

Final

Systems Interchange Justification Report

Florida Department of Transportation
Florida's Turnpike Enterprise

Orlando South Ultimate Interchange
Florida's Turnpike (SR 91, MP 254) and Beachline
Expressway (SR 528, MP 4)
Orange County, Florida

Financial Project ID Number: 438547-1-22-01

Date: March 2020

The PD&E Study's support documents were developed in consideration of FTE's Express Lanes Plan, which was in effect before October 2019. However, during design phase, the concepts will be updated to Managed Lanes criteria. Managed Lanes will have the same total number of lanes as presented in this PD&E study, but will not include an additional tolling component. Managed lanes are expected to have fewer signs on the Turnpike Mainline and will not modify the interchange configuration presented in this PD&E study. As a result, the selection of a recommended interchange configuration and results of this PD&E will not be affected.

Orlando South Ultimate Interchange

Florida's Turnpike (SR 91, MP 254) and Beachline Expressway (SR 528,MP4)

Systems Interchange Justification Report (SIJR)

AECOM Certification

FPID 438547-1-22-01



Florida's Turnpike Enterprise

March 2020



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SYSTEMS IMPLEMENTATION OFFICE

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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.

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Systems Interchange Justification Report (SIJR)



Orlando South Ultimate Interchange

Florida's Turnpike (SR 91, MP 254) and Beachline Expressway (SR 528, MP 4) Systems Interchange Justification

FPID: 438547-1-22-01

Florida Department of Transportation Determination of Engineering and Operational Acceptability

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

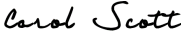



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Executive Summary

Florida's Turnpike Enterprise (FTE) conducted a Project Development and Environment (PD&E) Study (FPID: 438547-1-22-01) for the Orlando South Ultimate Interchange at Florida's Turnpike (State Road 91) and Beachline Expressway (SR 528), in Orange County, Florida. The project study limits extend from south of the Taft Vineland Road to south of Sand Lake Road (SR 482) along Florida's Turnpike and from west of John Young Parkway (CR 423) to the Beachline West Toll Plaza along SR 528. The purpose of this project is to enhance the integrity of the systems interchange while accommodating future traffic demands, improving overall safety, meeting current design standards, and assessing operational impacts of the improvements to the study area. This Systems Interchange Justification Report (SIJR) documents traffic forecasts, lane requirement evaluations, traffic operations analysis, and safety evaluation for the proposed ultimate configuration of the interchange.

The Orlando South Interchange is a complex interchange that includes a combination of ramps that connect Florida's Turnpike, SR 528, and Orange Blossom Trail (US 17/92/441). Since the existing interchange does not provide many of the direct connections needed, motorists utilize US 17/92/441 and Consulate Drive and other local streets as a pass-through to access numerous destinations. The pass-through traffic exacerbates traffic congestion at the intersections within the interchange. The proposed Build Alternative will enhance safety, add capacity, increase mobility, accommodate future traffic demands, and reduce evacuation travel times in Central Orange County.

The existing traffic analysis indicates that SR 528 is currently experiencing reductions in travel speeds during the AM peak hour commute period west of Consulate Drive due to the proximity of interchanges and associated weaving maneuvers. In addition, traffic queues currently spill back along the SR 528 mainline in the westbound direction at Florida's Turnpike off-ramp during the PM peak hour, resulting in a reduction in mainline travel speeds. The queue backups start downstream of the SR 528 westbound off-ramp where it merges with the US 17/92/441 southbound on-ramp to Florida's Turnpike, forming a single-lane section that is currently over capacity. Note that the existing conditions analysis (2017) did not include the SR 528 westbound to Florida's Turnpike single lane off-ramp improvement downstream of the US 17/92/441 southbound on-ramp to two lanes. This improvement was not completed until 2018. Overall, intersection delays and queues for most of the intersections are within acceptable levels. However, the SR 482 and CR 423 intersection and the intersections along US 17/92/441 experience long delays, especially at Landstreet Road during the PM peak hour.

Crash data for the most recent five years (2012-2016) reported a total of 763 crashes along Florida's Turnpike mainline and a total of 412 crashes along the SR 528 mainline. Both Florida's Turnpike and SR 528 have actual crash rates lower than the critical crash rate. The Consulate Drive interchange ramps at Florida's Turnpike and SR 528 have a safety ratio greater than one, indicating that these may be high crash locations. Also, Landstreet Road loop-ramps at SR 528 have a safety ratio greater than one. Actual crash rates at the intersections were computed and compared with average crash rates for similar facilities within Orange County to assess the safety conditions within the study area. The high crash intersections are:

- CR 423 and SR 482
- US 17/92/441 at SR 482, Landstreet Road, Consulate Drive, and Taft Vineland Road
- Turnpike southbound off-ramp/westbound on-ramp to SR 528, SR528 eastbound off-ramp to Consulate Drive

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- Taft Vineland Road and Satellite Boulevard
- CR 423 and SR 528 westbound ramps

Various Build Alternatives (Alternative 1, Alternative 2.1, Alternative 2.2 and Alternative 3) were evaluated for this study. Alternative 3 was developed following a Public Information Meeting (PIM) for the project and internal coordination. Refinements were made to Alternative 2 based on the comments received at the PIM, to minimize right-of-way impacts, reduce cost and improve constructability. With these refinements, Alternative 3 was selected as the Preferred Build concept. This SIJR only documents traffic analysis for the No-Build condition and the Preferred Build Alternative 3 (referred to as Build or Preferred Build herein). The future No-Build network was updated to include the following planned and programmed improvements within the study area:

- Florida's Turnpike mainline widening (FPN: 411406-1) from four to eight lanes: two general toll lanes (GTL) and two express lanes (EL) in each direction. This project extends from Osceola Parkway interchange at MP 248.93 to the Orlando South interchange at MP 254. It will include widening ramps to and from the north at Orlando South to two lanes. It is expected to be completed by year 2020.
- Implementation of ELs from Orlando South to I-4 (MP 254 to 259) and direct connect ramps to/from I-4 (FPN: 437166-2 and 437987-3). This project is expected to be implemented by year 2021/2022. It includes an EL ingress/egress weaving zone between SR 482 and I-4, direct connection of the EL from Florida's Turnpike (south of I-4) to I-4 (east of Florida's Turnpike) and widening of to/from north ramps at the I-4 interchange. The I-4 ramps will be converted to All Electronic Tolling (AET). This project will also include implementation of the following interim improvements at the Florida's Turnpike southbound off-ramp terminal intersection with Consulate Drive: an exclusive free southbound right turn lane with a receiving lane along Consulate Drive, a second westbound left turn lane, and a second receiving lane on the westbound on-ramp to SR 528 that terminates upstream of the gore.
- SR 528 widening (FPN: 406090-5) from four to eight lanes to include two GTLs, two ELs, and an auxiliary lane in each direction from I-4 (MP 0.0) to the Florida's Turnpike (MP 4.3). The construction of this project has been completed.
- SR 528 widening (FPN: 437156-1) from six to eight lanes to include three GTLs and one EL in each direction from the Florida's Turnpike (MP 4.3) to the McCoy Road interchange (MP 8.4). The construction of this project has been completed.
- Orlando South interchange resurfacing (FPN: 437156-2). This project included widening of the SR 528 westbound to Florida's Turnpike single lane off-ramp downstream of the US 17/92/441 southbound on-ramp to two lanes. The two-lane ramp widening has been completed in 2018.
- Florida's Turnpike interchange at SR 482 at MP 257 (FPN: 433663-1). This will be a full interchange with tolled ramps to and from the north.
- AET conversion at tolled ramps (FPN: 441322-1).
- Single Point Urban Interchange (SPUI) at the SR 482 and CR 423 intersection. The construction has been completed.

Executive Summary

- Taft Vineland Road widening from two to four lanes from US 17/92/441 to the bridge over the Florida's Turnpike.
- SR 482 and Destination Parkway widening to six lanes just west of CR 423.

The evaluation of future lane requirements indicates that five lanes per direction will be needed along the Florida's Turnpike mainline under No-Build conditions from north of I-4 to south of SR 417 by 2040. The analysis of SR 528 under No-Build conditions indicates that the mainline will require four lanes per direction between Orlando South and McCoy Road by year 2028, and by 2044 to the west of CR 423.

Several Transportation System Management and Operations (TSM&O) measures have been implemented within the study area. However, TSM&O improvements are not expected to adequately satisfy the need for direct access ramps between the Florida's Turnpike and SR 528, improve access to the surface streets, and alleviate traffic congestion within the interchange.

It is anticipated that most of the intersections within the area of influence (AOI) will be over capacity by the 2045 design year under No-Build conditions. Key deficiencies of the No-Build condition include no direct ramps between SR 528 west and Florida's Turnpike, resulting in travelers using the surface street roadways to connect between the two freeway facilities. Congestion along US 17/92/441, Consulate Drive and CR 482 are expected to propagate onto the freeway system. However, operations within the AOI are expected to improve under the Build conditions. Overall, Synchro results indicated a 45 and 48 percent reduction in total signalized intersection control delay within the AOI during the 2045 design year AM and PM peak hours, respectively, when compared to No-Build condition.

In the Build conditions it is estimated that the reductions in network travel time for the study area will range between 24 and 30 percent during the 2045 peak periods. The average delay reduction for the study area network is estimated to be 41 to 44 percent in the 2045 peak period. This reduction is due to the anticipated diversion of traffic from surface streets to the proposed GTLs system-to-system connections, added capacity and higher speed ramps. Following are the list of improvements under Build alternative:

- Direct GTLs system-to-system connections that will improve system and surface street operations
- Northbound collector-distributor (C-D) road that will improve Florida's Turnpike northbound mainline congestion and reduces turbulence experienced with No-Build conditions
- Two new reliever interchanges at Taft Vineland and Florida's Turnpike and at Voltaire Drive Extension and SR 528 are projected to accommodate future traffic demand
- Ramp braiding along the Florida's Turnpike between the new reliever interchange at Florida's Turnpike and Taft Vineland Road interchange and the SR 528 direct connect ramps to preclude adverse weaving
- Ramp braiding along SR 528 between CR 423 and Consulate Drive to preclude adverse weaving
- Additional auxiliary lanes between interchanges southbound along Florida's Turnpike between the exit to the SR 528 and the entry from SR 482 will improve traffic operations

Executive Summary

- Additional auxiliary lanes eastbound and westbound along SR 528 between Florida's Turnpike and the new reliever interchange at the Voltaire Drive Extension will improve traffic operations
- Surface street ramp modifications will improve traffic operations, including the following:
 - Removal of the Landstreet Road ramps connecting to SR 528, which will also improve safety as loop ramps have higher crash rates
 - Maintaining Consulate Drive entry/exit ramps connecting to SR 528 and the southbound exit from Florida's Turnpike with a new Diverging Diamond Interchange (DDI) configuration
 - Removal of Florida's Turnpike ramps connecting to US 17/92/441, except the northbound Florida's Turnpike exit to northbound US 17/92/441
 - A new southbound entry ramp to Florida's Turnpike via Consulate Drive
 - A new direct northbound entry ramp to Florida's Turnpike from southbound US 17/92/441
- Reconfiguration of the Consulate Drive and US 17/92/441 intersection to provide triple left turn lanes eastbound and a turbo lane configuration along northbound US 17/92/441 for through movements to provide additional intersection capacity
- Reconfiguration of the SR 482 and Voltaire Drive intersection will provide additional capacity
- Reconfiguration and signalization of the Taft Vineland Road and Bachman Road intersection will provide additional capacity
- A new arterial connection Road X (Voltaire Drive Extension) between Landstreet Road and SR 482 will be constructed

A user benefit over a 20-year project life span of the proposed Orlando South ultimate interchange modification was estimated using projected reductions in network travel time and improved safety. Fuel consumption and emissions were not included. Based on 2017 dollars, the estimated user benefit is \$1.6 Billion for travel time from year 2025 to 2045. The Build alternative is predicted to have a 20-year crash cost savings of approximately \$504 Million compared to the No-Build alternative, in 2019 present value.

The analysis showed that the proposed interchanges meet the requirements for the Federal Highway Administration's (FHWA) two policy points. First, the operational and safety analysis conducted for this SIJR confirmed that the proposed improvements under the Build alternative do not have an adverse impact on the operations and safety of Florida's Turnpike, SR 528 or the local street network, and improves traffic operations through the design year. Second, the proposed accesses connect to public roads only and will provide for all traffic movements.

The Orlando South PD&E study (FPID: 438547-1-22-01) is expected to be completed by Spring 2020. Design of the system interchange (FPID: 438547-2) is programmed in Fiscal Year (FY) 2020, right of way in 2022-2024 and construction in 2027. Design of the Taft Vineland Road and Florida's Turnpike interchange (FPID: 444980-1) is programmed in FY 2020 and 2026-2027. Design of the Voltaire Drive and SR 528 interchange (FPID: 444979-1) is programmed in FY 2026-2027. Right of way and construction of the last two projects are not yet programmed.

The Florida's Turnpike Enterprise (FTE) conducted a Project Development and Environment (PD&E) study (FPID: 438547-1-22-01) for the Florida's Turnpike (SR 91) and Beachline Expressway (SR 528) interchange (Orlando South) in Orange County, Florida. The Orlando South interchange is located at milepost (MP) 254 along the Florida's Turnpike and mainly provides a system-to-system connection with SR 528. It also provides access to and from Orange Blossom Trail (US 17/92/441) and Consulate Drive. Traffic operational deficiencies exist within the interchange.

1.1 PROJECT BACKGROUND

A PD&E study for SR 528 from Interstate 4 (I-4) to McCoy Road was completed in 2003, which included evaluation of the Orlando South interchange. The PD&E study proposed addition of direct-access ramps connecting the Florida's Turnpike, SR 528, and US 17/92/441. An Interchange Access Request (IAR) document was not prepared during the 2003 PD&E study. Improvements have been made in the past within the Orlando South interchange, but congestion persists.

The PD&E study (FPN: 438547-1-22-01) evaluated concepts for the ultimate configuration of the Orlando South interchange, which include system-to-system ramp connections between the Florida's Turnpike, SR 528 and US 17/92/441. New service interchanges are also being evaluated along SR 528 at Voltaire Drive Extension and along the Florida's Turnpike at Taft Vineland Road to provide access to local streets and further relief congestion at the systems interchange. In this regard, a Systems Interchange Justification Report (SIJR) is being developed.

The SIJR documents traffic operations analysis and safety evaluations for the Orlando South interchange reconfiguration and proposed reliever interchanges. The SIJR has been developed in accordance with Florida Department of Transportation (FDOT) *Policy Topic No. 000-525-015-h, Approval of New or Modified Access to Limited Access Highways on the State Highway System (SHS)*; the FDOT *Interchange Access Request User's Guide (IARUG)*; FDOT *Procedure No. 525-030-160-l, New or Modified Interchanges*; and FDOT *Procedure No. 525-030-120-j, Project Traffic Forecasting*.

