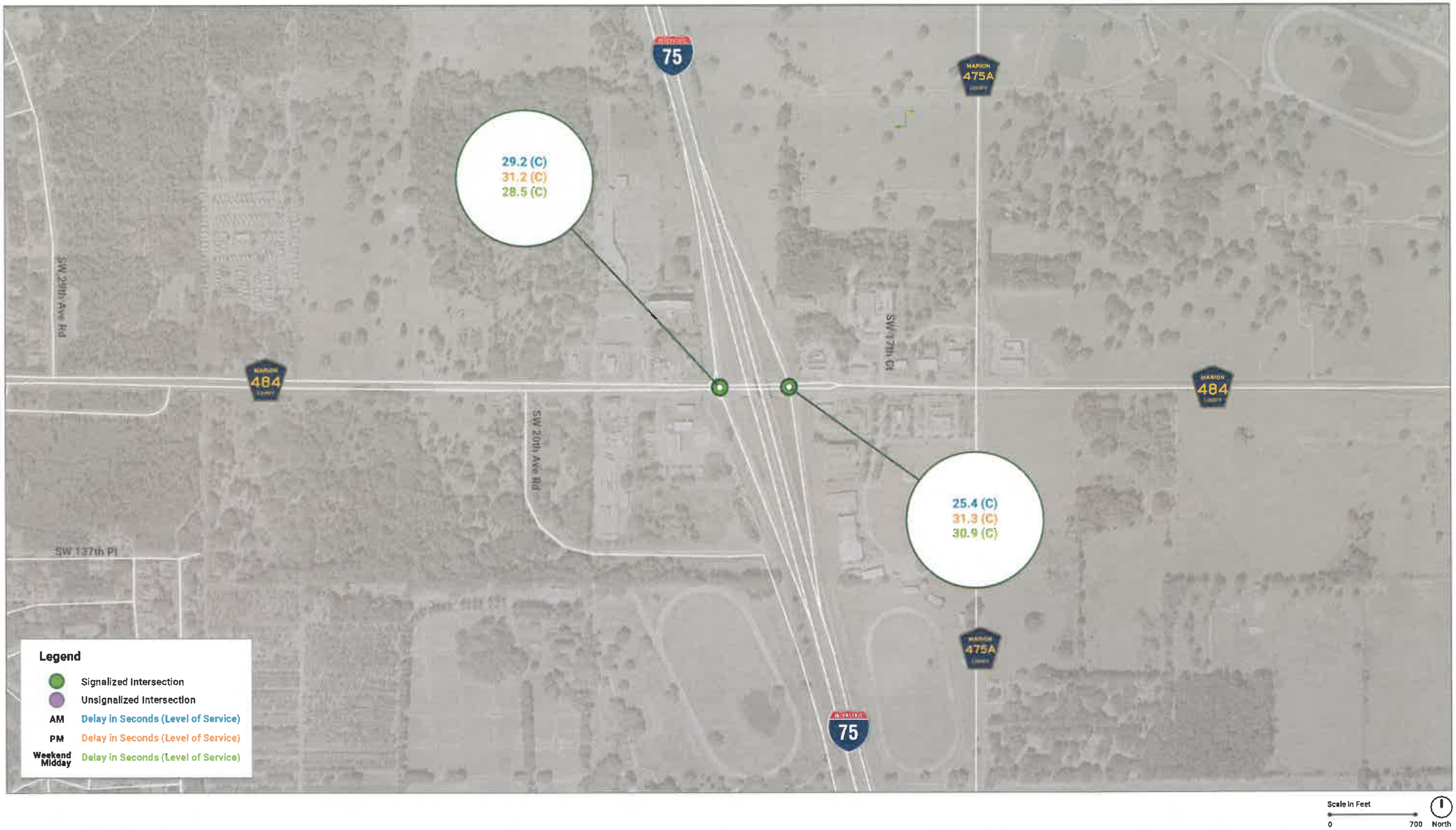
Figure 93 illustrates the overall intersection delay and LOS for the signalized intersections in the study area for the 2030 peak hours. Detailed summary tables showing volume to capacity (v/c) ratios, delay, and LOS by movement as well as Synchro output reports are included in **Appendix Y** for reference.

