I-275 from Ashley Drive / Tampa Street to North of Dr. Martin Luther King, Jr. Boulevard
and
I-4 from I-275 to Selmon Expressway Connector
Systems Interchange Modification Report (SIMR)

FPID #445056-1-52-01, 445056-2-52-01 and
445057-1-52-01
Hillsborough County, Florida

Prepared for:

Florida Department of Transportation (FDOT)
Federal Highway Administration (FHWA)

January 2022

PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I am a registered professional engineer in the State of Florida practicing engineering for HNTB Corporation and that I have supervised the preparation of and approve the analysis, findings, opinions, conclusions, and technical advice hereby reported for:

PROJECT: I-275 from Ashley Drive/ Tampa Street to North of Dr. Martin Luther King, Jr. Boulevard and I-4 from I-275 to Selmon Expressway Connector
Systems Interchange Modification Report (SIMR)
FPID #445056-1-52-01, 445056-2-52-01 and 445057-1-52-01
Hillsborough County, Florida

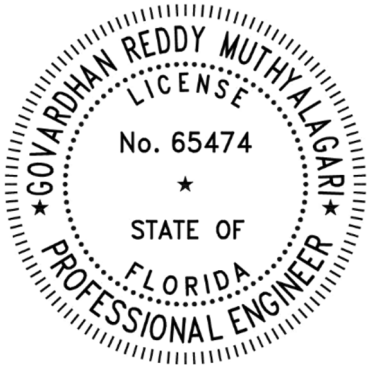
The engineering work represented by this document was performed through the following duly authorized engineering business:

HNTB Corporation
201 N. Franklin Street, Suite 1200
Tampa, Florida 33602
Certificate of Authorization No. 6500

This report provides preliminary engineering analyses for the proposed systems interchange modifications along I-275 and I-4. Any engineering analyses, documents, conclusions, or recommendations relied upon from other professional sources or provided by others are referenced accordingly in the following report.

FLORIDA REGISTERED ENGINEER

Govardhan Muthyalagari, P.E., PTOE
P.E. # 65474
January 19, 2022



Engineer of Record

This item has been digitally signed and sealed by

on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

System Interchange Modification Report(SIMR)

I-275 from Ashley Drive / Tampa Street to North of Dr. Martin Luther King, Jr. Boulevard and I-4 from I-275 to Selmon Expressway Connector

445056-1-52-01, 445056-2-52-01 and 445057-1-52-01

Florida Department of Transportation

Determination of Safety, Operational and Engineering Acceptability

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

Requestor	DocuSigned by: CADE49BFE536492...	1/21/2022 | 11:48 AM EST
	Richard Moss, PE Director of Transportation Development - District Seven	Date
Interchange Review Coordinator	DocuSigned by: Waddah Farah 9C8365A20D9447F...	1/21/2022 | 11:55 AM EST
	Waddah Farah, EI, MSE District Seven	Date
Systems Management Administrator	DocuSigned by: Jenna Bowman 4AD03E6A337F4C1...	1/21/2022 | 12:49 PM EST
	Jenna Bowman, PE Systems Implementation Office – Central Office	Date
Office of Project Delivery Director	DocuSigned by: James Stevenson C1A2678BD5E743C...	1/27/2022 | 12:12 PM EST
	James Stevenson Federal Highway Administration, Florida Division	Date

SYSTEMS IMPLEMENTATION OFFICE
QUALITY CONTROL CERTIFICATION FOR INTERCHANGE ACCESS REQUEST SUBMITTAL

Submittal Date: January 2022

FM Number: 445056-1-52-01, 445056-2-52-01 and 445057-1-52-01

Project Title: I-275 from Ashley Drive / Tampa Street to North of Dr. Martin Luther King, Jr. Boulevard and I-4 from I-275 to Selmon Expressway Connector

District: 7

Requestor: Richard Moss, PE Phone: 813.975.6133

District IRC: Waddah Farah, EI Phone: 813.975.6440

Document Type: ☐ MLOU ☐ IJR ☒ IMR ☐ IOAR ☐ OTHER (Specify)

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

System Interchange Modification Report (SIMR)

Quality Control (QC) Statement

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

Requestor: DocuSigned by: CADE49BEE536492... Date: 1/21/2022 | 11:48 AM EST

Richard Moss, PE

IRC: DocuSigned by: Waddah Farah 9C8365A20D0447F... Date: 1/21/2022 | 11:55 AM EST

Waddah Farah, EI

EXECUTIVE SUMMARY

Interstate 275 (I-275)/State Road 93 (SR 93) is a major north-south thoroughfare that extends from Manatee County into Pasco County crossing through Pinellas and Hillsborough Counties, and connects interstates and other major arterials in the area, specifically, Interstate 75 (I-75), Interstate 4 (I-4)/State Road 400 (SR 400) and State Road 60 (SR 60). These roadways are designated as Strategic Intermodal System (SIS) Corridors, which are integral to the high priority network of transportation facilities important to the state's economy and mobility. Additionally, State Road 618 (SR 618)/Lee Roy Selmon Expressway connects to I-4 via the Selmon Expressway Connector in the project vicinity. The I-275 system also provides access to the Tampa International Airport, Port of Tampa, Downtown Tampa, and Downtown St. Petersburg, all of which are major hubs of economic development in the area.

I-4 is a major east-west thoroughfare that extends from Hillsborough County to Volusia County crossing through Polk, Osceola, Orange and Seminole Counties, and connects major interstates and arterials. The I-4 system provides access to several major attractions in the Orlando Metropolitan Area crucial for Florida's economy.

I-275 and I-4 provide vital regional links in Central Florida. The study area represents the spine of the transportation network for the City of Tampa and Hillsborough County and provides access to employment, residential neighborhoods, tourist and recreational destinations, and services. Forecasts from the Tampa Bay Regional Planning Model (TBRPM) project employment to increase 110 percent in Downtown Tampa and 64 percent in the Westshore area from 2015 to 2045. Maintaining access to key business, residential, and activity centers, such as Downtown Tampa and the Westshore area, and improving freeway capacity that will provide reliable travel times along these roadways is crucial to economic development and vitality in the Tampa Bay Region. Additionally, ensuring safe and efficient operations along I-275 and I-4 is critical given that these interstates are on the SIS plan and the Florida Division of Emergency Management has designated I-275 and I-4 as evacuation routes to be used during a disaster.

FDOT through its commitment to developing comprehensive and multimodal regional transportation systems to modernize infrastructure and prepare for the future created the Tampa Bay Next (TBNext) program. Tampa Bay Next priorities include:

- Move people and goods safely and efficiently
- Build a comprehensive regional transportation system
- Create meaningful opportunities for public input
- Balance regional needs with community concerns
- Commit to sustainable infrastructure decisions

The Tampa Bay area is the fifth fastest-growing metro area in the nation, with approximately 58,000 people moving here in 2016, and more than 22 million visitors to Hillsborough County in 2015. Demand on our current interstate system is steadily increasing, and traffic projections show average daily traffic doubling in some sections of I-275 by 2040. Tampa's two major interchanges – in the Westshore area and Downtown – were built in the 1960s and have only had intermittent operational improvements since then. They no longer function properly and cause traffic backups on the interstates that affect the arterials and local street systems. When drivers are sitting in gridlock on the Howard Frankland Bridge, Veterans Expressway, I-275 north of Downtown, or I-4 east of Downtown, that congestion is primarily caused by increased demand and the funneling effect at these two interchanges. To fix these bottlenecks, bringing the Westshore area and Downtown interchanges up to modern standards while enhancing operating conditions is critical.

The Final Environmental Impact Statement (FEIS) prepared for the Tampa Interstate Study (TIS) and approved by the Federal Highway Administration (FHWA) in January 1997, documented the need for multi-lane improvements on I-275 from the north end of the Howard Frankland Bridge to north of Dr. Martin Luther King, Jr. (Dr. MLK, Jr.) Boulevard and on I-4 from I-275 to 50th Street. The FHWA, in cooperation with the Florida Department of Transportation (FDOT), prepared a Supplemental Environmental Impact Statement (SEIS) to examine the impacts and to modify the Locally Preferred Alternative (LPA) for the Tampa Interstate Study (TIS) to improve portions of I-275, I-4, and SR 60 in Hillsborough County, Florida.

FDOT completed a preliminary screening in 2017 to narrow the range of alternatives that would be evaluated in the SEIS. The preliminary screening analysis focused on whether the alternatives could address the Purpose and Need. To do this, FDOT developed screening criteria and measures, based on the Purpose and Need and public input. FDOT presented the results publicly in October 2017 to the community in a public workshop. A description of the alternatives considered for further study in the TIS Draft SEIS is provided in the following sections.

Five interchange design options were considered for the Downtown Interchange in TIS Segment 2B that are within the SIMR project limits. They represent both tolled and non-tolled options for managed lanes. Two options are full reconstruction of the interchange with a larger footprint, two are viaduct alternatives that would build tolled express lanes next to the existing infrastructure but have a smaller footprint, and the fifth option focuses on operational and safety improvements. The Design Options are described in the following sections.

Options A and B (Reconstructed Interchange) - The proposed improvements under Options A and B would include reconstructing the interchange to provide a fully directional interchange for the I-4/I-275 connection, with tolled express lanes; adding a direct connection to the downtown local street network and slip ramp access north and east of Downtown Tampa; adding overpasses at several locations to open cross-connections of local streets through the interstate footprint.

- **Option A (Reconstructed Interchange with Express Lane Ramps to the North)**: Option A would include direct express lane ramp connections to the north leg of I-275.
- **Option B (Reconstructed Interchange without Express Lane Ramps to the North)**: Option B would not include express lane ramp connections to the north leg of I-275.

Options C and D (Existing Interchange with Elevated Express Lanes) - The proposed improvements under Options C and D would include preserving the existing I-275 and I-4 interstate while adding tolled express lanes on elevated structure from west of the Hillsborough River to I-4. Access would be provided to the downtown street grid from the elevated express lanes.

- Under Option C, the elevated express lanes would fly out from the median of I-275 west of the Hillsborough River over the northbound I-275 lanes to the outside of the existing interstate and run adjacent to the existing northbound I-275 lanes from the Hillsborough River to I-4, on the south side of I-275. The elevated express lanes would turn east along I-4 by crossing over to the north side of I-4, adjacent to the westbound I-4 lanes from I-275 to east of 15th Street. The elevated express lanes would then fly over the westbound I-4 lanes back into the median of I-4 just west of 21st Street.
- Under Option D, the elevated express lanes would fly out from the median of I-275 west of the Hillsborough River over the southbound I-275 lanes to the outside of the existing interstate and run adjacent to the existing southbound I-275 lanes from

the Hillsborough River to I-4, on the north side of I-275. The elevated express lanes would turn east along I-4, adjacent to the westbound I-4 lanes from I-275 to east of 15th Street. The elevated express lanes would then fly over the westbound I-4 lanes back into the median of I-4 just west of 21st Street.

Option E (Safety and Operational Improvements) - In May 2019, FDOT held Alternatives Public Workshops to receive input on the Westshore and Downtown Alternatives, including Options A, B, C, and D, with the intent of recommending one of the options to carry forward as a part of the Recommended Locally Preferred Alternative (LPA). While there is definitive public support for reconstruction of the I-275/SR 60 Interchange (TIS Segment 1A), there are many factors that may impact the plans in the I-275/I-4 (TIS Segment 2B). Therefore, FDOT developed Option E in response to input from the public and area stakeholders, including:

- Continuous comments from the public to minimize ROW impacts to downtown neighborhoods
- Comments and concerns related to the closure of the Floribraska Avenue ramps
- Comments and concerns related to the potential impacts to the Perry Harvey Sr Park
- Support for safety and operational improvements in the Downtown Interchange area

FDOT reviewed the Options A, B, C, and D within the I-275/I-4 interchange and extracted and refined three improvements from the current concepts that would enhance safety and operational performance in alignment with the Purpose and Need. The movements below would not be tolled. The improvements would include relocating the western exit ramp to Ybor City and East Tampa from the existing location at 21st/22nd Street to 14th/15th Street. The relocated exit ramp would provide enhanced access to businesses, educational institutions, and residential areas. Drivers would still access 21st/22nd Street via widening the existing single- lane frontage road, East 13th Avenue, to two lanes. These proposed operational improvements would be completed almost entirely within the existing FDOT owned ROW. Fewer parcels will be affected under Option E.

Collectively the three operational/safety improvements that make up the geometric improvements to the Downtown Interchange, which will be Design Option E, are described below.

- **Southbound I-275 to Eastbound I-4** - The southbound I-275 to eastbound I-4 improvements include widening the existing flyover ramp to two lanes with an exit to 21st/22nd Streets via a slip ramp to 14th/15th Streets and frontage road. The proposed improvement also provides a new ramp from I-275 northbound to 21st/22nd Street via the 14th/15th Streets ramp and frontage road.
- **Westbound I-4 to Northbound I-275** - An additional lane would be provided from west of 14th Street on westbound I-4 to MLK Boulevard on northbound I-275. The entrance ramp from 21st Street that currently merges onto I-4 in the vicinity of 16th Street will become an add lane, utilizing existing pavement and not requiring any widening of existing pavement until west of 14th Street. The additional lane would continue along the off-ramp to northbound I-275 by widening the off-ramp to the outside to two lanes. The additional lane would then continue along northbound I-275 by widening to the outside to MLK Boulevard. A second additional lane would be added to the outside of northbound I-275 with the addition of an auxiliary lane between the on-ramp from Floribraska Avenue and the off-ramp to MLK Boulevard. The off-ramp to MLK Boulevard would be widened to two lanes.
- **Westbound I-4 to Southbound I-275** - The westbound I-4 to southbound I-275 operational improvements would include widening the southbound I-275 ramp from two lanes to three lanes. The three lanes would join the two lanes from southbound I-275 to provide five lanes. The exit from northbound I-275 would be located between Palm Avenue and Nebraska Avenue while the exit from southbound I-275 would be located off the two-lane flyover to eastbound I-4. Those two separate ramps would then combine along the south side of the eastbound I-4 mainline east of Nebraska Avenue and would tie into 14th/15th Street, providing a new access point that would serve both the 14th/15th Street and 21st/22nd Street.

Preferred Alternative

In May 2019, FDOT held Public Workshops to receive input on the proposed design for the 2018 Express Lanes Alternative (Tolled), which includes the Westshore interchange and Design Options A, B, C, and D for the Downtown interchange (TIS Segments 2B and 3A). FDOT intended to identify a Recommended Locally Preferred Alternative (LPA) soon thereafter. Many factors, including comments and concerns related to the potential impacts to the Perry Harvey Sr. Park, ROW impacts to downtown neighborhoods, and the need to provide safety improvements in the Downtown Interchange area, led FDOT to develop Design Option E.

FDOT identified the 2018 Express Lanes Alternative (Tolled) with Design Option E for TIS

Segments 2B and 3A as the Recommended LPA for the TIS. The Recommended LPA selection process involved numerous considerations, which balanced engineering and environmental considerations as well as local preference gleaned through both the public involvement process and meetings with stakeholders and local officials. This section explains the factors considered by FDOT in recommending for FHWA approval Design Option E, in combination with the Westshore Interchange and Express Lanes from the HFB to Ashley Drive, as the Recommended LPA. FDOT presented the Recommended LPA at the public hearing that FDOT held on February 25 and 27, 2020. As a result of coordination with the City of Tampa and public comments on the TIS Draft SEIS, FDOT made some refinements to the Recommended LPA to mitigate potential safety issues, which resulted in the Preferred Alternative.

Based on consideration of all the social, economic, and environmental evaluations contained in the Final SEIS, with input received from other agencies, organizations, and the public, the FHWA has determined that the TIS Preferred Alternative is hereby the selected alternative. On September 15, 2020, the FHWA granted Location and Design Concept Acceptance (LDCA) for the TIS SEIS, Record of Decision (ROD), and Section 4(f) Evaluation. All the improvements that are considered as part of the SIMR are consistent with the approved SEIS Preferred Alternative.

The following FHWA policy points serve as primary decision criteria used in the approval of this Systems Interchange Modification Report (SIMR).

1. The proposal does not adversely impact the operational safety of the existing freeway

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

I-275 and I-4 currently experience recurring congestion during peak periods within the study limits. Peak hour demand exceeds the available capacity of I-275 and I-4 causing longer travel times, poor travel-time reliability, and underperforming traffic operations. As growth in the region continues, travel times, congestion and crashes within the study area will continue to increase. Therefore, there is an immediate need for capacity and safety improvements at the I-275 and I-4 interchange to meet the existing and future peak hour traffic demand. As part of this project, safety and operational improvements are proposed for the southbound to eastbound, westbound to northbound, and westbound to southbound movements of the system-to-system interchange.

Existing condition field reviews were conducted to observe traffic conditions along the corridors. The following provides a summary of the existing traffic conditions during the AM and PM peak periods along I-275 and I-4.

I-275 Segment – From Ashley Drive/Tampa Street to Hillsborough Avenue

- Overall, traffic delays during the PM peak hour were higher compared to the AM peak hour. Due to the directionality, I-275 southbound is more congested than I-275 northbound during the AM peak hour and I-275 northbound is more congested than I-275 southbound during the PM peak hour.

- Average speeds of 57 mph and 22 mph were observed along I-275 northbound during the AM and PM peak hours, respectively.

- Heavy congestion was observed during the PM peak hour along I-275 northbound, prior to Ashley off-ramp and I-275 exit to I-4.

- Average speeds of 42 mph and 33 mph were observed along I-275 southbound during AM and PM peak hours, respectively.

- Heavy delays were observed during the AM and PM peak hour along I-275 southbound prior to the exit to I-4 eastbound, and the section of I-275 southbound from the I-4 westbound on-ramp. This is a critical segment for this facility due to high traffic volumes from westbound I-4 and southbound I-275 merging.

I-4 Segment – From I-275 to Selmon Expressway Connector West Ramps

- Overall, traffic delays along I-4 westbound were higher than the I-4 eastbound segment during both the AM and PM peak hours.

- The average speeds along I-4 westbound were slower during the AM peak hour than during the PM peak hour. The observed average speeds along I-4 westbound were 16 mph and 32 mph during the AM and PM peak hours, respectively.

- Critical bottleneck leading to congestion was experienced on the I-4 westbound segment from the Selmon Connector to the I-4 off-ramp to I-275 southbound caused by high exiting traffic volumes and reduced speeds on the off-ramp due to horizontal alignment.

- Average speeds of 59 mph and 56 mph were observed along I-4 eastbound during the AM and PM peak hours, respectively.

A total of 7,398 crashes occurred within the study area during the five-year period (2013-2017). Of these, 18 fatal crashes (0.2%), 2,335 (32%) injury crashes, and 5,045 (68%) property damage only crashes were reported. There were 1,623 crashes along I-275 northbound, 1,991 crashes along I-275 southbound, 223 crashes along I-4 eastbound, and 966 crashes along I-4 westbound. There were 976 crashes along ramps, 542 crashes at ramp terminals, and 1,077 crashes at intersections. The crash analysis suggested that along freeways, rear-end crashes were the predominant crash type (67%), followed by sideswipe crashes (20%), and hit fixed object crashes (9%). The historical crash data indicate that the majority of crashes occur near the I-275/I-4 interchange. A major contributing factor for these crashes is the excessive mainline queueing and "lane diving" at the single-lane ramp from I-275 southbound to I-4 eastbound. All of the northbound and southbound I-275 segments and majority of I-4 westbound segments exceed the statewide average crash rate of 0.976 per Million Vehicle Miles Traveled. Additionally, four out of eight ramp terminal intersections are above the statewide average in the northbound/eastbound direction, and all ramp terminal intersections are above the statewide average in the southbound/westbound direction. The total economic loss due to 7,398 crashes for the analysis years from 2013 through 2017 was estimated to be $645,546,192.

Microsimulation models were completed for the No-Build and Build Alternatives for the Opening Year (2025) and Design Year (2045) for both peak periods. The overall operations of the Build Alternative improved significantly compared to No-Build Alternative within the study limits. **ES - Table 1** compares demand volumes processed in the No-Build and Build Alternatives during AM and PM peak hours along I-275. The results indicate that more demand vehicles will be processed in the Build Alternative with the proposed improvements as compared to the No-Build Alternative.

In the Opening Year (2025) and Design Year (2045), a five percent to 25 percent increase in throughput was observed along I-275 northbound during peak hours. Similarly, a six percent to 66 percent increase in throughput was observed along I-275 southbound during peak hours.

ES – Table 1: Processed Demand along I-275

Roadway	Scenario	Opening Year (2025)		Design Year (2045)	
		AM	PM	AM	PM
NB I-275	No-Build	82%	68%	73%	51%
	Build	87%	69%	77%	64%
	% Change	**5%**	**1%**	**6%**	**25%**
SB I-275	No-Build	67%	86%	34%	72%
	Build	77%	92%	56%	81%
	% Change	**15%**	**6%**	**66%**	**14%**

ES - Table 2 compares demand volumes processed in the No-Build and Build Alternatives during AM and PM peak hours along I-4.

In the Opening Year (2025) and Design Year (2045), a five percent to 27 percent increase in throughput was observed along I-4 eastbound during the peak hours. Similarly, a 28 percent to 100 percent increase in throughput was observed along I-4 westbound during the peak hours.

ES – Table 2: Processed Demand along I-4

Roadway	Scenario	Opening Year (2025)		Design Year (2045)	
		AM	PM	AM	PM
EB I-4	No-Build	89%	87%	64%	67%
	Build	99%	92%	82%	74%
	% Change	**11%**	**5%**	**27%**	**11%**
WB I-4	No-Build	68%	56%	57%	30%
	Build	94%	83%	73%	60%
	% Change	**38%**	**48%**	**28%**	**100%**

Since the proposed Build improvements are mainly focused on freeway facilities, the peak hour traffic operations are very similar on arterial corridors for No-Build and Build conditions within the study limits. However, with additional capacity available through proposed build improvements, more capacity will be available to satisfy demand on the interstate in the Build conditions as compared to No-Build conditions. Due to an increase in traffic near ramp terminal intersections, the traffic delays will be slightly more for some study intersections in Build conditions as compared to No-Build conditions.

In addition to the processed demand, the latent demand at the end of the peak period simulation along the freeway facility entering the study area from I-275 northbound, I-275 southbound, I-4 westbound and Selmon Expressway was also analyzed for evaluating the performance of the Build Alternative compared to No-Build Alternative. The results show a decrease in latent demand for the Build Alternative compared to No-Build Alternative, seen in **ES – Table 3**. The percent change in latent demand from the No-Build Alternative ranged from -3 to 100 percent in the Opening Year (2025) and -8 to 47 percent in the Design Year (2045).

ES – Table 3: Latent Demand Summary along Freeway Facility

Alternative		I-275 Northbound		I-275 Southbound		I-4 Westbound		NB Selmon Expressway Ramp to WB I-4	
		Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand
2025 No-Build	AM	1,881	4%	12,615	33%	8,949	26%	1,503	21%
	PM	13,795	30%	3,490	11%	14,685	42%	5,335	56%
2025 Build	AM	1,074	2%	9,535	25%	5	0%	610	9%
	PM	14,630	31%	1,436	4%	5,239	15%	2,792	29%
Percent Change	AM	44%		24%		100%		59%	
	PM	-3%		59%		64%		49%	
2045 No-Build	AM	8,271	18%	33,143	66%	28,161	57%	4,016	41%
	PM	26,669	51%	8,602	21%	36,793	79%	5,195	42%
2045 Build	AM	5,343	12%	22,514	44%	26,830	50%	1,858	22%
	PM	18,548	36%	5,926	15%	25,095	50%	5,884	45%
Percent Change	AM	35%		33%		13%		47%	
	PM	31%		31%		37%		-8%	

The results of the predictive safety analysis show that there is an anticipated reduction in crashes over the length of the study period by implementing the Build Alternative. Even though there is an increase in the annual average daily traffic (AADT), as well as number of lanes, I-275 is expected to see a reduction in crashes of 25 percent, and I-4 is expected to see a reduction of nine percent.

The I-275 corridor is expected to have reductions in fatal crashes and individual severity types with the largest decrease in injury (B) crashes with 51 percent, 48 percent reduction in serious injury (A) crashes, and 47 percent reduction in fatal injury (K) crashes. I-4 is expected to have large reductions in property damage only (PDO) crashes and possible

injury (C) crashes at 10 percent and eight percent, respectively. The Build Alternative is also expected to reduce the number of total multiple vehicle crashes along I-275 and I-4 by 25 percent and nine percent, respectively. This reduction is likely due to the proposed improvements in the Build condition creating much safer conditions for vehicles using I-275 and I-4.

The Build Alternative provides for safer and improved access to and from I-275 and I-4 interstate systems. The additional capacity as part of the Build Alternative addresses three critical movements, southbound I-275 to eastbound I-4, westbound I-4 to northbound I-275, and westbound I-4 to southbound I-275 and these improvements aid the system to efficiently collect, distribute and accommodate traffic with increased throughput, reduced latent demand. The reduction in total crashes, along with the fatal, serious injury and injury crashes for the Build Alternative provides for safer performance while meeting the needs for the future demand growth within the study limits of the project. The proposed changes to access does not result in a significant adverse impact on the safety and operations of the interstate and associated facilities included in the IAR study area.

2. A full interchange with all traffic movements at a public road is provided

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

This project proposes a new exit ramp from northbound and southbound I-275 that provides access to 14th Street and 15th Street through 13th Avenue and 14th Avenue. This new exit ramp will replace the current eastbound I-4 exit ramp to 21st/22nd Street. The proposed exit ramp is a two-lane roadway aligning with 13th Avenue. The proposed

connection will reroute the existing traffic bound to 21st/22nd Street through 14th Street and 15th Street and increase traffic compared to the existing conditions. These modifications have been coordinated with the City of Tampa and local residential and business groups. Access Management on the cross streets will not be affected beyond the limits of this project. The Access Management Evaluation Memorandum is provided in **Appendix M.**

The new exit ramp from northbound and southbound I-275 that provides access to 14th Street and 15th Street reduces the weaving thus improving operations and safety along I-4 eastbound. In addition, the relocated exit ramp would provide enhanced access to businesses, educational institutions, and residential areas. Drivers would still access 21st/22nd Street via widening the existing single- lane frontage road, East 13th Avenue, to two lanes.

The proposed change in access will provide for all traffic movements to 14th Street, 15th Street, in addition to the existing 21st/22nd Street.

In summary, the Build Alternative provides improved throughput and safer performance as compared to the No-Build Alternative. Therefore, Safety, Operational, and Engineering (SO&E) approval is requested for the Build Alternative.

Table of Contents

List of Figures

List of Tables

List of Appendices

Acronyms

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADR	Automatic Data Recorder
AOI	Area of Influence
CARS	Crash Analysis Reporting System
CDMS	Crash Data Management System
CIP	Capital Improvement Program
DDHV	Directional Design Hour Volume
DHT	Design Hour Truck
ECR	Existing Conditions Report
ELToD	Express Lanes Time of Day
FDOT	Florida Department of Transportation
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FTO	Florida Traffic Online
HCM	Highway Capacity Manual
I	Interstate
ISATe	Enhanced Interchange Safety Analysis Tool
LDCA	Location and Design Concept Acceptance
LOS	Level of Service
LPA	Locally Preferred Alternative
MEV	Million Entering Vehicles
MLK	Martin Luther King
MLOU	Methodology Letter of Understanding
MOCF	Model Output Conversion Factor
MOE	Measure of Effectiveness
MUTCD	Manual on Uniform Traffic Control Devices
MVMT	Million Vehicle Miles Traveled
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
Non-IAR	Non-Interchange Access Request
O-D	Origin-Destination
ODME	Origin-Destination Matrix Estimation
PDO	Property Damage Only
PHF	Peak Hour Factor
PHV	Peak Hour Volume
PSWADT	Peak Season Weekly Average Daily Traffic
PTAR	Project Traffic Analysis Report
RMSE	Root Mean Square Error
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement
SIMR	Systems Interchange Modification Report
SIS	Strategic Intermodal System
SLD	Straight Line Diagram

SR	State Road
TBNext	Tampa Bay Next
TBRPM	Tampa Bay Regional Planning Model
TIS	Tampa Interstate Study
TMC	Turning Movement Counts

1. INTRODUCTION

Interstate 275 (I-275)/State Road 93 (SR 93) is an Urban Principal Arterial Interstate interconnecting the Tampa Bay Region. It is a major north-south thoroughfare that extends from Manatee County into Pasco County crossing through Pinellas and Hillsborough Counties, and connects interstates and other major arterials in the area, specifically, Interstate 75 (I-75), Interstate 4 (I-4)/State Road 400 (SR 400) and State Road 60 (SR 60). These roadways are designated as Strategic Intermodal System (SIS) Corridors, which are integral to the high priority network of transportation facilities important to the state's economy and mobility. Additionally, State Road 618 (SR 618)/Lee Roy Selmon Expressway connects to I-4 via the Selmon Expressway Connector in the project vicinity. The I-275 system also provides access to the Tampa International Airport, Port of Tampa, Downtown Tampa, and Downtown St. Petersburg, all of which are major hubs of economic development in the area.

I-4 in Hillsborough County is functionally classified as an Urban Principal Arterial Interstate roadway connecting the Tampa Bay Region with the Orlando Metropolitan Area and extending further east to connect with the city of Daytona Beach. It is a major east-west thoroughfare that extends from Hillsborough County to Volusia County crossing through Polk, Osceola, Orange and Seminole Counties, and connects major interstates and arterials. The I-4 system provides access to several major attractions in the Orlando Metropolitan Area crucial for Florida's economy including Disney World, Universal Studios and SeaWorld Orlando.

I-275 and I-4 currently experience recurring congestion during peak periods within the study limits. Peak hour demands exceed the available capacity of I-275 and I-4 systems causing longer travel times, poor travel-time reliability, and underperforming traffic operations. As growth in the region continues, travel times, congestion and crashes within the study area will continue to increase. Therefore, there is an immediate need for capacity and safety improvements along I-275 and I-4 corridors to meet the existing and future peak hour traffic demand.

The need for this project is to improve safety and alleviate existing traffic congestion and excessive vehicle delays on I-275 and I-4 and the adjacent interchanges. Ensuring safe and efficient operations along I-275 and I-4 is critical given that these interstates are on the SIS and the Florida Division of Emergency Management has designated I-275 and I-4 as evacuation routes to be used during a disaster.

The purpose of the Systems Interchange Modification Report (SIMR) access document is to evaluate the critical improvements proposed at I-275 and I-4 for the southbound to eastbound, westbound to northbound, and westbound to southbound movements and document the viability based on safety, operations, and engineering (SO&E) criteria. The level of analysis and documentation requirements for evaluating are consistent and agreed upon in the Methodology Letter of Understanding (MLOU).

2. PROJECT DESCRIPTION

FDOT through its commitment to developing a comprehensive and multimodal regional transportation systems to modernize infrastructure and prepare for the future created Tampa Bay Next (TBNext) program. Tampa Bay Next priorities include:

- Move people and goods safely and efficiently
- Build a comprehensive regional transportation system
- Create meaningful opportunities for public input
- Balance regional needs with community concerns
- Commit to sustainable infrastructure decisions

Figure 2-1 shows the TBNext Interstate Modernization projects within the Tampa Bay region.

The Tampa Bay area is the fifth fastest-growing metro area in the nation, with approximately 58,000 people moving here in 2016, and more than 22 million visitors to Hillsborough County in 2015. Demand on our current interstate system is steadily increasing, and traffic projections show average daily traffic doubling in some sections of I-275 by 2040. Tampa's two major interchanges – in the Westshore area and Downtown – were built in the 1960s and have only had intermittent operational improvements since then. They no longer function properly and cause traffic backups on the interstates that affect the arterials and local street systems. When drivers are sitting in gridlock on the Howard Frankland Bridge, Veterans Expressway, I-275 north of Downtown, or I-4 east of Downtown, that congestion is primarily caused by increased demand and the funneling effect at these two interchanges. To fix these bottlenecks, bringing the Westshore area and Downtown interchanges up to modern standards while enhancing operating conditions is critical.

The Final Environmental Impact Statement (FEIS) prepared for the Tampa Interstate Study (TIS) and approved by the Federal Highway Administration (FHWA) in January 1997, documented the need for multi-lane improvements on I-275 from the north end of the Howard Frankland Bridge to north of Dr. Martin Luther King, Jr. (Dr. MLK, Jr.) Boulevard and on I-4 from I-275 to 50th Street. The FHWA, in cooperation with the Florida Department of Transportation (FDOT), prepared a Supplemental Environmental Impact Statement (SEIS) to examine the impacts and to modify the Locally Preferred Alternative (LPA) for the Tampa Interstate Study (TIS) to improve portions of I-275, I-4, and SR 60 in Hillsborough County, Florida.

FDOT completed a preliminary screening in 2017 to narrow the range of alternatives that would be evaluated in the SEIS. The preliminary screening analysis focused on whether the alternatives could address the Purpose and Need. To do this, FDOT developed screening criteria and measures, based on the Purpose and Need and public input. FDOT presented the results publicly in October 2017 to the community in a public workshop. A description of the alternatives considered for further study in the TIS Draft SEIS is provided in the following sections.

Five interchange design options were considered for the Downtown Interchange in TIS Segment 2B that are within the SIMR project limits. They represent both tolled and non-tolled options for managed lanes. Two options are full reconstruction of the interchange with a larger footprint, two are viaduct alternatives that would build tolled express lanes next to the existing infrastructure but have a smaller footprint, and the fifth option focuses on operational and safety improvements. The Design Options are described in the following sections.

Options A and B (Reconstructed Interchange) - The proposed improvements under Options A and B would include reconstructing the interchange to provide a fully directional interchange for the I-4/I-275 connection, with tolled express lanes; adding a direct connection to the downtown local street network and slip ramp access north and east of Downtown Tampa; adding overpasses at several locations to open cross-connections of local streets through the interstate footprint.

- **Option A (Reconstructed Interchange with Express Lane Ramps to the North)**: Option A would include direct express lane ramp connections to the north leg of I-275.
- **Option B (Reconstructed Interchange without Express Lane Ramps to the North)**: Option B would not include express lane ramp connections to the north leg of I-275.

Options C and D (Existing Interchange with Elevated Express Lanes) - The proposed improvements under Options C and D would include preserving the existing I-275 and I-4 interstate while adding tolled express lanes on elevated structure from west of the Hillsborough River to I-4. Access would be provided to the downtown street grid from the elevated express lanes.

- Under Option C, the elevated express lanes would fly out from the median of I-275 west of the Hillsborough River over the northbound I-275 lanes to the outside of the existing interstate and run adjacent to the existing northbound I-275 lanes from the Hillsborough River to I-4, on the south side of I-275. The elevated express lanes would turn east along I-4 by crossing over to the north side of I-4, adjacent to the westbound I-4 lanes from I-275 to east of 15th Street. The elevated express lanes would then fly over the westbound I-4 lanes back into the median of I-4 just west of 21st Street.

- Under Option D, the elevated express lanes would fly out from the median of I-275 west of the Hillsborough River over the southbound I-275 lanes to the outside of the existing interstate and run adjacent to the existing southbound I-275 lanes from the Hillsborough River to I-4, on the north side of I-275. The elevated express lanes would turn east along I-4, adjacent to the westbound I-4 lanes from I-275 to east of 15th Street. The elevated express lanes would then fly over the westbound I-4 lanes back into the median of I-4 just west of 21st Street.

Option E (Safety and Operational Improvements) - In May 2019, FDOT held Alternatives Public Workshops to receive input on the Westshore and Downtown Alternatives, including Options A, B, C, and D, with the intent of recommending one of the options to carry forward as a part of the Recommended Locally Preferred Alternative (LPA). While there is definitive public support for reconstruction of the I-275/SR 60 Interchange (TIS Segment 1A), there are many factors that may impact the plans in the I-275/I-4 (TIS Segment 2B). Therefore, FDOT developed Option E in response to input from the public and area stakeholders, including:

- Continuous comments from the public to minimize ROW impacts to downtown neighborhoods
- Comments and concerns related to the closure of the Floribraska Avenue ramps
- Comments and concerns related to the potential impacts to the Perry Harvey Sr Park
- Support for safety and operational improvements in the Downtown Interchange area

FDOT reviewed the Options A, B, C, and D within the I-275/I-4 interchange and extracted and refined three improvements from the current concepts that would enhance safety and operational performance in alignment with the Purpose and Need. The movements below would not be tolled. The improvements would include relocating the western exit ramp to Ybor City and East Tampa from the existing location at 21st/22nd Street to 14th/15th Street. The relocated exit ramp would provide enhanced access to businesses, educational institutions, and residential areas. Drivers would still access 21st/22nd Street via widening the existing single- lane frontage road, East 13th Avenue, to two lanes. These proposed operational improvements would be completed almost entirely within the existing FDOT owned ROW. Fewer parcels will be affected under Option E.

Collectively the three operational/safety improvements that make up the geometric improvements to the Downtown Interchange, which will be Design Option E, are described below.

- **Southbound I-275 to Eastbound I-4** - The southbound I-275 to eastbound I-4 improvements include widening the existing flyover ramp to two lanes with an exit to 21st/22nd Streets via a slip ramp to 14th/15th Streets and frontage road. The proposed improvement also provides a new ramp from I-275 northbound to 21st/22nd Street via the 14th/15th Streets ramp and frontage road.
- **Westbound I-4 to Northbound I-275** - An additional lane would be provided from west of 14th Street on westbound I-4 to MLK Boulevard on northbound I-275. The entrance ramp from 21st Street that currently merges onto I-4 in the vicinity of 16th Street will become an add lane, utilizing existing pavement and not requiring any widening of existing pavement until west of 14th Street. The additional lane would continue along the off-ramp to northbound I-275 by widening the off-ramp to the outside to two lanes. The additional lane would then continue along northbound I-275 by widening to the outside to MLK Boulevard. A second additional lane would be added to the outside of northbound I-275 with the addition of an auxiliary lane between the on-ramp from Floribraska Avenue and the off-ramp to MLK Boulevard. The off-ramp to MLK Boulevard would be widened to two lanes.
- **Westbound I-4 to Southbound I-275** - The westbound I-4 to southbound I-275 operational improvements would include widening the southbound I-275 ramp from two lanes to three lanes. The three lanes would join the two lanes from southbound I-275 to provide five lanes. The exit from northbound I-275 would be located between Palm Avenue and Nebraska Avenue while the exit from southbound I-275 would be located off the two-lane flyover to eastbound I-4. Those two separate ramps would then combine along the south side of the eastbound I-4 mainline east of Nebraska Avenue and would tie into 14th/15th Street, providing a new access point that would serve both the 14th/15th Street and 21st/22nd Street.

New ramp construction and the reconstruction of existing ramps will be to current design criteria with exception of tie-ins to existing features. In areas of widening and new construction, existing shoulder widths along the widened side of the roadway will be upgraded to meet the current design criteria. This includes providing full shoulders along southbound I-275 between Palm Avenue and Central Avenue. Ground in rumble strips will be added on shoulders. All existing highway lighting and underdeck lighting is being upgraded to LED to improve visibility. Highway signage will be upgraded to meet current standards and spacing requirements. Pavement shields will be utilized to supplement the overhead signage and restriping of the roadway within the limits of new construction and widening. A summary table is provided in the **Section 12.0** Design Variations/Design Exceptions indicating the existing geometric/ alignment /control features that are substandard, and the resulting improved features and the mitigation measures with the Build Alternative.

A Project Traffic Analysis Report (PTAR) was prepared in November of 2019 and approved in July 2020 in support of the TIS SEIS performed under the National Environmental Policy Act (NEPA). The purpose of the SEIS study was to compare alternatives and determine the preferred alternative and document the traffic impacts and benefits of improving the interstate system within the Tampa Bay region, including I-275 and I-4. This SIMR includes evaluation of the preferred alternative that was identified as part of the SEIS along I-275 from Ashley Drive/Tampa Street to north of Dr. MLK, Jr. Boulevard and I-4 from I-275 to the Selmon Expressway Connector.

Safety and operational improvements are proposed at I-275 and I-4 for the southbound to eastbound, westbound to northbound, and westbound to southbound movements. In addition, these modifications are needed to improve the geometrics of the existing interchange (e.g., ramp acceleration/deceleration lane lengths, vertical profiles, etc.) as well and are shown in **Figure 2-2**.

On September 15, 2020, the FHWA granted Location and Design Concept Acceptance (LDCA) for the TIS SEIS, Record of Decision (ROD), and Section 4(f) Evaluation.

Figure 2-1 Tampa Bay Next Interstate Modernization Projects

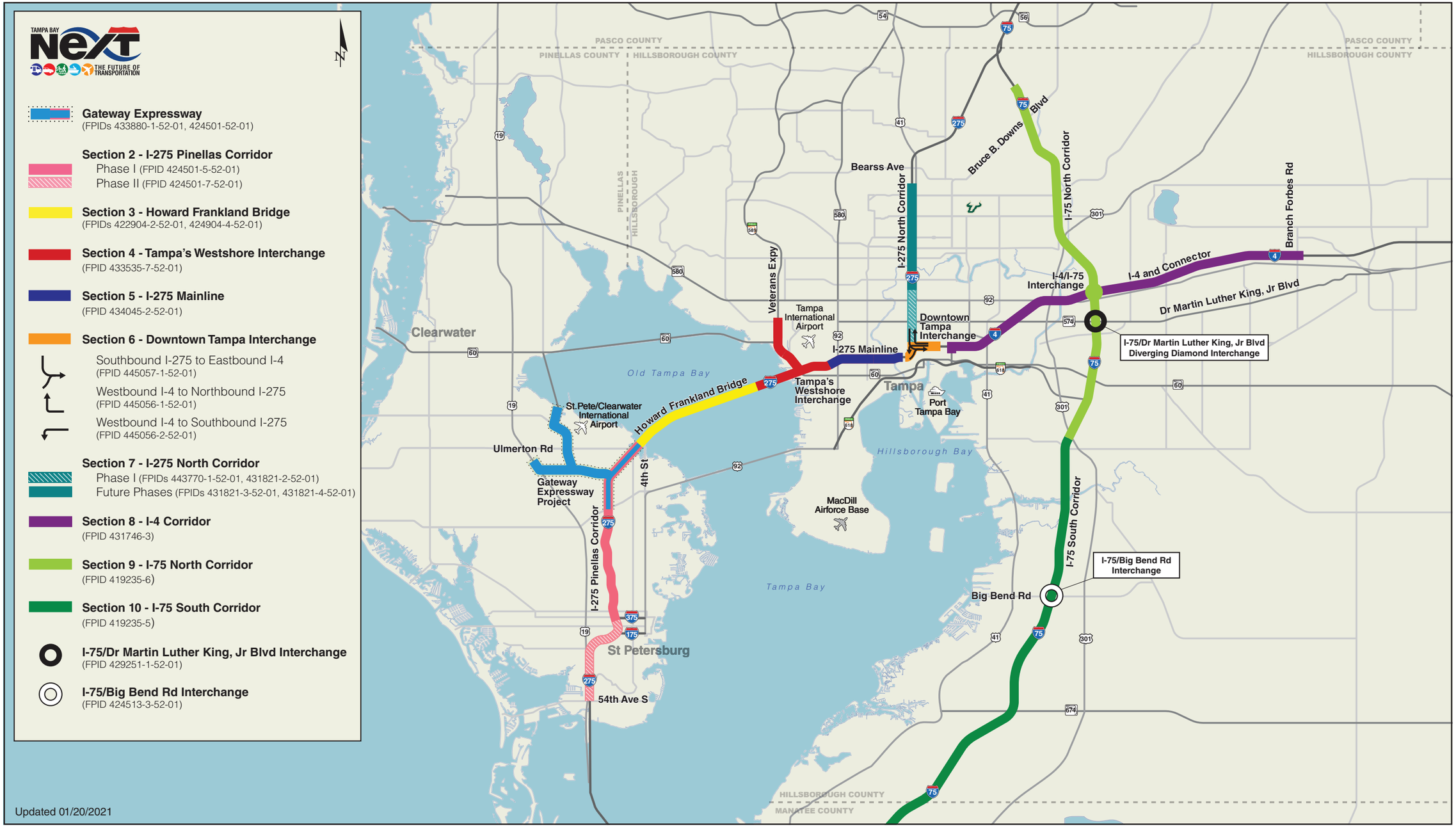


Figure 2-2 – I-275/I-4 Interchange Operational Improvements

1. Southbound I-275 to Eastbound I-4 (FPID 445057-1)

- Widen existing 1 lane flyover ramp to EB I-4 to 2 lanes
- Modify EB exit ramp to Ybor City/East Tampa from 21st/22nd Streets to 14th/15th Streets
- Widen EB I-4 existing frontage road to 2 lanes

2. Westbound I-4 to Northbound I-275 (FPID 445056-1)

- Widen existing 1 lane ramp from I-4 to NB I-275 to 2 lanes
- Additional merge lanes on NB I-275 from the interchange to the Dr. MLK Jr., Blvd exit
- Dr. MLK Jr., Blvd exit widened to 2 lanes

3. Westbound I-4 to Southbound I-275 (FPID 445056-2)

- Widen 2-lane ramp from I-4 to SB I-275 to 3 lanes
- Widen shoulders on SB I-275 from Palm Ave. to Jefferson St.

2.1 Purpose and Need

The purpose of the project is to improve safety and mobility within the I-275 at Ashley Drive/Tampa Street and I-275 at I-4 interchanges by providing additional capacity for three critical movements: Southbound I-275 to eastbound I-4 flyover ramp, westbound I-4 to northbound I-275 ramp, and westbound I-4 to southbound I-275 ramp. I-275 and I-4 provide vital regional links between the counties Pasco, Polk, Pinellas, Hillsborough, and Manatee. The study area along I-275 and I-4 represents the spine of the transportation network for the City of Tampa and Hillsborough County and provides access to employment, residential neighborhoods, tourist and recreational destinations, and services. Forecasts from the Tampa Bay Regional Planning Model (TBRPM) project employment to increase 110 percent in Downtown Tampa and 64 percent in the Westshore area from 2015 to 2045. Maintaining access to key business, residential, and activity centers, such as Downtown Tampa and the Westshore area, and improving freeway capacity that will provide reliable travel times along these roadways is crucial to economic development and vitality in the Tampa Bay Region. This SIMR will document the existing conditions in the study area, the future year travel demand forecasts and the analysis of future conditions for the freeway mainlines and ramps within the study area.

The need for this project is to improve safety and alleviate existing traffic congestion and excessive vehicle delays on I-275 and I-4 and the adjacent interchanges. The existing conditions analysis shows that the I-275 southbound and northbound experiences significant congestion and queuing during both the AM and PM peak periods resulting in low travel speeds. Capacity constraints and high traffic demand from single-lane ramp from I-275 southbound to I-4 eastbound causes heavy congestion with low travel speeds and excessive I-275 southbound mainline queuing in the two outermost lanes. Similarly, I-4 westbound experiences significant congestion from the Selmon Expressway off-ramp to I-275 during both AM and PM peak hours. In addition to the I-275 and I-4, several intersections are operating at failing conditions (LOS E or F) along Scott Street, Dr. MLK, Jr. Boulevard, Hillsborough Avenue, and 22nd Street due to the inadequate capacity to accommodate peak hour demand volumes, especially during the PM peak hour.

In addition, the segments of I-275 from Ashley Drive/Tampa Street to north of Dr. MLK, Jr. Boulevard and I-4 from I-275 to the Selmon Expressway Connector exhibit crash rates of 2.007 and 1.236, respectively. These crash rates are above the statewide average of 0.924 for similar interstate facilities across the State of Florida. Ensuring safe and efficient operations along I-275 and I-4 is critical given that these interstates are on the SIS and the Florida Division of Emergency Management has designated I-275 and I-4 as evacuation routes to be used during a disaster.

In summary, the proposed improvements relieve congestion and improve safety for a rapidly growing region in a manner that improves various aspects of the transportation system. These improvements are needed to meet future travel demand that will occur with projected population and employment growth, provide access to economic activity centers, enhance existing and future travel safety, address local arterial traffic congestion, provide system linkages and multimodal connections, while improving regional and interstate travel and mobility.

2.2 Location and Area of Influence

The I-275 at I-4 SIMR study limits extend from the Ashley Drive/Tampa Street interchange to north of Dr. MLK, Jr. Boulevard along I-275 and from I-275 to the Selmon Expressway Connector along I-4. The area of influence (AOI) along I-275 extends south of the interchange influence area of Ashley Drive/Tampa Street to north of the interchange influence area of Hillsborough Avenue interchange, a distance of approximately 4.5 miles and along I-4 from I-275 to the Selmon Expressway Connector west ramps, a distance of approximately 2.0 miles. The AOI was extended to incorporate the adjacent signalized intersections along the cross streets on each side of the interchange ramp terminals. The project location and AOI are shown in **Figure 2-3.**

As per the approved Methodology Letter of Understanding (MLOU), the study area adopted for microsimulation limits along I-275 extends from west of Ashley Drive/Tampa Street to north of Hillsborough Avenue and along I-4 from I-275 to the Selmon Expressway Connector west ramps and includes the following eight interchanges:

- Ashley Drive/Tampa Street
- Orange Avenue/Jefferson Street
- I-4
- Floribraska Avenue
- Dr. Martin Luther King, Jr. Boulevard
- Hillsborough Avenue
- 21st/22nd Street
- I-4/Selmon Connector

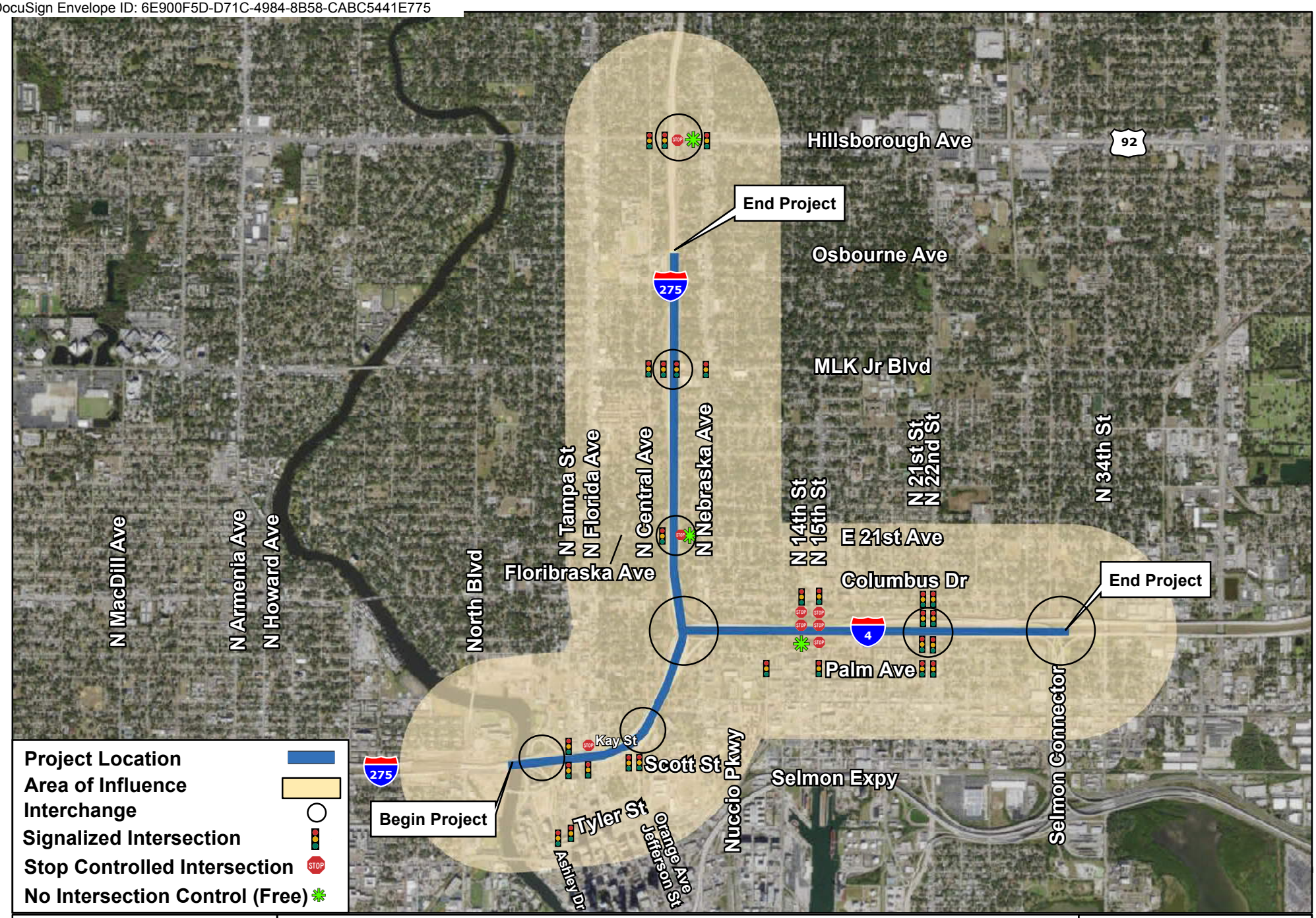
Further, as per the approved MLOU, 38 intersections along the crossroads on each side of the interchange ramp terminals are also included in the study area and are as follows:

- Tyler Street at Ashley Drive

- Tyler Street at Tampa Street
- Scott Street Tampa Street
- Scott Street at Florida Avenue
- Scott Street at Jefferson Street
- Scott Street at Orange Avenue
- Kay Street at Tampa Street
- Kay Street at Florida Avenue*
- Floribraska Avenue at I-275 Southbound off-ramp
- Floribraska Avenue at I-275 Northbound on-ramp**
- Dr. Martin Luther King, Jr. Boulevard at Central Avenue
- Dr. Martin Luther King, Jr. Boulevard at I-275 Southbound on/off-ramps
- Dr. Martin Luther King, Jr. Boulevard at I-275 Northbound on/off-ramps
- Dr. Martin Luther King, Jr. Boulevard at Nebraska Avenue
- Hillsborough Avenue at North Central Avenue
- Hillsborough Avenue at I-275 Southbound on/off-ramps
- Hillsborough Avenue at I-275 Northbound off-ramp (Westbound direction) ***
- Hillsborough Avenue at I-275 Northbound off-ramp (Eastbound direction) **
- Hillsborough Avenue at I-275 Northbound on-ramp***
- Hillsborough Avenue at Nebraska Avenue
- 13th Avenue at 14th Street***
- 13th Avenue at 15th Street*
- 14th Avenue at 14th Street*
- 14th Avenue at 15th Street*
- 15th Avenue at 14th Street*
- 15th Avenue at 15th Street*
- Columbus Drive at 14th Street/17th Avenue
- Columbus Drive at 15th Street
- Palm Avenue at Nuccio Parkway
- Palm Avenue at 15th Street
- Palm Avenue at 21st Street
- Palm Avenue at 22nd Street
- Columbus Drive at 21st Street
- Columbus Drive at 22nd Street
- 14th Avenue at 21st Street
- 14th Avenue at 22nd Street
- 13th Avenue at 21st Street
- 13th Avenue at 22nd Street

**Un-signalized (stop-controlled) intersections.*
*** Only northbound is stop controlled. Other approach movements are free.*
****Un-signalized intersection (free flow/yield movements)*

Currently, the northbound approach at Floribraska Avenue and I-275 northbound on-ramp is stop controlled and all other movements have no control. This intersection is scheduled to be signalized in 2021.



Project Location and AOI

Figure 2-3

3. STUDY METHODOLOGY

3.1 Overview

The MLOU was prepared to document the methodology for the analysis and evaluation used in this SIMR study. The MLOU was approved by the FDOT District 7 Interchange Review Coordinator (IRC), FDOT Central Office, and the FHWA in October 2020. A signed copy of the MLOU is provided in **Appendix A**.

3.2 Analysis Years

The MLOU established the following study years for the operational analysis of this SIMR evaluation:

- Existing year 2018
- Opening year 2025
- Design year 2045

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

- Base year 2010
- Horizon year 2040

3.3 Data Collection

This study utilized the recent data collected for the 2020 I-275 SEIS PTAR. The data collection effort conformed to the Project Traffic Forecasting Handbook (Chapter Two – Traffic Data Sources and Factors). The following are the data collection efforts in the MLOU.

- Transportation System Data
  - Roadway Characteristics Data:
    - Roadway geometry information
    - Functional classification
    - Number of lanes
    - Length of acceleration/deceleration lanes
    - Extent and amount of curvature

    - Posted speed limits
  - Travel time and speed data

- Existing and Historical Traffic Data
  - Existing tube counts on ramps and mainline along I-275 and I-4
  - Existing turning movement counts (TMC) at ramp terminal and adjacent intersections
  - Existing queuing at signals
  - Existing signal timing
  - Existing traffic volumes from other recent studies
  - Historical traffic volumes (FDOT Annual Count Program)

- Control Data
  - Signal timing data
  - Stop/yield sign locations
  - Regulatory/advisory speed limits
  - Guide sign locations

- Field visits

- Land Use Data
  - Existing and future land use data from the Florida Geographic Data Library (FGDL)

3.4 Design Traffic Factors

The design traffic analysis factors include the K, D, T_{24}, T_f, Peak Hour Factor (PHF), and Model Output Conversion Factor (MOCF). The K-factor is the proportion of the Annual Average Daily Traffic (AADT) estimated to occur during the Opening Year and Design Year peak hours, depending upon the area type and facility type. The D-factor is the proportion of traffic traveling in the peak direction for the Opening Year and Design Year's design hour. T_f is the percentage of truck traffic occurring during the peak hours and is estimated as half of the 24-hour truck percentage (T_{24}). PHF is the peak hourly volume during the analysis hour divided by four times the peak 15-minute volume within the analysis hour. The MOCF is the average of Season Factors (SFs) for the 13 consecutive weeks of the year during which the highest weekday volumes occur and when the sum of SFs for those 13 weeks are the lowest. The MOCF is also the inverse of the average SFs for the 13 highest consecutive weeks of the year. The MOCF is used to convert the traffic volumes generated by a travel demand forecasting model in the Peak Season

Weekday Average Daily Traffic (PSWADT) to AADT. The traffic factors used in this SIMR study are presented in **Table 3-1** as obtained from the approved MLOU.

Table 3-1 – Traffic Factors

Roadway	K	D	T_{24}	T_f	PHF	MOCF
I-275	9%	57%	5.5%	2.75%	0.95	0.97
I-4	9%	53.5%	7.5%	3.75%	0.95	0.95
Surface Streets	9%	57%	4.5%	2.25%	0.95	0.97

3.5 Analyzed Alternatives

No-Build Alternative: This alternative considers existing roadway conditions, including any planned or programmed projects anticipated to be constructed within the study area, funded in the FDOT Work Program, and City of Tampa's Capital Improvement Program (CIP). **Section 5.1** summarizes the adjacent projects status by the Opening Year (2025) and Design Year (2045) and included in the No-Build Alternative.

Build Alternative: The Build alternative included in the 2020 I-275 SEIS PTAR is the Build Alternative for this SIMR. This alternative considers safety and mobility improvements within the I-275 at Ashley Drive/Tampa Street and I-275 at I-4 interchanges by providing additional capacity for three critical movements: Southbound I-275 to eastbound I-4 flyover ramp, westbound I-4 to northbound I-275 ramp, and westbound I-4 to southbound I-275 ramp. In addition, these improvements will address the geometrics of the existing interchanges such as ramp acceleration/deceleration lane lengths and vertical profiles as well. **Section 5.2** summarizes the adjacent projects status by the Opening Year (2025) and Design Year (2045) and included in the Build Alternative.

3.6 Traffic Demand Forecasting Methodology

The project traffic forecasting methodology is described below as a four-step process and is consistent with the approved 2020 I-275 SEIS PTAR.

Step 1: Existing Year 2018 traffic counts were compiled, adjusted with seasonal and axle correction factors, and balanced along the study area.

Step 2: Future traffic forecasts were based on the projections from the TBRPM and origin-destination matrix estimation (ODME) subarea model. Model projections were compared to area historical growth rates. The TBRPM model is the model used for the evaluation of

TBNext projects and was proposed for this project to maintain consistency with traffic volume forecasting conducted for Sections 4, 5, 7, and 8 of TBNext.

The TBNext subarea model network was coded to include the No-Build and Build networks. Land use data from the SEIS PTAR was used for the Design Year (2045) traffic forecasts. The socio-economic zonal data was extrapolated from 2040 to reflect 2045 values. The 2045 PSWADT was converted to AADT by applying the MOCF. The resulting growth rate calculated by comparing the 2045 AADT to the existing AADT was compared to the historic growth rates. The 2025 Build and No-Build AADT was calculated by interpolating between the 2045 Build and No-Build AADT, and the existing AADT.

Step 3: Even though there are no express lanes within the study limits, the Florida's Turnpike's Express Lane Time of Day (ELToD) model was used to forecast the split between general use and express lane traffic for roadway segments with express lanes to account for all the express lanes along I-275 upstream of the study area and along I-4 east of the Selmon Connector. The ELToD model network was built to reflect the 2025 and 2045 network and tolling plans. ELToD provides hourly volumes across each hour of the day. The existing hourly distribution of traffic was used as input values for ELToD's hourly assignment. To account for the existing oversaturation of I-275, consideration was given to using a demand K-factor for the AM and PM peak hours.

Step 4: The Directional Design Hour Volumes (DDHVs) for the Opening Year (2025) and Design Year (2045) were calculated by applying the K- and D-factors to the AADTs. DDHVs were compared to ELToD hourly volumes and the express lane traffic splits were estimated using the ELToD outputs. Traffic volumes were then balanced by holding the mainline volumes and adding and subtracting the ramp volumes. The forecasted turning movements were developed by applying existing turning percentages to the intersection approach DDHVs and adjusting, as needed. The DDHVs were balanced and adjusted so that the intersection turns balance with the ramp traffic. The volumes were then balanced along the surface streets. The traffic projections were also checked for reasonableness.

3.7 Traffic Operational Analysis Methodology

3.7.1 Calibration Methodology

The model calibration process and calibration targets used for this study are discussed in this section. The calibration criteria listed in the FDOT Traffic Analysis Handbook (2021) was used to determine calibration targets. **Table 3-2** provides the CORSIM model calibration criteria.

Table 3-2 – Model Calibration Criteria

Criteria and Measures	Calibration Acceptable Targets
1. Simulated Capacity	Within 10% of the field measurement
2. Hourly Flows, Model versus Observed	
a) Individual Link Flows, model versus demand	
➢ Within 15%, for 700 veh/h<Flow<2,700 veh/h	85% of cases
➢ Within 100 veh/h, for Flow<700 veh/h	85% of cases
➢ Within 400 veh/h, for Flow>2,700 veh/h	85% of cases
b) Sum of all link flow	Within 5% of sum of all link counts
c) GEH Statistic < 5 for individual link	85% of cases
d) GEH Statistic for sum of all Link Flows	*GEH<5 for sum of all link counts
3. Travel Times, Speed, Model Versus Observed	
➢ Travel Time, within 15% (or 1 min, if higher)	85% of cases
➢ *Travel Speed, within 10 mph	85% of cases
4. Visual Audits	
➢ Bottlenecks, visually acceptable queuing	To analyst's satisfaction

*The GEH statistic is computed as follows:

$$GEH = \sqrt{\frac{(E-V)^2}{(E+V)/2}}$$

where: E = model estimated volume; V = field count.

3.7.2 Selection of Measures of Effectiveness (MOE)

A detailed operational analysis was performed for all analysis years for the No-Build and Build Alternative. The operational analysis considered all the relevant FDOT design standards and determination of the delay using the CORSIM microsimulation. Highway Capacity Manual (HCM), 6th Edition thresholds for MOEs were used to determine the level of service (LOS) from the CORSIM microsimulation models. A direct comparison of microsimulation based LOS cannot be made, hence the microsimulation density is converted to passenger car mile per lane (pcpmpl) as per the guidance provided in Section 9.5.1 of *FDOT Traffic Analysis Handbook*. The CORSIM microsimulation analysis was performed for the I-275 and I-4 mainlines, ramps, and weaving segments for the Opening Year (2025) and Design Year (2045). Additionally, SYNCHRO analysis was performed for the surface streets and intersections for all analysis years.

The simulation model was modified accordingly to reflect future build conditions. A four-hour AM and PM peak period analysis was conducted using 15-minute flow rates with CORSIM microsimulation for Opening Year (2025) and Design Year (2045) conditions.

The adopted LOS target was LOS "D" for roadways in urban areas. If an acceptable LOS (LOS D or better) was not achievable, then other measures of effectiveness (MOEs) such as throughput, density, speed, and travel time, as applicable for the Build Alternative, were provided comparing with the No-Build Alternative in the same analysis years.

The following MOEs were used to evaluate the performance of the alternatives and were reported as listed below:

- Freeway Segments, Ramps, Weaving Areas (CORSIM)
  - Processed traffic volume
  - Estimated density
  - Speed
  - Travel time

- System Level Operational Performance – A system level performance comparison of the No-Build and Build Alternatives were performed comparing the following network-wide MOEs (CORSIM):
  - Traffic volume summary
  - System-wide average delay (delay per vehicle-mile)
  - System-wide average speed (average speed)
  - System-wide travel time summary (travel time per vehicle-mile)
  - Link level operational performance – A link level performance comparison of the No-Build and Build Alternative was performed comparing operational performance of alternatives at a link level using the following MOEs:
    - Link level speed evaluation using heat diagrams.
    - Link level density evaluation using heat diagrams. All weave segments were closely analyzed to FDOT District Seven and Central Office's satisfaction.
    - Link level throughput evaluation

- Ramp Terminal Intersections and Adjacent Intersections (SYNCHRO)
  - Intersection and approach delays
  - 95th percentile queue Lengths

4. EXISTING CONDITONS

4.1 Roadway Network and Existing Lane Configuration

The existing transportation network within the study area consists of the interstate highways of I-275 and I-4 with eight interchanges and surface streets with 38 intersections. Functional classification and posted speed limits for major roadways within the study limits are presented in **Table 4-1.** I-275 runs east-west south of the I-4 interchange and north-south north of the I-4 interchange within the study limits. I-4 runs east-west within the entire study limits. The number of lanes on I-275 vary from two to five lanes in either direction while I-4 consists of four lanes in each direction within the study area. **Figure 4-1** illustrates the lane geometry of Existing Year (2018).

Table 4-1 – Functional Classification and Posted Speed Limit of Major Roadways

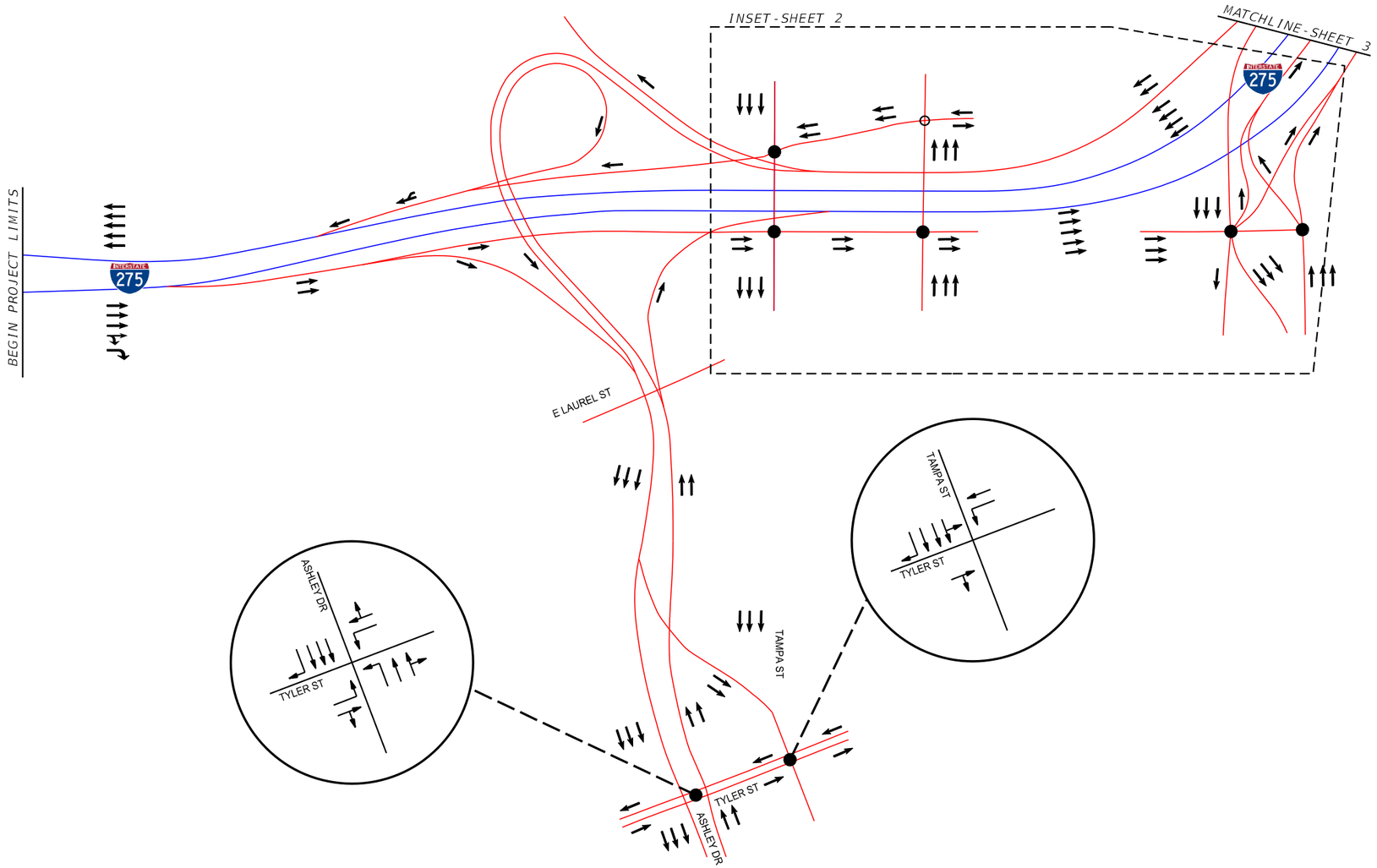
No.	Roadways	Functional Classification	Posted Speed (mph)
1.	I-275[1]	Urban Principal Arterial - Interstate	50-55
2.	I-4[2]	Urban Principal Arterial - Interstate	50-55
3.	Floribraska Avenue	Urban Minor Collector	30
4.	Dr. MLK, Jr. Boulevard	Urban Principal Arterial	35
5.	Hillsborough Avenue[3]	Urban Principal Arterial	40
6.	N Orange Avenue	Urban Major Collector	30
7.	N Tampa Street/N Ashley Drive	Urban Minor Arterial	30
8.	Nuccio Parkway/N 14th & 15th Street	Urban Major Collector	35
9.	N 21st Street/N 22nd Street	Urban Minor Arterial	30
10.	E Columbus Drive	Urban Major Collector	40

1. *South of N Orange Avenue: 55 mph, N Orange Ave to south of Dr. MLK, Jr. Boulevard: 50 mph, Dr. MLK, Jr. Boulevard to Hillsborough Ave: 55 mph*
2. *50 mph on I-4 up till 21st Street overpass and 55 mph east of the 21st Street overpass.*
3. *Hillsborough Avenue is included in the microsimulation limits*

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE

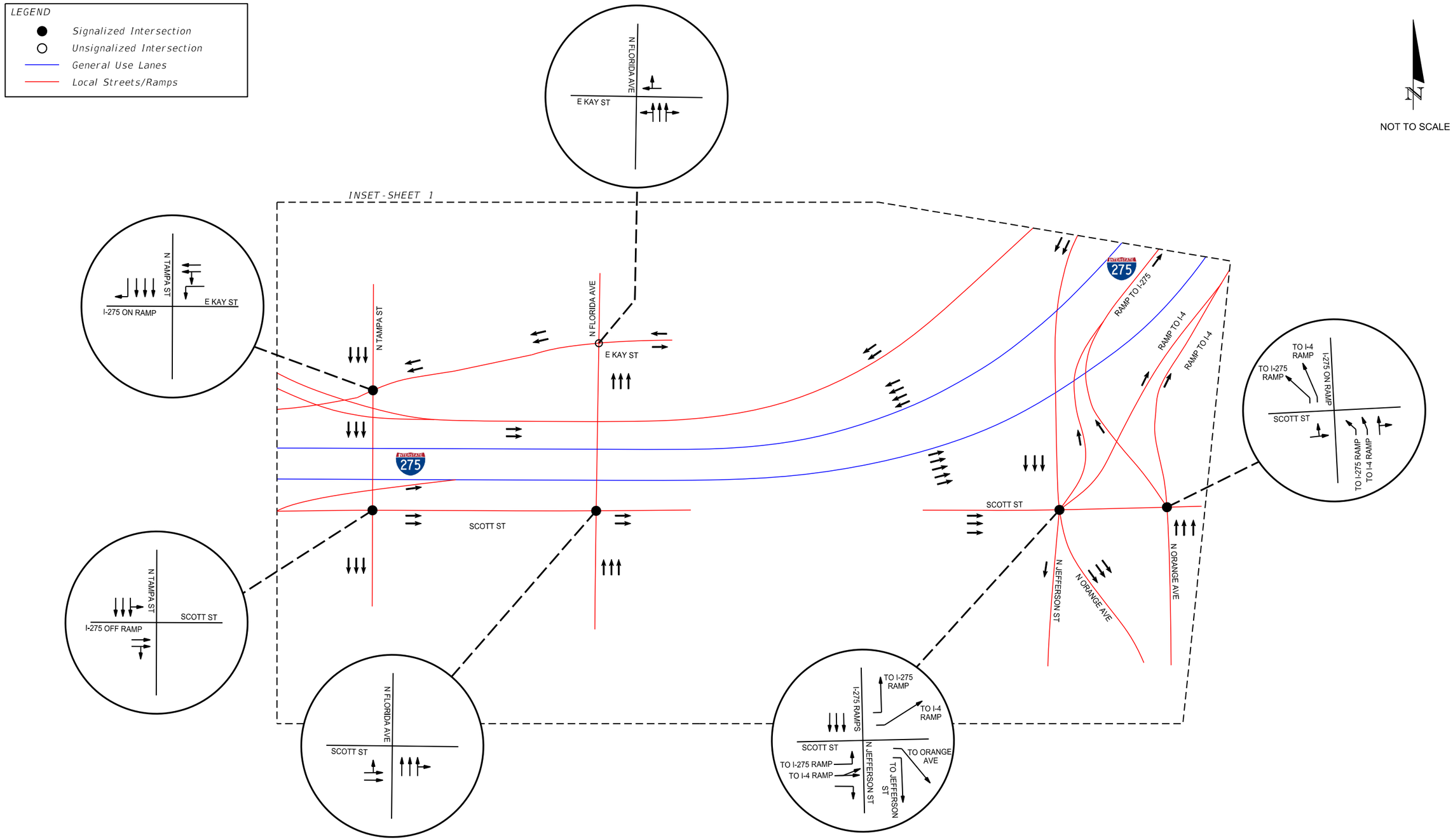


FDOT

Existing Year (2018) – Lane Geometry
I-275 at I-4 SIMR

Figure 4-1

Sheet 1 of 9

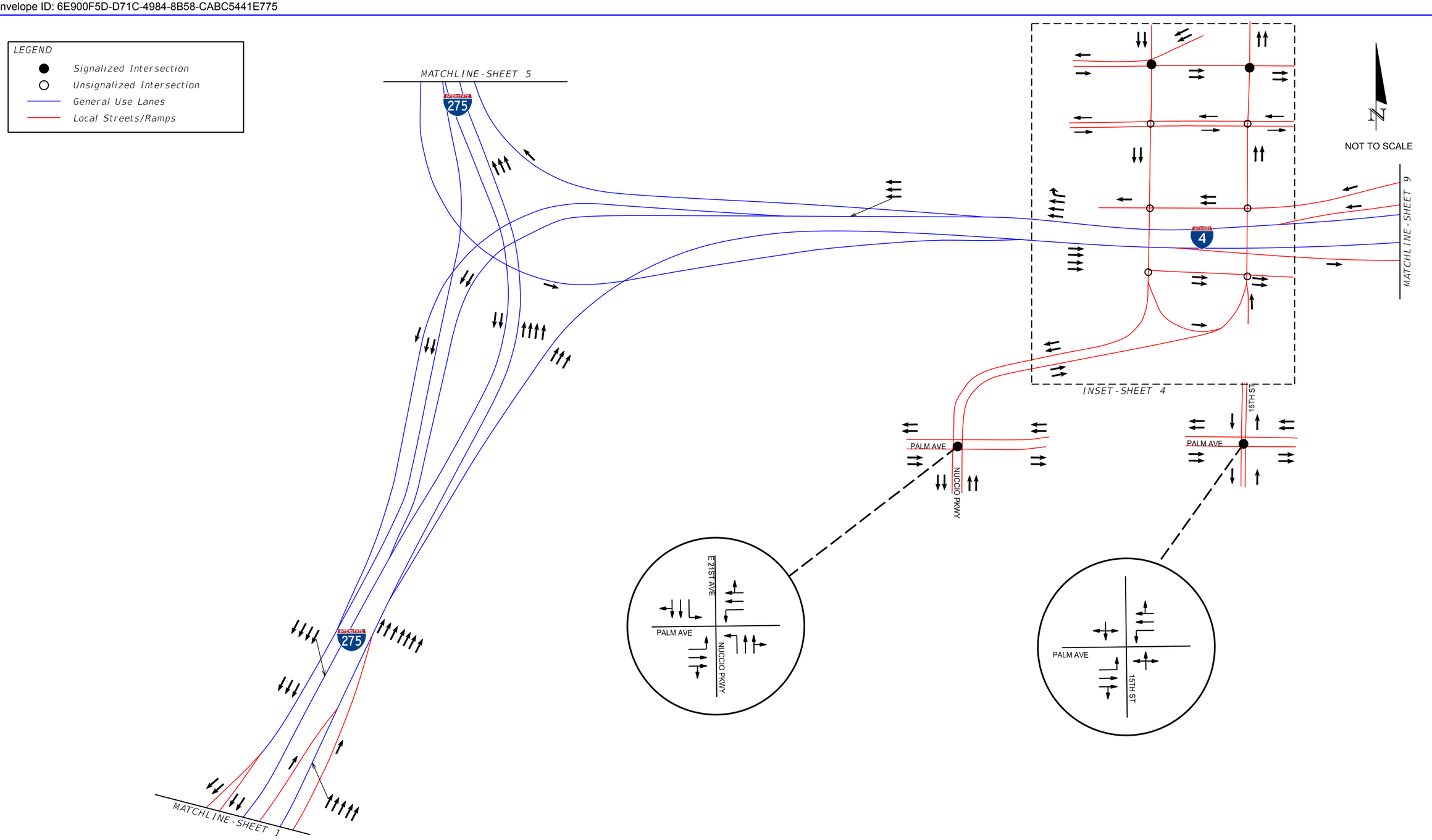


FDOT

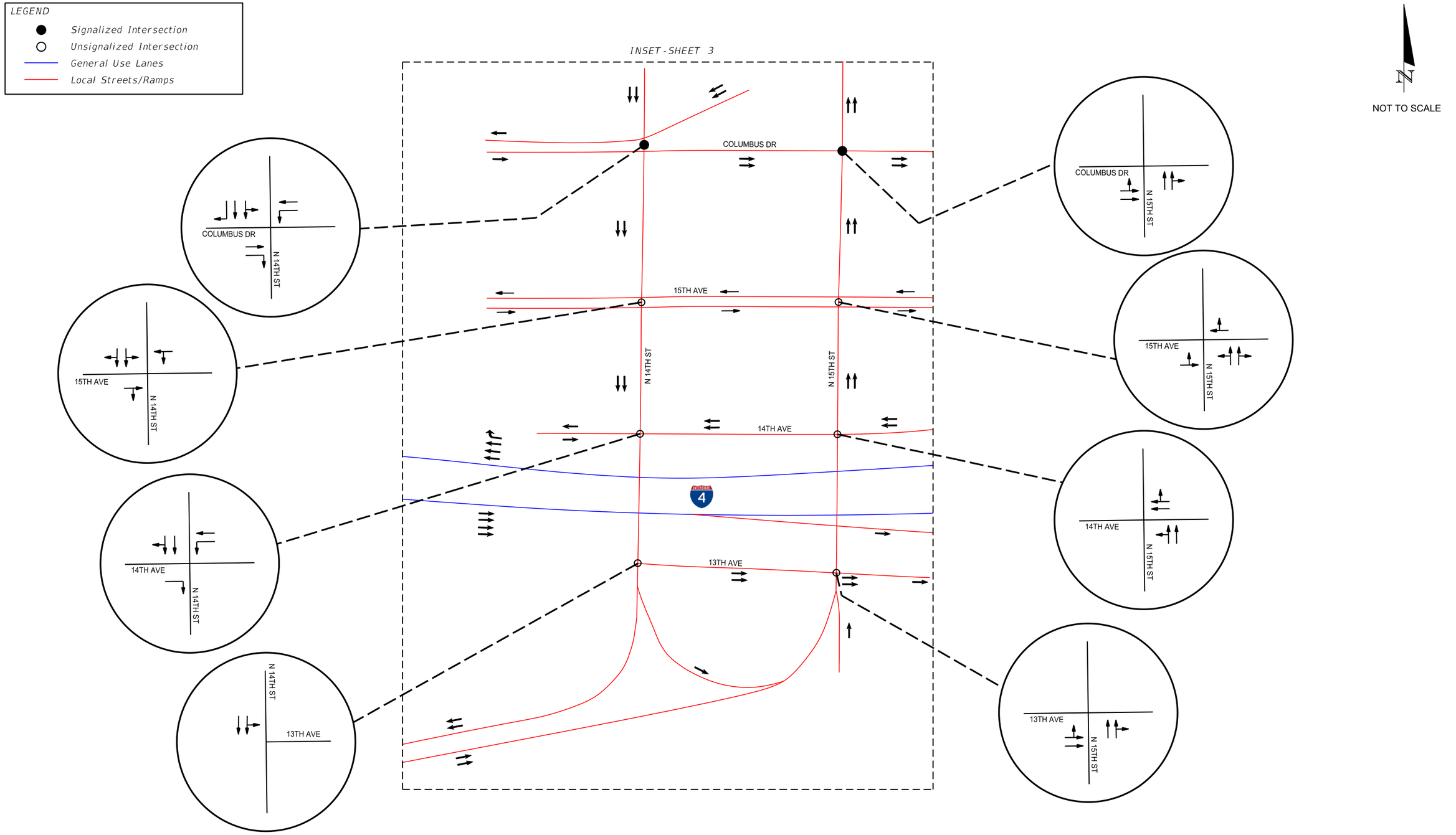
Existing Year (2018) – Lane Geometry
I-275 at I-4 SIMR

Figure 4-1

Sheet 2 of 9



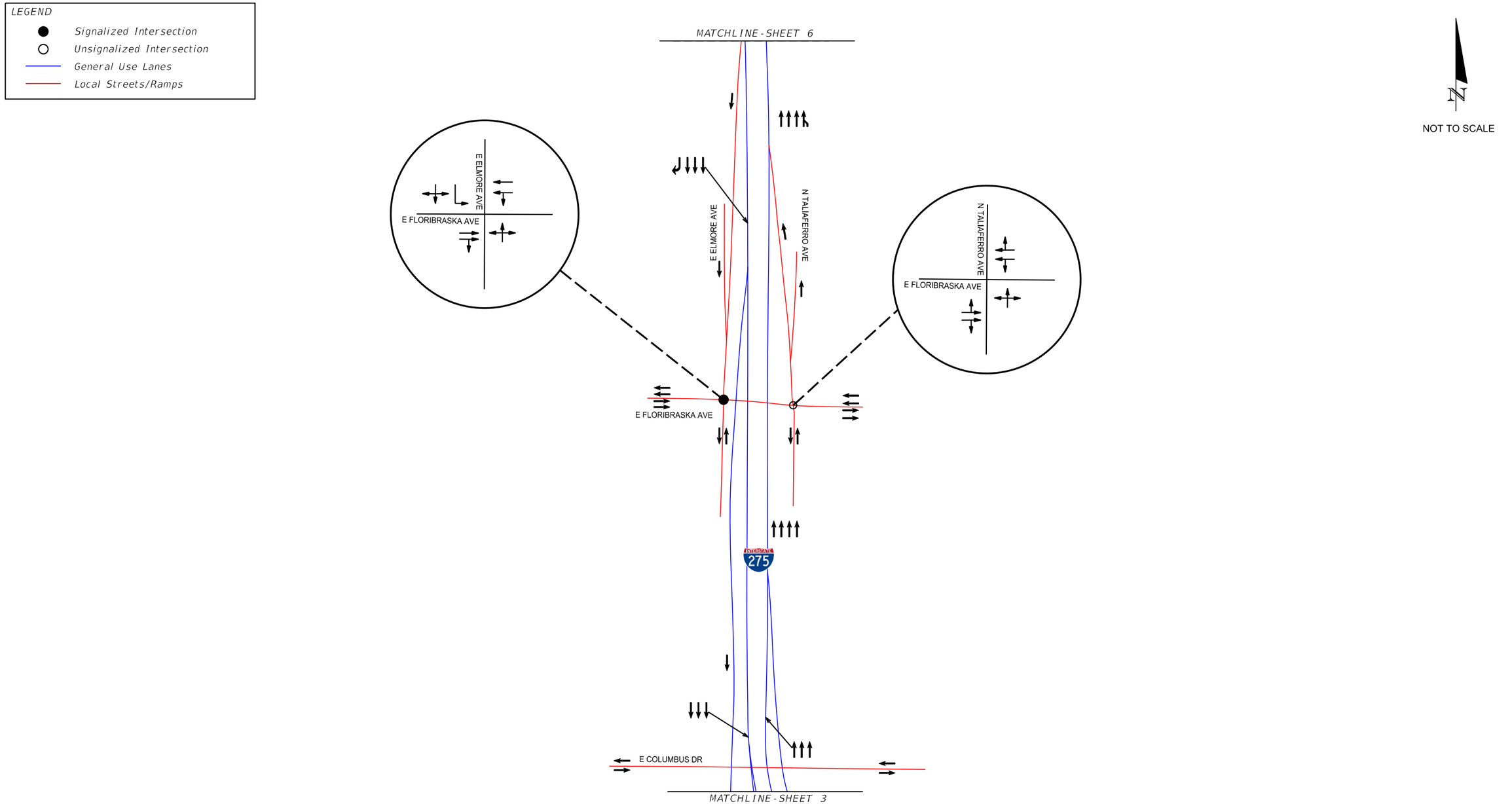
FDOT	Existing Year (2018) – Lane Geometry I-275 at I-4 SIMR	Figure 4-1	Sheet 3 of 9



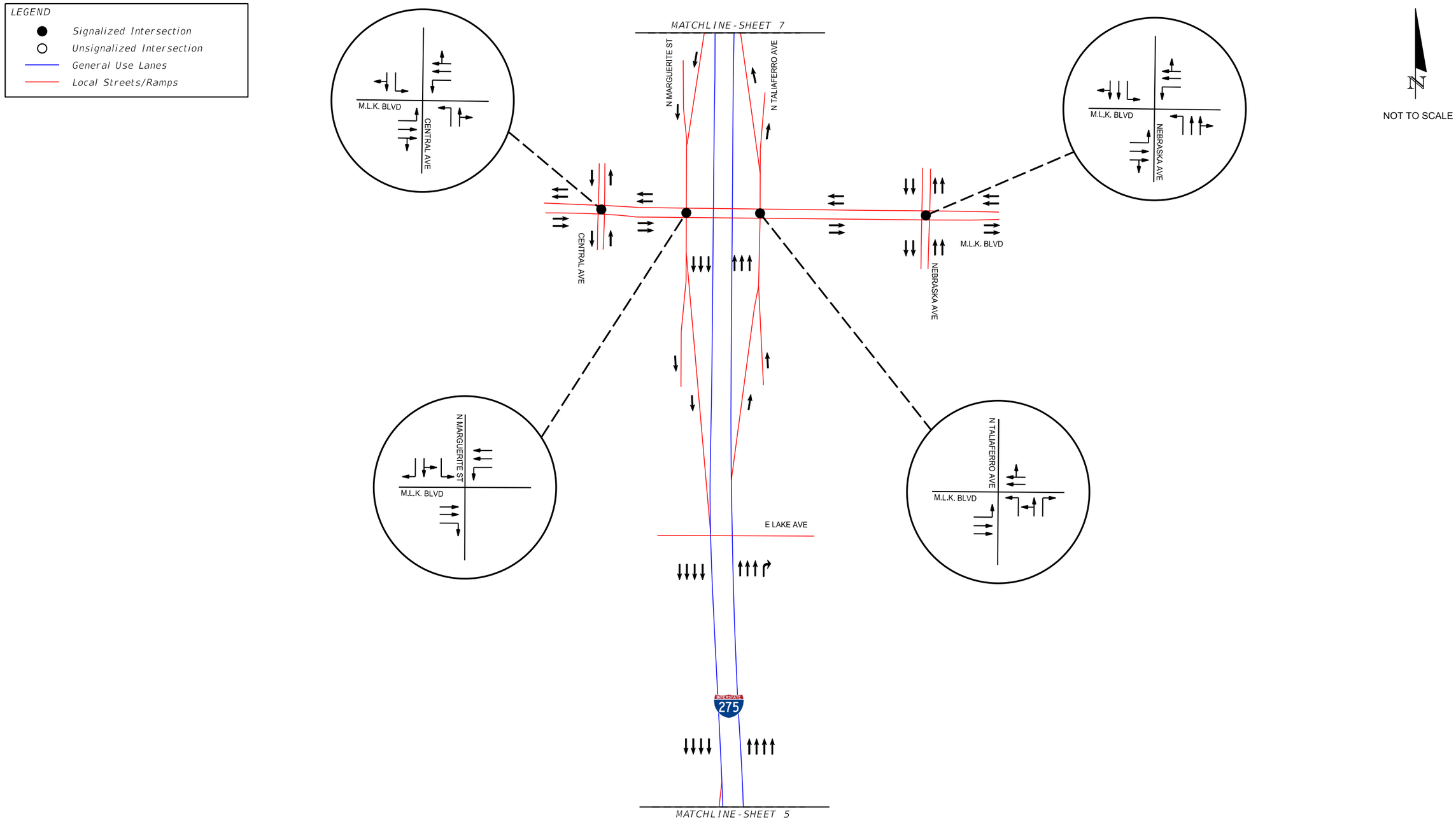
Existing Year (2018) – Lane Geometry
I-275 at I-4 SIMR

Figure 4-1

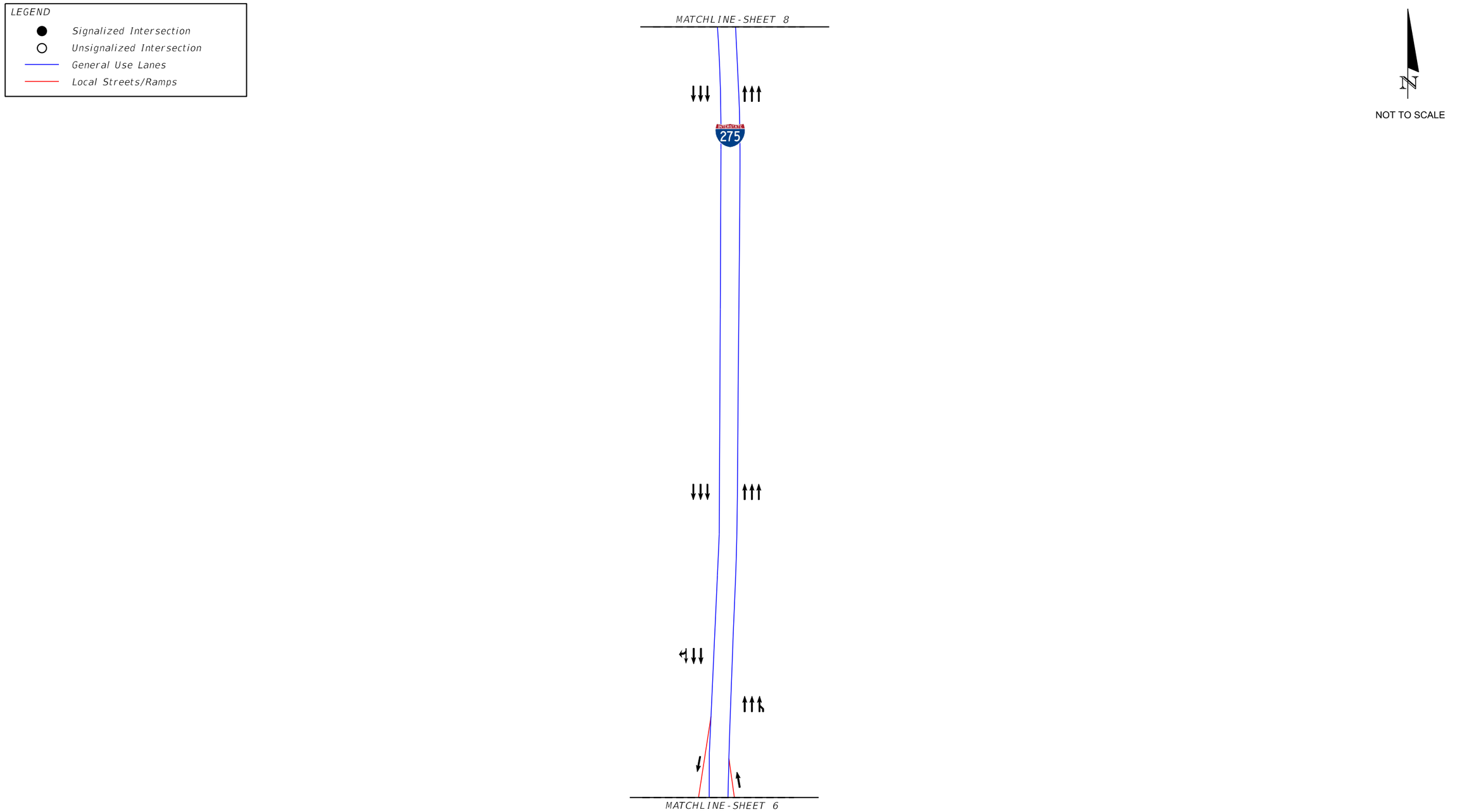
Sheet 4 of 9



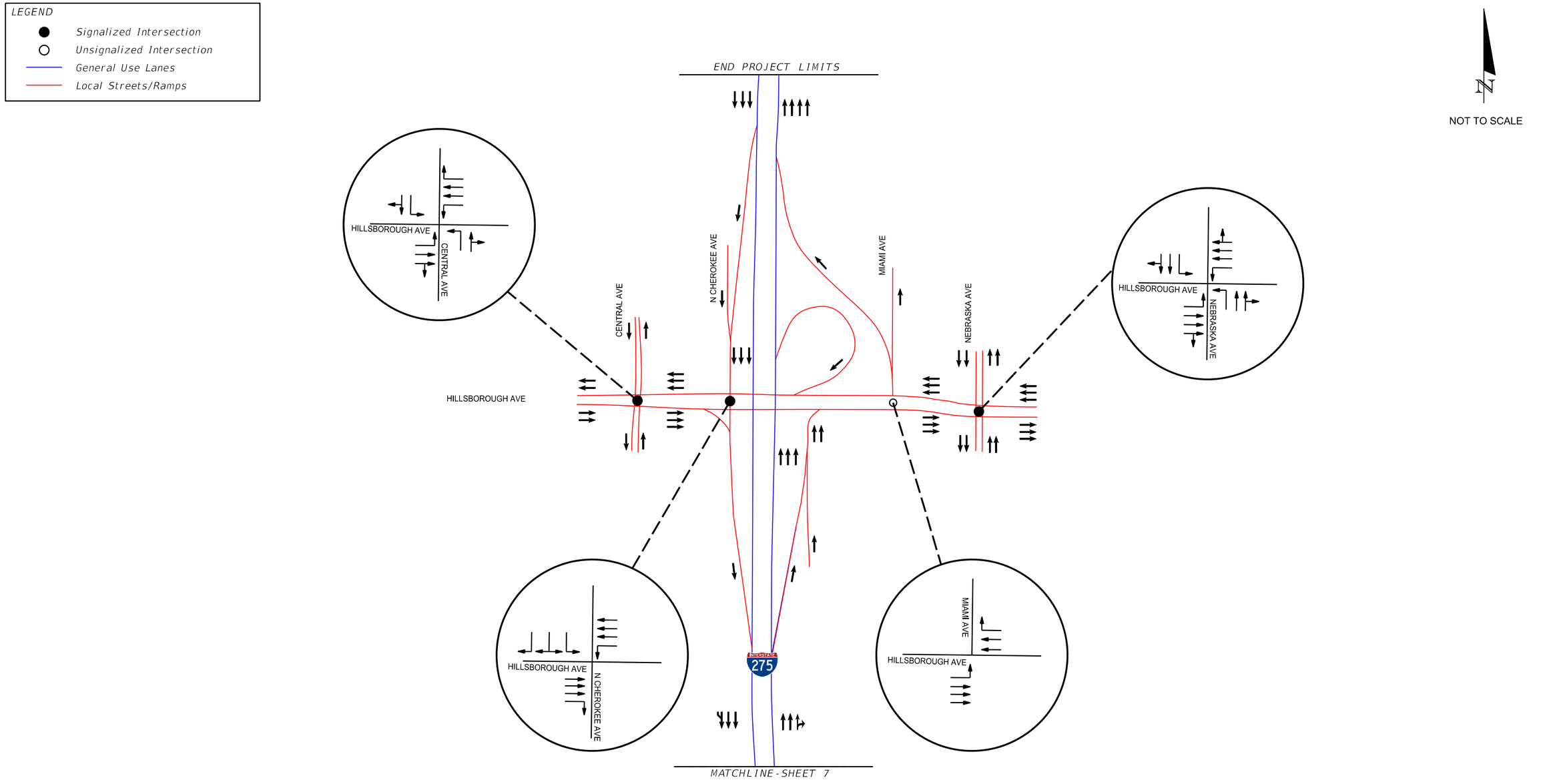
FDOT	Existing Year (2018) – Lane Geometry I-275 at I-4 SIMR	Figure 4-1	Sheet 5 of 9



FDOT	Existing Year (2018) – Lane Geometry I-275 at I-4 SIMR	Figure 4-1	Sheet 6 of 9



FDOT	Existing Year (2018) – Lane Geometry I-275 at I-4 SIMR	Figure 4-1	Sheet 7 of 9



FDOT	Existing Year (2018) – Lane Geometry I-275 at I-4 SIMR	Figure 4-1	Sheet 8 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE

MATCHLINE - SHEET 3

COLUMBUS DR
N 21ST ST
N 22ND ST
E 14TH AVE
E 13TH AVE
PALM AVE

END PROJECT LIMITS

TOLL 618

Existing Year (2018) – Lane Geometry
I-275 at I-4 SIMR

Figure 4-1

Sheet 9 of 9

4.2 Field Observations During Peak Hours

Field visits were conducted during the AM and PM peak periods on Tuesday, August 21, 2018 through Thursday, August 23, 2018. The purpose of field observations was to visually assess the traffic conditions of the study area, to collect traffic signal timing information at study intersections, and to conduct travel time runs within the study limits of the I-275 and I-4 corridors. The study limits for travel time extended from Ashley Drive/Tampa Street to Hillsborough Avenue on I-275 and from the I-275 Interchange to Selmon Expressway Connector west ramps on I-4.