The Methodology Letter of Understanding (MLOU) for the SIJR was approved by FTE, the Requestor, FDOT District Five and FDOT Central Systems Implementation Office in February 2018. A copy of the signed MLOU is provided in **Appendix A**. Per the MLOU, the analysis years for the SIJR are 2017 (existing), 2025 (opening) and 2045 (design).

1.2 PROJECT PURPOSE AND NEED

The purpose for this project is to address existing traffic congestion and related safety issues within the Orlando South interchange footprint. Traffic congestion on the interchange ramps and freeway mainline generally originates from the intersections within the interchange, including ramp terminals. Since the existing interchange does not provide many of the direct connections needed, motorists utilize US 17/92/441 and Consulate Drive as a pass-through to access numerous destinations. The pass-through traffic exacerbates traffic congestion at the intersections within the interchange. The major congestion spots include the Florida's Turnpike southbound mainline and off-ramp to Consulate Drive, US 17/92/441 intersections at Consulate Drive, Florida's Turnpike ramps and Landstreet Road, and SR 528 westbound mainline and off-

ramp to Florida’s Turnpike/US 17/92/441. The SR 528 eastbound to Consulate Drive off-ramp also backs up, mainly due to downstream congestion effects at the US 17/92/441 intersection and weaving along the arterial. Traffic backups have also been observed within the toll plaza area due to weaving and ramp capacity deficiencies.

The need for the project is to provide direct-access ramps between the Florida’s Turnpike and SR 528 and improve access to the surface streets to enhance traffic operations. The direct-access ramps between the freeways will not only alleviate congestion related to pass-through trips at the intersections but will also provide faster travel for system movements. Additional and improved access points are also needed along the Florida’s Turnpike and SR 528 to further relief congestion at the arterials and intersections within the vicinity of the Orlando South interchange. Relief in congestion at adjacent interchanges is also expected, as traffic will be shifted to the improved Orlando South interchange and proposed reliever interchanges.

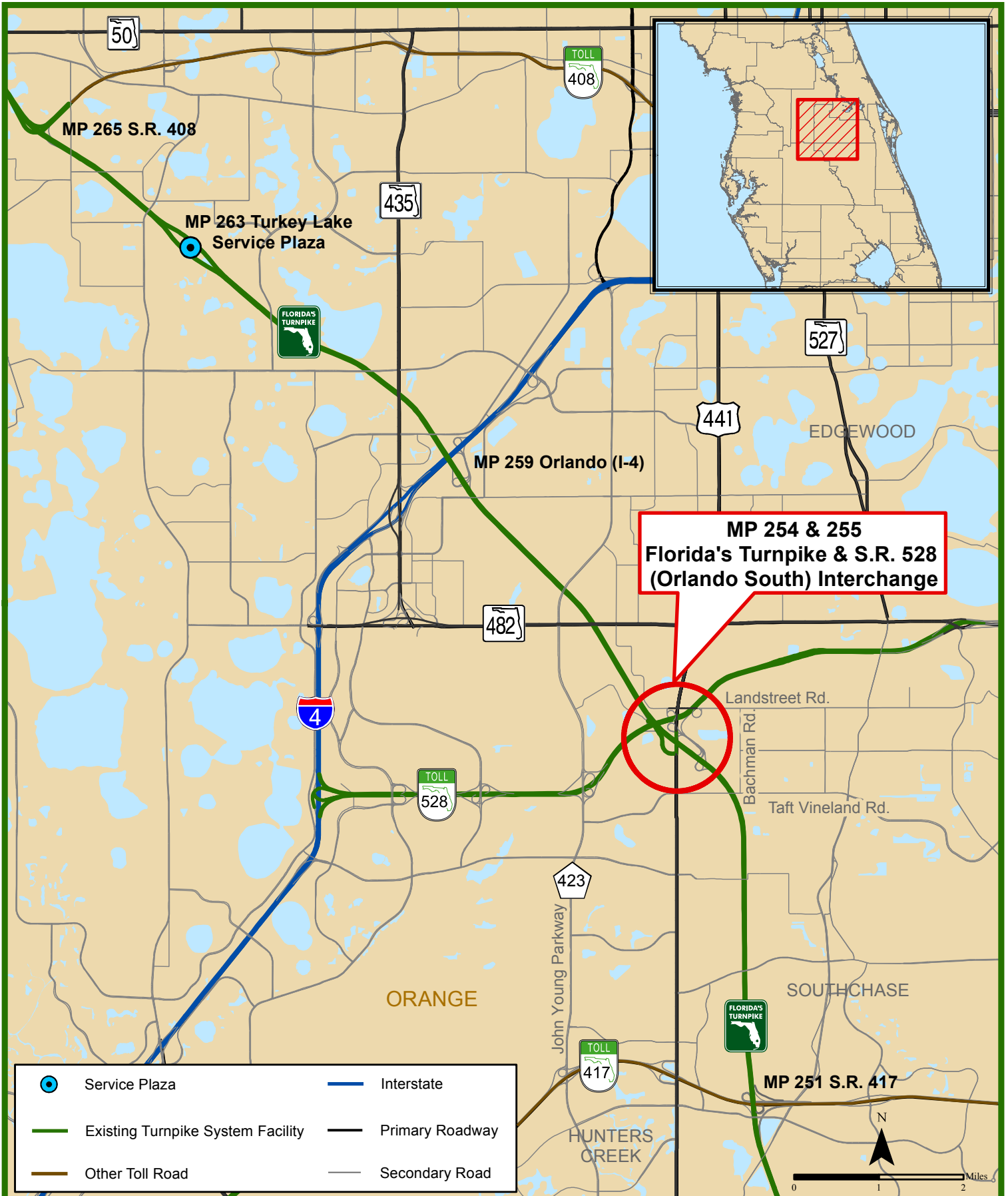
1.3 PROJECT LOCATION AND AREA OF INFLUENCE

The Orlando South interchange is located at MP 254 along the Florida’s Turnpike in Orange County, Florida. **Figure 1.1** shows the project location. The project study limits (construction improvements) extend from south of the Taft Vineland Road to south of SR 482 on Florida’s Turnpike and from west of CR 423 to the Beachline West Toll Plaza on SR 528. The traffic operations analysis Area of Influence (AOI) extends from Central Florida GreeneWay (SR 417) at MP 251 to I-4 at MP 259 along the Florida’s Turnpike, and from CR 423 at MP 3 to McCoy Road at MP 8 along SR 528. **Table 1.1** shows the existing adjacent interchange spacing from Orlando South and descriptions of the interchanges.

Table 1.1
Interchange Spacing and Description

Interchange	RCI Milepost	Spacing from Orlando South (Miles)	Description
Florida’s Turnpike			
I-4	10.399	4.747	Trumpet – Ramps to/from north tolled
Consulate Drive	6.690	1.038	Partial Diamond Tolled southbound off-ramp
SR 417	1.451	4.201	Partial Cloverleaf Tolled northbound on-ramp
SR 528			
CR 423	3.120	1.167	Partial Clover Leaf
McCoy Road/Jetport Drive	8.143	3.857	Partial Diamond

RCI – Roadway Characteristics Inventory



Systems Interchange Justification Report (SIJR)
Florida's Turnpike & SR 528
Orlando South Ultimate Interchange PD&E Study

Project Location

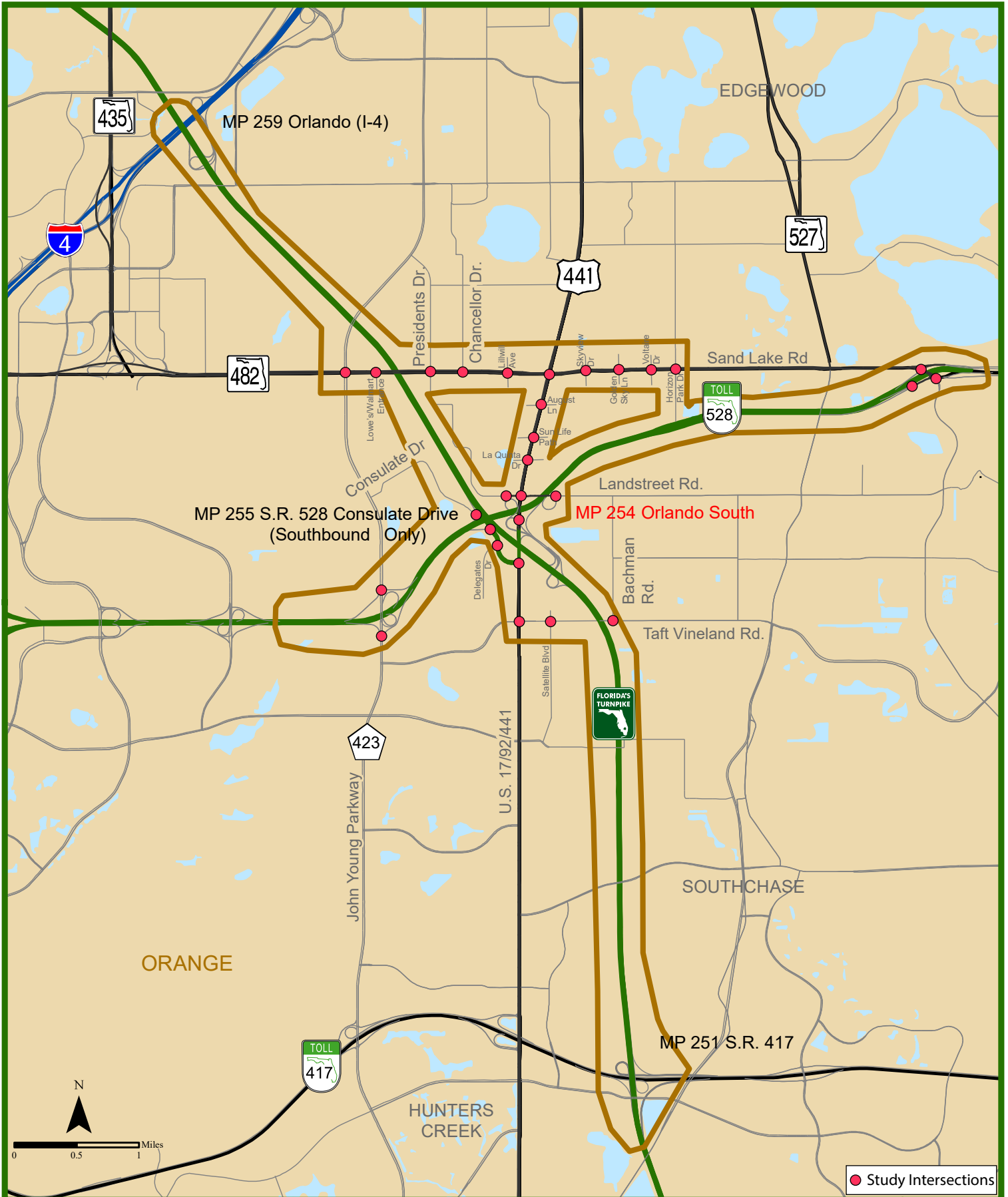
Figure 1.1

The anticipated AOI of the proposed interchange configuration, as defined in the FDOT IARUG, is at least one interchange on both sides of the subject interchange. The following interchanges and intersections were included in the study:

- Interchanges along Florida's Turnpike (SR 91)
 - I-4
 - Consulate Drive
 - Orlando South
 - SR 417
- Interchange along SR 528
 - CR 423
 - Florida's Turnpike/US 17/92/441
 - McCoy Road/Jetport Drive
- Intersections along SR 482
 - CR 423
 - Shopping Center (Wal-Mart/Lowe's) Entrance
 - Presidents Drive
 - Chancellor Drive
 - Lillwill Avenue
 - US 17/92/441
 - Skyview Drive
 - Golden Sky Lane
 - Voltaire Drive
 - Horizon Park Drive
- Intersections along Consulate Drive
 - Turnpike southbound off-ramp/SR 528 westbound on-ramp
 - SR 528 eastbound off-ramp
- Intersections along US 17/92/441
 - August Lane
 - Sun Life Path

- La Quinta Drive
- Landstreet Road
- Turnpike off-ramps
- Consulate Drive
- Taft Vineland Road
- Intersections along Taft Vineland Road
 - Satellite Boulevard
 - Bachman Road
- Intersections along Landstreet Road
 - SR 528 westbound off-ramp
 - SR 528 eastbound on-ramp
- Intersections along McCoy Road
 - SR 528 westbound ramps
 - SR 528 eastbound ramps

Figure 1.2 depicts the area of influence for this study.



Systems Interchange Justification Report (SIJR)
Florida's Turnpike & SR 528
Orlando South Ultimate Interchange PD&E Study

Area of
Influence

Figure
1.2

This chapter highlights the traffic operations analysis methodology and the traffic factors used in this document.

2.1 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

Detailed operational analyses were performed for existing (2017), opening year (2025), and design year (2045) conditions.

Freeway segments (basic, merge/diverge and weave) analysis was based on the FDOT’s Quality/Level of Service (LOS) Handbook. The FDOT targets were adjusted for local conditions such as speed, truck proportion, Peak Hour Factor (PHF), and driver population.

The Highway Capacity Software (HCS) Version 7.5 was used to identify level of service along freeway segments. The HCS is based on Highway Capacity Manual (HCM) Sixth Edition methodologies. The HCM estimates level of service based on density – a function of flow rate (volumes) and travel speed – for uninterrupted flow facilities such as basic freeway/Collector-Distributor (C-D) roadway segments, merge and diverge segments, and freeway/C-D roadway weaving segments. Density is measured in passenger cars per mile per lane (pcpmpl). The HCM Sixth Edition LOS and density targets for freeway segments are listed in **Table 2.1**.

Table 2.1
Freeway Segments HCM Sixth Edition Level of Service Criteria

LOS	Basic Density (HCM Exhibit 12-15)	Merge and Diverge Density (HCM Exhibit 14-3)	Weaving Density (HCM Exhibit 13-6)
A	≤ 11	≤ 10	0 – 10
B	> 11 – 18	> 10 – 20	> 10 – 20
C	> 18 – 26	> 20 – 28	> 20 – 28
D	> 26 – 35	> 28 – 35	> 28 – 35
E	> 35 – 45	> 35	> 35 – 43
F	> 45	Demand Exceeds Capacity	Demand Exceeds Capacity

Note: Density measured in passenger cars/mile/lane (pcpmpl)

The HCS software was calibrated based on the adjusted FDOT capacities. Tests were conducted using the following parameters and assumptions for the Florida’s Turnpike to identify a factor for calibrating capacity:

- Florida’s Turnpike Free-Flow Speed (FFS) – 75 mph
- Florida’s Turnpike peak hour truck percentage – 8%
- Lane width – 12 feet
- Right shoulder clearance – 6 feet
- Driver Population – Mostly Familiar
- Weather Type – Non-Severe Weather
- Incident Type – No Incident
- Demand Adjustment Factor – 1.000

A capacity and speed adjustment factor of 0.93 was determined.

