TECHNICAL REPORT COVERSHEET

PROJECT TRAFFIC ANALYSIS REPORT

Florida Department of Transportation

District Five

I-75 PD&E North Auxiliary Lanes

Limits of Project: I-75 (SR 93) from SR 200 to SR 326

Marion County, Florida

Financial Management Number: 452074-1

ETDM Number: 14542

Date: March 5, 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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Financial Project Identification (FPID) 452074-1

March 2024

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for proposed short-term operational improvements to the I-75 corridor in the City of Ocala 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 short-term operational improvements being evaluated by this PD&E Study include construction of auxiliary lanes between interchanges for an eight-mile segment of I-75 between SR 200 and SR 326. 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 (North Section) study limits:

- SR 40 (Silver Springs Boulevard)
- US 27 (Blitchton Road)
- NW 49th Street (planned)
- SR 326 (known as CR 326 east of I-75)

Purpose and Need

The purpose of this project is to evaluate operational improvements between existing interchanges for I-75 between SR 200 and SR 326.

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 non-recurring 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 2019 data obtained from the National Performance Management Research Data Set (NPMRDS) 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.
- An evaluation of 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 reliable in the northbound direction during the weekends. The southbound LoTTR charts show that the data indicates the corridor is nearing unreliable conditions on the weekends.

Historical Safety Analysis

Crash records were obtained from the University of Florida's Signal Four (S4) crash database for I-75 and associated interchanges within the 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.

- The safety data showed a total of 602 reported crashes along I-75 northbound during the study period, 171 of which (28 percent) resulted in 341 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 43 percent of the total crashes. Fixed object/run-off road (28 percent) and sideswipe (21 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 77 percent of the injury crashes.
- A total of 662 reported crashes were observed along I-75 southbound during the study period, 170 of which (26 percent) resulted in 380 injuries. Four fatal crashes were observed

along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 60 percent of the total crashes. Sideswipe (18 percent) and fixed object/run-off road (17 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounting for 80 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 Southbound, SR 326 Interchange Area (2018 & 2019)

Existing Conditions Summary

The evaluation of typical recurring congestion patterns, the occurrence of non-recurring 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):** Additional capacity will be needed from south of the SR 40 interchange (beginning of the study limits) to the US 27 interchange due to the projected volumes along I-75. Congestion (speeds lower than 30 mph) is expected to be present between the southern study limits and through the SR 40 interchange during the 2030 average weekend midday peak period. This is due to expected bottlenecks along I-75 at the SR 40 interchange (merge and diverge). The northbound travel time is expected to increase by up to 2.2 minutes (approximately a 28% increase) versus the 2019 existing condition.
    - **Design Year (2040):** Additional capacity will be needed from south of the SR 40 interchange (beginning of the study limits) through north of the SR 326 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 the southern study limits through the SR 40 interchange. This is due to expected bottlenecks along I-75 at the SR 40 interchange (merge and diverge). The northbound travel time is expected to increase by up to 4.1 minutes (approximately a 52% increase) versus the 2019 existing condition.

- **Southbound I-75**
  - **Opening Year (2030):** Additional capacity will be needed between the US 27 interchange through south of the SR 40 interchange (end of the study limits). 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 along I-75 from the SR 40 interchange through the SR 326 interchange during the 2030 PM peak period. The southbound travel time is expected to increase by up to 10.9 minutes (approximately a 136% increase) versus the 2019 existing condition.
  - **Design Year (2040):** Additional capacity will be needed between north of SR 326 (beginning of the study limits) through south of the SR 40 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 20 mph) is expected to be present along I-75 from north of SR 326 (beginning of the study limits) through the SR 40 interchange. The northbound travel time is expected to increase by up to 18.9 minutes (approximately a 236% 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 40**
  - Additional capacity is needed at both ramp terminal intersections as both intersections are expected to operate at an overall intersection LOS F during 2040. It is anticipated that queue spillback would extend into the ramp area designated for deceleration and approach the I-75 mainline lane gore points (northbound and southbound) from the ramp terminals based on the 95^{th} percentile queue lengths at the interchange.
  - It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request and this is further described under the **Build Operational Results – Interchange** section.

- **US 27**
  - Most of the movements at the I-75 at US 27 ramp terminal intersections are anticipated to operate at LOS E or better and would be under capacity during the 2040 average AM, PM, and weekend peak hours. The 2040 average PM peak hour southbound 95th percentile queue is estimated to extend into the portion of the off-ramp designated for deceleration at the I-75 southbound ramp terminal intersection.
- **SR 326**
  - Multiple movements at LOS F and overcapacity were identified at the I-75 northbound at SR 326 ramp terminal intersection. The 95th percentile queues are expected to extend onto the I-75 northbound mainline lanes during each of the 2040 average peak hours. More traffic is expected along the northbound off-ramp than the southbound off-ramp.
  - It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request and this is further described under the **Build Operational Results – Interchange** section.

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 the study segments operating below capacity (D/C < 1.0) and LOS D or better during the analysis periods. Travel times are anticipated to improve by up to approximately 1.9 minutes over the No-Build condition (approximately a 19% improvement). The total network vehicle hours of delay is estimated to be improved by up to 396 hours (approximately an 80% improvement) over the No-Build condition.
  - **Design Year (2040):** Additional mainline capacity will be needed at the SR 40 interchange and the SR 326 merge. 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 3.8 minutes over the No-Build condition (approximately a 32% improvement). The total network vehicle hours of delay is estimated to be improved by up to 775 hours (approximately an 88% improvement) over the No-Build condition.

- **Southbound I-75**
  - **Opening Year (2030):** The proposed Build Condition is anticipated to result in the study segments operating below capacity (D/C < 1.0) and LOS D or better during the analysis periods. Travel times are anticipated to improve by up to approximately 10.5 minutes over the No-Build condition (approximately a 56% improvement). The total network vehicle hours of delay is estimated to be improved by up to 2,211 hours (approximately a 95% improvement) over the No-Build condition.
  - **Design Year (2040):** Additional mainline capacity along I-75 will be needed to accommodate future demands at the SR 326 interchange, NW 49th Street merge, US 27 merge and diverge and through the SR 40 interchange. The additional capacity is expected to be needed to accommodate average PM peak period traffic in 2040. Under the Build scenario, travel times are anticipated to improve by up to approximately 12.4 minutes over the No-Build condition (approximately a 58% improvement). The total network vehicle hours of delay is estimated to be improved by up to 2,603 hours (approximately an 88% 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 analysis results indicated the following:

- **SR 40**
  - This PTAR also considers the interchange improvements proposed at the SR 40 interchange as these improvements are expected to be included as part of the Moving Florida Forward Infrastructure Initiative. It is important to note that the Build improvements to this interchange evaluated in this PTAR are also currently under evaluation in an interchange access request under separate cover. These improvements include:
    - Extend the eastbound left-turn lane
    - Extend the westbound left-turn lane
    - Bring the westbound/eastbound right-turn lanes under signal control (remove channelization)
    - Add a 2nd left-turn lane along both off-ramps
    - Add an exclusive right-turn lane along both off-ramps

  - The Build operations are expected to improve over the No-Build conditions with the ramp terminal intersections expected to operate at an overall intersection LOS D or better in 2040.
  - Queue spillback from the southbound ramp terminal into the portion of the off-ramp designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated at the interchange.
  - The northbound 2040 AM peak hour 95th percentile queue is expected to extend into the portion of the ramp designated for deceleration. This queue length will be confirmed with microsimulation as part of the ongoing I-75 at SR 40 IOAR.

- **US 27**
  - Ramp terminal intersection Build Condition geometries at the I-75 at US 27 interchange are consistent with No-Build geometries and Build results are therefore the same as No-Build results.

- **SR 326**
  - This PTAR also considers the interchange improvements proposed at the SR 326 interchange as these improvements are expected to be included as part of the Moving Florida Forward Infrastructure Initiative. It is important to note that the Build improvements to this interchange evaluated in this PTAR are also currently under evaluation in an interchange access request under separate cover. These improvements include:
    - Add two westbound displaced left-turn lanes
    - Widen the northbound off-ramp to include two left-turn lanes and two right-turn lanes (right-turn signalized)
    - Add an exclusive southbound left-turn lane
  - The Build operations are expected to improve over the No-Build conditions with the ramp terminal intersections expected to operate at an overall intersection LOS D or better in 2040.
  - Queue spillback from the ramp terminals into the portion of the off-ramps designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated for the northbound and southbound movements at the interchange.

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 approximately one more predicted fatal crash over the 10-year life cycle of the project (0.1 fatal crash increase per year). The proposed improvements are predicted to experience approximately 7 less injury and 25 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 recurring 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 (FM# 452074-1). 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 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 including:

- I-75 from south of SR 44 to SR 200 (FM# 452074-2) – South Section
- I-75 from SR 200 to SR 326 (FM# 452074-1) – North Section
- I-75 at SR 40 interchange improvements (FM# 443624-6)
- I-75 at SR 326 interchange improvements (FM# 452072-1)

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 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) is prepared to support the Project Development and Environment (PD&E) Study for proposed short-term operational improvements to the Northern section I-75 corridor in the City of Ocala and Marion County, Florida (FM# 452074-1). 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 short-term operational improvements being evaluated by this PD&E Study include construction of auxiliary lanes between interchanges for an eight-mile segment of I-75 between SR 200 and SR 326. These short-term improvements are needed to address safety and non-recurring congestion issues while FDOT continues to evaluate a longer-term solution. The focus of this PTAR is on the I-75 North auxiliary lane improvements and also considers the interchange improvements proposed at the SR 40 and SR 326 interchanges as these improvements are expected to be included as part of the Moving Florida Forward Infrastructure Initiative.

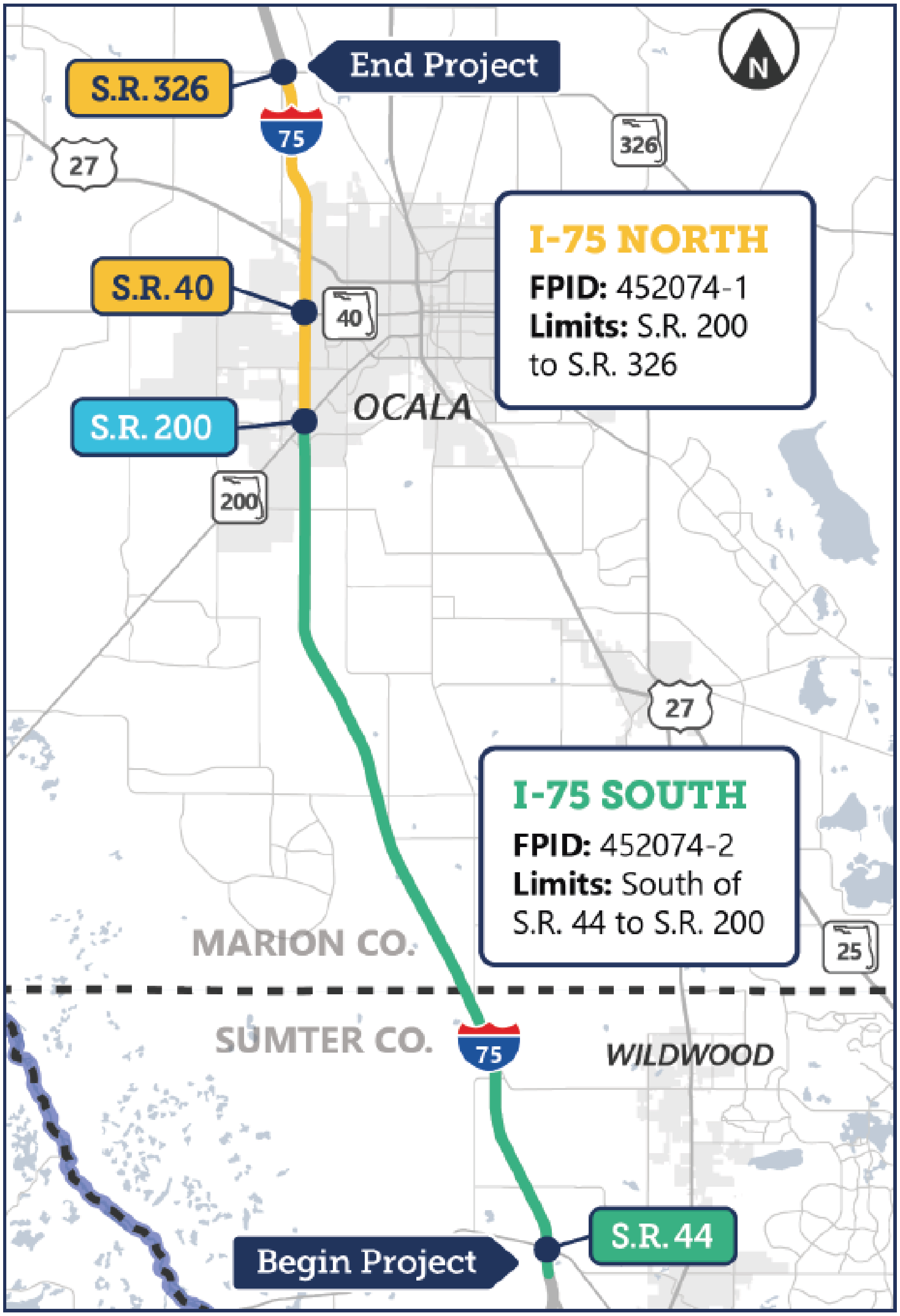
PROJECT DESCRIPTION

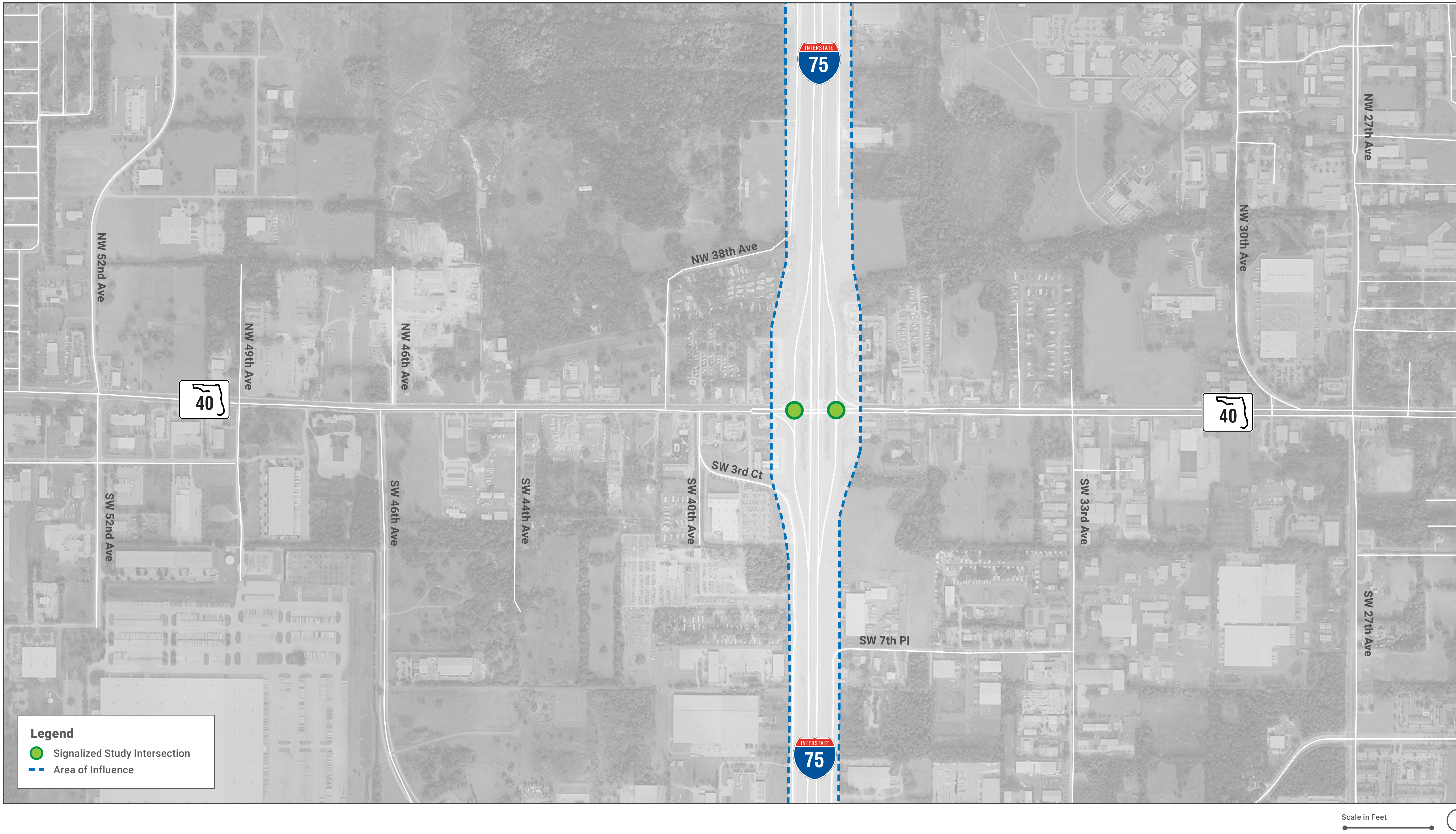
The FDOT is conducting a PD&E Study for proposed operational improvements to the I-75 Northern section corridor in City of Ocala and Marion County. These interim improvements were identified as part of Phase 1 of a master planning effort for the I-75 corridor between SR 200 and SR 326. The operational improvements being evaluated by this PD&E Study consist of construction of auxiliary lanes between interchanges from SR 40 to SR 326. The North Section study segment is approximately eight miles in length beginning just past SR 200 to the south and extending to SR 326 to the north. **Figure 1** shows both North and South Section study segments. Within the study limits, I-75 is a six-lane limited access facility situated within approximately 300 feet of right-of-way that runs in a north and south direction with posted speed of 70 miles per hour (MPH). I-75 is part of the Florida Intrastate Highway System (FIHS), the Florida Strategic Intermodal System (SIS), and is designated by the Florida Department of Emergency Management as a critical link evacuation route. No transit facilities, frontage roads, or managed lanes are currently provided along the I-75 facility. The following interchanges are included within the study limits:

- SR 40 (Silver Springs Boulevard)
- US 27 (Blitchton Road)
- NW 49th Street (planned interchange to be constructed)
- SR 326 (known as CR 326 east of I-75)

The study area for the PTAR was established to include the limits of I-75 and the ramp junction intersections. The specific study area including the study intersections are illustrated in **Figure 2**.

Figure 1: I-75 Project Limits (North and South Sections)





FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

Study Limits

Figure 2 (1 of 3)

FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

Study Limits

Figure 2 (2 of 3)

Scale in Feet
0 700
North

FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

Study Limits

Figure 2 (3 of 3)

PURPOSE AND NEED

The following section summarizes the purpose and need for the study.

PROJECT PURPOSE

The purpose of this project is to evaluate operational improvements between existing interchanges for I-75 between SR 200 and SR 326.

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

The project is within the jurisdiction of the Ocala-Marion Transportation Planning Organization (TPO) boundaries. The Ocala-Marion TPO 2045 Cost Feasible Plan (CFP) includes widening I-75 to eight lanes from the Sumter/Marion County line to CR 318 in years 2031 to 2035. Amendments to revise the CFP and to add the proposed improvements to the Florida Department of Transportation (FDOT) 2023-2028 Work Program and 2024-2028 Ocala-Marion TPO Transportation Improvement Program (TIP) are ongoing. The I-75 improvements are funded for design, right of way and construction in the Department's Five-Year Work Program as part of the Moving Florida Forward Initiative. This project begins at SR 200, which is the northern terminus for the I-75 PD&E from South of SR 44 to SR 200, ETDM #14541.

SAFETY

I-75 experiences crash rates (1.85) greater than the statewide average (1.0) for similar facilities. Crash data analyzed between 2018 and 2022 indicates there was a total of 1,228 vehicle crashes between SR 200 and SR 326. Of these, 297 resulted in at least one injury and 7 resulted in a fatality. The number of crashes increased every year from 161 crashes in 2018 to 272 crashes in 2022.

Based on the data, rear end collisions and sideswipes are cited as the primary types of crashes on I-75 mainline and the on/off-ramps. Contributing factors includes the closely spaced interchanges in the Ocala area that cause vehicles to “stack” in the right-hand lane with insufficient weaving distance between interchanges, weaving associated with vehicles entering and existing the I-75 mainline, and congestion at off-ramps that cause vehicles to queue from off-ramps onto the mainline.

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 US 27 and SR 326 experiences the highest volume of trucks with more than 30 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 74,000 vehicles per day (vpd) to 97,500 vpd, with the highest volume of traffic occurring between SR 200 and SR 40. 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, the Opening Year, I-75 northbound from SR 200 to SR 40 and I-75 southbound from SR 326 to SR 40 will operate at Level of Service (LOS) F in the no-build condition. By 2040, the Design Year, AADT's within the study limits will range between 122,000 and 142,500, with the highest volumes of traffic continuing to occur between SR 200 and SR 40.

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).

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 and 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 in this PTAR 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:

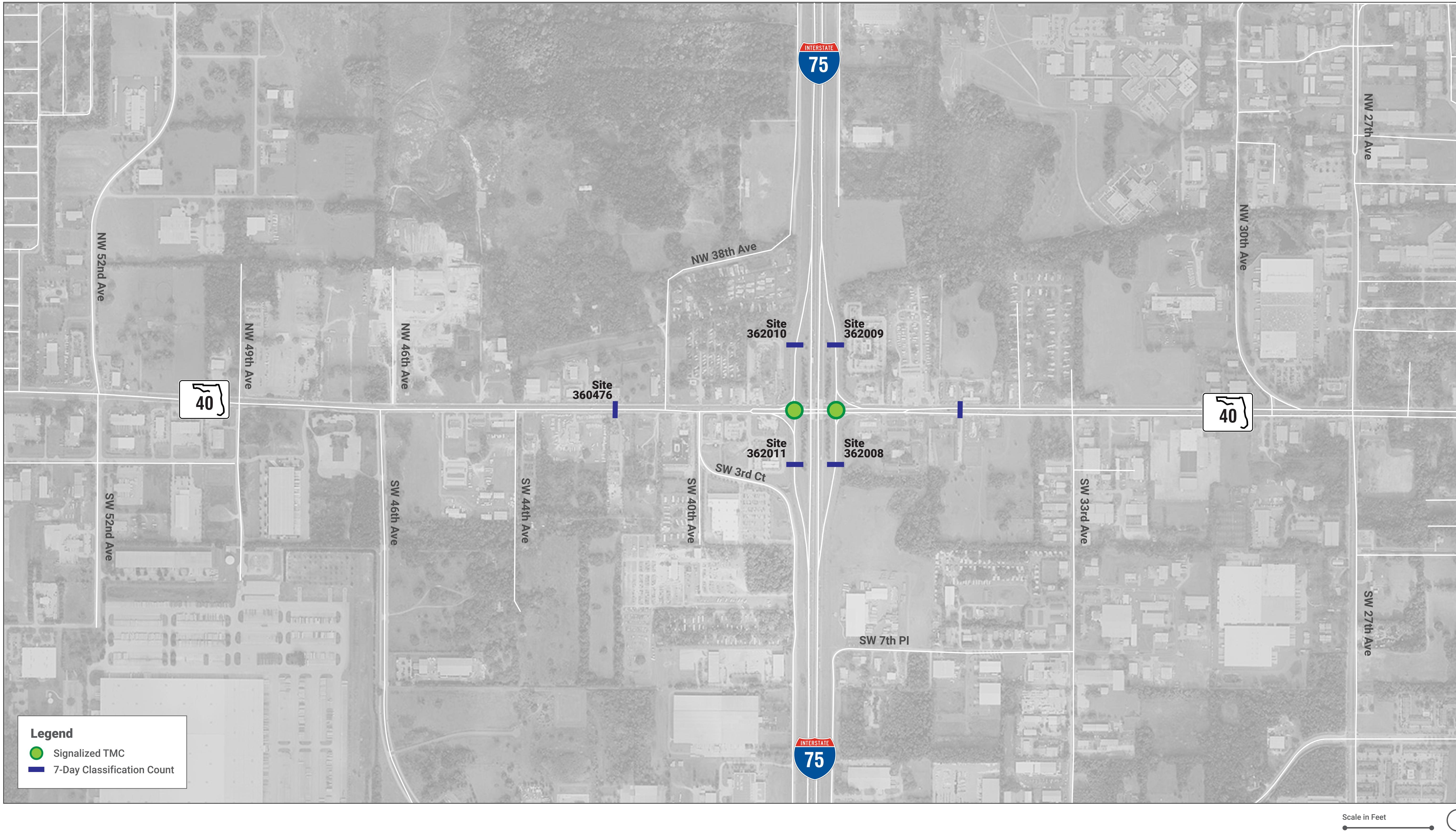
- December 8, 2019 – December 25, 2019

The 8-hour intersection turning movement counts were collected for the weekday AM and PM peak periods of 7:00 AM – 10:00 AM and 3:30 PM – 6:30 PM on December 10, 2019 and January 9, 2020. The weekend counts were collected between 1:00 PM – 3:00 PM on December 14, 2019 and January 11, 2020. 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 specific data collection locations are illustrated in **Figure 3**. 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 the City of Ocala and Marion County for each of the signalized intersections in the study area. The signal timing data provided in **Appendix C**.



FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

Data Collection Locations

Figure 3 (1 of 3)

FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

Data Collection Locations

Figure 3 (2 of 3)

FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

Data Collection Locations

Figure 3 (3 of 3)

TRAFFIC FORECASTING METHODOLOGY

The traffic forecasting methodologies are consistent with the approved Memorandum of Agreement (MOA) included in **Appendix A**. The traffic forecasting methodologies are also consistent with the FDOT's *2019 Project Traffic Forecasting Handbook* and the FDOT's Project Traffic Forecasting Procedure Topic No. 525-030-120.

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 a Standard K factor. 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 40 and I-75 northbound on-ramp from SR 40), 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 ensured the appropriate directionality between the two ramps was 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 were 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 interim year (2040) volumes were estimated in the I-75 Master Plan 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 provided in **Appendix D**.

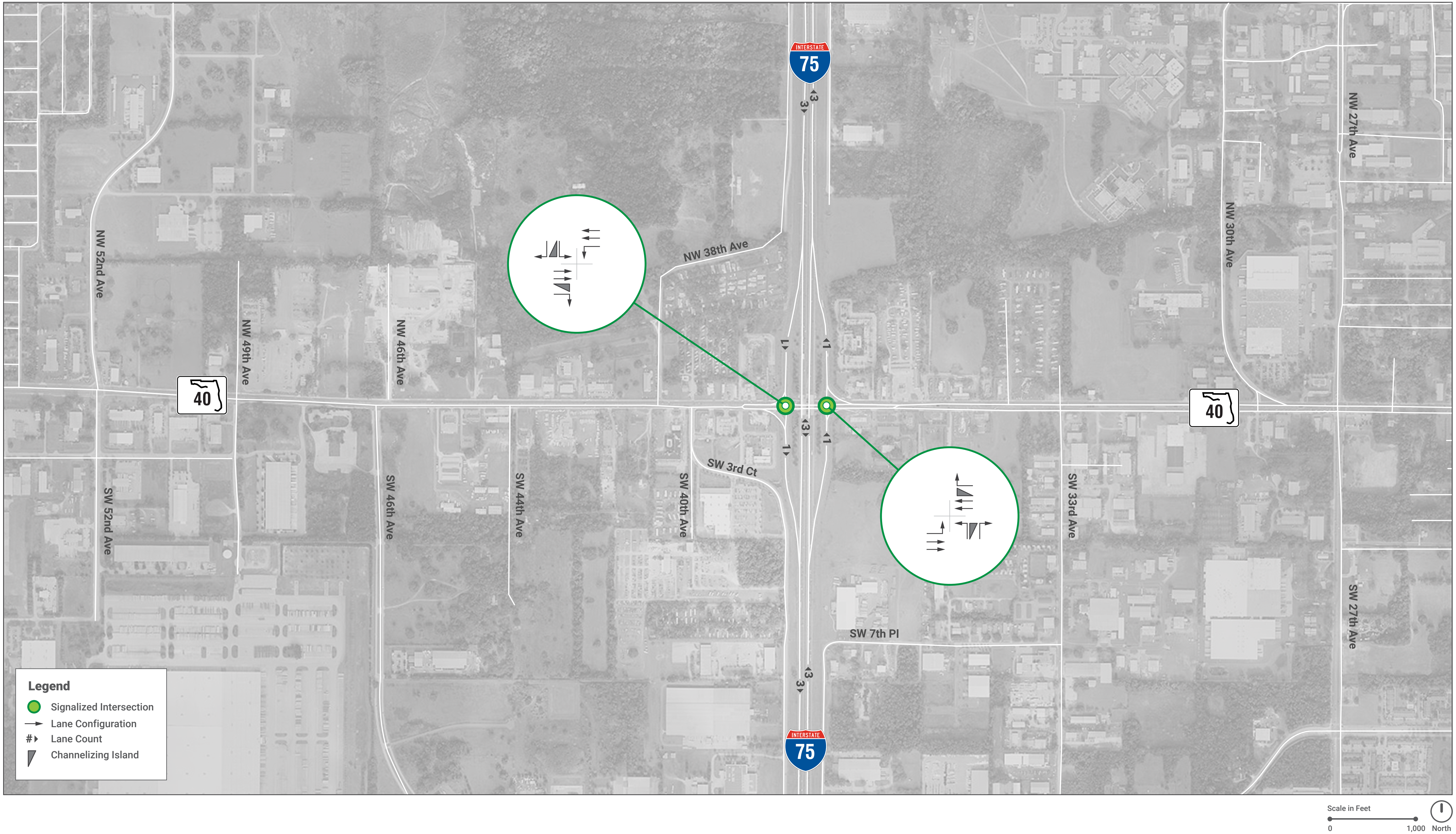
I-75 is classified as a rural principal arterial interstate from the Sumter County line to the Marion County Weigh Station and from the SR 326 interchange to the Alachua County line. I-75 is classified as an urban principal arterial interstate from the Marion County Weigh Station to the SR 326 interchange in Marion County. I-75 is currently a six-lane divided roadway 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 1** summarizes existing characteristics for the roadways in the study area including SR 40, US 27, and SR 326.

I-75 at SR 40 and I-75 at US 27 interchanges in the study area are configured as diamond interchanges with signalized ramp terminal intersection control. The I-75 at SR 326 interchange is a partial cloverleaf interchange, with a westbound SR 326 to southbound I-75 free-flow loop on-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 4**.

Table 1: Existing Roadway Characteristics

Characteristic	Roadway Segment			
	I-75 (Marion)	SR 40	US 27	SR 326
FDOT Roadway ID	36210000	36110000	36070000	36180000
Location (Milepost)	14.200 – 23.330	23.969 – 24.094*	17. 816 – 17.951*	12.827 -13.099*
Functional Classification	Rural/Urban Principal Arterial-Interstate	Urban Principal Arterial - Other	Urban Principal Arterial - Other	Urban Principal Arterial - Other
SIS Designation	SIS	Non-SIS	Emerging SIS	SIS
Speed Limit	70 mph	50 mph	45 mph	45 mph
Lane Width	12 feet	12 feet	11.5 feet	12 feet
Shoulder Width	Average 10 ft paved with 12 ft outside lawn	2 ft curb & gutter	2 ft curb & gutter (W of I-75 & interchange area)	4 ft paved with 2 ft curb & gutter with 12 ft outside lawn (W of I-75)
			4 ft paved 4 ft outside lawn (interchange area to E of I 75)	2 ft curb & gutter (interchange area to E of I-75)
Median	40-foot median vegetation	36-foot vegetation (W of I-75)	20-foot curb & vegetation (W of I-75)	22-foot curb & vegetation (W of I-75)
		36-foot vegetation (interchange area)	24-foot raised traffic separator (interchange area)	17-foot raised traffic separator (interchange area)
		36-foot vegetation (E of I-75)	24-foot raised traffic separator median (E of I-75)	14-foot paved median (E of I-75)
FDOT Access Classification	1	5	5	3
Curb and Gutter	None	Yes	Yes	Yes
Sidewalks	None	Yes	None	None
Bike Lanes	None	Yes (W of I-75)	Yes	None
Street Lighting	Present	Present	Present	Present
Surrounding Land Uses	Industrial, Residential, Commercial	Residential, Commercial, Industrial	Residential, Commercial, Industrial	Residential, Commercial

*Interchange arterial milepost locations correspond to arterial facilities within the interchange area only.

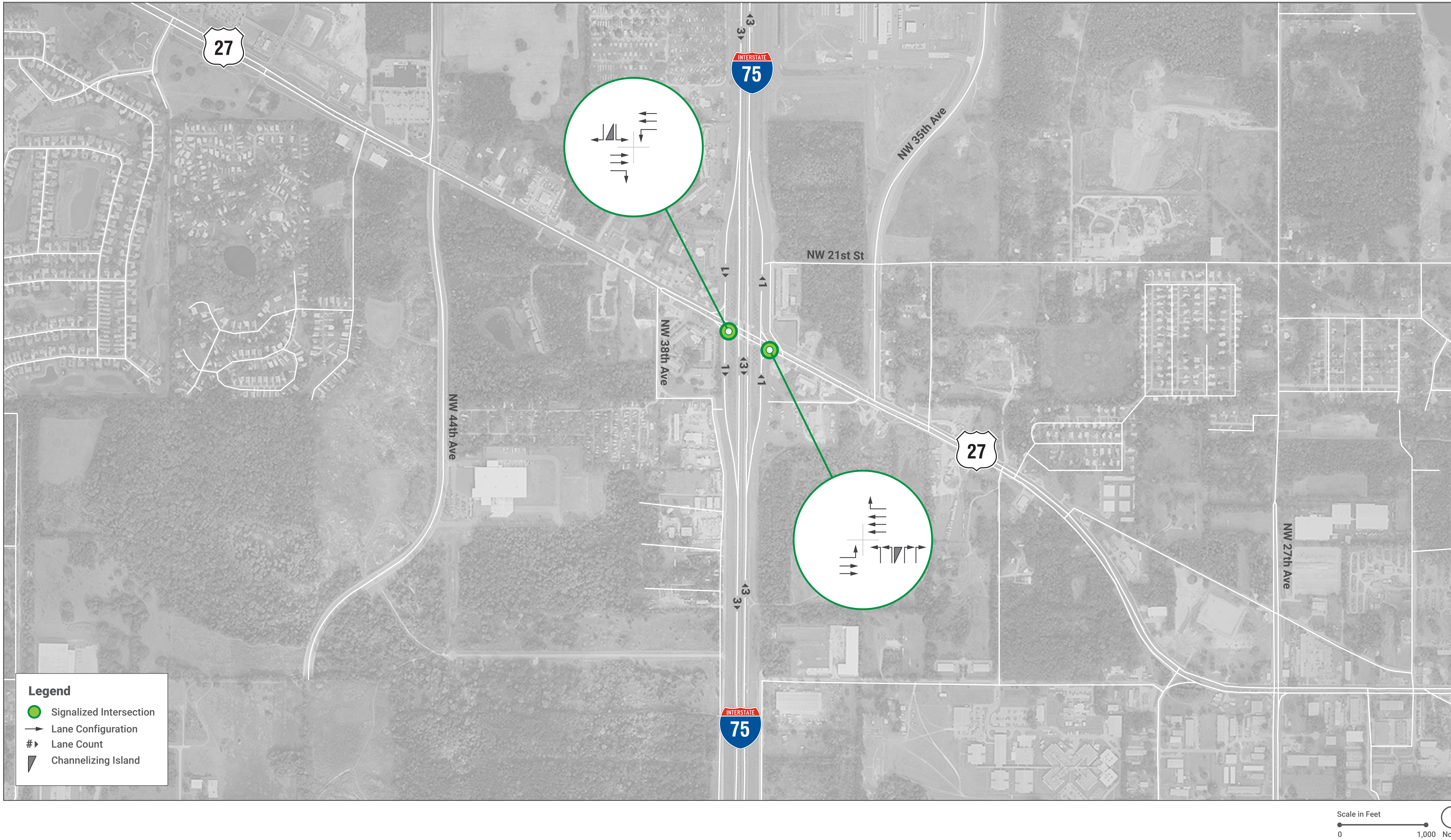


I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

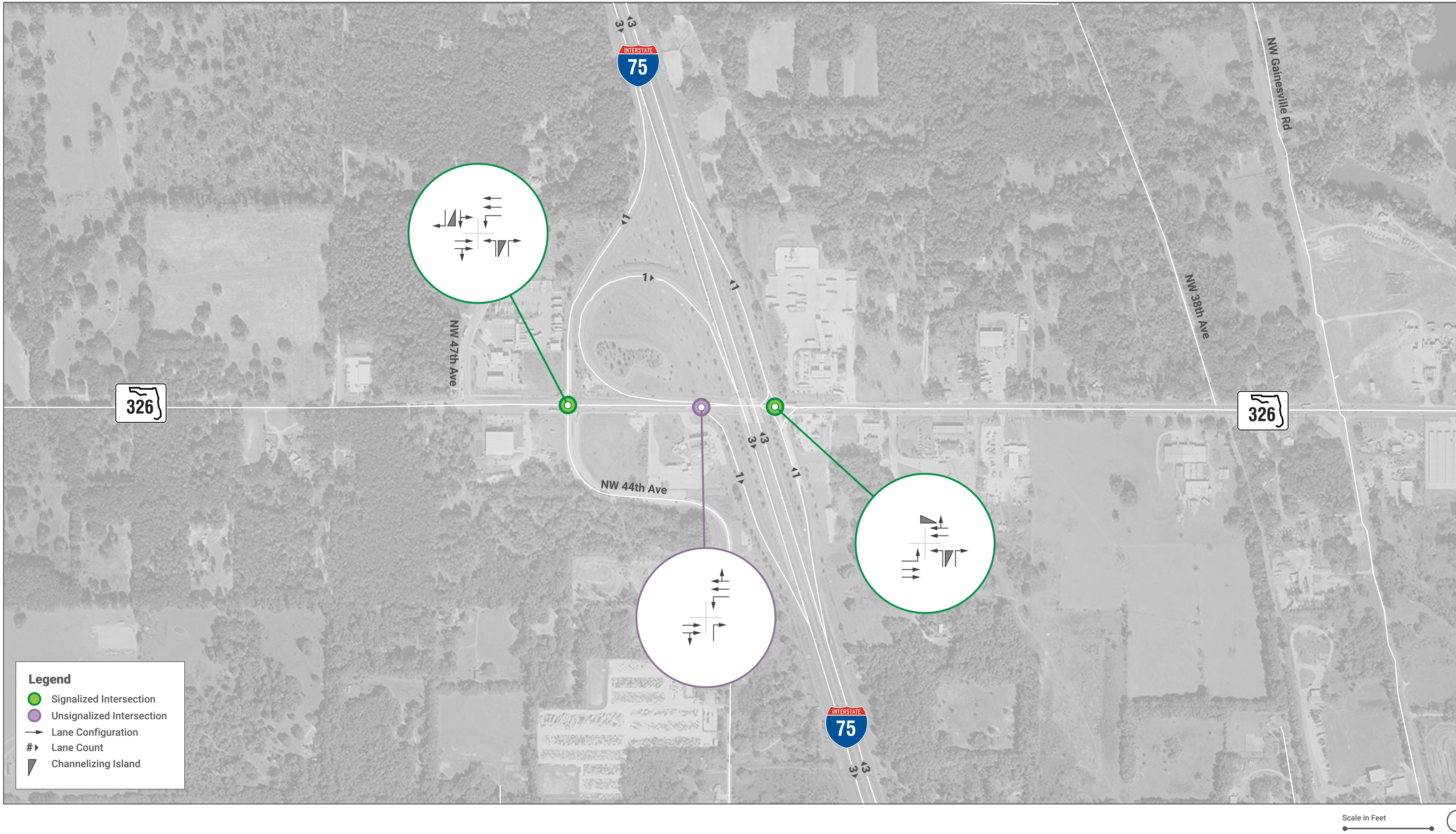
Existing Lane Configurations

Figure 4 (1 of 3)



I-75 PD&E North | US 27 Interchange
SR 200 to SR 326

Existing Lane Configurations
Figure 4 (2 of 3)



FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

Existing Lane Configurations

Figure 4 (3 of 3)

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

SR 40 Interchange:

- Two continuous through lanes in each direction
- Single left-turn lane from the arterial to both I-75 on-ramps
- Single exclusive right-turn lane onto both I-75 on-ramps
    - Both the westbound and eastbound right-turn lanes are channelized with yield-control
- Both the off-ramp approaches consist of single shared left-turn and a yield-controlled channelized right-turn lane

US 27 Interchange:

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

SR 326 Interchange:

- Two continuous through lanes in each direction
- Single left-turn lane from the arterial to the I-75 northbound on-ramp
- A free-flow right-turn lane from the arterial to the southbound loop on-ramp
- Single shared eastbound through/right-turn lane onto the I-75 southbound on-ramp
- Both off-ramp approaches consist of one left-turn lane and one yield-controlled channelized right-turn lane

EXISTING TRANSIT SERVICES

Existing transit services were reviewed within the study area. The study area includes the major transit service, which is summarized as follows. No transit services are provided within the project limits in Marion County in existing conditions.

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[1].

SunTran provides fixed-schedule service on seven routes, mostly centered in Ocala. Among the seven routes, there are 3 routes that operate transit in the project areas: Purple (SR 40), Orange (SR 200), and Silver (US 27). However, none of the routes operate 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 provided in **Appendix E**.

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 2**.

- 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

[1] https://www.suntran.org/about-us/overview-and-services/suntran

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 (current at the time of count post processing) to estimate 2019 ADT volumes and 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 40, US 27, and SR 326 study limits are summarized in **Table 3**, **Table 4**, and **Table 5**, 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 5**. It is important to note the ramp AADTs shown in **Figure 5** may not match those summarized in **Table 3** through **Table 5.**

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 6, Table 7**, and **Table 8**. 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 6**, **Figure 7**, and **Figure 8**, respectively.

Table 2: Existing (2019) System Peak Hour Summary

AM Peak				PM Peak				Weekend Midday Peak			
Start Time	Total 15min Intersection Volume Entering Network	Total Hourly Intersection Volume Entering Network	Peak Hour	Start Time	Total 15min Intersection Volume Entering Network	Total Hourly Intersection Volume Entering Network	Peak Hour	Start Time	Total 15min Intersection Volume Entering Network	Total Hourly Intersection Volume Entering Network	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				

Table 3: Existing (2019) Daily Volumes – SR 40

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 40 west of NW 38th Ave	27,297	27,419	29,070	29,649	30,324	20,548	15,732	28,713	20,548	1.00	28,500	20,500
SW 40th Ave south of SR 40	4,362	4,456	4,479	4,660	5,163	3,974	2,831	4,532	3,974	1.00	4,500	4,000
I-75 SB Off-Ramp to SR 40	4,695	4,695	4,879	5,208	5,272	3,898	3,269	4,927	3,898	1.00	4,900	3,900
I-75 NB On-Ramp from SR 40	5,151	4,939	5,249	5,337	5,628	4,081	3,569	5,175	4,081	1.00	5,200	4,100
I-75 SB On-Ramp from SR 40	5,891	6,271	5,953	6,048	6,452	4,755	4,243	6,091	4,755	1.00	6,100	4,800
I-75 NB Off-Ramp to SR 40	5,816	5,874	5,949	5,936	6,506	4,569	4,046	5,920	4,569	1.00	5,900	4,600
SR 40 east of I-75	32,551	33,548	33,474	34,150	35,195	25,649	20,841	33,724	25,649	1.00	33,500	25,500

Table 4: Existing (2019) Daily Volumes – US 27

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
US 27, west of I-75	28,115	28,636	29,042	29,561	32,218	28,014	22,925	29,080	28,014	1.00	29,000	28,000
I-75 SB Off-Ramp to US 27	2,590	2,670	2,844	2,973	2,963	2,587	2,210	2,829	2,587	1.00	2,800	2,600
I-75 NB On-Ramp from US 27	2,268	2,334	2,342	2,360	2,587	1,941	1,450	2,345	1,941	1.00	2,300	1,900
I-75 SB On-Ramp from US 27	8,486	8,599	8,687	8,819	9,808	9,232	6,980	8,702	9,232	1.00	8,700	9,200
I-75 NB Off-Ramp to US 27	7,980	7,790	8,395	8,458	9,028	7,366	6,207	8,214	7,366	1.02	8,400	7,500
US 27, east of I-75	30,036	30,570	30,907	31,091	32,833	27,399	21,508	30,856	27,399	1.00	31,000	27,500

Table 5: Existing (2019) Daily Volumes – SR 326

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 326 west of NW 44th Ave	10,577	10,278	10,831	10,524	11,256	10,331	8,938	10,544	10,331	1.02	11,000	10,500
NW 44th Ave south of SR 326	2,304	2,242	2,474	2,363	2,515	2,285	1,971	2,360	2,285	1.00	2,400	2,300
I-75 SB Off-Ramp to SR 326	3,936	3,885	3,923	4,240	4,509	4,840	4,160	4,016	4,840	1.00	4,000	4,800
I-75 SB On-Ramp from SR 326 - WB	6,603	6,322	6,622	7,306	9,254	9,389	8,304	6,750	9,389	1.00	6,800	9,400
I-75 NB On-Ramp from SR 326	3,143	3,234	3,227	3,312	3,576	3,106	2,843	3,258	3,106	1.00	3,300	3,100
I-75 SB On-Ramp from SR 326 - EB	3,520	3,332	3,415	3,623	3,898	3,119	3,181	3,457	3,119	1.00	3,500	3,100
I-75 NB Off-Ramp to SR 326	11,232	8,991	7,956	10,856	13,293	12,176	9,662	9,268	12,176	1.00	9,300	12,000
SR 326 west of NW 38th Ave	24,530	25,307	21,401	25,908	28,636	27,910	22,269	24,205	27,910	1.02	24,500	28,500

FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2019 Annual Average Daily Traffic Volumes

Figure 5 (1 of 3)

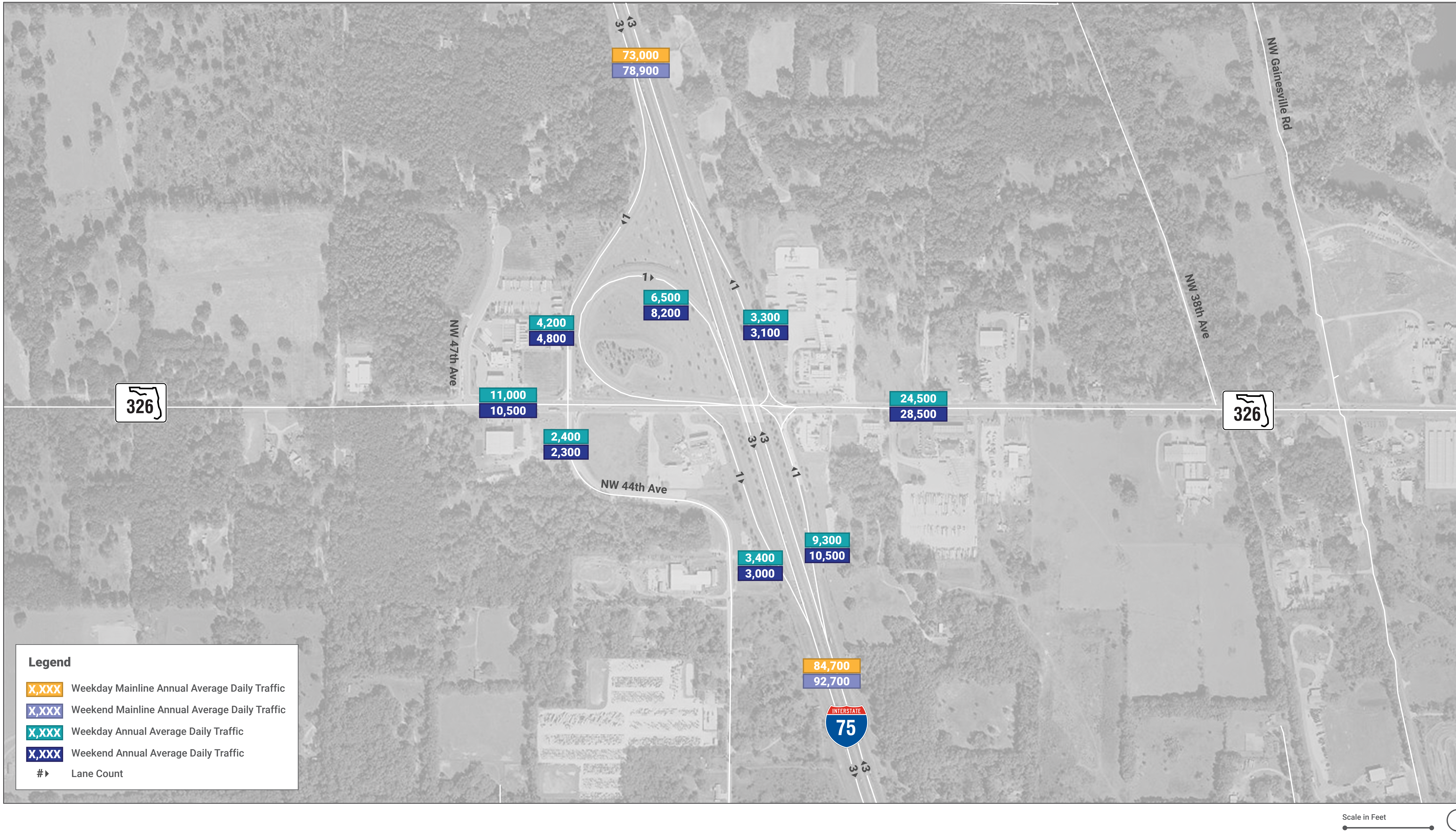
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2019 Annual Average Daily Traffic Volumes

Figure 5 (2 of 3)



FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2019 Annual Average Daily Traffic Volumes

Figure 5 (3 of 3)

Table 6: Existing Peak Hour Volumes – SR 40

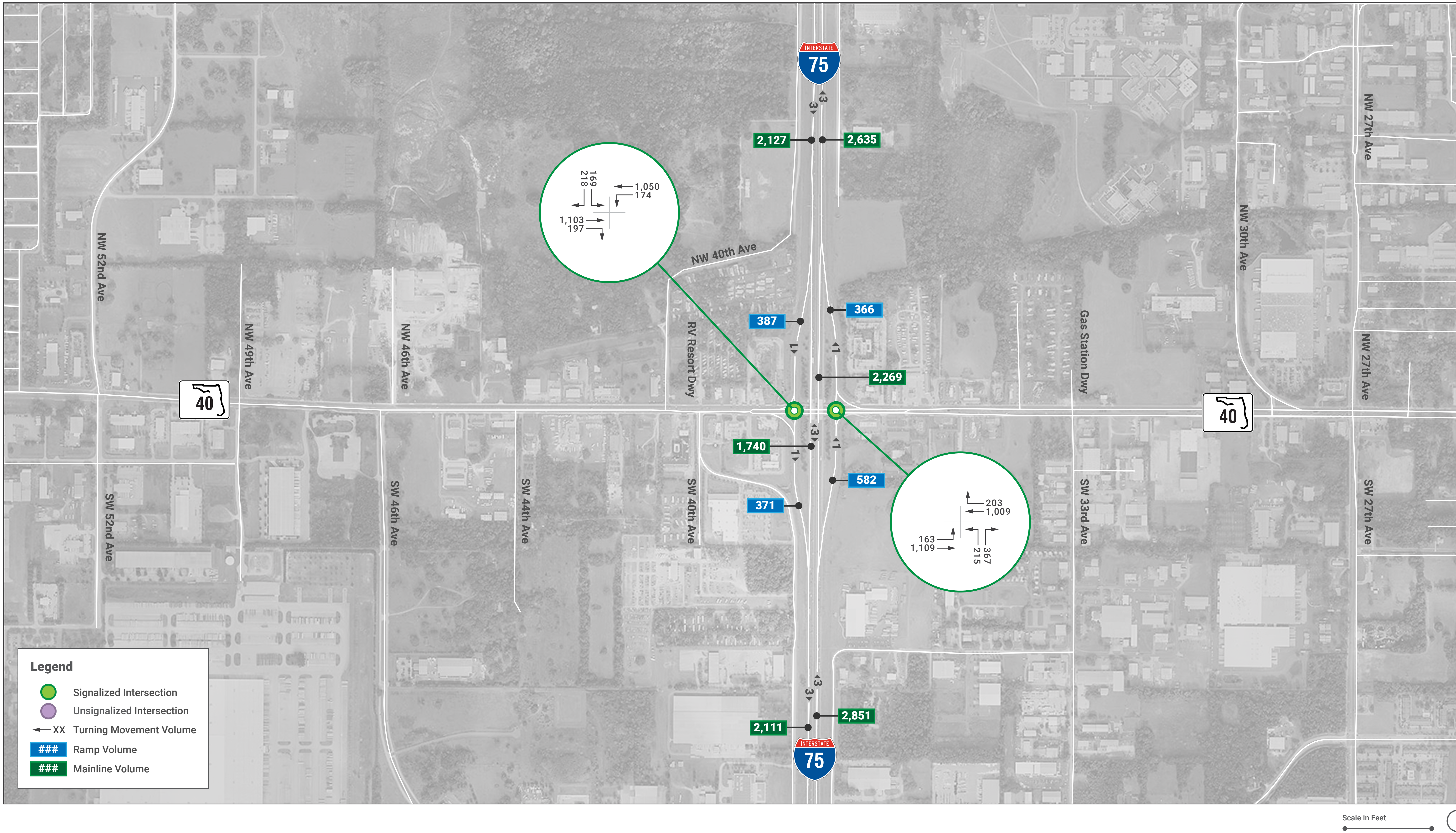
Roadway	AM Peak Hour: 7:15- 8:15 AM					PM Peak Hour: 4:30- 5:30 PM					Weekend Peak Hour: 1:00- 2:00 PM				
	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D	Peak Hour Volume	NB/EB	SB/WB	Peak-to-Daily Ratio	D
SR 40 west of NW 38th Ave	2,098	1,077	1,021	7.31%	0.51	2,173	990	1,182	7.57%	0.54	1,362	674	688	6.63%	0.51
SW 40th Ave south of SR 40	309	80	229	6.82%	0.74	343	188	155	7.57%	0.55	336	164	172	8.44%	0.51
I-75 Ramps (North of SR 40)	784	364	420	7.77%	0.54	724	393	331	7.17%	0.54	567	296	271	7.10%	0.52
I-75 SB Off-Ramp to SR 40	420	0	420	8.53%	1.00	331	0	331	6.72%	1.00	271	0	271	6.94%	1.00
I-75 NB On-Ramp from SR 40	364	364	0	7.04%	1.00	393	393	0	7.59%	1.00	296	296	0	7.25%	1.00
I-75 Ramps (South of SR 40)	882	559	323	7.34%	0.63	908	338	570	7.56%	0.63	715	335	380	7.66%	0.53
I-75 SB On-Ramp from SR 40	323	0	323	5.30%	1.00	570	0	570	9.36%	1.00	380	0	380	7.99%	1.00
I-75 NB Off-Ramp to SR 40	559	559	0	9.44%	1.00	338	338	0	5.70%	1.00	335	335	0	7.32%	1.00
SR 40 east of I-75	2,414	1,359	1,055	7.16%	0.56	2,443	1,173	1,270	7.24%	0.52	1,754	867	887	6.84%	0.51

Table 7: Existing Peak Hour Volumes – US 27

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
US 27, west of I-75	1,838	1,108	730	6.32%	0.60	2,340	1,022	1,319	8.05%	0.56	1,978	987	991	7.06%	0.50
I-75 Ramps (North of US 27)	364	179	185	7.03%	0.51	367	159	208	7.09%	0.57	270	109	161	5.96%	0.60
I-75 SB Off-Ramp to US 27	185	0	185	6.54%	1.00	208	0	208	7.34%	1.00	161	0	161	6.22%	1.00
I-75 NB On-Ramp from US 27	179	179	0	7.63%	1.00	159	159	0	6.79%	1.00	109	109	0	5.62%	1.00
I-75 Ramps (South of US 27)	1,232	631	601	7.28%	0.51	1,254	609	645	7.41%	0.51	1,011	459	552	6.09%	0.55
I-75 SB On-Ramp from US 27	601	0	601	6.91%	1.00	645	0	645	7.42%	1.00	552	0	552	5.98%	1.00
I-75 NB Off-Ramp to US 27	631	631	0	7.68%	1.00	609	609	0	7.41%	1.00	459	459	0	6.22%	1.00
US 27, east of I-75	2,225	1,349	876	7.21%	0.61	2,257	1,057	1,200	7.31%	0.53	1,773	886	888	6.47%	0.50

Table 8: Existing Peak Hour Volumes – SR 326

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 326 west of NW 44th Ave	634	392	243	6.02%	0.62	809	367	442	7.67%	0.55	644	317	327	6.23%	0.51
NW 44th Ave south of SR 326	167	86	81	7.08%	0.51	200	116	83	8.46%	0.58	148	87	61	6.46%	0.59
I-75 Ramps (North of SR 326)	389	245	144	2.77%	0.63	503	188	315	3.59%	0.63	516	200	317	2.98%	0.61
I-75 SB Off-Ramp to SR 326	144	0	144	3.59%	1.00	315	0	315	7.84%	1.00	317	0	317	6.54%	1.00
I-75 SB On-Ramp from SR 326 - WB	357	0	357	5.28%	1.00	489	0	489	7.25%	1.00	559	0	559	5.95%	1.00
I-75 NB On-Ramp from SR 326	245	245	0	7.51%	1.00	188	188	0	5.78%	1.00	200	200	0	6.42%	1.00
I-75 Ramps (South of SR 326)	1,078	469	608	8.47%	0.56	1,278	551	727	10.04%	0.57	1,559	779	780	10.19%	0.50
I-75 SB On-Ramp from SR 326 - EB	252	0	252	7.28%	1.00	238	0	238	6.89%	1.00	221	0	221	7.07%	1.00
I-75 NB Off-Ramp to SR 326	469	469	0	5.06%	1.00	551	551	0	5.94%	1.00	779	779	0	6.40%	1.00
SR 326 west of NW 38th Ave	1,227	710	517	5.07%	0.58	1,702	897	805	7.03%	0.53	1,748	1,010	739	6.26%	0.58



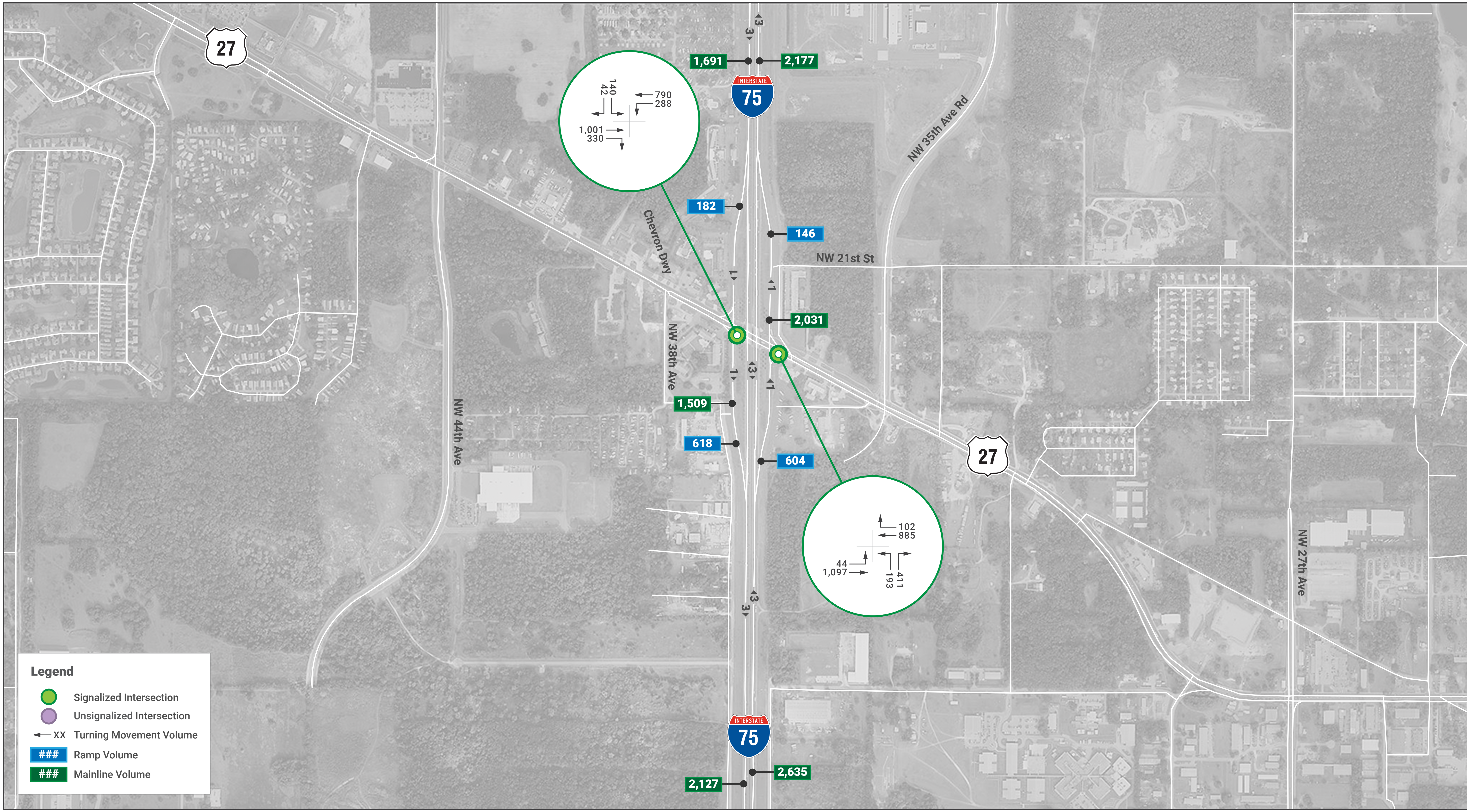
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2019 AM Peak Hour Turning Movement Volumes

Figure 6 (1 of 3)



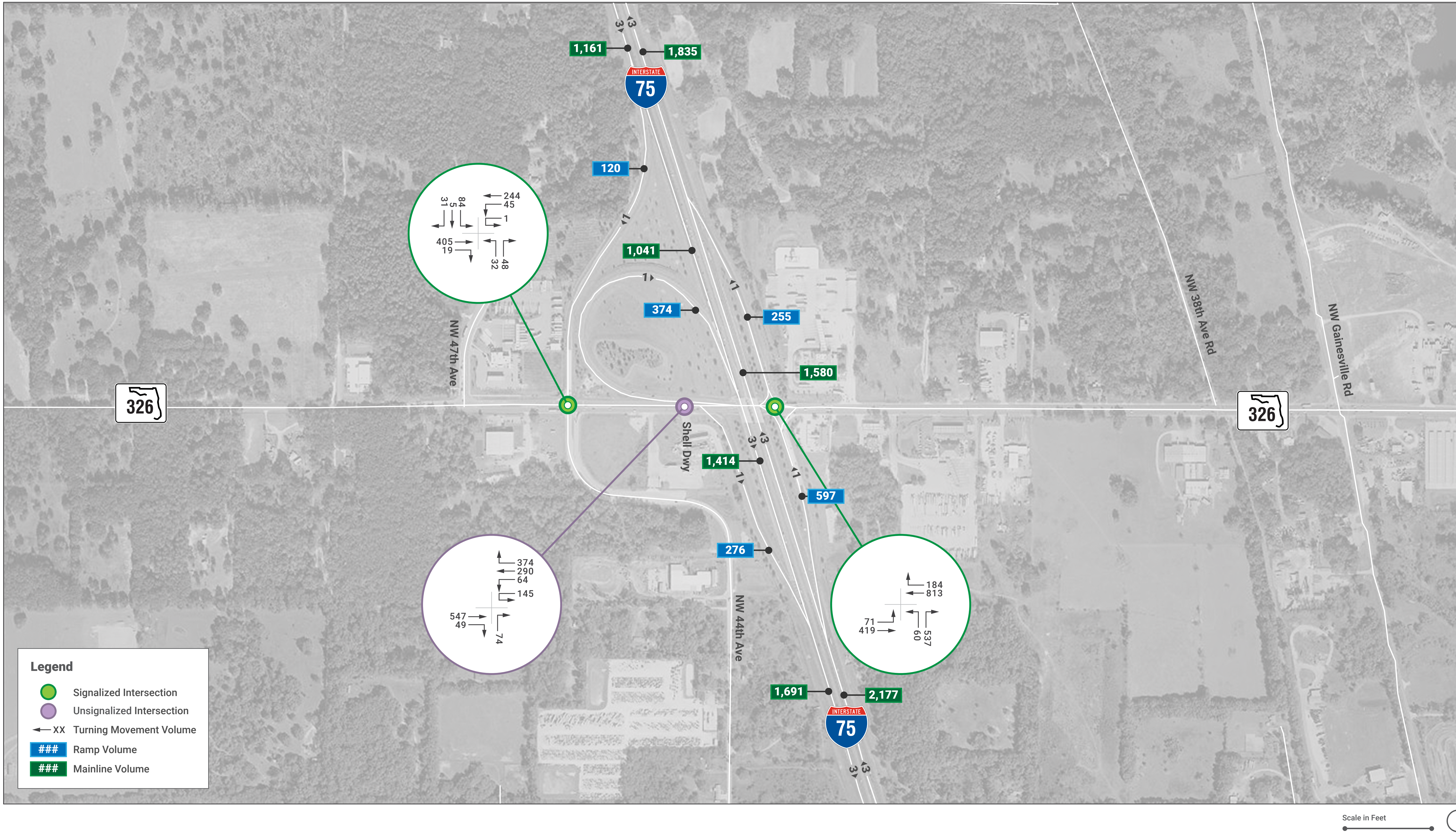
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2019 AM Peak Hour Turning Movement Volumes

Figure 6 (2 of 3)



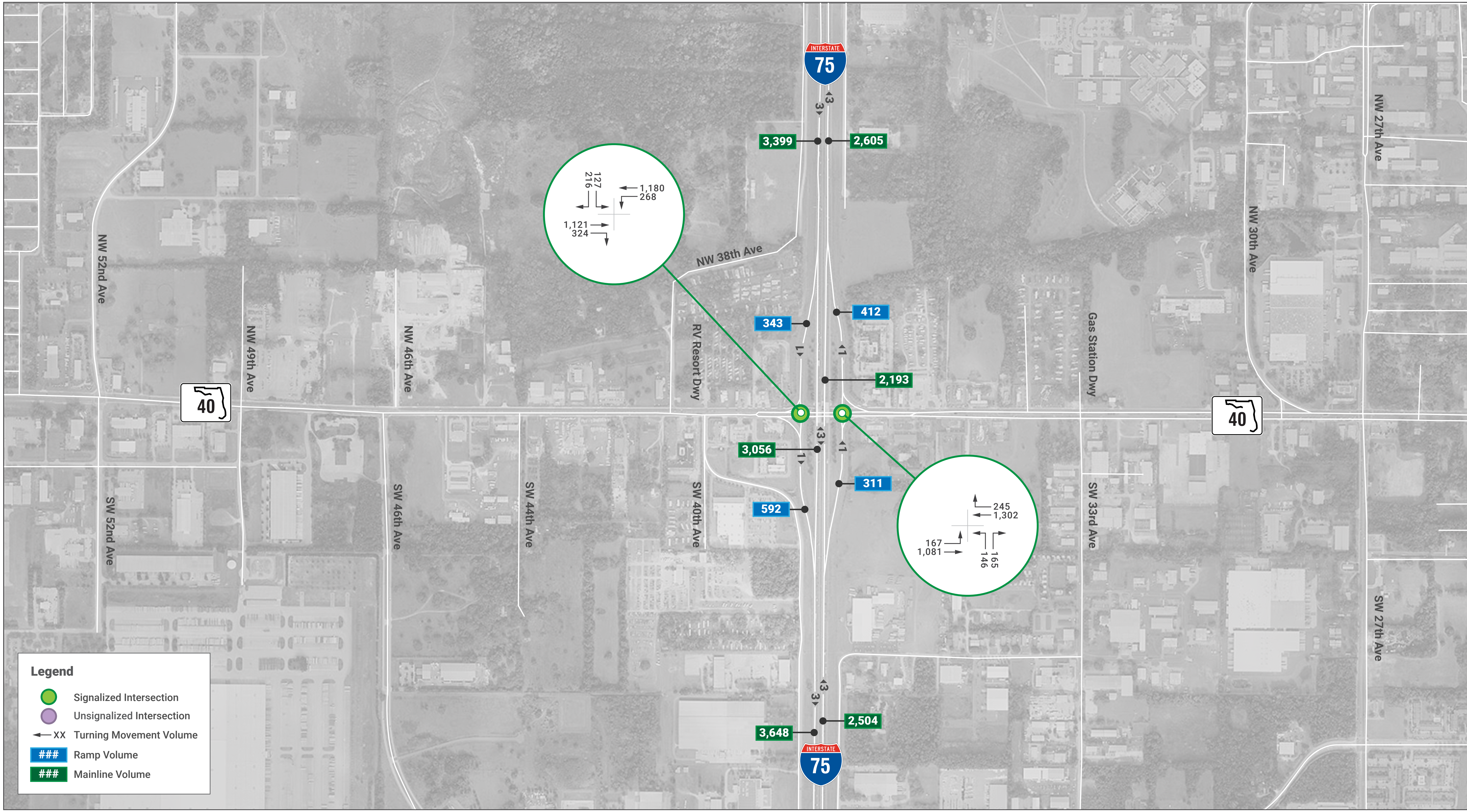
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2019 AM Peak Hour Turning Movement Volumes

Figure 6 (3 of 3)



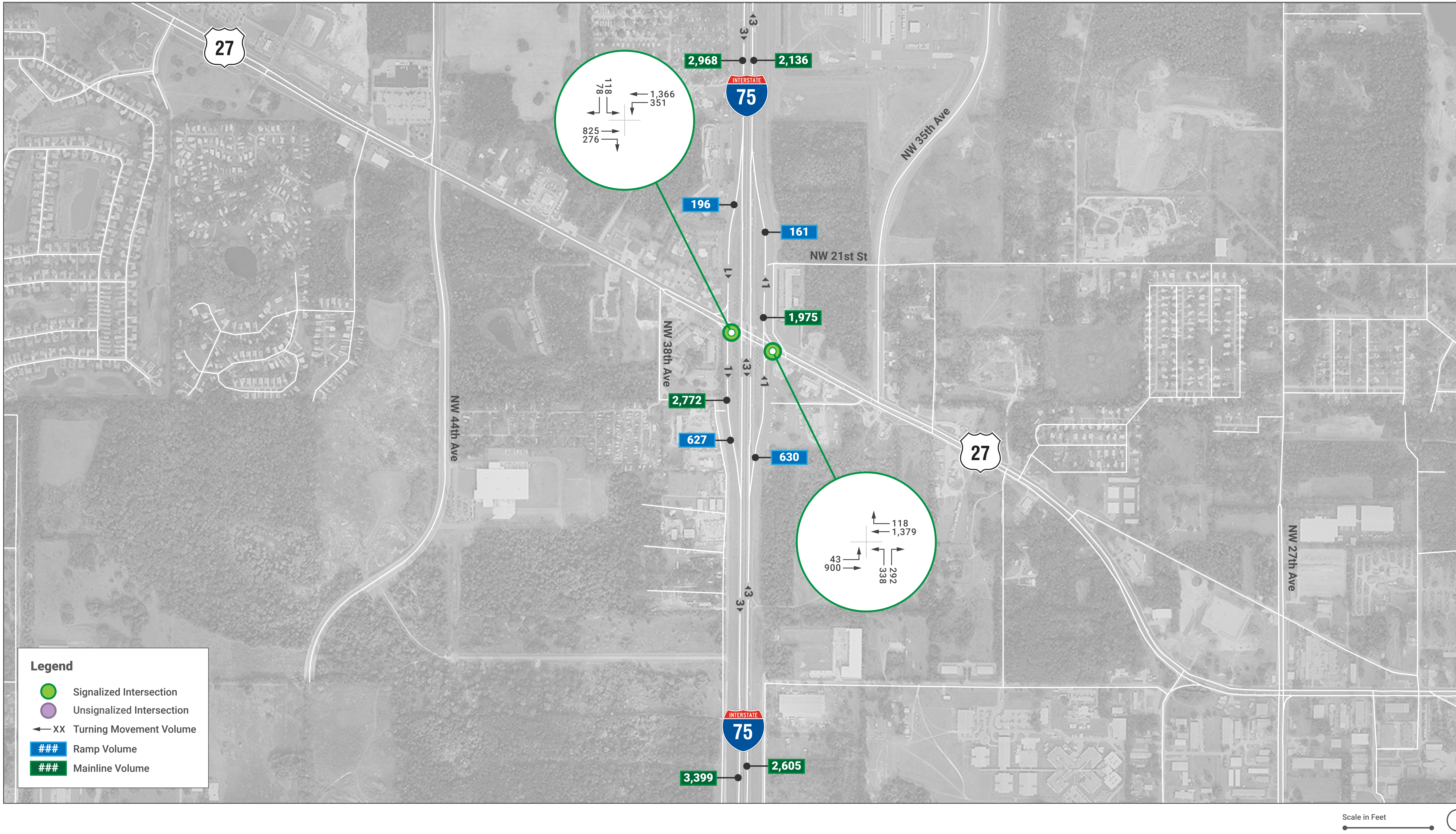
Scale in Feet
0 1,000 North

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2019 PM Peak Hour Turning Movement Volumes

Figure 7 (1 of 3)

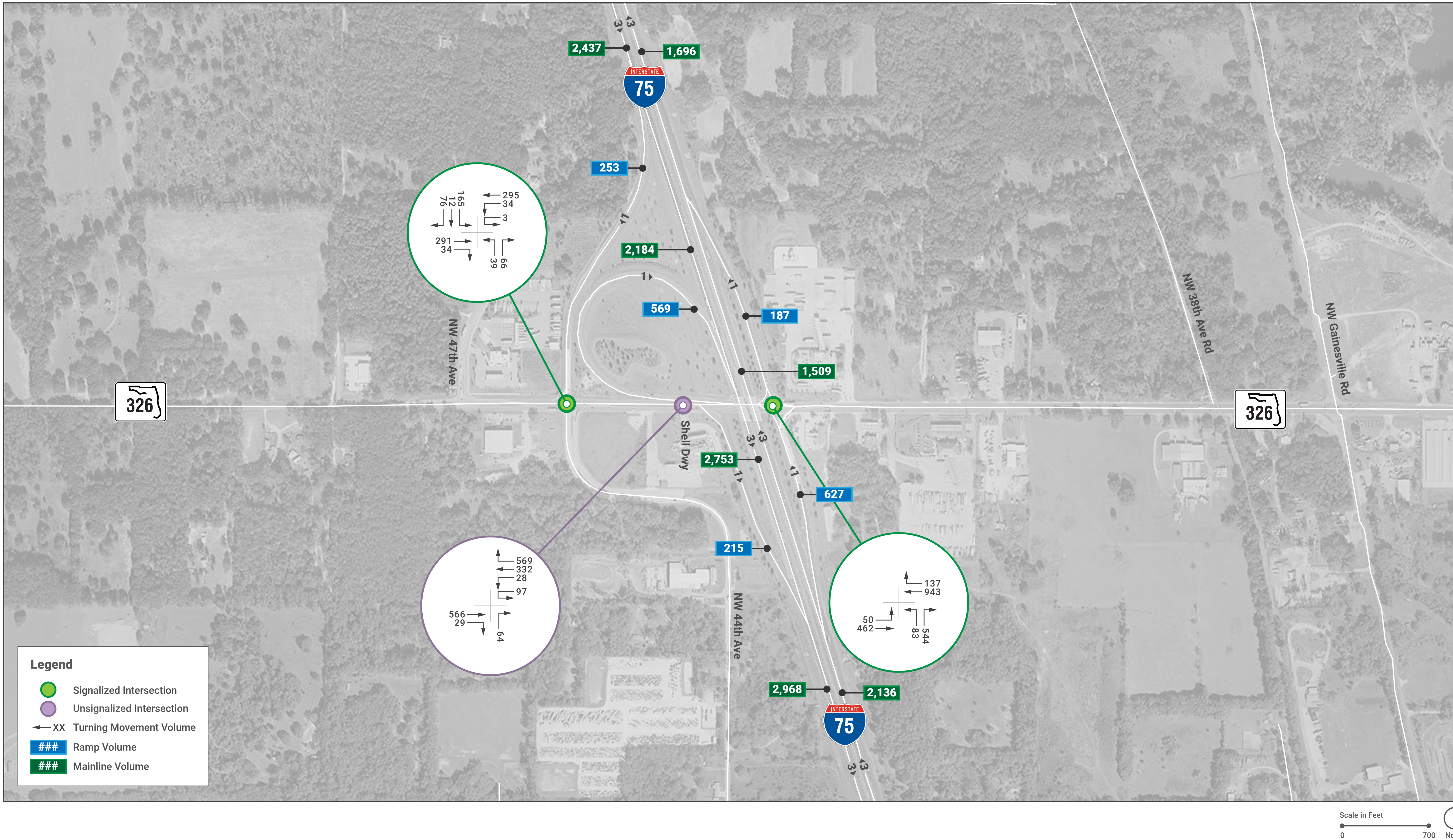


I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2019 PM Peak Hour Turning Movement Volumes

Figure 7 (2 of 3)



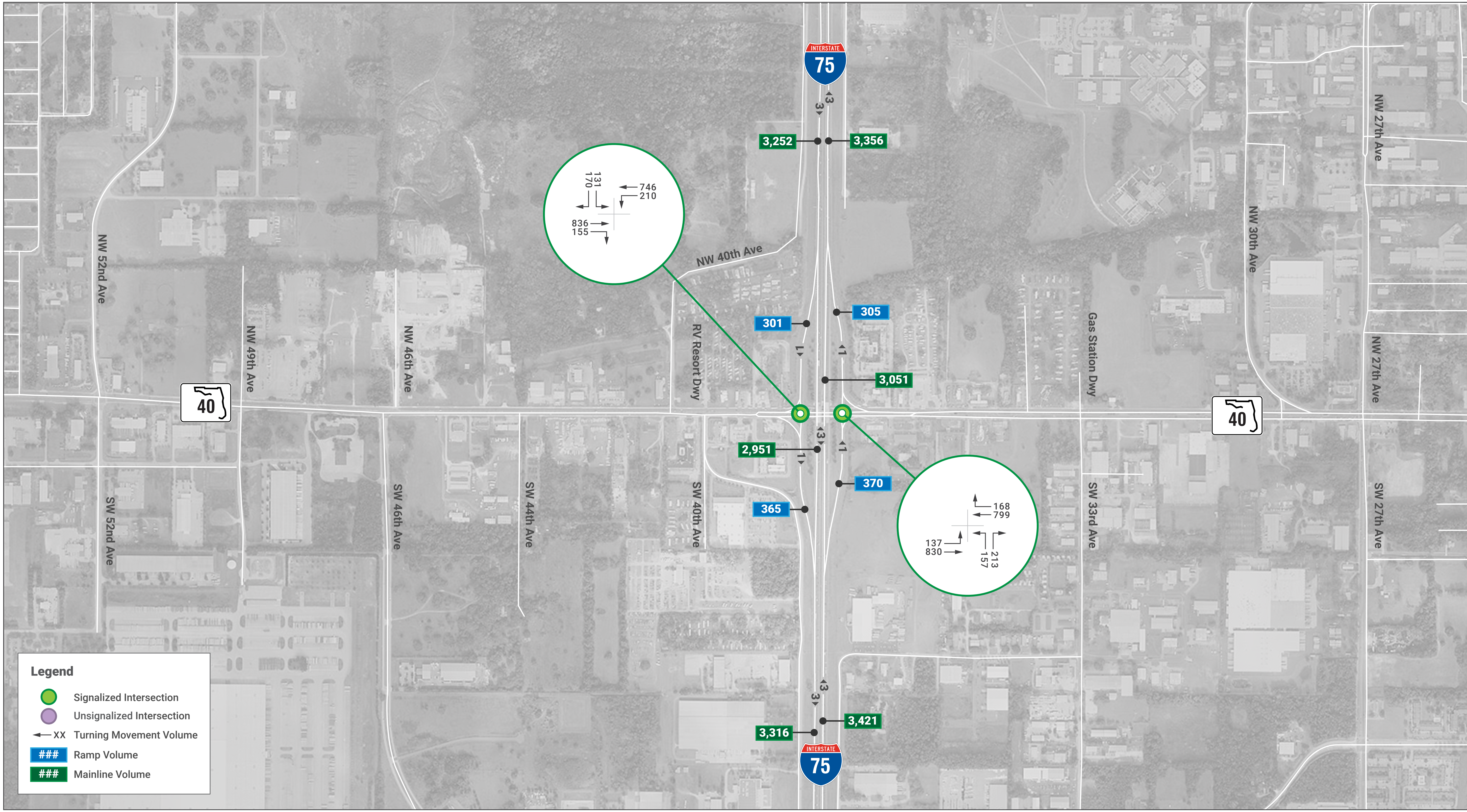
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2019 PM Peak Hour Turning Movement Volumes

Figure 7 (3 of 3)



Scale in Feet
0 1,000
North

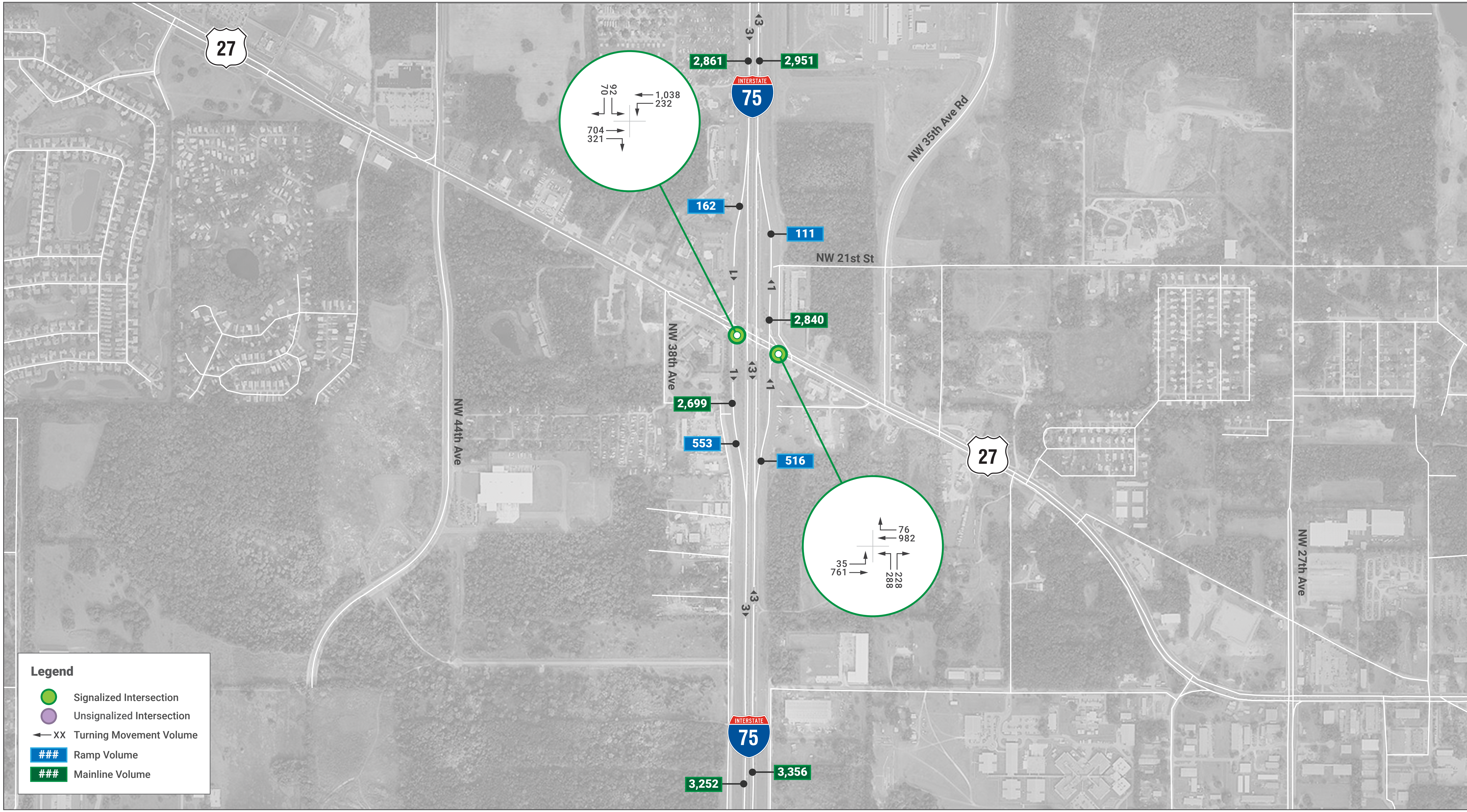
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2019 Weekend Midday Peak Hour Turning Movement Volumes

Figure 8 (1 of 3)



Scale in Feet 0 1,000 North

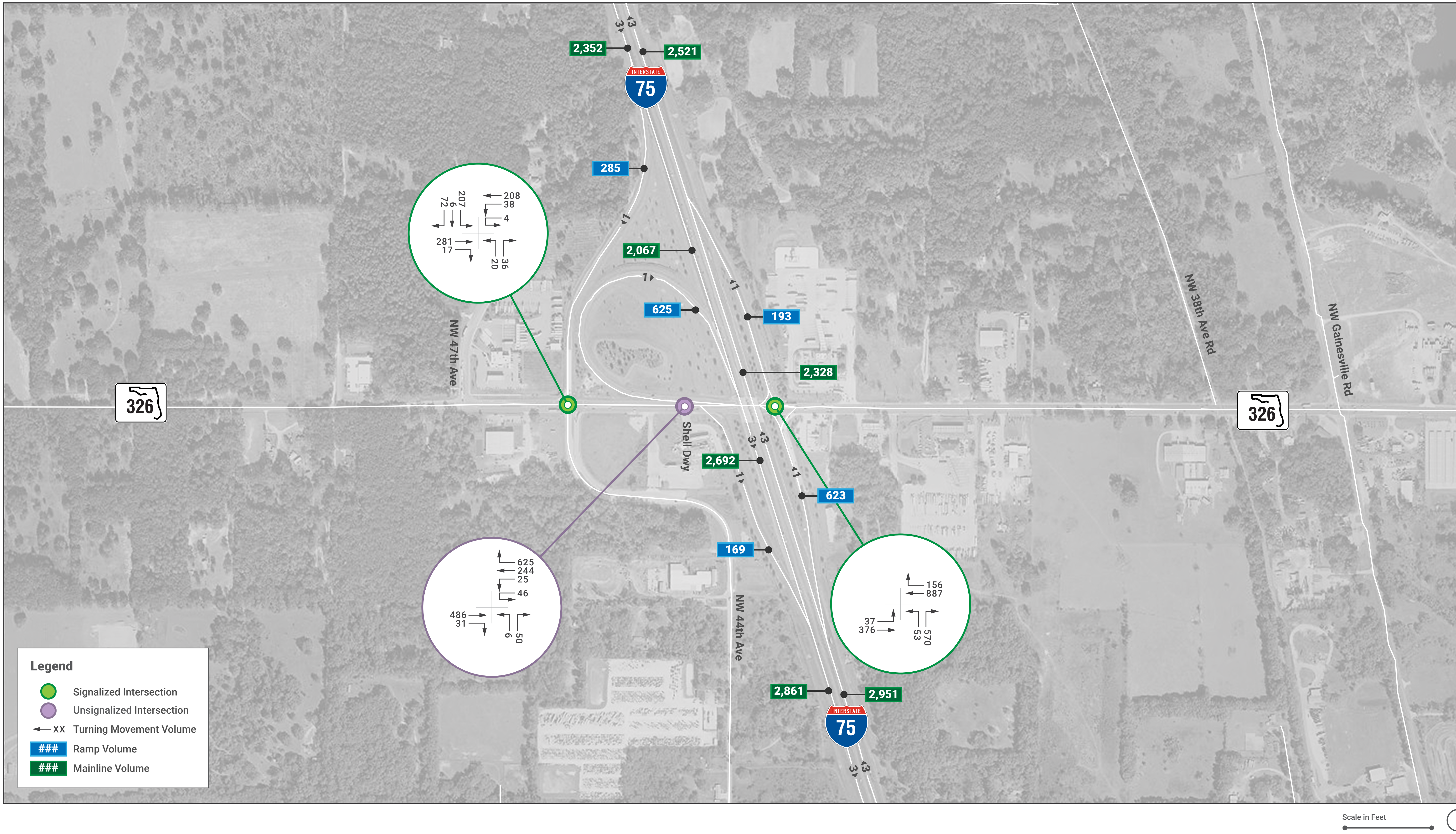
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2019 Weekend Midday Peak Hour Turning Movement Volumes

Figure 8 (2 of 3)



FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2019 Weekend Midday Peak Hour Turning Movement Volumes

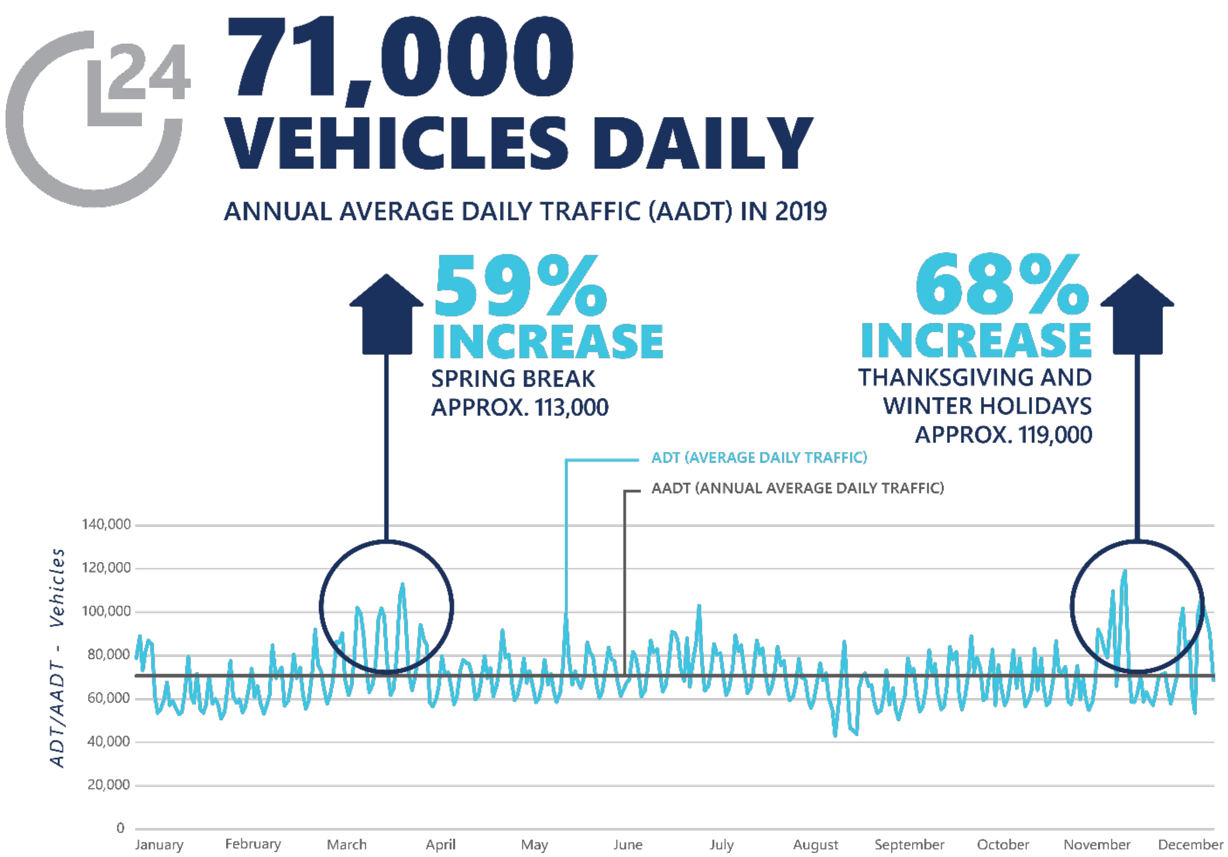
Figure 8 (3 of 3)

EXISTING FREEWAY ADT TRENDS

Data was gathered from the telemetered count station in the study limit vicinity (Site 269904) 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 9**.

- AADT is approximately 71,000
- Peaking is observed around Spring Break – approximately 113,000 ADT (~59% increase)
- Peaking is observed around the Thanksgiving and Winter Holidays – approximately 119,000 ADT (~68% increase)
- The peaking observed occurs primarily on the weekend as well as Fridays for long holiday weekends.

Figure 9: ADT Trends for Site 269904 (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 intersection and freeway evaluations. It is important to note that the traffic volumes used in this existing conditions analysis reflect an average condition. The operational analyses do not account for volume spikes due to non-recurring congestion events such as holidays (such as Thanksgiving) and do not reflect operations during weather events, incidents, etc.

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 applicable HCM 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
  - 11.8% trucks (2.2% single unit trucks, 9.6% tractor trailer trucks) in the peak periods for the northbound direction based on available vehicle classification data from the Florida Traffic Online.
  - 13.8% trucks (2.4% single unit trucks, 11.4% tractor trailer trucks) in the peak periods for the southbound direction 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.
- Base Free-flow speed of 75 mi/h for all mainline study segments based on posted speed plus 5 mph.
- Base Ramp free-flow speed of 45 mi/h for diamond interchanges and 35 mi/h for loop ramps.
- A balanced mix of familiar and unfamiliar drivers was used for driver population type.
- Level terrain was assumed for the entire facility.
- Non severe weather type was assumed.
- Florida-specific “default” Capacity Adjustment Factors (University of Florida Research).

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 17 analysis segments (**Figure 10**) and the southbound facility consists of 17 analysis segments (**Figure 11**). There are relatively long basic freeway segments (longer than three 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 326 off-ramp and US 27 on-ramp in the northbound direction was broken down into 1,500-foot, 13,588-foot, and 1,500-foot segments. The total northbound and southbound facility length analyzed in HCS is approximately 9.1 miles, and 9.3 miles, respectively.