Existing roadway characteristics such as the number of lanes, length of turn bays, lane width, and sight distances were also observed during the field visits. Key observations along major study corridors (I-275 and I-4) from the field visits are summarized below.

4.2.1 I-275 Segment – From Ashley Drive/Tampa Street to Hillsborough Avenue

- Overall, traffic delays during the PM peak hour were higher compared to the AM peak hour. Due to the directionality, I-275 southbound is more congested than I-275 northbound during the AM peak hour and I-275 northbound is more congested than I-275 southbound during the PM peak hour.

- Average speeds of 57 mph and 22 mph were observed along I-275 northbound during the AM and PM peak hours, respectively.

- Heavy congestion was observed during the PM peak hour along I-275 northbound, prior to Ashley off-ramp and I-275 exit to I-4.

- Average speeds of 42 mph and 33 mph were observed along I-275 southbound during AM and PM peak hours, respectively.

- Heavy delays were observed during the AM and PM peak hour along I-275 southbound prior to the exit to I-4 eastbound, and the section of I-275 southbound from the I-4 westbound on-ramp. This is a critical segment for this facility due to high traffic volumes from westbound I-4 and southbound I-275 merging.

4.2.2 I-4 Segment – From I-275 to Selmon Expressway Connector West Ramps

- Overall, traffic delays along I-4 westbound were higher than the I-4 eastbound segment during both the AM and PM peak hours.

- The average speeds along I-4 westbound were slower during the AM peak hour than during the PM peak hour. The observed average speeds along I-4 westbound were 16 mph and 32 mph during the AM and PM peak hours, respectively.

- Critical bottleneck leading to congestion was experienced on the I-4 westbound segment from the Selmon Connector to the I-4 off-ramp to I-275 southbound caused by high exiting traffic volumes and reduced speeds on the off-ramp due to horizontal alignment.

- Average speeds of 59 mph and 56 mph were observed along I-4 eastbound during the AM and PM peak hours, respectively.

4.3 Peak Hour Volumes

Mainline, ramp counts, and intersection TMCs collected in 2018 for the approved I-275 SEIS PTAR were utilized. These counts include mainline and ramp Automatic Data Recorder (ADR) counts and intersection TMCs. These counts were collected in accordance with the guidelines in the FDOT Project Traffic Forecasting Handbook. The counts were collected for a 72-hour period on the mainline, ramps, and surface streets. The TMCs were collected at the AOI intersections for eight hours from 7:00-10:00 AM, 11:00 AM-1:00 PM and 3:00-6:00 PM on a typical weekday (Tuesday, Wednesday or Thursday). The raw traffic counts were adjusted by applying seasonal and axle correction factors and can be found in the Calibration Memo found in **Appendix B**.

4.3.1 Traffic Counts

Various count methods were utilized that include 72-hour mainline radar count locations, 72-hour ramp tube count locations, and 24-hour surface street tube count locations. Additionally, 8-hour TMCs were collected for all the intersections within the area of influence. In addition, Origin-Destination (O-D) StreetLight data from the approved SEIS PTAR was used as part of the analysis.

4.3.2 Determination of Peak Periods

The AM and PM peak periods were determined using the 72-hour counts and 8-hour TMCs and were taken as 5:30 am to 9:30 am and 2:30 pm to 6:30 pm, respectively. An assessment of the mid-day peak was also conducted which revealed that volumes during mid-day peak period were much lower compared to the AM and PM peak periods. Hence, for this study only AM and PM peak periods were selected for analysis. Even though, traffic from 2:30 pm– 3:30 pm is higher due to the current travel patterns seen from the counts, most of the traffic during that time is school related and other non-commuter related traffic. Since the study area is within the vicinity of the downtown area, most of the traffic from the interchanges within the study area has higher traffic during the peak hour (4:30pm-5:30 pm). This is also consistent with the approved NEPA SEIS analysis.

4.3.3 Annual Average Daily Traffic

The mainline and ramp daily counts were adjusted with seasonal and axle correction factors to estimate the AADTs along I-275 and I-4. The estimated AADTs for the mainline and the ramps are presented in **Figure 4-2.**

4.3.4 Peak Hour Demand Volumes

The Existing Year 2018 design hour demand volumes were developed using the following data and process:

- Based on the balanced Existing Year (2018) AADT count information, the standard K-factor of 0.09 and respective D-factors for each corridor were applied to the ramp volumes to estimate the peak hour demand traffic during 2018.

- Existing Year (2018) peak direction information was utilized based on the counts to estimate the AM and PM peak hour ramp volumes.

- Utilizing the ramp volumes, AM and PM peak hour volumes for Existing Year (2018) demand volumes were balanced across the study area (mainline, ramps and ramp terminals).

- Similar to the methodology used for peak hour ramp volumes, peak hour turning movement percentages from counts were used for determining the Existing Year (2018) AM and PM design hour turning movement volumes at the surface streets intersections.

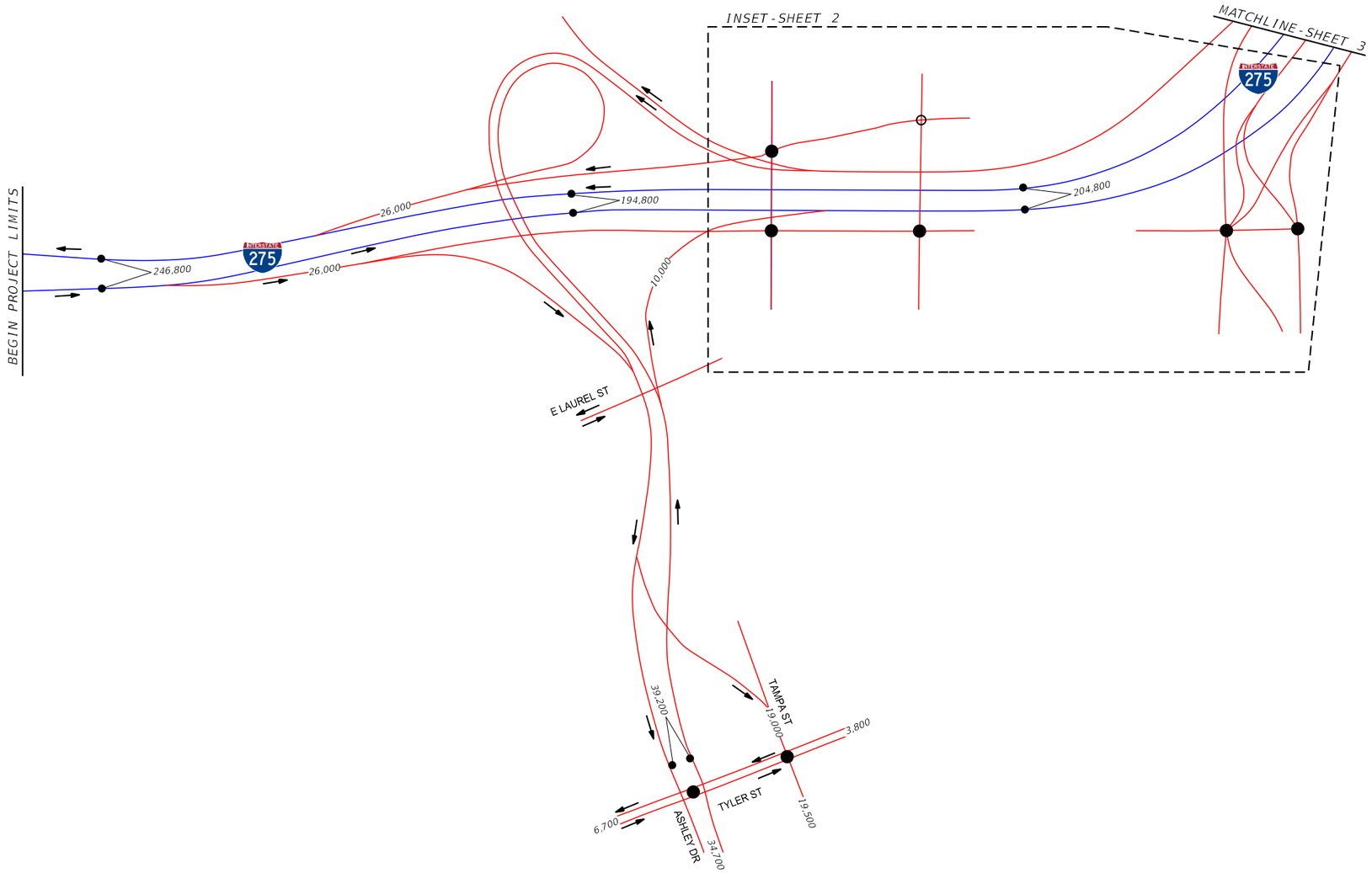
- Developed Existing Year (2018) demand traffic volumes were utilized for evaluating existing traffic conditions.

Figure 4-3 shows the Existing Year (2018) DDHV for the study area.

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE



Existing Year (2018) – AADTs
I-275 at I-4 SIMR

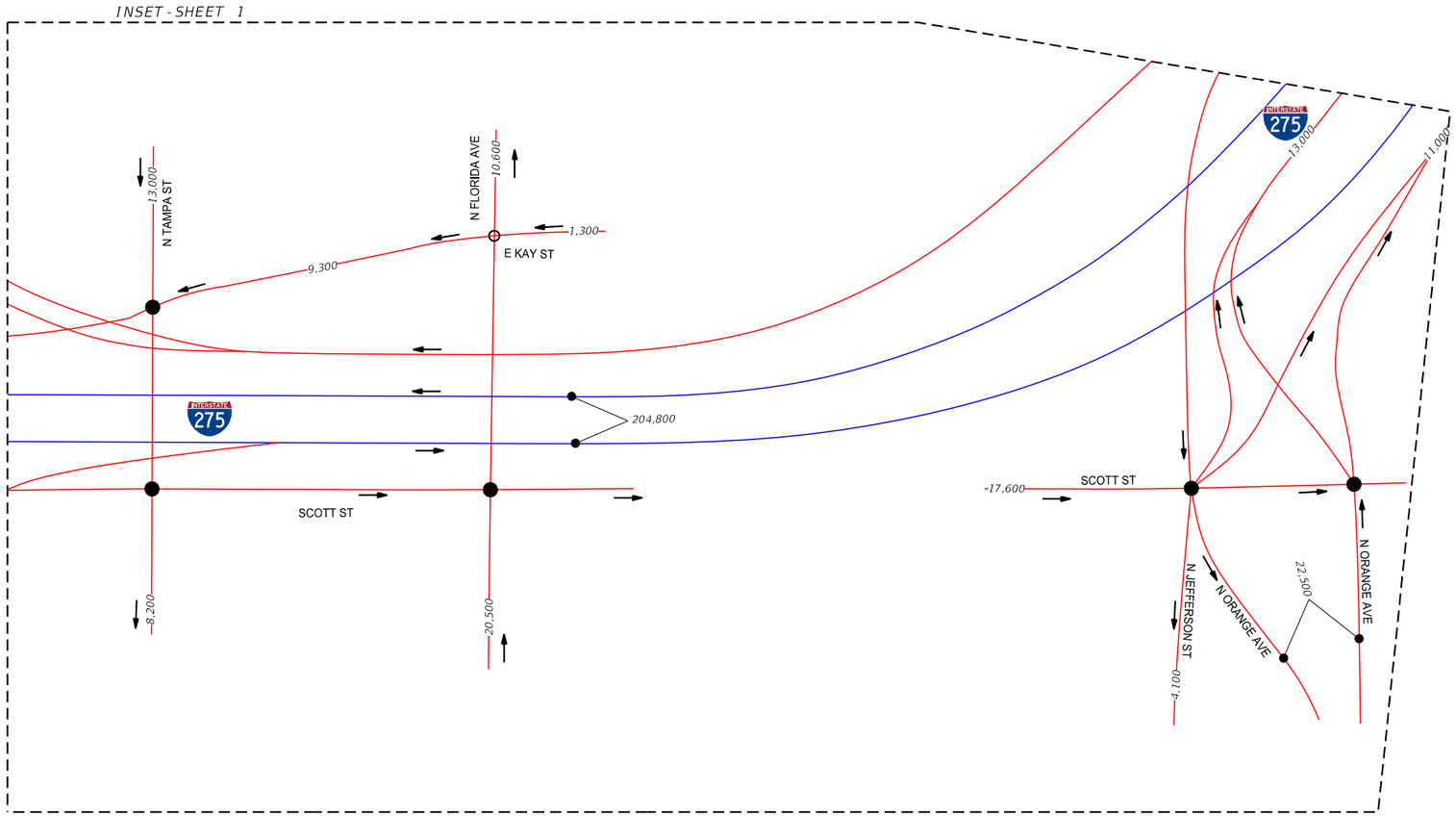
Figure 4-2

Sheet 1 of 9

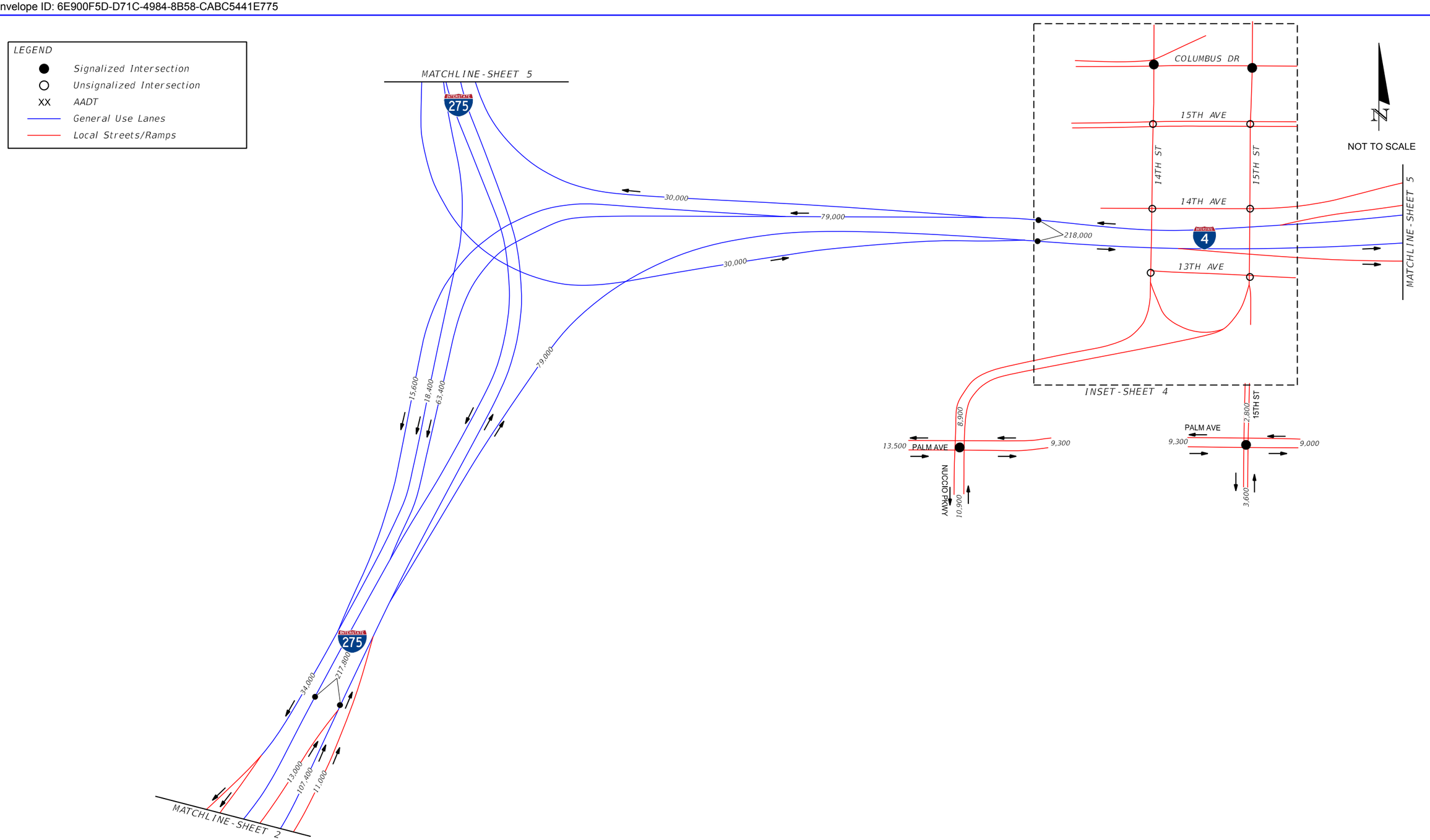
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE



FDOT	Existing Year (2018) – AADTs I-275 at I-4 SIMR	Figure 4-2	Sheet 2 of 9

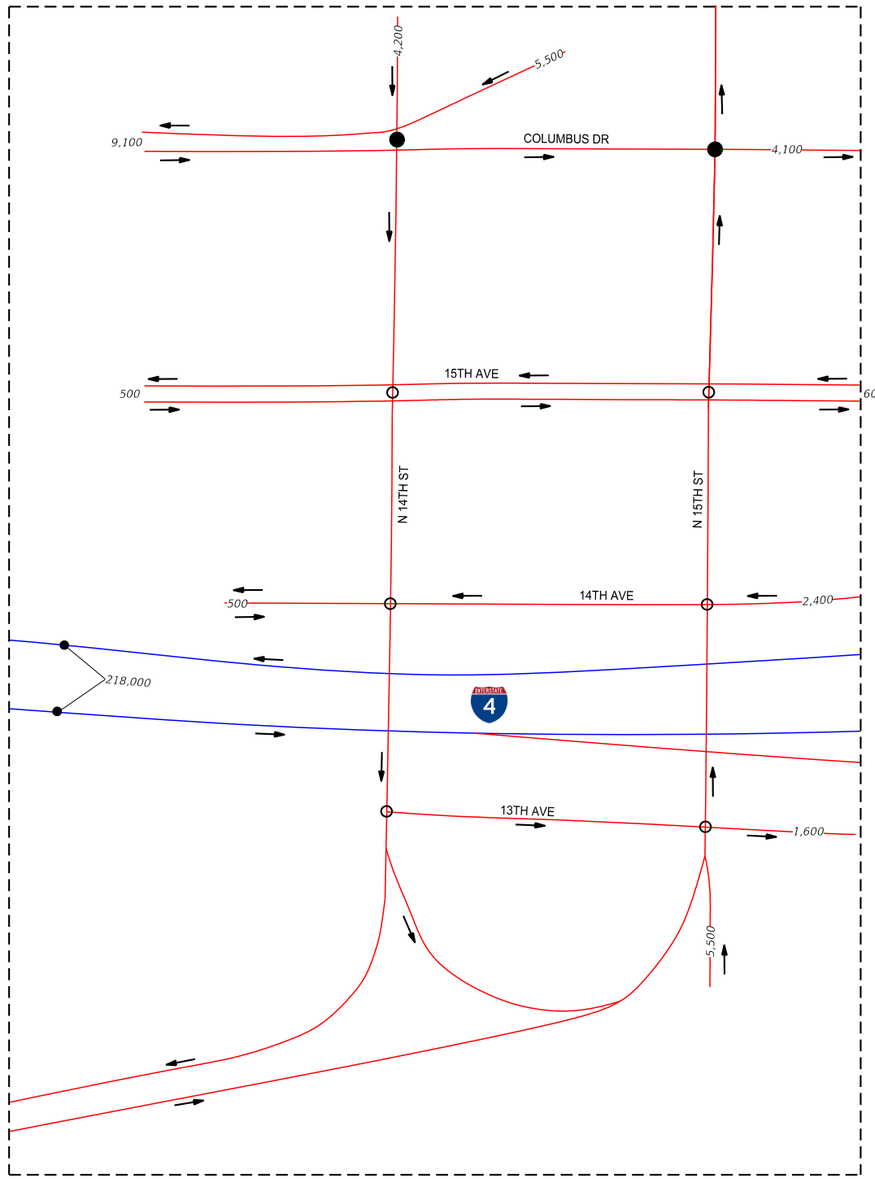


FDOT	Existing Year (2018) – AADTs I-275 at I-4 SIMR	Figure 4-2	Sheet 3 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps

INSET - SHEET 3



NOT TO SCALE

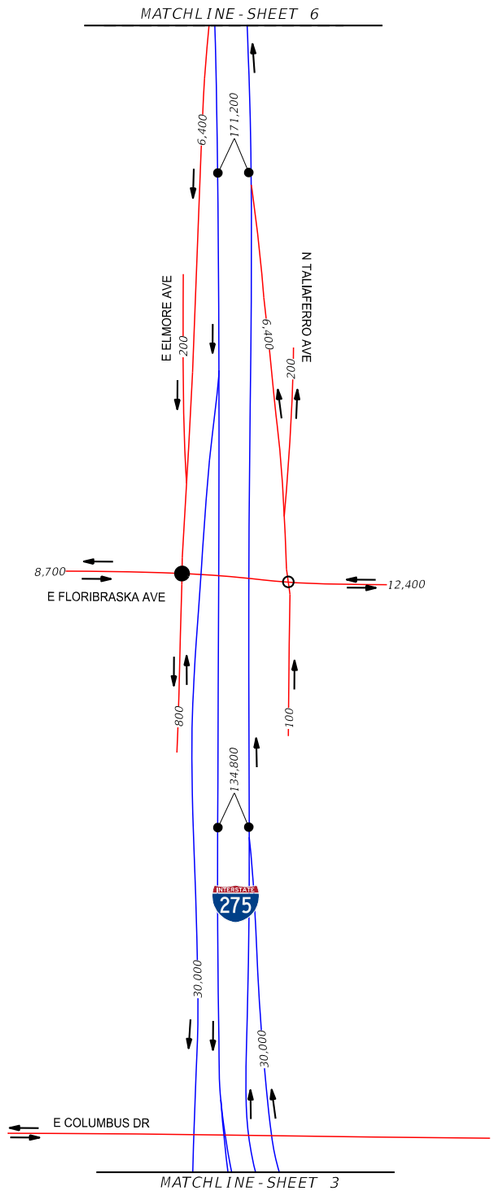
Existing Year (2018) - AADTs
I-275 at I-4 SIMR

Figure 4-2

Sheet 4 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

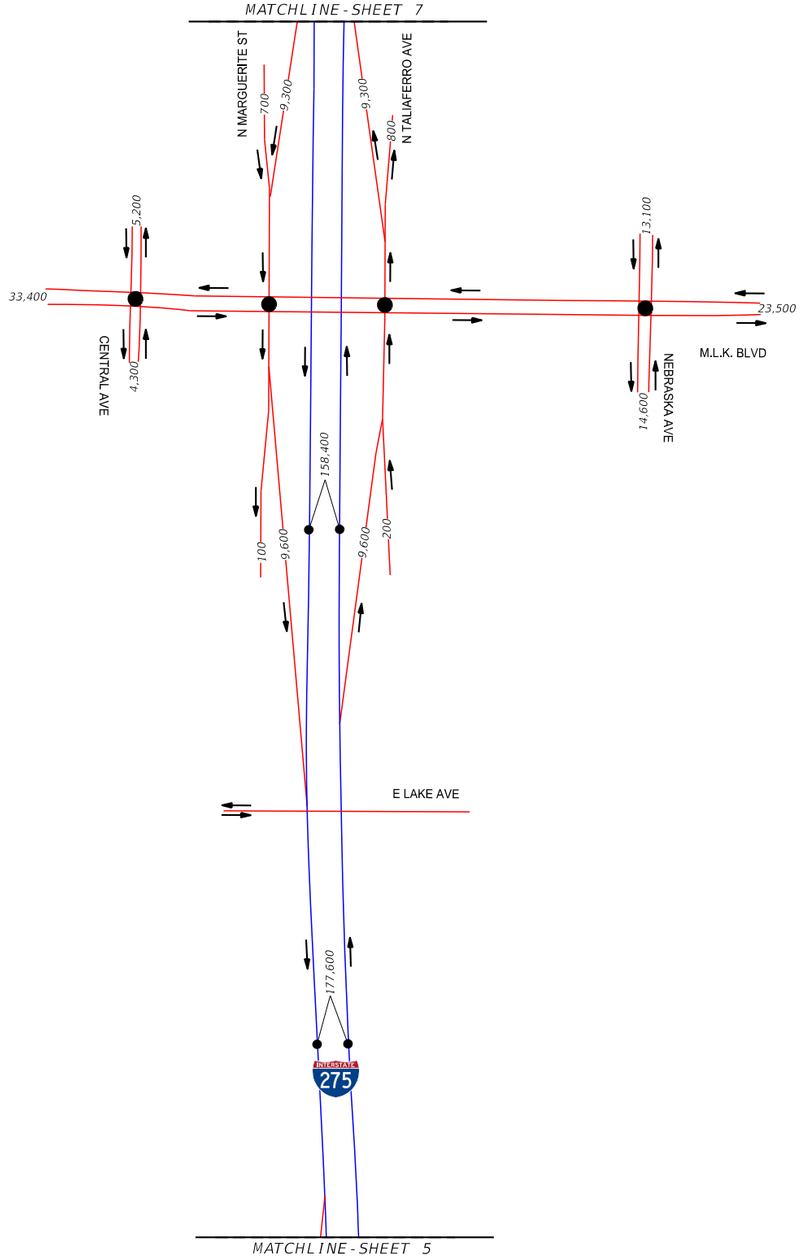
Existing Year (2018) – AADTs
I-275 at I-4 SIMR

Figure 4-2

Sheet 5 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps

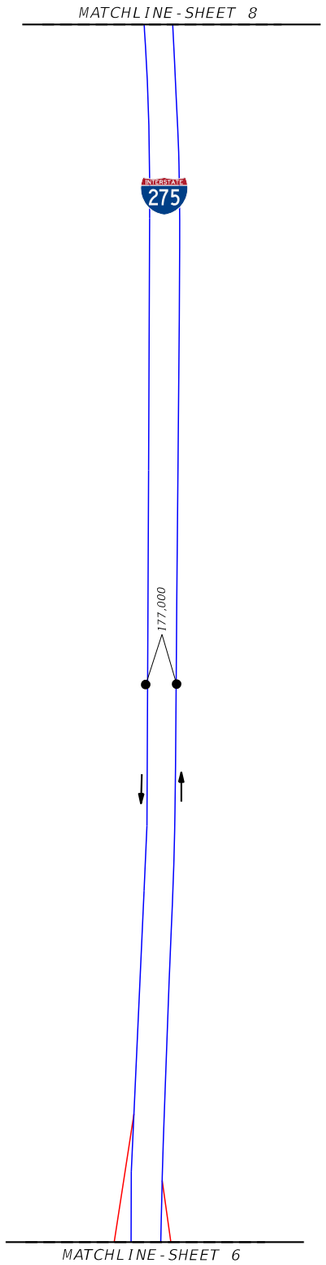


NOT TO SCALE

FDOT	Existing Year (2018) – AADTs I-275 at I-4 SIMR	Figure 4-2	Sheet 6 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps

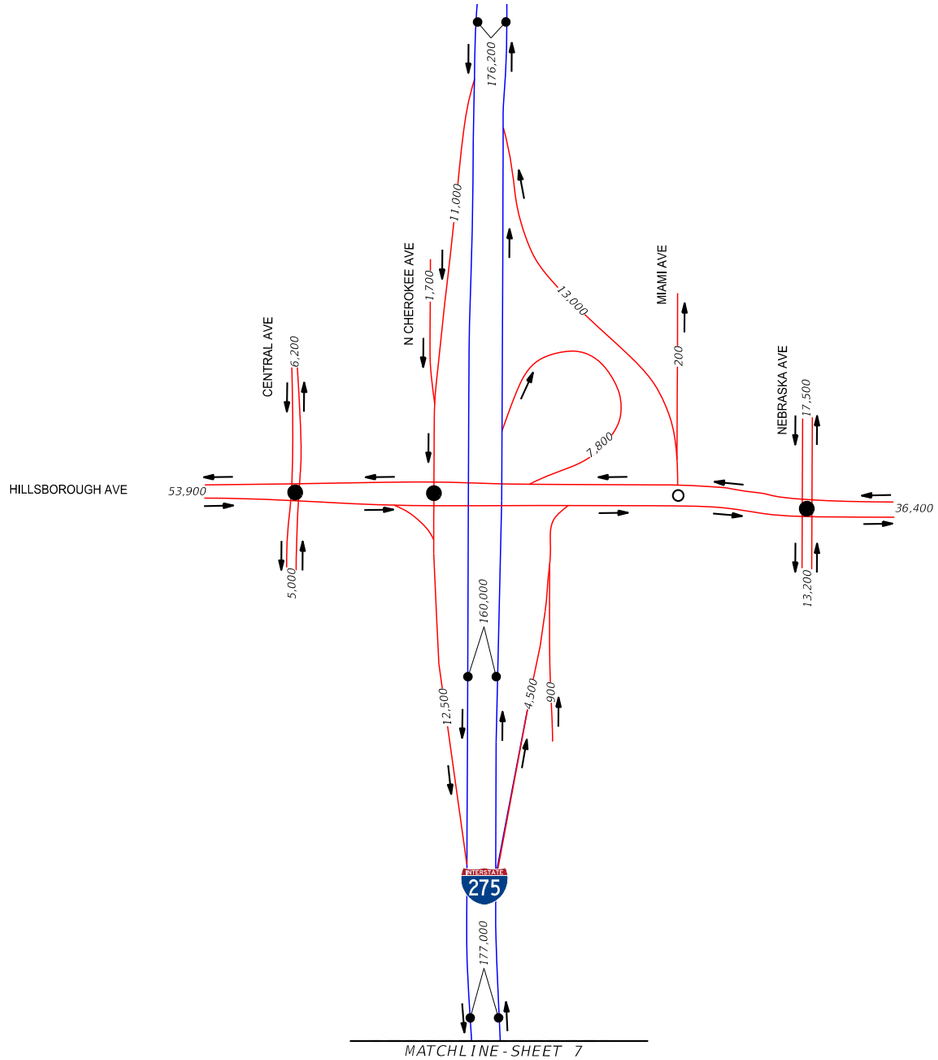


NOT TO SCALE

FDOT	Existing Year (2018) – AADTs I-275 at I-4 SIMR	Figure 4-2	Sheet 7 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

Existing Year (2018) – AADTs
I-275 at I-4 SIMR

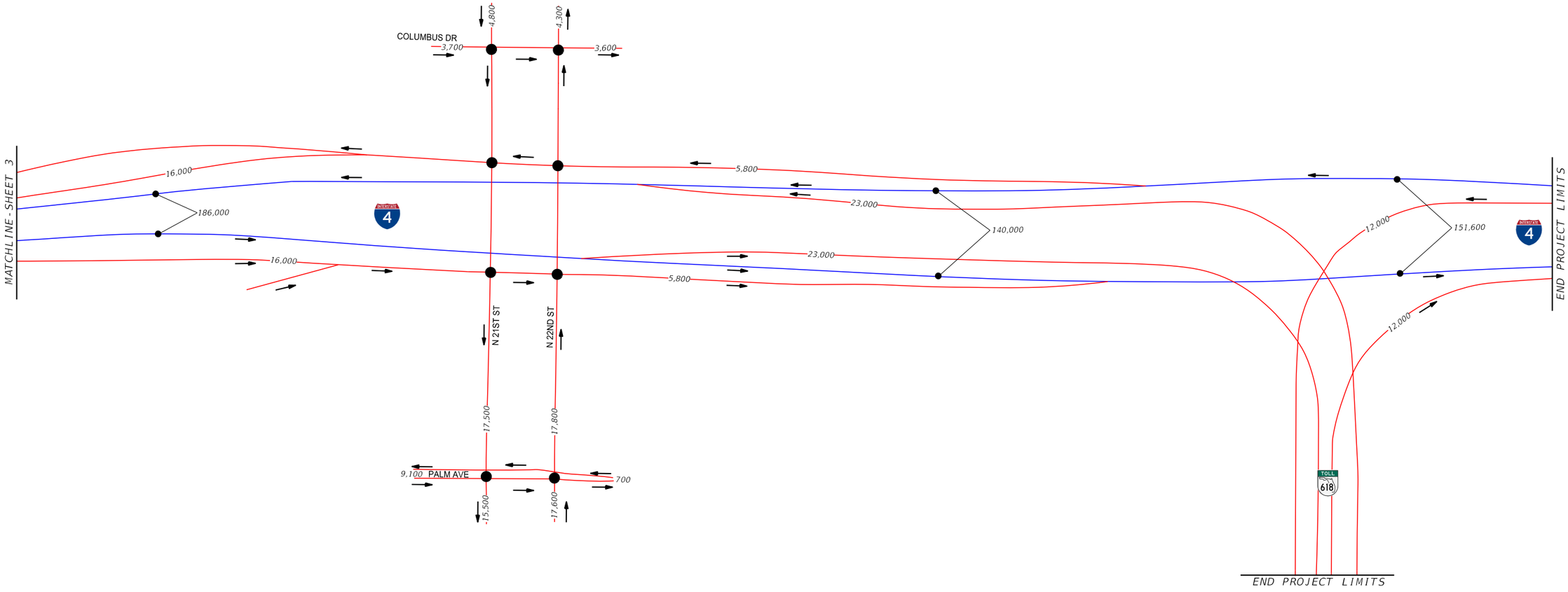
Figure 4-2

Sheet 8 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX AADT
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE

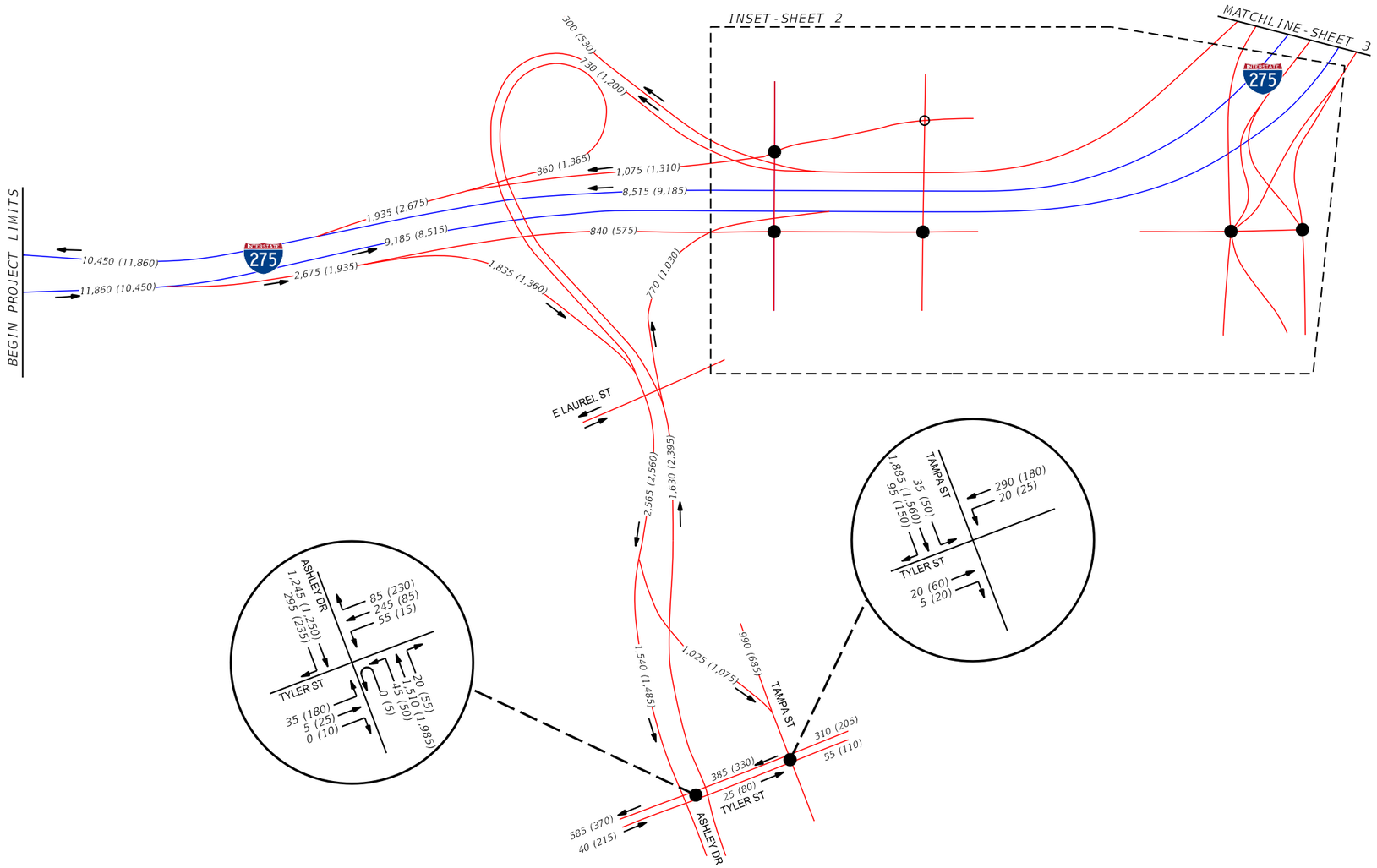


FDOT	Existing Year (2018) – AADTs I-275 at I-4 SIMR	Figure 4-2	Sheet 9 of 9

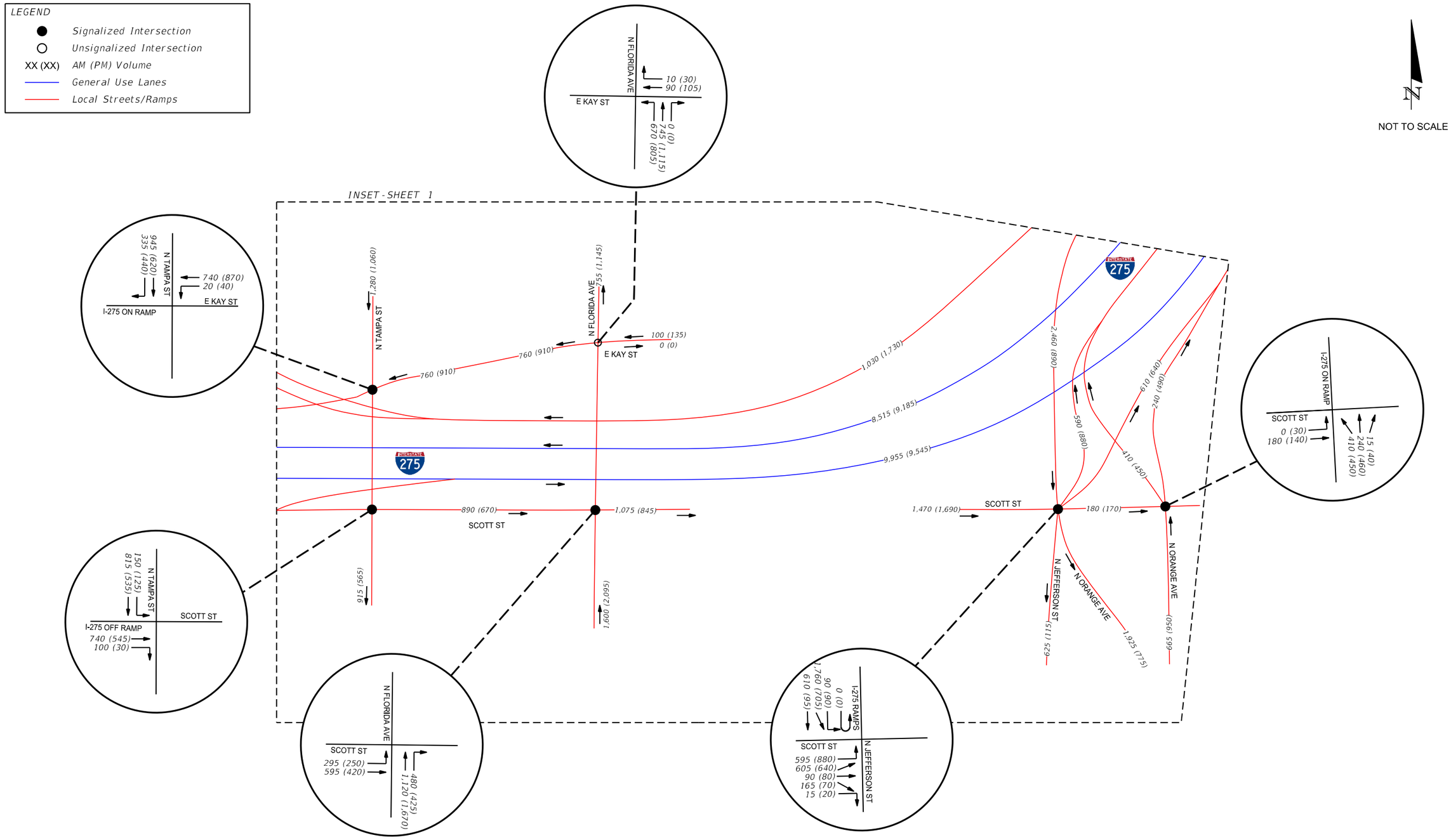
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE



FDOT	Existing Year (2018) – AM & PM DDHV I-275 at I-4 SIMR	Figure 4-3	Sheet 1 of 9

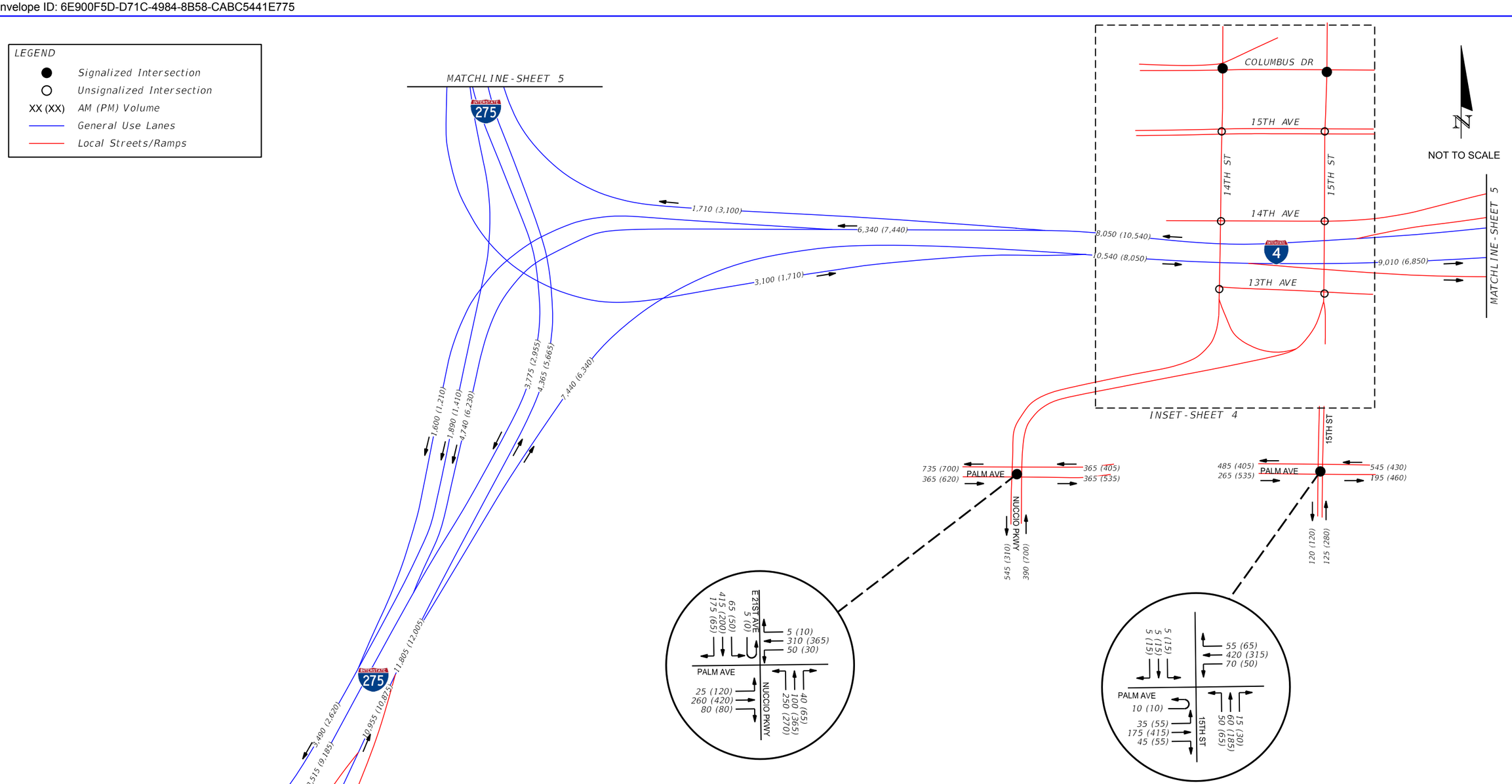


FDOT

Existing Year (2018) - AM & PM DDHV
I-275 at I-4 SIMR

Figure 4-3

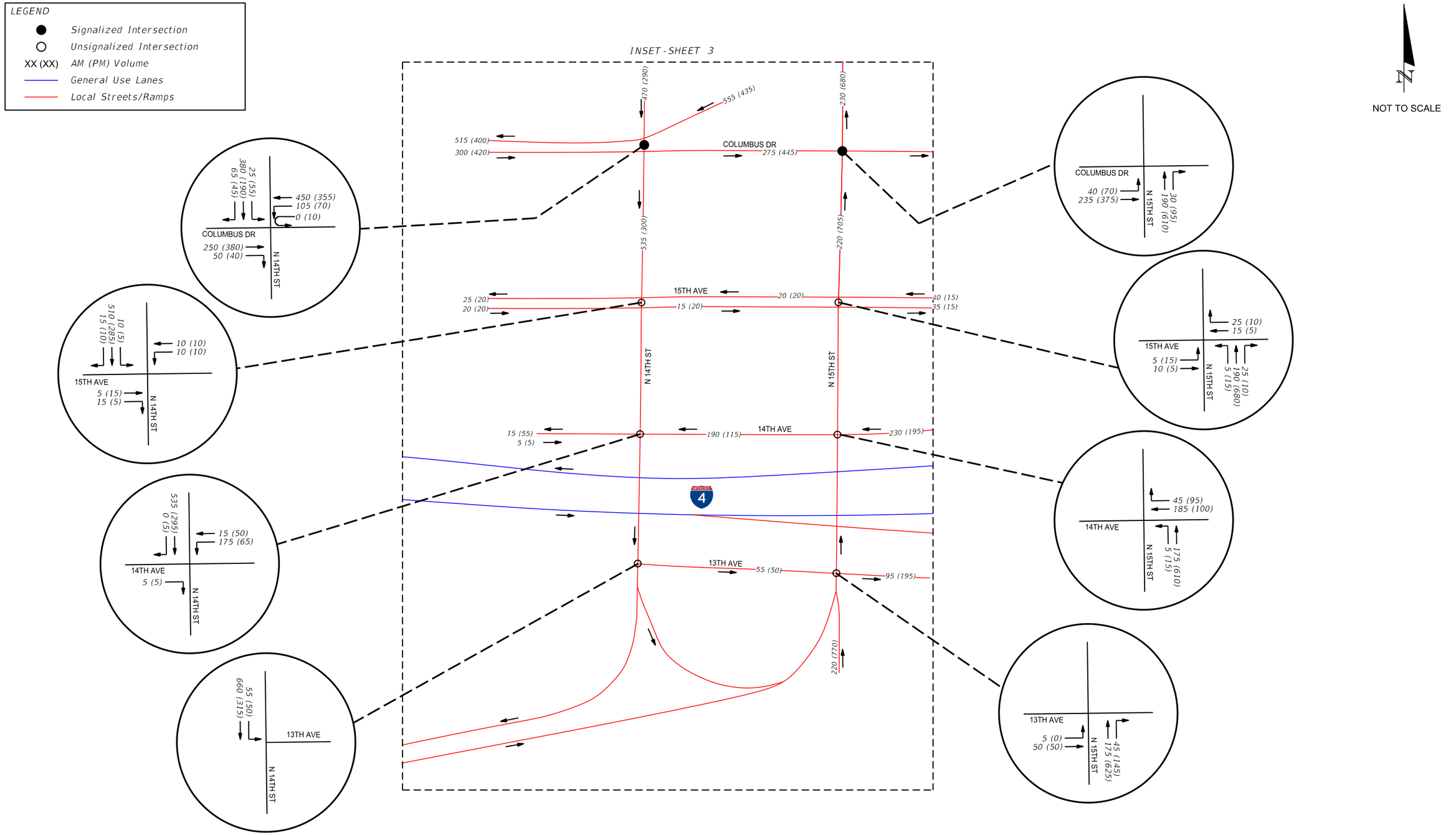
Sheet 2 of 9



Existing Year (2018) – AM & PM DDHV
I-275 at I-4 SIMR

Figure 4-3

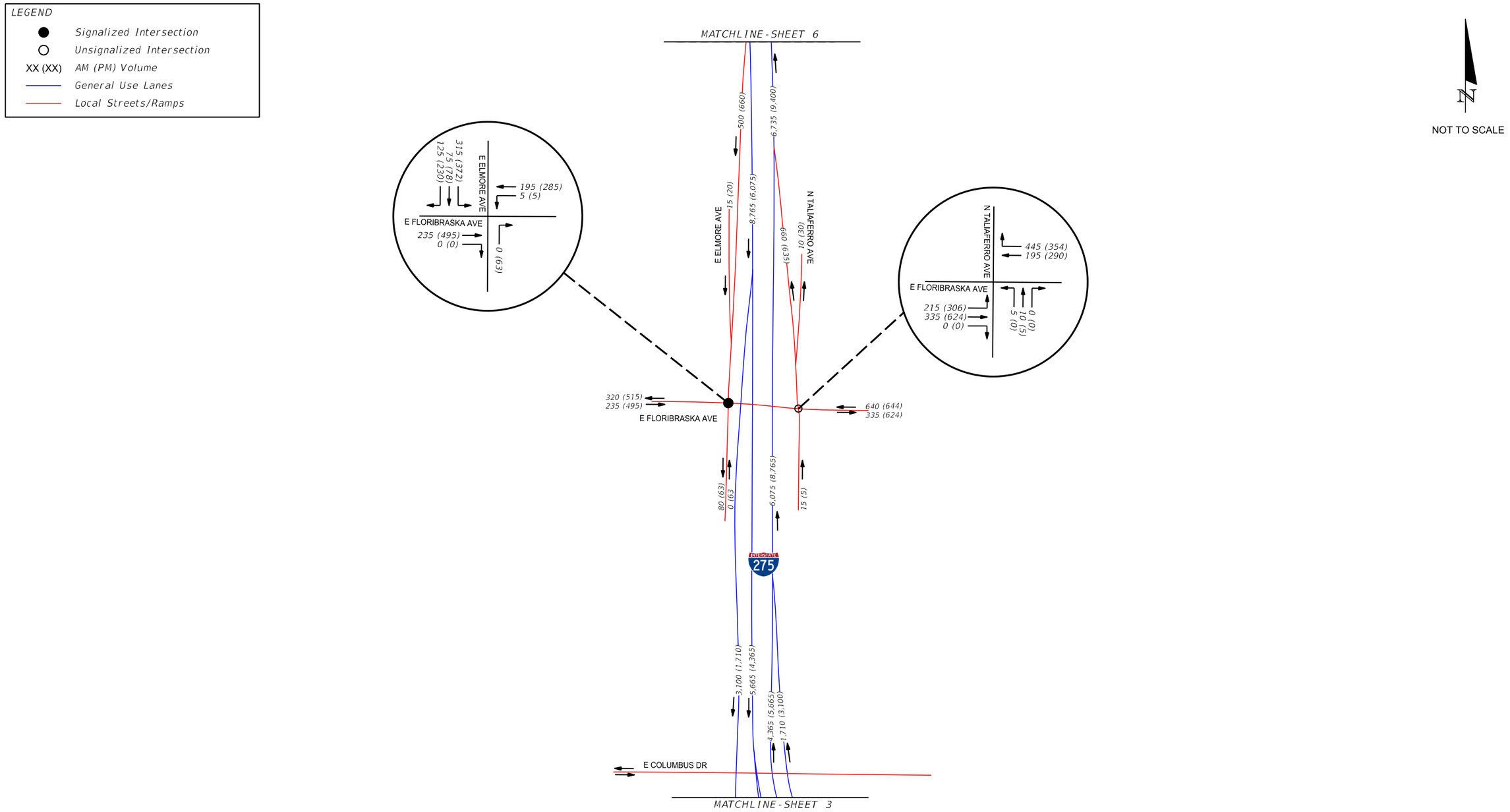
Sheet 3 of 9



Existing Year (2018) – AM & PM DDHV
I-275 at I-4 SIMR

Figure 4-3

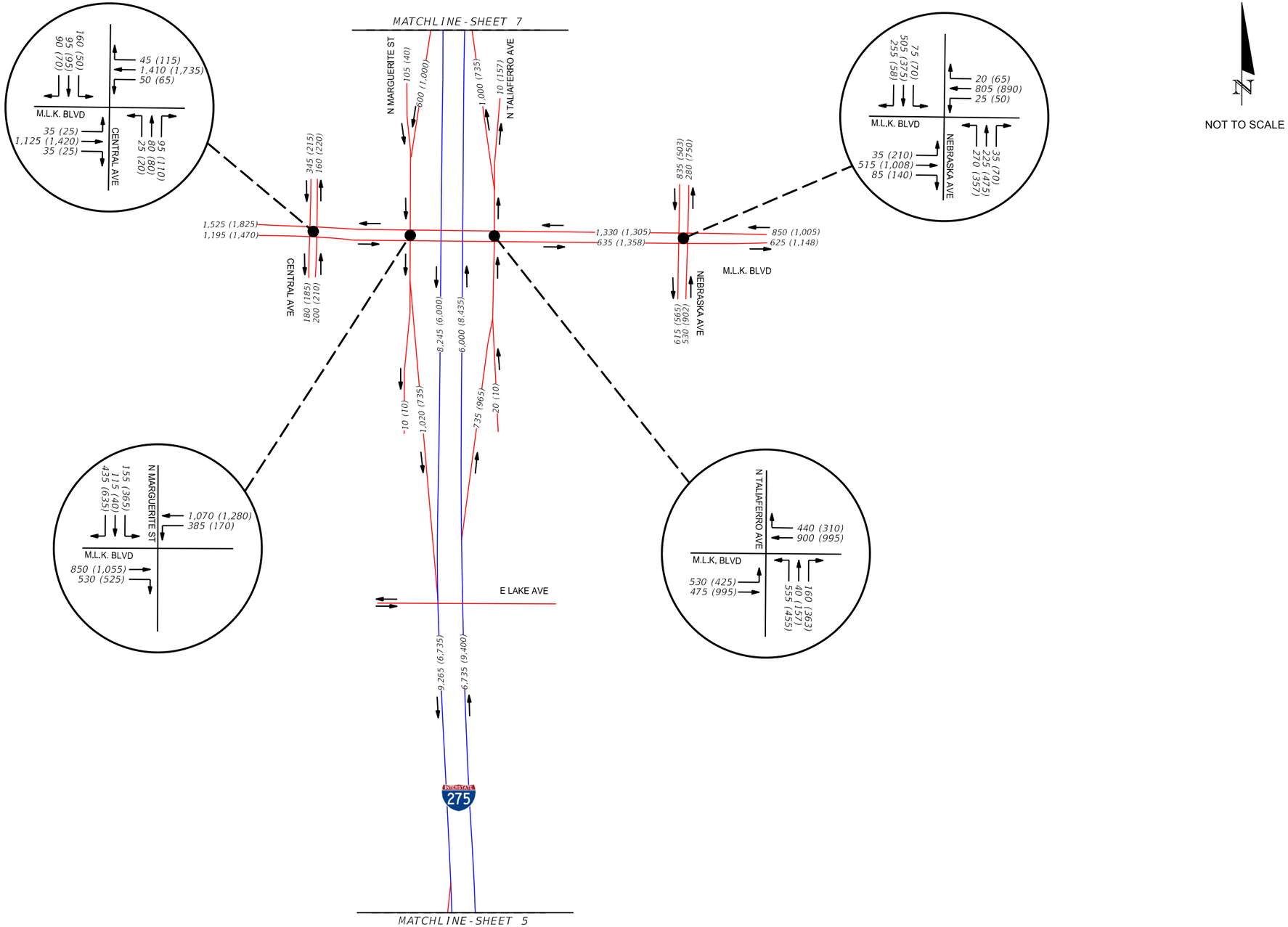
Sheet 4 of 9



FDOT	Existing Year (2018) – AM & PM DDHV I-275 at I-4 SIMR	Figure 4-3	Sheet 5 of 9

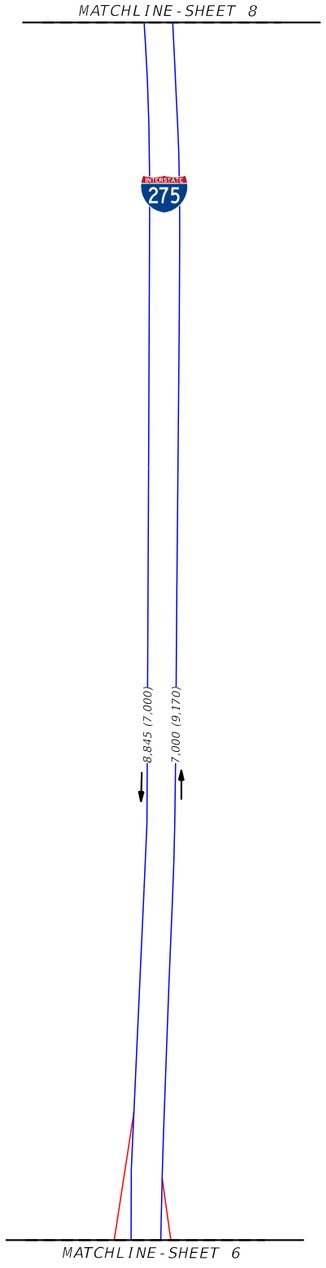
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- General Use Lanes
- Local Streets/Ramps



LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- General Use Lanes
- Local Streets/Ramps



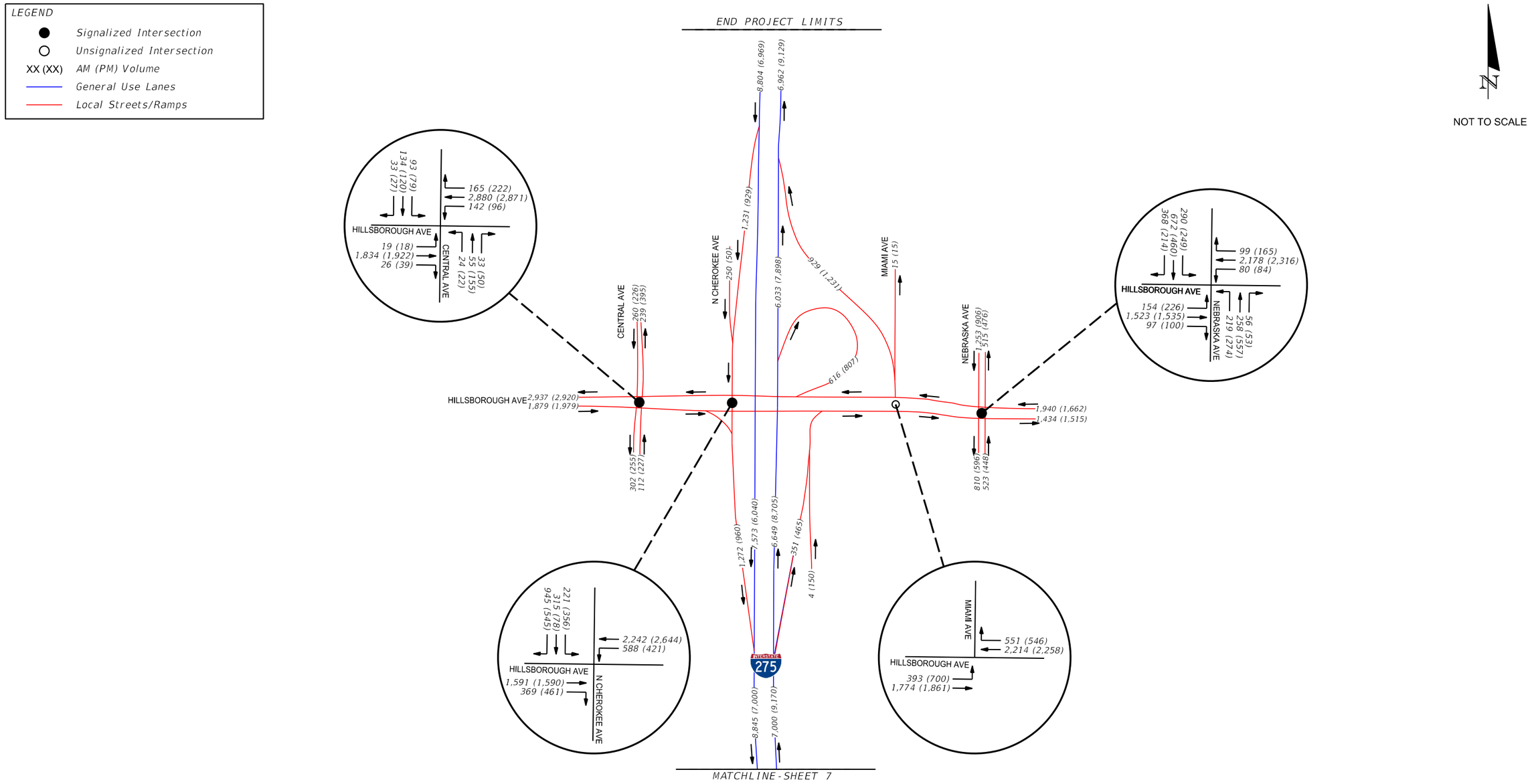
N

NOT TO SCALE

Existing Year (2018) – AM & PM DDHV
I-275 at I-4 SIMR

Figure 4-3

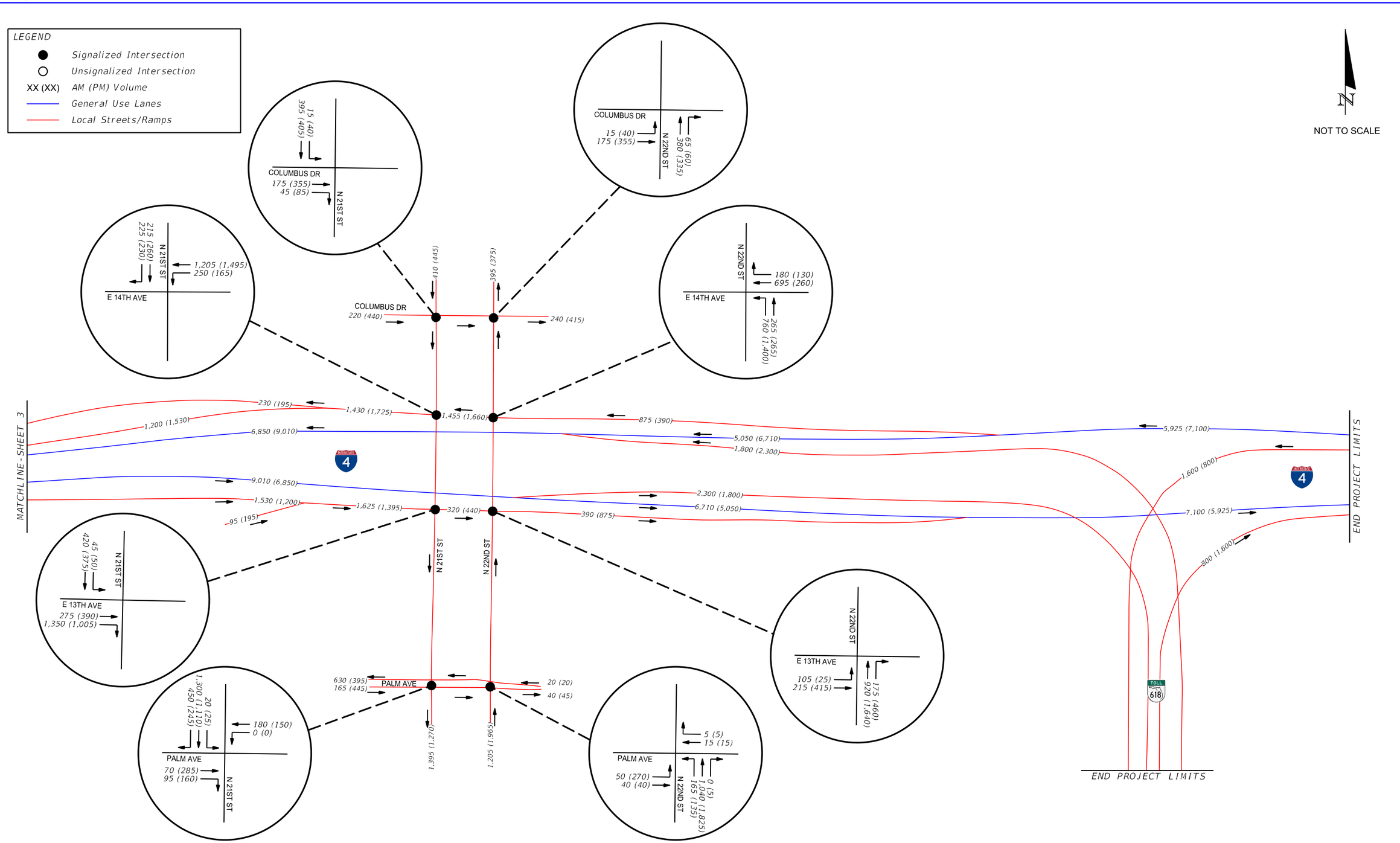
Sheet 7 of 9



Existing Year (2018) – AM & PM DDHV
I-275 at I-4 SIMR

Figure 4-3

Sheet 8 of 9



Existing Year (2018) – AM & PM DDHV
I-275 at I-4 SIMR

Figure 4-3

Sheet 9 of 9

4.4 Existing Conditions Performance

Microsimulation analysis was conducted using CORSIM (TSIS) 6.3 software. A step-by-step procedure defined in the FDOT Traffic Analysis Handbook (2021) was followed to develop CORSIM models for the existing conditions. The model development and calibration process are detailed in the Calibration Memo, as provided in **Appendix B**

The Existing Year (2018) AM and PM CORSIM models were used to evaluate the performance of the study corridor network. For the I-4 eastbound, the O-D data was reviewed and adjusted as per the existing travel data for the models. The Existing Year (2018) AM and PM balanced peak hour volumes were utilized to calibrate CORSIM models to replicate field conditions. The Existing Year (2018) AM and PM peak hour demand volumes were used to perform operational analysis of the study area.

4.4.1 Freeway – CORSIM Analysis

The Existing Year (2018) demand model results were run 10 times and their results were averaged to evaluate the study corridor's (I-275 and I-4) performance. The throughput, density speed, and travel time for the I-275 and I-4 segments are presented in **Figure 4-4** through **Figure 4-7**. The performance of the study corridors (I-275 and I-4) during AM and PM peak hours are summarized below:

- Overall, the traffic delays for the PM peak hour are higher than the AM peak hour for both I-275 and I-4.

- I-275 southbound is more congested than I-275 northbound during the AM peak hour and I-275 northbound is more congested than I-275 southbound during the PM peak hour. I-275 northbound experiences significant congestion during the PM peak hour for the entire study area resulting in high densities and low travel speeds. Queues often backup beyond upstream of the study area.

- I-4 westbound is more congested than I-4 eastbound during both AM and PM peak hours.

- Due to upstream mainline I-275 southbound traffic being metered from capacity constraints, the congestion occurs during the peak periods and beyond during the average weekdays. Furthermore, the traffic demand for the I-4 off-ramp

exceeds the capacity of the ramp causing low travel speeds and excessive I-275 mainline queuing in the two outermost lanes.

- I-4 westbound experiences significant congestion from the Selmon Expressway off-ramp to I-275 during both AM and PM peak hours.

- I-4 eastbound experiences minor congestion up to the 21st Street off-ramp.

- Due to the limitation in CORSIM which does not allow for more than 3 lanes for ramps, the four-lane connector to I-4 eastbound which merges to three-lane connector is modelled as three-lanes. These limitations will also be seen in the No-Build for the I-4 exit and with the relocation of the 21st Street to the new 14th/15th Street in the Build conditions.

The thresholds used for the estimated density and the speed profile for the heatmaps presented in **Figure 4-4** through **Figure 4-7** are given in **Table 4-2** and **Table 4-3** below**.**

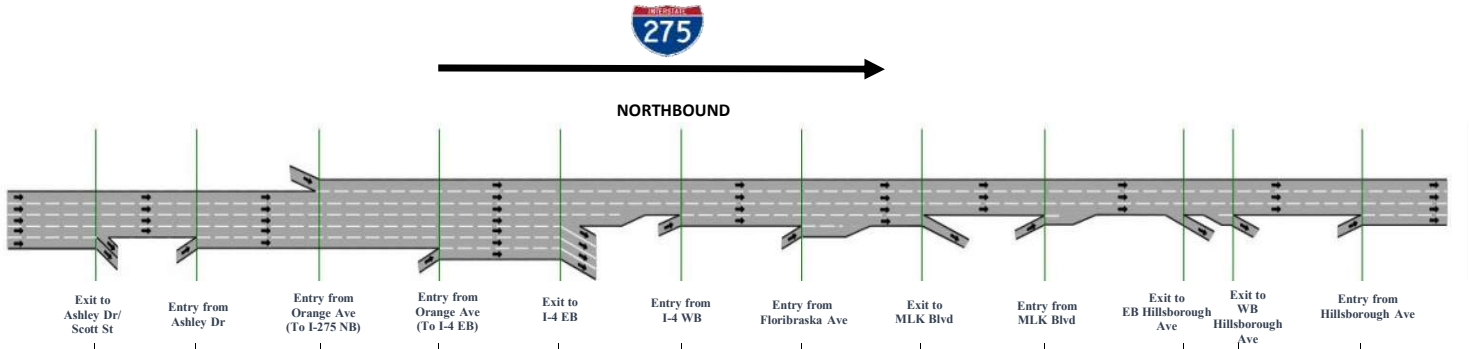
Table 4-2 – Thresholds for Estimated Density

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Table 4-3 – Congestion Level Thresholds

Congestion Level	Freeways Posted Speed Limit	
	50	55
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Figure 4-4 – I-275 NB Analysis Summary – Existing Year (2018)

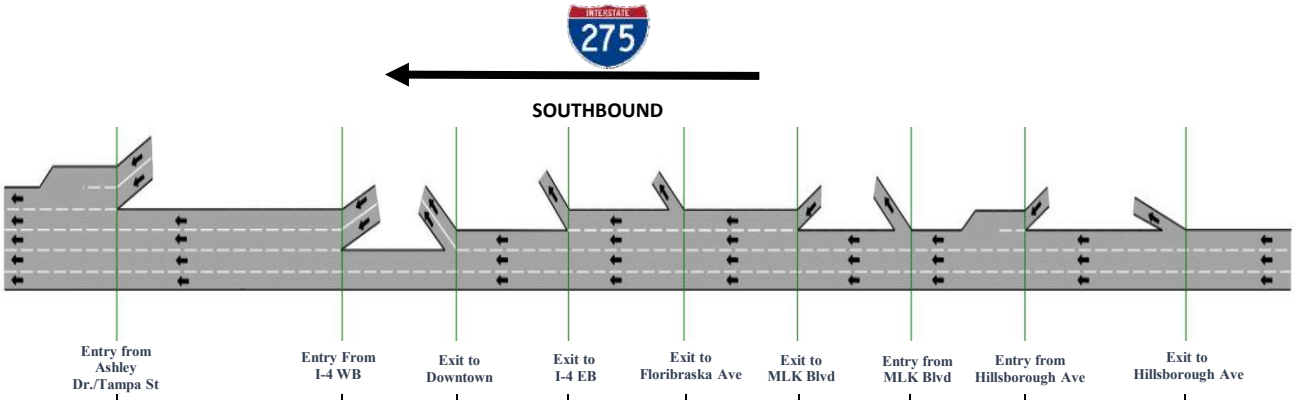


AM	Distance (ft)	5,350	1,100	2,370	350	850	1,900	2,180	2,140	1,760	3,600	1,120	600	1,500
	Existing DDHVs (vph)	11,860	9,185	9,955	10,955	11,805	4,365	6,075	6,735	6,000	7,000	6,650	6,040	6,970
	Simulated (vph)	10,838	8,487	9,107	9,930	10,569	4,168	5,542	6,103	5,416	6,198	5,915	5,433	6,253
	Estimated Density (pcpmpl)	58	38	31	27	26	20	23	23	27	30	26	27	23
	Speed (mph)	33	48	51	52	50	52	52	52	56	55	55	57	57
	Travel Time (sec)	55	20	32	7	11	25	29	28	21	45	13	8	15
PM	Distance (ft)	5,350	1,100	2,370	350	850	1,900	2,180	2,140	1,760	3,600	1,120	600	1,500
	Existing DDHVs (vph)	10,450	8,515	9,545	10,875	12,005	7,250	8,765	9,400	8,435	9,170	8,705	7,898	9,129
	Simulated (vph)	7,691	6,304	7,609	8,534	9,327	4,502	5,859	6,513	5,838	6,548	6,255	5,693	6,748
	Estimated Density (pcpmpl)	89	66	91	79	69	84	122	91	90	47	30	35	32
	Speed (mph)	18	25	17	18	20	18	12	17	21	47	59	53	53
	Travel Time (sec)	67	48	117	25	34	96	127	83	56	59	12	9	17

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 4-5 – I-275 SB Analysis Summary – Existing Year (2018)

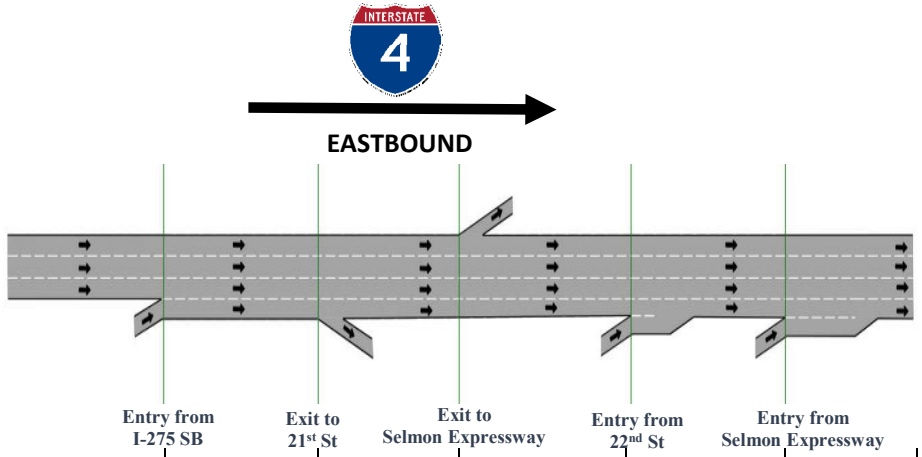


AM	Distance (ft)	1,650	5,270	2,230	1,880	640	1,500	1,770	3,600	1,840	980
	Existing DDHVs (vph)	10,450	8,515	3,775	5,665	8,765	9,265	8,245	8,845	7,573	8,804
	Simulated (vph)	7,852	5,555	1,800	2,714	4,348	4,606	3,715	4,027	3,416	3,907
	Estimated Density (pcpmpl	35	26	18	18	50	50	79	81	94	107
	Speed (mph)	39	53	52	52	22	24	17	18	13	14
	Travel Time (sec)	30	55	29	25	29	44	71	141	94	75
PM	Distance (ft)	1,650	5,270	2,230	1,880	640	1,500	1,770	3,600	1,840	980
	Existing DDHVs (vph)	11,860	9,185	2,955	4,365	6,075	6,735	6,000	7,000	6,040	6,969
	Simulated (vph)	6,671	4,532	2,118	3,183	4,675	5,254	4,512	5,294	4,458	5,109
	Estimated Density (pcpmpl	52	94	23	21	25	48	88	93	94	109
	Speed (mph)	27	15	47	51	47	30	17	19	16	16
	Travel Time (sec)	33	282	44	25	14	37	72	132	78	392

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 4-6 – I-4 EB Analysis Summary – Existing Year (2018)



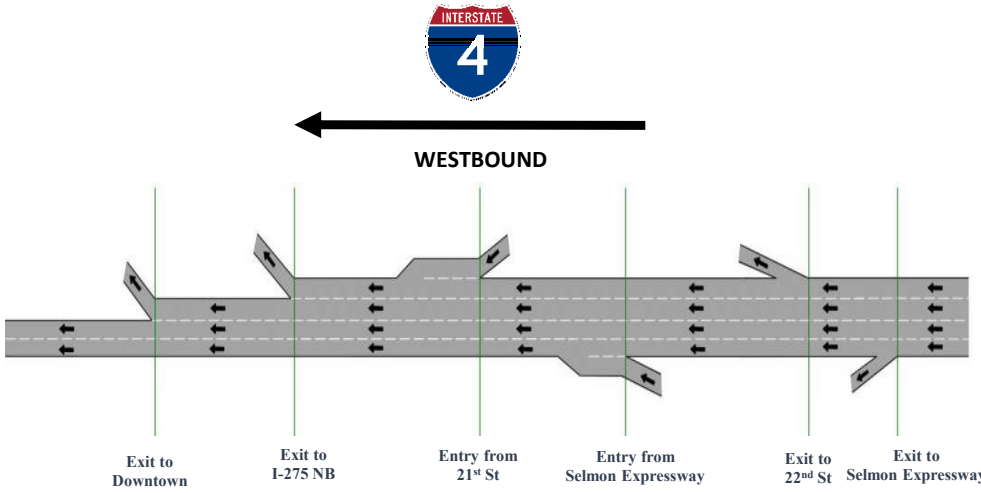
AM	Distance (ft)	1,480	2,610	1,450	2,740	1,690
	Existing DDHVs (vph)	10,540	9,010	6,710	7,100	7,900
	Simulated (vph)	8,036	6,989	5,276	5,631	6,435
	Estimated Density (pcpmpl	34	29	20	20	22
	Speed (mph)	50	52	57	57	57
	Travel Time (sec)	20	33	17	33	20

PM		1,480	2,610	1,450	2,740	1,690
	Distance (ft)	8,050	6,850	5,050	5,925	7,525
	Simulated (vph)	6,313	5,544	4,252	4,909	6,504
	Estimated Density (pcpmpl	31	26	19	20	27
	Speed (mph)	50	54	57	57	55
	Travel Time (sec)	20	33	17	33	21

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 4-7 – I-4 WB Analysis Summary – Existing Year (2018)



AM		940	1,860	2,920	1,060	2,650	1,500
	Existing DDHVs (vph)	6,340	8,050	6,850	5,050	5,925	7,525
	Simulated (vph)	5,025	6,435	5,720	4,026	4,692	5,929
	Estimated Density (pcpmpl)	32	35	36	20	21	28
	Speed (mph)	49	40	40	52	56	56
	Travel Time (sec)	13	33	58	14	32	39

PM		940	1,860	2,920	1,060	2,650	1,500
	Existing DDHVs (vph)	6,230	10,540	9,010	6,710	7,100	7,900
	Simulated (vph)	2,750	4,103	3,225	841	905	1,031
	Estimated Density (pcpmpl)	30	59	70	79	75	65
	Speed (mph)	39	19	13	6	7	11
	Travel Time (sec)	37	90	186	31	322	227

Congestion Level	Freeways Posted Speed Limit 50 mph	Freeways Posted Speed Limit 55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

4.4.2 Arterial Intersections

The study intersections for the Existing Year (2018) conditions were analyzed using SYNCHRO 10 for signalized and HCS7 for un-signalized intersections found in **Appendix C** and **Appendix D,** respectively. The SYNCHRO analysis was performed using demand volumes. The SYNCHRO reports were created using HCM 2000 methodology for the study intersections to report HCM control delay and LOS. The later HCM editions do not analyze intersections with U-turns, intersections with more than four legs or non-standard NEMA phasing. The intersections performance results for Existing Year (2018) AM and PM peak hours are presented in **Table 4-4** and **Table 4-5** respectively.

SYNCHRO analysis results indicate that most of the study intersections operate at an acceptable LOS (LOS D or better) during AM and PM peak hours with the existing signal timing plans. Offsets in signal plans at some study intersections were modified to accommodate more vehicles at ramp terminals. Intersections with high demand were operating at failing conditions (LOS E or F) along Scott Street, Dr. MLK, Jr. Boulevard, Hillsborough Avenue, and 22nd Street during peak hours, especially the PM peak hour. This failing condition is mainly due to the inadequate capacity to accommodate peak hour demand volumes.

The 95th percentile queue length and corresponding storage length are also provided in the **Table 4-6**. The highlighted cells for '#' indicate volume for the 95th percentile cycle exceeds capacity. The highlighted cells for 'm' indicate that the volume for the 95th percentile queue is metered by an upstream signal. The cells highlighted in yellow indicate 95th percentile queue length higher than the storage length. Critical locations where 95th percentile queues exceed the storage are summarized below:

- The 95th percentile queue length for southbound through movement at Tampa Street and Tyler Street exceeds the storage length during the AM and PM peak hours. The 95th percentile queue length for eastbound through movement at Tampa Street and Scott Street exceeds the through movement storage lane. Note that the ramp length to Ashley Street from gore point to stop bar is approximately 1,050 feet (ft).
- Along Ashley Drive, the 95th percentile queue length exceeds the storage length for northbound through movement during AM and PM peak hours.
- Along Scott Street, the 95th percentile queue length exceeds the storage length for eastbound throughs at Florida Avenue and Jefferson Street. The queue also exceeds the storage for eastbound left-turn and southbound through movement at

Jefferson Street. Note that the ramp length to Scott Street from gore point to stop bar is approximately 780 ft.

- Along Kay Street, the 95th percentile queue length exceeds the storage length for westbound through movement.
- Along Floribraska Avenue at the I-275 southbound off-ramp, the 95th percentile queue length exceeds the storage length for southbound through movement. Note that the ramp length to Floribraska Avenue from gore point to stop bar is approximately 1,240 ft.
- Along Dr. MLK, Jr. Boulevard, 95th percentile queue length exceeds the storage length for westbound through during the PM peak and southbound left-turn during both AM and PM peaks at Central Avenue, most eastbound, westbound and southbound movements at I-275 southbound ramps and most eastbound, westbound and northbound through movements at I-275 northbound ramps. Note that the ramp length at the southbound off ramp is 795 ft and northbound off ramp is 940 ft. Queues also exceed the storage at Nebraska Avenue for eastbound through, northbound and southbound left-turn movements.
- Along Hillsborough Avenue, 95th percentile queue length exceeds the storage length at most westbound locations. The 95th percentile queue length exceeds the storage length at the southbound off-ramp and northbound off-ramp the storage lane. Note that the ramp length to southbound off-ramp and northbound off-ramp from gore point to stop bar is approximately 890 ft and 790 ft respectively.
- The 95th percentile queue length exceeds the storage length for eastbound left-turns during PM peak hour and northbound left-turns during both AM and PM peak hours at the intersection of Palm Avenue and Nuccio Parkway.
- The 95th percentile queue length exceeds the storage length for northbound through movement at Palm Avenue and 22nd Street during the PM peak hour.
- The 95th percentile queue length exceeds the storage length for westbound through movement at 14th Avenue and 21st Street during the PM peak hour.
- The 95th percentile queue length exceeds the storage length for westbound through movement at 14th Avenue and 22nd Street during the AM peak hour. Note that the ramp length is 1,730 ft.
- The 95th percentile queue length exceeds the storage length at 13th Avenue and 22nd Street for eastbound through movement during the AM peak hour and northbound through during the PM peak hour. The 95th percentile queue length exceeds the storage length for eastbound through movement at 13th Avenue and 21st Street during the AM peak hour. Note that the ramp length is 2,330 ft.