For freeway merge and diverge areas, the HCM methodology also includes a capacity check for the influence area and the upstream or downstream ramp roadway. Capacity is dependent upon FFS and number of lanes. HCM capacity targets for ramp roadways are shown in **Table 2.2**. Similar to freeway segments capacities, the HCM ramp roadway capacities were also adjusted for local conditions.

Table 2.2
Ramp Roadway Capacity HCM Sixth Edition Level of Service Criteria

Ramp FFS (mph)	Single-Lane Ramps Capacity (pc/h)	Two-Lane Ramps Capacity (pc/h)
(HCM Exhibit 14-12)		
> 50	2,200	4,400
> 40 – 50	2,100	4,200
> 30 – 40	2,000	4,000
≥ 20 – 30	1,900	3,800
< 20	1,800	3,600

Note: FFS measured in miles per hour (mph);
Capacity measured in passenger cars per hour (pc/h)

Signalized intersections were evaluated using Synchro Version 10, with level of service identified based on the HCM Sixth Edition LOS and delay targets presented in **Table 2.3**. Unlike the HCM, Synchro software has additional procedures for estimating control delay, such as estimation of right turn on red and queue delay associated with starvation and spillback. Thus, Synchro delay estimation yields more accurate results than HCM because of these additional refinements.

Table 2.3
Signalized Intersection HCM Sixth Edition Level of Service Criteria

Control Delay (sec/veh)	LOS by Volume-to-Capacity Ratio*	
	≤1.0	>1.0
(HCM Exhibit 19-8)		
≤10	A	F
>10 – 20	B	F
>20 – 35	C	F
>35 – 55	D	F
>55 – 80	E	F
>80	F	F

*For approach-based and intersection-wide assessments, LOS is defined solely by control delay. Delay is measured in seconds per vehicle. Control delay and volume-to-capacity ratio are used to characterize LOS for a lane group.

Unsignalized intersections were evaluated using the HCS Version 7.5, following the criteria presented in **Table 2.4**.

Table 2.4
Unsignalized Intersection HCM Sixth Edition Level of Service Criteria

Control Delay (sec/veh)	LOS by Volume-to-Capacity Ratio*	
	≤1.0	>1.0
(HCM Exhibit 20-2)		
≤10	A	F
>10 – 15	B	F
>15 – 25	C	F
>25 – 35	D	F
>35 – 50	E	F
>50	F	F

*For approach-based and intersection-wide assessments, LOS is defined solely by control delay. Delay is measured in seconds per vehicle. Control delay and volume-to-capacity ratio are used to characterize LOS for a lane group.

VISSIM microsimulation software (Version 10.00-07) was used to further analyze existing and future traffic operations at a more refined level for the entire study area. VISSIM is a microscopic traffic flow simulation model based on car following, lane change, and queuing logic. VISSIM has the ability to model Express Lane (EL), High Occupancy Vehicle (HOV) lanes, and other transportation strategies that are being implemented within the state. VISSIM models each individual vehicle within the network in order to identify simulated performance measures for freeways, ramps, and intersections.

In VISSIM microsimulation, Measures of Effectiveness (MOEs) selected for evaluating freeway segments (basic, weave, and merge/diverge) included percentage of demand served, speed, and density in pcpmpl. Research indicates that the HCM methodology for calculating density is different from microsimulation methods. Therefore, density estimated by microsimulation tools like VISSIM cannot be accurately related to the HCM level of service criteria in **Table 2.1**. However, density output presented in this report was not directly obtained from VISSIM evaluation files. Density from VISSIM files (vehicles per mile) was converted into pcpmpl by dividing the VISSIM density by the number of lanes and multiplying by a heavy vehicle factor, following the HCM methodology. Ramp roadways in VISSIM were evaluated based on percentage of demand served and average travel speed.

Intersections were evaluated in VISSIM based on percentage of demand served, average intersection delays, and queue lengths. Due to the incongruences between HCM and microsimulation methodologies, delays estimated by microsimulation tools like VISSIM cannot be accurately related to the HCM level of service criteria in **Table 2.3**.

2.2 TRAFFIC FACTORS

The traffic factors for this study are presented in **Table 2.5**. The Design Hour Factor (K) is the proportion of the Annual Average Daily Traffic (AADT) that occurs during the design hour. Consistent with the FDOT districts, the Florida’s Turnpike has developed standard K factors for use in planning and design applications. The Directional Distribution Factor (D) is the proportion of traffic traveling in the peak direction during the design hour. These factors represent the traffic demand a roadway is typically designed to accommodate.

The Truck Factor (T_{24}) represents the estimated percentage of the AADT that is composed of trucks. The Design Hour Truck (DHT) factor is the peak hour truck factor and is estimated as one-half of the T_{24} factor. The Peak Hour Factor (PHF) is the ratio of total peak hour volume to the peak 15-minute rate of flow within the hour. It accounts for the variability of traffic within the hour.

For the Florida’s Turnpike and SR 528, standard K factors were used, and the D factors were derived from FTE’s annual factor development. The other factors were estimated during existing conditions traffic development using count data and Florida’s Traffic Information System data. The PHFs for existing conditions varied and were applied accordingly. A PHF of 0.95 was used for future conditions analyses.

Table 2.5
Future Traffic Factors

Roadway	K _{STD}	D	T ₂₄	DHT
Florida’s Turnpike	9.5	55.0	16.1	8.0
SR 528	8.5	58.0	7.2	4.0
Arterials (SR 482 and cross streets)	9.0	59.0	10.3	5.0
Arterials (US 17/92/441 and cross streets)	9.0	59.0	17.0	8.0
Arterials (Taft Vineland Road and cross streets)	9.0	59.0	22.2	11.0

Existing conditions such as demographics, land use, roadway facilities, and crash data are described in this chapter.

3.1 DEMOGRAPHICS AND EXISTING LAND USE

The Orlando South PD&E study area is located within the Orlando Metropolitan Statistical Area (MSA). The Orlando MSA currently includes the cities of Orlando, Kissimmee and Sanford. The PD&E study area is not within the City of Orlando municipal boundaries, it is located in unincorporated Orange County. The Orlando MSA is the third largest, by population, in the state of Florida. The Orlando MSA grew by 14.2 percent between 2010 and 2017, the largest percentage increase over that period in the state. According to the University of Florida’s Bureau of Economic and Business Research (BEBR), Orange County currently has the fifth highest population in the state and grew by 14.7 percent from 2010 to 2017. The population growth rate in Orange County was faster than that of the state, which grew by 9 percent over the same period. **Table 3.1** summarizes the 2010 and 2017 population and growth during this period.

Table 3.1
Historical Population and Growth

Area	US Census	BEBR Estimate	Change 2010 – 2017	% Change 2010 – 2017
	2010	2017		
City of Orlando	238,300	279,789	41,489	17.4
Orange County	1,145,956	1,313,880	167,924	14.7
Florida	18,801,310	20,484,142	1,682,832	9.0

Source: 2010 Census and Bureau of Economic and Business Research (BEBR)

Employment in Orange County has shown strong growth since 2010. As shown in **Table 3.2**, employment has grown by more than 24 percent, after declining during the economic recession between 2007 and 2009. Though surrounding counties have also experienced employment growth, Orange County remains the primary economic and employment center of the Central Florida region, with Orlando possessing the highest total of employed persons among cities in the region.

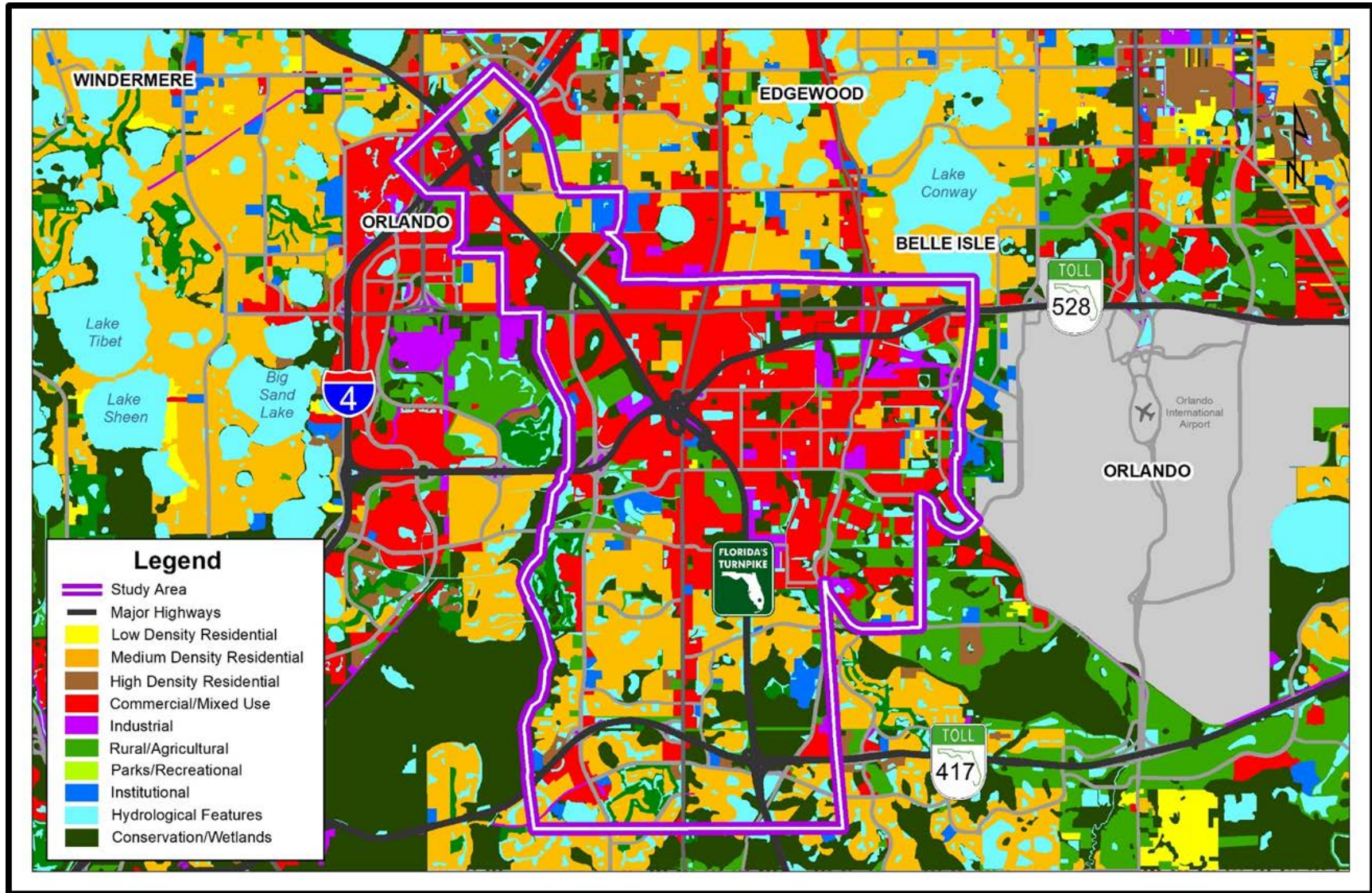
Table 3.2
Historical Employment and Growth

Area	Estimate		Change 2010 – 2017	% Change 2010 – 2017
	2010	2017		
Orange County	566,478	704,715	138,237	24.4
Florida	8,274,000	9,741,000	1,467,000	17.7

Source: State of Florida Department of Economic Opportunity (DEO) Local Area Unemployment Statistics

The existing land use within the study area, shown on **Figure 3.1**, is primarily a mixture of urbanized industrial, retail, and low-density (single-family) residential. The project study area is largely built out and contains sparse amounts of open, undeveloped land.

Figure 3.1
Existing Land Use



The study area contains the largest industrially zoned area in Orange County, between SR 528 and the Southchase development located north of Wetherbee Road. The Orlando South interchange serves both regional and local trips, as industrial traffic has access to this area from Florida's Turnpike and SR 528. To the east of the interchange, Tradeport Drive passes through both the Orlando International Airport and the Airport Industrial Park Development of Regional Impact (DRI). The proximity of the study area to the Orlando International Airport contributes to traffic and land use growth in the area.

The study area contains seven DRIs, which are described below. Though the area has not approved a new DRI since 1992, these developments will continue to generate both residential and non-residential traffic in the future. The study area also contains 23 Planned Unit Developments (PUDs). Similar to the DRIs, many of the PUDs are older, established developments that have reached full build out.

Airport Industrial Park – located at the northeast corner of South Orange Avenue and East Wetherbee Road, the development was approved in 1982. The development is approved for 20.8 million square feet of industrial space, 700,000 square feet of office space, and 400,000 square feet of commercial/retail space. Though the development currently features significant levels of existing development, the DRI has not reached full build out and has capacity for future growth.

Florida Mall – located at the southeast corner of South US 17/92/441 and West SR 482, the development was approved in 1976. The development is approved for 2.15 million square feet of regional retail mall space, 244,150 square feet of other general commercial space, 130,462 square feet of office space, and 720 hotel rooms. The development is currently built out.

Millenia – located at the southwest corner of Millenia Boulevard and Conroy Road, the development was approved in 1992. The development was originally approved for 1.9 million square feet of commercial retail mall space, including a regional shopping mall, 1.3 million square feet of office space, and 936 multi-family residential units. The development is currently near build out.

Jetport Park – located at the northeast corner of South Orange Avenue and East Wetherbee Road, adjacent to the Airport Industrial Park DRI, the development was approved in 1988. The development is approved for 2.8 million square feet of industrial space, 238,600 square feet of commercial space, 504 single family units, and 158 multi-family units. The development has not reached full build out and has capacity for future growth.