Figure 10: Existing Northbound Freeway Facility Segmentation

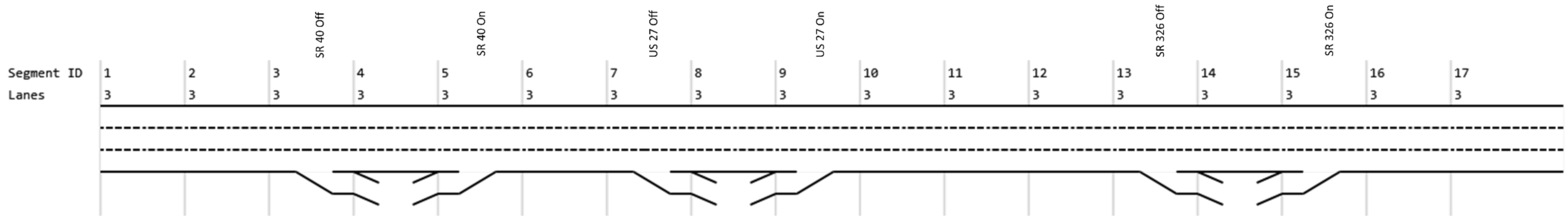
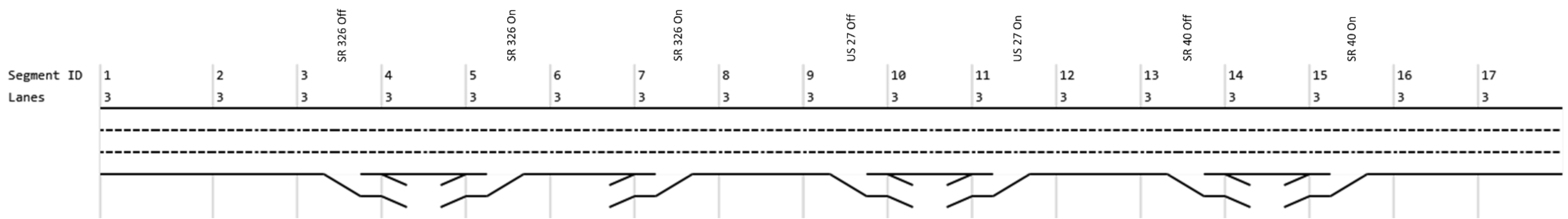


Figure 11: Existing Southbound Freeway Facility Segmentation



OPERATIONAL RESULTS

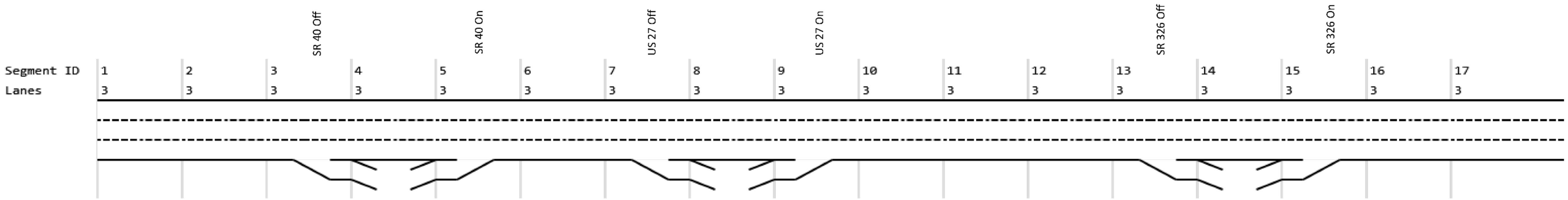
A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 9**. The HCS output reports are provided in **Appendix G.** The facility generally operates at acceptable levels with minimal congestion during the weekday AM, weekday PM, and weekend midday peak periods for both the northbound and southbound directions. The maximum D/C ratio observed in the northbound direction is 0.71 during the weekend peak period while the maximum D/C ratio observed in the southbound direction is 0.75 during the PM peak period. The average speeds on this facility are above 69 mph. Segments on the facility operate at LOS C or better during each of the peak periods The D/C, speed, and LOS contours for each analysis facility and peak period are illustrated in the following figures:

- Northbound 2019 AM Existing Condition – **Figure 12**
- Northbound 2019 PM Existing Condition – **Figure 13**
- Northbound 2019 Weekend Existing Condition – **Figure 14**
- Southbound 2019 AM Existing Condition – **Figure 15**
- Southbound 2019 PM Existing Condition – **Figure 16**
- Southbound 2019 Weekend Existing Condition – **Figure 17**

Table 9: Freeway Operations Summary – 2019 Existing

Performance Metric	North Section - AM		North Section - PM		North Section - Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	9.1	9.3	9.1	9.3	9.1	9.3
Average Travel Time (min)	7.9	8.0	7.9	8.0	7.9	8.0
Total VHD (veh-h)	17.4	13.9	18.2	31.4	27.5	25.6
Space Mean Speed (mph)	69.7	69.7	69.7	69.3	69.5	69.6
Reported Density (pc/mi/ln)	11.3	8.8	11.5	16.1	15.7	15.2
Max D/C	0.58	0.46	0.57	0.75	0.71	0.64

Figure 12: Northbound 2019 AM – 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
#1 6:15 - 6:30	0.31	0.31	0.35	0.24	0.33	0.29	0.33	0.22	0.27	0.24	0.24	0.24	0.27	0.18	0.23	0.20	0.20
#2 6:30 - 6:45	0.35	0.35	0.40	0.27	0.37	0.32	0.37	0.25	0.31	0.27	0.27	0.27	0.31	0.20	0.26	0.23	0.23
#3 6:45 - 7:00	0.41	0.41	0.47	0.32	0.44	0.38	0.44	0.30	0.37	0.32	0.32	0.32	0.36	0.23	0.31	0.27	0.27
#4 7:00 - 7:15	0.47	0.47	0.53	0.37	0.50	0.43	0.50	0.34	0.42	0.36	0.36	0.36	0.42	0.27	0.35	0.31	0.31
#5 7:15 - 7:30	0.44	0.44	0.50	0.35	0.47	0.41	0.47	0.32	0.39	0.34	0.34	0.34	0.39	0.25	0.33	0.29	0.29
#6 7:30 - 7:45	0.45	0.45	0.51	0.35	0.48	0.41	0.48	0.32	0.40	0.35	0.35	0.35	0.40	0.25	0.34	0.29	0.29
#7 7:45 - 8:00	0.51	0.51	0.58	0.40	0.54	0.47	0.55	0.37	0.45	0.40	0.40	0.40	0.45	0.29	0.38	0.34	0.34
#8 8:00 - 8:15	0.49	0.49	0.56	0.39	0.53	0.46	0.53	0.36	0.44	0.38	0.38	0.38	0.44	0.28	0.37	0.33	0.33
#9 8:15 - 8:30	0.49	0.49	0.56	0.39	0.52	0.45	0.52	0.35	0.43	0.38	0.38	0.38	0.43	0.28	0.37	0.32	0.32
#10 8:30 - 8:45	0.48	0.48	0.55	0.38	0.51	0.45	0.52	0.35	0.43	0.37	0.37	0.37	0.43	0.27	0.36	0.32	0.32
#11 8:45 - 9:00	0.47	0.47	0.54	0.37	0.50	0.44	0.50	0.34	0.42	0.37	0.37	0.37	0.42	0.27	0.35	0.31	0.31
#12 9:00 - 9:15	0.45	0.45	0.51	0.35	0.48	0.41	0.48	0.32	0.40	0.35	0.35	0.35	0.40	0.25	0.34	0.30	0.30

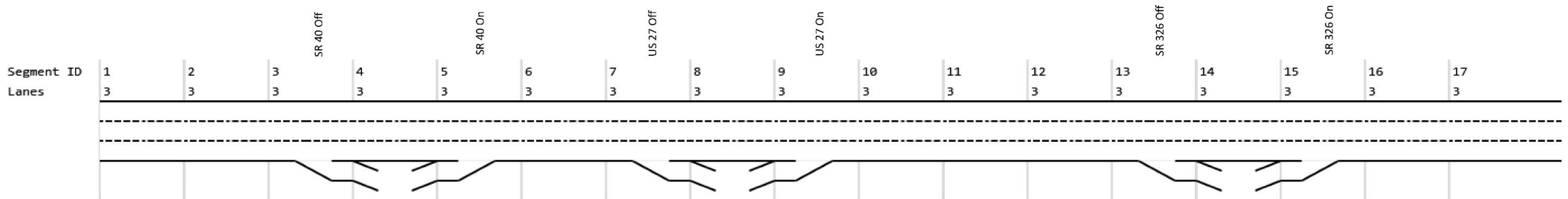
Speed Contours

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
#1 6:15 - 6:30	71.2	71.2	64.1	71.0	65.6	70.6	64.0	71.0	66.0	70.7	71.2	71.2	63.6	71.0	66.1	70.8	71.2
#2 6:30 - 6:45	71.2	71.2	64.1	71.0	65.4	70.6	64.0	71.0	66.0	70.7	71.2	71.2	63.6	71.0	66.1	70.8	71.2
#3 6:45 - 7:00	71.2	71.2	64.1	71.0	65.2	70.6	64.0	71.0	65.7	70.7	71.2	71.2	63.5	71.0	66.0	70.7	71.2
#4 7:00 - 7:15	71.2	71.2	64.1	71.0	64.9	70.5	63.9	71.0	65.5	70.7	71.2	71.2	63.5	71.0	65.8	70.7	71.2
#5 7:15 - 7:30	71.2	71.2	64.0	71.0	65.1	70.6	64.0	71.0	65.7	70.7	71.2	71.2	63.5	71.0	65.9	70.7	71.2
#6 7:30 - 7:45	71.2	71.2	64.1	71.0	65.0	70.6	63.9	71.0	65.6	70.7	71.2	71.2	63.5	71.0	65.9	70.7	71.2
#7 7:45 - 8:00	71.0	71.0	64.1	71.0	64.7	70.5	63.8	71.0	65.4	70.7	71.2	71.2	63.5	71.0	65.7	70.7	71.2
#8 8:00 - 8:15	71.1	71.1	64.1	71.0	64.8	70.5	63.9	71.0	65.5	70.7	71.2	71.2	63.5	71.0	65.7	70.7	71.2
#9 8:15 - 8:30	71.1	71.1	64.1	71.0	64.9	70.5	63.9	71.0	65.5	70.7	71.2	71.2	63.5	71.0	65.7	70.7	71.2
#10 8:30 - 8:45	71.1	71.1	64.1	71.0	64.9	70.5	63.9	71.0	65.5	70.7	71.2	71.2	63.5	71.0	65.8	70.7	71.2
#11 8:45 - 9:00	71.2	71.2	64.1	71.0	64.9	70.5	63.9	71.0	65.5	70.7	71.2	71.2	63.5	71.0	65.8	70.7	71.2
#12 9:00 - 9:15	71.2	71.2	64.1	71.0	65.0	70.6	63.9	71.0	65.6	70.7	71.2	71.2	63.5	71.0	65.9	70.7	71.2

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

Figure 13: Northbound 2019 PM Peak – 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
#1 15:30 - 15:45	0.47	0.47	0.54	0.41	0.57	0.49	0.56	0.37	0.46	0.41	0.41	0.41	0.46	0.29	0.38	0.33	0.33
#2 15:45 - 16:00	0.45	0.45	0.51	0.39	0.53	0.46	0.53	0.35	0.44	0.38	0.38	0.38	0.44	0.27	0.36	0.31	0.31
#3 16:00 - 16:15	0.46	0.46	0.53	0.40	0.55	0.48	0.55	0.36	0.45	0.39	0.39	0.39	0.45	0.28	0.37	0.32	0.32
#4 16:15 - 16:30	0.43	0.43	0.50	0.38	0.52	0.45	0.51	0.34	0.42	0.37	0.37	0.37	0.42	0.26	0.35	0.30	0.30
#5 16:30 - 16:45	0.37	0.37	0.43	0.32	0.44	0.39	0.44	0.29	0.36	0.32	0.32	0.32	0.36	0.22	0.30	0.26	0.26
#6 16:45 - 17:00	0.42	0.42	0.47	0.36	0.49	0.43	0.49	0.33	0.41	0.35	0.35	0.35	0.41	0.25	0.33	0.29	0.29
#7 17:00 - 17:15	0.43	0.43	0.49	0.37	0.51	0.44	0.51	0.34	0.42	0.37	0.37	0.37	0.42	0.26	0.34	0.29	0.29
#8 17:15 - 17:30	0.44	0.44	0.50	0.38	0.53	0.46	0.52	0.35	0.43	0.38	0.38	0.38	0.43	0.27	0.35	0.30	0.30
#9 17:30 - 17:45	0.43	0.43	0.49	0.37	0.51	0.44	0.50	0.33	0.42	0.36	0.36	0.36	0.41	0.26	0.34	0.29	0.29
#10 17:45 - 18:00	0.40	0.40	0.46	0.35	0.48	0.42	0.48	0.32	0.39	0.34	0.34	0.34	0.39	0.24	0.32	0.28	0.28
#11 18:00 - 18:15	0.39	0.39	0.45	0.34	0.47	0.41	0.46	0.31	0.38	0.33	0.33	0.33	0.38	0.24	0.31	0.27	0.27
#12 18:15 - 18:30	0.37	0.37	0.42	0.32	0.44	0.38	0.44	0.29	0.36	0.31	0.31	0.31	0.36	0.22	0.29	0.25	0.25

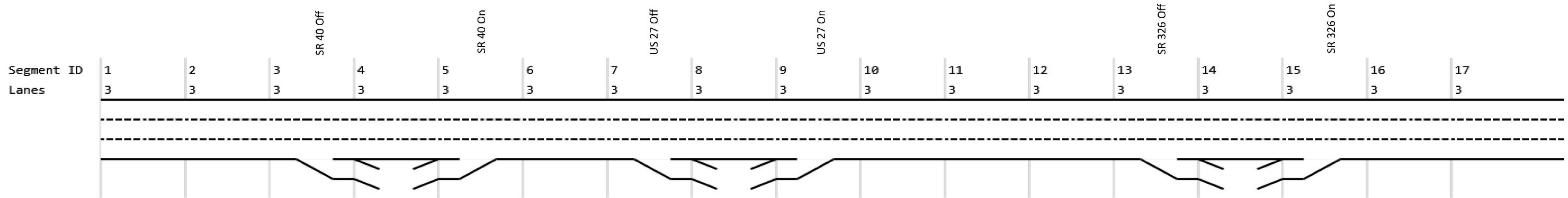
Speed Contours

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
#1 15:30 - 15:45	71.2	71.2	64.8	71.0	64.6	70.5	63.3	71.0	65.4	70.7	71.2	71.2	63.2	71.0	65.8	70.7	71.2
#2 15:45 - 16:00	71.2	71.2	64.8	71.0	64.7	70.5	63.5	71.0	65.5	70.7	71.2	71.2	63.3	71.0	65.9	70.7	71.2
#3 16:00 - 16:15	71.2	71.2	64.8	71.0	64.6	70.5	63.4	71.0	65.5	70.7	71.2	71.2	63.2	71.0	65.8	70.7	71.2
#4 16:15 - 16:30	71.2	71.2	64.8	71.0	64.8	70.5	63.4	71.0	65.5	70.7	71.2	71.2	63.2	71.0	65.9	70.7	71.2
#5 16:30 - 16:45	71.2	71.2	64.8	71.0	65.1	70.6	63.6	71.0	65.7	70.7	71.2	71.2	63.3	71.0	66.1	70.8	71.2
#6 16:45 - 17:00	71.2	71.2	64.8	71.0	64.9	70.5	63.5	71.0	65.5	70.7	71.2	71.2	63.3	71.0	65.9	70.7	71.2
#7 17:00 - 17:15	71.2	71.2	64.8	71.0	64.8	70.5	63.5	71.0	65.5	70.7	71.2	71.2	63.3	71.0	65.9	70.7	71.2
#8 17:15 - 17:30	71.2	71.2	64.8	71.0	64.7	70.5	63.5	71.0	65.5	70.7	71.2	71.2	63.2	71.0	65.9	70.7	71.2
#9 17:30 - 17:45	71.2	71.2	64.8	71.0	64.9	70.5	63.5	71.0	65.5	70.7	71.2	71.2	63.3	71.0	65.9	70.7	71.2
#10 17:45 - 18:00	71.2	71.2	64.8	71.0	65.0	70.6	63.6	71.0	65.7	70.7	71.2	71.2	63.3	71.0	65.9	70.7	71.2
#11 18:00 - 18:15	71.2	71.2	64.7	71.0	65.0	70.6	63.6	71.0	65.7	70.7	71.2	71.2	63.3	71.0	66.0	70.7	71.2
#12 18:15 - 18:30	71.2	71.2	64.7	71.0	65.2	70.6	63.6	71.0	65.7	70.7	71.2	71.2	63.3	71.0	66.1	70.8	71.2

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

Figure 14: Northbound 2019 Weekend Peak – 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
#1 12:00 - 12:15	0.62	0.62	0.71	0.55	0.69	0.60	0.69	0.51	0.61	0.53	0.53	0.53	0.61	0.42	0.53	0.46	0.46
#2 12:15 - 12:30	0.62	0.62	0.71	0.55	0.69	0.60	0.69	0.51	0.61	0.53	0.53	0.53	0.61	0.42	0.53	0.46	0.46
#3 12:30 - 12:45	0.62	0.62	0.71	0.55	0.69	0.60	0.69	0.51	0.61	0.53	0.53	0.53	0.61	0.42	0.53	0.46	0.46
#4 12:45 - 13:00	0.62	0.62	0.71	0.55	0.69	0.60	0.69	0.51	0.61	0.53	0.53	0.53	0.61	0.42	0.53	0.46	0.46
#5 13:00 - 13:15	0.57	0.57	0.65	0.50	0.63	0.55	0.63	0.47	0.56	0.49	0.49	0.49	0.56	0.39	0.48	0.42	0.42
#6 13:15 - 13:30	0.57	0.57	0.65	0.50	0.63	0.55	0.63	0.47	0.56	0.49	0.49	0.49	0.56	0.39	0.48	0.42	0.42
#7 13:30 - 13:45	0.57	0.57	0.65	0.50	0.63	0.55	0.63	0.47	0.56	0.49	0.49	0.49	0.56	0.39	0.48	0.42	0.42
#8 13:45 - 14:00	0.57	0.57	0.65	0.50	0.63	0.55	0.63	0.47	0.56	0.49	0.49	0.49	0.56	0.39	0.48	0.42	0.42
#9 14:00 - 14:15	0.51	0.51	0.58	0.45	0.56	0.49	0.57	0.42	0.50	0.44	0.44	0.44	0.50	0.35	0.43	0.38	0.38
#10 14:15 - 14:30	0.51	0.51	0.58	0.45	0.56	0.49	0.57	0.42	0.50	0.44	0.44	0.44	0.50	0.35	0.43	0.38	0.38
#11 14:30 - 14:45	0.51	0.51	0.58	0.45	0.56	0.49	0.57	0.42	0.50	0.44	0.44	0.44	0.50	0.35	0.43	0.38	0.38
#12 14:45 - 15:00	0.51	0.51	0.58	0.45	0.56	0.49	0.57	0.42	0.50	0.44	0.44	0.44	0.50	0.35	0.43	0.38	0.38

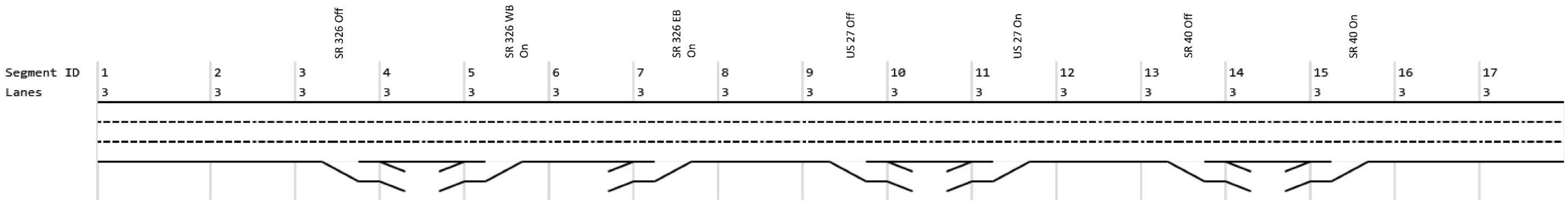
Speed Contours

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
#1 12:00 - 12:15	69.2	69.2	64.9	70.5	64.0	69.6	64.6	70.9	64.7	70.6	70.7	70.7	64.0	71.0	65.2	70.7	71.2
#2 12:15 - 12:30	69.2	69.2	64.9	70.5	64.0	69.6	64.6	70.9	64.7	70.6	70.7	70.7	64.0	71.0	65.2	70.7	71.2
#3 12:30 - 12:45	69.2	69.2	64.9	70.5	64.0	69.6	64.6	70.9	64.7	70.6	70.7	70.7	64.0	71.0	65.2	70.7	71.2
#4 12:45 - 13:00	69.2	69.2	64.9	70.5	64.0	69.6	64.6	70.9	64.7	70.6	70.7	70.7	64.0	71.0	65.2	70.7	71.2
#5 13:00 - 13:15	70.3	70.3	64.9	71.0	64.4	70.5	64.6	71.0	65.0	70.7	71.1	71.1	64.0	71.0	65.4	70.7	71.2
#6 13:15 - 13:30	70.3	70.3	64.9	71.0	64.4	70.5	64.6	71.0	65.0	70.7	71.1	71.1	64.0	71.0	65.4	70.7	71.2
#7 13:30 - 13:45	70.3	70.3	64.9	71.0	64.4	70.5	64.6	71.0	65.0	70.7	71.1	71.1	64.0	71.0	65.4	70.7	71.2
#8 13:45 - 14:00	70.3	70.3	64.9	71.0	64.4	70.5	64.6	71.0	65.0	70.7	71.1	71.1	64.0	71.0	65.4	70.7	71.2
#9 14:00 - 14:15	71.0	71.0	65.1	71.0	64.7	70.5	64.7	71.0	65.3	70.7	71.2	71.2	64.0	71.0	65.6	70.7	71.2
#10 14:15 - 14:30	71.0	71.0	65.1	71.0	64.7	70.5	64.7	71.0	65.3	70.7	71.2	71.2	64.0	71.0	65.6	70.7	71.2
#11 14:30 - 14:45	71.0	71.0	65.1	71.0	64.7	70.5	64.7	71.0	65.3	70.7	71.2	71.2	64.0	71.0	65.6	70.7	71.2
#12 14:45 - 15:00	71.0	71.0	65.1	71.0	64.7	70.5	64.7	71.0	65.3	70.7	71.2	71.2	64.0	71.0	65.6	70.7	71.2

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

Figure 15: Southbound 2019 AM Peak – 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
#1 6:15 - 6:30	0.15	0.15	0.17	0.13	0.22	0.18	0.25	0.22	0.25	0.20	0.31	0.27	0.31	0.22	0.32	0.28	0.28
#2 6:30 - 6:45	0.15	0.15	0.17	0.13	0.21	0.18	0.25	0.22	0.25	0.19	0.30	0.27	0.31	0.22	0.31	0.27	0.27
#3 6:45 - 7:00	0.17	0.17	0.19	0.15	0.25	0.21	0.28	0.25	0.29	0.22	0.35	0.31	0.36	0.26	0.36	0.31	0.31
#4 7:00 - 7:15	0.18	0.18	0.21	0.16	0.26	0.23	0.31	0.27	0.31	0.24	0.38	0.33	0.38	0.27	0.39	0.34	0.34
#5 7:15 - 7:30	0.21	0.21	0.24	0.19	0.31	0.26	0.36	0.31	0.36	0.28	0.44	0.39	0.45	0.32	0.45	0.39	0.39
#6 7:30 - 7:45	0.20	0.20	0.23	0.18	0.30	0.25	0.34	0.30	0.34	0.27	0.43	0.37	0.43	0.31	0.43	0.38	0.38
#7 7:45 - 8:00	0.18	0.18	0.21	0.16	0.26	0.23	0.31	0.27	0.31	0.24	0.38	0.33	0.38	0.27	0.39	0.34	0.34
#8 8:00 - 8:15	0.19	0.19	0.22	0.17	0.28	0.24	0.32	0.28	0.32	0.25	0.40	0.35	0.40	0.29	0.41	0.35	0.35
#9 8:15 - 8:30	0.20	0.20	0.23	0.18	0.29	0.25	0.33	0.29	0.34	0.26	0.42	0.37	0.42	0.30	0.42	0.37	0.37
#10 8:30 - 8:45	0.21	0.21	0.24	0.19	0.31	0.26	0.36	0.31	0.36	0.28	0.44	0.39	0.44	0.32	0.45	0.39	0.39
#11 8:45 - 9:00	0.21	0.21	0.24	0.19	0.31	0.27	0.36	0.32	0.36	0.28	0.45	0.39	0.45	0.32	0.45	0.39	0.39
#12 9:00 - 9:15	0.22	0.22	0.25	0.19	0.32	0.27	0.37	0.32	0.37	0.29	0.45	0.40	0.46	0.33	0.46	0.40	0.40

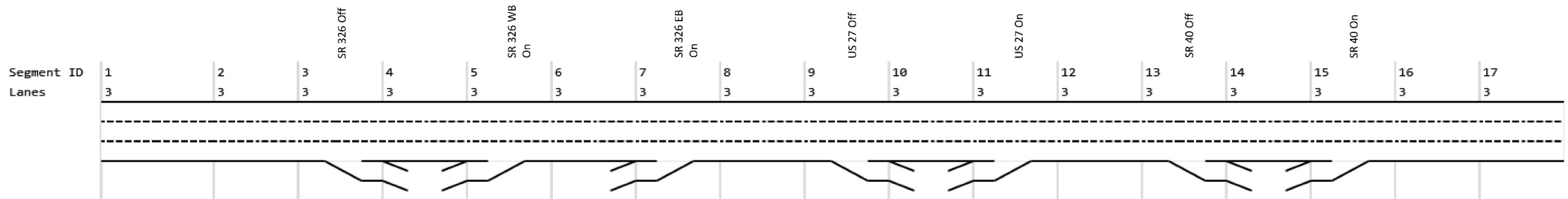
Speed Contours

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
#1 6:15 - 6:30	71.2	71.2	64.7	70.8	66.2	70.1	66.3	71.2	64.8	71.1	65.4	70.7	64.1	71.0	66.0	70.7	71.2
#2 6:30 - 6:45	71.2	71.2	64.7	70.8	66.2	70.1	66.3	71.2	64.7	71.1	65.4	70.7	64.1	71.0	66.0	70.7	71.2
#3 6:45 - 7:00	71.2	71.2	64.7	70.8	66.1	70.1	66.2	71.2	64.8	71.1	65.3	70.6	64.0	71.0	65.8	70.7	71.2
#4 7:00 - 7:15	71.2	71.2	64.7	70.8	66.1	70.1	66.1	71.2	64.9	71.1	65.2	70.6	63.9	71.0	65.8	70.7	71.2
#5 7:15 - 7:30	71.2	71.2	64.7	70.8	66.1	70.1	65.9	71.2	64.9	71.1	64.9	70.6	63.8	71.0	65.5	70.7	71.2
#6 7:30 - 7:45	71.2	71.2	64.8	70.8	66.1	70.1	66.0	71.2	64.9	71.1	65.0	70.6	63.9	71.0	65.6	70.7	71.2
#7 7:45 - 8:00	71.2	71.2	64.7	70.8	66.1	70.1	66.1	71.2	64.9	71.1	65.2	70.6	63.9	71.0	65.8	70.7	71.2
#8 8:00 - 8:15	71.2	71.2	64.7	70.8	66.1	70.1	66.1	71.2	64.8	71.1	65.2	70.6	63.9	71.0	65.7	70.7	71.2
#9 8:15 - 8:30	71.2	71.2	64.8	70.8	66.1	70.1	66.0	71.2	64.9	71.1	65.1	70.6	63.9	71.0	65.6	70.7	71.2
#10 8:30 - 8:45	71.2	71.2	64.7	70.8	66.1	70.1	65.9	71.2	64.9	71.1	65.0	70.6	63.8	71.0	65.5	70.7	71.2
#11 8:45 - 9:00	71.2	71.2	64.7	70.8	66.1	70.1	65.9	71.2	64.9	71.1	64.9	70.6	63.8	71.0	65.5	70.7	71.2
#12 9:00 - 9:15	71.2	71.2	64.7	70.8	66.1	70.1	65.9	71.2	64.9	71.1	64.9	70.6	63.8	71.0	65.5	70.7	71.2

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

Figure 16: Southbound 2019 PM Peak – 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
#1 15:30 - 15:45	0.42	0.42	0.48	0.38	0.56	0.48	0.59	0.52	0.59	0.48	0.68	0.59	0.68	0.53	0.72	0.63	0.63
#2 15:45 - 16:00	0.44	0.44	0.50	0.39	0.58	0.50	0.62	0.54	0.62	0.51	0.71	0.62	0.71	0.56	0.75	0.66	0.66
#3 16:00 - 16:15	0.41	0.41	0.47	0.37	0.54	0.47	0.58	0.51	0.58	0.47	0.66	0.58	0.66	0.52	0.70	0.62	0.62
#4 16:15 - 16:30	0.42	0.42	0.48	0.38	0.56	0.48	0.59	0.52	0.59	0.48	0.68	0.59	0.68	0.53	0.72	0.63	0.63
#5 16:30 - 16:45	0.40	0.40	0.46	0.36	0.53	0.46	0.57	0.50	0.57	0.46	0.65	0.57	0.65	0.51	0.69	0.60	0.60
#6 16:45 - 17:00	0.43	0.43	0.49	0.38	0.57	0.49	0.60	0.53	0.60	0.49	0.69	0.60	0.69	0.54	0.73	0.64	0.64
#7 17:00 - 17:15	0.39	0.39	0.45	0.35	0.52	0.45	0.55	0.48	0.55	0.45	0.63	0.55	0.63	0.49	0.67	0.59	0.59
#8 17:15 - 17:30	0.41	0.41	0.47	0.37	0.54	0.47	0.58	0.51	0.58	0.47	0.66	0.58	0.66	0.52	0.70	0.61	0.61
#9 17:30 - 17:45	0.40	0.40	0.45	0.35	0.52	0.45	0.56	0.49	0.56	0.45	0.63	0.56	0.63	0.50	0.67	0.59	0.59
#10 17:45 - 18:00	0.40	0.40	0.45	0.35	0.52	0.45	0.56	0.49	0.56	0.45	0.63	0.55	0.63	0.50	0.67	0.59	0.59
#11 18:00 - 18:15	0.36	0.36	0.42	0.33	0.48	0.42	0.51	0.45	0.51	0.42	0.58	0.51	0.58	0.46	0.62	0.54	0.54
#12 18:15 - 18:30	0.35	0.35	0.40	0.31	0.46	0.40	0.49	0.43	0.49	0.40	0.56	0.49	0.56	0.44	0.60	0.53	0.53

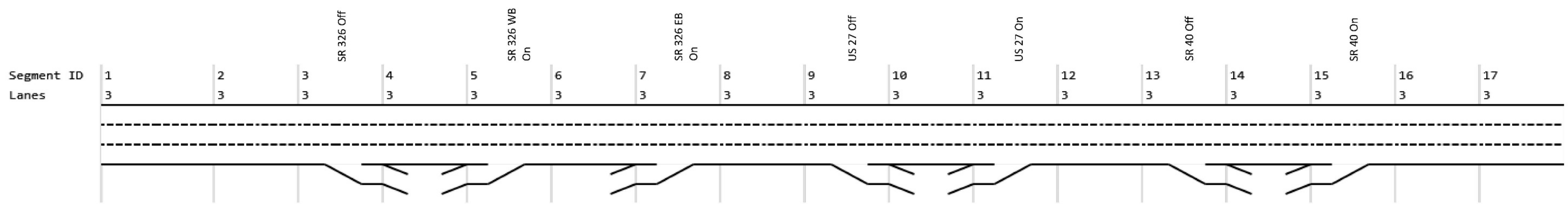
Speed Contours

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
#1 15:30 - 15:45	71.2	71.2	65.1	70.8	65.3	70.0	65.1	70.9	65.4	71.1	64.0	69.8	64.9	70.7	64.1	68.9	68.9
#2 15:45 - 16:00	71.2	71.2	65.0	70.8	65.1	69.9	64.9	70.6	65.4	71.0	63.8	69.2	64.8	70.4	63.9	68.1	68.1
#3 16:00 - 16:15	71.2	71.2	65.0	70.8	65.3	70.0	65.2	71.0	65.4	71.1	64.1	70.0	64.9	70.9	64.2	69.2	69.2
#4 16:15 - 16:30	71.2	71.2	65.1	70.8	65.3	70.0	65.1	70.9	65.4	71.1	64.0	69.8	64.9	70.8	64.1	69.0	69.0
#5 16:30 - 16:45	71.2	71.2	65.0	70.8	65.4	70.0	65.2	71.1	65.5	71.1	64.2	70.3	64.9	71.0	64.4	69.6	69.6
#6 16:45 - 17:00	71.2	71.2	65.0	70.8	65.1	69.9	65.0	70.8	65.4	71.1	63.9	69.6	64.8	70.6	64.0	68.7	68.7
#7 17:00 - 17:15	71.2	71.2	65.0	70.8	65.5	70.0	65.3	71.1	65.5	71.1	64.3	70.5	64.9	71.0	64.5	69.9	69.9
#8 17:15 - 17:30	71.2	71.2	65.0	70.8	65.4	70.0	65.2	71.0	65.5	71.1	64.1	70.1	64.9	70.9	64.3	69.3	69.3
#9 17:30 - 17:45	71.2	71.2	65.0	70.8	65.5	70.0	65.3	71.1	65.5	71.1	64.3	70.4	64.9	71.0	64.5	69.8	69.8
#10 17:45 - 18:00	71.2	71.2	65.0	70.8	65.5	70.0	65.3	71.1	65.5	71.1	64.3	70.4	64.9	71.0	64.5	69.8	69.8
#11 18:00 - 18:15	71.2	71.2	65.0	70.8	65.6	70.0	65.5	71.2	65.4	71.1	64.5	70.6	65.0	71.0	64.8	70.6	70.6
#12 18:15 - 18:30	71.2	71.2	64.9	70.8	65.7	70.0	65.6	71.2	65.5	71.1	64.7	70.6	65.0	71.0	64.9	70.6	70.8

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

Figure 17: Southbound 2019 Weekend Peak – 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
#1 12:00 - 12:15	0.38	0.38	0.43	0.33	0.50	0.43	0.53	0.46	0.53	0.44	0.59	0.52	0.60	0.47	0.60	0.53	0.53
#2 12:15 - 12:30	0.38	0.38	0.43	0.33	0.50	0.43	0.53	0.46	0.53	0.44	0.59	0.52	0.60	0.47	0.60	0.53	0.53
#3 12:30 - 12:45	0.38	0.38	0.43	0.33	0.50	0.43	0.53	0.46	0.53	0.44	0.59	0.52	0.60	0.47	0.60	0.53	0.53
#4 12:45 - 13:00	0.38	0.38	0.43	0.33	0.50	0.43	0.53	0.46	0.53	0.44	0.59	0.52	0.60	0.47	0.60	0.53	0.53
#5 13:00 - 13:15	0.39	0.39	0.45	0.35	0.52	0.45	0.55	0.48	0.55	0.45	0.62	0.54	0.62	0.49	0.63	0.55	0.55
#6 13:15 - 13:30	0.39	0.39	0.45	0.35	0.52	0.45	0.55	0.48	0.55	0.45	0.62	0.54	0.62	0.49	0.63	0.55	0.55
#7 13:30 - 13:45	0.39	0.39	0.45	0.35	0.52	0.45	0.55	0.48	0.55	0.45	0.62	0.54	0.62	0.49	0.63	0.55	0.55
#8 13:45 - 14:00	0.39	0.39	0.45	0.35	0.52	0.45	0.55	0.48	0.55	0.45	0.62	0.54	0.62	0.49	0.63	0.55	0.55
#9 14:00 - 14:15	0.40	0.40	0.46	0.35	0.52	0.46	0.56	0.49	0.56	0.46	0.63	0.55	0.63	0.50	0.64	0.56	0.56
#10 14:15 - 14:30	0.40	0.40	0.46	0.35	0.52	0.46	0.56	0.49	0.56	0.46	0.63	0.55	0.63	0.50	0.64	0.56	0.56
#11 14:30 - 14:45	0.40	0.40	0.46	0.35	0.52	0.46	0.56	0.49	0.56	0.46	0.63	0.55	0.63	0.50	0.64	0.56	0.56
#12 14:45 - 15:00	0.40	0.40	0.46	0.35	0.52	0.46	0.56	0.49	0.56	0.46	0.63	0.55	0.63	0.50	0.64	0.56	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
#1 12:00 - 12:15	71.2	71.2	64.9	70.8	65.5	70.0	65.4	71.2	65.6	71.1	64.5	70.6	65.2	71.0	65.0	70.7	70.8
#2 12:15 - 12:30	71.2	71.2	64.9	70.8	65.5	70.0	65.4	71.2	65.6	71.1	64.5	70.6	65.2	71.0	65.0	70.7	70.8
#3 12:30 - 12:45	71.2	71.2	64.9	70.8	65.5	70.0	65.4	71.2	65.6	71.1	64.5	70.6	65.2	71.0	65.0	70.7	70.8
#4 12:45 - 13:00	71.2	71.2	64.9	70.8	65.5	70.0	65.4	71.2	65.6	71.1	64.5	70.6	65.2	71.0	65.0	70.7	70.8
#5 13:00 - 13:15	71.2	71.2	64.9	70.8	65.4	70.0	65.3	71.1	65.6	71.1	64.4	70.6	65.2	71.0	64.8	70.5	70.5
#6 13:15 - 13:30	71.2	71.2	64.9	70.8	65.4	70.0	65.3	71.1	65.6	71.1	64.4	70.6	65.2	71.0	64.8	70.5	70.5
#7 13:30 - 13:45	71.2	71.2	64.9	70.8	65.4	70.0	65.3	71.1	65.6	71.1	64.4	70.6	65.2	71.0	64.8	70.5	70.5
#8 13:45 - 14:00	71.2	71.2	64.9	70.8	65.4	70.0	65.3	71.1	65.6	71.1	64.4	70.6	65.2	71.0	64.8	70.5	70.5
#9 14:00 - 14:15	71.2	71.2	64.9	70.8	65.3	70.0	65.3	71.1	65.6	71.1	64.3	70.5	65.1	71.0	64.7	70.4	70.4
#10 14:15 - 14:30	71.2	71.2	64.9	70.8	65.3	70.0	65.3	71.1	65.6	71.1	64.3	70.5	65.1	71.0	64.7	70.4	70.4
#11 14:30 - 14:45	71.2	71.2	64.9	70.8	65.3	70.0	65.3	71.1	65.6	71.1	64.3	70.5	65.1	71.0	64.7	70.4	70.4
#12 14:45 - 15:00	71.2	71.2	64.9	70.8	65.3	70.0	65.3	71.1	65.6	71.1	64.3	70.5	65.1	71.0	64.7	70.4	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
#1 12:00 - 12:15	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B
#2 12:15 - 12:30	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B
#3 12:30 - 12:45	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B
#4 12:45 - 13:00	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B
#5 13:00 - 13:15	B	B	B	A	B	B	B	B	B	B	B	B	C	B	B	B	B
#6 13:15 - 13:30	B	B	B	A	B	B	B	B	B	B	B	B	C	B	B	B	B
#7 13:30 - 13:45	B	B	B	A	B	B	B	B	B	B	B	B	C	B	B	B	B
#8 13:45 - 14:00	B	B	B	A	B	B	B	B	B	B	B	B	C	B	B	B	B
#9 14:00 - 14:15	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B	B
#10 14:15 - 14:30	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B	B
#11 14:30 - 14:45	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B	B
#12 14:45 - 15:00	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	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 18 illustrates the overall intersection delay and LOS for the signalized intersections and the delay and LOS for the critical movement at the unsignalized intersection 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.

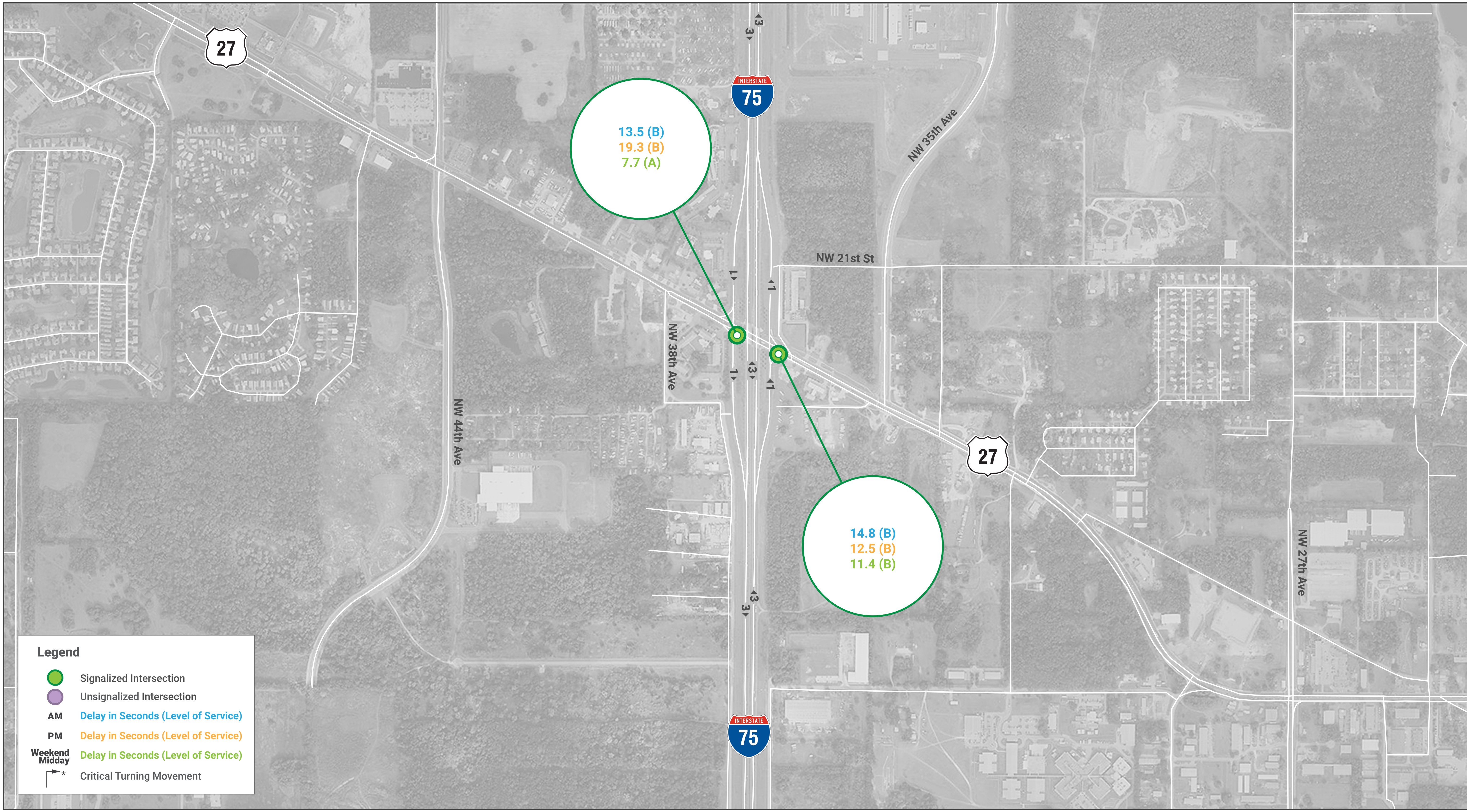
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2019 Peak Hour Intersection Operations

Figure 18 (1 of 3)



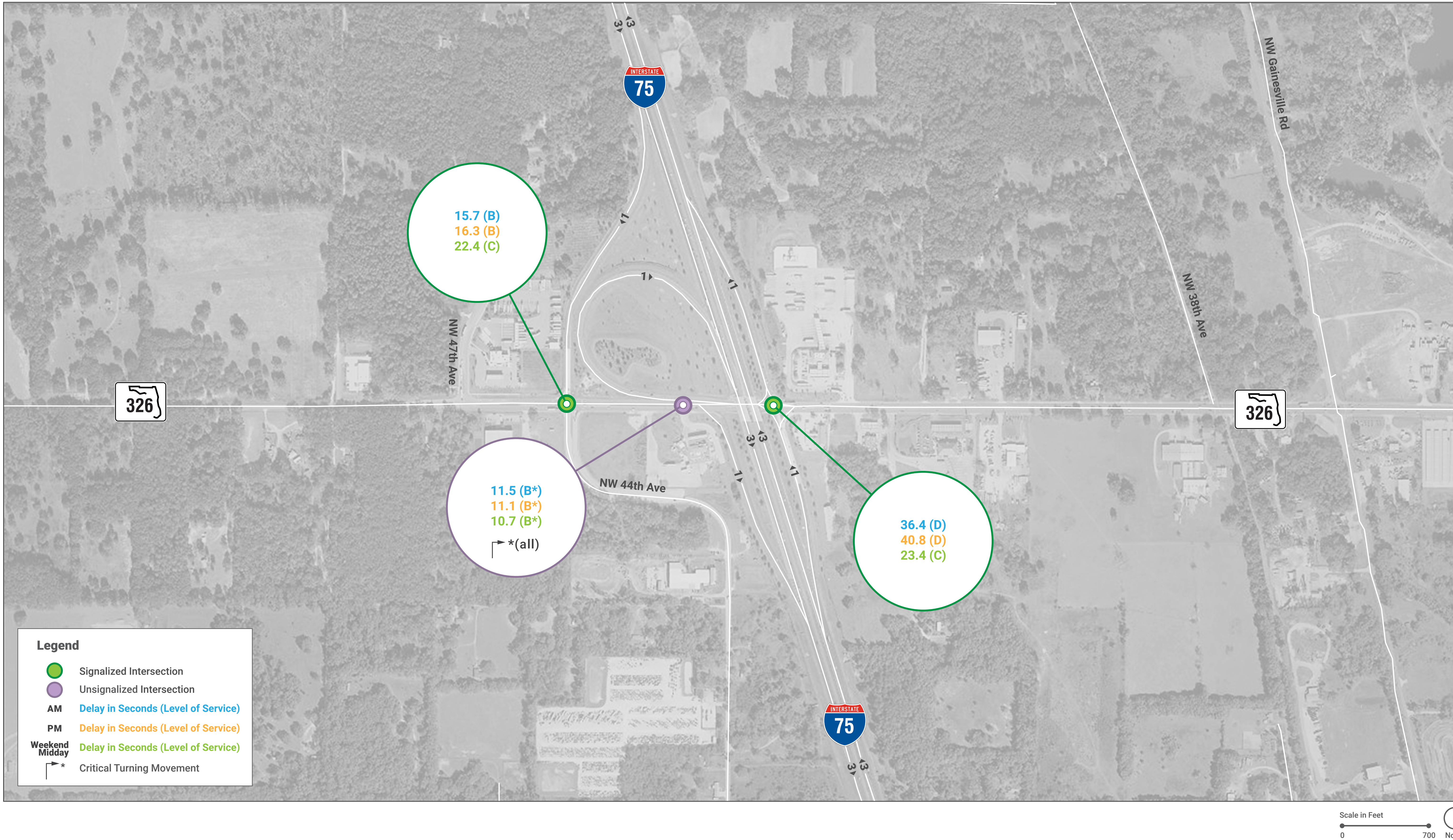
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2019 Peak Hour Intersection Operations

Figure 18 (2 of 3)



I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2019 Peak Hour Intersection Operations

Figure 18 (3 of 3)

SR 40

Most of the movements at the I-75 at SR 40 ramp terminal intersections operate at LOS D or better and under capacity (v/c ratio less than 1.0) during the existing conditions AM, PM, and weekend peak hours analyzed except for the following:

- SR 40 at I-75 SB Ramps
    - The southbound left-turn movement operates at LOS E/F in the AM, PM, and weekend peak hours with delays ranging from 63.4 to 118.8 seconds. The overall intersection LOS for this intersection is estimated to be LOS C or better during the existing peak hours analyzed.
    - The existing off-ramp is approximately 1,325 feet long to the I-75 gore point.
        - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
        - Remaining distance for storage – approximately 710 feet
        - The maximum 95th percentile queue length during the analysis peak hours extends approximately 600 feet in the AM peak.
- SR 40 at I-75 NB Ramps
    - The northbound left-turn movement operates at LOS F in the AM, PM, and weekend peak hours with delays ranging from 94.4 to 297.9 seconds.
    - The existing off-ramp is approximately 1,300 feet long to the I-75 gore point.
        - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
        - Remaining distance for storage – approximately 685 feet
        - The 95th percentile queue length extends approximately 1,025 feet in the AM peak hour. The AM peak hour 95th percentile queue extends into the portion of the ramp designated for deceleration.
    - The overall intersection LOS for this intersection is estimated to be LOS E during existing AM peak hour and LOS C during the PM and Weekend Midday peak hours analyzed.

US 27

All movements at the I-75 at US 27 ramp terminal intersections operate at LOS D or better and are under capacity (v/c ratio less than 1.0) during each of the existing conditions peak hours analyzed except for one movement during the PM peak that is described below. The 95th percentile queues along the US 27 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 anticipated to be LOS B or better under the existing peak hours analyzed.

- US 27 at I-75 SB Ramps
  - All movements operate at LOS C or better and are under capacity during each of the peak hours analyzed except for the westbound left-turn movement which experiences 76.8 seconds of delay and LOS E operations during the weekend peak hour.

SR 326

All movements at the I-75 at SR 326 ramp terminal intersections operate at LOS D or better and under capacity (v/c ratio less than 1.0) during each of the existing conditions peak hours analyzed except for the westbound through/right movement at the I-75 NB ramp terminal intersection. This movement operates with a delay of 56.3 seconds during the PM peak hour. The 95th percentile queues along the SR 326 off-ramps do not extend into the portion of the ramps designated for deceleration during the 2019 peak hours analyzed.

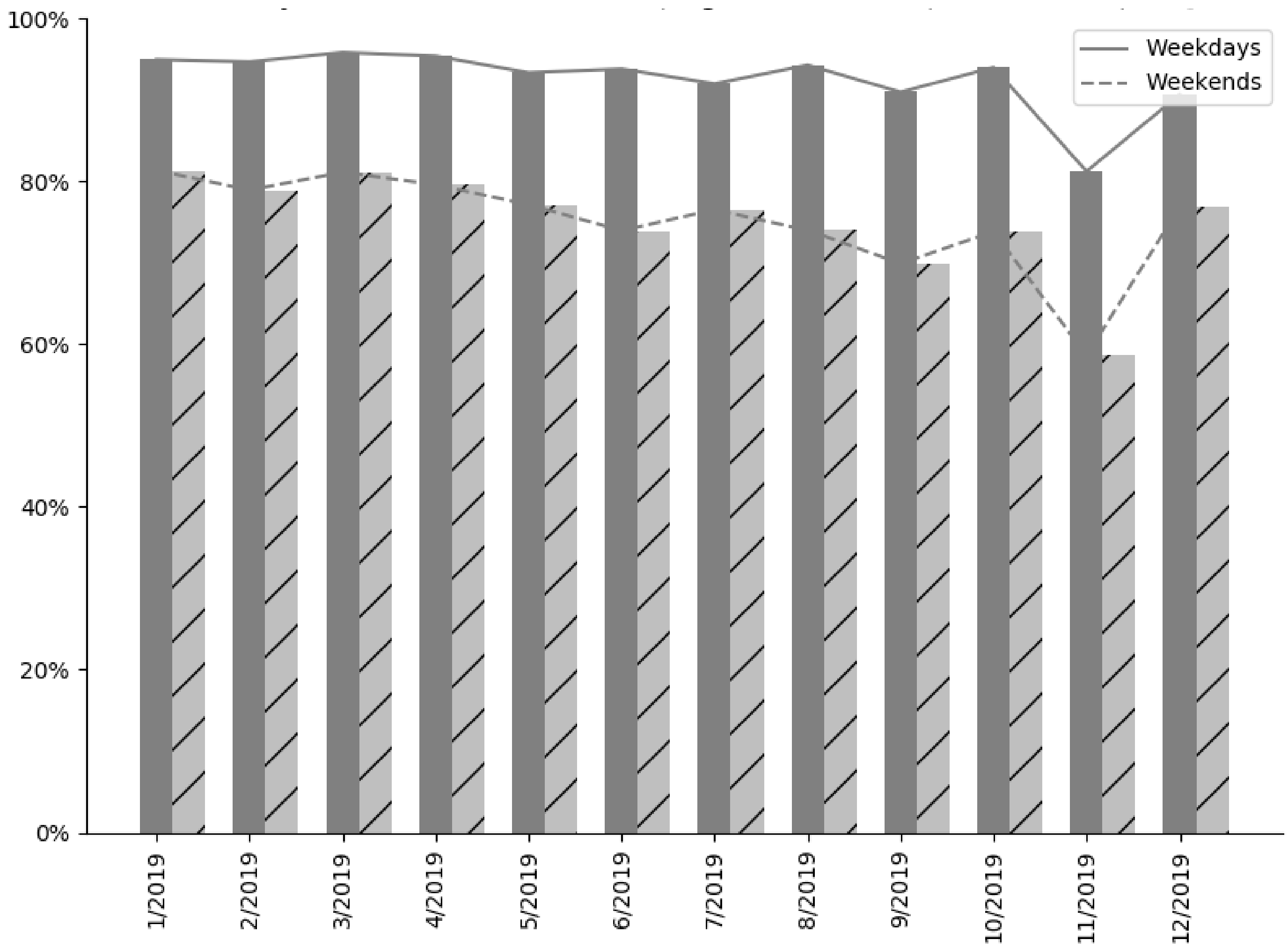
TRAVEL TIME RELIABILITY ASSESSMENT

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).

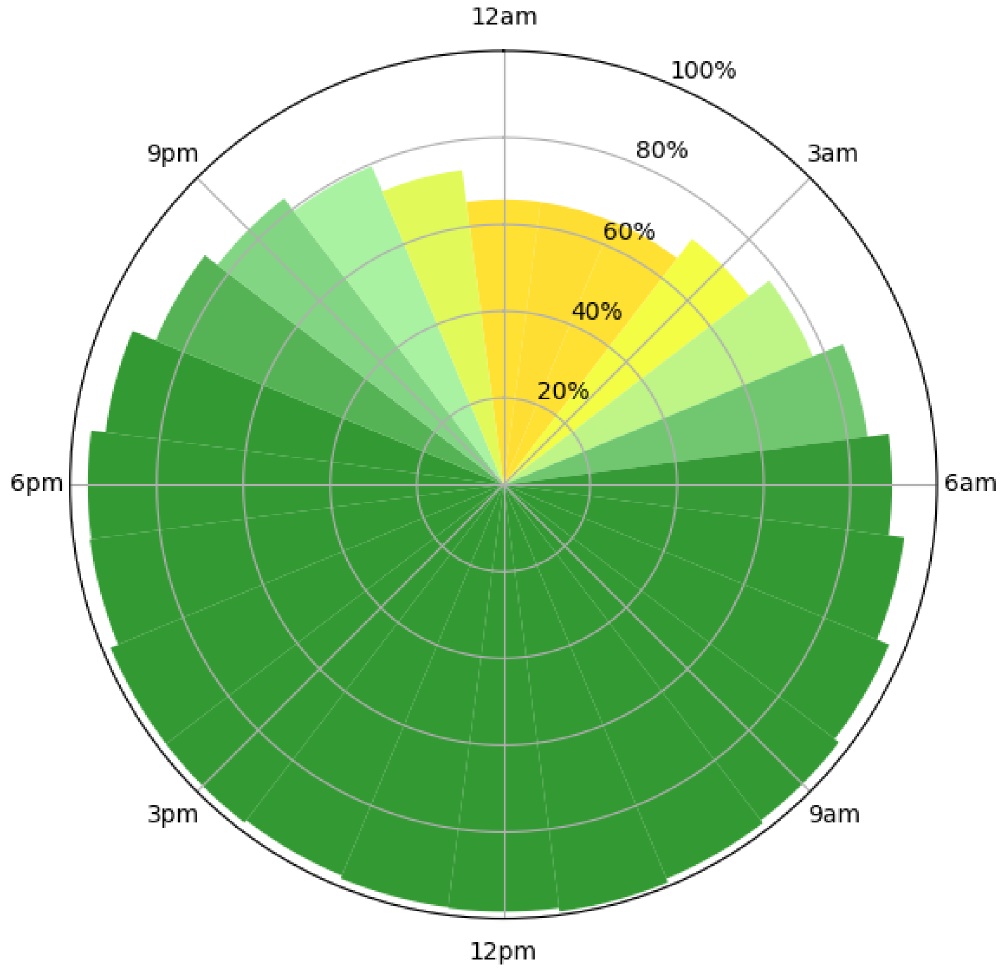
The raw data was extracted for the study corridor (from Turnpike to CR 234) for the full year of 2019 from the I-75 Master Plan. The data was then sorted by each study segment limit. The percent of monthly data available and the percent of data available by time of day is summarized for the northbound direction in **Figure 19** and **Figure 20** and for the southbound direction in **Figure 21** and **Figure 22**.

Figure 19: Percent of Monthly Data Available – Northbound



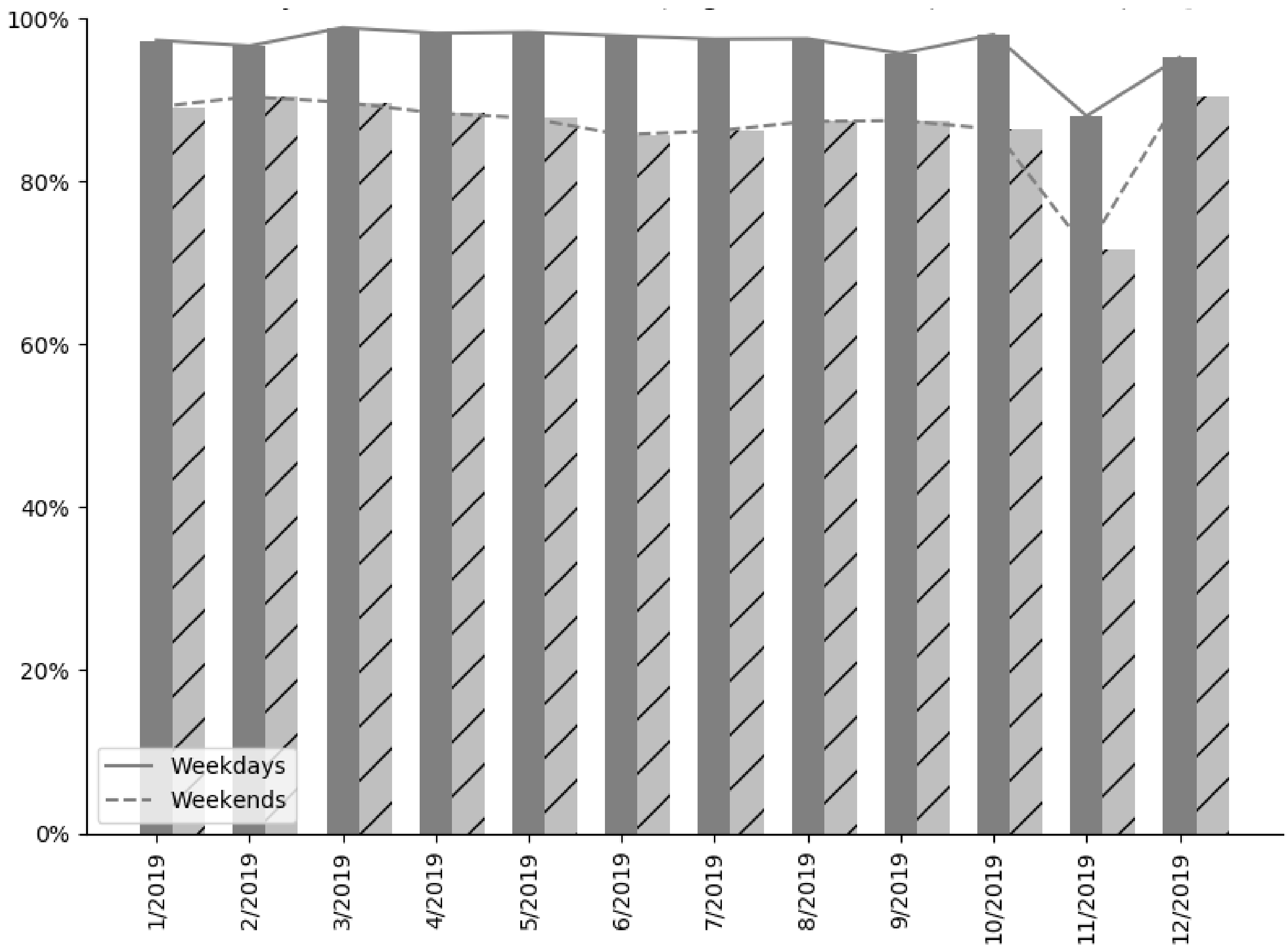
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 20: Percent of Data Available by Time of Day – Northbound



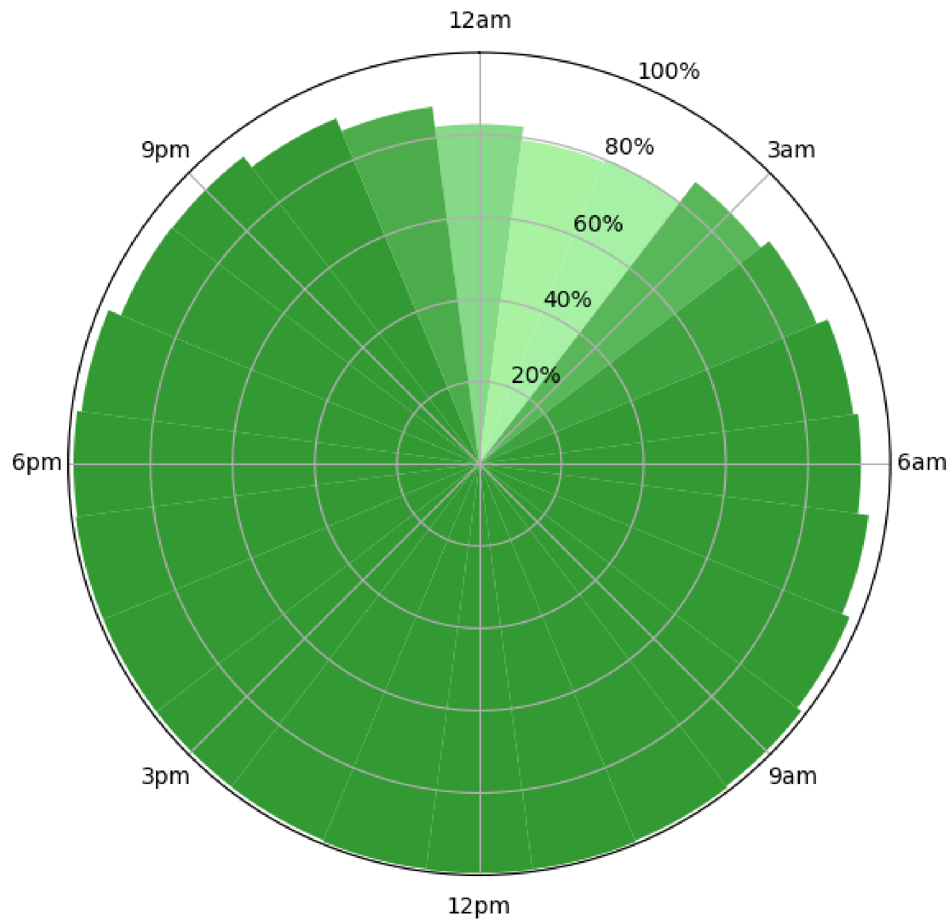
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 21: Percent of Monthly Data Available – Southbound



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

Figure 22: 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

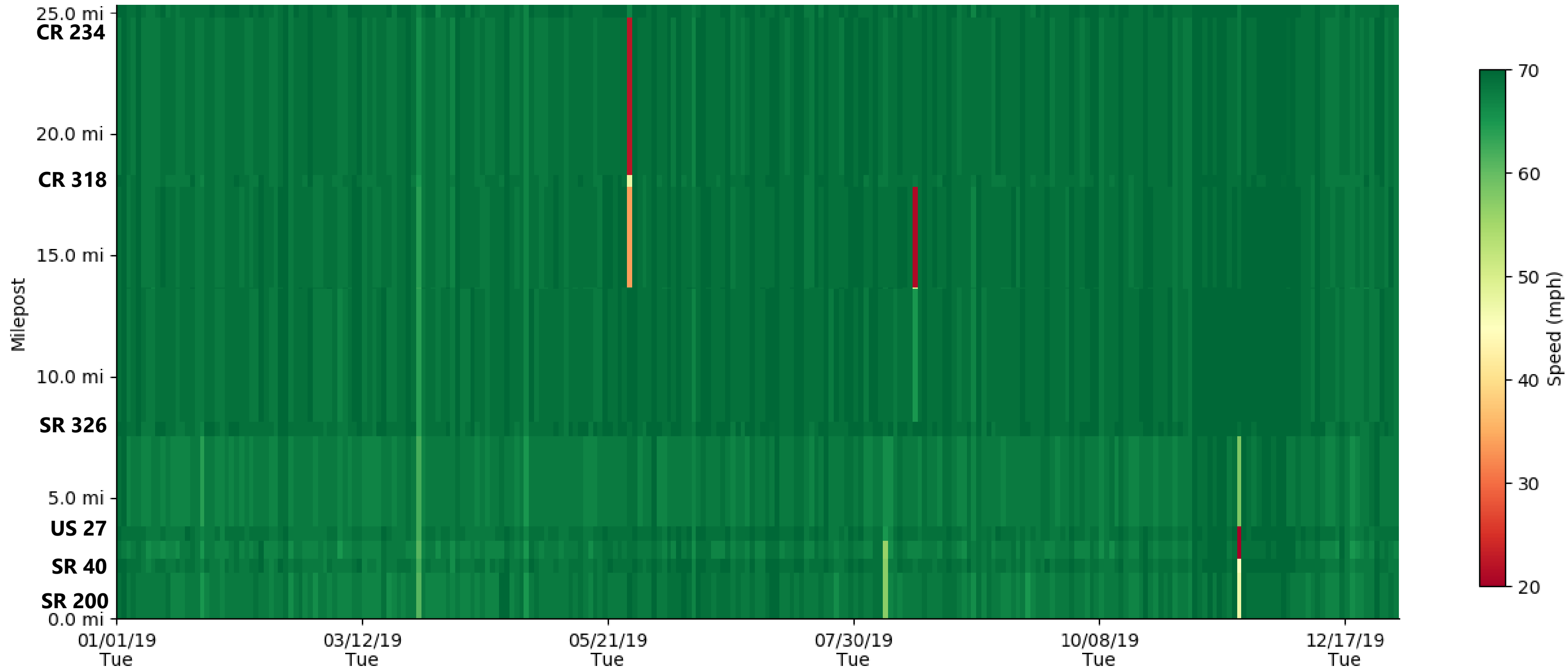
The data was summarized in the northbound direction for the AM, midday, and PM periods for the weekdays (Monday – Friday) and are illustrated in **Figure 23**, **Figure 24**, and **Figure 25**, respectively. The southbound weekday heat maps are summarized in **Figure 26**, **Figure 27**, and **Figure 28**. The heat maps show that the study limits did not experience recurring congestion during the AM, midday, and PM peak periods in both the northbound and southbound directions.

WEEKEND SPEED HEAT MAPS

The weekend 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 29**, **Figure 30**, and **Figure 31**, respectively. The southbound weekend heat maps are summarized in **Figure 32, Figure 33**, and **Figure 34**.

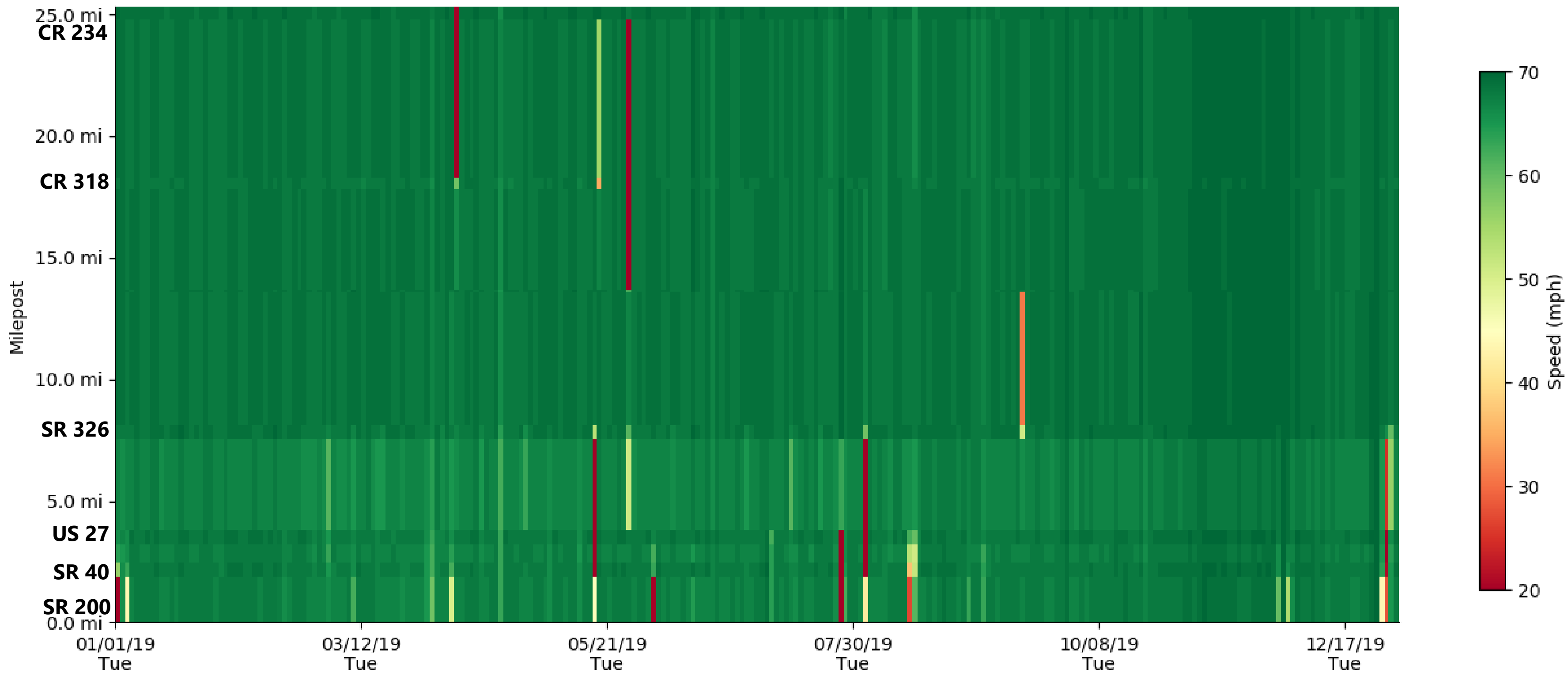
The AM peak period heat maps show little congestion for the entire year (consistent with the weekday AM contours). **Figure 33** and **Figure 34** show speeds under 30 mph during key weekends throughout the year including Spring Break, July 4th, Thanksgiving, and the Christmas holidays. This congestion is more commonly experienced in the southbound direction during the weekend PM peak period as shown in **Figure 34.** The congestion experienced is likely due to incidents and/or a combination of extreme demand levels.

Figure 23: Northbound AM (Weekdays) Speed Heat Map



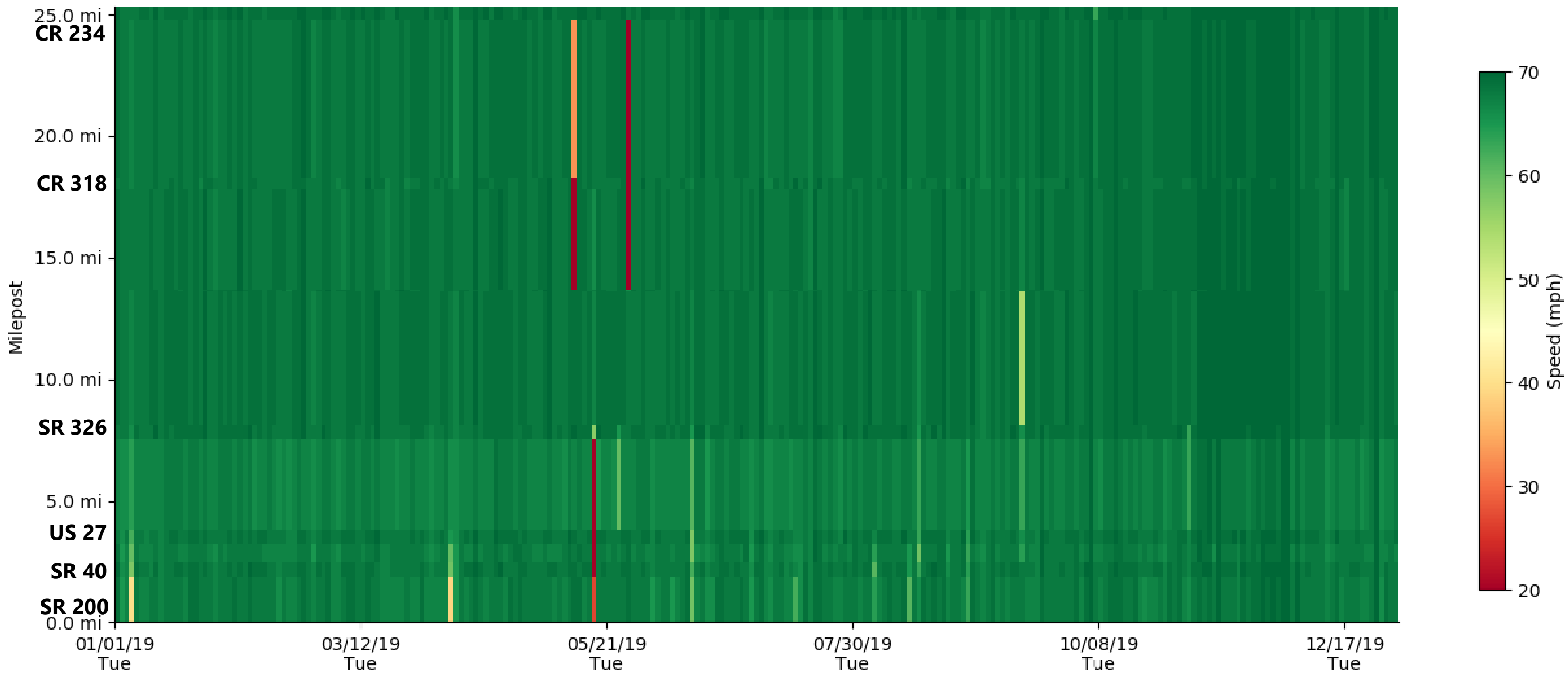
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 24: Northbound Midday (Weekdays) Speed Heat Map



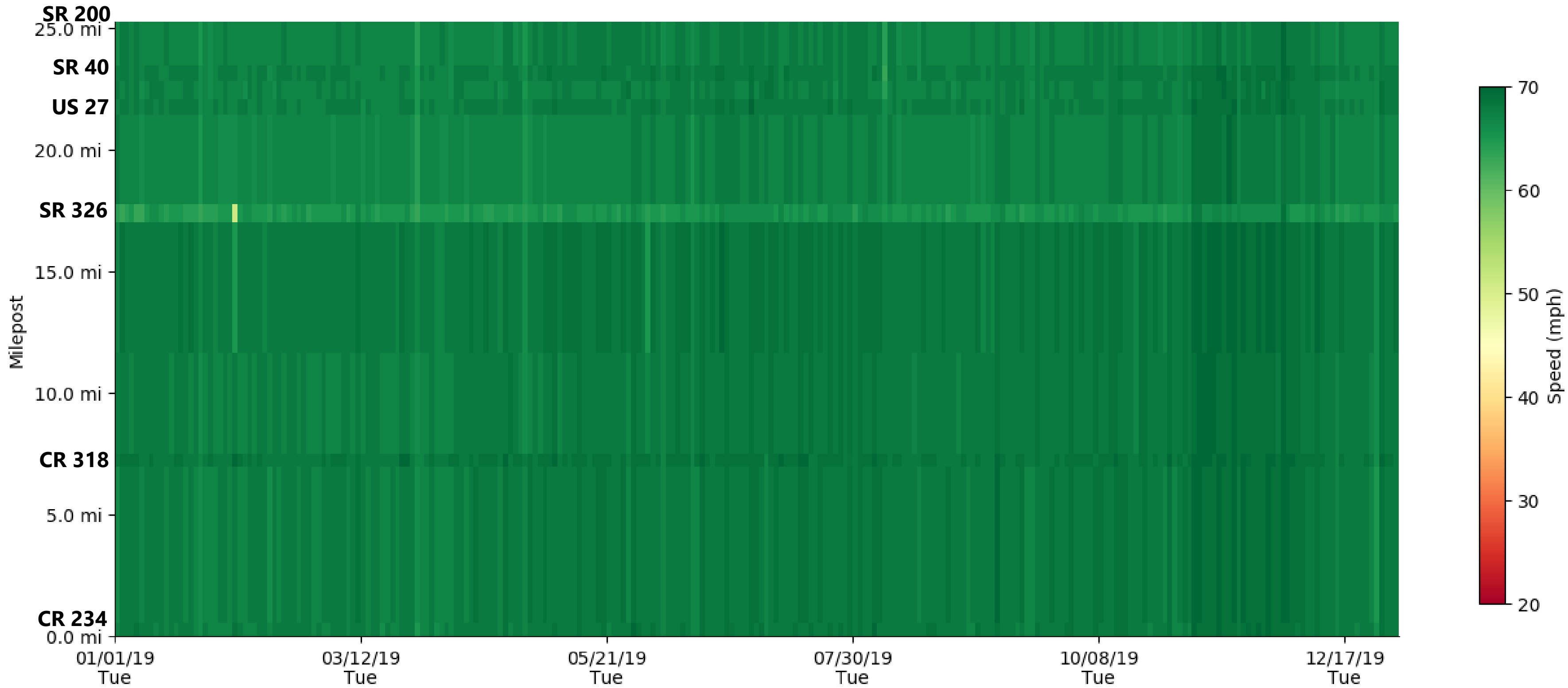
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 25: Northbound PM (Weekdays) Speed Heat Map



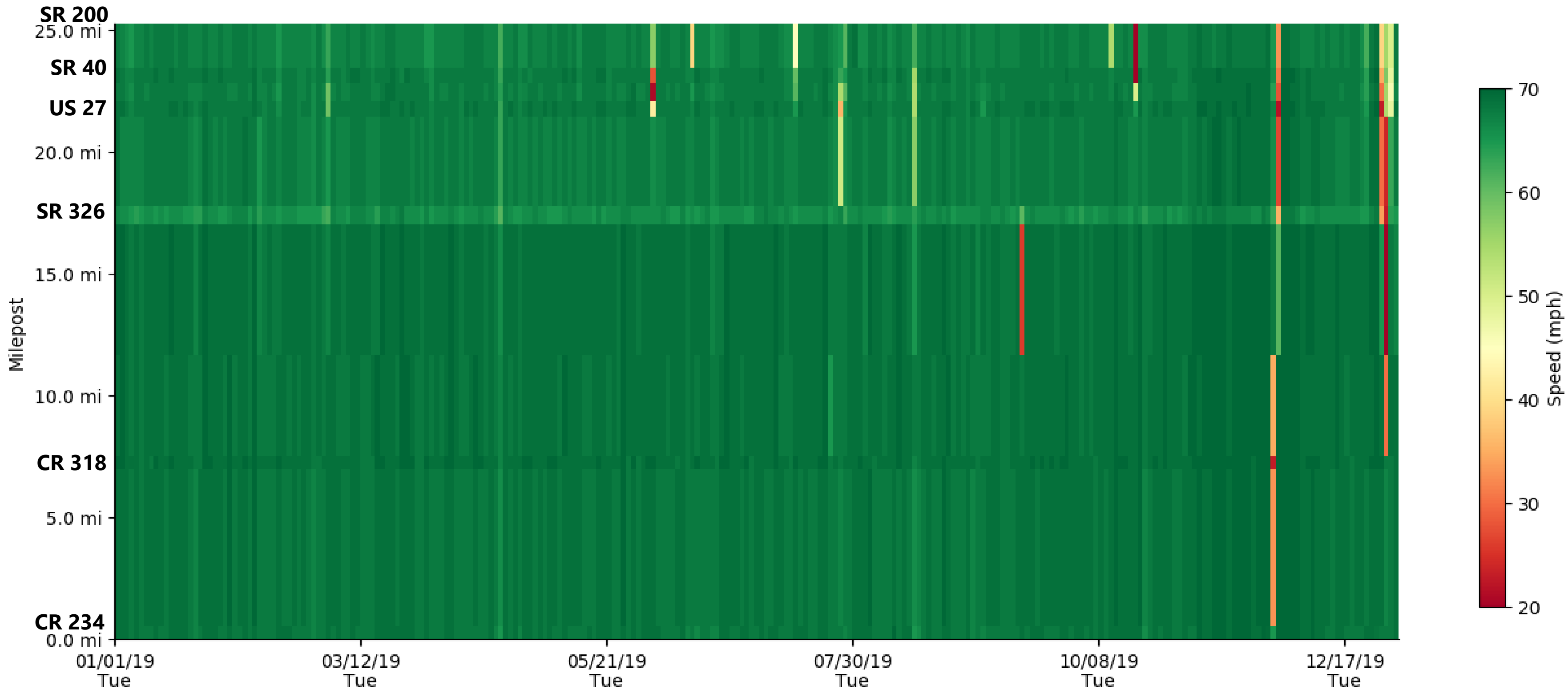
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 26: Southbound AM (Weekdays) Speed Heat Map



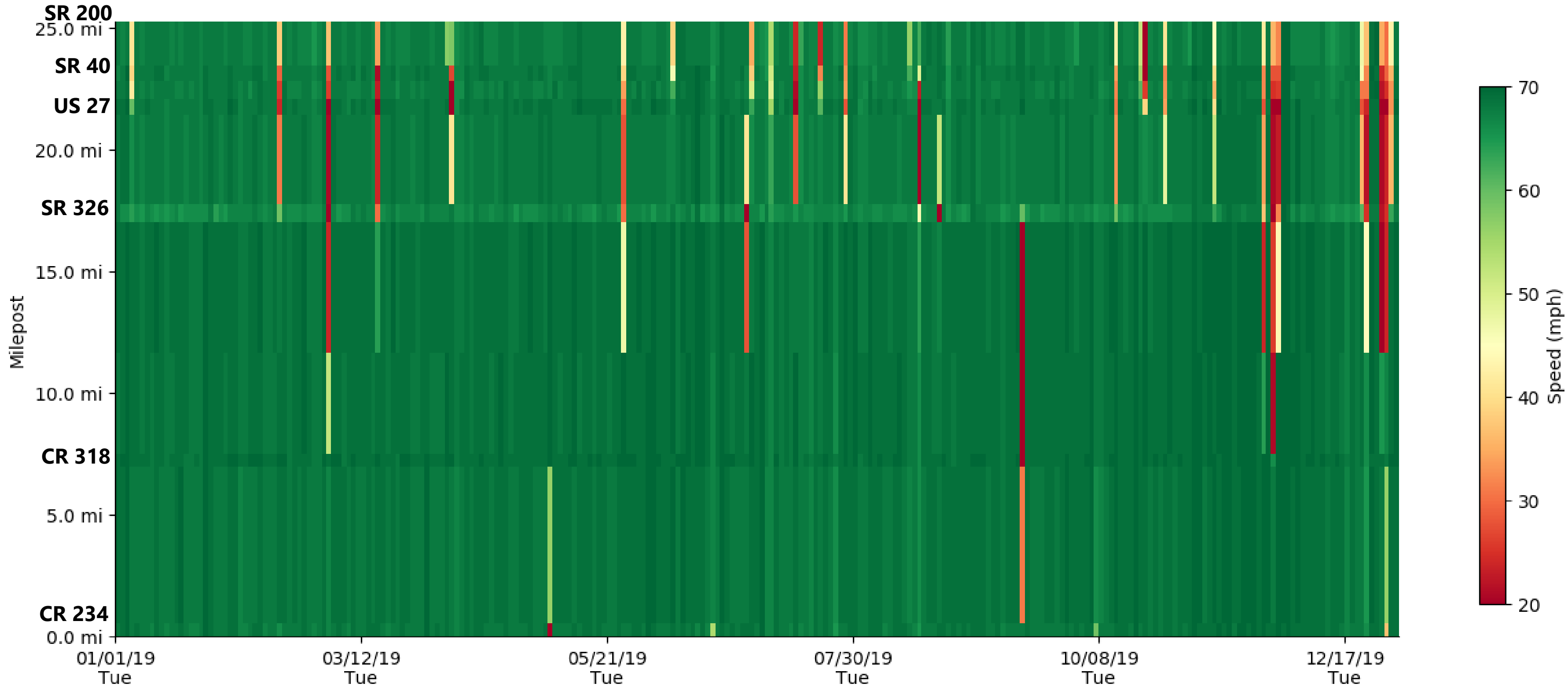
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 27: Southbound Midday (Weekdays) Speed Heat Map



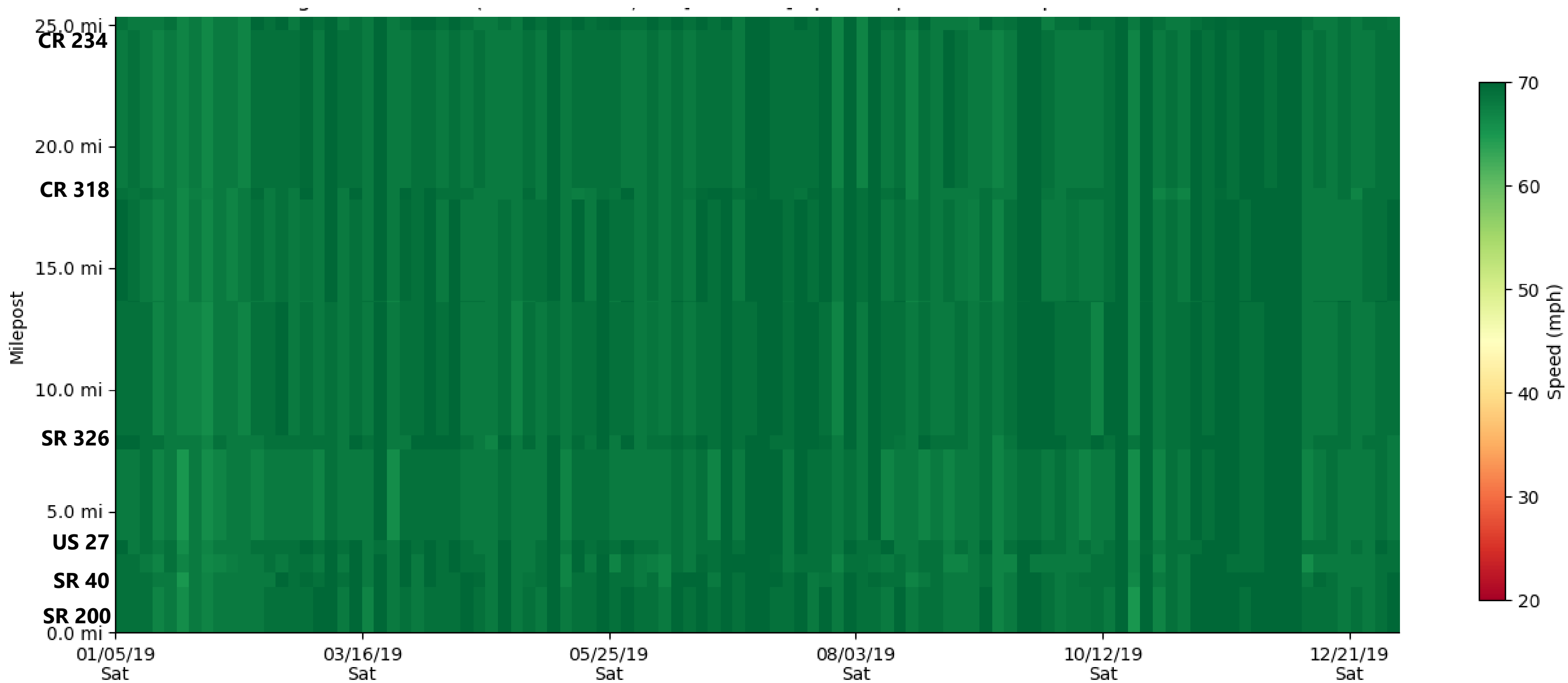
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 28: Southbound PM (Weekdays) Speed Heat Map



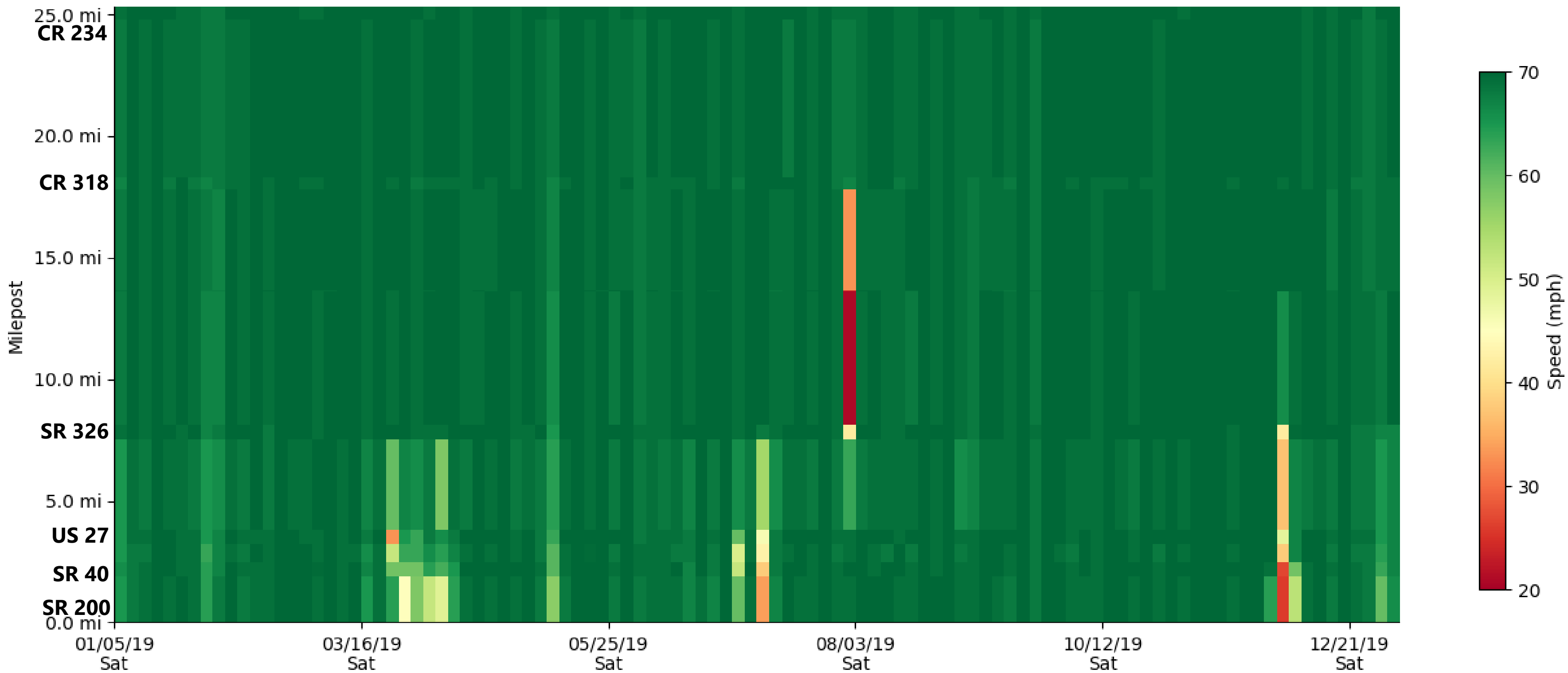
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 29: Northbound AM (Weekends) Speed Heat Map



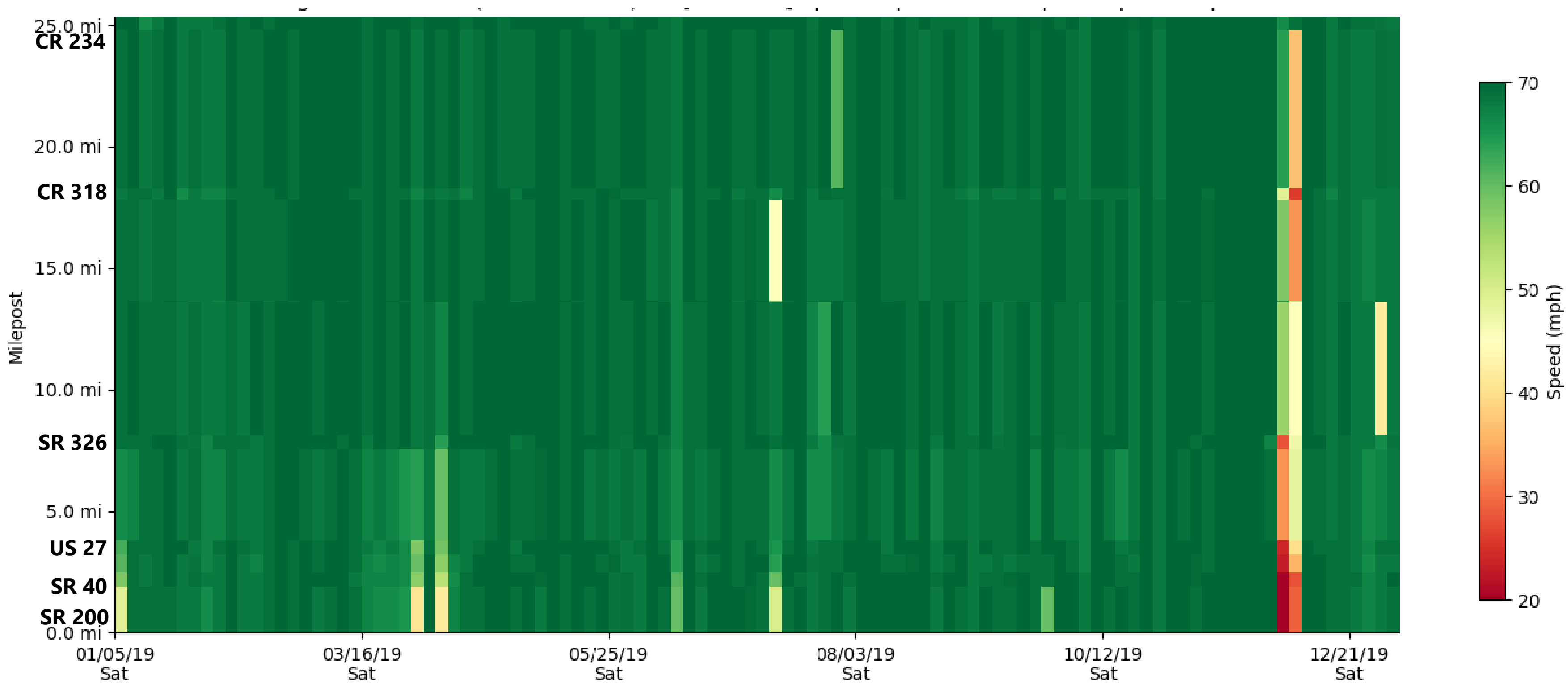
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 30: Northbound Midday (Weekends) Speed Heat Map



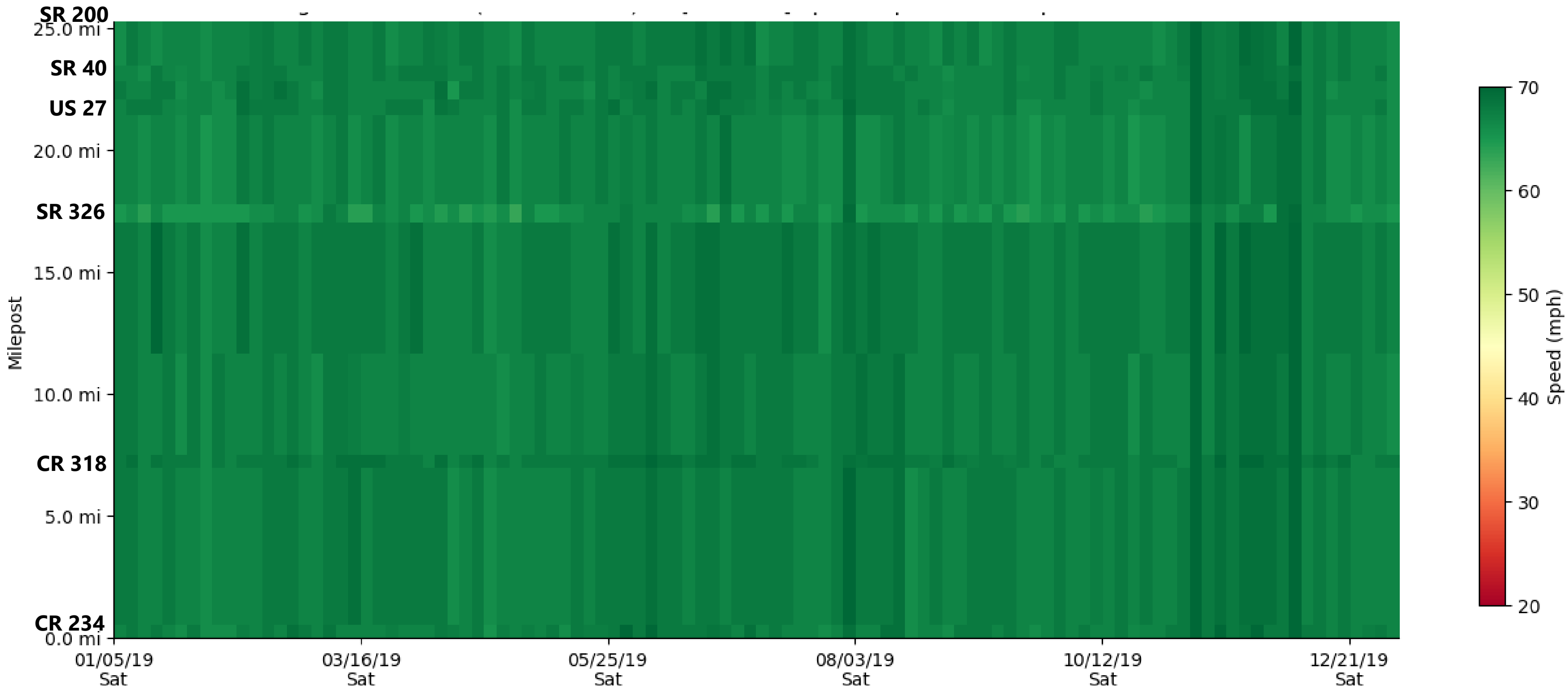
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 31: Northbound PM (Weekends) Speed Heat Map



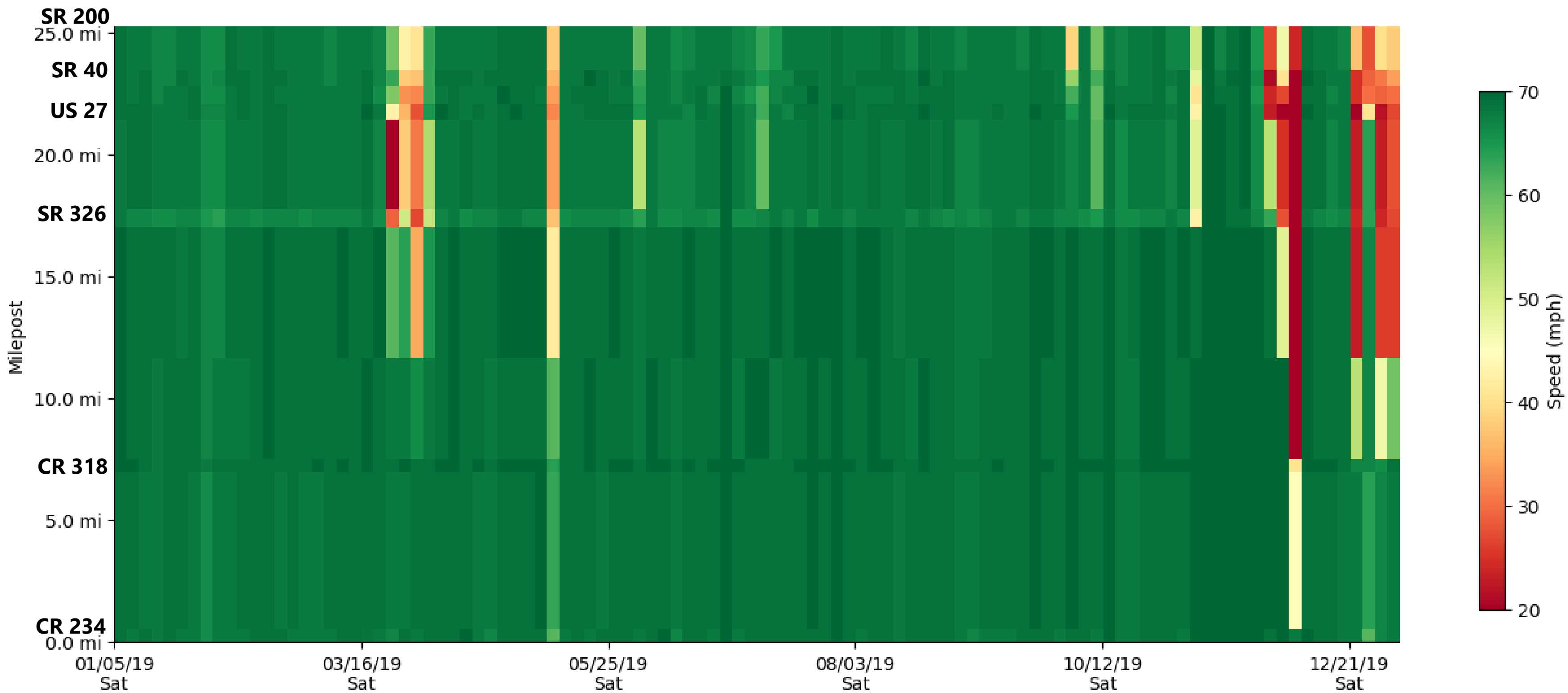
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 32: Southbound AM (Weekends) Speed Heat Map



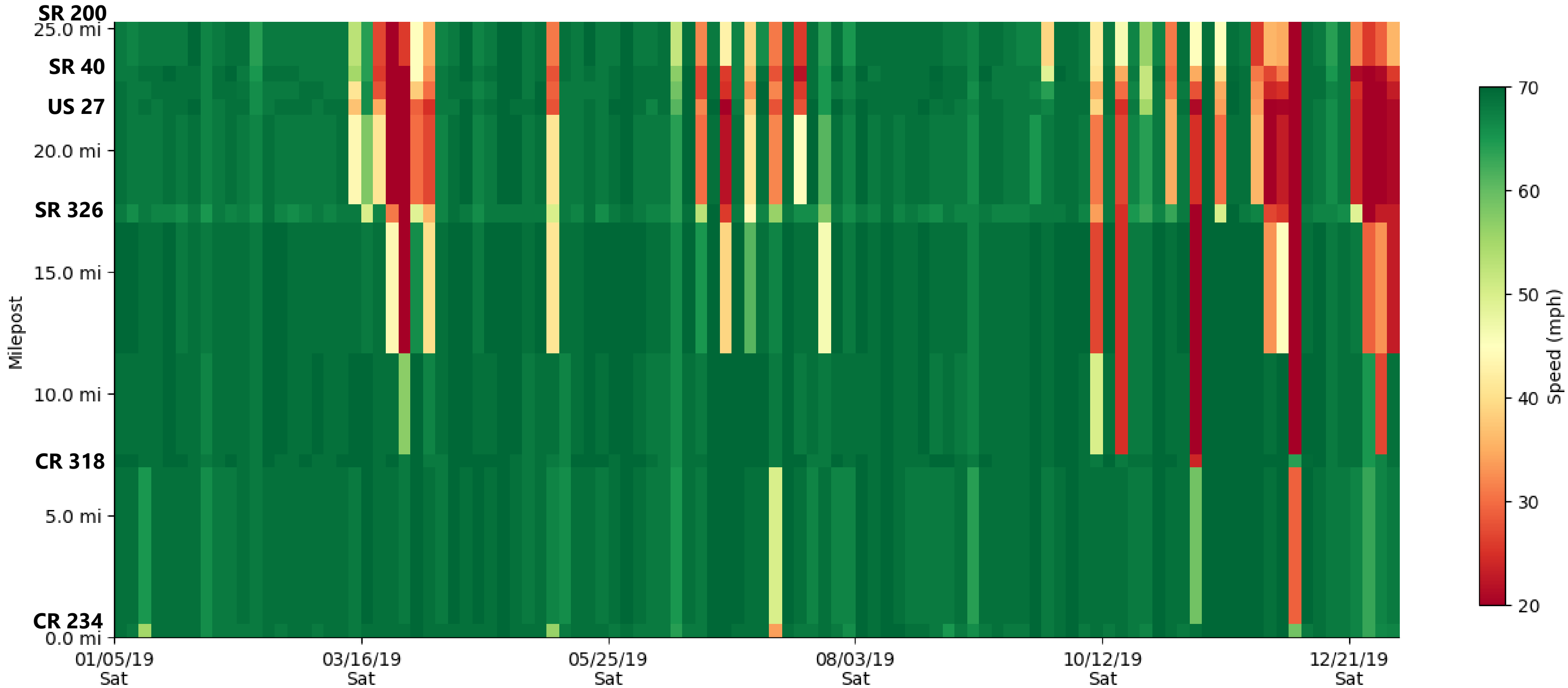
Source: January 1, 2019 – December 31, 2019 NPMRDS Data

Figure 33: Southbound Midday (Weekends) Speed Heat Map



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

Figure 34: 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 the 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 35** and **Figure 36**, respectively. The travel time confidence chart shows a median northbound travel time of approximately 22 minutes throughout the day. The 20th-80th and 5th-95th bans show travel times very close to the median throughout the entire day. Drivers can expect to travel the corridor northbound in less than 24 minutes 95% of the time during the weekdays throughout most of the day.