Figure 94 illustrates the overall intersection delay and LOS for the signalized intersections in the study area for the 2040 peak hours. Detailed summary tables showing volume to capacity (v/c) ratios, delay, and LOS by movement as well as Synchro output reports are included in **Appendix Z** for reference.



I-75 PD&E | SR 44 Interchange
South of SR 44 to SR 200

2030 Build Peak Hour Intersection Operations
Figure 93 (1 of 3)

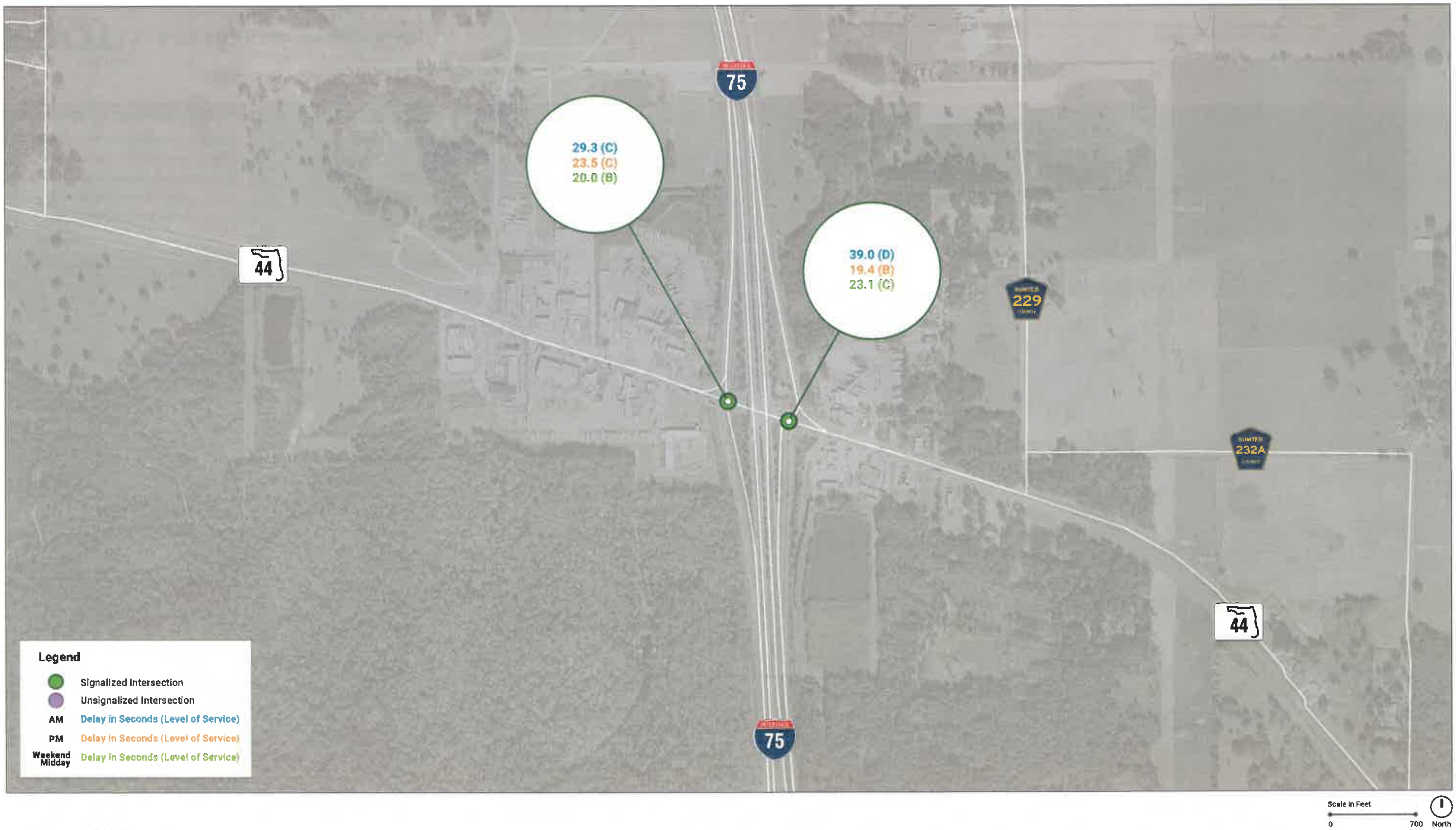


I-75 PD&E | CR 484 Interchange
South of SR 44 to SR 200

2030 Build Peak Hour Intersection Operations
Figure 93 (2 of 3)

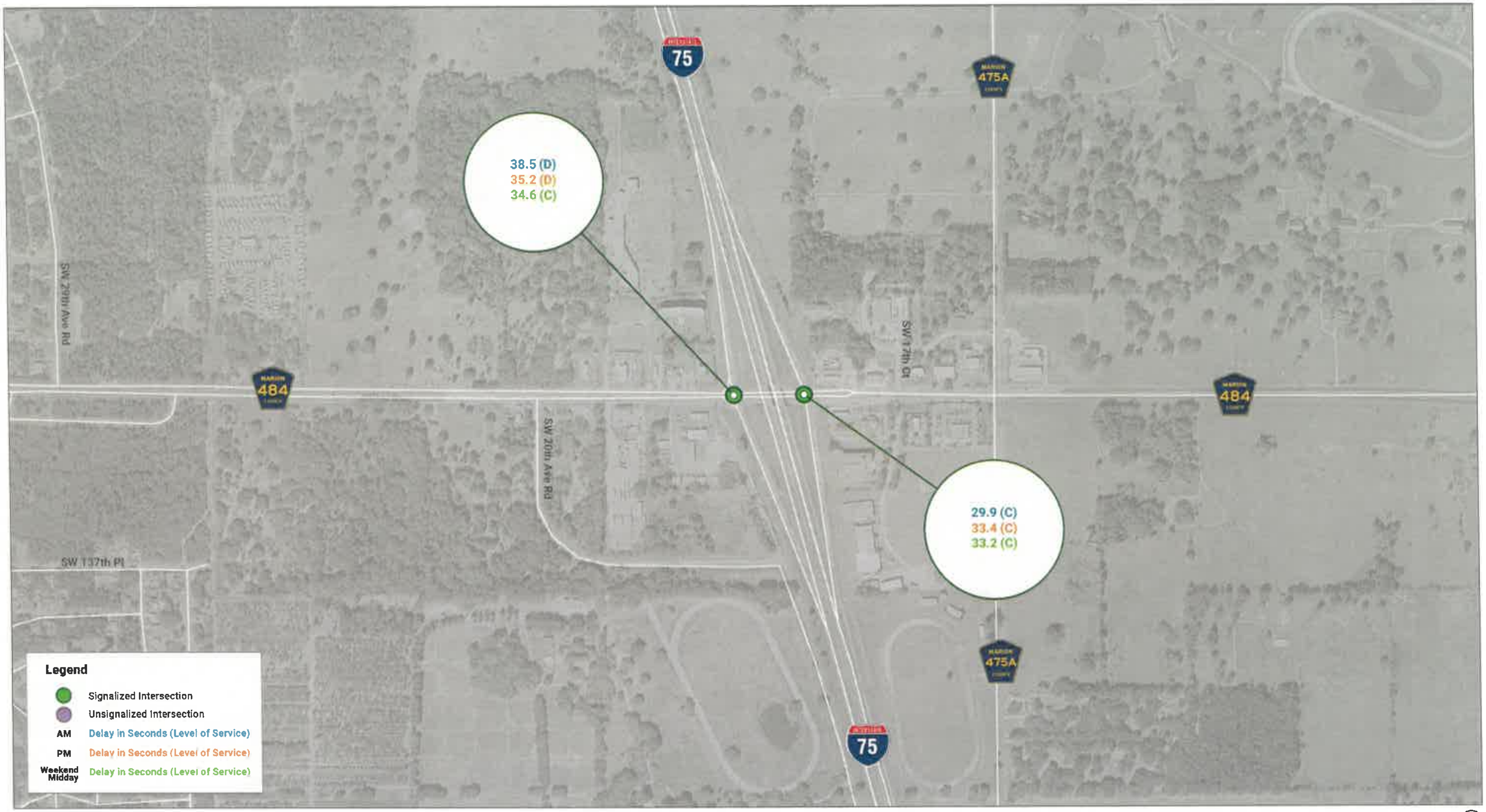
I-75 PD&E | SR 200 Interchange
South of SR 44 to SR 200