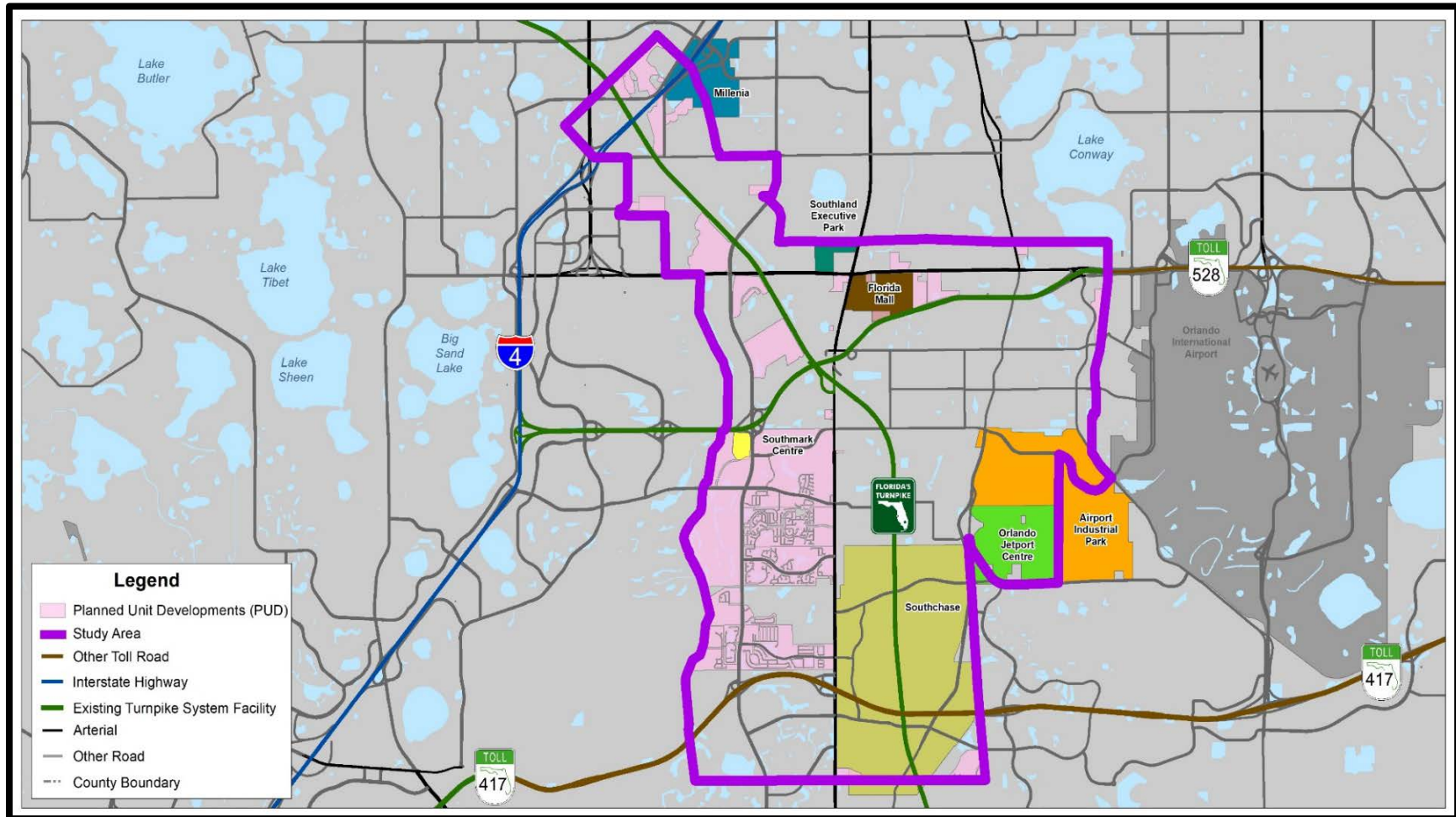
Southchase – located north of SR 417, between South US 17/92/441 and South Orange Avenue, and south of Zell Drive, the development was approved in 1986. The development is approved for 4,321 single-family units, 812 multi-family units, 1.37 million square feet of commercial space, 58,360 square feet of office space, and 1.33 million square feet of industrial/warehouse space. The development is currently near build out.

Southland Executive Park – located between Viscount Row and SR 482, the development was approved in 1985. The development is approved for 801,700 square feet of office/warehouse space and 39,000 square feet of retail space. The development is currently built out.

Southmark Centre – located at the northwest corner of West Taft Vineland Road and South John Young Parkway, the development was approved in 1989. The development is approved 600,000 square feet of office space, 200,000 square feet of commercial space, and a 200-room hotel. The development is currently built out, as construction of the hotel has recently been completed.

Figure 3.2 shows the significant developments within the study area.

Figure 3.2
Study Area Major Developments



3.2 ROADWAY FACILITIES

3.2.1 Florida's Turnpike

The Florida's Turnpike provides multi-regional connectivity from Miami-Dade County in South Florida to Interstate 75 (I-75) north of Wildwood in Sumter County. The proposed interchange is within the Northern Florida's Turnpike System, which extends 67 miles from north of the Three Lakes Toll Plaza in Osceola County, through Orlando in Orange County, to I-75 at Wildwood in Sumter County. Within the vicinity of the proposed interchange, the Florida's Turnpike has four 12-foot lanes in each direction, with 12-foot inside and 10-foot outside paved shoulders. The posted speed on the Florida's Turnpike is 70 mph within the study area. An aerial photo of the Florida's Turnpike and SR 417 interchange is shown on **Figure 3.3**. The Orlando South and Consulate Drive interchange configurations are shown from an aerial view on **Figure 3.4**.

3.2.2 SR 528

SR 528 is an east-west limited-access toll facility connecting I-4 in southwest Orlando with I-95 along the east coast of Florida. The three facilities are part of Florida's Strategic Intermodal System (SIS). SR 528 provides a crucial connection for residents and tourist attractions such as Walt Disney World, Orlando International Airport, Kennedy Space Center, Universal Studios, Sea World, and the International Drive Convention and Resort Area. Within the study limits, the posted speed on SR 528 is 55 mph. CR 423 and McCoy Road interchange configurations are shown from an aerial view on **Figures 3.5** and **3.6**, respectively.

3.2.3 I-4

I-4 is the busiest facility in the region and serves many of the area's primary activity centers. Since its opening in 1965, I-4 has served intrastate and interstate travel by providing a crucial link between the east and west coasts of Central Florida. I-4 is the only north-south (which traverses primarily in an east-west direction) limited-access facility that is centrally located between the predominant employment centers in Orlando and the major suburbs to the north and south and has become the primary commuting corridor in the Central Florida metropolitan area. The posted speed on I-4 is 55 mph within the study area. The I-4 and Florida's Turnpike interchange aerial view is shown on **Figure 3.7**.

3.2.4 SR 482

In Orange County, SR 482 is classified as an urban principal arterial. Within the proposed interchange location, SR 482 was recently widened to six lanes. It is a divided east-west arterial that crosses several major north-south roadways, including I-4, International Drive Convention and Resort Area, Kirkman Road, CR 423, US 17/92/441, and Florida's Turnpike. SR 482 is an Access Management Class Five facility (controlled access).

3.2.5 CR 423

CR 423 serves as a major north-south corridor between the cities of Kissimmee and Orlando. It is a six-lane divided major urban principal arterial. It is classified as an Access Management Class Five facility (controlled access) and the posted speed is 45 mph within the study area. CR 423 currently intersects with SR 482 at grade. Plans are underway to convert this interchange to a

Single Point Urban Interchange (SPUI) by year 2020. The new interchange will carry six lanes of through traffic on CR 423 over six lanes of through traffic on SR 482. Ramps will be provided to connect CR 423 to SR 482 at an at-grade signalized intersection.

3.2.6 Other Arterials

US 17/92/441

US 17/92/441 is a major north-south arterial that traverses through the Orlando metro area. Within the subject interchange, it is a six-lane divided Urban Principal Arterial. The main streets intersecting with US 17/92/441 within the study area are Taft Vineland Road, Consulate Drive, and Landstreet Road.

Taft Vineland Road

Taft Vineland Road is an east-west two-lane minor arterial. It is a divided roadway to the west of Satellite Boulevard and undivided to the east.

Consulate Drive

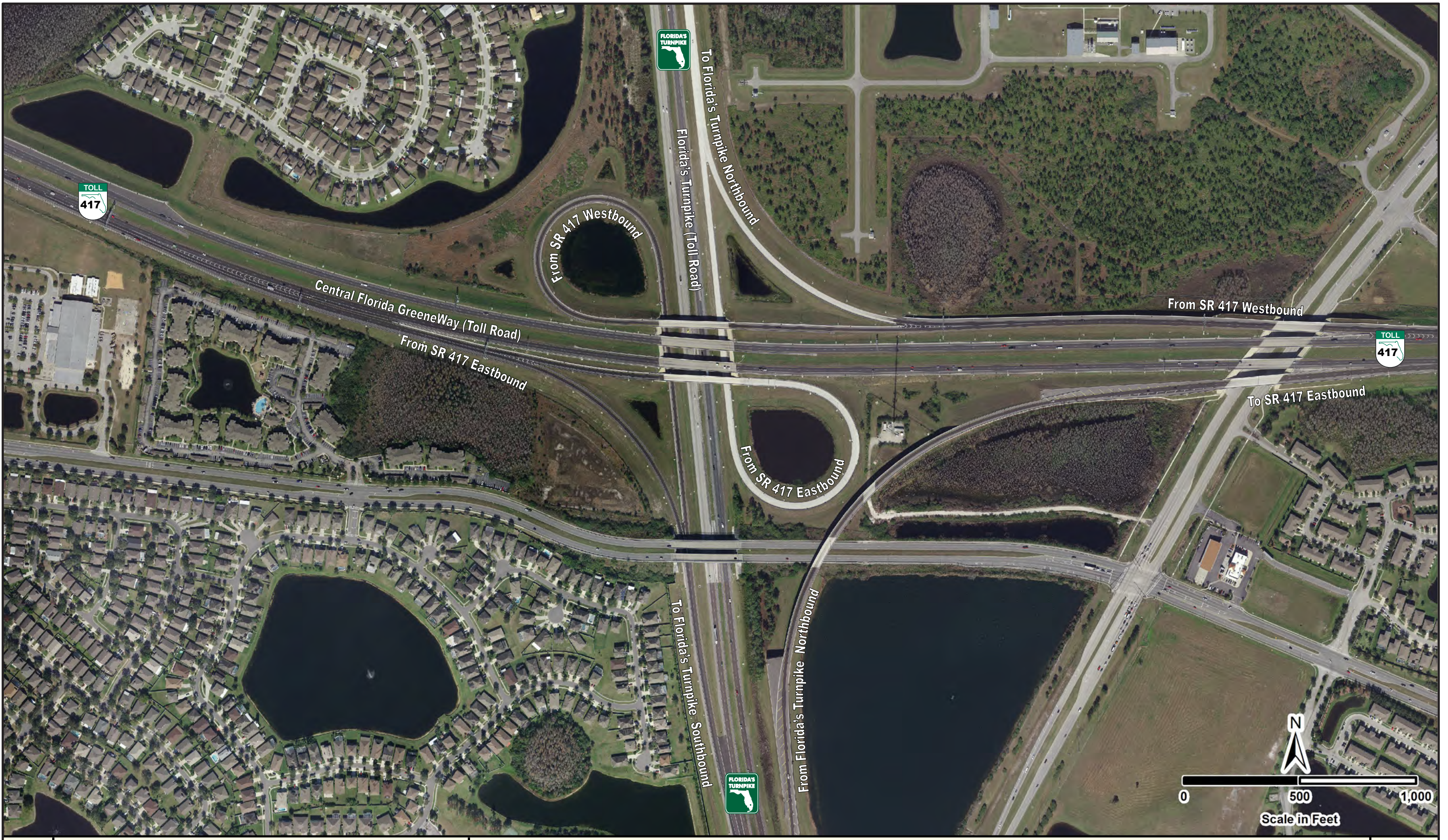
Consulate Drive is a major collector road connecting John Young Parkway (CR 423) to the west with US 17/92/441 to the east. Within the study area, it is a four-lane divided roadway.

Landstreet Road

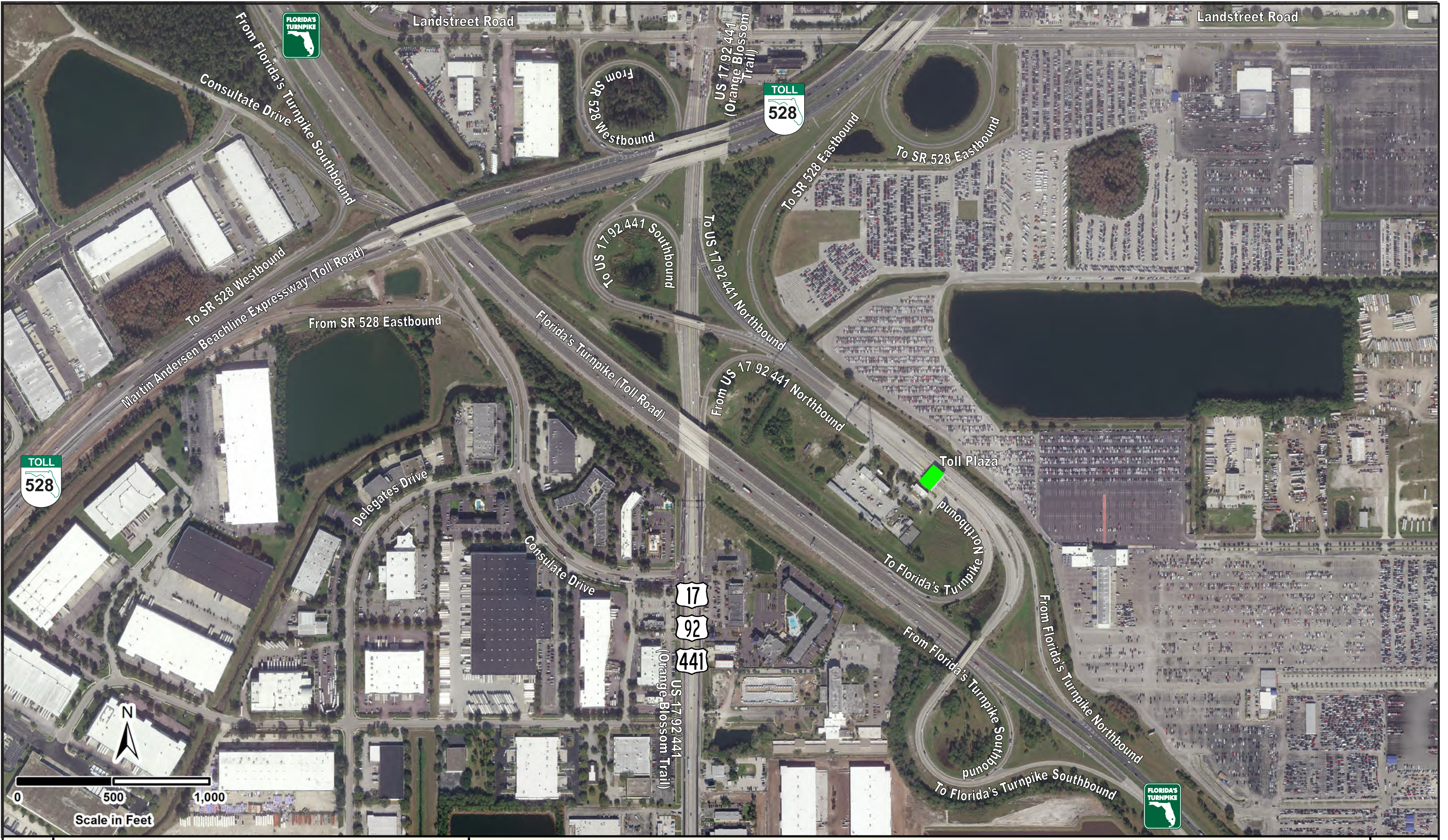
Landstreet Road is a major collector road. It is a four-lane divided roadway to the east of US 17/92/441 and a two-lane undivided roadway to the west.