The weekend travel time confidence bands for the northbound direction show a peak of up to nearly 27 minutes for 95% confidence in arriving on time during the weekends. The increase in travel times is present between approximately 1:00 PM and 6:00 PM with the peak occurring around 3:00 PM.

SOUTHBOUND TRAVEL TIME CONFIDENCE BANDS

The southbound travel time confidence bands for the weekday and weekend are shown in **Figure 37** and **Figure 38**, respectively. The travel time confidence chart shows a median southbound travel time of approximately 22 minutes throughout the day. The 20th-80th and 5th-95th bans show travel times very close to the median throughout the entire day. Drivers can expect to travel the corridor southbound in less than 24 minutes 95% of the time during the weekdays throughout the entire day.

The weekend travel time confidence bands for the southbound direction show a peak of 31 minutes needed for 80% confidence and up to nearly 56 minutes for 95% confidence in arriving on time during the weekends.

Figure 35: Weekday Northbound Travel Time Confidence Bands (Tuesday – Thursday)

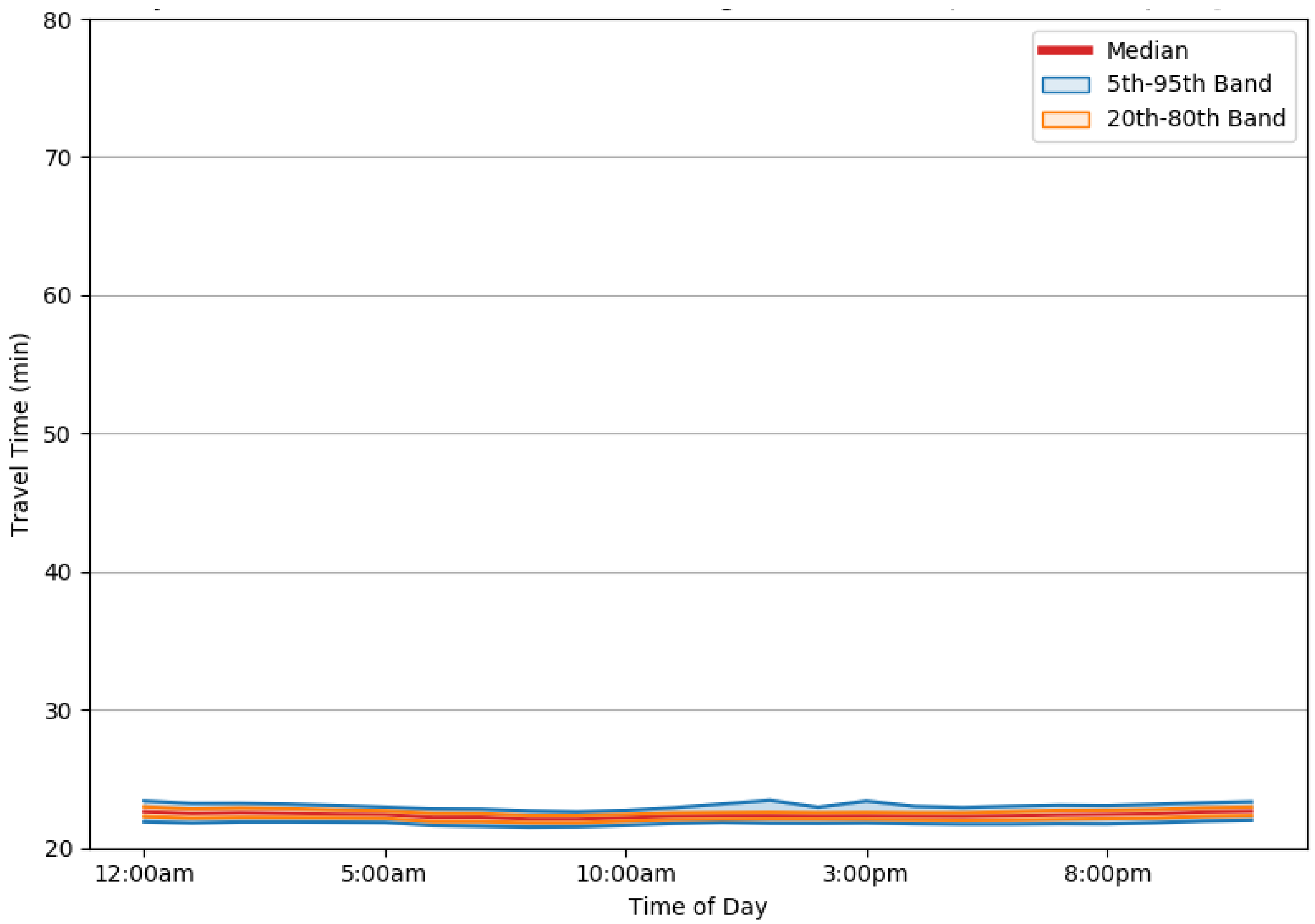


Figure 36: Weekend Northbound Travel Time Confidence Bands (Saturday and Sunday)

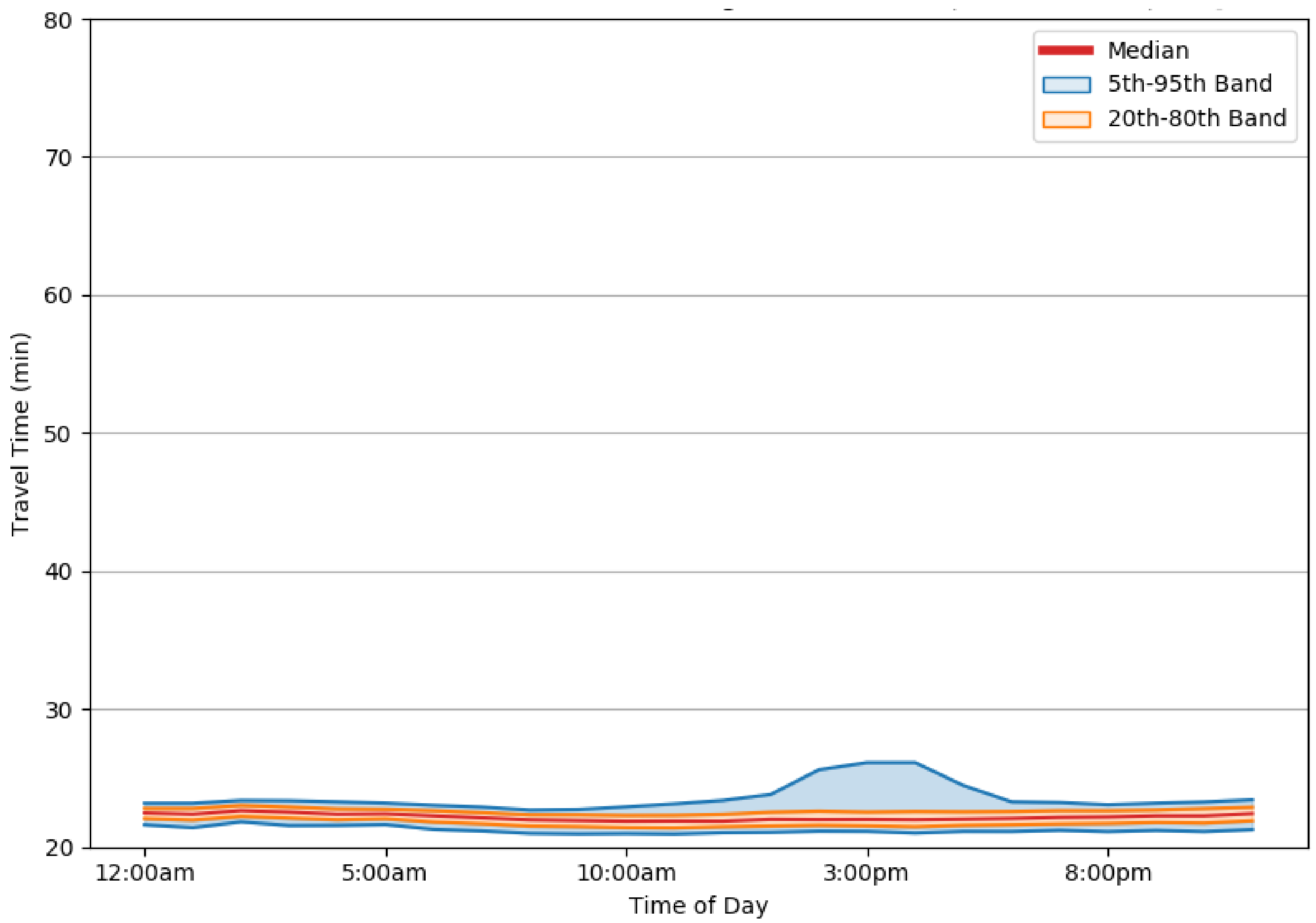


Figure 37: Weekday Southbound Travel Time Confidence Bands (Tuesday – Thursday)

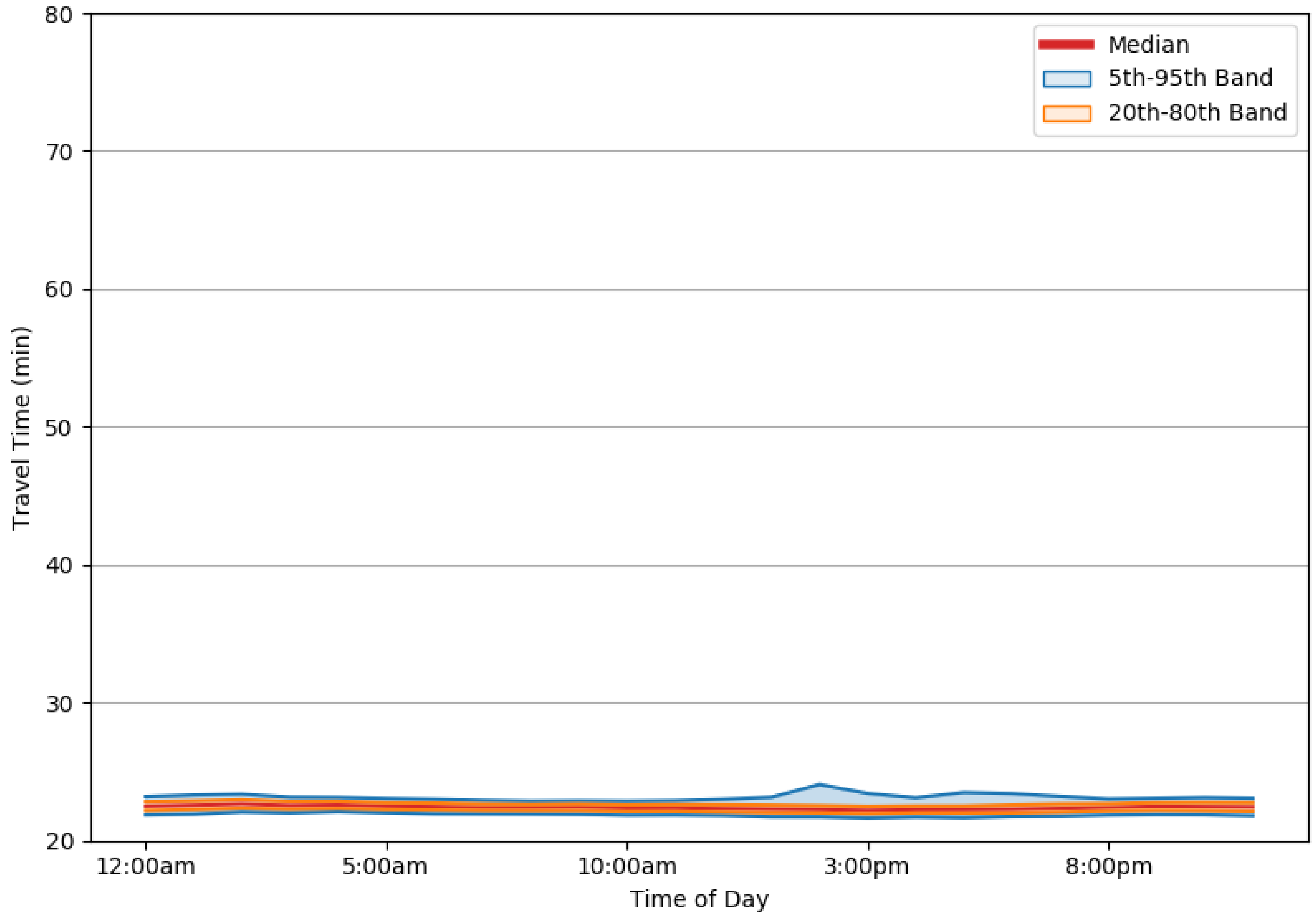
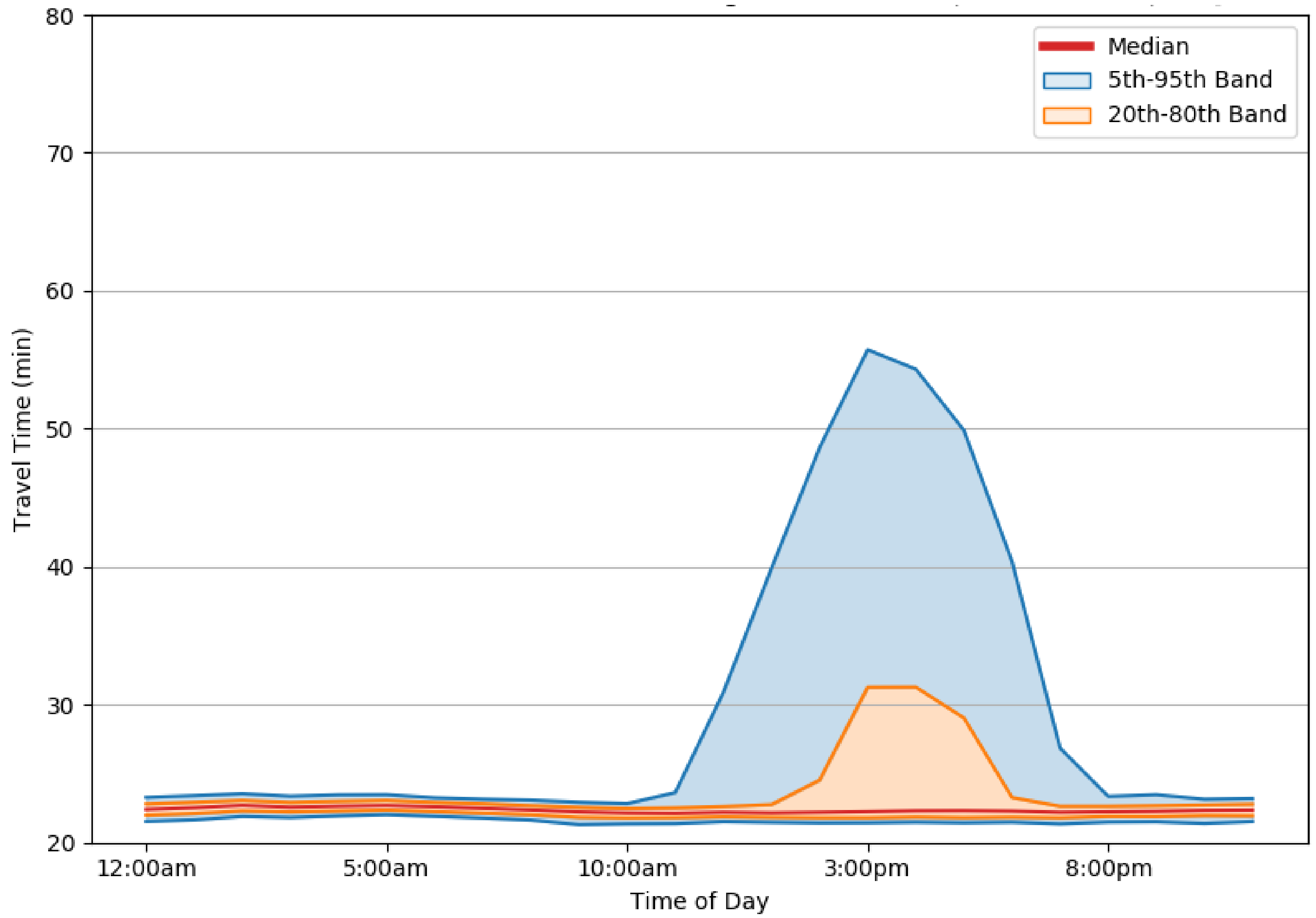


Figure 38: Weekend Southbound Travel Time Confidence Bands (Saturday and Sunday)



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 39 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 (reliable facility). The data summarized in **Figure 40** illustrates a reliable facility on the weekend as well.

SOUTHBOUND LOTTR

The LoTTR for the southbound facility during the weekday and weekend periods are shown in **Figure 41** and **Figure 42**. 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 34 minutes) on the weekend, but it does get close between 3:00 and 4:00 PM (approximately 32 minutes).

Figure 39: Weekday Northbound Level of Travel Time Reliability (Tuesday – Thursday)

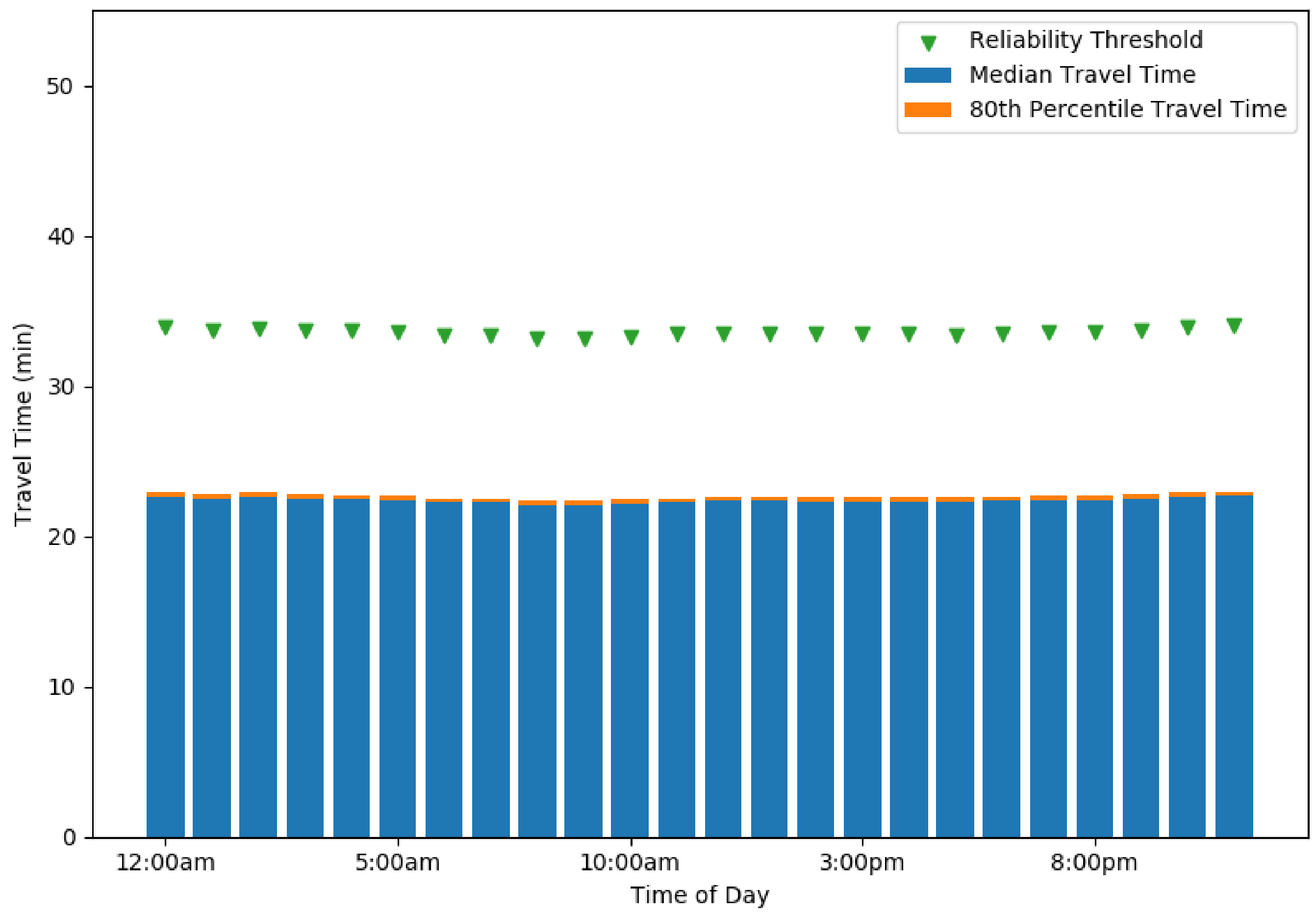


Figure 40: Weekend Northbound Level of Travel Time Reliability (Saturday and Sunday)

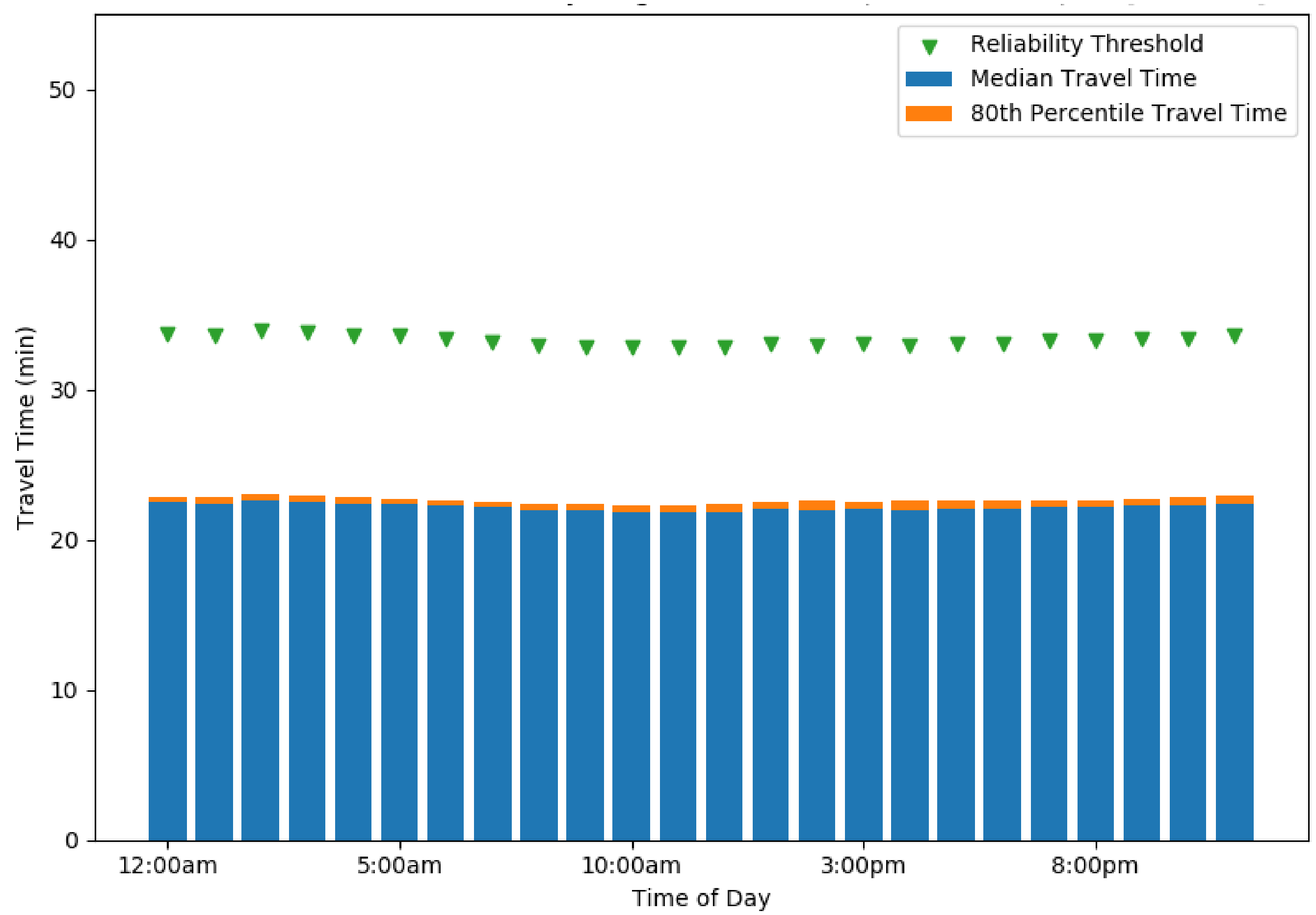


Figure 41: Weekday Southbound Level of Travel Time Reliability (Tuesday – Thursday)

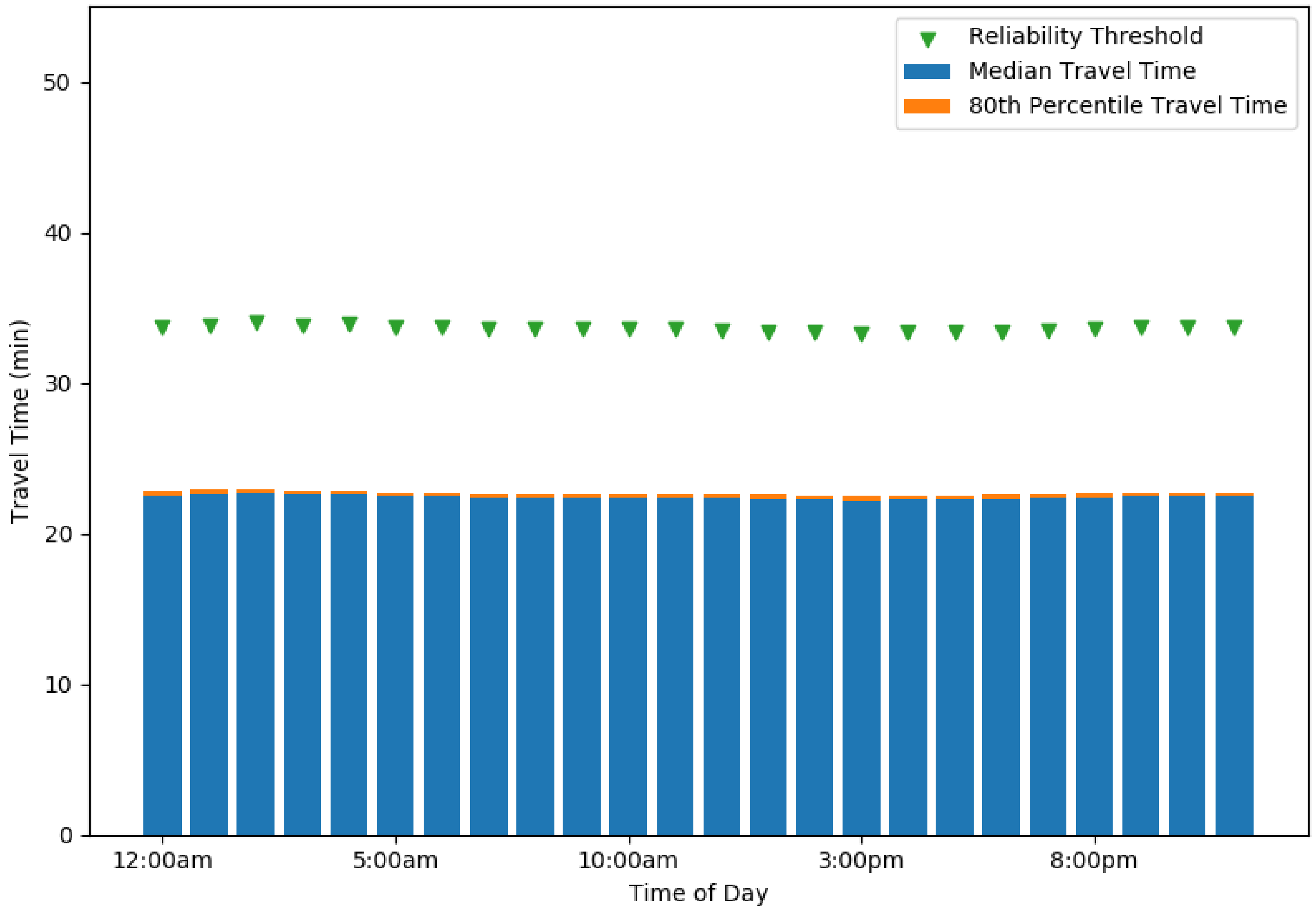
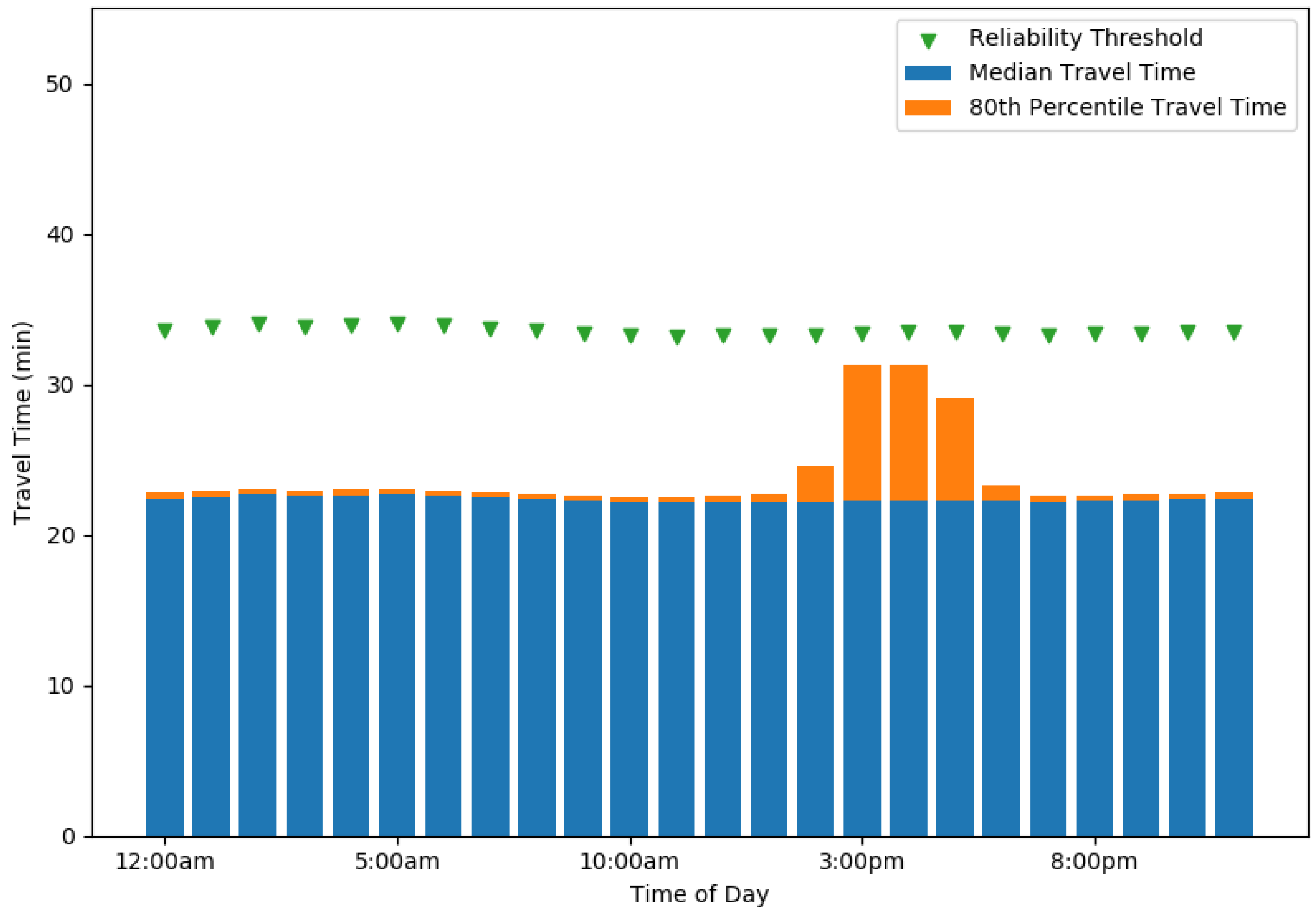


Figure 42: Weekend Southbound Level of Travel Time Reliability (Saturday and Sunday)



HISTORICAL CRASH ANALYSIS

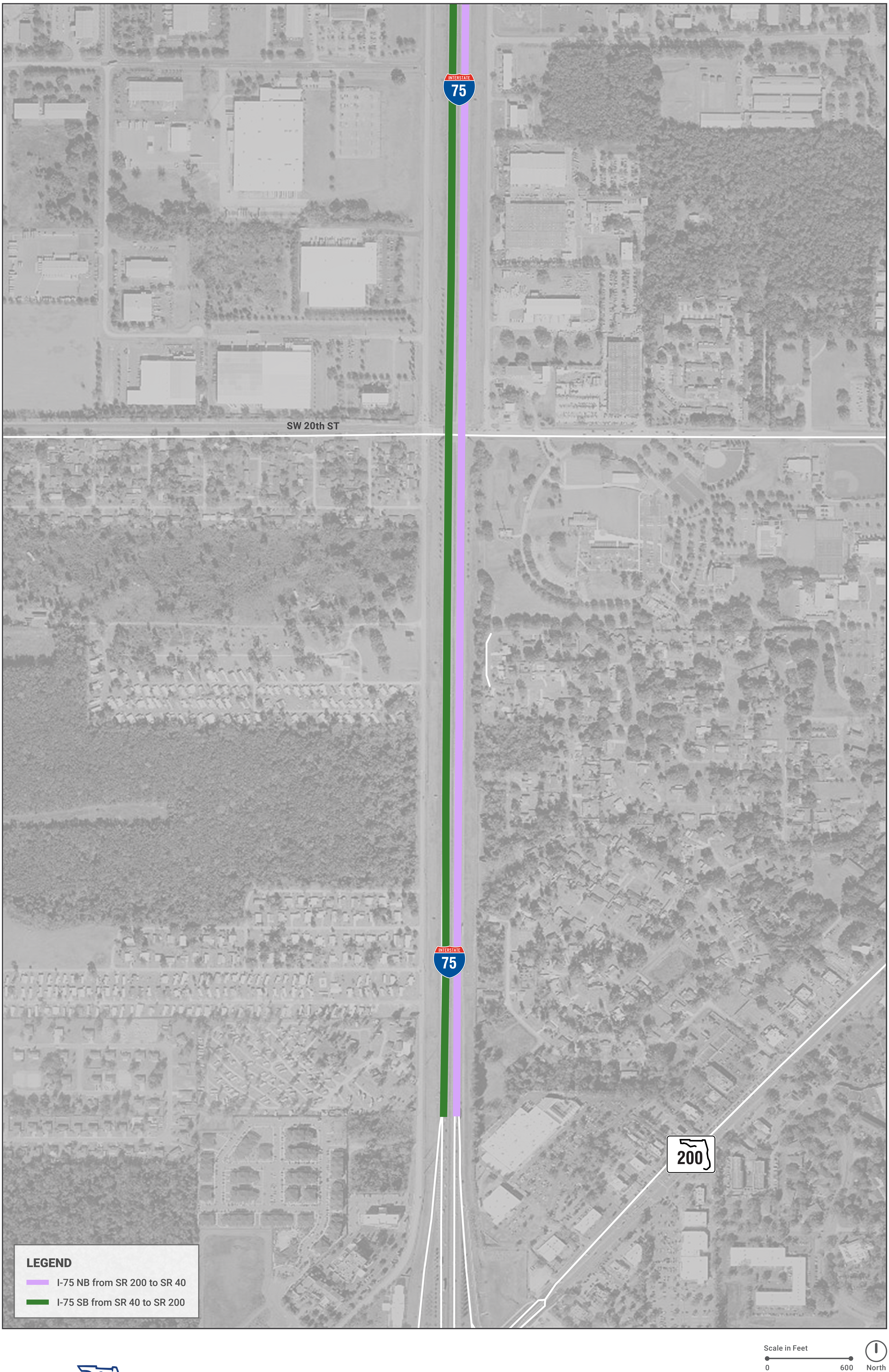
Crash records were obtained from the University of Florida's Signal Four (S4) crash database for I-75 and associated interchanges within this PTAR's AOI. The safety analysis was performed for the most recent five years of crash data (January 1, 2018 – December 31, 2022). Supplemental crash data from 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[2].

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 10** and **Figure 43**. 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**.

Table 10: I-75 Study Segments

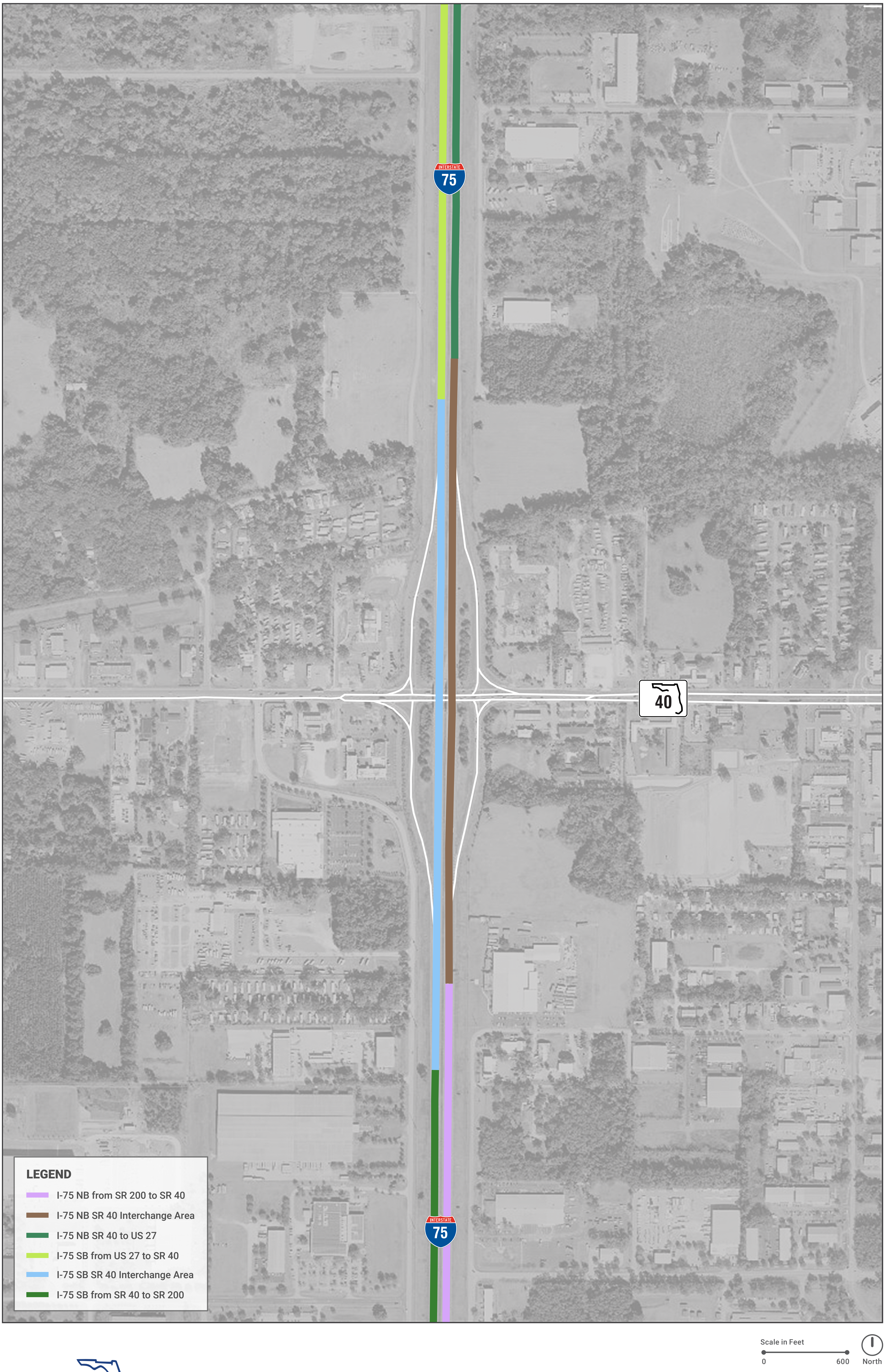
Location	Roadway ID	Begin MP	End MP	Total Length
I-75 Northbound				
SR 200 to SR 40	36210000	14.353	16.089	1.736
SR 40 Interchange Area	36210000	16.089	16.793	0.704
SR 40 to US 27	36210000	16.793	17.469	0.676
US 27 Interchange Area	36210000	17.469	18.217	0.748
US 27 to SR 326	36210000	18.217	21.753	3.536
SR 326 Interchange Area	36210000	21.753	22.485	0.732
I-75 Southbound				
SR 326 Interchange Area	36210000	22.556	21.691	0.865
SR 326 to US 27	36210000	21.691	18.174	3.517
US 27 Interchange Area	36210000	18.174	17.431	0.743
US 27 to SR 40	36210000	17.431	16.767	0.664
SR 40 Interchange Area	36210000	16.767	16.034	0.733
SR 40 to SR 200	36210000	16.034	14.353	1.681

[2] 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



Mainline Safety and Crash Rate Analysis Limits

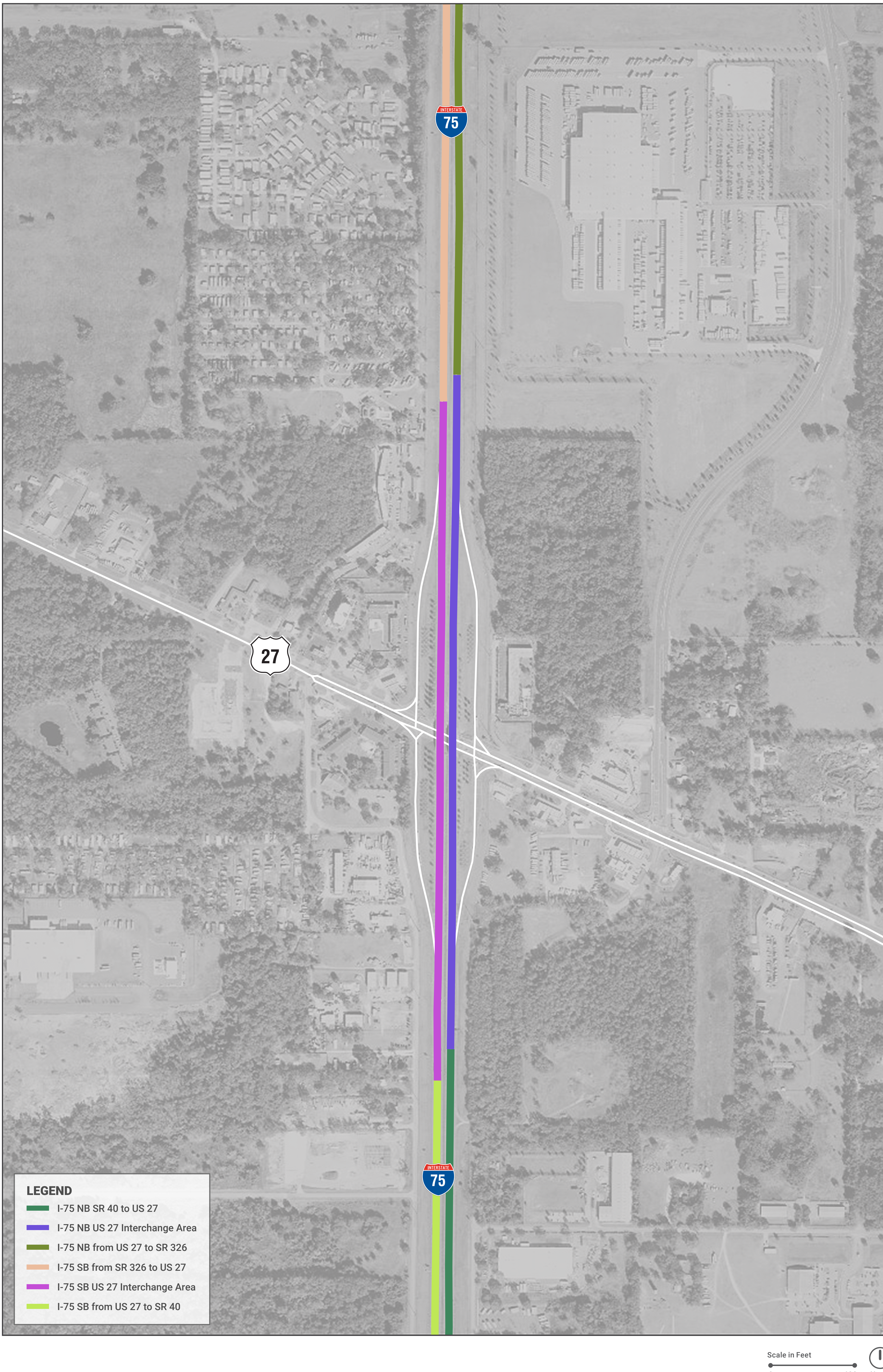
Figure 43 (1 of 6)



I-75 PD&E North

Mainline Safety and Crash Rate Analysis Limits

Figure 43 (2 of 6)



FDOT

I-75 PD&E North

Mainline Safety and Crash Rate Analysis Limits

Figure 43 (3 of 6)

I-75 PD&E North

Mainline Safety and Crash Rate Analysis Limits

Figure 43 (4 of 6)

FDOT

I-75 PD&E North

Mainline Safety and Crash Rate Analysis Limits

Figure 43 (5 of 6)


326
75
LEGEND
I-75 NB from US 27 to SR 326
I-75 NB SR 326 Interchange Area
I-75 SB SR 326 Interchange Area
I-75 SB from SR 326 to US 27
Scale in Feet
0
600
North

I-75 NORTHBOUND CRASH STATISTICS

Figure 44 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 602 reported crashes during this period, 171 of which (28 percent) resulted in 341 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 44**, the crashes per year along the corridor ranged between 128 crashes in 2018 and 101 crashes in 2022. There were 24 crashes in the first three months of 2023 when the crash data was obtained.

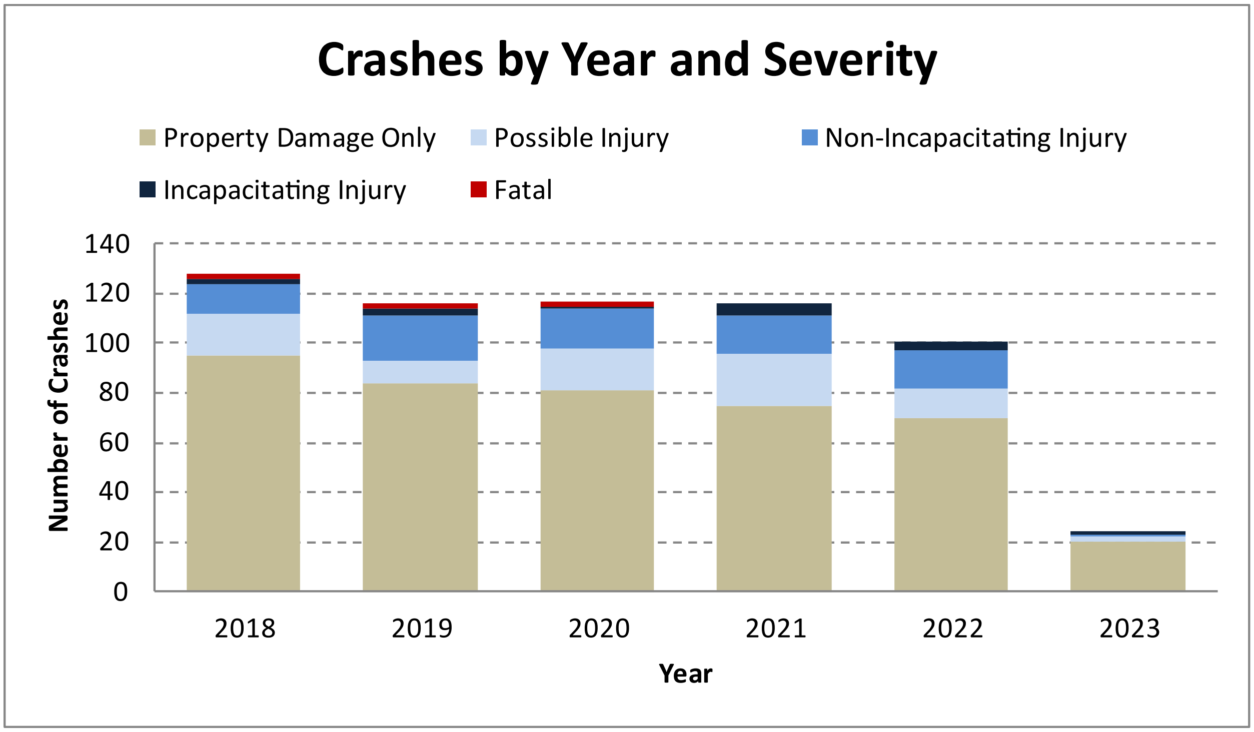


Figure 44: Historical (January 2018 – March 2023) Crashes per Year – I-75 Northbound

Figure 45 displays the crashes along I-75 northbound by type and severity for the study period. The highest crash type observed was rear end, comprising 43 percent of the total crashes. Fixed object/run-off road (28 percent) and sideswipe (21 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 77 percent of the injury crashes.

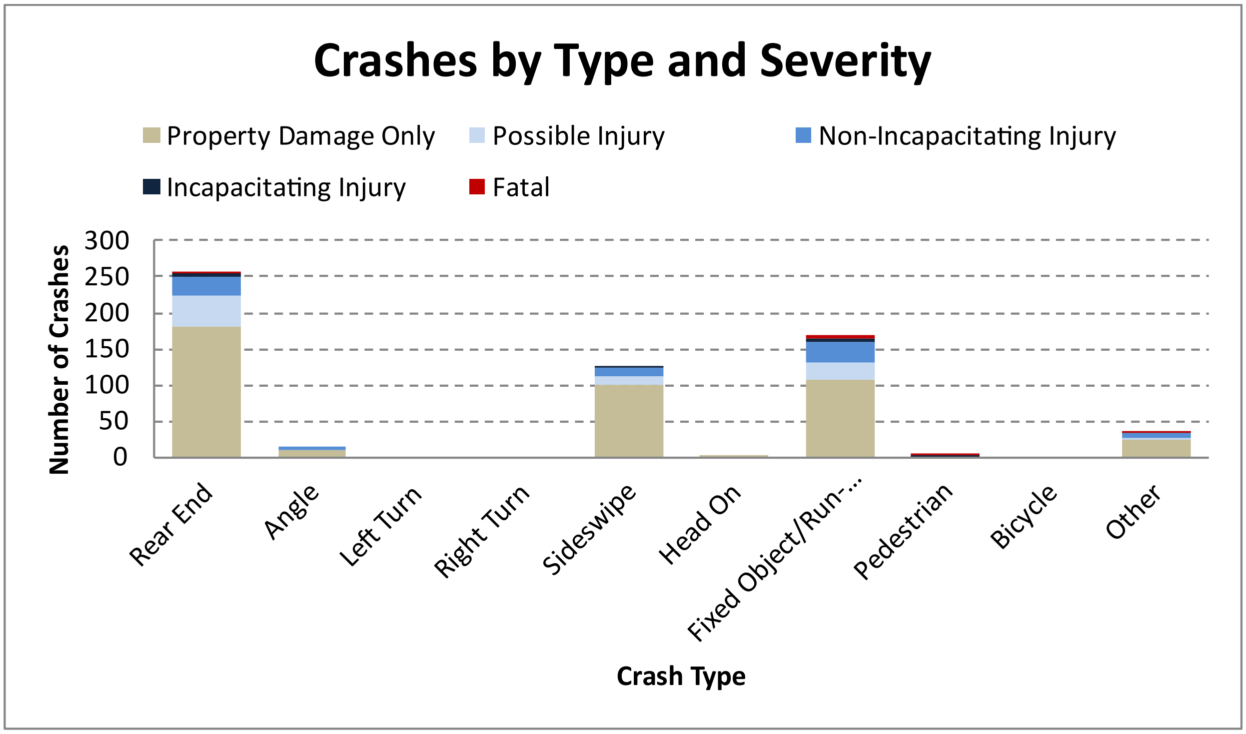


Figure 45: Historical (January 2018 – March 2023) Crashes by Type and Severity – I-75 Northbound

I-75 SOUTHBOUND CRASH STATISTICS

Figure 46 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 662 reported crashes, 170 of which (26 percent) resulted in 380 injuries. Four 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 46**, the crashes per year along the corridor ranged between 135 and 151 crashes pre-COVID (2018-2019), but an approximate 44 percent reduction in crashes was observed in 2020 (80 crashes) largely due to the travel restrictions during COVID. Post-COVID crash frequency increased in 2021 (126 crashes) and in 2022 (127 crashes). There were 43 crashes in the first three months of 2023 when the crash data was obtained.

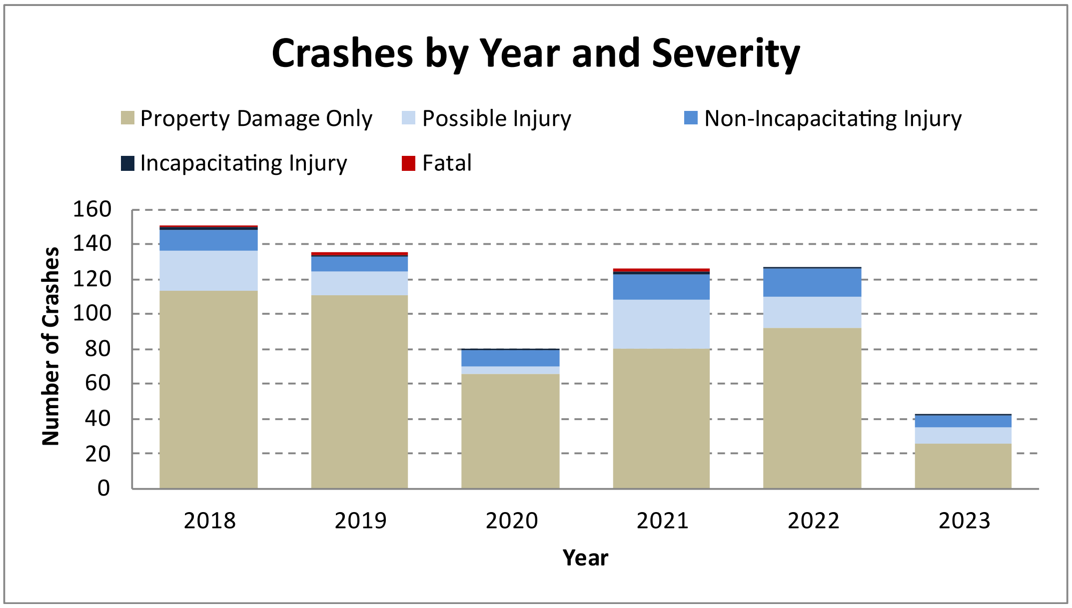


Figure 46: Historical (January 2018 – March 2023) Crashes per Year – I-75 Southbound

Figure 47 displays the crashes along I-75 southbound by type and severity for the study period. The highest crash type observed was rear end, comprising 60 percent of the total crashes. Sideswipe (18 percent) and fixed object/run-off road (17 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounting for 80 percent of the injury crashes.

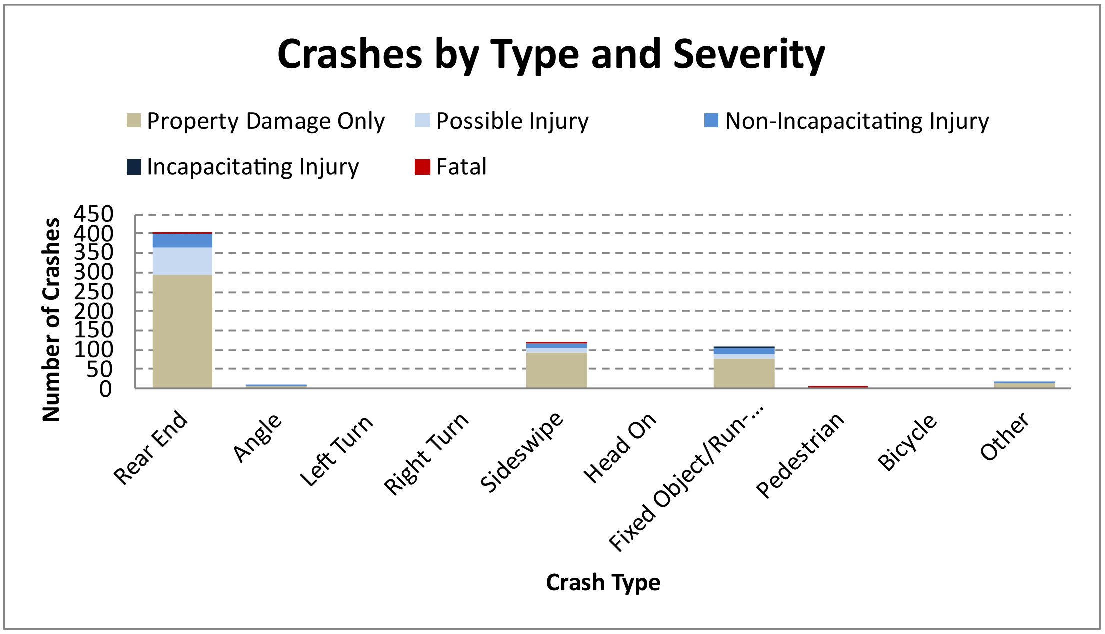


Figure 47: Historical (January 2018 – March 2023) Crashes by Type and Severity – I-75 Southbound

INTERCHANGE RAMP CRASH STATISTICS

In addition to the I-75 mainline study segments, the US 27 interchange ramp crashes were summarized to identify high crash ramps based on crash frequency. **Table 11** displays each of the ramps, the total number of crashes, and the total number of injury crashes (no fatal crashes were observed). The I-75 northbound off-ramp had the highest ramp crash frequency and the I-75 southbound off-ramp had the highest injury crash frequency of each of the US 27 ramps. The SR 40 and SR 326 ramp crash statistics are discussed under separate cover in ongoing Interchange Access Request documents.

Table 11: Historical (January 2018 – March 2023) Interchange Ramp Crash Statistics

Interchange	Ramps	Total Number of Crashes	Total Number of Injury Crashes
US 27	I-75 NB Off-Ramp	13	3
	I-75 NB On-Ramp	5	4
	I-75 SB Off-Ramp	11	5
	I-75 SB On-Ramp	9	4
Total		**38**	**16**

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, the US 27 interchange ramp terminal intersection crashes were summarized to identify high crash ramp terminal intersections based on crash frequency. **Table 12** 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, the I-75 and US 27 southbound ramp terminal (56 crashes) had the highest ramp terminal intersection crash frequency. Rear end was the highest crash type and left turn was the second highest crash type for both ramp terminal intersections. The SR 40 and SR 326 ramp terminal crash statistics are discussed under separate cover in ongoing Interchange Access Request documents.

Table 12: 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
US 27	**I-75 SB Ramp Terminal**	**56**	**16**	**Rear End – 32%**	**Left Turn – 30%**
	I-75 NB Ramp Terminal	43	17	Rear End – 42%	Left Turn – 33%

Bold indicates the intersection with the highest crash frequency

CONTRIBUTING FACTORS

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. Potential contributing factors relating to these crash types are discussed below:

- **Rear End and Sideswipe**
  - Recurring congestion related to AM and PM peak hour traffic volumes;
  - Non-recurring congestion related to crashes, disabled vehicles, etc.;
  - Abrupt speed changes and slow-downs related to the vertical curves from the bridges over SR 40, US 27 and SR 326;
  - 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 the US 27 off-ramps was rear end crashes. The highest crash types for US 27 on-ramps varied between rear end, sideswipe, and fixed object/run-off road. 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; and
  - Fixed object/run-off road crashes can occur due to the driver attention shift to merging mainline traffic combined with potential horizontal deflection as the ramp approaches the mainline.

RAMP TERMINAL INTERSECTIONS

Rear end was the highest crash type and left turn was the second highest crash type for the US 27 ramp terminals. Potential contributing factors relating to these crash types are discussed below:

- **Rear End**
  - Recurring congestion related to AM and PM peak hour traffic volumes; 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

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

- **Crash Number 871472810 –**
  The fatal crash at MP 22.319 occurred on Thursday February 8, 2018 at 12:16 AM on I-75 southbound by the SB On-Ramp from SR 326. The crash involved a sideswipe crash on dry road surface during dark-not lighted conditions. A vehicle drove into the on-ramp gore area next to the mainline and sideswiped a vehicle traveling southbound. After the collision, the vehicle travelled across the on-ramp and collided with another vehicle parked on the shoulder. The crash resulted in one fatality.

- **Crash Number 872330340 –**
  The fatal crash occurred on August 13, 2018 at 12:55 PM on I-75 northbound, north of SR 200 at MP 14.779. The crash involved four vehicles on dry road surface during cloudy daylight conditions. The first collision occurred when a vehicle merging onto I-75 from the SR 200 entrance ramp struck another vehicle traveling northbound I-75 in the center lane. This resulted in a chain of collisions involving two more vehicles travelling on I-75 northbound. It was reported that the driver at fault was under the influence of drugs when crash occurred. The crash resulted in two fatalities.

- **Crash Number 871498520 –**
  The fatal crash occurred on September 4, 2018 at 6:30 AM on I-75 northbound, near SR 40 at MP 16.186. The fixed object/run-off road crash involved a single vehicle on dry road surface during dark-not lighted conditions. The vehicle was traveling northbound on I-75 in the outside lane when it went off the roadway onto the outside (grass) shoulder and collided with a tree after traveling approximately 210 feet. It was reported that the driver was under the influence of drugs. The crash resulted in one fatality.

- **Crash Number 880657270 –**
  The fatal crash at MP 22.369 occurred on Monday February 4, 2019 at 2:40 AM on I-75 southbound by the SB Off-Ramp to SR 326. The crash involved a pedestrian on a dry road surface during cloudy dark-lighted conditions. A vehicle was stopped on the outside lane on I-75 partially obstructing the exit ramp. The driver was outside of the vehicle as another vehicle rear ended the stopped vehicle, making the stopped vehicle collide with the driver. Alcohol was involved, and the crash resulted in one fatality and one injury.

- **Crash Number 880557280 –**
  The fatal crash occurred on February 7, 2019 at 10:36 PM on I-75 northbound, north of US 27 at MP 18.735. The fixed object/run-off road crash involved a single vehicle on dry road surface during dark-not lighted conditions. The vehicle was traveling northbound on I-75 in the center lane when the left rear tire failed, causing the driver to lose control and leave the roadway onto the outside shoulder. It was reported that the vehicle was stolen, and the driver was actively fleeing. Blood test indicated the driver was under the influence of drugs when the crash occurred. The crash resulted in one fatality.

- **Crash Number 881702090 –**
  The fatal crash occurred on July 20, 2019 at 3:45 AM on I-75 northbound, north of US 27 at MP 19.213. The fixed object/run-off road crash involved a single vehicle on dry road surface during cloudy dark-not lighted conditions. The vehicle was traveling northbound on I-75 in the outside lane when the driver lost control, causing the vehicle to leave the roadway. The vehicle was overturned before coming to final rest in a ditch on the east shoulder of I-75 northbound where the driver was ejected. Blood test indicated the driver was under the influence of alcohol when the crash occurred. The crash resulted in one fatality.

- **Crash Number 881347520 –**
  The fatal crash occurred on March 12, 2020 at 7:20 AM on I-75 northbound, north of SR 200 at MP 15.079. The rear end crash involved three vehicles on dry road surface during dawn conditions. The first vehicle was traveling directly behind the second vehicle. The front of the first vehicle collied with the rear, right side of the second vehicle when it failed to slow for traffic. As result, the driver of the first vehicle was ejected into one of the northbound lanes of I-75. A third vehicle, which was travelling behind the first vehicle collided with the ejected driver of the first vehicle, who was pronounced deceased on scene. No alcohol or drugs were involved, and the crash resulted in one fatality.

- **Crash Number 883555660–**
  The fatal crash occurred on June 1, 2020 at 10:50 PM on I-75 northbound by the US 27 interchange at MP 17.616. The crash involved a pedestrian on dry road surface during clear dark-lighted conditions. A pedestrian was walking westbound across the I-75 northbound lanes when struck by a vehicle traveling northbound. The crash resulted in one pedestrian fatality.

- **Crash Number 884299590–**
  The fatal crash occurred on January 19, 2021 at 8:27 PM on I-75 southbound by the US 27 interchange at MP 18.022. The rear end crash involved two vehicles, one of which being a tractor trailer, on dry road surface during clear dark-lighted conditions. Both vehicles were travelling southbound in the outside lane of I-75. The tractor trailer was hauling rebar while traveling directly in front of the second vehicle. The front of the second vehicle collided with the rebar that was extended rearward past the end of the tractor trailer. The rebar broke through the second vehicle's windshield and continued through until the front of the second vehicle struck the rear end of the tractor trailer. Both vehicles came to the final rest on the west shoulder of I-75 where it caught on fire. The crash resulted in two fatalities.

- **Crash Number 882182110 –**
  The fatal crash at MP 22.369 occurred on Tuesday March 2, 2021 at 7:43 PM on I-75 southbound near the SR 326 interchange. The crash involved a pedestrian on dry road surface during cloudy dark-lighted conditions. A pedestrian was crossing I-75 from west to east and was struck by a vehicle traveling southbound. The vehicle became disabled after the collision and obstructed the left lane. Alcohol was involved and the crash resulted in one fatality, one serious injury, and one minor injury. This initial crash led to a secondary crash which resulted in a serious injury to the driver that struck the disabled vehicle in the roadway.

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[3] 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 13**. **Table 14** and **Table 15** provide a statewide crash rate and safety ratio summary for the I-75 segments and the ramp terminal intersections.

The following location is experiencing a statewide safety ratio >1:

- I-75 Southbound, SR 326 Interchange Area (2018 & 2019)

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

[3] 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 13: Roadway Segment/Intersection Types and Average Crash Rates

Segment/Intersection	Type	Facility Type	Statewide Year 2018	Statewide Year 2019
I-75 Mainline	Segment	Interstate Urban	0.980	0.956
I-75 & US 27 NB Ramp Terminal	Intersection	Ramp Urban, 3-leg	1.455	1.293
I-75 & US 27 SB Ramp Terminal	Intersection	Ramp Urban, 3-leg	1.455	1.293

Table 14: 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 200 to SR 40	1.643	1.679	0.979	0.995	1.569	0.634
I-75 Northbound, SR 40 Interchange Area	1.908	2.062	0.925	1.710	1.966	0.870
I-75 Northbound, SR 40 to US 27	0.791	2.054	0.385	0.501	2.024	0.247
I-75 Northbound, US 27 Interchange Area	1.078	2.001	0.539	1.381	1.978	0.698
I-75 Northbound, US 27 to SR 326	0.842	1.440	0.585	0.854	1.419	0.602
I-75 Northbound, SR 326 Interchange Area	0.708	2.067	0.343	0.509	2.033	0.250
I-75 Southbound, SR 326 Interchange Area	**2.220**	**2.017**	**1.101**	**2.001**	**1.996**	**1.002**
I-75 Southbound, SR 326 to US 27	1.189	1.456	0.816	1.157	1.447	0.800
I-75 Southbound, US 27 Interchange Area	1.954	2.047	0.954	1.142	1.996	0.572
I-75 Southbound, US 27 to SR 40	0.880	2.115	0.416	1.165	2.006	0.581
I-75 Southbound, SR 40 Interchange Area	1.844	2.043	0.902	0.954	1.902	0.501
I-75 Southbound, SR 40 to SR 200	0.908	1.662	0.546	0.823	1.544	0.533

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

Table 15: 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 & US 27 NB Ramp Terminal	0.633	2.393	0.265	0.708	2.193	0.323
I-75 & US 27 SB Ramp Terminal	1.166	2.442	0.477	0.778	2.238	0.348

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

HISTORICAL CRASH ANALYSIS SUMMARY

Figure 48 shows the injury and fatal crashes by location and **Figure 49** shows the crashes by location and type for the I-75 mainline.

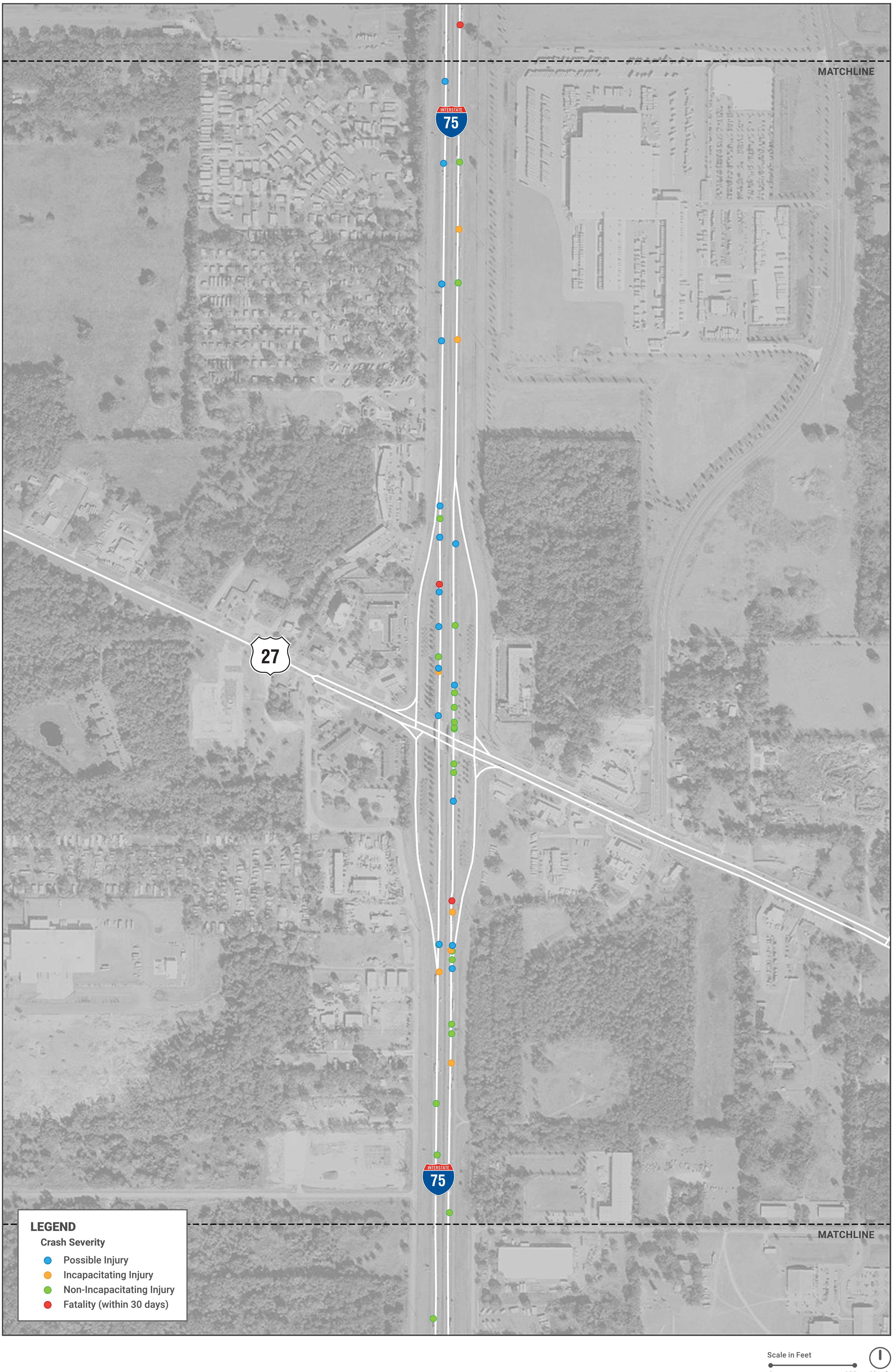
Scale in Feet
0 600
North

FDOT

Mainline Injury and Fatal Crashes

Figure 48 (1 of 6)


MATCHLINE
INTERSTATE
75
40
MATCHLINE
LEGEND
Crash Severity
Possible Injury
Incapacitating Injury
Non-Incapacitating Injury
Fatality (within 30 days)
Scale in Feet
0
600
North

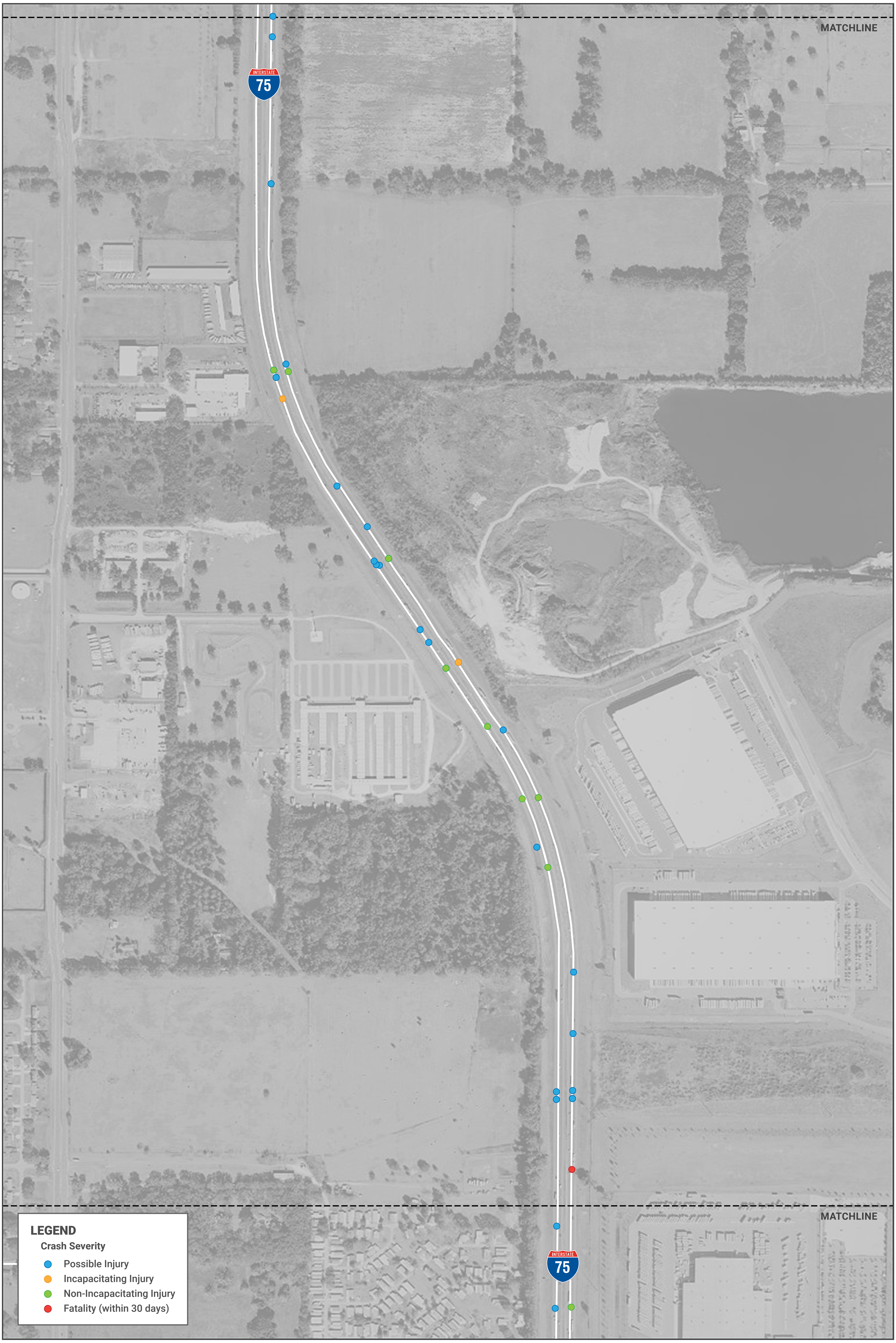


FDOT

I-75 PD&E North

Mainline Injury and Fatal Crashes

Figure 48 (3 of 6)

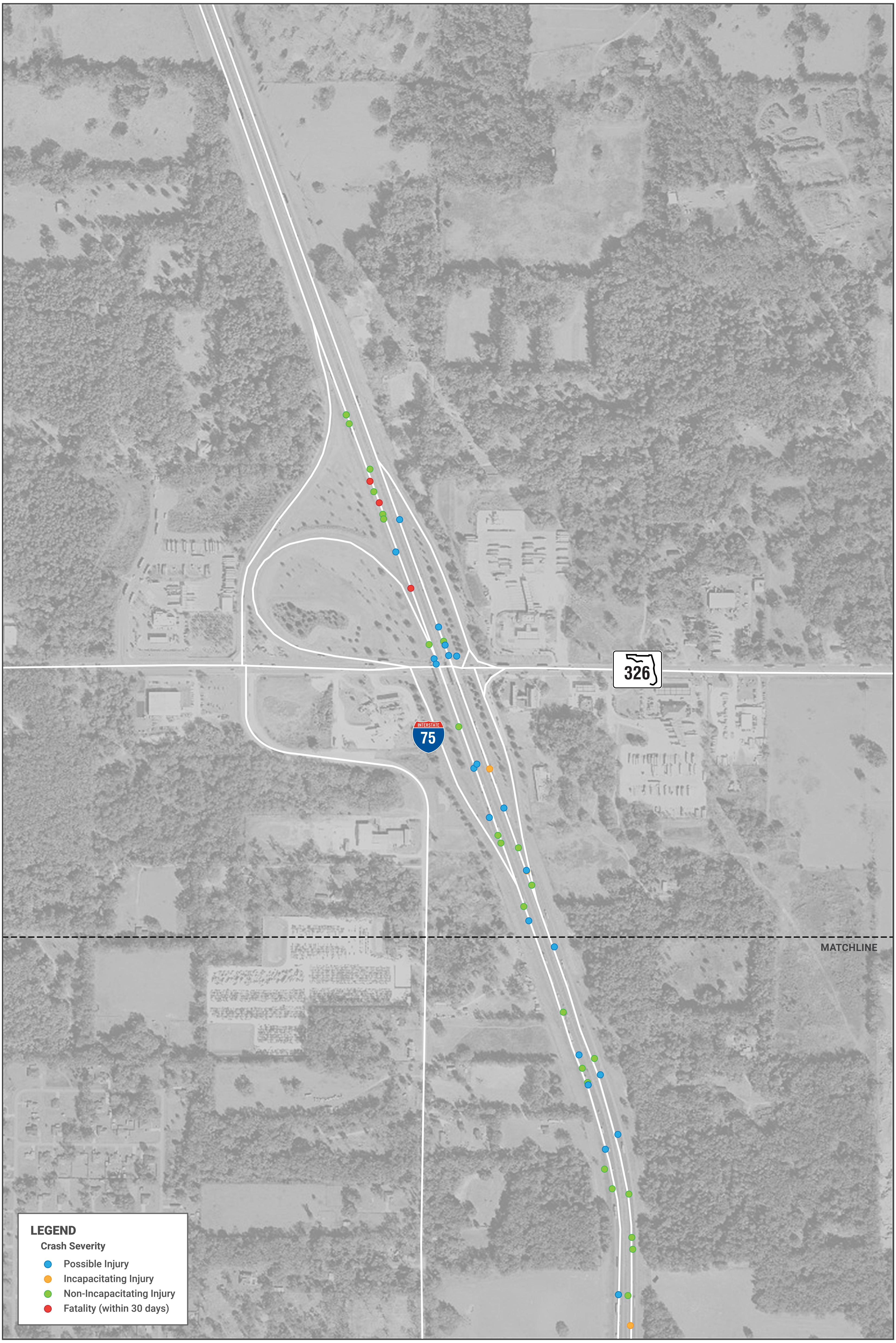

MATCHLINE
75
75
MATCHLINE
LEGEND
Crash Severity
Possible Injury
Incapacitating Injury
Non-Incapacitating Injury
Fatality (within 30 days)
Scale in Feet
0
600
North

FDOT

I-75 PD&E North

Mainline Injury and Fatal Crashes

Figure 48 (5 of 6)



FDOT

I-75 PD&E North

Mainline Injury and Fatal Crashes

Figure 48 (6 of 6)

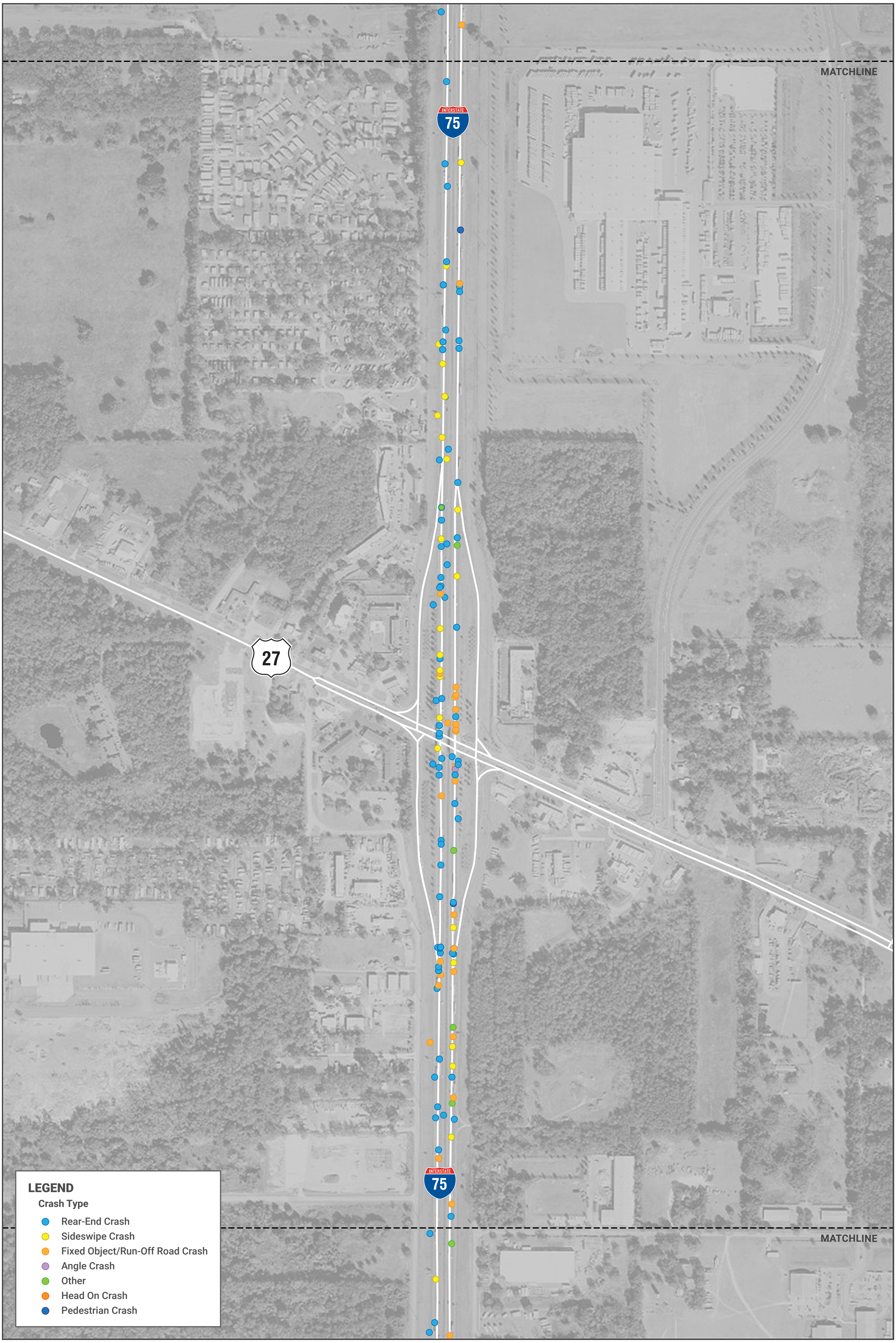

MATCHLINE
INTERSTATE 75
SW 20th ST
75
200
LEGEND
Crash Type
Rear-End Crash
Sideswipe Crash
Fixed Object/Run-Off Road Crash
Angle Crash
Other
Head On Crash
Pedestrian Crash
Scale in Feet
0
600
North

FDOT

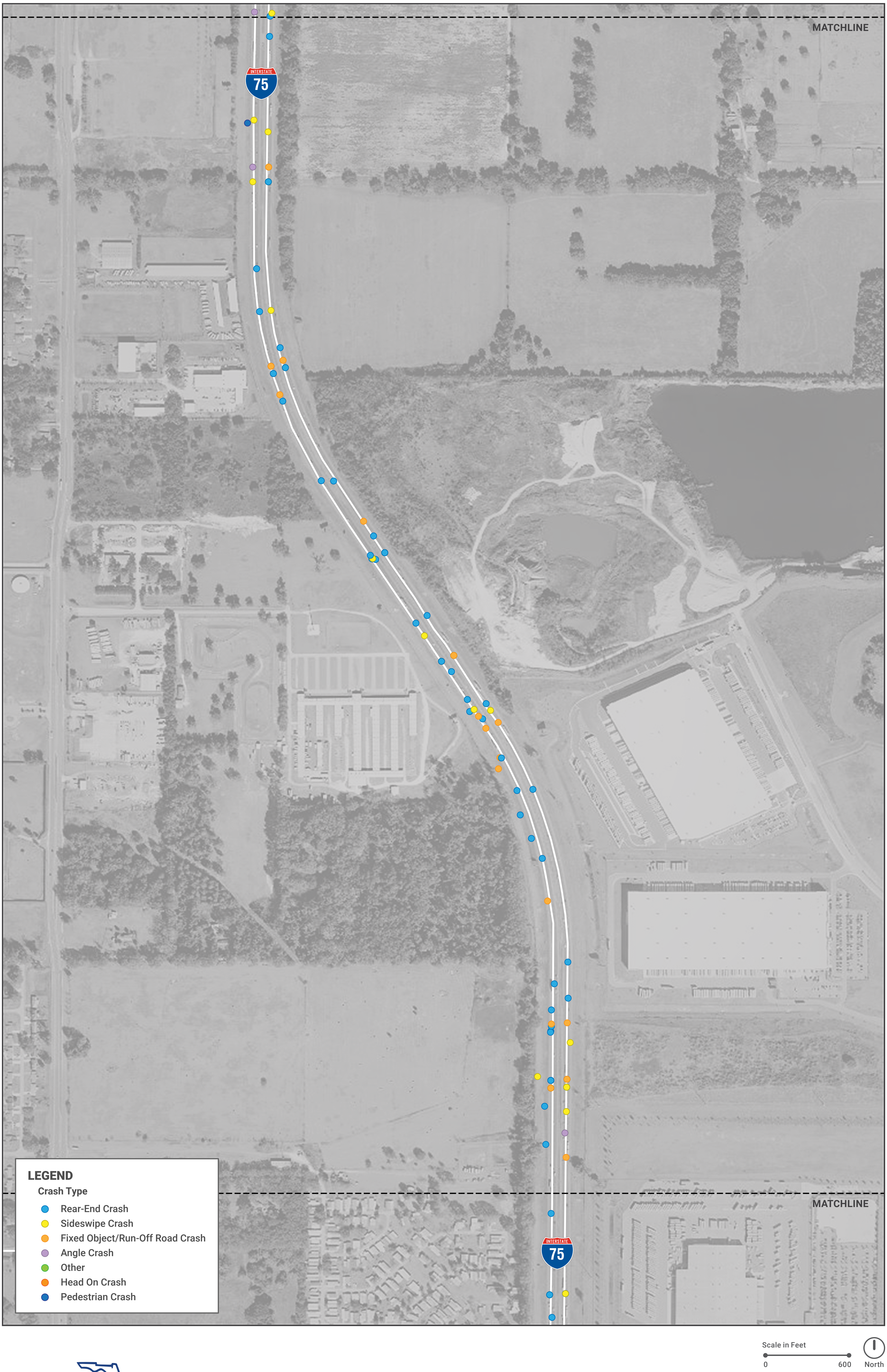
I-75 PD&E North

Mainline Crashes by Location and Type

Figure 49 (2 of 6)



MATCHLINE
75
27
75
MATCHLINE
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

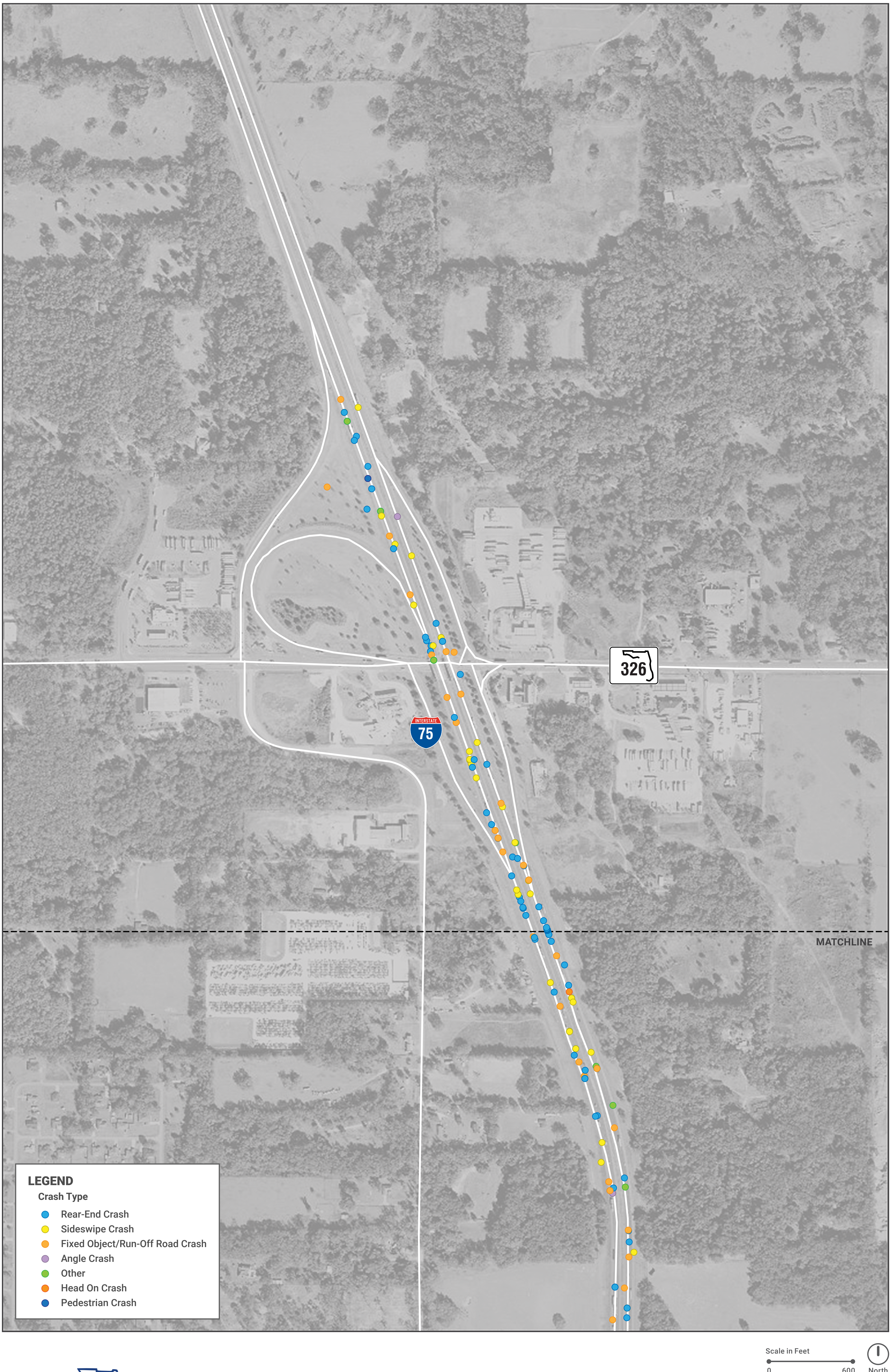
Figure 49 (4 of 6)

FDOT

I-75 PD&E North

Mainline Crashes by Location and Type

Figure 49 (5 of 6)



FDOT

I-75 PD&E North

Mainline Crashes by Location and Type

Figure 49 (6 of 6)

EXISTING CONDITIONS SUMMARY

The existing conditions analysis evaluated typical recurring congestion patterns, the occurrence of non-recurring 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.