2030 Build Peak Hour Intersection Operations
Figure 93 (3 of 3)



I-75 PD&E | SR 44 Interchange
South of SR 44 to SR 200

2040 Build Peak Hour Intersection Operations
Figure 94 (1 of 3)



I-75 PD&E | CR 484 Interchange
South of SR 44 to SR 200

2040 Build Peak Hour Intersection Operations
Figure 94 (2 of 3)

I-75 PD&E | SR 200 Interchange
South of SR 44 to SR 200

2040 Build Peak Hour Intersection Operations
Figure 94 (3 of 3)

2030 BUILD INTERSECTION SUMMARY

The following summarizes the key intersections or movements expected to operate at LOS F or overcapacity during the 2030 Build Condition peak hours based on the Synchro analysis conducted. Note that 2030 No-Build and Build conditions are the same and that the No-Build operational analysis results are therefore the same as the Build operational analysis results.

SR 44

Each of the movements at the SR 44 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2030 peak hours analyzed. The 95th percentile queues along the SR 44 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2030 No-Build peak hours analyzed. The overall intersection LOS at the ramp terminal intersections is estimated to be LOS C or better in the 2030 No-Build AM, PM, and weekend peak hours analyzed.

CR 484

Each of the movements at the CR 484 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2030 No-Build peak hours except for the following:

- CR 484 at I-75 Southbound Ramp
  - The westbound left-turn movement is anticipated to operate at LOS F during the 2030 AM, PM, and weekend peak hours with delays ranging from 80.4 to 93.2 seconds.

The CR 484 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at an overall intersection LOS C during the 2030 AM, PM, and weekend peak hours analyzed. The 95th percentile queues along the CR 484 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2030 No-Build peak hours analyzed.

SR 200

Each of the movements at the SR 200 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2030 No-Build peak hours except for the following:

- SR 200 at I-75 Southbound Ramps
  - The southbound right-turn movement is expected to operate at LOS F during the 2030 PM peak hour with 94.3 seconds of delay.
  - The westbound left-turn movement is expected to operate at LOS F with a delay of 80.4 seconds during the 2030 weekend midday peak hour.

- The overall intersection LOS at the ramp terminal intersection is estimated to be LOS D during the PM peak hour and LOS C during the AM and weekend peak hours.
- The southbound off-ramp is approximately 1,750 feet long to the I-75 gore point.
  - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
  - Remaining distance for storage – approximately 1,135 feet
  - The maximum 95th percentile queue length during the analysis peak hours extends approximately 575 feet during the PM peak hour.

The SR 200 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during the 2030 AM, PM, and weekend peak hours. The 95th percentile queues along the SR 200 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2030 No-Build peak hours analyzed.

2040 BUILD INTERSECTION SUMMARY

The following summarizes the key intersections or movements expected to operate at LOS F or overcapacity during the 2040 Build peak hours based on the Synchro analyses conducted.

SR 44

Each of the movements at the SR 44 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 peak hours analyzed. The 95th percentile queues along the SR 44 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed. The overall intersection LOS at the ramp terminal intersections is estimated to be LOS D or better in the 2040 No-Build AM, PM, and weekend peak hours analyzed.

CR 484

Each of the movements at the CR 484 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours except for the following:

- CR 484 at I-75 Southbound Ramp
  - The overall intersection LOS at the ramp terminal intersection is estimated to be LOS D or better during the AM, PM, and weekend peak hours.
  - The westbound left-turn movement is anticipated to operate at LOS F during the 2040 AM and PM peak hours with delays ranging from 97.1 to 104.8 seconds.

The CR 484 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during each AM, PM, and weekend peak hours.

The 95th percentile queues along the CR 484 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed.

SR 200

Each of the movements at the SR 200 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours except for the following:

- SR 200 at I-75 Southbound Ramps
  - The southbound right-turn movement is anticipated to operate at LOS F during the 2040 AM and PM peak hours with delays ranging from 82.5 to 91.2 seconds.
  - The overall LOS at the ramp terminal intersection is estimated to be LOS D during the PM peak hour and LOS C during the AM and weekend peak hours.
  - The southbound off-ramp is approximately 1,750 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 10-5 of AASHTO Green Book).
    - Remaining distance for storage – approximately 1,135 feet
    - The maximum 95th percentile queue length during the analysis peak hours extends approximately 600 feet during the PM peak hour.