Bachman Road

Bachman Road is a two-lane undivided minor collector road that runs north-south from Taft Vineland Road to Landstreet Road.

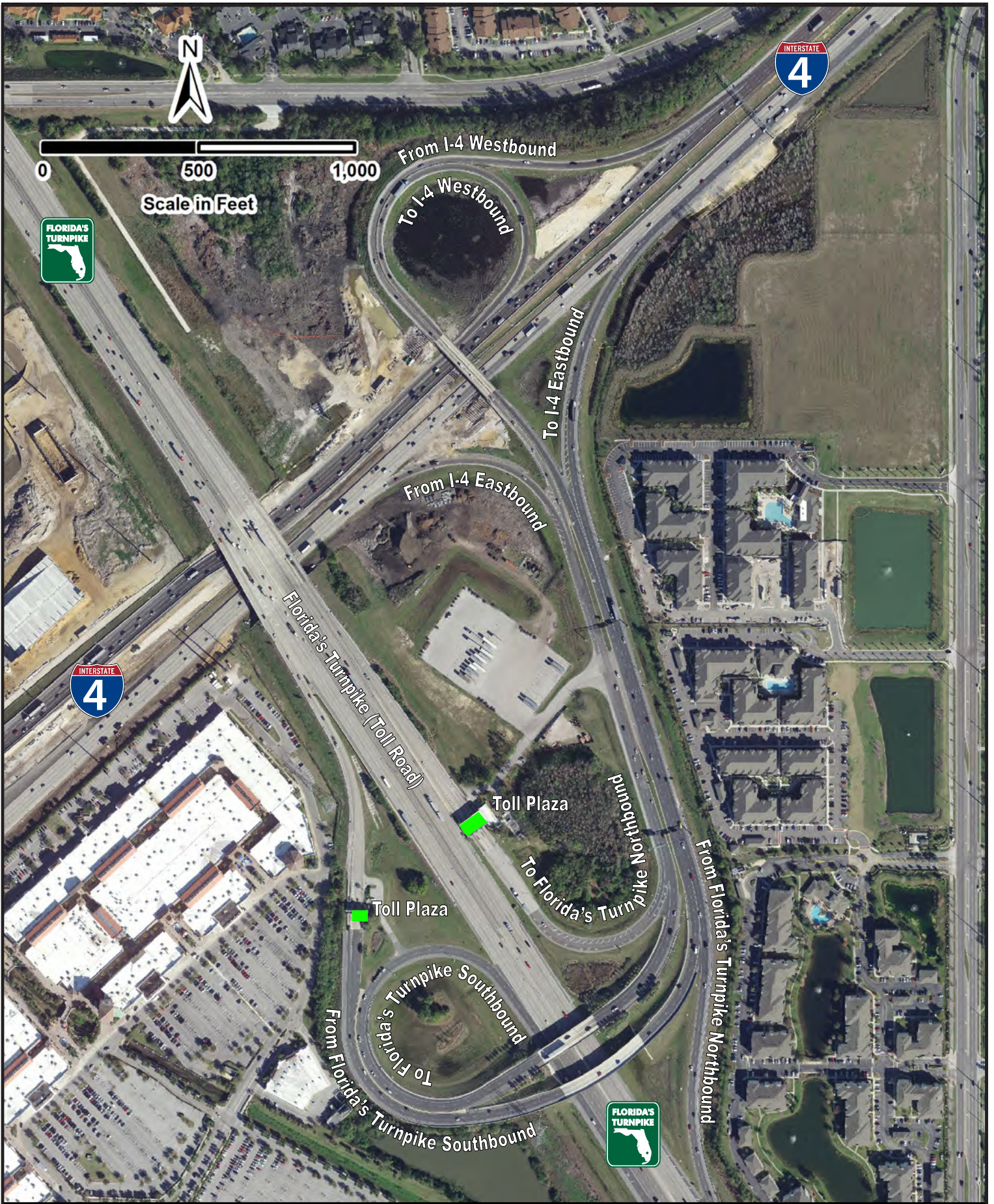


Aerial Photo - Turnpike at S.R. 417 (MP 251)









Systems Interchange Justification Report (SIJR)
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Aerial Photo - I-4 at Turnpike
 (MP 259)

Figure
 3.7

3.3 CRASH DATA ANALYSIS

3.3.1 Overall Crash Data Analysis

Crash data for existing facilities within the AOI were processed using the most recent five-year data from the state's Crash Analysis Reporting System (CARS), from 2012 through 2016. The data reports were analyzed for each mainline roadway, interchange ramp, and intersection within the study area. Detailed crash reports (long forms) were reviewed to verify the accuracy of the information obtained from the database. Detailed crash reports and analysis tables are provided in **Appendix B**.

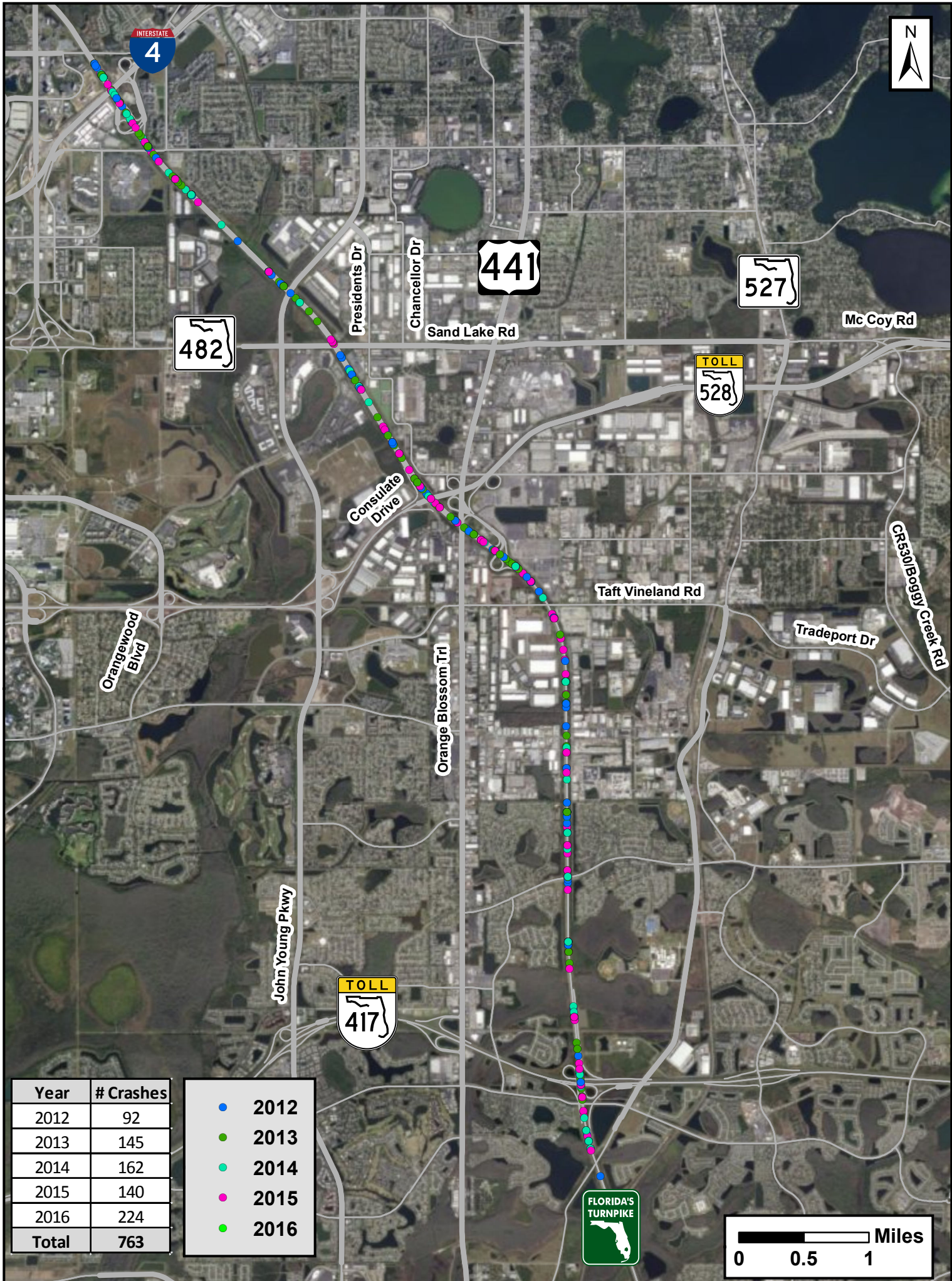
Florida's Turnpike Mainline from MP 250 to MP 260

A total of 763 crashes were reported along Florida's Turnpike mainline from SR 417 to the I-4 Interchange during the five-year analysis period from 2012 through 2016. Crash locations by year and severity are depicted on **Figures 3.8** and **3.9**. The number of crashes varied from 92 to 224 between year 2012 and 2016. A crash data summary for the Florida's Turnpike mainline is shown on **Figure 3.10**. Based on the crash data, highest number of crashes (102) occurred between milepost 9.0 and milepost 10.0. A total of nine fatal crashes were reported, three of which involved single vehicles. Seven out of the nine fatal crashes occurred between milepost 4.0 and milepost 8.0. Off-road (16 percent) and rear-end (36 percent) crashes constituted a majority of the crashes. Injury crashes occurred evenly throughout the study area with higher number of crashes (46) occurring between milepost 9.0 and milepost 10.0. As shown on **Figure 3.10**, 26 percent of the crashes occurred on wet roadway conditions and 26 percent of the crashes occurred under dark lighting conditions.

SR 528 Mainline from MP 2.5 to MP 8.5

A total of 412 crashes were reported along the SR 528 mainline from CR 423 to the McCoy Road interchange during the five-year analysis period from 2012 through 2016. Crash locations by year and severity of crashes are depicted on **Figures 3.11** and **3.12**. The number of crashes ranged from 51 to 113 between 2012 and 2016. Note that the construction of SR 528 started in Fiscal Year 2015. One fatal crash was reported. Off-road (23 percent) and rear-end (43 percent) crashes constituted a majority of the crashes. As shown on **Figure 3.13**, 26 percent of the crashes occurred on wet roadway conditions and 31 percent of the crashes occurred under dark lighting conditions.

Actual crash rates for the freeway mainline segments were computed and compared with average crash rates for similar facilities within Orange County to assess the safety conditions within the study area. Critical crash rates and safety ratios were also estimated. Crash rates for the roadway were estimated as crashes per Million Vehicles Miles Travelled (MVMT). The critical crash rate is based on the average crash rate for a similar facility adjusted by vehicle exposure and a probability constant. The safety ratio represents the actual crash rate divided by the critical crash rate. Both Florida's Turnpike and SR 528 have actual crash rates lower than the critical crash rate (i.e., safety ratio < 1.0), as shown in **Table 3.3**.