NON-RECURRING 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.
- 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 reliable in the northbound direction during the weekends. The southbound LoTTR charts show that the data indicates the corridor is nearing unreliable conditions on the weekends.

HISTORICAL SAFETY ANALYSIS

- The safety data showed a total of 602 reported crashes along I-75 northbound during this period, 171 of which (28 percent) resulted in 341 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 43 percent of the total crashes. Fixed object/run-off road (28 percent) and sideswipe (21 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 77 percent of the injury crashes.
- A total of 662 reported crashes were observed along I-75 southbound, 170 of which (26 percent) resulted in 380 injuries. Four fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 60 percent of the total crashes. Sideswipe (18 percent) and fixed object/run-off road (17 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounting for 80 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 Southbound, SR 326 Interchange Area (2018 & 2019)

SUMMARY

The evaluation of typical recurring congestion patterns, the occurrence of non-recurring 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 50**. The subarea model boundary was selected to include the major facilities in the vicinity of the north and south study segments as well as adjacent interchange(s) 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 51 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 16** 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 50: Subarea Model Boundaries

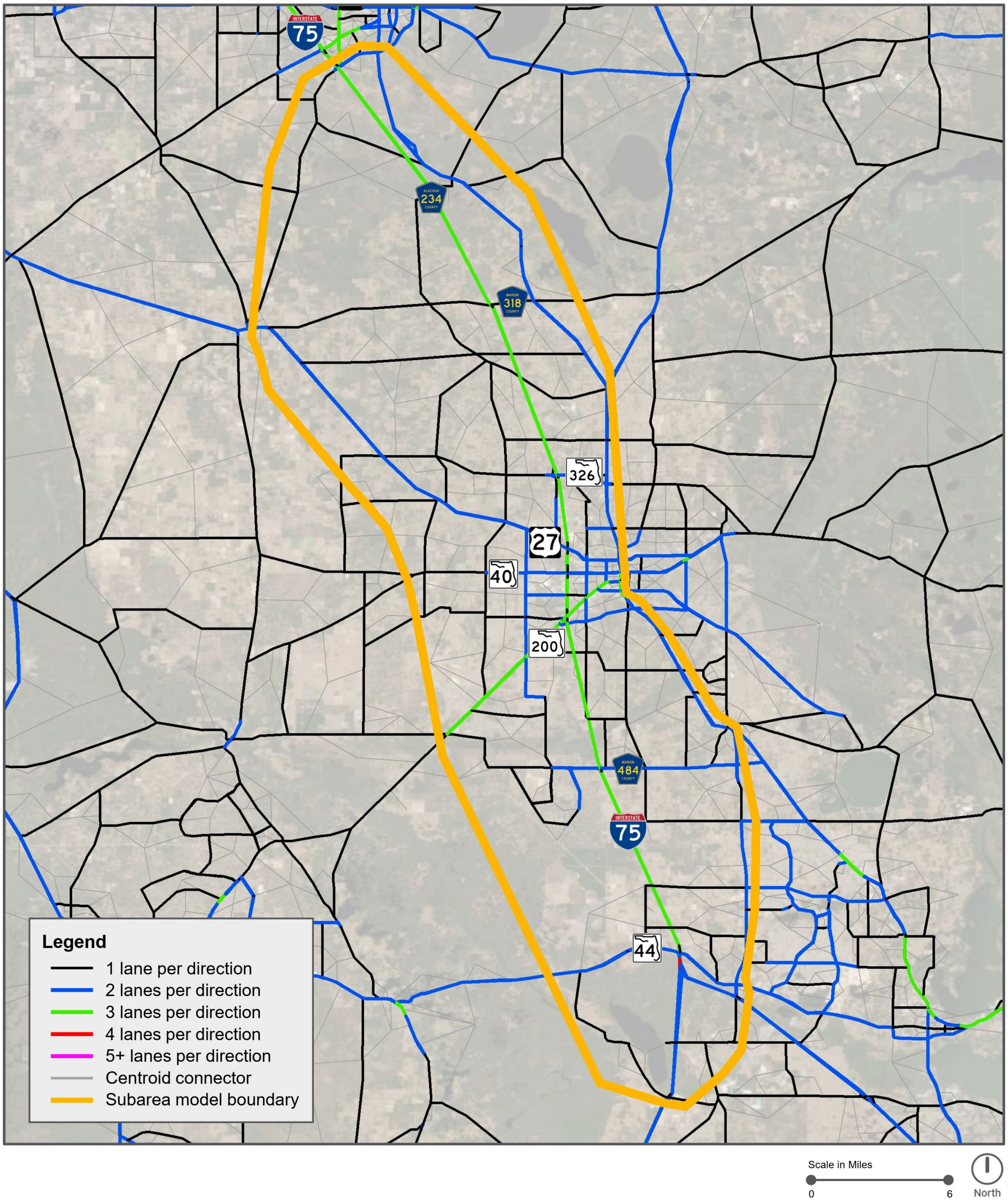


Figure 51: Base Year (2015) Volume-to-Count Comparisons

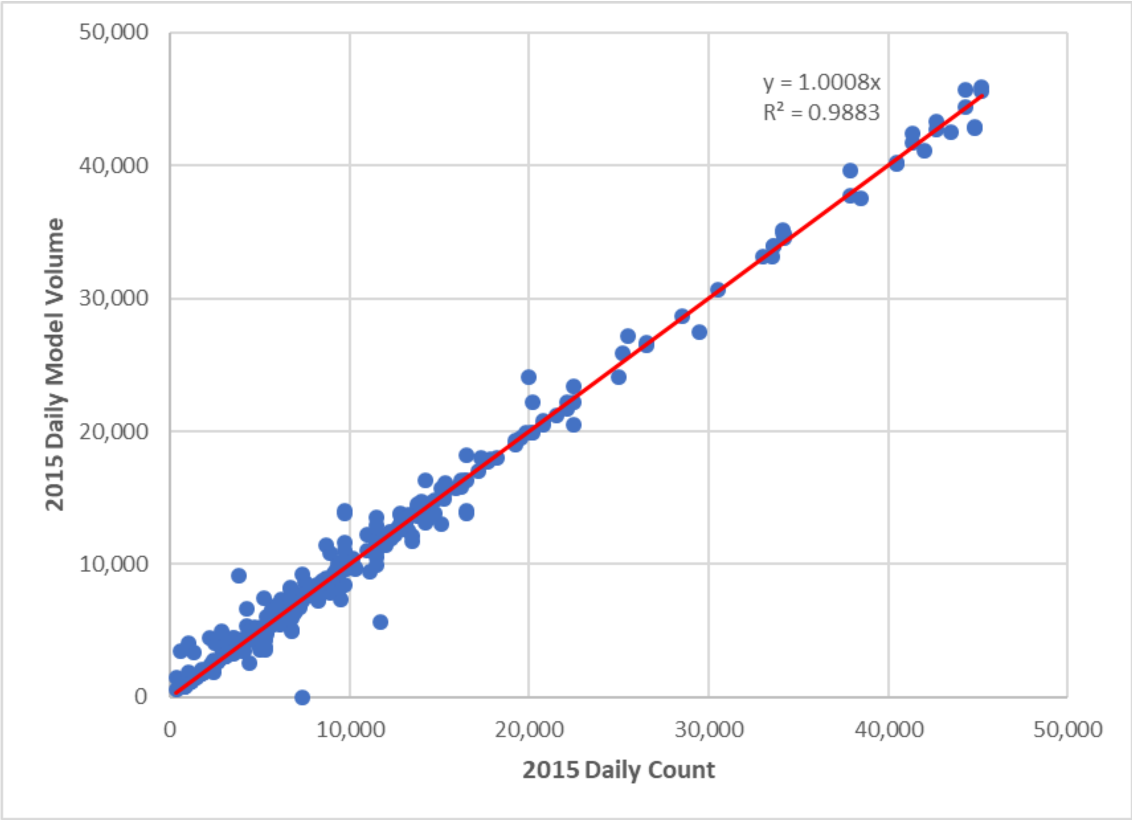


Table 16: RMSE% by Daily Volume Group of the Calibrated Subarea Model

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 17**. The VC ratio statistics for all facilities meet the criteria.

Table 17: 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 18 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 18: 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 S.R. 91		20,537	22,500	0.91	23,429	22,500	1.04	43,966	45,000	0.98
S.R. 91	S.R. 44	42,749	42,700	1.00	43,329	42,700	1.01	86,078	85,400	1.01
S.R. 44	C.R. 484	41,744	41,350	1.01	42,416	41,350	1.03	84,160	82,700	1.02
C.R. 484	S.R. 200	44,461	44,300	1.00	45,676	44,300	1.03	90,137	88,600	1.02
S.R. 200	S.R. 40	45,865	45,200	1.01	45,602	45,200	1.01	91,467	90,400	1.01
S.R. 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
S.R. 326	C.R. 318	34,919	34,150	1.02	35,137	34,150	1.03	70,056	68,300	1.03
C.R. 318	C.R. 234	34,819	34,200	1.02	34,571	34,200	1.01	69,390	68,400	1.01
North of C.R. 234		33,952	33,600	1.01	33,939	33,600	1.01	67,891	67,200	1.01

A manual review of all ramp volumes within the study limits was 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}).

STANDARD K

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 approach utilizes a recommended K factor range. A K factor of 9.0 percent was recommended for study roadway segments (arterials, freeways, and ramps) from SR 200 through SR 326.

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 19** 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 19: Recommended D Factors

Roadway	Recommended D-Factor					
	AM Peak Hour		PM Peak Hour		Weekend Peak Hour	
	D	Direction	D	Direction	D	Direction
I-75	59.0%	NB/EB	58.8%	SB/WB	51.2%	NB/EB
SR 40 west of I-75	54.6%	NB/EB	56.1%	SB/WB	51.9%	NB/EB
SR 40 east of I-75	56.4%	NB/EB	52.9%	SB/WB	52.6%	NB/EB
US 27 west of I-75	59.9%	NB/EB	56.9%	SB/WB	52.3%	SB/WB
US 27 east of I-75	59.4%	NB/EB	53.9%	SB/WB	51.2%	SB/WB
SR 326 west of I-75	59.9%	NB/EB	54.7%	SB/WB	50.8%	SB/WB
SR 326 east of I-75	55.8%	NB/EB	53.7%	NB/EB	51.3%	SB/WB

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 20**. 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 20: Recommended Truck Factors

Roadway	Weekday		Weekend	
	T	DHT	T	DHT
I-75	21.9%	10.9%	21.9%	10.9%
SR 40 west of I-75	12.7%	6.4%	7.7%	3.8%
SR 40 east of I-75	11.7%	5.9%	7.6%	3.8%
US 27 west of I-75	13.3%	6.6%	8.4%	4.2%
US 27 east of I-75	12.4%	6.2%	8.2%	4.1%
SR 326 west of I-75	29.7%	14.8%	20.6%	10.3%
SR 326 east of I-75	24.1%	12.0%	12.7%	6.4%

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 22 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 21 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 between north of SR 200 and north of SR 326. The historical AADTs, linear historical growth rates, and respective R^2 values for each station along SR 40, its I-75 ramps, and intersecting arterials are summarized in **Table 22**. The historical AADT information is also presented in **Table 23** and **Table 24,** for US 27 and SR 326, respectively.

Table 21: Historical AADTs and Historical Growth Rates - I-75 Mainline

Year	I-75, NORTH OF SR 200 Site 360440	I-75, SOUTH OF US 27 Site 360439	I-75, NORTH OF US 27 Site 360438	I-75, NORTH OF SR 326 Site 360437
2018	76,000	78,500	78,500	64,000
2017	78,500	75,000	76,000	56,500
2016	74,500	88,500	68,000	50,500
2015	59,000	69,500	65,500	47,500
2014	60,500	69,000	62,500	50,500
2013	69,000	63,500	61,500	52,500
2012	60,000	65,000	64,000	55,000
2011	65,500	67,500	65,000	51,500
2010	71,000	69,000	55,500	51,500
2009	67,000	62,000	56,500	52,500
2008	69,000	64,000	58,500	50,000
2007	84,500	77,500	69,000	56,500
2006	78,500	73,500	70,000	68,000
2005	82,000	73,500	70,500	55,500
2004	74,500	73,000	68,500	63,000
2003	78,000	72,500	61,000	51,500
Annual Linear Growth Rate	-0.8%	0.4%	0.7%	-0.4%
R^2	14.57%	3.91%	10.06%	3.78%

Source: 2018 Florida Traffic Online

Table 22: Historical AADTs and Historical Growth Rates - SR 40 Arterial and Ramps

Year	I-75 NB OFF RAMP TO SR 40 Site 362008	I-75 NB ON RAMP FROM SR 40 Site 362009	I-75 SB OFF RAMP TO SR 40 Site 362010	I-75 SB ON RAMP FROM SR 40 Site 362011	SR 40, WEST OF I-75 Site 360476	SR 40, EAST OF I-75 Site 360032
2018	6,300	5,300	4,900	5,900	31,500	30,000
2017	6,200	5,200	4,800	5,800	28,500	31,500
2016	5,900	4,900	4,600	5,500	30,500	32,500
2015	5,700	4,500	4,500	5,200	28,500	29,500
2014	5,300	4,600	4,200	5,000	26,500	28,000
2013	5,200	4,700	4,300	5,100	25,500	29,500
2012	4,900	4,400	3,800	4,700	24,500	28,500
2011	5,300	3,400	4,600	5,200	25,500	28,500
2010	5,400	4,700	4,400	4,700	25,500	29,500
2009	5,100	4,500	4,200	4,900	26,500	27,500
2008	5,500	4,700	4,200	5,100	27,500	30,500
2007	5,800	4,700	4,400	5,600	28,500	31,500
2006	6,300	5,200	4,500	5,900	29,000	34,000
2005	6,000	5,200	4,600	4,700	28,000	32,500
2004	5,500	4,900	4,800	5,300	26,000	31,500
2003	5,500	4,600	4,400	5,200	22,000	31,500
Annual Linear Growth Rate	0.2%	0.0%	0.2%	0.4%	1.0%	-0.4%
R^2	2.09%	0.15%	1.99%	6.86%	24.78%	11.90%

Source: 2018 Florida Traffic Online

Table 23: Historical AADTs and Historical Growth Rates - US 27 Arterial and Ramps

Year	I-75 NB OFF RAMP TO US 27 Site 362012	I-75 NB ON RAMP FROM US 27 Site 362013	I-75 SB OFF RAMP TO US 27 Site 362014	I-75 SB ON RAMP FROM US 27 Site 362015	US 27, WEST OF I-75 Site 360459	US 27, EAST OF I-75 Site 360033
2018	7,400	2,200	2,500	7,700	22,000	22,500
2017	7,300	2,200	2,500	7,600	20,700	21,500
2016	6,900	2,100	2,400	7,200	20,200	21,000
2015	5,900	2,000	2,100	6,300	18,700	22,000
2014	5,900	2,000	2,400	6,200	18,000	21,000
2013	5,900	2,100	2,500	6,000	16,800	19,900
2012	5,500	1,800	2,200	5,700	16,600	19,600
2011	5,600	1,900	2,200	6,100	17,400	19,900
2010	5,600	2,100	2,200	5,900	16,900	21,000
2009	5,700	1,900	2,400	6,100	17,500	22,000
2008	5,600	1,900	2,400	6,100	25,000	22,000
2007	6,800	2,300	2,600	7,300	28,000	25,000
2006	6,200	2,400	2,500	6,700	28,000	26,000
2005	5,800	2,100	2,900	6,800	21,000	25,000
2004	6,300	2,400	2,600	6,500	25,000	25,000
2003	5,600	2,100	2,500	5,800	19,200	24,000
Annual Linear Growth Rate	1.2%	-0.6%	-0.8%	0.9%	-1.4%	-1.2%
R^2	23.61%	6.22%	18.13%	13.90%	15.64%	44.11%

Source: 2018 Florida Traffic Online

Table 24: Historical AADTs and Historical Growth Rates - SR 326 Arterial and Ramps

Year	I-75 NB OFF RAMP TO SR 326 Site 362016	I-75 NB ON RAMP FROM SR 326 Site 362017	I-75 SB OFF RAMP TO SR 326 Site 362018	I-75 SB ON RAMP FROM SR 326 EB Site 362019	I-75 SB ON RAMP FROM SR 326 WB Site 362024	SR 326, EAST OF I-75 Site 360465
2018	11,000	3,600	4,800	4,100	6,600	22,000
2017	11,000	3,500	4,700	4,000	6,500	22,500
2016	10,500	3,300	4,500	3,800	6,200	22,000
2015	10,000	4,500	4,100	3,400	6,600	19,500
2014	9,900	4,100	4,300	3,400	6,800	16,800
2013	9,100	3,800	3,600	2,900	6,000	18,800
2012	8,700	4,400	3,900	2,100	4,900	18,300
2011	9,300	3,800	3,200	1,900	6,600	19,200
2010	8,100	4,000	3,600	2,000	6,600	19,100
2009	9,500	3,700	3,500	2,000	7,000	18,900
2008	7,200	3,600	3,000	1,700	5,900	19,800
2007	10,500	4,000	2,900	1,800	6,000	21,000
2006	10,500	4,300	4,900	1,900	8,100	22,500
2005	14,000	4,600	4,500	1,900	7,900	22,500
2004	10,500	4,200	3,500	1,600	7,700	22,500
2003	8,900	3,900	3,500	1,500	7,600	22,000
Annual Linear Growth Rate	0.0%	-0.8%	2.0%	14.4%	-1.3%	-0.5%
R^2	0.00%	17.56%	20.01%	84.45%	27.80%	6.64%

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 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 25**. Growth rates range from approximately 0.31 percent to 1.88 percent. BEBR population study data is included in **Appendix N.**

Table 25: BEBR Population Growth Rates

County and Estimation	2019 Estimate	2045 Projections	Annual Growth Rate, Growth/Year (%)
		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 26**
- SR 40 Arterial and Ramps – **Table 27**
- US 27 Arterial and Ramps – **Table 28**
- SR 326 Arterial and Ramps – **Table 29**

The observed model growth rates trends are summarized below:

- I-75 Mainline
  - Approximately 2.1 to 2.4 percent per year between SR 200 to CR 318
- SR 40 Arterial and Ramps
  - Approximately 1.2 per year on SR 40 west of I-75
  - Approximately 2.3 to 2.7 percent per year on the ramps north of SR 40
  - Approximately 0.5 percent per year on the ramps south of SR 40
  - Approximately 1.3 percent per year on SR 40 east of I-75
- US 27 Arterial and Ramps
  - Approximately 2.8 percent per year on US 27 west of I-75
  - Approximately negative 0.8 to negative 0.6 percent per year on the ramps north of US 27
  - Approximately 3.4 to 3.8 percent per year on the ramps south of US 27
  - Approximately 2.1 percent per year on US 27 east of I-75
- SR 326 Arterial and Ramps
  - Approximately 2.1 percent per year on SR 326 west of I-75
  - Approximately 3.9 to 5.4 percent per year on the ramps north of SR 326
  - Approximately 1.7 to 3.6 percent per year on the ramps south of SR 326
  - Approximately 2.8 percent per year on SR 326 east of I-75

It is important to note that there are some ramps (e.g., SR 326 WB to SB I-75 loop ramp) within the study area with relatively low daily model volumes and while the incremental growth was reviewed and considered, historical growth per year was favored over the model growth rates in this instance.

Table 26: Turnpike Statewide Model Growth Rates - I-75 Mainline

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
I-75 from SR 200 to SR 40	88,723	144,604	1,863	2.1%
I-75 from SR 40 to US 27	83,085	142,478	1,980	2.4%
I-75 from US 27 to NW 49th Ave	77,905	125,903	1,600	2.1%
I-75 from NW 49th Ave to SR 326	77,905	131,043	1,771	2.3%
I-75 from SR 326 to CR 318	67,954	113,774	1,527	2.2%

Table 27: Turnpike Statewide Model Growth Rates - SR 40 Arterial and Ramps

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
SR 40 West of I-75	27,794	38,164	346	1.2%
I-75 SB Off Ramp to SR 40	3,609	6,505	97	2.7%
I-75 NB On Ramp from SR 40	3,446	5,869	81	2.3%
I-75 NB Off Ramp to SR 40	6,352	7,209	29	0.5%
I-75 SB On Ramp from SR 40	6,343	7,291	32	0.5%
SR 40 East of I-75	27,764	38,440	356	1.3%

Table 28: Turnpike Statewide Model Growth Rates - US 27 Arterial and Ramps

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
US 27 West of I-75	27,969	51,331	779	2.8%
I-75 SB Off Ramp to US 27	2,318	1,784	-18	-0.8%
I-75 NB On Ramp from US 27	2,176	1,774	-13	-0.6%
I-75 NB Off Ramp to US 27	4,878	10,473	186	3.8%
I-75 SB On Ramp from US 27	4,797	9,660	162	3.4%
US 27 East of I-75	25,814	42,381	552	2.1%

Table 29: Turnpike Statewide Model Growth Rates - SR 326 Arterial and Ramps

Roadway Segment	2015 Model AADT	2045 Model AADT	Annual Volume Growth	Annual Growth Rate
SR 326 West of I-75	21,923	35,726	460	2.1%
I-75 SB Off Ramp to SR 326	3,957	10,407	215	5.4%
I-75 NB On Ramp from SR 326	4,158	9,061	163	3.9%
I-75 NB Off Ramp to SR 326	9,168	19,150	333	3.6%
I-75 SB On Ramp from SR 326 - EB	8,896	13,446	152	1.7%
I-75 SB On Ramp from SR 326 - WB	0	4,140	138	N/A
SR 326 East of I-75	18,904	34,938	534	2.8%

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 30**
- SR 40 Arterial and Ramps - **Table 31**
- US 27 Arterial and Ramps – **Table 32**
- NW 49th Street Arterial and Ramps - **Table 33**
- SR 326 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 along I-75
  - 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 Q**.
- SR 40 Arterial and Ramps
  - 1.06 percent per year along SR 40
  - Between 0.85 percent and 1.96 percent per year along the I-75 ramps
- US 27 Arterial and Ramps
  - 1.45 percent per year along US 27 west of I-75
  - 1.00 percent per year along US 27 east of I-75
  - Between 1.43 percent and 5.65 percent per year along the I-75 ramps.
- SR 326 Arterial and Ramps
  - 3.09 percent per year along SR 326 west of I-75
  - 1.39 percent per year along SR 326 east of I-75

- Between 2.15 percent and 5.36 percent per year along the I-75 ramps

It is important to note that the AADTs and DDHVs summarized in **Table 30** 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, except for the NW 49th Street study intersections. 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. For the NW 49th Street study intersections, the proportion of opening year to design year volumes were referenced from the ongoing Interchange Justification Report (IJR) Re-Evaluation and applied to the 2050 Master Plan volumes to estimate the 2030 volumes. This methodology was selected since the facility doesn't exist in the existing condition. The 2040 volumes at the NW 49th Street interchange were developed based on an interpolation of 2030 and 2050 volumes. Example calculations and excerpts from the IJR are included in **Appendix P**.

The 2030 and 2040 No-Build AADTs are illustrated in **Figure 52** and **Figure 53**. The 2030 and 2040 Build AADTs are shown in **Figure 54** and **Figure 55**, respectively. It is important to note that the demand volumes in the Build figures are the same except for the SR 326 interchange. The SR 326 interchange form is updated under the Build condition and the volumes from the No-Build AADTs were manually reassigned to reflect the Build geometry at this location.

Graphics developed to illustrate the approved 2050 AADTs from the Master Plan are included in **Appendix Q** for reference purposes.

Table 30: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – I-75 Mainline

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 between CR 484 and SR 200*	2.20%	2,180	Model Growth Rate	96,900	143,000	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
I-75 between SR 40 and US 27	N/A	N/A		96,300	N/A	N/A	N/A	102,400	N/A	N/A
I-75 between US 27 and NW 49th Ave	N/A	N/A		84,700	N/A	N/A	N/A	92,700	N/A	N/A
I-75 between NW 49th Ave and SR 326	N/A	N/A		84,700	N/A	N/A	N/A	92,700	N/A	N/A
I-75 between SR 326 and CR 318	N/A	N/A		73,000	N/A	N/A	N/A	78,900	N/A	N/A

*Anchor point location

**The result of balancing and selected in coordination with Florida's Turnpike Enterprise staff.

N/A – future volumes determined based on balancing along the I-75 mainline from the anchor point location.

Table 31: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – SR 40 Arterial and Ramps

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday				Weekend		
				Existing Year AADT	Future AADT 2050	Future DDHV AM Peak Hour 2050	Future DDHV PM Peak Hour 2050	Existing Year AADT	Future AADT 2050	Future DDHV 2050
SR 40 between 40th Ave and I-75 SB ramps	1.06%	n/a	Model Growth Rate	n/a	n/a	1,721	1,933	n/a	n/a	1,299
I-75 SB Off-Ramp to SR 40	1.96%	100	Model Slope	5,100	8,200	756	657	3,800	6,900	593
I-75 SB On-Ramp from SR 40	0.85%	50	Historical AADT/Year	5,900	7,500	510	867	4,200	5,800	551
I-75 NB On-Ramp from SR 40	1.63%	85	Model Slope	5,200	7,800	684	783	4,000	6,600	622
I-75 NB Off-Ramp to SR 40	0.93%	55	Historical AADT/Year	5,900	7,600	840	483	4,100	5,800	484
SR 40 between I-75 NB ramps and SW 33rd Ave	1.06%	355	Model Slope	33,500	44,500	2,259	2,119	25,500	36,500	1,728

n/a - No AADT data available. The approach/departures from the peak hour TMCs were grown to estimate future DDHVs.

Table 32: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – US 27 Arterial and Ramps

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday				Weekend		
				Existing Year AADT	Future AADT 2050	Future DDHV AM Peak Hour 2050	Future DDHV PM Peak Hour 2050	Existing Year AADT	Future AADT 2050	Future DDHV 2050
US 27 between NW 38th Ave and I-75 SB ramps	1.45%	420	Blend of historical trends and model	29,000	42,000	2,264	2,151	28,000	41,000	1,930
I-75 SB Off-Ramp to US 27	4.14%	120	Assumed consistent slope as the reciprocal ramp	2,900	6,600	621	662	2,600	6,300	643
I-75 SB On-Ramp from US 27	1.55%	130	Historical AADT/Year	8,400	12,500	1,080	1,136	7,600	11,500	1,029
I-75 NB On-Ramp from US 27	5.65%	130	Assumed consistent slope as the reciprocal ramp	2,300	6,300	549	508	1,800	5,800	437
I-75 NB Off-Ramp to US 27	1.43%	120	Historical AADT/Year	8,400	12,000	1,125	1,069	6,500	10,000	906
US 27 between I-75 NB ramps and NW 35th Ave	1.00%	310	Average of Model Slope and historical AADT/Year	31,000	40,500	2,165	1,965	27,500	37,000	1,705

n/a - No AADT data available. The approach/departures from the peak hour TMCs were grown to estimate future DDHVs.

Table 33: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – NW 49th Street Arterial and Ramps

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday: Existing Year AADT	Weekday: Future AADT 2050	Weekday: Future DDHV AM Peak Hour 2050	Weekday: Future DDHV PM Peak Hour 2050	Weekend: Existing Year AADT	Weekend: Future AADT* 2050	Weekend: Future DDHV 2050
NW 49th St east of I-75	-	-	2045 AADT Projections from the Approved IJR referenced and grown to 2040 using the applied growth rate from the IJR. Example calcs and excerpts from the Approved IJR are included in Appendix S.	n/a	19,000	950	950	n/a	21,000	1,051
I-75 SB Off-Ramp to NW 49th St	-	-		n/a	4,500	375	444	n/a	5,000	488
I-75 SB On-Ramp from NW 49th St	-	-		n/a	9,500	951	804	n/a	10,500	886
I-75 NB On-Ramp from NW 49th St	-	-		n/a	4,600	444	375	n/a	5,100	412
I-75 NB Off-Ramp to NW 49th St	-	-		n/a	9,900	804	951	n/a	11,000	1,049
NW 49th St west of I-75	-	-		n/a	23,000	1,048	1,048	n/a	25,500	1,162

n/a - No AADT data available.

*Note: Weekend AADTs were estimated by applying a weekend to weekday factor based on 2019 data from TTMS Site #269904 (factor of 1.104) since average weekend conditions were not evaluated as part of the approved IJR document.

Table 34: Recommended Growth Rates, Forecast AADTs, and Forecast DDHVs – SR 326 Arterial and Ramps

Roadway Segment	Recommended Growth Rate	Annual Volume Growth	Notes on Growth Rate Selection	Weekday				Weekend		
				Existing Year AADT	Future AADT 2050	Future DDHV AM Peak Hour 2050	Future DDHV PM Peak Hour 2050	Existing Year AADT	Future AADT 2050	Future DDHV 2050
SR 326 between NW 44th and I-75 SB ramps	3.09%	340	Blend of historical trends and model	11,000	21,500	1,159	1,058	10,500	21,000	960
I-75 SB Off-Ramp to SR 326	5.36%	225	Model Slope	4,200	11,000	611	1,058	4,800	12,000	1,114
I-75 SB On-Ramp from SR 326 - EB	4.41%	150	Model Slope	3,400	8,100	382	234	3,000	7,700	169
I-75 SB On-Ramp from SR 326 - WB	2.15%	140	Model Slope	6,500	11,000	1,489	1,287	8,200	12,500	903
I-75 NB On-Ramp from SR 326	5.15%	170	Model Slope	3,300	8,600	1,144	697	3,100	8,400	731
I-75 NB Off-Ramp to SR 326	3.55%	330	Model Slope	9,300	19,500	1,594	1,521	10,500	20,500	2,573
SR 326 between I-75 NB ramps and Sunoco Gas Station	1.39%	340	Blend of historical trends and model	24,500	35,000	1,758	1,692	28,500	39,000	1,801

n/a - No AADT data available. The approach/departures from the peak hour TMCs were grown to estimate future DDHVs.

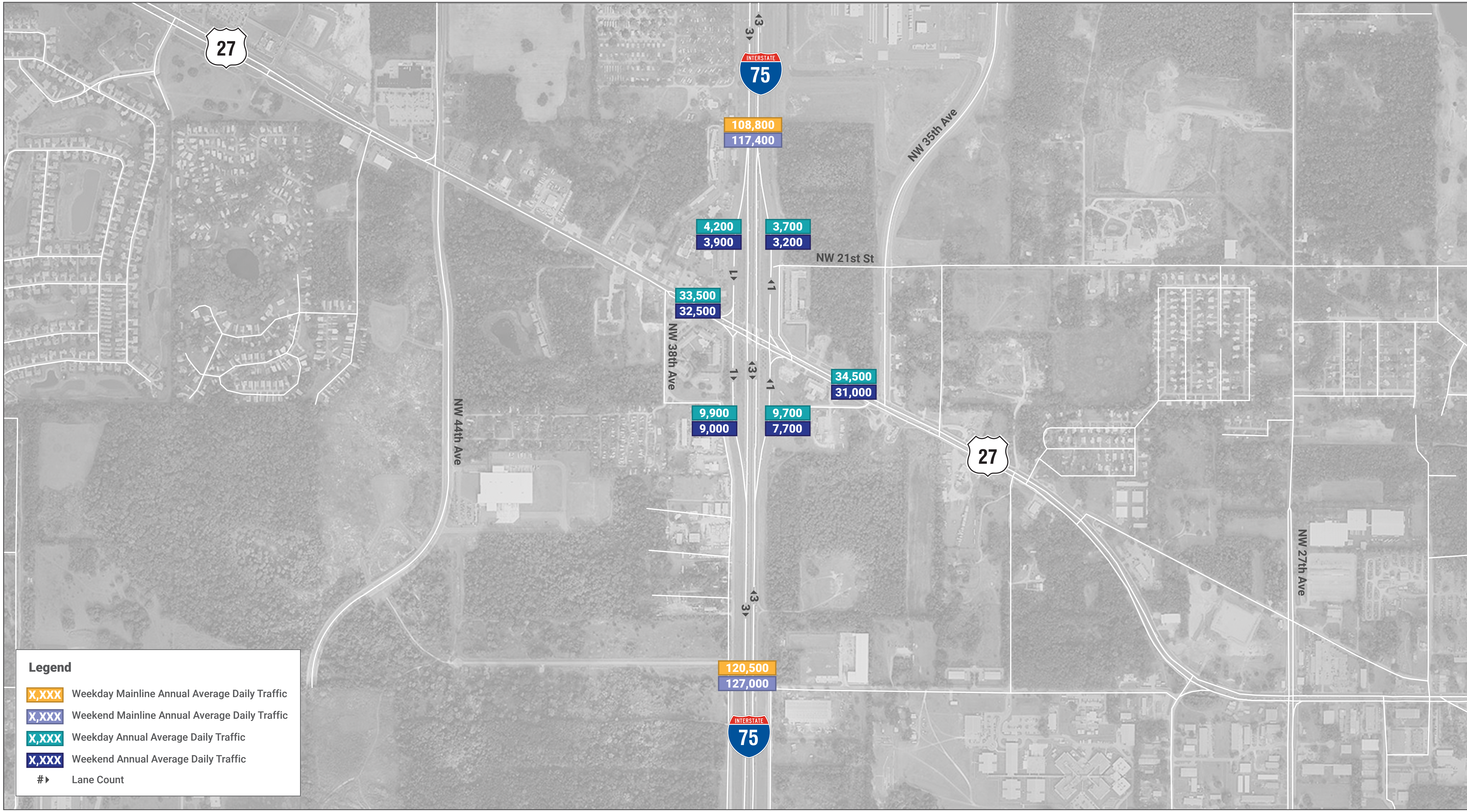
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 No-Build Annual Average Daily Traffic Volumes

Figure 52 (1 of 4)



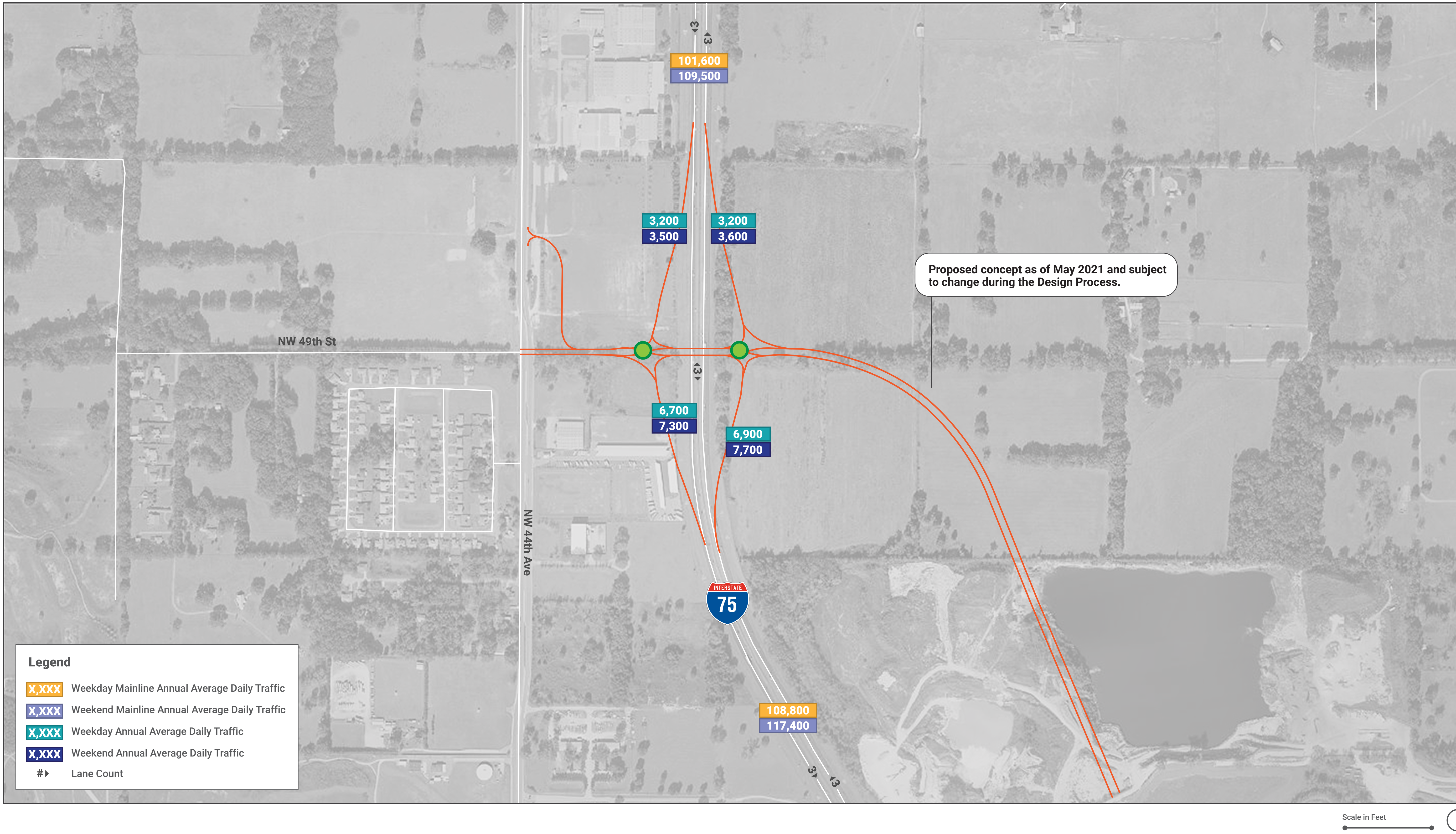
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 No-Build Annual Average Daily Traffic Volumes

Figure 52 (2 of 4)



FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 No-Build Annual Average Daily Traffic Volumes

Figure 52 (3 of 4)

FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 No-Build Annual Average Daily Traffic Volumes

Figure 52 (4 of 4)

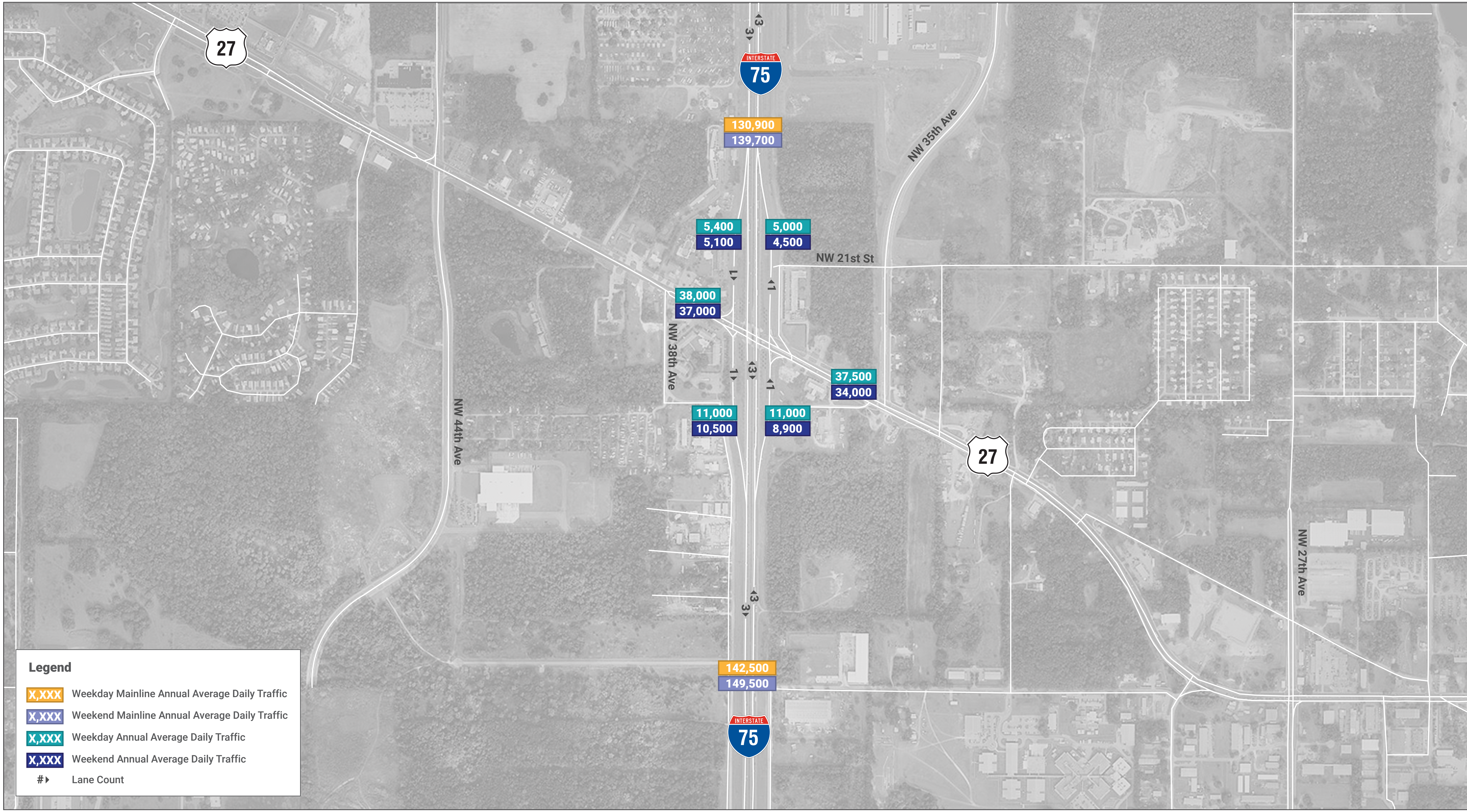
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 No-Build Annual Average Daily Traffic Volumes

Figure 53 (1 of 4)



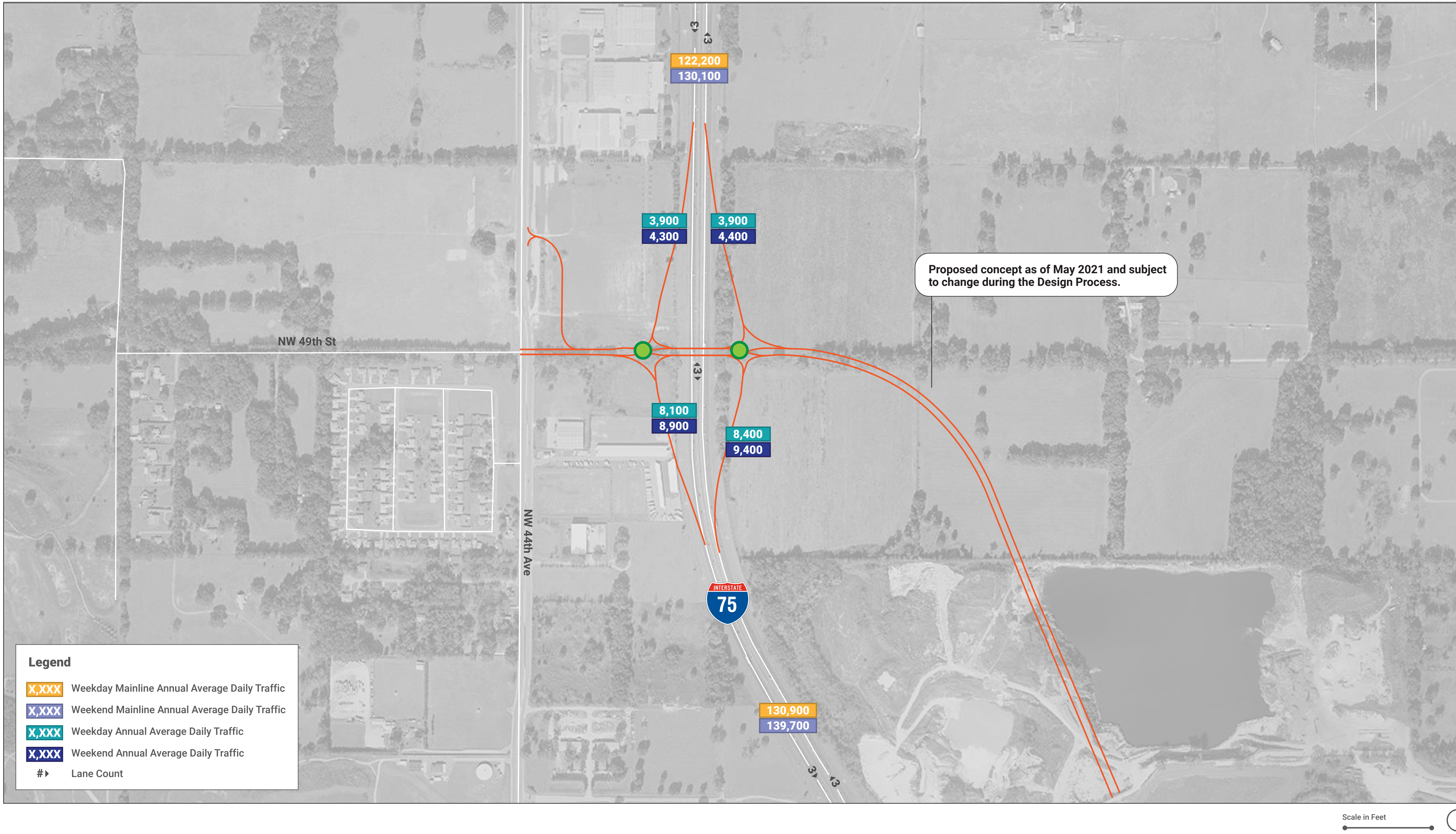
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2040 No-Build Annual Average Daily Traffic Volumes

Figure 53 (2 of 4)



I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 No-Build Annual Average Daily Traffic Volumes

Figure 53 (3 of 4)

FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 No-Build Annual Average Daily Traffic Volumes

Figure 53 (4 of 4)

FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 Build Annual Average Daily Traffic Volumes

Figure 54 (1 of 4)

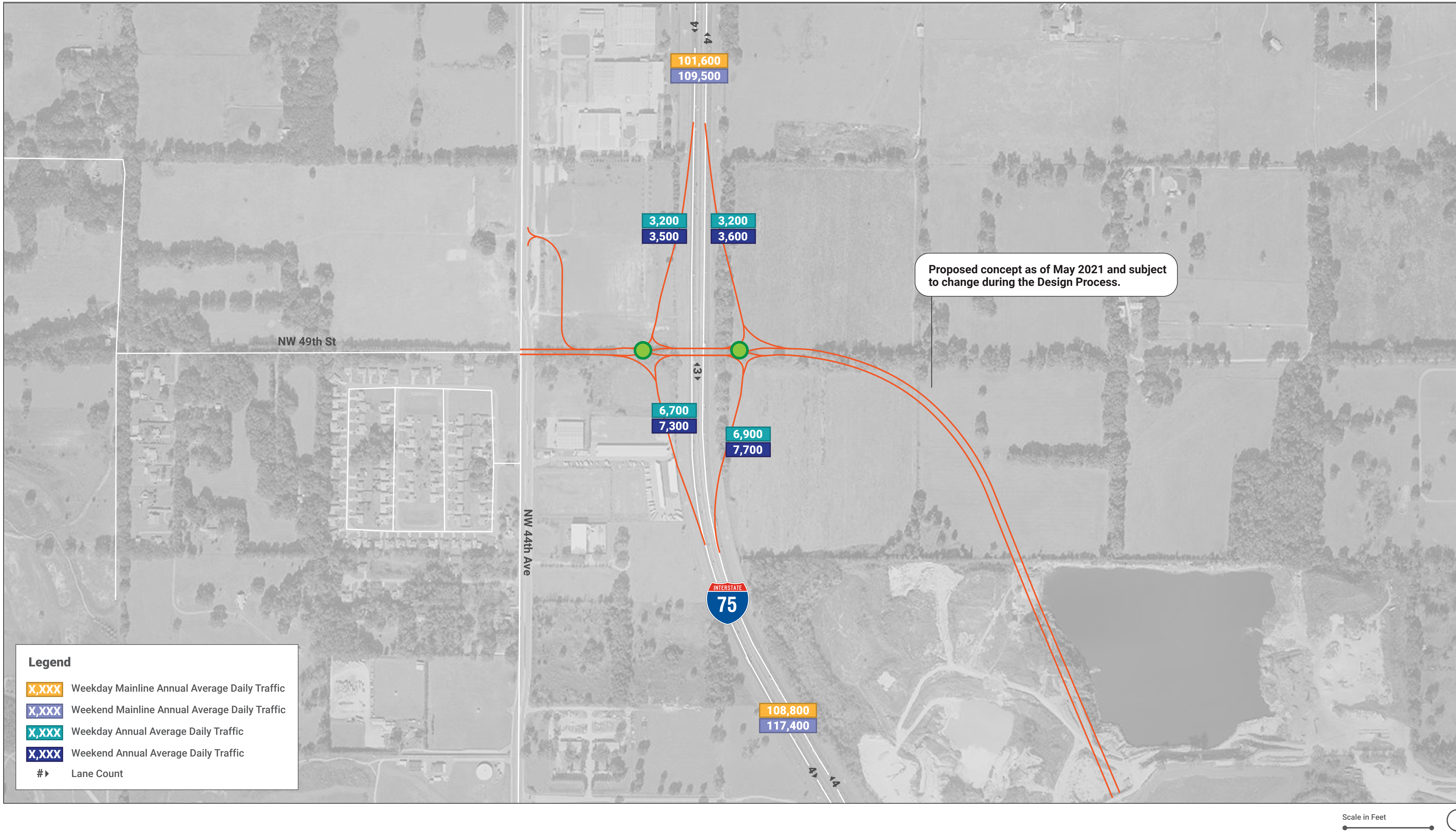
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 Build Annual Average Daily Traffic Volumes

Figure 54 (2 of 4)



FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 Build Annual Average Daily Traffic Volumes

Figure 54 (3 of 4)

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 Build Annual Average Daily Traffic Volumes

Figure 54 (4 of 4)

FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 Build Annual Average Daily Traffic Volumes

Figure 55 (1 of 4)

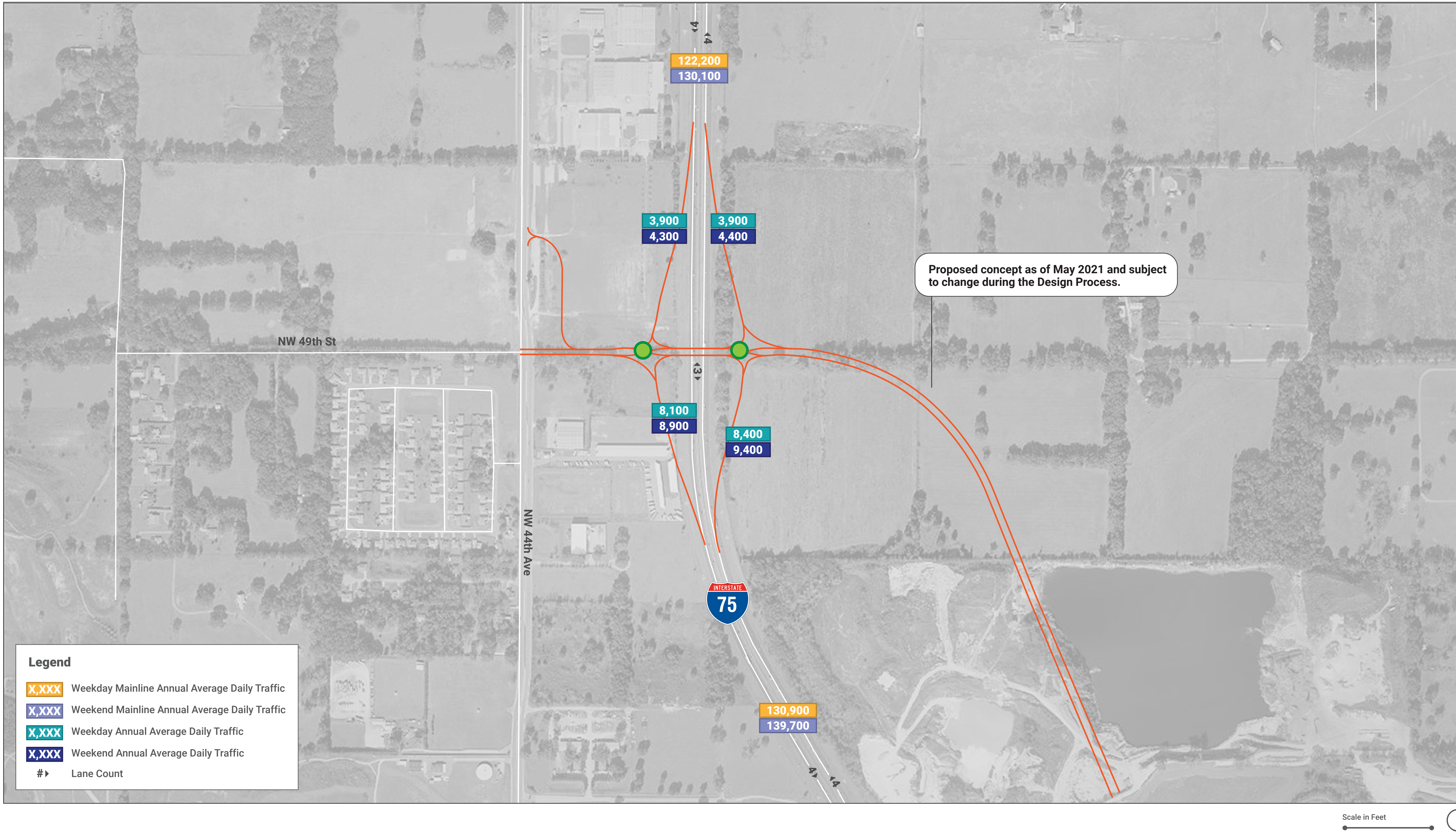
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2040 Build Annual Average Daily Traffic Volumes

Figure 55 (2 of 4)



FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative
SR 200 to SR 326

2040 Build Annual Average Daily Traffic Volumes
Figure 55 (3 of 4)

FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 Build Annual Average Daily Traffic Volumes

Figure 55 (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 R** .

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 40 and I-75 northbound on-ramp from SR 40), 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. U-turn movements were considered at the unsignalized median opening intersections and signalized intersections as they are prevalent in the existing condition due to the existing access/geometry along some of the arterials.

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.

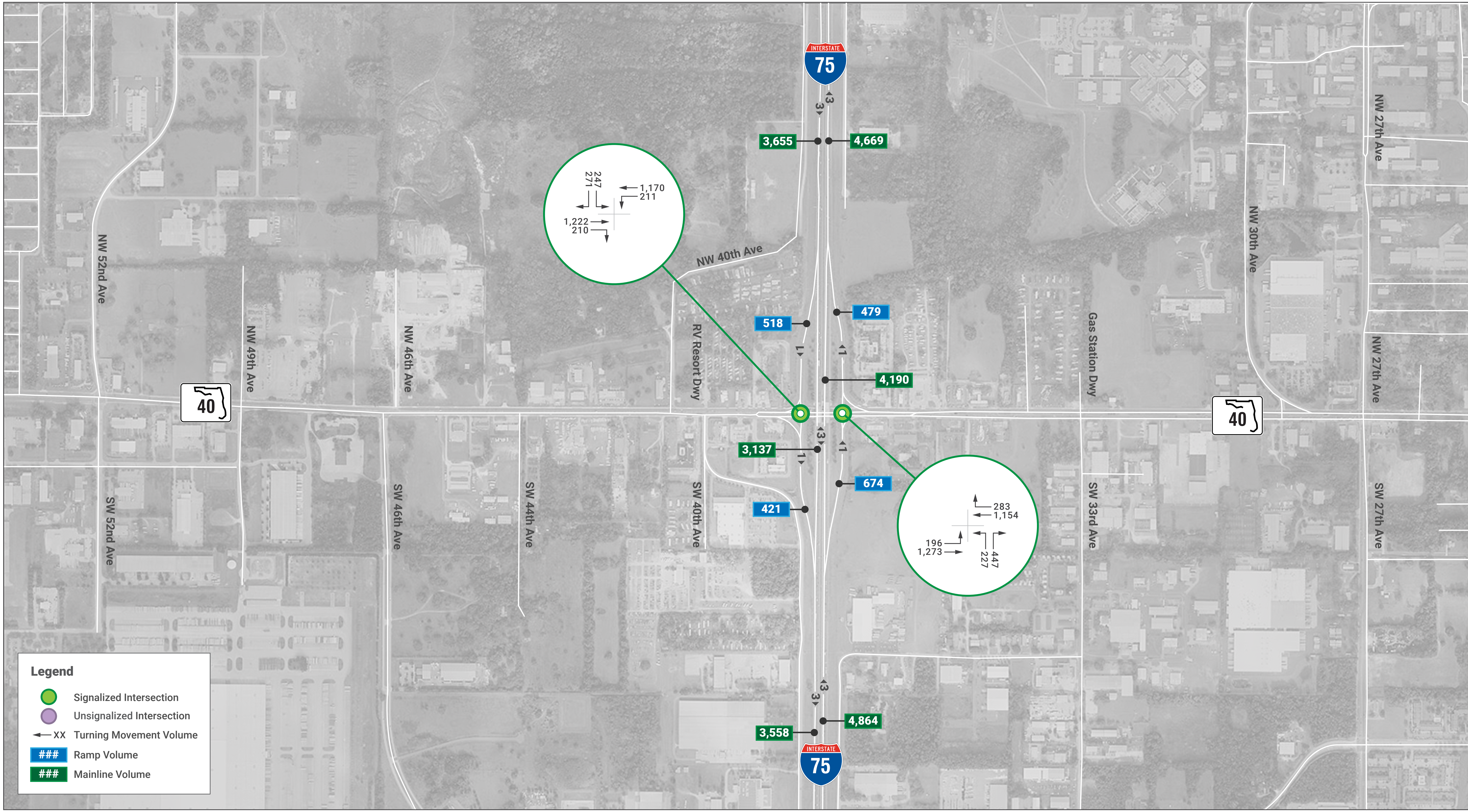
Similar to development of 2030 and 2040 AADT/DDHV volumes described in the previous section, 2030 and 2040 peak hour volumes were estimated by interpolating linearly between the 2019 existing year and Master Plan design year balanced peak hour volume sets except for the NW 49th Street study intersections. For the NW 49th Street study intersections, the proportion of opening year to design year volumes were referenced from the approved Interchange Justification Report (IJR) and applied to the 2050 peak hour volumes to estimate the 2030 peak hour volumes. This methodology was selected since the facility doesn't exist in the existing condition. The 2040 peak hour volumes were then interpolated between the 2030 and 2050 volumes for NW 49th Street only. 2050 Master Plan peak hour volumes are provided in **Appendix Q** for reference purposes.

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 No-Build scenario evaluated in this PTAR:

- 2030 No-Build AM Peak Hour Volumes – **Figure 56**
- 2030 No-Build PM Peak Hour Volumes – **Figure 57**
- 2030 No-Build Weekend Midday Peak Hour Volumes – **Figure 58**
- 2040 No-Build AM Peak Hour Volumes – **Figure 59**
- 2040 No-Build PM Peak Hour Volumes – **Figure 60**
- 2040 No-Build Weekend Midday Peak Hour Volumes – **Figure 61**

As described previously, the SR 326 interchange form is updated under the Build condition and the volumes from the No Build scenario were manually reassigned to reflect the Build geometry at this location. The following figures summarize the balanced Opening Year (2030) and Design Year (2040) AM, PM, and weekend midday peak hour volumes for the Build scenario evaluated in this PTAR:

- 2030 Build AM Peak Hour Volumes – **Figure 62**
- 2030 Build PM Peak Hour Volumes – **Figure 63**
- 2030 Build Weekend Midday Peak Hour Volumes – **Figure 64**
- 2040 Build AM Peak Hour Volumes – **Figure 65**
- 2040 Build PM Peak Hour Volumes – **Figure 66**
- 2040 Build Weekend Midday Peak Hour Volumes – **Figure 67**

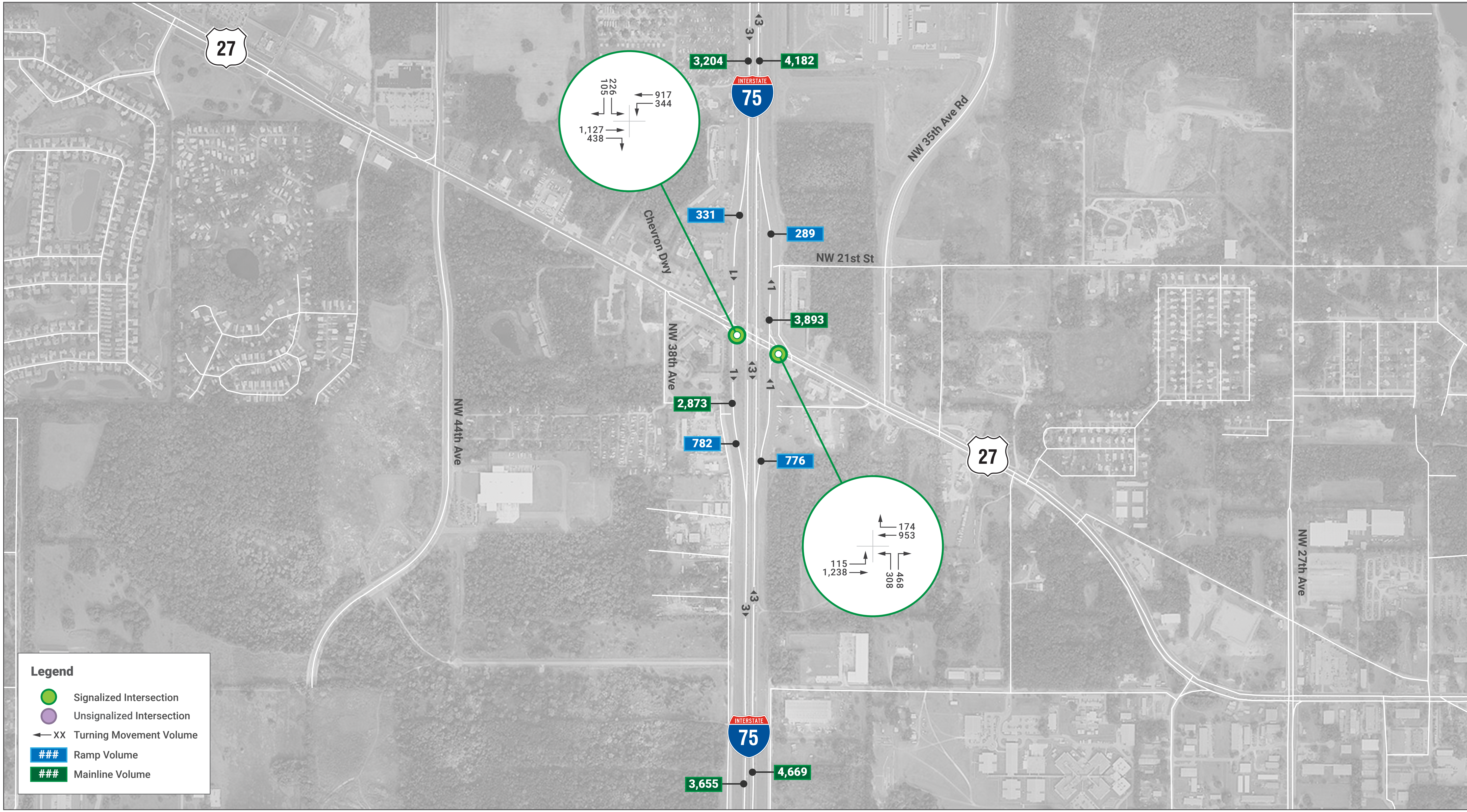


I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 No-Build AM Peak Hour Volumes

Figure 56 (1 of 4)



Scale in Feet 0 700 North

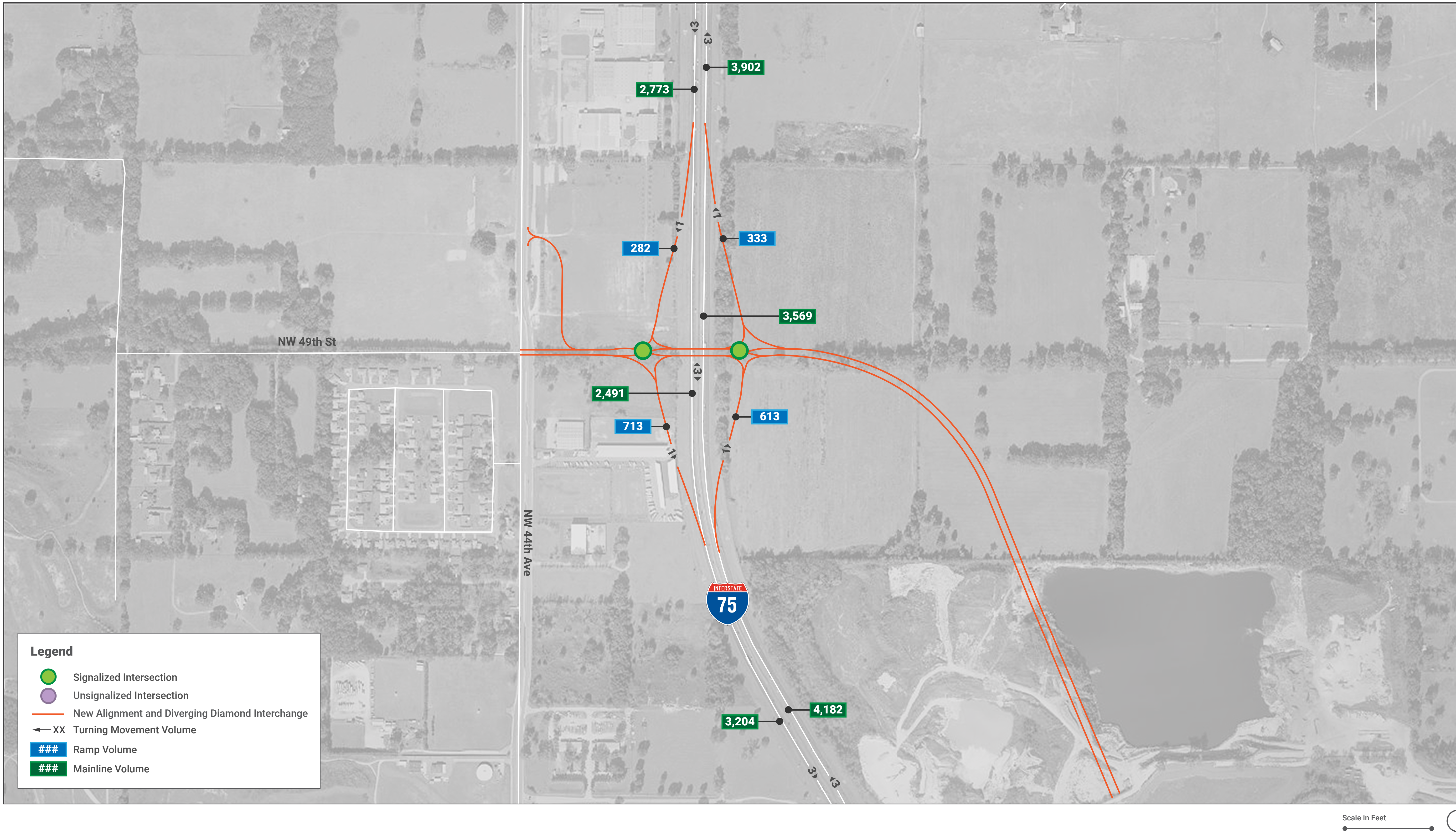
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 No-Build AM Peak Hour Volumes

Figure 56 (2 of 4)



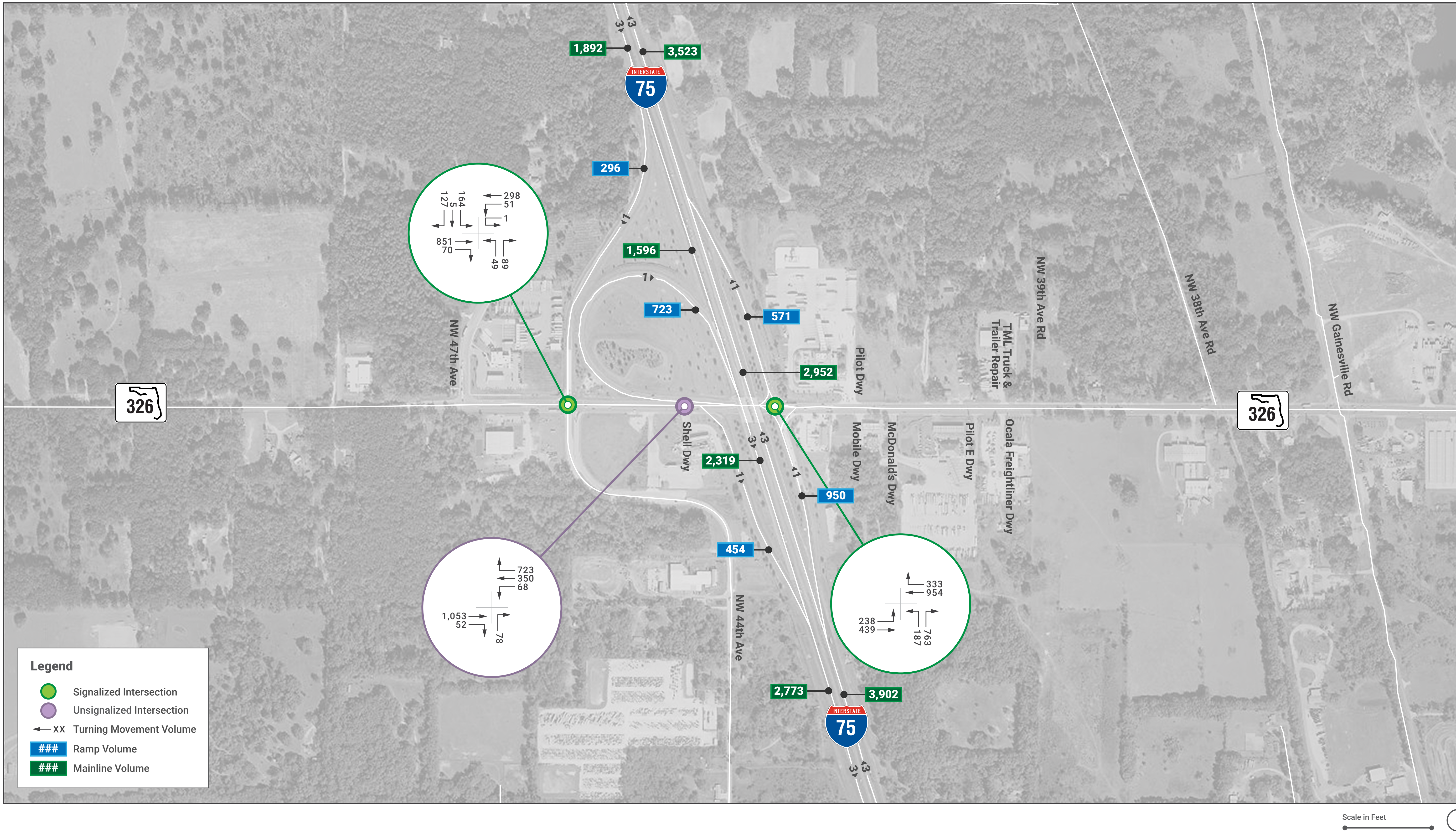
FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 No-Build AM Peak Hour Volumes

Figure 56 (3 of 4)



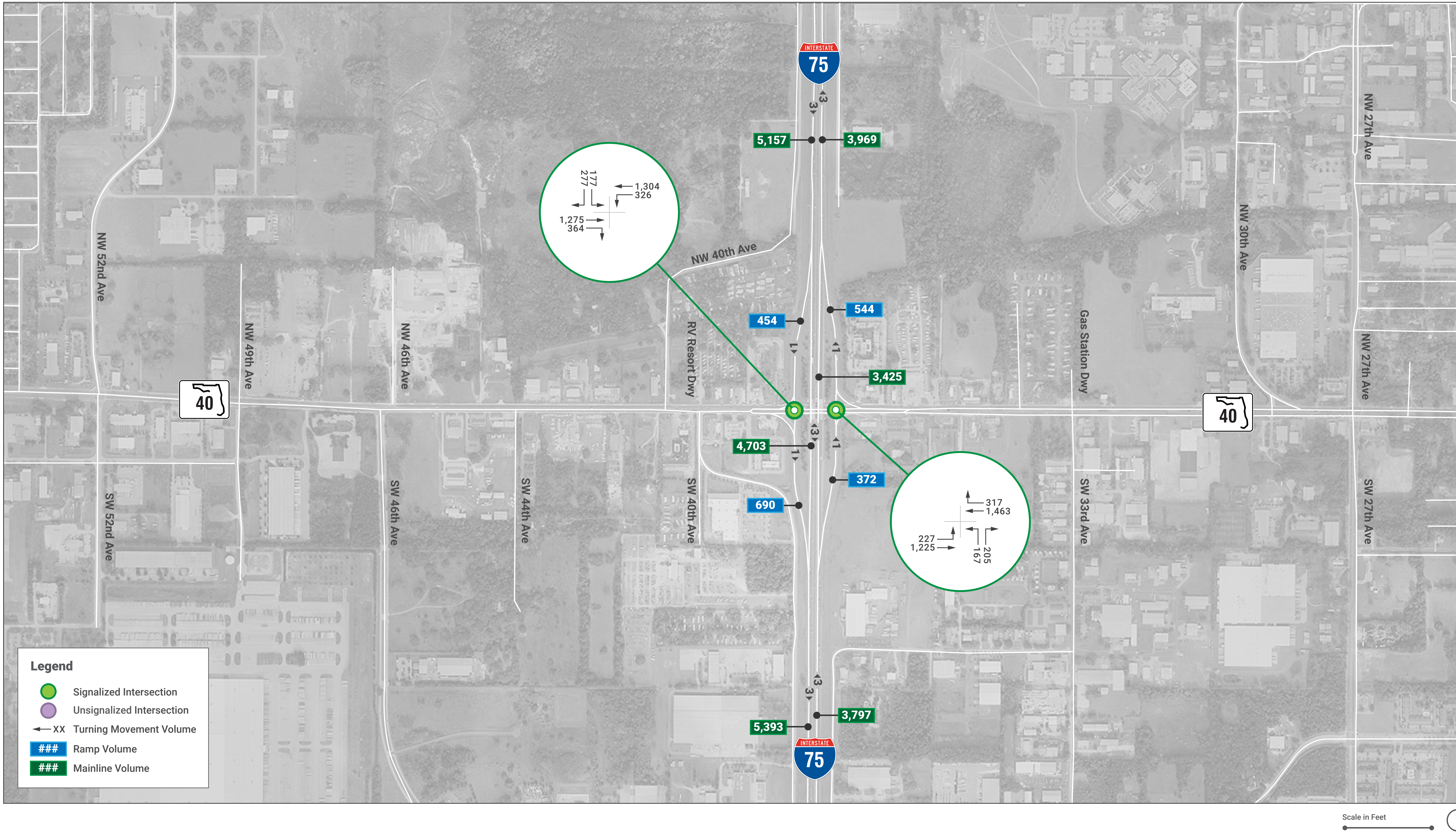
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 No-Build AM Peak Hour Volumes

Figure 56 (4 of 4)



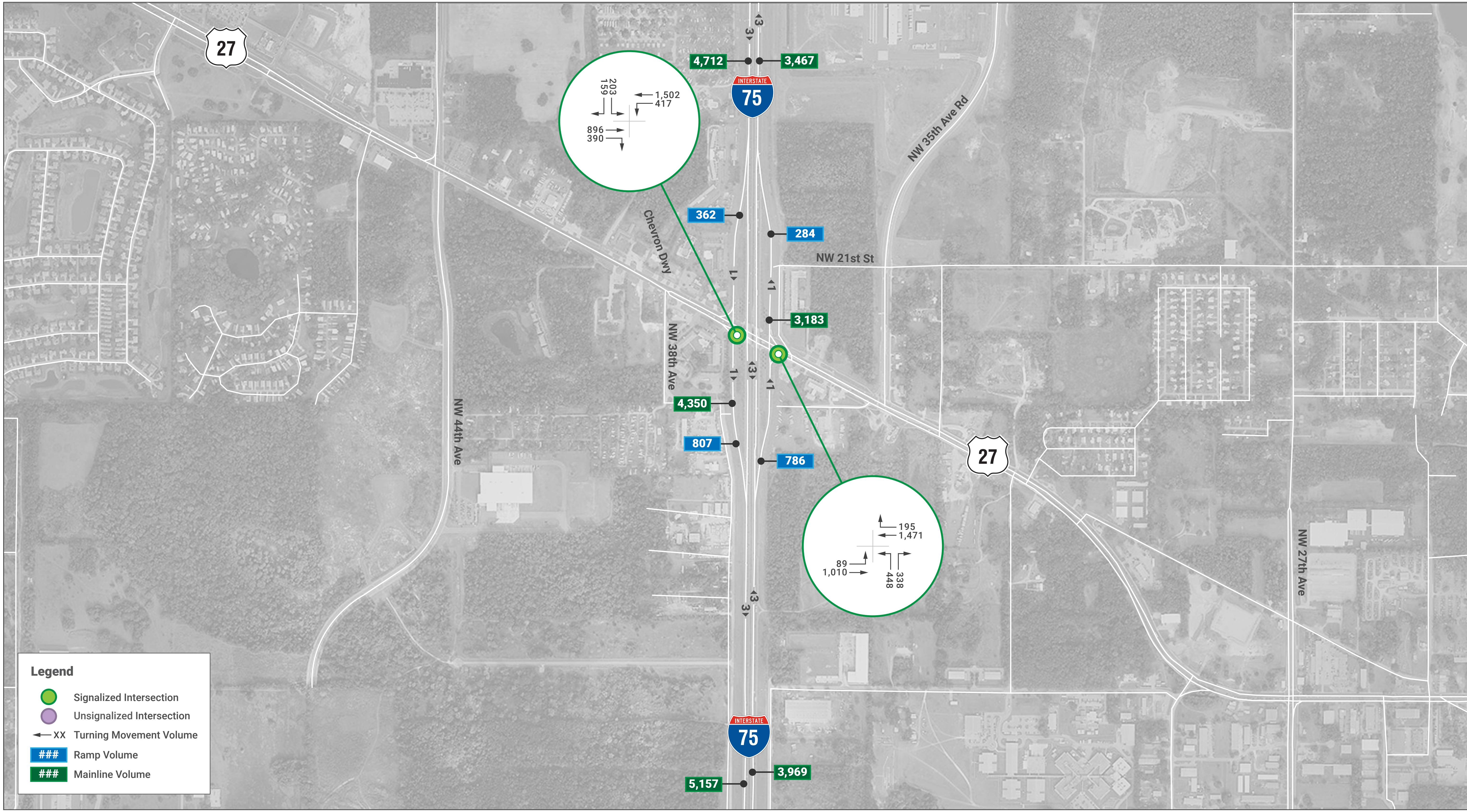
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 No-Build PM Peak Hour Volumes

Figure 57 (1 of 4)



Scale in Feet 0 700 North

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 No-Build PM Peak Hour Volumes

Figure 57 (2 of 4)

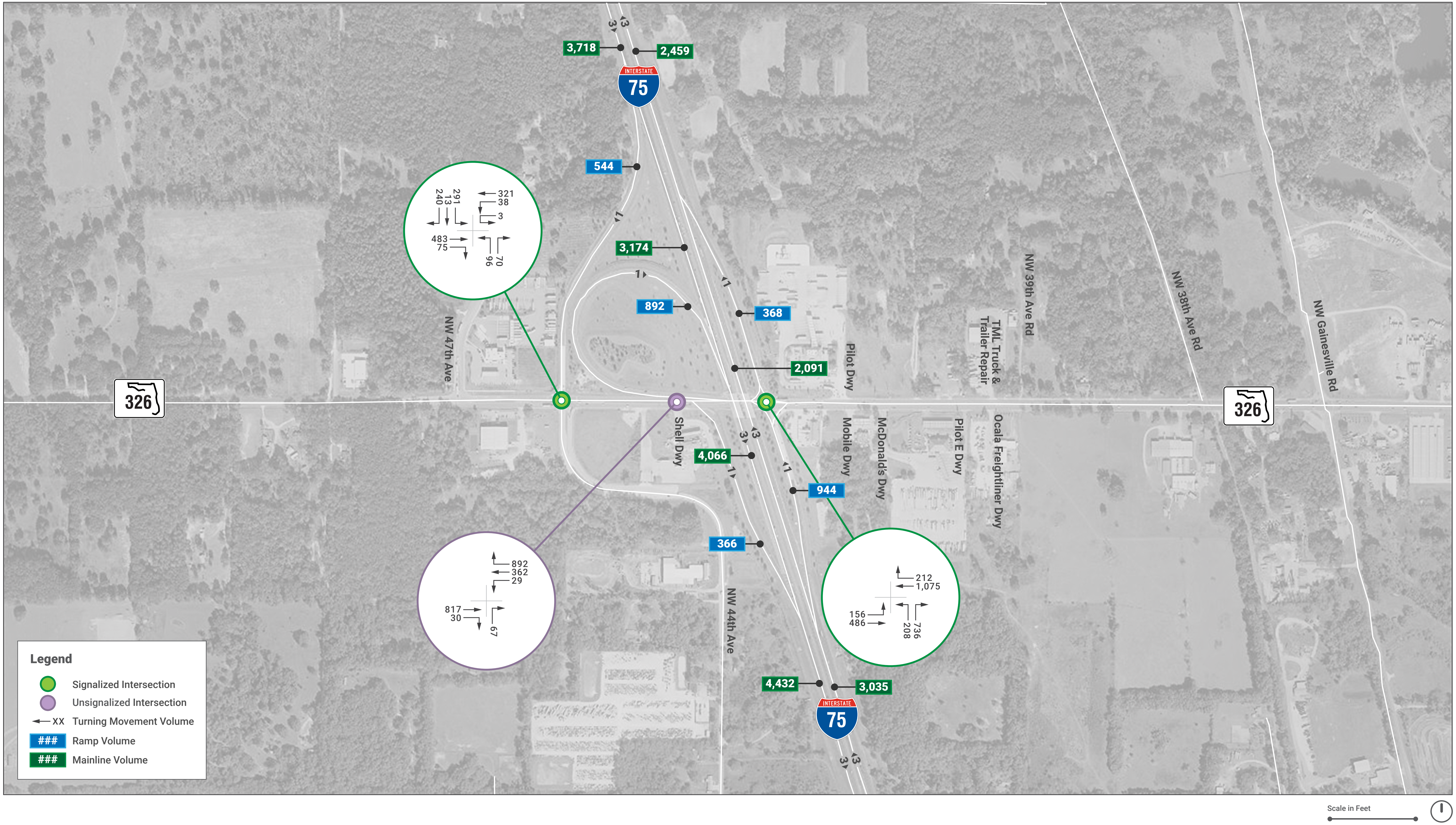
Scale in Feet
0 700
North

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 No-Build PM Peak Hour Volumes

Figure 57 (3 of 4)



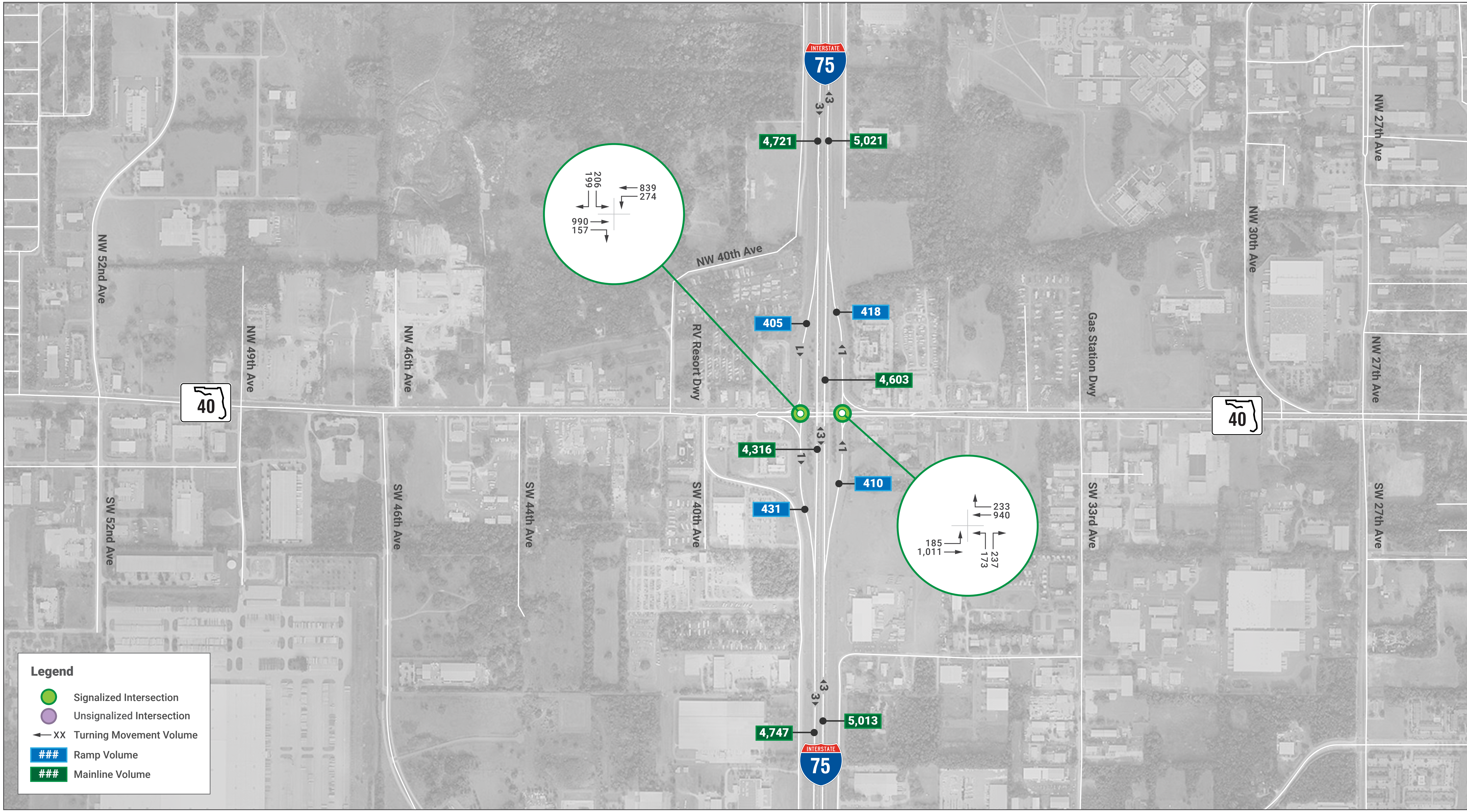
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 No-Build PM Peak Hour Volumes

Figure 57 (4 of 4)



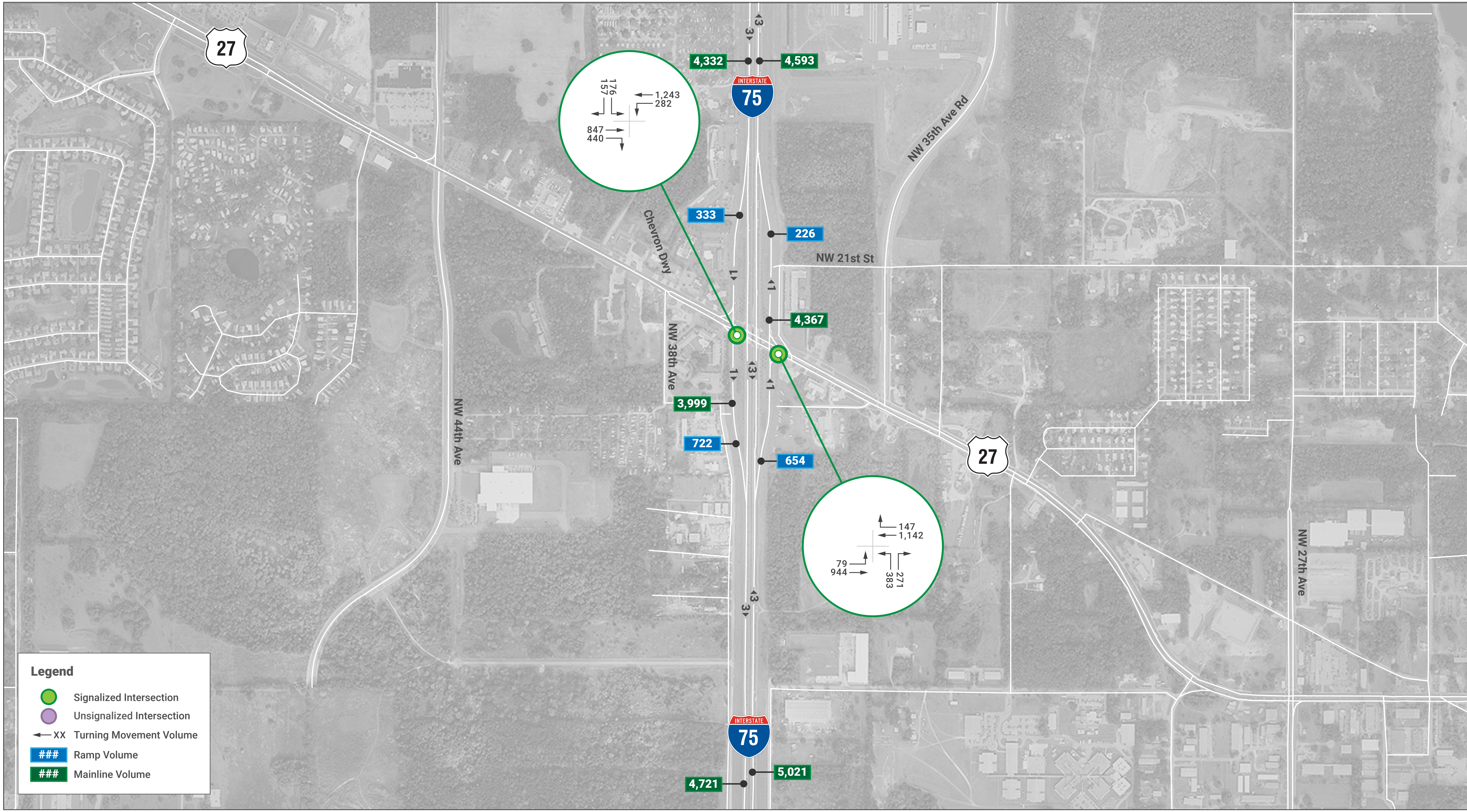
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 No-Build Weekend Midday Peak Hour Volumes

Figure 58 (1 of 4)



Scale in Feet 0 700 North

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 No-Build Weekend Midday Peak Hour Volumes

Figure 58 (2 of 4)

Scale in Feet
0 700
North

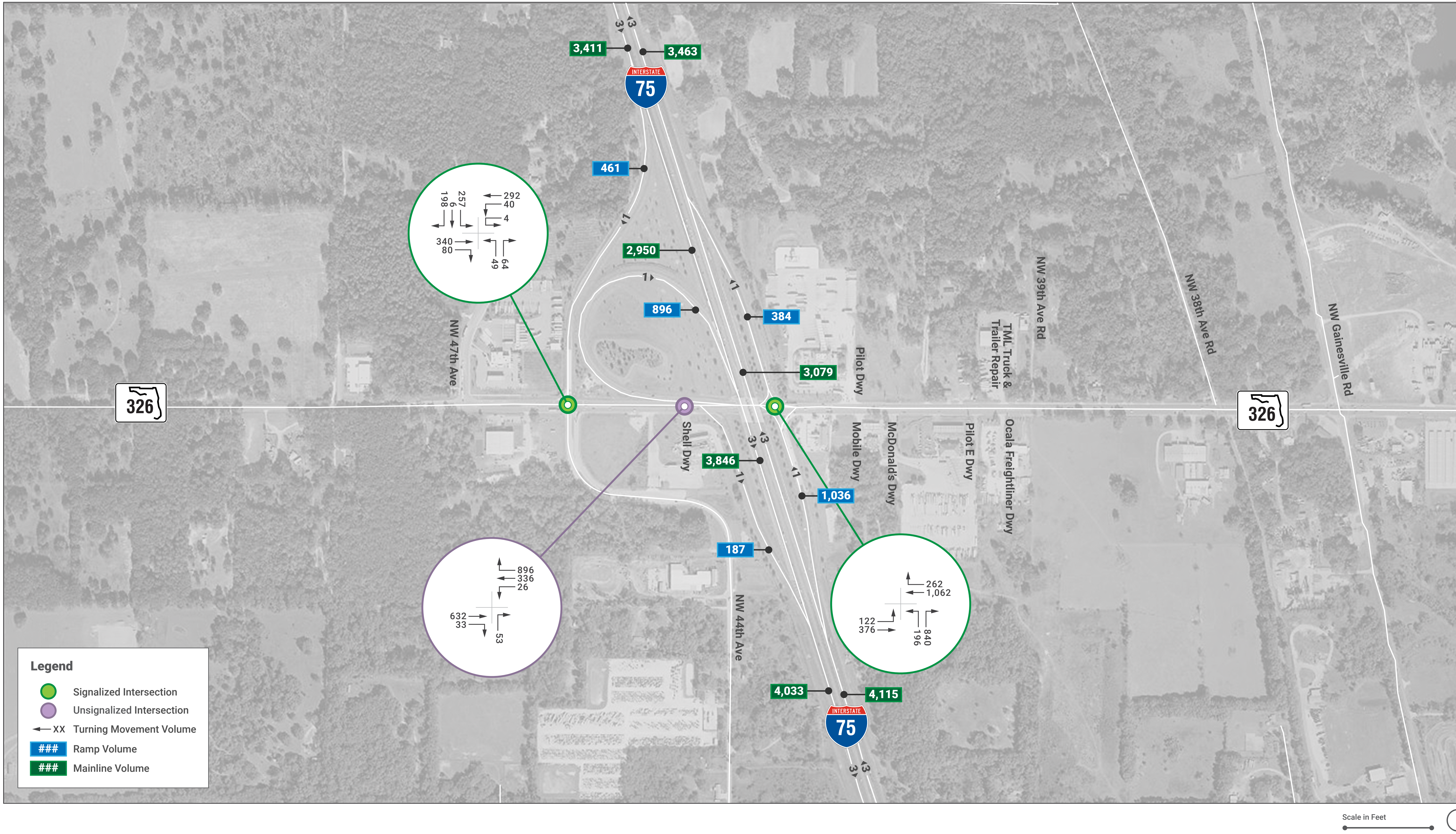
FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 No-Build Weekend Midday Peak Hour Volumes

Figure 58 (3 of 4)



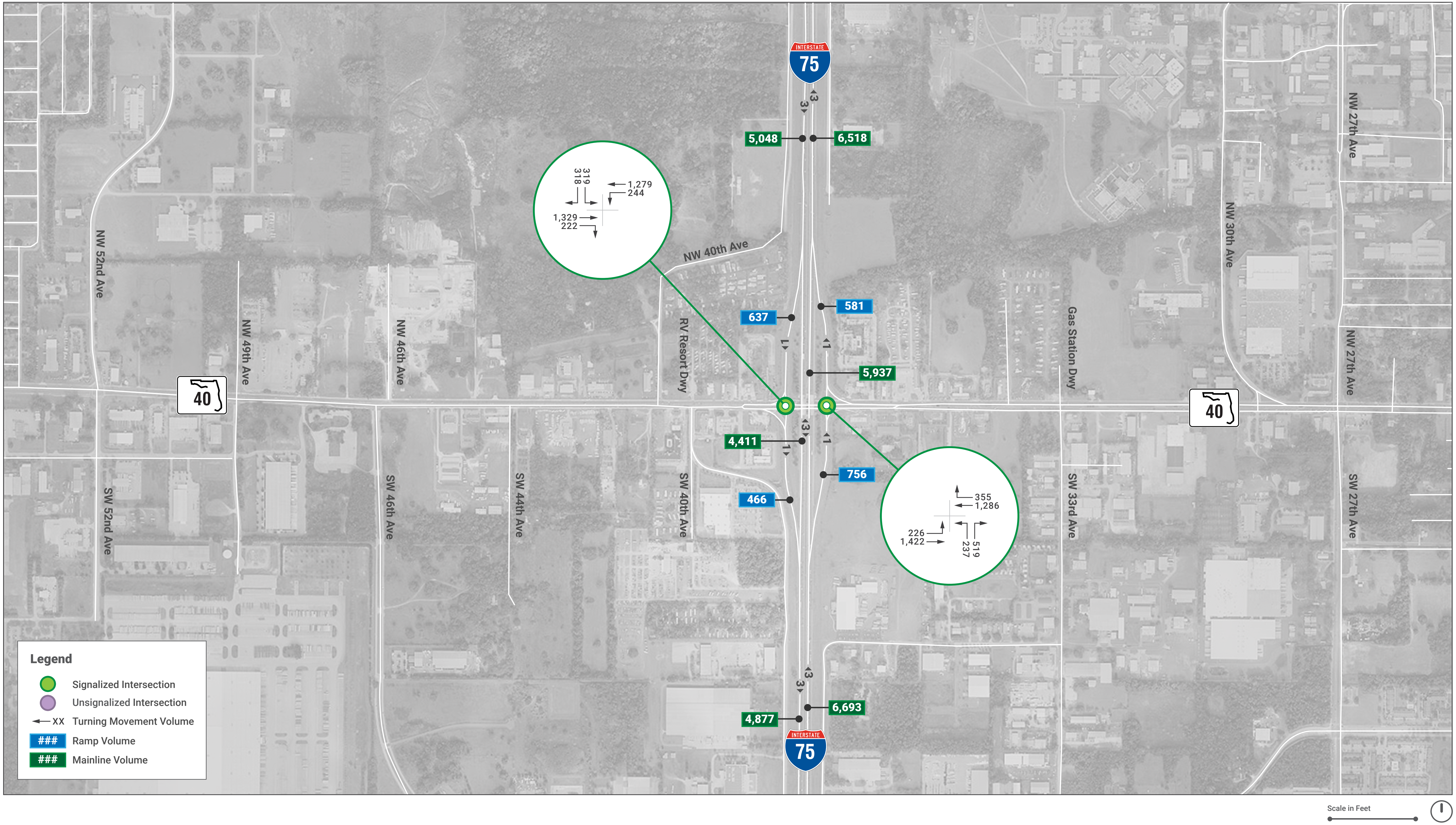
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 No-Build Weekend Midday Peak Hour Volumes