The SR 200 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during the 2040 AM, PM, and weekend peak hours. The 95th percentile queues along the SR 200 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed.

FUTURE COMPARATIVE SAFETY ANALYSIS

I-75 mainline from an existing six-lane limited access facility (No-Build) to a limited access facility (Build) with one auxiliary lane in each direction between interchanges along I-75 from south of SR 44 to SR 200. To determine these impacts, a predicted crash frequency analysis was performed utilizing the Enhanced Interchange Safety Analysis Tool (ISATe) Build 06.10 – Modified to Include Present Worth Analysis. The ISATe analysis can be performed on three unique freeway features: freeway mainline, freeway ramps, and freeway ramp terminals. For purposes of the comparative analysis, only facilities with noted geometric or volume differences between the No-Build and Build conditions were assessed. The following facilities/limits within the study's area of influence were noted to be different and analyzed in ISATe for the No-Build and Build conditions:

- Mainline –
  - Addition of one northbound and one southbound auxiliary lane between interchanges; and
  - Addition of one northbound and one southbound auxiliary lane within Marion County Weigh Station interchange.

The following facilities/limits within the study's area of influence did not require future safety analysis because no geometric or volume changes were made between the No-Build and Build conditions:

- Mainline –
  - Freeway segments through interchange areas (e.g., between northbound off-ramp gore point and northbound on-ramp gore point), excluding Marion County Weigh Station.
  - Ramp access data was not included for the Marion County Weigh Station or Rest Area freeway segments as no future volumes were forecast for these ramps.
- Ramps –
  - Minimal realignment of ramps based on the freeway mainline widening yielded minor negligible changes to existing horizontal curve radii and curve length, thus no measurable impacts were observed in the ISATe results for the ramp segments.
- Ramp Terminals –
  - No improvements are proposed at the SR 44, CR 484, or SR 200 freeway ramp terminals.

The results of the freeway analysis are discussed in the **Freeway Analysis** section. The opening year of the analysis is 2030 and the design year of the analysis is 2040.

FREEWAY ANALYSIS

Table 41 provides the results of the quantitative ISATe analysis for the I-75 mainline. Detailed ISATe input and output sheets are provided in **Appendix AA**.

Table 41: No-Build vs Build ISATe Predicted Crash Frequency Results

Scenario/ Feature	Predicted Fatal Crashes	Predicted Injury Crashes	Predicted Property Damage Only Crashes	Total Predicted Crashes	Total Present Value
No-Build – Mainline	40.5	2,378.3	6,114.7	8,533.5	$462,490,000
Build – Mainline	43.9	2,145.9	5,170.9	7,360.7	$469,790,000
Difference – Build minus No-Build	***3.4***	***-232.4***	***-943.8***	***-1,172.9***	***$7,300,000***

Note: Some values in **Table 41** will not sum due to rounding from the ISATe output spreadsheets.

The results of the analysis show the proposed improvements are predicted to have a slightly higher crash cost (total present value) compared to the No-Build due to having 3.4 more predicted fatal crashes over the 10-year life cycle of the project (0.34 fatal crash increase per year). The proposed improvements are predicted to experience approximately 23 less injury and 94 less property damage only crashes per year over the 10-year life cycle of the project. The total present value was calculated using the FDOT KABCO crash costs obtained from the 2024 FDOT Design Manual Table 122.6.2.

As discussed previously, the I-75 mainline is being widened from six-lanes to eight-lanes with the addition of one auxiliary lane in both travel directions. The additional auxiliary lanes between interchanges will provide more capacity along the freeway mainline thus providing more capacity for the forecasted traffic and reducing the potential for re-occurring congestion along the I-75 mainline during all times of the day. Reducing the congestion has the potential to reduce high speed/high severity rear end crashes on the I-75 mainline. As described in **Section: Review of Fatal Crashes**, two of the fatal crashes on I-4 mainline were rear end crashes, and 28 out of 62 (45 percent) of the incapacitating injury crashes were rear end crashes. According to the NCHRP Report 687 (Ray et al., 2011)[5], the addition of an auxiliary lane between an entrance ramp and an exit ramp has the potential to reduce the number of multivehicle crashes by up to 20 percent. The reduction applies almost equally to both fatal, injury, and property damage only crashes according to this research.