Table 4-4 - Existing Year (2018) Demand Analysis- LOS and Delay (AM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	D	40.2	-	-	C	30.8	C	34.3
	Scott St.	D	46.5	-	-	-	-	B	17.4	C	30.9
	Tyler St.	D	43.7	E	65.6	-	-	A	9.3	B	17.1
Ashley Dr.	Tyler St.	D	54.2	C	22.9	B	16.3	C	21.2	B	19.6
Florida Ave.	Kay St*	-	-	-	-	A	6.1	-	-	-	-
	Scott St.	E	65.6	-	-	C	24.6	-	-	D	39.3
Scott St.	Jefferson St.	C	34.4	-	-	-	-	F	160.3	F	113.2
	Orange Ave.	C	31.1	-	-	C	20.9	-	-	C	23.0
Floribraska Ave.	SB I-275 Off-Ramp	B	19.3	B	19.1	-	-	C	23.4	C	21.5
	NB I-275 On-Ramp**	A	4.4	-	-	F	53.9	-	-	-	-
Dr. MLK, Jr. Blvd.	Central Ave.	A	6.0	A	5.6	F	83.6	F	332.1	D	45.3
	SB I-275 Ramps	C	23.8	C	34.5	-	-	E	68.4	D	37.1
	NB I-275 Ramps	D	42.2	F	97.4	E	76.9	-	-	E	74.5
	Nebraska Ave.	B	19.6	D	37.1	F	103.8	E	67.0	D	54.3
Hillsborough Ave.	Central Ave.	A	9.0	D	48.0	E	75.5	F	99.4	D	37.6
	SB I-275 Ramps	F	136.1	F	180.8	-	-	F	96.3	F	146.9
	NB I-275 Ramp (EB Dir)**	-	-	-	-	F	367.2	-	-	-	-
	Nebraska Ave.	C	33.6	F	96.8	F	148.7	F	130.0	F	90.1
13th Ave.	14th St.***	-	-		-	-	-	-	-	-	-
	15th St.*	B	10.7	-	-	-	-	-	-	-	-
	21st St.	B	10.2	-	-	-	-	B	19.6	B	12.3
	22nd St.	C	25.6	-	-	B	14.2	-	-	B	16.8
14th Ave.	14th St.*	B	10.1	B	12.9	-	-	-	-	-	-
	15th St.*	-	-	B	11.3	-	-	-	-	-	-
	21st St.	-	-	A	5.6	-	-	C	31.4	B	11.6
	22nd St.	-	-	E	60.8	B	19.8	-	-	D	38.7
15th Ave.	14th St.*	B	10.2	B	11.1	-	-	-	-	-	-
	15th St.*	A	9.6	A	9.1	-	-	-	-	-	-
Columbus Dr.	14th St.	B	19.9	B	13.0	-	-	C	20.3	B	17.1
	15th St.	D	40.2	-	-	A	7.0	-	-	C	25.4
	21st St.	A	9.5	-	-	-	-	B	14.0	B	12.4
	22nd St.	A	2.9	-	-	B	17.3	-	-	B	13.0
Palm Ave.	Nuccio Pkwy.	D	52.0	D	52.8	A	6.5	A	4.5	C	24.7
	15th St.	B	18.9	C	21.7	A	6.4	A	5.7	B	18.4
	21st St.	D	37.2	D	38.2	-	-	B	13.1	B	17.1
	22nd St.	C	33.9	C	33.3	B	10.3	-	-	B	12.3

**Un-signalized (stop-controlled) intersections.*

*** Only northbound is stop controlled. Other approach movements are free.*

****Un-signalized intersection (free flow/yield movements)*

Table 4-5 - Existing Year (2018) Demand Analysis- LOS and Delay (PM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	C	24.0	-	-	C	20.6	C	22.1
	Scott St.	E	55.3	-	-	-	-	A	8.0	C	30.0
	Tyler St.	C	23.1	C	34.0	-	-	B	18.1	B	19.9
Ashley Dr.	Tyler St.	E	65.5	C	28.7	E	63.8	C	26.7	D	47.7
Florida Ave.	Kay St*	-	-	-	-	A	6.8	-	-	-	-
	Scott St.	D	39.5	-	-	C	20.2	-	-	C	24.9
Scott St.	Jefferson St.	C	28.3	-	-	-	-	D	47.1	C	34.8
	Orange Ave.	B	11.1	-	-	D	46.5	-	-	D	41.1
Floribraska Ave.	SB I-275 Off-Ramp	C	21.8	C	23.9	D	41.6	C	33.6	C	28.3
	NB I-275 On-Ramp**	A	4.7	-	-	F	172.2	-	-	-	-
Dr. MLK, Jr. Blvd.	Central Ave.	A	6.6	A	9.7	F	95.8	F	107.9	B	18.8
	SB I-275 Ramps	B	16.4	B	13.0	-	-	F	309.1	F	89.9
	NB I-275 Ramps	E	56.3	C	26.7	D	54.5	-	-	D	45.4
	Nebraska Ave.	C	21.6	E	61.0	E	60.9	E	78.9	D	49.2
Hillsborough Ave.	Central Ave.	B	17.4	E	77.2	F	97.4	F	135.2	E	59.4
	SB I-275 Ramps	B	16.8	F	107.7	-	-	F	185.3	F	89.6
	NB I-275 Ramp (EB Dir)**	-	-	-	-	F	1066.7	-	-	-	-
	Nebraska Ave.	D	53.0	F	156.8	F	114.9	F	107.4	F	112.1
13th Ave.	14th St.***	-	-		-	-	-	-	-	-	-
	15th St.*	C	17.7	-	-	-	-	-	-	-	-
	21st St.	C	32.0	-	-	-	-	A	3.4	C	25.3
	22nd St.	D	46.7	-	-	F	181.3	-	-	F	158.0
14th Ave.	14th St.*	A	9.2	B	10.7	-	-	-	-	-	-
	15th St.*	-	-	C	20.3	-	-	-	-	-	-
	21st St.	-	-	C	21.0	-	-	D	35.3	C	24.3
	22nd St.	-	-	C	22.7	F	88.5	-	-	E	76.0
15th Ave.	14th St.*	A	9.3	A	9.9	-	-	-	-	-	-
	15th St.*	B	12.3	B	10.9	-	-	-	-	-	-
Columbus Dr.	14th St.	C	21.9	B	10.6	-	-	B	19.7	B	17.0
	15th St.	D	39.2	-	-	A	8.7	-	-	C	20.5
	21st St.	B	10.5	-	-	-	-	B	14.3	B	12.4
	22nd St.	A	4.0	-	-	C	21.3	-	-	B	12.7
Palm Ave.	Nuccio Pkwy.	D	51.2	D	42.3	A	8.0	A	6.6	C	27.7
	15th St.	C	21.4	C	20.3	A	7.6	A	5.8	B	17.4
	21st St.	D	44.0	C	34.4	-	-	B	15.0	C	23.0
	22nd St.	C	24.0	D	40.1	B	16.0	-	-	B	17.3

**Un-signalized (stop-controlled) intersections.*

*** Only northbound is stop controlled. Other approach movements are free.*

****Un-signalized intersection (free flow/yield movements)*

Table 4-6 - Existing Year (2018) Demand Analysis – 95th percentile Queue Length (feet)

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Tampa St. at Scott St.	AM	-	411	-	-	-	-	-	-	-	-	390	-
	PM	-	318	-	-	-	-	-	-	-	-	105	-
	Storage Length	-	250	250	-	-	-	-	-	-	-	250	-
Tampa St. at Tyler St.	AM	-	m29	-	40	#400	-	-	-	-	-	312	15
	PM	-	m49	-	39	191	-	-	-	-	-	378	30
	Storage Length	-	200	200	100	200	-	-	-	-	-	275	275
Ashley Dr. at Tyler St.	AM	68	16	-	m17	m#418	-	82	500	-	-	311	123
	PM	#302	43	-	19	351	-	101	#1253	-	-	354	123
	Storage Length	220	325	-	175	200	-	170	170	-	120	650	150
Scott St. at Florida Ave.	AM	-	524	-	-	-	-	-	414	-	-	-	-
	PM	-	233	-	-	-	-	-	522	-	-	-	-
	Storage Length	390	390	-	-	-	-	-	625	625	-	-	-
Scott St. at Jefferson St.	AM	595	743	150	-	-	-	-	-	-	-	#1339	#827
	PM	#962	606	61	-	-	-	-	-	-	-	442	115
	Storage Length	410	410	410	-	-	-	-	-	-	-	275	275
Scott St. at Orange Ave.	AM	-	m59	-	-	-	-	330	178	19	-	-	-
	PM	-	m53	-	-	-	-	519	520	53	-	-	-
	Storage Length	-	145	-	-	-	-	740	740	740	-	-	-
Kay St. at Tampa St.	AM	-	-	-	m12	385	-	-	-	-	-	282	230
	PM	-	-	-	20	306	-	-	-	-	-	121	299
	Storage Length	-	-	-	160	160	-	-	-	-	-	1,800	475
Kay St. at Florida Ave.*	AM	-	-	-	-	0	0	110	-	-	-	-	-
	PM	-	-	-	-	0	0	178	-	-	-	-	-
	Storage Length	-	-	-	-	165	165	310	-	-	-	-	-
Floribraska Ave. at I-275 SB Off-Ramp	AM	-	72	-	-	63	-	-	-	-	191	147	-
	PM	-	149	-	-	194	-	-	70	-	#325	188	-
	Storage Length	-	1,690	1,690	175	175	-	-	1,370	-	250	250	250
Floribraska Ave. at I-275 NB On-Ramp	AM	25	0	-	-	-	-	0	15	0	-	-	-
	PM	40	0	-	-	-	-	0	15	0	-	-	-

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
	Storage Length	195	195	-	-	515	515	385	385	385	-	-	-
MLK Blvd. at Central Ave.	AM	22	234	-	m17	224	-	68	#292	-	#481	#330	-
	PM	22	367	-	m35	m623	-	56	293	-	#151	269	-
	Storage Length	125	1,195	1,195	145	240	240	70	1,245	1,245	115	2,560	2,560
MLK Blvd. at I-275 SB Ramps	AM	-	m357	m269	m335	m455	-	-	-	-	236	246	#602
	PM	-	481	280	m92	384	-	-	-	-	346	352	#1319
	Storage Length	-	235	150	150	150	150	-	-	-	195	195	195
MLK Blvd. at I-275 NB Ramps	AM	#999	110	-	-	m#996	-	474	483	70	-	-	-
	PM	#913	308	-	-	m378	-	470	486	39	-	-	-
	Storage Length	145	145	-	-	570	570	220	220	220	-	-	-
MLK Blvd. at Nebraska Ave.	AM	44	366	-	46	531	-	#517	125	-	118	491	-
	PM	#308	717	-	97	668	-	#552	291	-	138	323	-
	Storage Length	325	550	550	200	2,530	2,530	220	1,215	980	105	1,250	975
Hillsborough Ave. at Central Ave.	AM	#47	542	-	m#249	m#2134	m2	65	152	-	#194	#300	-
	PM	#127	878	-	m#158	m#2513	m47	61	378	-	#244	285	-
	Storage Length	315	1,190	1,190	245	260	260	180	2,550	2,550	145	2,530	2,530
Hillsborough Ave. at I-275 SB Ramps	AM	-	#1139	-	m#1079	m969	-	-	-	-	251	#1316	#1063
	PM	-	339	-	m#798	m1121	-	-	-	-	#787	#915	#729
	Storage Length	-	275	80	415	875	-	-	-	-	250	250	250
Hillsborough Ave. at I-275 NB Off-Ramp (EB Dir)*	AM	-	-	-	-	-	-	-	-	618	-	-	-
	PM	-	-	-	-	-	-	-	-	1505	-	-	-
	Storage Length	-	-	-	-	-	-	-	-	155	-	-	-
Hillsborough Ave. at Nebraska Ave.	AM	m124	m641	-	95	#1252	-	#534	256	-	369	#917	-
	PM	m#400	m754	-	104	#1663	-	#632	535	-	#512	#617	-
	Storage Length	125	870	870	475	975	975	400	2,540	560	410	2,550	2,550
13th Ave. at 15th St.	AM	3	3	-	-	-	-	-	-	-	-	-	-
	PM	8	8	-	-	-	-	-	-	-	-	-	-
	Storage Length	250	300	-	-	-	-	-	1,460	1,460	-	-	-
	AM	-	-	-	30	3	-	-	-	-	-	-	-

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
14th Ave. at 14th St.	PM	-	-	-	8	8	-	-	-	-	-	-	-
	Storage Length	-	-	-	335	335	-	-	-	-	-	260	-
14th Ave. at 15th St.	AM	-	-	-	-	13	20	-	-	-	-	-	-
	PM	-	-	-	-	13	50	-	-	-	-	-	-
	Storage Length	-	-	-	-	1,700	770	-	230	-	-	-	-
15th Ave. at 14th St.*	AM	-	-	3	3	-	-	-	-	-	0	-	-
	PM	-	-	3	3	-	-	-	-	-	0	-	-
	Storage Length	-	360	360	360	360	-	-	-	-	250	-	-
15th Ave. at 15th St.*	AM	3	0	-	-	0	3	0	-	-	-	-	-
	PM	3	0	-	-	0	3	0	-	-	-	-	-
	Storage Length	350	350	-	-	360	360	260	-	-	-	-	-
Columbus Dr. at 14th St./17th Ave.	AM	-	150	0	45	-	213	-	-	-	-	114	3
	PM	-	225	0	25	-	150	-	-	-	-	73	0
	Storage Length	-	2,180	100	335	335	335	-	-	-	-	1,240	200
Columbus Dr. at 15th St.	AM	-	105	-	-	-	-	-	33	-	-	-	-
	PM	-	157	-	-	-	-	-	110	-	-	-	-
	Storage Length	300	300	-	-	-	-	-	820	820	-	-	-
Palm Ave. at Nuccio Pkwy.	AM	45	168	-	81	172	-	141	21	-	31	90	-
	PM	154	225	-	48	172	-	180	102	-	35	56	-
	Storage Length	80	1,415	1,225	110	1,100	1,100	120	660	660	105	1,110	1,110
Palm Ave. at 15th St.	AM	29	47	-	-	109	-	-	48	-	-	9	-
	PM	44	120	-	43	94	-	-	105	-	-	19	-
	Storage Length	140	425	425	145	730	730	440	440	440	440	440	440
Palm Ave. at 21st St.	AM	-	64	-	-	93	-	-	-	-	m8	m307	m78
	PM	-	187	-	-	m63	-	-	-	-	m13	285	66
	Storage Length	2,300	2,300	-	175	175	-	-	-	-	660	660	115
Palm Ave. at 22nd St.	AM	31	52	-	-	29	-	-	258	-	-	-	-
	PM	144	m16	-	-	33	-	-	621	-	-	-	-
	Storage Length	180	180	-	-	750	750	435	435	435	-	-	-
Columbus Dr. at 21st St.	AM	-	34	-	-	-	-	-	-	-	-	75	-
	PM	-	67	-	-	-	-	-	-	-	-	83	-

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
	Storage Length	-	2,300	2,300	-	-	-	-	-	-	-	160	-
Columbus Dr. at 22nd St.	AM	-	7	-	-	-	-	-	127	-	-	-	-
	PM	-	18	-	-	-	-	-	125	-	-	-	-
	Storage Length	175	175	-	-	-	-	-	360	360	-	-	-
14th Ave. at 21st St.	AM	-	-	-	-	m132	-	-	-	-	-	85	117
	PM	-	-	-	-	607	-	-	-	-	-	94	218
	Storage Length	-	-	-	180	180	-	-	-	-	-	345	250
14th Ave. at 22nd St.	AM	-	-	-	-	#777	44	249	190	-	-	-	-
	PM	-	-	-	-	201	37	m345	m262	-	-	-	-
	Storage Length	-	-	-	-	540	540	340	340	-	-	-	-
13th Ave. at 21st St.	AM	-	165	#44	-	-	-	-	-	-	-	115	-
	PM	-	#514	0	-	-	-	-	-	-	-	32	-
	Storage Length	-	315	315	-	-	-	-	-	-	335	335	-
13th Ave. at 22nd St.	AM	43	170	-	-	-	-	-	173	-	-	-	-
	PM	m11	m0	-	-	-	-	-	#838	-	-	-	-
	Storage Length	155	155	-	-	-	-	-	660	65	-	-	-

Notes:
1) The # footnote indicates that the volume for the 95th percentile cycle exceeds capacity. This traffic was simulated for two complete cycles to account for the effects of spillover between cycles. If the reported v/c <1 for this movement, the methods used represent a valid method for estimating the 95th percentile queue (Source: Trafficware).
2) The m footnote indicates that the volume for the 95th percentile queue is metered by an upstream signal (Source: Trafficware).
3) The storage length values were calculated from aerials or design drawings.
4) L = left, T = through, R = right.
5) Storage Length for through movement is considered the distance from upstream intersection.
6) Storage Length for the ramp terminal movements are based on the turn lanes at the ramp terminal intersections.

In summary, the existing conditions analysis shows that the I-275 southbound and northbound experiences significant congestion and queuing during both the AM and PM peak periods resulting in high densities and low travel speeds. Capacity constraints and high traffic demand from single-lane ramp from I-275 southbound to I-4 eastbound causes heavy congestion with low travel speeds and excessive I-275 southbound mainline queuing in the two outermost lanes. Similarly, I-4 westbound experiences significant congestion from the Selmon Expressway off-ramp to I-275 during both AM and PM peak hours.

SYNCHRO analysis results indicate that intersections with high demand are operating at failing conditions (LOS E or F) along Scott Street, Dr. MLK, Jr. Boulevard, Hillsborough Avenue, and 22nd Street during peak hours, especially the PM peak hour. This failing

condition is mainly due to the inadequate capacity to accommodate peak hour demand volumes.

Ensuring safe and efficient operations along I-275 and I-4 for the southbound to eastbound, westbound to northbound, and westbound to southbound movements is critical.

4.5 Historic Crash Summary

A safety analysis was conducted for the project AOI. The historic crash data was obtained from FDOT District 7's Crash Data Management System (CDMS) and the statewide Crash Analysis Reporting (CAR) online database. Crash data was collected and analyzed for the project limits, along I-275 from Ashley Drive/Tampa Street to North of Dr. MLK, Jr. Boulevard and I-4 from I-275 to the Selmon Expressway Connector, and the ramps and adjacent ramp terminals and intersections.

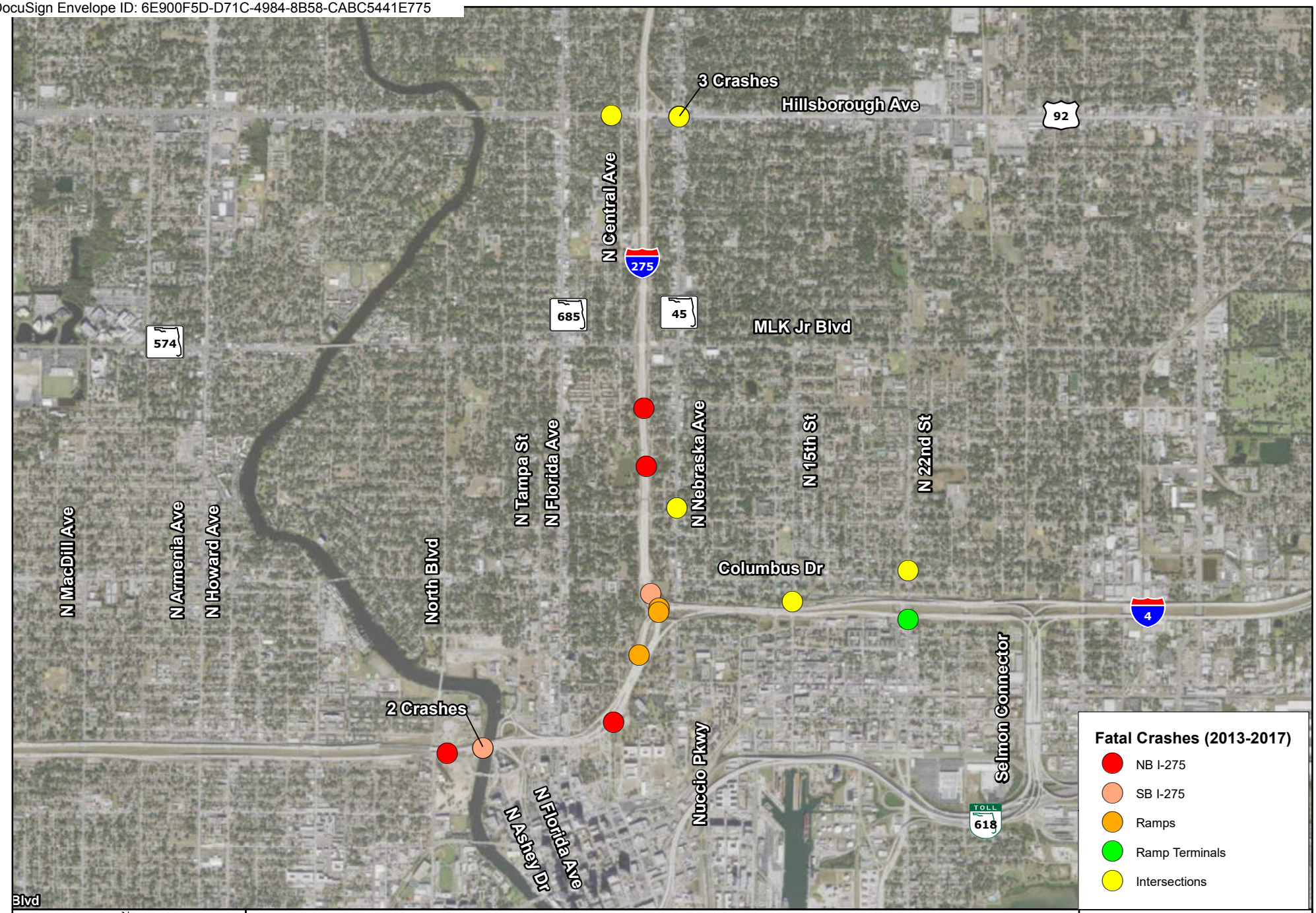
Crash data between January 1, 2013 and December 31, 2017 was obtained using the CDMS and CARS databases. The data obtained from these two databases were compared against each other and the duplicates were removed. The historic crash data was reviewed to examine crash patterns and assess the existing safety performance within the study area. The historical crash data can be found in **Appendix E**.

The crash data was used to determine areas of potential safety concerns and identify crash patterns and possible mitigation strategies.

Over the five-year period, a total of 7,398 crashes were reported within the project limits. Of these, there were 18 (0.2%) fatal crashes, 2,335 (32%) injury crashes, and 5,045 (68%) property damage only crashes (PDO). The location of the fatal crashes can be seen in **Figure 4-8**. The crashes were further analyzed and divided into facility type and can be seen in **Figure 4-9**.

There were 46 pedestrian crashes that occurred within the study limits between 2013 to 2017. Five pedestrian crashes occurred on the I-275 mainline, one pedestrian crash occurred on the I-4 mainline, three pedestrian crashes on I-275 and I-4 ramps, 10 pedestrian crashes at ramp terminals, and 27 pedestrian crashes at intersections. The pedestrian crashes that occurred on the I-275 and I-4 mainline and ramps were caused by drivers exiting their vehicles following a crash, road rage incidents, or suspected drug or alcohol use.

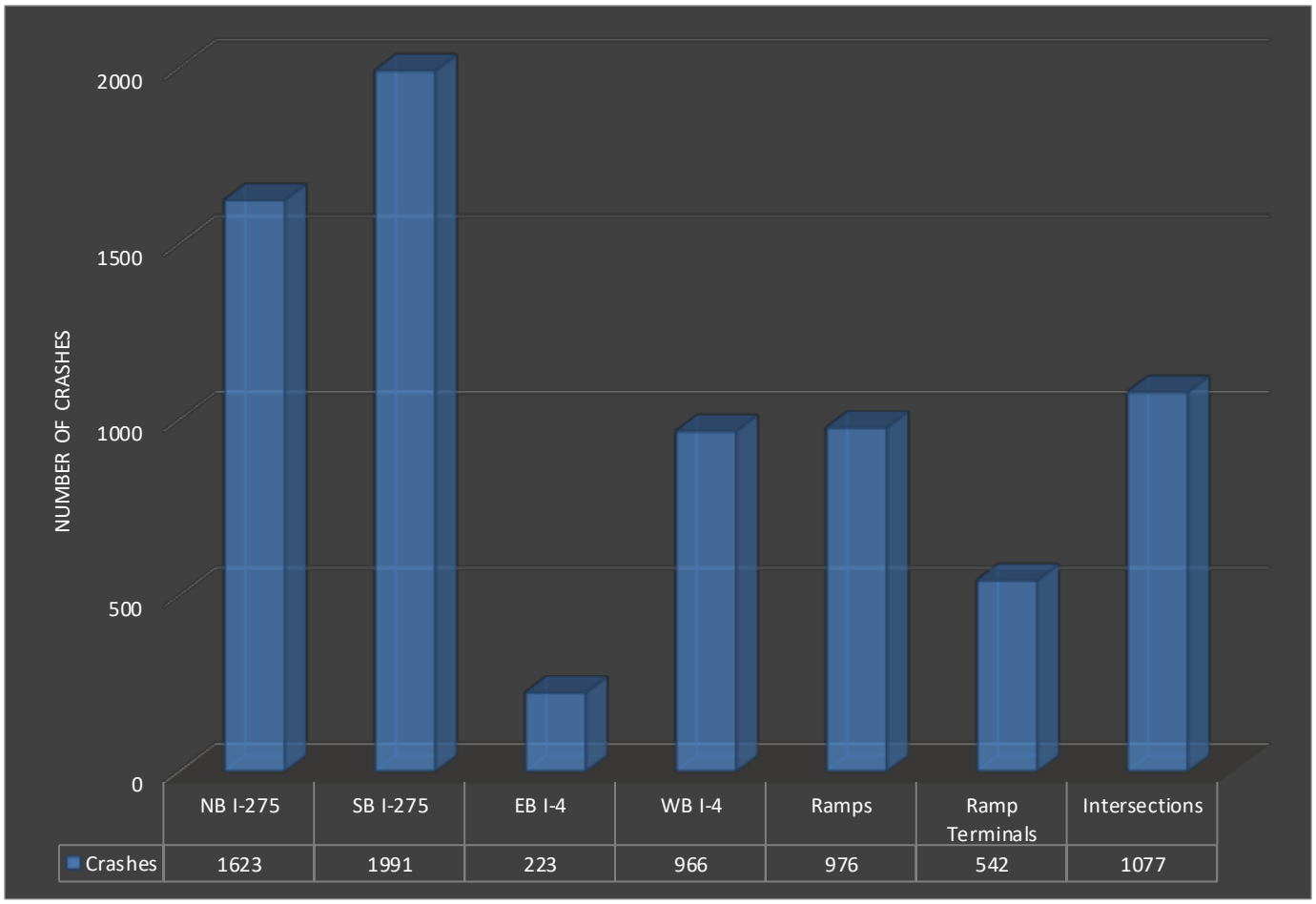
There were 19 bicycle crashes that occurred within the study limits between 2013 to 2017. One bicycle crash occurred on the I-275 mainline, two bicycle crashes on I-275 and I-4 ramps, four bicycle crashes at ramp terminals, and 12 bicycle crashes at intersections.



Section 6 SIMR - Fatal Crash Locations

Figure 4-8

Figure 4-9 – Crashes by Facility Type (2013-2017)



4.5.1 Freeway Analysis

The I-275 corridor was divided into 12 segments for the northbound direction and 10 segments for the southbound direction. The segments were chosen based on the on and off-ramps as the start and end points for the segments. The milepost listed on the FDOT Straight Line Diagram (SLD) for the beginning or the end of a ramp was used to set the limits. **Table 4-7** and **Table 4-8** show the northbound and southbound five-year average segment crash rate from 2013 to 2017 per Million Vehicle Miles Traveled (MVMT). This calculation considers the length of the segment, the five-year average AADT, and the number of crashes. The crash rates higher than the statewide five-year segment crash average are highlighted in the tables. All 12 segments in the northbound direction and 10 segments in the southbound direction exceeded the statewide five-year segment crash average of 0.976.

The I-4 corridor was divided into five segments for the eastbound direction and five segments for the westbound direction. The segments were chosen based on the on and off-ramps as the start and end points for the segments. The milepost listed on the FDOT SLD for the beginning or the end of a ramp was used to set the limits. **Table 4-9** and **Table 4-10** show the eastbound and westbound five-year average segment crash rate from 2013 to 2017. One segment in the eastbound direction and four segments in the westbound direction exceeded the statewide five-year segment crash average of 0.976.

The I-275 and I-4 crash hot spots for I-275 northbound/I-4 eastbound directions can be seen in **Figure 4-10,** and the I-275 and I-4 crash hot spots for I-275 southbound/I-4 westbound directions can be seen in **Figure 4-11**.

Table 4-7 - Crash Rate per Segment per MVMT (2013-2017) – Northbound I-275

Segment Number	Segment Name	Length (Miles)	Average AADT	Total Crashes	Five Year Average Crash Rate (MVMT)
1NB	Begin limit to Ashley St Off-Ramp	0.42	107,600	416	5.04
2NB	Ashley St Off-Ramp to Ashley St On-ramp	0.271	88,900	114	2.59
3NB	From Ashley St On-ramp to Orange Ave On-ramp	0.489	99,700	97	1.09
4NB	From Orange Ave On-ramp to I-4 EB Off-ramp	0.616	112,800	297	2.34
5NB	From I-4 EB Off-ramp to I-4 WB On-ramp	0.301	49,200	83	3.07
6NB	From I-4 WB On-ramp to Floribraska Ave On-ramp	0.344	74,600	53	1.13
7NB	From Floribraska Ave On-ramp to Dr. MLK, Jr. Blvd Off-Ramp	0.499	76,300	134	1.93
8NB	From Dr. MLK, Jr. Blvd Off-Ramp to Dr. MLK, Jr. Blvd On-ramp	0.242	67,700	110	3.68
9NB	From Dr. MLK, Jr. Blvd On-ramp to EB Hillsborough Ave Off-ramp	0.772	78,100	151	1.37
10NB	From EB Hillsborough Ave Off-Ramp to WB Hillsborough Ave Off-ramp	0.191	74,000	75	2.91
11NB	From WB Hillsborough Ave Off-ramp to Hillsborough Ave On-ramp	0.065	67,900	26	3.23
12NB	From Hillsborough Ave On-ramp to End Limit	0.373	80,900	67	1.22

Table 4-8 - Crash Rate per Segment per MVMT (2013-2017) – Southbound I-275

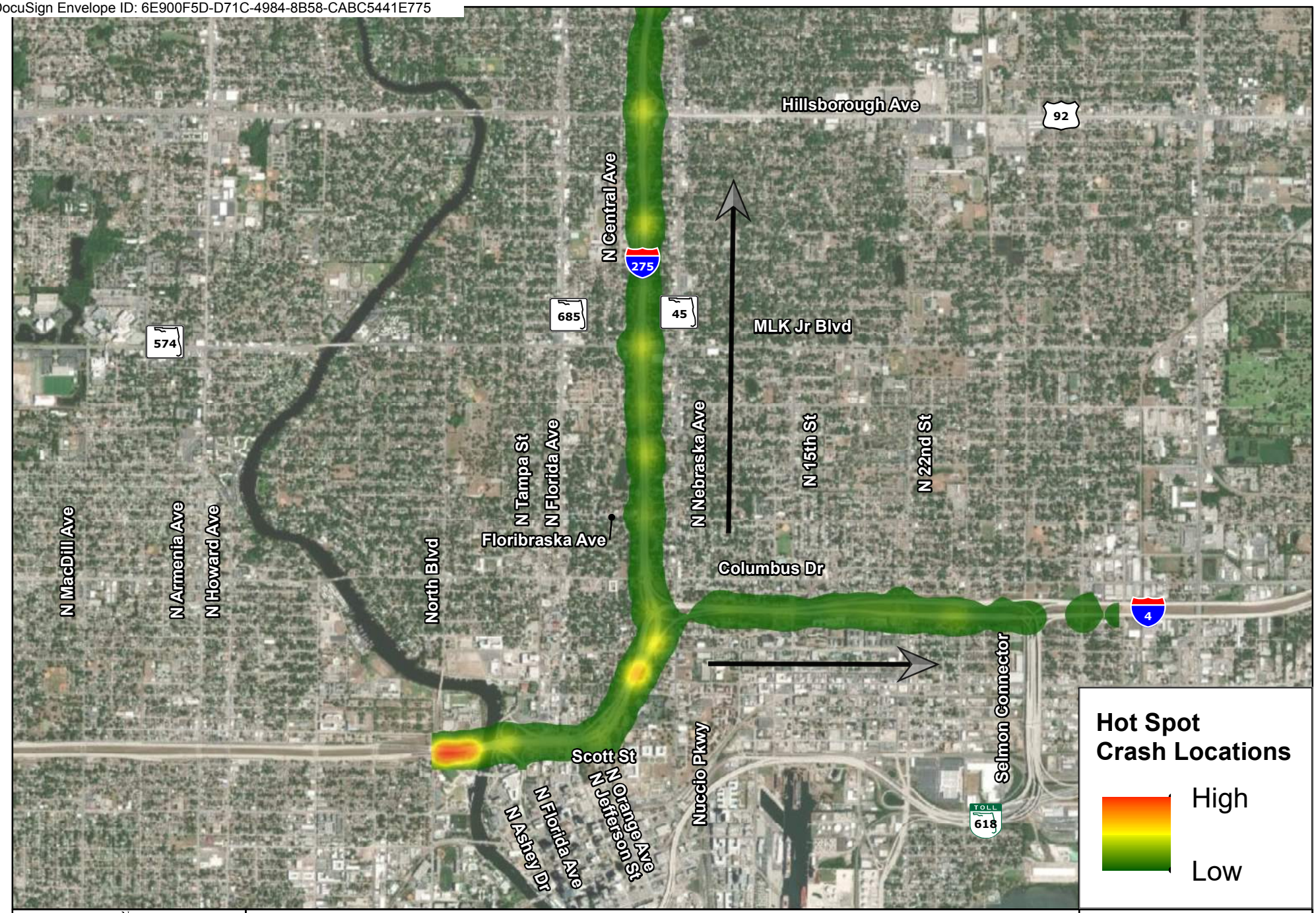
Segment Number	Segment Name	Length (Miles)	Average AADT	Total Crashes	Five Year Average Crash Rate (MVMT)
1SB	From Begin Limit to Hillsborough Ave Off-ramp	0.358	80,700	175	3.32
2SB	From Hillsborough Ave Off-ramp to Hillsborough Ave On-ramp	0.267	70,200	142	4.15
3SB	From Hillsborough Ave On-ramp to Dr. MLK, Jr. Blvd Off-ramp	0.75	82,900	256	2.26
4SB	From Dr. MLK, Jr. Blvd Off-ramp to Dr. MLK, Jr. Blvd On-ramp	0.293	75,300	243	6.04
5SB	From Dr. MLK, Jr. Blvd On-ramp to Floribraska Ave Off-ramp	0.401	79,600	171	2.94
6SB	From Floribraska Ave Off-ramp to I-4 EB Off-ramp	0.221	75,100	178	5.88
7SB	From I-4 EB Off-ramp to Downtown Tampa Off-ramp	0.3	47,600	86	3.30
8SB	From Downtown Tampa Off-ramp to WB I-4 On-ramp	0.311	34,700	225	11.42
9SB	From WB I-4 On-ramp to Ashley St On-ramp	0.841	90,300	246	1.77
10SB	From Ashley St On-ramp to End Limit	0.532	98,400	269	2.82

Table 4-9 - Crash Rate per Segment per MVMT (2013-2017) – Eastbound I-4

Segment Number	Segment Name	Length (Miles)	Average AADT	Total Crashes	Five Year Average Crash Rate (MVMT)
1EB	Begin limit to 22nd St Off-ramp	0.392	91,500	62	0.95
2EB	From 22nd St Off-ramp to Selmon Expy Off-ramp	0.583	77,300	73	0.89
3EB	From Selmon Expy Off-ramp to 22nd St On-ramp	0.029	67,000	24	6.77
4EB	From 22nd St On-ramp to Selmon Expy On-ramp	0.448	72,900	53	0.89
5EB	From Selmon Expy On-ramp to End Limit	0.297	79,500	11	0.26

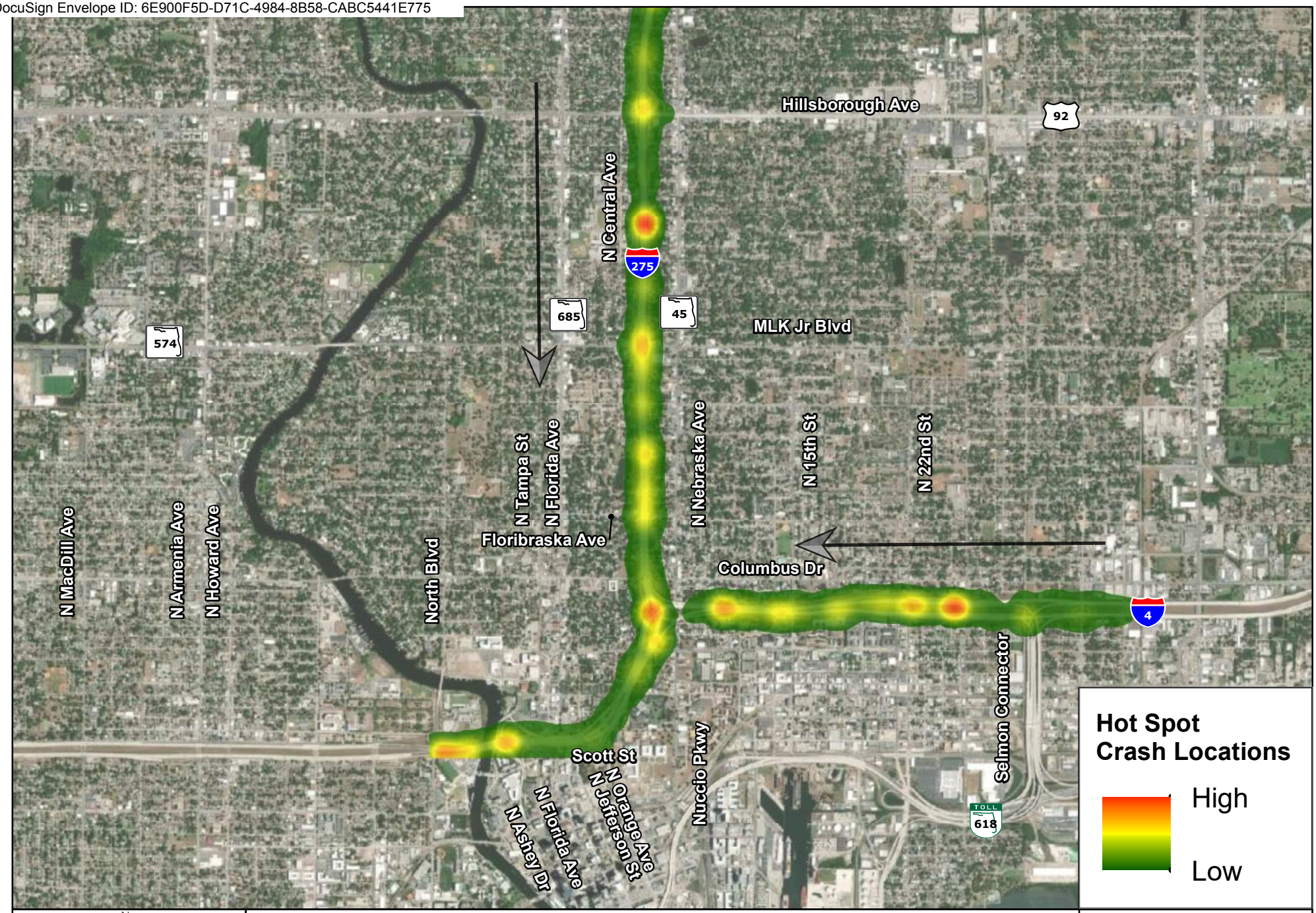
Table 4-10 - Crash Rate per Segment per MVMT (2013-2017) – Westbound I-4

Segment Number	Segment Name	Length (Miles)	Average AADT	Total Crashes	Five Year Average Crash Rate (MVMT)
1WB	Begin limit to Selmon Expy Off-ramp	0.248	77,500	25	0.71
2WB	From Selmon Expy Off-ramp to 22nd St Off-ramp	0.479	72,300	76	1.20
3WB	From 22nd St Off-ramp to Selmon Expy On-ramp	0.176	66,600	166	7.76
4WB	From Selmon Expy On-ramp to 22nd St On-ramp	0.541	71,100	331	4.72
5WB	From 22nd St On-ramp to End Limit	0.471	84,200	368	5.08



Section 6 SIMR - I-275 and I-4 Hot Spot Locations Northbound I-275 and Eastbound I-4 Crashes

Figure 4-10



Section 6 SIMR - I-275 and I-4 Hot Spot Locations Southbound I-275 and Westbound I-4 Crashes

Figure 4-11

Along I-275, there were 3,614 total crashes with 1,623 crashes in the northbound direction and 1,991 crashes in the southbound direction. The number of crashes increased by 37% from 2013 to 2017 and peaked in 2017 as seen in **Figure 4-12**. Along northbound I-275, there were five (0.3%) fatal crashes, 433 (27%) injury crashes, and 1,185 (73%) property damage only crashes. The most prevalent crash types seen on northbound I-275 were rear end (62%), sideswipe (20%), and hit fixed object (13%) crashes. The majority of the crashes on northbound I-275 occurred during daylight and dry conditions. **Figure 4-13** to **Figure 4-16** show the breakdown of crash severity, crash type, crash lighting, and road condition for crashes along northbound I-275.

In the southbound direction along I-275, there were two (0.1%) fatal crashes, 537 (27%) injury crashes, and 1,452 (73%) property damage only crashes. The most prevalent crash types seen on southbound I-275 were rear end (71%), sideswipe (18%), and hit fixed object (7%) crashes. The majority of the crashes on southbound I-275 occurred during daylight and dry conditions. **Figure 4-17** to **Figure 4-20** show the breakdown of crash severity, crash type, crash lighting, and road condition for crashes along southbound I-275.

Figure 4-12 – Total Crashes along I-275 (2013-2017)

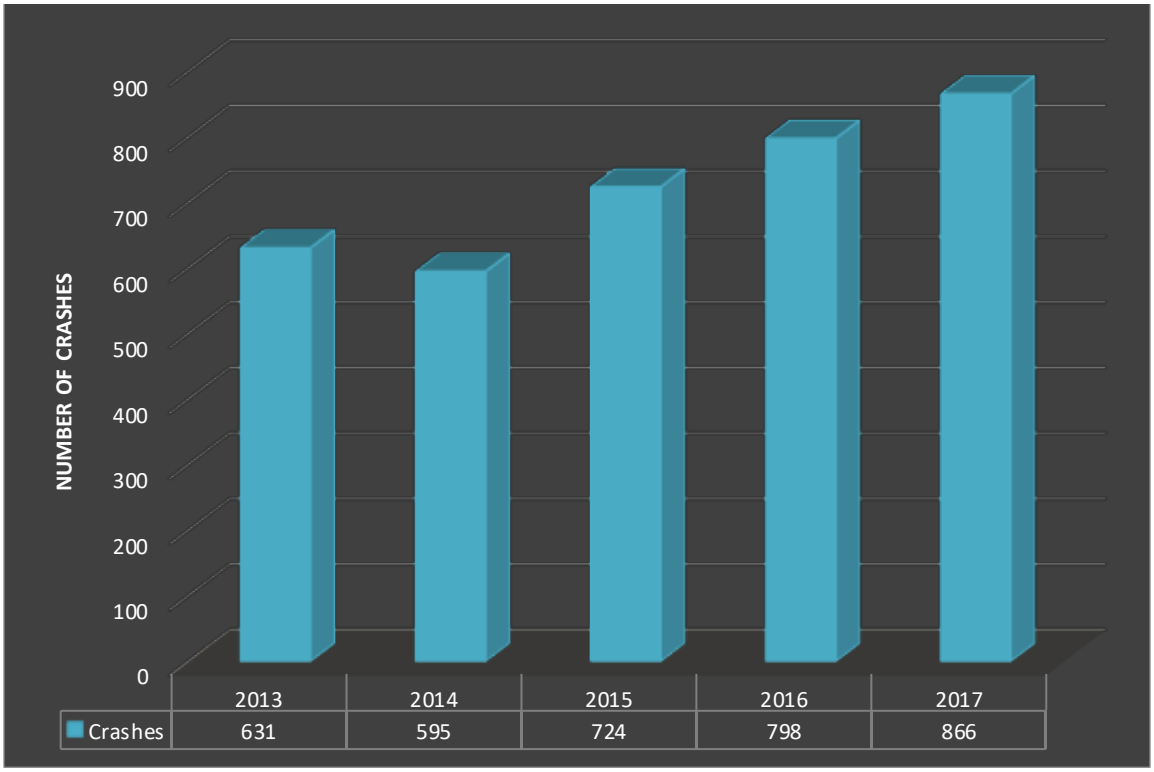
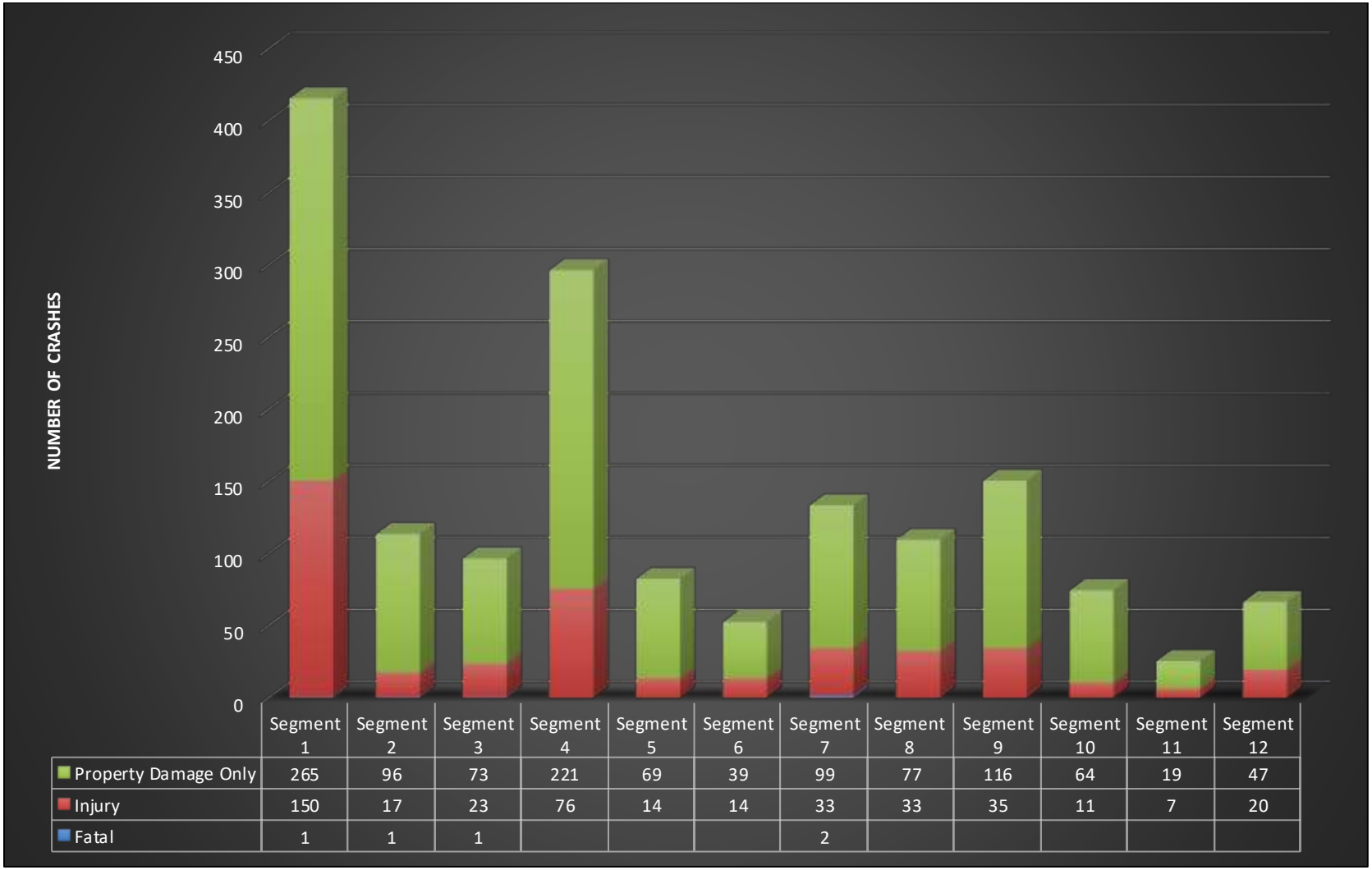
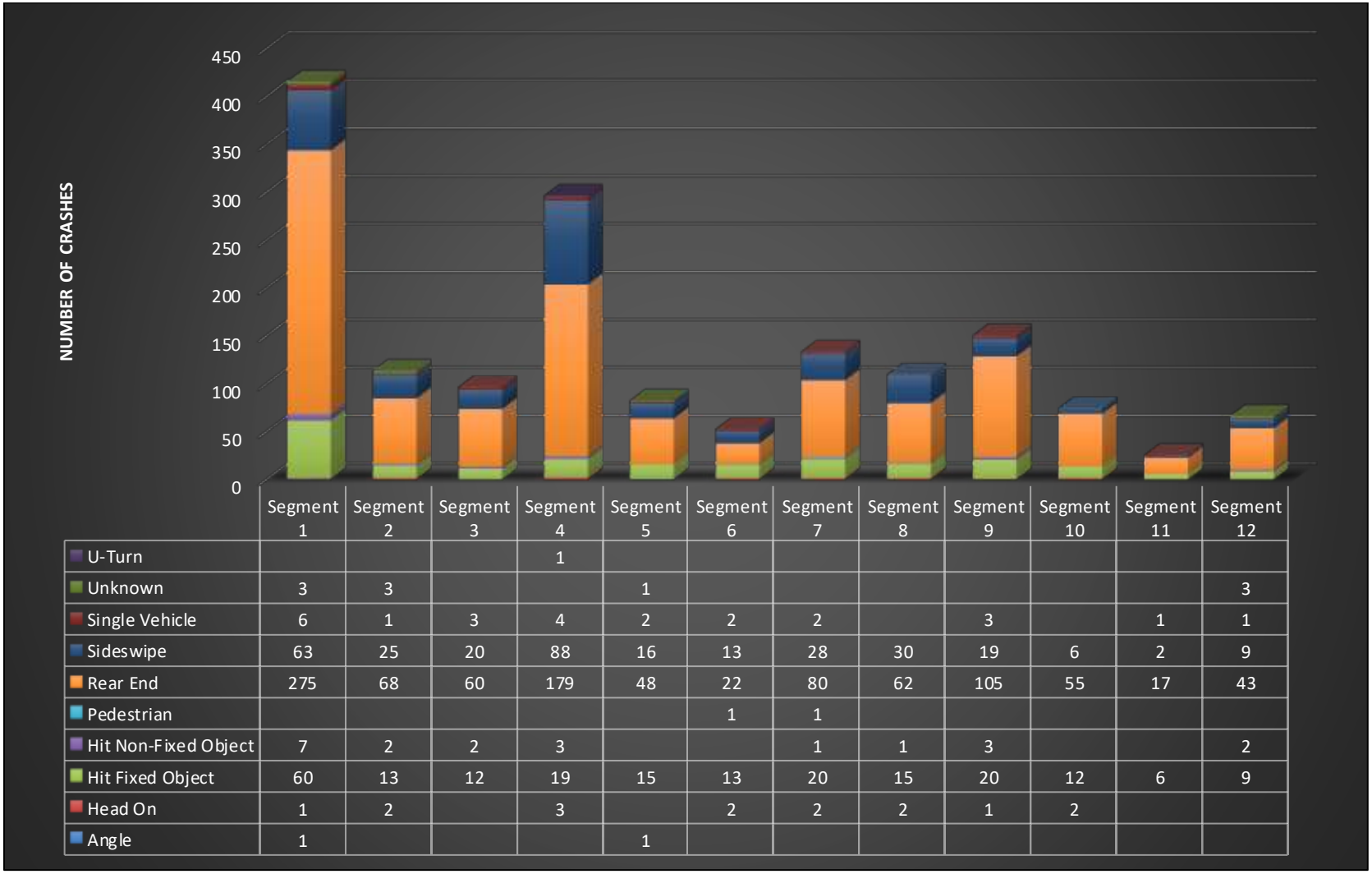


Figure 4-13 – Crash Severity – Northbound I-275 (2013-2017)



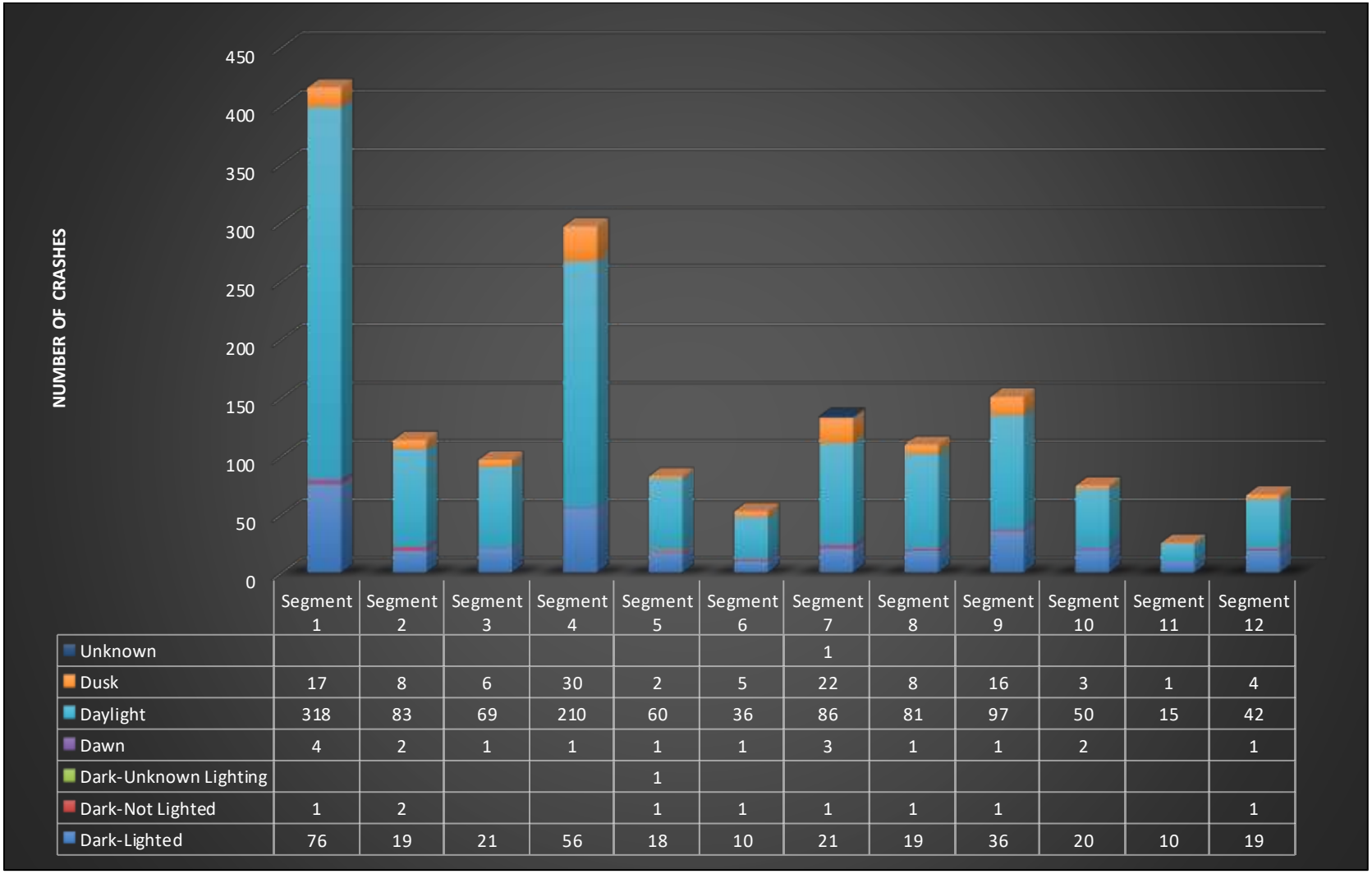
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10	Segment 11	Segment 12
Property Damage Only	265	96	73	221	69	39	99	77	116	64	19	47
Injury	150	17	23	76	14	14	33	33	35	11	7	20
Fatal	1	1	1				2					

Figure 4-14 – Crash Type – Northbound I-275 (2013-2017)



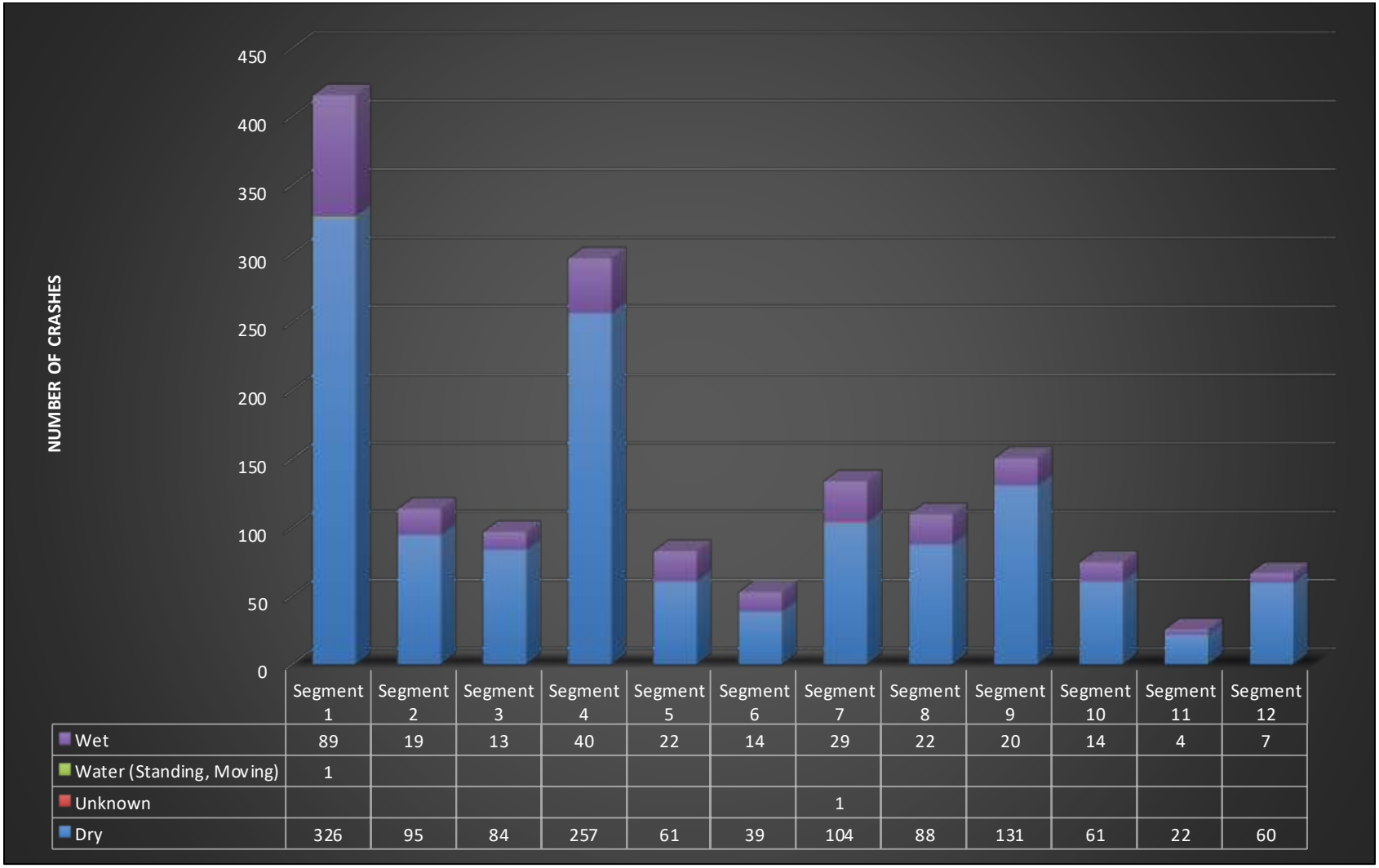
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10	Segment 11	Segment 12
U-Turn				1								
Unknown	3	3			1							3
Single Vehicle	6	1	3	4	2	2	2		3		1	1
Sideswipe	63	25	20	88	16	13	28	30	19	6	2	9
Rear End	275	68	60	179	48	22	80	62	105	55	17	43
Pedestrian						1	1					
Hit Non-Fixed Object	7	2	2	3			1	1	3			2
Hit Fixed Object	60	13	12	19	15	13	20	15	20	12	6	9
Head On	1	2		3		2	2	2	1	2		
Angle	1				1							

Figure 4-15 – Crash Lighting – Northbound I-275 (2013-2017)



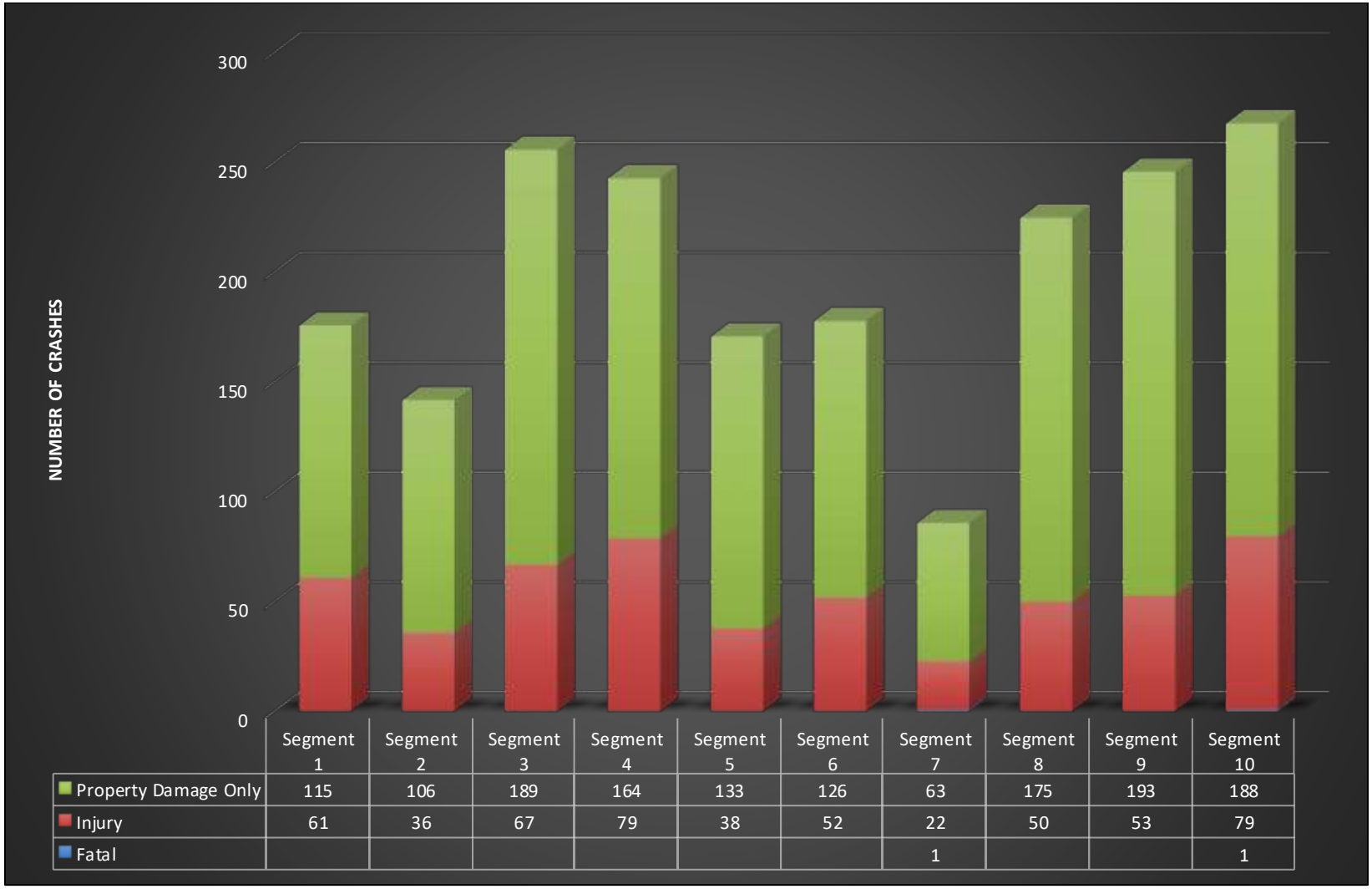
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10	Segment 11	Segment 12
Unknown							1					
Dusk	17	8	6	30	2	5	22	8	16	3	1	4
Daylight	318	83	69	210	60	36	86	81	97	50	15	42
Dawn	4	2	1	1	1	1	3	1	1	2		1
Dark-Unknown Lighting					1							
Dark-Not Lighted	1	2			1	1	1	1	1			1
Dark-Lighted	76	19	21	56	18	10	21	19	36	20	10	19

Figure 4-16 – Crash Road Condition – Northbound I-275 (2013-2017)



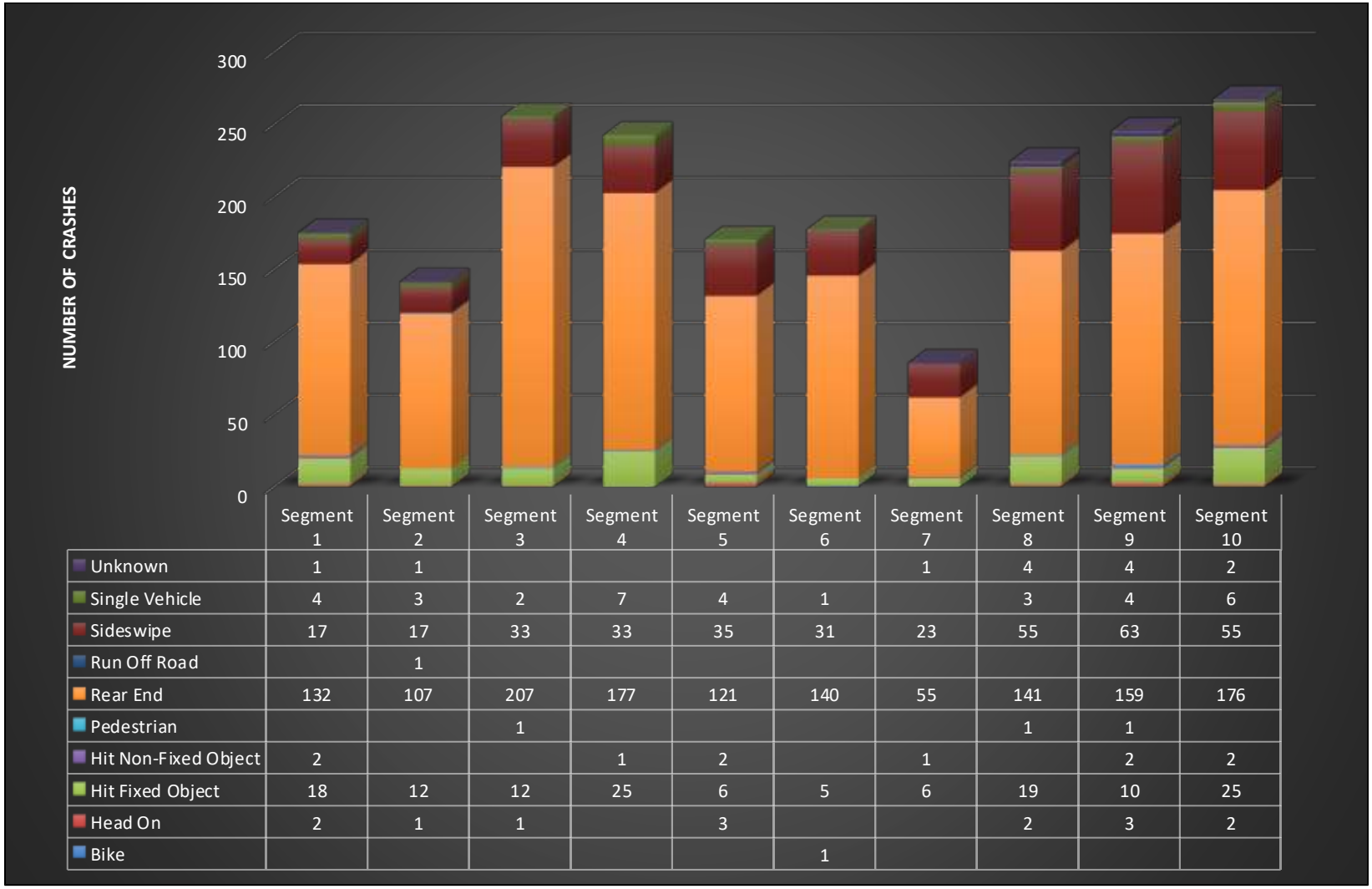
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10	Segment 11	Segment 12
Wet	89	19	13	40	22	14	29	22	20	14	4	7
Water (Standing, Moving)	1											
Unknown							1					
Dry	326	95	84	257	61	39	104	88	131	61	22	60

Figure 4-17 – Crash Severity – Southbound I-275 (2013-2017)



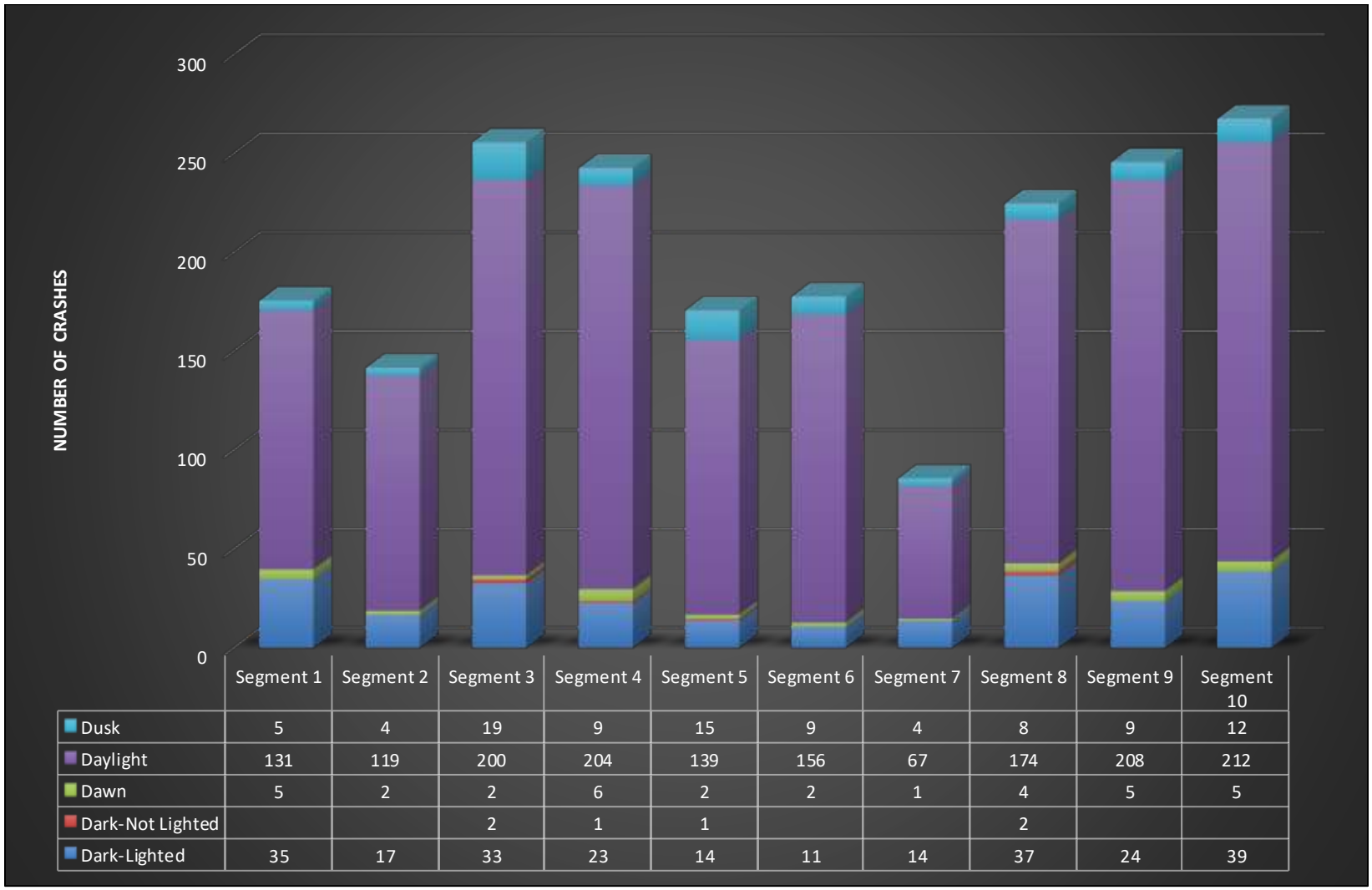
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10
Property Damage Only	115	106	189	164	133	126	63	175	193	188
Injury	61	36	67	79	38	52	22	50	53	79
Fatal							1			1

Figure 4-18 – Crash Type – Southbound I-275 (2013-2017)



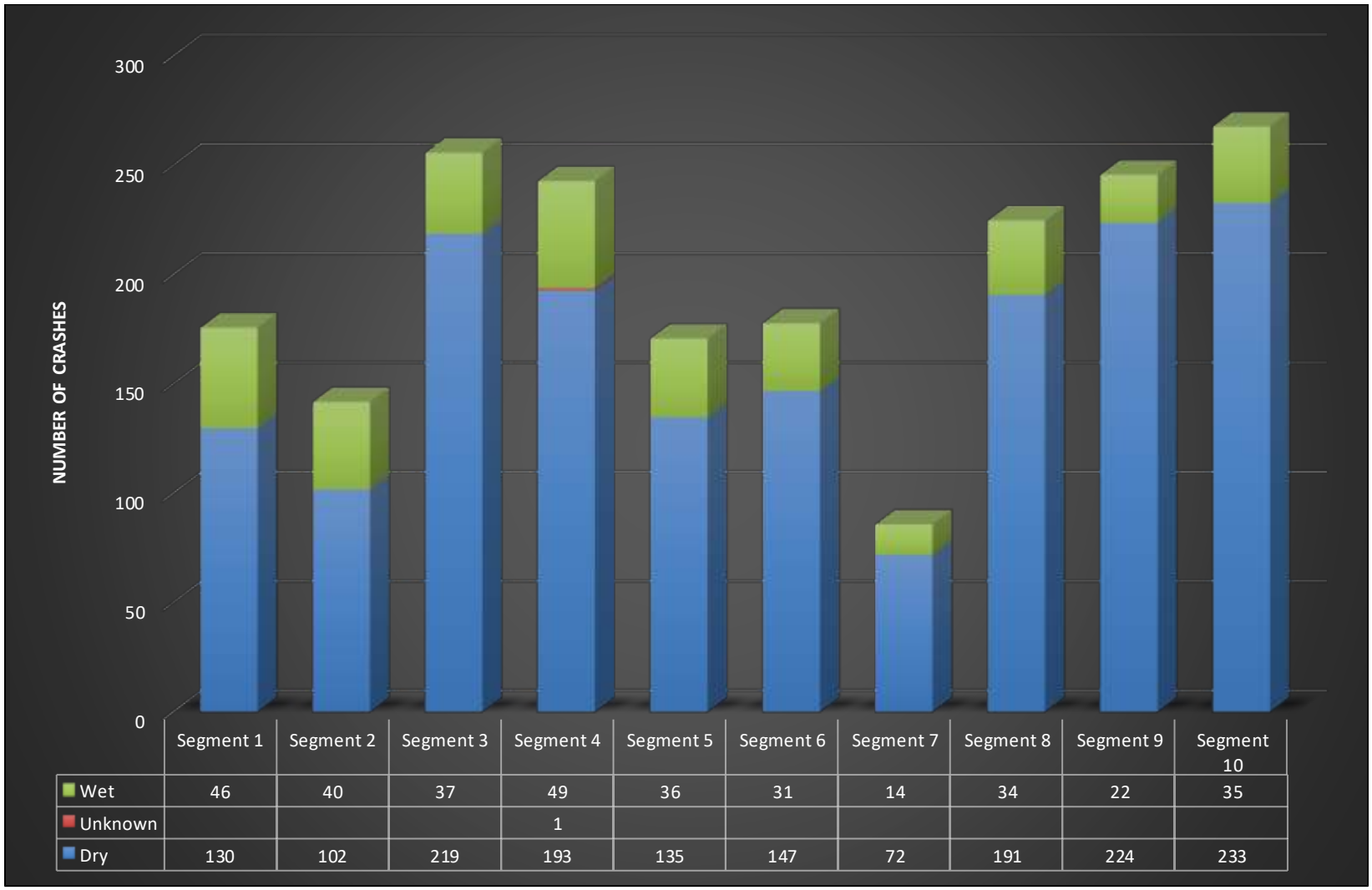
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10
Unknown	1	1					1	4	4	2
Single Vehicle	4	3	2	7	4	1		3	4	6
Sideswipe	17	17	33	33	35	31	23	55	63	55
Run Off Road		1								
Rear End	132	107	207	177	121	140	55	141	159	176
Pedestrian			1					1	1	
Hit Non-Fixed Object	2			1	2		1		2	2
Hit Fixed Object	18	12	12	25	6	5	6	19	10	25
Head On	2	1	1		3			2	3	2
Bike						1				

Figure 4-19 – Crash Lighting – Southbound I-275 (2013-2017)



	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10
Dusk	5	4	19	9	15	9	4	8	9	12
Daylight	131	119	200	204	139	156	67	174	208	212
Dawn	5	2	2	6	2	2	1	4	5	5
Dark-Not Lighted			2	1	1			2		
Dark-Lighted	35	17	33	23	14	11	14	37	24	39

Figure 4-20 – Crash Road Condition – Southbound I-275 (2013-2017)



	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10
Wet	46	40	37	49	36	31	14	34	22	35
Unknown				1						
Dry	130	102	219	193	135	147	72	191	224	233

Along I-4, there were 1,189 total crashes with 223 crashes in the eastbound direction and 966 crashes in the westbound direction. The number of crashes increased by 70% from 2013 to 2017 and peaked in 2017 as seen in **Figure 4-21**. Along eastbound I-4, there were zero (0%) fatal crashes, 62 (28%) injury crashes, and 161 (72%) property damage only crashes. The most prevalent crash types seen on eastbound I-4 were sideswipe (39%), rear end (35%), and hit fixed object (15%) crashes. The majority of the crashes on eastbound I-4 occurred during daylight and dry conditions. **Figure 4-22** to **Figure 4-25** show the breakdown of crash severity, crash type, crash lighting, and road condition for crashes along eastbound I-4.

In the westbound direction along I-4, there were zero (0%) fatal crashes, 271 (28%) injury crashes, and 695 (72%) property damage only crashes. The most prevalent crash types seen on southbound I-275 were rear end (72%), sideswipe (21%), and hit fixed object (4%) crashes. The majority of the crashes on westbound I-4 occurred during daylight and dry conditions. **Figure 4-26** to **Figure 4-29** show the breakdown of crash severity, crash type, crash lighting, and road condition for crashes along southbound I-275.

Figure 4-21 – Total Crashes along I-4 (2013-2017)

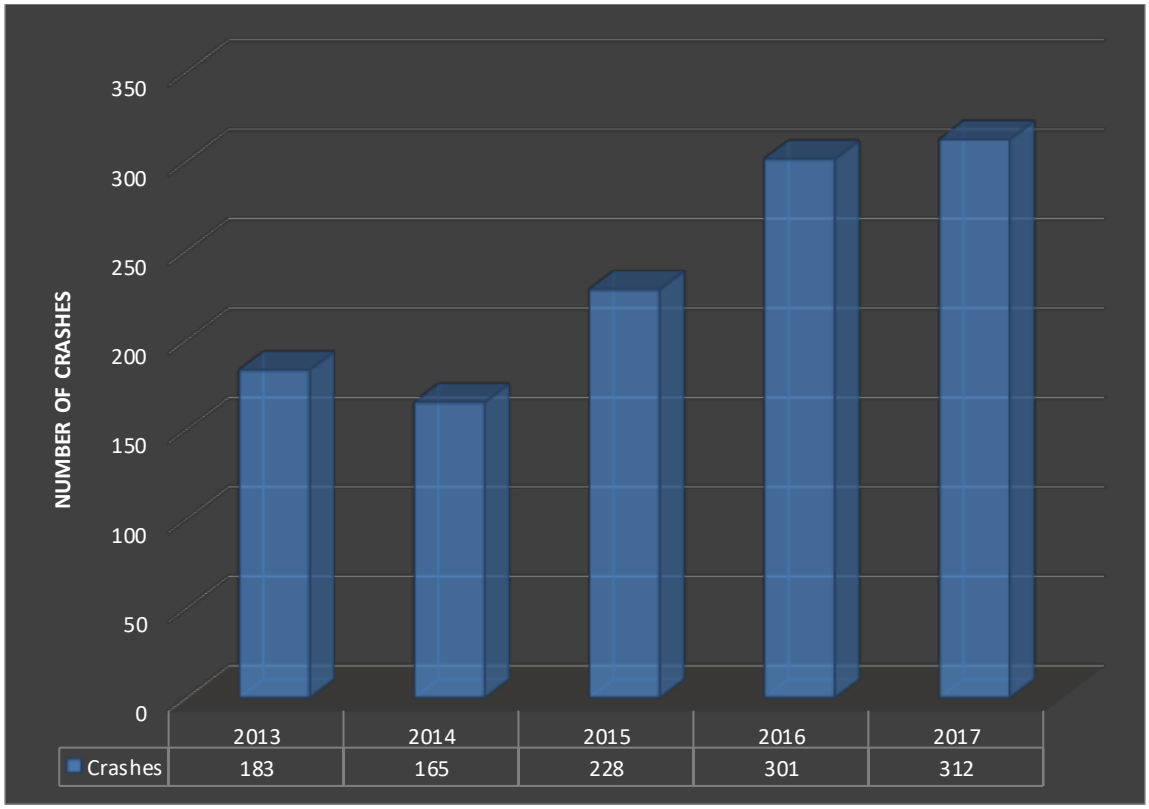
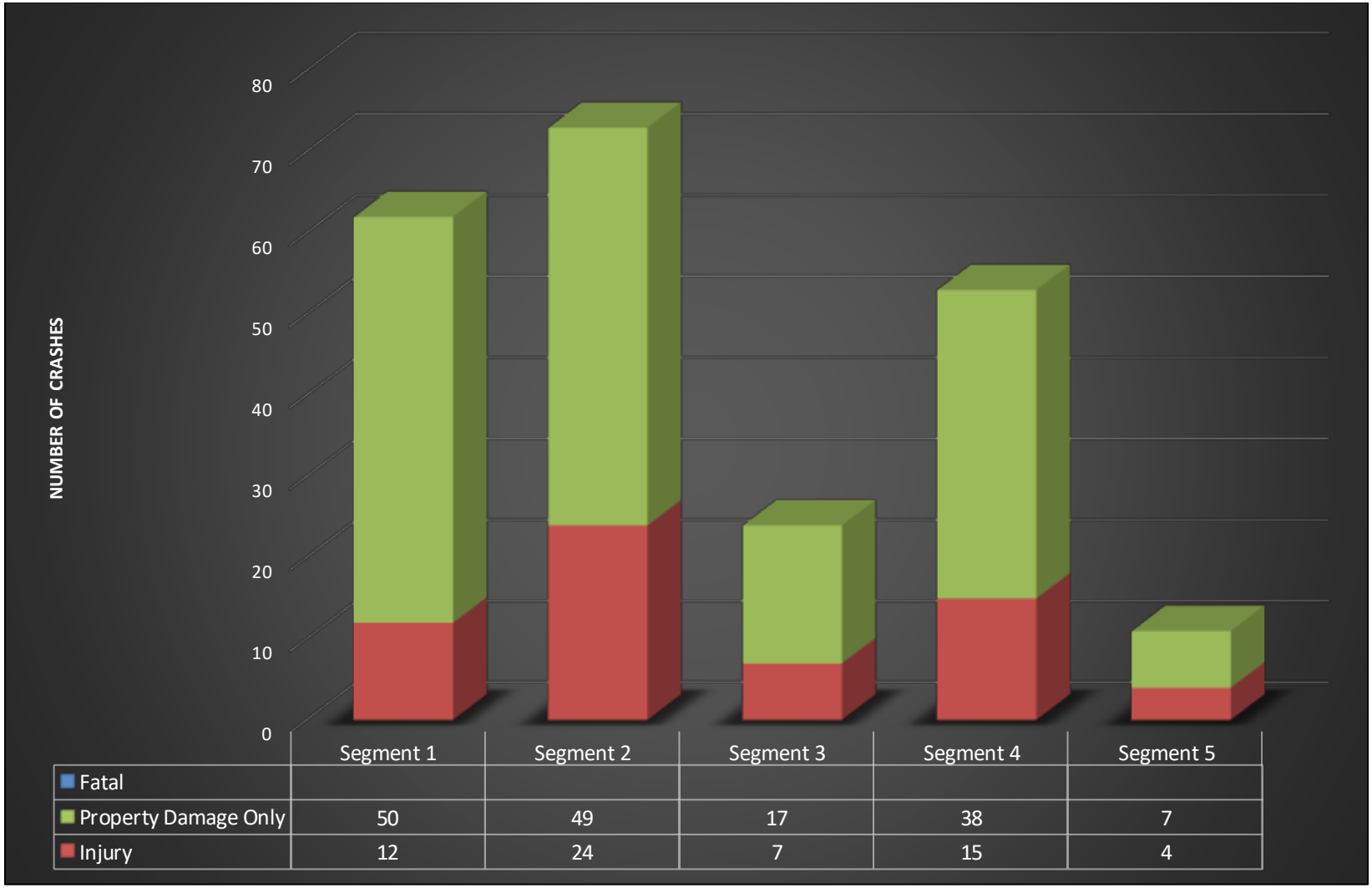
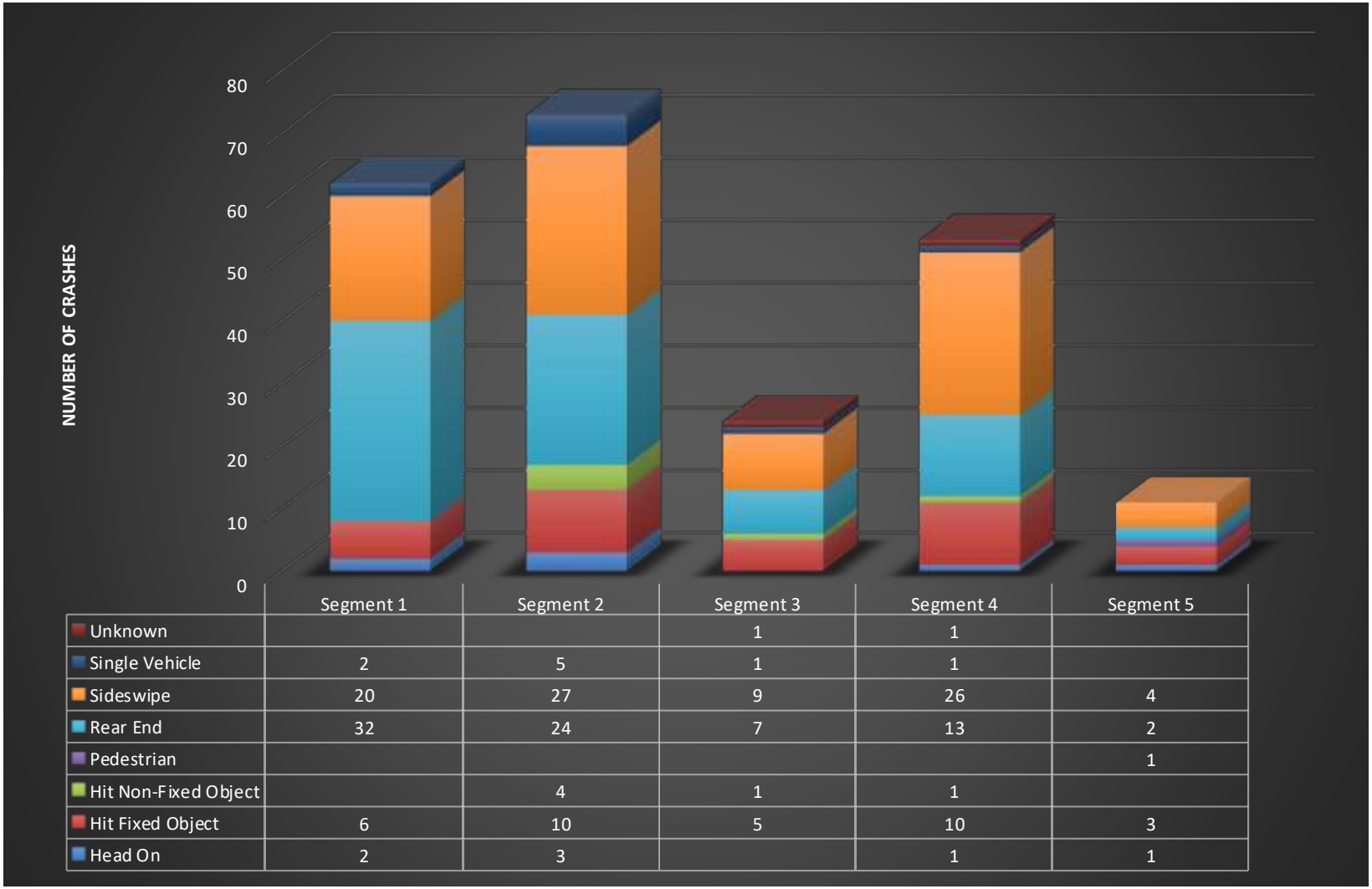


Figure 4-22 – Crash Severity – Eastbound I-4 (2013-2017)



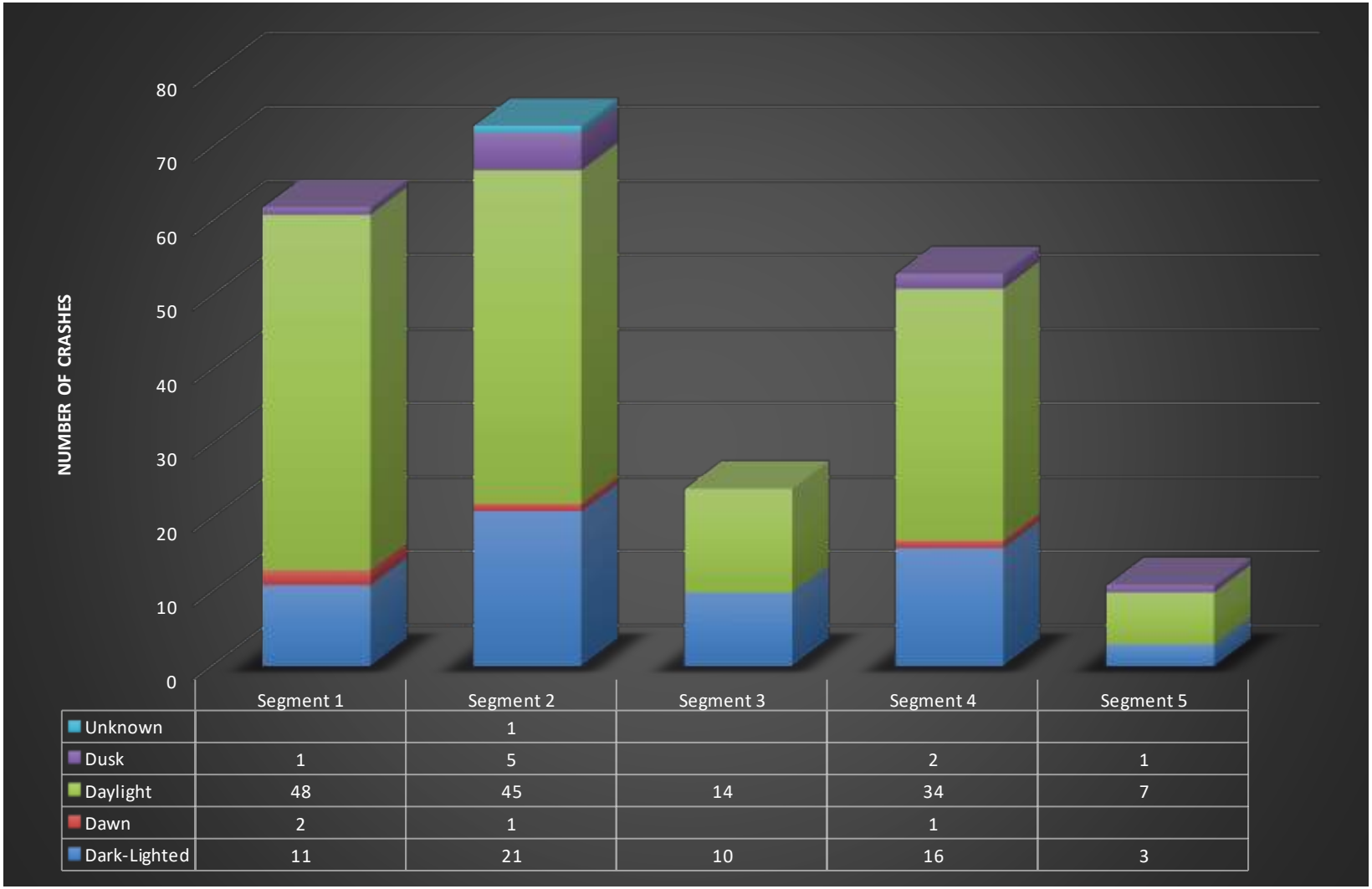
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Fatal					
Property Damage Only	50	49	17	38	7
Injury	12	24	7	15	4

Figure 4-23 – Crash Type – Eastbound I-4 (2013-2017)



	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Unknown			1	1	
Single Vehicle	2	5	1	1	
Sideswipe	20	27	9	26	4
Rear End	32	24	7	13	2
Pedestrian					1
Hit Non-Fixed Object		4	1	1	
Hit Fixed Object	6	10	5	10	3
Head On	2	3		1	1

Figure 4-24 – Crash Lighting – Eastbound I-4 (2013-2017)



	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Unknown		1			
Dusk	1	5		2	1
Daylight	48	45	14	34	7
Dawn	2	1		1	
Dark-Lighted	11	21	10	16	3

Figure 4-25 – Crash Road Condition – Eastbound I-4 (2013-2017)