Figure 58 (4 of 4)

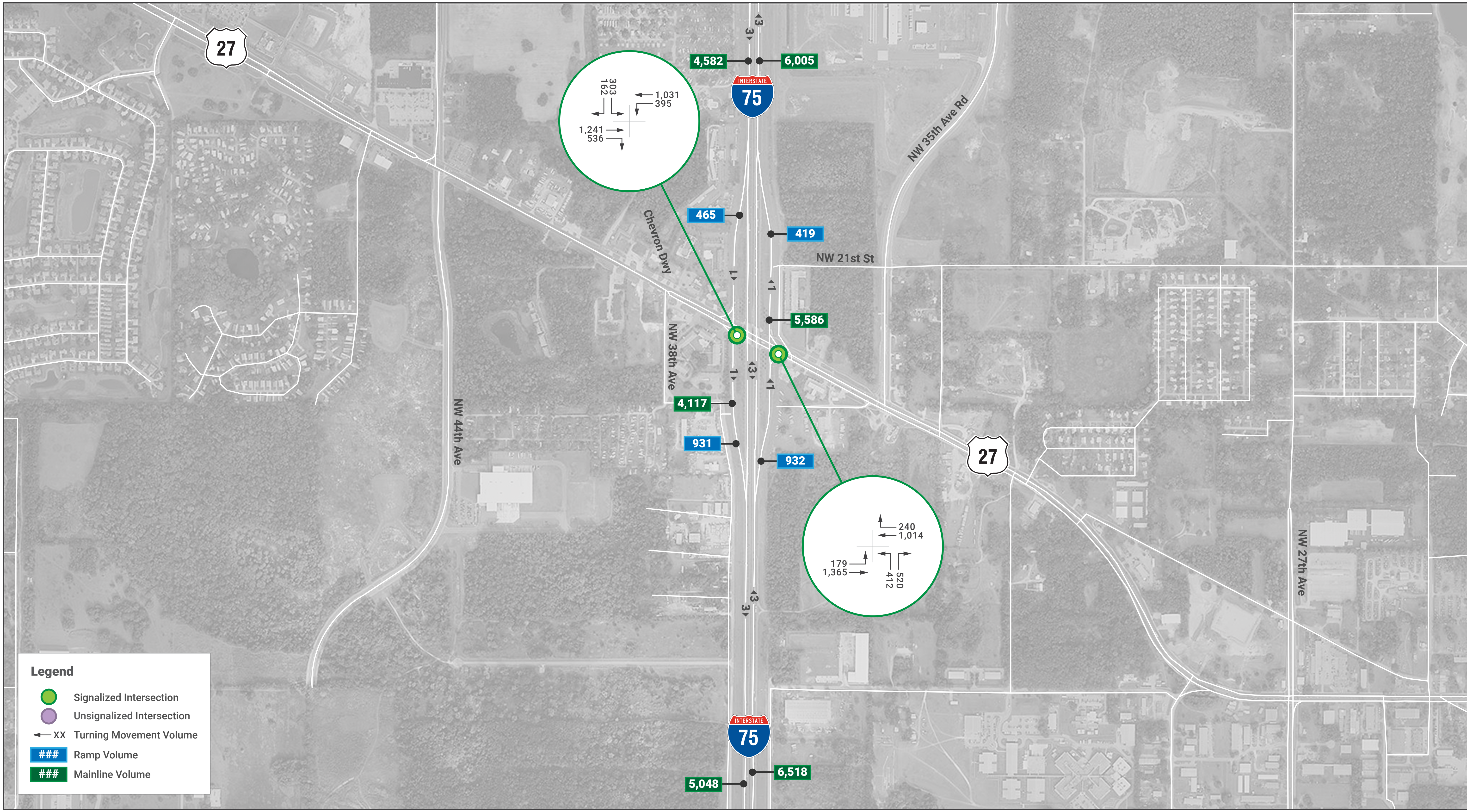


I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 No-Build AM Peak Hour Volumes

Figure 59 (1 of 4)



Scale in Feet
0 700
North

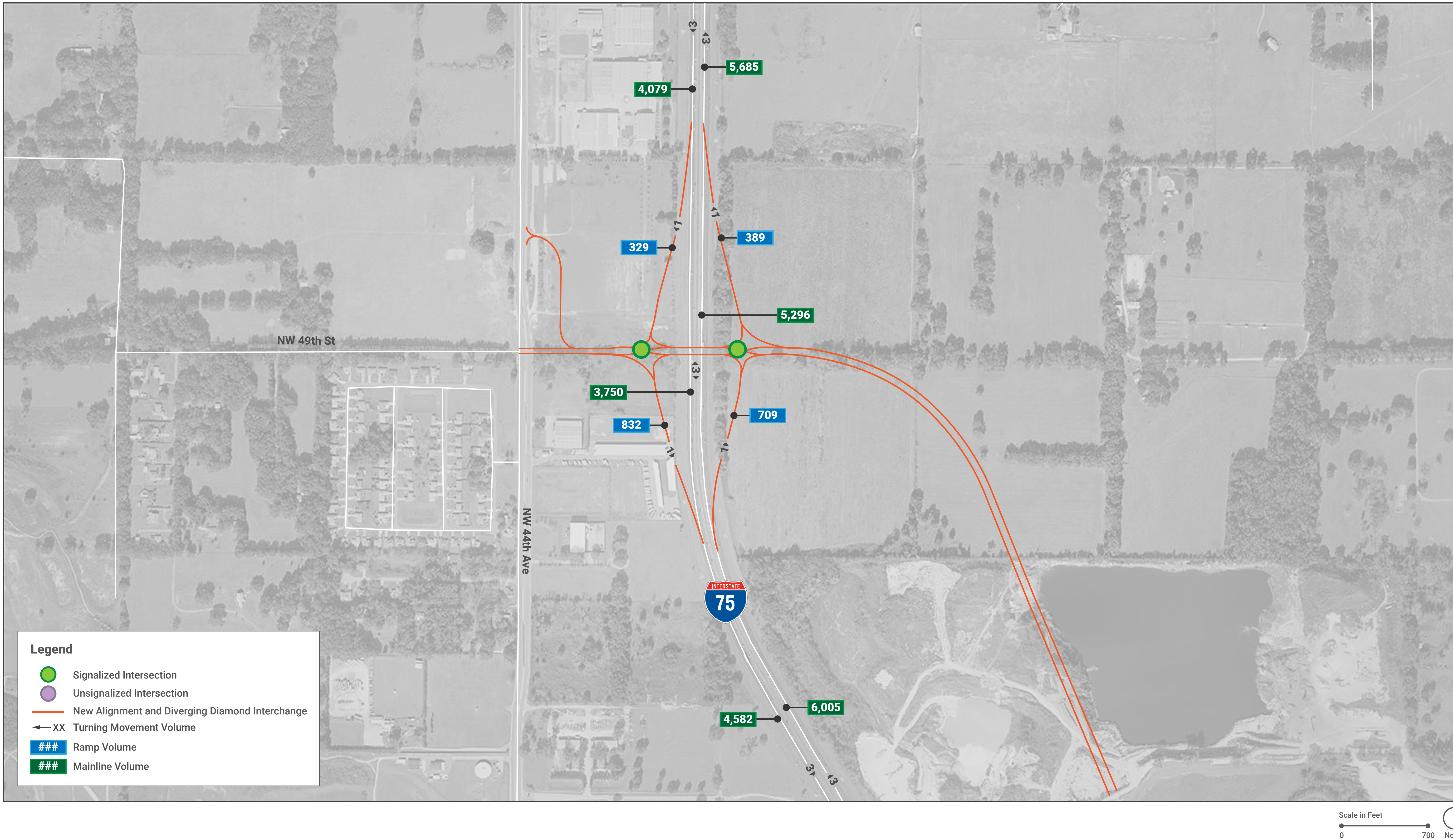
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2040 No-Build AM Peak Hour Volumes

Figure 59 (2 of 4)

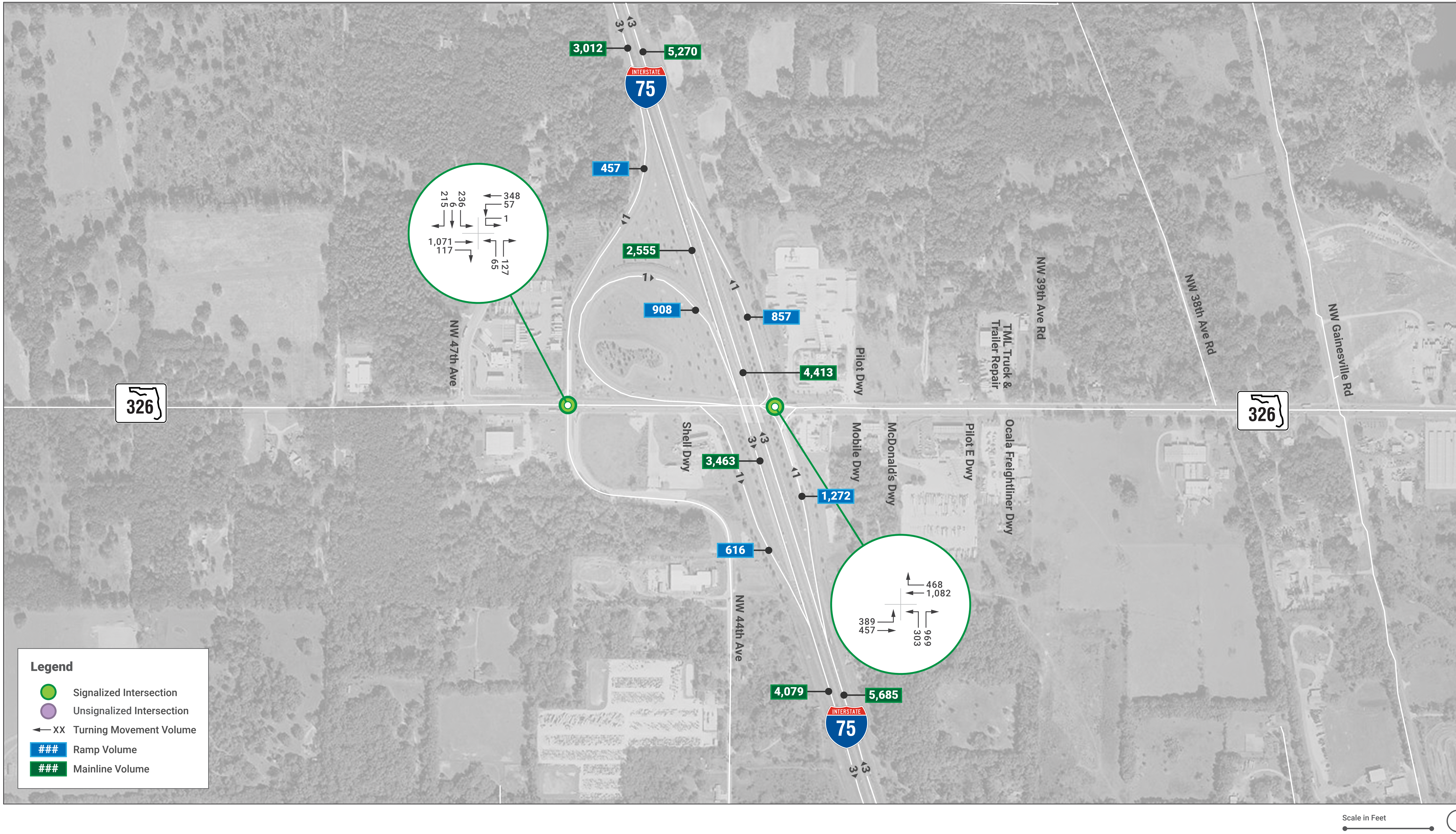


I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 No-Build AM Peak Hour Volumes

Figure 59 (3 of 4)



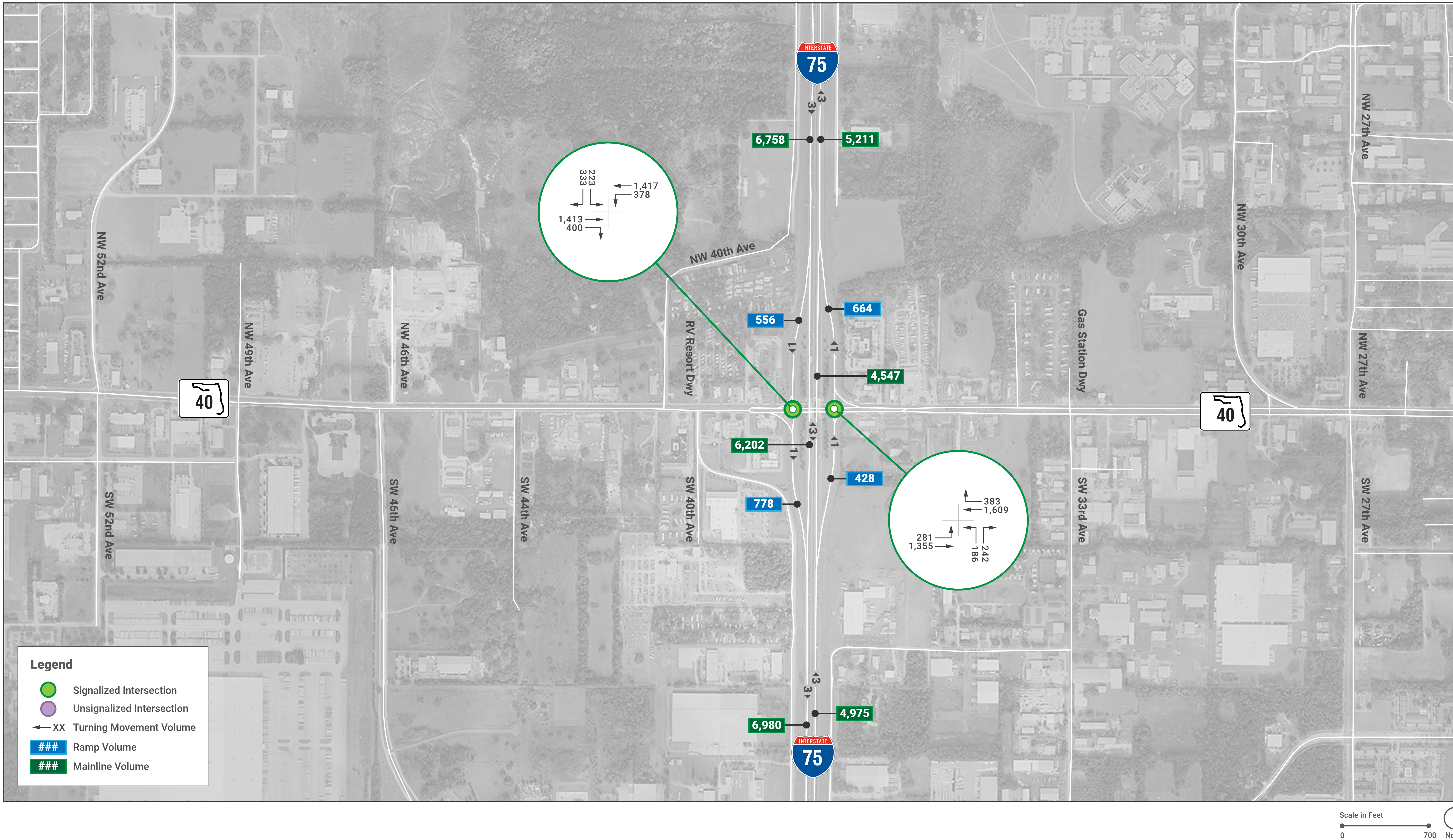
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 No-Build AM Peak Hour Volumes

Figure 59 (4 of 4)



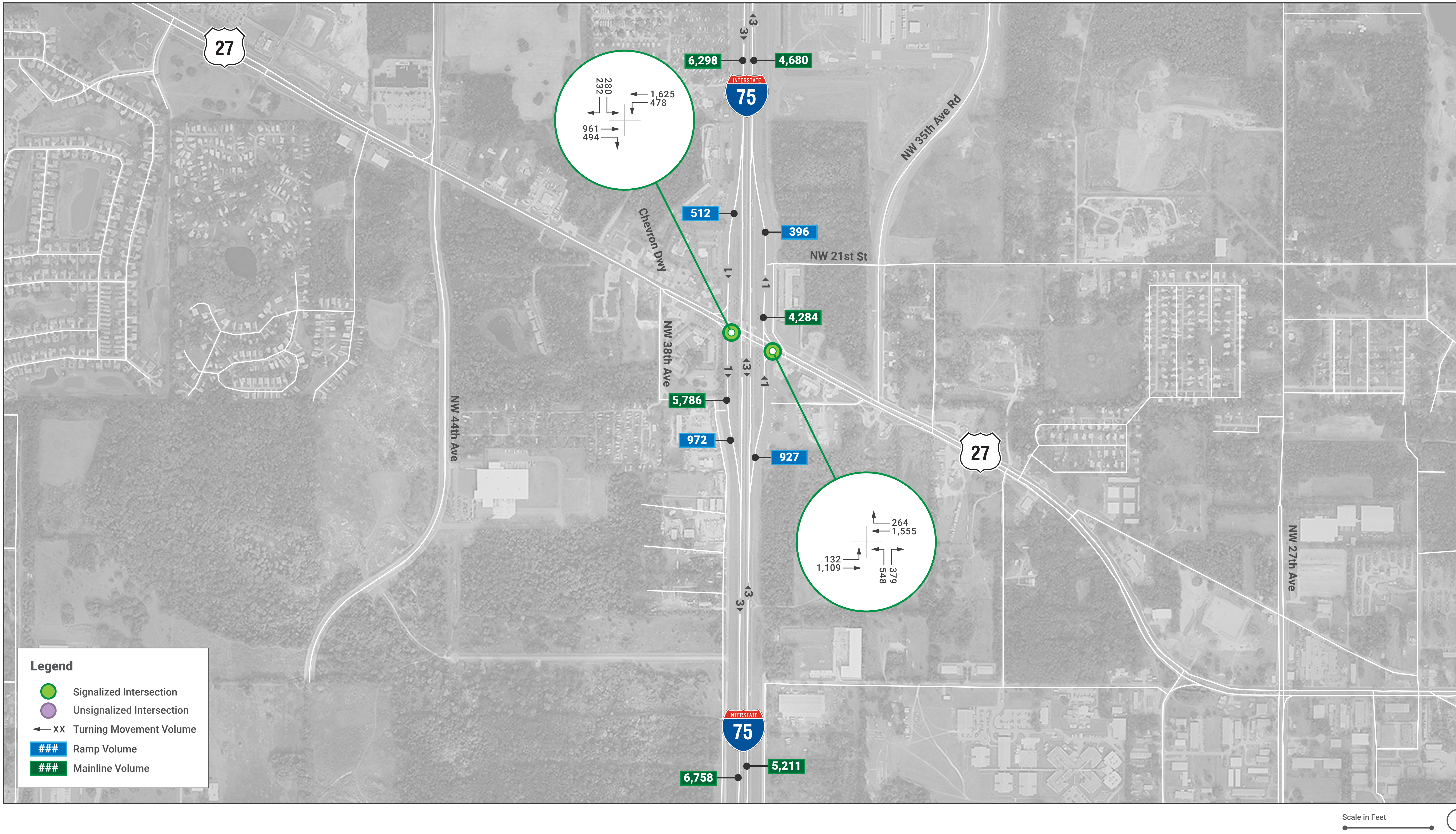
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

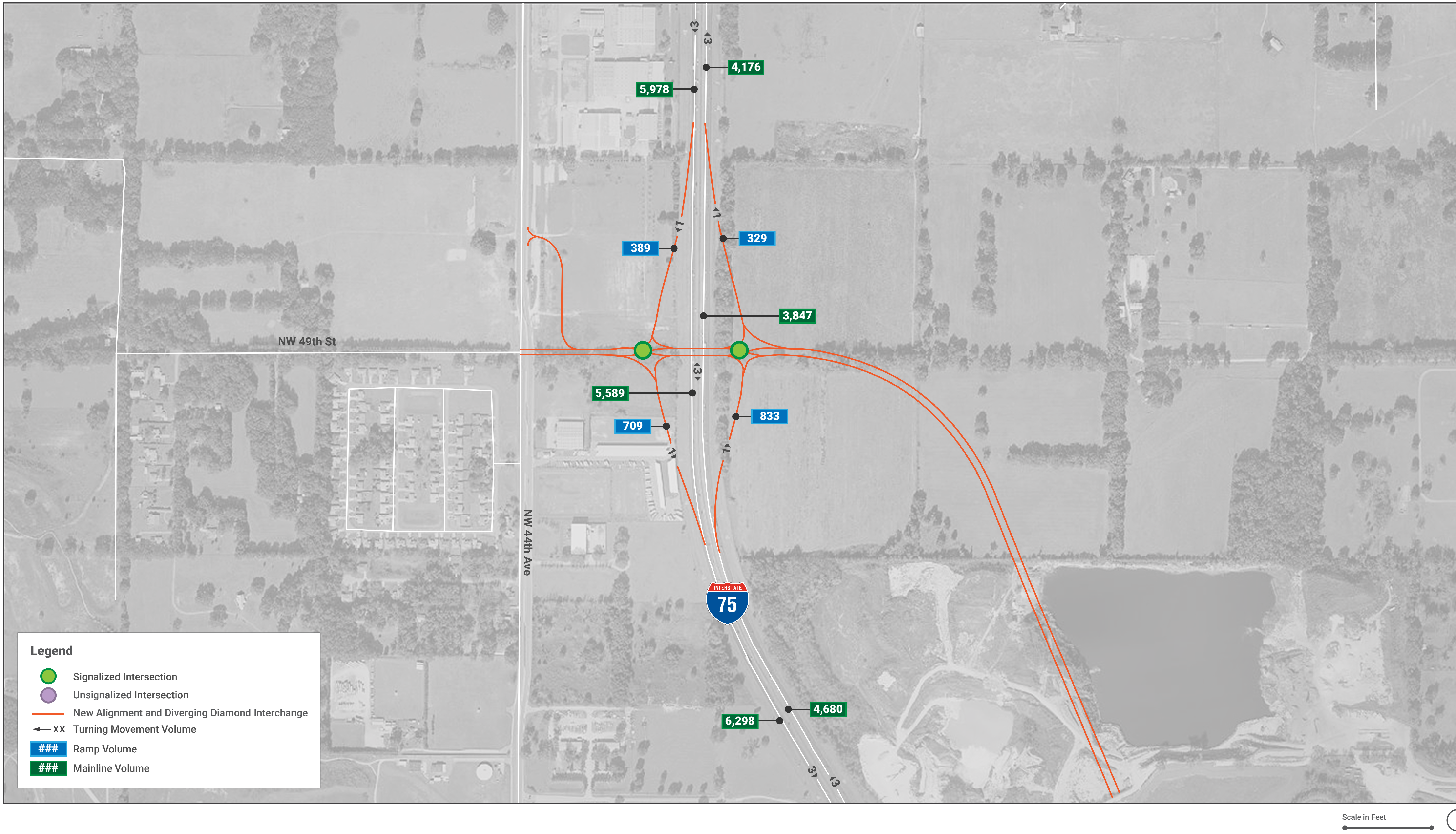
2040 No-Build PM Peak Hour Volumes

Figure 60 (1 of 4)



I-75 PD&E North | US 27 Interchange
SR 200 to SR 326

2040 No-Build PM Peak Hour Volumes
Figure 60 (2 of 4)

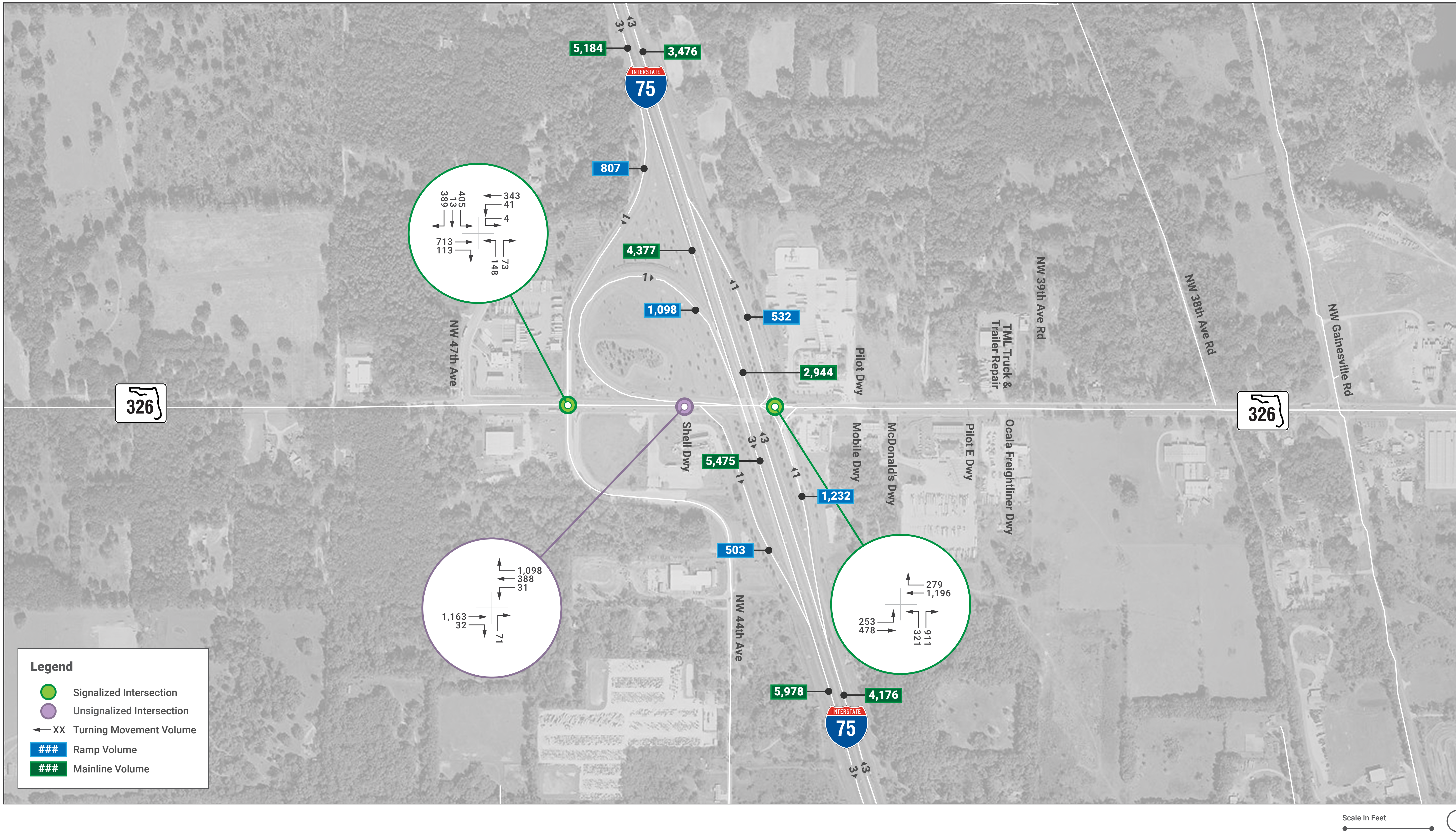


I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 No-Build PM Peak Hour Volumes

Figure 60 (3 of 4)



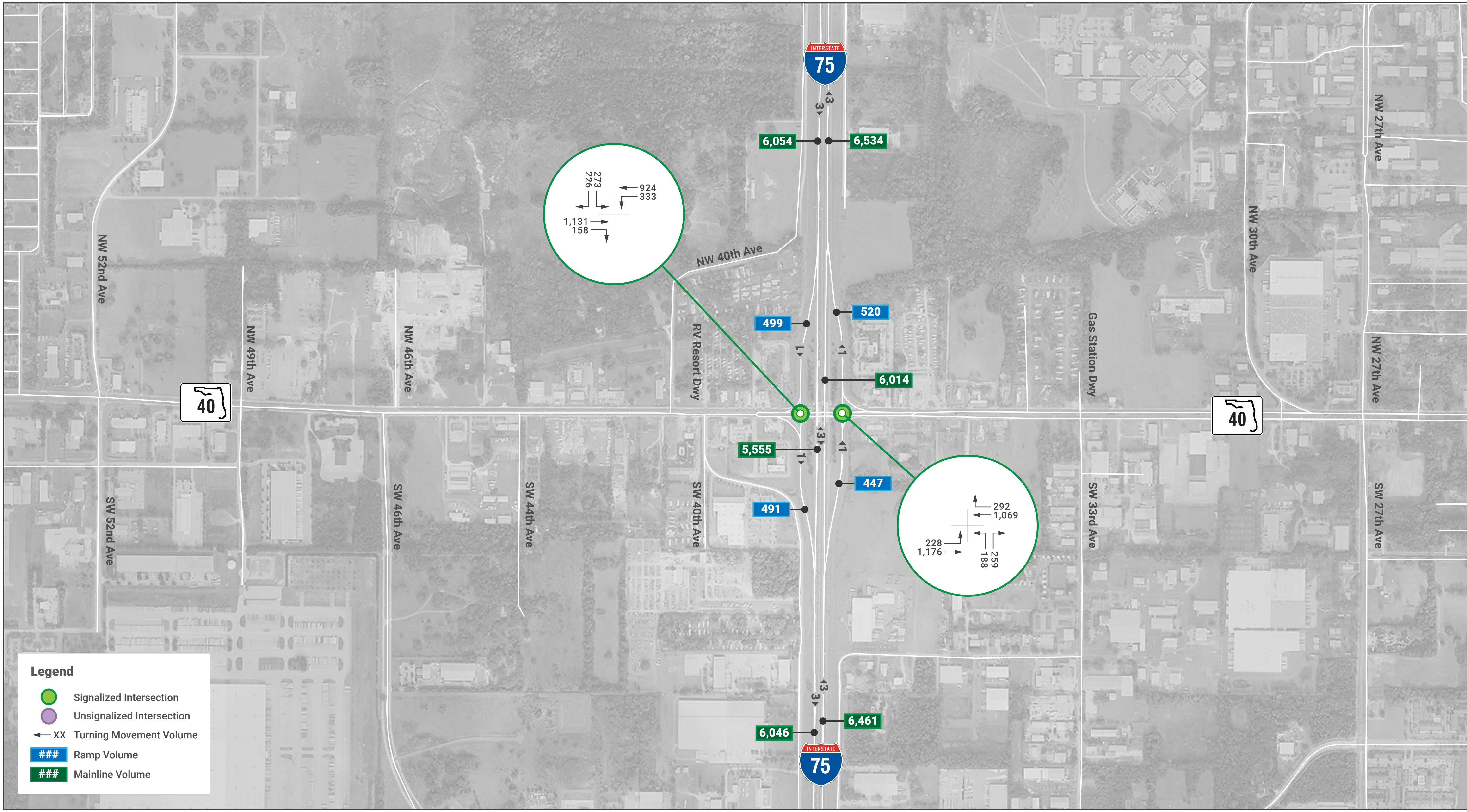
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 No-Build PM Peak Hour Volumes

Figure 60 (4 of 4)



Scale in Feet
0 700
North

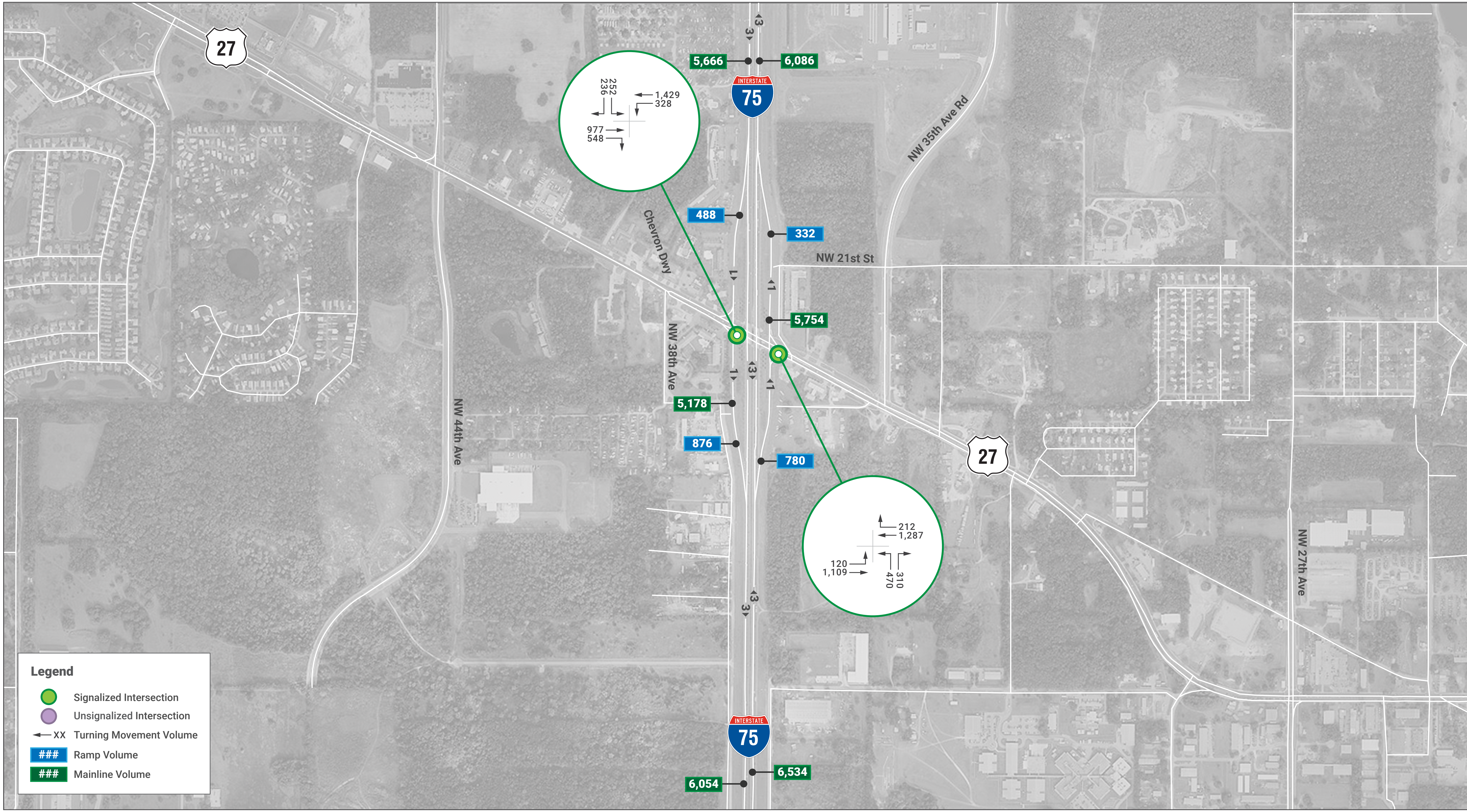
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 No-Build Weekend Midday Peak Hour Volumes

Figure 61 (1 of 4)



Scale in Feet
0 700
North

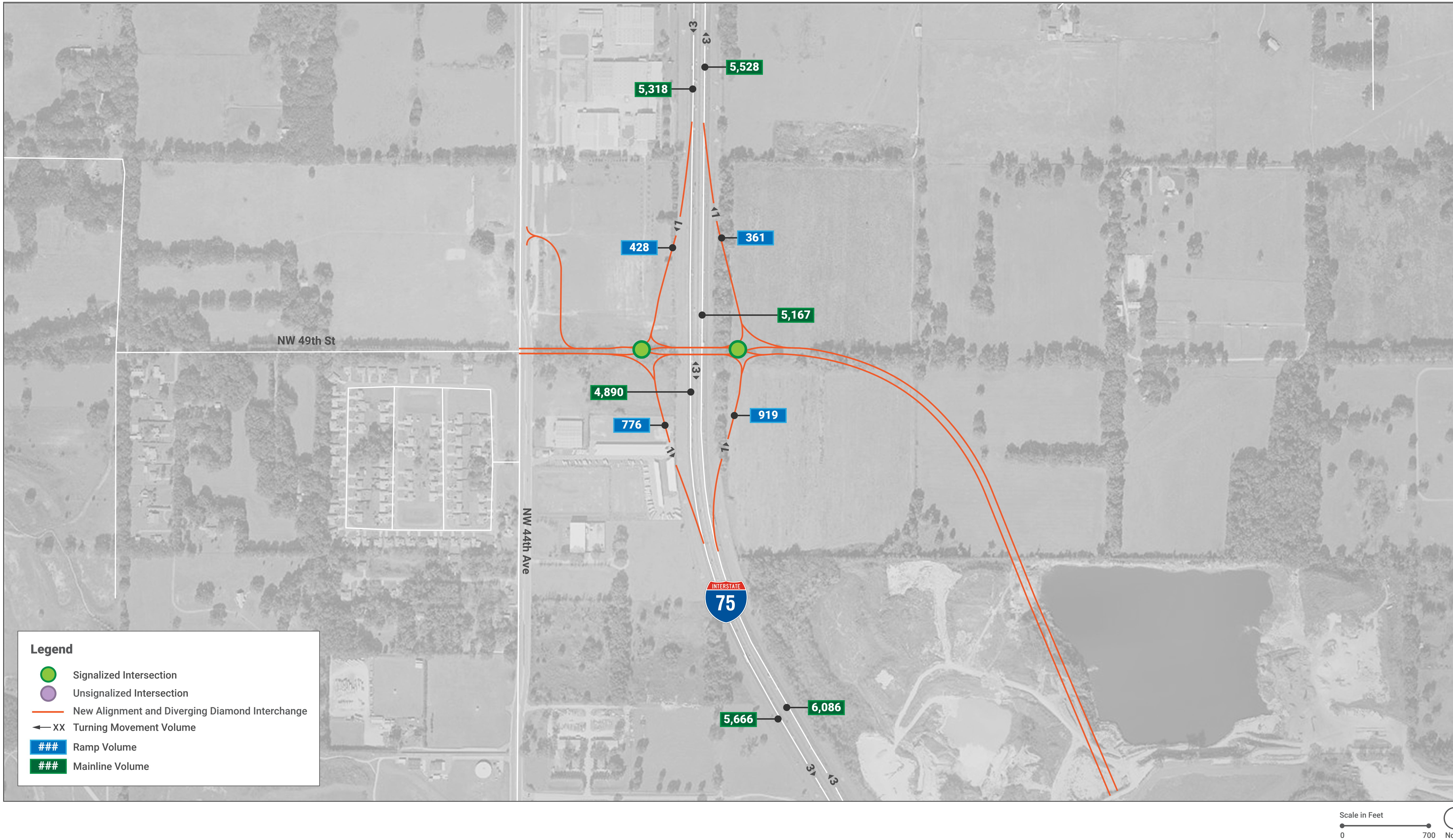
FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

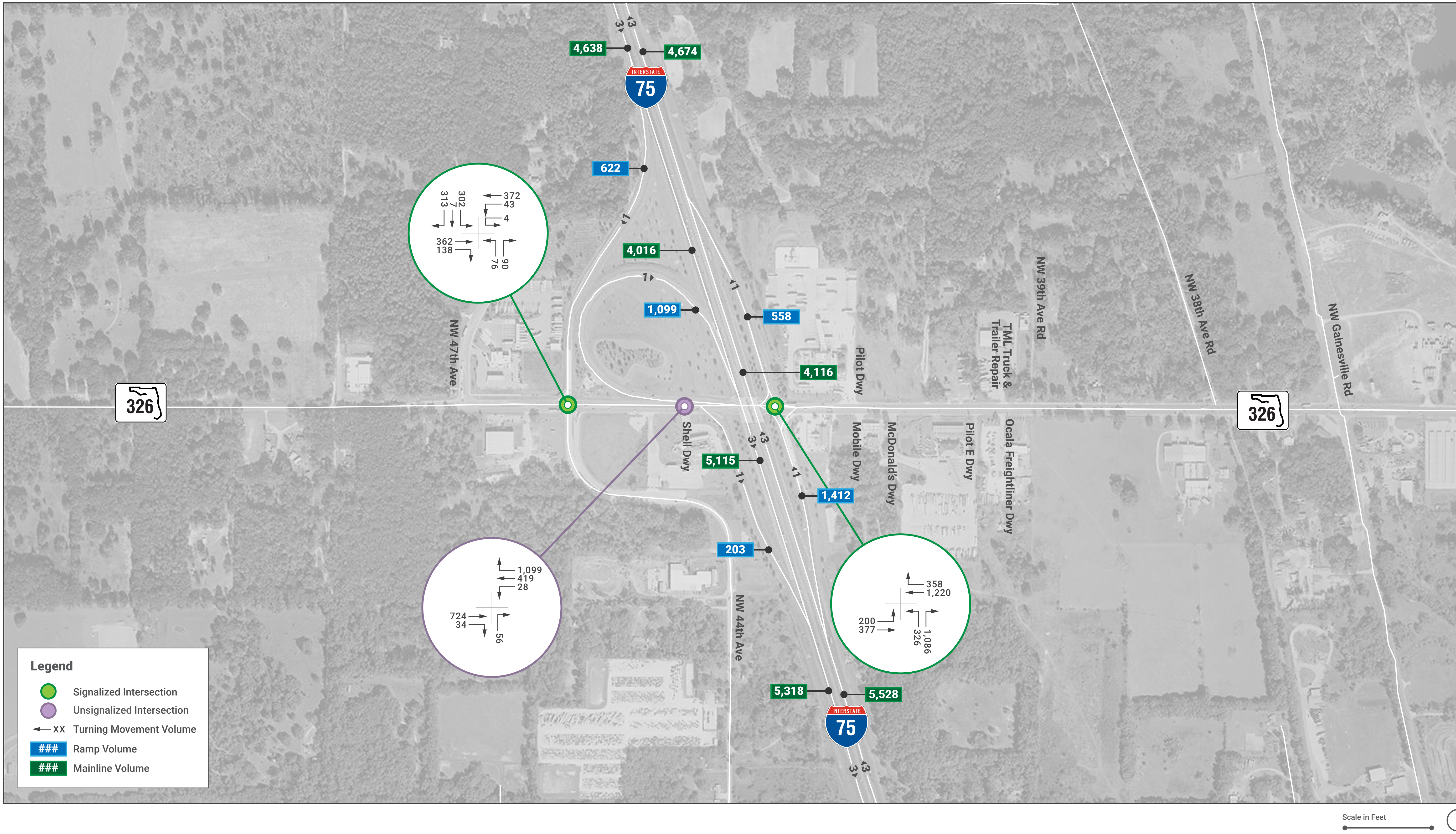
2040 No-Build Weekend Midday Peak Hour Volumes

Figure 61 (2 of 4)



I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative
SR 200 to SR 326

2040 No-Build Weekend Midday Peak Hour Volumes
Figure 61 (3 of 4)

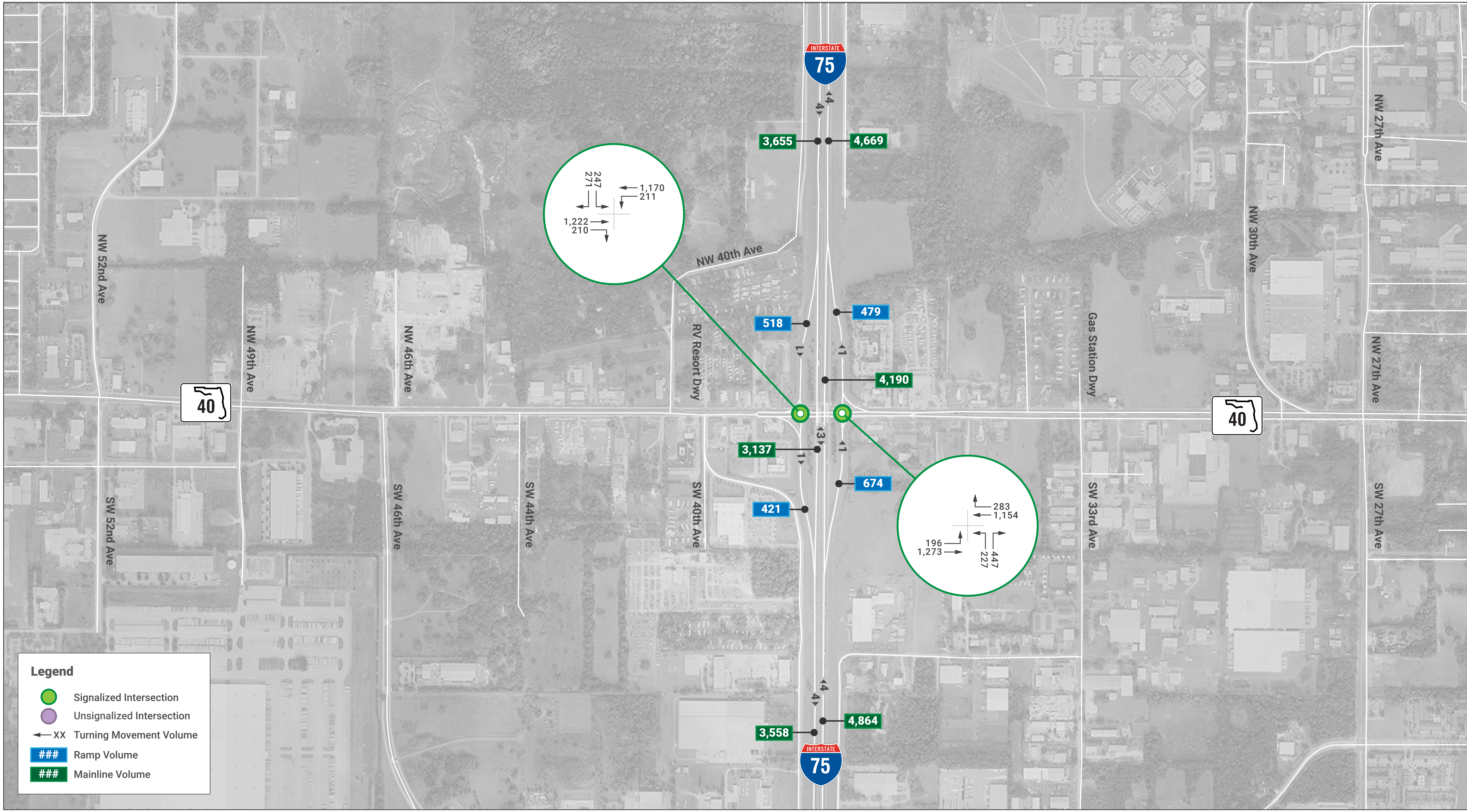


I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 No-Build Weekend Midday Peak Hour Volumes

Figure 61 (4 of 4)



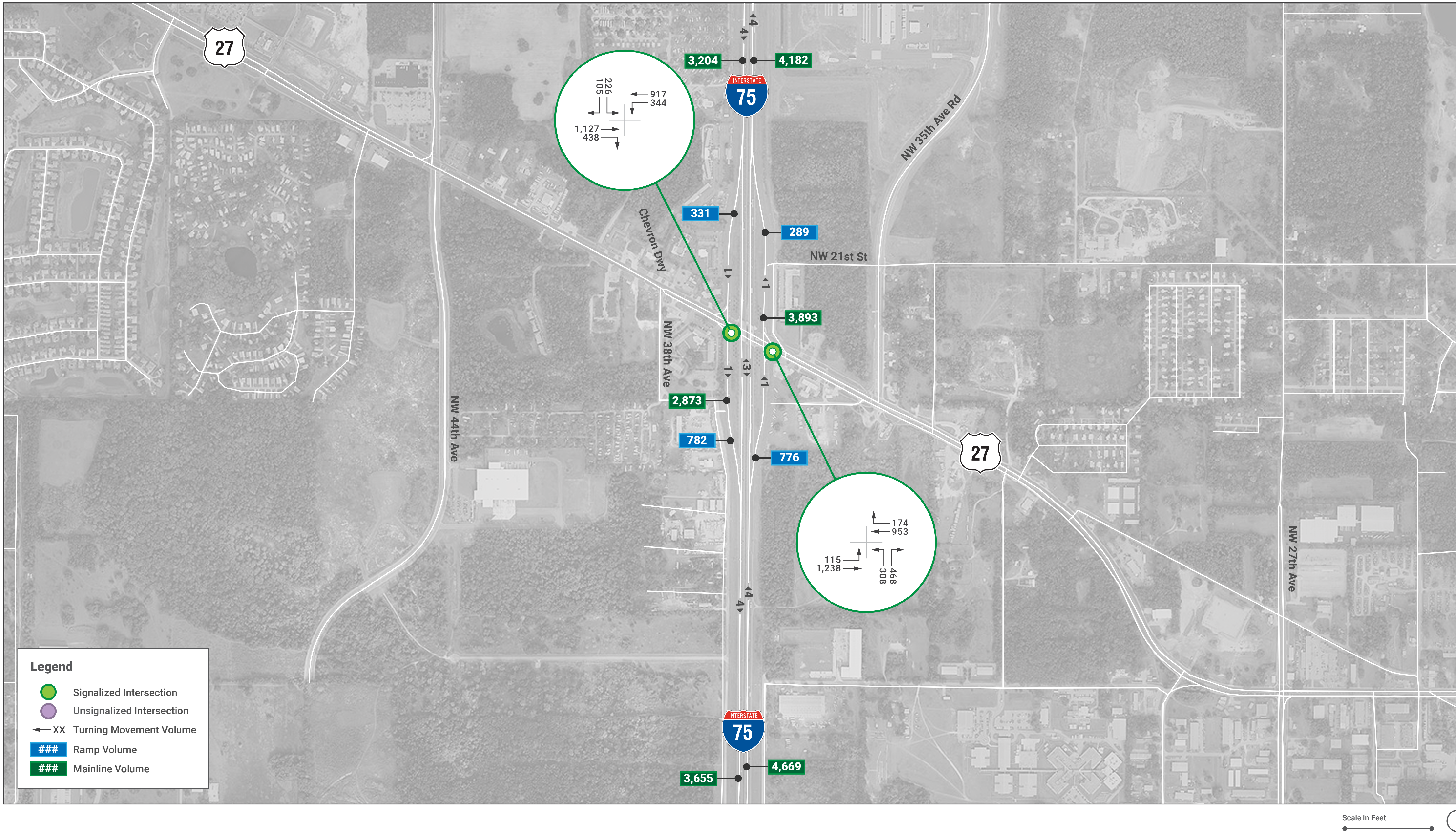
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 Build AM Peak Hour Volumes

Figure 62 (1 of 4)

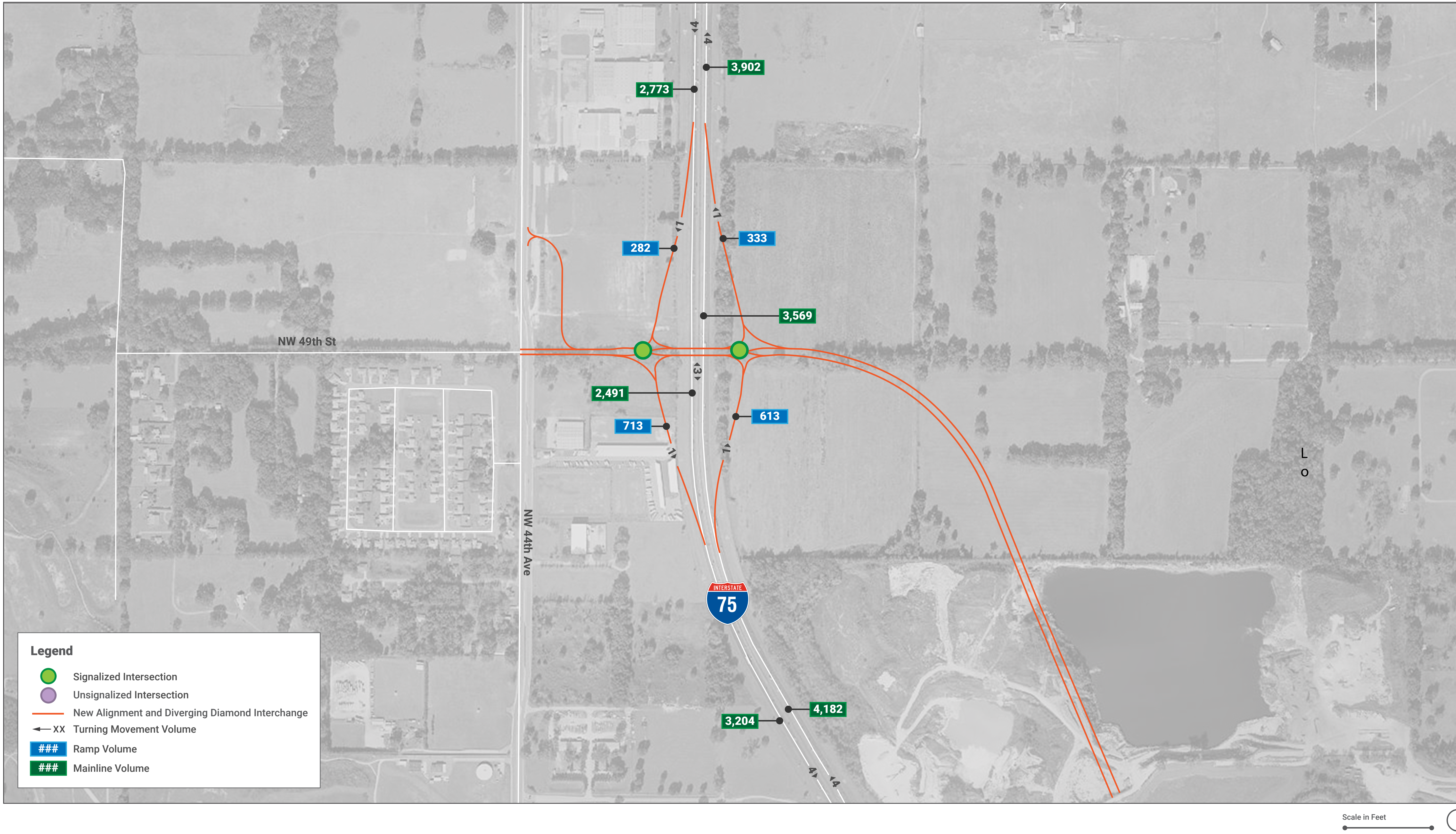


I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 Build AM Peak Hour Volumes

Figure 62 (2 of 4)

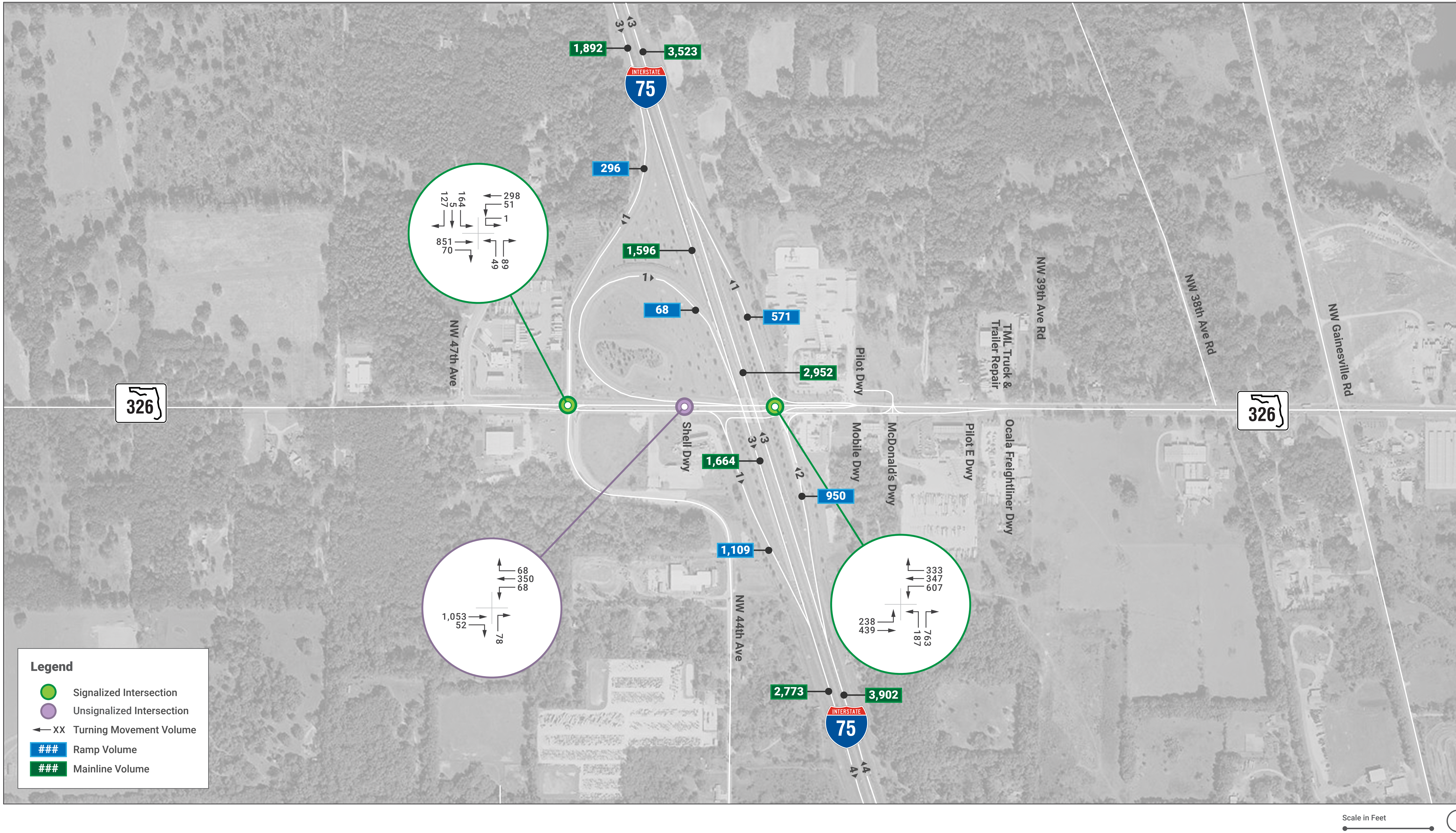


I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 Build AM Peak Hour Volumes

Figure 62 (3 of 4)



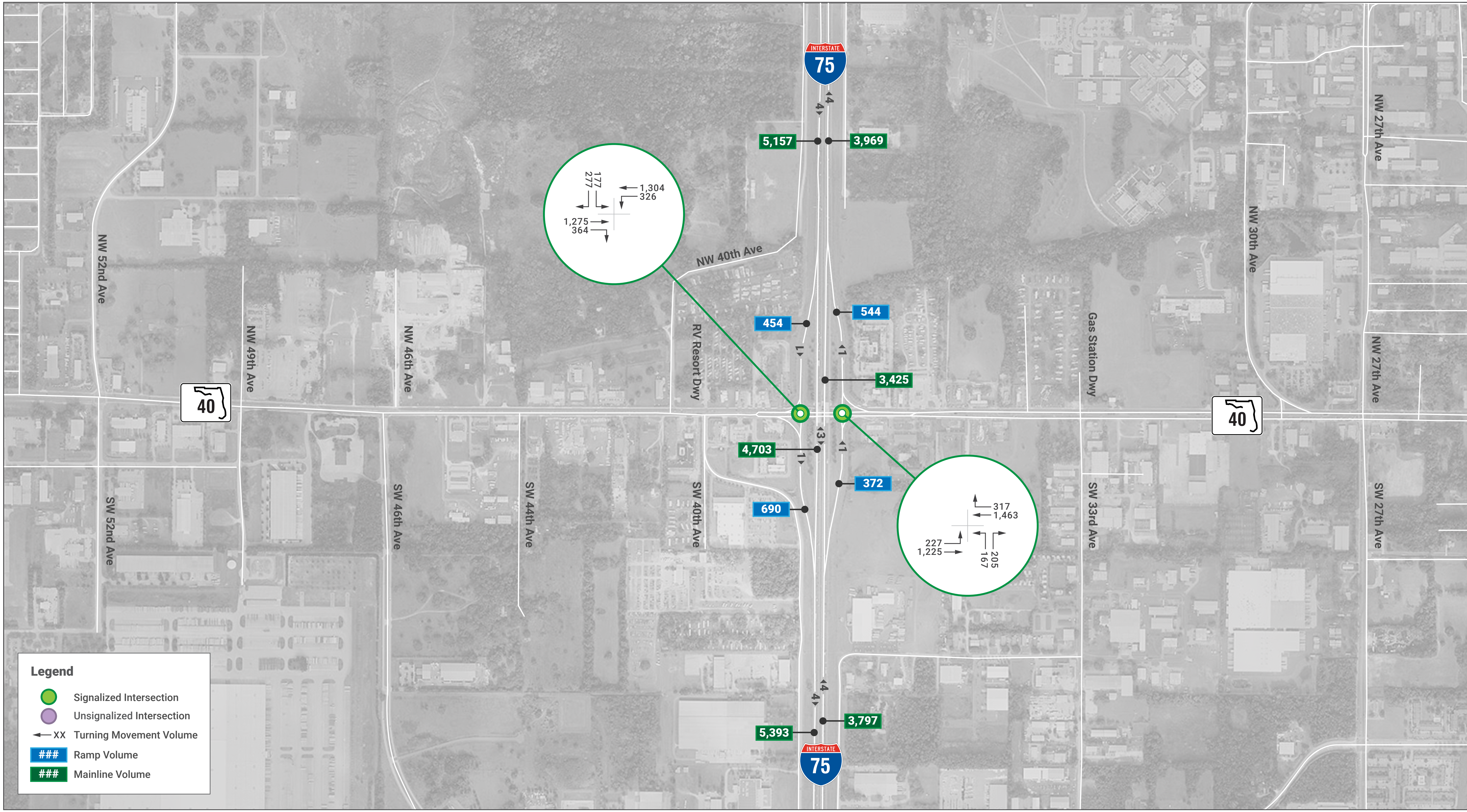
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 Build AM Peak Hour Volumes

Figure 62 (4 of 4)



Scale in Feet 0 700 North

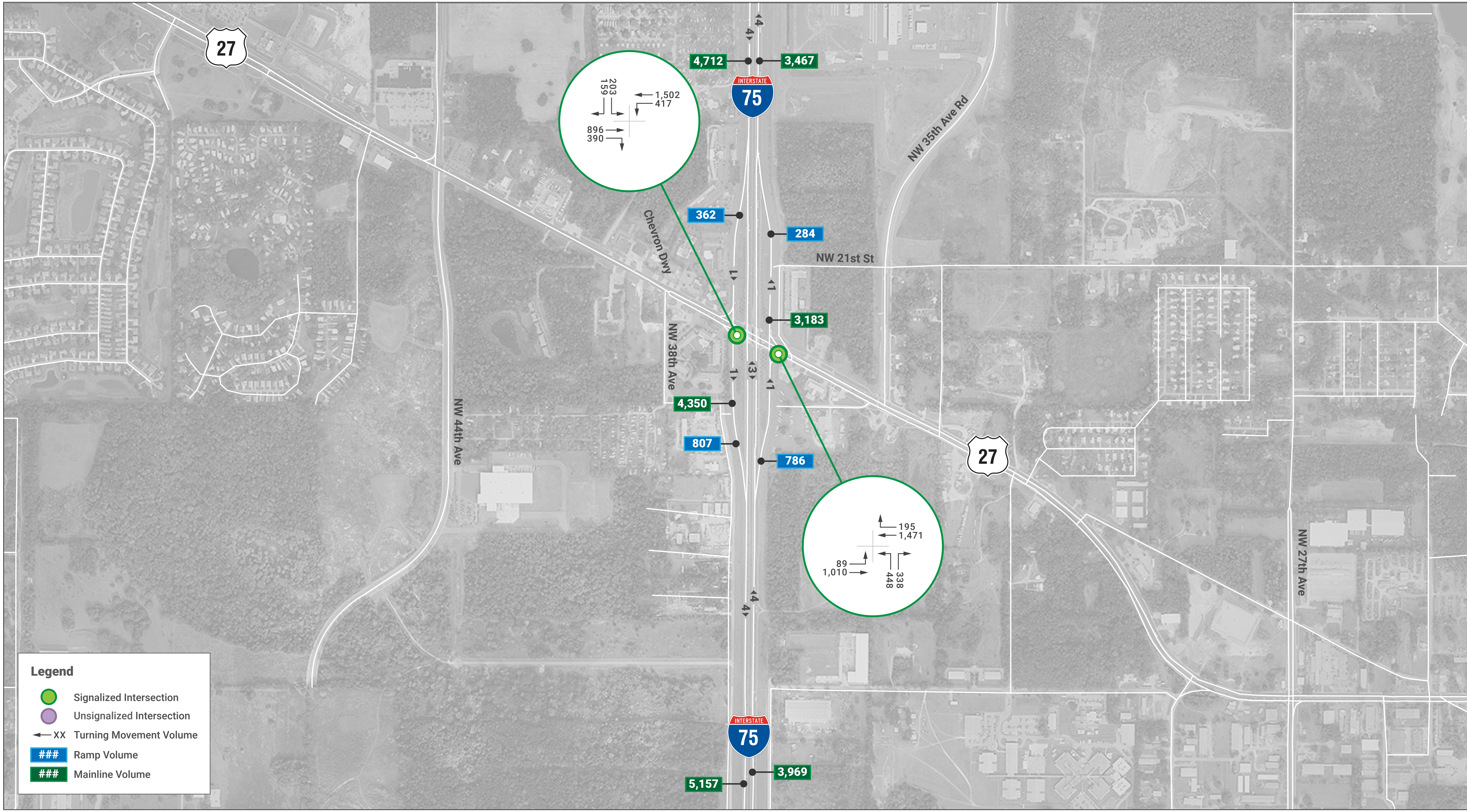
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 Build PM Peak Hour Volumes

Figure 63 (1 of 4)



I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 Build PM Peak Hour Volumes

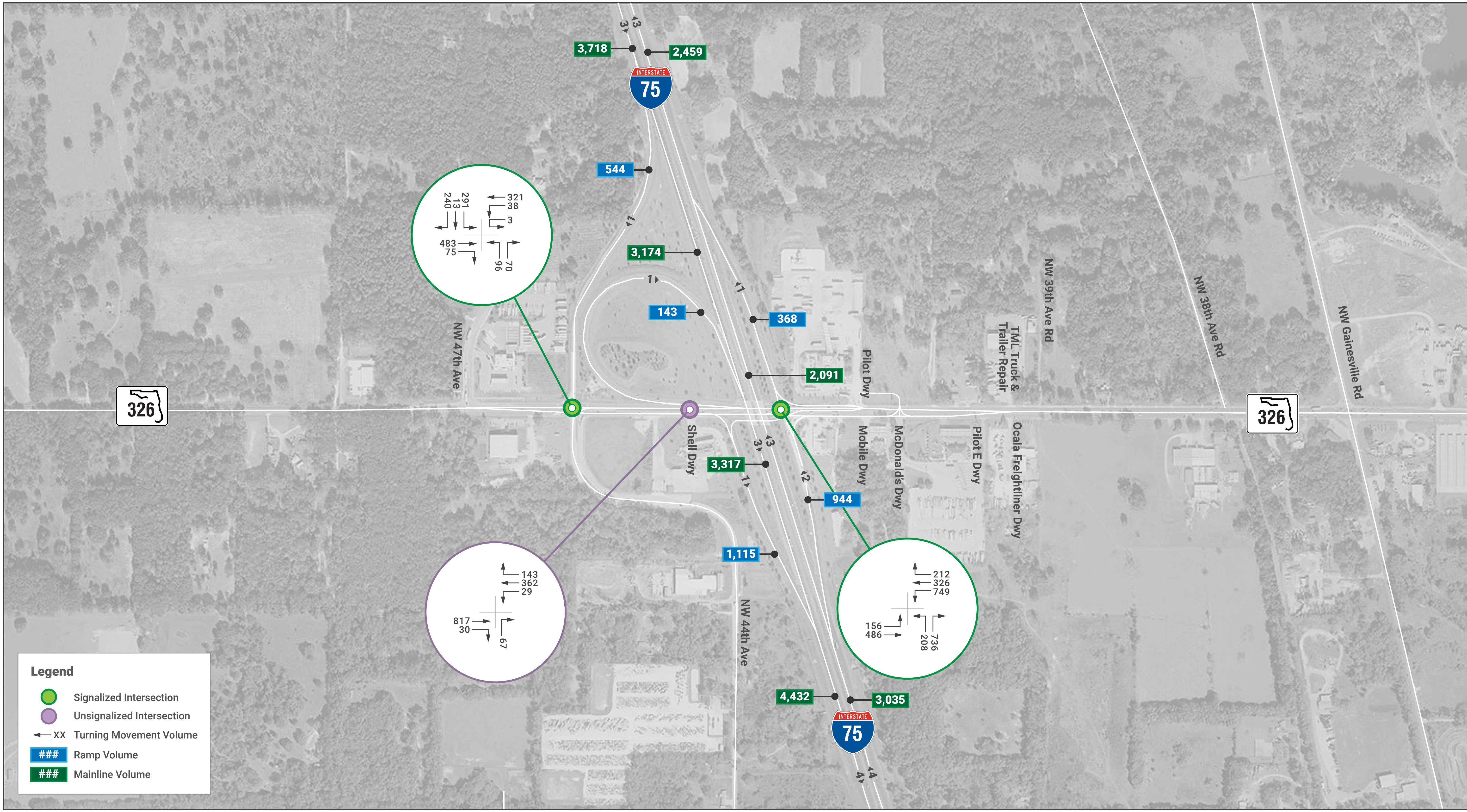
Figure 63 (2 of 4)

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 Build PM Peak Hour Volumes

Figure 63 (3 of 4)



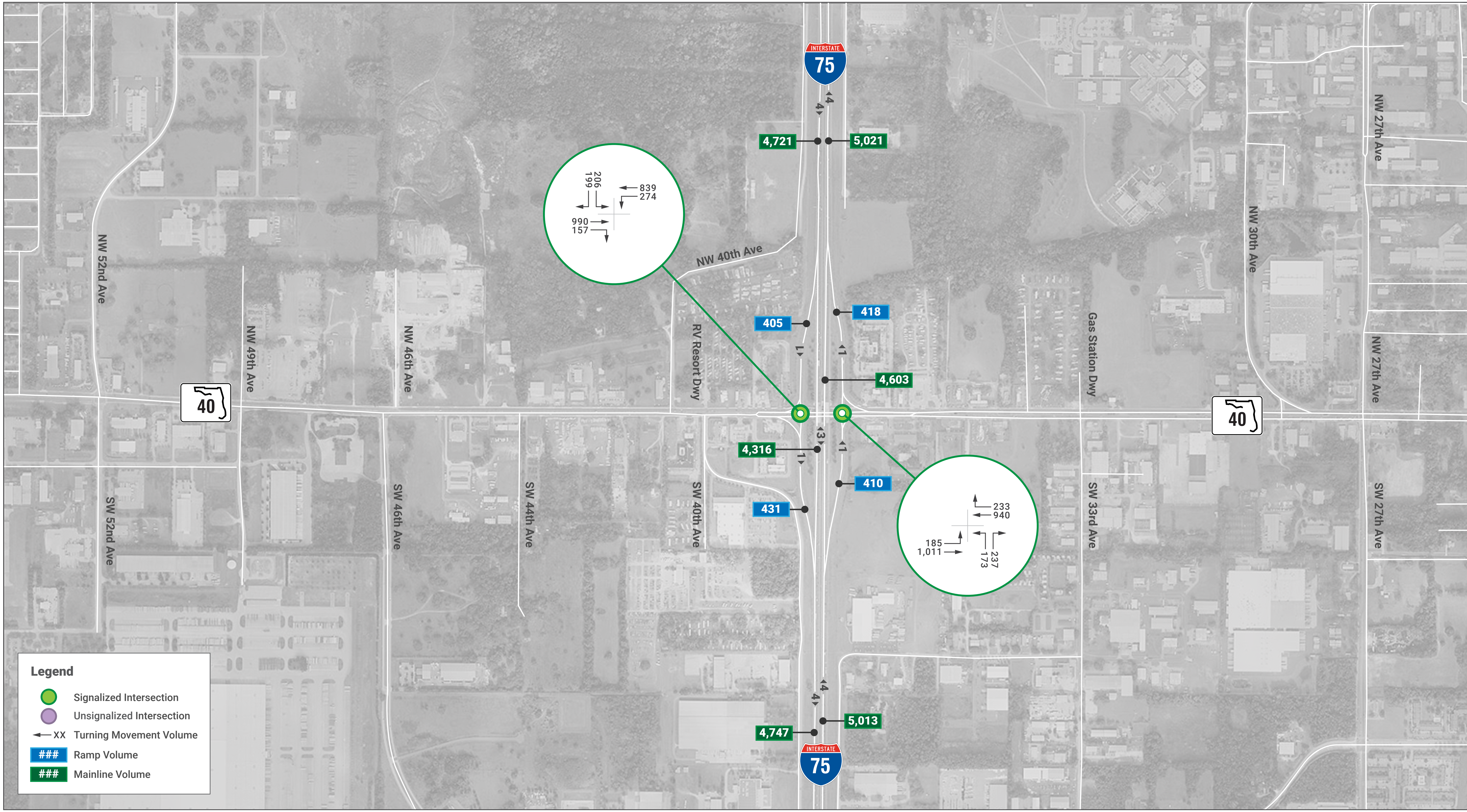
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 Build PM Peak Hour Volumes

Figure 63 (4 of 4)

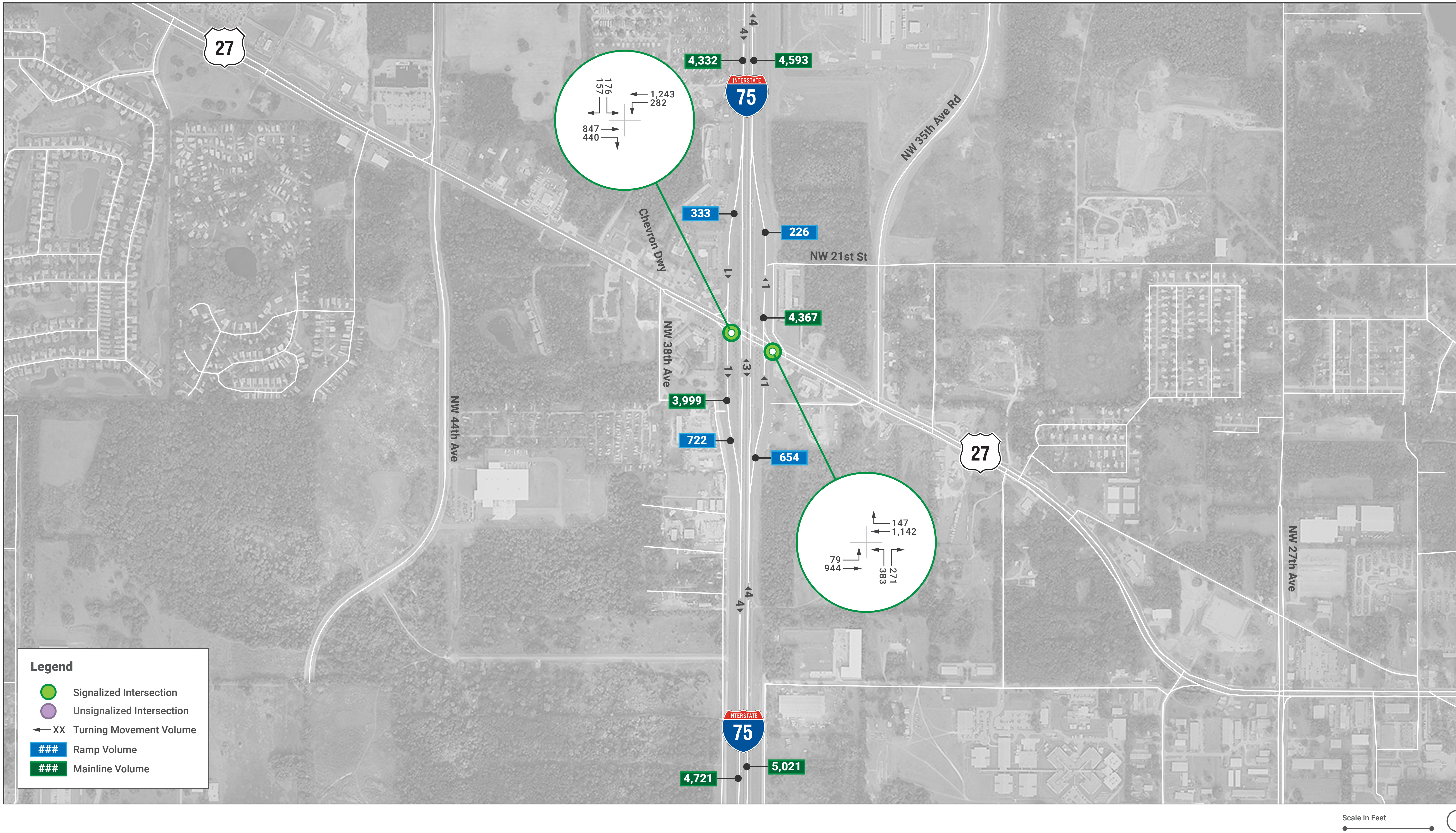


Scale in Feet
0 700
North

FDOT

I-75 PD&E North | SR 40 Interchange
SR 200 to SR 326

2030 Build Weekend Midday Peak Hour Volumes
Figure 64 (1 of 4)



FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 Build Weekend Midday Peak Hour Volumes

Figure 64 (2 of 4)

Scale in Feet 0 700 North

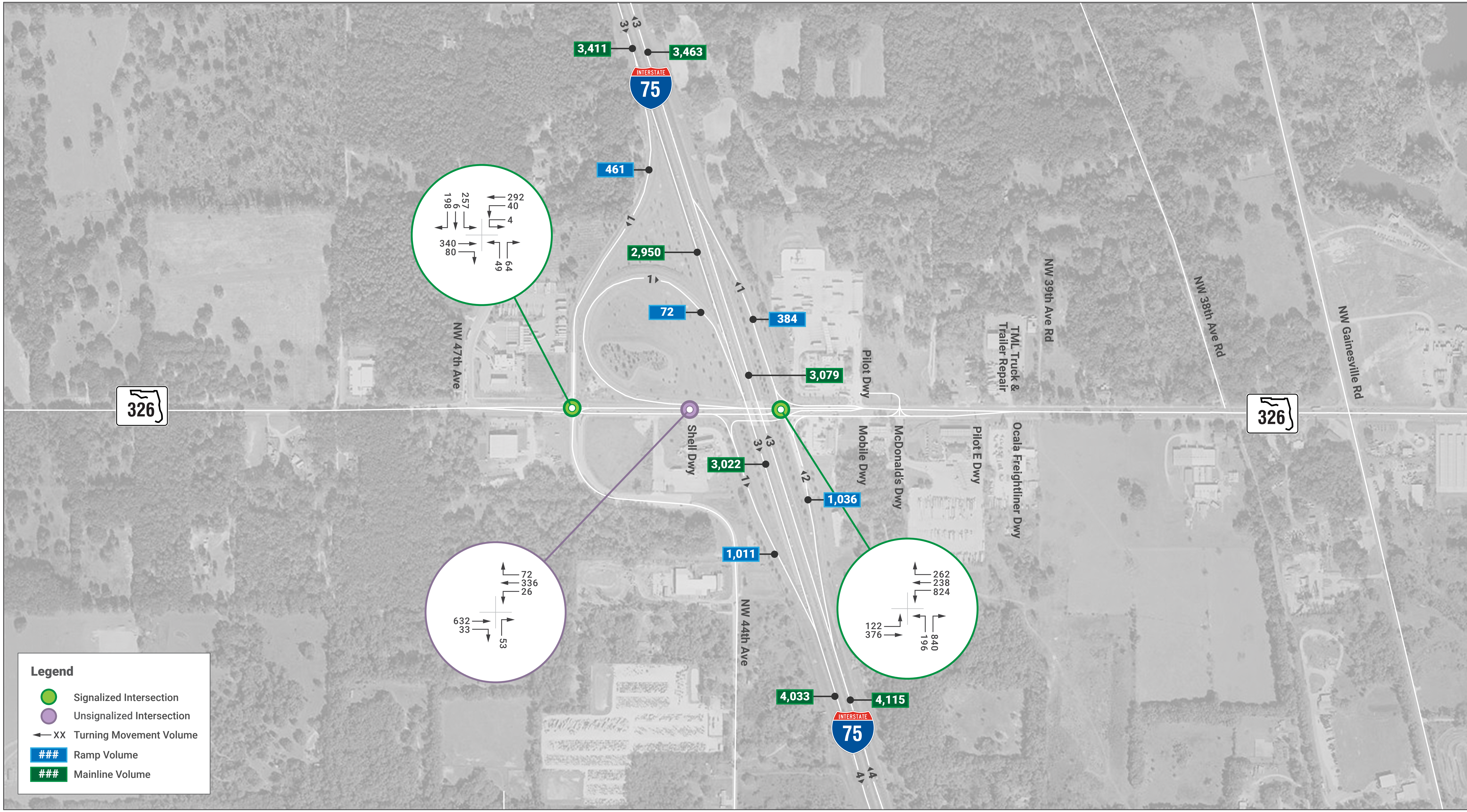
FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 Build Weekend Midday Peak Hour Volumes

Figure 64 (3 of 4)



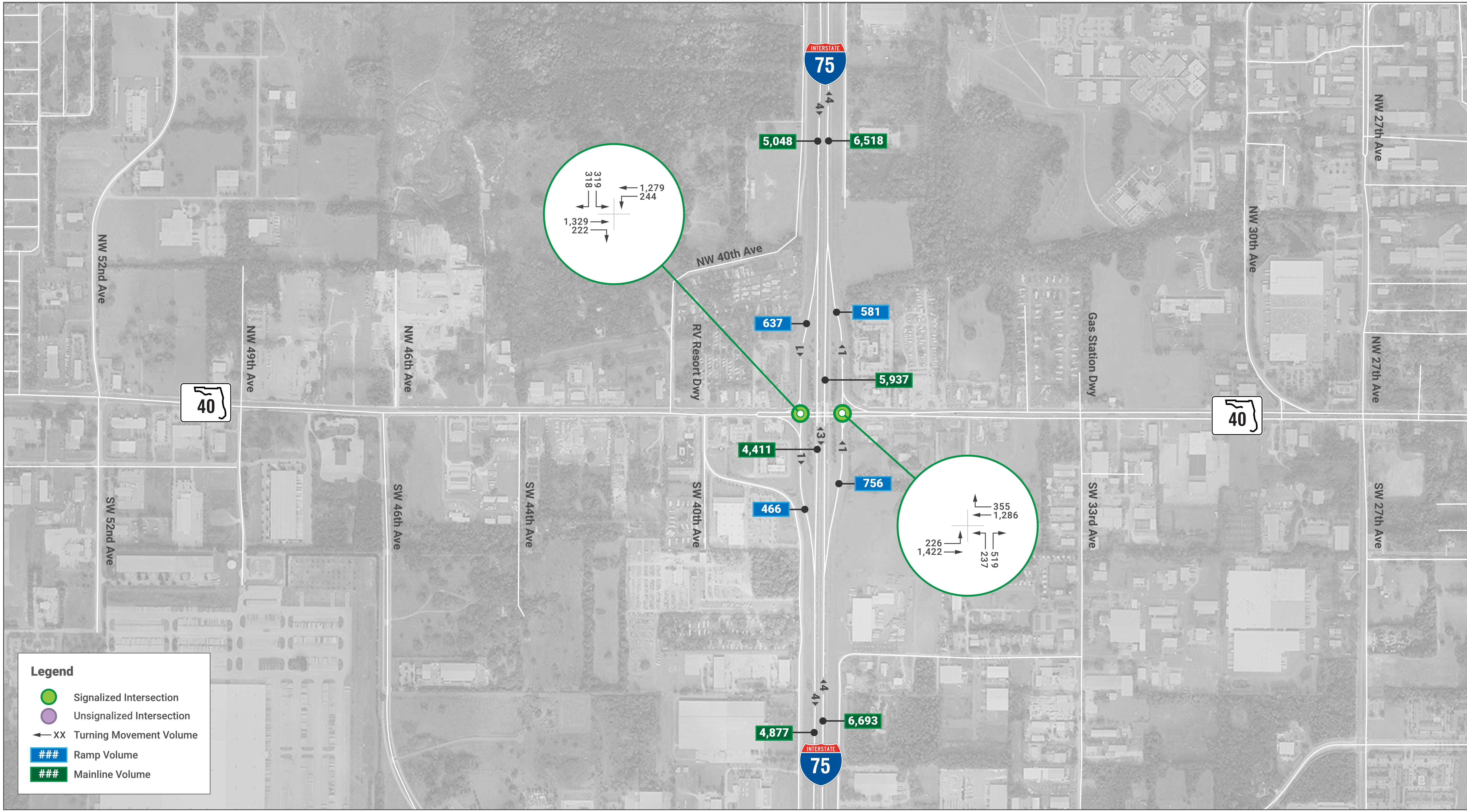
Scale in Feet
0 700
North

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 Build Weekend Midday Peak Hour Volumes

Figure 64 (4 of 4)



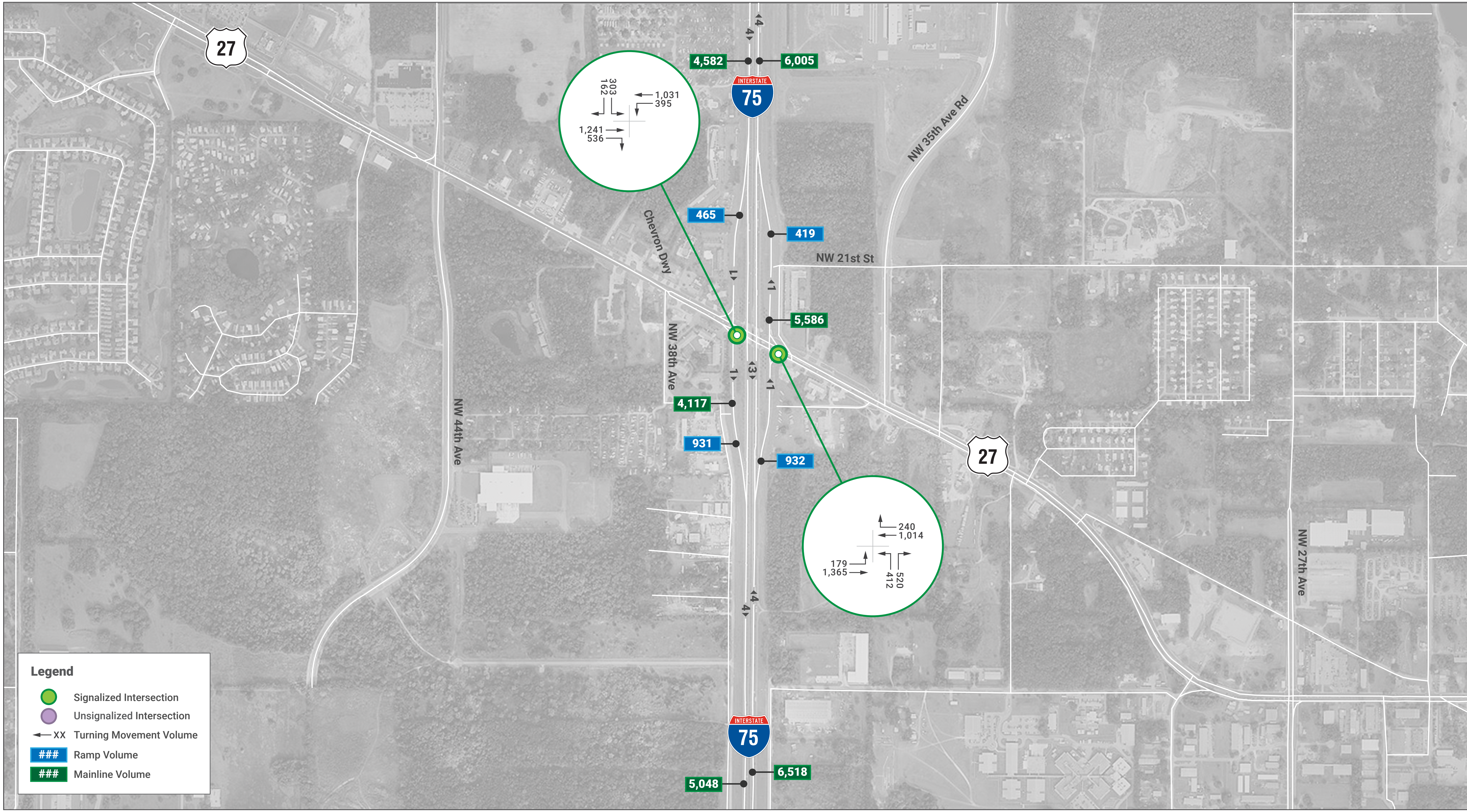
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 Build AM Peak Hour Volumes

Figure 65 (1 of 4)



FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2040 Build AM Peak Hour Volumes

Figure 65 (2 of 4)

Scale in Feet
0 700
North

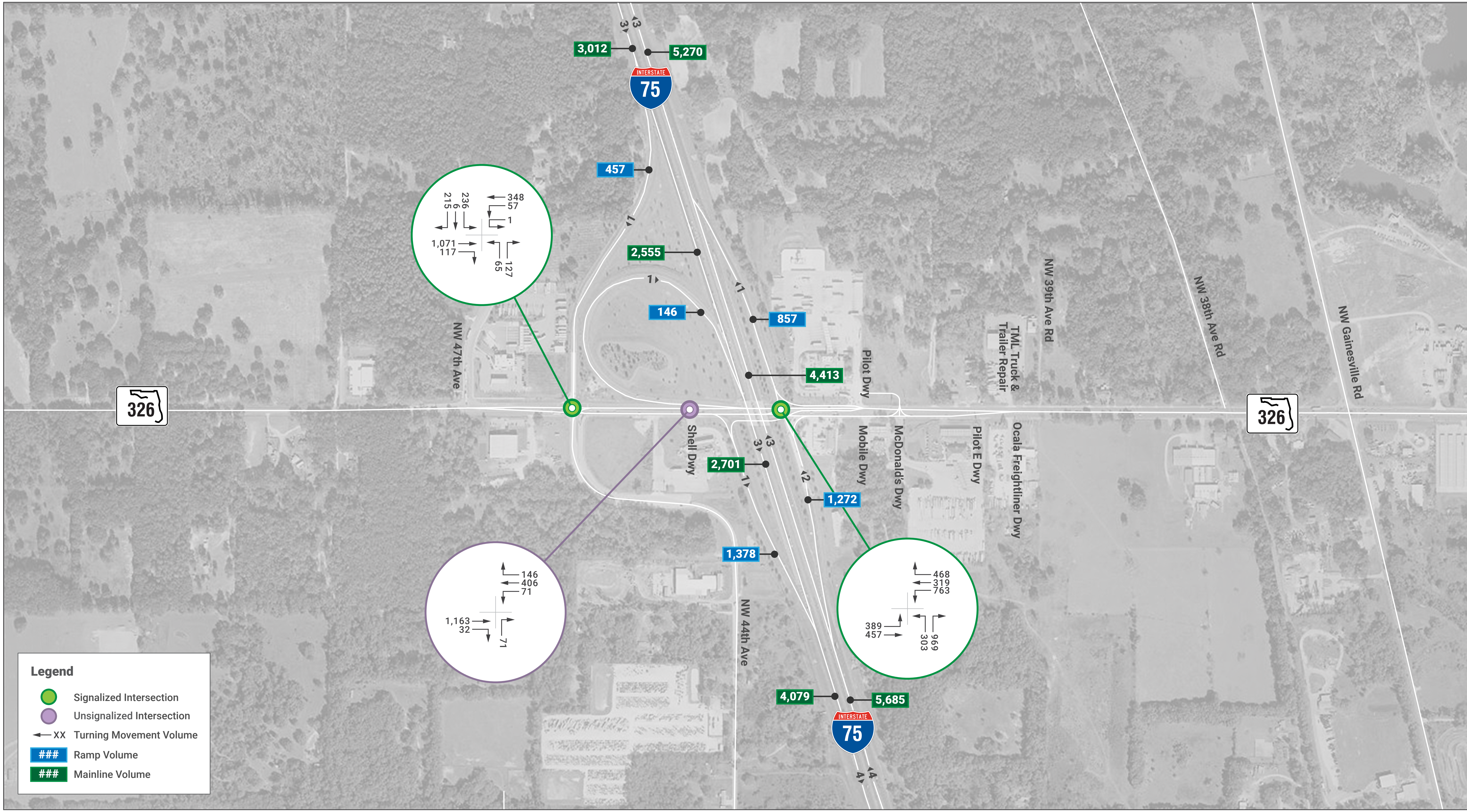
FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 Build AM Peak Hour Volumes

Figure 65 (3 of 4)



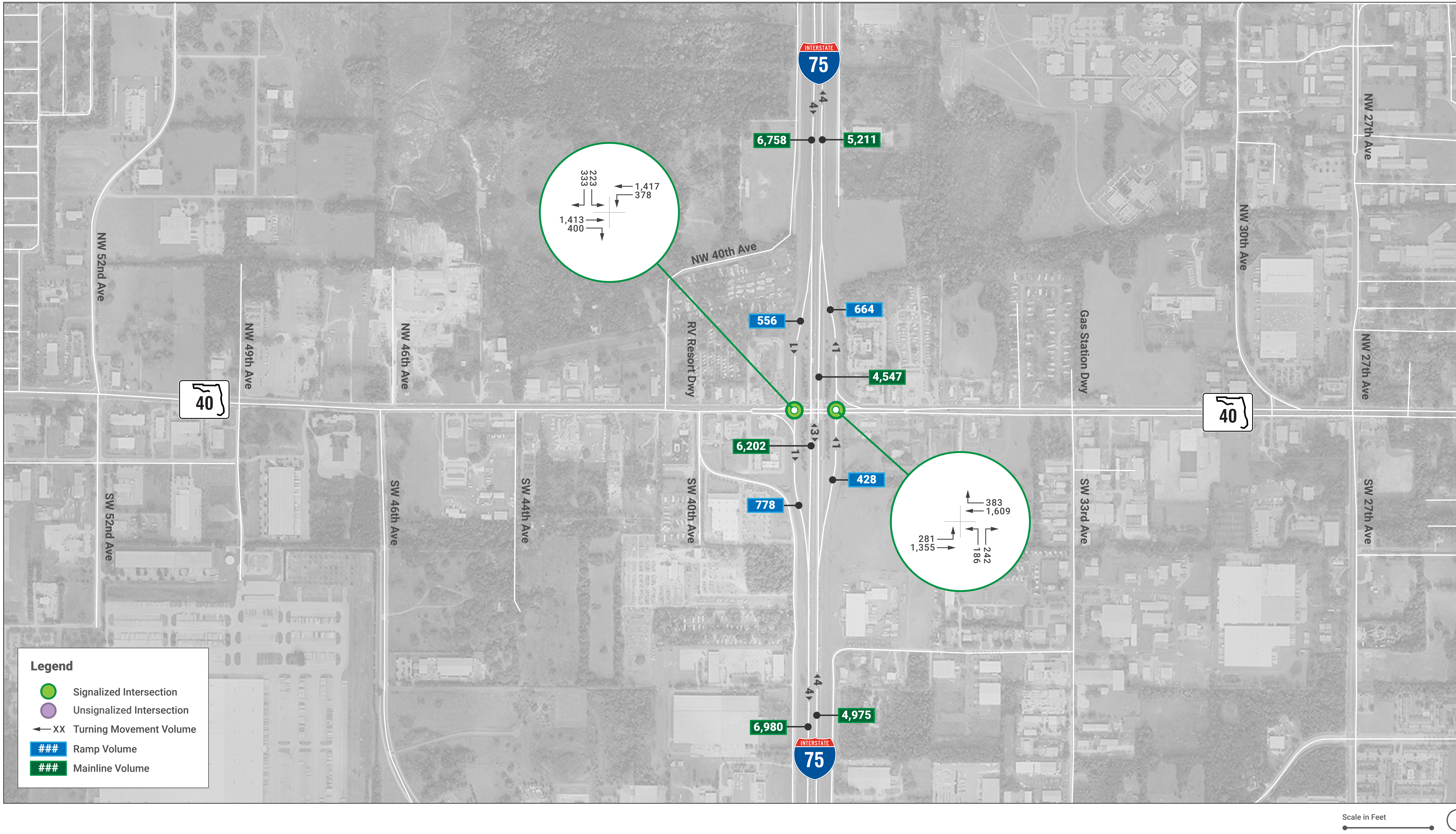
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 Build AM Peak Hour Volumes

Figure 65 (4 of 4)