[5] Ray, B.L., J. Schoen, P. Jenior, J. Knudsen, R. J. Porter, J. P. Leisch, J. Mason, and R. Roess."Guidelines for Ramp and Interchange Spacing." NCHRP Report 687. Transportation Research Board. Washington DC. (2011).

FUTURE COMPARATIVE SAFETY ANALYSIS SUMMARY

The following bullets summarize the future comparative safety analysis for the I-75 mainline improvements:

- The results of the analysis show the proposed improvements are predicted to have a slightly higher crash cost (total present value) compared to the No-Build due to having 3.4 more predicted fatal crashes over the 10-year life cycle of the project (0.34 fatal crash increase per year). The proposed improvements are predicted to experience approximately 23 less injury and 94 less property damage only crashes per year over the 10-year life cycle of the project.
- The additional auxiliary lanes between interchanges will provide more capacity along the freeway mainline thus reducing the potential for re-occurring congestion along the I-75 mainline. Reducing the congestion has the potential to reduce high speed/high severity rear end crashes along the I-75 mainline.
- Based on NCHRP Report 687, the addition of an auxiliary lane between an entrance ramp and an exit ramp has the potential to reduce the number of multivehicle crashes by up to 20 percent. The reduction applies almost equally to both fatal, injury, and property damage only crashes.

CONCLUSIONS

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for proposed operational improvements to the I-75 corridor in Sumter and Marion County, Florida. These interim improvements were identified as part of a master planning effort for the I-75 corridor between Florida's Turnpike and County Road 234. The operational improvements being evaluated by this PD&E Study include construction of auxiliary lanes between interchanges for a 22.5-mile segment of I-75 between south of SR 44 and SR 200. These short-term improvements are needed to address safety and non-recurring congestion issues while FDOT continues to evaluate a longer-term solution. These improvements will be included as part of the Moving Florida Forward Infrastructure Initiative.

Within the study limits, I-75 is an urban principal arterial interstate that runs in a north and south direction with a posted speed of 70 miles per hour. I-75 is part of the Florida Intrastate Highway System, the Florida Strategic Intermodal System (SIS), and is designated by the Florida Department of Emergency Management as a critical link evacuation route. Within the study limits, I-75 is a six-lane limited access facility situated within approximately 300 feet of right-of-way. No transit facilities, frontage roads, or managed lanes are currently provided.

The following interchanges are included within the PD&E (South Section) study limits:

- SR 44
- CR 484
- SR 200

Purpose and Need

The purpose of this project is to evaluate short-term operational improvements on the mainline of I-75 from south of SR 44 to SR 200. No interchange improvements will be evaluated with this PD&E.

The primary needs for this project are to enhance current transportation safety and modal interrelationships while providing additional capacity between existing interchanges.

Existing Traffic Operations

The existing conditions analysis was conducted based on 2019 (Pre-COVID) traffic data. The existing conditions analysis evaluated typical recurring congestion patterns, the occurrence of nonrecurring congestion, and historical safety data in the study area. The results of the analysis included:

- The HCM Freeway Facilities analysis showed that on an average weekday, there is not recurring congestion along I-75 in each of the AM and PM peak periods. The analysis also showed acceptable operations along I-75 for the average weekend midday peak period.
- An evaluation of the 2019 National Performance Management Research Data Set (NPMRDS) data confirmed the findings of the HCM freeway analysis that the corridor congestion along I-75 is not a recurring congestion issue.
- The weekday Level of Travel Time Reliability (LoTTR) charts show that the corridor is reliable during the AM, midday, and PM peak periods in both directions. It is important to note that the travel time reliability results don't necessarily correlate to daily traffic volumes.
- An evaluation of the 2019 NPMRDS data showed that the weekend travel times in both directions are not as reliable as the weekdays. The heat maps show breakdowns along the I-75 corridor for special event weekends such as Spring Break, July 4th, Thanksgiving, Christmas, and New Year's.
- The LoTTR charts show that the corridor is unreliable in the northbound direction during the midday of the weekends. The southbound LoTTR charts show that the corridor is nearing unreliable conditions during the PM peak on the weekends.