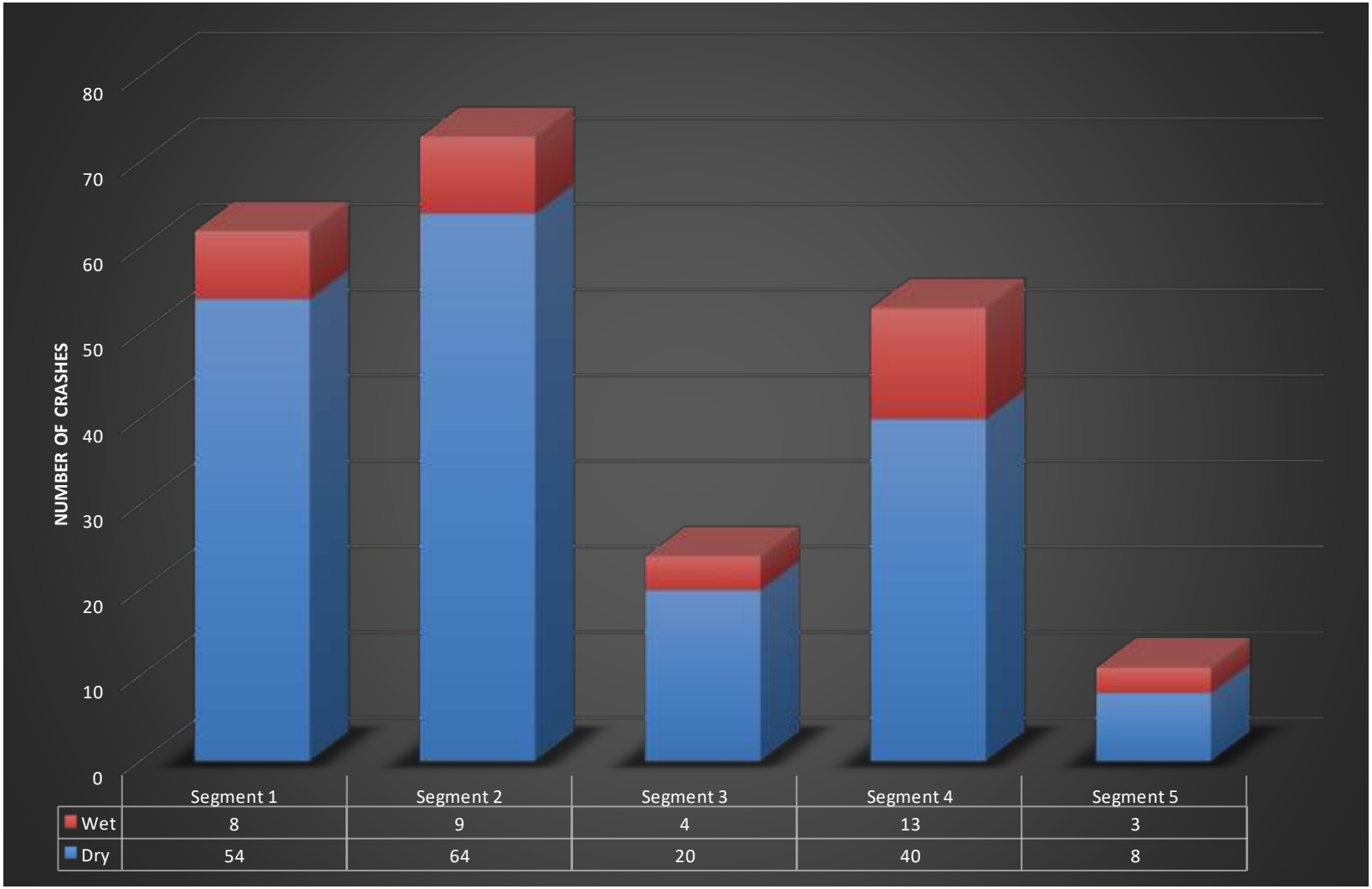
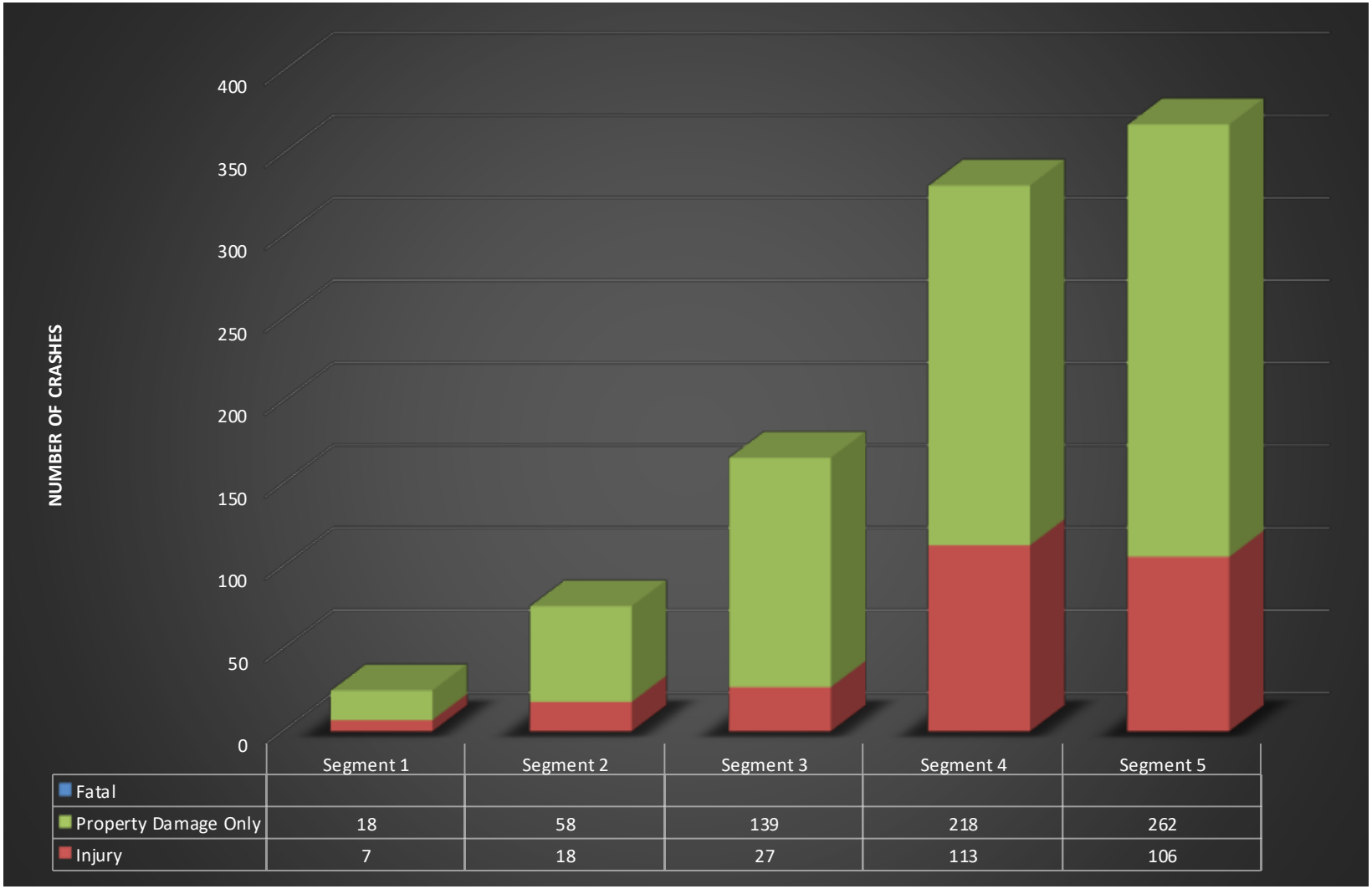
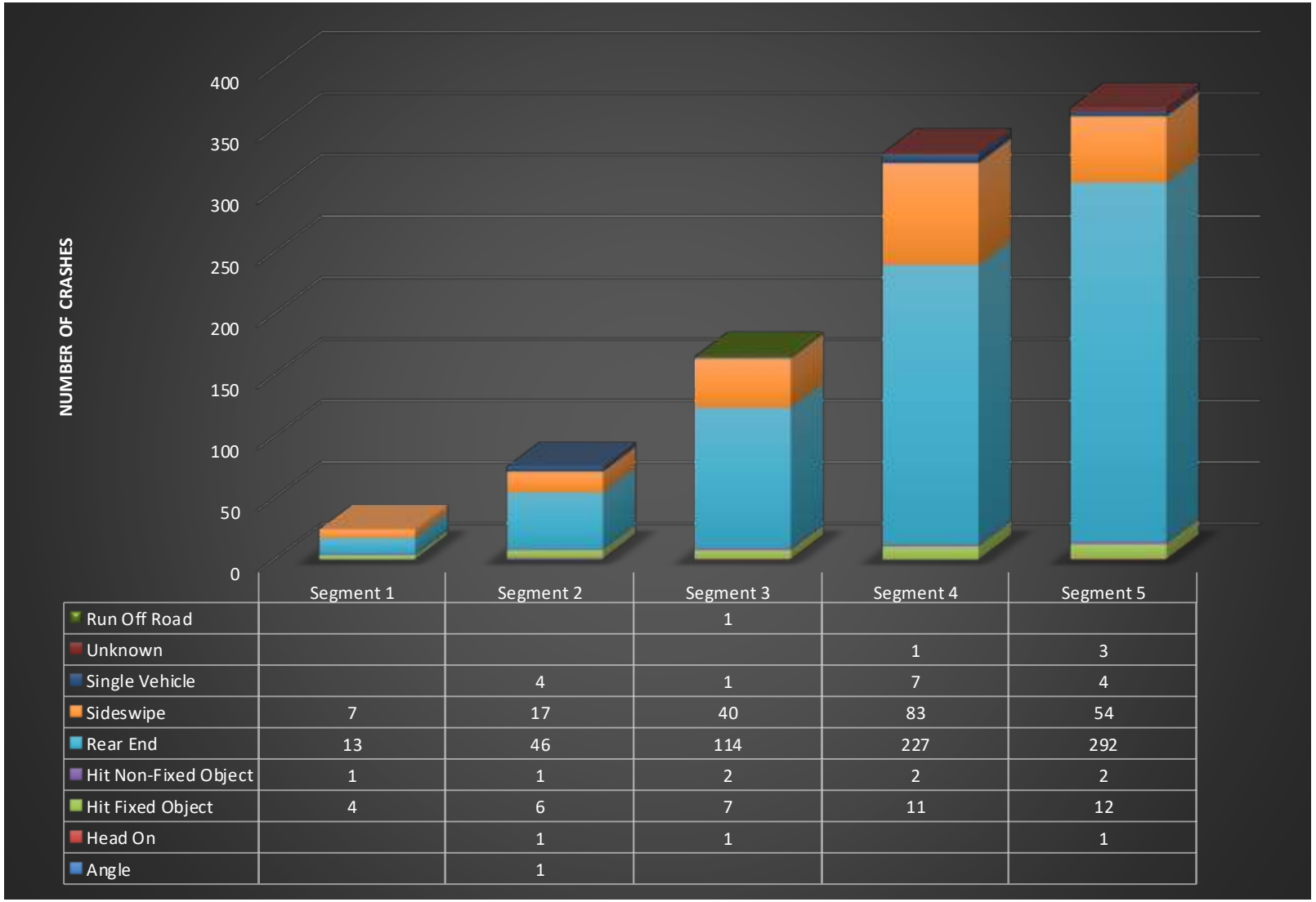


Figure 4-26 – Crash Severity – Westbound I-4 (2013-2017)



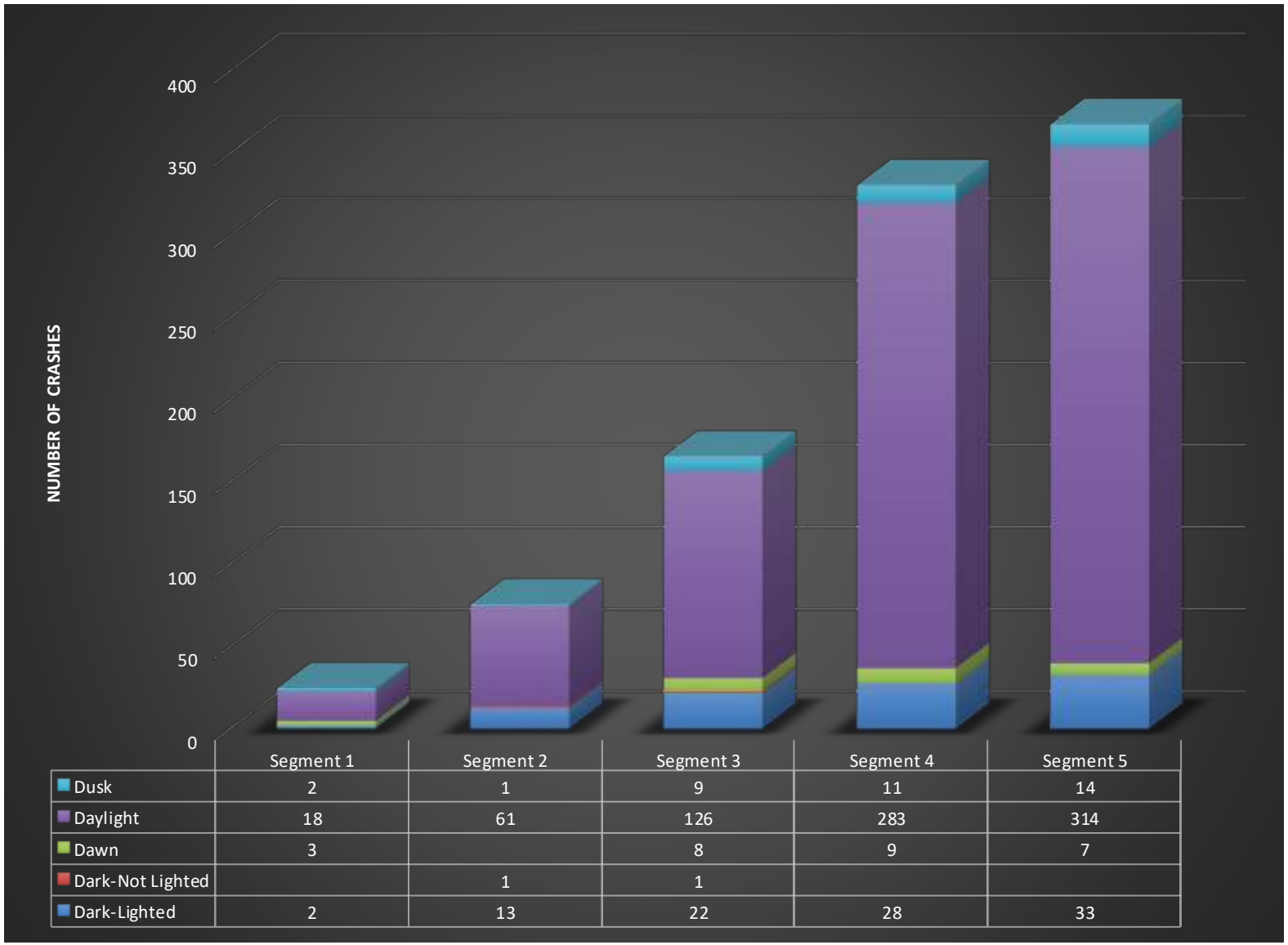
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Fatal					
Property Damage Only	18	58	139	218	262
Injury	7	18	27	113	106

Figure 4-27 – Crash Type – Westbound I-4 (2013-2017)



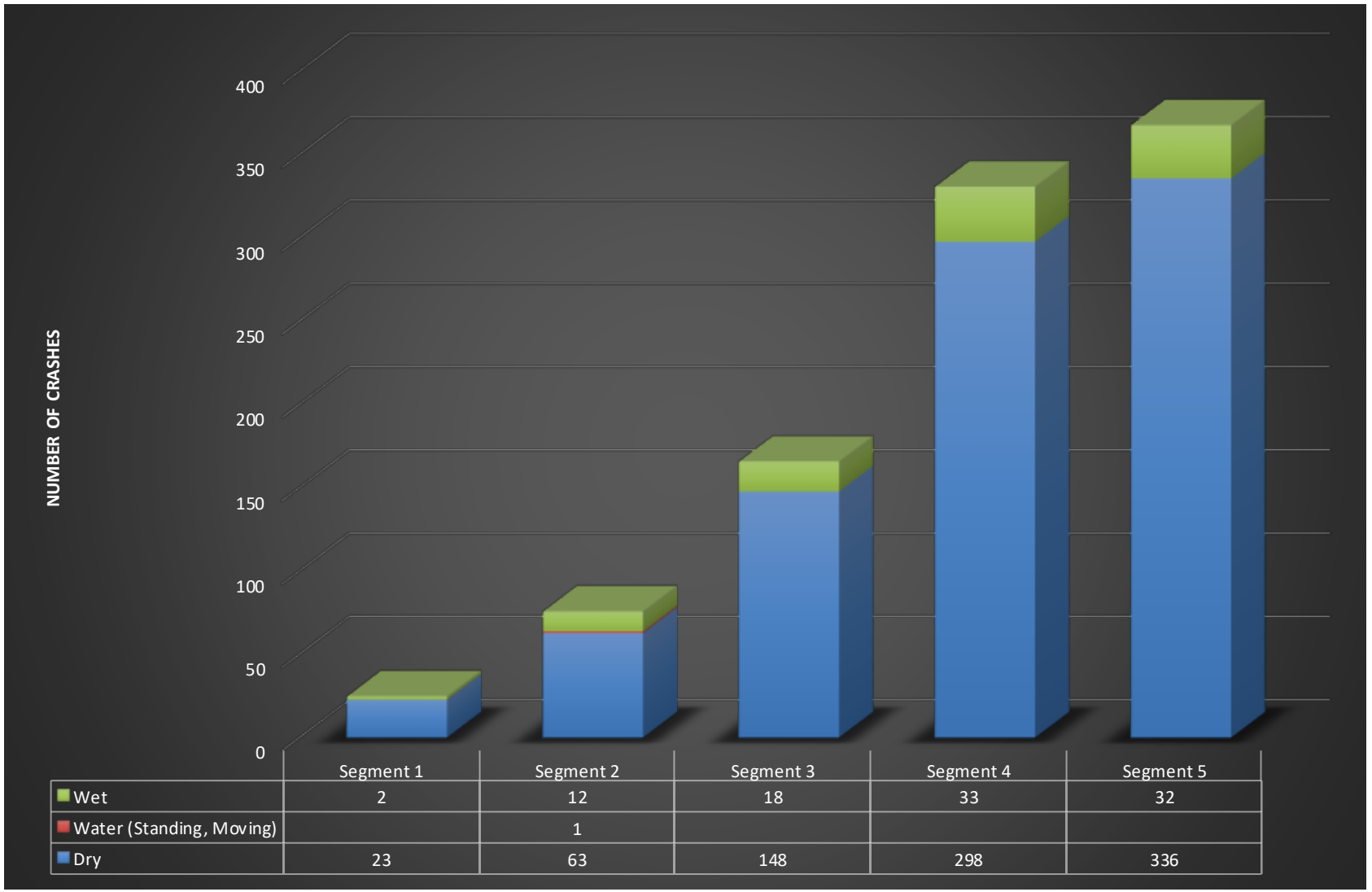
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Run Off Road			1		
Unknown				1	3
Single Vehicle		4	1	7	4
Sideswipe	7	17	40	83	54
Rear End	13	46	114	227	292
Hit Non-Fixed Object	1	1	2	2	2
Hit Fixed Object	4	6	7	11	12
Head On		1	1		1
Angle		1			

Figure 4-28 – Crash Lighting – Westbound I-4 (2013-2017)



	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Dusk	2	1	9	11	14
Daylight	18	61	126	283	314
Dawn	3		8	9	7
Dark-Not Lighted		1	1		
Dark-Lighted	2	13	22	28	33

Figure 4-29 – Crash Road Condition – Westbound I-4 (2013-2017)



4.5.2 Ramp, Ramp Terminal, and Intersection Analysis

Figure 4-30 and **Figure 4-31** show the distribution of ramp crashes at interchanges along northbound I-275 / eastbound I-4 and southbound I-275 / westbound I-4, respectively. In the northbound/eastbound direction, the ramp with the highest number of crashes was the northbound I-275 to eastbound I-4 off-ramp, with 86 crashes. In the southbound/westbound direction, the ramp with highest number of crashes was the southbound I-275 to eastbound I-4 off-ramp, with 119 crashes. The majority of crashes on ramps were rear end (49%), hit fixed object (22%), and sideswipe (17%) crashes. Ramp crashes are primarily caused by vehicles slowing down and having other vehicles hit them from behind due to the change in speed or swerving to avoid slowing traffic and hitting either a fixed object or another vehicle.

Figure 4-30 – Northbound/Eastbound Ramp Crashes (2013-2017)

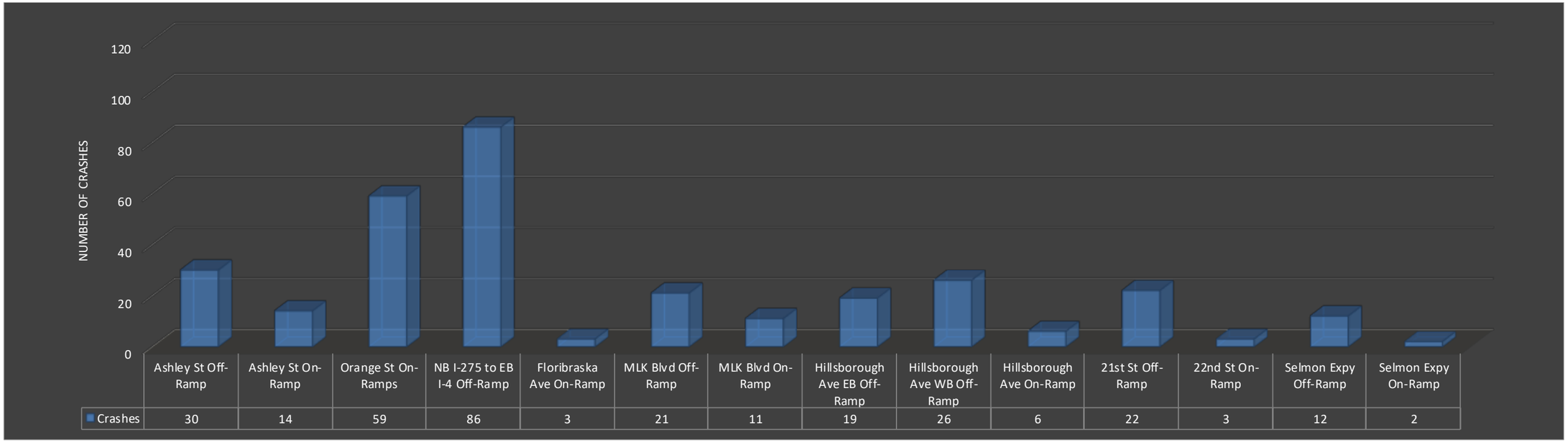
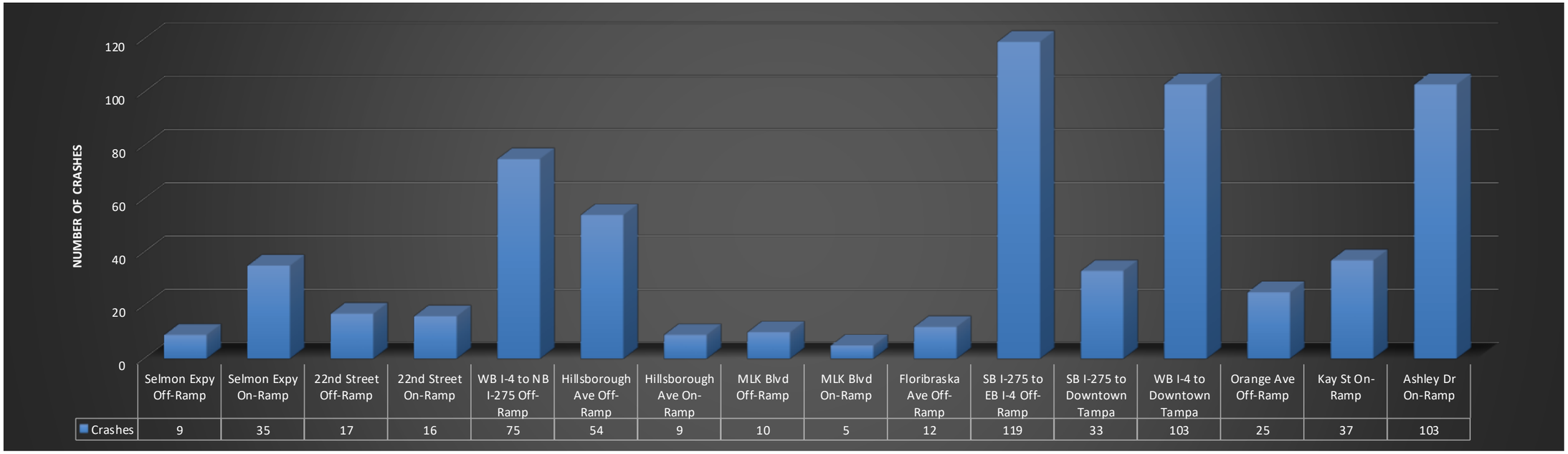


Figure 4-31 – Southbound/Westbound Ramp Crashes (2013-2017)



There were 542 crashes located at ramp terminal intersections within the study limits. There was one fatal (0.2%) crash, 223 (41%) injury crashes, and 318 (59%) property damage only crashes. The most prevalent crash types at ramp terminals were angle (38%), rear end (26%), and left turn (11%) crashes. **Figure 4-32** and **Figure 4-33** shows the distribution of crashes located at ramp terminals. In the northbound/eastbound direction, the ramp terminal with the highest amount of crashes was the 22nd St on-ramp with 45. In the southbound/westbound direction, the ramp terminal with the highest amount of crashes was the Dr. MLK, Jr. Boulevard off-ramp/on-ramp with 91. **Table 4-11** and **Table 4-12** show the five-year average intersection crash rate from 2013 to 2017 per Million Entering Vehicles (MEV) for the ramp terminals. Four out of eight ramp terminal intersections are above the statewide average in the northbound/eastbound direction and all the ramp terminal intersections are above the statewide average in the southbound/westbound direction.

Figure 4-32 – Northbound/Eastbound Ramp Terminal Crashes (2013-2017)

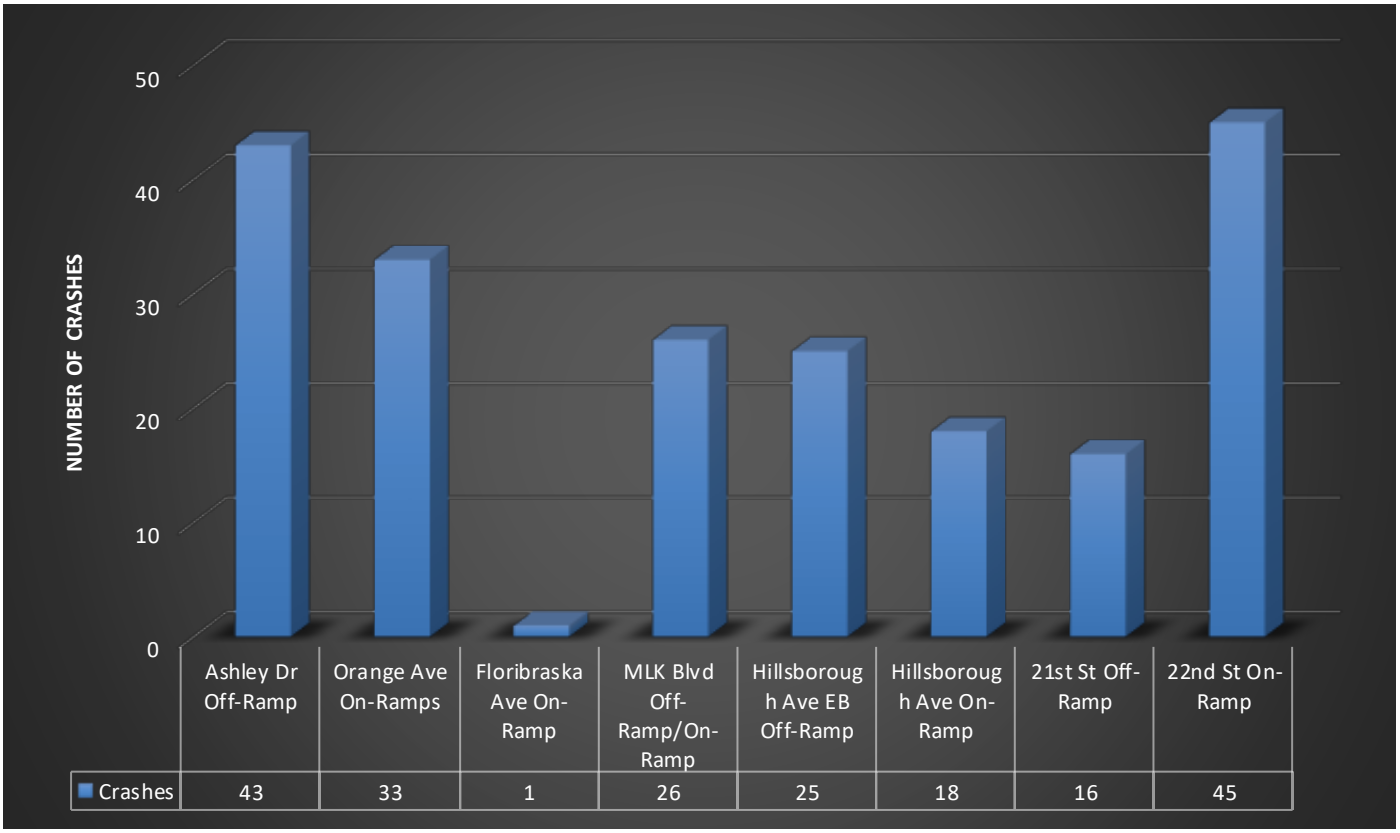


Figure 4-33 – Southbound/Westbound Ramp Terminal Crashes (2013-2017)

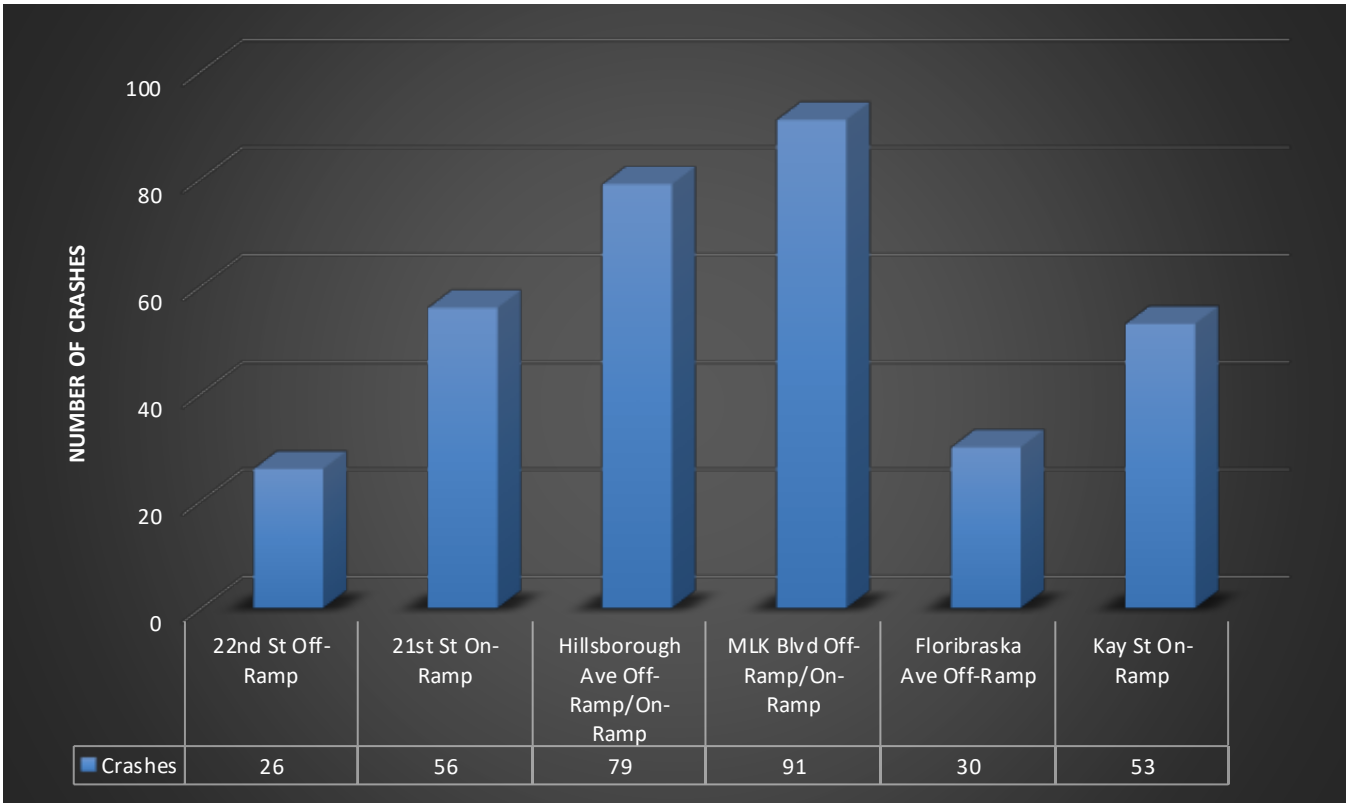


Table 4-11 – Crash Rate per Intersection per MEV (2013-2017) – Northbound/Eastbound Ramp Terminals

Ramp Terminal	Total Crashes	Average AADT	Five Year Average Crash Rate (MEV)	Crash Rate Category	Statewide Average Crash Rate (MEV)
Ashley Dr Off-Ramp	43	15,800	1.491	Urban One Way	0.575
Orange Ave On-Ramps	33	20,000	0.904	Urban One Way	0.575
Floribraska Ave On-Ramp	1	5,700	0.096	Urban 4-5Ln 2Wy Undivd	0.360
Dr. MLK, Jr. Blvd Off-Ramp/On-Ramp	26	39,900	0.357	Urban 4-5Ln 2Wy Divd Pavd	0.345
Hillsborough Ave EB Off-Ramp	25	53,900	0.254	Urban 4-5Ln 2Wy Divd Pavd	0.345
Hillsborough Ave On-Ramp	18	53,900	0.183	Urban 4-5Ln 2Wy Divd Pavd	0.345
21st St Off-Ramp	16	17,200	0.510	Urban One Way	0.575
22nd St On-Ramp	45	18,900	1.305	Urban One Way	0.575

Table 4-12 – Crash Rate per Intersection per MEV (2013-2017) – Southbound/Westbound Ramp Terminals

Ramp Terminal	Total Crashes	Average AADT	Five Year Average Crash Rate (MEV)	Crash Rate Category	Statewide Average Crash Rate (MEV)
22nd St Off-Ramp	26	9,200	1.549	Urban One Way	0.575
21st St On-Ramp	56	13,500	2.273	Urban One Way	0.575
Hillsborough Ave Off-Ramp/On-Ramp	79	60,300	0.718	Urban 4-5Ln 2Wy Divd Pavd	0.345
Dr. MLK, Jr. Blvd Off-Ramp/On-Ramp	91	38,900	1.282	Urban 4-5Ln 2Wy Divd Pavd	0.345
Floribraska Ave Off-Ramp	30	10,200	1.612	Urban 4-5Ln 2Wy Undivd	0.360
Kay Street On-Ramp	53	11,300	2.570	Urban One Way	0.575

There were 1,077 crashes located at intersections within the study limits. There were seven (0.1%) fatal crashes, 504 (47%) injury crashes, and 566 (53%) property damage only crashes. The most prevalent crash types at intersections were angle (44%), rear end (26%), and sideswipe (10%) crashes. **Figure 4-34** shows the top five intersections with the most crashes. The intersection of Dr. MLK, Jr. Boulevard at Nebraska Avenue had the most crashes with 127. **Table 4-13** shows the five-year average intersection crash rate from 2013 to 2017 per Million Entering Vehicles (MEV). All of the intersections shown below are above the statewide average.

Figure 4-34 – Intersection Crashes (2013-2017)

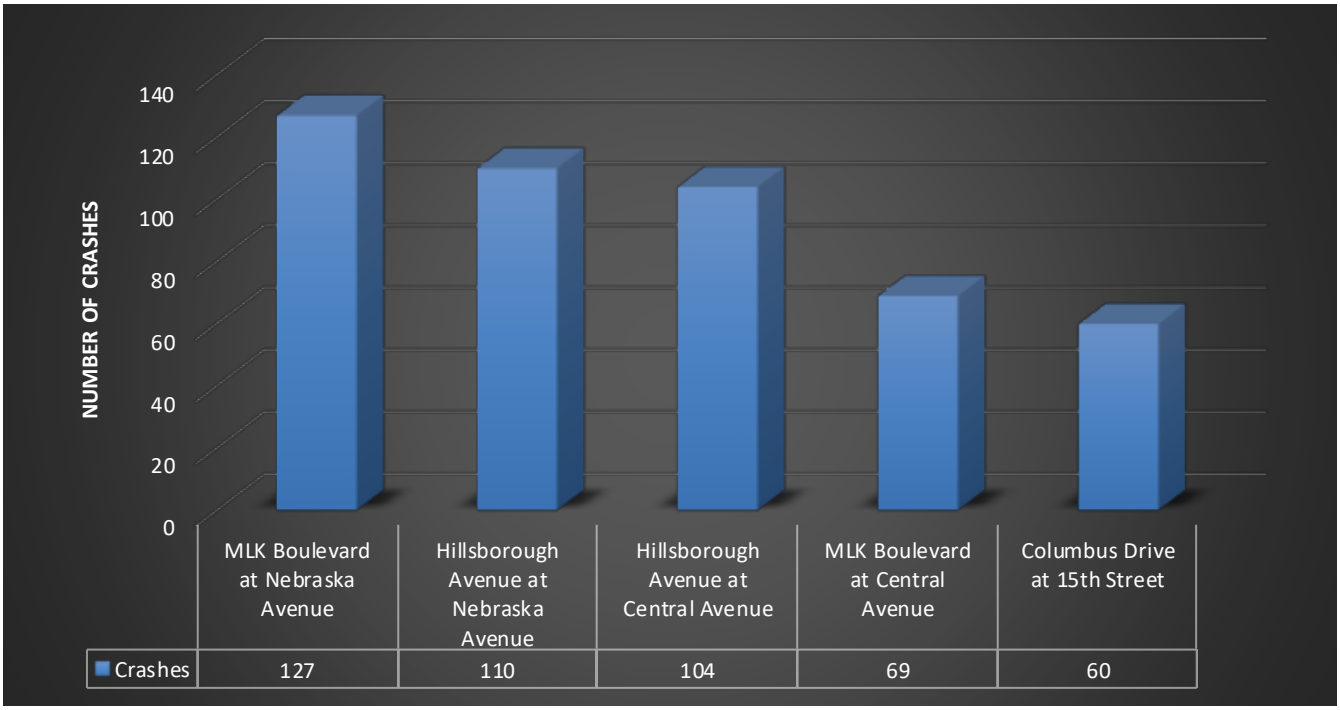


Table 4-13 – Crash Rate per Intersection per MEV (2013-2017)

Intersection	Total Crashes	Average AADT	Five Year Average Crash Rate (MEV)	Crash Rate Category	Statewide Average Crash Rate (MEV)
Dr. MLK, Jr. Boulevard at Nebraska Avenue	127	42,400	1.641	Urban 4-5Ln 2Wy Divd Pavd	0.522
Hillsborough Avenue at Nebraska Avenue	110	63,400	0.951	Urban 4-5Ln 2Wy Divd Pavd	0.522
Hillsborough Avenue at Central Avenue	104	62,200	0.916	Urban 4-5Ln 2Wy Divd Pavd	0.522
Dr. MLK, Jr. Boulevard at Central Avenue	69	36,200	1.044	Urban 4-5Ln 2Wy Divd Pavd	0.522
Columbus Drive at 15th Street	60	5,900	5.572	Urban One Way	0.575

4.5.3 Economic Loss Due to Crashes

The economic loss due to crashes is summarized in **Table 4-14**. The total economic loss due to 7,398 crashes for the analysis years from 2013 through 2017 was estimated to be $645,546,192.

Table 4-14 – Economic Loss Due to Crashes

Crash Severity	Crashes	Comprehensive Crash Cost	Economic Loss
Fatal	18	$10,670,000	$192,060,000
Severe Injury (Incapacitating)	160	$872,612	$139,617,920
Moderate Injury (Non-Incapacitating)	649	$174,018	$112,937,682
Minor Injury (Possible Injury)	1,526	$106,215	$162,084,090
Property Damage Only	5,045	$7,700	$38,846,500
Total	**7,398**		**$645,546,192**

Note: (1) Source: Florida Department of Transportation State Safety Office's Crash Analysis Reporting (CAR) System, analysis years 2013 through 2017.

5. DESCRIPTION OF ALTERNATIVES

5.1 No-Build Alternative

This alternative will consider existing roadway conditions with all planned and programmed projects anticipated to be constructed within the study area that are funded in the FDOT Work Program, and City of Tampa's CIP.

The No-Build Alternative includes the improvements proposed in the TBNext Section 7 Phase 1 Non-Interchange Access Request (Non-IAR) which was approved in December 2020. The improvements include widening for one additional auxiliary lane in each direction of travel on I-275 from north of I-4 to north of Dr. MLK, Jr. Boulevard (WPID: 443770-1), one additional northbound travel lane from the north of Dr. MLK, Jr. Boulevard to Hillsborough Avenue and one additional southbound travel lane from the north of Hillsborough Avenue to the north of Dr. MLK, Jr. Boulevard (WPID: 431821-2).

In addition, the No-Build Alternative includes improvements proposed by the City of Tampa which include a cycle track along Nuccio Parkway from 7th Avenue to 13th Avenue (FPID 439476-3-58-01 & FPID 439476-3-58-02), and 15th Street from 13th Avenue to 21st Avenue (FPID 439476-4-58-01 & FPID 439476-4-58-02), scheduled to be constructed in 2023, prior to the Opening Year (2025). To accommodate the cycle track, Nuccio Parkway will be modified to one-lane northbound south of Palm Avenue to 13th Avenue.

The No-Build Alternative also includes improvements proposed by FDOT at MLK Boulevard (FPID 443773-1-52-01) and Hillsborough Avenue (FPID 436732-2-52-01), scheduled to be constructed before the Design Year (2045).

The No-Build Alternative concept development plans are provided in **Appendix F**.

Table 5-1 summarizes the adjacent projects status by the Opening Year and Design Year and included in the No-Build Alternative.

Table 5-1 - Project Implementation Schedule for Adjacent TBNext Sections for No-Build Alternative

Analysis Year	Section 4 and 5	Section 8 (I-4)	Section 7 (I-275 from Osborne Ave to Bearss Ave)
Opening Year (2025)	Four general use lanes and two express lanes in each direction (WPID#s: 412513-2, 433535-7, 434045-2)	No-Build	Four general use lanes in each direction from Osborne Avenue to Hillsborough Avenue (WPID: 431821-2)
Design Year (2045)	Four general use lanes and two express lanes in each direction (WPID#s: 412513-2, 433535-7, 434045-2)	Two express lanes in each direction east of Selmon Connector (WPID: 431746-3)	Four general use lanes from I-4 to Bearss Avenue

Note: The No-Build Alternative also includes improvements proposed by the City of Tampa which include a cycle track along Nuccio Parkway from 7th Avenue to 13th Avenue (FPID 439476-3-58-01 & FPID 439476-3-58-02), and 15th Street from 13th Avenue to 21st Avenue (FPID 439476-4-58-01 & FPID 439476-4-58-02), scheduled to be constructed in 2023, prior to the Opening Year (2025). To accommodate the cycle track, Nuccio Parkway will be modified to one-lane northbound south of Palm Avenue to 13th Avenue.

Additionally, improvements proposed by FDOT at MLK Boulevard (FPID 443773-1-52-01) and Hillsborough Avenue (FPID 436732-2-52-01), are scheduled to be constructed before the Design Year (2045).

5.2 Build Alternative

The Build Alternative consists of all the changes proposed in the No-Build Alternative as shown in Table 5-1 and the following improvements:

- Widening of the existing southbound I-275 to eastbound I-4 flyover ramp to two lanes with a two-lane exit from southbound I-275. The existing auxiliary lane that begins at the entrance ramp from Dr. MLK, Jr. Boulevard still would also provide drivers access to the I-4 flyover ramp without changing lanes. Two lane change over a distance greater than 5,000 feet are needed for traffic entering southbound I-275 from MLK Boulevard to travel south on I-275. Both I-275 exits at eastbound I-4 and Downtown Tampa will also provide lane balance at the off-ramp gores. The two-lane exit to the flyover ramp provides access from the outside southbound through lane from north of Hillsborough Avenue without changing lanes. The existing exit ramp to Floribraska Avenue will remain.

- Relocation of the eastbound I-4 exit ramp to Ybor City and East Tampa from the existing location at 21st/22nd Street to 14th/15th Street and widening of the single-lane frontage road, 13th Avenue, to two lanes. Relocation of the exit ramp to 14th/15th Street includes a slip ramp from the widened I-4 flyover ramp for southbound I-275 and a new ramp from northbound I-275 to 14th/15th Street.

- Widening of existing westbound I-4 to northbound I-275 off-ramp to two lanes. Widening would begin west of 14th Street with the addition of an auxiliary lane on westbound I-4 beginning at the on-ramp from 21st Street and continuing along northbound I-275 to the Floribraska Avenue on-ramp.

- Addition of a sixth auxiliary lane on northbound I-275 between the Floribraska Avenue on-ramp and the Dr. MLK, Jr. Boulevard off-ramp and widening of Dr. MLK, Jr. Boulevard off-ramp to two lanes. The five lanes will continue from Dr. MLK, Jr. Boulevard off-ramp and then reduce to four lanes prior to the on-ramp from Dr. MLK, Jr. Boulevard.

- Widening the westbound I-4 to southbound I-275 off-ramp from two lanes to three lanes. The three lanes will join the two lanes from southbound I-275 to provide five lanes and merge to four lanes near Jefferson Street.

- Removal of the southbound connection on 12th Avenue to northbound 15th Street.

No complex weaves are introduced with the Build Alternative. The Build Alternative concept development plan is provided in **Appendix G**.

Apart from the Build improvements describe above, **Table 5-2** summarizes the adjacent projects status by the Opening Year and Design Year and included in the Build Alternative.

Table 5-2 - Project Implementation Schedule for Adjacent TBNext Sections for Build Alternative

Analysis Year	Section 4 and 5	Section 8 (I-4)	Section 7 (I-275 from Osborne Ave to Bearss Ave)
Opening Year (2025)	Four general use lanes and two express lanes in each direction (WPID#s: 412513-2, 433535-7, 434045-2)	No-Build	Four general use lanes in each direction from Osborne Avenue to Hillsborough Avenue (WPID: 431821-2)
Design Year (2045)	Four general use lanes and two express lanes in each direction (WPID#s: 412513-2, 433535-7, 434045-2)	Two express lanes in each direction east of Selmon Connector (WPID: 431746-3)	Four general use lanes from I-4 to Bearss Avenue

6. FUTURE YEARS TRAFFIC FORECASTING

A PTAR for Sections 4/5 and Section 6 was prepared in November of 2019 and approved in July 2020 in support of the TIS SEIS performed under NEPA. The purpose of the SEIS study was to determine the preferred alternative and resulting traffic impacts for improving the interstate system within the Tampa Bay region, including I-275 and I-4. The I-275 at I-4 SIMR study limits extend from the Ashley Drive/ Tampa Street interchange to north of Dr. MLK, Jr. Boulevard along I-275 and from I-275 to the Selmon Expressway Connector along I-4.

6.1 Selected Travel Demand Model

The TBRPM version 8.1 model was used for the development of a sub-area model developed for the purposes of the traffic projections of the proposed TBNext program and the information is used in the SIMR for consistency. The TBRPM model is based on the Florida Standard Urban Transportation Modeling Structure (FSUTMS) and is recognized by FDOT District Seven, FDOT Central Office, Hillsborough County MPO, Forward Pinellas, Pasco County MPO, and Hernando / Citrus MPO as an acceptable travel demand forecasting tool which has been used to develop design traffic for several recent public projects. This version of the TBRPM model with Base Year 2010 and Cost Feasible Year 2040 is used for volume projections.

The TBRPM v8.1 model process is identified as the traditional "four-step model" including trip generation, trip distribution, mode choice, and trip assignment. The four steps use the socioeconomic data and transportation network in the study area as major inputs to estimate the number of trips generated, and then assign the trips to the transportation facilities. The TBRPM v8.1 is a Time-of-Day (TOD) model which estimates the daily trips for the region and through the Trip Generation model process, the daily trips are subdivided into Peak and Off-Peak trips for distribution through the mode choice modules. In the last step, trip assignment, the trips are assigned based on four time periods:

- AM Peak Period – 6:30 AM to 9:00 AM (2.5 hours)
- Midday Off-Peak Period – 9:00 AM to 3:30 PM (6.5 hours)
- PM Peak Period – 3:30 PM to 6:30 PM (3 hours)
- Evening/Overnight Off-Peak – 6:30 PM to 6:30 AM (12 hours)

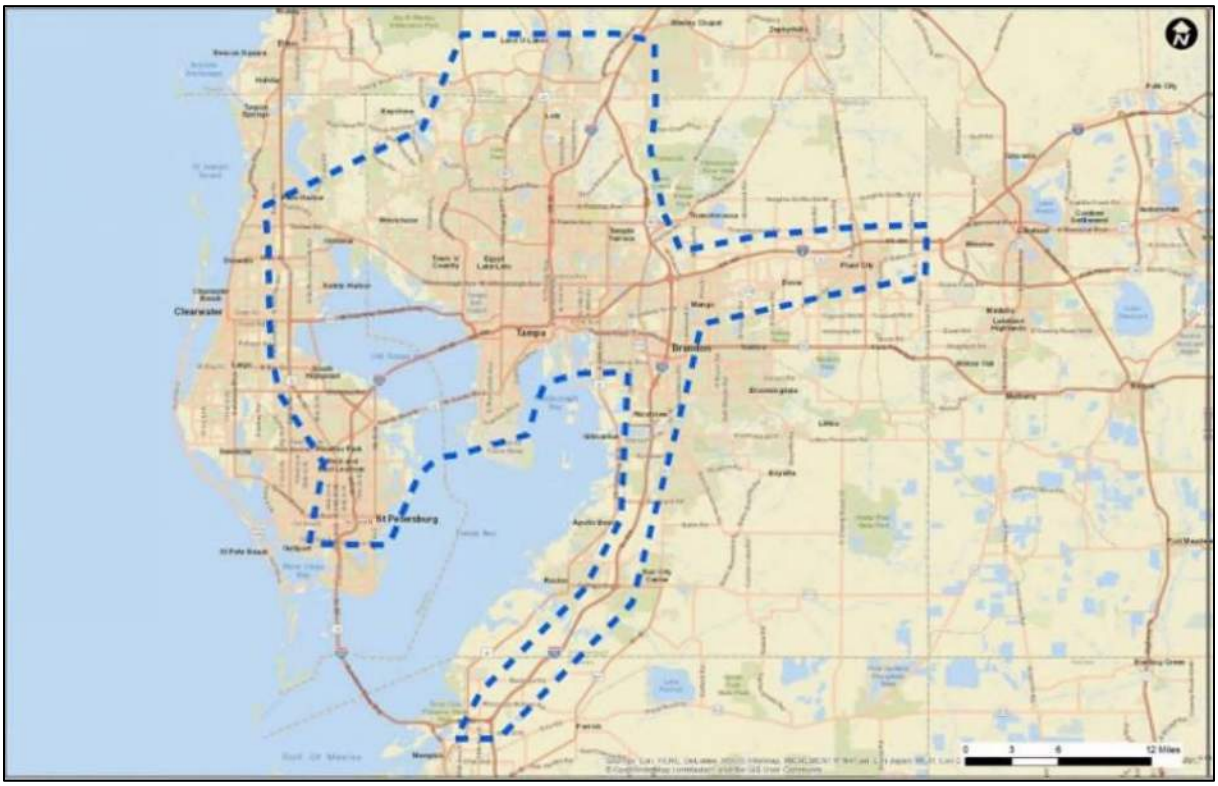
A review of the model validation was conducted for the 2010 base year. The review

concludes that the TBRPM v8.1 provides a valid tool for developing traffic forecasts for the TBNext Projects and therefore this study.

6.2 Base Year Sub-Area Model Calibration

The Base Year (2010) model was validated at a regional level to ensure that the model is replicating the counts within the study area. A sub-area model network was extracted from the TBRPM v8.1 validated regional model to further calibrate the traffic volumes and sub-area trip tables. The sub-area network includes all the sections of the TBNext projects that has roadways in most of Hillsborough and Pinellas Counties and a portion of Manatee County and Pasco County. **Figure 6-1** provides the extracted network from the 2010 Base Year regional network. The sub-area network and trip tables, along with the traffic counts provided input for the ODME process. Necessary adjustments have been made to the model input including hourly capacity and free flow speed adjustments. **Table 6-1** represents a summary of the adjustments made to the sub-area input network. The details of the adjustment process are documented in Section 2.2.1.2 and Section 3.3 of the "TBRPM v8.1 2010 Base Year Sub-Area Model Calibration for TBNext Projects, May 2018" report provided with **Appendix A**.

Figure 6-1 - Sub-area Model Coverage Area



The ODME process is used to refine the sub-area and corridor level travel demand. The 2010 Base Year volumes closely correspond to observed data and the majority of the mainline volumes are within the targeted ranges. This provides a good base year model for future year travel demand forecasts.

Table 6-1 - Sub-Area Model Adjustments

Corridor	Segment	Model Inputs	Original Model	Adjusted in Sub-Area Model
I-275	From US 92 to I-4	Hourly Capacity (vehicle per hour per lane)	2,300-2,400	2,000-2,100
I-4	From I-275 to N 54th St	Hourly Capacity (vehicle per hour per lane)	2,300-2,400	2,000-2,100
I-275	From US 92 to I-4	Free Flow Speed (miles per hour)	50	55
I-4	From I-275 to N 54th St	Hourly Capacity (vehicle per hour per lane)	2,300-2,400	2,000-2,100
		Free Flow Speed (miles per hour)	50	55
I-75	From E Fletcher Ave to I-4	Free Flow Speed (miles per hour)	50	55

Table 6-2 provides a summary of the Percent Root Mean Square Error (RMSE) for all the 2010 traffic count locations within the sub area, from the model outputs before and after the ODME process. The percent RMSE is a measure of the average deviation between the actual counts and model assigned volumes. It is one of the indicators to illustrate how closely the model volumes match the observed traffic counts. Details on the sub-area ODME process has been documented in Section 3.4 of the "TBRPM v8.1 2010 Base Year Sub-Area Model Calibration for TBNext Projects, May 2018" report, including the following additional measures:

- 2010 Base Year Sub Area Model Volume to Count Comparison by Volume Groups
- 2010 Base Year Sub Area Model Volume to Count Comparison for Freeway Segments
- 2010 Base Year Sub Area Model Volume to Count Comparison for Ramps
- 2010 Base Year Sub Area Model Volume to Count Comparison for All Traffic Count Locations

Table 6-2 - 2010 Base Year Sub-Area Model Volume Group Percent RMSE

Volume Group	Number of Count Locations	% RMSE (Pre ODME)	% RMSE (Post ODME)
<5,000	193	115%	105%
5,000-10,000	260	64%	56%
10,000-20,000	275	40%	39%
20,000-30,000	118	28%	28%
30,000-40,000	105	23%	23%
40,000-50,000	68	21%	20%
>50,000	147	12%	10%
Total	**1,166**	**27%**	**24%**

6.3 No-Build Volumes

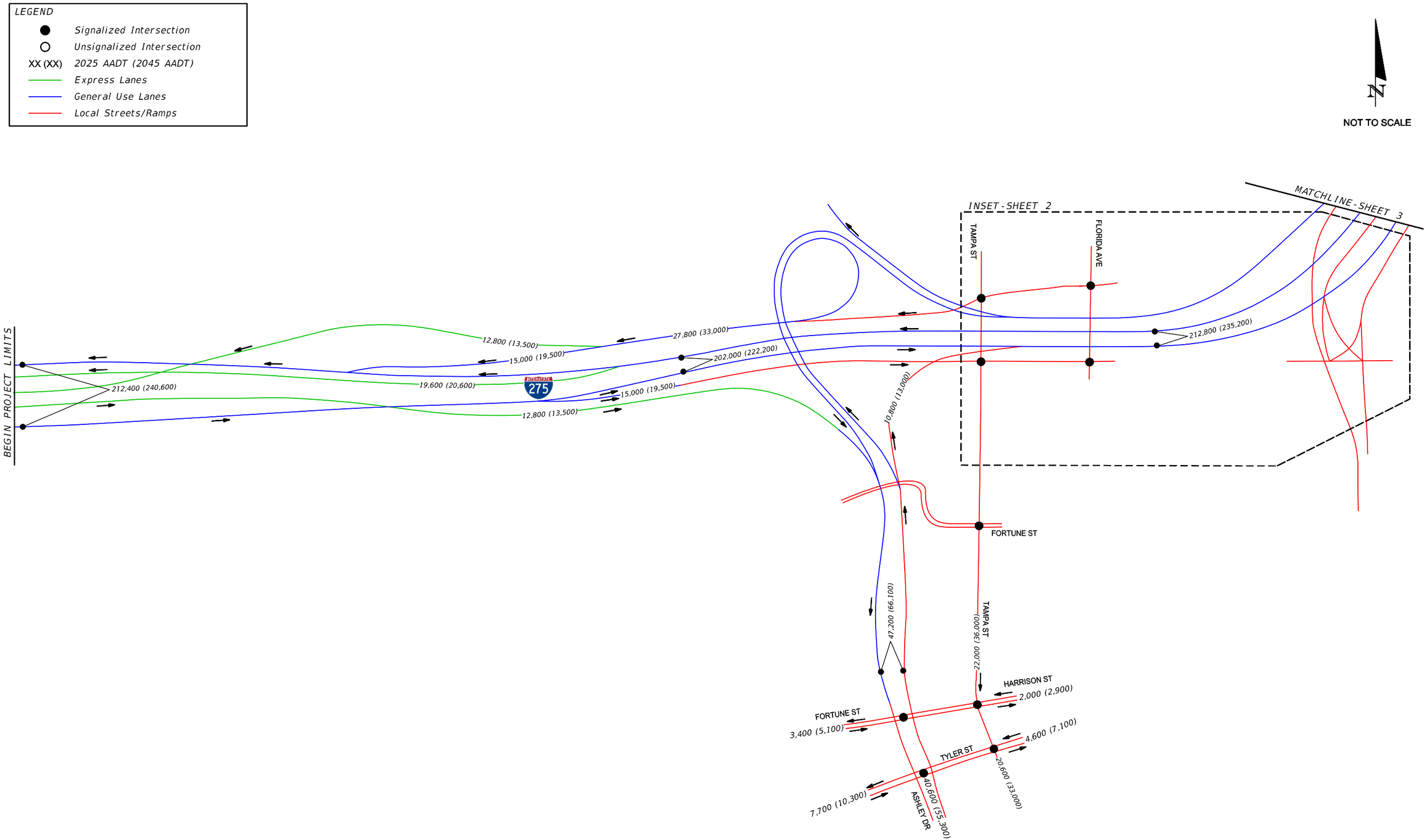
As part of the No-Build volumes, the base year calibration parameters were carried over to 2025 and 2045 No-Build TBPRM and sub-area ODME models. The models provide PSWADT volumes for the next steps. MOCFs are applied to convert PSWADT to AADTs for Base Year 2010, Future Year 2025, and 2045. The National Cooperative Highway Research Program (NCHRP) report 765 recommends the "Factoring Procedure-Difference Method" approach, which was utilized to correct the error associated with regional model projected volumes. Following this procedure, the existing year 2018 AADTs were interpolated from base year and future year TBRPM models. These values were compared to existing traffic count (year 2018 count data) and the difference (delta) was calculated. This delta was applied to the future year 2025 and 2045 TBRPM model AADT values to correct the error in the model and to make sure growth rates are reasonable. The delta adjusted year 2025 and 2045 AADTs were balanced along the mainline by matching the AADTs near Section 7 phase 1 overlap (North of I-4 northbound on-ramp) and near Section 4/5 overlap (south of Ashley Drive/Tampa Street), and using the TBRPM model ramps AADTs within SEIS limits.

After the AADTs were established, the K- and D-factors recommended for the project were applied to the ramps to calculate the demand on each ramp in the AM and PM peak according to the existing peak direction. Using the Section 7 phase 1 and Section 4/5 match lines as refence points, AM and PM mainline demands were matched to Section 7 phase 1 and Section 4/5 mainline demands for years 2025 and 2045 and were balanced

with the ramp demands developed above.

The ramp volumes were revised to achieve the DDHV targets at the above boundary locations. The ramp terminal intersections were balanced using the on-/off-ramp demand values and existing turn percentages.

The No-Build AADTs for Opening Year (2025) and Design Year (2045) are shown in **Figure 6-2**. **Figure 6-3** and **Figure 6-4** present the Opening Year (2025) and Design Year (2045) DDHV's for the No-Build Alternative, respectively.

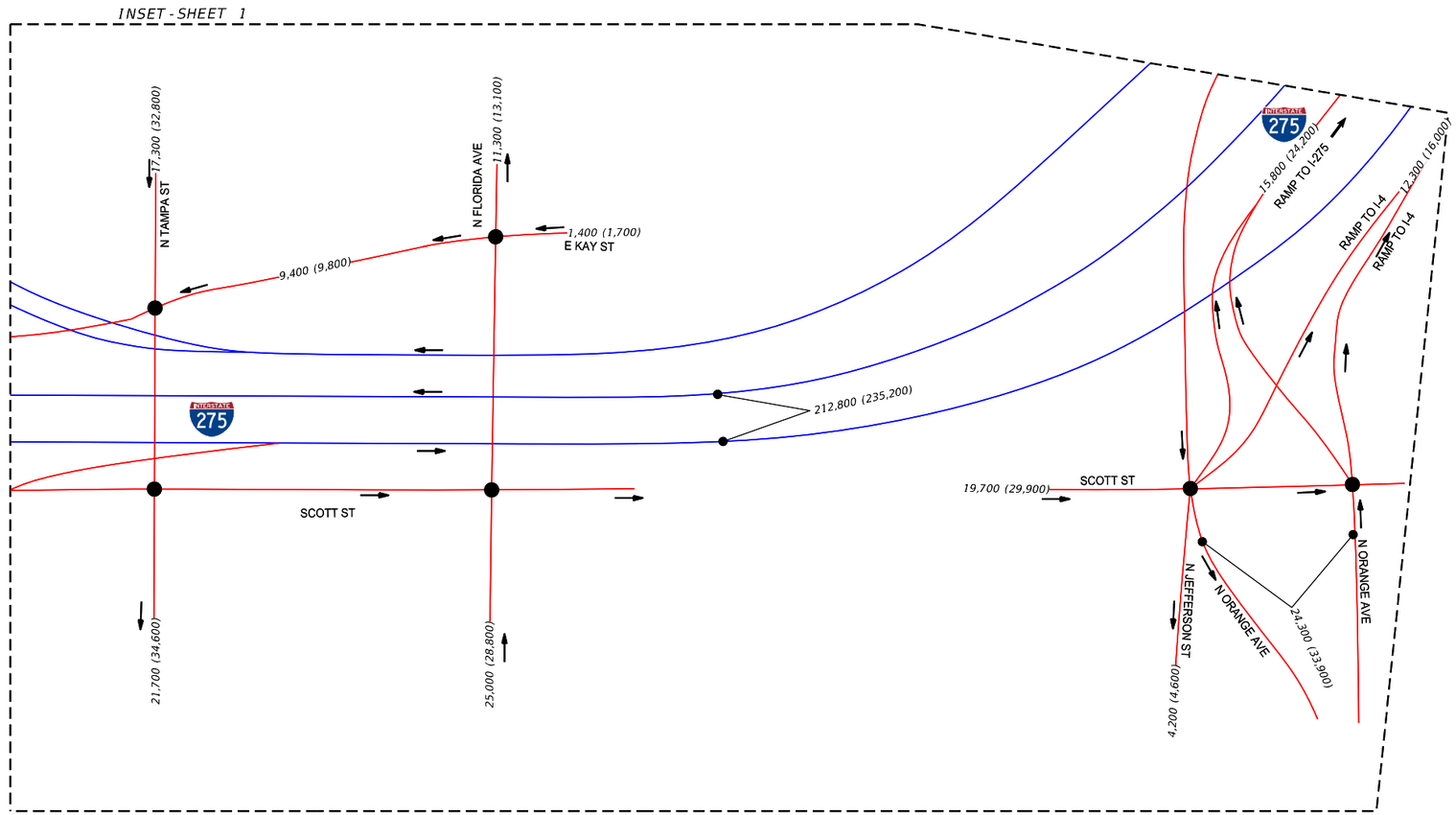


FDOT	SIMR No-Build AADTs – Opening Year 2025 & Design Year 2045	Figure 6-2	Sheet 1 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE

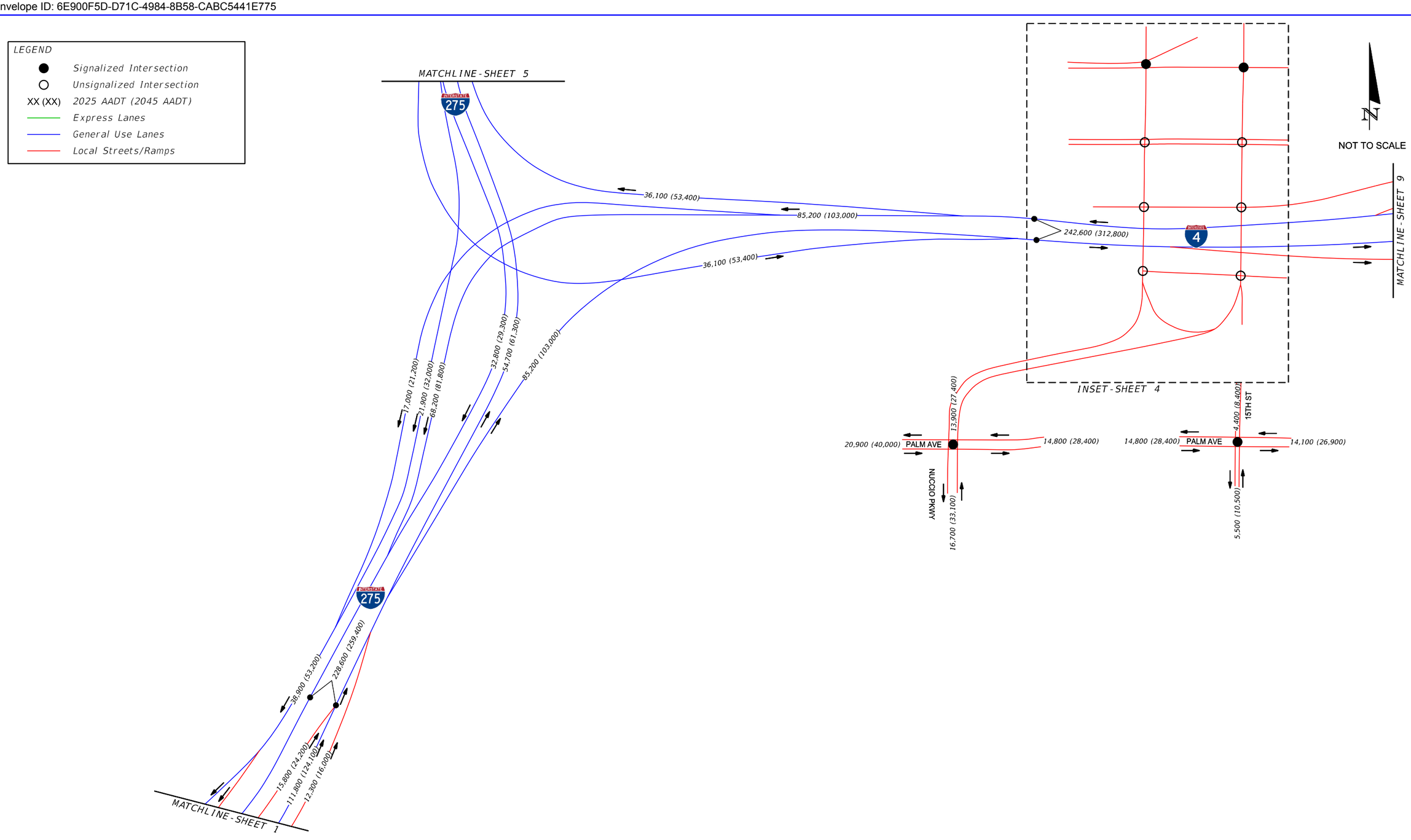


SIMR

No-Build AADTs – Opening Year 2025 & Design Year 2045

Figure 6-2

Sheet 2 of 9



SIMR

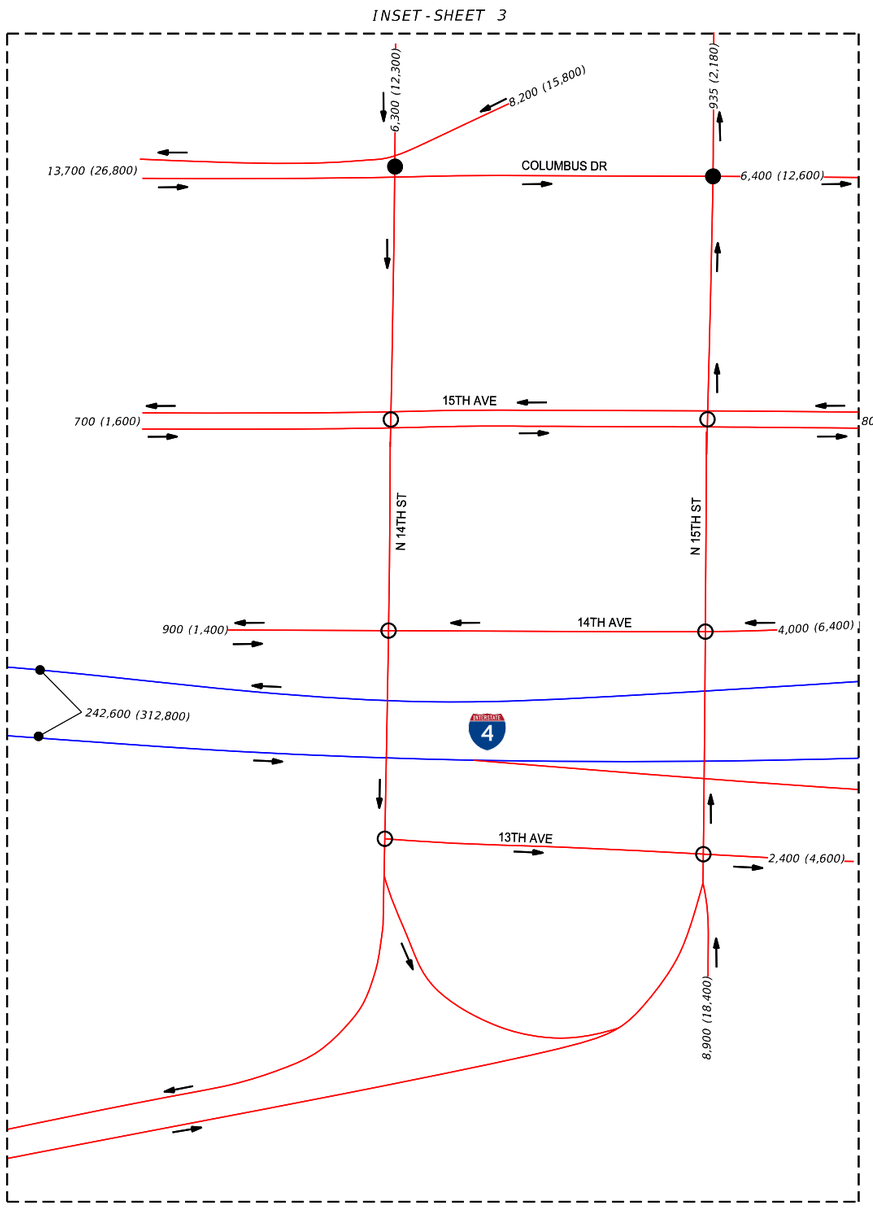
No-Build AADTs – Opening Year 2025 & Design Year 2045

Figure 6-2

Sheet 3 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

FDOT

SIMR

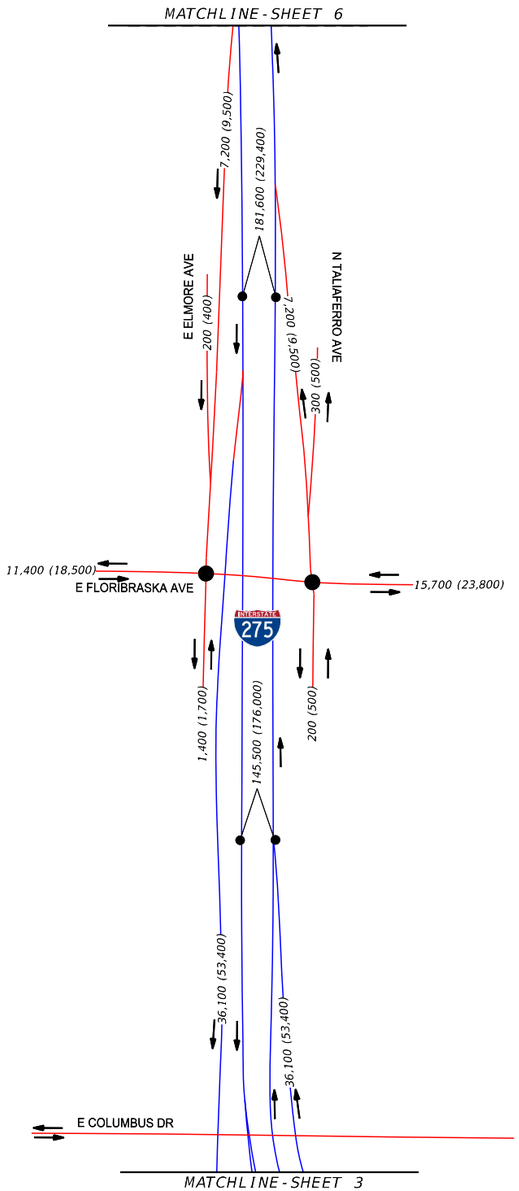
No-Build AADTs - Opening Year 2025 & Design Year 2045

Figure 6-2

Sheet 4 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



N

NOT TO SCALE

FDOT

SIMR

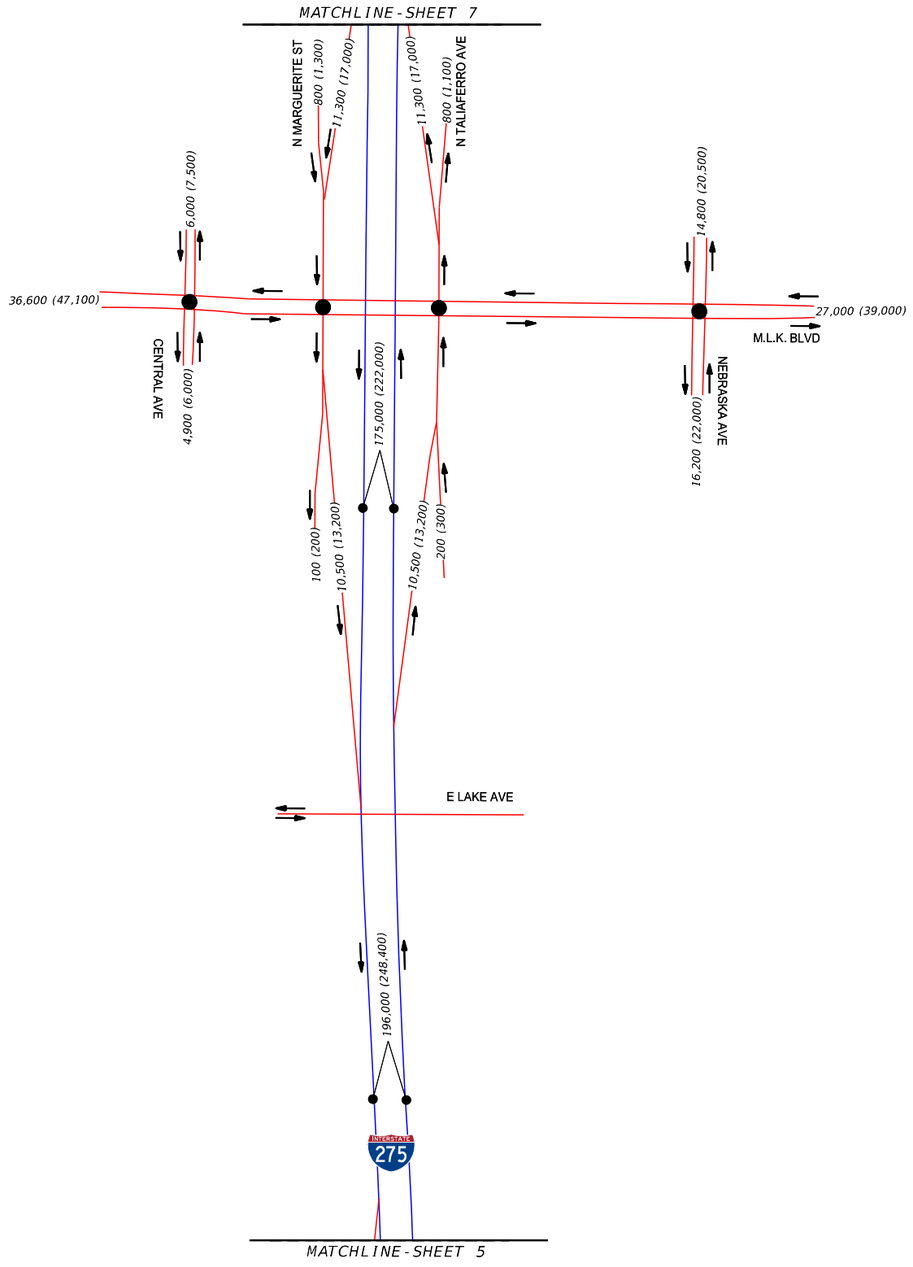
No-Build AADTs – Opening Year 2025 & Design Year 2045

Figure 6-2

Sheet 5 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

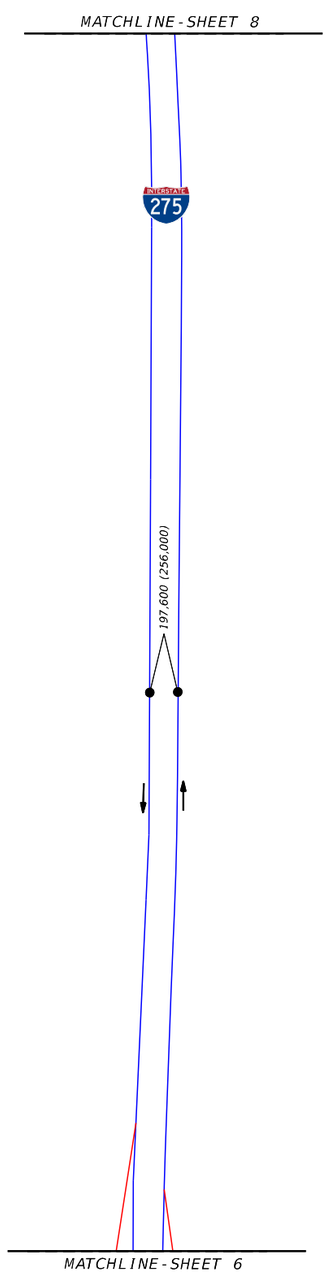


NOT TO SCALE

FDOT	SIMR No-Build AADTs – Opening Year 2025 & Design Year 2045	Figure 6-2	Sheet 6 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



N

NOT TO SCALE

FDOT

SIMR

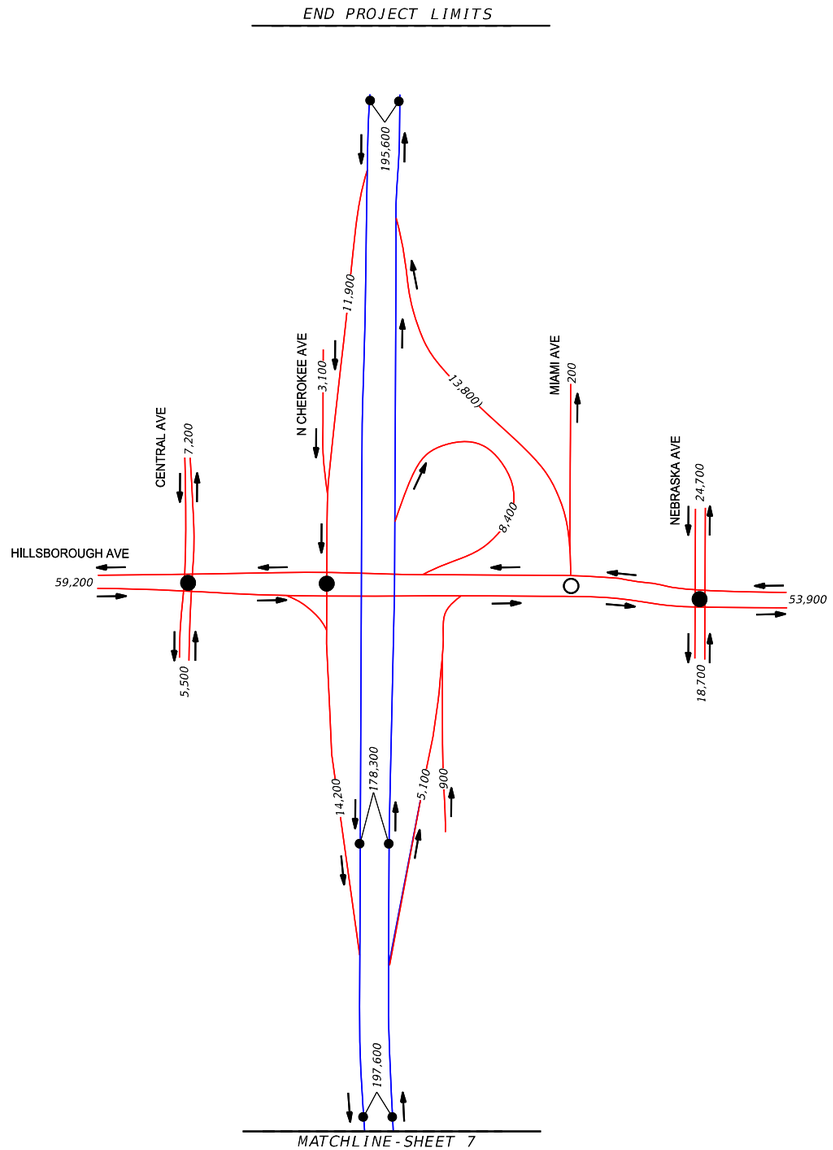
No-Build AADTs – Opening Year 2025 & Design Year 2045

Figure 6-2

Sheet 7 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX 2025 AADT
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

FDOT

SIMR

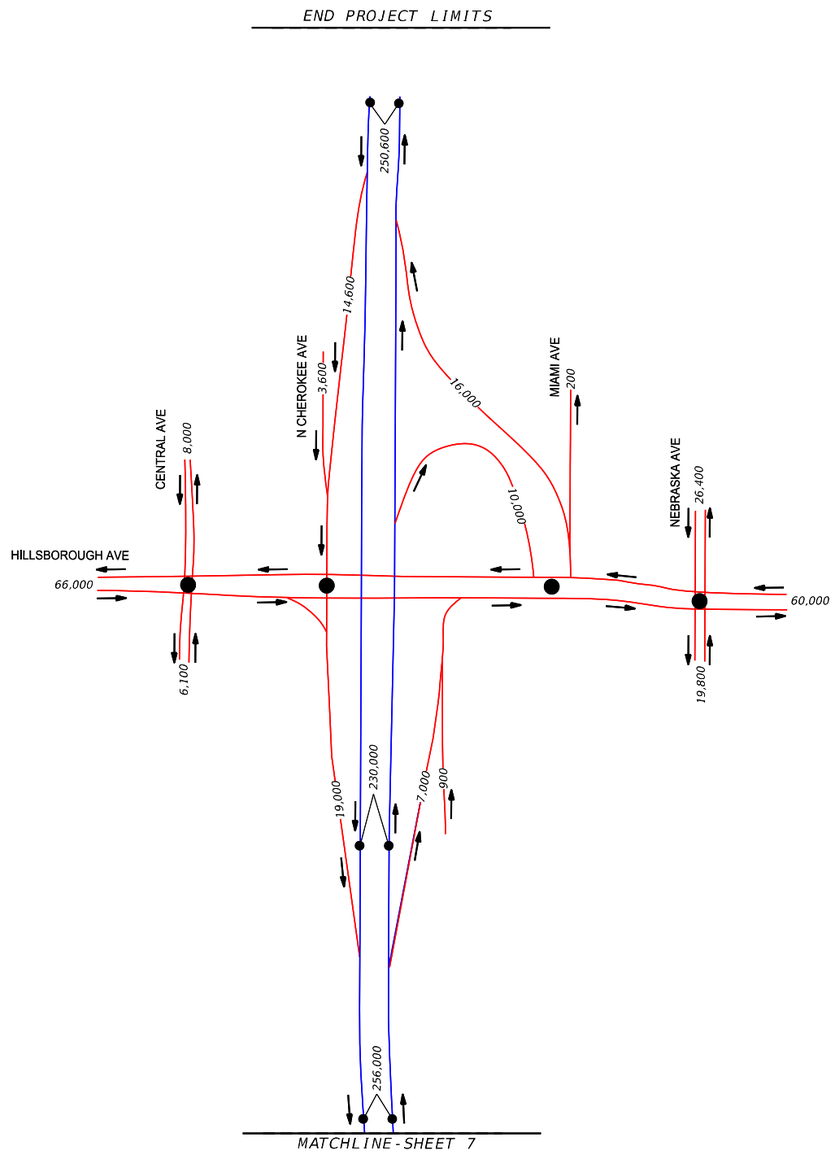
No-Build AADTs – Opening Year 2025

Figure 6-2

Sheet 8A of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX 2045 AADT
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



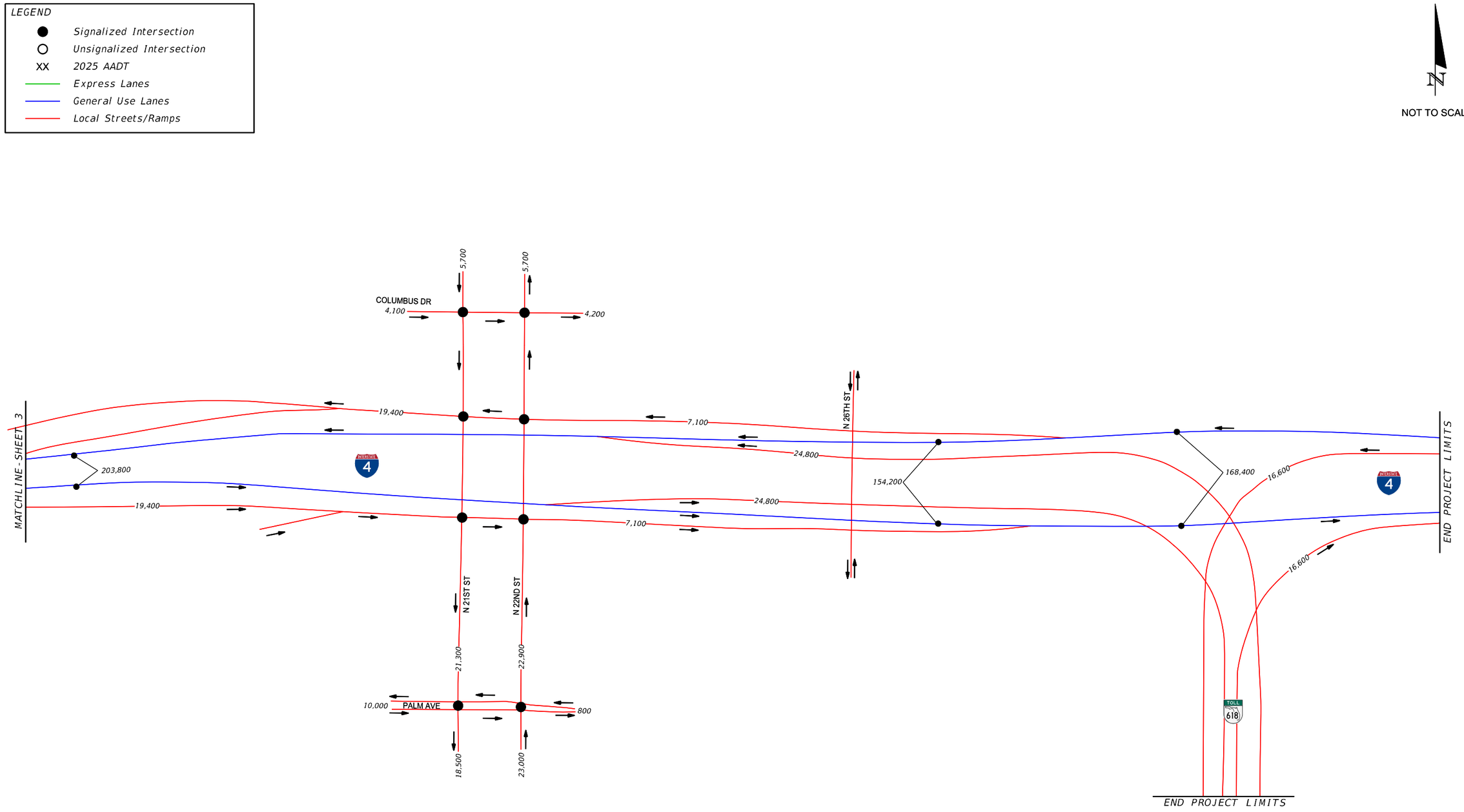
NOT TO SCALE

SIMR

No-Build AADTs - Design Year 2045

Figure 6-2

Sheet 8B of 9

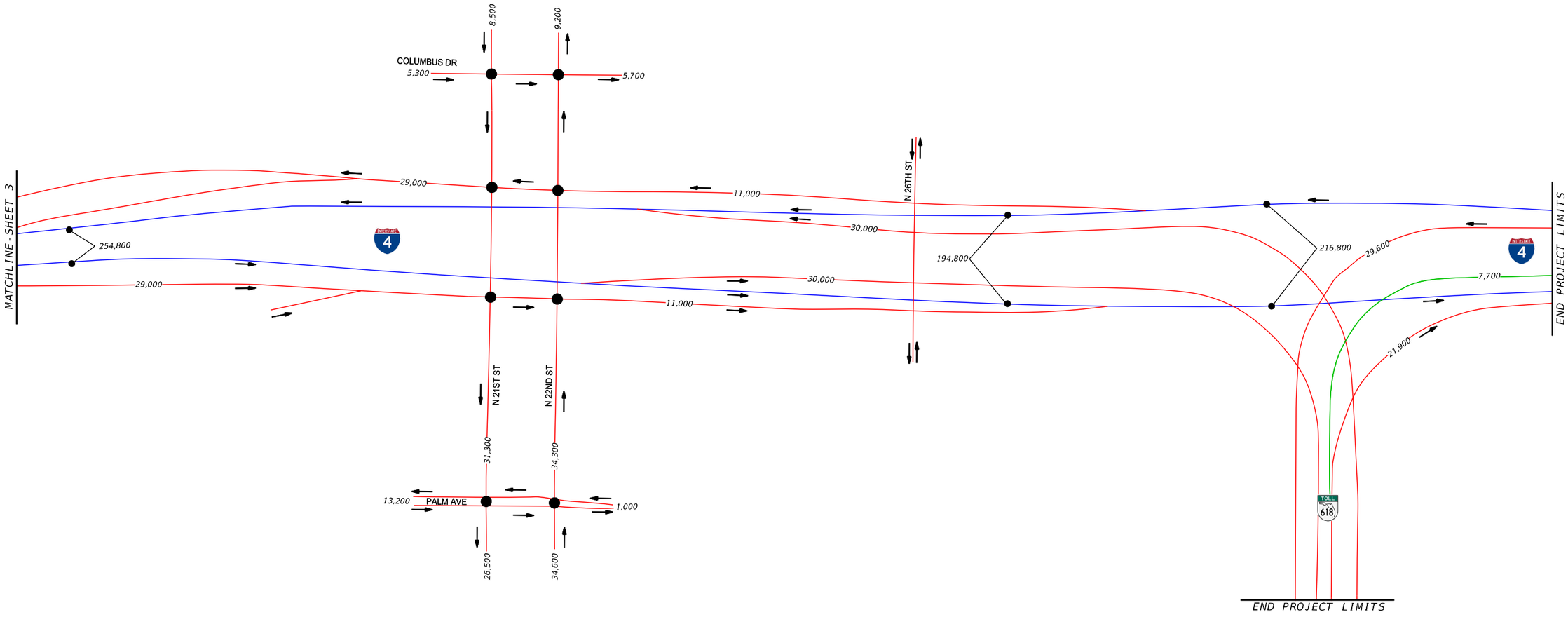


FDOT	SIMR No-Build AADTs – Opening Year 2025	Figure 6-2	Sheet 9A of 9

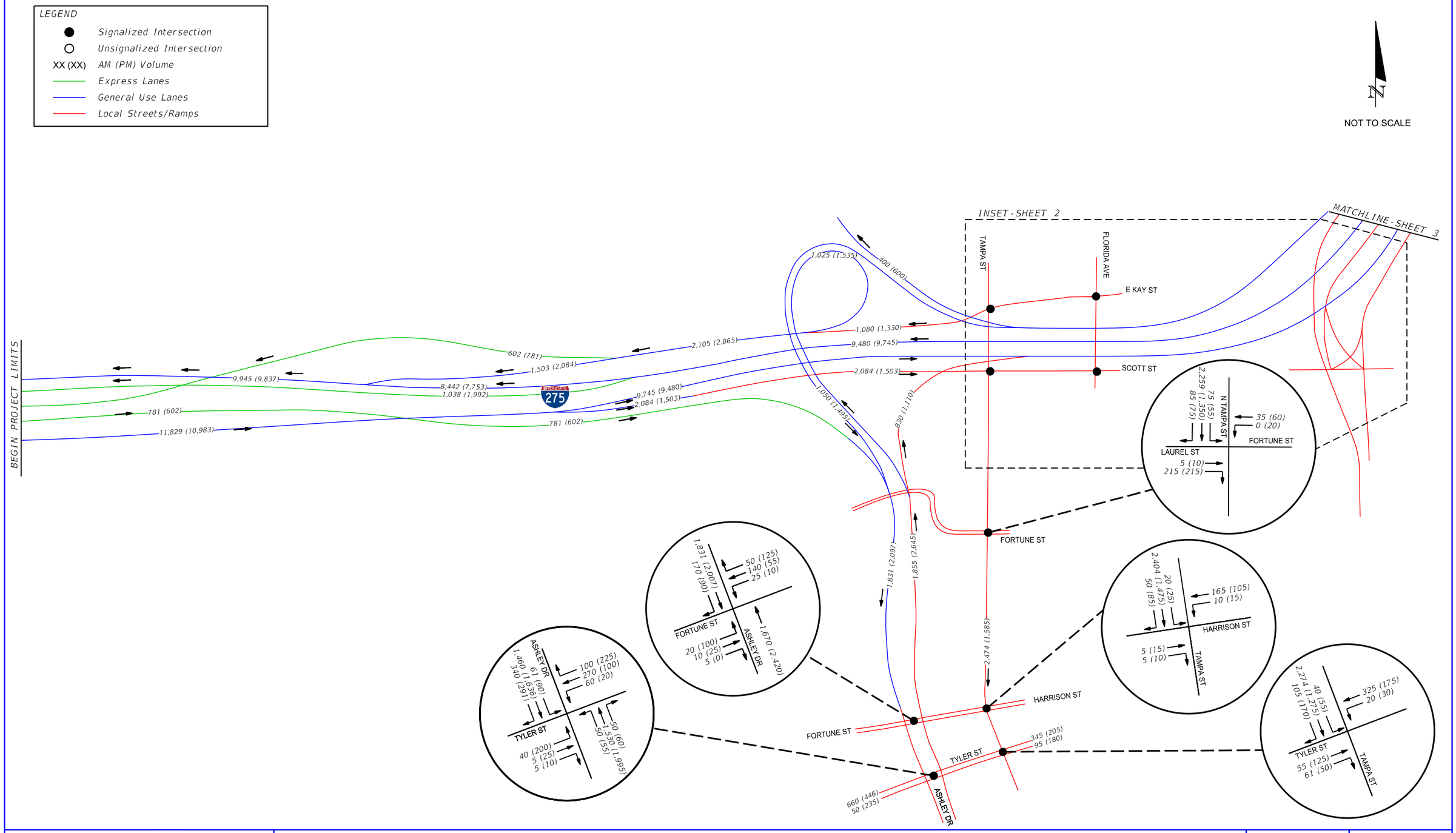
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX 2045 AADT
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE