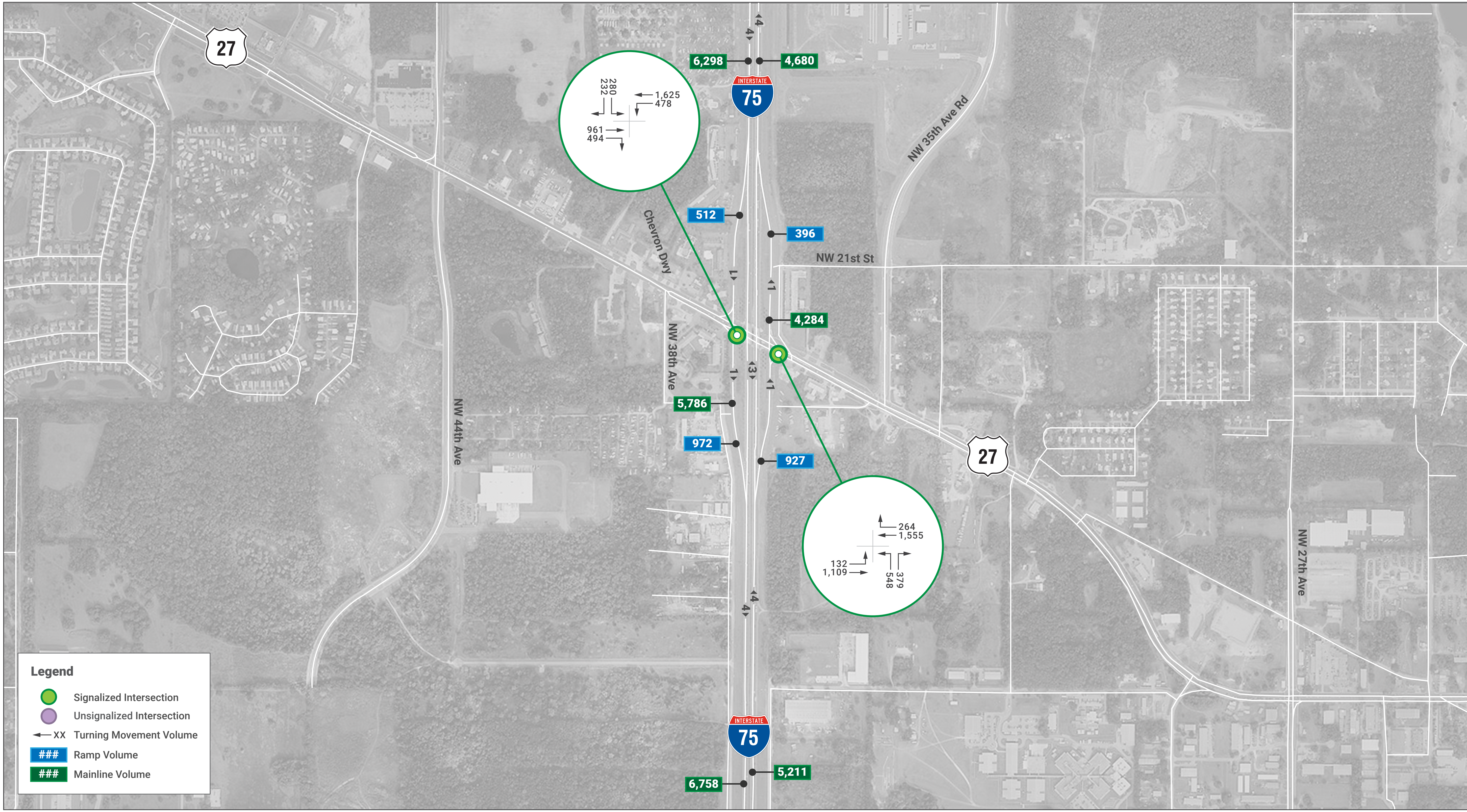
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 Build PM Peak Hour Volumes

Figure 66 (1 of 4)



Scale in Feet
0 700
North

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2040 Build PM Peak Hour Volumes

Figure 66 (2 of 4)

Scale in Feet
0 700
North

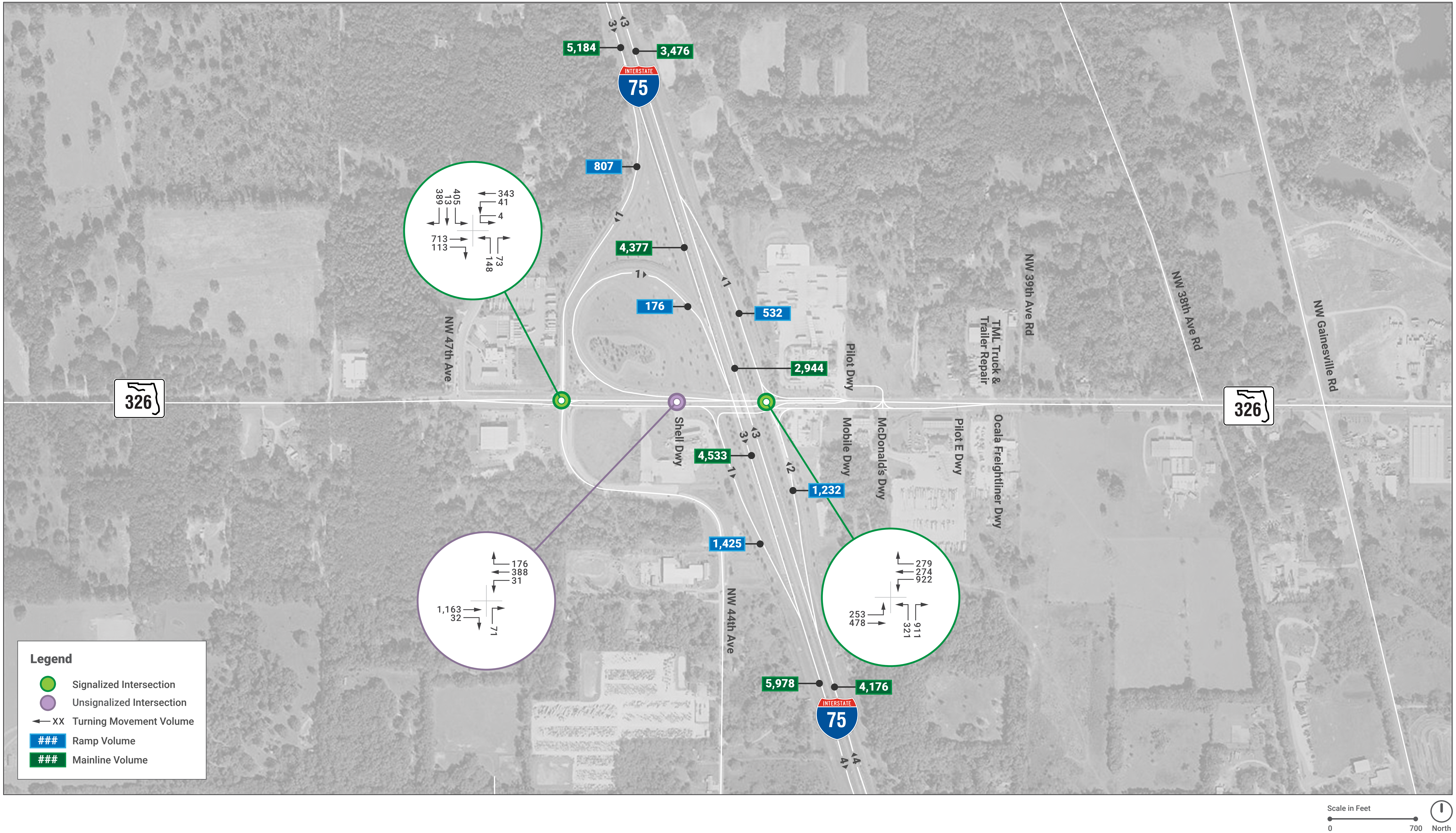
FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 Build PM Peak Hour Volumes

Figure 66 (3 of 4)

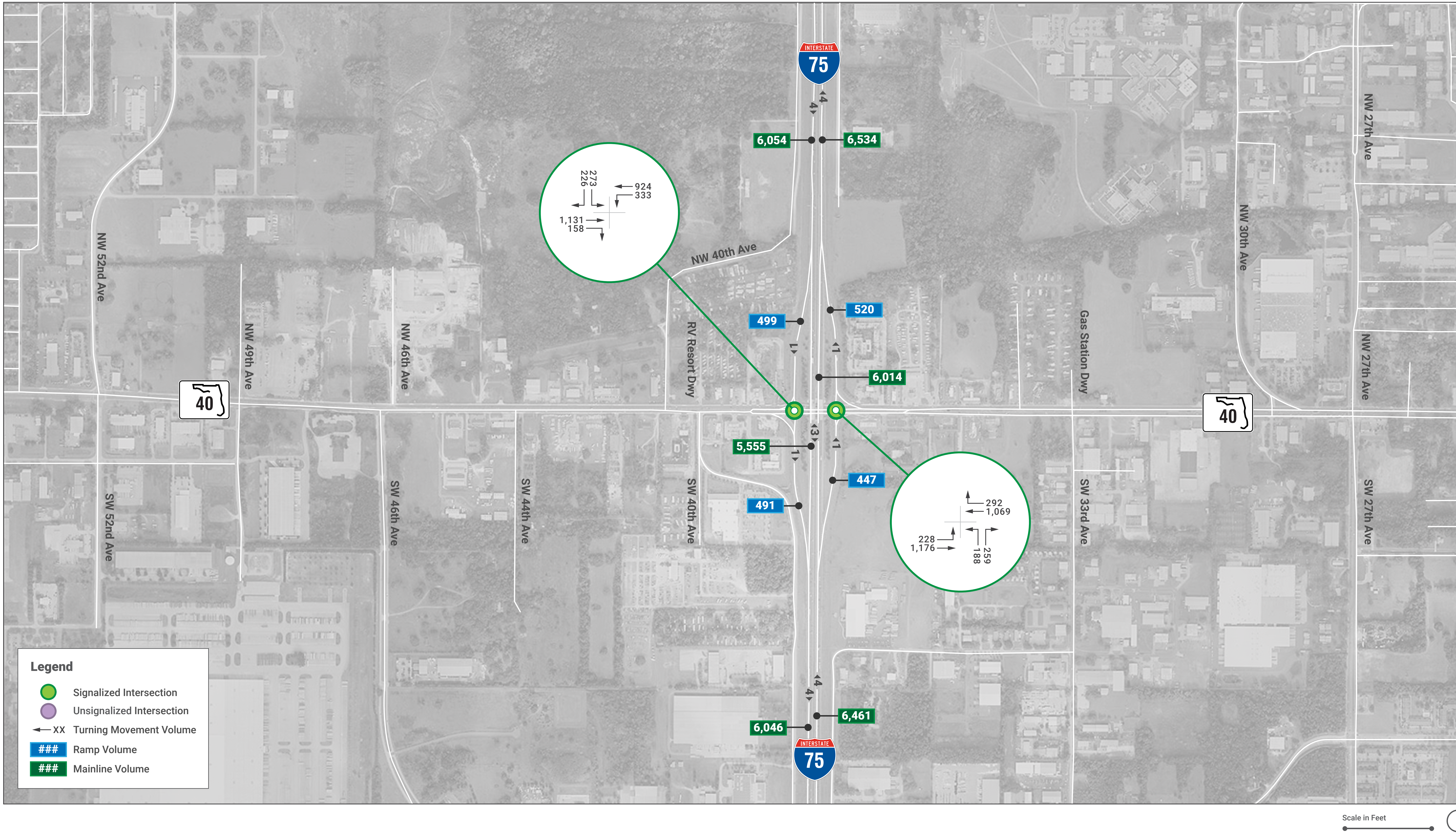


I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 Build PM Peak Hour Volumes

Figure 66 (4 of 4)



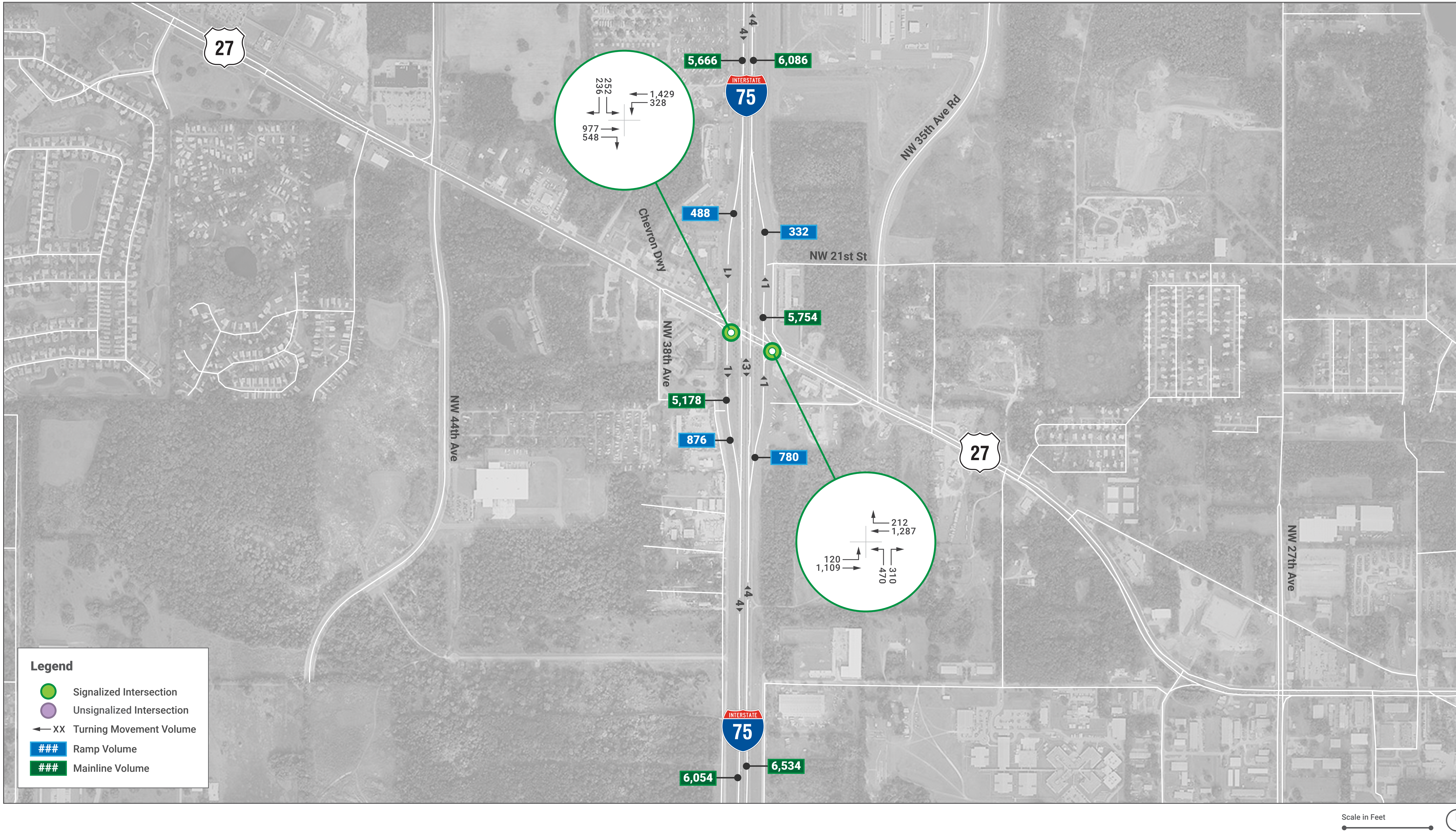
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 Build Weekend Midday Peak Hour Volumes

Figure 67 (1 of 4)



FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2040 Build Weekend Midday Peak Hour Volumes

Figure 67 (2 of 4)

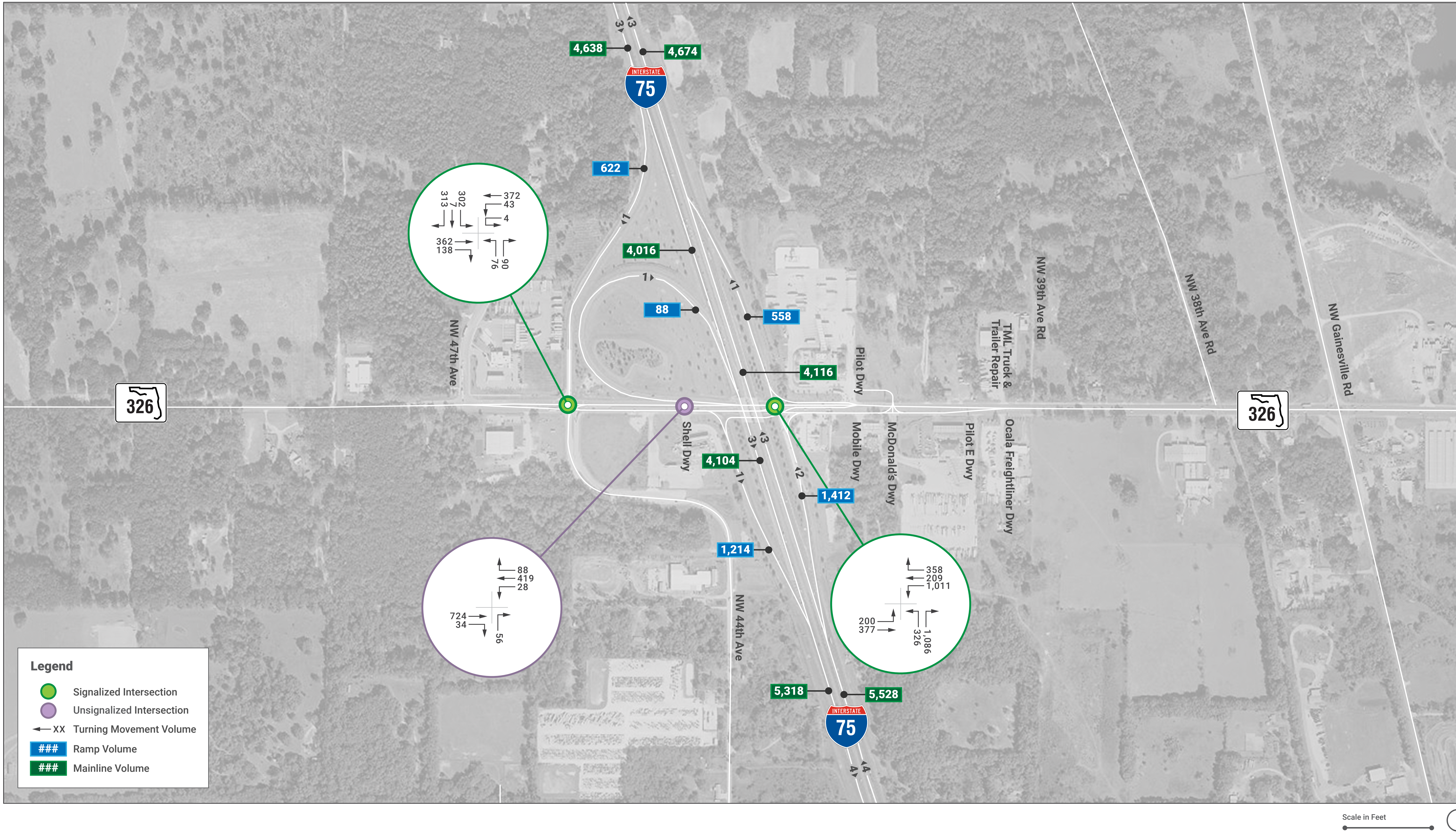
Scale in Feet 0 700 North

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 Build Weekend Midday Peak Hour Volumes

Figure 67 (3 of 4)



I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 Build Weekend Midday Peak Hour Volumes

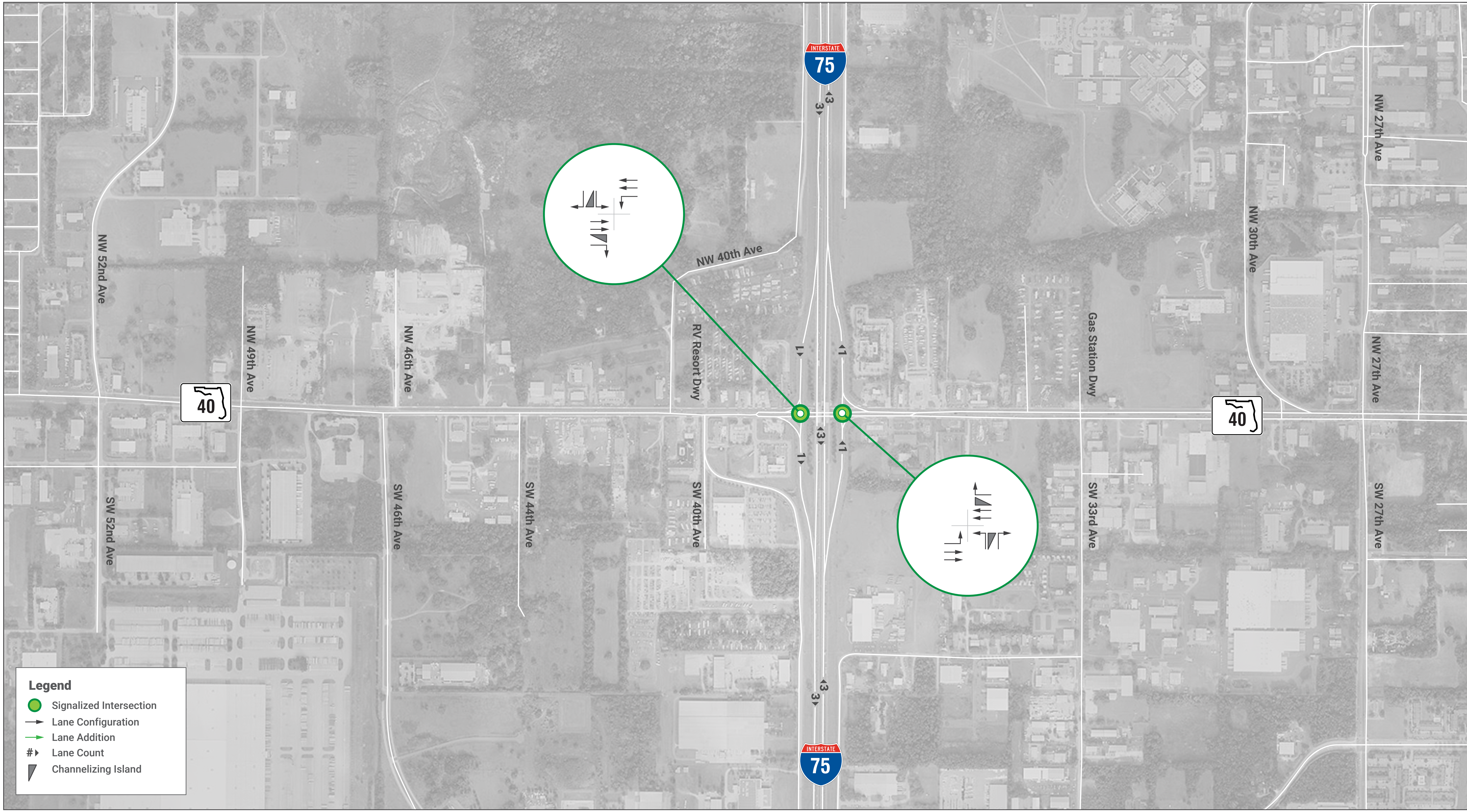
Figure 67 (4 of 4)

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 and the analysis results do not reflect non-recurring congestion operations during weather events, incidents, etc.

FUTURE NO-BUILD LANE CONFIGURATIONS

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 consistent with existing conditions except for the new I-75 at 49th Street Interchange. Based on District 5 guidance and the ongoing IJR Re-Evaluation, operational analyses were not conducted for the I-75 at 49th Street interchange in this study. The future No-Build lane configurations are illustrated in **Figure 68**.

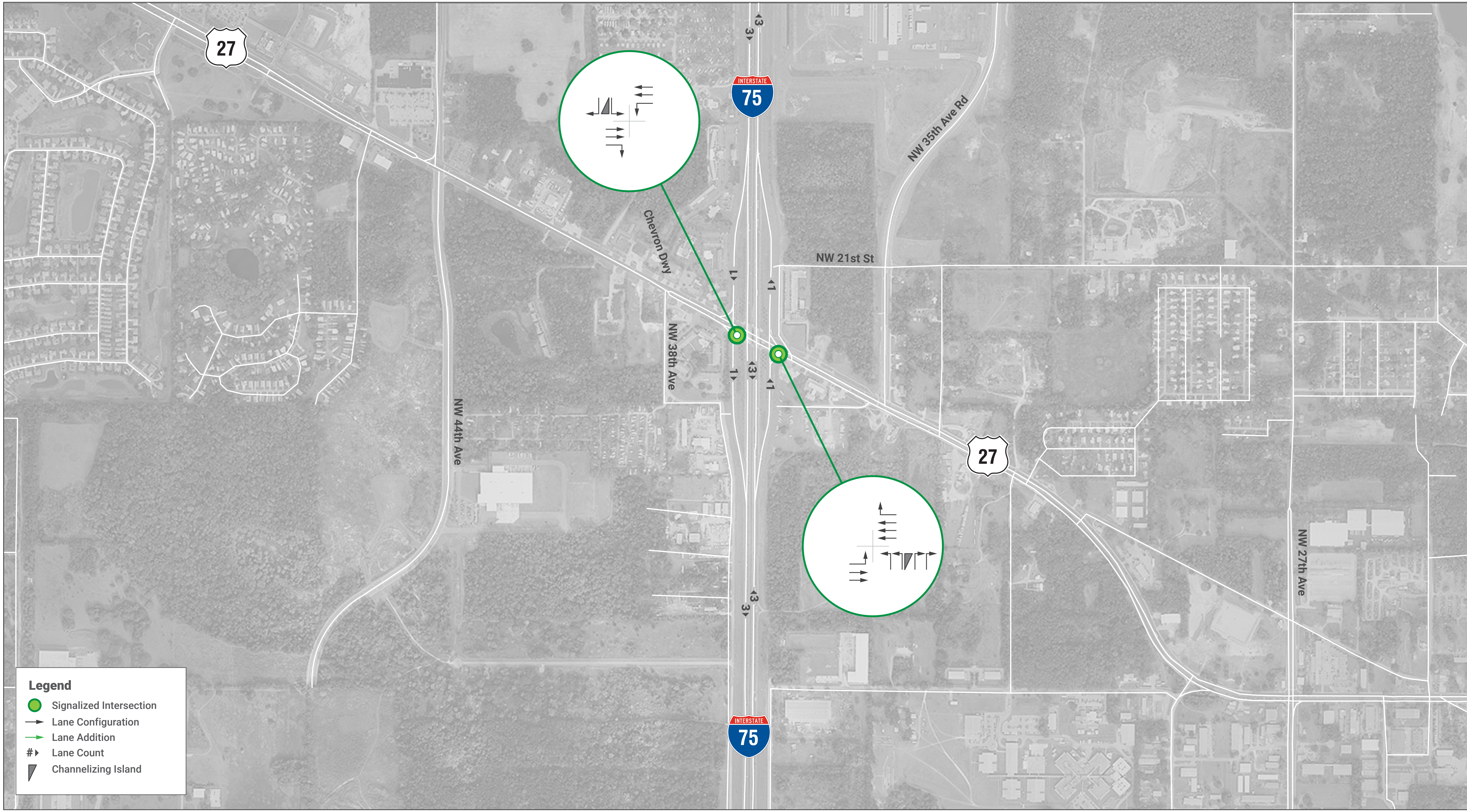


I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

Future No-Build Lane Configurations

Figure 68 (1 of 4)



FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

Future No-Build Lane Configurations

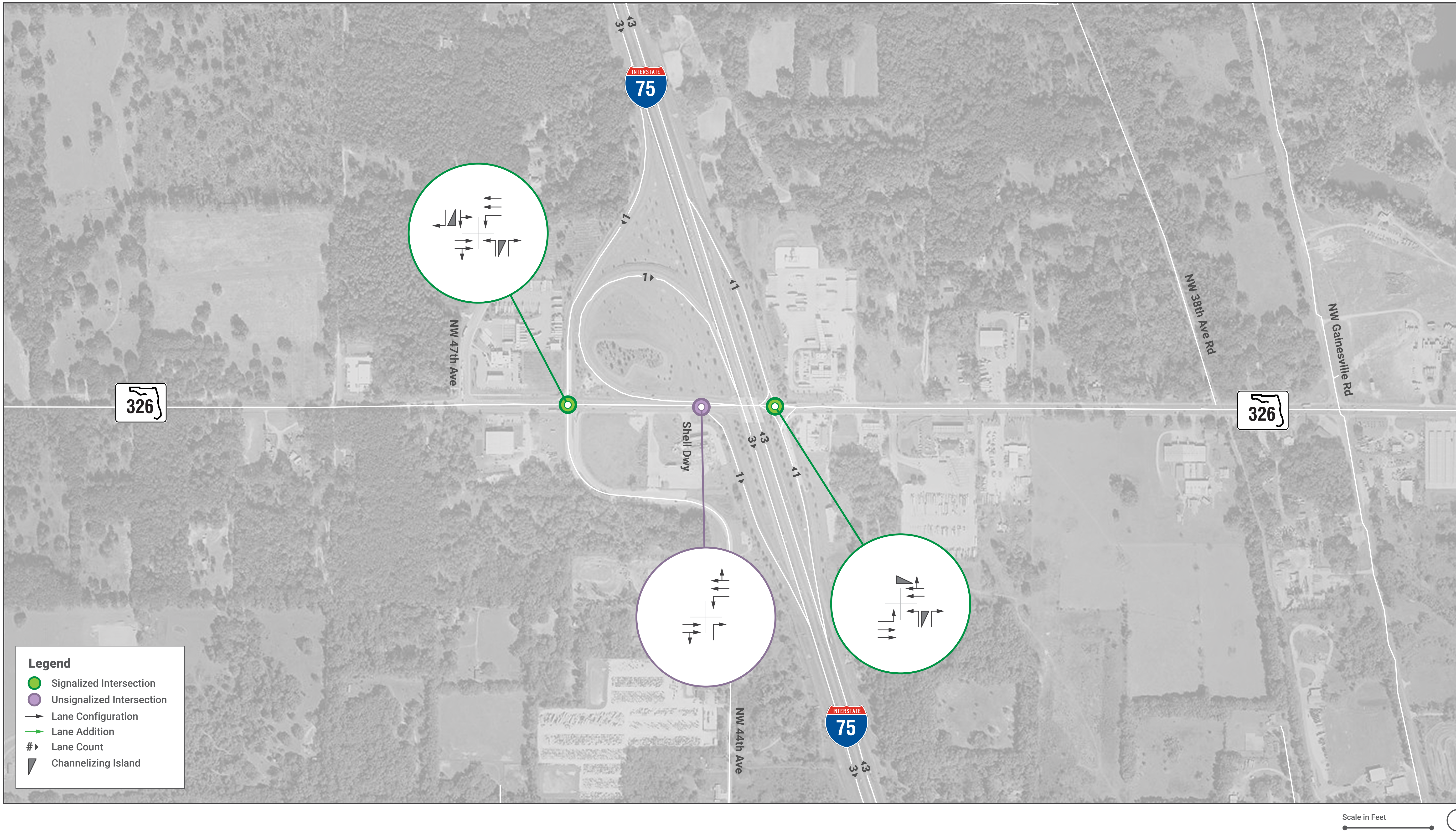
Figure 68 (2 of 4)

I-75 PD&E North | NW 49th Street Interchange Preliminary Conceptual Alternative

SR 200 to SR 326

Future No-Build Lane Configurations

Figure 68 (3 of 4)



FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

Future No-Build Lane Configurations

Figure 68 (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 intersection and freeway 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 applicable HCM 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 56** - **Figure 61** 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.
- 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.

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 69** (northbound) and **Figure 70** (southbound). The length of the northbound and southbound facilities is approximately 9.1 and 9.3 miles, respectively.

Figure 69: No-Build Northbound Freeway Facility Segmentation

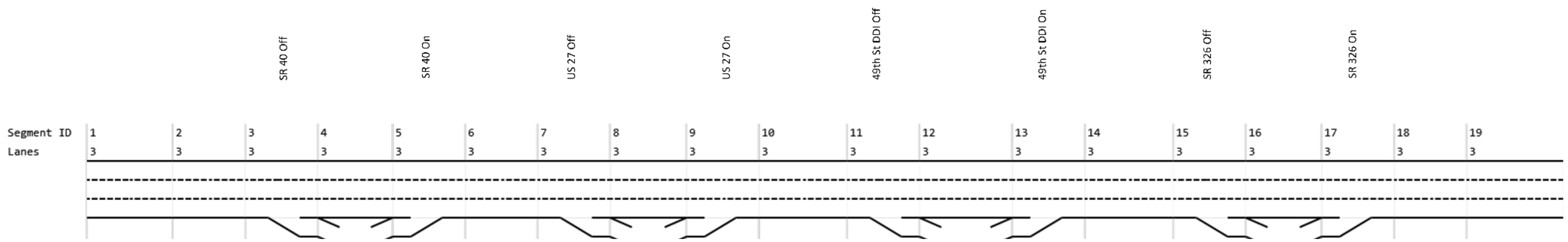
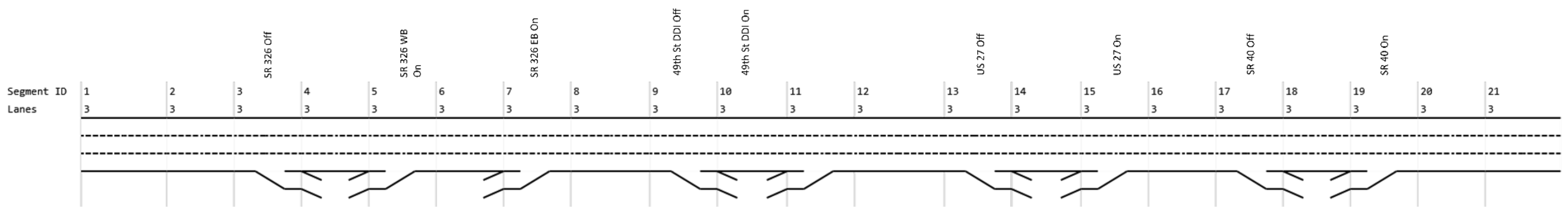


Figure 70: No-Build Southbound Freeway Facility Segmentation



2030 OPERATIONAL RESULTS

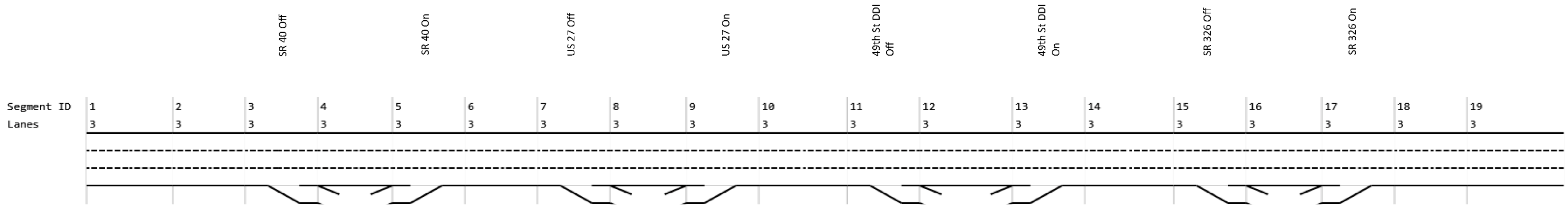
A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 35**. The HCS output reports are provided in **Appendix S.** Some spot locations are expected to experience heavy congestion under the No-Build condition during the 2030 PM and weekend peak periods. The maximum D/C ratio observed in the northbound direction is estimated to be 1.03 during the weekend midday peak period while the maximum D/C ratio is estimated to be 1.08 in the southbound direction during the PM peak period. The average speeds on this facility are expected to be 54 mph or faster in the northbound direction and between 29 and 69 mph in the southbound direction. Multiple segments on the facility are anticipated to operate at LOS F during the PM and weekend midday peak periods. 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 71**
- Northbound 2030 PM (No-Build) – **Figure 72**
- Northbound 2030 Weekend (No-Build) – **Figure 73**
- Southbound 2030 AM (No-Build) – **Figure 74**
- Southbound 2030 PM (No-Build) – **Figure 75**
- Southbound 2030 Weekend (No-Build) – **Figure 76**

Table 35: Freeway Operations Summary – 2030 No-Build

Performance Metric	North Section - AM		North Section - PM		North Section - Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	9.1	9.3	9.1	9.3	9.1	9.3
Average Travel Time (min)	8.2	8.1	8.0	18.9	10.1	8.4
Total VHD (veh-hr)	94.5	37.0	50.8	2,330.8	493.8	112.3
Space Mean Speed (mph)	66.8	68.8	68.4	29.4	54.4	66.5
Reported Density (pc/mi/ln)	21.0	14.8	17.5	53.0	28.5	22.5
Max D/C	0.98	0.76	0.85	1.08	1.03	0.89

Figure 71: Northbound 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
#1 6:15 - 6:30	0.52	0.52	0.59	0.45	0.57	0.50	0.57	0.42	0.52	0.45	0.52	0.39	0.48	0.42	0.48	0.32	0.44	0.39	0.39
#2 6:30 - 6:45	0.59	0.59	0.67	0.50	0.64	0.56	0.64	0.47	0.58	0.51	0.58	0.43	0.54	0.47	0.54	0.36	0.50	0.43	0.43
#3 6:45 - 7:00	0.69	0.69	0.79	0.60	0.76	0.66	0.76	0.56	0.69	0.60	0.69	0.51	0.64	0.56	0.64	0.43	0.59	0.51	0.51
#4 7:00 - 7:15	0.79	0.79	0.90	0.68	0.87	0.76	0.87	0.64	0.78	0.69	0.78	0.58	0.73	0.64	0.73	0.49	0.67	0.59	0.59
#5 7:15 - 7:30	0.74	0.74	0.85	0.64	0.82	0.71	0.82	0.60	0.74	0.65	0.74	0.55	0.69	0.60	0.69	0.46	0.63	0.55	0.55
#6 7:30 - 7:45	0.75	0.75	0.86	0.65	0.83	0.72	0.83	0.61	0.75	0.65	0.75	0.56	0.70	0.61	0.70	0.47	0.64	0.56	0.56
#7 7:45 - 8:00	0.86	0.86	0.98	0.74	0.94	0.83	0.94	0.69	0.85	0.75	0.85	0.64	0.79	0.70	0.79	0.53	0.73	0.64	0.64
#8 8:00 - 8:15	0.83	0.83	0.95	0.72	0.91	0.80	0.91	0.67	0.83	0.72	0.83	0.62	0.77	0.67	0.77	0.52	0.71	0.62	0.62
#9 8:15 - 8:30	0.82	0.82	0.94	0.71	0.90	0.79	0.90	0.66	0.82	0.71	0.82	0.61	0.76	0.67	0.76	0.51	0.70	0.61	0.61
#10 8:30 - 8:45	0.81	0.81	0.93	0.70	0.89	0.78	0.89	0.65	0.81	0.70	0.80	0.60	0.75	0.66	0.75	0.50	0.69	0.60	0.60
#11 8:45 - 9:00	0.79	0.79	0.91	0.68	0.87	0.76	0.87	0.64	0.79	0.69	0.79	0.59	0.73	0.64	0.73	0.49	0.68	0.59	0.59
#12 9:00 - 9:15	0.76	0.76	0.86	0.65	0.83	0.72	0.83	0.61	0.75	0.65	0.75	0.56	0.70	0.61	0.70	0.47	0.64	0.56	0.56

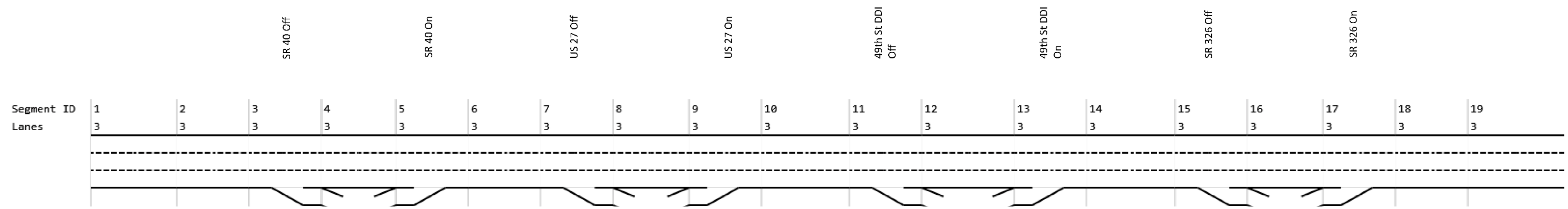
Speed Contours

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
#1 6:15 - 6:30	70.9	70.9	64.8	71.0	64.6	70.5	64.5	71.0	65.1	71.1	64.7	71.2	66.3	71.2	63.8	71.0	65.5	70.7	71.2
#2 6:30 - 6:45	69.9	69.9	64.7	71.0	64.3	70.3	64.5	71.0	64.8	71.0	64.7	71.2	66.1	71.2	63.8	71.0	65.2	70.7	71.2
#3 6:45 - 7:00	67.1	67.1	64.5	69.7	63.5	68.0	64.3	70.4	64.2	69.6	64.6	70.9	65.6	70.4	63.7	71.0	64.8	70.6	70.9
#4 7:00 - 7:15	63.1	63.1	64.2	67.5	62.6	64.6	64.1	68.8	63.6	67.3	64.4	70.0	65.0	68.7	63.5	71.0	64.3	69.9	69.9
#5 7:15 - 7:30	65.2	65.2	64.3	68.7	63.0	66.3	64.1	69.6	63.9	68.5	64.5	70.5	65.3	69.6	63.5	71.0	64.5	70.5	70.5
#6 7:30 - 7:45	64.8	64.8	64.3	68.4	62.9	66.0	64.1	69.5	63.8	68.3	64.5	70.4	65.2	69.4	63.5	71.0	64.5	70.4	70.4
#7 7:45 - 8:00	59.5	59.5	64.0	65.3	61.6	61.4	63.8	67.1	63.0	65.1	64.2	68.8	64.4	67.0	63.3	70.7	63.9	68.8	68.8
#8 8:00 - 8:15	61.0	61.0	64.1	66.2	62.0	62.7	64.0	67.8	63.2	66.0	64.3	69.3	64.6	67.7	63.3	70.9	64.0	69.2	69.2
#9 8:15 - 8:30	61.5	61.5	64.1	66.5	62.1	63.2	64.0	68.0	63.3	66.4	64.3	69.5	64.7	68.0	63.4	71.0	64.1	69.4	69.4
#10 8:30 - 8:45	62.0	62.0	64.2	66.9	62.2	63.6	64.0	68.3	63.4	66.7	64.3	69.6	64.8	68.2	63.4	71.0	64.2	69.6	69.6
#11 8:45 - 9:00	63.0	63.0	64.2	67.4	62.5	64.5	64.1	68.7	63.6	67.3	64.4	69.9	64.9	68.7	63.5	71.0	64.3	69.9	69.9
#12 9:00 - 9:15	64.7	64.7	64.3	68.4	62.9	66.0	64.1	69.5	63.8	68.3	64.5	70.4	65.2	69.4	63.5	71.0	64.5	70.4	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
#1 6:15 - 6:30	B	B	B	B	B	B	C	B	B	B	A	B	B	B	B	A	B	B	B
#2 6:30 - 6:45	C	C	C	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B
#3 6:45 - 7:00	C	C	C	C	C	C	C	B	C	C	B	B	B	B	C	B	B	B	B
#4 7:00 - 7:15	D	D	D	C	C	D	D	C	C	C	B	C	B	C	C	B	C	C	C
#5 7:15 - 7:30	C	C	C	C	C	C	C	C	C	C	B	B	B	C	C	B	B	B	B
#6 7:30 - 7:45	D	D	C	C	C	C	C	C	C	C	B	B	B	C	C	B	B	B	B
#7 7:45 - 8:00	D	D	D	C	D	D	D	C	C	C	B	C	B	C	C	B	C	C	C
#8 8:00 - 8:15	D	D	D	C	C	D	D	C	C	C	B	C	B	C	C	B	C	C	C
#9 8:15 - 8:30	D	D	D	C	C	D	D	C	C	C	B	C	B	C	C	B	C	C	C
#10 8:30 - 8:45	D	D	D	C	C	D	D	C	C	C	B	C	B	C	C	B	C	C	C
#11 8:45 - 9:00	D	D	D	C	C	D	D	C	C	C	B	C	B	C	C	B	C	C	C
#12 9:00 - 9:15	D	D	C	C	C	C	C	C	C	C	B	B	B	C	C	B	B	B	B

Figure 72: Northbound 2030 PM (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
#1 15:30 - 15:45	0.71	0.71	0.82	0.64	0.85	0.75	0.85	0.60	0.75	0.66	0.75	0.52	0.66	0.58	0.66	0.40	0.55	0.48	0.48
#2 15:45 - 16:00	0.67	0.67	0.77	0.61	0.81	0.70	0.80	0.57	0.71	0.62	0.71	0.49	0.62	0.54	0.62	0.38	0.52	0.45	0.45
#3 16:00 - 16:15	0.69	0.69	0.79	0.63	0.83	0.72	0.83	0.59	0.73	0.64	0.73	0.51	0.64	0.56	0.64	0.39	0.53	0.46	0.46
#4 16:15 - 16:30	0.65	0.65	0.75	0.59	0.78	0.68	0.78	0.55	0.69	0.60	0.69	0.48	0.60	0.53	0.60	0.37	0.50	0.44	0.44
#5 16:30 - 16:45	0.56	0.56	0.64	0.50	0.67	0.59	0.67	0.47	0.59	0.52	0.59	0.41	0.52	0.45	0.52	0.32	0.43	0.37	0.37
#6 16:45 - 17:00	0.62	0.62	0.71	0.56	0.75	0.65	0.75	0.53	0.66	0.58	0.66	0.46	0.58	0.51	0.58	0.35	0.48	0.42	0.42
#7 17:00 - 17:15	0.64	0.64	0.73	0.58	0.77	0.67	0.77	0.54	0.68	0.59	0.68	0.47	0.59	0.52	0.59	0.36	0.49	0.43	0.43
#8 17:15 - 17:30	0.66	0.66	0.76	0.60	0.79	0.69	0.79	0.56	0.70	0.61	0.70	0.49	0.61	0.54	0.61	0.37	0.51	0.44	0.44
#9 17:30 - 17:45	0.64	0.64	0.73	0.58	0.76	0.67	0.76	0.54	0.68	0.59	0.67	0.47	0.59	0.52	0.59	0.36	0.49	0.43	0.43
#10 17:45 - 18:00	0.60	0.60	0.69	0.55	0.72	0.63	0.72	0.51	0.64	0.56	0.64	0.44	0.56	0.49	0.56	0.34	0.46	0.40	0.40
#11 18:00 - 18:15	0.59	0.59	0.67	0.53	0.70	0.62	0.70	0.50	0.62	0.54	0.62	0.43	0.54	0.48	0.54	0.33	0.45	0.39	0.39
#12 18:15 - 18:30	0.55	0.55	0.63	0.50	0.66	0.58	0.66	0.47	0.58	0.51	0.58	0.41	0.51	0.45	0.51	0.31	0.42	0.37	0.37

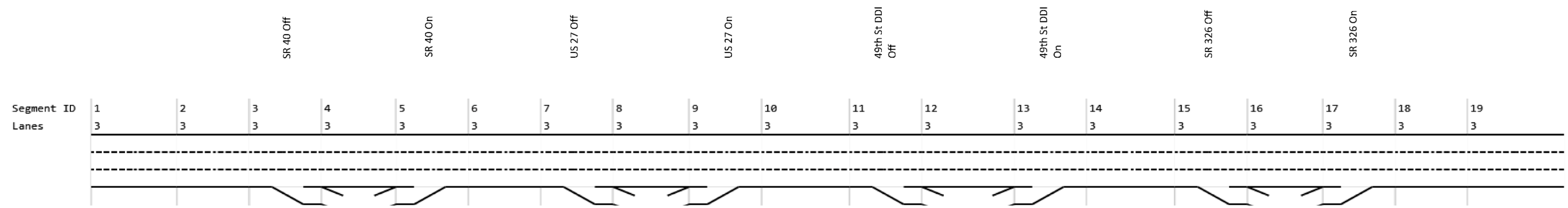
Speed Contours

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
#1 15:30 - 15:45	66.4	66.4	64.9	68.6	62.5	65.1	63.4	69.6	63.7	68.2	63.8	70.8	65.5	70.1	62.8	71.0	65.0	70.7	71.2
#2 15:45 - 16:00	67.7	67.7	65.0	69.5	63.0	66.7	63.6	70.2	64.0	69.1	63.9	71.1	65.7	70.6	63.0	71.0	65.2	70.7	71.2
#3 16:00 - 16:15	67.1	67.1	65.0	69.1	62.7	66.0	63.5	69.9	63.9	68.7	63.8	71.0	65.6	70.4	62.9	71.0	65.1	70.7	71.2
#4 16:15 - 16:30	68.3	68.3	65.0	69.9	63.2	67.4	63.6	70.5	64.2	69.6	63.9	71.1	65.8	70.8	62.9	71.0	65.2	70.7	71.2
#5 16:30 - 16:45	70.4	70.4	65.1	71.0	64.1	69.9	64.0	71.0	64.7	70.9	64.1	71.2	66.2	71.2	63.1	71.0	65.5	70.7	71.2
#6 16:45 - 17:00	69.1	69.1	65.1	70.3	63.5	68.3	63.7	70.8	64.3	70.1	63.9	71.2	65.9	71.0	63.0	71.0	65.4	70.7	71.2
#7 17:00 - 17:15	68.6	68.6	65.0	70.0	63.3	67.8	63.7	70.6	64.2	69.8	63.9	71.2	65.8	70.9	63.0	71.0	65.3	70.7	71.2
#8 17:15 - 17:30	68.0	68.0	65.0	69.7	63.1	67.1	63.6	70.4	64.1	69.4	63.9	71.1	65.8	70.7	62.9	71.0	65.2	70.7	71.2
#9 17:30 - 17:45	68.7	68.7	65.0	70.1	63.3	67.9	63.7	70.6	64.2	69.8	63.9	71.2	65.9	70.9	63.0	71.0	65.3	70.7	71.2
#10 17:45 - 18:00	69.5	69.5	65.1	70.6	63.7	68.9	63.8	70.9	64.5	70.4	64.0	71.2	66.0	71.1	63.1	71.0	65.4	70.7	71.2
#11 18:00 - 18:15	69.9	69.9	65.1	70.8	63.8	69.3	63.9	71.0	64.6	70.6	64.0	71.2	66.1	71.2	63.0	71.0	65.5	70.7	71.2
#12 18:15 - 18:30	70.5	70.5	65.1	71.0	64.1	70.1	64.0	71.0	64.7	70.9	64.1	71.2	66.2	71.2	63.1	71.0	65.5	70.7	71.2

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

Figure 73: Northbound 2030 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
#1 12:00 - 12:15	0.90	0.90	1.03	0.83	1.03	0.90	1.03	0.79	0.95	0.83	0.95	0.69	0.85	0.74	0.85	0.57	0.72	0.63	0.63
#2 12:15 - 12:30	0.90	0.90	1.03	0.83	1.03	0.90	1.03	0.79	0.95	0.83	0.95	0.69	0.85	0.74	0.85	0.57	0.72	0.63	0.63
#3 12:30 - 12:45	0.90	0.90	1.03	0.83	1.03	0.90	1.03	0.79	0.95	0.83	0.95	0.69	0.85	0.74	0.85	0.57	0.72	0.63	0.63
#4 12:45 - 13:00	0.90	0.90	1.03	0.83	1.03	0.90	1.03	0.79	0.95	0.83	0.95	0.69	0.85	0.74	0.85	0.57	0.72	0.63	0.63
#5 13:00 - 13:15	0.82	0.82	0.94	0.76	0.94	0.82	0.94	0.72	0.87	0.76	0.87	0.63	0.78	0.68	0.78	0.52	0.66	0.58	0.58
#6 13:15 - 13:30	0.82	0.82	0.94	0.76	0.94	0.82	0.94	0.72	0.87	0.76	0.87	0.63	0.78	0.68	0.78	0.52	0.66	0.58	0.58
#7 13:30 - 13:45	0.82	0.82	0.94	0.76	0.94	0.82	0.94	0.72	0.87	0.76	0.87	0.63	0.78	0.68	0.78	0.52	0.66	0.58	0.58
#8 13:45 - 14:00	0.82	0.82	0.94	0.76	0.94	0.82	0.94	0.72	0.87	0.76	0.87	0.63	0.78	0.68	0.78	0.52	0.66	0.58	0.58
#9 14:00 - 14:15	0.73	0.73	0.84	0.68	0.84	0.74	0.84	0.65	0.77	0.68	0.78	0.56	0.69	0.61	0.69	0.46	0.59	0.52	0.52
#10 14:15 - 14:30	0.73	0.73	0.84	0.68	0.84	0.74	0.84	0.65	0.77	0.68	0.78	0.56	0.69	0.61	0.69	0.46	0.59	0.52	0.52
#11 14:30 - 14:45	0.73	0.73	0.84	0.68	0.84	0.74	0.84	0.65	0.77	0.68	0.78	0.56	0.69	0.61	0.69	0.46	0.59	0.52	0.52
#12 14:45 - 15:00	0.74	0.74	0.85	0.68	0.84	0.74	0.85	0.65	0.78	0.68	0.69	0.50	0.70	0.61	0.70	0.46	0.59	0.52	0.52

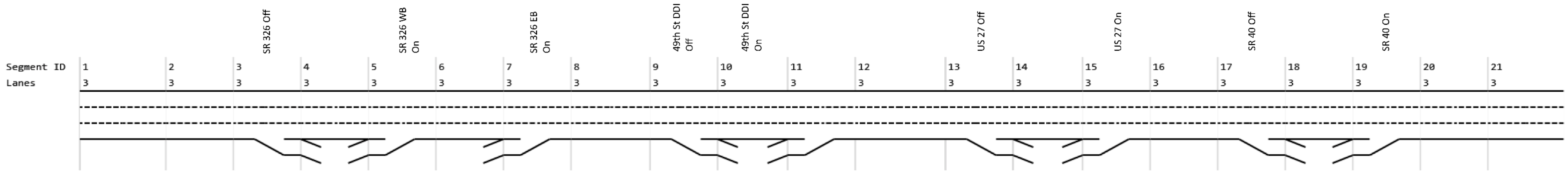
Speed Contours

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
#1 12:00 - 12:15	34.6	27.1	64.8	65.2	61.9	61.9	64.2	66.7	63.0	65.1	63.7	69.6	64.8	68.2	63.0	71.0	64.6	70.5	70.5
#2 12:15 - 12:30	25.5	25.5	64.8	65.3	61.9	62.0	64.2	66.3	62.9	64.7	63.7	69.1	64.6	67.5	63.0	70.9	64.4	69.9	69.9
#3 12:30 - 12:45	25.5	25.5	64.8	65.3	61.9	62.0	64.2	66.3	62.9	64.7	63.7	69.1	64.6	67.5	63.0	70.9	64.4	69.9	69.9
#4 12:45 - 13:00	25.5	25.5	64.8	32.8	61.9	62.0	64.2	66.3	62.9	64.7	63.7	69.1	64.6	67.5	63.0	70.9	64.4	69.9	69.9
#5 13:00 - 13:15	25.7	25.6	64.9	32.7	62.0	62.0	64.4	66.3	62.9	64.9	63.9	69.1	64.7	67.7	63.3	70.9	64.5	70.1	70.1
#6 13:15 - 13:30	25.5	25.5	64.9	31.7	62.0	62.0	64.4	66.3	62.9	64.9	63.9	69.1	64.7	67.7	63.3	70.9	64.5	70.1	70.1
#7 13:30 - 13:45	25.5	25.5	64.9	30.8	62.0	62.0	64.4	66.3	62.9	64.9	63.9	69.1	64.7	67.7	63.3	70.9	64.5	70.1	70.1
#8 13:45 - 14:00	25.5	25.5	64.9	30.0	62.0	62.0	64.4	66.3	62.9	64.9	63.9	69.1	64.7	67.7	63.3	70.9	64.5	70.1	70.1
#9 14:00 - 14:15	25.7	25.6	65.0	33.8	62.0	62.0	64.6	66.3	63.0	65.0	64.2	69.2	64.8	68.0	63.6	71.0	64.6	70.3	70.3
#10 14:15 - 14:30	25.5	25.5	65.0	64.7	62.0	62.0	64.6	66.3	63.0	65.0	64.2	69.2	64.8	68.0	63.6	71.0	64.6	70.3	70.3
#11 14:30 - 14:45	62.7	26.7	65.0	64.7	62.0	62.0	64.6	66.3	63.0	65.0	64.2	69.2	64.8	68.0	63.6	71.0	64.6	70.3	70.3
#12 14:45 - 15:00	65.3	65.0	65.0	66.7	62.6	64.4	64.6	67.9	63.4	66.8	64.1	70.0	65.1	69.0	63.5	71.0	64.8	70.6	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
#1 12:00 - 12:15	F	F	F	F	F	D	F	C	C	C	B	C	B	C	C	B	B	B	B
#2 12:15 - 12:30	F	F	F	F	F	D	F	C	C	D	B	C	B	C	C	B	B	C	C
#3 12:30 - 12:45	F	F	F	F	F	D	F	C	C	D	B	C	B	C	C	B	B	C	C
#4 12:45 - 13:00	F	F	F	F	F	D	F	C	C	D	B	C	B	C	C	B	B	C	C
#5 13:00 - 13:15	F	F	D	F	C	D	D	C	C	D	B	C	B	C	C	B	B	C	C
#6 13:15 - 13:30	F	F	D	F	C	D	D	C	C	D	B	C	B	C	C	B	B	C	C
#7 13:30 - 13:45	F	F	D	F	C	D	D	C	C	D	B	C	B	C	C	B	B	C	C
#8 13:45 - 14:00	F	F	D	F	C	D	D	C	C	D	B	C	B	C	C	B	B	C	C
#9 14:00 - 14:15	F	F	D	F	C	D	D	C	C	C	B	C	B	C	C	B	B	B	B
#10 14:15 - 14:30	F	F	D	F	C	D	D	C	C	C	B	C	B	C	C	B	B	B	B
#11 14:30 - 14:45	D	F	D	F	C	D	D	C	C	C	B	C	B	C	C	B	B	B	B
#12 14:45 - 15:00	C	C	C	C	C	D	D	C	C	C	B	C	B	C	C	B	B	B	B

Figure 74: 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
#1 6:15 - 6:30	0.24	0.24	0.27	0.20	0.34	0.29	0.40	0.35	0.40	0.31	0.46	0.40	0.46	0.36	0.52	0.46	0.52	0.39	0.51	0.44	0.44
#2 6:30 - 6:45	0.23	0.23	0.26	0.19	0.33	0.29	0.39	0.34	0.39	0.31	0.45	0.39	0.45	0.35	0.51	0.45	0.51	0.38	0.50	0.44	0.44
#3 6:45 - 7:00	0.27	0.27	0.31	0.22	0.38	0.33	0.45	0.40	0.45	0.36	0.52	0.46	0.52	0.41	0.59	0.52	0.59	0.45	0.58	0.50	0.50
#4 7:00 - 7:15	0.29	0.29	0.33	0.24	0.41	0.36	0.49	0.43	0.49	0.38	0.56	0.49	0.56	0.44	0.63	0.56	0.64	0.48	0.62	0.54	0.54
#5 7:15 - 7:30	0.34	0.34	0.38	0.28	0.48	0.42	0.57	0.50	0.57	0.45	0.66	0.57	0.66	0.52	0.74	0.65	0.74	0.56	0.72	0.63	0.63
#6 7:30 - 7:45	0.32	0.32	0.37	0.27	0.46	0.40	0.54	0.48	0.55	0.43	0.63	0.55	0.63	0.49	0.71	0.62	0.71	0.54	0.69	0.61	0.61
#7 7:45 - 8:00	0.29	0.29	0.33	0.24	0.41	0.36	0.49	0.43	0.49	0.38	0.56	0.49	0.56	0.44	0.63	0.56	0.64	0.48	0.62	0.54	0.54
#8 8:00 - 8:15	0.30	0.30	0.34	0.25	0.43	0.37	0.51	0.45	0.51	0.40	0.59	0.52	0.59	0.46	0.66	0.58	0.67	0.50	0.65	0.57	0.57
#9 8:15 - 8:30	0.31	0.31	0.36	0.26	0.45	0.39	0.53	0.47	0.53	0.42	0.61	0.54	0.61	0.48	0.69	0.61	0.70	0.52	0.68	0.59	0.59
#10 8:30 - 8:45	0.33	0.33	0.38	0.28	0.48	0.41	0.56	0.49	0.56	0.44	0.65	0.57	0.65	0.51	0.74	0.65	0.74	0.56	0.72	0.63	0.63
#11 8:45 - 9:00	0.34	0.34	0.39	0.28	0.48	0.42	0.57	0.50	0.57	0.45	0.66	0.58	0.66	0.52	0.74	0.65	0.75	0.56	0.73	0.64	0.64
#12 9:00 - 9:15	0.34	0.34	0.39	0.29	0.49	0.43	0.58	0.51	0.58	0.46	0.67	0.59	0.67	0.53	0.76	0.67	0.76	0.58	0.74	0.65	0.65

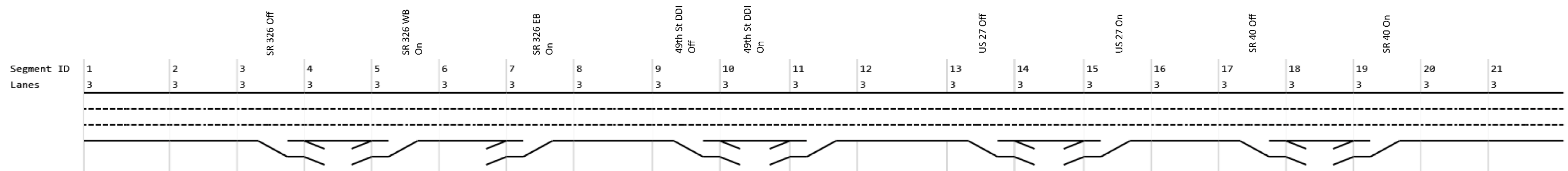
Speed Contours

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
#1 6:15 - 6:30	71.2	71.2	64.5	70.8	65.9	70.1	65.8	71.2	65.0	71.1	66.3	71.2	65.0	71.1	64.8	70.6	64.4	71.0	65.4	70.7	71.2
#2 6:30 - 6:45	71.2	71.2	64.4	70.7	66.0	70.1	65.9	71.2	64.9	71.1	66.3	71.2	65.1	71.1	64.9	70.6	64.4	71.0	65.4	70.7	71.2
#3 6:45 - 7:00	71.2	71.2	64.5	70.8	65.7	70.0	65.6	71.2	65.1	71.1	66.0	71.2	65.1	71.1	64.4	70.6	64.4	71.0	65.1	70.7	71.0
#4 7:00 - 7:15	71.2	71.2	64.4	70.7	65.6	70.0	65.5	71.2	65.1	71.1	65.8	71.1	65.2	71.1	64.2	70.4	64.3	71.0	64.9	70.6	70.6
#5 7:15 - 7:30	71.2	71.2	64.5	70.8	65.4	70.0	65.1	71.0	65.2	71.1	65.2	70.1	65.1	70.9	63.4	68.4	64.5	70.4	64.2	68.8	68.8
#6 7:30 - 7:45	71.2	71.2	64.4	70.7	65.5	70.0	65.2	71.1	65.2	71.1	65.4	70.5	65.1	71.1	63.7	69.1	64.6	70.7	64.4	69.5	69.5
#7 7:45 - 8:00	71.2	71.2	64.4	70.7	65.6	70.0	65.5	71.2	65.1	71.1	65.8	71.1	65.2	71.1	64.2	70.4	64.3	71.0	64.9	70.6	70.6
#8 8:00 - 8:15	71.2	71.2	64.5	70.8	65.6	70.0	65.3	71.2	65.2	71.1	65.7	70.9	65.1	71.1	64.0	70.0	64.2	71.0	64.6	70.2	70.2
#9 8:15 - 8:30	71.2	71.2	64.5	70.8	65.5	70.0	65.3	71.2	65.1	71.1	65.5	70.7	65.1	71.1	63.8	69.4	64.1	70.8	64.5	69.8	69.8
#10 8:30 - 8:45	71.2	71.2	64.5	70.8	65.4	70.0	65.1	71.1	65.2	71.1	65.2	70.2	65.1	70.9	63.4	68.5	64.5	70.4	64.2	68.9	68.9
#11 8:45 - 9:00	71.2	71.2	64.5	70.8	65.4	70.0	65.1	71.0	65.2	71.1	65.2	70.1	65.0	70.9	63.4	68.3	64.5	70.3	64.1	68.8	68.8
#12 9:00 - 9:15	71.2	71.2	64.5	70.8	65.4	70.0	65.0	70.9	65.1	71.1	65.1	69.9	65.1	70.8	63.2	67.9	64.5	70.1	64.0	68.4	68.4

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

Figure 75: Southbound 2030 PM (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
#1 15:30 - 15:45	0.63	0.63	0.72	0.53	0.80	0.69	0.86	0.76	0.86	0.70	0.92	0.80	0.92	0.74	1.00	0.88	1.00	0.80	1.03	0.92	0.92
#2 15:45 - 16:00	0.66	0.66	0.75	0.56	0.83	0.72	0.90	0.79	0.90	0.73	0.96	0.84	0.96	0.77	1.04	0.92	1.05	0.84	1.08	0.96	0.96
#3 16:00 - 16:15	0.62	0.62	0.70	0.52	0.78	0.68	0.84	0.74	0.84	0.68	0.90	0.79	0.90	0.73	0.98	0.86	0.98	0.78	1.01	0.90	0.90
#4 16:15 - 16:30	0.63	0.63	0.72	0.53	0.80	0.69	0.86	0.75	0.86	0.70	0.92	0.80	0.91	0.74	1.00	0.87	1.00	0.80	1.03	0.91	0.91
#5 16:30 - 16:45	0.60	0.60	0.69	0.51	0.76	0.66	0.82	0.72	0.82	0.67	0.88	0.77	0.88	0.71	0.95	0.84	0.96	0.76	0.99	0.87	0.87
#6 16:45 - 17:00	0.64	0.64	0.73	0.54	0.81	0.70	0.88	0.77	0.88	0.71	0.93	0.82	0.93	0.75	1.01	0.89	1.02	0.81	1.05	0.93	0.93
#7 17:00 - 17:15	0.58	0.58	0.67	0.50	0.74	0.64	0.80	0.70	0.80	0.65	0.85	0.75	0.85	0.69	0.93	0.81	0.93	0.74	0.96	0.85	0.85
#8 17:15 - 17:30	0.61	0.61	0.70	0.52	0.78	0.67	0.84	0.73	0.84	0.68	0.89	0.78	0.89	0.72	0.97	0.85	0.97	0.78	1.00	0.89	0.89
#9 17:30 - 17:45	0.59	0.59	0.67	0.50	0.75	0.65	0.81	0.71	0.81	0.65	0.86	0.75	0.86	0.69	0.93	0.82	0.94	0.75	0.96	0.86	0.86
#10 17:45 - 18:00	0.59	0.59	0.67	0.50	0.75	0.65	0.81	0.71	0.81	0.65	0.86	0.75	0.86	0.69	0.93	0.82	0.93	0.75	0.96	0.85	0.85
#11 18:00 - 18:15	0.54	0.54	0.62	0.46	0.69	0.60	0.74	0.65	0.74	0.60	0.79	0.69	0.79	0.64	0.86	0.75	0.86	0.69	0.89	0.79	0.79
#12 18:15 - 18:30	0.52	0.52	0.60	0.44	0.66	0.58	0.72	0.63	0.72	0.58	0.76	0.67	0.76	0.62	0.83	0.73	0.83	0.66	0.86	0.76	0.76

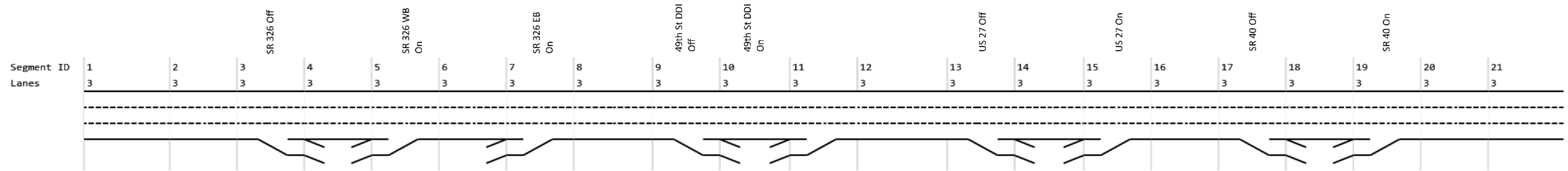
Speed Contours

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
#1 15:30 - 15:45	69.0	69.0	64.5	70.7	63.4	67.1	63.1	64.7	65.1	66.9	62.9	62.5	65.0	28.2	61.5	61.9	64.8	33.3	62.1	61.9	61.9
#2 15:45 - 16:00	68.2	68.2	64.4	70.4	62.9	66.0	62.7	63.2	65.0	65.8	62.3	38.2	27.3	16.7	61.4	62.6	38.8	18.8	62.0	62.0	62.0
#3 16:00 - 16:15	69.3	69.3	64.5	70.8	63.5	67.6	63.3	65.4	65.1	67.9	30.1	20.2	23.3	16.6	62.0	32.0	30.1	18.4	62.1	62.0	62.0
#4 16:15 - 16:30	69.0	69.0	64.5	70.7	63.4	67.5	63.4	30.6	26.6	14.6	28.3	24.7	28.7	15.2	29.6	22.8	27.9	18.3	62.1	62.0	62.0
#5 16:30 - 16:45	69.6	69.6	64.5	70.8	22.1	15.4	24.4	20.1	25.0	15.4	64.5	20.8	65.1	16.7	38.8	26.3	29.0	18.6	62.1	62.0	62.0
#6 16:45 - 17:00	69.2	69.7	20.8	10.1	12.3	14.0	24.4	18.9	27.4	16.6	29.1	22.0	27.8	15.2	36.1	25.8	28.0	18.2	62.1	62.0	62.0
#7 17:00 - 17:15	70.0	14.9	19.5	10.7	21.2	18.4	28.1	24.1	26.4	17.1	63.7	25.3	29.2	16.3	32.0	24.1	31.0	18.8	62.1	62.0	62.0
#8 17:15 - 17:30	69.2	14.2	20.7	9.9	15.1	15.5	21.1	18.1	20.4	14.6	24.2	22.6	28.4	15.8	35.7	24.4	28.3	18.5	62.1	62.0	62.0
#9 17:30 - 17:45	24.0	12.7	14.6	10.0	16.6	16.0	28.0	22.1	65.1	19.1	37.8	24.9	26.0	16.5	31.7	24.2	29.1	18.7	62.1	62.0	62.0
#10 17:45 - 18:00	30.1	17.3	64.6	11.5	18.4	15.4	21.3	22.6	30.3	16.9	64.1	20.5	24.3	15.6	28.8	22.7	28.6	18.7	62.1	62.0	62.0
#11 18:00 - 18:15	70.6	17.3	16.4	12.5	18.2	60.0	64.0	20.0	65.2	16.6	25.9	20.4	26.0	16.3	62.0	32.5	30.9	19.2	62.1	62.0	62.0
#12 18:15 - 18:30	70.8	70.6	64.7	10.7	20.7	18.1	28.6	23.4	30.7	16.4	63.9	26.8	31.9	18.2	33.6	24.5	30.3	19.3	62.2	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
#1 15:30 - 15:45	C	C	C	B	C	C	C	D	B	C	C	D	D	F	D	D	D	F	F	D	D
#2 15:45 - 16:00	C	C	C	B	C	C	C	D	B	C	C	F	F	F	F	F	F	F	F	D	D
#3 16:00 - 16:15	C	C	C	B	C	C	C	C	B	F	F	F	F	F	F	F	F	F	F	D	D
#4 16:15 - 16:30	C	C	C	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	D
#5 16:30 - 16:45	C	C	C	F	F	F	F	F	F	F	B	F	C	F	F	F	F	F	C	D	D
#6 16:45 - 17:00	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	D
#7 17:00 - 17:15	F	F	F	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	D	D
#8 17:15 - 17:30	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	C	D	D
#9 17:30 - 17:45	F	F	F	F	F	F	F	F	B	F	F	F	F	F	F	F	F	F	C	D	D
#10 17:45 - 18:00	F	F	F	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	D	D
#11 18:00 - 18:15	F	F	F	F	F	C	C	F	B	F	F	F	F	F	F	F	F	F	C	D	D
#12 18:15 - 18:30	B	B	F	F	F	F	F	F	F	F	C	F	F	F	F	F	F	F	C	D	D

Figure 76: Southbound 2030 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
#1 12:00 - 12:15	0.54	0.54	0.61	0.47	0.69	0.60	0.72	0.63	0.72	0.57	0.78	0.68	0.78	0.63	0.84	0.74	0.84	0.68	0.84	0.74	0.74
#2 12:15 - 12:30	0.54	0.54	0.61	0.47	0.69	0.60	0.72	0.63	0.72	0.57	0.78	0.68	0.78	0.63	0.84	0.74	0.84	0.68	0.84	0.74	0.74
#3 12:30 - 12:45	0.54	0.54	0.61	0.47	0.69	0.60	0.72	0.63	0.72	0.57	0.78	0.68	0.78	0.63	0.84	0.74	0.84	0.68	0.84	0.74	0.74
#4 12:45 - 13:00	0.54	0.54	0.61	0.47	0.69	0.60	0.72	0.63	0.72	0.57	0.78	0.68	0.78	0.63	0.84	0.74	0.84	0.68	0.84	0.74	0.74
#5 13:00 - 13:15	0.56	0.56	0.64	0.49	0.71	0.63	0.75	0.66	0.75	0.60	0.81	0.71	0.81	0.66	0.87	0.77	0.88	0.71	0.88	0.77	0.77
#6 13:15 - 13:30	0.56	0.56	0.64	0.49	0.71	0.63	0.75	0.66	0.75	0.60	0.81	0.71	0.81	0.66	0.87	0.77	0.88	0.71	0.88	0.77	0.77
#7 13:30 - 13:45	0.56	0.56	0.64	0.49	0.71	0.63	0.75	0.66	0.75	0.60	0.81	0.71	0.81	0.66	0.87	0.77	0.88	0.71	0.88	0.77	0.77
#8 13:45 - 14:00	0.56	0.56	0.64	0.49	0.71	0.63	0.75	0.66	0.75	0.60	0.81	0.71	0.81	0.66	0.87	0.77	0.88	0.71	0.88	0.77	0.77
#9 14:00 - 14:15	0.57	0.57	0.65	0.49	0.73	0.64	0.76	0.67	0.77	0.61	0.82	0.72	0.82	0.67	0.89	0.78	0.89	0.72	0.89	0.78	0.78
#10 14:15 - 14:30	0.57	0.57	0.65	0.49	0.73	0.64	0.76	0.67	0.77	0.61	0.82	0.72	0.82	0.67	0.89	0.78	0.89	0.72	0.89	0.78	0.78
#11 14:30 - 14:45	0.57	0.57	0.65	0.49	0.73	0.64	0.76	0.67	0.77	0.61	0.82	0.72	0.82	0.67	0.89	0.78	0.89	0.72	0.89	0.78	0.78
#12 14:45 - 15:00	0.57	0.57	0.65	0.49	0.73	0.64	0.76	0.67	0.77	0.61	0.82	0.72	0.82	0.67	0.89	0.78	0.89	0.72	0.89	0.78	0.78

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
#1 12:00 - 12:15	70.7	70.7	64.8	70.8	64.3	69.5	64.4	68.9	65.1	70.1	64.4	67.5	65.2	68.9	62.8	65.4	65.0	67.6	63.2	65.3	65.3
#2 12:15 - 12:30	70.7	70.7	64.8	70.8	64.3	69.5	64.4	68.9	65.1	70.1	64.4	67.5	65.2	68.9	62.8	65.4	65.0	67.6	63.2	65.3	65.3
#3 12:30 - 12:45	70.7	70.7	64.8	70.8	64.3	69.5	64.4	68.9	65.1	70.1	64.4	67.5	65.2	68.9	62.8	65.4	65.0	67.6	63.2	65.3	65.3
#4 12:45 - 13:00	70.7	70.7	64.8	70.8	64.3	69.5	64.4	68.9	65.1	70.1	64.4	67.5	65.2	68.9	62.8	65.4	65.0	67.6	63.2	65.3	65.3
#5 13:00 - 13:15	70.4	70.4	64.7	70.8	64.1	69.0	64.2	68.2	65.1	69.7	64.1	66.6	65.1	68.3	62.3	64.1	64.9	66.7	62.9	64.0	64.0
#6 13:15 - 13:30	70.4	70.4	64.7	70.8	64.1	69.0	64.2	68.2	65.1	69.7	64.1	66.6	65.1	68.3	62.3	64.1	64.9	66.7	62.9	64.0	64.0
#7 13:30 - 13:45	70.4	70.4	64.7	70.8	64.1	69.0	64.2	68.2	65.1	69.7	64.1	66.6	65.1	68.3	62.3	64.1	64.9	66.7	62.9	64.0	64.0
#8 13:45 - 14:00	70.4	70.4	64.7	70.8	64.1	69.0	64.2	68.2	65.1	69.7	64.1	66.6	65.1	68.3	62.3	64.1	64.9	66.7	62.9	64.0	64.0
#9 14:00 - 14:15	70.2	70.2	64.7	70.8	64.1	68.7	64.1	67.8	65.1	69.5	64.0	66.2	65.1	67.9	62.2	63.5	64.9	66.3	62.8	63.4	63.4
#10 14:15 - 14:30	70.2	70.2	64.7	70.8	64.1	68.7	64.1	67.8	65.1	69.5	64.0	66.2	65.1	67.9	62.2	63.5	64.9	66.3	62.8	63.4	63.4
#11 14:30 - 14:45	70.2	70.2	64.7	70.8	64.1	68.7	64.1	67.8	65.1	69.5	64.0	66.2	65.1	67.9	62.2	63.5	64.9	66.3	62.8	63.4	63.4
#12 14:45 - 15:00	70.2	70.2	64.7	70.8	64.1	68.7	64.1	67.8	65.1	69.5	64.0	66.2	65.1	67.9	62.2	63.5	64.9	66.3	62.8	63.4	63.4

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

The contours presented in **Figure 71** through **Figure 76** show the need for additional capacity along I-75 in the opening year (2030). The following summarizes the locations of congestion and impacts in the 2030 No-Build scenario.

- Northbound I-75
  - Additional capacity will be needed from south of the SR 40 interchange (beginning of the study limits) to the US 27 interchange.
    - 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 weekend midday peak hour is 1.03 in Segments 3, 5, and 7 (I-75 within the influence area of the on/off-ramps from/to SR 40 and off ramp to US 27). There are three lanes along I-75 at this location so based on the demand at this location, approximately 0.1 lanes worth of capacity would be needed (e.g., one auxiliary lane).
  - Additional capacity is needed to accommodate average weekend midday peak period traffic in 2030.
  - Congestion (speeds lower than 30 mph) is expected to be present between the southern study limits and through the SR 40 interchange during the 2030 weekend midday peak period. This is due to expected bottlenecks at the SR 40 interchange.
  - The northbound travel time is expected to increase by up to 2.2 minutes (approximately a 28% increase) versus the 2019 existing condition.

- Southbound I-75
  - Additional capacity will be needed between the US 27 interchange through south of the SR 40 interchange (end of the study limits).
    - The maximum D/C ratio of 1.08 is expected to occur during the 2030 PM peak period within Segment 20 (I-75 within the influence area of the on-ramp from SR 40). There are three lanes along I-75 at this location so based on the demand at this location, approximately 0.3 lanes worth of capacity would be needed (e.g., one auxiliary lane).
  - 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 from the SR 326 interchange through the SR 40 interchange during the 2030 PM peak period.
    - It is important to note that there are several major active bottlenecks in this segment. Addressing only the first few major bottlenecks along the southbound limits will still result in capacity constraints and severe congestion downstream.

- The southbound travel time is expected to increase by up to 10.9 minutes (approximately a 136% 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 T.** The facility is anticipated to worsen from the 2030 conditions with heavy congestion during the 2040 AM, PM, and weekend peak periods for both the northbound and southbound directions. Multiple segments of the facility are anticipated to operate at LOS F during each of the peak periods. The maximum D/C ratio observed in the northbound direction is estimated to be 1.35 during the AM peak period while the maximum D/C ratio is estimated to be 1.40 in the southbound direction during the PM peak period. The average speeds on this facility are expected to be below 56 mph in the northbound direction and below 58 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 77**
- Northbound 2040 PM (No-Build) – **Figure 78**
- Northbound 2040 Weekend (No-Build) – **Figure 79**
- Southbound 2040 AM (No-Build) – **Figure 80**
- Southbound 2040 PM (No-Build) – **Figure 81**
- Southbound 2040 Weekend (No-Build) – **Figure 82**

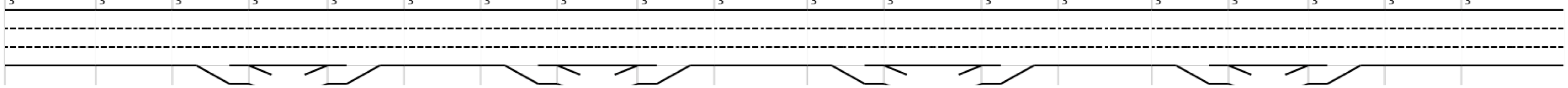
Table 36: Freeway Operations Summary – 2040 No-Build

Performance Metric	North Section - AM		North Section - PM		North Section - Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	9.1	9.3	9.1	9.3	9.1	9.3
Average Travel Time (min)	9.8	9.7	12.0	26.9	11.6	21.5
Total VHD (veh-hr)	466.4	363.2	883.8	3,820.0	847.0	2,943.6
Space Mean Speed (mph)	55.9	57.4	45.5	20.7	47.1	25.9
Reported Density (pc/mi/ln)	29.4	25.3	33.2	71.7	34.0	62.2
Max D/C	1.35	1.06	1.12	1.40	1.34	1.16

Figure 77: Northbound 2040 AM (No-Build) – Operational Contours

SR 40 Off | SR 40 On | US 27 Off | US 27 On | 49th St DDI Off | 49th St DDI On | SR 326 Off | SR 326 On

Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Lanes	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
#1 6:15 - 6:30	0.72	0.72	0.82	0.64	0.80	0.70	0.80	0.60	0.74	0.65	0.74	0.57	0.70	0.61	0.70	0.48	0.66	0.58	0.58
#2 6:30 - 6:45	0.81	0.81	0.92	0.71	0.90	0.78	0.90	0.68	0.83	0.73	0.83	0.64	0.79	0.69	0.79	0.54	0.74	0.65	0.65
#3 6:45 - 7:00	0.95	0.95	1.09	0.84	1.06	0.93	1.06	0.80	0.98	0.86	0.98	0.76	0.93	0.81	0.93	0.64	0.88	0.77	0.77
#4 7:00 - 7:15	1.09	1.09	1.24	0.96	1.21	1.06	1.21	0.91	1.13	0.98	1.12	0.87	1.06	0.93	1.06	0.73	1.01	0.88	0.88
#5 7:15 - 7:30	1.02	1.02	1.17	0.91	1.14	1.00	1.14	0.86	1.06	0.93	1.06	0.82	1.00	0.88	1.00	0.69	0.95	0.82	0.82
#6 7:30 - 7:45	1.04	1.04	1.18	0.92	1.15	1.01	1.15	0.87	1.07	0.94	1.07	0.83	1.01	0.89	1.01	0.70	0.96	0.84	0.84
#7 7:45 - 8:00	1.18	1.18	1.35	1.05	1.32	1.15	1.32	0.99	1.22	1.07	1.22	0.94	1.16	1.01	1.16	0.79	1.09	0.95	0.95
#8 8:00 - 8:15	1.15	1.15	1.31	1.02	1.27	1.12	1.27	0.96	1.18	1.04	1.18	0.91	1.12	0.98	1.12	0.77	1.06	0.92	0.92
#9 8:15 - 8:30	1.13	1.13	1.29	1.00	1.26	1.10	1.26	0.95	1.17	1.02	1.17	0.90	1.11	0.97	1.11	0.76	1.05	0.91	0.91
#10 8:30 - 8:45	1.12	1.12	1.28	0.99	1.24	1.09	1.24	0.94	1.16	1.01	1.16	0.89	1.09	0.96	1.09	0.75	1.03	0.90	0.90
#11 8:45 - 9:00	1.09	1.09	1.25	0.97	1.21	1.06	1.21	0.92	1.13	0.99	1.13	0.87	1.07	0.93	1.07	0.73	1.01	0.88	0.88
#12 9:00 - 9:15	1.04	1.04	1.19	0.92	1.16	1.01	1.16	0.87	1.07	0.94	1.07	0.83	1.02	0.89	1.02	0.70	0.96	0.84	0.84

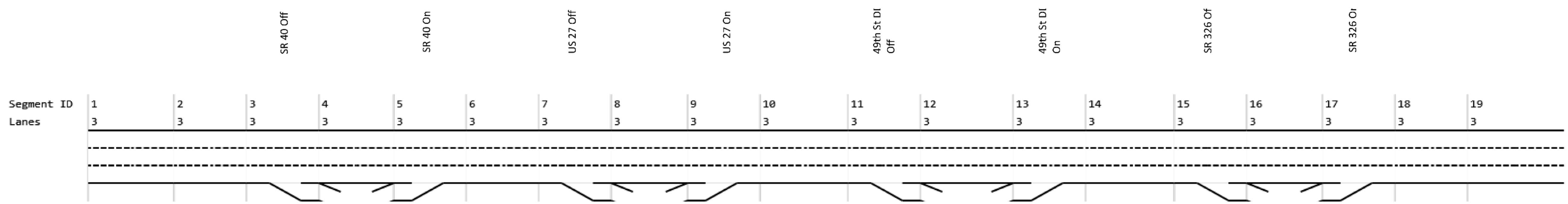
Speed Contours

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
#1 6:15 - 6:30	66.3	66.3	64.7	68.8	63.3	66.9	64.5	69.6	63.9	68.5	64.8	70.2	65.2	69.4	63.7	71.0	64.4	70.1	70.1
#2 6:30 - 6:45	62.4	62.4	64.5	66.4	62.3	63.4	64.3	67.7	63.2	65.8	64.6	68.6	64.6	67.2	63.5	70.6	63.7	68.5	68.5
#3 6:45 - 7:00	27.0	26.2	64.3	66.0	61.9	62.4	64.0	67.0	62.8	64.7	64.3	68.0	64.2	66.1	63.1	70.3	63.2	67.0	67.0
#4 7:00 - 7:15	25.3	25.5	64.0	66.1	61.6	61.8	63.6	66.7	62.6	63.9	64.1	67.4	63.9	65.1	62.7	70.0	62.7	65.7	65.7
#5 7:15 - 7:30	25.5	25.5	64.1	66.1	61.7	62.1	63.7	66.9	62.7	64.3	64.2	67.7	64.1	65.6	62.9	70.1	63.0	66.3	66.3
#6 7:30 - 7:45	25.5	25.5	64.1	66.1	61.7	62.1	63.7	66.8	62.7	64.2	64.2	67.6	64.0	65.5	62.8	70.1	62.9	66.2	66.2
#7 7:45 - 8:00	25.5	25.5	63.9	66.1	61.3	61.4	63.2	66.5	62.4	63.3	64.0	67.1	63.7	64.4	62.4	69.7	62.3	64.6	64.6
#8 8:00 - 8:15	25.5	25.5	63.9	66.1	61.4	61.6	63.4	66.6	62.5	63.5	64.1	67.2	63.8	64.7	62.5	69.8	62.5	65.0	65.0
#9 8:15 - 8:30	25.5	25.5	64.0	66.1	61.4	61.6	63.4	66.6	62.5	63.6	64.1	67.3	63.8	64.8	62.5	69.8	62.6	65.2	65.2
#10 8:30 - 8:45	25.5	25.5	63.9	66.1	61.5	61.7	63.4	66.6	62.5	63.7	64.1	67.3	63.8	64.9	62.6	69.9	62.6	65.4	65.4
#11 8:45 - 9:00	25.5	25.5	64.0	66.1	61.6	61.8	63.6	66.7	62.6	63.9	64.1	67.4	63.9	65.1	62.7	69.9	62.7	65.6	65.6
#12 9:00 - 9:15	25.5	25.5	64.1	66.1	61.7	62.0	63.7	66.8	62.7	64.2	64.2	67.6	64.0	65.5	62.8	70.1	62.9	66.2	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
#1 6:15 - 6:30	C	C	C	C	C	C	C	C	C	C	B	C	B	C	C	B	B	C	C
#2 6:30 - 6:45	D	D	D	C	C	D	D	C	C	C	B	C	B	C	C	B	C	C	C
#3 6:45 - 7:00	F	F	F	C	F	D	F	C	C	D	B	C	C	C	C	C	C	C	C
#4 7:00 - 7:15	F	F	F	C	F	F	F	C	F	D	F	C	F	C	F	C	F	C	C
#5 7:15 - 7:30	F	F	F	C	F	D	F	C	F	D	F	C	C	C	C	C	C	C	C
#6 7:30 - 7:45	F	F	F	C	F	F	F	C	F	D	F	C	F	C	F	C	C	C	C
#7 7:45 - 8:00	F	F	F	F	F	F	F	C	F	F	F	C	F	F	F	C	F	D	D
#8 8:00 - 8:15	F	F	F	F	F	F	F	C	F	F	F	C	F	D	F	C	F	C	C
#9 8:15 - 8:30	F	F	F	F	F	F	F	C	F	F	F	C	F	D	F	C	F	C	C
#10 8:30 - 8:45	F	F	F	C	F	F	F	C	F	F	F	C	F	D	F	C	F	C	C
#11 8:45 - 9:00	F	F	F	C	F	F	F	C	F	D	F	C	F	C	F	C	F	C	C
#12 9:00 - 9:15	F	F	F	C	F	F	F	C	F	D	F	C	F	C	F	C	C	C	C

Figure 78: Northbound 2040 PM (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
#1 15:30 - 15:45	0.94	0.94	1.07	0.85	1.12	0.98	1.12	0.81	1.02	0.89	1.02	0.73	0.91	0.79	0.91	0.57	0.77	0.67	0.67
#2 15:45 - 16:00	0.88	0.88	1.01	0.81	1.06	0.92	1.06	0.77	0.96	0.84	0.96	0.69	0.85	0.75	0.85	0.53	0.73	0.63	0.63
#3 16:00 - 16:15	0.91	0.91	1.04	0.83	1.09	0.95	1.09	0.79	0.99	0.86	0.99	0.71	0.88	0.77	0.88	0.55	0.75	0.65	0.65
#4 16:15 - 16:30	0.86	0.86	0.98	0.78	1.02	0.90	1.02	0.74	0.93	0.81	0.93	0.67	0.83	0.73	0.83	0.52	0.71	0.62	0.62
#5 16:30 - 16:45	0.73	0.73	0.84	0.67	0.88	0.77	0.88	0.64	0.80	0.70	0.80	0.57	0.71	0.62	0.71	0.44	0.61	0.53	0.53
#6 16:45 - 17:00	0.82	0.82	0.93	0.75	0.98	0.86	0.98	0.71	0.89	0.78	0.89	0.64	0.79	0.69	0.79	0.50	0.68	0.59	0.59
#7 17:00 - 17:15	0.84	0.84	0.96	0.77	1.01	0.88	1.01	0.73	0.92	0.80	0.91	0.66	0.82	0.71	0.82	0.51	0.70	0.61	0.61
#8 17:15 - 17:30	0.87	0.87	0.99	0.79	1.04	0.91	1.04	0.75	0.94	0.83	0.94	0.68	0.84	0.74	0.84	0.53	0.72	0.62	0.62
#9 17:30 - 17:45	0.84	0.84	0.96	0.77	1.00	0.88	1.00	0.73	0.91	0.80	0.91	0.65	0.81	0.71	0.81	0.51	0.69	0.60	0.60
#10 17:45 - 18:00	0.79	0.79	0.91	0.72	0.95	0.83	0.95	0.69	0.86	0.75	0.86	0.62	0.77	0.67	0.77	0.48	0.65	0.57	0.57
#11 18:00 - 18:15	0.77	0.77	0.88	0.70	0.92	0.81	0.92	0.67	0.84	0.73	0.84	0.60	0.75	0.65	0.75	0.47	0.64	0.55	0.55
#12 18:15 - 18:30	0.72	0.72	0.83	0.66	0.87	0.76	0.87	0.63	0.79	0.69	0.79	0.57	0.70	0.61	0.70	0.44	0.60	0.52	0.52

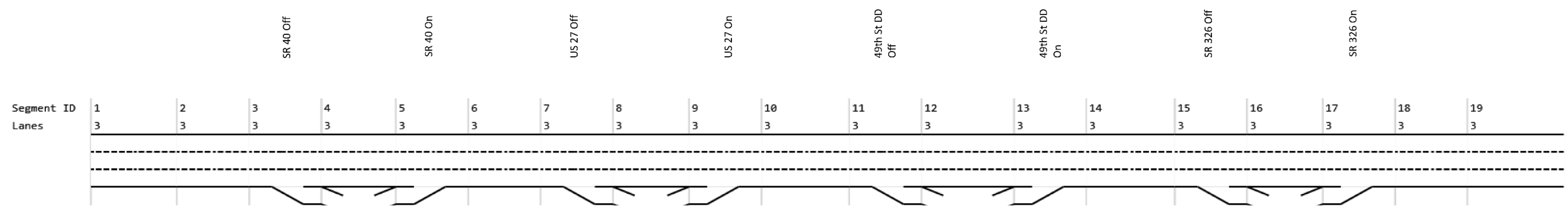
Speed Contours

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
#1 15:30 - 15:45	27.0	26.4	64.6	28.1	61.2	61.9	62.9	68.5	63.1	66.0	63.4	70.3	65.0	69.0	61.9	71.0	64.7	70.6	71.0
#2 15:45 - 16:00	24.4	24.2	34.0	18.0	61.4	62.0	63.1	67.7	62.8	65.1	63.6	69.3	64.6	67.8	62.3	71.0	64.3	70.0	70.0
#3 16:00 - 16:15	21.2	22.0	26.7	17.4	61.3	62.0	63.1	67.7	62.8	65.0	63.5	69.3	64.6	67.7	62.2	71.0	64.3	69.9	69.9
#4 16:15 - 16:30	22.1	22.4	28.5	17.8	61.4	62.0	63.2	67.7	62.9	65.2	63.7	69.4	64.7	67.9	62.4	71.0	64.4	70.1	70.1
#5 16:30 - 16:45	23.6	24.1	32.8	18.8	61.6	62.0	63.7	67.7	63.0	65.6	64.0	69.6	64.9	68.4	62.9	71.0	64.6	70.5	70.5
#6 16:45 - 17:00	21.9	23.2	28.5	18.1	61.5	62.0	63.5	67.7	62.9	65.3	63.8	69.4	64.8	68.0	62.5	71.0	64.4	70.3	70.3
#7 17:00 - 17:15	21.9	22.6	27.6	17.9	61.4	62.0	63.3	67.7	62.9	65.2	63.7	69.4	64.7	67.9	62.4	71.0	64.4	70.2	70.2
#8 17:15 - 17:30	21.6	22.4	27.3	17.7	61.3	62.0	63.2	67.7	62.8	65.1	63.7	69.4	64.7	67.8	62.3	71.0	64.4	70.1	70.1
#9 17:30 - 17:45	22.2	23.0	28.0	17.9	61.4	62.0	63.3	67.7	62.9	65.2	63.7	69.4	64.7	67.9	62.5	71.0	64.4	70.2	70.2
#10 17:45 - 18:00	22.7	23.6	29.0	18.3	61.5	62.0	63.5	67.7	63.0	65.4	63.9	69.5	64.8	68.1	62.7	71.0	64.5	70.3	70.3
#11 18:00 - 18:15	22.8	23.3	28.9	18.4	61.6	62.0	63.6	67.7	63.0	65.5	63.9	69.5	64.8	68.2	62.8	71.0	64.5	70.4	70.4
#12 18:15 - 18:30	23.4	24.1	30.1	18.8	61.7	62.0	63.8	67.7	63.0	65.6	64.0	69.6	64.9	68.4	63.0	71.0	64.6	70.5	70.5

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
#1 15:30 - 15:45	F	F	F	F	F	D	F	C	F	C	F	C	B	C	C	B	B	B	B
#2 15:45 - 16:00	F	F	F	F	F	D	F	C	C	C	B	C	B	C	C	B	B	C	C
#3 16:00 - 16:15	F	F	F	F	F	D	F	C	C	C	B	C	B	C	C	B	C	C	C
#4 16:15 - 16:30	F	F	F	F	F	D	F	C	C	C	B	C	B	C	C	B	B	C	C
#5 16:30 - 16:45	F	F	F	F	D	D	D	C	C	C	B	C	B	C	C	B	B	B	B
#6 16:45 - 17:00	F	F	F	F	D	D	D	C	C	C	B	C	B	C	C	B	B	C	C
#7 17:00 - 17:15	F	F	F	F	F	D	F	C	C	C	B	C	B	C	C	B	B	C	C
#8 17:15 - 17:30	F	F	F	F	F	D	F	C	C	C	B	C	B	C	C	B	B	C	C
#9 17:30 - 17:45	F	F	F	F	D	D	D	C	C	C	B	C	B	C	C	B	B	C	C
#10 17:45 - 18:00	F	F	F	F	D	D	D	C	C	C	B	C	B	C	C	B	B	C	C
#11 18:00 - 18:15	F	F	F	F	D	D	D	C	C	C	B	C	B	C	C	B	B	B	B
#12 18:15 - 18:30	F	F	F	F	D	D	D	C	C	C	B	C	B	C	C	B	B	B	B