Historical Safety Analysis

Crash records were obtained from the FDOT's Signal Four Analytics (S4) crash database for I-75 and associated interchanges within the study limits. The safety analysis was performed for the most recent five years of crash data (January 1, 2018 – December 31, 2022). Supplemental crash data from January 1, 2023 to March 31, 2023 were also analyzed to verify crash trends and patterns.

- The safety data showed a total of 1,384 reported crashes along I-75 northbound during this period, 384 of which (28 percent) resulted in 768 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 53 percent of the total crashes. Sideswipe (20 percent) and fixed object/run-off road (19 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 78 percent of the injury crashes.
- A total of 1,095 reported crashes were observed along I-75 southbound, 300 of which (27 percent) resulted in 644 injuries. Three fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 51 percent of the total crashes. Sideswipe (24 percent) and fixed object/run-off road (16 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounted for 71 percent of the injury crashes.

- A crash rate analysis was performed for I-75 northbound, I-75 southbound, and I-75 ramp terminal intersections and the following location is experiencing a statewide safety ratio >1:
  - I-75 Northbound, SR 44 to Marion County Weight Station (2018 & 2019); and
  - I-75 Southbound, Marion County Weight Station to SR 44 (2018 & 2019).

Existing Conditions Summary

The evaluation of typical recurring congestion patterns, the occurrence of nonrecurring congestion, and historical safety data showed that the existing congestion issues along the I-75 facility are primarily non-recurring congestion events such as incidents/crashes and special event traffic. This is further intensified for the weekends as multiple non-recurring congestion events have a higher likelihood of happening together (e.g., crash during a special event demand increase).

No-Build Operational Results – Freeway

Traffic operational analyses were conducted for the freeway mainline No-Build conditions using HCM 7th Edition methodologies as implemented by Highway Capacity Software (HCS2023). The analysis results indicated the following:

- **Northbound I-75**
  - **Opening Year (2030):** The northbound facility is expected to reach capacity (D/C ratio of 1.0) during the weekend midday peak hour; however, the average speed along the facility is expected to be 63 mph or higher. The northbound travel time is expected to increase by up to 1.9 minutes (approximately a 10% increase) versus the 2019 existing condition.
  - **Design Year (2040):** Additional mainline capacity will be needed between the SR 44 interchange and through the SR 200 interchange (end of the study limits). The additional capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040. Severe congestion (speeds lower than 25 mph) is expected to be present between CR 484 and SR 44, as well as SR 200 and CR 484. These are due to expected bottlenecks at the CR 484 and SR 200 interchanges. The northbound travel time is expected to increase by up to 27.4 minutes (approximately a 138% increase) versus the 2019 existing condition.

- **Southbound I-75**
  - **Opening Year (2030):** Additional mainline capacity will be needed between north of SR 200 (beginning of the study limits) to the CR 484 interchange. The additional

capacity is expected to be needed to accommodate average weekday PM peak period traffic in 2030. Severe congestion (speeds lower than 25 mph) is expected to be present between the beginning of the study limits and SR 200. These are due to expected bottlenecks at the SR 200 interchange. The southbound travel time is expected to increase by up to 3.3 minutes (approximately a 17% increase) versus the 2019 existing condition.

- **Design Year (2040):** Additional mainline capacity will be needed between north of SR 200 (beginning of the study limits) to the Turnpike interchange. The additional capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040. Severe congestion (speeds lower than 25 mph) is expected to be present between the beginning of the study limits and CR 484. These are due to expected bottlenecks at the SR 200 and CR 484 interchanges. The southbound travel time is expected to increase by up to 11.5 minutes (approximately a 59% increase) versus the 2019 existing condition.

No-Build Operational Results – Interchange

Traffic operational analyses were conducted for the interchange No Build conditions using HCM methodologies as implemented by Synchro 12 software. The analysis results indicated the following:

- **SR 44**
  - Each of the movements at the SR 44 at I-75 ramp terminal intersections are expected to operate at LOS E or better and under capacity (v/c ratio less than 1.0) during each of the 2040 peak hours analyzed. The 95th percentile queues along the SR 44 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed. The overall intersection LOS at the ramp terminal intersections is estimated to be LOS D or better in the 2040 No-Build AM, PM, and weekend peak hours analyzed.
- **CR 484**
  - Each of the movements at the CR 484 at I-75 ramp terminal intersections are expected to operate under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours. The CR 484 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during each AM, PM, and weekend peak hours. The 95th percentile queues along the CR 484 off-ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed.