FDOT	SIMR No-Build AADTs – Design Year 2045	Figure 6-2	Sheet 9B of 9



FDOT

SIMR

No-Build DDHVs- Opening Year 2025 AM & PM

Figure 6-3

Sheet 1 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE

INSET - SHEET 1

N FLORIDA AVE / E KAY ST: 10 (35); 95 (115); 810 (1,170); 675 (815); 0 (5)

N TAMPA ST / E KAY ST / I-275 ON RAMP: 1,420 (915); 335 (150); 745 (880); 25 (50)

N TAMPA ST: 1,755 (1,365); 770 (930); 770 (930)

N FLORIDA AVE: 1,520 (1,205); 105 (150); 0 (5)

E KAY ST

INTERSTATE 275

1,450 (2,095); 9,480 (9,745); 10,575 (10,590)

2,469 (665); 680 (1,075); 580 (689); 225 (500); 445 (545)

RAMP TO I-275; RAMP TO I-4; RAMP TO I-4

TO I-4 RAMP; TO I-275 RAMP; I-275 ON RAMP; SCOTT ST: 0 (35); 195 (140); 225 (465); 445 (545); 0 (10); 15 (60)

1,110 (988); 1,380 (1,738); SCOTT ST

2,419 (1,480); 1,727 (1,540)

1,570 (1,979); SCOTT ST; 195 (175)

N JEFFERSON ST; N ORANGE AVE; N ORANGE AVE

635 (1,110); 1,949 (595); 685 (1,080)

N TAMPA ST / SCOTT ST / I-275 OFF RAMP: 240 (325); 1,205 (640); 870 (663); 1,214 (840)

N FLORIDA AVE / SCOTT ST: 295 (285); 815 (703); 565 (1,035); 1,190 (1,705)

I-275 RAMPS / SCOTT ST: 95 (85); 1,754 (495); 620 (85); TO I-275 RAMP; TO I-4 RAMP; N JEFFERSON ST; TO ORANGE AVE; TO JEFFERSON ST; 680 (1,075); 580 (689); 100 (90); 195 (100); 15 (25)

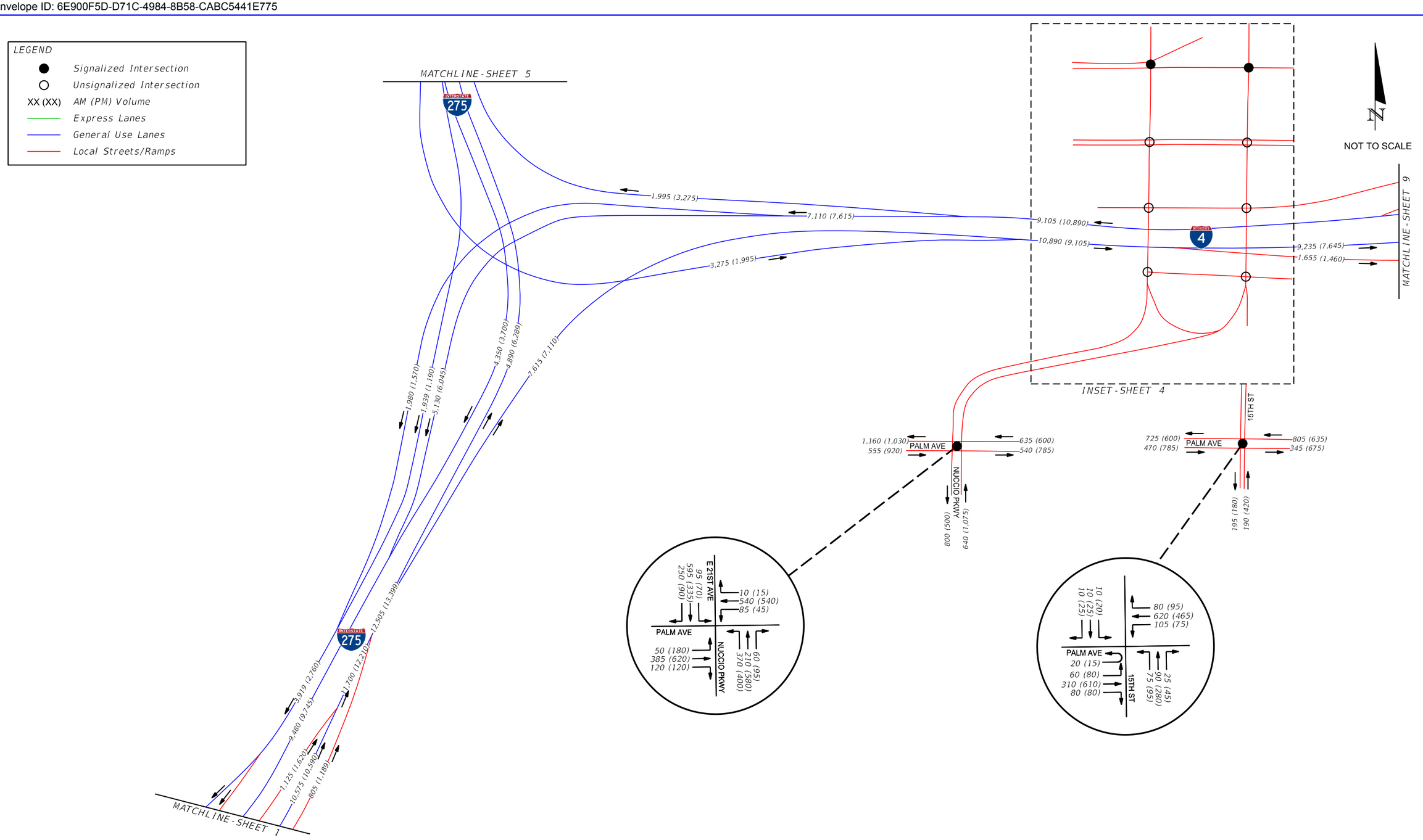
FDOT

SIMR

No-Build DDHVs- Opening Year 2025 AM & PM

Figure 6-3

Sheet 2 of 9

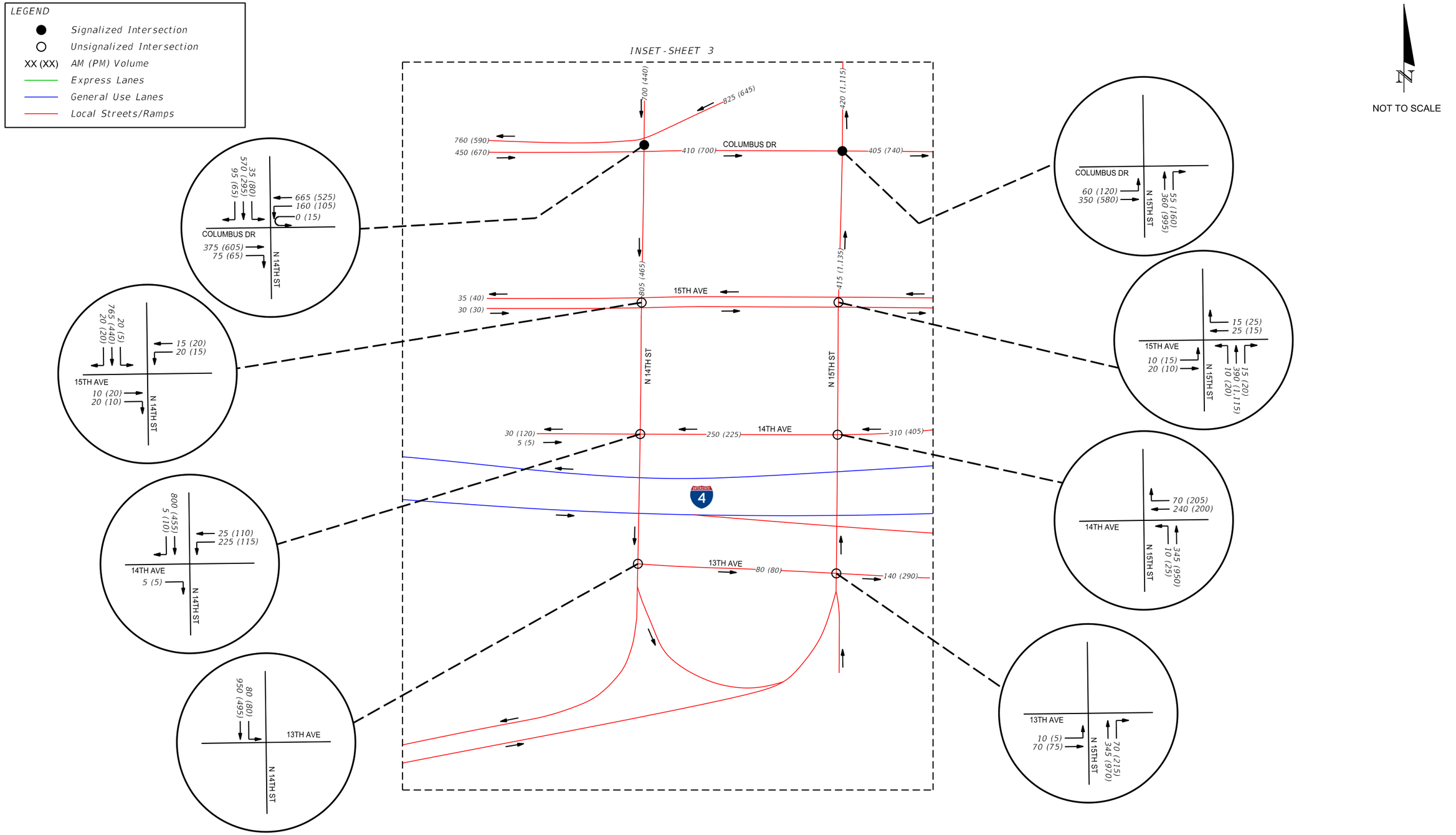


SIMR

No-Build DDHVs- Opening Year 2025 AM & PM

Figure 6-3

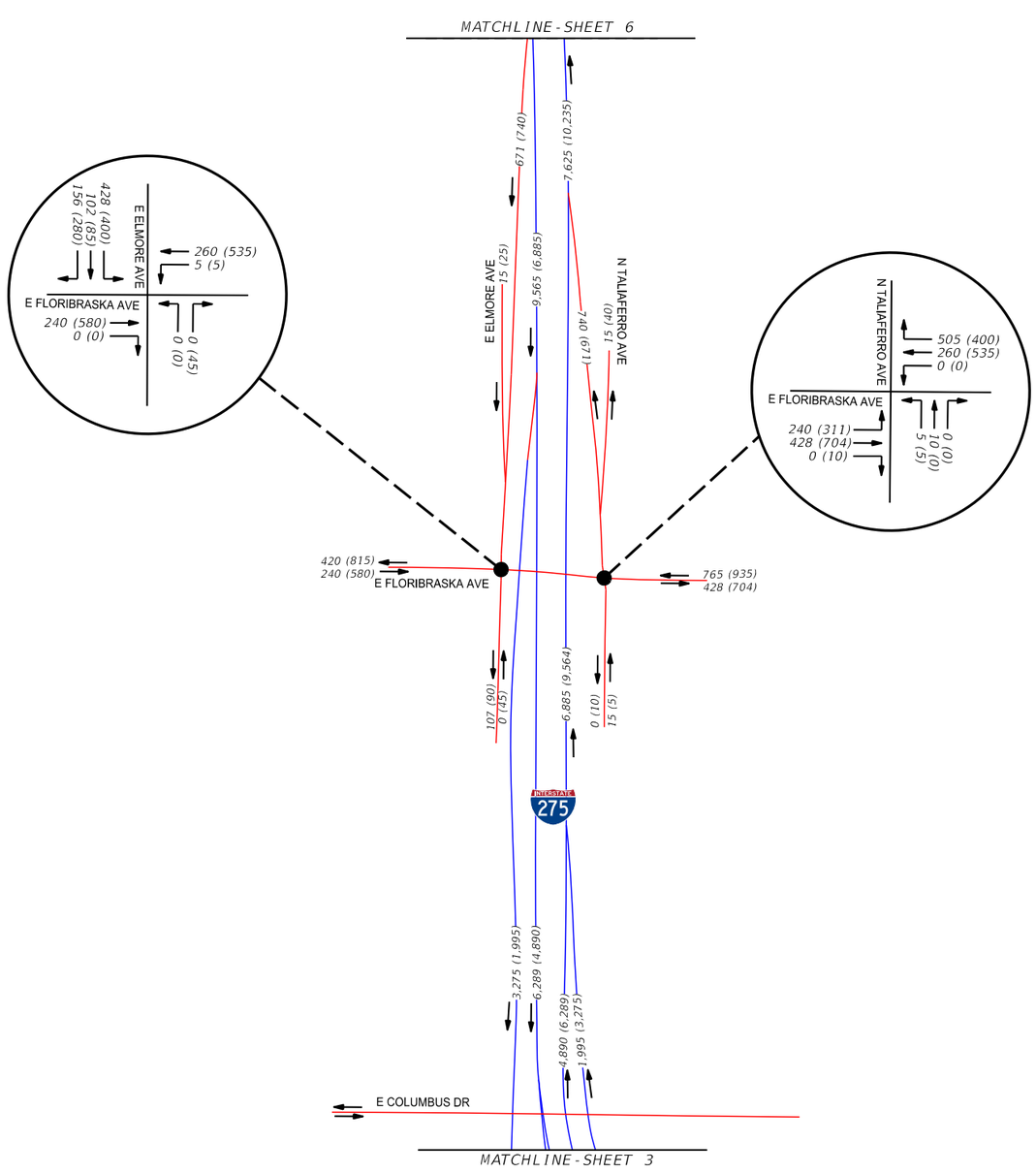
Sheet 3 of 9



FDOT	SIMR No-Build DDHVs- Opening Year 2025 AM & PM	Figure 6-3	Sheet 4 of 9

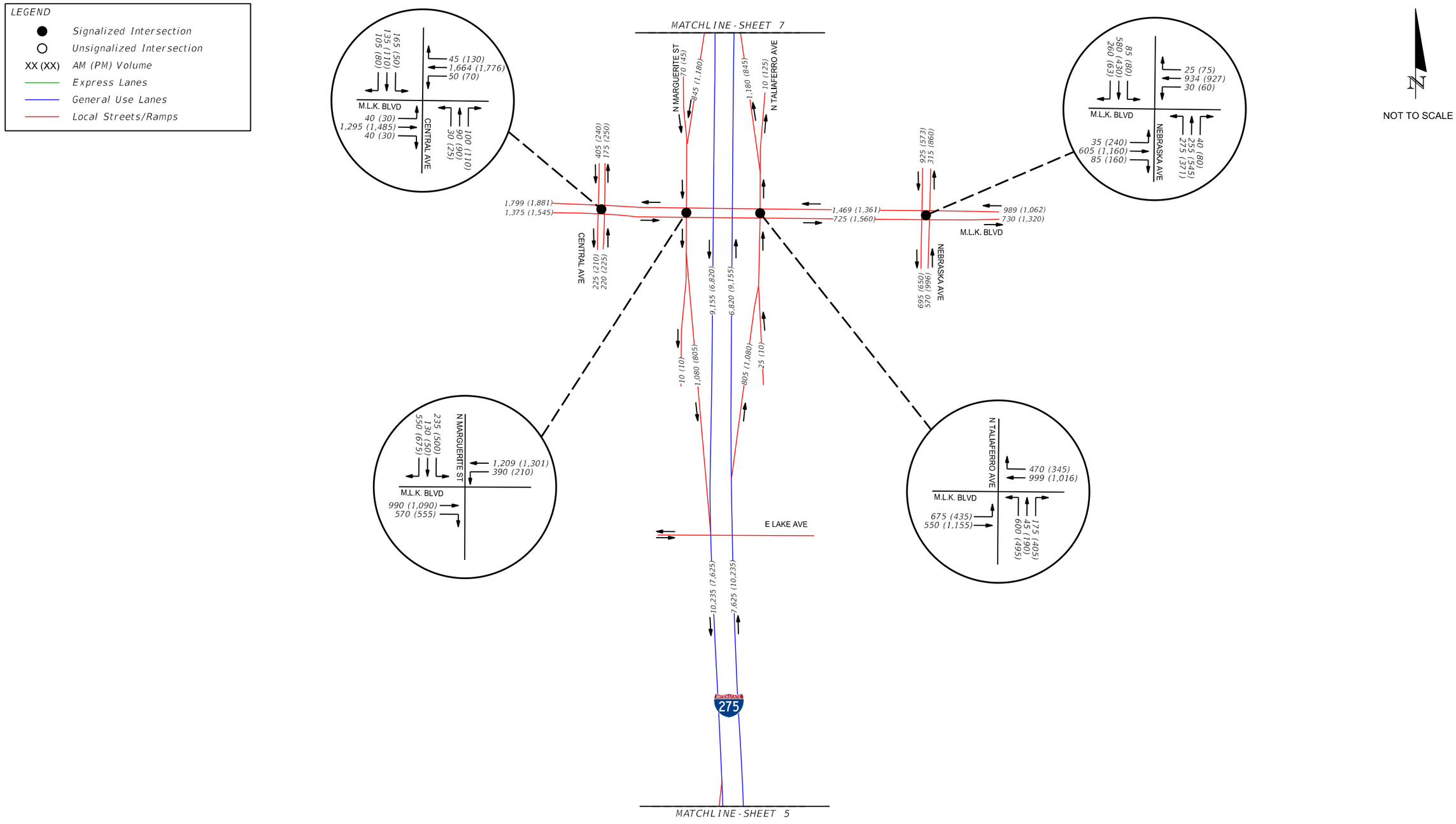
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

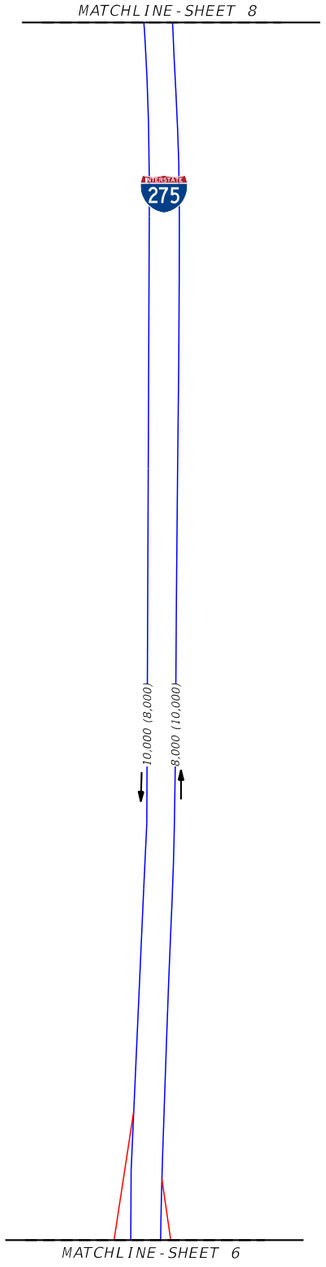
FDOT	SIMR No-Build DDHVs- Opening Year 2025 AM & PM	Figure 6-3	Sheet 5 of 9



FDOT	SIMR No-Build DDHVs- Opening Year 2025 AM & PM	Figure 6-3	Sheet 6 of 9

LEGEND

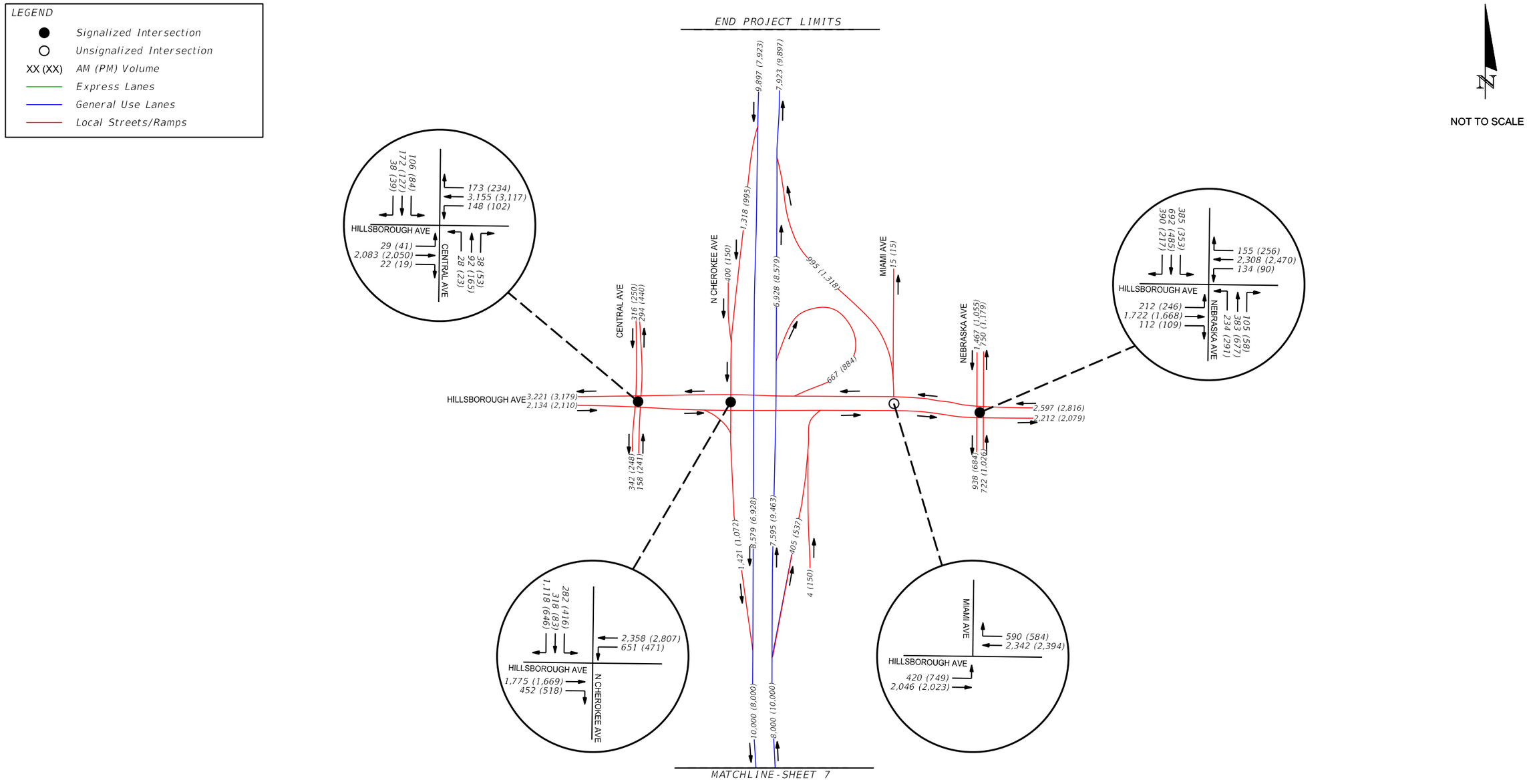
- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



N

NOT TO SCALE

FDOT	SIMR No-Build DDHVs- Opening Year 2025 AM & PM	Figure 6-3	Sheet 7 of 9

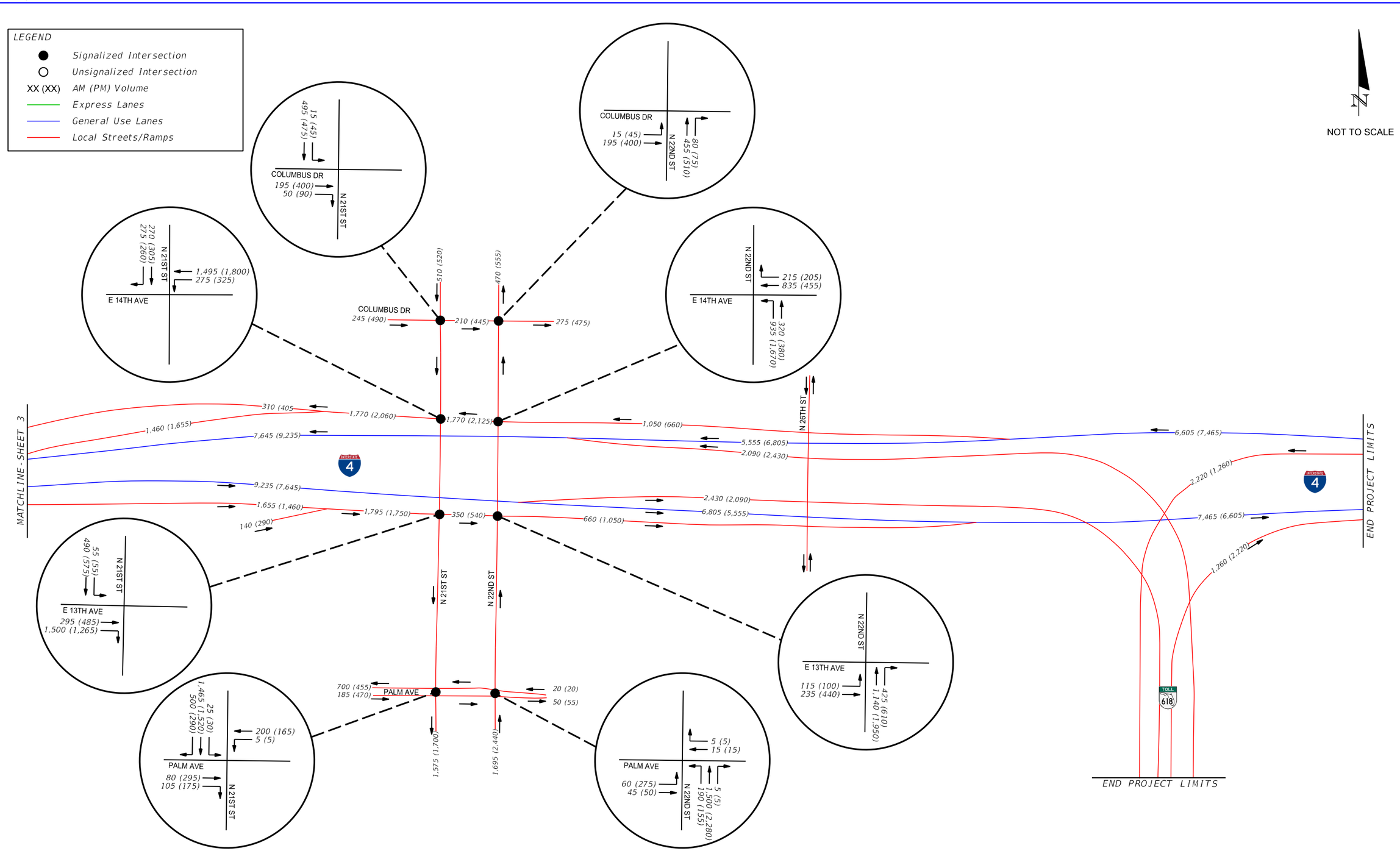


SIMR

No-Build DDHVs- Opening Year 2025 AM & PM

Figure 6-3

Sheet 8 of 9



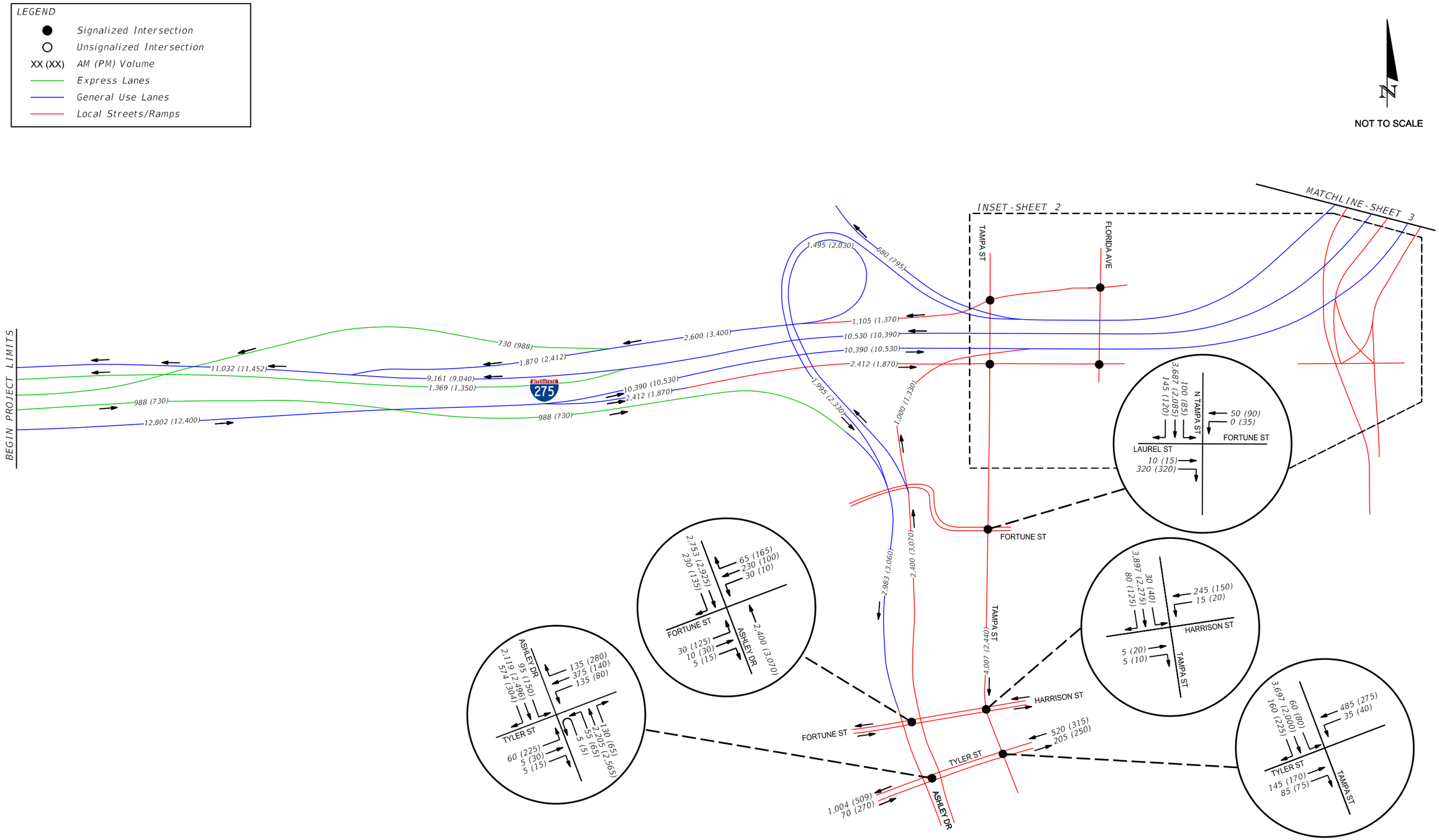
FDOT

SIMR

No-Build DDHVs- Opening Year 2025 AM & PM

Figure 6-3

Sheet 9 of 9



FDOT

SIMR

No-Build DDHVs- Design Year 2045 AM & PM

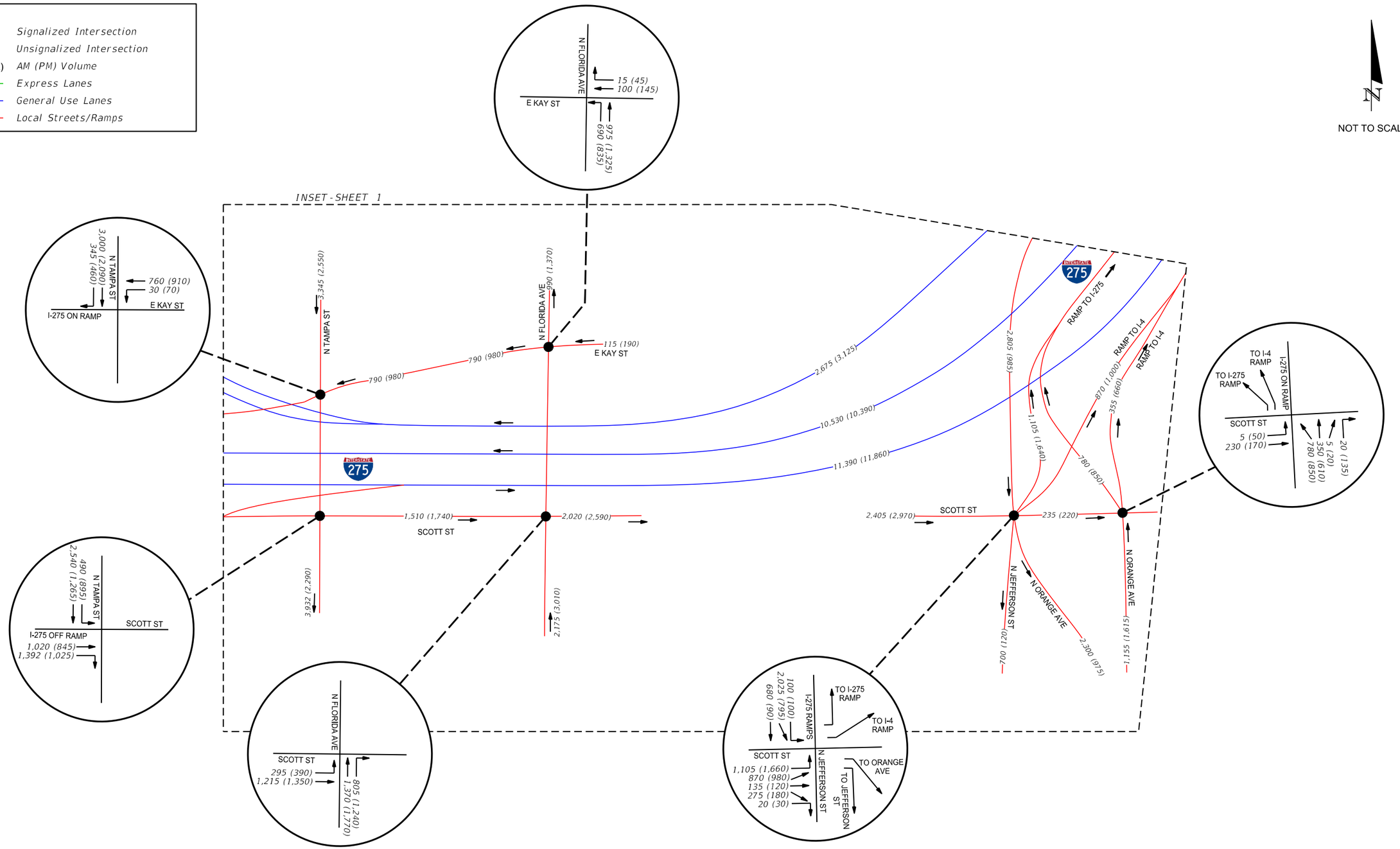
Figure 6-4

Sheet 1 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

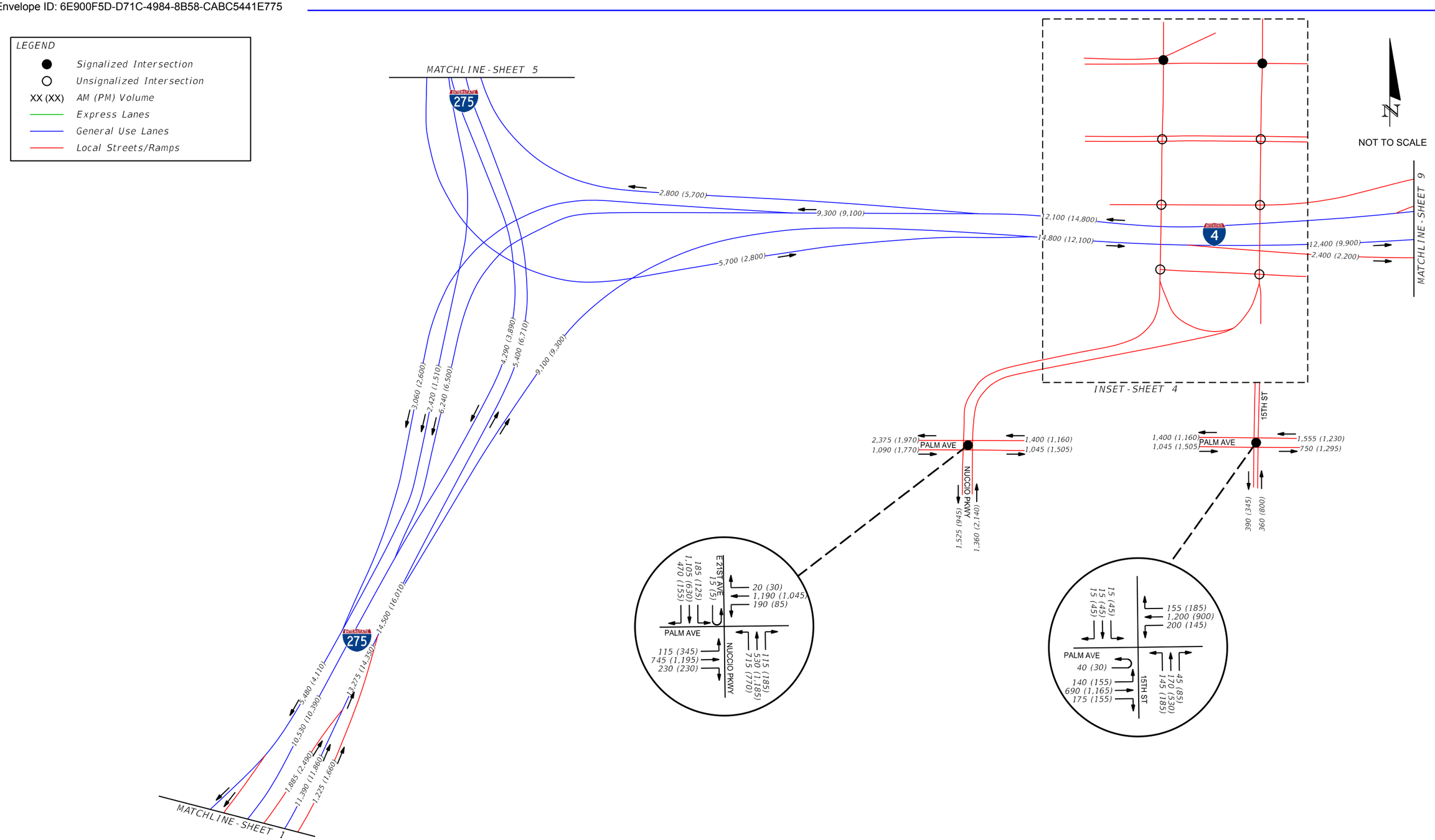
NOT TO SCALE



SIMR

No-Build DDHVs- Design Year 2045 AM & PM

Figure 6-4



FDOT

SIMR

No-Build DDHVs- Design Year 2045 AM & PM

Figure 6-4

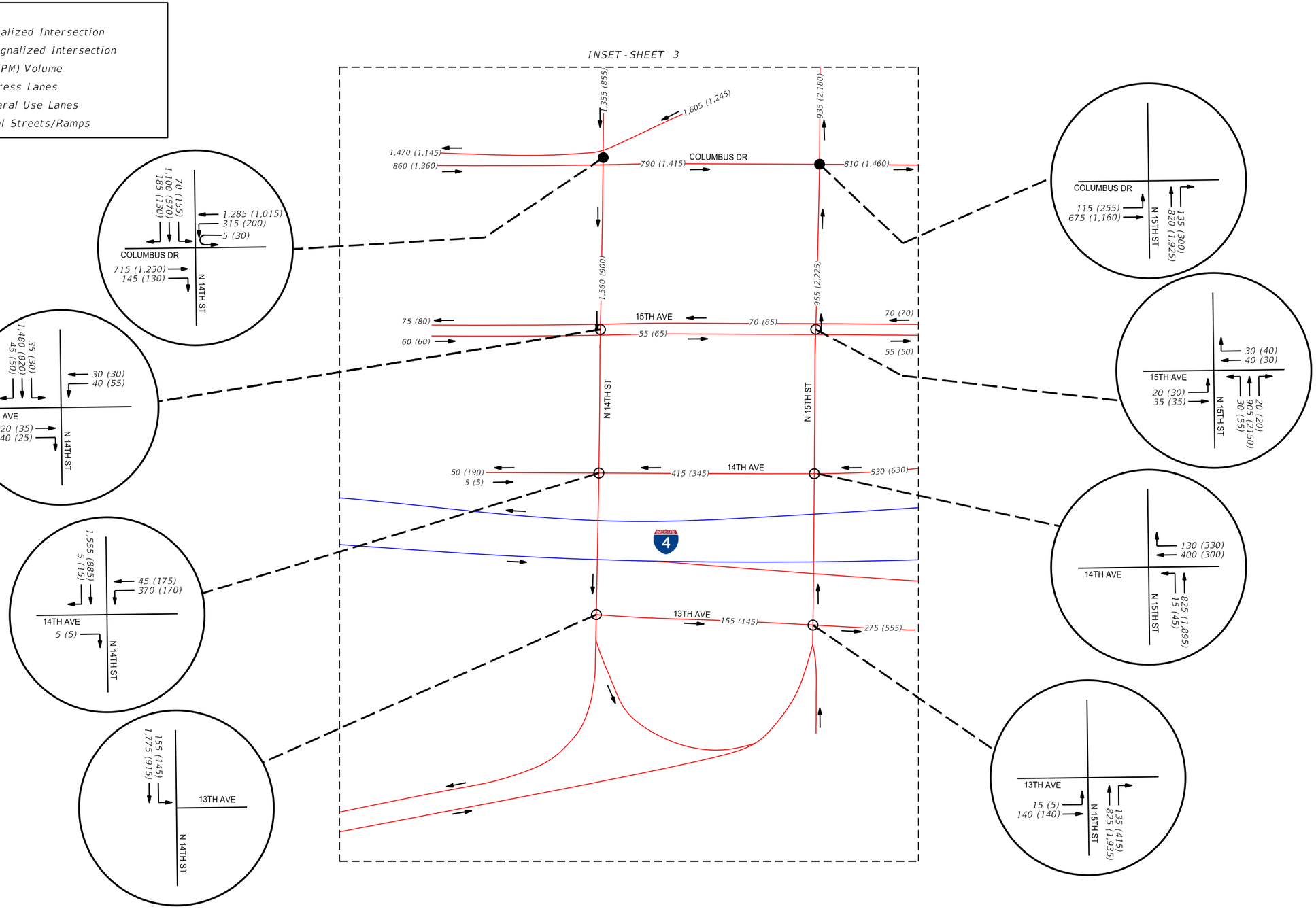
Sheet 3 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

INSET - SHEET 3

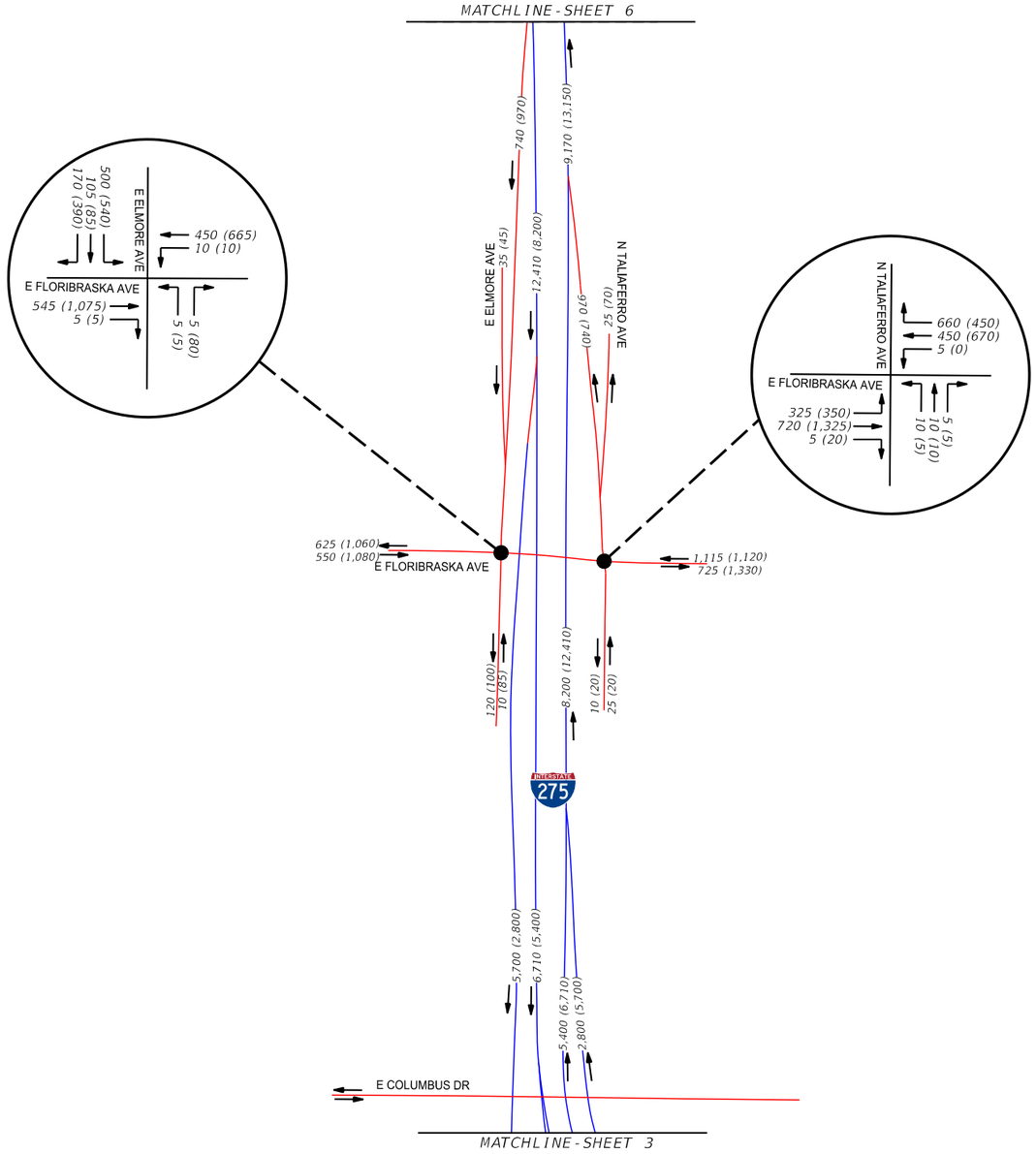
NOT TO SCALE



FDOT	SIMR No-Build DDHVs- Design Year 2045 AM & PM	Figure 6-4	Sheet 4 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



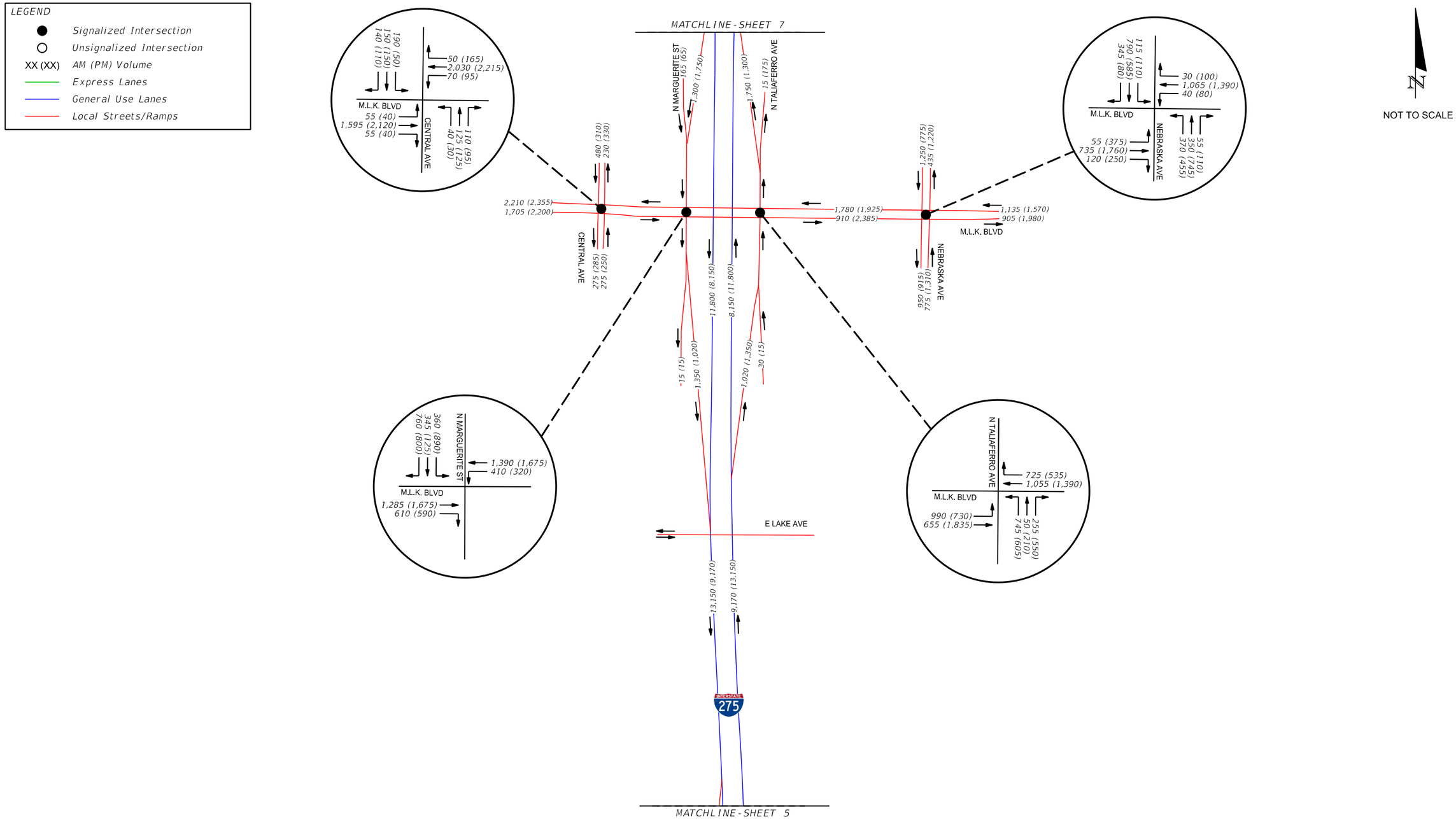
NOT TO SCALE

SIMR

No-Build DDHVs- Design Year 2045 AM & PM

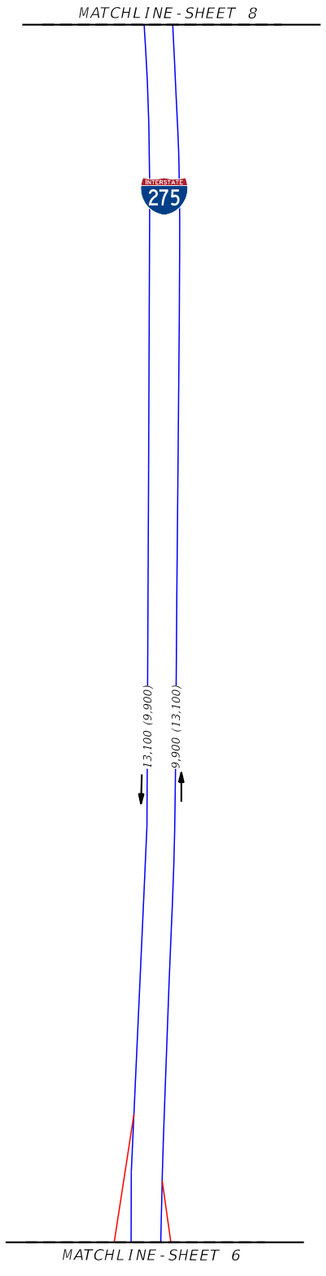
Figure 6-4

Sheet 5 of 9


LEGEND
Signalized Intersection
Unsignalized Intersection
XX (XX) AM (PM) Volume
Express Lanes
General Use Lanes
Local Streets/Ramps
MATCHLINE - SHEET 7
N MARGUERITE ST
N TALIAFERRO AVE
CENTRAL AVE
NEBRASKA AVE
M.L.K. BLVD
E LAKE AVE
MATCHLINE - SHEET 5
NOT TO SCALE
2,210 (2,355)
1,705 (2,200)
1,780 (1,925)
910 (2,385)
1,135 (1,570)
905 (1,980)
11,800 (8,150)
8,150 (11,800)
13,150 (9,170)
9,170 (13,150)

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

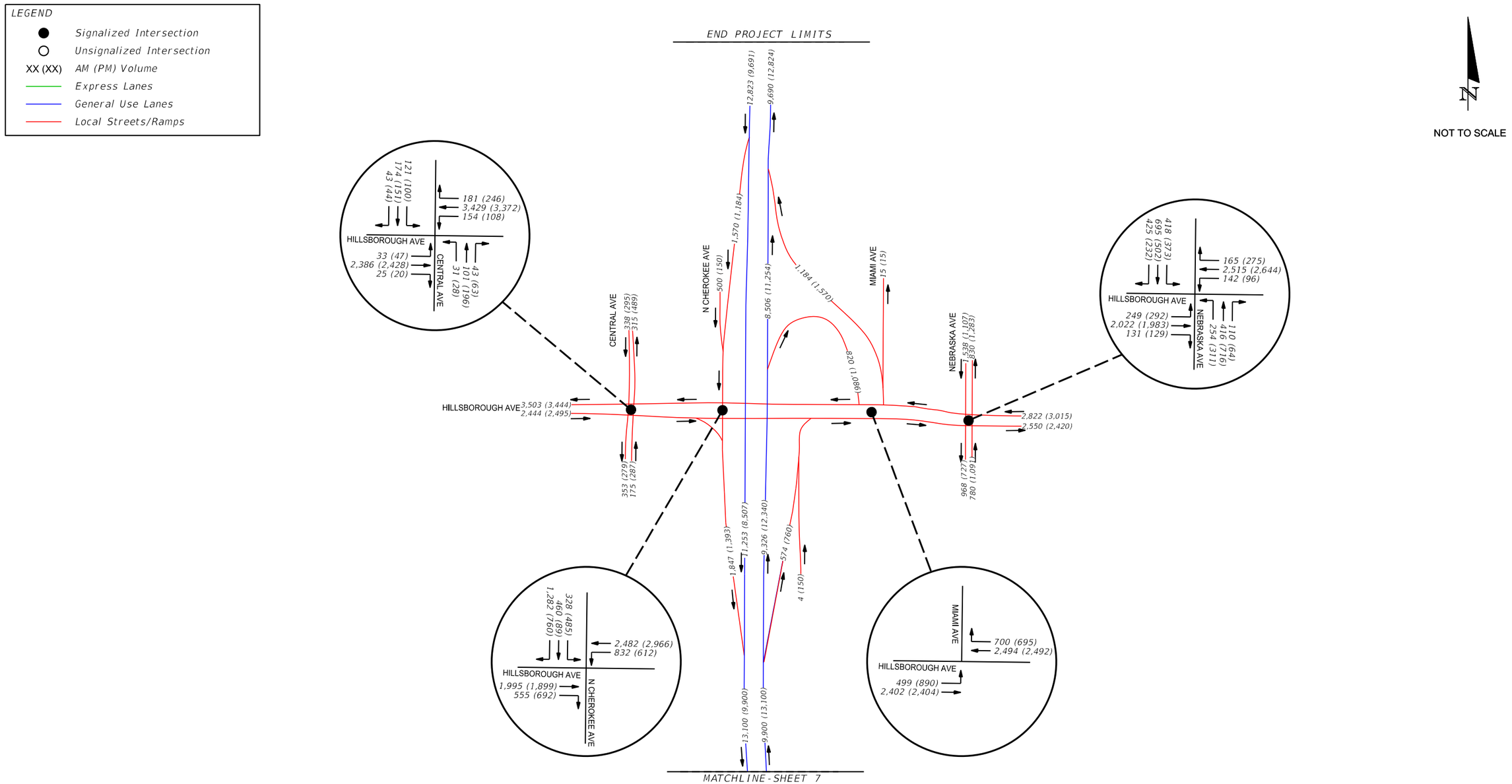
FDOT

SIMR

No-Build DDHVs- Design Year 2045 AM & PM

Figure 6-4

Sheet 7 of 9

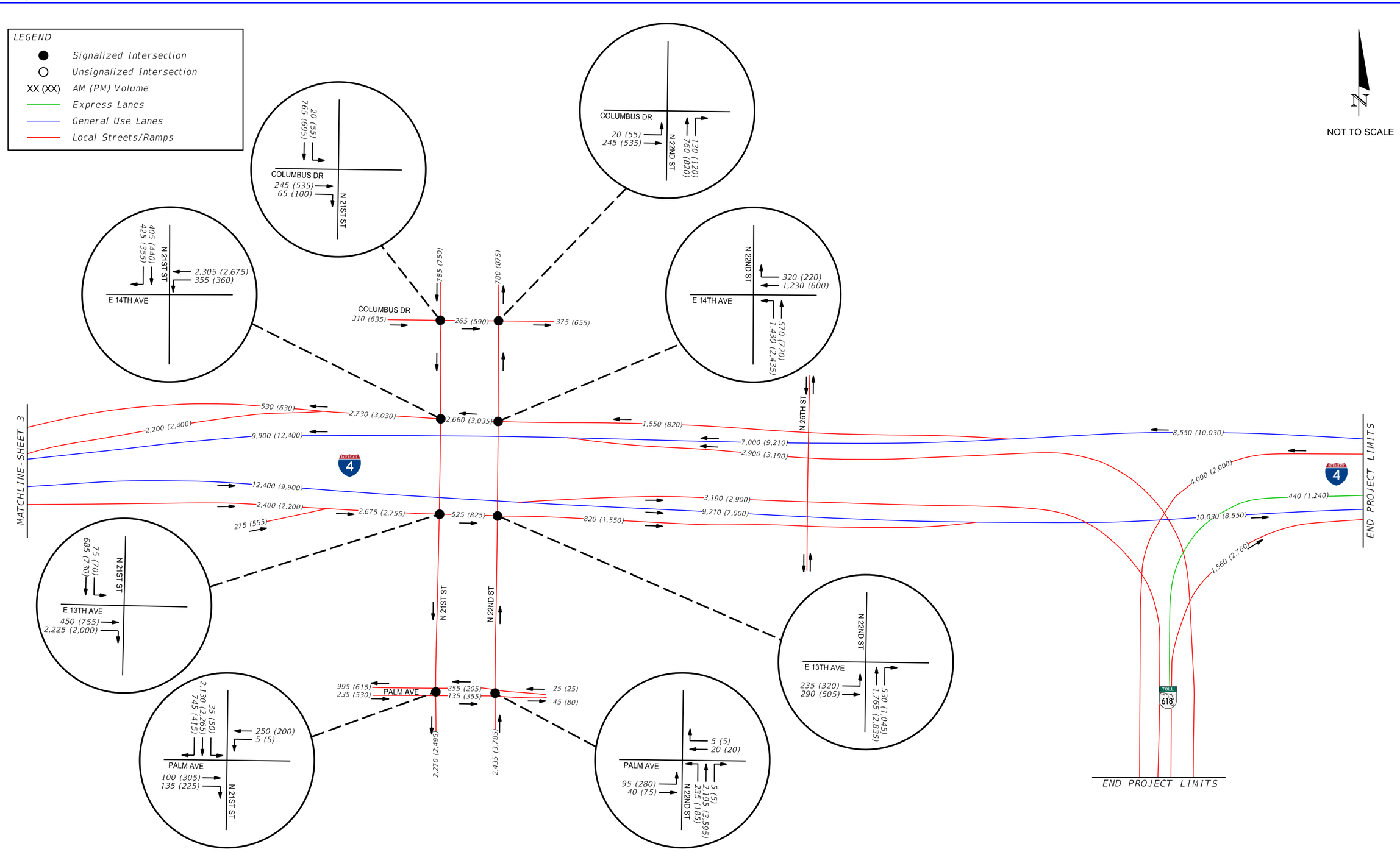


SIMR

No-Build DDHVs- Design Year 2045 AM & PM

Figure 6-4

Sheet 8 of 9



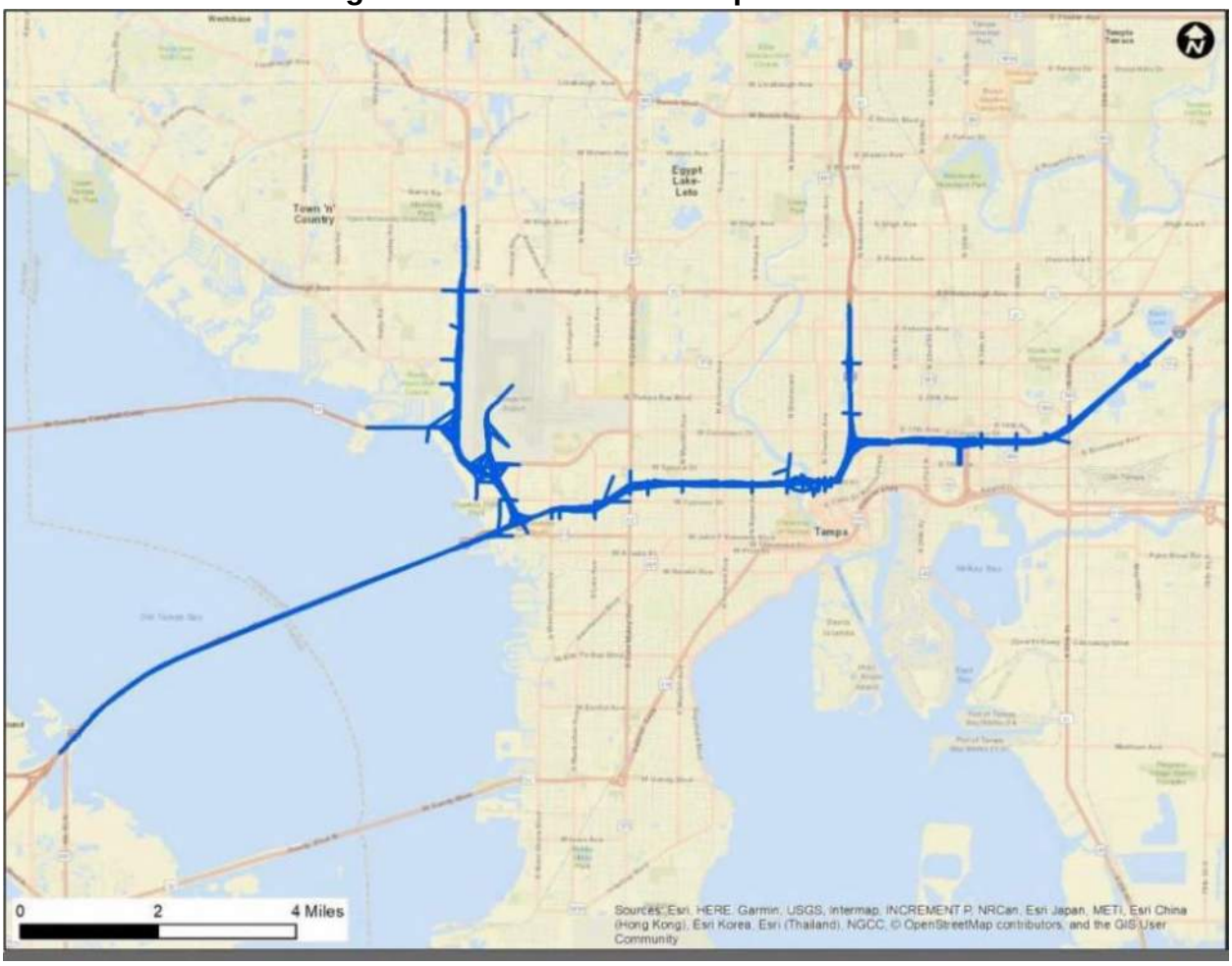
FDOT	SIMR No-Build DDHVs- Design Year 2045 AM & PM	Figure 6-4	Sheet 9 of 9

6.4 Build Volumes

The Build volumes were developed using the Express Lanes Time of Day (ELToD) v2.3 model for this project. The 2045 ODME sub-area models, including input network, refined trip tables, and associated parameters developed in the previous steps, were used as a base to develop the ELToD models. A corridor level input network was extracted from the ODME sub-area model as shown in **Figure 6-5**.

ELToD model analysis was performed under the guidance and review of Florida's Turnpike and its consultant. The model was enhanced during the calibration to include 1) additional directional parameters to support the hourly distributions for each corridor/section, and 2) directional parameters for toll segments were identified using the maximum distance.

Figure 6-6 - ELToD Model Input Network

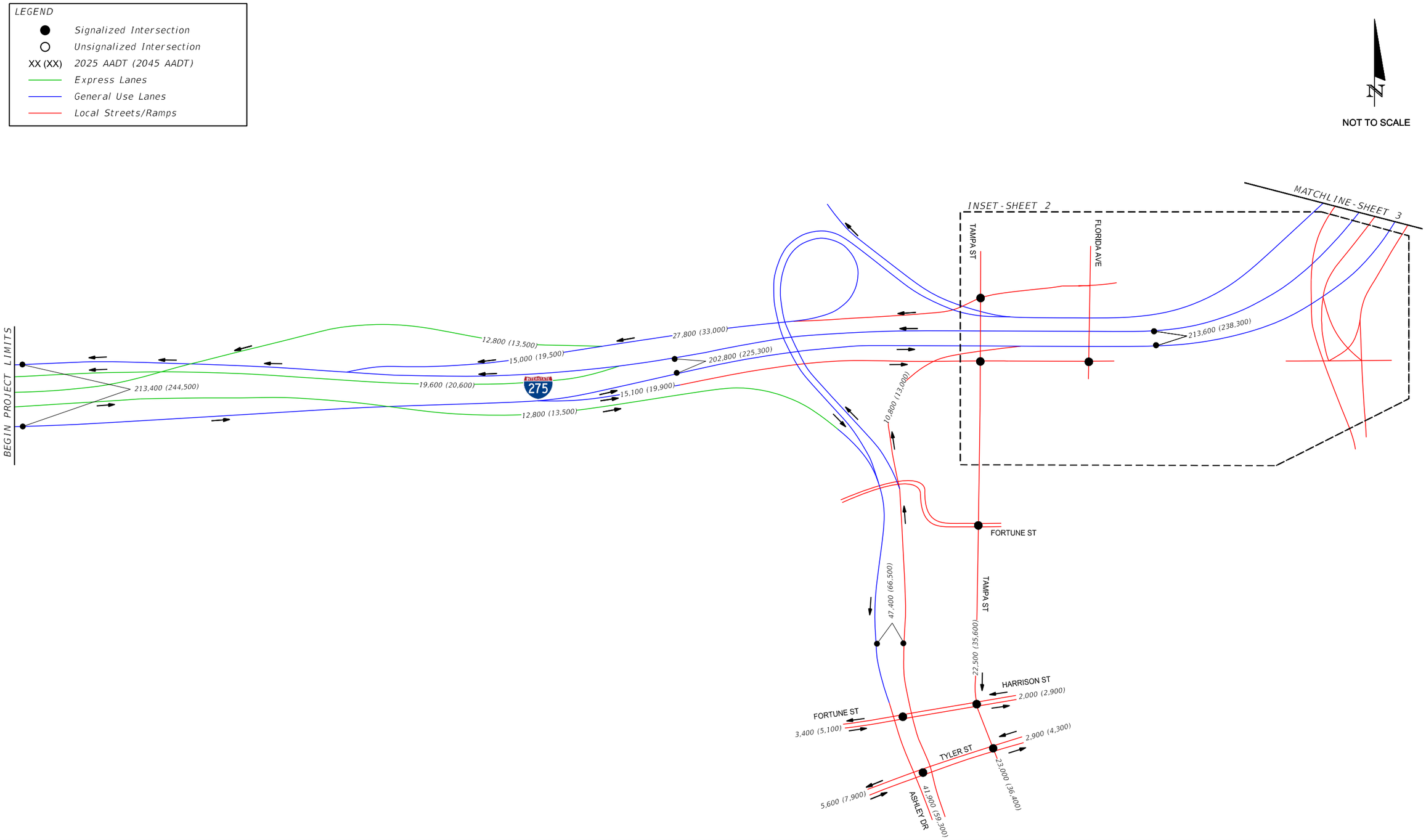


As indicated in **Figure 6-5**, the ELToD network included two east-west corridors (I-4 from I-275 Interchange to 50th Street and I-275 from south of SR 60 to I-4) and two north-south corridors

(SR 60 from Independence Parkway to I-275 and I-275 from I-4 to Hillsborough Ave) with different hourly distribution and travel patterns. Therefore, two additional direction indicators were added to the directional link file.

ELToD models provided express lanes and general-purpose lanes volume on an hourly basis (Hours 1 through 24) based on the regional models and ODME. Where necessary, express versus general use splits were utilized from the ELToD output from peak hour volumes for Hour 8 and Hour 17 for AM and PM peak hour traffic operational analysis, respectively.

The Build Alternative AADTs for Opening Year (2025) and Design Year (2045) are shown in **Figure 6-6**. **Figure 6-7** and **Figure 6-8** present the 2025 (Opening Year) and 2045 (Design Year) DDHVs for the Build Alternative.

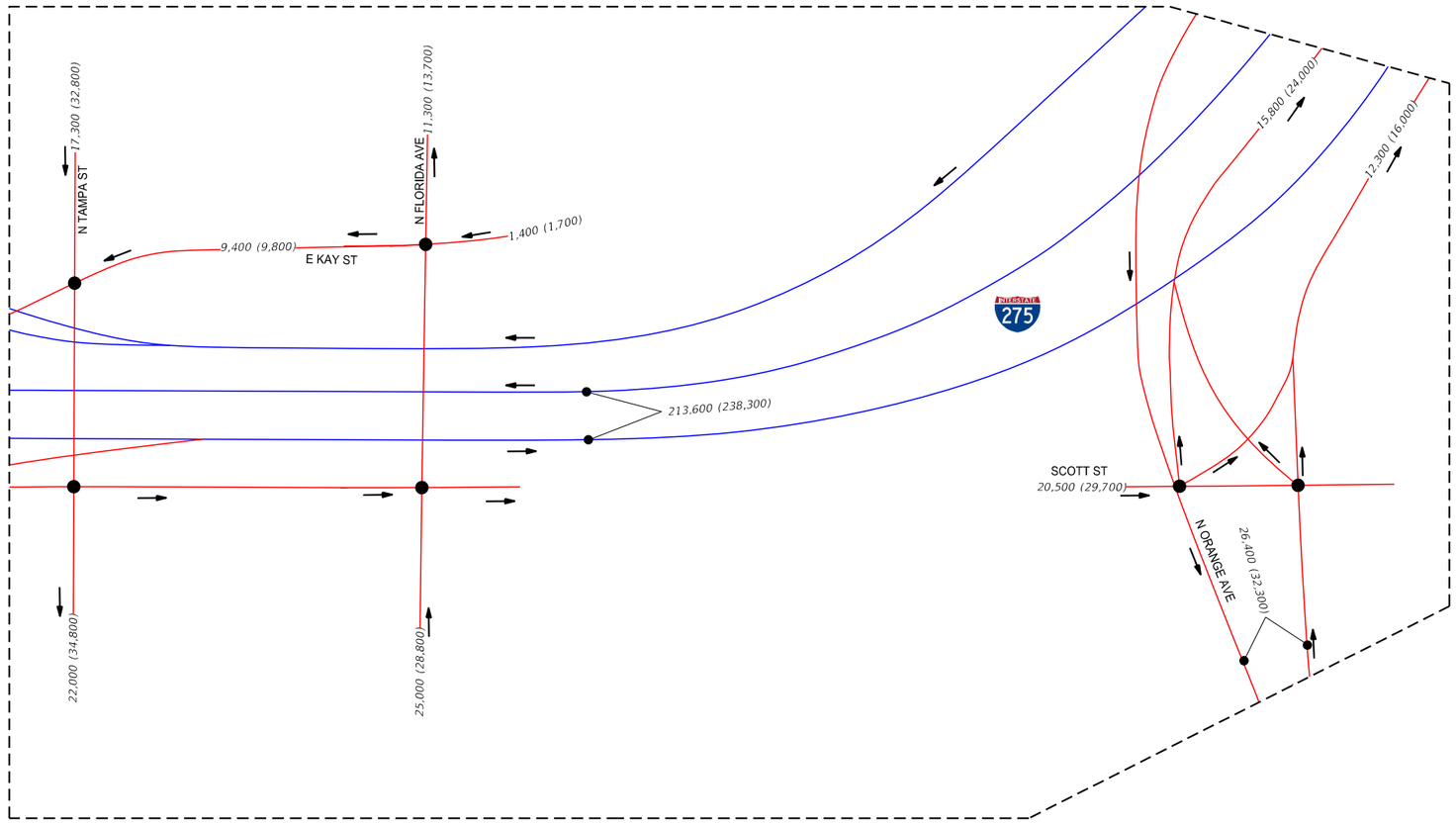


FDOT	SIMR Preferred Build Alternative AADTs – Opening Year 2025 & Design Year 2045	Figure 6-6	Sheet 1 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE



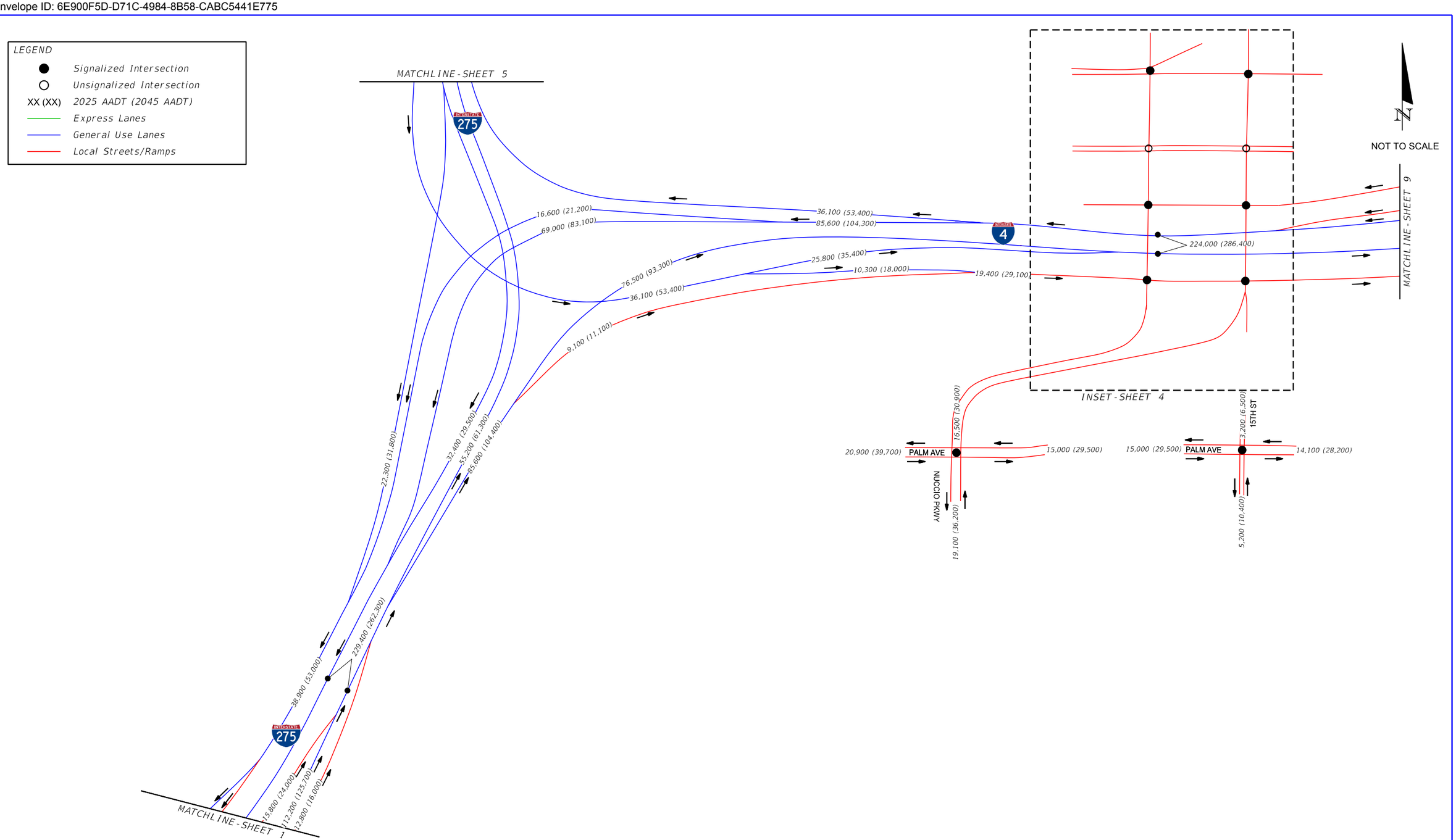
FDOT

SIMR

Preferred Build Alternative AADTs – Opening Year 2025 & Design Year 2045

Figure 6-6

Sheet 2 of 9

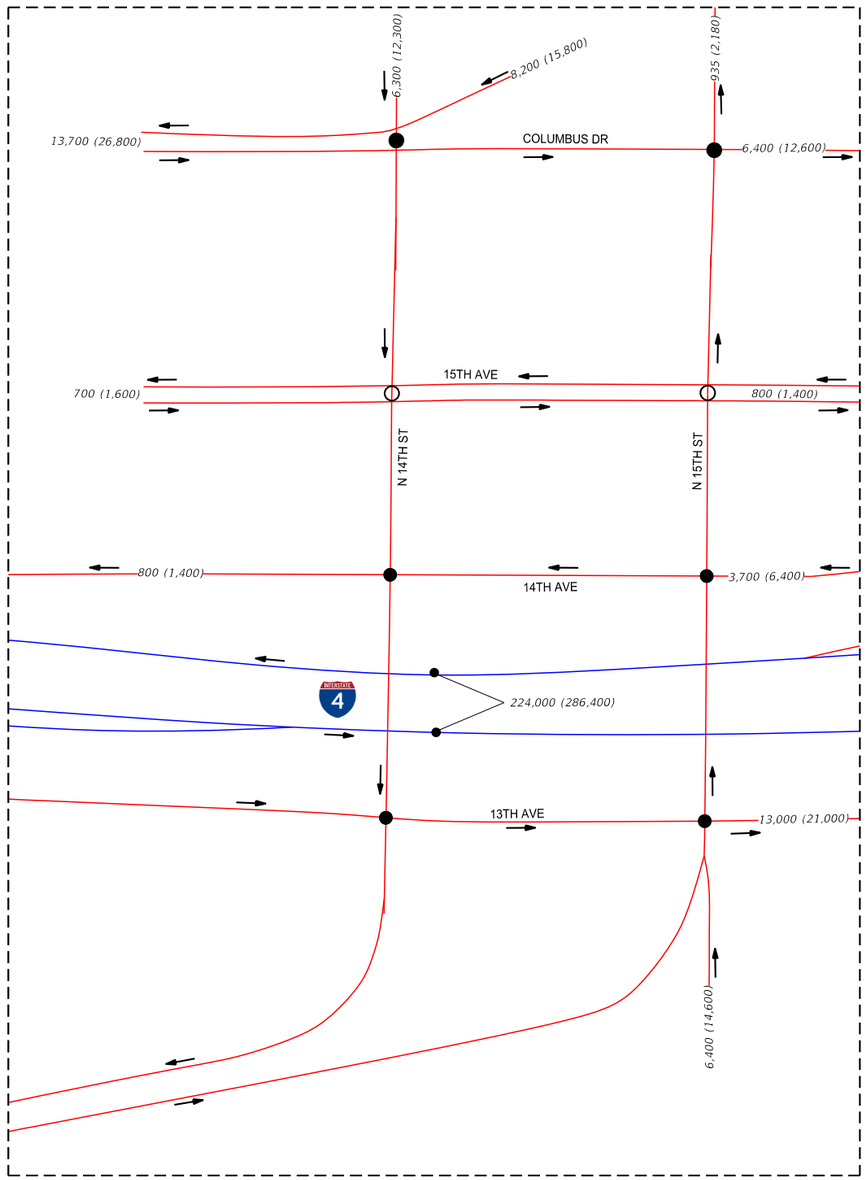


FDOT	SIMR Preferred Build Alternative AADTs – Opening Year 2025 & Design Year 2045	Figure 6-6	Sheet 3 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

INSET - SHEET 3



NOT TO SCALE

SIMR

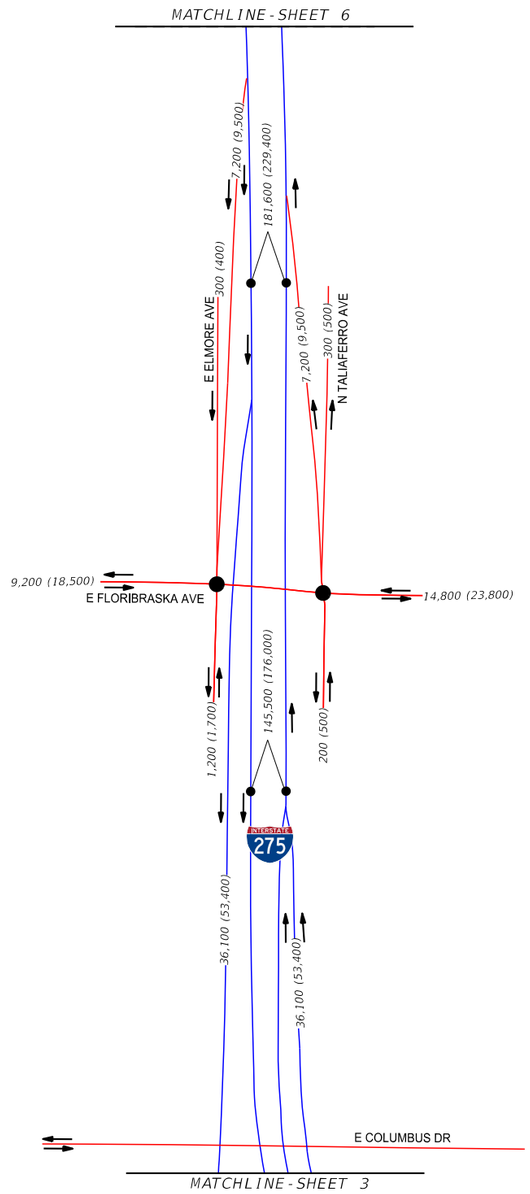
Preferred Build Alternative AADTs – Opening Year 2025 & Design Year 2045

Figure 6-6

Sheet 4 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

FDOT

SIMR

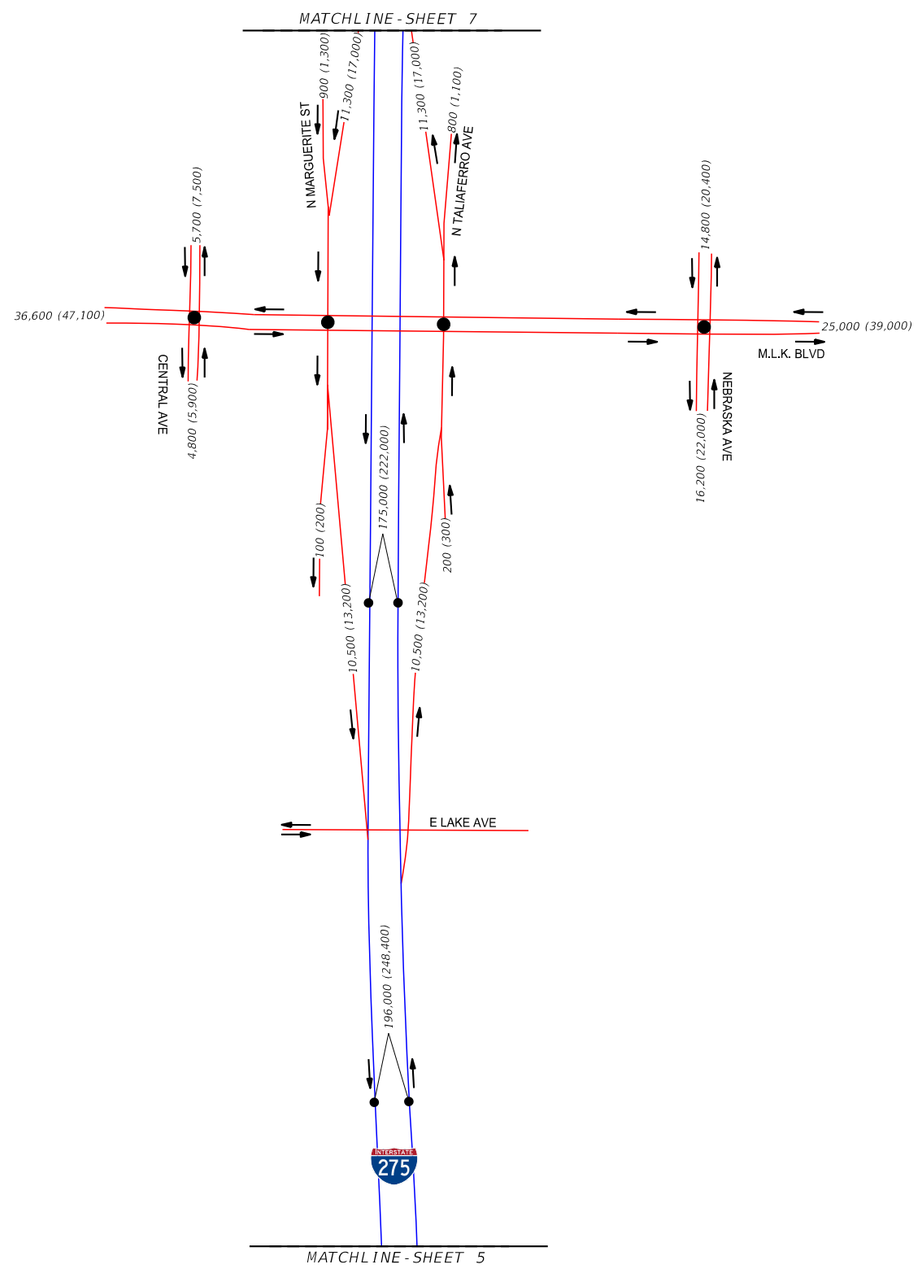
Preferred Build Alternative AADTs – Opening Year 2025 & Design Year 2045

Figure 6-6

Sheet 5 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

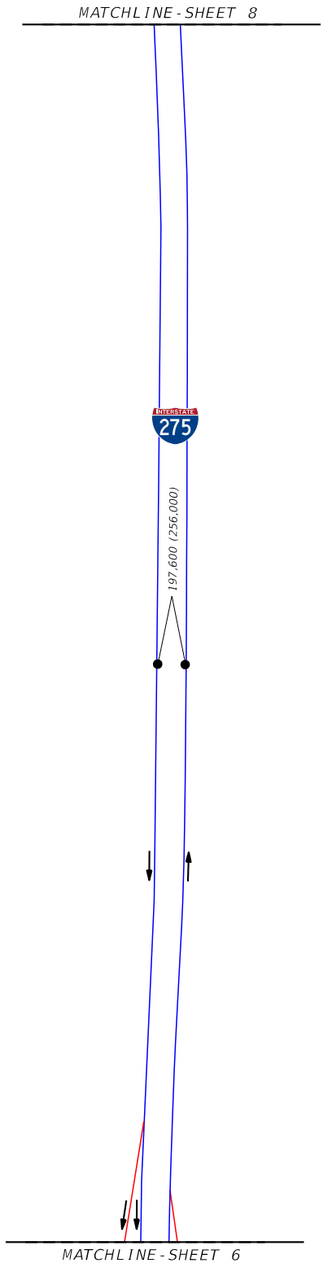


NOT TO SCALE

FDOT	SIMR Preferred Build Alternative AADTs – Opening Year 2025 & Design Year 2045	Figure 6-6	Sheet 6 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) 2025 AADT (2045 AADT)
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

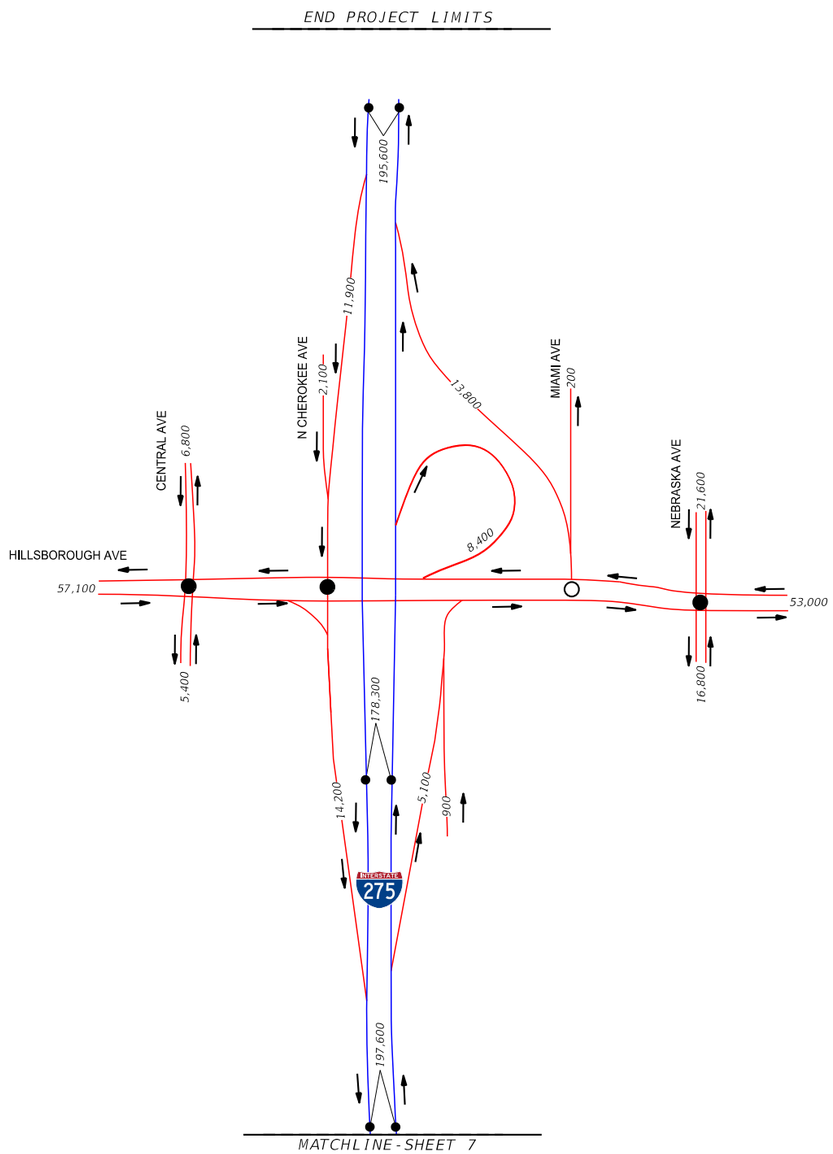


NOT TO SCALE

FDOT	SIMR Preferred Build Alternative AADTs – Opening Year 2025 & Design Year 2045	Figure 6-6	Sheet 7 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX 2025 AADT
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

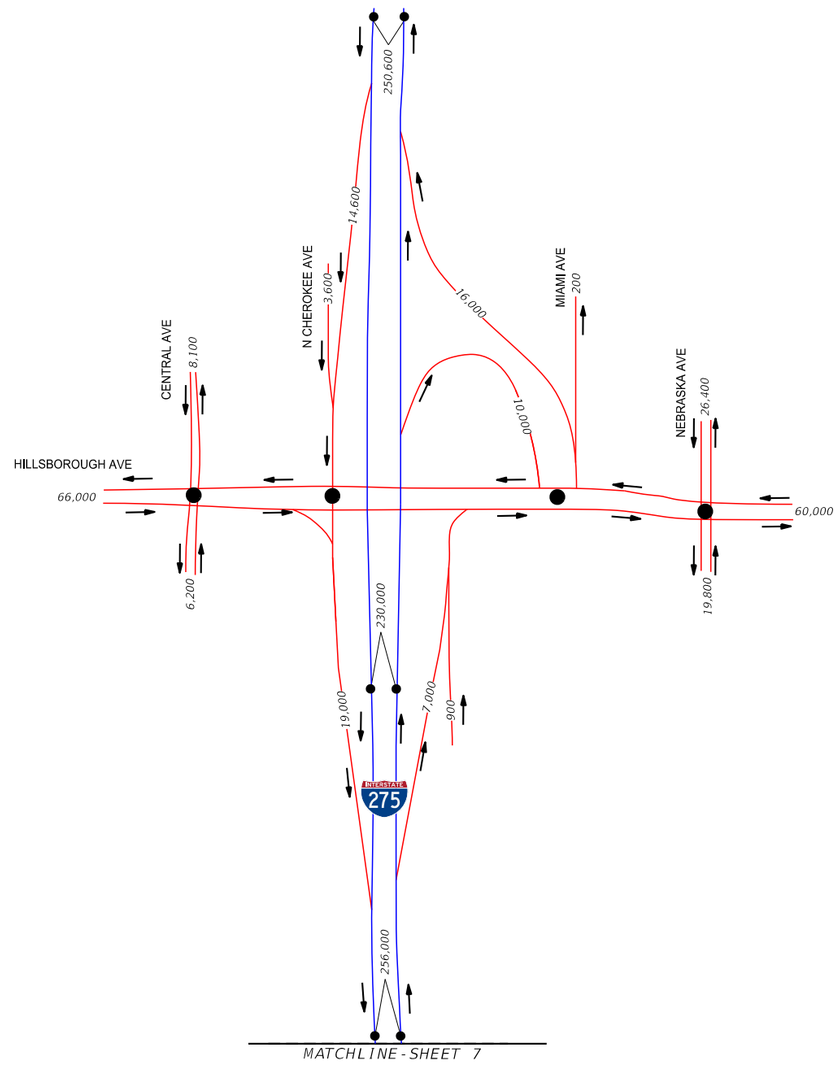


NOT TO SCALE

FDOT	SIMR Preferred Build Alternative AADTs – Opening Year 2025	Figure 6-6	Sheet 8A of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX 2045 AADT
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