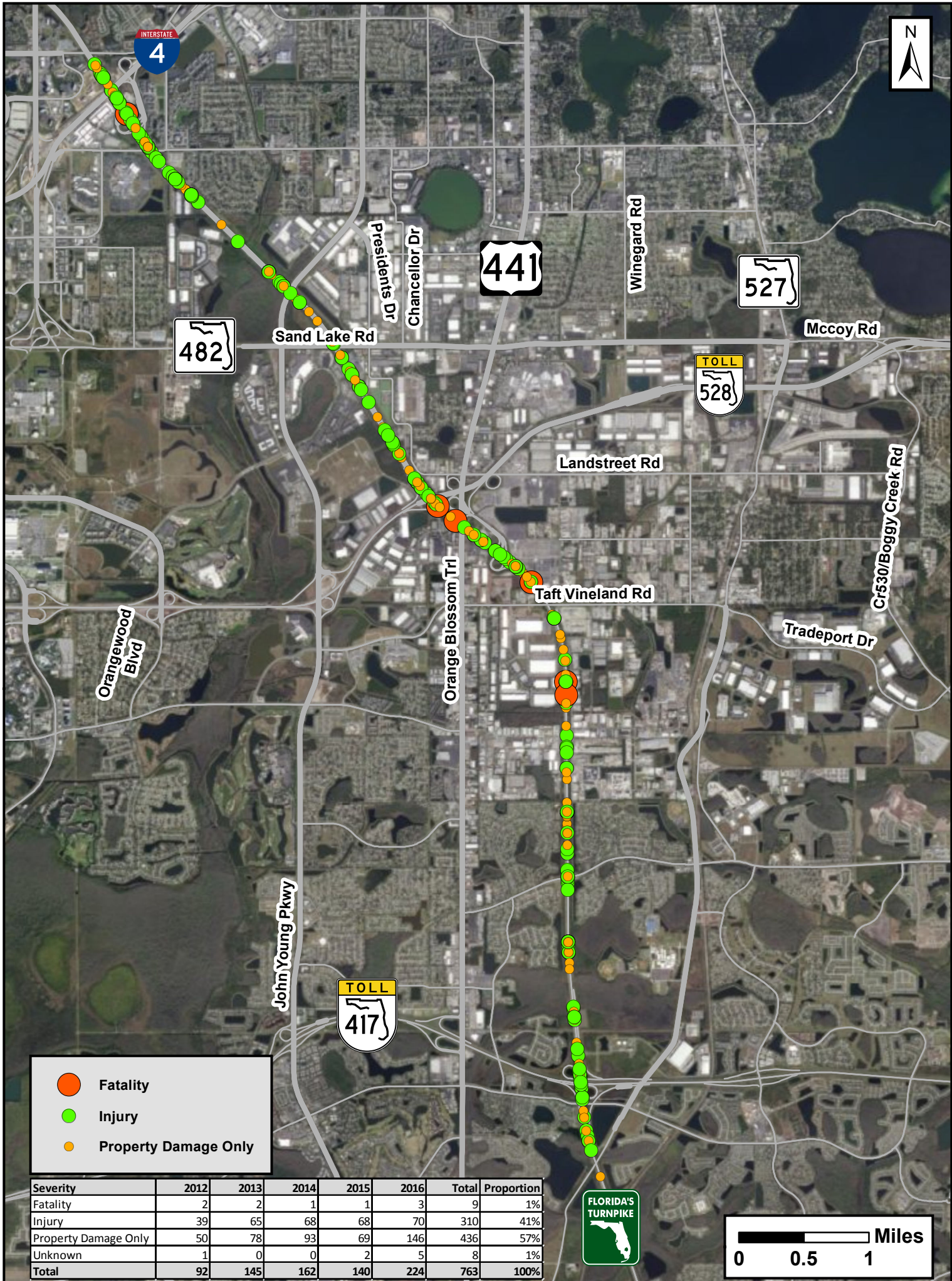
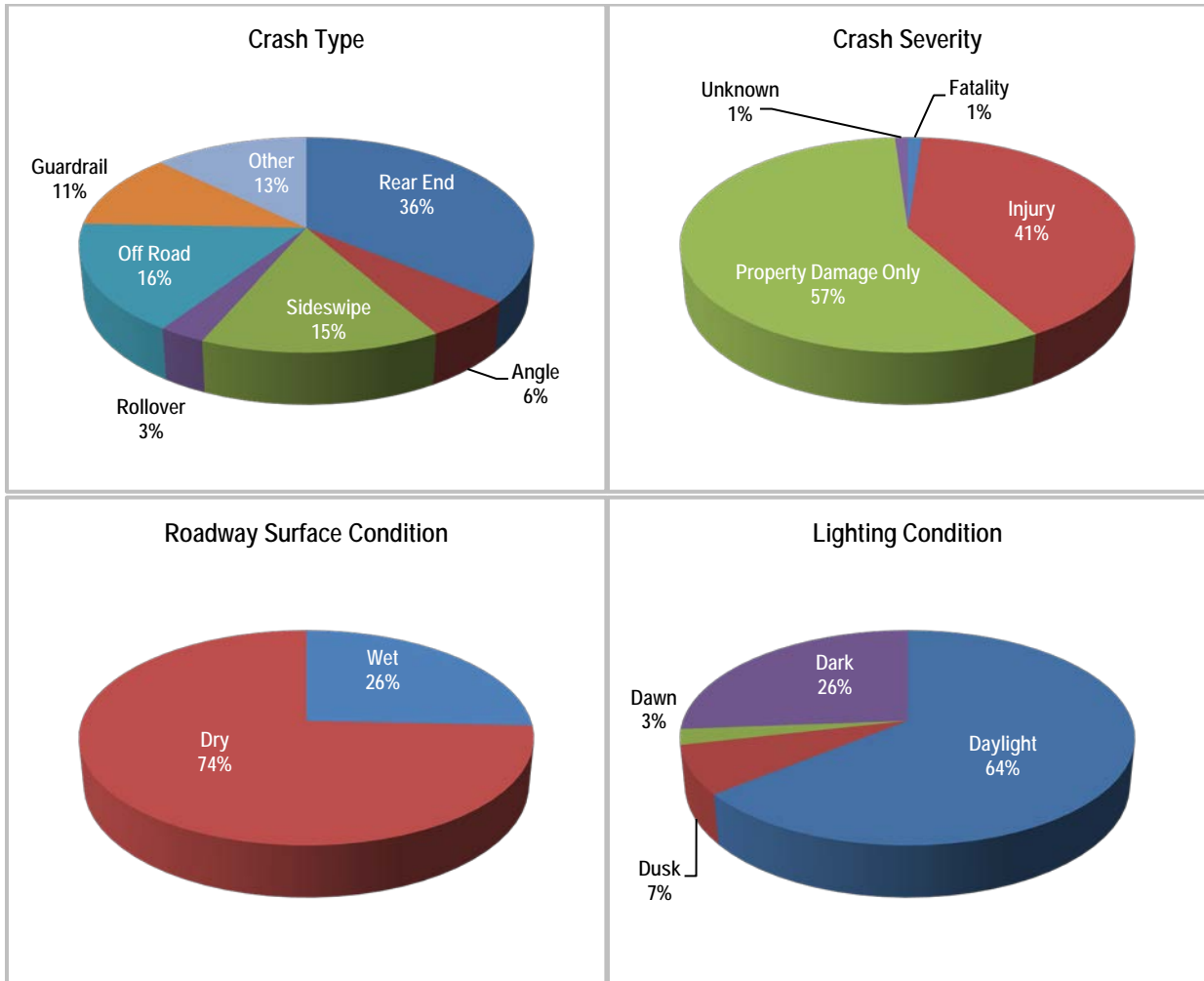
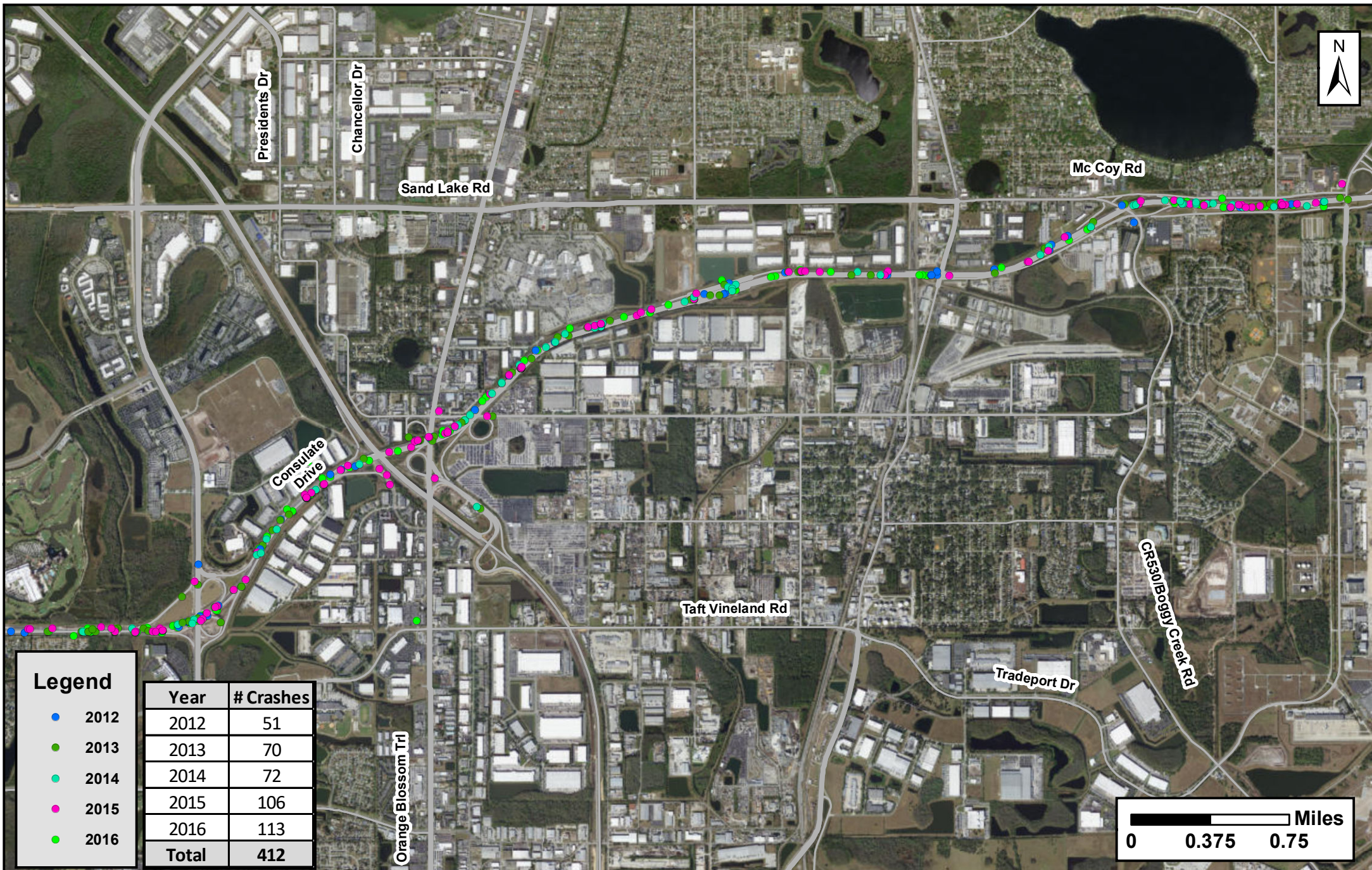
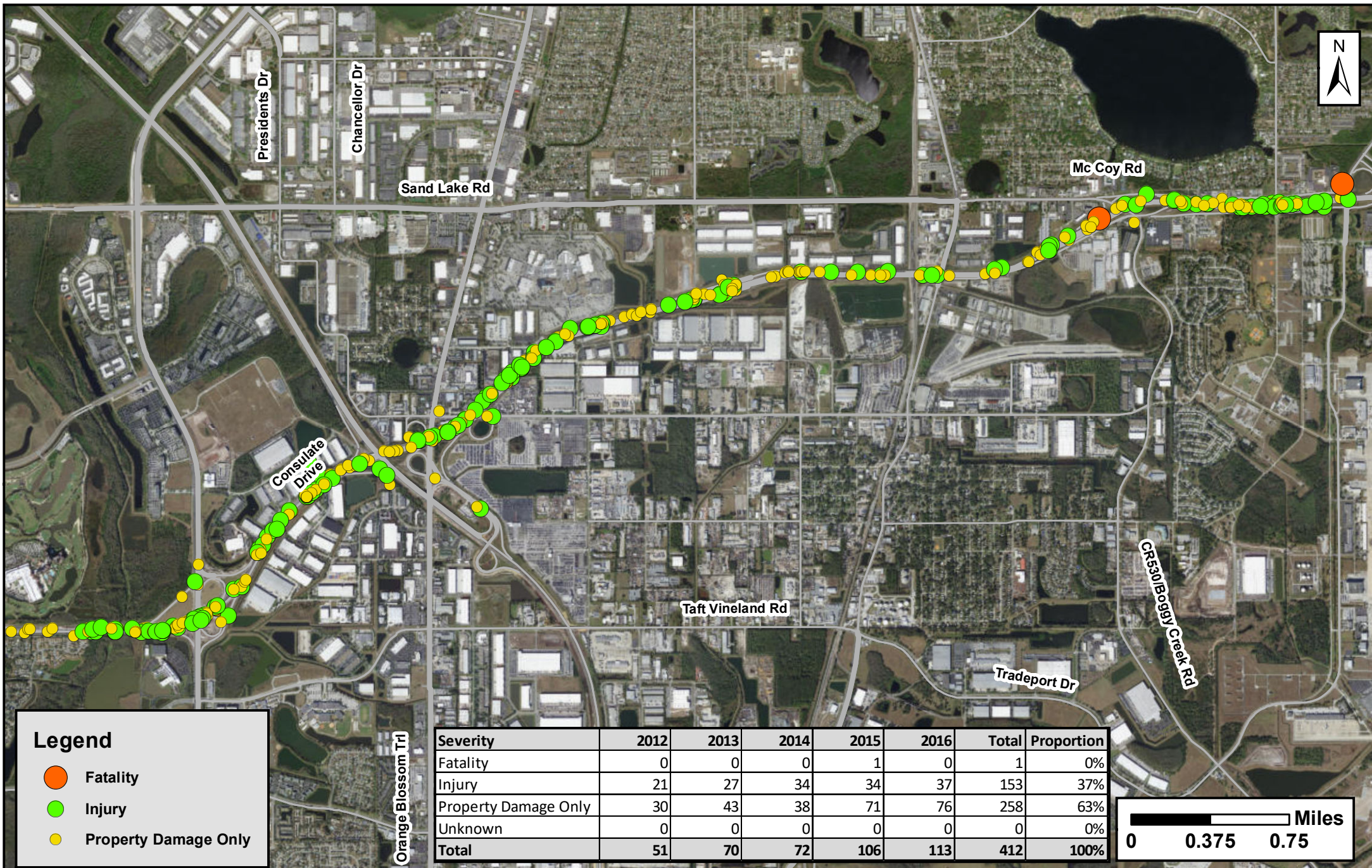


Figure 3.10
2012 through 2016 Crash Data Summary – Florida’s Turnpike Mainline (MP 251 to 259)







Severity	2012	2013	2014	2015	2016	Total	Proportion
Fatality	0	0	0	1	0	1	0%
Injury	21	27	34	34	37	153	37%
Property Damage Only	30	43	38	71	76	258	63%
Unknown	0	0	0	0	0	0	0%
Total	51	70	72	106	113	412	100%

Legend

- Fatality
- Injury
- Property Damage Only



Systems Interchange Justification Report (SIJR)
 Florida's Turnpike & SR 528
 Orlando South Ultimate Interchange PD&E Study

SR 528
 Severity of Crashes

Figure
 3.12

Figure 3.13
2012 through 2016 Crash Data Summary – SR 528 Mainline (MP 2.5 to 8.5)