- **SR 200**
    - Each of the movements at the SR 200 at I-75 ramp terminal intersections are expected to operate under capacity (v/c ratio less than 1.0) during each of the 2040 No-Build peak hours. The SR 200 at I-75 northbound and southbound ramp terminal intersections are anticipated to operate at overall intersection LOS D or better during the 2040 AM, PM, and weekend peak hours. The 95th percentile queues along the SR 200 off ramps are not expected to extend into the portion of the ramps designated for deceleration during the 2040 No-Build peak hours analyzed.

Build Operational Results – Freeway

Traffic operational analyses were conducted for the freeway mainline Build alternative (auxiliary lanes) using HCM 7th Edition methodologies as implemented by Highway Capacity Software (HCS2023). The analysis results indicated the following:

- **Northbound I-75**
    - **Opening Year (2030):** The proposed Build Condition is anticipated to result in each of the study segments operating below capacity (D/C < 1.0) and LOS C or better during each of the analysis periods. Travel times are anticipated to improve by up to approximately 1.8 minutes over the No-Build condition (an approximately 8% improvement). The total network vehicle hours of delay is anticipated to be improved by up to 109 hours (an approximately 83% improvement) over the No-Build condition.
    - **Design Year (2040):** Additional capacity will be needed at the CR 484 merge and the SR 200 interchange. The additional capacity is expected to be needed to accommodate average weekday AM and weekend midday peak period traffic in 2040. Under the Build scenario travel times are anticipated to improve by up to approximately 25.4 minutes over the No-Build condition (an approximately 54% improvement). The total network vehicle hours of delay is anticipated to be improved by up to 5,964 hours (an approximately 89% improvement) over the No-Build condition.

- **Southbound I-75**
    - **Opening Year (2030):** The proposed Build Condition is anticipated to result in each of the study segments operating below capacity (D/C < 1.0) and LOS D or better during each of the analysis periods. Travel times are anticipated to improve by up to approximately 2.9 minutes over the No-Build condition (an approximately 13% improvement). The total network vehicle hours of delay is anticipated to be

improved by up to 631 hours (an approximately 79% improvement) over the No-Build condition.

- **Design Year (2040):** Additional capacity along I-75 will be needed to accommodate future demands at the SR 200 and CR 484 interchanges. Additional capacity is expected to be needed to accommodate average PM peak period traffic in 2040. Travel times are anticipated to improve by up to approximately 9.6 minutes over the No-Build condition (an approximately 31% improvement). The total network vehicle hours of delay is anticipated to be improved by up to 2,130 hours (an approximately 75% improvement) over the No-Build condition.

Build Operational Results – Interchange

Traffic operational analyses were conducted for the interchange Build conditions using HCM methodologies as implemented by Synchro 12 software. The geometries and operations at the ramp terminal intersections are consistent with the results presented previously in the No-Build section.

Future Comparative Safety Analysis Results

- The results of the analysis show the proposed improvements are predicted to have a slightly higher crash cost (total present value) compared to the No-Build due to having 3.4 more predicted fatal crashes over the 10-year life cycle of the project (0.34 fatal crash increase per year). The proposed improvements are predicted to experience approximately 23 less injury and 94 less property damage only crashes per year over the 10-year life cycle of the project.
- The additional auxiliary lanes between interchanges will provide more capacity along the freeway mainline thus reducing the potential for re-occurring congestion along the I-75 mainline. Reducing the congestion has the potential to reduce high speed/high severity rear end crashes along the I-75 mainline.
- Based on NCHRP Report 687, the addition of an auxiliary lane between an entrance ramp and an exit ramp has the potential to reduce the number of multivehicle crashes by up to 20 percent. The reduction applies almost equally to both fatal, injury, and property damage only crashes.

Next Steps

This PTAR supports the ongoing Project Development & Environment (PD&E) Study. This auxiliary lane project is expected to provide short-term relief for the I-75 facility. Further evaluation is needed to identify the longer-term solution along the I-75 mainline. There is ongoing coordination with several key stakeholders including FDOT District 5, FDOT District 2, FDOT Central Office, and Florida's Turnpike Enterprise to continue to evaluate the I-75 corridor from a regional perspective.