SIMR

Preferred Build Alternative AADTs – Design Year 2045

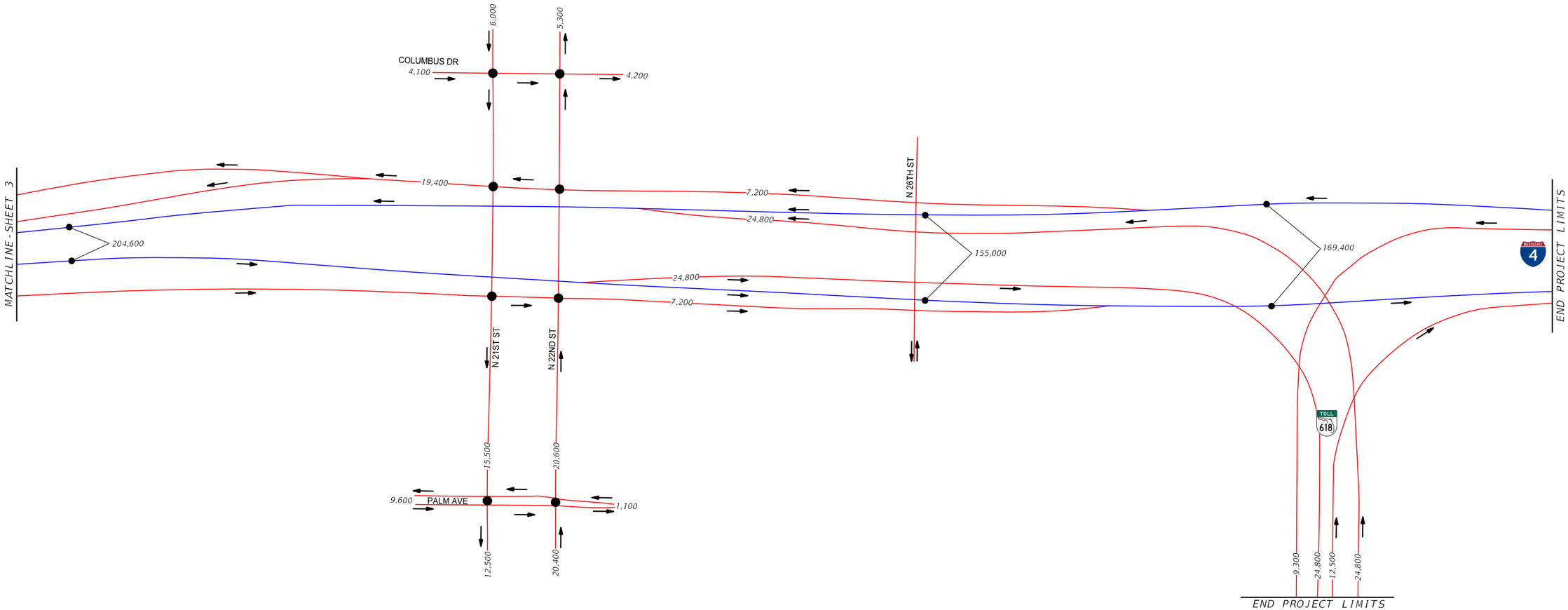
Figure 6-6

Sheet 8B of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX 2025 AADT
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE



FDOT

SIMR

Preferred Build Alternative AADTs – Opening Year 2025

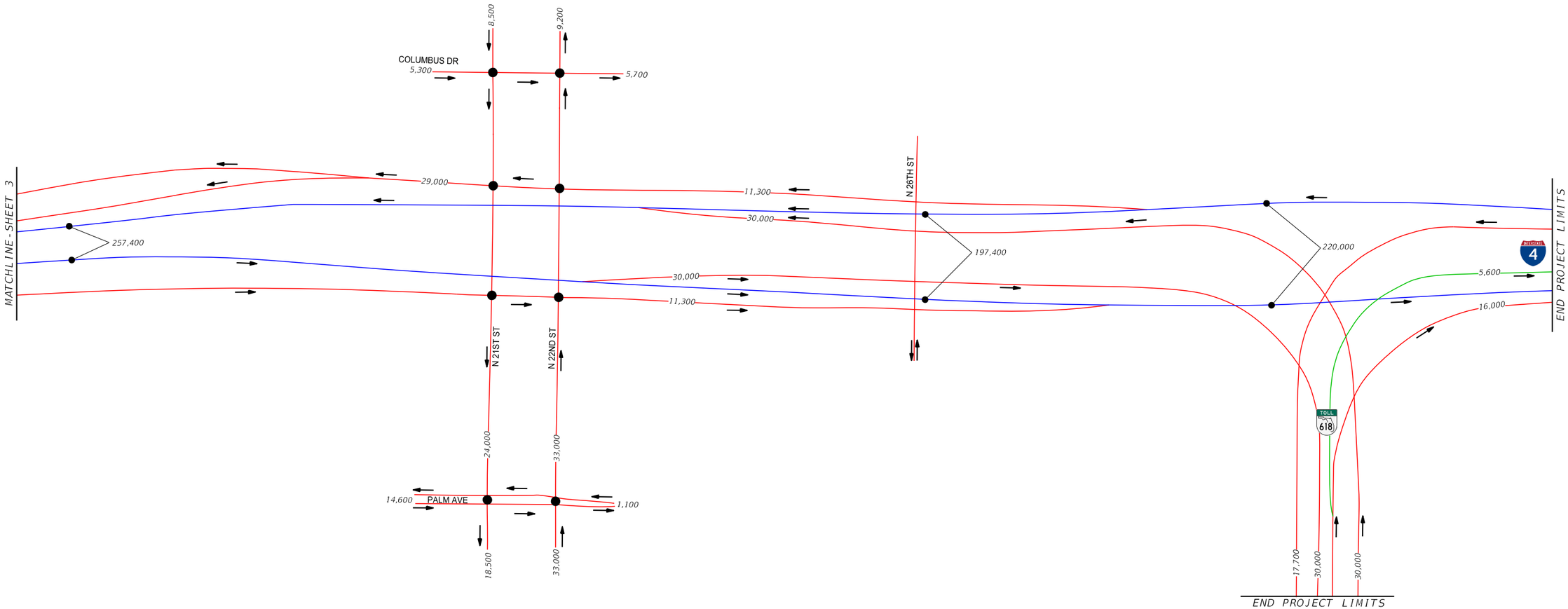
Figure 6-6

Sheet 9A of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX 2045 AADT
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE



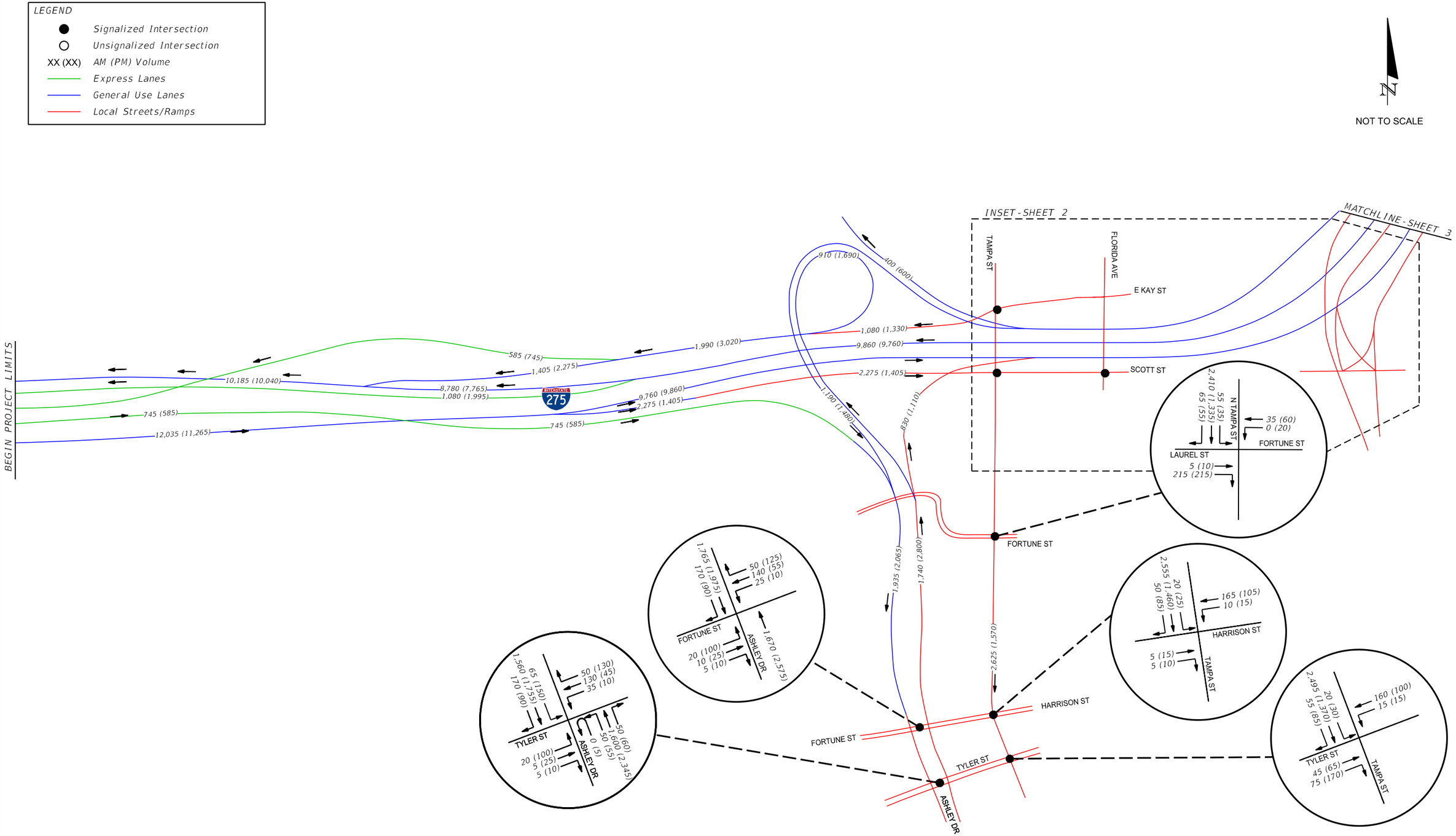
FDOT

SIMR

Preferred Build Alternative AADTs – Design Year 2045

Figure 6-6

Sheet 9B of 9



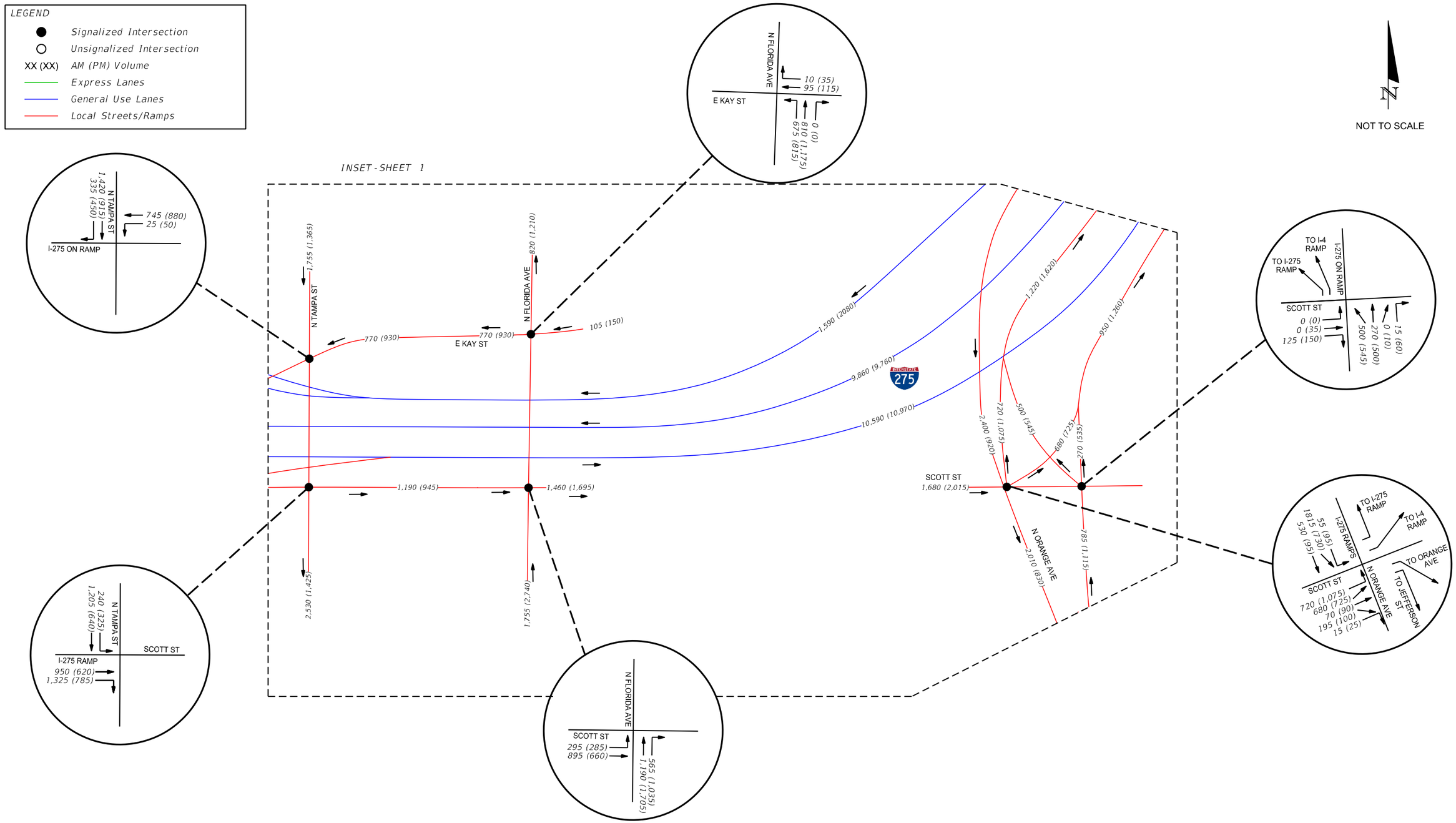
FDOT

SIMR

Preferred Build Alternative DDHVs– Opening Year 2025 AM & PM

Figure 6-7

Sheet 1 of 9

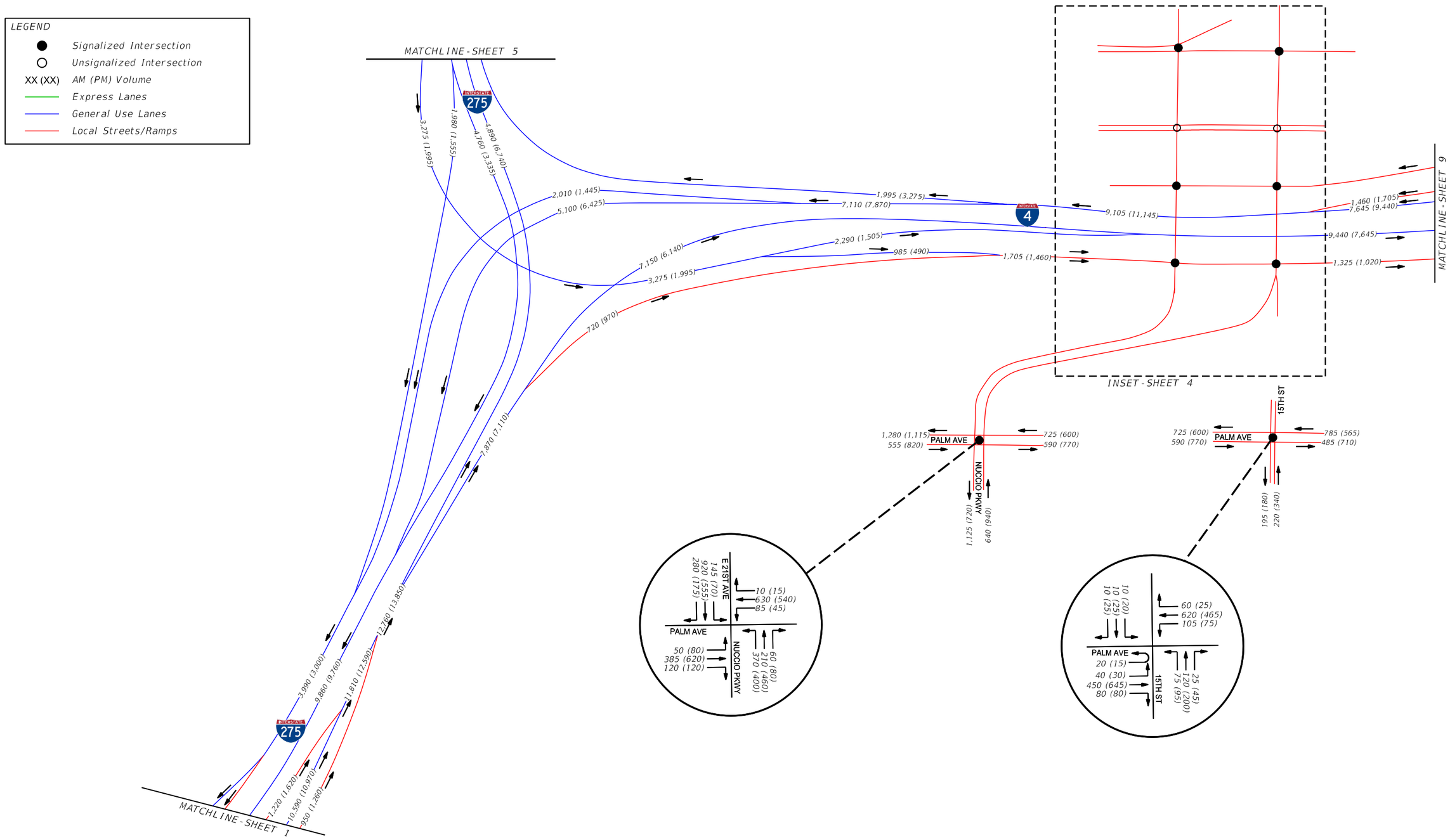


SIMR

Preferred Build Alternative DDHVs- Opening Year 2025 AM & PM

Figure 6-7

Sheet 2 of 9



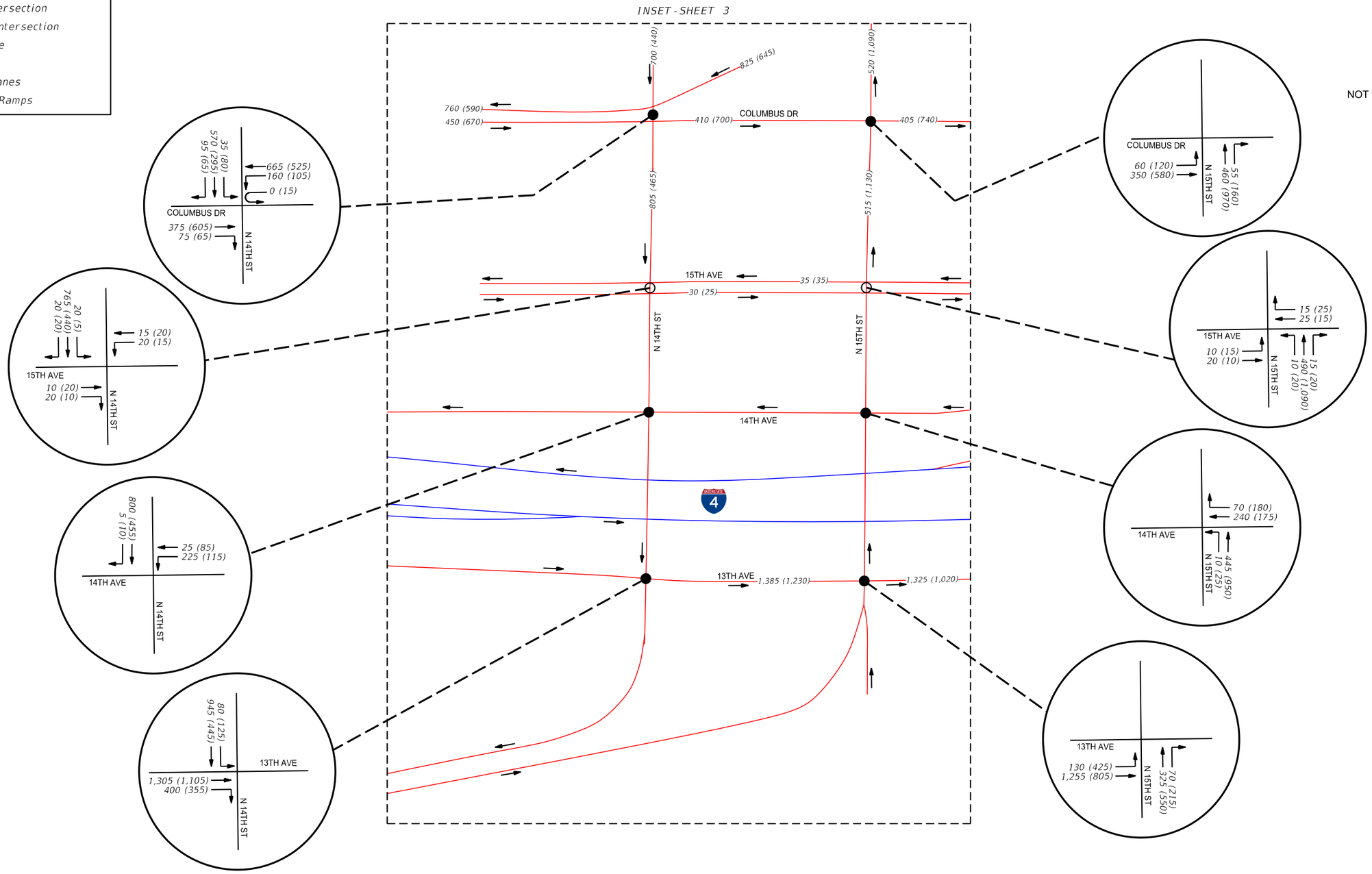
FDOT	SIMR Preferred Build Alternative DDHVs– Opening Year 2025 AM & PM	Figure 6-7	Sheet 3 of 9

LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

INSET - SHEET 3

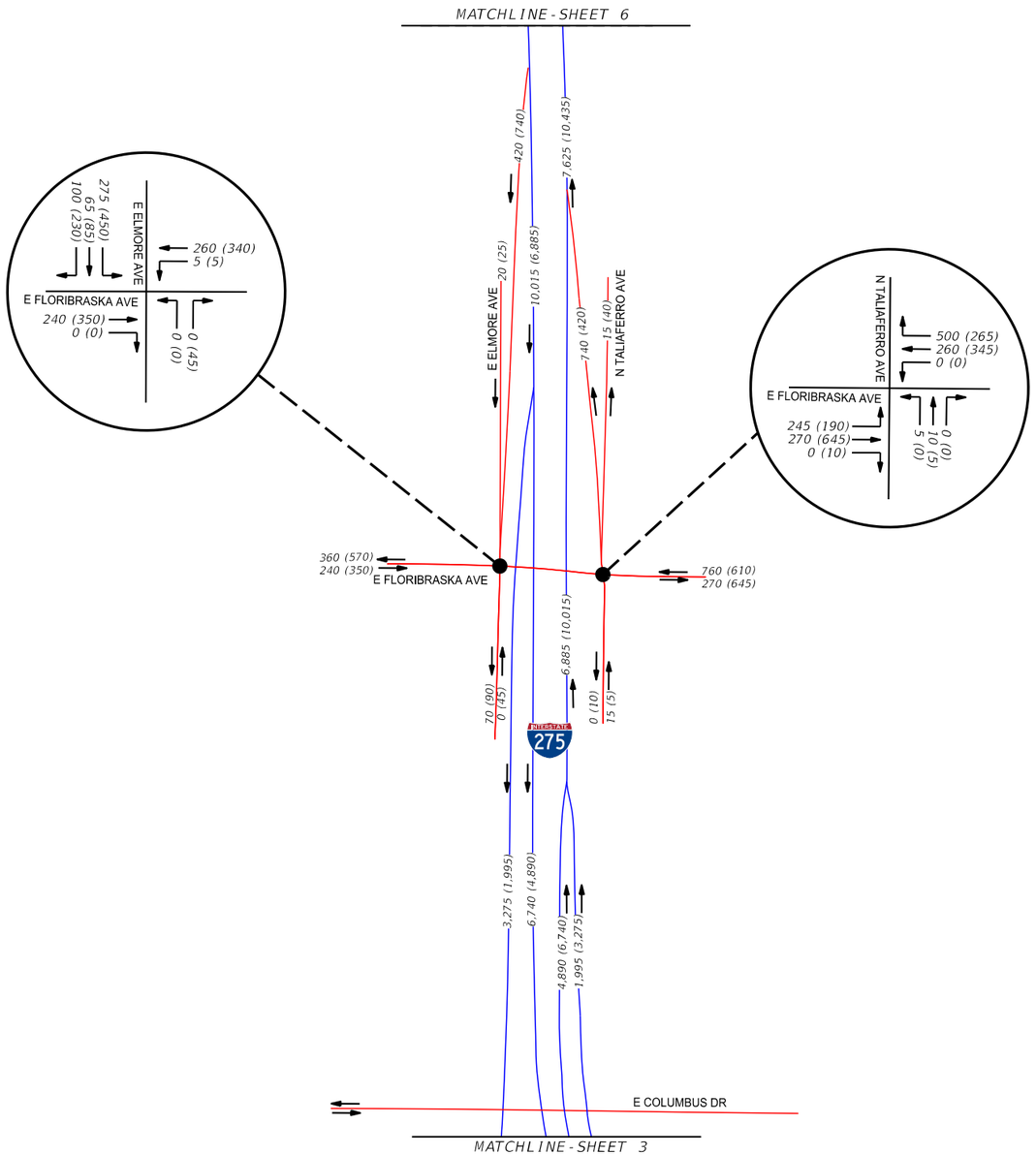
NOT TO SCALE



FDOT	SIMR Preferred Build Alternative DDHVs– Opening Year 2025 AM & PM	Figure 6-7	Sheet 4 of 9

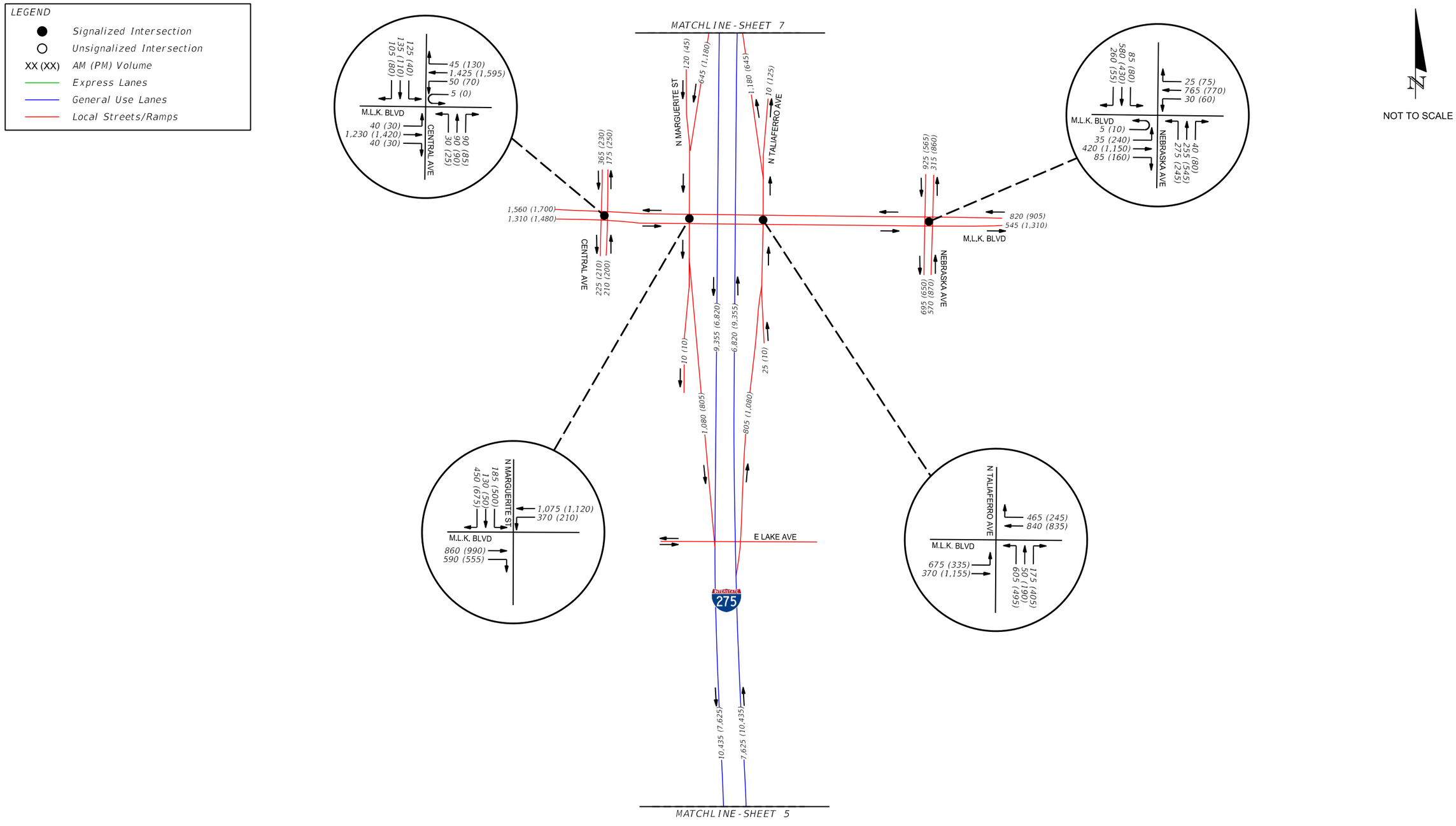
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

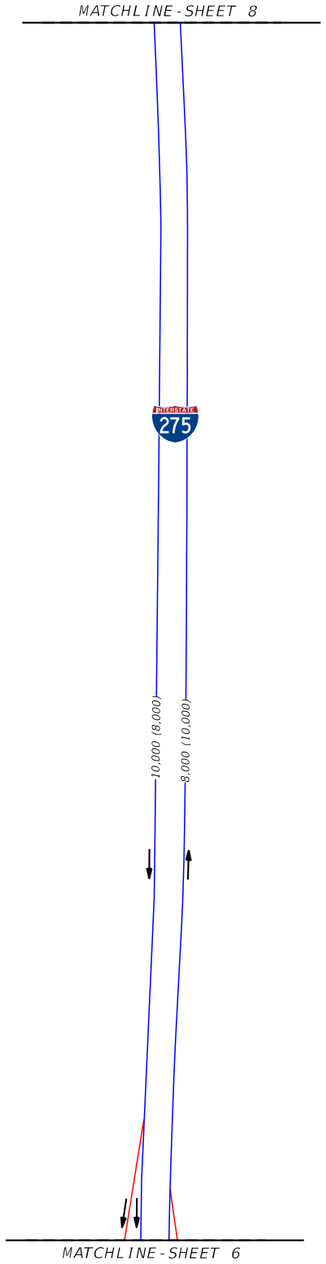
FDOT	SIMR Preferred Build Alternative DDHVs- Opening Year 2025 AM & PM	Figure 6-7	Sheet 5 of 9



FDOT	SIMR Preferred Build Alternative DDHVs– Opening Year 2025 AM & PM	Figure 6-7	Sheet 6 of 9

LEGEND

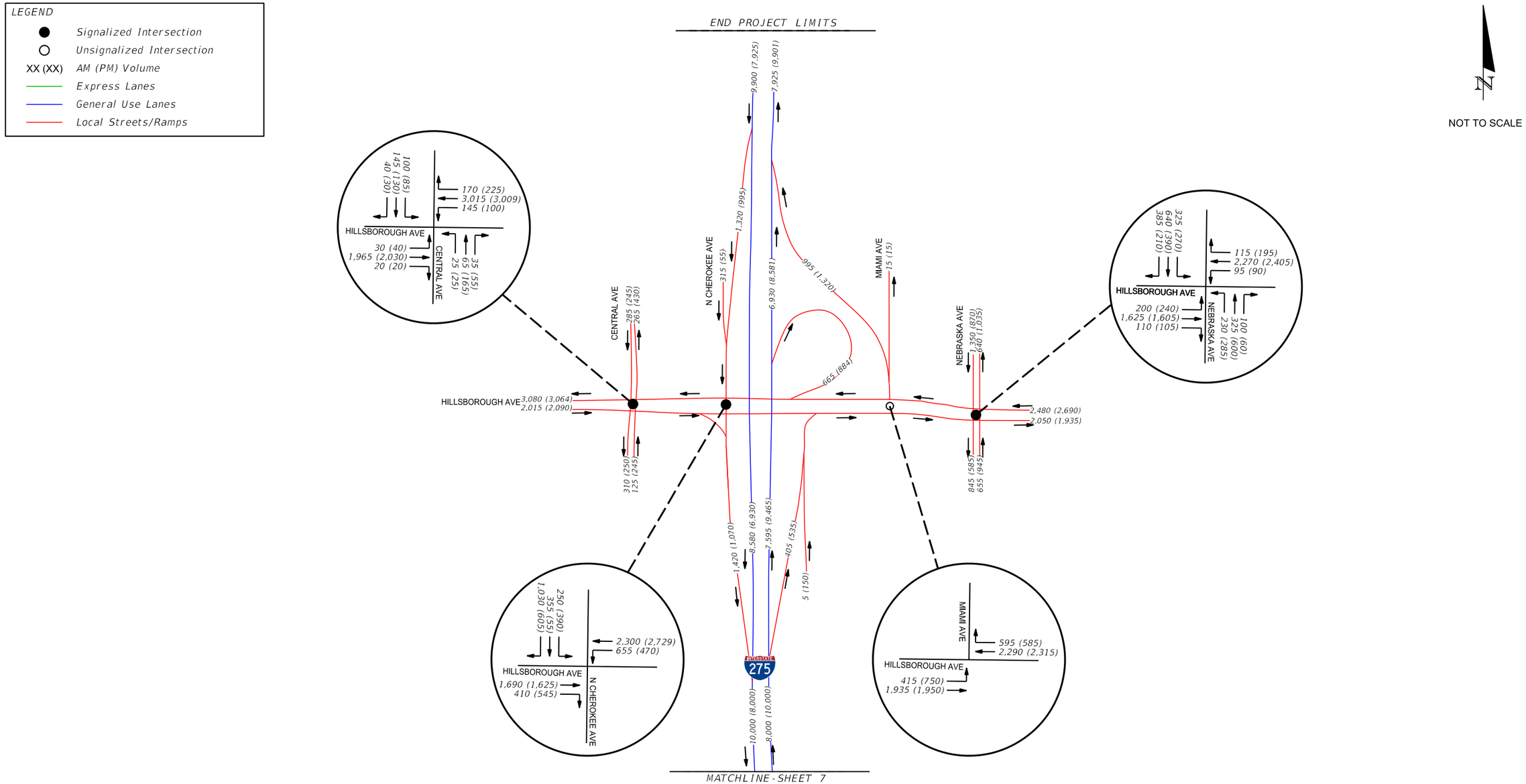
- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

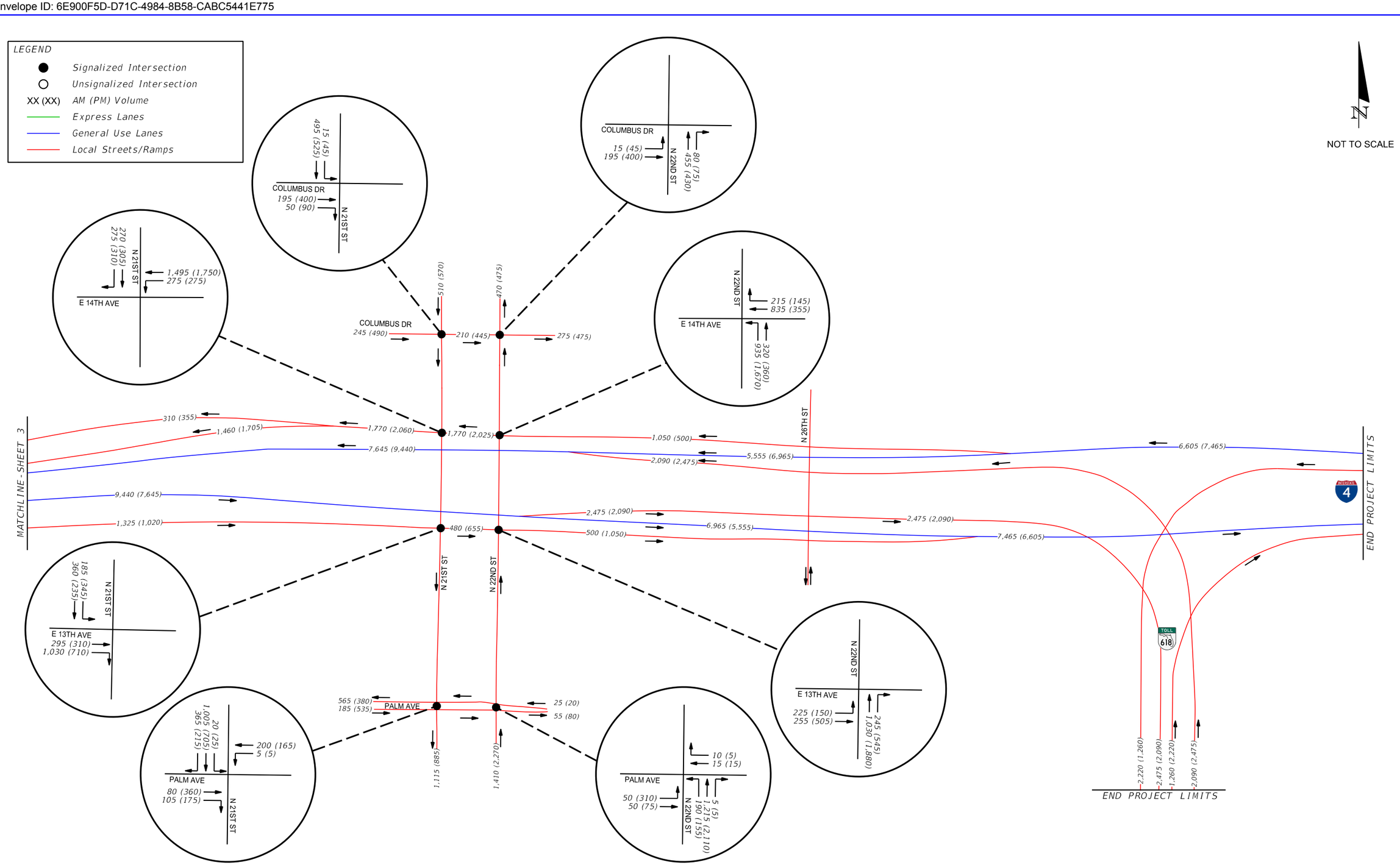


N

NOT TO SCALE

FDOT	SIMR Preferred Build Alternative DDHVs– Opening Year 2025 AM & PM	Figure 6-7	Sheet 7 of 9


LEGEND
Signalized Intersection
Unsignalized Intersection
XX (XX) AM (PM) Volume
Express Lanes
General Use Lanes
Local Streets/Ramps
END PROJECT LIMITS
NOT TO SCALE
HILLSBOROUGH AVE
CENTRAL AVE
N CHEROKEE AVE
MIAMI AVE
NEBRASKA AVE
3,080 (3,064)
2,015 (2,090)
2,480 (2,690)
2,050 (1,935)
9,900 (7,925)
7,925 (9,901)
1,320 (995)
995 (1,320)
6,930 (8,581)
665 (884)
285 (245)
265 (430)
310 (250)
125 (245)
315 (55)
15 (15)
1,340 (872)
1,640 (1,035)
845 (585)
655 (945)
1,420 (1,070)
8,580 (6,930)
7,595 (9,465)
405 (535)
5 (150)
10,000 (8,000)
8,000 (10,000)
100 (85)
145 (130)
40 (30)
170 (225)
3,015 (3,009)
145 (100)
30 (40)
1,965 (2,030)
20 (20)
25 (25)
65 (165)
35 (55)
325 (270)
640 (390)
385 (210)
115 (195)
2,270 (2,405)
95 (90)
200 (240)
1,625 (1,605)
110 (105)
230 (285)
325 (600)
100 (60)
1,030 (605)
355 (555)
250 (390)
2,300 (2,729)
655 (470)
1,690 (1,625)
410 (545)
595 (585)
2,290 (2,315)
415 (750)
1,935 (1,950)
MATCHLINE - SHEET 7



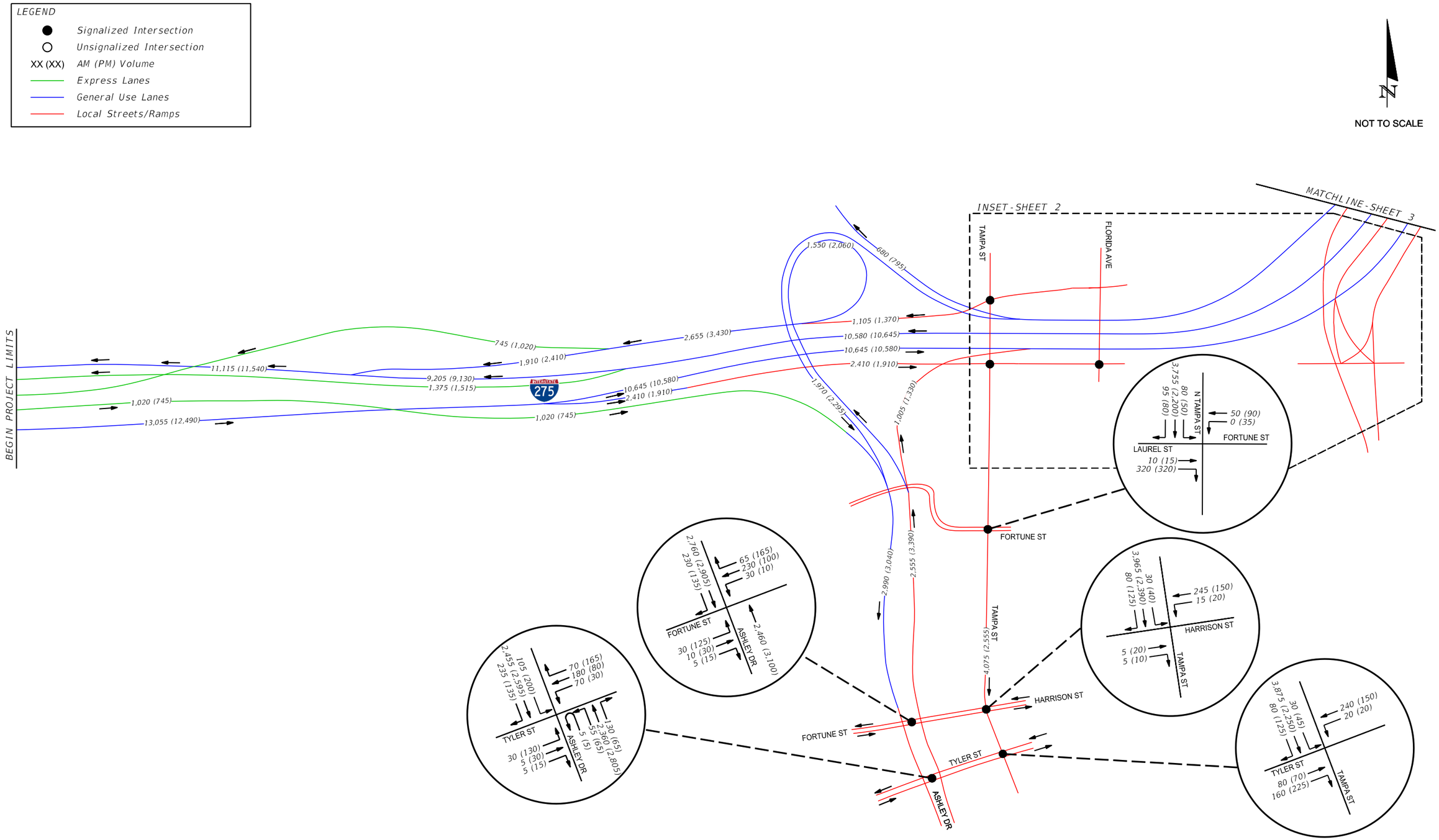
FDOT

SIMR

Preferred Build Alternative DDHVs- Opening Year 2025 AM & PM

Figure 6-7

Sheet 9 of 9



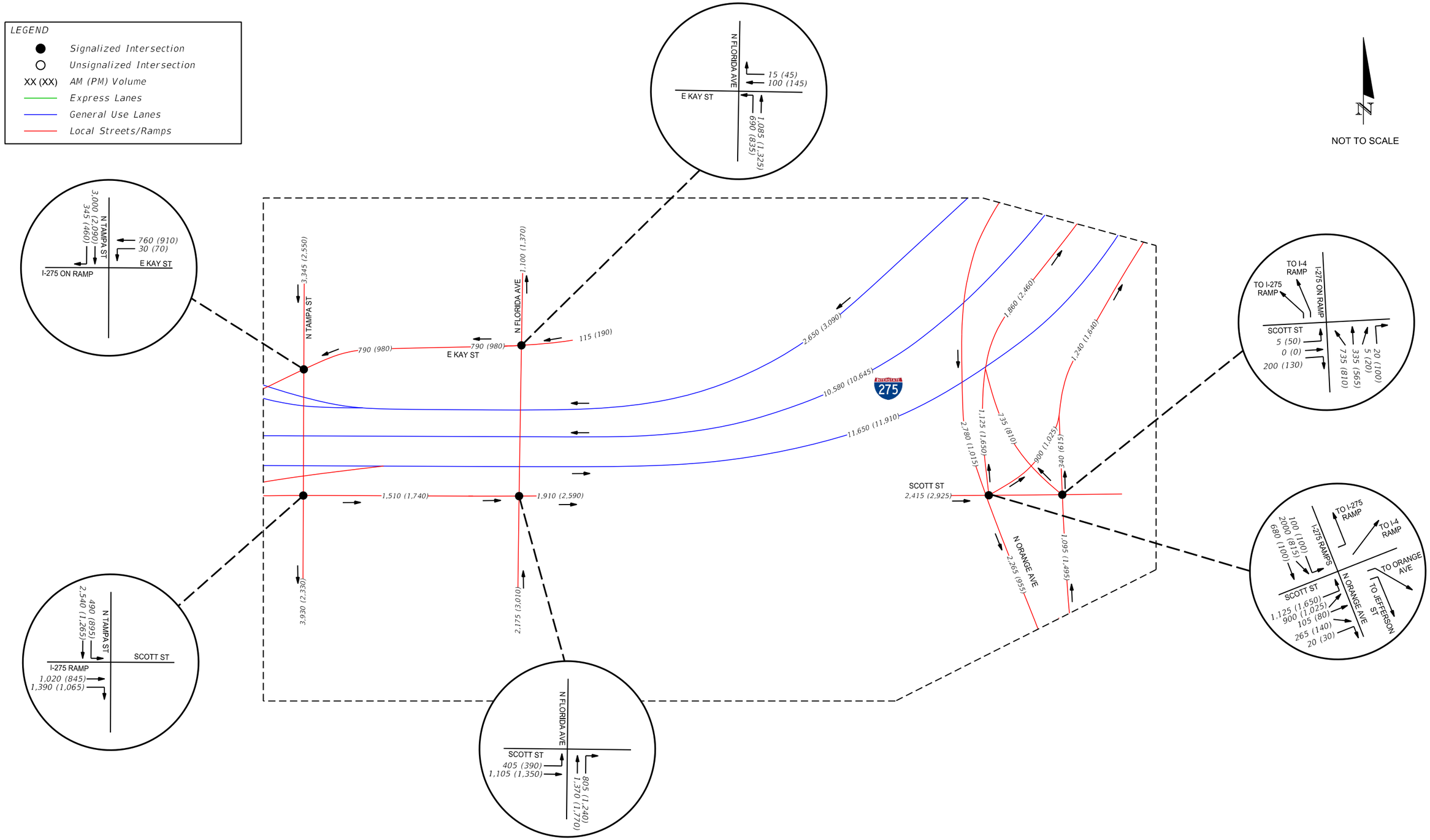
FDOT

SIMR

Preferred Build Alternative DDHVs – Design Year 2045 AM & PM

Figure 6-8

Sheet 1 of 9



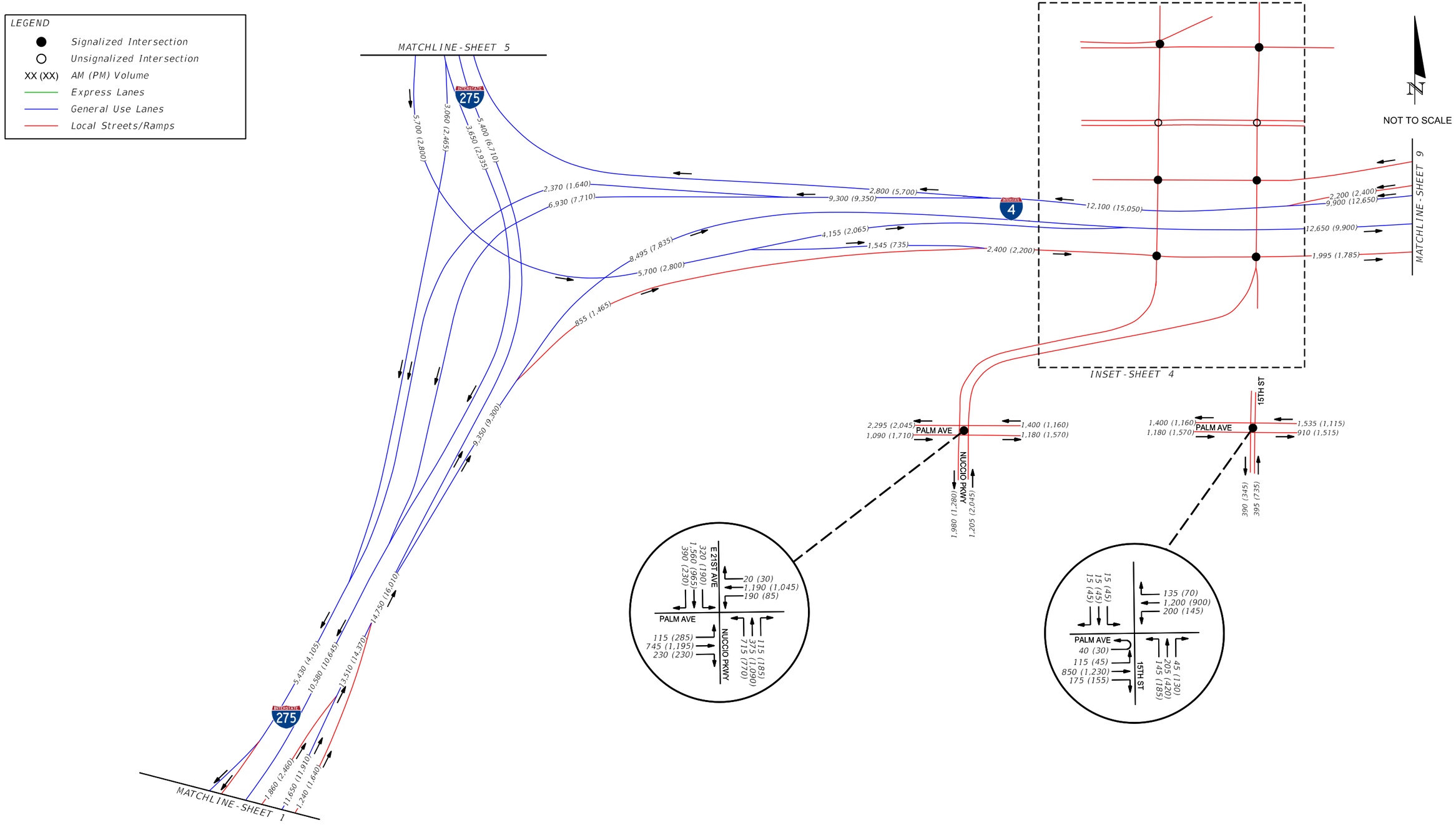
FDOT

SIMR

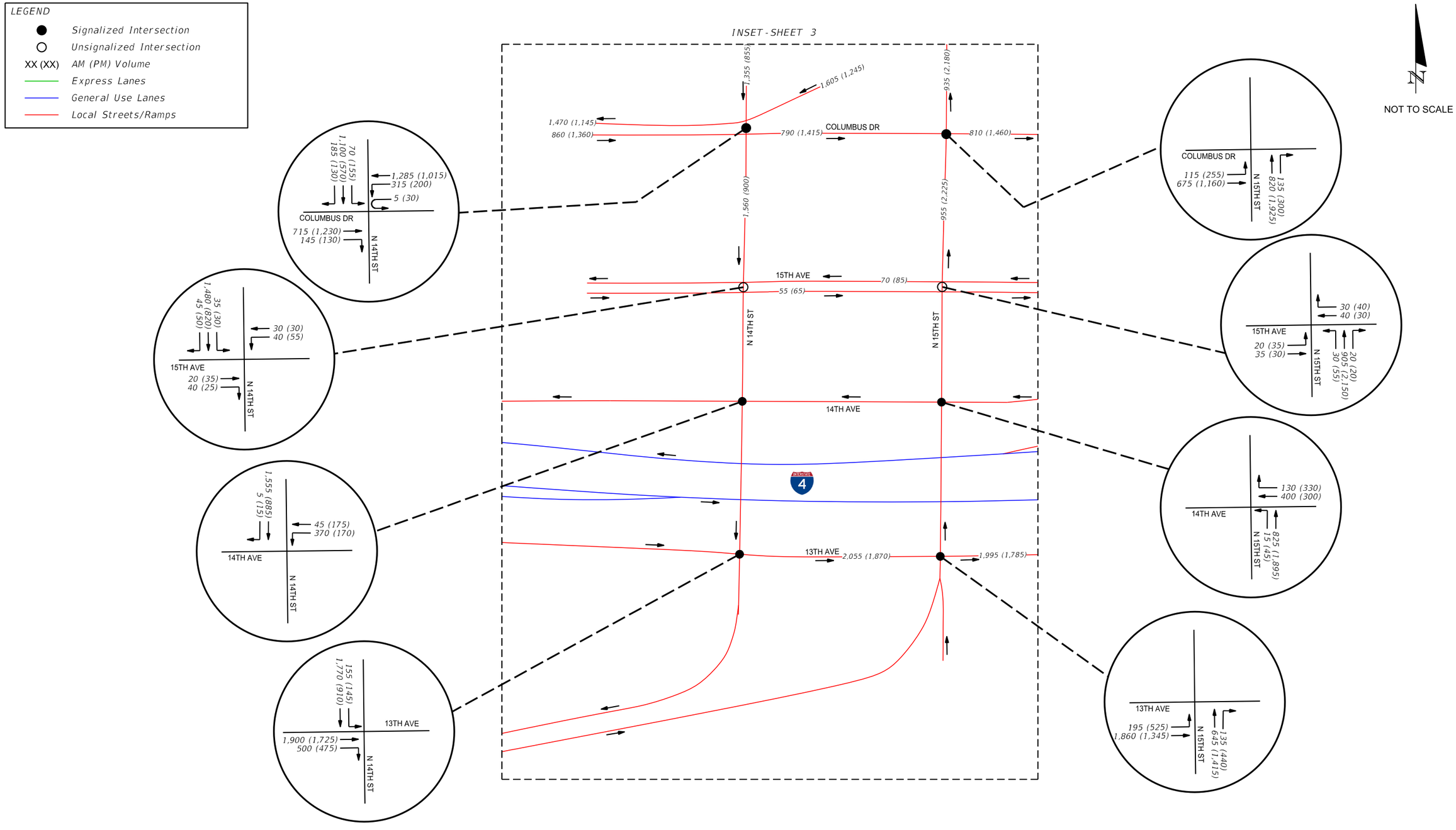
Preferred Build Alternative DDHVs – Design Year 2045 AM & PM

Figure 6-8

Sheet 2 of 9



FDOT	SIMR Preferred Build Alternative DDHVs – Design Year 2045 AM & PM	Figure 6-8	Sheet 3 of 9



FDOT

SIMR

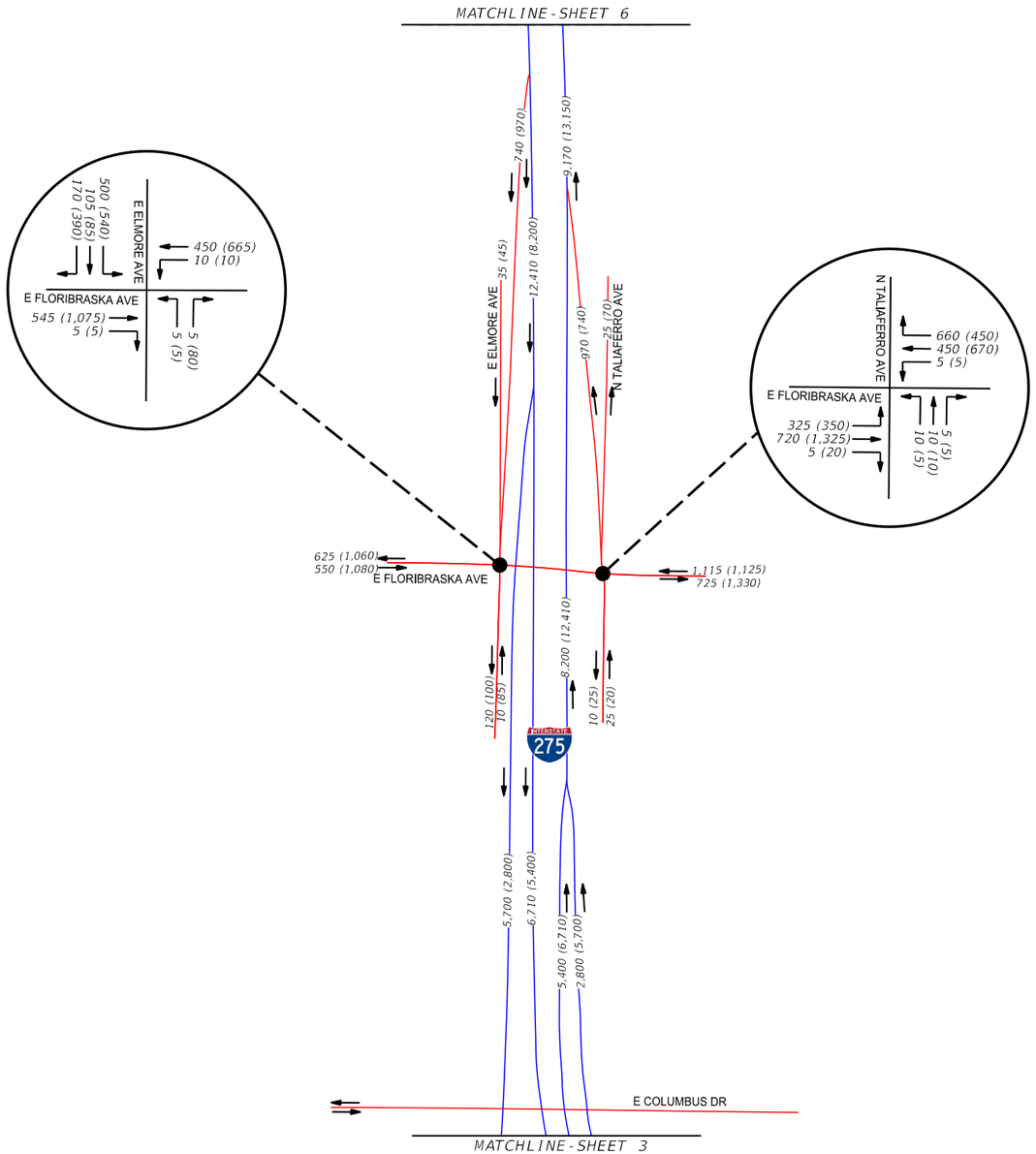
Preferred Build Alternative DDHVs – Design Year 2045 AM & PM

Figure 6-8

Sheet 4 of 9

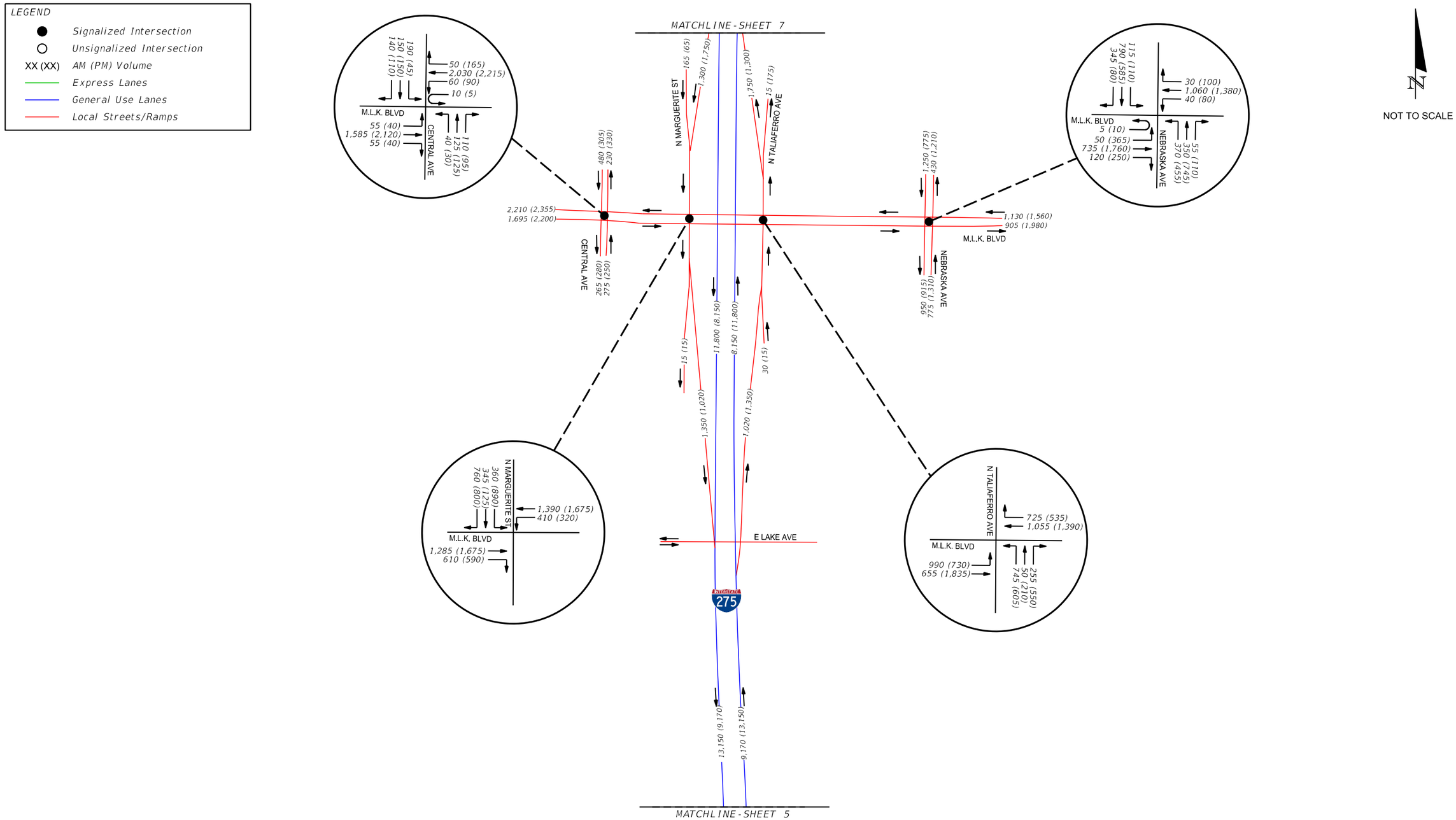
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



NOT TO SCALE

FDOT	SIMR Preferred Build Alternative DDHVs – Design Year 2045 AM & PM	Figure 6-8	Sheet 5 of 9



SIMR

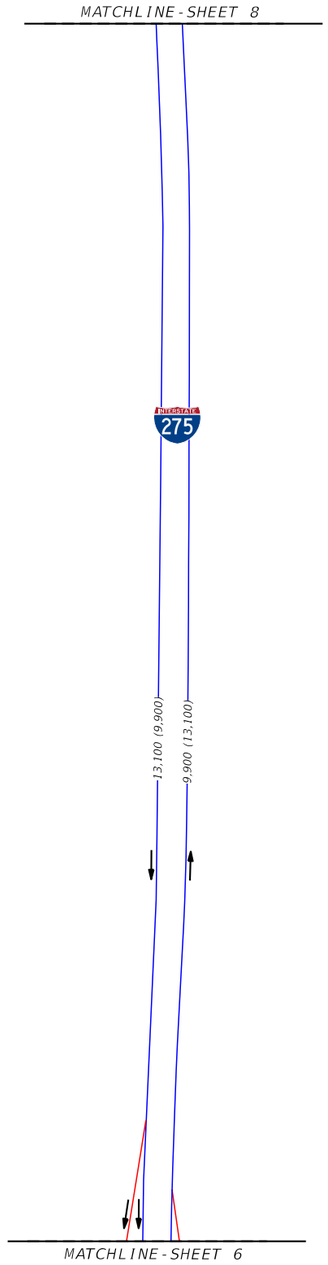
Preferred Build Alternative DDHVs – Design Year 2045 AM & PM

Figure 6-8

Sheet 6 of 9

LEGEND

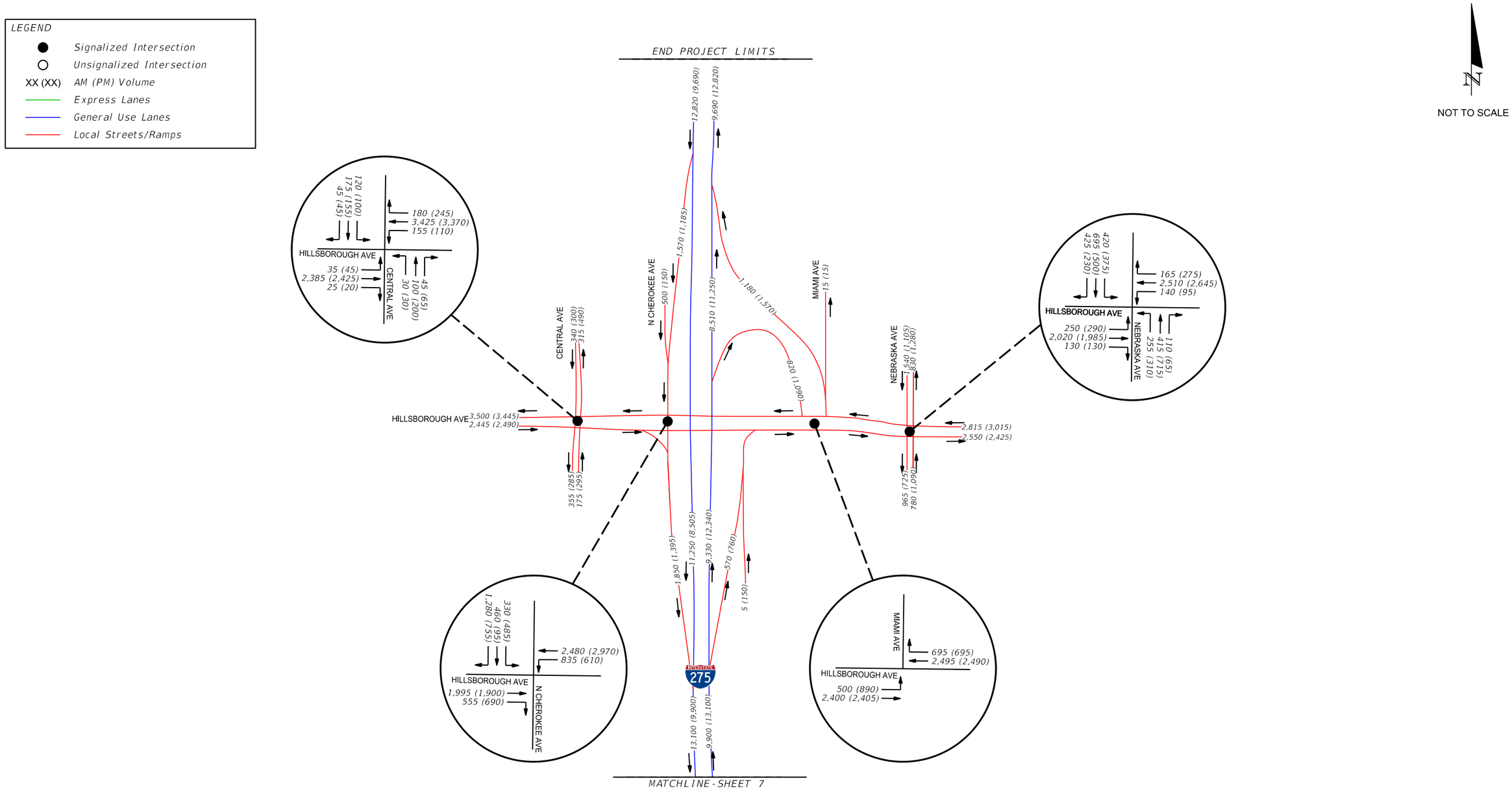
- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps



N

NOT TO SCALE

FDOT	SIMR Preferred Build Alternative DDHVs – Design Year 2045 AM & PM	Figure 6-8	Sheet 7 of 9



SIMR

Preferred Build Alternative DDHVs – Design Year 2045 AM & PM

Figure 6-8

Sheet 8 of 9

LEGEND
- Signalized Intersection
- Unsignalized Intersection
- XX (XX) AM (PM) Volume
- Express Lanes
- General Use Lanes
- Local Streets/Ramps

NOT TO SCALE

MATCHLINE - SHEET 3

COLUMBUS DR
310 (635) — 265 (590) — 375 (655)
785 (750)
780 (875)

N 21ST ST
20 (55)
765 (695)
COLUMBUS DR
245 (535)
65 (100)

N 22ND ST
COLUMBUS DR
20 (55)
245 (535)
760 (820)
130 (120)

N 21ST ST
405 (440)
425 (355)
E 14TH AVE
2,305 (2,675)
355 (360)

N 22ND ST
E 14TH AVE
320 (220)
1,230 (600)
570 (720)
1,430 (2,435)

530 (630)
2,200 (2,400)
2,730 (3,030)
2,660 (3,035)
1,550 (820)
9,900 (12,650)
7,000 (9,310)
8,550 (10,130)
2,900 (3,340)
12,650 (9,900)
1,995 (1,785)
3,340 (2,900)
9,310 (7,000)
3,340 (2,900)
10,130 (8,550)
610 (980)
820 (1,550)
445 (1,250)
1,555 (2,750)

N 26TH ST

END PROJECT LIMITS

N 21ST ST
255 (475)
505 (325)
E 13TH AVE
355 (505)
1,640 (1,280)

N 22ND ST
E 13TH AVE
335 (320)
275 (660)
545 (990)
1,665 (2,835)

PALM AVE
870 (505)
240 (595)
30 (25)
60 (90)
1,635 (1,960)
2,360 (3,585)

N 21ST ST
1,495 (1,260)
620 (305)
30 (40)
250 (200)
5 (5)
PALM AVE
105 (370)
135 (225)

N 22ND ST
PALM AVE
80 (325)
55 (85)
10 (5)
20 (20)
5 (5)
2,120 (3,395)
235 (185)

TOLL 618

5,250 (2,445)
3,340 (2,900)
2,000 (4,000)
2,900 (3,340)

END PROJECT LIMITS

FDOT

SIMR

Preferred Build Alternative DDHVs – Design Year 2045 AM & PM

Figure 6-8

Sheet 9 of 9

7. FUTURE YEARS OPERATIONAL ANALYSIS

Operational analysis for the No-Build and Build Alternatives were performed for Opening Year (2025) and Design Year (2045). For the I-4 eastbound, the O-D data was reviewed and adjusted as per the existing travel data for the models. Segment level demand volume, throughput, density, speed, and travel time were reported for the I-275 and I-4 corridors.

7.1 Opening Year (2025)

7.1.1 No-Build Performance

An average of 10 run results was used to evaluate the performance of the I-275 and I-4 corridors for the Opening Year (2025) No-Build Alternative. The throughput, density, speed, and travel time for the I-275 and I-4 corridor segments are presented in **Figure 7-1** through **Figure 7-4**. The performance of the I-275 and I-4 corridors during AM and PM peak hours is summarized below.

- On average, 82 percent and 68 percent of the demand volume was processed along northbound I-275 during AM and PM peak hours, respectively. In comparison, 67 percent and 86 percent of the demand volume was processed along southbound I-275 during AM and PM peak hours, respectively.

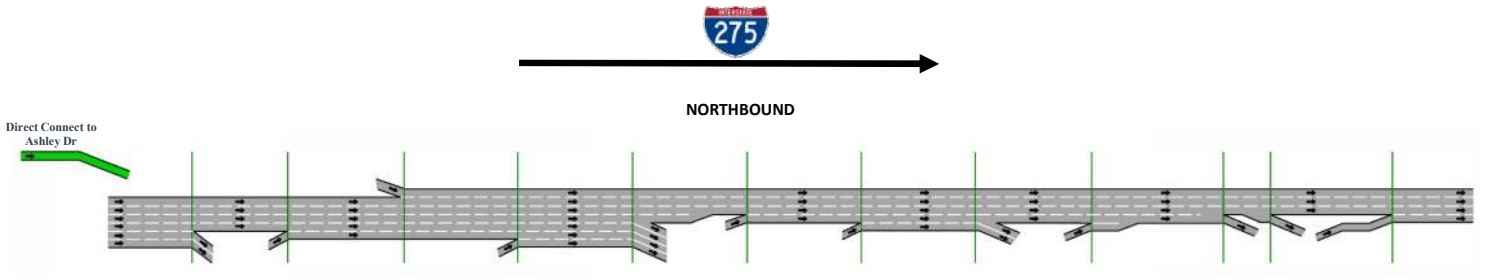
- When compared to the Existing Year (2018), traffic conditions for the Opening year (2025) No-Build alternative have improved traffic operations since improvements from Section 7 Phase 1 are included in the No-Build alternative.

- Higher delays were observed along I-275 northbound in the AM peak hours and PM Peak Hours, prior to exit to I-4 eastbound. Heavy exiting traffic to Ashley and I-4 is the major contributing factor for delay along I-275 northbound prior to I-4 exit during peak hours. In addition, due to this metering effect, less traffic is entering downstream of I-275 northbound north of I-4.

- On average, 89 percent and 87 percent of the demand volume was processed along eastbound I-4 during AM and PM peak hours, respectively. In comparison, 68 percent and 56 percent of the demand volume was processed along westbound I-4 during AM and PM peak hours, respectively.

- I-4 westbound is heavily congested during the AM peak hour and PM peak hour due to capacity constraints and major ramps/connectors to and from I-275 and Selmon Expressway.

Figure 7-1 – I-275 NB Analysis Summary – No-Build Opening Year (2025)

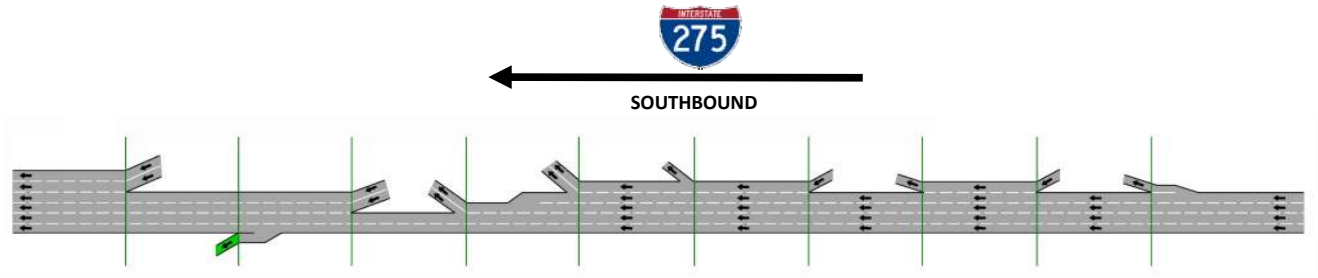


AM	Distance (ft)	5,350	1,380	2,540	350	850	1,900	2,180	2,140	1,760	3,600	1,120	600	1,500
	2025 No-Build (vph)	11,829	9,745	10,575	11,700	12,505	4,890	6,885	7,625	6,820	8,000	7,595	6,928	7,923
	Simulated (vph)	10,533	8,431	9,211	10,511	11,357	4,239	5,636	6,278	5,398	6,208	5,672	5,051	5,832
	Estimated Density (pcpmpl)	65	52	44	42	40	21	23	22	26	35	37	27	23
	Speed (mph)	26	38	39	37	37	52	55	52	52	42	40	56	57
	Travel Time (sec)	71	25	46	10	16	25	27	29	25	64	19	7	18
PM	Distance (ft)	5,350	1,380	2,540	350	850	1,900	2,180	2,140	1,760	3,600	1,120	600	1,500
	2025 No-Build (vph)	10,983	9,480	10,590	12,210	13,399	6,289	9,564	10,235	9,155	10,000	9,463	8,579	9,897
	Simulated (vph)	7,793	6,134	7,266	8,919	10,057	4,282	6,309	6,893	5,971	6,653	6,305	5,714	6,584
	Estimated Density (pcpmpl)	119	76	93	65	48	27	28	25	26	28	31	42	30
	Speed (mph)	11	21	16	23	30	47	55	55	57	57	57	45	54
	Travel Time (sec)	164	45	111	16	19	28	27	27	21	43	13	9	19

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-2 – I-275 SB Analysis Summary – No-Build Opening Year (2025)

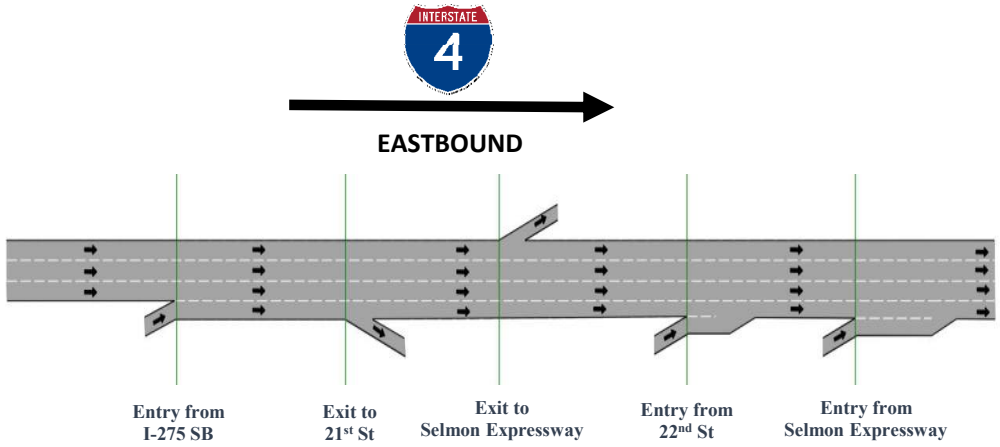


		Entry from Ashley Dr./Tampa St	Exit to Express Lane	Entry From I-4 WB	Exit to Downtown	Exit to I-4 EB	Exit to Floribraska Ave	Entry from MLK Blvd	Exit to MLK Blvd	Entry from Hillsborough Ave	Exit to Hillsborough Ave
AM	Distance (ft)	1,070	300	5,270	2,230	1,880	940	1,500	1,770	3,600	1,840	980
	2025 No-Build (vph)	9,928	8,442	9,480	4,350	6,289	9,564	10,235	9,155	10,000	8,579	9,897
	Simulated (vph)	6,971	5,585	6,349	2,826	4,130	6,333	6,898	6,059	6,639	5,798	6,612
	Estimated Density (pcpmpl)	19	24	29	27	25	27	27	31	23	26	30
	Speed (mph)	56	57	53	50	52	46	49	48	56	55	43
	Travel Time (sec)	13	4	67	31	25	14	21	26	44	23	15
PM	Distance (ft)	1,070	300	5,270	2,230	1,880	940	1,500	1,770	3,600	1,840	980
	2025 No-Build (vph)	9,837	7,753	9,745	3,700	4,890	6,885	7,625	6,820	8,000	6,928	7,923
	Simulated (vph)	7,118	5,038	6,653	3,256	4,310	6,139	6,864	6,129	7,249	6,424	7,333
	Estimated Density (pcpmpl)	28	23	30	32	27	24	25	28	28	27	27
	Speed (mph)	43	57	54	50	52	50	54	55	53	60	56
	Travel Time (sec)	17	3	68	31	25	13	19	22	48	21	12

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-3 – I-4 EB Analysis Summary – No-Build Opening Year (2025)

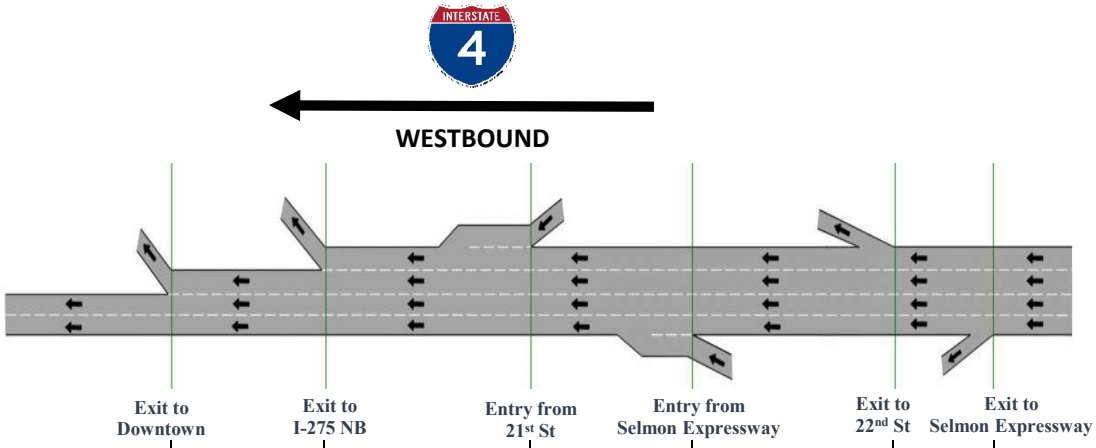


		Entry from I-275 SB	Exit to 21st St	Exit to Selmon Expressway	Entry from 22nd St	Entry from Selmon Expressway
AM	Distance (ft)	1480	2610	1450	2740	1690
	2025 No-Build (vph)	10,890	9,235	6,805	7,465	8,725
	Simulated (vph)	9,285	7,821	6,150	6,911	8,168
	Estimated Density (pcpmpl)	58	44	25	26	14
	Speed (mph)	36	40	56	56	52
	Travel Time (sec)	28	44	18	33	22
PM	Distance (ft)	1480	2610	1450	2740	1690
	2025 No-Build (vph)	9,105	7,645	5,555	6,605	8,825
	Simulated (vph)	7,601	6,614	4,944	5,791	8,003
	Estimated Density (pcpmpl)	37	32	21	24	22
	Speed (mph)	49	52	57	56	45
	Travel Time (sec)	20	35	17	33	28

Congestion Level	Freeways Posted Speed Limit 50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-4 – I-4 WB Analysis Summary – No-Build Opening Year (2025)



AM	Distance (ft)	940	1,860	2,920	1,060	2,650	1,500
	2025 No-Build (vph)	7,110	9,105	7,645	5,555	6,605	8,825
	Simulated (vph)	4,926	6,377	5,114	3,724	4,413	5,829
	Estimated Density (pcpmpl)	35	49	115	125	138	126
	Speed (mph)	48	33	11	9	9	14
	Travel Time (sec)	13	43	177	85	193	76

PM	Distance (ft)	940	1,860	2,920	1,060	2,650	1,500
	2025 No-Build (vph)	7,615	10,890	9,235	6,805	7,465	8,725
	Simulated (vph)	4,339	6,366	4,876	3,827	4,209	4,861
	Estimated Density (pcpmpl)	29	45	122	171	174	167
	Speed (mph)	49	35	9	6	6	7
	Travel Time (sec)	13	41	212	131	298	137

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

7.1.2 Build Performance

An average of 10 run results was used to evaluate the performance of the I-275 and I-4 corridors for the Opening Year (2025) Build Alternative. The throughput, density, speed, and travel time for the I-275 and I-4 corridor segments are presented in **Figure 7-5** through **Figure 7-8**. The performance of the I-275 and I-4 corridors during AM and PM peak hours is summarized below.

- Even with the increase in volumes in the Opening Year (2025), the traffic operations along the study corridors improved compared to the No-Build Alternative. Most of the segments experience improved traffic conditions during AM and PM peak hours when compared to No-Build conditions.

- On average, 87 percent and 69 percent of the demand volume is processed along northbound I-275 during the AM and PM peak hours, respectively. In comparison, 77 percent and 92 percent of the demand volume is processed along southbound I-275 during AM and PM peak hours, respectively.

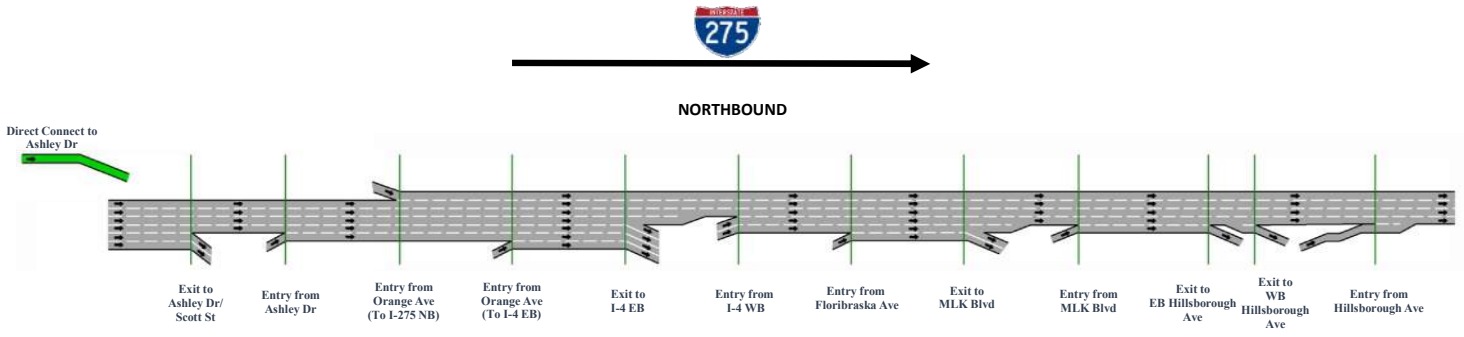
- Congestion along I-275 northbound reduced and more demand is processed compared to I-275 No-Build during AM and PM peak hours. With the provision of the new exit ramp from northbound and southbound I-275 to 14th Street and 15th Street reduces the weaving thus improving operations and safety along I-4 eastbound. The speed along the I-275 northbound mainline at the I-275 and I-4 interchange increased 35% in the AM Peak Hour and 20% in PM peak hour when compared to No-Build Alternative. In addition, even with higher demand, the traffic conditions improved along I-275 southbound with the removal of single lane off-ramp capacity constraints compared to the No-Build conditions.

- On average, 99 percent and 92 percent of the demand volume is processed along eastbound I-4 during AM and PM peak hours, respectively. This can be attributed to the reduction in weaving by the proposed Build alternative. Also, with the two-lane off-ramp to I-275 northbound improvement, 94 percent and 83 percent of the demand volume is processed along westbound I-4 during AM and PM peak hours.

- Congestion along I-4 westbound is reduced significantly due to Build improvements and more demand is processed compared to the No-Build conditions.

- At some segments, Build conditions process more demand and hence an increase in the segment density and decrease in speed are observed compared to the No-Build.

Figure 7-5 – I-275 NB Analysis Summary – Build Opening Year (2025)

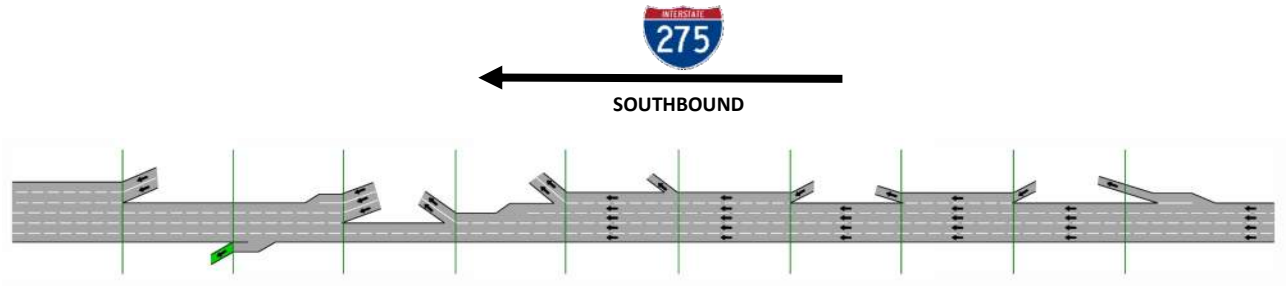


AM	Distance (ft)	5,350	1,380	2,540	350	1,270	2,290	1,370	2,140	1,760	3,600	1,120	600	1,500
	2025 Build (vph)	12,035	9,760	10,590	11,810	12,760	4,890	6,885	7,625	6,820	8,000	7,595	6,930	7,925
	Simulated (vph)	11,144	8,821	9,728	11,065	11,998	4,011	5,967	6,588	5,701	6,657	6,170	5,597	6,346
	Estimated Density (pcpmpl)	67	45	34	32	30	19	19	17	20	27	29	26	22
	Speed (mph)	25	44	50	50	50	53	56	54	57	52	51	61	61
	Travel Time (sec)	71	21	35	5	16	20	17	27	21	49	15	7	17
PM	Distance (ft)	5,350	1,380	2,540	350	1,270	2,290	1,370	2,140	1,760	3,600	1,120	600	1,500
	2025 Build (vph)	11,265	9,860	10,970	12,590	13,850	6,740	10,015	10,435	9,355	10,000	9,465	8,581	9,901
	Simulated (vph)	7,962	6,417	7,576	9,161	10,335	4,042	6,841	7,393	6,453	6,949	6,536	5,906	6,773
	Estimated Density (pcpmpl)	113	70	70	60	42	24	25	22	27	30	41	55	32
	Speed (mph)	12	24	22	25	36	49	55	55	56	56	45	36	53
	Travel Time (sec)	153	40	84	10	24	34	17	27	21	44	18	12	20

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-6 – I-275 SB Analysis Summary – Build Opening Year (2025)

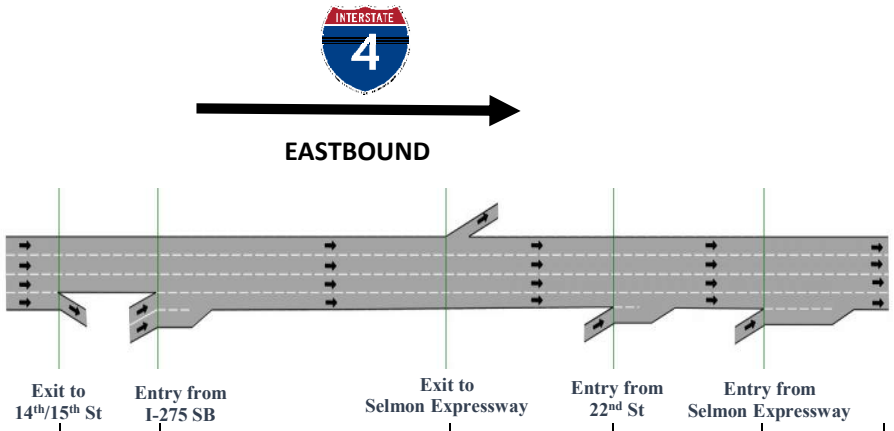


		Entry from Ashley Dr./Tampa St	Exit to Express Lane	Entry From I-4 WB	Exit to Downtown	Exit to I-4 EB	Exit to Floribraska Ave	Entry from MLK Blvd	Exit to MLK Blvd	Entry from Hillsborough Ave	Exit to Hillsborough Ave
AM	Distance (ft)	1,070	300	4,910	2,600	1,880	940	1,500	1,770	3,600	1,840	980
	2025 Build (vph)	10,185	8,780	9,860	4,760	6,740	10,015	10,435	9,355	10,000	8,580	9,900
	Simulated (vph)	8,540	7,139	8,126	3,497	4,990	7,594	7,936	7,032	7,490	6,614	7,543
	Estimated Density (pcpmpl)	31	31	34	35	30	25	27	31	24	26	27
	Speed (mph)	42	54	52	46	51	55	53	53	58	59	54
	Travel Time (sec)	17	4	64	39	26	12	19	23	42	21	13
PM	Distance (ft)	1,070	300	4,910	2,600	1,880	940	1,500	1,770	3,600	1,840	980
	2025 Build (vph)	10,040	7,765	9,760	3,335	4,890	6,885	7,625	6,820	8,000	6,930	7,925
	Simulated (vph)	8,126	5,915	8,229	2,982	4,440	6,359	7,113	6,475	7,627	6,782	7,743
	Estimated Density (pcpmpl)	54	141	45	29	29	27	27	30	27	29	37
	Speed (mph)	27	10	44	51	50	46	53	53	56	59	43
	Travel Time (sec)	29	18	100	35	25	14	19	23	45	21	16

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-7 – I-4 EB Analysis Summary – Build Opening Year (2025)



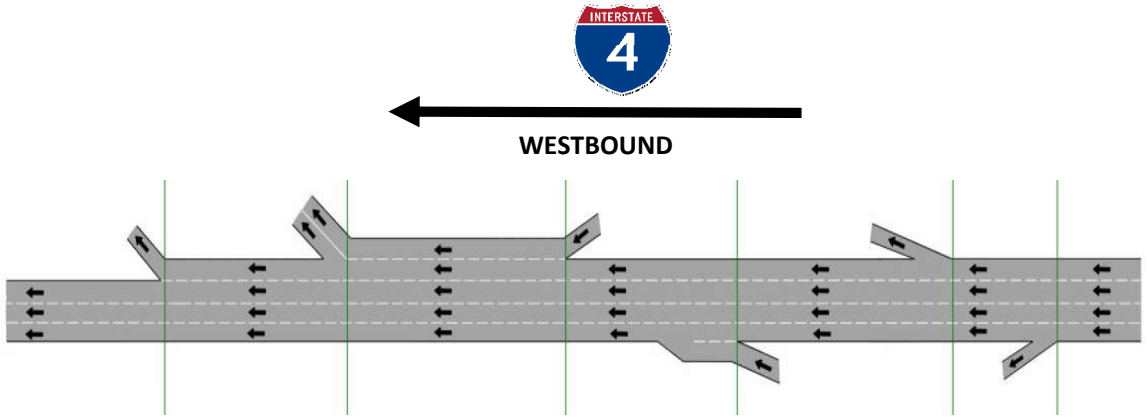
AM	Distance (ft)	810	3730	1450	2740	1690
	2025 Build (vph)	7,150	9,440	6,965	7,465	8,725
	Simulated (vph)	7,133	8,973	7,019	7,514	8,771
	Estimated Density (pcpmpl)	46	40	27	28	37
	Speed (mph)	45	45	56	54	47
	Travel Time (sec)	12	56	18	34	26

PM	Distance (ft)	810	3730	1450	2740	1690
	2025 Build (vph)	6,140	7,645	5,555	6,605	8,825
	Simulated (vph)	5,490	6,931	5,192	6,105	8,309
	Estimated Density (pcpmpl)	39	30	23	26	44
	Speed (mph)	47	53	57	54	44
	Travel Time (sec)	12	49	17	35	29

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-8 – I-4 WB Analysis Summary – Build Opening Year (2025)



		Exit to Downtown	Exit to I-275 NB	Entry from 21st St	Entry from Selmon Expressway	Exit to 22nd St	Exit to Selmon Expressway
AM	Distance (ft)	910	1,940	2,920	1,060	2,650	1,500
	2025 Build (vph)	7,110	9,105	7,645	5,555	6,605	8,825
	Simulated (vph)	6,469	8,422	7,114	5,391	6,392	8,459
	Estimated Density (pcpmpl)	31	36	83	79	86	80
	Speed (mph)	50	45	21	18	20	28
	Travel Time (sec)	11	29	98	41	91	37
PM	Distance (ft)	910	1,940	2,920	1,060	2,650	1,500
	2025 Build (vph)	7,870	11,145	9,440	6,965	7,465	8,725
	Simulated (vph)	6,417	9,219	7,612	5,900	6,337	7,294
	Estimated Density (pcpmpl)	32	47	85	154	150	137
	Speed (mph)	49	40	21	9	10	13
	Travel Time (sec)	12	34	95	77	174	77

Congestion Level	Freeways Posted Speed Limit 50 mph	Freeways Posted Speed Limit 55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

As part of the weaving analysis for the I-4 eastbound from I-275 entrance to Selmon Expressway, the Build Alternative improves the weave segment by relocating the eastbound I-4 exit ramp from the 21st/22nd Street to 14th/15th Street compared to the No-Build Alternative. This reduces the weave density from 58 vpmpl to 40 vpmpl and increases the speed from 36 mph to 45 mph for the 2025 AM peak hour. For the I-4 westbound between Selmon Expressway and I-275 northbound, the Build Alternative reduces the weave density from 117 vpmpl to 84 vpmpl and increases the speed from 11 mph to 21 mph for 2025 AM peak hour. Similarly, for 2025 PM peak hour, the weave density reduces from 123 vpmpl to 86 vpmpl and increases the speed from 9 mph to 21 mph.