Figure 79: Northbound 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
#1 12:00 - 12:15	1.16	1.16	1.32	1.08	1.33	1.17	1.34	1.04	1.25	1.10	1.25	0.93	1.14	1.00	1.14	0.75	0.97	0.85	0.85
#2 12:15 - 12:30	1.16	1.16	1.32	1.08	1.33	1.17	1.34	1.04	1.25	1.10	1.25	0.93	1.14	1.00	1.14	0.75	0.97	0.85	0.85
#3 12:30 - 12:45	1.16	1.16	1.32	1.08	1.33	1.17	1.34	1.04	1.25	1.10	1.25	0.93	1.14	1.00	1.14	0.75	0.97	0.85	0.85
#4 12:45 - 13:00	1.16	1.16	1.32	1.08	1.33	1.17	1.34	1.04	1.25	1.10	1.25	0.93	1.14	1.00	1.14	0.75	0.97	0.85	0.85
#5 13:00 - 13:15	1.06	1.06	1.21	0.99	1.22	1.07	1.22	0.95	1.15	1.00	1.15	0.85	1.04	0.91	1.04	0.69	0.89	0.78	0.78
#6 13:15 - 13:30	1.06	1.06	1.21	0.99	1.22	1.07	1.22	0.95	1.15	1.00	1.15	0.85	1.04	0.91	1.04	0.69	0.89	0.78	0.78
#7 13:30 - 13:45	1.06	1.06	1.21	0.99	1.22	1.07	1.22	0.95	1.15	1.00	1.15	0.85	1.04	0.91	1.04	0.69	0.89	0.78	0.78
#8 13:45 - 14:00	1.06	1.06	1.21	0.99	1.22	1.07	1.22	0.95	1.15	1.00	1.15	0.85	1.04	0.91	1.04	0.69	0.89	0.78	0.78
#9 14:00 - 14:15	0.95	0.95	1.08	0.88	1.09	0.96	1.09	0.85	1.02	0.90	1.03	0.76	0.93	0.82	0.93	0.62	0.79	0.70	0.70
#10 14:15 - 14:30	0.95	0.95	1.08	0.88	1.09	0.96	1.09	0.85	1.02	0.90	1.03	0.76	0.93	0.82	0.93	0.62	0.79	0.70	0.70
#11 14:30 - 14:45	0.95	0.95	1.08	0.88	1.09	0.96	1.09	0.85	1.02	0.90	1.03	0.76	0.93	0.82	0.93	0.62	0.79	0.70	0.70
#12 14:45 - 15:00	0.96	0.96	1.09	0.89	1.09	0.96	1.10	0.85	1.03	0.90	0.92	0.68	0.94	0.82	0.94	0.61	0.79	0.70	0.70

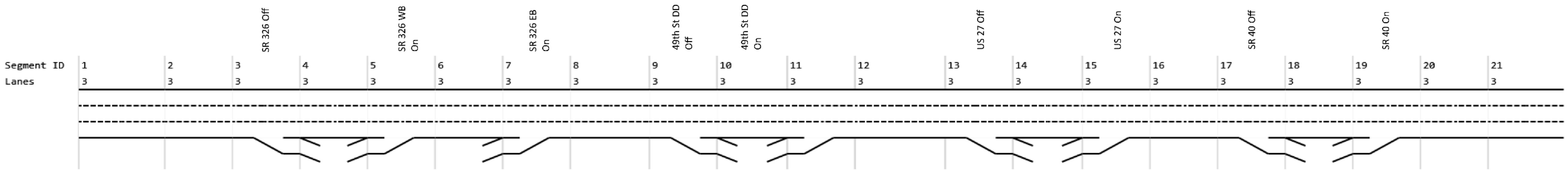
Speed Contours

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
#1 12:00 - 12:15	26.7	25.9	64.7	31.9	61.7	61.9	63.8	67.4	63.0	65.2	63.3	70.1	64.9	68.7	61.5	70.9	64.8	70.6	71.0
#2 12:15 - 12:30	25.9	25.8	64.7	21.9	61.7	62.0	63.8	66.0	62.6	63.5	63.3	68.0	64.1	65.8	61.9	70.5	63.8	68.4	68.4
#3 12:30 - 12:45	22.6	22.6	28.5	19.2	61.7	62.0	63.8	66.0	62.6	63.5	63.3	68.0	64.1	65.8	61.9	70.5	63.8	68.4	68.4
#4 12:45 - 13:00	22.6	22.6	28.5	19.2	61.7	62.0	63.8	66.0	62.6	63.5	63.3	68.0	64.1	65.8	61.9	70.5	63.8	68.4	68.4
#5 13:00 - 13:15	23.3	23.6	29.6	19.7	61.8	62.0	64.0	66.0	62.6	63.8	63.6	68.2	64.2	66.2	62.2	70.6	64.0	68.8	68.8
#6 13:15 - 13:30	23.2	23.2	29.5	19.7	61.8	62.0	64.0	66.0	62.6	63.8	63.6	68.2	64.2	66.2	62.2	70.6	64.0	68.8	68.8
#7 13:30 - 13:45	23.2	23.2	29.5	19.7	61.8	62.0	64.0	66.0	62.6	63.8	63.6	68.2	64.2	66.2	62.2	70.6	64.0	68.8	68.8
#8 13:45 - 14:00	23.2	23.2	29.5	19.7	61.8	62.0	64.0	66.0	62.6	63.8	63.6	68.2	64.2	66.2	62.2	70.6	64.0	68.8	68.8
#9 14:00 - 14:15	24.8	25.7	64.9	20.9	61.9	62.0	64.3	66.0	62.7	64.0	63.9	68.3	64.3	66.6	62.6	70.7	64.2	69.3	69.3
#10 14:15 - 14:30	23.9	23.9	30.6	20.2	61.9	62.0	64.3	66.0	62.7	64.0	63.9	68.3	64.3	66.6	62.6	70.7	64.2	69.3	69.3
#11 14:30 - 14:45	23.9	23.9	30.6	20.2	61.9	62.0	64.3	66.0	62.7	64.0	63.9	68.3	64.3	66.6	62.6	70.7	64.2	69.3	69.3
#12 14:45 - 15:00	23.8	23.9	30.6	20.2	61.9	62.0	64.3	66.0	62.7	64.0	63.9	68.3	64.3	66.6	62.6	70.7	64.2	69.3	69.3

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
#1 12:00 - 12:15	F	F	F	F	F	F	F	F	F	F	F	C	F	C	F	B	B	B	B
#2 12:15 - 12:30	F	F	F	F	F	F	F	F	F	F	F	C	F	C	F	B	C	C	C
#3 12:30 - 12:45	F	F	F	F	F	F	F	F	F	F	F	C	F	C	F	B	C	C	C
#4 12:45 - 13:00	F	F	F	F	F	F	F	F	F	F	F	C	F	C	F	B	C	C	C
#5 13:00 - 13:15	F	F	F	F	F	F	F	C	F	F	F	C	F	C	F	B	C	C	C
#6 13:15 - 13:30	F	F	F	F	F	F	F	C	F	F	F	C	F	C	F	B	C	C	C
#7 13:30 - 13:45	F	F	F	F	F	F	F	C	F	F	F	C	F	C	F	B	C	C	C
#8 13:45 - 14:00	F	F	F	F	F	F	F	C	F	F	F	C	F	C	F	B	C	C	C
#9 14:00 - 14:15	F	F	F	F	F	D	F	C	F	D	F	C	C	C	C	B	C	C	C
#10 14:15 - 14:30	F	F	F	F	F	D	F	C	F	D	F	C	C	C	C	B	C	C	C
#11 14:30 - 14:45	F	F	F	F	F	D	F	C	F	D	F	C	C	C	C	B	C	C	C
#12 14:45 - 15:00	F	F	F	F	F	D	F	C	F	D	C	C	C	C	C	B	C	C	C

Figure 80: 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
#1 6:15 - 6:30	0.38	0.38	0.43	0.32	0.50	0.44	0.58	0.51	0.59	0.47	0.66	0.58	0.66	0.52	0.72	0.63	0.72	0.55	0.69	0.61	0.61
#2 6:30 - 6:45	0.37	0.37	0.42	0.31	0.49	0.43	0.57	0.50	0.57	0.46	0.64	0.56	0.64	0.51	0.70	0.62	0.71	0.54	0.68	0.60	0.60
#3 6:45 - 7:00	0.43	0.43	0.49	0.36	0.57	0.50	0.67	0.58	0.67	0.54	0.75	0.65	0.75	0.59	0.82	0.72	0.82	0.63	0.79	0.69	0.69
#4 7:00 - 7:15	0.46	0.46	0.52	0.39	0.61	0.53	0.71	0.63	0.72	0.58	0.80	0.70	0.80	0.63	0.88	0.77	0.88	0.67	0.85	0.74	0.74
#5 7:15 - 7:30	0.54	0.54	0.61	0.45	0.72	0.62	0.84	0.73	0.84	0.67	0.94	0.82	0.94	0.74	1.02	0.90	1.03	0.79	0.99	0.87	0.87
#6 7:30 - 7:45	0.51	0.51	0.59	0.43	0.69	0.60	0.80	0.70	0.80	0.65	0.90	0.79	0.90	0.71	0.98	0.86	0.99	0.76	0.95	0.83	0.83
#7 7:45 - 8:00	0.46	0.46	0.52	0.39	0.61	0.53	0.72	0.63	0.72	0.58	0.80	0.70	0.80	0.63	0.88	0.77	0.88	0.68	0.85	0.74	0.74
#8 8:00 - 8:15	0.48	0.48	0.55	0.41	0.64	0.56	0.75	0.66	0.75	0.60	0.84	0.74	0.84	0.66	0.92	0.81	0.92	0.71	0.89	0.78	0.78
#9 8:15 - 8:30	0.50	0.50	0.57	0.42	0.67	0.58	0.78	0.69	0.78	0.63	0.88	0.77	0.88	0.69	0.96	0.84	0.96	0.74	0.93	0.81	0.81
#10 8:30 - 8:45	0.53	0.53	0.61	0.45	0.71	0.62	0.83	0.73	0.83	0.67	0.93	0.82	0.93	0.74	1.02	0.90	1.02	0.78	0.99	0.86	0.86
#11 8:45 - 9:00	0.54	0.54	0.62	0.46	0.72	0.63	0.84	0.74	0.84	0.68	0.94	0.83	0.94	0.74	1.03	0.90	1.03	0.79	1.00	0.87	0.87
#12 9:00 - 9:15	0.55	0.55	0.63	0.47	0.74	0.64	0.86	0.75	0.86	0.69	0.96	0.84	0.96	0.76	1.05	0.92	1.06	0.81	1.02	0.89	0.89

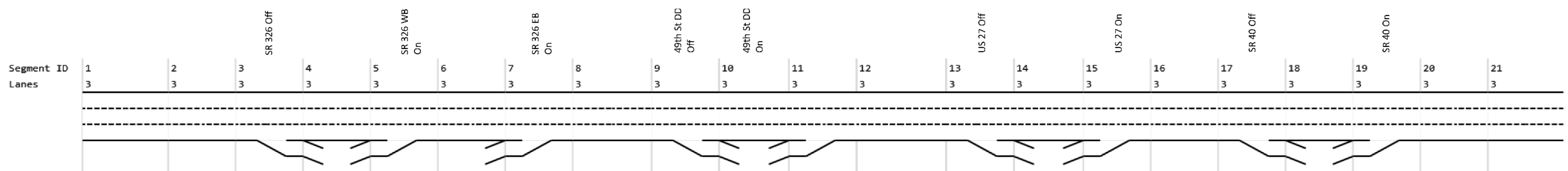
Speed Contours

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
#1 6:15 - 6:30	71.2	71.2	64.5	70.8	65.4	70.0	65.0	70.9	65.3	71.1	65.3	70.1	65.1	70.9	63.7	68.9	64.5	70.5	64.4	69.5	69.5
#2 6:30 - 6:45	71.2	71.2	64.6	70.8	65.4	70.0	65.1	71.0	65.4	71.1	65.4	70.3	65.1	71.0	63.8	69.2	64.5	70.6	64.5	69.7	69.7
#3 6:45 - 7:00	71.2	71.2	64.6	70.8	65.0	69.9	64.5	70.0	65.3	70.7	64.6	68.3	65.0	69.9	62.9	66.2	64.3	69.0	63.7	67.1	67.1
#4 7:00 - 7:15	71.2	71.2	64.6	70.8	64.8	69.8	64.2	69.0	65.2	70.1	64.1	66.8	64.9	68.9	62.2	64.1	64.5	67.7	63.2	65.2	65.2
#5 7:15 - 7:30	70.7	70.7	64.6	70.8	64.1	69.2	63.1	65.7	65.0	67.7	62.3	61.6	64.6	28.5	60.8	61.9	64.2	66.4	62.5	62.9	62.9
#6 7:30 - 7:45	70.9	70.9	64.6	70.8	64.3	69.7	63.5	66.8	65.1	68.6	62.8	63.2	64.7	17.1	61.0	62.0	64.3	66.4	62.5	63.1	63.1
#7 7:45 - 8:00	71.2	71.2	64.6	70.8	64.8	69.8	64.2	69.0	65.3	70.1	64.1	66.7	64.9	18.9	61.4	62.0	64.5	66.4	62.8	63.5	63.5
#8 8:00 - 8:15	71.1	71.1	64.6	70.8	64.6	69.8	63.9	68.2	65.2	69.6	63.7	65.5	64.8	27.5	61.3	62.0	64.4	66.4	62.7	63.3	63.3
#9 8:15 - 8:30	71.0	71.0	64.7	70.8	64.4	69.8	63.6	67.3	65.2	68.9	63.2	64.1	64.7	27.1	61.1	62.0	64.3	66.4	62.6	63.2	63.2
#10 8:30 - 8:45	70.7	70.7	64.6	70.8	64.1	69.2	63.2	65.8	65.0	67.9	62.3	62.3	64.7	18.0	60.8	62.0	64.2	66.4	62.5	63.0	63.0
#11 8:45 - 9:00	70.7	70.7	64.6	70.8	64.0	69.1	63.1	65.5	65.0	67.6	62.1	31.5	26.2	16.7	60.8	62.0	64.2	66.4	62.5	62.9	62.9
#12 9:00 - 9:15	70.5	70.5	64.6	70.8	63.8	68.7	62.9	64.9	65.0	68.5	32.0	22.5	26.3	16.7	60.7	62.0	64.1	66.4	62.5	62.9	62.9

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
#1 6:15 - 6:30	B	B	B	A	B	B	B	B	B	B	B	C	C	B	C	C	C	B	B	C	C
#2 6:30 - 6:45	B	B	B	A	B	B	B	B	B	B	B	C	C	B	C	C	C	B	B	C	C
#3 6:45 - 7:00	B	B	B	B	B	B	B	C	B	B	B	C	C	C	C	C	C	C	C	C	C
#4 7:00 - 7:15	B	B	C	B	B	B	C	C	B	C	C	C	C	C	C	D	C	C	C	C	C
#5 7:15 - 7:30	B	B	C	B	B	C	C	C	B	C	C	D	D	C	D	E	D	D	D	D	D
#6 7:30 - 7:45	B	B	C	B	B	C	C	C	B	C	C	D	D	C	D	D	D	D	C	D	D
#7 7:45 - 8:00	B	B	C	B	B	B	C	C	B	C	C	C	C	C	C	D	C	C	C	C	C
#8 8:00 - 8:15	B	B	C	B	B	B	C	C	B	C	C	C	C	C	D	D	D	C	C	D	D
#9 8:15 - 8:30	B	B	C	B	B	C	C	C	B	C	C	D	C	C	D	D	D	C	C	D	D
#10 8:30 - 8:45	B	B	C	B	B	C	C	C	B	C	C	D	D	C	D	E	D	D	D	D	D
#11 8:45 - 9:00	B	B	C	B	B	C	C	C	B	C	C	D	D	C	D	E	D	D	D	D	D
#12 9:00 - 9:15	B	B	C	B	C	C	C	D	B	C	C	D	D	D	D	E	D	D	D	D	D

Figure 81: Southbound 2040 PM (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
#1 15:30 - 15:45	0.88	0.88	1.00	0.74	1.07	0.93	1.16	1.02	1.16	0.95	1.23	1.07	1.22	0.99	1.31	1.15	1.31	1.05	1.34	1.18	1.18
#2 15:45 - 16:00	0.92	0.92	1.05	0.77	1.12	0.97	1.22	1.06	1.21	0.99	1.28	1.12	1.28	1.03	1.37	1.20	1.37	1.10	1.40	1.24	1.24
#3 16:00 - 16:15	0.86	0.86	0.98	0.72	1.05	0.91	1.14	1.00	1.14	0.93	1.20	1.05	1.20	0.96	1.28	1.12	1.28	1.03	1.31	1.16	1.16
#4 16:15 - 16:30	0.87	0.87	1.00	0.73	1.07	0.93	1.16	1.01	1.16	0.95	1.22	1.07	1.22	0.98	1.30	1.14	1.31	1.05	1.33	1.18	1.18
#5 16:30 - 16:45	0.84	0.84	0.96	0.70	1.03	0.89	1.11	0.97	1.11	0.91	1.17	1.02	1.17	0.94	1.25	1.10	1.25	1.01	1.28	1.13	1.13
#6 16:45 - 17:00	0.89	0.89	1.02	0.75	1.09	0.95	1.18	1.03	1.18	0.97	1.24	1.09	1.24	1.00	1.33	1.17	1.33	1.07	1.36	1.20	1.20
#7 17:00 - 17:15	0.81	0.81	0.93	0.68	1.00	0.86	1.08	0.94	1.08	0.88	1.14	0.99	1.14	0.91	1.21	1.07	1.22	0.98	1.24	1.10	1.10
#8 17:15 - 17:30	0.85	0.85	0.97	0.72	1.04	0.91	1.13	0.99	1.13	0.93	1.19	1.04	1.19	0.96	1.27	1.12	1.28	1.02	1.30	1.15	1.15
#9 17:30 - 17:45	0.82	0.82	0.94	0.69	1.00	0.87	1.09	0.95	1.09	0.89	1.15	1.00	1.15	0.92	1.22	1.07	1.23	0.98	1.25	1.11	1.11
#10 17:45 - 18:00	0.82	0.82	0.94	0.69	1.00	0.87	1.09	0.95	1.09	0.89	1.14	1.00	1.14	0.92	1.22	1.07	1.23	0.98	1.25	1.11	1.11
#11 18:00 - 18:15	0.76	0.76	0.86	0.63	0.93	0.80	1.00	0.88	1.00	0.82	1.06	0.92	1.06	0.85	1.13	0.99	1.13	0.91	1.15	1.02	1.02
#12 18:15 - 18:30	0.73	0.73	0.83	0.61	0.89	0.77	0.97	0.85	0.97	0.79	1.02	0.89	1.02	0.82	1.09	0.95	1.09	0.88	1.11	0.98	0.98

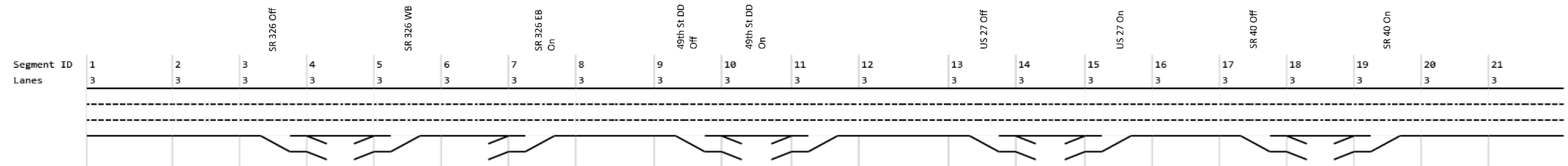
Speed Contours

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
#1 15:30 - 15:45	60.8	27.7	63.8	19.4	25.5	19.8	60.3	61.9	64.9	23.9	62.6	61.9	64.5	23.0	60.8	61.9	64.6	24.9	61.9	61.9	61.9
#2 15:45 - 16:00	17.6	17.2	20.9	12.1	20.7	60.5	34.7	24.4	25.2	16.5	63.0	30.4	27.5	16.0	33.3	26.5	27.9	17.4	61.9	62.0	62.0
#3 16:00 - 16:15	11.1	11.0	12.9	7.6	11.3	10.7	19.9	18.6	20.4	14.4	64.5	22.4	23.3	14.4	29.4	23.8	26.4	17.7	62.0	62.0	62.0
#4 16:15 - 16:30	8.1	10.0	9.9	7.1	12.8	12.5	58.8	21.7	22.8	15.2	63.9	21.0	21.3	13.9	26.1	21.0	25.9	17.6	61.9	62.0	62.0
#5 16:30 - 16:45	11.6	11.9	15.3	7.7	11.2	11.6	17.3	17.0	18.4	12.9	64.6	20.4	24.9	14.4	28.8	22.1	26.5	17.9	62.0	62.0	62.0
#6 16:45 - 17:00	7.0	7.6	10.7	7.0	10.0	9.7	58.2	17.6	17.0	13.5	64.4	20.6	20.6	14.1	26.9	21.1	25.7	17.5	61.9	62.0	62.0
#7 17:00 - 17:15	10.5	10.8	11.5	8.5	14.1	13.9	24.8	17.8	17.5	13.2	21.9	22.4	24.6	15.2	30.2	24.4	27.3	18.0	62.0	62.0	62.0
#8 17:15 - 17:30	8.6	9.2	11.9	6.4	10.6	10.5	15.6	17.2	19.4	13.2	64.6	22.4	22.2	14.3	29.4	23.5	26.6	17.7	62.0	62.0	62.0
#9 17:30 - 17:45	10.7	10.3	11.7	7.6	64.0	12.1	18.8	18.4	18.9	14.1	26.0	22.5	27.0	15.5	31.1	25.2	27.4	18.0	62.0	62.0	62.0
#10 17:45 - 18:00	9.6	10.4	11.7	9.9	12.9	12.2	18.3	19.5	20.1	14.6	64.3	22.4	22.1	14.4	29.1	22.2	26.7	18.0	62.0	62.0	62.0
#11 18:00 - 18:15	9.8	10.2	63.8	7.9	13.4	13.5	59.0	20.3	26.5	15.6	28.9	20.9	64.8	15.8	38.4	27.6	32.0	18.7	62.1	62.0	62.0
#12 18:15 - 18:30	12.2	13.2	17.1	10.8	18.3	15.8	29.3	21.2	65.2	17.4	34.0	23.2	29.2	15.6	30.7	22.9	29.2	18.7	62.1	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
#1 15:30 - 15:45	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#2 15:45 - 16:00	F	F	F	F	F	C	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#3 16:00 - 16:15	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#4 16:15 - 16:30	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#5 16:30 - 16:45	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#6 16:45 - 17:00	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#7 17:00 - 17:15	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#8 17:15 - 17:30	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#9 17:30 - 17:45	F	F	F	F	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#10 17:45 - 18:00	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#11 18:00 - 18:15	F	F	C	F	F	F	C	F	F	F	F	F	F	F	F	F	F	F	F	F	F
#12 18:15 - 18:30	F	F	F	F	F	F	F	F	B	F	F	F	F	F	F	F	F	F	F	D	D

Figure 82: 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
#1 12:00 - 12:15	0.73	0.73	0.84	0.64	0.93	0.82	0.97	0.85	0.97	0.78	1.04	0.91	1.04	0.83	1.09	0.96	1.10	0.89	1.09	0.96	0.96
#2 12:15 - 12:30	0.73	0.73	0.84	0.64	0.93	0.82	0.97	0.85	0.97	0.78	1.04	0.91	1.04	0.83	1.09	0.96	1.10	0.89	1.09	0.96	0.96
#3 12:30 - 12:45	0.73	0.73	0.84	0.64	0.93	0.82	0.97	0.85	0.97	0.78	1.04	0.91	1.04	0.83	1.09	0.96	1.10	0.89	1.09	0.96	0.96
#4 12:45 - 13:00	0.73	0.73	0.84	0.64	0.93	0.82	0.97	0.85	0.97	0.78	1.04	0.91	1.04	0.83	1.09	0.96	1.10	0.89	1.09	0.96	0.96
#5 13:00 - 13:15	0.76	0.76	0.87	0.66	0.97	0.85	1.01	0.89	1.01	0.82	1.08	0.94	1.08	0.86	1.14	1.00	1.15	0.92	1.14	1.00	1.00
#6 13:15 - 13:30	0.76	0.76	0.87	0.66	0.97	0.85	1.01	0.89	1.01	0.82	1.08	0.94	1.08	0.86	1.14	1.00	1.15	0.92	1.14	1.00	1.00
#7 13:30 - 13:45	0.76	0.76	0.87	0.66	0.97	0.85	1.01	0.89	1.01	0.82	1.08	0.94	1.08	0.86	1.14	1.00	1.15	0.92	1.14	1.00	1.00
#8 13:45 - 14:00	0.76	0.76	0.87	0.66	0.97	0.85	1.01	0.89	1.01	0.82	1.08	0.94	1.08	0.86	1.14	1.00	1.15	0.92	1.14	1.00	1.00
#9 14:00 - 14:15	0.77	0.77	0.88	0.67	0.98	0.87	1.03	0.90	1.03	0.83	1.09	0.96	1.10	0.88	1.16	1.02	1.16	0.94	1.16	1.02	1.02
#10 14:15 - 14:30	0.77	0.77	0.88	0.67	0.98	0.87	1.03	0.90	1.03	0.83	1.09	0.96	1.10	0.88	1.16	1.02	1.16	0.94	1.16	1.02	1.02
#11 14:30 - 14:45	0.77	0.77	0.88	0.67	0.98	0.87	1.03	0.90	1.03	0.83	1.09	0.96	1.10	0.88	1.16	1.02	1.16	0.94	1.16	1.02	1.02
#12 14:45 - 15:00	0.77	0.77	0.88	0.67	0.98	0.87	1.03	0.90	1.03	0.83	1.09	0.96	1.10	0.88	1.16	1.02	1.16	0.94	1.16	1.02	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
#1 12:00 - 12:15	65.7	65.7	64.5	68.8	61.7	62.5	62.3	60.9	64.9	25.1	62.6	61.9	64.7	26.6	61.5	61.9	64.7	65.4	62.3	62.0	62.0
#2 12:15 - 12:30	65.7	65.7	64.5	68.8	61.7	62.5	62.3	31.8	26.3	17.3	62.6	64.1	29.0	16.9	61.6	62.0	64.7	64.9	62.2	61.5	61.5
#3 12:30 - 12:45	65.7	65.7	64.5	69.7	24.4	61.3	63.8	20.9	64.9	17.5	63.0	22.4	25.0	16.9	61.6	62.0	64.7	64.9	62.2	61.5	61.5
#4 12:45 - 13:00	65.7	26.3	28.6	12.5	26.5	20.9	33.2	19.6	20.3	13.9	25.0	20.4	25.0	16.9	61.6	62.0	64.7	64.9	62.2	61.5	61.5
#5 13:00 - 13:15	11.2	9.6	12.3	7.7	12.6	12.9	58.8	19.9	21.4	14.1	26.2	21.5	25.0	16.7	61.5	62.0	64.7	64.9	62.1	61.3	61.3
#6 13:15 - 13:30	16.3	17.4	64.4	13.1	28.2	23.1	28.7	18.4	19.5	13.6	24.6	20.1	24.6	16.7	61.5	62.0	64.7	64.9	62.1	61.3	61.3
#7 13:30 - 13:45	15.4	14.4	15.2	9.7	16.6	14.4	18.7	15.9	18.7	13.6	24.6	20.1	24.6	16.7	61.5	62.0	64.7	64.9	62.1	61.3	61.3
#8 13:45 - 14:00	12.4	12.4	14.0	9.7	16.6	14.4	18.7	15.9	18.7	13.6	24.6	20.1	24.6	16.7	61.5	62.0	64.7	64.9	62.1	61.3	61.3
#9 14:00 - 14:15	8.3	9.3	10.8	8.0	13.4	13.7	59.0	19.6	22.2	13.9	26.9	21.0	24.8	16.7	61.4	62.0	64.6	64.9	62.1	61.2	61.2
#10 14:15 - 14:30	16.3	18.4	34.1	13.5	21.6	18.1	24.8	17.3	19.5	13.5	24.7	20.1	24.6	16.7	61.4	62.0	64.6	64.9	62.1	61.2	61.2
#11 14:30 - 14:45	14.0	14.5	14.6	9.7	16.5	14.3	18.5	15.8	18.5	13.5	24.6	20.1	24.6	16.7	61.4	62.0	64.6	64.9	62.1	61.2	61.2
#12 14:45 - 15:00	12.3	12.3	13.9	9.7	16.5	14.3	18.5	15.8	18.5	13.5	24.6	20.1	24.6	16.7	61.4	62.0	64.6	64.9	62.1	61.2	61.2

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
#1 12:00 - 12:15	C	C	D	C	C	D	C	D	F	F	F	D	F	F	F	D	F	C	F	D	D
#2 12:15 - 12:30	C	C	D	C	C	D	F	F	F	F	F	F	F	F	F	D	F	D	F	D	D
#3 12:30 - 12:45	C	C	F	F	F	C	C	F	B	F	F	F	F	F	F	D	F	D	F	D	D
#4 12:45 - 13:00	C	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	D	F	D	D
#5 13:00 - 13:15	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F
#6 13:15 - 13:30	F	F	D	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F
#7 13:30 - 13:45	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F
#8 13:45 - 14:00	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F
#9 14:00 - 14:15	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F
#10 14:15 - 14:30	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F
#11 14:30 - 14:45	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F
#12 14:45 - 15:00	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	D	F	F	F

The contours presented in **Figure 77** through **Figure 82** 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 capacity will be needed from south of the SR 40 interchange (beginning of the study limits) through north of the SR 326 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 Segment 3 (I-75 within the influence area of the off-ramp to SR 40). 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 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 southern study limits through the SR 40 interchange. This is due to expected bottlenecks at the SR 40 interchange.
  - The northbound travel time is expected to increase by up to 4.1 minutes (approximately a 52% increase) versus the 2019 existing condition.

- Southbound I-75
  - Additional capacity will be needed between north of SR 326 (beginning of the study limits) through south of the SR 40 interchange (end of the study limits).
    - The maximum D/C ratio of 1.40 is expected to occur during the 2040 PM peak period within Segment 19 (I-75 within the influence area of the on-ramp from SR 40). There are three lanes along I-75 at this location so based on the demand at this location, approximately 1.3 lanes worth of capacity would be needed, meaning additional capacity beyond an auxiliary lane may be needed to accommodate projected traffic through 2040.
  - Additional capacity is expected to be needed to accommodate average weekday PM and weekend midday peak period traffic in 2040.
  - Severe congestion (speeds lower than 20 mph) is expected to be present from north of SR 326 (beginning of the study limits) through the SR 40 interchange.
    - It is important to note that there are several major active bottlenecks in this segment including one metering the southbound demand at SR 326. Addressing only the first few major bottlenecks along the southbound

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

- The southbound travel time is expected to increase by up to 18.9 minutes (approximately a 236% 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 previous section. Signal timing optimization (cycle length, splits, and offsets) were considered for 2030 and 2040 conditions.

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 U** and **Appendix V**.

I-75 and NW 49th Street interchange intersection operational analyses were not conducted in this PTAR as this interchange is currently under evaluation in an IJR Re-Evaluation.

Figure 83 illustrates the overall intersection delay and LOS for the signalized intersections and the delay and LOS for the critical movement of the unsignalized intersection in the study area for the <u>2030 peak hours</u>. Detailed summary tables showing volume to capacity (v/c) ratios, delay, and LOS by movement are included in **Appendix U** for reference.

Figure 84 illustrates the overall intersection delay and LOS for the signalized intersections and the delay and LOS for the critical movement of the unsignalized intersection in the study area for the <u>2040 peak hours</u>. Detailed summary tables showing volume to capacity (v/c) ratios, delay, and LOS by movement are included in **Appendix V** for reference.

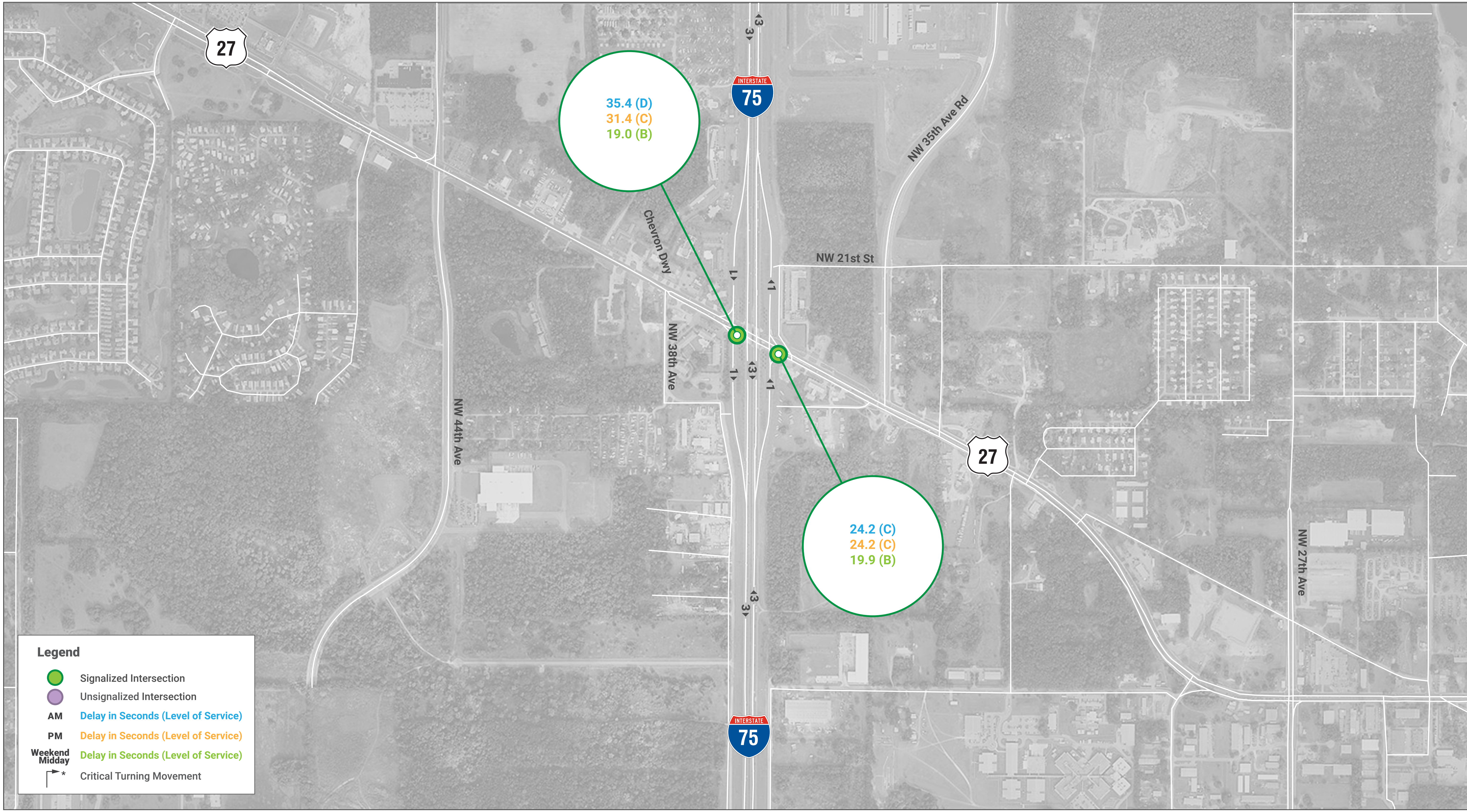
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 No-Build Peak Hour Intersection Operations

Figure 83 (1 of 4)



FDOT

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2030 No-Build Peak Hour Intersection Operations

Figure 83 (2 of 4)

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2030 No-Build Peak Hour Intersection Operations

Figure 83 (3 of 4)

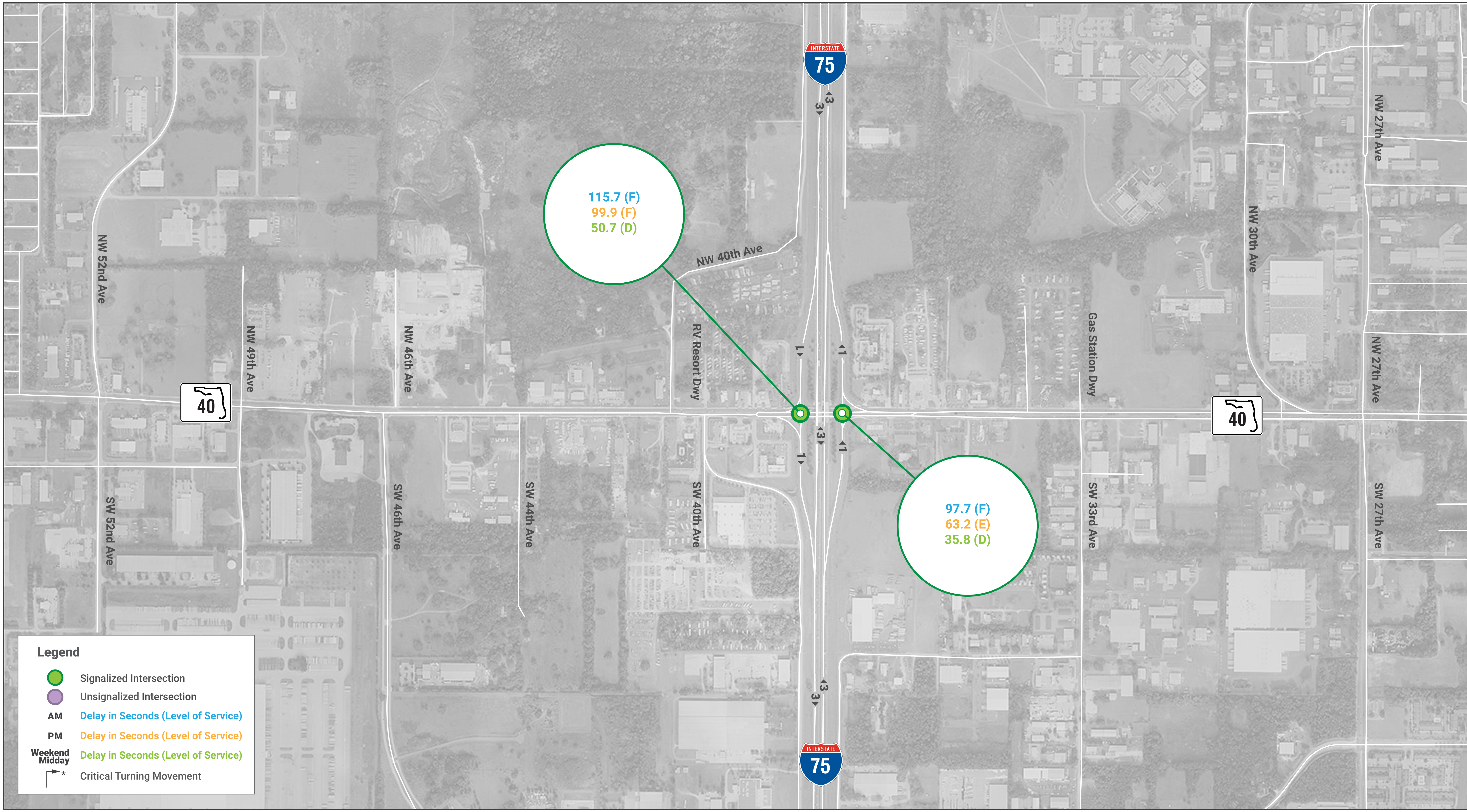
FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2030 No-Build Peak Hour Intersection Operations

Figure 83 (4 of 4)

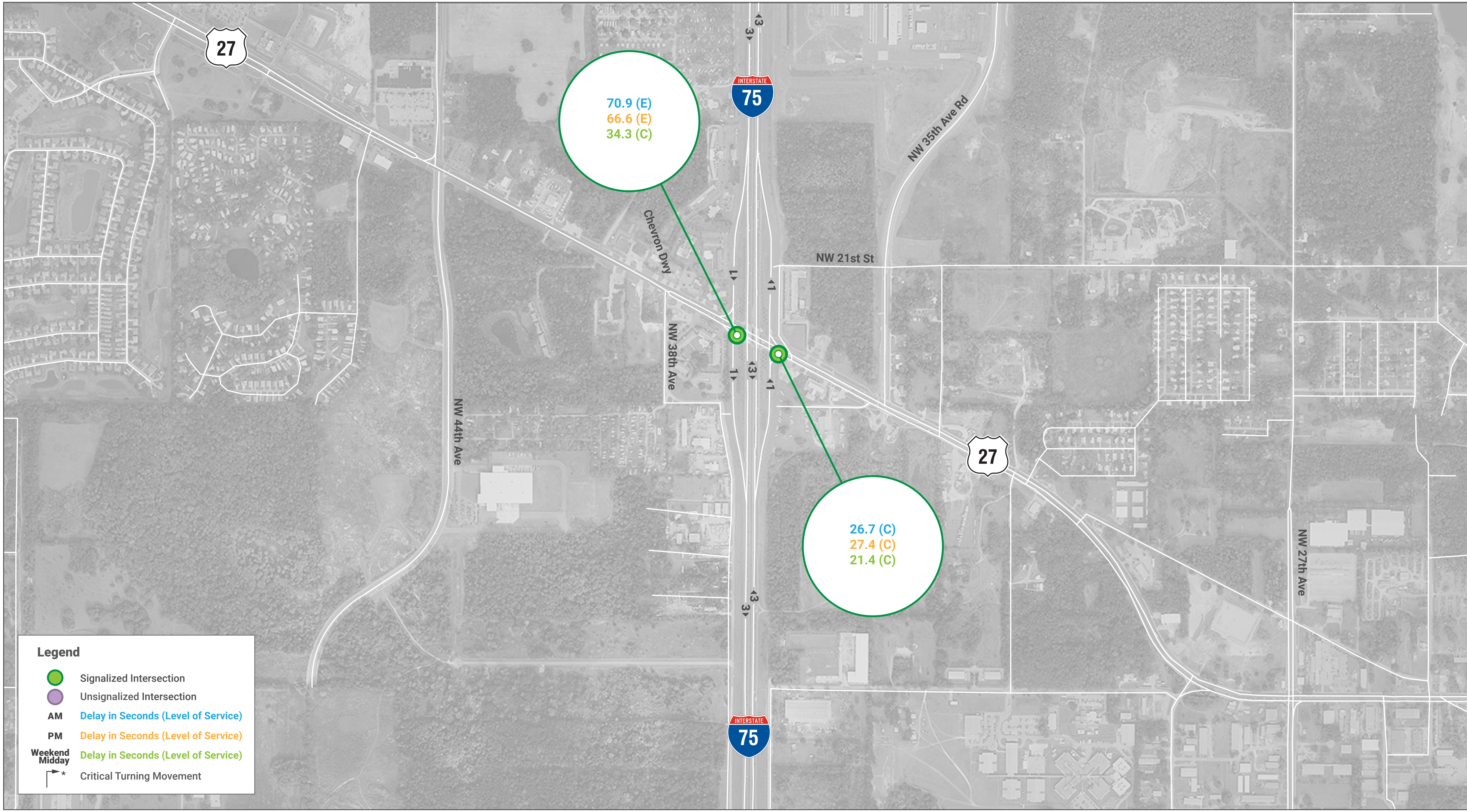


I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 No-Build Peak Hour Intersection Operations

Figure 84 (1 of 4)



2040 No-Build Peak Hour Intersection Operations

Figure 84 (2 of 4)

FDOT

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 No-Build Peak Hour Intersection Operations

Figure 84 (3 of 4)

FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 No-Build Peak Hour Intersection Operations

Figure 84 (4 of 4)

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 peak hours based on the Synchro analysis conducted.

SR 40

Most movements at the I-75 at SR 40 ramp terminal intersections are anticipated to operate at LOS E or better and under capacity during the 2030 AM, PM, and weekend peak hours. The following movements at the intersections along SR 40 that are expected to operate at LOS F and/or over capacity during the AM, PM, and Weekend peak hours include:

- SR 40 at I-75 Southbound On/Off Ramps (signalized Intersection)
  - The southbound left-turn movement at this intersection is anticipated to operate at LOS F with v/c ratios exceeding 1.0 in the 2030 AM, PM, and weekend peak hours analyzed.
  - The existing off-ramp is approximately 1,325 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
    - Remaining distance for storage – approximately 710 feet
    - The southbound left-turn peak hour 95th percentile queues are expected to be 825 feet, 725 feet, and 575 feet during the AM, PM, and weekend midday peak hours, respectively. The 95th percentile queues are expected to queue into the portion of the off-ramp designated for deceleration during the 2030 AM and PM peak hours analyzed.
- SR 40 at I-75 Northbound On/Off Ramps (signalized Intersection)
  - The northbound left-turn movement at this intersection is anticipated to operate at LOS F with v/c ratios exceeding 1.0 in the 2030 AM, PM, and weekend peak hours analyzed.
  - The existing off-ramp is approximately 1,300 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
    - Remaining distance for storage – approximately 685 feet
    - The peak hour 95th percentile queues along the off-ramp are expected to be 1,050 feet, 550 feet, and 625 feet during the 2030 AM, PM, and weekend midday peak hours, respectively. The 2030 AM peak hour 95th percentile queue is expected to extend into the portion of the off-ramp designated for deceleration.

- It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request.

US 27

Most of the movements at the I-75 at US 27 ramp terminal intersections are anticipated to operate at LOS E or better and under capacity during the 2030 AM, PM, and weekend peak hours. The northbound off-ramp is approximately 1,300 feet long while the southbound off-ramp is approximately 1,500 feet. Using 615 feet for deceleration, this leaves approximately 685 feet for storage along the northbound off-ramp and 885 feet along the southbound off-ramp. Queue spillback into the portion of the off-ramp designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated for the northbound and southbound movements at the interchange.

The following movement is expected to operate at LOS F:

- US 27 at I-75 Southbound On/Off Ramps (signalized Intersection)
  - The westbound left-turn movement at this intersection is anticipated to operate at LOS F in the 2030 AM peak hour.

NW 49TH STREET

NW 49th Street is currently being analyzed and documented in the I-75 at 49th Street Interchange Justification Report (IJR) Re-Evaluation. Consistent with District Five discussions and guidance, the ramp terminal intersections are not analyzed in this PTAR.

SR 326

The I-75 southbound at SR 326 ramp terminal intersection is expected to operate at an overall intersection LOS C during each of the 2030 peak hours analyzed. The southbound off-ramp is approximately 2,275 feet. Using 615 feet for deceleration, this leaves 1,660 feet for storage along the off-ramp. Queue spillback into the portion of the off-ramp designated for deceleration is not anticipated during the 2030 peak hours analyzed.

LOS F movements were identified at the I-75 northbound at SR 326 ramp terminal intersection. The following movements at the I-75 at SR 326 ramp terminal intersections that are anticipated to operate at LOS F and/or overcapacity during the AM, PM, and Weekend peak hours:

- SR 326 at I-75 NB ramps (Signalized Intersection)
  - The overall intersection is expected to operate at LOS F during the 2030 AM peak hour.
  - The westbound approach is expected to operate at LOS F and overcapacity during the 2030 AM peak hour.

- The eastbound left-turn movement is anticipated to operate at LOS F during the 2030 AM and PM peak hours.
- The northbound right-turn movement is expected to be overcapacity (v/c > 1.0) during each of the 2030 peak hours analyzed.
- The existing off-ramp is approximately 1,300 feet long to the I-75 gore point.
  - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
  - Remaining distance for storage – approximately 685 feet
  - The northbound off-ramp 95th percentile queues are estimated to exceed 875 feet during each AM, PM, and Weekend peak hour analyzed, which would extend into the portion of the off-ramp designated for deceleration and approach the mainline gore point

- It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request.

2040 NO-BUILD INTERSECTION SUMMARY

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

SR 40

Many of the movements at the I-75 at SR 40 ramp terminal intersections are anticipated to operate at LOS F during the 2040 AM, PM, and weekend peak hours. It is anticipated that queue spillback would extend into the ramp area designated for deceleration and approach the I-75 mainline lane gore points (northbound and southbound) from the ramp terminals based on the 95th percentile queue lengths at the interchange. The following movements at the intersections along SR 40 that are expected to operate at LOS F and/or over capacity during the AM, PM, and weekend peak hours include:

- SR 40 at I-75 Southbound On/Off Ramps (signalized Intersection)
  - The overall intersection is expected to operate at LOS F in 2040 AM and PM peak hours.
  - The southbound approach at this intersection is anticipated to operate at LOS F and with v/c ratios exceeding 1.0 in the 2040 AM, PM, and Weekend peak hours analyzed.
  - The existing off-ramp is approximately 1,325 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
    - Remaining distance for storage – approximately 710 feet

    - The southbound left-turn peak hour 95th percentile queues are expected to be 1,075 feet, 925 feet, and 775 feet during the 2040 AM, PM, and weekend midday peak hours, respectively. The 95th percentile queues are expected to queue into the portion of the off-ramp designated for deceleration during each of the 2040 peak hours analyzed.
  - The westbound left-turn movement at this intersection is anticipated to operate at LOS F during the 2040 PM peak hour and the westbound through movement is expected to operate at LOS F in the 2040 AM peak hour.
  - The eastbound through movement is expected to operate at LOS F during the 2040 AM and PM peak hours. The v/c ratio is expected to exceed 1.0 during the 2040 PM peak hour.

- SR 40 at I-75 Northbound On/Off Ramps (signalized Intersection)
  - The overall intersection is expected to operate at LOS F during the AM peak hour in 2040 conditions.
  - The westbound through movement is expected to operate LOS F during the 2040 AM and PM peak hour conditions. The v/c ratio is expected to exceed 1.0 during the 2040 AM peak hour.
  - The northbound left-turn movement at this intersection is anticipated to operate at LOS F with v/c ratios exceeding 1.0 in the 2040 AM, PM, and Weekend peak hours analyzed.
  - The existing off-ramp is approximately 1,300 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
    - Remaining distance for storage – approximately 685 feet
    - The peak hour 95th percentile queues along the off-ramp are expected to be 1,175 feet, 675 feet, and 700 feet during the 2040 AM, PM, and weekend midday peak hours, respectively. The 2040 AM and weekend midday peak hour 95th percentile queue is expected to extend into the portion of the off-ramp designated for deceleration.
- It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request.

US 27

Most of the movements at the I-75 at US 27 ramp terminal intersections are anticipated to operate at LOS E or better and would be under capacity during the 2040 AM, PM, and weekend peak hours. The following movements at the ramp terminal intersections that are expected to operate at LOS F and/or overcapacity during the 2040 AM, PM, and weekend peak hours include:

- US 27 at I-75 SB ramps (Signalized intersection)
  - The westbound left-turn movement is anticipated to operate at LOS F during the 2040 AM, PM, and weekend peak hours.
  - The eastbound through movement is anticipated to operate at LOS F during the 2040 AM and PM peak hours.
  - The southbound left-turn movement is anticipated to operate at LOS F with v/c ratios exceeding 1.0 during the 2040 AM and PM peak hours.
  - The off-ramp is approximately 1,500 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
    - Remaining distance for storage – approximately 885 feet
    - The 2040 PM peak hour southbound 95th percentile queue (900 feet) is estimated to extend into the portion of the off-ramp designated for deceleration.

NW 49TH STREET

NW 49th Street is currently being analyzed and documented in the I-75 at 49th Street Interchange Justification Report (IJR) Re-Evaluation. Consistent with District Five discussions and guidance, the ramp terminal intersections are not analyzed in this PTAR.

SR 326

The I-75 southbound at SR 326 ramp terminal intersection is expected to operate at an overall intersection LOS D or better during each of the 2040 peak hours analyzed. Similar to the 2030 results, queue spillback into the portion of the southbound off-ramp designated for deceleration is not anticipated during the 2030 peak hours analyzed.

Multiple movements at LOS F and overcapacity were identified at the I-75 northbound at SR 326 ramp terminal intersection. The 95th percentile queues are expected to extend onto the I-75 northbound mainline lanes during each of the 2040 peak hours. The following movements are anticipated to operate at LOS F and/or overcapacity during the 2040 AM, PM, and weekend peak hours include:

- SR 326 at I-75 NB ramps (Signalized Intersection)

- The overall intersection is expected to operate at LOS F during the 2040 AM, PM, and weekend peak hours.
- The westbound and northbound approaches are expected to operate at LOS F and overcapacity during the 2040 AM, PM, and Weekend peak hours
- The eastbound left-turn movement is anticipated to operate at LOS F during the 2040 AM, PM, and Weekend peak hours. The movement is expected to operate with v/c ratios over 1.0 during the AM and weekend midday peak hours.
- The existing off-ramp is approximately 1,300 feet long to the I-75 gore point.
  - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
  - Remaining distance for storage – approximately 685 feet
  - The peak hour 95th percentile queues along the off-ramp are expected to be 1,550 feet, 1,425 feet, and 1,425 feet during the 2040 AM, PM, and weekend midday peak hours, respectively. These queues would exceed the overall ramp length and spillback onto the I-75 northbound mainline lanes.

- It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request.

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 2030	PM Peak Hour 2030	Midday Peak Hour 2030	AM Peak Hour 2030	PM Peak Hour 2030	Midday Peak Hour 2030							
I-75 SB Off-Ramp to SR 40	518	454	405	10.7%	10.7%	6.3%	35	1	604	2,000	4,000	1	No
I-75 SB On-Ramp from SR 40	421	690	431	9.7%	9.7%	5.0%	45	1	797	2,100	4,200	1	No
I-75 NB On-Ramp from SR 40	479	544	418	11.4%	11.4%	6.4%	45	1	638	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 40	674	372	410	11.4%	11.4%	7.1%	35	1	790	2,000	4,000	1	No
I-75 SB Off-Ramp to US 27	331	362	333	11.8%	11.8%	7.2%	35	1	426	2,000	4,000	1	No
I-75 SB On-Ramp from US 27	782	807	722	9.4%	9.4%	6.0%	45	1	929	2,100	4,200	1	No
I-75 NB On-Ramp from US 27	289	284	226	14.2%	14.2%	9.5%	45	1	347	2,100	4,200	1	No
I-75 NB Off-Ramp to US 27	776	786	654	7.1%	7.1%	4.1%	30	1	886	2,000	4,000	1	No
I-75 SB Off-Ramp to NW 49th St	282	333	366	12.0%^	12.0%^	12.0%^	35	1	431	2,000	4,000	1	No
I-75 SB On-Ramp from NW 49th St	713	613	665	12.0%^	12.0%^	12.0%^	45	1	841	2,100	4,200	1	No
I-75 NB On-Ramp from NW 49th St	333	282	309	12.0%^	12.0%^	12.0%^	45	1	393	2,100	4,200	1	No
I-75 NB Off-Ramp to NW 49th St	613	714	787	12.0%^	12.0%^	12.0%^	35	1	928	2,000	4,000	1	No
I-75 SB Off-Ramp to SR 326	296	544	461	13.4%	13.4%	8.8%	45	1	649	2,100	4,200	1	No
I-75 SB On-Ramp from SR 326 EB	454	366	187	11.9%	11.9%	8.2%	45	1	535	2,100	4,200	1	No
I-75 SB On-Ramp from SR 326 WB (loop ramp)	723	892	896	16.2%	16.2%	8.0%	25	1	1,091	1,900	3,800	1	No
I-75 NB On-Ramp from SR 326	571	368	384	17.3%	17.3%	9.3%	45	1	705	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 326	950	944	1036	8.2%	8.2%	6.2%	35	1	1,158	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.

^Heavy vehicle percentages are based upon the I-75 at NW 49th Street Interchange Justification Report (IJR).

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 2040	PM Peak Hour 2040	Midday Peak Hour 2040	AM Peak Hour 2040	PM Peak Hour 2040	Midday Peak Hour 2040							
I-75 SB Off-Ramp to SR 40	637	556	499	10.7%	10.7%	6.3%	35	1	742	2,000	4,000	1	No
I-75 SB On-Ramp from SR 40	466	778	491	9.7%	9.7%	5.0%	45	1	898	2,100	4,200	1	No
I-75 NB On-Ramp from SR 40	581	664	520	11.4%	11.4%	6.4%	45	1	779	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 40	756	428	447	11.4%	11.4%	7.1%	35	1	887	2,000	4,000	1	No
I-75 SB Off-Ramp to US 27	465	512	488	11.8%	11.8%	7.2%	35	1	603	2,000	4,000	1	No
I-75 SB On-Ramp from US 27	931	972	876	9.4%	9.4%	6.0%	45	1	1,119	2,100	4,200	1	No
I-75 NB On-Ramp from US 27	419	396	332	14.2%	14.2%	9.5%	45	1	504	2,100	4,200	1	No
I-75 NB Off-Ramp to US 27	932	927	780	7.1%	7.1%	4.1%	30	1	1,051	2,000	4,000	1	No
I-75 SB Off-Ramp to NW 49th St	329	389	428	12.0%^	12.0%^	12.0%^	35	1	505	2,000	4,000	1	No
I-75 SB On-Ramp from NW 49th St	832	709	776	12.0%^	12.0%^	12.0%^	45	1	981	2,100	4,200	1	No
I-75 NB On-Ramp from NW 49th St	389	329	361	12.0%^	12.0%^	12.0%^	45	1	459	2,100	4,200	1	No
I-75 NB Off-Ramp to NW 49th St	709	833	919	12.0%^	12.0%^	12.0%^	35	1	1,083	2,000	4,000	1	No
I-75 SB Off-Ramp to SR 326	457	807	622	13.4%	13.4%	8.8%	45	1	963	2,100	4,200	1	No
I-75 SB On-Ramp from SR 326 EB	616	503	203	11.9%	11.9%	8.2%	45	1	726	2,100	4,200	1	No
I-75 SB On-Ramp from SR 326 WB (loop ramp)	908	1,098	1,099	16.2%	16.2%	8.0%	25	1	1,343	1,900	3,800	1	No
I-75 NB On-Ramp from SR 326	857	532	558	17.3%	17.3%	9.3%	45	1	1,058	2,100	4,200	1	No
I-75 NB Off-Ramp to SR 326	1,272	1,232	1,412	8.2%	8.2%	6.2%	35	1	1,578	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.

^Heavy vehicle percentages are based upon the I-75 at NW 49th Street Interchange Justification Report (IJR).

BUILD ANALYSIS

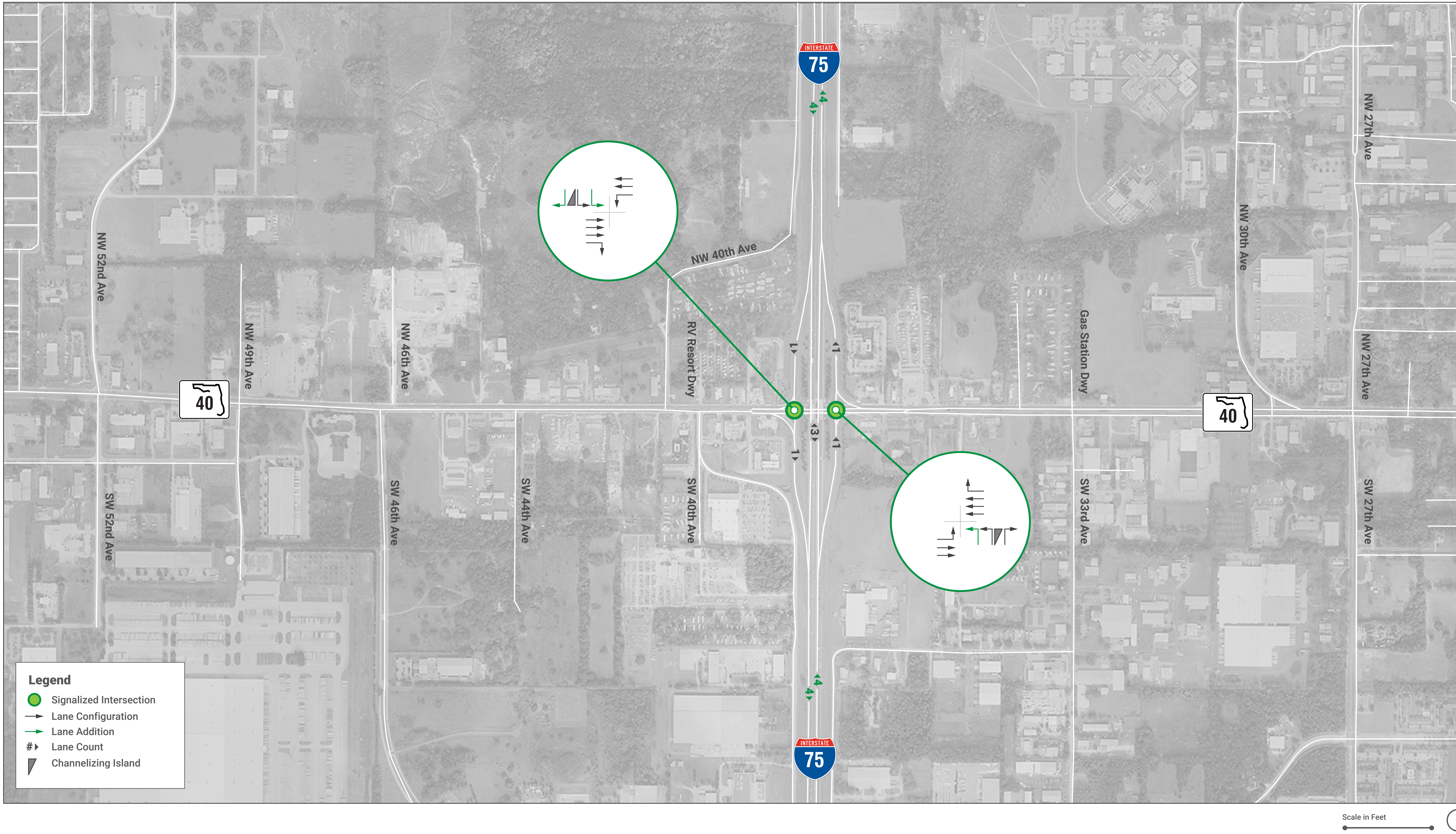
The following sections document the operational analyses conducted for the Opening Year (2030) and Design Year (2040) Build conditions analysis and includes ramp terminal intersection and freeway mainline analyses. It is important to note the projected traffic volumes used in this alternatives analysis 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 and the analysis results do not reflect non-recurring congestion operations during weather events, incidents, etc.

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

- Northbound
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the SR 200 interchange and the SR 326 interchange
- Southbound
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the SR 326 interchange and the SR 200 interchange

Ramp terminal intersection improvements at I-75 at SR 40 and I-75 at SR 326 interchanges are currently under evaluation in separate interchange access requests. These interchange improvement projects at SR 40 and SR 326 will be included as part of the Moving Florida Forward Infrastructure Initiative and are considered as part of the Build improvements in this PTAR. It is important to note that these interchange improvements are also being evaluated under separate cover as part of Interchange Access Request documents.

Figure 85 shows the lane configurations for the Future Build Condition. The Build concepts assumed in the I-75 at SR 40 IOAR and the I-75 at SR 326 IMR are assumed in the interchange analyses included in the following sections and concepts are included in **Appendix W** for reference.

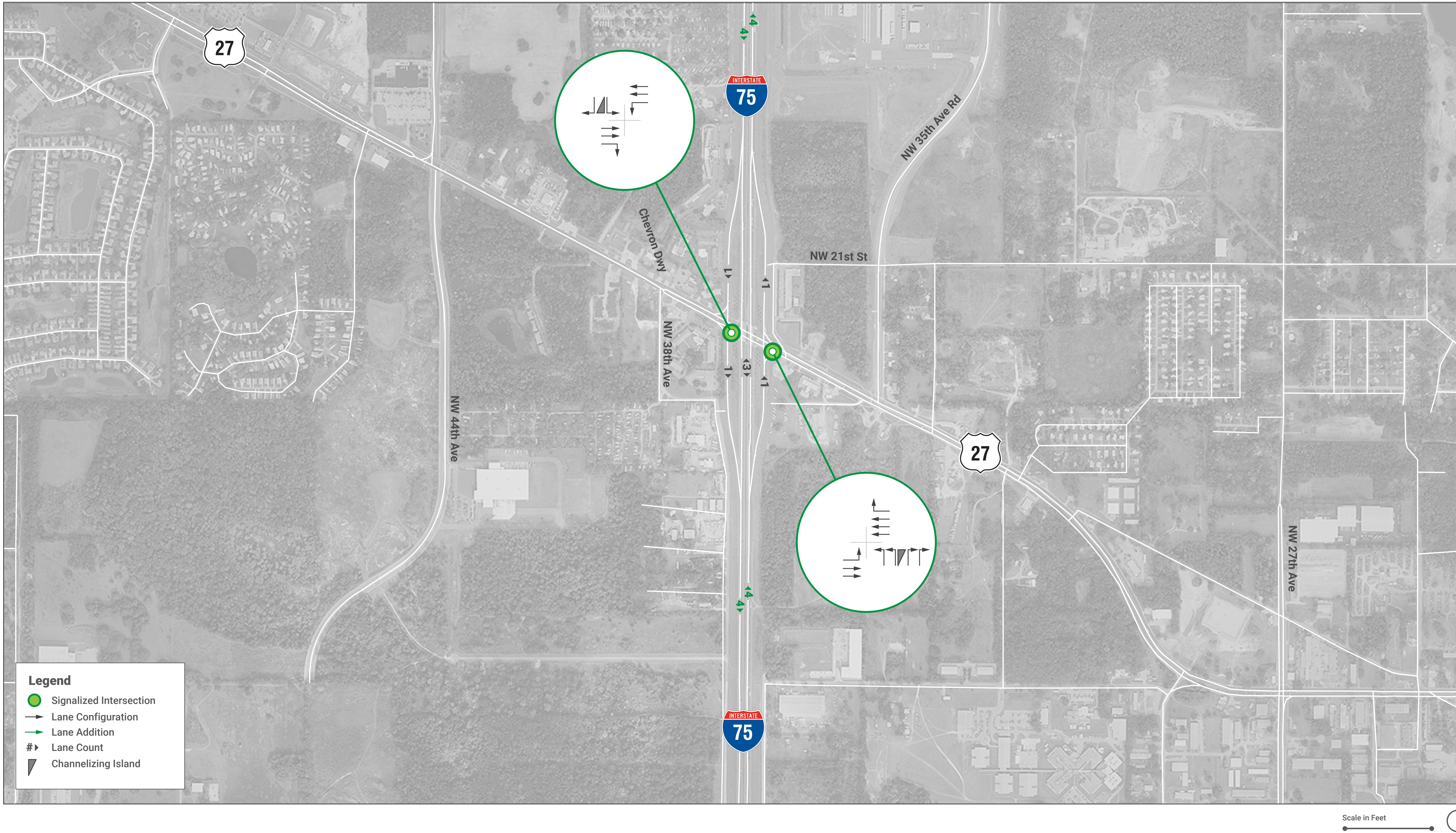


I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

Future Build Lane Configurations

Figure 85 (1 of 4)

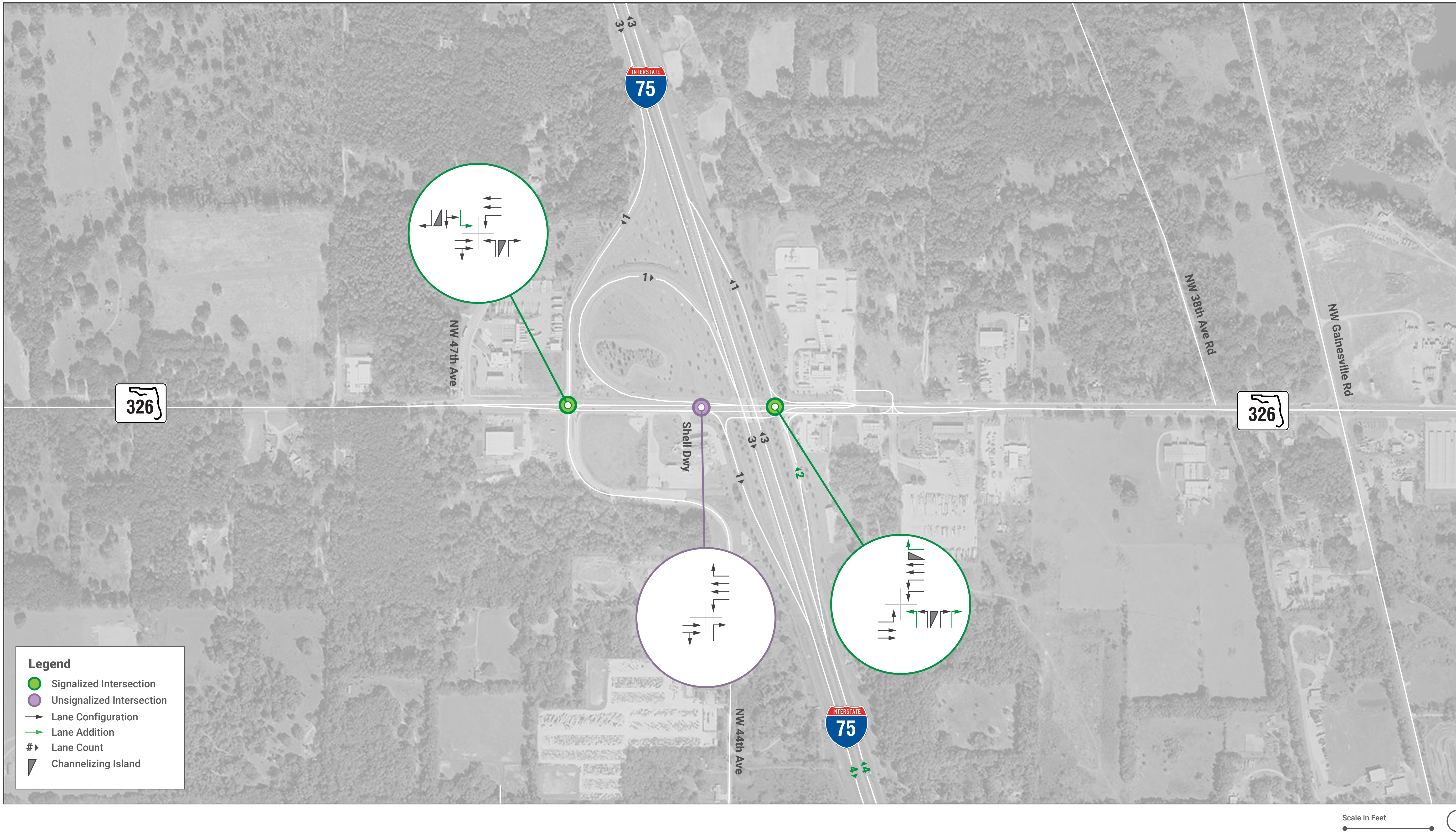


I-75 PD&E North | US 27 Interchange
SR 200 to SR 326

Future Build Lane Configurations
Figure 85 (2 of 4)

I-75 PD&E North | NW 49th Street Interchange Preliminary Conceptual Alternative
SR 200 to SR 326

Future Build Lane Configurations
Figure 85 (3 of 4)



I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

Future Build Lane Configurations

Figure 85 (4 of 4)

2030 AND 2040 BUILD OPERATIONAL ANALYSIS

The following section summarizes the 2030 Build operational analysis results for the intersection and freeway 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 applicable HCM 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. Consistent with No-Build assumptions, the proposed new interchange at NW 49th Street was considered in the analysis. The total northbound and southbound facility length is approximately 9.1 and 9.3 miles, respectively.

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

- Northbound
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the SR 200 interchange and the SR 326 interchange
- Southbound
  - Auxiliary lanes between subsequent on-ramps and off-ramps between the SR 326 interchange and the SR 200 interchange

The northbound facility consists of 19 analysis segments (**Figure 86**) and the southbound facility consists of 21 analysis segments (**Figure 87**).

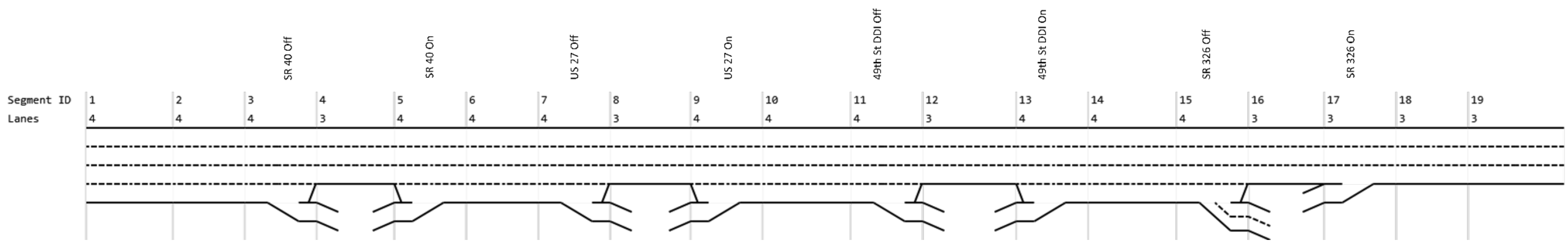


Figure 86: Northbound Freeway Facility Segmentation – Build Condition

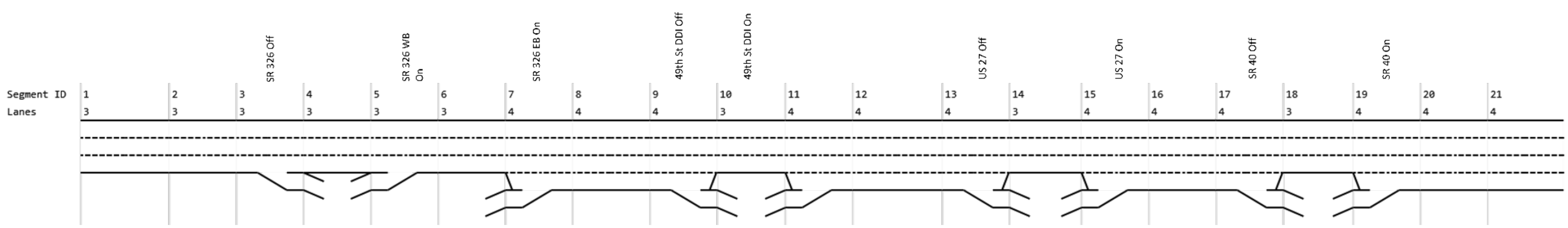


Figure 87: Southbound Freeway Facility Segmentation – Build Condition

2030 FREEWAY OPERATIONAL RESULTS

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

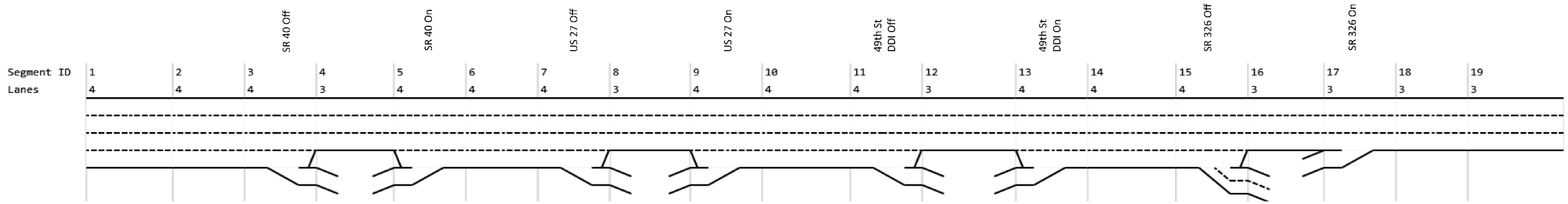
A summary of average network travel times, vehicle hours of delay, and maximum demand to capacity (D/C) ratios for each direction and peak period is summarized in **Table 39**. The HCS output reports are provided in **Appendix X.** The facility is anticipated to operate at LOS D or better during the 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 0.83 during the weekend peak period while the maximum D/C ratio is estimated to be 0.85 in the southbound direction during the PM peak period. The average speeds on this facility are expected to be above 66 mph in the northbound and southbound directions. The analysis results are based on average peak hour conditions and do not represent non-recurring congestion such as weather events, incidents, etc. 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 88**
- Northbound 2030 PM – Build Condition – **Figure 89**
- Northbound 2030 Weekend – Build Condition – **Figure 90**
- Southbound 2030 AM – Build Condition – **Figure 91**
- Southbound 2030 PM – Build Condition – **Figure 92**
- Southbound 2030 Weekend – Build Condition – **Figure 93**

Table 39: Freeway Operations Summary – 2030 Build Condition

Performance Metric	North Section - AM		North Section - PM		North Section - Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	9.1	9.3	9.1	9.3	9.1	9.3
Average Travel Time (min)	8.0	7.9	7.8	8.4	8.2	8.1
Total VHD (veh-hr)	49.2	10.6	18.9	119.9	98.2	62.6
Space Mean Speed (mph)	68.9	70.5	70.1	66.6	67.1	68.5
Reported Density (pc/mi/ln)	17.3	12.2	14.5	20.8	19.9	18.4
Max D/C	0.77	0.60	0.67	0.85	0.83	0.73

Figure 88: Northbound 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
#1 6:15 - 6:30	0.39	0.39	0.47	0.45	0.45	0.37	0.45	0.42	0.41	0.34	0.41	0.39	0.38	0.32	0.38	0.32	0.44	0.39	0.39
#2 6:30 - 6:45	0.44	0.44	0.53	0.50	0.51	0.42	0.51	0.47	0.46	0.38	0.46	0.43	0.43	0.36	0.43	0.36	0.50	0.43	0.43
#3 6:45 - 7:00	0.52	0.52	0.62	0.60	0.60	0.50	0.60	0.56	0.54	0.45	0.54	0.51	0.50	0.42	0.50	0.43	0.59	0.51	0.51
#4 7:00 - 7:15	0.59	0.59	0.71	0.68	0.68	0.57	0.68	0.64	0.62	0.51	0.62	0.58	0.58	0.48	0.58	0.49	0.67	0.59	0.59
#5 7:15 - 7:30	0.56	0.56	0.67	0.64	0.64	0.54	0.64	0.60	0.58	0.48	0.58	0.55	0.54	0.45	0.54	0.46	0.63	0.55	0.55
#6 7:30 - 7:45	0.57	0.57	0.68	0.65	0.65	0.54	0.65	0.61	0.59	0.49	0.59	0.56	0.55	0.46	0.55	0.47	0.64	0.56	0.56
#7 7:45 - 8:00	0.64	0.64	0.77	0.74	0.74	0.62	0.74	0.69	0.67	0.56	0.67	0.64	0.63	0.52	0.63	0.53	0.73	0.64	0.64
#8 8:00 - 8:15	0.62	0.62	0.75	0.72	0.72	0.60	0.72	0.67	0.65	0.54	0.65	0.62	0.61	0.51	0.61	0.52	0.71	0.62	0.62
#9 8:15 - 8:30	0.62	0.62	0.74	0.71	0.71	0.59	0.71	0.66	0.64	0.54	0.64	0.61	0.60	0.50	0.60	0.51	0.70	0.61	0.61
#10 8:30 - 8:45	0.61	0.61	0.73	0.70	0.70	0.58	0.70	0.65	0.64	0.53	0.63	0.60	0.59	0.49	0.59	0.50	0.69	0.60	0.60
#11 8:45 - 9:00	0.59	0.59	0.71	0.68	0.69	0.57	0.69	0.64	0.62	0.52	0.62	0.59	0.58	0.48	0.58	0.49	0.68	0.59	0.59
#12 9:00 - 9:15	0.57	0.57	0.68	0.65	0.65	0.54	0.65	0.61	0.59	0.49	0.59	0.56	0.55	0.46	0.55	0.47	0.64	0.56	0.56

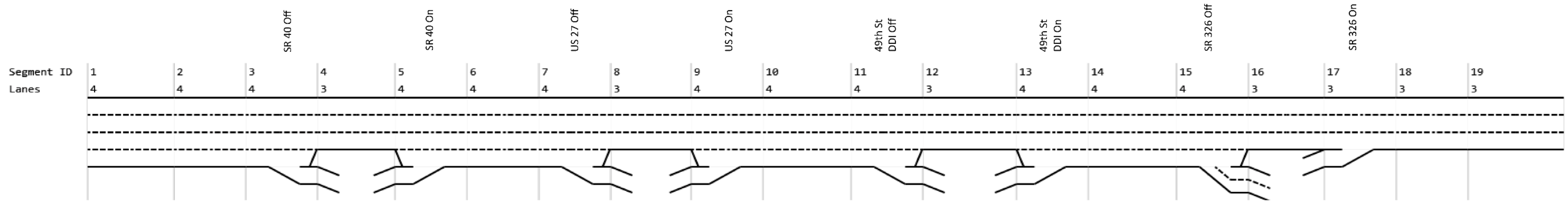
Speed Contours

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
#1 6:15 - 6:30	71.2	71.2	70.5	71.2	70.8	71.1	70.8	71.2	71.1	71.2	71.1	71.2	71.2	71.2	69.0	71.1	65.5	70.7	71.2
#2 6:30 - 6:45	71.2	71.2	69.5	71.0	69.9	71.0	69.9	71.2	70.7	71.2	70.7	71.2	71.0	71.2	68.9	71.1	65.2	70.7	71.2
#3 6:45 - 7:00	70.9	70.9	66.6	69.7	67.4	70.7	67.5	70.4	69.1	71.2	69.1	70.9	69.9	71.2	68.5	71.1	64.8	70.6	70.9
#4 7:00 - 7:15	69.8	69.8	62.6	67.5	64.0	70.2	64.0	68.8	66.7	70.9	66.8	70.0	68.1	71.1	68.1	71.1	64.3	69.9	69.9
#5 7:15 - 7:30	70.4	70.4	64.6	68.7	65.7	70.5	65.8	69.6	68.0	71.1	68.0	70.5	69.1	71.2	68.3	71.1	64.5	70.5	70.5
#6 7:30 - 7:45	70.3	70.3	64.2	68.4	65.4	70.4	65.4	69.5	67.7	71.1	67.7	70.4	68.9	71.2	68.3	71.1	64.5	70.4	70.4
#7 7:45 - 8:00	68.6	68.6	59.2	65.3	61.0	69.2	61.0	67.1	64.5	70.4	64.6	68.8	66.4	70.8	67.8	70.7	63.9	68.8	68.8
#8 8:00 - 8:15	69.1	69.1	60.6	66.2	62.2	69.7	62.2	67.8	65.4	70.6	65.5	69.3	67.1	71.0	67.9	70.9	64.0	69.2	69.2
#9 8:15 - 8:30	69.3	69.3	61.1	66.5	62.6	69.8	62.7	68.0	65.7	70.7	65.8	69.5	67.4	71.0	67.9	71.0	64.1	69.4	69.4
#10 8:30 - 8:45	69.4	69.4	61.6	66.9	63.1	69.9	63.1	68.3	66.1	70.8	66.1	69.6	67.6	71.1	68.0	71.0	64.2	69.6	69.6
#11 8:45 - 9:00	69.8	69.8	62.5	67.4	63.9	70.2	63.9	68.7	66.7	70.9	66.7	69.9	68.1	71.1	68.1	71.1	64.3	69.9	69.9
#12 9:00 - 9:15	70.3	70.3	64.2	68.4	65.4	70.4	65.4	69.5	67.7	71.1	67.7	70.4	68.9	71.2	68.2	71.1	64.5	70.4	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
#1 6:15 - 6:30	B	B	B	B	B	B	B	B	A	A	A	B	A	A	A	A	B	B	B
#2 6:30 - 6:45	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B
#3 6:45 - 7:00	B	B	B	C	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B
#4 7:00 - 7:15	C	C	C	C	C	C	C	C	B	B	B	C	B	B	A	B	C	C	C
#5 7:15 - 7:30	B	B	C	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B
#6 7:30 - 7:45	C	C	C	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B
#7 7:45 - 8:00	C	C	C	C	C	C	C	C	C	B	C	C	B	B	A	B	C	C	C
#8 8:00 - 8:15	C	C	C	C	C	C	C	C	C	B	C	C	B	B	A	B	C	C	C
#9 8:15 - 8:30	C	C	C	C	C	C	C	C	C	B	C	C	B	B	A	B	C	C	C
#10 8:30 - 8:45	C	C	C	C	C	C	C	C	B	B	B	C	B	B	A	B	C	C	C
#11 8:45 - 9:00	C	C	C	C	C	C	C	C	B	B	B	C	B	B	A	B	C	C	C
#12 9:00 - 9:15	C	C	C	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B

Figure 89: Northbound 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
#1 15:30 - 15:45	0.54	0.54	0.64	0.64	0.67	0.56	0.67	0.60	0.59	0.49	0.59	0.52	0.52	0.43	0.52	0.40	0.55	0.48	0.48
#2 15:45 - 16:00	0.51	0.51	0.61	0.61	0.63	0.53	0.63	0.57	0.56	0.47	0.56	0.49	0.49	0.41	0.49	0.38	0.52	0.45	0.45
#3 16:00 - 16:15	0.52	0.52	0.62	0.63	0.65	0.54	0.65	0.59	0.58	0.48	0.58	0.51	0.50	0.42	0.50	0.39	0.53	0.46	0.46
#4 16:15 - 16:30	0.49	0.49	0.59	0.59	0.62	0.51	0.61	0.55	0.54	0.45	0.54	0.48	0.48	0.40	0.48	0.37	0.50	0.44	0.44
#5 16:30 - 16:45	0.42	0.42	0.50	0.50	0.53	0.44	0.53	0.47	0.47	0.39	0.47	0.41	0.41	0.34	0.41	0.32	0.43	0.37	0.37
#6 16:45 - 17:00	0.47	0.47	0.56	0.56	0.59	0.49	0.59	0.53	0.52	0.43	0.52	0.46	0.45	0.38	0.45	0.35	0.48	0.42	0.42
#7 17:00 - 17:15	0.48	0.48	0.58	0.58	0.61	0.50	0.61	0.54	0.54	0.45	0.53	0.47	0.47	0.39	0.47	0.36	0.49	0.43	0.43
#8 17:15 - 17:30	0.50	0.50	0.60	0.60	0.62	0.52	0.62	0.56	0.55	0.46	0.55	0.49	0.48	0.40	0.48	0.37	0.51	0.44	0.44
#9 17:30 - 17:45	0.48	0.48	0.58	0.58	0.60	0.50	0.60	0.54	0.53	0.44	0.53	0.47	0.47	0.39	0.47	0.36	0.49	0.43	0.43
#10 17:45 - 18:00	0.45	0.45	0.54	0.55	0.57	0.47	0.57	0.51	0.50	0.42	0.50	0.44	0.44	0.37	0.44	0.34	0.46	0.40	0.40
#11 18:00 - 18:15	0.44	0.44	0.53	0.53	0.55	0.46	0.55	0.50	0.49	0.41	0.49	0.43	0.43	0.36	0.43	0.33	0.45	0.39	0.39
#12 18:15 - 18:30	0.41	0.41	0.50	0.50	0.52	0.43	0.52	0.47	0.46	0.38	0.46	0.41	0.40	0.34	0.40	0.31	0.42	0.37	0.37

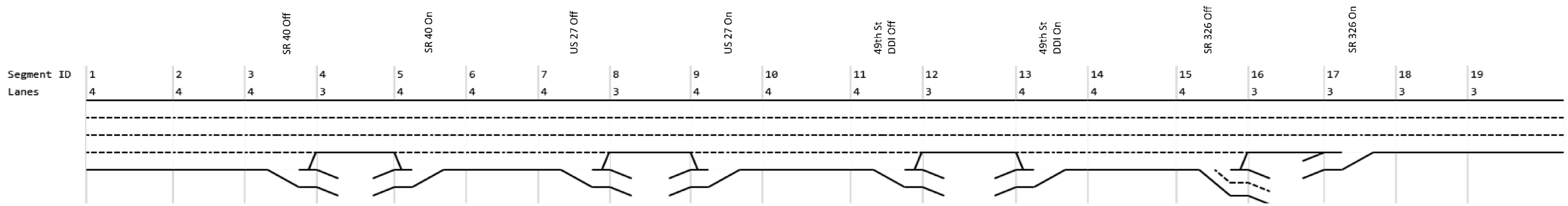
Speed Contours

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
#1 15:30 - 15:45	70.7	70.7	65.8	68.6	64.5	70.3	64.5	69.6	67.6	71.1	67.6	70.8	69.6	71.2	67.3	71.1	65.0	70.7	71.2
#2 15:45 - 16:00	71.0	71.0	67.2	69.5	66.1	70.5	66.1	70.2	68.6	71.2	68.6	71.1	70.2	71.2	67.4	71.1	65.2	70.7	71.2
#3 16:00 - 16:15	70.9	70.9	66.5	69.1	65.4	70.4	65.4	69.9	68.1	71.1	68.1	71.0	69.9	71.2	67.4	71.1	65.1	70.7	71.2
#4 16:15 - 16:30	71.1	71.1	67.8	69.9	66.8	70.6	66.9	70.5	69.0	71.2	69.1	71.1	70.4	71.2	67.4	71.1	65.2	70.7	71.2
#5 16:30 - 16:45	71.2	71.2	69.9	71.0	69.4	71.0	69.5	71.2	70.6	71.2	70.6	71.2	71.1	71.2	67.7	71.1	65.5	70.7	71.2
#6 16:45 - 17:00	71.2	71.2	68.5	70.3	67.8	70.8	67.8	70.8	69.6	71.2	69.6	71.2	70.7	71.2	67.6	71.1	65.4	70.7	71.2
#7 17:00 - 17:15	71.1	71.1	68.1	70.0	67.2	70.7	67.2	70.6	69.3	71.2	69.3	71.2	70.5	71.2	67.5	71.1	65.3	70.7	71.2
#8 17:15 - 17:30	71.1	71.1	67.5	69.7	66.5	70.6	66.5	70.4	68.8	71.2	68.9	71.1	70.3	71.2	67.4	71.1	65.2	70.7	71.2
#9 17:30 - 17:45	71.1	71.1	68.2	70.1	67.3	70.7	67.3	70.6	69.3	71.2	69.3	71.2	70.6	71.2	67.5	71.1	65.3	70.7	71.2
#10 17:45 - 18:00	71.2	71.2	69.0	70.6	68.3	70.8	68.3	70.9	69.9	71.2	70.0	71.2	70.9	71.2	67.6	71.1	65.4	70.7	71.2
#11 18:00 - 18:15	71.2	71.2	69.4	70.8	68.8	70.9	68.8	71.0	70.2	71.2	70.2	71.2	71.0	71.2	67.6	71.1	65.5	70.7	71.2
#12 18:15 - 18:30	71.2	71.2	70.1	71.0	69.6	71.0	69.6	71.2	70.6	71.2	70.7	71.2	71.1	71.2	67.7	71.1	65.5	70.7	71.2

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

Figure 90: Northbound 2030 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
#1 12:00 - 12:15	0.67	0.67	0.81	0.83	0.81	0.68	0.81	0.79	0.75	0.62	0.75	0.69	0.67	0.56	0.67	0.57	0.72	0.63	0.63
#2 12:15 - 12:30	0.67	0.67	0.81	0.83	0.81	0.68	0.81	0.79	0.75	0.62	0.75	0.69	0.67	0.56	0.67	0.57	0.72	0.63	0.63
#3 12:30 - 12:45	0.67	0.67	0.81	0.83	0.81	0.68	0.81	0.79	0.75	0.62	0.75	0.69	0.67	0.56	0.67	0.57	0.72	0.63	0.63
#4 12:45 - 13:00	0.67	0.67	0.81	0.83	0.81	0.68	0.81	0.79	0.75	0.62	0.75	0.69	0.67	0.56	0.67	0.57	0.72	0.63	0.63
#5 13:00 - 13:15	0.62	0.62	0.74	0.76	0.74	0.62	0.74	0.72	0.68	0.57	0.68	0.63	0.61	0.51	0.61	0.52	0.66	0.58	0.58
#6 13:15 - 13:30	0.62	0.62	0.74	0.76	0.74	0.62	0.74	0.72	0.68	0.57	0.68	0.63	0.61	0.51	0.61	0.52	0.66	0.58	0.58
#7 13:30 - 13:45	0.62	0.62	0.74	0.76	0.74	0.62	0.74	0.72	0.68	0.57	0.68	0.63	0.61	0.51	0.61	0.52	0.66	0.58	0.58
#8 13:45 - 14:00	0.62	0.62	0.74	0.76	0.74	0.62	0.74	0.72	0.68	0.57	0.68	0.63	0.61	0.51	0.61	0.52	0.66	0.58	0.58
#9 14:00 - 14:15	0.55	0.55	0.66	0.68	0.66	0.55	0.66	0.65	0.61	0.51	0.61	0.56	0.55	0.46	0.55	0.46	0.59	0.52	0.52
#10 14:15 - 14:30	0.55	0.55	0.66	0.68	0.66	0.55	0.66	0.65	0.61	0.51	0.61	0.56	0.55	0.46	0.55	0.46	0.59	0.52	0.52
#11 14:30 - 14:45	0.55	0.55	0.66	0.68	0.66	0.55	0.66	0.65	0.61	0.51	0.61	0.56	0.55	0.46	0.55	0.46	0.59	0.52	0.52
#12 14:45 - 15:00	0.56	0.56	0.67	0.68	0.66	0.55	0.67	0.65	0.61	0.51	0.55	0.50	0.55	0.46	0.55	0.46	0.59	0.52	0.52

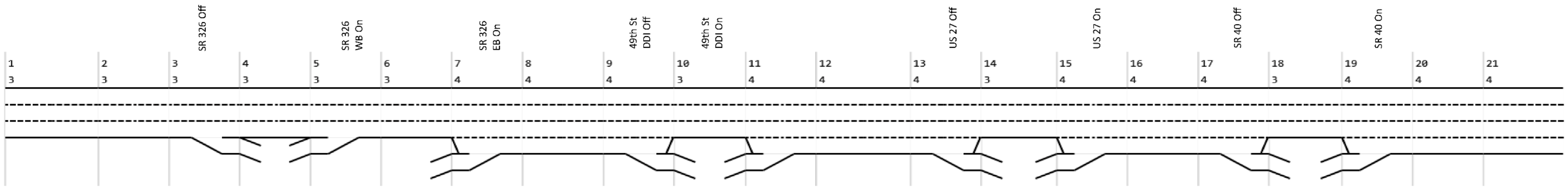
Speed Contours

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
#1 12:00 - 12:15	67.7	67.7	56.9	61.2	57.0	67.7	56.9	63.1	60.8	69.1	60.7	67.3	64.6	70.4	67.4	70.3	64.1	68.9	68.9
#2 12:15 - 12:30	67.7	67.7	56.9	61.2	57.0	67.7	56.9	63.1	60.8	69.1	60.7	67.3	64.6	70.4	67.4	70.3	64.1	68.9	68.9
#3 12:30 - 12:45	67.7	67.7	56.9	61.2	57.0	67.7	56.9	63.1	60.8	69.1	60.7	67.3	64.6	70.4	67.4	70.3	64.1	68.9	68.9
#4 12:45 - 13:00	67.7	67.7	56.9	61.2	57.0	67.7	56.9	63.1	60.8	69.1	60.7	67.3	64.6	70.4	67.4	70.3	64.1	68.9	68.9
#5 13:00 - 13:15	69.3	69.3	61.1	64.6	61.2	69.3	61.1	66.0	64.0	70.2	64.0	69.0	66.9	71.0	67.8	70.9	64.5	70.0	70.0
#6 13:15 - 13:30	69.3	69.3	61.1	64.6	61.2	69.3	61.1	66.0	64.0	70.2	64.0	69.0	66.9	71.0	67.8	70.9	64.5	70.0	70.0
#7 13:30 - 13:45	69.3	69.3	61.1	64.6	61.2	69.3	61.1	66.0	64.0	70.2	64.0	69.0	66.9	71.0	67.8	70.9	64.5	70.0	70.0
#8 13:45 - 14:00	69.3	69.3	61.1	64.6	61.2	69.3	61.1	66.0	64.0	70.2	64.0	69.0	66.9	71.0	67.8	70.9	64.5	70.0	70.0
#9 14:00 - 14:15	70.5	70.5	65.0	67.6	65.0	70.4	64.9	68.5	67.0	71.0	67.0	70.3	69.0	71.2	68.2	71.1	64.9	70.6	70.9
#10 14:15 - 14:30	70.5	70.5	65.0	67.6	65.0	70.4	64.9	68.5	67.0	71.0	67.0	70.3	69.0	71.2	68.2	71.1	64.9	70.6	70.9
#11 14:30 - 14:45	70.5	70.5	65.0	67.6	65.0	70.4	64.9	68.5	67.0	71.0	67.0	70.3	69.0	71.2	68.2	71.1	64.9	70.6	70.9
#12 14:45 - 15:00	70.4	70.4	64.7	67.6	65.0	70.4	64.7	68.5	67.0	71.0	69.0	71.0	68.9	71.2	68.2	71.1	64.9	70.6	70.9