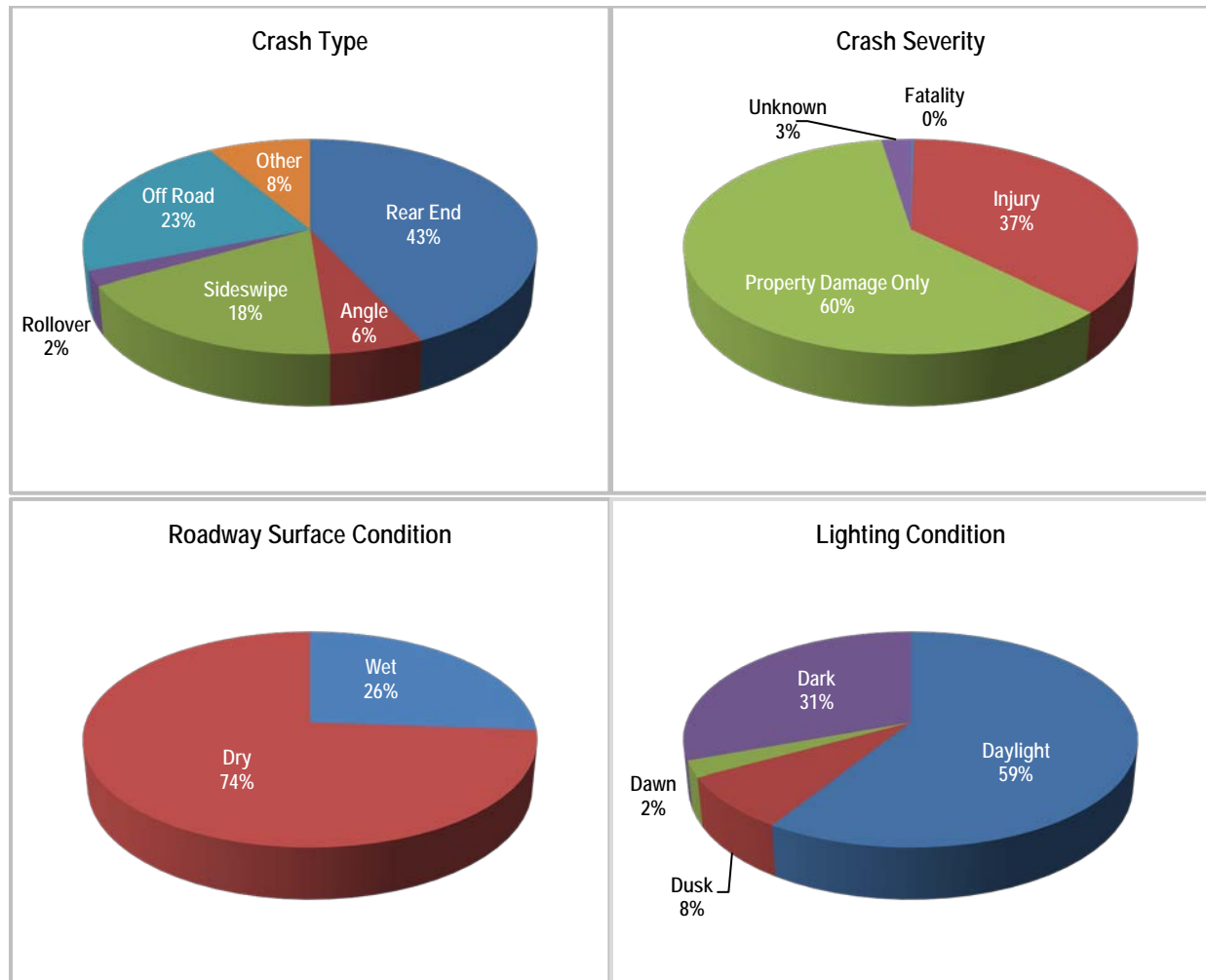


Table 3.3
2012 through 2016 Roadway Crash Rates and Safety Ratios

Description	Total Crashes	Actual Crash Rate	Average Crash Rate*	Critical Crash Rate	Safety Ratio
Florida's Turnpike					
SR 417 to I-4	763	0.48	0.64	0.75	0.65
SR 528 Mainline					
CR 423 to McCoy Road	412	0.39	0.64	0.77	0.51

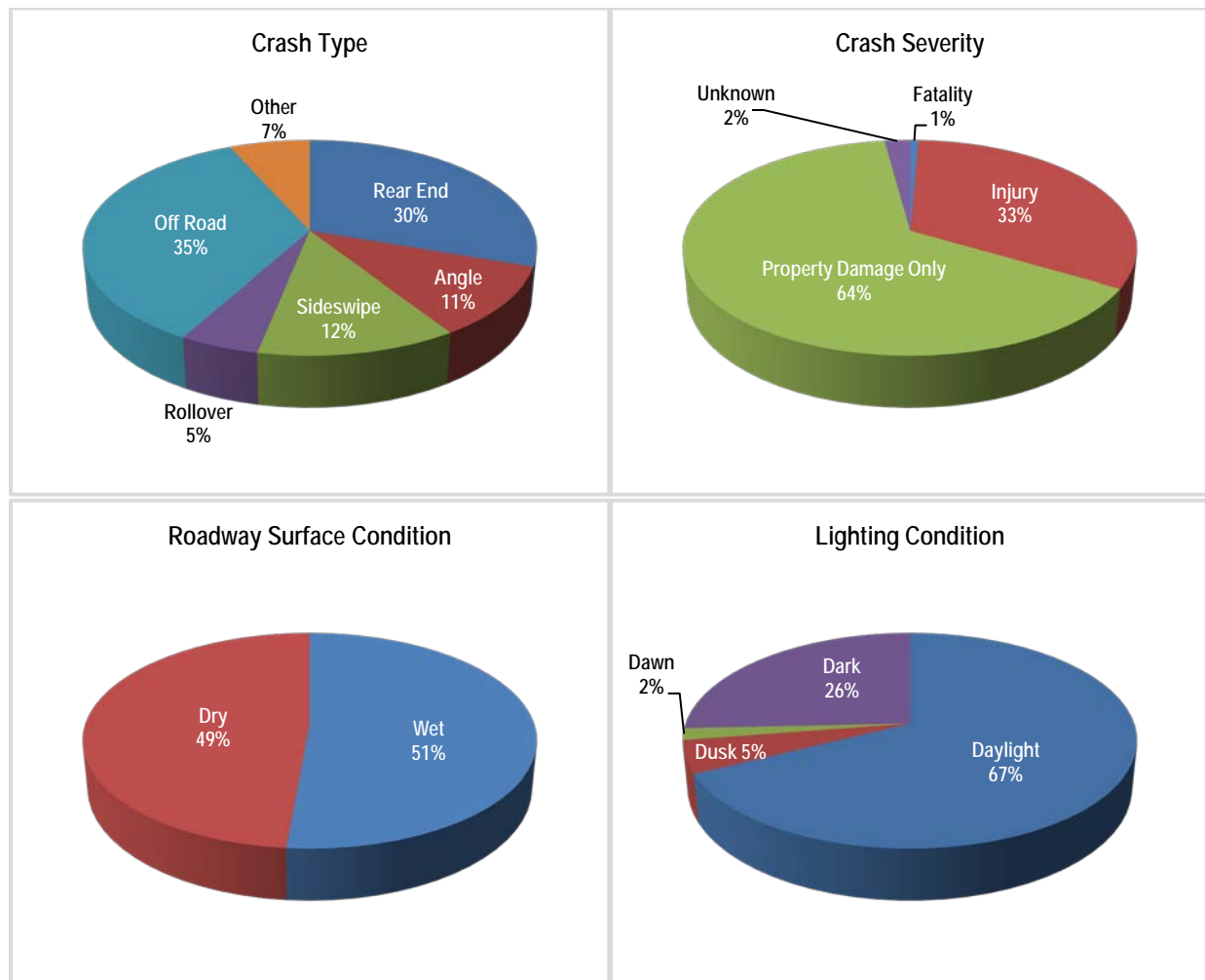
Notes:
 *FDOT CARS Orange County, 5-year Average Crash Rate
 Crash Rate used for "Toll Road Urban"
 Turnpike and SR 528 Mainline: Toll Road Urban
 Freeways: Crashes per MVMT

The data for Florida's Turnpike and SR 528 interchange ramp roadways were also processed. Note that no crash data are available for the new interchange at Florida's Turnpike and SR 417. A brief discussion of the crash data analysis for each interchange ramp segment is provided.

Florida’s Turnpike at I-4 Interchange Ramp Roadways (MP 259)

The Florida’s Turnpike at I-4 interchange ramps experienced a total of 284 crashes during the five-year analysis period. The number of crashes varied between 31 in 2012 and 74 in 2014. There were two fatal crashes reported during the study period. Both fatal crashes were single vehicle crashes. At least 33 percent of the total crashes resulted in injuries. As shown on **Figure 3.14**, off-road crashes (approximately 35 percent) and rear-end crashes (approximately 30 percent) were the prominent crash types along the interchange ramps. Reports indicated that 51 percent of the crashes occurred during wet roadway conditions and 26 percent crashes occurred during night-time hours. A crash data summary for the ramp segments at this interchange is shown on **Figure 3.14**.

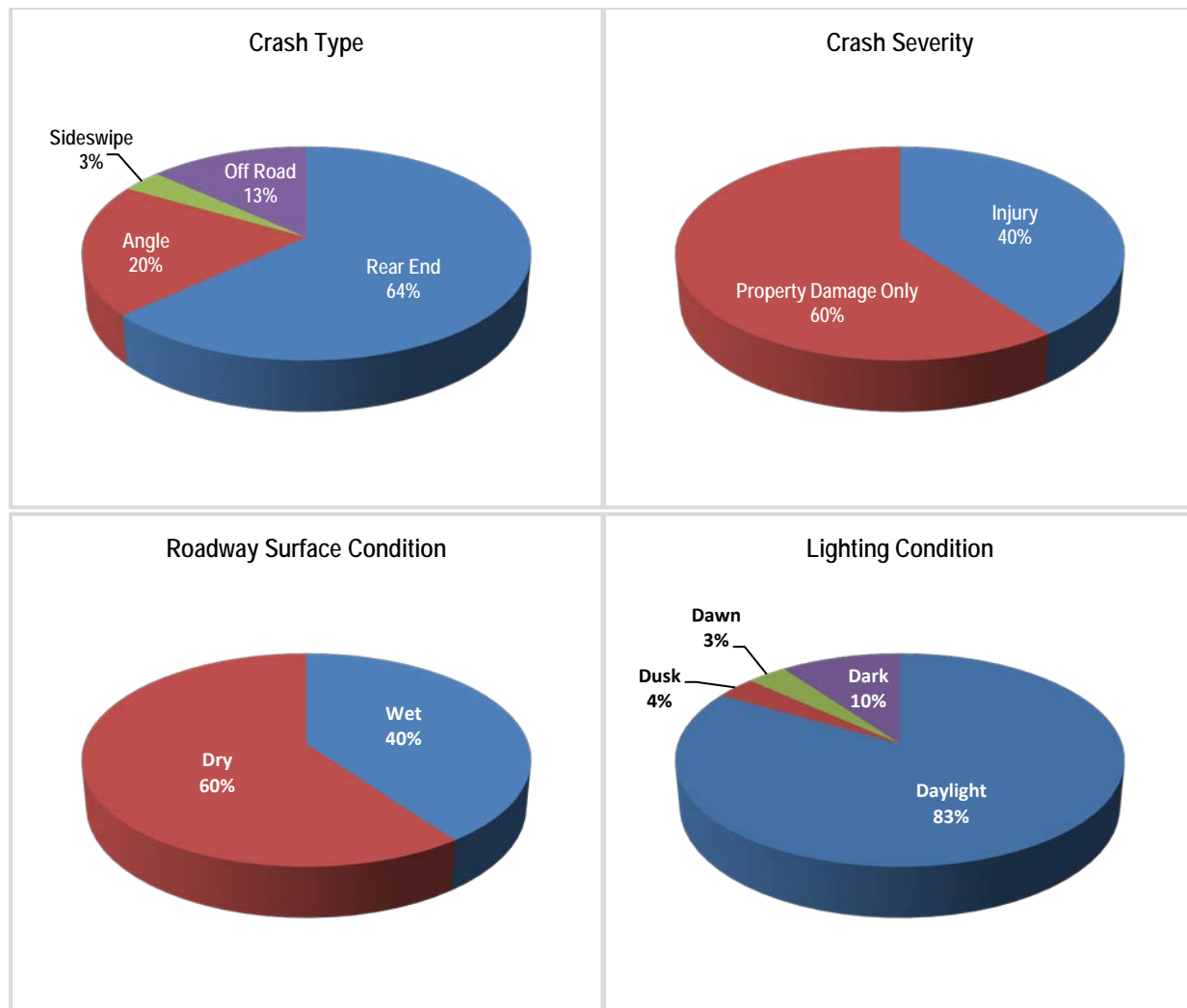
Figure 3.14
2012 through 2016 Crash Data Summary – Florida’s Turnpike at I-4 Interchange Ramps



Florida’s Turnpike at Consulate Drive Interchange Ramp Roadway (MP 255)

A total of 30 crashes were reported along the Consulate Drive off-ramp during the five-year analysis period. The number of crashes varied from 1 in 2012 to 10 in 2015. Rear-end crashes constituted approximately 64 percent of the total crashes. No fatal crashes were reported along the ramps during the analysis years. At least 40 percent of the crashes resulted in injuries. As shown on **Figure 3.15**, 40 percent of the crashes occurred during wet conditions and 10 percent of the crashes occurred during night time.

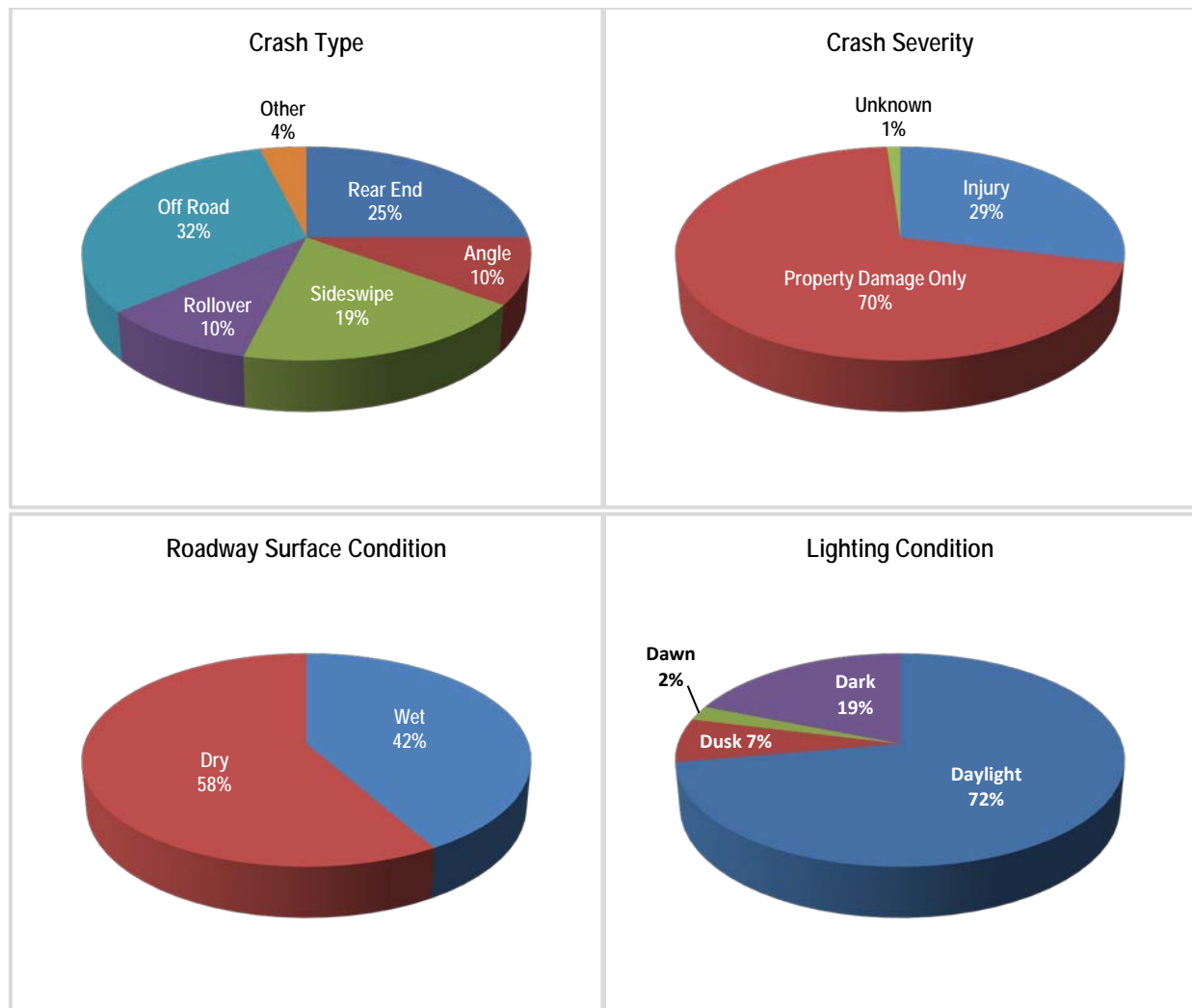
Figure 3.15
2012 through 2016 Crash Data Summary – Florida’s Turnpike at Consulate Drive Interchange Ramp



Florida’s Turnpike at Orlando South Interchange Ramp Roadways (MP 254)

A total of 180 crashes were reported along the Orlando South interchange ramps during the five-year analysis period. The number of crashes was evenly distributed over the five years. At least 29 percent of the crashes resulted in injuries. Prominent crash types reported at the interchange include off-road crashes (32 percent), rear-end crashes (25 percent) and sideswipe crashes (19 percent). As shown on **Figure 3.16**, 42 percent of the crashes occurred during wet conditions and 19 percent of the crashes occurred during night time.