The following freeway MOEs were compared for the 2025 Build Alternative and 2025 No-Build Alternative at the end of the AM and PM peak hours:

- Total vehicle miles traveled (miles)
- Average speed (mph)
- Travel delay per vehicle-mile (mins/veh-mi)
- Travel time per vehicle-miles (mins/veh-mile)

Table 7-1 and **Table 7-2** provide the summary of the Opening Year (2025) peak hour and peak period MOEs for the No-Build and the Build Alternative. **Figures 7-9** and **Figure 7-10** provide the peak hour and peak period vehicle-miles traveled, average speed, and travel delay per vehicle-mile traveled for the No-Build and Build Alternatives, respectively. **Figure 7-9** and **Figure 7-10** also provide the percentage improvement of the Build Alternative compared to the No-Build Alternative. The results of the CORSIM simulation analysis showed improvements to the overall system MOEs during AM and PM peak hours due to the Build Alternatives.

Table 7-1 – Opening Year (2025) Peak Hour MOE Summary

MOEs	Time Period (Peak Hour)	No-Build	Build
Vehicle Miles Traveled (VMT)	AM	126,342	143,509
	PM	124,400	137,245
Average Speed (MPH)	AM	20.4	25.9
	PM	20.7	21.9
Delay per Vehicle-Mile (mins/veh-mi)	AM	1.78	1.19
	PM	1.75	1.60
Travel Time per Vehicle-Mile (mins/veh-mi)	AM	2.93	2.32
	PM	2.90	2.75

Table 7-2 – Opening Year (2025) Peak Period MOE Summary

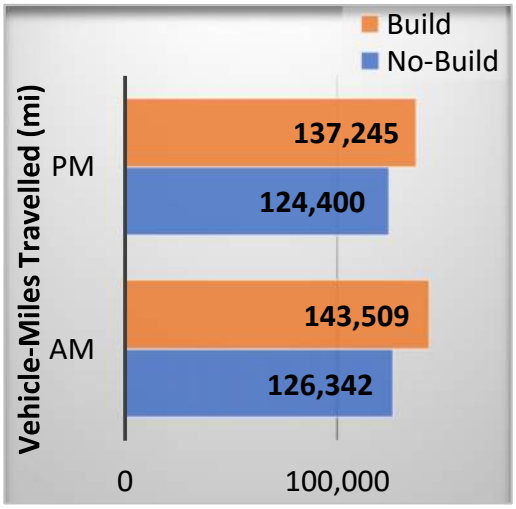
MOEs	Time Period (Peak Period)	No-Build	Build
Vehicle Miles Traveled (VMT)	AM	483,120	540,045
	PM	498,391	550,255
Average Speed (MPH)	AM	23.3	29.1
	PM	21.0	22.2
Delay per Vehicle-Mile (mins/veh-mi)	AM	1.44	0.93
	PM	1.71	1.56
Travel Time per Vehicle-Mile (mins/veh-mi)	AM	2.58	2.06
	PM	2.85	2.70

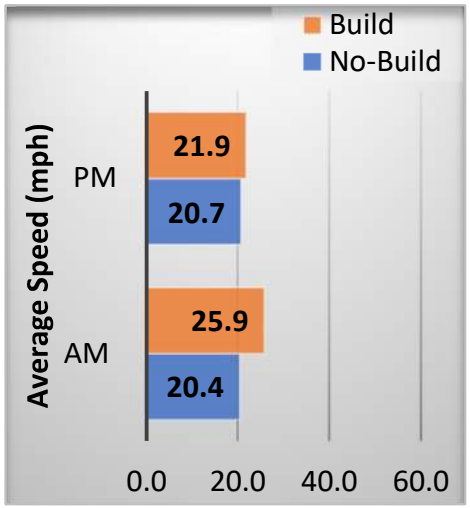
In addition to the overall system MOEs during the AM and PM peak hour and peak period, the latent demand at the end of the peak period simulation along the freeway facility entering the study area from I-275 northbound, I-275 southbound, I-4 westbound and Selmon Expressway was also analyzed for evaluating the performance of the Build Alternative compared to the No-Build Alternative. **Table 7-3** shows the latent demand and the percentage change of the Build Alternative compared to the No-Build Alternative. The results show a decrease in latent demand for the Build Alternative compared to No-Build Alternative where in for I-4 westbound the latent demand is reduced by 100% by the Build Alternative showing much better processing.

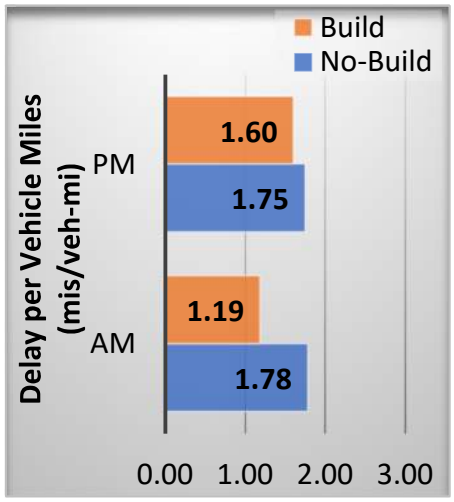
Table 7-3 – Opening Year (2025) Latent Demand Summary along Freeway Facility

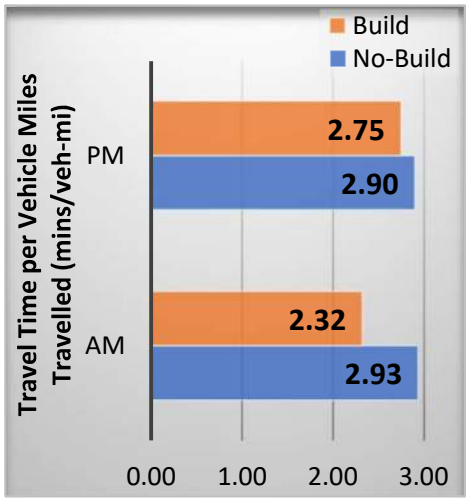
Alternative		I-275 Northbound		I-275 Southbound		I-4 Westbound		NB Selmon Expressway Ramp to WB I-4	
		Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand
2025 No-Build	AM	1,881	4%	12,615	33%	8,949	26%	1,503	21%
	PM	13,795	30%	3,490	11%	14,685	42%	5,335	56%
2025 Build	AM	1,074	2%	9,535	25%	5	0%	610	9%
	PM	14,630	31%	1,436	4%	5,239	15%	2,792	29%
Percent Change	AM	44%		24%		100%		59%	
	PM	-3%		59%		64%		49%	

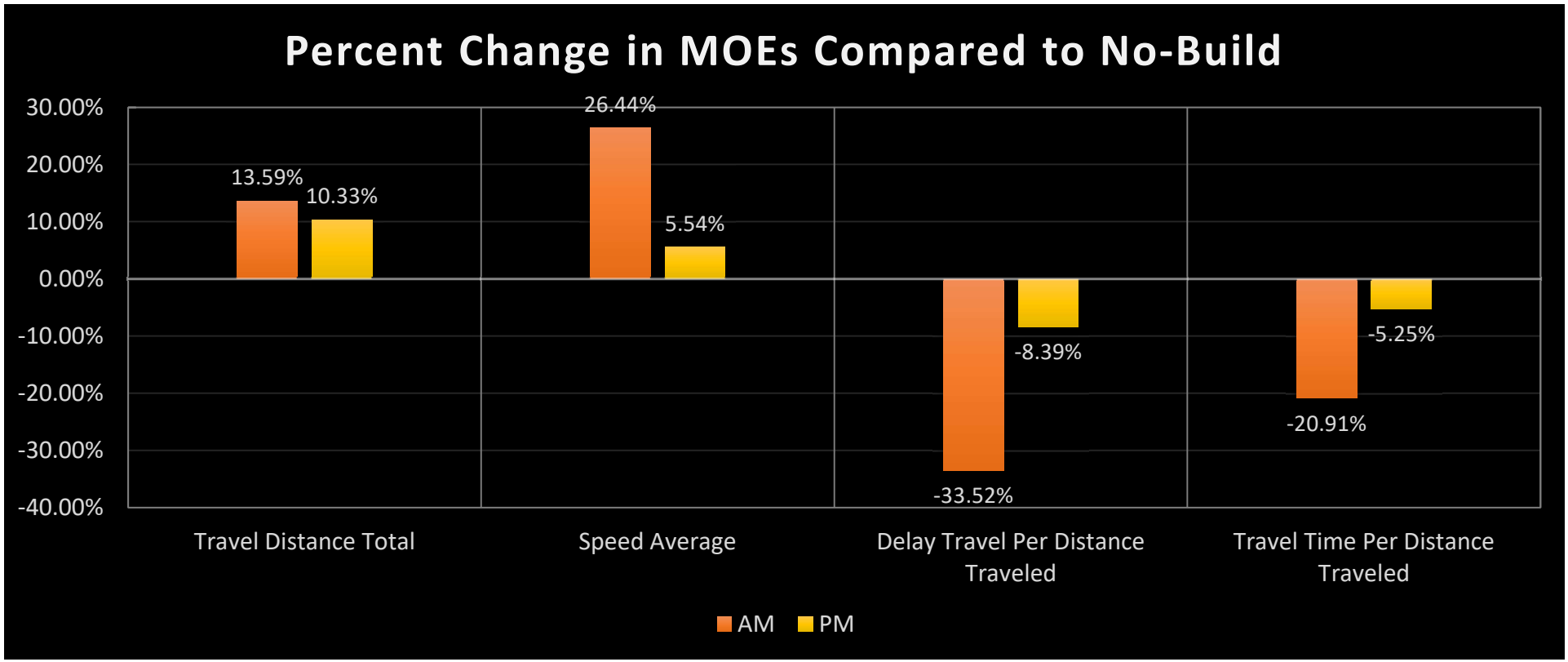
In summary, the analysis results for both I-275 and I-4 freeway facilities for the Build Alternative reduces the amount of unmet demand when compared to the No-Build Alternative. Most of the segments experience improved traffic conditions during AM and PM peak hours when compared to No-Build conditions.



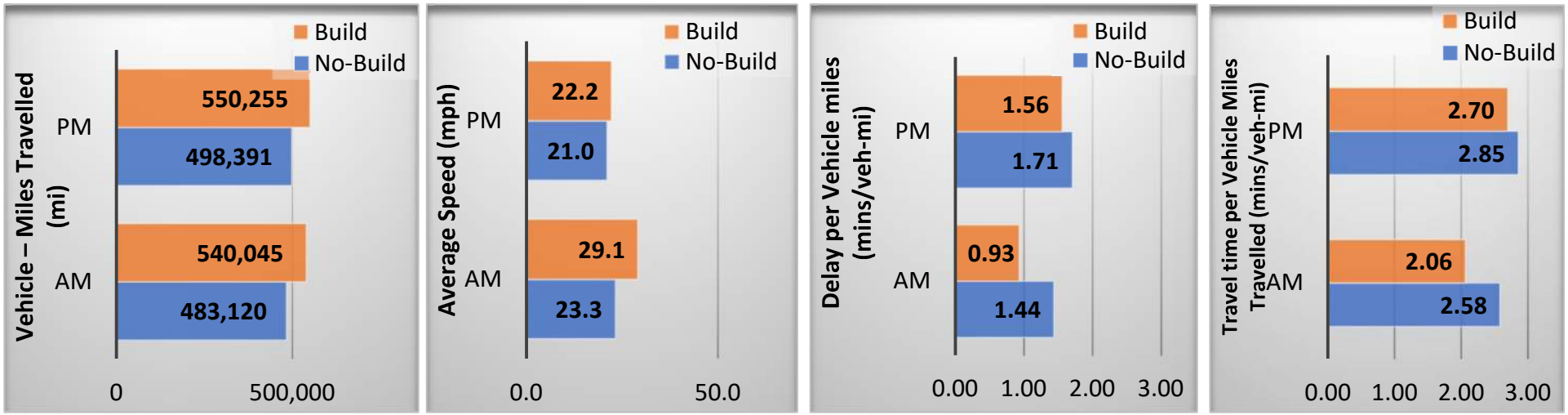


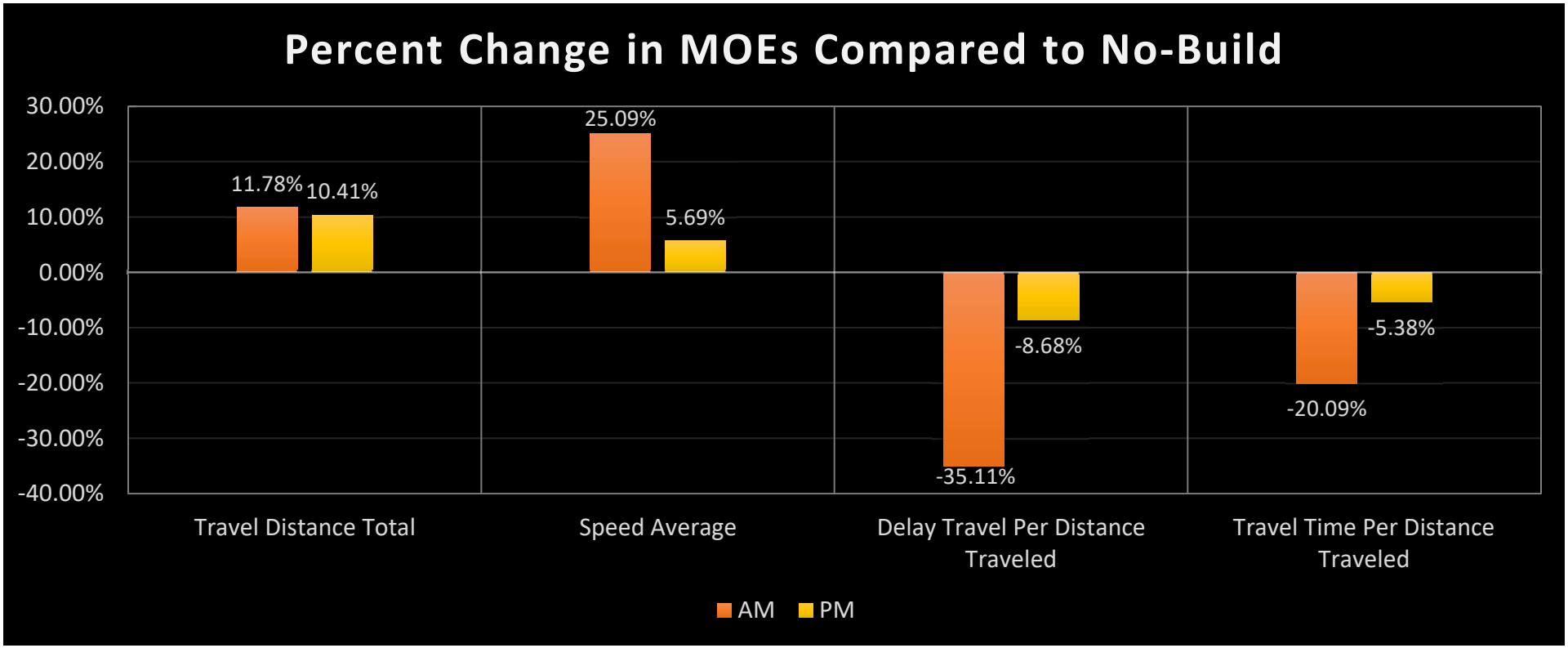






FDOT	Network Level Analysis for Opening Year (2025) Peak Hour	Figure 7-9





FDOT	Network Level Analysis for Opening Year (2025) Peak Period	Figure 7-10

7.2 Design Year (2045)

7.2.1 No-Build Performance

An average of 10 run results was used to evaluate the performance of the I-275 and I-4 corridors for the Design Year (2045) No-Build Alternative. For the I-275 northbound, due to the limitation of the 9,999 vph entry for the CORSIM, traffic must be split between the dummy ramp and I-275 mainline. Since most of the traffic is commuter driven, the dummy ramp lane traffic is more aligned to traffic exiting to the Ashley and I-4 exit consistent with the overhead guidesign. The throughput, density, speed, and travel time for the I-275 and I-4 corridor segments are presented in **Figure 7-11** through **Figure 7-14**. The performance of the I-275 and I-4 corridors during AM and PM peak hours is summarized below.

- The traffic operations along the study corridor will deteriorate even more compared to the Opening Year (2025) conditions as expected in the Design Year (2045). Most of the segments operates at failing conditions during both the AM and PM peak hours. However, for some of the entry links most of the traffic is being metered upstream along I-275 northbound, I-275 southbound and I-4 westbound showing comparatively lesser percent of the demand being processed compared to the 2025 model. Due to this metering effect, these downstream links for 2045 are showing better results than 2025.

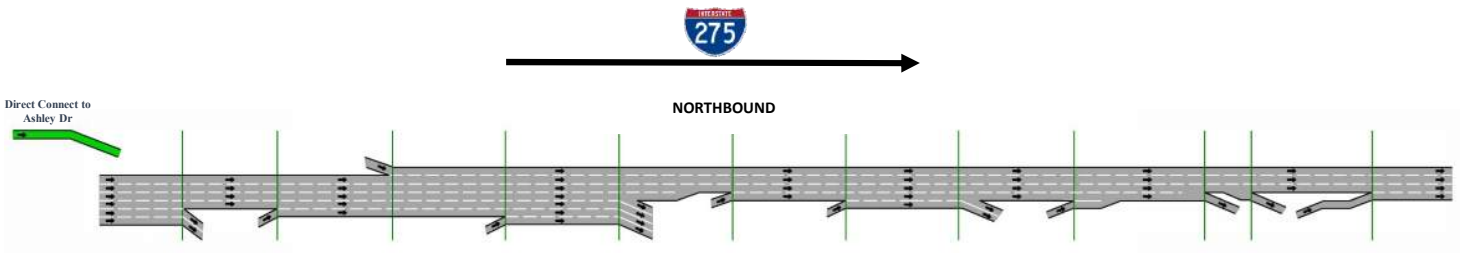
- On average, 73 percent and 51 percent of the demand volume was processed along northbound I-275 during AM and PM peak hours, respectively. In comparison, only 34 percent and 72 percent of the demand volume was processed along southbound I-275 during AM and PM peak hours, respectively.

- Congestion is observed along I-275 northbound and southbound during AM & PM peak hour. The capacity constraints along ramps at the I-275 and I-4 interchange is the major cause for the congestion along southbound.

- On average, 64 percent and 67 percent of the demand volume was processed along eastbound I-4 during AM and PM peak hours, respectively. In comparison, only 57 percent and 30 percent of the demand volume was processed along westbound I-4 during AM and PM peak hours, respectively.

- The I-4 westbound is heavily congested during AM and PM peak hours due to capacity constraints and major ramps to and from I-275 and Selmon Expressway.

Figure 7-11 – I-275 NB Analysis Summary – No-Build Design Year (2045)

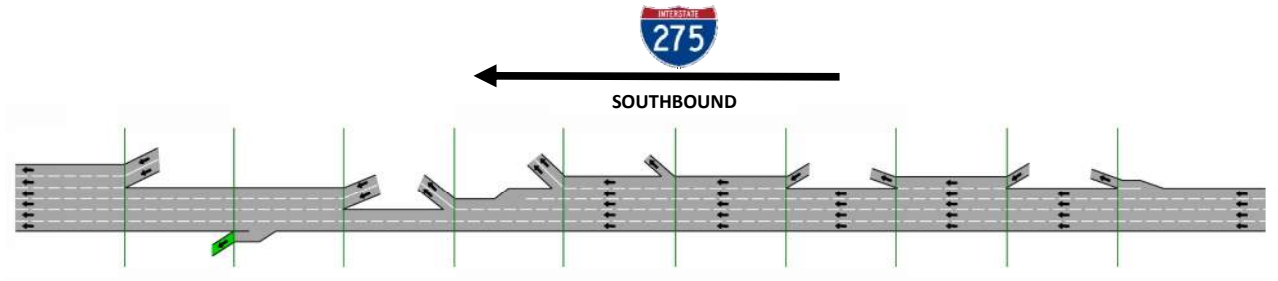


AM	Distance (ft)	5,350	1,380	2,540	350	850	1,900	2,180	2,140	1,760	3,600	1,120	600	1,500
	2045 No-Build (vph)	12,802	10,390	11,390	13,275	14,500	5,400	8,200	9,170	8,150	9,900	9,326	8,506	9,690
	Simulated (vph)	9,552	7,459	8,436	10,252	11,325	4,245	5,938	6,781	5,852	6,921	6,435	5,830	6,631
	Estimated Density (pcpmpl)	73	40	36	41	40	21	24	22	23	22	22	21	19
	Speed (mph)	21	46	45	39	38	52	56	55	57	56	55	62	62
	Travel Time (sec)	85	21	40	9	15	25	27	26	21	44	13	8	17
PM	Distance (ft)	5,350	1,380	2,540	350	850	1,900	2,180	2,140	1,760	3,600	1,120	600	1,500
	2045 No-Build (vph)	12,400	10,530	11,860	14,350	16,010	6,710	12,410	13,150	11,800	13,100	12,340	11,254	12,824
	Simulated (vph)	6,024	4,745	6,067	8,119	9,474	3,895	6,069	6,699	5,884	6,391	5,976	5,411	6,267
	Estimated Density (pcpmpl)	102	91	101	70	47	23	29	25	26	22	21	24	22
	Speed (mph)	10	13	12	19	29	50	51	53	57	58	61	57	57
	Travel Time (sec)	176	70	144	19	20	26	29	28	21	42	11	8	10

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-12 – I-275 SB Analysis Summary – No-Build Design Year (2045)

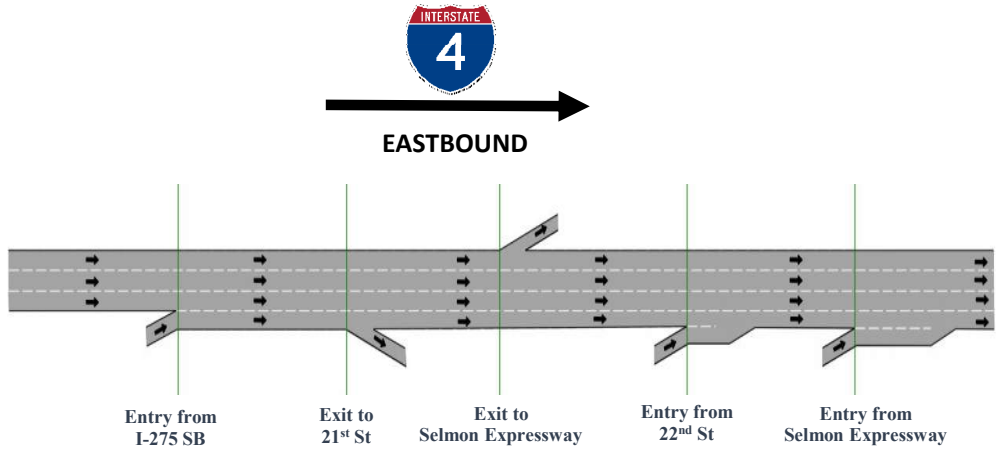


		Entry from Ashley Dr./Tampa St	Exit to Express Lane	Entry From I-4 WB	Exit to Downtown	Exit to I-4 EB	Exit to Floribraska Ave	Entry from MLK Blvd	Exit to MLK Blvd	Entry from Hillsborough Ave	Exit to Hillsborough Ave
AM	Distance (ft)	1,070	300	5,270	2,230	1,880	940	1,500	1,770	3,600	1,840	980
	2045 No-Build (vph)	11,031	9,161	10,530	4,290	6,710	12,410	13,150	11,800	13,100	11,253	12,823
	Simulated (vph)	5,791	4,053	4,747	1,239	1,976	3,808	4,119	3,274	3,745	3,495	3,812
	Estimated Density (pcpmpl)	17	18	22	13	14	75	61	49	31	39	36
	Speed (mph)	53	58	54	53	52	11	15	19	29	27	26
	Travel Time (sec)	14	3	66	29	25	59	71	62	88	47	26
PM	Distance (ft)	1,070	300	5,270	2,230	1,880	940	1,500	1,770	3,600	1,840	980
	2045 No-Build (vph)	11,452	9,040	10,390	3,890	5,400	8,200	9,170	8,150	9,900	8,507	9,691
	Simulated (vph)	6,367	4,115	5,030	2,852	4,013	6,198	7,012	6,192	7,578	6,873	7,728
	Estimated Density (pcpmpl)	23	20	23	28	28	59	60	63	62	47	45
	Speed (mph)	46	53	54	51	49	23	24	26	28	40	37
	Travel Time (sec)	16	4	68	30	26	29	43	48	95	33	18

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-13 – I-4 EB Analysis Summary – No-Build Design Year (2045)



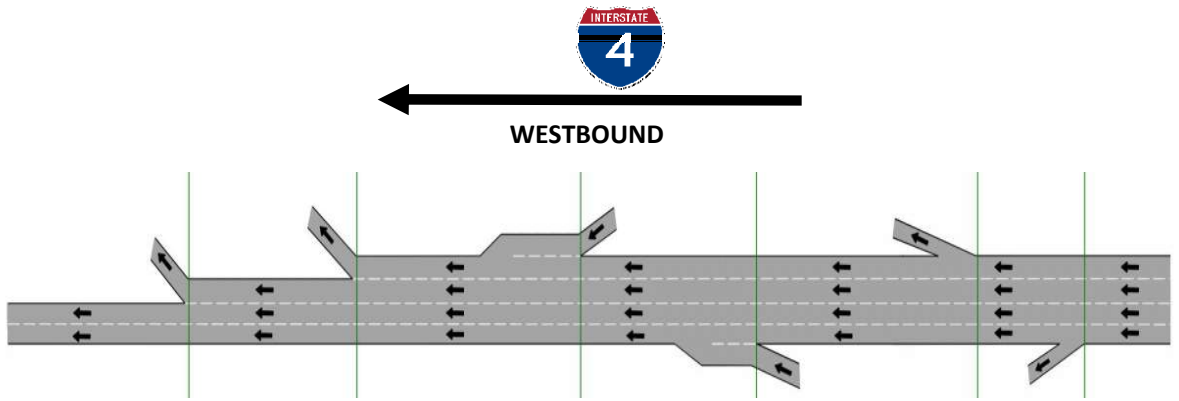
AM	Distance (ft)	1480	2610	1450	2740	1690
	2045 No-Build (vph)	14,800	12,400	9,210	10,030	11,590
	Simulated (vph)	8,867	7,538	5,907	6,645	8,204
	Estimated Density (pcpmpl)	53	41	25	26	15
	Speed (mph)	40	44	56	56	54
	Travel Time (sec)	26	40	17	27	37

PM	Distance (ft)	1480	2610	1450	2740	1690
	2045 No-Build (vph)	12,100	9,900	7,000	8,550	11,310
	Simulated (vph)	7,754	6,584	4,756	5,562	7,842
	Estimated Density (pcpmpl)	43	34	21	23	17
	Speed (mph)	44	49	57	57	53
	Travel Time (sec)	23	37	17	27	39

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-14 – I-4 WB Analysis Summary – No-Build Design Year (2045)



		Exit to Downtown	Exit to I-275 NB	Entry from 21st St	Entry from Selmon Expressway	Exit to 22nd St	Exit to Selmon Expressway
AM	Distance (ft)	940	1,860	2,920	1,060	2,650	
	2045 No-Build (vph)	9,300	12,100	9,900	7,000	8,550	
	Simulated (vph)	5,294	6,978	5,426	4,021	4,879	
	Estimated Density (pcpmpl)	38	52	129	145	164	
	Speed (mph)	45	33	10	7	8	
	Travel Time (sec)	14	43	194	100	218	
PM	Distance (ft)	940	1,860	2,920	1,060	2,650	
	2045 No-Build (vph)	9,100	14,800	12,400	9,210	10,030	
	Simulated (vph)	3,135	5,304	4,037	2,168	2,365	
	Estimated Density (pcpmpl)	21	35	74	83	81	
	Speed (mph)	50	37	13	7	8	
	Travel Time (sec)	13	37	156	108	225	

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

7.2.2 Build Performance

An average of 10 run results was used to evaluate the performance of the I-275 and I-4 corridors for the Design Year (2045) Build Alternative. For the I-275 northbound, due to the limitation of the 9,999 vph entry for the CORSIM, traffic must be split between the dummy ramp and I-275 mainline. Since most of the traffic is commuter driven, the dummy ramp lane traffic is more aligned to traffic exiting to the Ashley and I-4 exit consistent with the overhead guidesign. The throughput, density, speed, and travel time for the I-275 and I-4 corridor segments are presented in **Figure 7-15** through **Figure 7-18**. The performance of the I-275 and I-4 corridors during AM and PM peak hours is summarized below.

- Even with the increase in volumes in the Design Year (2045), the traffic operations along the study corridor improved compared to the No-Build Alternative. Most of the segments experience improved traffic conditions during AM and PM peak hours when compared to No-Build conditions. However, for some of the downstream links most of the traffic is being metered upstream along I-275 northbound, I-275 southbound showing comparatively lesser percent of the demand being processed compared to the 2025 model. Due to this metering effect, these downstream links for 2045 are showing better results than 2025.

- On average, 77 percent and 64 percent of the demand volume is processed along northbound I-275 during AM and PM peak hours, respectively. In comparison, 56 percent and 81 percent of the demand volume is processed along southbound I-275 during AM and PM peak hours, respectively.

- Congestion along I-275 northbound reduced and more demand is processed compared to I-275 No-Build during AM and PM peak hours. With the provision of the new exit ramp from northbound and southbound I-275 to 14th Street and 15th Street reduces the weaving thus improving operations and safety along I-4 eastbound. The demand processed along the I-275 northbound mainline at the I-275 and I-4 interchange increased 10% in the AM Peak Hour and 15% in PM Peak Hour when compared to No-Build Alternative

- The demand processed increased 80% along the I-275 southbound in the PM peak hour beyond the exit to Floribraska Avenue along I-275 southbound compared to the No-Build conditions.

- On average, 82 percent and 74 percent of the demand volume was processed along eastbound I-4 during AM and PM peak hours, respectively. This can be attributed to the reduction in weaving by the proposed Build alternative. Also, with the two-lane off-ramp

to I-275 northbound improvement, 73 percent and 60 percent of the demand volume was processed along westbound I-4 during AM and PM peak hours, respectively.

- At some segments, since the Build conditions process more demand an increase in the segment density and decrease in speed are observed compared to the No-Build.
- Comparing to the No-Build conditions, demand processed along I-4 westbound doubled during the PM peak hour,
- The Build Alternative also reduces the amount of unmet demand when compared, to the No-Build Alternative.

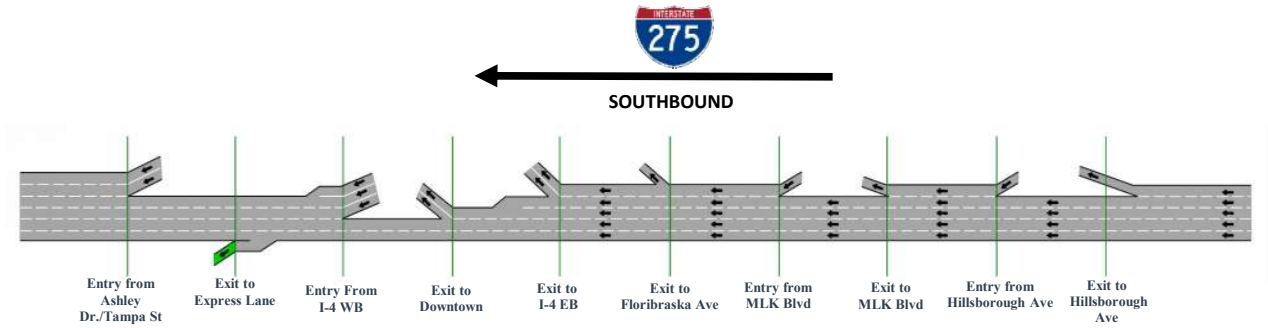
Figure 7-15 – I-275 NB Analysis Summary – Build Design Year (2045)

		Exit to Ashley Dr/ Scott St	Entry from Ashley Dr	Entry from Orange Ave (To I-275 NB)	Entry from Orange Ave (To I-4 EB)	Exit to I-4 EB	Entry from I-4 WB	Entry from Floribraska Ave	Exit to MLK Blvd	Entry from MLK Blvd	Exit to EB Hillsborough Ave	Exit to WB Hillsborough Ave	Entry from Hillsborough Ave	
AM	Distance (ft)	5,350	1,380	2,540	350	1,270	2,290	1,370	2,140	1,760	3,600	1,120	600	1,500
	2045 Build (vph)	13,055	10,645	11,650	13,510	14,750	5,400	8,200	9,170	8,510	9,900	9,330	8,510	9,690
	Simulated (vph)	10,209	8,216	9,323	11,153	12,226	4,305	6,390	7,243	6,242	7,356	6,762	6,149	7,040
	Estimated Density (pcpmpl)	72	61	53	48	42	21	22	20	20	24	24	22	20
	Speed (mph)	23	33	33	35	37	52	52	54	56	54	53	62	62
	Travel Time (sec)	78	29	53	7	22	31	18	27	21	45	13	8	17
PM	Distance (ft)	5,350	1,380	2,540	350	1,270	2,290	1,370	2,140	1,760	3,600	1,120	600	1,500
	2045 Build (vph)	12,490	10,580	11,910	14,370	16,010	6,710	12,410	13,150	11,800	13,100	12,340	11,250	12,820
	Simulated (vph)	8,238	6,271	7,654	9,625	10,921	4,398	7,879	8,585	7,460	8,072	7,550	6,835	7,706
	Estimated Density (pcpmpl)	113	72	81	59	42	30	29	27	31	28	29	35	28
	Speed (mph)	12	23	19	27	37	44	54	53	49	56	55	48	55
	Travel Time (sec)	147	42	75	9	23	38	17	28	24	44	13	10	9

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-16 – I-275 SB Analysis Summary – Build Design Year (2045)

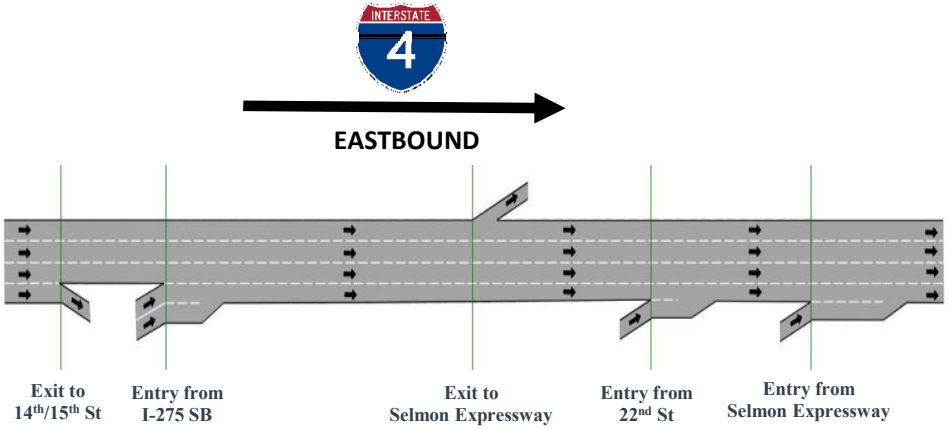


AM	Distance (ft)	1,070	300	4,910	2,600	1,880	940	1,500	1,770	3,600	1,840	980
	2045 Build (vph)	11,115	9,205	10,580	3,650	6,710	12,410	13,150	11,800	13,100	11,250	12,820
	Simulated (vph)	7,559	5,728	6,755	1,878	3,578	6,874	7,340	6,213	6,879	5,869	6,628
	Estimated Density (pcpmpl)	26	25	30	18	22	66	58	82	77	84	76
	Speed (mph)	46	56	52	52	49	21	25	20	19	19	19
	Travel Time (sec)	16	4	64	34	26	31	41	61	132	66	35
PM	Distance (ft)	1,070	300	4,910	2,600	1,880	940	1,500	1,770	3,600	1,840	980
	2045 Build (vph)	11,540	9,130	10,645	2,935	5,400	8,200	9,170	8,150	9,900	8,505	9,690
	Simulated (vph)	7,738	5,535	6,784	2,377	4,512	6,956	7,821	6,889	8,437	7,637	8,643
	Estimated Density (pcpmpl)	31	24	30	22	27	26	30	33	30	35	34
	Speed (mph)	41	56	52	53	48	53	51	52	55	54	50
	Travel Time (sec)	18	3	64	34	26	12	20	23	44	23	13

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-17 – I-4 EB Analysis Summary – Build Design Year (2045)



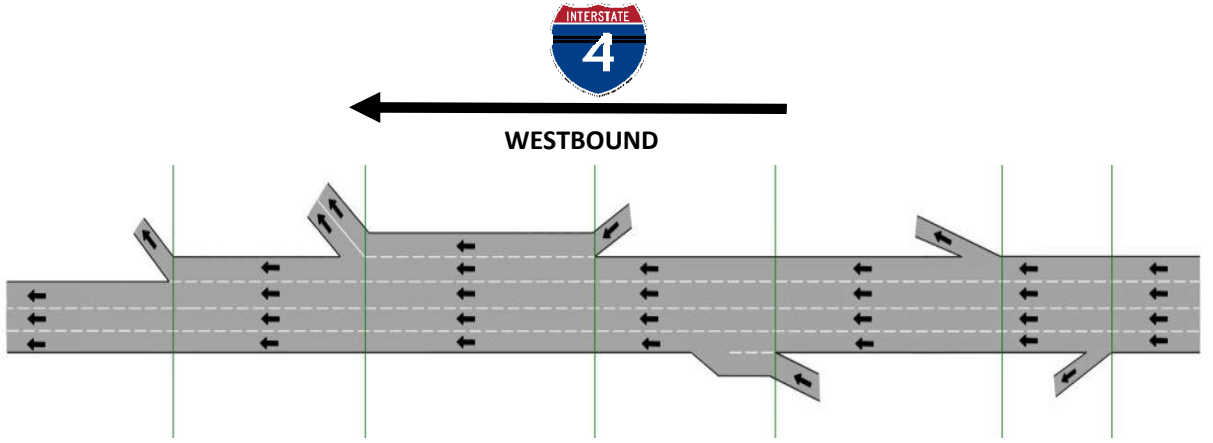
AM	Distance (ft)	810	3730	1450	2740	1690
	2045 Build (vph)	8,495	12,650	9,310	10,130	11,685
	Simulated (vph)	7,087	9,492	7,574	8,376	9,934
	Estimated Density (pcpmpl)	66	53	32	38	42
	Speed (mph)	33	38	55	48	49
	Travel Time (sec)	17	68	18	31	43

PM	Distance (ft)	810	3730	1450	2740	1690
	2045 Build (vph)	7,835	9,900	7,000	8,550	11,300
	Simulated (vph)	5,470	7,279	5,323	6,312	8,598
	Estimated Density (pcpmpl)	38	32	23	26	40
	Speed (mph)	47	51	57	55	49
	Travel Time (sec)	12	51	17	27	44

Congestion Level	Freeways Posted Speed Limit	
	50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

Figure 7-18 – I-4 WB Analysis Summary – Build Design Year (2045)



		Exit to Downtown	Exit to I-275 NB	Entry from 21st St	Entry from Selmon Expressway	Exit to 22nd St / Exit to Selmon Expressway
AM	Distance (ft)	910	1,940	2,920	1,060	2,650
	2045 Build (vph)	9,300	12,100	9,900	7,000	8,550
	Simulated (vph)	6,548	8,620	6,993	5,286	6,437
	Estimated Density (pcpmpl)	32	39	107	111	136
	Speed (mph)	50	43	17	12	12
	Travel Time (sec)	11	31	124	59	139
PM	Distance (ft)	910	1,940	2,920	1,060	2,650
	2045 Build (vph)	9,350	15,050	12,650	9,310	10,130
	Simulated (vph)	5,395	8,871	7,560	5,762	6,249
	Estimated Density (pcpmpl)	27	42	77	157	156
	Speed (mph)	49	42	24	9	10
	Travel Time (sec)	12	31	84	80	177

Congestion Level	Freeways Posted Speed Limit 50 mph	55 mph
Uncongested	>= 50	>= 53
Lightly Congested	< 50 - 47	< 53 - 48
Moderately Congested	< 47 - 42	< 48 - 43
Heavily Congested	< 42	< 43

Estimated Density (pcpmpl)	
<= 28	
Between 28-35	
> 35	

As part of the weaving analysis for the I-4 eastbound from I-275 entrance to Selmon Expressway, the Build Alternative improves the weave segment by relocating the eastbound I-4 exit ramp from the 21st/22nd Street to 14th/15th Street compared to the No-Build Alternative. This reduces the weave density from 40 vpmpl to 38 vpmpl and increases the speed from 44 mph to 51 mph for the 2045 PM peak hour. For the I-4 westbound between Selmon Expressway and I-275 northbound, the Build Alternative reduces the weave density from 131 vpmpl to 108 vpmpl and increases the speed from 10 mph to 17 mph for 2045 AM peak hour. For the 2045 PM peak hour, speeds for the segment increases from 13 mph to 24 mph even with similar densities.

The following freeway MOEs were compared for the 2045 Build Alternative and 2045 No-Build Alternative at the end of peak hours:

- Total vehicle miles traveled (miles)
- Average speed (mph)
- Travel delay per vehicle-mile (mins/veh-mi)
- Travel time per vehicle-miles (mins/veh-mile)

Table 7-4 and **Table 7-5** provide the summary of the Design Year (2045) peak hour MOE's for the No-Build and Build Alternative. **Figure 7-19** and **Figure 7-20** provide the peak hour and peak period vehicle-miles traveled, average speed, and travel delay per vehicle-mile for the No-Build and Build Alternative, respectively. **Figure 7-19** and **Figure 7-20** also provide the percentage improvement of build Alternative compared to No-Build Alternative. The results of the CORSIM simulation analysis showed improvements to the overall system MOEs during AM and PM peak hours due to the Build Alternative compared to the No-Build.

Table 7-4 – Design Year (2045) Peak Hour MOE Summary

MOEs	Time Period (Peak Hour)	No-Build	Build
Vehicle Miles Traveled (VMT)	AM	123,605	153,049
	PM	118,940	148,247
Average Speed (MPH)	AM	17.7	19.2
	PM	19.1	21.5
Delay per Vehicle-Mile (mins/veh-mi)	AM	2.22	1.96
	PM	1.97	1.63
Travel Time per Vehicle-Mile (mins/veh-mi)	AM	3.38	3.13
	PM	3.15	2.80

Table 7-5 –Design Year (2045) Peak Period MOE Summary

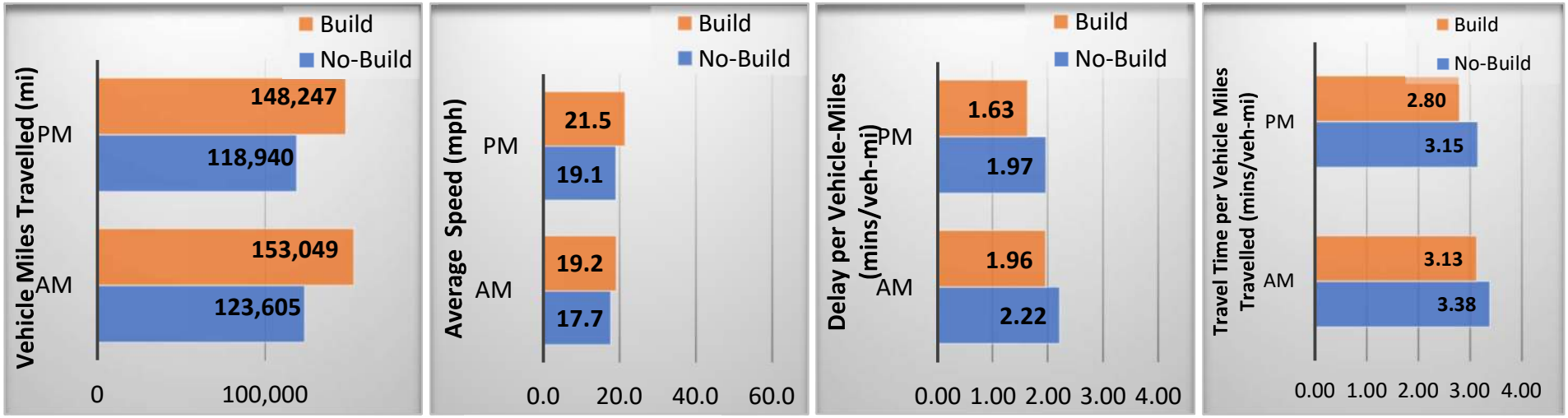
MOEs	Time Period (Peak Period)	No-Build	Build
Vehicle Miles Traveled (VMT)	AM	480,035	593,587
	PM	479,057	591,484
Average Speed (MPH)	AM	19.8	21.8
	PM	19.2	21.6
Delay per Vehicle-Mile (mins/veh-mi)	AM	1.86	1.59
	PM	1.95	1.61
Travel Time per Vehicle-Mile (mins/veh-mi)	AM	3.02	2.75
	PM	3.13	2.77

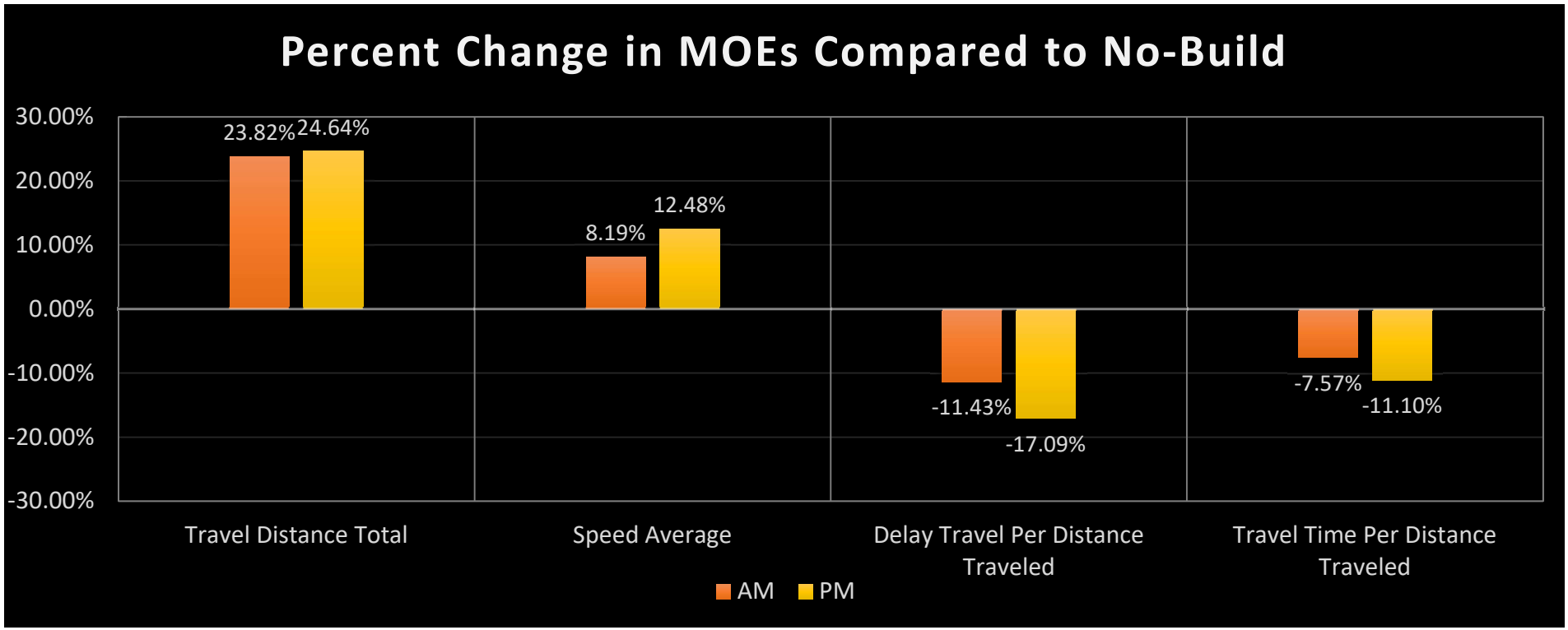
In addition to the overall system MOEs during the AM and PM peak hour and peak period, the latent demand at the end of the peak period simulation along the freeway facility entering the study area from I-275 northbound, I-275 southbound, I-4 westbound and Selmon Expressway was also analyzed for evaluating the performance of the Build Alternative compared to the No-Build Alternative. **Table 7-6** shows the latent demand and the percentage change of the Build Alternative compared to the No-Build Alternative. The results show a 30% decrease in latent demand for the Build Alternative compared to No-Build Alternative for I-275 for both the time periods.

Table 7-6 – Design Year (2045) Latent Demand Summary along Freeway Facility

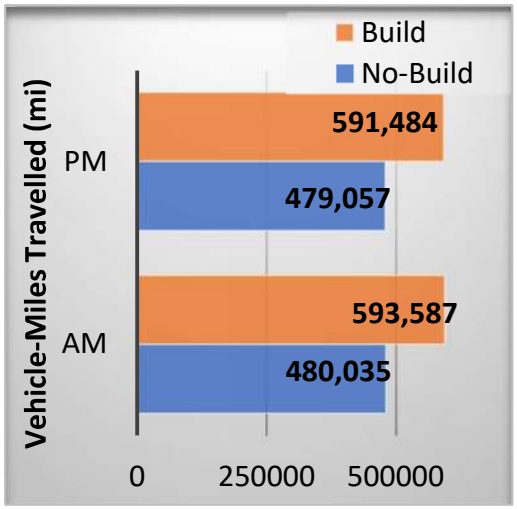
Alternative		I-275 Northbound		I-275 Southbound		I-4 Westbound		NB Selmon Expressway Ramp to WB I-4	
		Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand
2045 No-Build	AM	8,271	18%	33,143	66%	28,161	57%	4,016	41%
	PM	26,669	51%	8,602	21%	36,793	79%	5,195	42%
2045 Build	AM	5,343	12%	22,514	44%	26,830	50%	1,858	22%
	PM	18,548	36%	5,926	15%	25,095	50%	5,884	45%
Percent Change	AM	35%		33%		13%		47%	
	PM	31%		31%		37%		-8%	

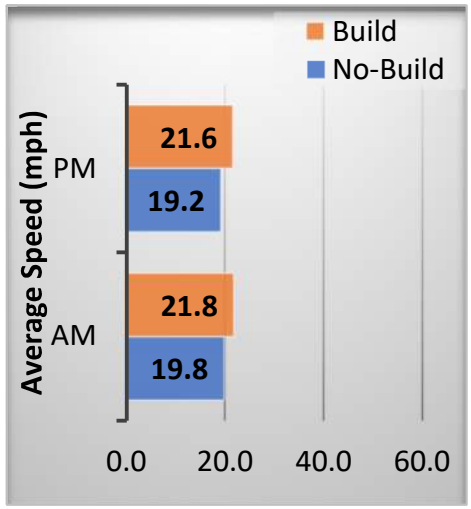
In summary, the analysis results for both I-275 and I-4 freeway facilities for the Build Alternative reduces the amount of unmet demand when compared to the No-Build Alternative. Most of the segments experience improved traffic conditions during AM and PM peak hours when compared to No-Build conditions.

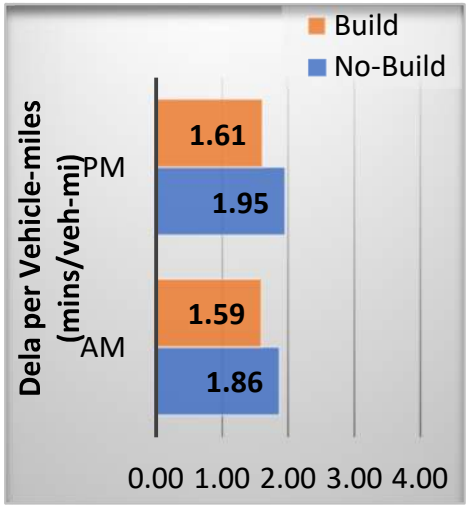


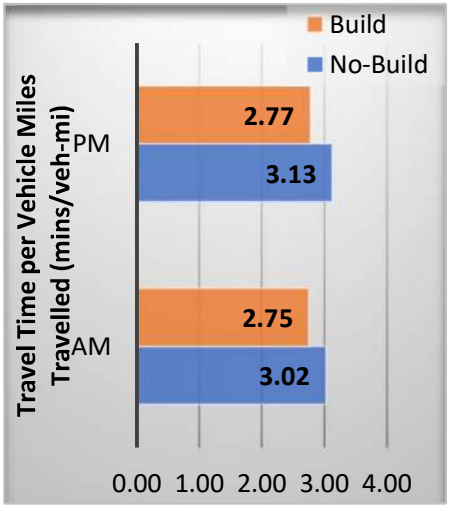


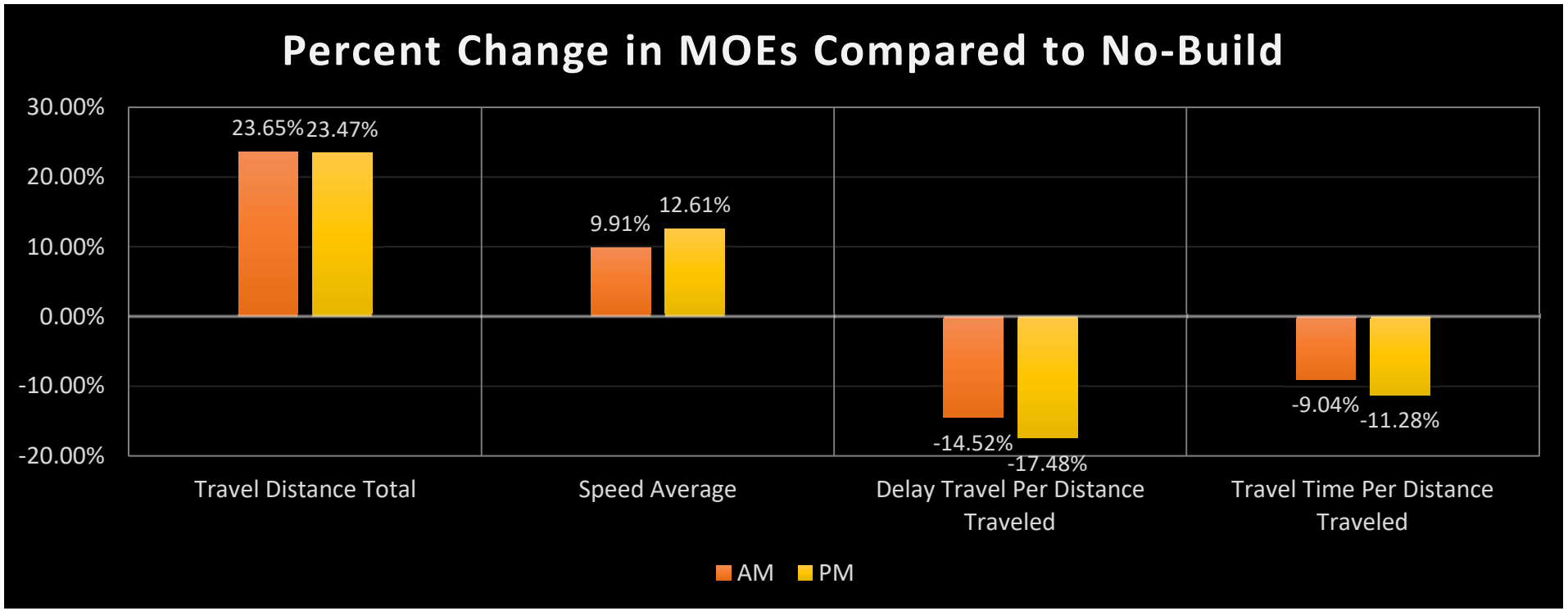
FDOT	**Network Level Analysis for Design Year (2045) Peak Hour**	**Figure 7-19**











FDOT	Network Level Analysis for Design Year (2045) Peak Period	Figure 7-20

7.3 Arterial Intersections Performance

The study intersections for the future year conditions were analyzed using SYNCHRO 10 for signalized and HCS7 for un-signalized intersections found in **Appendix H** and **Appendix I,** respectively. The SYNCHRO analysis was performed using demand volumes. The SYNCHRO reports were created using HCM 2000 methodology for the study intersections to report HCM control delay and LOS. The later HCM editions do not analyze intersections with U-turns, intersections with more than four legs or non-standard NEMA phasing. The arterial intersections performance results for Opening Year (2025) and Design Year (2045) are presented in **Table 7-7** through **Table 7-14**. Additionally, a summary comparison of intersection delay and LOS for Opening Year (2025) and Design Year (2045) for AM and PM peak hours are provided in **Table 7-15** and **Table 7-16**, respectively.

With the increase in volumes in the Design Year (2045) for No-Build conditions, several of the study intersections will have capacity deficiencies and operate at failing conditions (LOS E or F) during peak hours.

Since the proposed Build improvements are mainly focused on freeway facilities, the peak hour traffic operations are very similar on arterial corridors for No-Build and Build conditions within the study limits. However, with additional capacity available through proposed build improvements, more capacity will be available to satisfy demand on the interstate in the Build conditions as compared to No-Build conditions. Due to an increase in traffic near ramp terminal intersections, the traffic delays will be slightly more for some study intersections in Build conditions as compared to No-Build conditions.

The 95th percentile queue length and corresponding storage length are also provided in the **Table 7-17** through **Table 7-20** for Opening Year (2025) and Design Year (2045). The 95th percentile queue lengths are provided for No-Build and Build conditions during AM and PM peak hours. Queue lengths exceeding storage length are highlighted.

The observation of the Opening Year (2025) and Design Year (2045) 95th percentile queue results are summarized below.

- The results show that the 95th percentile queue length increased for Design Year (2045) compared to Opening Year (2025) for majority of the study intersections. With the increased traffic in Design Year (2045), the storage lengths are not sufficient to accommodate queues in both No-Build and Build conditions. However, it should be noted that at the off-ramp locations the queues from SYNCHRO may not be seen in the field as

the upstream mainline traffic may control the amount of off-ramp traffic entering. CORSIM would provide a better representation of the queuing at the off-ramp terminals.

- In general, the LOS, Delay and the 95th Percentile queues are reduced with the Build conditions compared to the No-Build for all the I-275 ramp terminal intersections.
- The 95th percentile queues at intersections along Tampa Street and Ashley Drive improved with the Build improvements.
- The 95th percentile eastbound left-turn queues at intersection of Scott Street at Jefferson Street/Orange Avenue improved significantly with the Build improvements because of the dual eastbound left-turns to the I-275 northbound on-ramp on the left side.
- Overall, the queue lengths are improved in Build conditions compared to No-Build conditions.

Even though, the Build condition does not address all the operational issues. Based on consideration of all the social, economic, and environmental evaluations contained in the Final SEIS, with input received from other agencies, organizations, and the public, the FHWA has determined that the TIS Preferred Alternative is hereby the selected alternative. This alternative selection process involved numerous considerations, which balanced engineering and environmental considerations as well as local preference gleaned through both the public involvement process and meetings with stakeholders and local officials. In addition, FDOT has undertaken several 'Early Works" projects within the vicinity of the study area to help alleviate the congestion issues compared to the No-Build alternative.

Table 7-7 - Opening Year (2025) No-Build – LOS and Delay (AM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	C	24.5	-	-	B	17.6	B	19.7
	Scott St.	B	18.7	-	-	-	-	A	6.9	B	13.9
	Tyler St.	B	14.0	D	38.3	-	-	A	2.2	A	7.0
Ashley Dr.	Tyler St.	C	28.8	C	20.1	B	17.9	B	10.2	B	14.7
Florida Ave.	Kay St*	-	-	-	-	A	5.9	-	-	-	-
	Scott St.	C	24.3	-	-	C	23.4	-	-	C	23.7
Scott St.	Jefferson St.	F	82.3	-	-	-	-	E	60.8	E	69.1
	Orange Ave.	D	44.4	-	-	A	9.6	-	-	B	17.3
Floribraska Ave.	SB I-275 Off-Ramp	A	9.4	A	9.3	-	-	C	31.5	C	22.1
	NB I-275 On-Ramp	A	1.1	A	1.9	E	55.6	-	-	A	2.1
MLK Blvd.	Central Ave.	B	10.8	A	6.1	D	35.0	D	52.3	B	14.5
	SB I-275 Ramps	B	19.5	B	15.0	-	-	C	32.3	C	20.6
	NB I-275 Ramps	F	94.0	F	98.7	F	132.3	-	-	F	104.9
	Nebraska Ave.	C	22.0	D	39.9	D	41.6	E	64.8	D	43.3
Hillsborough Ave.	Central Ave.	A	9.3	F	89.1	E	79.6	F	236.2	E	68.5
	SB I-275 Ramps	F	250.7	E	75.5	-	-	F	232.3	F	170.4
	NB I-275 Ramp (EB Dir)**	-	-	-	-	F	676	-	-	-	-
	Nebraska Ave.	C	27.1	F	141.9	F	123.3	F	176.0	F	112.9
13th Ave.	14th St.***	-	-	-	-	-	-	-	-	-	-
	15th St.*	B	12.7	-	-	-	-	-	-	-	-
	21st St.	E	65.4	-	-	-	-	B	12.7	D	53.1
	22nd St.	C	27.6	-	-	A	2.1	-	-	A	6.7
14th Ave.	14th St.*	B	11.3	C	18.1	-	-	-	-	-	-
	15th St.*	-	-	B	14.8	-	-	-	-	-	-
	21st St.	-	-	C	21.4	-	-	C	26.9	C	22.7
	22nd St.	-	-	C	24.8	C	23.8	-	-	C	24.3
15th Ave.	14th St.*	B	11.5	B	13.8	-	-	-	-	-	-
	15th St.*	B	11.5	B	10.2	-	-	-	-	-	-
Columbus Dr.	14th St.	B	17.1	B	16.8	-	-	C	27.6	C	20.7
	15th St.	A	2.3	-	-	B	15.2	-	-	A	8.8
	21st St.	A	8.6	-	-	-	-	B	14.7	B	12.7
	22nd St.	A	7.5	-	-	B	11.8	-	-	B	10.6
Palm Ave.	Nuccio Pkwy.	D	43.6	E	55.3	E	76.4	A	9.5	D	42.3
	15th St.	B	12.8	B	14.6	B	10.6	A	8.6	B	13.4
	21st St.	C	34.6	D	35.5	-	-	A	7.4	B	12.0
	22nd St.	C	30.1	C	29.3	B	16.9	-	-	B	17.8

**Un-signalized (stop-controlled) intersections.*

*** Only northbound is stop controlled. Other approach movements are free.*

****Un-signalized intersection (free flow/yield movements)*

Table 7-8 - Opening Year (2025) No-Build – LOS and Delay (PM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	C	25.7	-	-	B	17.4	C	20.7
	Scott St.	C	20.9	-	-	-	-	A	1.7	B	13.4
	Tyler St.	B	11.6	D	37.5	-	-	A	0.6	A	5.7
Ashley Dr.	Tyler St.	E	70.1	A	9.5	D	42.2	B	14.8	C	29.4
Florida Ave.	Kay St*	-	-	-	-	A	6.8	-	-	-	-
	Scott St.	E	62.5	-	-	D	42.0	-	-	D	47.5
Scott St.	Jefferson St.	C	21.1	-	-	-	-	E	55.1	C	29.7
	Orange Ave.	C	26.4	-	-	A	9.4	-	-	B	11.8
Floribraska Ave.	SB I-275 Off-Ramp	B	14.7	B	19.3	F	125.6	D	40.2	C	28.7
	NB I-275 On-Ramp	A	3.1	A	1.9	D	48.7	-	-	A	2.6
MLK Blvd.	Central Ave.	A	8.7	A	5.8	D	39.7	D	39.8	B	10.9
	SB I-275 Ramps	D	40.7	B	17.3	-	-	E	66.8	D	39.9
	NB I-275 Ramps	C	29.0	D	41.9	E	57.0	-	-	D	40.9
	Nebraska Ave.	C	24.5	D	46.2	E	70.8	D	38.4	D	42.9
Hillsborough Ave.	Central Ave.	A	9.7	E	78.1	F	194.4	F	205.1	E	64.2
	SB I-275 Ramps	F	90.5	C	22.8	-	-	F	108.9	E	60.1
	NB I-275 Ramp (EB Dir)**	-	-	-	-	F	1438	-	-	-	-
	Nebraska Ave.	D	36.6	F	210.0	F	151.3	F	142.7	F	140.3
13th Ave.	14th St.***	-	-	-	-	-	-	-	-	-	-
	15th St.*	D	32.5	-	-	-	-	-	-	-	-
	21st St.	A	9.6	-	-	-	-	C	28.3	B	14.5
	22nd St.	C	32.4	-	-	B	17.9	-	-	C	20.4
14th Ave.	14th St.*	A	9.8	B	13.1	-	-	-	-	-	-
	15th St.*	-	-	F	226.3	-	-	-	-	-	-
	21st St.	-	-	B	14.4	-	-	D	37.7	B	19.3
	22nd St.	-	-	D	42.7	A	5.6	-	-	B	14.7
15th Ave.	14th St.*	B	11.5	B	13.8	-	-	-	-	-	-
	15th St.*	B	11.5	B	10.2	-	-	-	-	-	-
Columbus Dr.	14th St.	B	16.4	A	9.6	-	-	D	40.8	C	20.0
	15th St.	B	18.3	-	-	B	17.9	-	-	B	18.0
	21st St.	C	21.1	-	-	-	-	B	19.9	C	20.5
	22nd St.	A	9.6	-	-	B	10.4	-	-	B	10.1
Palm Ave.	Nuccio Pkwy.	D	46.2	C	30.4	D	37.1	A	7.9	C	33.8
	15th St.	B	17.9	B	16.4	B	13.2	A	8.2	B	16.0
	21st St.	D	43.6	C	34.7	-	-	A	9.2	B	17.5
	22nd St.	E	56.3	D	44.9	C	28.2	-	-	C	31.6

**Un-signalized (stop-controlled) intersections.*

*** Only northbound is stop controlled. Other approach movements are free.*

****Un-signalized intersection (free flow/yield movements)*

Table 7-9 - Design Year (2045) No-Build – LOS and Delay (AM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	E	70.9	-	-	C	27.3	D	35.7
	Scott St.	F	89.9	-	-	-	-	E	72.6	F	80.3
	Tyler St.	D	46.5	F	139.0	-	-	E	71.8	E	78.1
Ashley Dr.	Tyler St.	F	156.5	E	67.0	D	42.9	B	14.0	C	33.2
Florida Ave.	Kay St*	-	-	-	-	A	5.5	-	-	-	-
	Scott St.	E	70.6	-	-	E	55.0	-	-	E	61.4
Scott St.	Jefferson St.	F	193.9	-	-	-	-	F	188.9	F	191.2
	Orange Ave.	D	36.3	-	-	B	10.0	-	-	B	14.5
Floribraska Ave.	SB I-275 Off-Ramp	B	16.6	B	15.2	E	76.6	C	30.7	C	22.6
	NB I-275 On-Ramp	A	3.1	A	2.6	D	50.5	-	-	A	3.4
MLK Blvd.	Central Ave.	C	22.6	A	9.8	D	47.2	F	90.6	C	25.1
	SB I-275 Ramps	C	28.2	D	36.4	-	-	E	65.9	D	41.7
	NB I-275 Ramps	F	145.0	F	142.1	F	189.6	-	-	F	154.3
	Nebraska Ave.	C	25.8	F	91.9	F	80.5	F	112.0	F	81.1
Hillsborough Ave.	Central Ave.	B	17.9	F	173.2	F	87.0	F	191.4	F	115.4
	SB I-275 Ramps	F	266.7	F	135.1	-	-	F	266.1	F	211.6
	NB I-275 Ramp (EB Dir)	A	7.1	F	204.6	F	392.3	-	-	F	148.2
	NB I-275 Ramp (WB Dir)	D	53.7	F	210.6	-	-	D	37.8	F	124.3
	Nebraska Ave.	F	83.0	F	182.7	F	146.5	F	216.4	F	154.1
13th Ave.	14th St.***	-	-	-	-	-	-	-	-	-	-
	15th St.*	D	27.9	-	-	-	-	-	-	-	-
	21st St.	F	250.2	-	-	-	-	B	16.6	F	198.6
	22nd St.	C	26.6	-	-	A	8.2	-	-	B	11.6
14th Ave.	14th St.*	C	16.6	F	253	-	-	-	-	-	-
	15th St.*	-	-	F	141.7	-	-	-	-	-	-
	21st St.	-	-	F	114.6	-	-	F	80.3	F	106.4
	22nd St.	-	-	F	133.9	F	140.7	-	-	F	137.7
15th Ave.	14th St.*	B	11.5	B	13.8	-	-	-	-	-	-
	15th St.*	B	11.5	B	10.2	-	-	-	-	-	-
Columbus Dr.	14th St.	C	29.7	F	155.2	-	-	F	160.9	F	128.9
	15th St.	B	11.6	-	-	C	31.1	-	-	C	22.2
	21st St.	D	38.5	-	-	-	-	B	14.1	C	21.0
	22nd St.	B	13.4	-	-	A	4.0	-	-	A	6.2
Palm Ave.	Nuccio Pkwy.	C	33.3	F	110.5	F	1239.7	D	49.7	F	350.2
	15th St.	C	28.1	B	11.5	F	120.4	D	37.7	C	30.7
	21st St.	E	62.7	E	71.7	-	-	A	6.9	B	15.6
	22nd St.	F	89.8	D	54.6	C	27.5	-	-	C	31.0

**Un-signalized (stop-controlled) intersections.*

****Un-signalized intersection (free flow/yield movements)*

Table 7-10 - Design Year (2045) No-Build – LOS and Delay (PM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	C	34.4	-	-	C	21.9	C	25.4
	Scott St.	C	30.1	-	-	-	-	A	3.8	B	16.0
	Tyler St.	B	14.3	D	41.9	-	-	A	1.3	A	6.9
Ashley Dr.	Tyler St.	F	186.0	B	14.4	F	178.5	F	141.0	F	148.8
Florida Ave.	Kay St*	-	-	-	-	A	6.7	-	-	-	-
	Scott St.	F	180.9	-	-	F	169.8	-	-	F	173.9
Scott St.	Jefferson St.	F	133.8	-	-	-	-	F	162.0	F	140.9
	Orange Ave.	D	44.4	-	-	A	8.5	-	-	B	12.8
Floribraska Ave.	SB I-275 Off-Ramp	C	24.8	D	38.3	F	137.9	E	59.6	D	43.7
	NB I-275 On-Ramp	B	12.2	A	2.4	D	50.4	-	-	A	8.6
MLK Blvd.	Central Ave.	B	14.4	B	19.6	F	102.3	F	167.1	C	30.1
	SB I-275 Ramps	E	70.9	E	56.3	-	-	F	88.0	E	71.2
	NB I-275 Ramps	E	57.8	F	89.4	F	114.9	-	-	F	81.5
	Nebraska Ave.	F	156.0	F	182.4	F	151.6	F	111.4	F	156.2
Hillsborough Ave.	Central Ave.	C	21.5	F	144.6	F	159.4	F	207.1	F	102.8
	SB I-275 Ramps	F	131.7	E	59.9	-	-	F	150.2	F	100.8
	NB I-275 Ramp (EB Dir)	A	7.3	F	303.5	F	862.6	-	-	F	274.8
	NB I-275 Ramp (WB Dir)	F	128.5	F	247.9	-	-	F	96.1	F	174.1
	Nebraska Ave.	E	79.4	F	233.5	F	202.7	F	189.7	F	174.1
13th Ave.	14th St.***	-	-	-	-	-	-	-	-	-	-
	15th St.*	F	995.1	-	-	-	-	-	-	-	-
	21st St.	F	180.6	-	-	-	-	C	24.7	F	145.5
	22nd St.	F	141.1	-	-	F	124.1	-	-	F	127.1
14th Ave.	14th St.*	B	11.8	D	32.6	-	-	-	-	-	-
	15th St.*	-	-	F	3350.4	-	-	-	-	-	-
	21st St.	-	-	F	148.6	-	-	F	87.4	F	135.9
	22nd St.	-	-	F	142.2	D	54.9	-	-	E	73.0
15th Ave.	14th St.*	B	11.5	B	13.8	-	-	-	-	-	-
	15th St.*	B	11.5	B	10.2	-	-	-	-	-	-
Columbus Dr.	14th St.	E	65.1	C	30.9	-	-	F	116.2	E	65.4
	15th St.	F	134.3	-	-	F	145.9	-	-	F	141.4
	21st St.	C	33.0	-	-	-	-	C	27.3	C	29.9
	22nd St.	D	45.0	-	-	A	8.8	-	-	C	22.8
Palm Ave.	Nuccio Pkwy.	F	314.4	E	68.9	F	786.0	F	145.4	F	409.8
	15th St.	E	64.7	D	53.6	F	188.7	B	17.2	F	86.3
	21st St.	F	93.3	E	61.1	-	-	B	10.5	C	26.2
	22nd St.	F	226.8	E	79.0	F	187.4	-	-	F	190.2

**Un-signalized (stop-controlled) intersections.*

****Un-signalized intersection (free flow/yield movements)*

Table 7-11 - Opening Year (2025) Build – LOS and Delay (AM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	C	24.5	-	-	B	17.6	B	19.7
	Scott St.	B	17.6	-	-	-	-	A	9.9	B	14.6
	Fortune St.	D	36.5	C	27.0	-	-	B	10.6	B	12.8
	Harrison St.	C	31.6	D	39.5	-	-	A	1.7	A	4.1
	Tyler St.	C	34.0	D	38.1	-	-	A	0.8	A	4.5
Ashley Dr.	Fortune St.	D	48.6	E	58.9	A	0.6	A	5.1	A	6.5
	Tyler St.	D	49.8	E	59.3	B	12.4	A	6.8	B	12.7
Florida Ave.	Kay St*					A	5.9				
	Scott St.	C	29.2	-	-	C	25.1	-	-	C	26.8
Scott St.	Jefferson St.	E	67.7	-	-	-	-	E	68.4	E	68.1
	Orange Ave.	D	48.4	-	-	A	6.9	-	-	B	12.6
Floribraska Ave.	SB I-275 Off-Ramp	A	5.8	A	5.5	-	-	D	35.9	B	19.7
	NB I-275 On-Ramp	A	1.2	A	1.9	E	55.6	-	-	A	2.2
MLK Blvd.	Central Ave.	A	8.2	A	4.6	C	34.0	D	44.7	B	12.1
	SB I-275 Ramps	B	14.3	B	12.0	-	-	C	29.7	B	16.6
	NB I-275 Ramps	F	95.2	E	79.8	F	142.4	-	-	F	101.2
	Nebraska Ave.	B	13.3	C	34.3	C	33.0	E	65.4	D	40.1
Hillsborough Ave.	Central Ave.	A	6.8	D	49.2	E	73.3	F	263.0	D	45.4
	SB I-275 Ramps	F	207.0	E	74.8	-	-	F	225.2	F	153.1
	NB I-275 Ramp (EB Dir)**	-	-	-	-	F	578.6	-	-	-	-
	Nebraska Ave.	C	25.4	F	111.2	F	105.3	F	154.1	F	93.7
13th Ave.	14th St.	C	26.9	-	-	-	-	B	14.9	C	22.4
	15th St.	A	2.0	-	-	D	38.2	-	-	B	10.1
	21st St.	A	4.1	-	-	-	-	B	14.3	A	7.1
	22nd St.	C	24.0	-	-	A	5.8	-	-	B	10.8
14th Ave.	14th St.	-	-	B	12.3	-	-	B	18.6	B	17.1
	15th St.	-	-	B	19.1	B	10.4	-	-	B	13.9
	21st St.	-	-	C	24.3	-	-	C	34.2	C	26.6
	22nd St.	-	-	C	24.8	C	23.3	-	-	C	23.9
15th Ave.	14th St.*	B	11.5	B	13.8	-	-	-	-	-	-
	15th St.*	B	11.5	B	10.2	-	-	-	-	-	-
Columbus Dr.	14th St.	C	21.6	C	23.9	-	-	C	20.7	C	22.3
	15th St.	A	3.0	-	-	A	4.4	-	-	A	3.8
	21st St.	B	12.8	-	-	-	-	B	13.7	B	13.4
	22nd St.	A	7.5	-	-	B	11.7	-	-	B	10.5
Palm Ave.	Nuccio Pkwy.	E	67.4	F	120.6	F	223.3	A	6.5	F	84.7
	15th St.	B	12.9	B	14.1	B	11.1	A	8.6	B	13.1
	21st St.	B	18.3	B	18.8	-	-	B	10.5	B	12.3
	22nd St.	C	30.1	C	29.4	B	13.0	-	-	B	14.4

**Un-signalized (stop-controlled) intersections.*

*** Only northbound is stop controlled. Other approach movements are free.*

Table 7-12 - Opening Year (2025) Build – LOS and Delay (PM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	C	25.7	-	-	B	17.4	C	20.7
	Scott St.	C	22.4	-	-	-	-	A	1.2	B	13.8
	Fortune St.	B	10.7	A	8.9	-	-	A	9.1	A	9.3
	Harrison St.	F	93.9	D	38.4	-	-	A	1.3	A	5.3
	Tyler St.	B	12.6	C	34.3	-	-	A	0.5	A	4.2
Ashley Dr.	Fortune St.	D	48.5	C	26.0	A	1.6	A	6.1	A	5.7
	Tyler St.	E	56.2	B	16.4	C	23.4	B	13.6	B	20.0
Florida Ave.	Kay St*	-	-	-	-	A	6.8	-	-	-	-
	Scott St.	D	43.4	-	-	E	58.1	-	-	D	54.3
Scott St.	Jefferson St.	B	19.2	-	-	-	-	D	40.1	C	25.7
	Orange Ave.	B	19.6	-	-	A	9.0	-	-	B	10.6
Floribraska Ave.	SB I-275 Off-Ramp	B	16.1	B	18.6	F	80.4	C	32.1	C	26.7
	NB I-275 On-Ramp	A	1.3	A	1.5	D	47.4	-	-	A	1.5
MLK Blvd.	Central Ave.	A	8.0	A	5.2	D	36.6	D	39.6	B	10.1
	SB I-275 Ramps	D	37.9	B	19.0	-	-	D	53.6	D	36.5
	NB I-275 Ramps	B	17.3	B	15.6	D	35.5	-	-	C	22.2
	Nebraska Ave.	B	11.3	C	31.7	D	39.6	D	38.3	C	26.3
Hillsborough Ave.	Central Ave.	B	10.0	E	64.5	F	163.7	F	192.5	D	54.7
	SB I-275 Ramps	E	78.0	C	20.3	-	-	F	103.7	D	53.5
	NB I-275 Ramp (EB Dir)**	-	-	-	-	F	1329.0	-	-	-	-
	Nebraska Ave.	C	31.3	F	121.7	F	157.9	F	135.4	F	101.5
13th Ave.	14th St.	B	13.4	-	-	-	-	B	12.1	B	13.0
	15th St.	B	12.8	-	-	C	25.7	-	-	B	17.7
	21st St.	A	6.7	-	-	-	-	A	9.2	A	7.6
	22nd St.	C	33.4	-	-	C	22.6	-	-	C	24.9
14th Ave.	14th St.	-	-	A	4.6	-	-	A	5.3	A	5.1
	15th St.	-	-	C	28.1	B	11.1	-	-	B	15.6
	21st St.	-	-	B	16.5	-	-	D	35.1	C	20.8
	22nd St.	-	-	D	43.5	A	3.5	-	-	B	11.4
15th Ave.	14th St.*	A	10.0	B	10.9	-	-	-	-	-	-
	15th St.*	C	17.7	B	13.8	-	-	-	-	-	-
Columbus Dr.	14th St.	B	18.4	B	10.1	-	-	C	32.4	B	18.8
	15th St.	B	13.4	-	-	A	8.8	-	-	B	10.6
	21st St.	C	22.5	-	-	-	-	B	19.0	C	20.6
	22nd St.	A	6.7	-	-	B	11.0	-	-	A	9.0
Palm Ave.	Nuccio Pkwy.	E	68.4	D	37.1	D	36.3	A	2.8	D	36.3
	15th St.	C	25.0	C	23.0	B	11.9	A	8.7	C	21.1
	21st St.	C	27.4	B	19.0	-	-	B	14.8	B	19.3
	22nd St.	E	60.1	D	42.9	C	21.5	-	-	C	27.2

**Un-signalized (stop-controlled) intersections.*

*** Only northbound is stop controlled. Other approach movements are free.*

Table 7-13 - Design Year (2045) Build – LOS and Delay (AM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	E	78.7	-	-	C	27.8	D	37.6
	Scott St.	F	87.1	-	-	-	-	E	77.6	F	81.9
	Fortune St.	F	143.7	E	57.3	-	-	E	72.4	E	77.7
	Harrison St.	E	62.0	F	139.4	-	-	C	29.1	D	35.7
	Tyler St.	E	79.7	F	127.0	-	-	B	13.3	C	23.5
Ashley Dr.	Fortune St.	C	30.8	D	44.5	A	1.8	B	12.3	A	9.8
	Tyler St.	C	33.3	D	42.7	C	23.6	B	13.7	B	19.9
Florida Ave.	Kay St*	-	-	-	-	A	5.2	-	-	-	-
	Scott St.	E	71.8	-	-	D	54.4	-	-	E	61.5
Scott St.	Jefferson St.	F	112.3	-	-	-	-	F	148.1	F	131.8
	Orange Ave.	E	68.4	-	-	A	8.3	-	-	B	17.8
Floribraska Ave.	SB I-275 Off-Ramp	B	16.6	B	15.2	E	68.1	C	30.7	C	22.6
	NB I-275 On-Ramp	A	3.1	A	2.6	D	50.5	-	-	A	3.4
MLK Blvd.	Central Ave.	B	18.7	B	10.8	D	36.9	E	67.8	C	21.2
	SB I-275 Ramps	C	23.4	D	49.8	-	-	E	58.7	D	42.6
	NB I-275 Ramps	F	159.9	F	112.7	F	211.5	-	-	F	153.2
	Nebraska Ave.	C	25.1	F	99.6	F	108.9	F	108.7	F	87.5
Hillsborough Ave.	Central Ave.	B	17.3	F	174.3	E	74.5	F	188.3	F	115.3
	SB I-275 Ramps	F	279.7	F	105.7	-	-	F	261.3	F	202.2
	NB I-275 Ramp (EB Dir)	A	5.6	F	102.4	F	202.5	-	-	E	75.4
	NB I-275 Ramp (WB Dir)	D	46.9	F	105.6	-	-	E	64.6	E	76.1
	Nebraska Ave.	D	54.0	F	196.9	F	150.9	F	213.3	F	150.0
13th Ave.	14th St.	F	124.1	-	-	-	-	F	108.4	F	117.1
	15th St.	C	25.6	-	-	E	60.7	-	-	D	35.3
	21st St.	F	92.0	-	-	-	-	B	11.6	E	69.8
	22nd St.	C	32.6	-	-	A	6.9	-	-	B	12.4
14th Ave.	14th St.	-	-	B	17.2	-	-	A	7.1	A	9.2
	15th St.	-	-	B	18.8	A	5.9	-	-	B	10.9
	21st St.	-	-	F	123.3	-	-	E	73.8	F	111.5
	22nd St.	-	-	F	144.4	F	134.4	-	-	F	138.7
15th Ave.	14th St.*	C	18.8	F	68.8	-	-	-	-	-	-
	15th St.*	C	19.1	B	13.0	-	-	-	-	-	-
Columbus Dr.	14th St.	D	35.2	F	200.5	-	-	F	95.1	F	125.9
	15th St.	A	8.1	-	-	B	10.9	-	-	A	9.6
	21st St.	C	32.3	-	-	-	-	B	13.6	B	18.9
	22nd St.	A	8.0	-	-	A	3.7	-	-	A	4.7
Palm Ave.	Nuccio Pkwy.	C	33.3	F	110.5	F	1398.1	F	270.8	F	417.6
	15th St.	C	24.1	B	16.3	F	95.3	C	34.4	C	29.4
	21st St.	D	44.6	D	47.2	-	-	A	7.2	B	14.5
	22nd St.	E	61.1	D	44.6	C	33.5	-	-	D	35.1

**Un-signalized (stop-controlled) intersections.*

Table 7-14 - Design Year (2045) Build – LOS and Delay (PM Peak Hour)

Arterial	Intersecting Roadway	Eastbound		Westbound		Northbound		Southbound		Intersection	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	-	-	C	32.4	-	-	C	20.9	C	24.1
	Scott St.	C	27.3	-	-	-	-	A	4.2	B	15.0
	Fortune St.	C	35.0	C	24.7	-	-	B	13.8	B	16.8
	Harrison St.	A	7.5	D	38.9	-	-	A	2.0	A	4.3
	Tyler St.	B	13.6	C	31.8	-	-	A	1.3	A	4.4
Ashley Dr.	Fortune St.	E	76.5	C	20.2	A	7.8	B	16.8	B	14.3
	Tyler St.	F	108.4	B	13.7	F	89.9	D	46.8	E	67.1
Florida Ave.	Kay St*	-	-	-	-	A	6.7	-	-	-	-
	Scott St.	E	71.3	-	-	E	67.0	-	-	E	69.0
Scott St.	Jefferson St.	C	32.9	-	-	-	-	E	70.0	D	42.5
	Orange Ave.	B	12.3	-	-	A	9.7	-	-	A	10.0
Floribraska Ave.	SB I-275 Off-Ramp	C	24.8	D	38.2	F	137.9	E	59.6	D	43.7
	NB I-275 On-Ramp	B	12.4	A	2.5	D	50.4	-	-	A	8.8
MLK Blvd.	Central Ave.	B	15.2	C	23.3	F	83.9	F	125.0	C	28.7
	SB I-275 Ramps	E	65.6	D	46.9	-	-	F	88.2	E	66.2
	NB I-275 Ramps	D	49.3	F	99.2	F	112.0	-	-	F	80.3
	Nebraska Ave.	F	158.7	F	163.4	F	183.2	E	59.6	F	152.5
Hillsborough Ave.	Central Ave.	C	21.2	F	145.1	F	169.3	F	208.8	F	103.6
	SB I-275 Ramps	F	131.9	E	64.2	-	-	F	131.9	F	99.6
	NB I-275 Ramp (EB Dir)	A	7.3	F	303.9	F	862.6	-	-	F	275.0
	NB I-275 Ramp (WB Dir)	F	128.2	F	247.4	-	-	F	97.7	F	173.9
	Nebraska Ave.	E	79.0	F	233.8	F	202.2	F	190.1	F	174.0
13th Ave.	14th St.	C	27.1	-	-	-	-	C	32.2	C	28.7
	15th St.	F	184.2	-	-	F	165.2	-	-	F	174.7
	21st St.	B	11.3	-	-	-	-	B	13.2	B	11.9
	22nd St.	F	338.7	-	-	E	74.2	-	-	F	129.3
14th Ave.	14th St.	-	-	C	32.9	-	-	B	13.9	B	19.1
	15th St.	-	-	E	60.4	A	8.3	-	-	C	21.0
	21st St.	-	-	F	137.5	-	-	F	125.9	F	135.1
	22nd St.	-	-	F	142.2	E	57.4	-	-	E	74.9
15th Ave.	14th St.*	B	12.4	C	18.5	-	-	-	-	-	-
	15th St.*	F	2394.9	D	34.9	-	-	-	-	-	-
Columbus Dr.	14th St.	E	65.1	C	30.9	-	-	F	116.2	E	65.4
	15th St.	F	134.3	-	-	F	145.9	-	-	F	141.4
	21st St.	C	26.3	-	-	-	-	C	21.5	C	23.7
	22nd St.	D	45.0	-	-	A	8.8	-	-	C	22.8
Palm Ave.	Nuccio Pkwy.	F	225.7	C	30.9	F	1270.8	E	73.0	F	495.5
	15th St.	C	25.9	D	48.6	F	170.8	B	16.8	E	63.8
	21st St.	D	39.6	C	32.8	-	-	B	13.6	C	21.7
	22nd St.	F	232.8	E	76.6	F	164.1	-	-	F	170.6

**Un-signalized (stop-controlled) intersections.*

Table 7-15 - Summary of Intersection LOS and Delay – AM Peak Hour

Arterial	Intersecting Roadway	2025				2045			
		No Build		Build		No Build		Build	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	B	19.7	B	19.7	D	35.7	D	37.6
	Scott St.	B	13.9	B	14.6	F	80.3	F	81.9
	Fortune St.	B	12.6	B	12.8	E	77.7	E	77.7
	Harrison St.	A	4.9	A	4.1	C	31.5	D	35.7
	Tyler St.	A	7	A	4.5	E	78.1	C	23.5
Ashley Dr.	Fortune St.	A	4	A	6.5	B	10.7	A	9.8
	Tyler St.	B	14.7	B	12.7	C	33.2	B	19.9
Florida Ave.	Kay St*	-	-	0	0	-	-	-	-
	Scott St.	C	23.7	C	26.8	E	61.4	E	61.5
Scott St.	Jefferson St.	E	69.1	E	68.1	F	191.2	F	131.8
	Orange Ave.	B	17.3	B	12.6	B	14.5	B	17.8
Floribraska Ave.	SB I-275 Off-Ramp	C	22.1	B	19.7	C	22.6	C	22.6
	NB I-275 On-Ramp	A	2.1	A	2.2	A	3.4	A	3.4
MLK Blvd.	Central Ave.	B	14.5	B	12.1	C	25.1	C	21.2
	SB I-275 Ramps	C	20.6	B	16.6	D	41.7	D	42.6
	NB I-275 Ramps	F	104.9	F	101.2	F	154.3	F	153.2
	Nebraska Ave.	D	43.3	D	40.1	F	81.1	F	87.5
Hillsborough Ave.	Central Ave.	E	68.5	D	45.4	F	115.4	F	115.3
	SB I-275 Ramps	F	170.4	F	153.1	F	211.6	F	202.2
	NB I-275 Ramp (EB Dir)	-	-	-	-	F	148.2	E	75.4
	NB I-275 Ramp (WB Dir)	-	-	-	-	F	124.3	E	76.1
	Nebraska Ave.	F	112.9	F	93.7	F	154.1	F	150
13th Ave.	14th St.	-	-	C	22.4	-	-	F	117.1
	15th St.	-	-	B	10.1	-	-	D	35.3
	21st St.	D	53.1	A	7.1	F	198.6	E	69.8
	22nd St.	A	6.7	B	10.8	B	11.6	B	12.4
14th Ave.	14th St.	-	-	B	17.1	-	-	A	9.2
	15th St.	-	-	B	13.9	-	-	B	10.9
	21st St.	C	22.7	C	26.6	F	106.4	F	111.5
	22nd St.	C	24.3	C	23.9	F	137.7	F	138.7
15th Ave.	14th St.*	-	-	-	-	-	-	-	-
	15th St.*	-	-	-	-	-	-	-	-
Columbus Dr.	14th St.	C	20.7	C	22.3	F	128.9	F	125.9
	15th St.	A	8.8	A	3.8	C	22.2	A	9.6
	21st St.	B	12.7	B	13.4	C	21	B	18.9
	22nd St.	B	10.6	B	10.5	A	6.2	A	4.7
Palm Ave.	Nuccio Pkwy.	D	42.3	F	84.7	F	350.2	F	417.6
	15th St.	B	13.4	B	13.1	C	30.7	C	29.4
	21st St.	B	12	B	12.3	B	15.6	B	14.5
	22nd St.	B	17.8	B	14.4	C	31	D	35.1