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
#1 12:00 - 12:15	C	C	D	D	D	C	D	D	C	C	C	C	C	B	A	C	C	C	C
#2 12:15 - 12:30	C	C	D	D	D	C	D	D	C	C	C	C	C	B	A	C	C	C	C
#3 12:30 - 12:45	C	C	D	D	D	C	D	D	C	C	C	C	C	B	A	C	C	C	C
#4 12:45 - 13:00	C	C	D	D	D	C	D	D	C	C	C	C	C	B	A	C	C	C	C
#5 13:00 - 13:15	C	C	C	D	C	C	C	C	C	C	C	C	B	B	A	B	B	C	C
#6 13:15 - 13:30	C	C	C	D	C	C	C	C	C	C	C	C	B	B	A	B	B	C	C
#7 13:30 - 13:45	C	C	C	D	C	C	C	C	C	C	C	C	B	B	A	B	B	C	C
#8 13:45 - 14:00	C	C	C	D	C	C	C	C	C	C	C	C	B	B	A	B	B	C	C
#9 14:00 - 14:15	B	B	C	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B
#10 14:15 - 14:30	B	B	C	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B
#11 14:30 - 14:45	B	B	C	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B
#12 14:45 - 15:00	B	B	C	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B

Figure 91: Southbound 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
Lanes	3	3	3	3	3	3	4	4	4	3	4	4	4	3	4	4	4	3	4	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
#1 6:15 - 6:30	0.24	0.24	0.27	0.20	0.34	0.29	0.31	0.26	0.31	0.31	0.36	0.30	0.36	0.36	0.41	0.34	0.41	0.39	0.40	0.33	0.33
#2 6:30 - 6:45	0.23	0.23	0.26	0.19	0.33	0.29	0.31	0.26	0.31	0.31	0.35	0.30	0.36	0.35	0.40	0.34	0.40	0.38	0.39	0.33	0.33
#3 6:45 - 7:00	0.27	0.27	0.31	0.22	0.38	0.33	0.36	0.30	0.36	0.36	0.41	0.34	0.41	0.41	0.46	0.39	0.47	0.45	0.45	0.38	0.38
#4 7:00 - 7:15	0.29	0.29	0.33	0.24	0.41	0.36	0.38	0.32	0.38	0.38	0.44	0.37	0.44	0.44	0.50	0.42	0.50	0.48	0.49	0.41	0.41
#5 7:15 - 7:30	0.34	0.34	0.38	0.28	0.48	0.42	0.45	0.37	0.45	0.45	0.52	0.43	0.52	0.52	0.58	0.49	0.59	0.56	0.57	0.48	0.48
#6 7:30 - 7:45	0.32	0.32	0.37	0.27	0.46	0.40	0.43	0.36	0.43	0.43	0.50	0.41	0.50	0.49	0.56	0.47	0.56	0.54	0.55	0.46	0.46
#7 7:45 - 8:00	0.29	0.29	0.33	0.24	0.41	0.36	0.38	0.32	0.38	0.38	0.44	0.37	0.44	0.44	0.50	0.42	0.50	0.48	0.49	0.41	0.41
#8 8:00 - 8:15	0.30	0.30	0.34	0.25	0.43	0.37	0.40	0.33	0.40	0.40	0.46	0.39	0.46	0.46	0.52	0.44	0.53	0.50	0.51	0.43	0.43
#9 8:15 - 8:30	0.31	0.31	0.36	0.26	0.45	0.39	0.42	0.35	0.42	0.42	0.48	0.40	0.48	0.48	0.55	0.46	0.55	0.52	0.53	0.45	0.45
#10 8:30 - 8:45	0.33	0.33	0.38	0.28	0.48	0.41	0.44	0.37	0.45	0.44	0.51	0.43	0.51	0.51	0.58	0.49	0.58	0.56	0.57	0.47	0.47
#11 8:45 - 9:00	0.34	0.34	0.39	0.28	0.48	0.42	0.45	0.37	0.45	0.45	0.52	0.43	0.52	0.52	0.59	0.49	0.59	0.56	0.57	0.48	0.48
#12 9:00 - 9:15	0.34	0.34	0.39	0.29	0.49	0.43	0.46	0.38	0.46	0.46	0.53	0.44	0.53	0.53	0.60	0.50	0.60	0.58	0.58	0.49	0.49

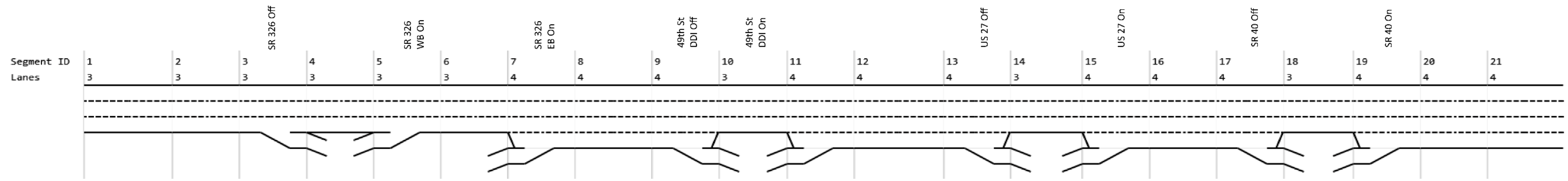
Speed Contours

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
#1 6:15 - 6:30	71.2	71.2	64.5	70.8	65.9	70.1	71.0	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.1	71.2	71.1	71.2	71.2	71.2	71.2
#2 6:30 - 6:45	71.2	71.2	64.4	70.7	66.0	70.2	71.0	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.1	71.2	71.1	71.2	71.2	71.2	71.2
#3 6:45 - 7:00	71.2	71.2	64.5	70.8	65.7	70.1	71.0	71.2	71.2	71.2	71.1	71.2	71.1	71.2	70.6	71.1	70.6	71.2	70.7	71.2	71.2
#4 7:00 - 7:15	71.2	71.2	64.4	70.7	65.6	70.1	71.0	71.2	71.2	71.2	70.9	71.2	70.9	71.2	70.0	71.1	70.0	71.1	70.3	71.1	71.2
#5 7:15 - 7:30	71.2	71.2	64.5	70.8	65.4	70.0	70.8	71.2	70.8	71.2	69.7	71.2	69.7	70.9	67.9	70.8	67.8	70.4	68.3	70.9	71.2
#6 7:30 - 7:45	71.2	71.2	64.4	70.7	65.5	70.1	71.0	71.2	71.0	71.2	70.1	71.2	70.1	71.1	68.6	70.9	68.5	70.7	69.0	71.0	71.2
#7 7:45 - 8:00	71.2	71.2	64.4	70.7	65.6	70.1	71.0	71.2	71.2	71.2	70.9	71.2	70.8	71.2	70.0	71.1	70.0	71.1	70.2	71.1	71.2
#8 8:00 - 8:15	71.2	71.2	64.5	70.8	65.6	70.1	71.0	71.2	71.1	71.2	70.6	71.2	70.6	71.2	69.5	71.0	69.5	71.0	69.8	71.1	71.2
#9 8:15 - 8:30	71.2	71.2	64.5	70.8	65.5	70.1	71.0	71.2	71.0	71.2	70.3	71.2	70.3	71.1	69.0	70.9	68.9	70.8	69.3	71.0	71.2
#10 8:30 - 8:45	71.2	71.2	64.5	70.8	65.4	70.0	70.8	71.2	70.8	71.2	69.8	71.2	69.7	70.9	68.0	70.8	67.9	70.4	68.4	71.0	71.2
#11 8:45 - 9:00	71.2	71.2	64.5	70.8	65.4	70.0	70.8	71.2	70.8	71.2	69.6	71.2	69.6	70.9	67.8	70.8	67.7	70.3	68.3	70.9	71.1
#12 9:00 - 9:15	71.2	71.2	64.5	70.8	65.4	70.0	70.7	71.2	70.7	71.2	69.4	71.2	69.4	70.8	67.4	70.7	67.3	70.1	67.9	70.9	71.1

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

Figure 92: 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
#1 15:30 - 15:45	0.63	0.63	0.72	0.53	0.80	0.69	0.68	0.57	0.68	0.70	0.72	0.60	0.72	0.74	0.79	0.66	0.79	0.80	0.81	0.69	0.69
#2 15:45 - 16:00	0.66	0.66	0.75	0.56	0.83	0.72	0.71	0.59	0.71	0.73	0.76	0.63	0.76	0.77	0.82	0.69	0.82	0.84	0.85	0.72	0.72
#3 16:00 - 16:15	0.62	0.62	0.70	0.52	0.78	0.68	0.67	0.55	0.67	0.68	0.71	0.59	0.71	0.73	0.77	0.64	0.77	0.78	0.80	0.67	0.67
#4 16:15 - 16:30	0.63	0.63	0.72	0.53	0.80	0.69	0.68	0.56	0.68	0.70	0.72	0.60	0.72	0.74	0.78	0.66	0.79	0.80	0.81	0.68	0.68
#5 16:30 - 16:45	0.60	0.60	0.69	0.51	0.76	0.66	0.65	0.54	0.65	0.67	0.69	0.57	0.69	0.71	0.75	0.63	0.75	0.76	0.78	0.66	0.66
#6 16:45 - 17:00	0.64	0.64	0.73	0.54	0.81	0.70	0.69	0.58	0.69	0.71	0.73	0.61	0.73	0.75	0.80	0.67	0.80	0.81	0.83	0.70	0.70
#7 17:00 - 17:15	0.58	0.58	0.67	0.50	0.74	0.64	0.63	0.53	0.63	0.65	0.67	0.56	0.67	0.69	0.73	0.61	0.73	0.74	0.76	0.64	0.64
#8 17:15 - 17:30	0.61	0.61	0.70	0.52	0.78	0.67	0.66	0.55	0.66	0.68	0.70	0.59	0.70	0.72	0.77	0.64	0.77	0.78	0.79	0.67	0.67
#9 17:30 - 17:45	0.59	0.59	0.67	0.50	0.75	0.65	0.64	0.53	0.64	0.65	0.68	0.56	0.68	0.69	0.74	0.61	0.74	0.75	0.76	0.64	0.64
#10 17:45 - 18:00	0.59	0.59	0.67	0.50	0.75	0.65	0.64	0.53	0.64	0.65	0.68	0.56	0.68	0.69	0.74	0.61	0.74	0.75	0.76	0.64	0.64
#11 18:00 - 18:15	0.54	0.54	0.62	0.46	0.69	0.60	0.59	0.49	0.59	0.60	0.62	0.52	0.62	0.64	0.68	0.57	0.68	0.69	0.70	0.59	0.59
#12 18:15 - 18:30	0.52	0.52	0.60	0.44	0.66	0.58	0.57	0.47	0.57	0.58	0.60	0.50	0.60	0.62	0.65	0.55	0.66	0.66	0.68	0.57	0.57

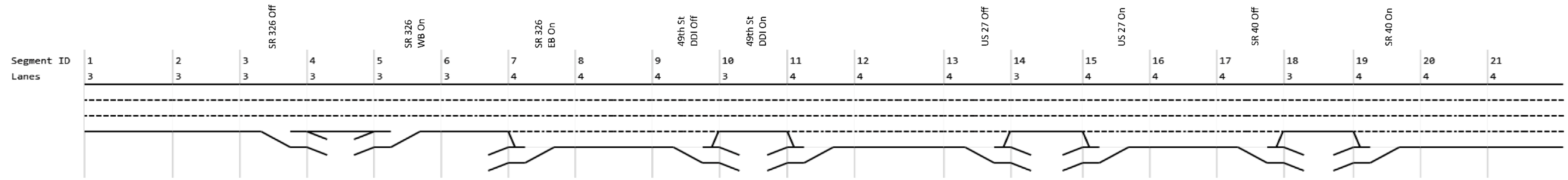
Speed Contours

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
#1 15:30 - 15:45	69.0	69.0	64.5	70.7	63.3	67.1	64.2	70.3	64.2	66.9	62.0	69.6	62.0	65.3	58.4	68.2	58.3	62.7	56.7	67.3	67.3
#2 15:45 - 16:00	68.2	68.2	64.4	70.4	62.9	66.0	62.7	69.8	62.7	65.8	60.3	69.0	60.3	63.9	56.1	67.3	56.0	60.8	54.2	66.2	66.2
#3 16:00 - 16:15	69.3	69.3	64.5	70.8	63.5	67.6	64.8	70.5	64.8	67.4	62.8	69.9	62.9	65.9	59.4	68.6	59.3	63.5	57.8	67.8	67.8
#4 16:15 - 16:30	69.0	69.0	64.5	70.7	63.4	67.2	64.3	70.3	64.3	67.0	62.1	69.6	62.1	65.4	58.5	68.3	58.4	62.8	56.8	67.4	67.4
#5 16:30 - 16:45	69.6	69.6	64.5	70.8	63.7	68.1	65.5	70.6	65.5	67.9	63.7	70.1	63.7	66.6	60.5	69.0	60.4	64.4	59.0	68.3	68.3
#6 16:45 - 17:00	68.7	68.7	64.5	70.6	63.2	66.7	63.7	70.1	63.7	66.5	61.4	69.4	61.5	64.8	57.6	67.9	57.5	62.1	55.8	67.0	67.0
#7 17:00 - 17:15	70.0	70.0	64.5	70.8	63.9	68.6	66.2	70.8	66.2	68.5	64.6	70.4	64.6	67.3	61.7	69.4	61.6	65.2	60.3	68.8	68.8
#8 17:15 - 17:30	69.4	69.4	64.5	70.8	63.5	67.7	65.0	70.5	65.0	67.5	63.1	69.9	63.1	66.1	59.7	68.7	59.6	63.7	58.1	67.9	67.9
#9 17:30 - 17:45	69.9	69.9	64.6	70.8	63.8	68.5	66.1	70.8	66.1	68.3	64.3	70.3	64.4	67.1	61.4	69.3	61.3	65.0	60.0	68.7	68.7
#10 17:45 - 18:00	69.9	69.9	64.6	70.8	63.8	68.5	66.1	70.8	66.1	68.3	64.4	70.3	64.4	67.1	61.4	69.3	61.3	65.0	60.0	68.7	68.7
#11 18:00 - 18:15	70.6	70.6	64.6	70.8	64.4	69.7	67.8	71.1	67.8	69.6	66.5	70.9	66.5	68.7	64.3	70.3	64.2	67.2	63.2	69.8	69.8
#12 18:15 - 18:30	70.8	70.8	64.7	70.8	64.5	69.9	68.5	71.2	68.5	70.0	67.3	71.0	67.3	69.3	65.3	70.5	65.2	68.0	64.3	70.2	70.2

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

Figure 93: Southbound 2030 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
#1 12:00 - 12:15	0.54	0.54	0.61	0.47	0.69	0.60	0.57	0.48	0.57	0.57	0.61	0.51	0.61	0.63	0.66	0.55	0.67	0.68	0.67	0.56	0.56
#2 12:15 - 12:30	0.54	0.54	0.61	0.47	0.69	0.60	0.57	0.48	0.57	0.57	0.61	0.51	0.61	0.63	0.66	0.55	0.67	0.68	0.67	0.56	0.56
#3 12:30 - 12:45	0.54	0.54	0.61	0.47	0.69	0.60	0.57	0.48	0.57	0.57	0.61	0.51	0.61	0.63	0.66	0.55	0.67	0.68	0.67	0.56	0.56
#4 12:45 - 13:00	0.54	0.54	0.61	0.47	0.69	0.60	0.57	0.48	0.57	0.57	0.61	0.51	0.61	0.63	0.66	0.55	0.67	0.68	0.67	0.56	0.56
#5 13:00 - 13:15	0.56	0.56	0.64	0.49	0.71	0.63	0.59	0.49	0.59	0.60	0.64	0.53	0.64	0.66	0.69	0.58	0.69	0.71	0.69	0.58	0.58
#6 13:15 - 13:30	0.56	0.56	0.64	0.49	0.71	0.63	0.59	0.49	0.59	0.60	0.64	0.53	0.64	0.66	0.69	0.58	0.69	0.71	0.69	0.58	0.58
#7 13:30 - 13:45	0.56	0.56	0.64	0.49	0.71	0.63	0.59	0.49	0.59	0.60	0.64	0.53	0.64	0.66	0.69	0.58	0.69	0.71	0.69	0.58	0.58
#8 13:45 - 14:00	0.56	0.56	0.64	0.49	0.71	0.63	0.59	0.49	0.59	0.60	0.64	0.53	0.64	0.66	0.69	0.58	0.69	0.71	0.69	0.58	0.58
#9 14:00 - 14:15	0.57	0.57	0.65	0.49	0.73	0.64	0.60	0.50	0.60	0.61	0.65	0.54	0.65	0.67	0.70	0.59	0.70	0.72	0.70	0.59	0.59
#10 14:15 - 14:30	0.57	0.57	0.65	0.49	0.73	0.64	0.60	0.50	0.60	0.61	0.65	0.54	0.65	0.67	0.70	0.59	0.70	0.72	0.70	0.59	0.59
#11 14:30 - 14:45	0.57	0.57	0.65	0.49	0.73	0.64	0.60	0.50	0.60	0.61	0.65	0.54	0.65	0.67	0.70	0.59	0.70	0.72	0.70	0.59	0.59
#12 14:45 - 15:00	0.57	0.57	0.65	0.49	0.73	0.64	0.60	0.50	0.60	0.61	0.65	0.54	0.65	0.67	0.70	0.59	0.70	0.72	0.70	0.59	0.59

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
#1 12:00 - 12:15	70.7	70.7	64.8	70.8	64.3	69.5	68.3	71.2	68.3	70.1	66.9	71.0	66.9	68.9	65.0	70.4	64.8	67.6	64.8	70.4	70.4
#2 12:15 - 12:30	70.7	70.7	64.8	70.8	64.3	69.5	68.3	71.2	68.3	70.1	66.9	71.0	66.9	68.9	65.0	70.4	64.8	67.6	64.8	70.4	70.4
#3 12:30 - 12:45	70.7	70.7	64.8	70.8	64.3	69.5	68.3	71.2	68.3	70.1	66.9	71.0	66.9	68.9	65.0	70.4	64.8	67.6	64.8	70.4	70.4
#4 12:45 - 13:00	70.7	70.7	64.8	70.8	64.3	69.5	68.3	71.2	68.3	70.1	66.9	71.0	66.9	68.9	65.0	70.4	64.8	67.6	64.8	70.4	70.4
#5 13:00 - 13:15	70.4	70.4	64.7	70.8	64.1	69.0	67.6	71.1	67.6	69.7	65.9	70.7	66.0	68.3	63.8	70.1	63.6	66.7	63.6	70.1	70.1
#6 13:15 - 13:30	70.4	70.4	64.7	70.8	64.1	69.0	67.6	71.1	67.6	69.7	65.9	70.7	66.0	68.3	63.8	70.1	63.6	66.7	63.6	70.1	70.1
#7 13:30 - 13:45	70.4	70.4	64.7	70.8	64.1	69.0	67.6	71.1	67.6	69.7	65.9	70.7	66.0	68.3	63.8	70.1	63.6	66.7	63.6	70.1	70.1
#8 13:45 - 14:00	70.4	70.4	64.7	70.8	64.1	69.0	67.6	71.1	67.6	69.7	65.9	70.7	66.0	68.3	63.8	70.1	63.6	66.7	63.6	70.1	70.1
#9 14:00 - 14:15	70.2	70.2	64.7	70.8	64.1	68.7	67.3	71.0	67.3	69.5	65.5	70.6	65.6	67.9	63.2	69.9	63.0	66.3	63.1	69.9	69.9
#10 14:15 - 14:30	70.2	70.2	64.7	70.8	64.1	68.7	67.3	71.0	67.3	69.5	65.5	70.6	65.6	67.9	63.2	69.9	63.0	66.3	63.1	69.9	69.9
#11 14:30 - 14:45	70.2	70.2	64.7	70.8	64.1	68.7	67.3	71.0	67.3	69.5	65.5	70.6	65.6	67.9	63.2	69.9	63.0	66.3	63.1	69.9	69.9
#12 14:45 - 15:00	70.2	70.2	64.7	70.8	64.1	68.7	67.3	71.0	67.3	69.5	65.5	70.6	65.6	67.9	63.2	69.9	63.0	66.3	63.1	69.9	69.9

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

The contours presented in **Figure 88** through **Figure 93** 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 the study segments operating below capacity (D/C < 1.0) and LOS D or better during the analysis periods. The space mean speed for northbound and southbound directions are anticipated to be 66 mph and higher in the analysis periods and segments analyzed for Build Conditions. 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 1.9 minutes over the No-Build condition (approximately a 19% improvement)
    - Total vehicle hours of delay
      - Total network vehicle hours of delay is improved by up to 396 hours (approximately an 80% improvement)
    - D/C ratios
      - D/C ratios improve by up to approximately 0.21 points over the No-Build condition (approximately a 21% improvement)

- 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 10.5 minutes over the No-Build condition (approximately a 56% improvement)
    - Total vehicle hours of delay
      - Total network vehicle hours of delay is improved by up to 2,211 hours (approximately an 95% improvement)
    - D/C ratios
      - D/C ratios improve by up to approximately 0.23 points over the No-Build condition (approximately a 21% improvement)

2040 FREEWAY OPERATIONAL RESULTS

The 2040 peak period freeway operational analysis results for 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 2040 Build Conditions (Auxiliary Lane). The HCS output reports are provided in **Appendix Y**. 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 1.09 during the AM peak period while the maximum D/C ratio is estimated to be 1.12 in the southbound direction during the PM peak period. The average speeds on this facility are expected to be above 46 mph in the northbound direction and above 34 mph in the southbound direction.

Multiple segments on the facility are anticipated to operate at LOS E and F during the AM and Weekend Peak in the northbound direction. Multiple segments are anticipated to operate at LOS E and LOS F during the PM and Weekend Peaks in the southbound direction. Build Conditions (Auxiliary Lane) provide the capacity needed to service 2030 future volumes; however, deficiencies are anticipated with 2040 future volume demand exceeding capacity.

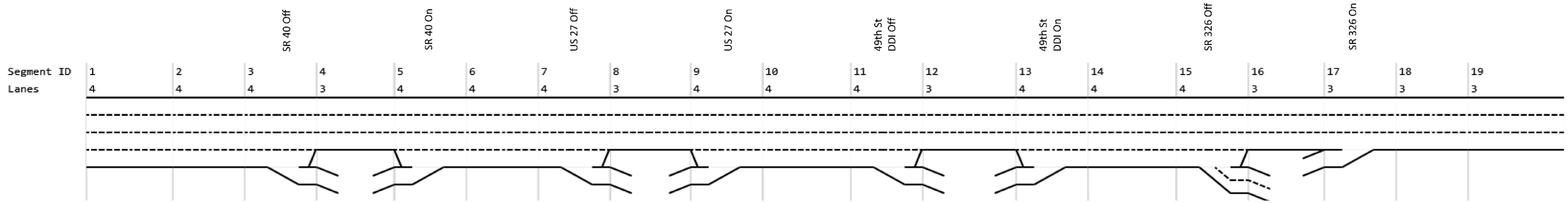
The D/C, speed, and LOS contours for each analysis facility and peak period are illustrated in the following figures:

- Northbound 2040 AM Build Condition – **Figure 94**
- Northbound 2040 PM Build Condition – **Figure 95**
- Northbound 2040 Weekend Build Condition – **Figure 96**
- Southbound 2040 AM Build Condition – **Figure 97**
- Southbound 2040 PM Build Condition – **Figure 98**
- Southbound 2040 Weekend Build Condition – **Figure 99**

Table 40: Freeway Operations Summary – 2040 Build Condition

Performance Metric	North Section - AM		North Section - PM		North Section -Weekend	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Length (mi)	9.1	9.3	9.1	9.3	9.1	9.3
Average Travel Time (min)	11.9	8.2	8.2	16.1	11.3	9.1
Total VHD (veh-hr)	1,082.6	83.5	108.9	2,281.6	964.9	340.9
Space Mean Speed (mph)	46.1	67.5	66.8	34.5	48.4	61.1
Reported Density (pc/mi/ln)	35.5	18.5	20.6	49.8	34.6	27.4
Max D/C	1.09	0.83	0.85	1.12	1.08	0.98

Figure 94: Northbound 2040 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
#1 6:15 - 6:30	0.54	0.54	0.61	0.64	0.60	0.52	0.60	0.60	0.56	0.49	0.56	0.57	0.53	0.46	0.53	0.48	0.66	0.58	0.58
#2 6:30 - 6:45	0.60	0.60	0.69	0.71	0.67	0.59	0.67	0.68	0.62	0.55	0.62	0.64	0.59	0.52	0.59	0.54	0.74	0.65	0.65
#3 6:45 - 7:00	0.71	0.71	0.82	0.84	0.79	0.70	0.79	0.80	0.74	0.65	0.74	0.76	0.70	0.61	0.70	0.64	0.88	0.77	0.77
#4 7:00 - 7:15	0.82	0.82	0.93	0.96	0.91	0.79	0.91	0.91	0.84	0.74	0.84	0.87	0.80	0.70	0.80	0.73	1.01	0.88	0.88
#5 7:15 - 7:30	0.77	0.77	0.88	0.91	0.86	0.75	0.85	0.86	0.79	0.69	0.79	0.82	0.75	0.66	0.75	0.69	0.95	0.82	0.82
#6 7:30 - 7:45	0.78	0.78	0.89	0.92	0.87	0.76	0.87	0.87	0.80	0.70	0.80	0.83	0.76	0.67	0.76	0.70	0.96	0.84	0.84
#7 7:45 - 8:00	0.89	0.89	1.01	1.05	0.99	0.86	0.99	0.99	0.92	0.80	0.92	0.94	0.87	0.76	0.87	0.79	1.09	0.95	0.95
#8 8:00 - 8:15	0.86	0.86	0.98	1.02	0.96	0.84	0.96	0.96	0.89	0.78	0.89	0.91	0.84	0.74	0.84	0.77	1.06	0.92	0.92
#9 8:15 - 8:30	0.85	0.85	0.97	1.00	0.95	0.83	0.95	0.95	0.88	0.77	0.88	0.90	0.83	0.73	0.83	0.76	1.05	0.91	0.91
#10 8:30 - 8:45	0.84	0.84	0.96	0.99	0.93	0.82	0.93	0.94	0.87	0.76	0.87	0.89	0.82	0.72	0.82	0.75	1.03	0.90	0.90
#11 8:45 - 9:00	0.82	0.82	0.93	0.97	0.91	0.80	0.91	0.92	0.85	0.74	0.84	0.87	0.80	0.70	0.80	0.73	1.01	0.88	0.88
#12 9:00 - 9:15	0.78	0.78	0.89	0.92	0.87	0.76	0.87	0.87	0.81	0.70	0.80	0.83	0.76	0.67	0.76	0.70	0.96	0.84	0.84

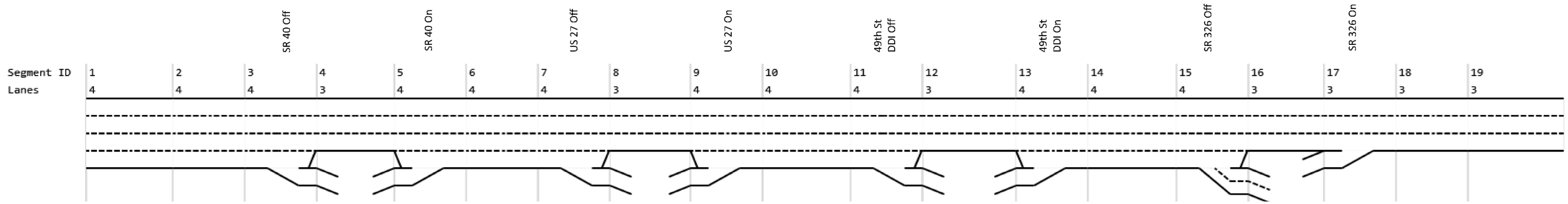
Speed Contours

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
#1 6:15 - 6:30	70.7	70.7	67.6	68.8	68.1	70.8	68.1	69.6	69.3	71.1	69.3	70.2	69.9	71.2	68.6	71.1	64.4	70.1	70.1
#2 6:30 - 6:45	69.6	69.6	64.7	66.4	65.5	69.9	65.5	67.7	67.2	70.6	67.3	68.6	68.3	70.9	68.1	70.6	63.7	68.5	68.5
#3 6:45 - 7:00	66.4	66.4	58.0	60.4	59.3	67.0	59.3	62.7	62.4	68.5	62.4	64.5	64.3	69.4	67.4	68.7	62.4	64.2	64.2
#4 7:00 - 7:15	61.9	61.9	66.3	52.7	64.4	62.9	66.0	56.2	65.0	65.5	66.6	59.1	65.4	66.9	66.8	30.6	61.4	61.9	61.9
#5 7:15 - 7:30	64.1	64.1	66.5	56.5	64.9	65.0	66.2	59.5	65.4	67.0	66.8	61.8	65.6	68.2	67.1	19.8	61.6	62.0	62.0
#6 7:30 - 7:45	63.7	63.7	66.5	55.8	64.8	64.6	66.1	58.9	65.3	66.7	66.8	61.3	65.6	68.0	67.0	17.2	61.5	62.0	62.0
#7 7:45 - 8:00	35.0	26.3	30.2	55.0	64.5	63.8	65.7	57.6	65.1	65.9	66.4	59.9	65.4	67.7	20.5	16.7	61.0	62.0	62.0
#8 8:00 - 8:15	23.5	23.7	29.8	55.1	64.6	64.0	65.8	57.8	65.1	66.1	66.5	60.2	65.4	28.6	19.1	16.7	61.2	62.0	62.0
#9 8:15 - 8:30	23.4	23.5	29.8	55.1	64.6	64.0	65.9	57.9	65.1	66.1	66.6	61.3	65.7	22.0	19.1	16.7	61.2	62.0	62.0
#10 8:30 - 8:45	23.4	23.5	29.8	55.1	64.6	64.0	65.9	58.0	65.1	66.9	28.2	38.8	29.0	21.9	19.1	16.7	61.3	62.0	62.0
#11 8:45 - 9:00	23.5	23.7	29.8	55.1	64.7	64.1	66.0	58.1	65.2	67.4	27.0	39.5	30.6	19.4	18.5	16.7	61.4	62.0	62.0
#12 9:00 - 9:15	23.6	23.7	29.8	55.1	64.7	64.3	66.2	58.3	65.2	28.8	25.9	37.8	30.2	21.3	19.0	16.7	61.5	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
#1 6:15 - 6:30	B	B	B	C	B	B	B	C	B	B	B	C	B	B	A	B	B	C	C
#2 6:30 - 6:45	C	C	C	C	C	C	C	C	C	B	C	C	B	B	A	B	C	C	C
#3 6:45 - 7:00	C	C	D	D	D	C	D	D	C	C	C	D	C	C	B	C	C	D	D
#4 7:00 - 7:15	D	D	D	E	D	D	D	E	C	C	C	D	C	C	B	F	F	D	D
#5 7:15 - 7:30	D	D	C	E	C	C	C	D	C	C	C	D	C	C	B	F	D	D	D
#6 7:30 - 7:45	D	D	D	E	D	D	C	D	C	C	C	D	C	C	F	F	D	D	D
#7 7:45 - 8:00	F	F	F	F	D	D	D	D	C	C	C	D	C	F	F	F	F	D	D
#8 8:00 - 8:15	F	F	F	F	D	D	D	D	C	C	C	D	C	F	F	F	F	D	D
#9 8:15 - 8:30	F	F	F	F	D	D	D	D	C	C	F	F	F	F	F	F	F	D	D
#10 8:30 - 8:45	F	F	F	E	D	D	D	D	C	F	F	F	F	F	F	F	F	D	D
#11 8:45 - 9:00	F	F	F	E	D	D	D	D	C	F	F	F	F	F	F	F	F	D	D
#12 9:00 - 9:15	F	F	F	E	D	D	D	D	C	F	F	F	F	F	F	F	D	D	D

Figure 95: Northbound 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
#1 15:30 - 15:45	0.70	0.70	0.80	0.85	0.84	0.73	0.84	0.81	0.76	0.67	0.76	0.73	0.68	0.59	0.68	0.57	0.77	0.67	0.67
#2 15:45 - 16:00	0.66	0.66	0.76	0.81	0.79	0.69	0.79	0.77	0.72	0.63	0.72	0.69	0.64	0.56	0.64	0.53	0.73	0.63	0.63
#3 16:00 - 16:15	0.68	0.68	0.78	0.83	0.82	0.71	0.81	0.79	0.74	0.65	0.74	0.71	0.66	0.58	0.66	0.55	0.75	0.65	0.65
#4 16:15 - 16:30	0.64	0.64	0.73	0.78	0.77	0.67	0.77	0.74	0.70	0.61	0.70	0.67	0.62	0.54	0.62	0.52	0.71	0.62	0.62
#5 16:30 - 16:45	0.55	0.55	0.63	0.67	0.66	0.58	0.66	0.64	0.60	0.52	0.60	0.57	0.53	0.47	0.53	0.44	0.61	0.53	0.53
#6 16:45 - 17:00	0.61	0.61	0.70	0.75	0.74	0.64	0.73	0.71	0.67	0.58	0.67	0.64	0.59	0.52	0.59	0.50	0.68	0.59	0.59
#7 17:00 - 17:15	0.63	0.63	0.72	0.77	0.76	0.66	0.76	0.73	0.69	0.60	0.69	0.66	0.61	0.54	0.61	0.51	0.70	0.61	0.61
#8 17:15 - 17:30	0.65	0.65	0.74	0.79	0.78	0.68	0.78	0.75	0.71	0.62	0.71	0.68	0.63	0.55	0.63	0.53	0.72	0.62	0.62
#9 17:30 - 17:45	0.63	0.63	0.72	0.77	0.75	0.66	0.75	0.73	0.68	0.60	0.68	0.65	0.61	0.53	0.61	0.51	0.69	0.60	0.60
#10 17:45 - 18:00	0.59	0.59	0.68	0.72	0.71	0.62	0.71	0.69	0.65	0.56	0.65	0.62	0.58	0.50	0.58	0.48	0.65	0.57	0.57
#11 18:00 - 18:15	0.58	0.58	0.66	0.70	0.69	0.61	0.69	0.67	0.63	0.55	0.63	0.60	0.56	0.49	0.56	0.47	0.64	0.55	0.55
#12 18:15 - 18:30	0.54	0.54	0.62	0.66	0.65	0.57	0.65	0.63	0.59	0.52	0.59	0.57	0.53	0.46	0.53	0.44	0.60	0.52	0.52

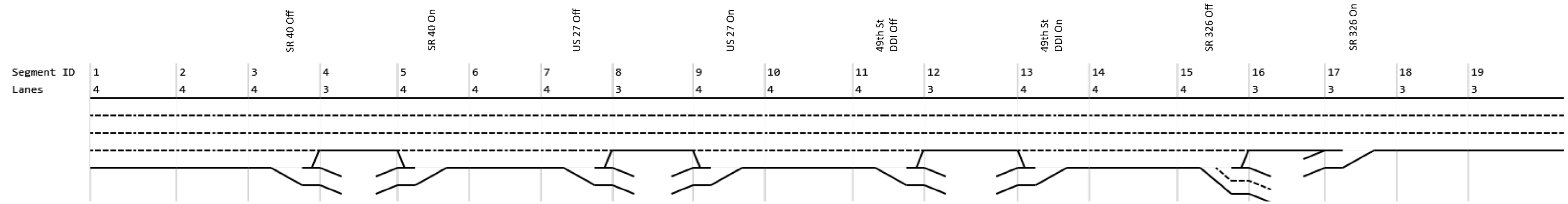
Speed Contours

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
#1 15:30 - 15:45	66.8	66.8	58.8	59.8	56.4	65.6	56.4	62.1	61.1	67.9	61.2	65.7	65.1	69.8	57.1	70.3	63.5	67.8	67.8
#2 15:45 - 16:00	68.1	68.1	61.4	62.3	59.4	67.1	59.4	64.2	63.3	69.0	63.4	67.2	66.7	70.4	57.1	70.7	63.9	68.8	68.8
#3 16:00 - 16:15	67.5	67.5	60.2	61.1	58.0	66.4	58.0	63.2	62.3	68.5	62.3	66.5	65.9	70.1	57.1	70.5	63.7	68.3	68.3
#4 16:15 - 16:30	68.7	68.7	62.6	63.5	60.8	67.8	60.8	65.2	64.3	69.4	64.4	67.9	67.4	70.6	57.1	70.8	64.1	69.3	69.3
#5 16:30 - 16:45	70.5	70.5	67.1	67.8	66.0	70.1	66.0	68.8	68.1	70.8	68.1	70.2	69.8	71.2	57.1	70.8	64.7	70.6	70.8
#6 16:45 - 17:00	69.3	69.3	64.2	65.0	62.5	68.6	62.6	66.5	65.6	70.0	65.7	68.7	68.2	70.9	57.1	70.8	64.3	69.9	69.9
#7 17:00 - 17:15	68.9	68.9	63.2	64.1	61.4	68.1	61.4	65.7	64.8	69.6	64.8	68.2	67.7	70.7	57.1	70.8	64.2	69.5	69.5
#8 17:15 - 17:30	68.4	68.4	62.1	63.0	60.1	67.4	60.1	64.8	63.9	69.2	63.9	67.6	67.0	70.5	57.1	70.8	64.0	69.1	69.1
#9 17:30 - 17:45	69.0	69.0	63.4	64.3	61.7	68.2	61.7	65.9	65.0	69.7	65.0	68.3	67.8	70.7	57.1	70.8	64.2	69.6	69.6
#10 17:45 - 18:00	69.8	69.8	65.1	66.0	63.7	69.1	63.7	67.3	66.5	70.3	66.5	69.2	68.7	71.0	57.1	70.8	64.4	70.2	70.2
#11 18:00 - 18:15	70.1	70.1	65.9	66.7	64.6	69.5	64.6	67.9	67.1	70.5	67.1	69.6	69.2	71.1	57.1	70.8	64.5	70.4	70.4
#12 18:15 - 18:30	70.6	70.6	67.4	68.1	66.3	70.2	66.3	69.0	68.3	70.9	68.3	70.3	69.9	71.2	57.1	70.8	64.7	70.6	70.9

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

Figure 96: Northbound 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
#1 12:00 - 12:15	0.87	0.87	0.99	1.08	1.00	0.88	1.00	1.04	0.94	0.82	0.94	0.93	0.86	0.75	0.85	0.75	0.97	0.85	0.85
#2 12:15 - 12:30	0.87	0.87	0.99	1.08	1.00	0.88	1.00	1.04	0.94	0.82	0.94	0.93	0.86	0.75	0.85	0.75	0.97	0.85	0.85
#3 12:30 - 12:45	0.87	0.87	0.99	1.08	1.00	0.88	1.00	1.04	0.94	0.82	0.94	0.93	0.86	0.75	0.85	0.75	0.97	0.85	0.85
#4 12:45 - 13:00	0.87	0.87	0.99	1.08	1.00	0.88	1.00	1.04	0.94	0.82	0.94	0.93	0.86	0.75	0.85	0.75	0.97	0.85	0.85
#5 13:00 - 13:15	0.79	0.79	0.91	0.99	0.91	0.80	0.92	0.95	0.86	0.75	0.86	0.85	0.78	0.68	0.78	0.69	0.89	0.78	0.78
#6 13:15 - 13:30	0.79	0.79	0.91	0.99	0.91	0.80	0.92	0.95	0.86	0.75	0.86	0.85	0.78	0.68	0.78	0.69	0.89	0.78	0.78
#7 13:30 - 13:45	0.79	0.79	0.91	0.99	0.91	0.80	0.92	0.95	0.86	0.75	0.86	0.85	0.78	0.68	0.78	0.69	0.89	0.78	0.78
#8 13:45 - 14:00	0.79	0.79	0.91	0.99	0.91	0.80	0.92	0.95	0.86	0.75	0.86	0.85	0.78	0.68	0.78	0.69	0.89	0.78	0.78
#9 14:00 - 14:15	0.71	0.71	0.81	0.88	0.82	0.72	0.82	0.85	0.77	0.67	0.77	0.76	0.70	0.61	0.70	0.62	0.79	0.70	0.70
#10 14:15 - 14:30	0.71	0.71	0.81	0.88	0.82	0.72	0.82	0.85	0.77	0.67	0.77	0.76	0.70	0.61	0.70	0.62	0.79	0.70	0.70
#11 14:30 - 14:45	0.71	0.71	0.81	0.88	0.82	0.72	0.82	0.85	0.77	0.67	0.77	0.76	0.70	0.61	0.70	0.62	0.79	0.70	0.70
#12 14:45 - 15:00	0.72	0.72	0.82	0.89	0.82	0.72	0.83	0.85	0.77	0.68	0.69	0.68	0.70	0.61	0.70	0.61	0.79	0.70	0.70

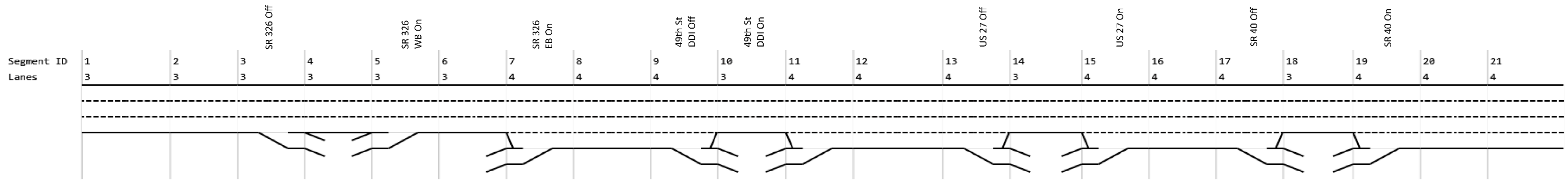
Speed Contours

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
#1 12:00 - 12:15	33.5	24.3	26.7	55.0	64.7	64.3	66.3	57.7	65.2	66.5	65.7	63.5	65.8	68.8	66.0	69.5	63.3	66.7	66.7
#2 12:15 - 12:30	20.7	20.7	25.5	55.1	64.7	64.3	66.3	56.8	65.1	66.0	65.7	61.8	65.6	68.1	66.0	67.9	62.6	64.2	64.2
#3 12:30 - 12:45	20.6	20.6	25.5	55.1	64.7	64.3	66.3	56.8	65.1	66.0	65.7	61.8	65.6	68.1	66.0	67.9	62.6	64.2	64.2
#4 12:45 - 13:00	20.6	20.6	25.5	55.1	64.7	64.3	66.3	56.8	65.1	66.0	65.7	61.8	65.6	68.1	66.0	67.9	62.6	64.2	64.2
#5 13:00 - 13:15	21.1	21.3	25.6	55.1	64.8	64.6	66.5	57.2	65.2	66.3	66.0	62.3	65.7	68.4	66.4	68.2	62.9	65.1	65.1
#6 13:15 - 13:30	20.6	20.6	25.5	55.1	64.8	64.6	66.5	57.2	65.2	66.3	66.0	62.3	65.7	68.4	66.4	68.2	62.9	65.1	65.1
#7 13:30 - 13:45	20.6	20.6	25.5	55.1	64.8	64.6	66.5	57.2	65.2	66.3	66.0	62.3	65.7	68.4	66.4	68.2	62.9	65.1	65.1
#8 13:45 - 14:00	20.6	20.6	25.5	55.1	64.8	64.6	66.5	57.2	65.2	66.3	66.0	62.3	65.7	68.4	66.4	68.2	62.9	65.1	65.1
#9 14:00 - 14:15	21.0	21.1	25.6	55.1	64.9	64.8	66.7	57.6	65.3	66.7	66.3	62.8	65.9	68.8	66.9	68.6	63.2	66.0	66.0
#10 14:15 - 14:30	20.6	20.6	25.4	55.1	64.9	64.8	66.7	57.6	65.3	66.7	66.3	62.8	65.9	68.8	66.9	68.6	63.2	66.0	66.0
#11 14:30 - 14:45	20.6	20.6	25.4	55.1	64.9	64.8	66.7	57.6	65.3	66.7	66.3	62.8	65.9	68.8	66.9	68.6	63.2	66.0	66.0
#12 14:45 - 15:00	20.6	20.6	25.4	55.1	64.9	64.8	66.7	57.6	65.3	66.7	66.3	62.8	65.9	68.8	66.9	68.6	63.2	66.0	66.0

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
#1 12:00 - 12:15	F	F	F	F	D	D	C	F	C	C	C	D	C	C	B	C	C	C	C
#2 12:15 - 12:30	F	F	F	F	D	D	C	F	C	C	C	D	C	C	B	C	C	D	D
#3 12:30 - 12:45	F	F	F	F	D	D	C	F	C	C	C	D	C	C	B	C	C	D	D
#4 12:45 - 13:00	F	F	F	F	D	D	C	F	C	C	C	D	C	C	B	C	C	D	D
#5 13:00 - 13:15	F	F	F	E	D	D	C	E	C	C	C	D	C	C	B	C	C	C	C
#6 13:15 - 13:30	F	F	F	E	D	D	C	E	C	C	C	D	C	C	B	C	C	C	C
#7 13:30 - 13:45	F	F	F	E	D	D	C	E	C	C	C	D	C	C	B	C	C	C	C
#8 13:45 - 14:00	F	F	F	E	D	D	C	E	C	C	C	D	C	C	B	C	C	C	C
#9 14:00 - 14:15	F	F	F	E	D	D	C	D	C	C	C	D	C	C	B	C	C	C	C
#10 14:15 - 14:30	F	F	F	E	D	D	C	D	C	C	C	D	C	C	B	C	C	C	C
#11 14:30 - 14:45	F	F	F	E	D	D	C	D	C	C	C	D	C	C	B	C	C	C	C
#12 14:45 - 15:00	F	F	F	E	D	D	C	D	C	C	C	D	C	C	B	C	C	C	C

Figure 97: Southbound 2040 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
#1 6:15 - 6:30	0.38	0.38	0.43	0.32	0.50	0.44	0.46	0.38	0.46	0.47	0.52	0.43	0.52	0.52	0.57	0.47	0.57	0.55	0.55	0.46	0.46
#2 6:30 - 6:45	0.37	0.37	0.42	0.31	0.49	0.43	0.45	0.38	0.45	0.46	0.51	0.42	0.51	0.51	0.55	0.46	0.56	0.54	0.54	0.45	0.45
#3 6:45 - 7:00	0.43	0.43	0.49	0.36	0.57	0.50	0.52	0.44	0.53	0.54	0.59	0.49	0.59	0.59	0.64	0.54	0.65	0.63	0.62	0.52	0.52
#4 7:00 - 7:15	0.46	0.46	0.52	0.39	0.61	0.53	0.56	0.47	0.56	0.58	0.63	0.53	0.63	0.63	0.69	0.58	0.69	0.67	0.67	0.56	0.56
#5 7:15 - 7:30	0.54	0.54	0.61	0.45	0.72	0.62	0.66	0.55	0.66	0.67	0.74	0.62	0.74	0.74	0.81	0.68	0.81	0.79	0.78	0.65	0.65
#6 7:30 - 7:45	0.51	0.51	0.59	0.43	0.69	0.60	0.63	0.53	0.63	0.65	0.71	0.59	0.71	0.71	0.77	0.65	0.78	0.76	0.75	0.63	0.63
#7 7:45 - 8:00	0.46	0.46	0.52	0.39	0.61	0.53	0.56	0.47	0.57	0.58	0.63	0.53	0.63	0.63	0.69	0.58	0.69	0.68	0.67	0.56	0.56
#8 8:00 - 8:15	0.48	0.48	0.55	0.41	0.64	0.56	0.59	0.49	0.59	0.60	0.66	0.55	0.66	0.66	0.72	0.61	0.73	0.71	0.70	0.59	0.59
#9 8:15 - 8:30	0.50	0.50	0.57	0.42	0.67	0.58	0.62	0.52	0.62	0.63	0.69	0.58	0.69	0.69	0.76	0.63	0.76	0.74	0.73	0.61	0.61
#10 8:30 - 8:45	0.53	0.53	0.61	0.45	0.71	0.62	0.66	0.55	0.66	0.67	0.74	0.61	0.74	0.74	0.80	0.67	0.81	0.78	0.78	0.65	0.65
#11 8:45 - 9:00	0.54	0.54	0.62	0.46	0.72	0.63	0.66	0.55	0.66	0.68	0.74	0.62	0.74	0.74	0.81	0.68	0.81	0.79	0.78	0.65	0.65
#12 9:00 - 9:15	0.55	0.55	0.63	0.47	0.74	0.64	0.68	0.56	0.68	0.69	0.76	0.63	0.76	0.76	0.83	0.69	0.83	0.81	0.80	0.67	0.67

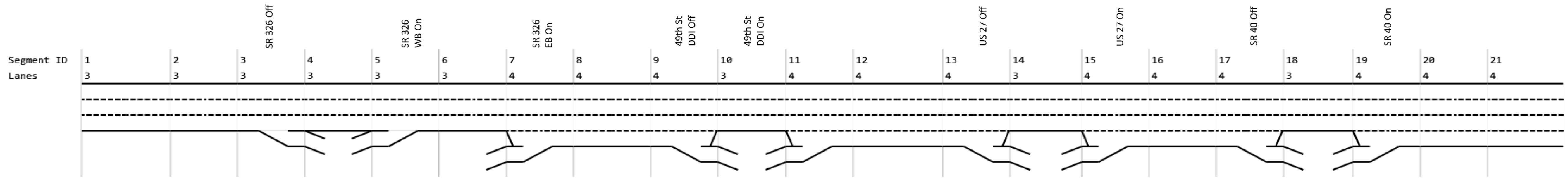
Speed Contours

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
#1 6:15 - 6:30	71.2	71.2	64.5	70.8	65.4	70.0	70.6	71.2	70.6	71.2	69.7	71.2	69.7	70.9	68.5	70.9	68.4	70.5	69.0	71.0	71.2
#2 6:30 - 6:45	71.2	71.2	64.6	70.8	65.4	70.0	70.8	71.2	70.7	71.2	69.9	71.2	69.9	71.0	68.8	70.9	68.7	70.6	69.2	71.0	71.2
#3 6:45 - 7:00	71.2	71.2	64.6	70.8	65.0	70.0	69.5	71.2	69.5	70.7	67.7	71.1	67.7	69.9	65.8	70.5	65.7	69.0	66.6	70.8	70.9
#4 7:00 - 7:15	71.2	71.2	64.6	70.8	64.8	69.9	68.5	71.2	68.5	70.1	66.2	70.8	66.2	68.9	63.7	70.1	63.6	67.7	64.7	70.4	70.4
#5 7:15 - 7:30	70.7	70.7	64.6	70.8	64.0	69.1	65.1	70.5	65.1	67.7	61.2	69.3	61.1	65.4	57.1	67.7	56.8	63.2	58.7	68.4	68.4
#6 7:30 - 7:45	70.9	70.9	64.6	70.8	64.2	69.7	66.2	70.8	66.2	68.5	62.8	69.8	62.7	66.5	59.1	68.5	58.9	64.7	60.6	69.1	69.1
#7 7:45 - 8:00	71.2	71.2	64.6	70.8	64.8	69.9	68.5	71.2	68.5	70.1	66.2	70.8	66.1	68.9	63.6	70.1	63.5	67.7	64.7	70.4	70.4
#8 8:00 - 8:15	71.1	71.1	64.6	70.8	64.6	69.9	67.7	71.1	67.6	69.5	64.9	70.5	64.9	68.0	62.0	69.5	61.8	66.6	63.2	69.9	69.9
#9 8:15 - 8:30	71.0	71.0	64.7	70.8	64.3	69.8	66.8	70.9	66.7	68.9	63.6	70.1	63.5	67.1	60.2	68.9	60.0	65.4	61.6	69.4	69.4
#10 8:30 - 8:45	70.7	70.7	64.6	70.8	64.1	69.2	65.3	70.6	65.2	67.8	61.4	69.4	61.3	65.5	57.3	67.8	57.1	63.4	59.0	68.5	68.5
#11 8:45 - 9:00	70.7	70.7	64.6	70.8	64.0	69.1	65.0	70.5	64.9	67.6	61.0	69.2	60.9	65.2	56.8	67.6	56.6	63.0	58.5	68.3	68.3
#12 9:00 - 9:15	70.5	70.5	64.6	70.8	63.8	68.7	64.3	70.3	64.3	67.1	60.1	68.9	60.0	64.5	55.6	67.1	55.4	62.2	57.4	67.9	67.9

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
#1 6:15 - 6:30	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#2 6:30 - 6:45	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
#3 6:45 - 7:00	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	C	C	B	B	B
#4 7:00 - 7:15	B	B	C	B	B	B	B	B	B	C	B	B	B	C	C	C	C	C	C	B	B
#5 7:15 - 7:30	B	B	C	B	B	C	C	B	C	C	C	C	C	C	D	C	D	D	C	C	C
#6 7:30 - 7:45	B	B	C	B	B	C	B	B	B	C	C	C	C	C	C	C	C	D	C	C	C
#7 7:45 - 8:00	B	B	C	B	B	B	B	B	B	C	B	B	B	C	C	C	C	C	C	B	B
#8 8:00 - 8:15	B	B	C	B	B	B	B	B	B	C	C	B	C	C	C	C	C	C	C	C	C
#9 8:15 - 8:30	B	B	C	B	B	C	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C
#10 8:30 - 8:45	B	B	C	B	B	C	C	B	C	C	C	C	C	C	D	C	D	D	C	C	C
#11 8:45 - 9:00	B	B	C	B	B	C	C	B	C	C	C	C	C	C	D	C	D	D	C	C	C
#12 9:00 - 9:15	B	B	C	B	C	C	C	C	C	C	C	C	C	D	D	C	D	D	D	C	C

Figure 98: 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
#1 15:30 - 15:45	0.88	0.88	1.00	0.74	1.07	0.93	0.92	0.76	0.92	0.95	0.97	0.80	0.97	0.99	1.03	0.86	1.03	1.05	1.05	0.89	0.89
#2 15:45 - 16:00	0.92	0.92	1.05	0.77	1.12	0.97	0.96	0.80	0.96	0.99	1.01	0.84	1.01	1.03	1.08	0.90	1.08	1.10	1.10	0.93	0.93
#3 16:00 - 16:15	0.86	0.86	0.98	0.72	1.05	0.91	0.90	0.75	0.90	0.93	0.95	0.79	0.95	0.96	1.01	0.84	1.01	1.03	1.03	0.87	0.87
#4 16:15 - 16:30	0.87	0.87	1.00	0.73	1.07	0.93	0.91	0.76	0.91	0.95	0.96	0.80	0.96	0.98	1.03	0.86	1.03	1.05	1.05	0.89	0.89
#5 16:30 - 16:45	0.84	0.84	0.96	0.70	1.03	0.89	0.88	0.73	0.87	0.91	0.92	0.77	0.92	0.94	0.98	0.82	0.99	1.01	1.01	0.85	0.85
#6 16:45 - 17:00	0.89	0.89	1.02	0.75	1.09	0.95	0.93	0.78	0.93	0.97	0.98	0.82	0.98	1.00	1.05	0.87	1.05	1.07	1.07	0.90	0.90
#7 17:00 - 17:15	0.81	0.81	0.93	0.68	1.00	0.86	0.85	0.71	0.85	0.88	0.90	0.75	0.90	0.91	0.96	0.80	0.96	0.98	0.98	0.82	0.82
#8 17:15 - 17:30	0.85	0.85	0.97	0.72	1.04	0.91	0.89	0.74	0.89	0.93	0.94	0.78	0.94	0.96	1.00	0.84	1.01	1.02	1.03	0.86	0.86
#9 17:30 - 17:45	0.82	0.82	0.94	0.69	1.00	0.87	0.86	0.71	0.86	0.89	0.90	0.75	0.90	0.92	0.96	0.80	0.97	0.98	0.99	0.83	0.83
#10 17:45 - 18:00	0.82	0.82	0.94	0.69	1.00	0.87	0.86	0.71	0.86	0.89	0.90	0.75	0.90	0.92	0.96	0.80	0.97	0.98	0.99	0.83	0.83
#11 18:00 - 18:15	0.76	0.76	0.86	0.63	0.93	0.80	0.79	0.66	0.79	0.82	0.83	0.69	0.83	0.85	0.89	0.74	0.89	0.91	0.91	0.77	0.77
#12 18:15 - 18:30	0.73	0.73	0.83	0.61	0.89	0.77	0.76	0.63	0.76	0.79	0.80	0.67	0.80	0.82	0.86	0.72	0.86	0.88	0.88	0.74	0.74

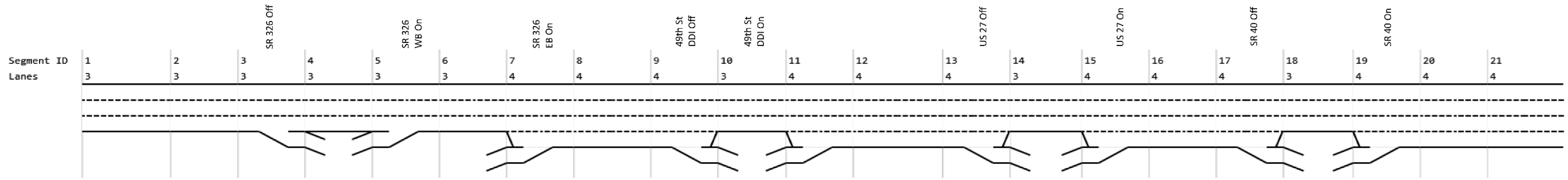
Speed Contours

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
#1 15:30 - 15:45	60.9	27.9	63.8	67.7	60.0	59.4	65.2	66.5	67.5	58.2	64.7	64.8	67.0	44.9	36.0	31.1	31.4	37.3	64.5	63.8	63.8
#2 15:45 - 16:00	25.4	25.5	63.7	67.4	59.4	58.6	65.1	66.0	67.4	56.9	64.5	30.5	26.2	32.2	29.9	21.4	27.0	35.1	64.5	63.9	63.9
#3 16:00 - 16:15	25.7	25.6	63.8	67.4	59.9	58.6	65.1	67.1	28.8	60.3	34.9	21.2	24.6	33.9	34.6	27.3	27.8	36.1	64.5	63.9	63.9
#4 16:15 - 16:30	24.0	24.8	63.8	27.8	60.8	63.0	65.6	24.3	22.7	30.1	65.1	23.2	28.4	33.9	31.0	22.0	27.4	35.9	64.5	63.9	63.9
#5 16:30 - 16:45	25.9	25.5	63.9	18.4	60.3	62.0	65.6	24.6	23.3	32.3	65.2	22.8	28.1	35.7	33.7	23.7	27.9	36.5	64.5	63.9	63.9
#6 16:45 - 17:00	21.8	22.1	31.8	14.9	61.2	65.2	65.9	20.3	22.1	31.5	65.2	22.4	23.9	31.7	30.0	20.9	27.3	35.6	64.5	63.9	63.9
#7 17:00 - 17:15	22.5	24.5	63.9	17.8	60.4	62.0	65.6	28.1	24.9	34.9	65.2	23.7	28.2	36.5	36.3	24.4	28.6	37.0	64.6	63.9	63.9
#8 17:15 - 17:30	23.4	25.1	35.1	16.3	60.5	62.9	65.6	23.7	21.8	30.3	65.3	23.9	26.6	32.0	31.2	22.3	27.8	36.3	64.5	63.9	63.9
#9 17:30 - 17:45	26.4	26.0	33.1	16.7	60.4	62.0	65.6	65.5	30.8	43.4	64.5	22.0	26.3	32.9	30.0	21.3	28.5	36.8	64.5	63.9	63.9
#10 17:45 - 18:00	24.9	25.1	32.4	16.7	60.4	62.0	65.6	69.0	24.2	31.6	26.0	21.0	25.9	32.5	31.5	21.4	28.1	36.8	64.6	63.9	63.9
#11 18:00 - 18:15	25.3	26.0	33.6	16.7	60.9	62.0	65.6	66.5	67.7	56.9	36.5	23.2	29.1	34.3	31.2	22.0	29.9	38.3	64.6	63.9	63.9
#12 18:15 - 18:30	25.1	25.7	32.7	16.7	61.1	62.0	65.6	68.0	67.8	35.6	65.3	22.7	27.4	35.1	32.3	22.3	29.9	38.6	64.6	63.9	63.9

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
#1 15:30 - 15:45	F	F	D	C	F	D	C	C	C	D	D	D	C	F	F	F	F	F	F	D	D
#2 15:45 - 16:00	F	F	F	C	F	D	C	C	C	E	F	F	F	F	F	F	F	F	F	D	D
#3 16:00 - 16:15	F	F	D	C	F	D	C	F	F	D	F	F	F	F	F	F	F	F	F	D	D
#4 16:15 - 16:30	F	F	D	F	F	D	C	F	F	F	C	F	F	F	F	F	F	F	F	D	D
#5 16:30 - 16:45	F	F	D	F	F	D	C	F	F	F	C	F	F	F	F	F	F	F	F	D	D
#6 16:45 - 17:00	F	F	F	F	F	C	C	F	F	F	C	F	F	F	F	F	F	F	F	D	D
#7 17:00 - 17:15	F	F	D	F	C	D	C	F	F	F	F	F	F	F	F	F	F	F	D	D	D
#8 17:15 - 17:30	F	F	F	F	F	D	C	F	F	F	C	F	F	F	F	F	F	F	F	D	D
#9 17:30 - 17:45	F	F	F	F	C	D	C	C	F	F	F	F	F	F	F	F	F	F	D	D	D
#10 17:45 - 18:00	F	F	F	F	C	D	C	F	F	F	F	F	F	F	F	F	F	F	D	D	D
#11 18:00 - 18:15	F	F	F	F	C	D	C	C	C	E	F	F	F	F	F	F	F	F	D	D	D
#12 18:15 - 18:30	F	F	F	F	C	D	C	C	C	F	C	F	F	F	F	F	F	F	D	D	D

Figure 99: 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
#1 12:00 - 12:15	0.73	0.73	0.84	0.64	0.93	0.82	0.77	0.64	0.77	0.78	0.82	0.68	0.82	0.83	0.86	0.72	0.87	0.89	0.86	0.72	0.72
#2 12:15 - 12:30	0.73	0.73	0.84	0.64	0.93	0.82	0.77	0.64	0.77	0.78	0.82	0.68	0.82	0.83	0.86	0.72	0.87	0.89	0.86	0.72	0.72
#3 12:30 - 12:45	0.73	0.73	0.84	0.64	0.93	0.82	0.77	0.64	0.77	0.78	0.82	0.68	0.82	0.83	0.86	0.72	0.87	0.89	0.86	0.72	0.72
#4 12:45 - 13:00	0.73	0.73	0.84	0.64	0.93	0.82	0.77	0.64	0.77	0.78	0.82	0.68	0.82	0.83	0.86	0.72	0.87	0.89	0.86	0.72	0.72
#5 13:00 - 13:15	0.76	0.76	0.87	0.66	0.97	0.85	0.80	0.67	0.80	0.82	0.85	0.71	0.85	0.86	0.90	0.75	0.90	0.92	0.90	0.75	0.75
#6 13:15 - 13:30	0.76	0.76	0.87	0.66	0.97	0.85	0.80	0.67	0.80	0.82	0.85	0.71	0.85	0.86	0.90	0.75	0.90	0.92	0.90	0.75	0.75
#7 13:30 - 13:45	0.76	0.76	0.87	0.66	0.97	0.85	0.80	0.67	0.80	0.82	0.85	0.71	0.85	0.86	0.90	0.75	0.90	0.92	0.90	0.75	0.75
#8 13:45 - 14:00	0.76	0.76	0.87	0.66	0.97	0.85	0.80	0.67	0.80	0.82	0.85	0.71	0.85	0.86	0.90	0.75	0.90	0.92	0.90	0.75	0.75
#9 14:00 - 14:15	0.77	0.77	0.88	0.67	0.98	0.87	0.81	0.68	0.81	0.83	0.86	0.72	0.86	0.88	0.91	0.76	0.92	0.94	0.91	0.76	0.76
#10 14:15 - 14:30	0.77	0.77	0.88	0.67	0.98	0.87	0.81	0.68	0.81	0.83	0.86	0.72	0.86	0.88	0.91	0.76	0.92	0.94	0.91	0.76	0.76
#11 14:30 - 14:45	0.77	0.77	0.88	0.67	0.98	0.87	0.81	0.68	0.81	0.83	0.86	0.72	0.86	0.88	0.91	0.76	0.92	0.94	0.91	0.76	0.76
#12 14:45 - 15:00	0.77	0.77	0.88	0.67	0.98	0.87	0.81	0.68	0.81	0.83	0.86	0.72	0.86	0.88	0.91	0.76	0.92	0.94	0.91	0.76	0.76

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
#1 12:00 - 12:15	65.7	65.7	64.5	68.8	61.5	61.6	59.6	68.7	59.6	63.4	56.5	67.5	56.5	61.1	53.4	66.0	52.9	57.9	53.3	66.1	66.1
#2 12:15 - 12:30	65.7	65.7	64.5	68.8	61.5	61.6	59.6	68.7	59.6	63.4	56.5	67.5	56.5	61.1	53.4	66.0	52.9	57.9	53.3	66.1	66.1
#3 12:30 - 12:45	65.7	65.7	64.5	68.8	61.5	61.6	59.6	68.7	59.6	63.4	56.5	67.5	56.5	61.1	53.4	66.0	52.9	57.9	53.3	66.1	66.1
#4 12:45 - 13:00	65.7	65.7	64.5	68.8	61.5	61.6	59.6	68.7	59.6	63.4	56.5	67.5	56.5	61.1	53.4	66.0	52.9	57.9	53.3	66.1	66.1
#5 13:00 - 13:15	64.4	64.4	64.4	68.1	60.8	59.8	57.7	68.0	57.6	61.9	54.2	66.6	54.2	59.3	50.7	64.8	50.1	55.6	50.7	64.9	64.9
#6 13:15 - 13:30	64.4	64.4	64.4	68.1	60.8	59.8	57.7	68.0	57.6	61.9	54.2	66.6	54.2	59.3	50.7	64.8	50.1	55.6	50.7	64.9	64.9
#7 13:30 - 13:45	64.4	64.4	64.4	68.1	60.8	59.8	57.7	68.0	57.6	61.9	54.2	66.6	54.2	59.3	50.7	64.8	50.1	55.6	50.7	64.9	64.9
#8 13:45 - 14:00	64.4	64.4	64.4	68.1	60.8	59.8	57.7	68.0	57.6	61.9	54.2	66.6	54.2	59.3	50.7	64.8	50.1	55.6	50.7	64.9	64.9
#9 14:00 - 14:15	63.9	63.9	64.3	67.8	60.4	59.0	56.9	67.7	56.8	61.2	53.2	66.2	53.2	58.5	49.5	64.3	49.0	54.6	49.5	64.4	64.4
#10 14:15 - 14:30	63.9	63.9	64.3	67.8	60.4	59.0	56.9	67.7	56.8	61.2	53.2	66.2	53.2	58.5	49.5	64.3	49.0	54.6	49.5	64.4	64.4
#11 14:30 - 14:45	63.9	63.9	64.3	67.8	60.4	59.0	56.9	67.7	56.8	61.2	53.2	66.2	53.2	58.5	49.5	64.3	49.0	54.6	49.5	64.4	64.4
#12 14:45 - 15:00	63.9	63.9	64.3	67.8	60.4	59.0	56.9	67.7	56.8	61.2	53.2	66.2	53.2	58.5	49.5	64.3	49.0	54.6	49.5	64.4	64.4

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
#1 12:00 - 12:15	C	C	D	C	C	D	C	C	C	D	D	C	D	D	D	C	D	D	D	C	C
#2 12:15 - 12:30	C	C	D	C	C	D	C	C	C	D	D	C	D	D	D	C	D	D	D	C	C
#3 12:30 - 12:45	C	C	D	C	C	D	C	C	C	D	D	C	D	D	D	C	D	D	D	C	C
#4 12:45 - 13:00	C	C	D	C	C	D	C	C	C	D	D	C	D	D	D	C	D	D	D	C	C
#5 13:00 - 13:15	D	D	D	C	C	D	C	C	C	D	D	C	D	D	D	D	D	E	D	D	D
#6 13:15 - 13:30	D	D	D	C	C	D	C	C	C	D	D	C	D	D	D	D	D	E	D	D	D
#7 13:30 - 13:45	D	D	D	C	C	D	C	C	C	D	D	C	D	D	D	D	D	E	D	D	D
#8 13:45 - 14:00	D	D	D	C	C	D	C	C	C	D	D	C	D	D	D	D	D	E	D	D	D
#9 14:00 - 14:15	D	D	D	C	C	D	D	C	D	D	D	C	D	D	D	D	E	E	D	D	D
#10 14:15 - 14:30	D	D	D	C	C	D	D	C	D	D	D	C	D	D	D	D	E	E	D	D	D
#11 14:30 - 14:45	D	D	D	C	C	D	D	C	D	D	D	C	D	D	D	D	E	E	D	D	D
#12 14:45 - 15:00	D	D	D	C	C	D	D	C	D	D	D	C	D	D	D	D	E	E	D	D	D

The contours presented in **Figure 94** through **Figure 99** 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. The following summarizes the locations of congestion in the 2040 Build Condition.

- Northbound I-75
  - Additional capacity will be needed at the SR 40 interchange and the SR 326 merge.
    - The D/C ratios suggest an additional lane worth of capacity is needed at both interchanges 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 25 mph) is expected to be present between the southern study limits to the SR 40 interchange (AM and Weekend) and from the SR 326 interchange to south of the NW 49th Street interchange (AM only).
  - 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 3.8 minutes over the No-Build condition (approximately a 32% improvement)
    - Total vehicle hours of delay
      - Total network vehicle hours of delay is improved by up to 775 hours (approximately an 88% improvement)
    - D/C ratios
      - D/C ratios improve by up to approximately 0.27 points over the No-Build condition (approximately a 24% improvement)

- Southbound I-75
  - Additional capacity along I-75 will be needed to accommodate future demands at the SR 326 interchange, NW 49th Street merge, US 27 merge and diverge and through the SR 40 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 PM peak period traffic in 2040.
  - Severe congestion (speeds lower than 25 mph) is expected to be experienced along multiple segments from SR 326 to the north (beginning of study area), and from south of the 49th interchange through to the SR 40 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 12.4 minutes over the No-Build condition (approximately a 58% improvement)
  - Total vehicle hours of delay
    - Total network vehicle hours of delay is improved by up to 2,603 hours (approximately an 88% improvement)
  - D/C ratios
    - D/C ratios improve by up to approximately 0.28 points over the No-Build condition (approximately a 20% improvement)

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 85**. 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.

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 100 illustrates the overall intersection delay and LOS for each of the signalized intersections and the delay and LOS for the critical movement at each of the unsignalized intersection 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 Z** for reference.

Figure 101 illustrates the overall intersection delay and LOS for each of the signalized intersections and the delay and LOS for the critical movement at each of the unsignalized intersection 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 AA** for reference.

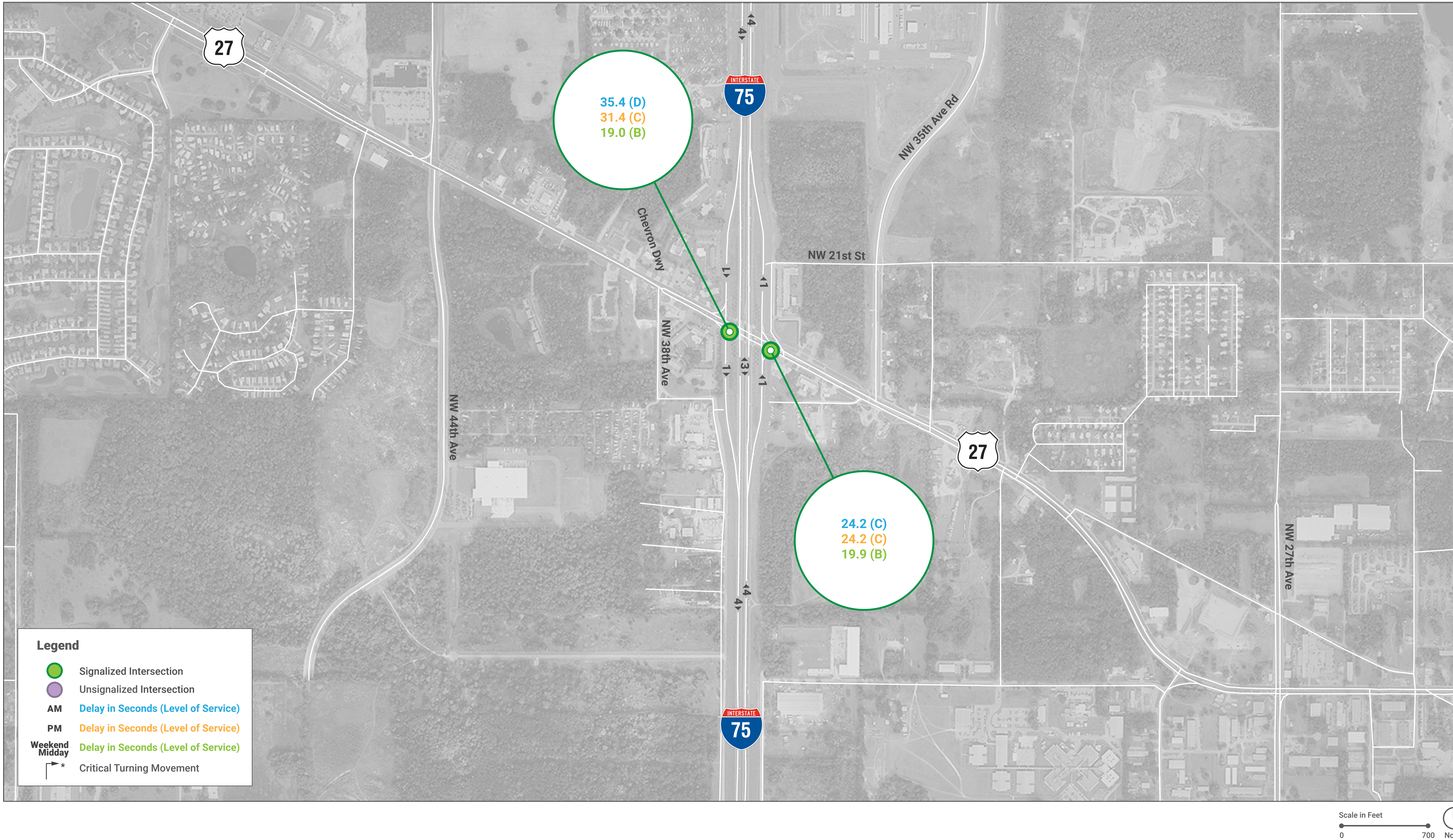
FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2030 Build Peak Hour Intersection Operations

Figure 100 (1 of 4)



I-75 PD&E North | US 27 Interchange
SR 200 to SR 326

2030 Build Peak Hour Intersection Operations
Figure 100 (2 of 4)

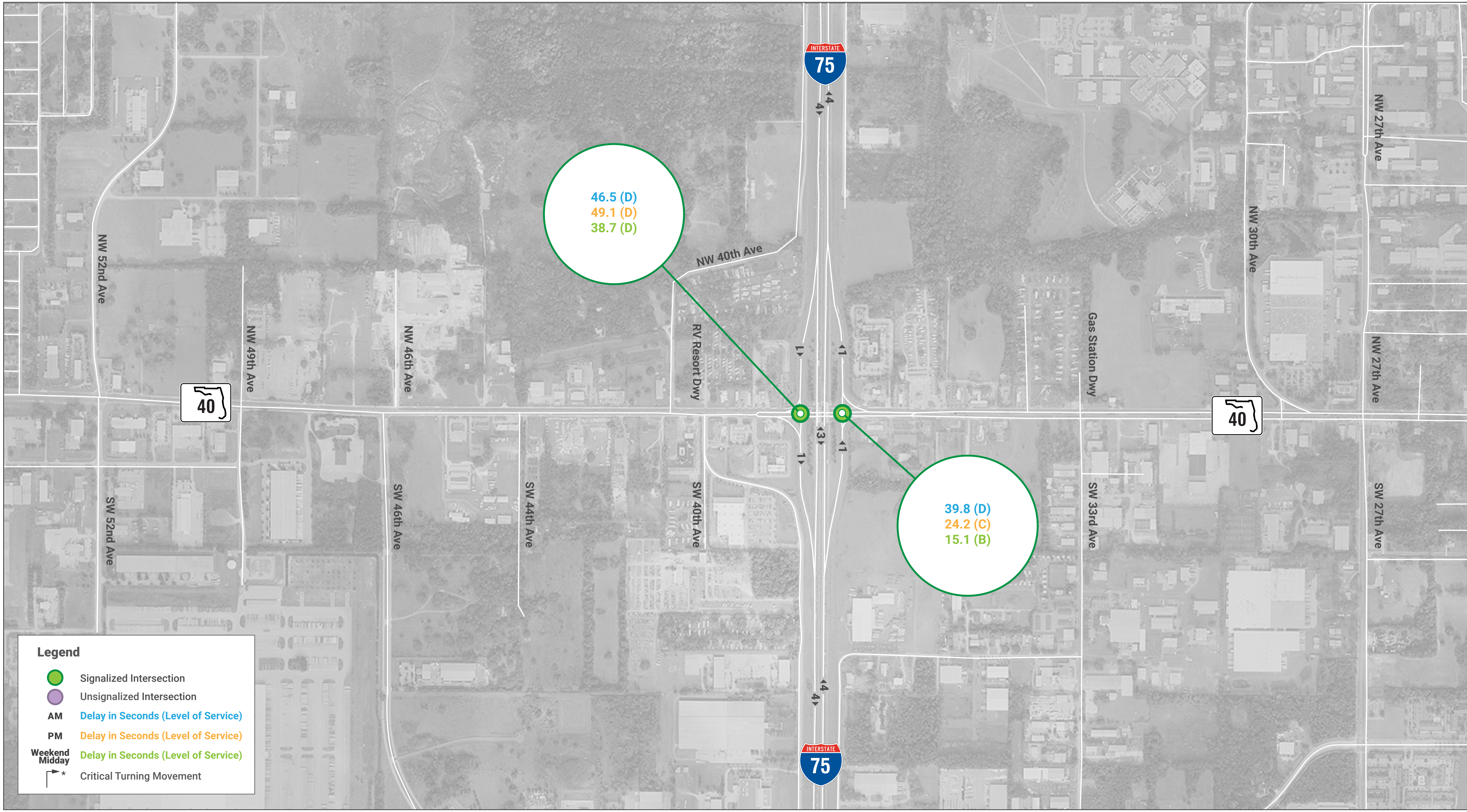

NW 49th St
NW 44th Ave
Operational results included as part of the ongoing I-75 at NW 49th Street Interchange Justification Report Re-Evaluation
INTERSTATE
75
Legend
Signalized Intersection
Unsignalized Intersection
AM Delay in Seconds (Level of Service)
PM Delay in Seconds (Level of Service)
Weekend Midday Delay in Seconds (Level of Service)
Critical Turning Movement
Scale in Feet
0
700
North

FDOT **I-75 PD&E North** | SR 326 Interchange

SR 200 to SR 326

2030 Build Peak Hour Intersection Operations

Figure 100 (4 of 4)



FDOT

I-75 PD&E North | SR 40 Interchange

SR 200 to SR 326

2040 Build Peak Hour Intersection Operations

Figure 101 (1 of 4)

I-75 PD&E North | US 27 Interchange

SR 200 to SR 326

2040 Build Peak Hour Intersection Operations

Figure 101 (2 of 4)

I-75 PD&E North | NW 49th Street Preliminary Conceptual Alternative

SR 200 to SR 326

2040 Build Peak Hour Intersection Operations

Figure 101 (3 of 4)

FDOT

I-75 PD&E North | SR 326 Interchange

SR 200 to SR 326

2040 Build Peak Hour Intersection Operations

Figure 101 (4 of 4)

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.

SR 40

All movements at the I-75 at SR 40 ramp terminal intersections are anticipated to operate at LOS E or better and would be under capacity during the 2030 AM, PM, and weekend peak hours. Queue spillback from the ramp terminals into the portion of the off-ramps designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated for the northbound and southbound movements at the interchange. No movements at the ramp terminal intersections are expected to operate at LOS F and/or over capacity during the AM, PM, and weekend peak hours.

It is important to note that improvements to this interchange are currently under evaluation in an interchange access request under a separate cover.

US 27

Ramp terminal intersection Build Condition geometries at the I-75 at US 27 interchange are consistent with No-Build geometries and Build results are therefore the same as No-Build results. Most of the movements at the I-75 at US 27 ramp terminal intersections are anticipated to operate at LOS E or better and under capacity during the 2030 AM, PM, and weekend peak hours. Queue spillback from the ramp terminals into the portion of the off-ramps designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated for the northbound and southbound movements at the interchange. The following movement is expected to operate at LOS F:

- US 27 at I-75 Southbound On/Off Ramps (signalized Intersection)
  - The westbound left-turn movement at this intersection is anticipated to operate at LOS F in the 2030 AM peak hour.

NW 49TH STREET

NW 49th Street is currently being analyzed and documented in the I-75 at 49th Street Interchange Justification Report (IJR) Re-Evaluation. Consistent with District Five discussions and guidance, the ramp terminal intersections are not analyzed in this PTAR.

SR 326

All movements at the I-75 at SR 326 ramp terminal intersections are anticipated to operate at LOS E or better and under capacity during the 2030 AM, PM, and weekend peak hours. Queue spillback from the ramp terminals into the portion of the off-ramps designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated for the northbound and southbound movements at the interchange. No movements at the ramp terminal intersections are expected to operate at LOS F and/or over capacity during the 2030 AM, PM, and weekend peak hours.

It is important to note that the Build improvements to this interchange evaluated in this PTAR are also currently under evaluation in an interchange access request under a separate cover.

2040 BUILD INTERSECTION SUMMARY

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

SR 40

Most of the movements at the I-75 at SR 40 ramp terminal intersections are anticipated to operate at LOS E or better and would be under capacity during the 2040 AM, PM, and weekend peak hours. Queue spillback from the southbound ramp terminal into the portion of the off-ramp designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated at the interchange. The following movements at the northbound ramp terminal intersection are expected to operate at LOS F and/or over capacity during the peak hours:

- SR 40 at I-75 Northbound Ramps
  - The eastbound left-turn movement would operate at LOS F in the 2040 PM peak hour.
  - The off-ramp is approximately 1,300 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
    - Remaining distance for storage – approximately 685 feet
    - The peak hour 95th percentile queues along the off-ramp are expected to be 700 feet, 275 feet, and 250 feet during the 2040 AM, PM, and weekend midday peak hours, respectively. The 2040 AM peak hour 95th percentile queue is expected to extend into the portion of the ramp designated for deceleration. This queue length will be confirmed with microsimulation as part of the ongoing I-75 at SR 40 IOAR.

It is important to note that the Build improvements to this interchange evaluated in this PTAR are also currently under evaluation in an interchange access request under a separate cover.

US 27

Ramp terminal intersection Build Condition geometries at the I-75 at US 27 interchange are consistent with No-Build geometries and Build results are therefore the same as No-Build results. Most of the movements at the I-75 at US 27 ramp terminal intersections are anticipated to operate at LOS E or better and under capacity during the 2040 AM, PM, and weekend peak hours. Queue spillback from the northbound ramp terminal into the portion of the off-ramp designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated at the interchange. The following movements at the southbound ramp terminal intersection are expected to operate at LOS F and/or over capacity during the peak hours includes:

- US 27 at I-75 Southbound On/Off Ramps (signalized Intersection)
  - The westbound left-turn movement is anticipated to operate at LOS F during the 2040 AM, PM, and weekend peak hours.
  - The eastbound through movement is anticipated to operate at LOS F during the 2040 AM and PM peak hours.
  - The southbound left-turn movement is anticipated to operate at LOS F with v/c ratios exceeding 1.0 during the 2040 AM and PM peak hours.
  - The off-ramp is approximately 1,500 feet long to the I-75 gore point.
    - Portion of ramp designated for deceleration – 615 feet (Table 105 of AASHTO Green Book)
    - Remaining distance for storage – approximately 885 feet
    - The 2040 PM peak hour southbound 95th percentile queue (900 feet) is estimated to extend into the portion of off-ramp designated for deceleration.

NW 49TH STREET

NW 49th Street is currently being analyzed and documented in the I-75 at 49th Street Interchange Justification Report (IJR) Re-Evaluation. Consistent with District Five discussions and guidance, the ramp terminal intersections are not analyzed in this PTAR.

SR 326

Most movements at the I-75 at SR 326 ramp terminal intersections are anticipated to operate at LOS E or better and under capacity during the 2040 AM, PM, and weekend peak hours. Queue spillback from the ramp terminals into the portion of the off-ramps designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated for the northbound and southbound movements at the interchange. Overall intersections are estimated to operate at LOS D or better during each 2040 peak hour analyzed.

- SR 326 at I-75 SB ramps (Signalized Intersection)
  - The northbound right-turn movement is expected to operate at LOS F during the 2040 AM peak hour.

It is important to note that the Build improvements to this interchange evaluated in this PTAR are also currently under evaluation in an interchange access request under a separate cover.

FUTURE COMPARATIVE SAFETY ANALYSIS

The purpose of the comparative safety analysis was to determine the safety impacts for widening the 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 north of SR 200 to south of SR 326. 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.

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).
- Ramps –
  - Minimal realignments of ramps based on the freeway mainline widening yielded negligible changes to existing horizontal curve radii and curve length, thus no measurable impacts were observed in the ISATe results for ramp segments.
- Ramp Terminals –
  - No changes are proposed at the US 27 freeway ramp terminals.
  - The changes proposed at the SR 40 and SR 326 freeway ramp terminals are being assessed as part of each individual interchange's IOAR/IMR.

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 BB**.

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	12.0	717.1	1,803.0	2,532.1	$137,760,000
Build – Mainline	13.1	644.5	1,552.6	2,210.2	$140,360,000
Difference – Build minus No-Build	***1.1***	***-72.5***	***-250.4***	***-321.9***	***$2,600,000***

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 approximately one more predicted fatal crash over the 10-year life cycle of the project (0.1 fatal crash increase per year). The proposed improvements are predicted to experience approximately 7 less injury and 25 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 recurring 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 seven out of 23 (30 percent) of the incapacitating injury crashes were rear end crashes. According to the NCHRP Report 687 (Ray et al., 2011)[4], 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.

[4] 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 adding one auxiliary lane in each direction to the I-75 mainline:

- 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 approximately one more predicted fatal crash over the 10-year life cycle of the project (0.1 fatal crash increase per year). The proposed improvements are predicted to experience approximately 7 less injury and 25 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 recurring 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 short-term operational improvements to the I-75 corridor in the City of Ocala 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 short-term operational improvements being evaluated by this PD&E Study include construction of auxiliary lanes between interchanges for an eight-mile segment of I-75 between SR 200 and SR 326. 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 (North Section) study limits:

- SR 40 (Silver Springs Boulevard)
- US 27 (Blitchton Road)
- NW 49th Street (planned)
- SR 326 (known as CR 326 east of I-75)

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 non-recurring 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 2019 data obtained from the National Performance Management Research Data Set (NPMRDS) 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.

- An evaluation of 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 reliable in the northbound direction during the weekends. The southbound LoTTR charts show that the data indicates the corridor is nearing unreliable conditions on the weekends.

Historical Safety Analysis

Crash records were obtained from the University of Florida's Signal Four (S4) crash database for I-75 and associated interchanges within the 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.

- The safety data showed a total of 602 reported crashes along I-75 northbound during the study period, 171 of which (28 percent) resulted in 341 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 43 percent of the total crashes. Fixed object/run-off road (28 percent) and sideswipe (21 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 77 percent of the injury crashes.
- A total of 662 reported crashes were observed along I-75 southbound during the study period, 170 of which (26 percent) resulted in 380 injuries. Four fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 60 percent of the total crashes. Sideswipe (18 percent) and fixed object/run-off road (17 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounting for 80 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 Southbound, SR 326 Interchange Area (2018 & 2019)

Existing Conditions Summary

The evaluation of typical recurring congestion patterns, the occurrence of non-recurring 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):** Additional capacity will be needed from south of the SR 40 interchange (beginning of the study limits) to the US 27 interchange due to the projected volumes along I-75. Congestion (speeds lower than 30 mph) is expected to be present between the southern study limits and through the SR 40 interchange during the 2030 average weekend midday peak period. This is due to expected bottlenecks along I-75 at the SR 40 interchange (merge and diverge). The northbound travel time is expected to increase by up to 2.2 minutes (approximately a 28% increase) versus the 2019 existing condition.
  - **Design Year (2040):** Additional capacity will be needed from south of the SR 40 interchange (beginning of the study limits) through north of the SR 326 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 the southern study limits through the SR 40 interchange. This is due to expected bottlenecks along I-75 at the SR 40 interchange (merge and diverge). The northbound travel time is expected to increase by up to 4.1 minutes (approximately a 52% increase) versus the 2019 existing condition.

- **Southbound I-75**
  - **Opening Year (2030):** Additional capacity will be needed between the US 27 interchange through south of the SR 40 interchange (end of the study limits). 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 along I-75 from the SR 40 interchange through the SR 326 interchange during the 2030 PM peak period. The southbound travel time is expected to increase by up to 10.9 minutes (approximately a 136% increase) versus the 2019 existing condition.

- **Design Year (2040):** Additional capacity will be needed between north of SR 326 (beginning of the study limits) through south of the SR 40 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 20 mph) is expected to be present along I-75 from north of SR 326 (beginning of the study limits) through the SR 40 interchange. The northbound travel time is expected to increase by up to 18.9 minutes (approximately a 236% 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 40**
  - Additional capacity is needed at both ramp terminal intersections as both intersections are expected to operate at an overall intersection LOS F during 2040. It is anticipated that queue spillback would extend into the ramp area designated for deceleration and approach the I-75 mainline lane gore points (northbound and southbound) from the ramp terminals based on the 95th percentile queue lengths at the interchange.
  - It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request and this is further described under the **Build Operational Results – Interchange** section.
- **US 27**
  - Most of the movements at the I-75 at US 27 ramp terminal intersections are anticipated to operate at LOS E or better and would be under capacity during the 2040 average AM, PM, and weekend peak hours. The 2040 average PM peak hour southbound 95th percentile queue is estimated to extend into the portion of the off-ramp designated for deceleration at the I-75 southbound ramp terminal intersection.
- **SR 326**
  - Multiple movements at LOS F and overcapacity were identified at the I-75 northbound at SR 326 ramp terminal intersection. The 95th percentile queues are expected to extend onto the I-75 northbound mainline lanes during each of the 2040 average peak hours. More traffic is expected along the northbound off-ramp than the southbound off-ramp.
  - It is important to note that improvements to this interchange are currently under evaluation in an ongoing interchange access request and this is further described under the **Build Operational Results – Interchange** section.

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 the study segments operating below capacity (D/C < 1.0) and LOS D or better during the analysis periods. Travel times are anticipated to improve by up to approximately 1.9 minutes over the No-Build condition (approximately a 19% improvement). The total network vehicle hours of delay is estimated to be improved by up to 396 hours (approximately an 80% improvement) over the No-Build condition.
  - **Design Year (2040):** Additional mainline capacity will be needed at the SR 40 interchange and the SR 326 merge. 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 3.8 minutes over the No-Build condition (approximately a 32% improvement). The total network vehicle hours of delay is estimated to be improved by up to 775 hours (approximately an 88% improvement) over the No-Build condition.
- **Southbound I-75**
  - **Opening Year (2030):** The proposed Build Condition is anticipated to result in the study segments operating below capacity (D/C < 1.0) and LOS D or better during the analysis periods. Travel times are anticipated to improve by up to approximately 10.5 minutes over the No-Build condition (approximately a 56% improvement). The total network vehicle hours of delay is estimated to be improved by up to 2,211 hours (approximately a 95% improvement) over the No-Build condition.
  - **Design Year (2040):** Additional mainline capacity along I-75 will be needed to accommodate future demands at the SR 326 interchange, NW 49th Street merge, US 27 merge and diverge and through the SR 40 interchange. The additional capacity is expected to be needed to accommodate average PM peak period traffic in 2040. Under the Build scenario, travel times are anticipated to improve by up to approximately 12.4 minutes over the No-Build condition (approximately a 58% improvement). The total network vehicle hours of delay is estimated to be improved by up to 2,603 hours (approximately an 88% 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 analysis results indicated the following:

- **SR 40**
  - This PTAR also considers the interchange improvements proposed at the SR 40 interchange as these improvements are expected to be included as part of the Moving Florida Forward Infrastructure Initiative. It is important to note that the Build improvements to this interchange evaluated in this PTAR are also currently under evaluation in an interchange access request under separate cover. These improvements include:
    - Extend the eastbound left-turn lane
    - Extend the westbound left-turn lane
    - Bring the westbound/eastbound right-turn lanes under signal control (remove channelization)
    - Add a 2nd left-turn lane along both off-ramps
    - Add an exclusive right-turn lane along both off-ramps
  - The Build operations are expected to improve over the No-Build conditions with the ramp terminal intersections expected to operate at an overall intersection LOS D or better in 2040.
  - Queue spillback from the southbound ramp terminal into the portion of the off-ramp designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated at the interchange.
  - The northbound 2040 AM peak hour 95th percentile queue is expected to extend into the portion of the ramp designated for deceleration. This queue length will be confirmed with microsimulation as part of the ongoing I-75 at SR 40 IOAR.

- **US 27**
  - Ramp terminal intersection Build Condition geometries at the I-75 at US 27 interchange are consistent with No-Build geometries and Build results are therefore the same as No-Build results.

- **SR 326**
  - This PTAR also considers the interchange improvements proposed at the SR 326 interchange as these improvements are expected to be included as part of the Moving Florida Forward Infrastructure Initiative. It is important to note that the Build improvements to this interchange evaluated in this PTAR are also currently under

evaluation in an interchange access request under separate cover. These improvements include:
    - Add two westbound displaced left-turn lanes
    - Widen the northbound off-ramp to include two left-turn lanes and two right-turn lanes (right-turn signalized)
    - Add an exclusive southbound left-turn lane
  - The Build operations are expected to improve over the No-Build conditions with the ramp terminal intersections expected to operate at an overall intersection LOS D or better in 2040.
  - Queue spillback from the ramp terminals into the portion of the off-ramps designated for deceleration is not anticipated based on the 95th percentile queue lengths estimated for the northbound and southbound movements at the interchange.

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 approximately one more predicted fatal crash over the 10-year life cycle of the project (0.1 fatal crash increase per year). The proposed improvements are predicted to experience approximately 7 less injury and 25 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 recurring 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 (FM# 452074-1). 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 2, FDOT Central Office, and Florida’s Turnpike Enterprise to continue to evaluate the I-75 corridor from a regional perspective.

APPENDIX A – TRAFFIC ANALYSIS MEMORANDUM OF AGREEMENT (MOA)

APPENDIX B – RAW TRAFFIC DATA

Raw Classification Count Data

Raw Intersection Turning Movement Count Data

APPENDIX C – SIGNAL TIMING DATA

APPENDIX D – STRAIGHT LINE DIAGRAMS

APPENDIX E – EXISTING TRANSIT INFORMATION

APPENDIX F – PEAK SEASON FACTOR REPORTS

APPENDIX G – HCS INPUTS AND EXISTING OUTPUT REPORTS

APPENDIX H – EXISTING SYNCHRO OUTPUT REPORTS

SR 40 Summary Tables

SR 40 Synchro Reports

US 27 Summary Tables

US 27 Synchro Reports

SR 326 Summary Tables

SR 326 Synchro Reports

APPENDIX I – HISTORICAL CRASH DATA TABLES AND GRAPHS

I-75 Mainline Northbound Crash Data Summary Tables and Charts

I-75 Mainline Southbound Crash Data Summary Tables and Charts

I-75 Intersecting Roadway Crash Data Summary Tables and Charts

APPENDIX J – HISTORICAL CRASH RATE ANALYSIS

FDOT Historical AADTs

Ocala Marion County 2013-2017 Traffic Count & Trends Report

APPENDIX K – FINAL SUBAREA MODEL VALIDATION REPORT

APPENDIX L – DESIGN TRAFFIC FACTOR DOCUMENTATION

Highest 200-hour Reports

D Factors

T Factors

APPENDIX M – FDOT HISTORICAL AADT REPORTS AND TREND ANALYSES

Historical AADT Reports

Historical Trends Analyses

APPENDIX N – BEBR POPULATION STUDY DATA

APPENDIX O – TURNPIKE STATEWIDE MODEL PLOTS

Base Year (2015)

Horizon Year (2045)

APPENDIX P – I-75 AT NW 49TH STREET IJR EXCERPTS AND EXAMPLE CALCULATIONS

APPENDIX Q – FTE COORDINATION AND MASTER PLAN 2050 VOLUMES

APPENDIX R – NCHRP REPORT 765 INPUTS/OUTPUTS

APPENDIX S – 2030 NO-BUILD HCS OUTPUT REPORTS

APPENDIX T – 2040 NO-BUILD HCS OUTPUT REPORTS

APPENDIX U – 2030 NO-BUILD SYNCHRO OUTPUT REPORTS

SR 40 Summary Tables

SR 40 Synchro Reports

US 27 Summary Tables

US 27 Synchro Reports

SR 326 Summary Tables

SR 326 Synchro Reports

APPENDIX V – 2040 NO-BUILD SYNCHRO OUTPUT REPORTS

SR 40 Summary Tables

SR 40 Synchro Reports

US 27 Summary Tables

US 27 Synchro Reports

SR 326 Summary Tables

SR 326 Synchro Reports

APPENDIX W – BUILD CONCEPT PLANS

APPENDIX X – 2030 BUILD HCS OUTPUT REPORTS

APPENDIX Y – 2040 BUILD HCS OUTPUT REPORTS

APPENDIX Z – 2030 BUILD SYNCHRO OUTPUT REPORTS

APPENDIX AA – 2040 BUILD SYNCHRO OUTPUT REPORTS

APPENDIX BB – FUTURE COMPARATIVE SAFETY ANALYSIS

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