**Un-signalized (stop-controlled) intersections.*

Table 7-16 - Summary of Intersection LOS and Delay – PM Peak Hour

Arterial	Intersecting Roadway	2025				2045			
		No Build		Build		No Build		Build	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Tampa St.	Kay St.	C	20.7	C	20.7	C	25.4	C	24.1
	Scott St.	B	13.4	B	13.8	B	16	B	15
	Fortune St.	B	10.3	A	9.3	B	18	B	16.8
	Harrison St.	A	5	A	5.3	A	5	A	4.3
	Tyler St.	A	5.7	A	4.2	A	6.9	A	4.4
Ashley Dr.	Fortune St.	A	6	A	5.7	B	17.7	B	14.3
	Tyler St.	C	29.4	B	20	F	148.8	E	67.1
Florida Ave.	Kay St*	-	-	-	-	-	-	-	-
	Scott St.	D	47.5	D	54.3	F	173.9	E	69
Scott St.	Jefferson St.	C	29.7	C	25.7	F	140.9	D	42.5
	Orange Ave.	B	11.8	B	10.6	B	12.8	A	10
Floribraska Ave.	SB I-275 Off-Ramp	C	28.7	C	26.7	D	43.7	D	43.7
	NB I-275 On-Ramp	A	2.6	A	1.5	A	8.6	A	8.8
MLK Blvd.	Central Ave.	B	10.9	B	10.1	C	30.1	C	28.7
	SB I-275 Ramps	D	39.9	D	36.5	E	71.2	E	66.2
	NB I-275 Ramps	D	40.9	C	22.2	F	81.5	F	80.3
	Nebraska Ave.	D	42.9	C	26.3	F	156.2	F	152.5
Hillsborough Ave.	Central Ave.	E	64.2	D	54.7	F	102.8	F	103.6
	SB I-275 Ramps	E	60.1	D	53.5	F	100.8	F	99.6
	NB I-275 Ramp (EB Dir)	-	-	-	-	F	274.8	F	275
	NB I-275 Ramp (WB Dir)	-	-	-	-	F	174.1	F	173.9
	Nebraska Ave.	F	140.3	F	101.5	F	174.1	F	174
13th Ave.	14th St.	-	-	B	13	-	-	C	28.7
	15th St.	-	-	B	17.7	-	-	F	174.7
	21st St.	B	14.5	A	7.6	F	145.5	B	11.9
	22nd St.	C	20.4	C	24.9	F	127.1	F	129.3
14th Ave.	14th St.	-	-	A	5.1	-	-	B	19.1
	15th St.	-	-	B	15.6	-	-	C	21
	21st St.	B	19.3	C	20.8	F	135.9	F	135.1
	22nd St.	B	14.7	B	11.4	E	73	E	74.9
15th Ave.	14th St.*	-	-	-	-	-	-	-	-
	15th St.*	-	-	-	-	-	-	-	-
Columbus Dr.	14th St.	C	20	B	18.8	E	65.4	E	65.4
	15th St.	B	18	B	10.6	F	141.4	F	141.4
	21st St.	C	20.5	C	20.6	C	29.9	C	23.7
	22nd St.	B	10.1	A	9	C	22.8	C	22.8
Palm Ave.	Nuccio Pkwy.	C	33.8	D	36.3	F	409.8	F	495.5
	15th St.	B	16	C	21.1	F	86.3	E	63.8
	21st St.	B	17.5	B	19.3	C	26.2	C	21.7
	22nd St.	C	31.6	C	27.2	F	190.2	F	170.6

**Un-signalized (stop-controlled) intersections.*

Table 7-17 - Opening Year (2025) No-Build – 95th Percentile Queue Length (feet)

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Tampa St. at Scott St.	AM	-	245	314	-	-	-	-	-	-	-	41	-
	PM	-	176	136	-	-	-	-	-	-	-	0	-
	Storage Length	-	250	250	-	-	-	-	-	-	-	250	-
Tampa St. at Tyler St.	AM	-	m31	m27	27	264	-	-	-	-	-	23	m0
	PM	-	m37	m2	40	158	-	-	-	-	-	1	0
	Storage Length	-	200	200	100	200	-	-	-	-	-	275	275
Tampa St. at Fortune St.	AM	-	11	183	-	41	-	-	-	-	-	386	-
	PM	-	8	73	-	33	-	-	-	-	-	71	-
	Storage Length	-	500	500	170	170	-	-	-	-	625	625	625
Tampa St. at Harrison St.	AM	-	3	1	-	160	-	-	-	-	-	53	m0
	PM	-	33	23	-	120	-	-	-	-	-	30	m0
	Storage Length	-	-	-	200	200	-	-	-	-	600	600	600
Ashley Dr. at Tyler St.	AM	52	13	-	m17	76	-	67	344	-	m71	168	15
	PM	#263	32	-	15	58	-	#82	#569	-	m#128	136	14
	Storage Length	220	325	-	175	200	-	170	170	-	120	650	150
Ashley Dr. at Fortune St.	AM	31	21	-	m10	40	-	-	16	-	-	227	19
	PM	111	33	-	13	174	-	-	m75	-	-	278	15
	Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Scott St. at Florida Ave.	AM	-	#307	-	-	-	-	-	#319	-	-	-	-
	PM	-	#521	-	-	-	-	-	#873	-	-	-	-
	Storage Length	390	390	-	-	-	-	-	625	625	-	-	-
Scott St. at Jefferson St.	AM	#958	#939	215	-	-	-	-	-	-	-	#1153	645
	PM	#1029	416	49	-	-	-	-	-	-	-	#317	102
	Storage Length	410	410	410	-	-	-	-	-	-	-	275	275
Scott St. at Orange Ave.	AM	-	m74	-	-	-	-	231	106	0	-	-	-
	PM	-	m51	-	-	-	-	254	198	17	-	-	-
	Storage Length	-	145	-	-	-	-	740	740	740	-	-	-
Kay St. at Tampa St.	AM	-	-	-	12	250	-	-	-	-	-	262	168
	PM	-	-	-	23	304	-	-	-	-	-	156	277
	Storage Length	-	-	-	160	160	-	-	-	-	-	1,800	475

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Kay St. at Florida Ave.*	AM	-	-	-	-	0	0	113	-	-	-	-	-
	PM	-	-	-	-	0	0	183	-	-	-	-	-
	Storage Length	-	-	-	-	165	165	310	-	-	-	-	-
Floribraska Ave. at I-275 SB Off-Ramp	AM	-	66	-	-	75	-	-	-	-	252	206	-
	PM	-	161	-	-	374	-	-	#74	-	#345	#315	-
	Storage Length	-	1,690	1,690	175	175	-	-	1,370	-	250	250	250
Floribraska Ave. at I-275 NB On-Ramp	AM	-	14	-	-	49	17	-	28	-	-	-	-
	PM	-	42	-	-	100	14	-	14	-	-	-	-
	Storage Length	-	195	-	-	515	515	385	385	385	-	-	-
MLK Blvd. at Central Ave.	AM	#73	333	-	m0	188	-	42	145	-	#207	209	-
	PM	#53	356	-	m15	m212	-	34	154	-	60	157	-
	Storage Length	125	1,195	1,195	145	240	240	70	1,245	1,245	115	2,560	2,560
MLK Blvd. at I-275 SB Ramps	AM	-	355	265	m84	m202	-	-	-	-	190	196	428
	PM	-	#484	78	m57	m188	-	-	-	-	208	208	#641
	Storage Length	-	235	150	150	150	150	-	-	-	195	195	195
MLK Blvd. at I-275 NB Ramps	AM	#739	7	-	-	m#675	-	#463	#454	58	-	-	-
	PM	m#305	m113	-	-	m#444	-	#402	#412	29	-	-	-
	Storage Length	145	145	-	-	570	570	220	220	220	-	-	-
MLK Blvd. at Nebraska Ave.	AM	m33	195	-	42	#468	-	#299	86	-	93	#417	-
	PM	#258	#237	-	#111	#460	-	#383	183	-	91	193	-
	Storage Length	325	550	550	200	2,530	2,530	220	1,215	980	105	1,250	975
Hillsborough Ave. at Central Ave.	AM	#37	540	-	m#214	m#1740	m3	#82	#223	-	#277	#437	-
	PM	#60	481	-	m#134	m#1781	m8	#51	#401	-	#216	#297	-
	Storage Length	315	1,190	1,190	245	260	260	180	2,550	2,550	145	2,530	2,530
Hillsborough Ave. at I-275 SB Ramps	AM	-	m#870	-	m#775	m210	-	-	-	-	311	#1486	#1224
	PM	-	m#481	-	m#357	m143	-	-	-	-	#572	#687	#505
	Storage Length	-	275	80	415	875	-	-	-	-	250	250	250

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Hillsborough Ave. at I-275 NB Off-Ramp (EB Dir)*	AM	-	-	-	-	-	-	-	-	893	-	-	-
	PM	-	-	-	-	-	-	-	-	1800	-	-	-
	Storage Length	-	-	-	-	-	-	-	-	155	-	-	-
Hillsborough Ave. at Nebraska Ave.	AM	m#174	m128	-	#215	#1218	-	#428	#374	-	#605	#856	-
	PM	m#244	m277	-	86	#1265	-	#434	#546	-	#553	#477	-
	Storage Length	125	870	870	475	975	975	400	2,540	560	410	2,550	2,550
13th Ave. at 15th St.	AM	8	5	-	-	-	-	-	-	-	-	-	-
	PM	25	20	-	-	-	-	-	-	-	-	-	-
	Storage Length	250	300	-	-	-	-	-	1,460	1,460	-	-	-
14th Ave. at 14th St.	AM	-	0	0	60	8	-	-	-	-	-	-	-
	PM	-	0	0	15	23	-	-	-	-	-	-	-
	Storage Length	-	-	-	335	335	-	-	-	-	-	260	-
14th Ave. at 15th St.	AM	-	-	-	-	23	43	-	-	-	-	-	-
	PM	-	-	-	-	63	488	3	-	-	-	-	-
	Storage Length	-	-	-	-	1,700	770	-	230	-	-	-	-
15th Ave. at 14th St.*	AM	-	5		8	-	-	-	-	-	3	-	-
	PM	-	3		5	-	-	-	-	-	0	-	-
	Storage Length	-	360	360	360	360	-	-	-	-	250	-	-
15th Ave. at 15th St.*	AM	5	5	-	-	5	5	-	-	-	-	-	-
	PM	8	8	-	-	8	8	3	-	-	-	-	-
	Storage Length	350	350	-	-	360	360	260	-	-	-	-	-
Columbus Dr. at 14th St./17th Ave.	AM	-	207	8	61	-	#387	-	-	-	-	195	22
	PM	-	382	12	40	-	253	-	-	-	-	182	24
	Storage Length	-	2,180	100	335	335	-	-	-	-	-	1,240	200
Columbus Dr. at 15th St.	AM	-	6	-	-	-	-	-	97	-	-	-	-
	PM	-	140	-	-	-	-	-	238	-	-	-	-
	Storage Length	300	300	-	-	-	-	-	820	820	-	-	-
Palm Ave. at Nuccio Pkwy.	AM	#99	217	-	#156	#269	-	#272	104	-	46	152	-
	PM	#275	308	-	65	225	-	#486	547	-	m31	50	-
	Storage Length	80	1,415	1,225	110	1,100	1,100	120	660	660	105	1,110	1,110
	AM	52	63	-	56	131	-	-	82	-	-	18	-

Intersection	Time Period/Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Palm Ave. at 15th St.	PM	60	139	-	54	106	-	-	188	-	-	28	-
	Storage Length	140	425	425	145	730	730	440	440	440	440	440	440
Palm Ave. at 21st St.	AM	-	75	-	-	97	-	-	-	-	m6	m204	m36
	PM	-	214	-	-	m62	-	-	-	-	m8	261	m32
	Storage Length	2,300	2,300	-	175	175	-	-	-	-	660	660	115
Palm Ave. at 22nd St.	AM	32	52	-	-	27	-	-	481	-	-	-	-
	PM	#178	m20	-	-	35	-	-	#1115	-	-	-	-
	Storage Length	180	180	-	-	750	750	435	435	435	-	-	-
Columbus Dr. at 21st St.	AM	-	34	-	-	-	-	-	-	-	-	91	-
	PM	-	157	-	-	-	-	-	-	-	-	161	-
	Storage Length	-	2,300	2,300	-	-	-	-	-	-	-	160	-
Columbus Dr. at 22nd St.	AM	-	24	-	-	-	-	-	m81	-	-	-	-
	PM	-	41	-	-	-	-	-	133	-	-	-	-
	Storage Length	175	175	-	-	-	-	-	360	360	-	-	-
14th Ave. at 21st St.	AM	-	-	-	-	594	-	-	-	-	-	83	140
	PM	-	-	-	-	#946	-	-	-	-	-	155	#295
	Storage Length	-	-	-	180	180	-	-	-	-	-	345	250
14th Ave. at 22nd St.	AM	-	-	-	-	#676	31	#413	242	-	-	-	-
	PM	-	-	-	-	#489	54	m20	m12	-	-	-	-
	Storage Length	-	-	-	-	540	540	340	340	-	-	-	-
13th Ave. at 21st St.	AM	-	195	#275	-	-	-	-	-	-	-	m95	-
	PM	-	322	0	-	-	-	-	-	-	-	m245	-
	Storage Length	-	315	315	-	-	-	-	-	-	335	335	-
13th Ave. at 22nd St.	AM	67	186	-	-	-	-	-	0	-	-	-	-
	PM	72	#479	-	-	-	-	-	m541	-	-	-	-
	Storage Length	155	155	-	-	-	-	-	660	65	-	-	-

Notes:
1) The # footnote indicates that the volume for the 95th percentile cycle exceeds capacity. This traffic was simulated for two complete cycles to account for the effects of spillover between cycles. If the reported v/c <1 for this movement, the methods used represent a valid method for estimating the 95th percentile queue (Source: Trafficware).
2) The m footnote indicates that the volume for the 95th percentile queue is metered by an upstream signal (Source: Trafficware).
3) The storage length values were calculated from aerials or design drawings.
4) L = left, T = through, R = right.
5) Storage Length for through movement is considered the distance from upstream intersection.
6) Storage Length for the ramp terminal movements are based on the turn lanes at the ramp terminals intersections.

Table 7-18 - Design Year (2045) No-Build – 95th Percentile Queue Length (feet)

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Tampa St. at Scott St.	AM	-	620	#870	-	-	-	-	-	-	-	#1408	-
	PM	-	330	326	-	-	-	-	-	-	-	24	-
	Storage Length	-	250	250	-	-	-	-	-	-	-	250	-
Tampa St. at Tyler St.	AM	-	198	116	64	#834	-	-	-	-	-	m#1564	m10
	PM	-	m46	m9	49	247	-	-	-	-	-	16	0
	Storage Length	-	200	200	100	200	-	-	-	-	-	275	275
Tampa St. at Fortune St.	AM	-	28	#589	-	87	-	-	-	-	-	m#1068	-
	PM	-	22	287	-	113	-	-	-	-	-	446	-
	Storage Length	-	500	500	170	170	-	-	-	-	625	625	625
Tampa St. at Harrison St.	AM	-	18	9	-	#487	-	-	-	-	-	m113	m0
	PM	-	6	1	-	173	-	-	-	-	-	90	m0
	Storage Length	-	-	-	200	200	-	-	-	-	600	600	600
Ashley Dr. at Tyler St.	AM	#150	16	-	148	#653	-	#107	#811	-	m#109	369	75
	PM	#357	38	-	m47	136	-	#145	#971	-	m#144	#904	m42
	Storage Length	220	325	-	175	200	-	170	170	-	120	650	150
Ashley Dr. at Fortune St.	AM	58	27	-	48	332	-	-	m31	-	-	645	25
	PM	#206	54	-	m9	#127	-	-	m43	-	-	657	18
	Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Scott St. at Florida Ave.	AM	-	#840	-	-	-	-	-	#778	-	-	-	-
	PM	-	#1332	-	-	-	-	-	#1515	-	-	-	-
	Storage Length	390	390	-	-	-	-	-	625	625	-	-	-
Scott St. at Jefferson St.	AM	#1497	#1304	241	-	-	-	-	-	-	-	#1365	#819
	PM	#2562	#1326	104	-	-	-	-	-	-	-	#733	135
	Storage Length	410	410	410	-	-	-	-	-	-	-	275	275
Scott St. at Orange Ave.	AM	-	m60	-	-	-	-	424	129	8	-	-	-
	PM	-	m87	-	-	-	-	478	252	20	-	-	-
	Storage Length	-	145	-	-	-	-	740	740	740	-	-	-
Kay St. at Tampa St.	AM	-	-	-	36	#542	-	-	-	-	-	1026	191
	PM	-	-	-	48	379	-	-	-	-	-	477	283
	Storage Length	-	-	-	160	160	-	-	-	-	-	1,800	475
Kay St. at Florida Ave.*	AM	-	-	-	-	0	0	118	-	-	-	-	-
	PM	-	-	-	-	0	0	198	-	-	-	-	-
	Storage Length	-	-	-	-	165	165	310	-	-	-	-	-
Floribraska Ave. at I-275 SB Off-Ramp	AM	-	193	-	-	165	-	-	22	-	281	240	-
	PM	-	356	-	-	#600	-	-	#148	-	#517	#465	-
	Storage Length	-	1,690	1,690	175	175	-	-	1,370	-	250	250	250
	AM	-	41	-	-	82	17	-	38	-	-	-	-
	PM	-	m#321	-	-	130	13	-	32	-	-	-	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Floribraska Ave. at I-275 NB On-Ramp	Storage Length	-	195	-	-	515	515	385	385	385	-	-	-
MLK Blvd. at Central Ave.	AM	#110	593	-	m0	m345	-	70	268	-	#367	356	-
	PM	#73	720	-	m#130	m238	-	#92	#380	-	#153	#478	-
	Storage Length	125	1,195	1,195	145	240	240	70	1,245	1,245	115	2,560	2,560
MLK Blvd. at I-275 SB Ramps	AM	-	m364	m#611	m181	m261	-	-	-	-	427	#545	#1013
	PM	-	m#789	m#537	m#249	m316	-	-	-	-	620	616	#1216
	Storage Length	-	235	150	150	150	150	-	-	-	195	195	195
MLK Blvd. at I-275 NB Ramps	AM	#1525	m0	-	-	m#647	-	#741	#750	129	-	-	-
	PM	m#912	m113	-	-	m175	-	#774	#771	33	-	-	-
	Storage Length	145	145	-	-	570	570	220	220	220	-	-	-
MLK Blvd. at Nebraska Ave.	AM	m44	270	-	#88	#766	-	#574	139	-	157	#785	-
	PM	#756	#1445	-	#193	#1148	-	#785	436	-	#306	397	-
	Storage Length	325	550	550	200	2,530	2,530	220	1,215	980	105	1,250	975
Hillsborough Ave. at Central Ave.	AM	#69	1043	-	m#336	m#2121	m10	#107	238	-	#330	#454	-
	PM	#66	#988	-	m#145	m#1809	m26	55	#420	-	#236	#305	-
	Storage Length	315	1,190	1,190	245	260	260	180	2,550	2,550	145	2,530	2,530
Hillsborough Ave. at I-275 SB Ramps	AM	-	m#1858	m#707	#1709	799	-	-	-	-	445	#911	#1362
	PM	-	m#1104	m277	#870	708	-	-	-	-	#414	#416	#561
	Storage Length	-	275	80	415	875	-	-	-	-	250	250	250
Hillsborough Ave. at I-275 NB Off-Ramp (EB Dir)	AM	-	214	-	-	m#429	-	-	-	#318	-	-	-
	PM	-	226	-	-	m#447	-	-	-	#513	-	-	-
	Storage Length	-	237	-	-	235	-	-	-	155	-	-	-
Hillsborough Ave. at I-275 NB Off-Ramp (WB Dir)	AM	m#196	m#612	-	-	#940	149	-	-	-	-	-	#314
	PM	m#309	m342	-	-	#963	200	-	-	-	-	-	#439
	Storage Length	230	315	-	-	250	250	-	-	-	-	-	350
Hillsborough Ave. at Nebraska Ave.	AM	#538	#1026	-	#282	#1536	-	#536	#444	-	#790	#1003	-
	PM	#464	#754	-	85	#1279	-	#474	#554	-	#584	#473	-
	Storage Length	125	870	870	475	975	975	400	2,540	560	410	2,550	2,550
13th Ave. at 15th St.	AM	43	33	-	-	-	-	-	-	-	-	-	-
	PM	233	218	-	-	-	-	-	-	-	-	-	-
	Storage Length	250	300	-	-	-	-	-	1460	1460	-	-	-
14th Ave. at 14th St.	AM	-	3	3	563	53	-	-	-	-	-	-	-
	PM	-	0	0	43	123	-	-	-	-	-	-	-
	Storage Length	-	-	-	335	335	-	-	-	-	-	260	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
14th Ave. at 15th St.	AM	-	-	-	-	150	435	0	-	-	-	-	-
	PM	-	-	-	-	420	1495	3	-	-	-	-	-
	Storage Length	-	-	-	-	1,700	770	-	230	-	-	-	-
15th Ave. at 14th St.*	AM	-	18	18	-	75	75	-	-	-	3	-	-
	PM	-	10	10	-	25	25	-	-	-	3	-	-
	Storage Length	-	360	360	360	360	-	-	-	-	250	-	-
15th Ave. at 15th St.*	AM	18	18	-	-	13	13	3	-	-	-	-	-
	PM	240	240	-	-	43	43	5	-	-	-	-	-
	Storage Length	350	350	-	-	360	360	260	-	-	-	-	-
Columbus Dr. at 14th St./17th Ave.	AM	-	732	80	183	-	#1993	-	-	-	-	#934	179
	PM	-	#1929	60	111	-	#1483	-	-	-	-	#660	132
	Storage Length	-	2,180	100	335	335	-	-	-	-	-	1,240	200
Columbus Dr. at 15th St.	AM	-	m207	-	-	-	-	-	445	-	-	-	-
	PM	-	m#1010	-	-	-	-	-	#1894	-	-	-	-
	Storage Length	300	300	-	-	-	-	-	820	820	-	-	-
Palm Ave. at Nuccio Pkwy.	AM	#135	#278	-	#218	#403	-	#705	#375	-	#191	#458	-
	PM	#766	#927	-	#206	563	-	#1530	#2385	-	#317	361	-
	Storage Length	80	1,415	1,225	110	1,100	1,100	120	660	660	105	1,110	1,110
Palm Ave. at 15th St.	AM	#187	174	-	173	349	-	-	#524	-	-	53	-
	PM	#207	#436	-	#172	283	-	-	#741	-	-	72	-
	Storage Length	140	425	425	145	730	730	440	440	440	440	440	440
Palm Ave. at 21st St.	AM	-	151	-	-	m129	-	-	-	-	m5	m216	m109
	PM	-	#424	-	-	152	-	-	-	-	m9	m346	m41
	Storage Length	2,300	2,300	-	175	175	-	-	-	-	660	660	115
Palm Ave. at 22nd St.	AM	78	m70	-	-	47	-	-	#1359	-	-	-	-
	PM	#338	155	-	-	64	-	-	#3288	-	-	-	-
	Storage Length	180	180	-	-	750	750	435	435	435	-	-	-
Columbus Dr. at 21st St.	AM	-	155	-	-	-	-	-	-	-	-	225	-
	PM	-	308	-	-	-	-	-	-	-	-	328	-
	Storage Length	-	2,300	2,300	-	-	-	-	-	-	-	160	-
Columbus Dr. at 22nd St.	AM	-	28	-	-	-	-	-	m47	-	-	-	-
	PM	-	351	-	-	-	-	-	m218	-	-	-	-
	Storage Length	175	175	-	-	-	-	-	360	360	-	-	-
14th Ave. at 21st St.	AM	-	-	-	-	m643	-	-	-	-	-	235	#644
	PM	-	-	-	-	#2306	-	-	-	-	-	224	#656
	Storage Length	-	-	-	180	180	-	-	-	-	-	345	250
14th Ave. at 22nd St.	AM	-	-	-	-	#1755	174	#1198	#638	-	-	-	-
	PM	-	-	-	-	#1158	94	m#412	m398	-	-	-	-
	Storage Length	-	-	-	-	540	540	340	340	-	-	-	-
13th Ave. at 21st St.	AM	-	392	#1706	-	-	-	-	-	-	-	m159	-
	PM	-	742	#1407	-	-	-	-	-	-	-	m205	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
	Storage Length	-	315	315	-	-	-	-	-	-	335	335	-
13th Ave. at 22nd St.	AM	129	238	-	-	-	-	-	m349	-	-	-	-
	PM	480	#1006	-	-	-	-	-	m842	-	-	-	-
	Storage Length	155	155	-	-	-	-	-	660	65	-	-	-

Notes:
1) The # footnote indicates that the volume for the 95th percentile cycle exceeds capacity. This traffic was simulated for two complete cycles to account for the effects of spillover between cycles. If the reported v/c <1 for this movement, the methods used represent a valid method for estimating the 95th percentile queue (Source: Trafficware).
2) The m footnote indicates that the volume for the 95th percentile queue is metered by an upstream signal (Source: Trafficware).
3) The storage length values were calculated from aerials or design drawings.
4) L = left, T = through, R = right.
5) Storage Length for through movement is considered the distance from upstream intersection.
6) Storage Length for the ramp terminal movements are based on the turn lanes at the ramp terminals intersections.

Table 7-19 - Opening Year (2025) Build – 95th Percentile Queue Length (feet)

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Tampa St. at Scott St.	AM	-	258	342	-	-	-	-	-	-	-	57	-
	PM	-	167	122	-	-	-	-	-	-	-	0	-
	Storage Length	-	250	250	-	-	-	-	-	-	-	250	-
Tampa St. at Tyler St.	AM	-	53	70	24	149	-	-	-	-	-	3	m0
	PM	-	m16	m25	24	96	-	-	-	-	-	1	0
	Storage Length	-	200	200	100	200	-	-	-	-	-	275	275
Tampa St. at Fortune St.	AM	-	11	187	-	42	-	-	-	-	-	423	-
	PM	-	8	73	-	33	-	-	-	-	-	75	-
	Storage Length	-	500	500	170	170	-	-	-	-	625	625	625
Tampa St. at Harrison St.	AM	-	11	3	-	162	-	-	-	-	-	55	m0
	PM	-	32	20	-	120	-	-	-	-	-	30	m0
	Storage Length	-	-	-	200	200	-	-	-	-	600	600	600
Ashley Dr. at Tyler St.	AM	43	19	-	60	218	-	87	378	-	109	158	6
	PM	#135	39	-	12	21	-	#98	#635	-	#203	152	m7
	Storage Length	220	325	-	175	200	-	170	170	-	120	650	150
Ashley Dr. at Fortune St.	AM	43	28	-	46	229	-	-	10	-	-	257	19
	PM	#121	37	-	9	174	-	-	40	-	-	259	14
	Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Scott St. at Florida Ave.	AM	-	#344	-	-	-	-	-	#331	-	-	-	-
	PM	-	#431	-	-	-	-	-	#903	-	-	-	-
	Storage Length	390	390	-	-	-	-	-	625	625	-	-	-
Scott St. at Jefferson St.	AM	340	#1067	213	-	-	-	-	-	-	-	#1185	509
	PM	303	651	70	-	-	-	-	-	-	-	374	96
	Storage Length	410	410	410	-	-	-	-	-	-	-	275	275
Scott St. at Orange Ave.	AM	-	m0	-	-	-	-	213	101	0	-	-	-
	PM	-	m9	-	-	-	-	246	211	16	-	-	-
	Storage Length	-	145	-	-	-	-	740	740	740	-	-	-
Kay St. at Tampa St.	AM	-	-	-	12	250	-	-	-	-	-	262	168
	PM	-	-	-	23	304	-	-	-	-	-	156	277
	Storage Length	-	-	-	160	160	-	-	-	-	-	1,800	475
Kay St. at Florida Ave.*	AM	-	-	-	-	0	0	113	-	-	-	-	-
	PM	-	-	-	-	0	0	183	-	-	-	-	-
	Storage Length	-	-	-	-	165	165	310	-	-	-	-	-
Floribraska Ave. at I-275 SB Off-Ramp	AM	-	50	-	-	57	-	-	-	-	190	147	-
	PM	-	113	-	-	252	-	-	62	-	313	229	-
	Storage Length	-	1,690	1,690	175	175	-	-	1,370	-	250	250	250

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Floribraska Ave. at I-275 NB On-Ramp	AM	-	15	-	-	49	18	-	28	-	-	-	-
	PM	-	22	-	-	61	12	-	14	-	-	-	-
	Storage Length	-	195	-	-	515	515	385	385	385	-	-	-
MLK Blvd. at Central Ave.	AM	33	272	-	m11	148	-	41	129	-	129	186	-
	PM	34	328	-	m18	m231	-	34	129	-	48	150	-
	Storage Length	125	1,195	1,195	145	240	240	70	1,245	1,245	115	2,560	2,560
MLK Blvd. at I-275 SB Ramps	AM	-	252	233	m104	m157	-	-	-	-	147	152	288
	PM	-	#438	53	m85	183	-	-	-	-	200	200	#622
	Storage Length	-	235	150	150	150	150	-	-	-	195	195	195
MLK Blvd. at I-275 NB Ramps	AM	#745	30	-	-	m#521	-	#432	#434	56	-	-	-
	PM	m#213	m121	-	-	m#188	-	#354	#365	34	-	-	-
	Storage Length	145	145	-	-	570	570	220	220	220	-	-	-
MLK Blvd. at Nebraska Ave.	AM	m22	101	-	39	#347	-	#264	76	-	86	#385	-
	PM	#185	212	-	#111	306	-	#225	195	-	91	192	-
	Storage Length	325	550	550	200	2,530	2,530	220	1,215	980	105	1,250	975
Hillsborough Ave. at Central Ave.	AM	#35	379	-	m#182	m#1511	m0	#67	#168	-	#246	#390	-
	PM	#57	492	-	m#143	m#1715	m7	53	#395	-	#220	#271	-
	Storage Length	315	1,190	1,190	245	260	260	180	2,550	2,550	145	2,530	2,530
Hillsborough Ave. at I-275 SB Ramps	AM	-	m#934	-	m#756	m195	-	-	-	-	264	#1346	#1106
	PM	-	m#417	-	m#408	m156	-	-	-	-	#548	#616	#461
	Storage Length	-	275	80	415	875	-	-	-	-	250	250	250
Hillsborough Ave. at I-275 NB Off-Ramp (EB Dir)*	AM	-	-	-	-	-	-	-	-	845	-	-	-
	PM	-	-	-	-	-	-	-	-	1763	-	-	-
	Storage Length	-	-	-	-	-	-	-	-	155	-	-	-
Hillsborough Ave. at Nebraska Ave.	AM	m#166	m114	-	#116	#1071	-	#390	#285	-	#430	#752	-
	PM	m#239	m186	-	85	#1105	-	#447	#494	-	#428	#408	-
	Storage Length	125	870	870	475	975	975	400	2,540	560	410	2,550	2,550
13th Ave. at 14th St.	AM	-	563	301	-	-	-	-	-	-	21	158	-
	PM	-	270	121	-	-	-	-	-	-	10	63	-
	Storage Length	-	325	325	-	-	-	-	-	-	215	215	-
13th Ave. at 15th St.	AM	-	18	-	-	-	-	-	m164	-	-	-	-
	PM	-	124	-	-	-	-	-	m260	-	-	-	-
	Storage Length	250	300	-	-	-	-	-	1,460	1,460	-	-	-
14th Ave. at 14th St.	AM	-	-	-	32	16	-	-	-	-	-	238	-
	PM	-	-	-	1	28	-	-	-	-	-	40	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
	Storage Length	-	-	-	335	335	-	-	-	-	-	260	-
14th Ave. at 15th St.	AM	-	-	-	-	m80	-	-	58	-	-	-	-
	PM	-	-	-	-	91	-	-	166	-	-	-	-
	Storage Length	-	-	-	-	1,700	770	-	230	-	-	-	-
15th Ave. at 14th St.*	AM	-	5	5	8	8		-	-	-	3	-	-
	PM	-	3	3	5	5		-	-	-	0	-	-
	Storage Length	-	360	360	360	360	-	-	-	-	250	-	-
15th Ave. at 15th St.*	AM	5	5	-	-	5	5	0	-	-	-	-	-
	PM	8	8	-	-	8	8	3	-	-	-	-	-
	Storage Length	350	350	-	-	360	360	260	-	-	-	-	-
Columbus Dr. at 14th St./17th Ave.	AM	-	214	5	64	-	#444	-	-	-	-	160	14
	PM	-	371	8	37	-	240	-	-	-	-	150	14
	Storage Length	-	2,180	100	335	335	-	-	-	-	-	1,240	200
Columbus Dr. at 15th St.	AM	-	4	-	-	-	-	-	29	-	-	-	-
	PM	-	151	-	-	-	-	-	86	-	-	-	-
	Storage Length	300	300	-	-	-	-	-	820	820	-	-	-
Palm Ave. at Nuccio Pkwy.	AM	#132	#296	-	#210	#449	-	#503	111	-	m50	174	-
	PM	#131	#357	-	#78	223	-	#441	217	-	13	35	-
	Storage Length	80	1,415	1,225	110	1,100	1,100	120	660	660	105	1,110	1,110
Palm Ave. at 15th St.	AM	37	90	-	57	123	-	-	102	-	-	19	-
	PM	42	217	-	#84	141	-	-	189	-	-	35	-
	Storage Length	140	425	425	145	730	730	440	440	440	440	440	440
Palm Ave. at 21st St.	AM	-	44	-	-	60	-	-	-	-	m7	166	20
	PM	-	182	-	-	m46	-	-	-	-	m18	182	37
	Storage Length	2,300	2,300	-	175	175	-	-	-	-	660	660	115
Palm Ave. at 22nd St.	AM	28	57	-	-	30	-	-	339	-	-	-	-
	PM	#212	101	-	-	34	-	-	#875	-	-	-	-
	Storage Length	180	180	-	-	750	750	435	435	435	-	-	-
Columbus Dr. at 21st St.	AM	-	47	-	-	-	-	-	-	-	-	100	-
	PM	-	163	-	-	-	-	-	-	-	-	172	-
	Storage Length	-	2,300	2,300	-	-	-	-	-	-	-	160	-
Columbus Dr. at 22nd St.	AM	-	24	-	-	-	-	-	m81	-	-	-	-
	PM	-	30	-	-	-	-	-	121	-	-	-	-
	Storage Length	175	175	-	-	-	-	-	360	360	-	-	-
14th Ave. at 21st St.	AM	-	-	-	-	737	-	-	-	-	-	102	298
	PM	-	-	-	-	#910	-	-	-	-	-	149	#343
	Storage Length	-	-	-	180	180	-	-	-	-	-	345	250
14th Ave. at 22nd St.	AM	-	-	-	-	#676	31	#415	99	-	-	-	-
	PM	-	-	-	-	#378	49	m12	m17	-	-	-	-
	Storage Length	-	-	-	-	540	540	340	340	-	-	-	-
13th Ave. at 21st St.	AM	-	204	435	-	-	-	-	-	-	-	m111	-
	PM	-	212	0	-	-	-	-	-	-	-	m33	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
	Storage Length	-	2,335	2,335	-	-	-	-	-	-	335	335	-
13th Ave. at 22nd St.	AM	134	185	-	-	-	-	-	107	-	-	-	-
	PM	94	#517	-	-	-	-	-	m#230	-	-	-	-
	Storage Length	155	155	-	-	-	-	-	660	65	-	-	-

Notes:
1) The # footnote indicates that the volume for the 95th percentile cycle exceeds capacity. This traffic was simulated for two complete cycles to account for the effects of spillover between cycles. If the reported v/c <1 for this movement, the methods used represent a valid method for estimating the 95th percentile queue (Source: Trafficware).
2) The m footnote indicates that the volume for the 95th percentile queue is metered by an upstream signal (Source: Trafficware).
3) The storage length values were calculated from aerials or design drawings.
4) L = left, T = through, R = right.
5) Storage Length for through movement is considered the distance from upstream intersection.
6) Storage Length for the ramp terminal movements are based on the turn lanes at the ramp terminals intersections.

Table 7-20 - Design Year (2045) Build – 95th Percentile Queue Length (feet)

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Tampa St. at Scott St.	AM	-	684	#953	-	-	-	-	-	-	-	#1588	-
	PM	-	295	311	-	-	-	-	-	-	-	22	-
	Storage Length	-	250	250	-	-	-	-	-	-	-	250	-
Tampa St. at Tyler St.	AM	-	150	#302	53	#497	-	-	-	-	-	m1	m0
	PM	-	m11	m26	28	129	-	-	-	-	-	4	m0
	Storage Length	-	200	200	100	200	-	-	-	-	-	275	275
Tampa St. at Fortune St.	AM	-	30	#640	-	95	-	-	-	-	-	m#1309	-
	PM	-	21	266	-	105	-	-	-	-	-	432	-
	Storage Length	-	500	500	170	170	-	-	-	-	625	625	625
Tampa St. at Harrison St.	AM	-	20	10	-	#538	-	-	-	-	-	m125	m0
	PM	-	5	1	-	156	-	-	-	-	-	78	m0
	Storage Length	-	-	-	200	200	-	-	-	-	600	600	600
Ashley Dr. at Tyler St.	AM	46	16	-	77	#240	-	#98	#572	-	m75	#667	m26
	PM	#207	45	-	26	74	-	#130	#864	-	m#165	#737	m11
	Storage Length	220	325	-	175	200	-	170	170	-	120	650	150
Ashley Dr. at Fortune St.	AM	45	23	-	39	#290	-	-	39	-	-	512	21
	PM	#191	50	-	m8	#135	-	-	m32	-	-	585	17
	Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Scott St. at Florida Ave.	AM	-	#841	-	-	-	-	-	#775	-	-	-	-
	PM	-	#1088	-	-	-	-	-	#838	-	-	-	-
	Storage Length	390	390	-	-	-	-	-	625	625	-	-	-
Scott St. at Jefferson St.	AM	606	#1612	185	-	-	-	-	-	-	-	#1578	#928
	PM	603	#1214	88	-	-	-	-	-	-	-	#542	112
	Storage Length	410	410	410	-	-	-	-	-	-	-	275	275
Scott St. at Orange Ave.	AM	-	m0	-	-	-	-	384	126	8	-	-	-
	PM	-	m4	-	-	-	-	441	229	20	-	-	-
	Storage Length	-	145	-	-	-	-	740	740	740	-	-	-
Kay St. at Tampa St.	AM	-	-	-	41	#605	-	-	-	-	-	1118	209
	PM	-	-	-	43	345	-	-	-	-	-	438	261
	Storage Length	-	-	-	160	160	-	-	-	-	-	1,800	475
Kay St. at Florida Ave.*	AM	-	-	-	-	0	0	118	-	-	-	-	-
	PM	-	-	-	-	0	0	198	-	-	-	-	-
	Storage Length	-	-	-	-	165	165	310	-	-	-	-	-
Floribraska Ave. at I-275 SB Off-Ramp	AM	-	193	-	-	165	-	-	22	-	281	240	-
	PM	-	356	-	-	#599	-	-	#148	-	#517	#465	-
	Storage Length	-	1,690	1,690	175	175	-	-	1,370	-	250	250	250
Floribraska Ave. at I-275 NB On-Ramp	AM	-	41	-	-	82	17	-	38	-	-	-	-
	PM	-	m#324	-	-	133	13	-	32	-	-	-	-
	Storage Length	-	195	-	-	515	515	385	385	385	-	-	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
MLK Blvd. at Central Ave.	AM	#77	504	-	m17	m286	-	58	217	-	#295	290	-
	PM	#65	734	-	m#126	m242	-	#84	#345	-	#115	#441	-
	Storage Length	125	1,195	1,195	145	240	240	70	1,245	1,245	115	2,560	2,560
MLK Blvd. at I-275 SB Ramps	AM	-	m256	m#284	m139	m216	-	-	-	-	#378	#465	#828
	PM	-	#746	m415	m#233	m245	-	-	-	-	590	586	#1150
	Storage Length	-	235	150	150	150	150	-	-	-	195	195	195
MLK Blvd. at I-275 NB Ramps	AM	m#1297	m4	-	-	m#329	-	#625	#632	73	-	-	-
	PM	m#760	m130	-	-	m143	-	#729	#729	33	-	-	-
	Storage Length	145	145	-	-	570	570	220	220	220	-	-	-
MLK Blvd. at Nebraska Ave.	AM	m43	253	-	#80	#645	-	#504	118	-	128	#641	-
	PM	#648	#1394	-	#186	#1113	-	#811	398	-	#210	370	-
	Storage Length	325	550	550	200	2,530	2,530	220	1,215	980	105	1,250	975
Hillsborough Ave. at Central Ave.	AM	#58	958	-	m#277	m#1892	m10	#92	#223	-	#296	#427	-
	PM	#61	#979	-	m#149	m#1828	m25	#65	#432	-	#236	#315	-
	Storage Length	315	1,190	1,190	245	260	260	180	2,550	2,550	145	2,530	2,530
Hillsborough Ave. at I-275 SB Ramps	AM	-	m#1677	m#632	m#589	m13	-	-	-	-	404	#829	#1214
	PM	-	m#1106	m268	#877	734	-	-	-	-	#403	#416	#545
	Storage Length	-	275	80	415	875	-	-	-	-	250	250	250
Hillsborough Ave. at I-275 NB Off-Ramp (EB Dir)	AM	-	m43	-	-	m876	-	-	-	#550	-	-	-
	PM	-	226	-	-	m#447	-	-	-	#513	-	-	-
	Storage Length	-	237	-	-	235	-	-	-	155	-	-	-
Hillsborough Ave. at I-275 NB Off-Ramp (WB Dir)	AM	m#403	m422	-	-	m202	m3	-	-	-	-	-	#608
	PM	m#316	m343	-	-	#962	200	-	-	-	-	-	#440
	Storage Length	230	315	-	-	250	250	-	-	-	-	-	350
Hillsborough Ave. at Nebraska Ave.	AM	m#310	m#919	-	#243	#1395	-	#479	#420	-	#700	#902	-
	PM	#459	#756	-	83	#1280	-	#473	#554	-	#587	#470	-
	Storage Length	125	870	870	475	975	975	400	2,540	560	410	2,550	2,550
13th Ave. at 14th St.	AM	-	#1153	446	-	-	-	-	-	-	m43	#1056	-
	PM	-	748	314	-	-	-	-	-	-	68	358	-
	Storage Length	-	325	325	-	-	-	-	-	-	215	215	-
13th Ave. at 15th St.	AM	-	m81	-	-	-	-	-	m#433	-	-	-	-
	PM	-	#1335	-	-	-	-	-	#1308	-	-	-	-
	Storage Length	250	300	-	-	-	-	-	1,460	1,460	-	-	-
14th Ave. at 14th St.	AM	-	-	-	66	m14	-	-	-	-	-	m106	-
	PM	-	-	-	76	175	-	-	-	-	-	247	-
	Storage Length	-	-	-	335	335	-	-	-	-	-	260	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
14th Ave. at 15th St.	AM	-	-	-	-	m101	-	-	m67	-	-	-	-
	PM	-	-	-	-	360	-	-	m205	-	-	-	-
	Storage Length	-	-	-	-	1,700	770	-	230	-	-	-	-
15th Ave. at 14th St.*	AM	-	18	18	75	75	-	-	-	-	3	-	-
	PM	-	10	10	25	25	-	-	-	-	3	-	-
	Storage Length	-	360	360	360	360	-	-	-	-	250	-	-
15th Ave. at 15th St.*	AM	18	18	-	-	13	13	3	-	-	-	-	-
	PM	240	240	-	-	43	43	5	-	-	-	-	-
	Storage Length	350	350	-	-	360	360	260	-	-	-	-	-
Columbus Dr. at 14th St./17th Ave.	AM	-	#744	69	174	-	#1706	-	-	-	-	#712	130
	PM	-	#1929	60	111	-	#1483	-	-	-	-	#660	132
	Storage Length	-	2,180	100	335	335	-	-	-	-	-	1,240	200
Columbus Dr. at 15th St.	AM	-	m128	-	-	-	-	-	105	-	-	-	-
	PM	-	m#1010	-	-	-	-	-	#1894	-	-	-	-
	Storage Length	300	300	-	-	-	-	-	820	820	-	-	-
Palm Ave. at Nuccio Pkwy.	AM	#135	#278	-	#218	#403	-	#707	#268	-	m#267	m#904	-
	PM	#285	#486	-	#99	#326	-	#758	#1028	-	m#312	#353	-
	Storage Length	80	1,415	1,225	110	1,100	1,100	120	660	660	105	1,110	1,110
Palm Ave. at 15th St.	AM	#158	252	-	#290	383	-	-	#543	-	-	51	-
	PM	#74	#443	-	#158	227	-	-	#642	-	-	69	-
	Storage Length	140	425	425	145	730	730	440	440	440	440	440	440
Palm Ave. at 21st St.	AM	-	114	-	-	m95	-	-	-	-	m7	m208	m101
	PM	-	268	-	-	100	-	-	-	-	m15	325	m58
	Storage Length	2,300	2,300	-	175	175	-	-	-	-	660	660	115
Palm Ave. at 22nd St.	AM	61	91	-	-	44	-	-	#1179	-	-	-	-
	PM	#384	168	-	-	63	-	-	#3057	-	-	-	-
	Storage Length	180	180	-	-	750	750	435	435	435	-	-	-
Columbus Dr. at 21st St.	AM	-	132	-	-	-	-	-	-	-	-	206	-
	PM	-	241	-	-	-	-	-	-	-	-	254	-
	Storage Length	-	2,300	2,300	-	-	-	-	-	-	-	160	-
Columbus Dr. at 22nd St.	AM	-	17	-	-	-	-	-	m44	-	-	-	-
	PM	-	351	-	-	-	-	-	m218	-	-	-	-
	Storage Length	175	175	-	-	-	-	-	360	360	-	-	-
14th Ave. at 21st St.	AM	-	-	-	-	m469	-	-	-	-	-	206	#499
	PM	-	-	-	-	#1760	-	-	-	-	-	#261	#547
	Storage Length	-	-	-	180	180	-	-	-	-	-	345	250
14th Ave. at 22nd St.	AM	-	-	-	-	#1555	159	#1057	#547	-	-	-	-
	PM	-	-	-	-	#1158	94	m#1704	m633	-	-	-	-
	Storage Length	-	-	-	-	540	540	340	340	-	-	-	-
	AM	-	m149	m#756	-	-	-	-	-	-	-	m113	-

Intersection	Time Period/ Storage Length (ft)	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
13th Ave. at 21st St.	PM	-	391	0	-	-	-	-	-	-	-	m85	-
	Storage Length	-	2,335	2,335	-	-	-	-	-	-	335	335	-
13th Ave. at 22nd St.	AM	167	217	-	-	-	-	-	m250	-	-	-	-
	PM	#553	#1492	-	-	-	-	-	m685	-	-	-	-
	Storage Length	155	155	-	-	-	-	-	660	65	-	-	-

Notes:
1) The # footnote indicates that the volume for the 95th percentile cycle exceeds capacity. This traffic was simulated for two complete cycles to account for the effects of spillover between cycles. If the reported v/c <1 for this movement, the methods used represent a valid method for estimating the 95th percentile queue (Source: Trafficware).
2) The m footnote indicates that the volume for the 95th percentile queue is metered by an upstream signal (Source: Trafficware).
3) The storage length values were calculated from aerials or design drawings.
4) L = left, T = through, R = right.
5) Storage Length for through movement is considered the distance from upstream intersection.
6) Storage Length for the ramp terminal movements are based on the turn lanes at the ramp terminals intersections.

8. PREDICTIVE SAFETY ANALYSIS

An analysis of the predicted number of crashes along mainline I-275 and I-4 was conducted for both the No-Build and Build concepts to assess and compare the safety conditions of both alternatives. The study area limits for the safety analysis on I-275 extend from Ashley Drive/Tampa Street interchange to north of Dr. MLK, Jr. Boulevard along I-275 and from I-275 to the Selmon Expressway Connector along I-4.

The study period for this project is between 2025 and 2045.

8.1 Data Collection

- The Opening Year (2025) and the Design Year (2045) traffic volumes for all the basic freeway segments and ramps were used.
- All the required geometric design and traffic control data were obtained from the design files.

8.2 Methodology

The analysis followed the procedures from Chapters 18 and 19 of the Highway Safety Manual (HSM) – 1st Edition Supplement 2014 by the American Association of State Highway and Transportation Officials (AASHTO). The HSM provides techniques to estimate crashes for a given facility, test the effectiveness of design alternatives on crash reduction, and evaluate their economic crash benefits. The analysis compares the anticipated number of crashes between the No-Build and Build Alternatives within the study limits for the study period. This analysis was completed using the Enhanced Interchange Safety Analysis Tool (ISATe), an Excel based worksheet that analyzes the safety performance of freeways, and ramps based on facility type, traffic volumes, and roadway geometric conditions. The HSM freeway crash-predictive models have not been calibrated with Florida jurisdiction-specific data. However, since the objective is to compare the difference between the two alternatives, rather than the predicted crash frequency, calibration rates are not necessary.

8.3 Analysis

The project was divided into freeway segments and ramps segments. All the freeway segments within the study limits were included in the freeway analysis whereas the ramps at the interchange were included in the ramp analysis. However, the ramp terminals were not included

in the analysis. The results from the analysis based on KABCO levels (Fatal crashes- (K), Incapacitating injury (A), Non-Incapacitating (B), Possible Injury (C)and Property Damage only (PDO or O) and crash types are summarized in following sections. The Enhanced Interchange Safety Analysis Tool (ISATe) output summary sheets are provided in **Appendix J**.

8.3.1 Predicted Crashes for the No-Build Alternative

The ISATe worksheet was utilized to analyze the predicted crashes for the No-Build Alternative using the Opening Year (2025) and the Design Year (2045) traffic projections. The summary results for the I-275 and I-4 No-Build Alternatives by severity and crash type are shown in **Table 8-1** through **Table 8-4**, respectively.

The predicted number of crashes along I-275 over the study period is 10,050.0, with 77.6 fatal (K) crashes, 231.0 incapacitating injury (A) crashes, 1,371.0 non-incapacitating (B) crashes, 3,466.0 possible injury (C) crashes and 4,904.4 property damage only (PDO) crashes. Approximately 49 percent of crashes are PDO crashes. Of the total 10,050.0 crashes, 5,538.1 crashes occur on freeway segments, 4,404.9 crashes occur on the ramps, and 107.0 crashes occur on express lane ramps. The top three collision types are rear-end crashes (57%), sideswipe crashes (17%), and crashes with fixed objects (13%). Approximately 83 percent of crashes involved multiple-vehicle crashes.

The predicted number of crashes on I-4 over the study period is 3,635.2, with 14.3 fatal (K) crashes, 41.2 incapacitating injury (A) crashes, 233.1 non-incapacitating (B) crashes, 771.8 possible injury (C) crashes and 2,574.9 property damage only (PDO) crashes. Approximately 71 percent of crashes are PDO crashes. Of the total 3,635.2 crashes, 3,197.8 crashes occur on freeway segments and 437.4 crashes occur on the ramps. The top three collision types are rear-end crashes (58%), sideswipe crashes (21%), and crashes with fixed objects (12%). Approximately, 84 percent of crashes involved multiple-vehicle crashes.

Table 8-1 - Predicted Crashes for the I-275 No-Build Alternative by Severity

Crash Severity	No-Build General Use Lanes	Express Lanes	Total No-Build	
K	76.7	0.9	77.6	0.8%
A	228.4	2.6	231.0	2.3%
B	1,357.2	13.8	1,371.0	13.6%
C	3,439.0	27.0	3,466.0	34.5%
PDO	4,841.7	62.7	4,904.4	48.8%
Total Freeway Crashes	5,538.1	0.0	5,538.1	55.1%
Total Ramp Crashes	4,404.9	107.0	4,511.9	44.9%
Total Crashes	**9,943.0**	**107.0**	**10,050.0**	

Table 8-2 - Predicted Crashes for the I-275 No-Build Alternative by Crash Type

Crash Type	Crash Type Category	No-Build General Use Lanes	Express Lanes	Total No-Build	
Multiple Vehicle	Head-on crashes:	71.0	0.4	71.3	0.7%
	Right-angle crashes:	129.3	0.2	129.5	1.3%
	Rear-end crashes:	5,743.1	19.3	5,762.3	57.3%
	Sideswipe crashes:	1,693.6	8.5	1,702.1	16.9%
	Other multiple-vehicle crashes:	635.6	3.6	639.3	6.4%
	Total multiple-vehicle crashes:	8,272.6	32.0	8,304.5	82.6%
Single Vehicle	Crashes with animal:	20.9	0.3	21.2	0.2%
	Crashes with fixed object:	1,228.8	58.7	1,287.5	12.8%
	Crashes with other object:	142.0	1.5	143.4	1.4%
	Crashes with parked vehicle:	24.3	0.9	25.2	0.3%
	Other single-vehicle crashes	254.4	13.7	268.1	2.7%
	Total single-vehicle crashes:	1,670.4	75.0	1,745.4	17.4%

Table 8-3 - Predicted Crashes for the I-4 No-Build Alternative by Severity

Crash Severity	No-Build	
K	14.3	0.4%
A	41.2	1.1%
B	233.1	6.4%
C	771.8	21.2%
PDO	2,574.9	70.8%
Total Freeway Crashes	3,197.8	88.0%
Total Ramp Crashes	437.4	12.0%
Total Crashes	**3,635.2**	

Table 8-4 - Predicted Crashes for the I-4 No-Build Alternative by Crash Type

Crash Type	Crash Type Category	No-Build	
Multiple Vehicle	Head-on crashes:	13.0	0.4%
	Right-angle crashes:	60.5	1.7%
	Rear-end crashes:	2,123.4	58.4%
	Sideswipe crashes:	746.4	20.5%
	Other multiple-vehicle crashes:	103.9	2.9%
	Total multiple-vehicle crashes:	3,047.2	83.8%
Single Vehicle	Crashes with animal:	7.3	0.2%
	Crashes with fixed object:	432.2	11.9%
	Crashes with other object:	52.4	1.4%
	Crashes with parked vehicle:	8.1	0.2%
	Other single-vehicle crashes	88.0	2.4%
	Total single-vehicle crashes:	588.0	16.2%

8.3.2 Predicted Crashes for the Build Alternative

The ISATe worksheet was utilized to analyze the predicted crashes for the Build Alternative using the Opening Year (2025) and the Design Year (2045) traffic projections. The summary results for the I-275 and I-4 Build Alternatives by severity crash type are shown in **Table 8-5** through **Table 8-8**, respectively.

The predicted number of crashes on I-275 over the study period is 7,531.6, with 40.8 fatal (K) crashes, 119.7 incapacitating injury (A) crashes, 670.3 non-incapacitating (B) crashes, 1,998.7 possible injury (C) crashes, and 4,702.1 property damage only (PDO) crashes. 62 percent of crashes are PDO crashes. Of the total 7,531.6 crashes, 5,079.1 crashes occur on freeway segments, 2,345.5 crashes occur on the general use lane ramps, and 107.0 crashes occur on express lane ramps. The top three collision types are rear-end crashes (53%), sideswipe crashes (18%) and crashes with fixed objects (17%). 78 percent of crashes involved multiple-vehicle crashes.

The predicted number of crashes on I-4 over the study period is 3,298.0, with 13.3 fatal (K) crashes, 38.3 incapacitating injury (A) crashes, 217.6 non-incapacitating (B) crashes, 710.3 possible injury (C) crashes, and 2,318.4 property damage only (PDO) crashes. 70 percent of crashes are PDO crashes. Of the total 3,298.0 crashes, 2,913.5 crashes occur on freeway segments and 384.5 crashes occur on the ramps. The top three collision types are rear-end crashes (58%), sideswipe crashes (20%) and crashes with fixed objects (12%). 83 percent of crashes involved multiple-vehicle crashes.

Table 8-5 - Predicted Crashes for the I-275 Build Alternative by Severity

Crash Severity	Build General Use Lanes	Express Lanes	Total Build	
K	39.9	0.9	40.8	0.5%
A	117.1	2.6	119.7	1.6%
B	656.5	13.8	670.3	8.9%
C	1,971.7	27.0	1,998.7	26.5%
PDO	4,639.4	62.7	4,702.1	62.4%
Total Freeway Crashes	5,079.1	0.0	5,079.1	67.4%
Total Ramp Crashes	2,345.5	107.0	2,452.5	32.6%
Total Crashes	**7,424.6**	**107.0**	**7,531.6**	

Table 8-6 - Predicted Crashes for the I-275 Build Alternative by Crash Type

Crash Type	Crash Type Category	Build General Use Lanes	Build Managed Lanes	Total Build	
Multiple Vehicle	Head-on crashes:	37.8	0.4	38.11	0.5%
	Right-angle crashes:	100.2	0.2	100.44	1.3%
	Rear-end crashes:	3,999.4	19.3	4,018.62	53.4%
	Sideswipe crashes:	1,356.1	8.5	1,364.60	18.1%
	Other multiple-vehicle crashes:	332.1	3.6	335.77	4.5%
	Total multiple-vehicle crashes:	5,825.6	32.0	5,857.54	77.8%
Single Vehicle	Crashes with animal:	19.4	0.3	19.73	0.3%
	Crashes with fixed object:	1,181.4	58.7	1,240.08	16.5%
	Crashes with other object:	130.4	1.5	131.82	1.8%
	Crashes with parked vehicle:	23.1	0.9	24.00	0.3%
	Other single-vehicle crashes	244.8	13.7	258.45	3.4%
	Total single-vehicle crashes:	1,599.1	75.0	1,674.09	22.2%

Table 8-7 - Predicted Crashes for the I-4 Build Alternative by Severity

Crash Severity	Build	
K	13.3	0.4%
A	38.3	1.2%
B	217.6	6.6%
C	710.3	21.5%
PDO	2,318.4	70.3%
Total Freeway Crashes	2,913.5	88.3%
Total Ramp Crashes	384.5	11.7%
Total Crashes	**3,298.0**	

Table 8-8 - Predicted Crashes for the I-4 Build Alternative by Crash Type

Crash Type	Crash Type Category	Build	
Multiple Vehicle	Head-on crashes:	11.8	0.4%
	Right-angle crashes:	54.9	1.7%
	Rear-end crashes:	1911.8	58.0%
	Sideswipe crashes:	673.5	20.4%
	Other multiple-vehicle crashes:	94.1	2.9%
	Total multiple-vehicle crashes:	2746.1	83.3%
Single Vehicle	Crashes with animal:	7.0	0.2%
	Crashes with fixed object:	403.8	12.2%
	Crashes with other object:	50.9	1.5%
	Crashes with parked vehicle:	7.9	0.2%
	Other single-vehicle crashes	82.3	2.5%
	Total single-vehicle crashes:	551.9	16.7%

8.3.3 Summary of Results and Conclusions

The results of the predictive analysis show that there is an anticipated reduction in crashes over the length of the study period by implementing the Build Alternative. The summary of predicted crashes based on KABCO levels for the freeway and ramps and for the entire facility in the study limit is given in **Table 8-9** and **Table 8-10** below respectively. Even though there is an increase in the AADT, as well as number of lanes, I-275 is expected to see a reduction in crashes of 25 percent, and I-4 is expected to see a reduction of nine percent as seen in **Figure 8-1**. This reduction is likely due to proposed improvements shown in the Build condition creating much safer conditions for the vehicles using I-275 and I-4.

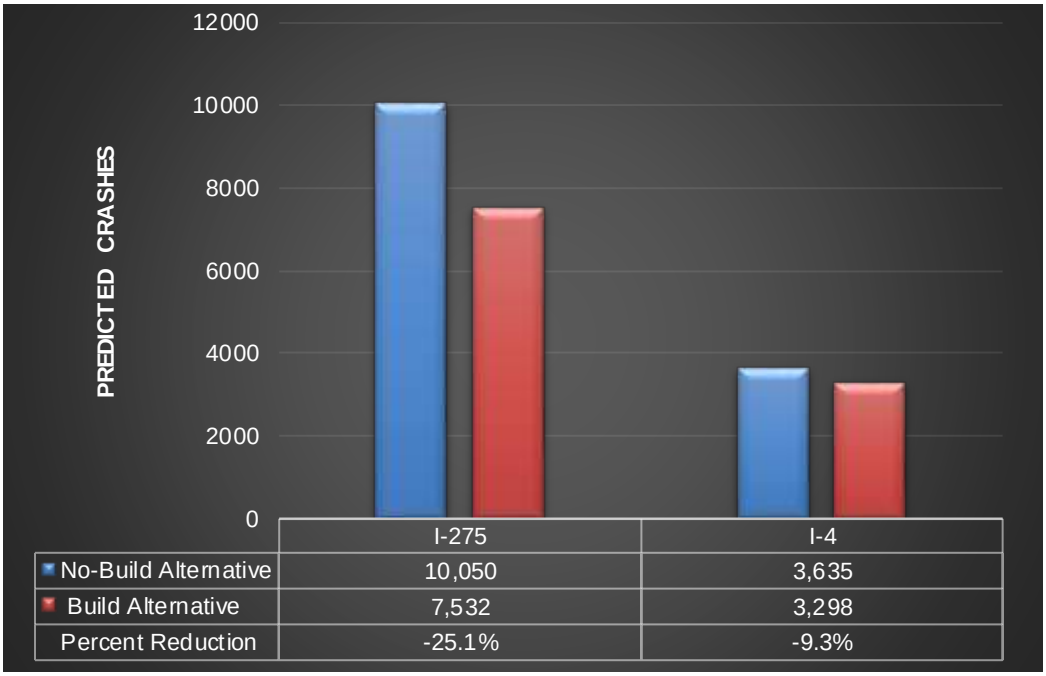
Table 8-9 - Summary of Predicted Crashes by Facility

		TOTAL	K	A	B	C	PDO
I-275 No-Build	Freeway	5,538.1	20.0	56.4	340.2	1,187.9	3,933.6
	Ramp	4,511.9	57.6	174.6	1,030.8	2,278.1	970.8
I-275 Build	Freeway	5,079.1	18.6	52.4	314.8	1,085.2	3,608.1
	Ramp	2,452.5	22.2	67.3	355.5	913.5	1,094.0
I-4 No-Build	Freeway	3,197.8	11.4	32.6	184.9	665.6	2,303.3
	Ramp	437.4	2.8	8.6	48.2	106.2	271.5
I-4 Build	Freeway	2,913.5	11.0	31.3	176.7	617.3	2,077.2
	Ramp	384.5	2.3	7.1	40.9	93.0	241.3

Table 8-10 - Summary of Predicted Crashes

KABCO Level	I-275 No-Build	I-275 Build	I-4 No-Build	I-4 Build
K	77.6	40.8	14.3	13.3
A	231.0	119.7	41.2	38.3
B	1,371.0	670.3	233.1	217.6
C	3,466.0	1,998.7	771.8	710.3
O	4,904.4	4,702.1	2,574.9	2,318.4
Total	**10,050.0**	**7,531.6**	**3,635.2**	**3,298.0**

Figure 8-1 - Predicted Crash Summary – No-Build Alternative & Build Alternative



The I-275 corridor sees reductions in fatal crashes and individual severity types, with the largest decrease in injury (B) crashes with 51 percent, 48 percent reduction in serious injury (A) crashes and 47 percent reduction in the fatal injury (K) crashes. I-4 sees large reductions in property damage only (PDO) crashes and possible injury (C) crashes, 10 percent, and eight percent, respectively. The Build Alternative is also expected to reduce the number of total multiple vehicle crashes along the I-275 and I-4 corridors by 25 percent and nine percent, respectively.

9. ENVIRONMENTAL CONSIDERATIONS

The FHWA, in cooperation with the Florida Department of Transportation (FDOT), prepared a Supplemental Environmental Impact Statement (SEIS). As part of the SEIS, apart from the engineering considerations all the environmental issues were evaluated in detail. Below describes the findings for the Preferred Alternative that was evaluated for the SIMR.

Environmental Justice:

FDOT evaluated potential impacts to minority and low-income populations using Census data, surveys, community input, FDOT's Efficient Transportation Decision Making (ETDM) data, and windshield surveys as part of the environmental justice analysis. The Environmental Justice (EJ) evaluation required FDOT to conduct extensive outreach to all residents in the TIS SEIS study area with targeted coordination in areas with high concentrations of low-income and minority populations. The public involvement strategies included announcements, notices and project information advertisements in minority publications and newspapers, use of translated materials, held over 300 outreach activities including focus groups, small group presentations, community workshops, speaking engagements, neighborhood tours and walk throughs, and establishing a local office.

As part of the Preferred Alternative, FDOT substantially reduced ROW impacts to properties in TIS Segments 2B and 3A and communities with high concentrations of EJ populations as a result of the design modifications. The Preferred Alternative will minimize potential property impacts of several EJ communities. The properties located within the TIS SEIS study area of TIS Segments 2B, 3A, and 3B exhibited some of the highest minority percentages and lowest income per household.

Cultural Resources:

With the Preferred Alternative, the number of cultural resources impacted is minimized. The Preferred Alternative has no impacts to individually National Register of Historic Places (NRHP)-eligible and listed properties, the NRHP- listed West Tampa Historic District (TIS Segment 2A) or the NRHP-listed North Franklin Street Historic District and Tampa Heights Historic District (TIS Segment 2B). Within the Ybor City National Historic Landmark (NHL) District (TIS Segment 2B), five contributing structures will be directly impacted, but, compared to the other alternatives considered, the Preferred Alternative will have the least overall harm. The effect will not alter the integrity, setting and overall significance of the historic district. The effects of the undertaking are not anticipated to affect the eligibility of the NHL district.

Section 4(f):

The Preferred Alternative will not result in a Section 4(f) use for parks and recreational facilities. However, the Preferred Alternative will result in a Section 4(f) use on five contributing properties in the Ybor City NHL District. The Preferred Alternative includes all possible planning to minimize harm to the Ybor City NHL District resulting from such use. The SEIS has been coordinated with appropriate local, state and federal agencies, and also made available for public comment at the public hearing.

Based on consideration of all the social, economic, and environmental evaluations contained in the Final SEIS/Record of Decision, with input received from other agencies, organizations, and the public, the FHWA has determined that the TIS Preferred Alternative is hereby the selected alternative. On September 15, 2020, the FHWA granted Location and Design Concept Acceptance (LDCA) for the TIS SEIS, Record of Decision (ROD), and Section 4(f) Evaluation.

10. CONCEPTUAL SIGNING PLAN

The conceptual signing plan for the study limits from Ashley Drive/Tampa Street interchange to north of Dr. MLK, Jr. Boulevard along I-275 and from I-275 to the Selmon Expressway Connector along I-4 includes major guide sign placement and messages. The conceptual signing plan is prepared in accordance with all applicable FDOT, FHWA, and Manual on Uniform Traffic Control Devices (MUTCD) guidelines. The microsimulation model reflects driver behavior (lane changing decisions) based on conceptual guide sign placement. The conceptual signing and marking plan are presented in **Appendix K**.

11. PROJECT FUNDING

This project will be funded as a Design-Build project for construction in Fiscal Year (FY) 2022 in the FDOT Work Program as Work Program Item Segments Number 445056-1, 445056-2 and 445057-1. Funding for Section 6 Build improvements is summarized in **Table 11-1**.

Table 11-1 - Funding for I-275 and I-4 Section 6

Category	Amount
Construction	$135,876,220
Utilities	$2,754,000
Right of Way	$2,796,651
In House Design	$304,982
In House CEI	$1,996,368
CEI	$13,743,806
Stipends	$1,297,008
Bonus	$0
Total Amount:	**$158,769,035**

12. DESIGN VARIATIONS AND EXCEPTIONS

Most of the proposed operational improvements are designed to meet the current standards for federal-aid projects on the interstate and conform to AASHTO design standards, but some design variations and exceptions are required for the study area. Potential design variations and exceptions include design speed, superelevation rate, superelevation transition, shoulder width, border width, vertical clearance, transition length, and ramp spacing. New ramp construction and the reconstruction of existing ramps will be to current design criteria with exception of tie-ins to existing features. In areas of widening and new construction, existing shoulder widths along the widened side of the roadway will be upgraded to meet the current design criteria. This includes providing full shoulders along southbound I-275 between Palm Avenue and Central Avenue. **Table 12-1** shows existing geometric/ alignment /control features that are substandard, and the resulting improved features and the mitigation measures implemented with the Build Alternative.

The potential design variations and exceptions for the project in more detail are provided in **Appendix L**.

Table 12-1 - List of Design Exceptions and Variations

Description	Variation/ Exception	FPID	Location	Existing Feature to Remain Within the Limits of the Design Exception/Variation	Proposed Improvements Within the Limits of the Design Exception/Variation	Substandard Features Improved Within the Limits of the Design Exception/Variation	Mitigation Measures
Superelevation Rate	**Exception**	445057-1	EB I-4 at 14th/15th St.	Existing curve/concrete travel lane pavement to remain.	Widen additional lane to outside with full width shoulder.	Upgrade outside shoulder barrier and bridge railings. Retrofit inside shoulder bridge railings to remain.	Upgraded lighting, audible vibratory treatment to shoulders, full 12-foot outside shoulders for recovery, barrier walls.
		445056-1	WB I-4 Ramp to NB I-275	Existing curve/concrete travel lane pavement to remain.	Widen additional lane to outside with full width shoulder.	Upgrade outside shoulder barrier and bridge railings. Reconstruct inside shoulder to current criteria with upgraded barrier. Retrofit inside shoulder bridge railings to remain.	Ground-in rumble strips on both shoulders, additional signing and upgraded lighting.
		445056-2	WB I-4 Ramp to SB I-275	Existing curve/concrete pavement to remain.	Remove chevrons for additional lane and re-stripe.	Retrofit bridge railings to remain.	Edge-lit LED blink-blink chevrons, closely spaced RPM's on inner and outer lanes, chevron pavement markings with emphasis on striping with RPM's delineating directional striping and ground in rumble strips on both inside and outside shoulders.
Shoulder Width	**Exception**	445056-1	NB I-275 N. of Floribraska Ave.	N/A	Re-stripe to provide additional lane, resulting in substandard inside shoulder width.	N/A	Ground-in rumble strips on both shoulders and upgraded lighting.
Border Width	**Variation**	445057-1	NB I-275 Ramp to 14th St.	N/A	Widening existing ramp from SB I-275 to EB I-4 and adding a new ramp from NB I-275 to 14th Street.	N/A	N/A
Superelevation Transition Length	**Variation**	445057-1	SB I-275 Ramp to EB I-4 at Nebraska Ave.	Existing curve/concrete travel lane pavement to remain.	Widen inside and outside for additional lane.	Upgrade barriers and bridge railings.	Upgraded lighting.
Shoulder Width	**Variation**	445057-1	SB I-275 Ramp to EB I-4	N/A	Widen existing ramp from one to two lanes.	Upgrade barriers and bridge railings.	Upgraded lighting, audible vibratory treatment to outside lane lines. Wide 12' shoulder provided on the inside (due to horizontal sight distance on curve).
		445056-2	WB I-4 Ramp to SB I-275	3.6m (11.81') inside shoulder to remain.	Widen additional lane to outside.	Reconstruct outside shoulder to current criteria. Upgrade outside shoulder barriers and bridge railings. Retrofit inside shoulder bridge railings.	Re-stripe existing lanes and add RPMs.

Description	Variation/ Exception	FPID	Location	Existing Feature to Remain Within the Limits of the Design Exception/Variation	Proposed Improvements Within the Limits of the Design Exception/Variation	Substandard Features Improved Within the Limits of the Design Exception/Variation	Mitigation Measures
Vertical Clearance	**Variation**	445057-1	NB I-275 Ramp to 14th St. over Nebraska Ave.	N/A	Add new off-ramp from NB I-275 to 14th St. to facilitate widening of SB I-275 ramp to EB I-4 to two lanes.	N/A	New vertical clearance signage and alternate routes.
		445056-2	WB I-4 Ramp to SB I-275 over Nebraska Ave.	15.01' vertical clearance to remain.	Remove chevrons for additional lane and re-stripe.	Retrofit bridge railings.	New vertical clearance signage and alternate routes.
		445056-2	WB I-4 Ramp to SB I-275 over Palm Ave.	14.10' vertical clearance to remain.	Widen additional lane to outside.	Upgrade outside bridge railing. Retrofit inside bridge railing.	New vertical clearance signage and alternate routes.
		445056-2	SB I-275 over 7th Ave.	14.70' vertical clearance to remain.	Widen additional lane to outside.	Widen inside and outside shoulders to current criteria. Upgrade outside bridge railings.	New vertical clearance signage and alternate routes.
		445056-2	SB I-275 over Henderson Ave./Central Ave.	14.20' vertical clearance to remain.	Widen additional lane to outside.	Widen inside and outside shoulders to current criteria. Upgrade outside bridge railings.	New vertical clearance signage and alternate routes.
Design Speed	**Variation**	445057-1	SB I-275 Ramp to EB I-4	Existing 35 mph design speed to remain.	Widen existing ramp from one to two lanes.	Upgrade barriers and bridge railings.	Barriers on both shoulders, upgraded lighting, and audible vibratory treatment to outside lane lines.
		445056-1	WB I-4 Ramp to NB I-275	Existing 40 mph design speed to remain.	Widen additional lane to outside with full width shoulder.	Upgrade outside shoulder barrier and bridge railings. Reconstruct inside shoulder to current criteria with upgraded barrier. Retrofit inside shoulder bridge railings to remain.	Audible vibratory treatment on both shoulders.
		445056-2	WB I-4	Existing 50 mph design speed to remain.	Widen additional lane to outside.	Reconstruct outside shoulder to current criteria. Upgrade outside shoulder barriers.	Edge-lit LED blink-blink chevrons, closely spaced RPM's on inner and outer lanes, chevron pavement markings with emphasis on striping with RPM's delineating directional striping, barrier wall and guardrail reflectors and ground in rumble strips on both inside and outside shoulders.
		445056-2	WB I-4 Ramp to SB I-275	Existing 40 mph design speed to remain.	Widen additional lane to outside.	Reconstruct outside shoulder to current criteria. Upgrade outside shoulder barriers and bridge railings. Retrofit inside shoulder bridge railings.	Edge-lit LED blink-blink chevrons, closely spaced RPM's on inner and outer lanes, chevron pavement markings with emphasis on striping with RPM's delineating directional striping, barrier wall and guardrail reflectors and ground in rumble strips on both inside and outside shoulders.

Description	Variation/ Exception	FPID	Location	Existing Feature to Remain Within the Limits of the Design Exception/Variation	Proposed Improvements Within the Limits of the Design Exception/Variation	Substandard Features Improved Within the Limits of the Design Exception/Variation	Mitigation Measures
		445056-2	SB I-275	Existing 50 mph design speed to remain.	Widen additional lane to outside.	Widen inside and outside shoulders to current criteria. Upgrade outside bridge railings.	Edge-lit LED blink-blink chevrons, closely spaced RPM's on inner and outer lanes, chevron pavement markings with emphasis on striping with RPM's delineating directional striping, barrier wall and guardrail reflectors and ground in rumble strips on both inside and outside shoulders.
Ramp Spacing	**Variation**	445057-1	NB I-275 Scott St./Orange Ave. On-ramp to New 14th St. Off-ramp	N/A	Add new off-ramp from NB I-275 to 14th St. to facilitate widening of SB I-275 ramp to EB I-4 to two lanes.	Overall improves operation of interchange and eliminates weave on I-4 between entrance ramp from SB I-275 and exit ramp to 21st St./22nd St.	Replace existing signage to meet spacing requirements, upgrade lighting, add pavement shields to supplement overhead signage.
Lane Width	**Variation**	445056-2	WB I-4 Ramp to SB I-275	Existing concrete 3.6m (11.81') lane widths to remain.	Widen additional lane to outside.	Reconstruct outside shoulder to current criteria. Upgrade outside shoulder barriers and bridge railings. Retrofit inside shoulder bridge railings.	Re-stripe existing lanes and add RPMs.

13. ACCESS MANAGEMENT PLAN

This project proposes a new exit ramp from northbound and southbound I-275 that provides access to 14th Street and 15th Street through 13th Avenue. This new exit ramp will replace the current eastbound I-4 exit ramp at 21st/22nd Street interchange. The proposed exit ramp is a two-lane roadway aligning with 13th Avenue. The proposed connection will reroute the existing traffic bound to 21st/22nd Street through 14th/15th Street and increase traffic compared to the existing conditions. Therefore, the existing un-signalized intersections within the 14th/15th Street interchange area will need to be controlled by a signal.

As part of improvements, signalized traffic control is proposed for the below intersections.

- 14th Street and 13th Avenue intersection – 14th Street at 14th Avenue intersection is 210 feet to the north, and Nuccio Parkway at Palm Avenue intersection is 1,190 feet to the south of this intersection.

- 15th Street and 13th Avenue intersection – 15th Street at 14th Avenue intersection is 230 feet to the north, and 15th Street at 12th Avenue and Nuccio Parkway at Palm Avenue intersections are 130 feet and 1480 feet to the south of this intersection, respectively.

- 14th Street and 14th Avenue intersection – 14th Street at 15th Avenue intersection is 265 feet to the north, and 14th Street at 13th Avenue intersection is 210 feet to the south of this intersection.
- 15th Street and 13th Avenue intersection – 15th Street at 15th Avenue intersection is 250 feet to the north, and 15th Street at 13th Avenue is 230 feet to the south of this intersection.

All of the roadways evaluated are local streets (city), which would be governed by the Florida Greenbook, which does not provide access management quantitative criteria. Comparison to FDOT Design Manual access management criteria is provided only for those roadways on the state highway system and limited access facilities. The Access Management Evaluation Memorandum developed for the SIMR is provided in **Appendix M.**

14. FHWA POLICY POINTS

The following FHWA policy points serve as primary decision criteria used in the approval of this Systems Interchange Modification Report (SIMR).

1. The proposal does not adversely impact the operational safety of the existing freeway

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

I-275 and I-4 currently experience recurring congestion during peak periods within the study limits. Peak hour demand exceeds the available capacity of I-275 and I-4 causing longer travel times, poor travel-time reliability, and underperforming traffic operations. As growth in the region continues, travel times, congestion and crashes within the study area will continue to increase. Therefore, there is an immediate need for capacity and safety improvements at the I-275 and I-4 interchange to meet the existing and future peak hour traffic demand. As part of this project, safety and operational improvements are proposed for the southbound to eastbound, westbound to northbound, and westbound to southbound movements of the system-to-system interchange.

Existing condition field reviews were conducted to observe traffic conditions along the corridors. The following provides a summary of the existing traffic conditions during the AM and PM peak periods along I-275 and I-4.

I-275 Segment – From Ashley Drive/Tampa Street to Hillsborough Avenue

- Overall, traffic delays during the PM peak hour were higher compared to the AM peak hour. Due to the directionality, I-275 southbound is more congested than I-275 northbound during the AM peak hour and I-275 northbound is more congested than I-275 southbound during the PM peak hour.

- Average speeds of 57 mph and 22 mph were observed along I-275 northbound during the AM and PM peak hours, respectively.

- Heavy congestion was observed during the PM peak hour along I-275 northbound, prior to Ashley off-ramp and I-275 exit to I-4.

- Average speeds of 42 mph and 33 mph were observed along I-275 southbound during AM and PM peak hours, respectively.

- Heavy delays were observed during the AM and PM peak hour along I-275 southbound prior to the exit to I-4 eastbound, and the section of I-275 southbound from the I-4 westbound on-ramp. This is a critical segment for this facility due to high traffic volumes from westbound I-4 and southbound I-275 merging.

I-4 Segment – From I-275 to Selmon Expressway Connector West Ramps

- Overall, traffic delays along I-4 westbound were higher than the I-4 eastbound segment during both the AM and PM peak hours.

- The average speeds along I-4 westbound were slower during the AM peak hour than during the PM peak hour. The observed average speeds along I-4 westbound were 16 mph and 32 mph during the AM and PM peak hours, respectively.

- Critical bottleneck leading to congestion was experienced on the I-4 westbound segment from the Selmon Connector to the I-4 off-ramp to I-275 southbound caused by high exiting traffic volumes and reduced speeds on the off-ramp due to horizontal alignment.

- Average speeds of 59 mph and 56 mph were observed along I-4 eastbound during the AM and PM peak hours, respectively.

A total of 7,398 crashes occurred within the study area during the five-year period (2013-2017). Of these, 18 fatal crashes (0.2%), 2,335 (32%) injury crashes, and 5,045 (68%) property damage only crashes were reported. There were 1,623 crashes along I-275 northbound, 1,991 crashes along I-275 southbound, 223 crashes along I-4 eastbound, and 966 crashes along I-4 westbound. There were 976 crashes along ramps, 542 crashes at ramp terminals, and 1,077 crashes at intersections. The crash analysis suggested that along freeways, rear-end crashes were the predominant crash type (67%), followed by sideswipe crashes (20%), and hit fixed object crashes (9%). The historical crash data indicate that the majority of crashes occur near the I-275/I-4 interchange. A major contributing factor for these crashes is the excessive mainline queueing and "lane diving" at the single-lane ramp from I-275 southbound to I-4 eastbound. All of the northbound and southbound I-275 segments and majority of I-4 westbound segments exceed the statewide average crash rate of 0.976 per Million Vehicle Miles Traveled. Additionally, four out of eight ramp terminal intersections are above the statewide average in the northbound/eastbound direction, and all ramp terminal intersections are above the statewide average in the southbound/westbound direction. The total economic loss due to 7,398 crashes for the analysis years from 2013 through 2017 was estimated to be $645,546,192.

Microsimulation models were completed for the No-Build and Build Alternatives for the Opening Year (2025) and Design Year (2045) for both peak periods. The overall operations of the Build Alternative improved significantly compared to No-Build Alternative within the study limits. **Table 14-1** compares demand volumes processed in the No-Build and Build Alternatives during AM and PM peak hours along I-275. The results indicate that more demand vehicles will be processed in the Build Alternative with the proposed improvements as compared to the No-Build Alternative.

In the Opening Year (2025) and Design Year (2045), a five percent to 25 percent increase in throughput was observed along I-275 northbound during peak hours. Similarly, a six percent to 66 percent increase in throughput was observed along I-275 southbound during peak hours.

Table 14-1 – Processed Demand along I-275

Roadway	Scenario	Opening Year (2025)		Design Year (2045)	
		AM	PM	AM	PM
NB I-275	No-Build	82%	68%	73%	51%
	Build	87%	69%	77%	64%
	% Change	**5%**	**1%**	**6%**	**25%**
SB I-275	No-Build	67%	86%	34%	72%
	Build	77%	92%	56%	81%
	% Change	**15%**	**6%**	**66%**	**14%**

Table 14-2 compares demand volumes processed in the No-Build and Build Alternatives during AM and PM peak hours along I-4.

In the Opening Year (2025) and Design Year (2045), a five percent to 27 percent increase in throughput was observed along I-4 eastbound during the peak hours. Similarly, a 28 percent to 100 percent increase in throughput was observed along I-4 westbound during the peak hours.

Table 14-2 – Processed Demand along I-4

Roadway	Scenario	Opening Year (2025)		Design Year (2045)	
		AM	PM	AM	PM
EB I-4	No-Build	89%	87%	64%	67%
	Build	99%	92%	82%	74%
	% Change	**11%**	**5%**	**27%**	**11%**
WB I-4	No-Build	68%	56%	57%	30%
	Build	94%	83%	73%	60%
	% Change	**38%**	**48%**	**28%**	**100%**

Since the proposed Build improvements are mainly focused on freeway facilities, the peak hour traffic operations are very similar on arterial corridors for No-Build and Build conditions within the study limits. However, with additional capacity available through proposed build improvements, more capacity will be available to satisfy demand on the interstate in the Build conditions as compared to No-Build conditions. Due to an increase in traffic near ramp terminal intersections, the traffic delays will be slightly more for some study intersections in Build conditions as compared to No-Build conditions.

In addition to the processed demand, the latent demand at the end of the peak period simulation along the freeway facility entering the study area from I-275 northbound, I-275 southbound, I-4 westbound and Selmon Expressway was also analyzed for evaluating the performance of the Build Alternative compared to No-Build Alternative. The results show a decrease in latent demand for the Build Alternative compared to No-Build Alternative, seen in **Table 14-3**. The percent change in latent demand from the No-Build Alternative ranged from -3 to 100 percent in the Opening Year (2025) and -8 to 47 percent in the Design Year (2045).

Table 14-3 – Latent Demand Summary along Freeway Facility

Alternative		I-275 Northbound		I-275 Southbound		I-4 Westbound		NB Selmon Expressway Ramp to WB I-4	
		Latent Demand	Percent Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand	Latent Demand	Percent Latent Demand	Latent Demand
2025 No-Build	AM	1,881	4%	12,615	33%	8,949	26%	1,503	21%
	PM	13,795	30%	3,490	11%	14,685	42%	5,335	56%
2025 Build	AM	1,074	2%	9,535	25%	5	0%	610	9%
	PM	14,630	31%	1,436	4%	5,239	15%	2,792	29%
Percent Change	AM	44%		24%		100%		59%	
	PM	-3%		59%		64%		49%	
2045 No-Build	AM	8,271	18%	33,143	66%	28,161	57%	4,016	41%
	PM	26,669	51%	8,602	21%	36,793	79%	5,195	42%
2045 Build	AM	5,343	12%	22,514	44%	26,830	50%	1,858	22%
	PM	18,548	36%	5,926	15%	25,095	50%	5,884	45%
Percent Change	AM	35%		33%		13%		47%	
	PM	31%		31%		37%		-8%	

The results of the predictive safety analysis show that there is an anticipated reduction in crashes over the length of the study period by implementing the Build Alternative. Even though there is an increase in the annual average daily traffic (AADT), as well as number of lanes, I-275 is expected to see a reduction in crashes of 25 percent, and I-4 is expected to see a reduction of nine percent.

The I-275 corridor is expected to have reductions in fatal crashes and individual severity types with the largest decrease in injury (B) crashes with 51 percent, 48 percent reduction in serious injury (A) crashes, and 47 percent reduction in fatal injury (K) crashes. I-4 is expected to have large reductions in property damage only (PDO) crashes and possible injury (C) crashes at 10 percent and eight percent, respectively. The Build Alternative is also expected to reduce the number of total multiple vehicle crashes along I-275 and I-4 by 25 percent and nine percent,

respectively. This reduction is likely due to the proposed improvements in the Build condition creating much safer conditions for vehicles using I-275 and I-4.

The Build Alternative provides for safer and improved access to and from I-275 and I-4 interstate systems. The additional capacity as part of the Build Alternative addresses three critical movements, southbound I-275 to eastbound I-4, westbound I-4 to northbound I-275, and westbound I-4 to southbound I-275 and these improvements aid the system to efficiently collect, distribute and accommodate traffic with increased throughput, reduced latent demand. The reduction in total crashes, along with the fatal, serious injury and injury crashes for the Build Alternative provides for safer performance while meeting the needs for the future demand growth within the study limits of the project. The proposed changes to access does not result in a significant adverse impact on the safety and operations of the interstate and associated facilities included in the IAR study area.

2. A full interchange with all traffic movements at a public road is provided

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

This project proposes a new exit ramp from northbound and southbound I-275 that provides access to 14th Street and 15th Street through 13th Avenue and 14th Avenue. This new exit ramp will replace the current eastbound I-4 exit ramp to 21st/22nd Street. The proposed exit ramp is a two-lane roadway aligning with 13th Avenue. The proposed connection will reroute the existing traffic bound to 21st/22nd Street through 14th Street and 15th Street and increase traffic compared to the existing conditions. These modifications have been coordinated with the City of Tampa and local residential and business groups. Access Management on the cross streets will not be affected beyond the limits of this project. The Access Management Evaluation Memorandum is provided in **Appendix M.**

The new exit ramp from northbound and southbound I-275 that provides access to 14th Street and 15th Street reduces the weaving thus improving operations and safety along I-4 eastbound. In addition, the relocated exit ramp would provide enhanced access to businesses, educational institutions, and residential areas. Drivers would still access 21st/22nd Street via widening the existing single- lane frontage road, East 13th Avenue, to two lanes.

The proposed change in access will provide for all traffic movements to 14th Street, 15th Street, in addition to the existing 21st/22nd Street.

In summary, the Build Alternative provides improved throughput and safer performance as compared to the No-Build Alternative. Therefore, Safety, Operational, and Engineering (SO&E) approval is requested for the Build Alternative.

15. SUMMARY/CONCLUSION

Due to operational deficiencies and high peak hours demand, the study corridors (I-275 and I-4) currently experience severe recurring congestion within the study limits of the project. Peak hour demand exceeds the available capacity of the I-275 and I-4 system causing longer travel times, poor travel reliability, and underperforming traffic operations.

As growth in the region continues, travel times and congestion within the study area will increase. Therefore, there is an immediate need for capacity improvements along the I-275 and I-4 corridors to meet the existing and future peak hour traffic demand. This project provides additional capacity for three critical movements: Southbound I-275 to eastbound I-4 flyover ramp, westbound I-4 to northbound I-275 ramp, and westbound I-4 to southbound I-275 ramp.

Microsimulation models were completed for the No-Build and Build Alternatives for the Opening Year (2025) and Design Year (2045) for both peak periods. The Build Alternatives' overall operations improved significantly compared to No-Build Alternative within the study limits. The results indicate that more demand vehicles will be processed in the Build Alternative with the proposed improvements as compared to the No-Build Alternative. Along I-275, in the Opening Year (2025) and Design Year (2045), a five percent to 25 percent increase in throughput was observed along I-275 northbound during peak hours. Similarly, a six percent to 66 percent increase in throughput was observed along I-275 southbound during peak hours. Along I-4, in the Opening Year (2025) and Design Year (2045), a five percent to 27 percent increase in throughput was observed along I-4 eastbound during the peak hours. Similarly, a 28 percent to 100 percent increase in throughput was observed along I-4 westbound during the peak hours.

In addition to the processed demand, the latent demand at the end of the peak period simulation along the freeway facility entering the study area from I-275 northbound, I-275 southbound, I-4 westbound and Selmon Expressway was also analyzed for evaluating the performance of the Build Alternative compared to No-Build Alternative. The results show a decrease in latent demand for the Build Alternative compared to No-Build Alternative. The percent change in latent demand from the No-Build Alternative ranged from -3 to 100 percent in the Opening Year (2025) and -8 to 47 percent in the Design Year (2045).

A total of 7,398 crashes occurred within the study area during the five-year period (2013-2017). Of these, 18 fatal crashes (0.2%), 2,335 (32%) injury crashes, and 5,045 (68%) property damage only crashes were reported. There were 1,623 crashes along I-275 northbound, 1,991 crashes along I-275 southbound, 223 crashes along I-4 eastbound, and 966 crashes along I-4

westbound. There were 976 crashes along ramps, 542 crashes at ramp terminals, and 1,077 crashes at intersections. The crash analysis suggested that along freeways, rear-end crashes were the predominant crash type (67%), followed by sideswipe crashes (20%), and hit fixed object crashes (9%) during the five-year period. The historical crash data indicate that the majority of crashes occur near the I-275/I-4 interchange. A major contributing factor for these crashes is the excessive mainline queueing and "lane diving" at the one-lane ramp from I-275 southbound to I-4 eastbound. All of the northbound and southbound I-275 segments and majority of I-4 westbound segments exceed the statewide average crash rate of 0.976 per Million Vehicle Miles Traveled. Additionally, four out of eight ramp terminal intersections are above the statewide average in the northbound/eastbound direction, all the ramp terminal intersections are above the statewide average in the southbound/westbound direction. The total economic loss due to 7,398 crashes for the analysis years from 2013 through 2017 was estimated to be $645,546,192.

The results of the predictive analysis show that there is an anticipated reduction in crashes over the length of the study period by implementing the Build Alternative. Even though there is an increase in the AADT, as well as number of lanes, I-275 is expected to see a reduction in crashes of 25 percent, and I-4 is expected to see a reduction of nine percent. This reduction is likely due to proposed improvements shown in the Build condition creating much safer conditions for the vehicles using I-275 and I-4.

The I-275 corridor sees reductions in fatal crashes and individual severity types, with the largest decrease in non-incapacitating injury (B) crashes with 51 percent, 48 percent reduction in incapacitating injury (A) crashes and 47 percent reduction in the fatal (K) crashes. I-4 sees large reductions in property damage only (PDO) crashes and possible injury (C) crashes, 10 percent, and eight percent, respectively. The Build Alternative is also expected to reduce the number of total multiple vehicle crashes along the I-275 and I-4 corridors by 25 percent and nine percent, respectively.

Overall, comparing operational and safety performance of No-Build and Build Alternatives, the Build Alternative provides improved throughput and safer performance.