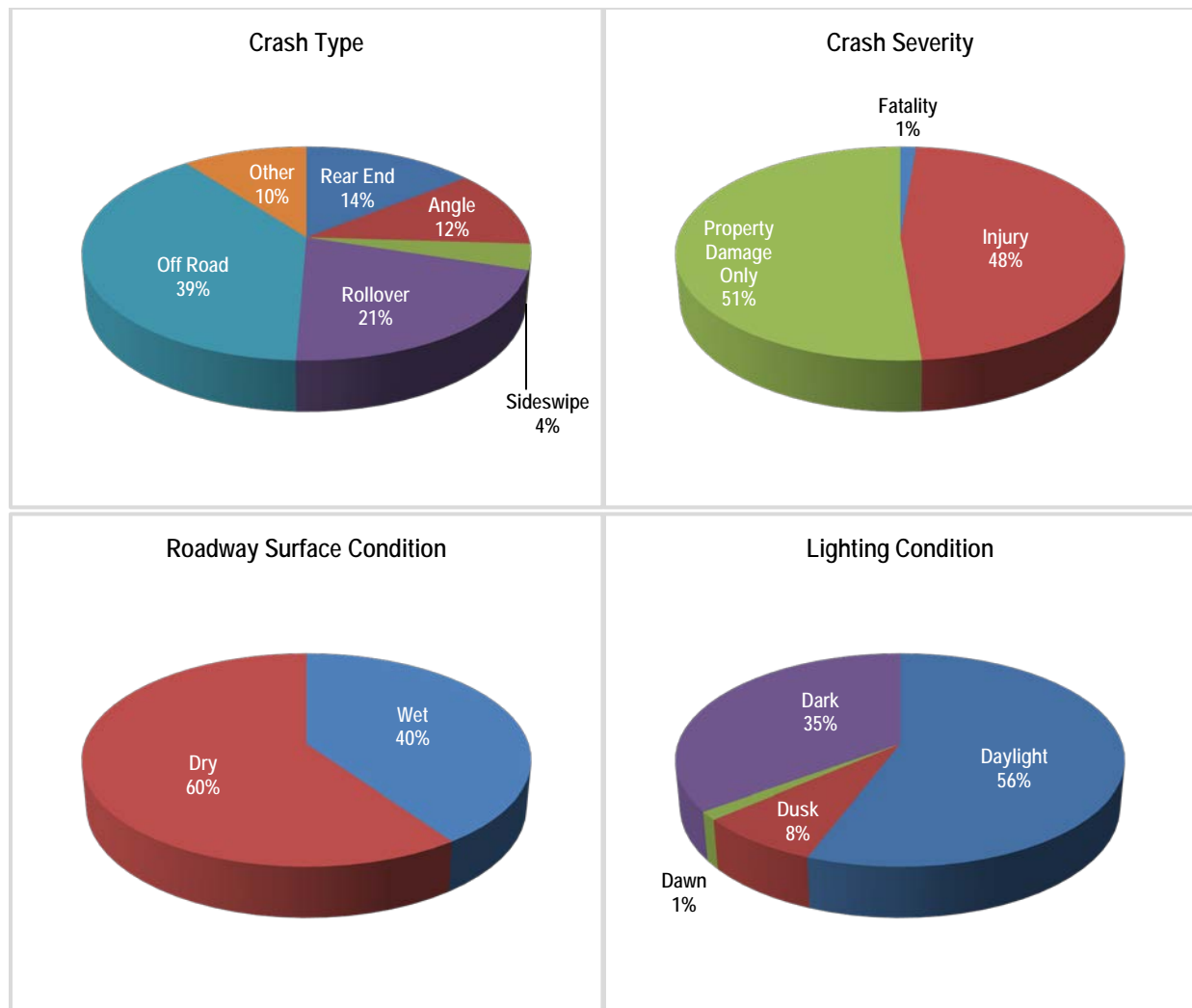
Figure 3.16
2012 through 2016 Crash Data Summary – Florida’s Turnpike at Orlando South Interchange Ramps



SR 528 at CR 423 Interchange Ramp Roadways (MP 3A & 3B)

The SR 528 at CR 423 interchange ramps experienced a total of 77 crashes during the five-year analysis period. One fatal crash was reported during the study period. At least 48 percent of the total crashes resulted in injuries. As shown on **Figure 3.17**, off-road crashes (39 percent) and rollover crashes (21 percent) were the prominent crash types along the interchange ramps. Reports indicated that 40 percent of the crashes occurred during wet roadway conditions and 35 percent crashes occurred during night time.

Figure 3.17
2012 through 2016 Crash Data Summary – SR 528 at CR 423 Interchange Ramps



SR 528 at Consulate Drive and Landstreet Road Interchange Ramp Roadways (MP 4)

The SR 528 at Consulate Drive interchange ramps experienced a total of 42 crashes from 2012 through 2016. At least 29 percent of the total crashes resulted in injuries. As shown on **Figure 3.18**, angle crashes (49 percent) and rear-end crashes (20 percent) were the prominent crash types along the interchange ramps.

A total 29 crashes were reported at SR 528 and Landstreet Road eastbound on-ramps and westbound off-ramps. Approximately 76 percent of the total crashes resulted in property damage only. As shown on **Figure 3.19**, off-road crashes (59 percent) and rear-end crashes (21 percent) were the prominent crash types along the interchange ramps.

The ramp segment from Florida Turnpike northbound (junction of US 17/92/441) to SR 528 eastbound experienced a total 29 crashes from 2012 to 2016.

Figure 3.18
2012 through 2016 Crash Data Summary – SR 528 at Consulate Drive Interchange Ramps

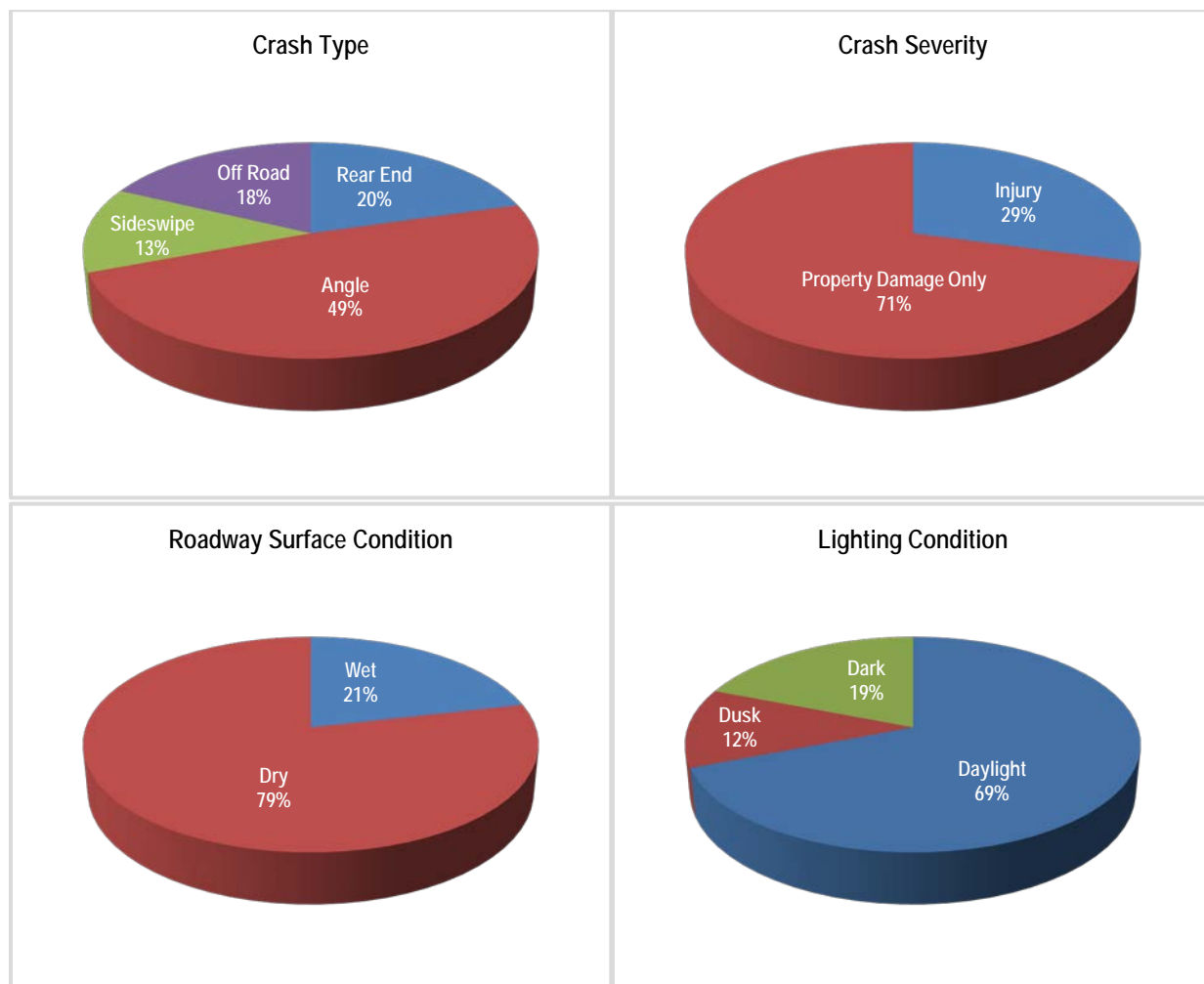
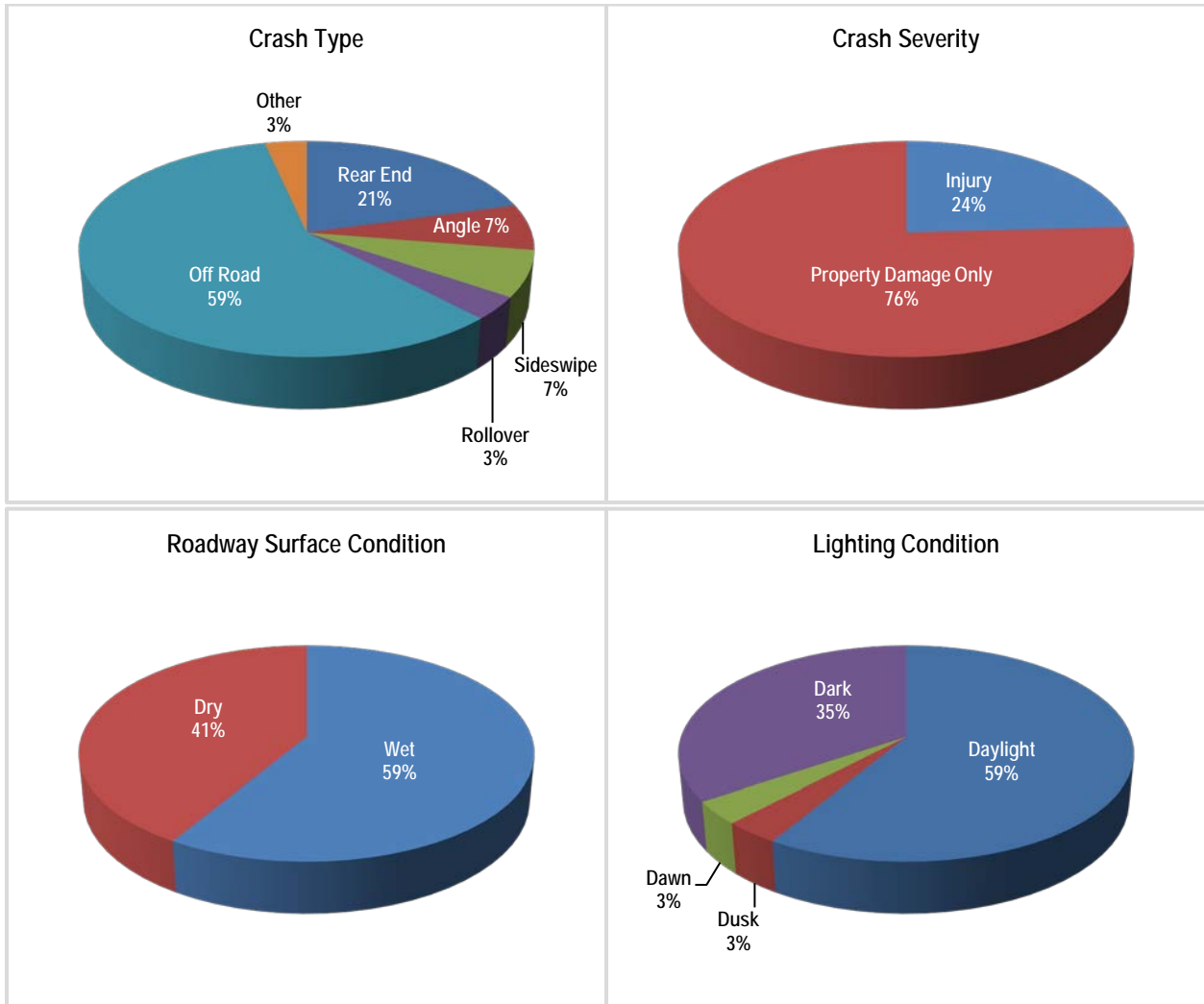


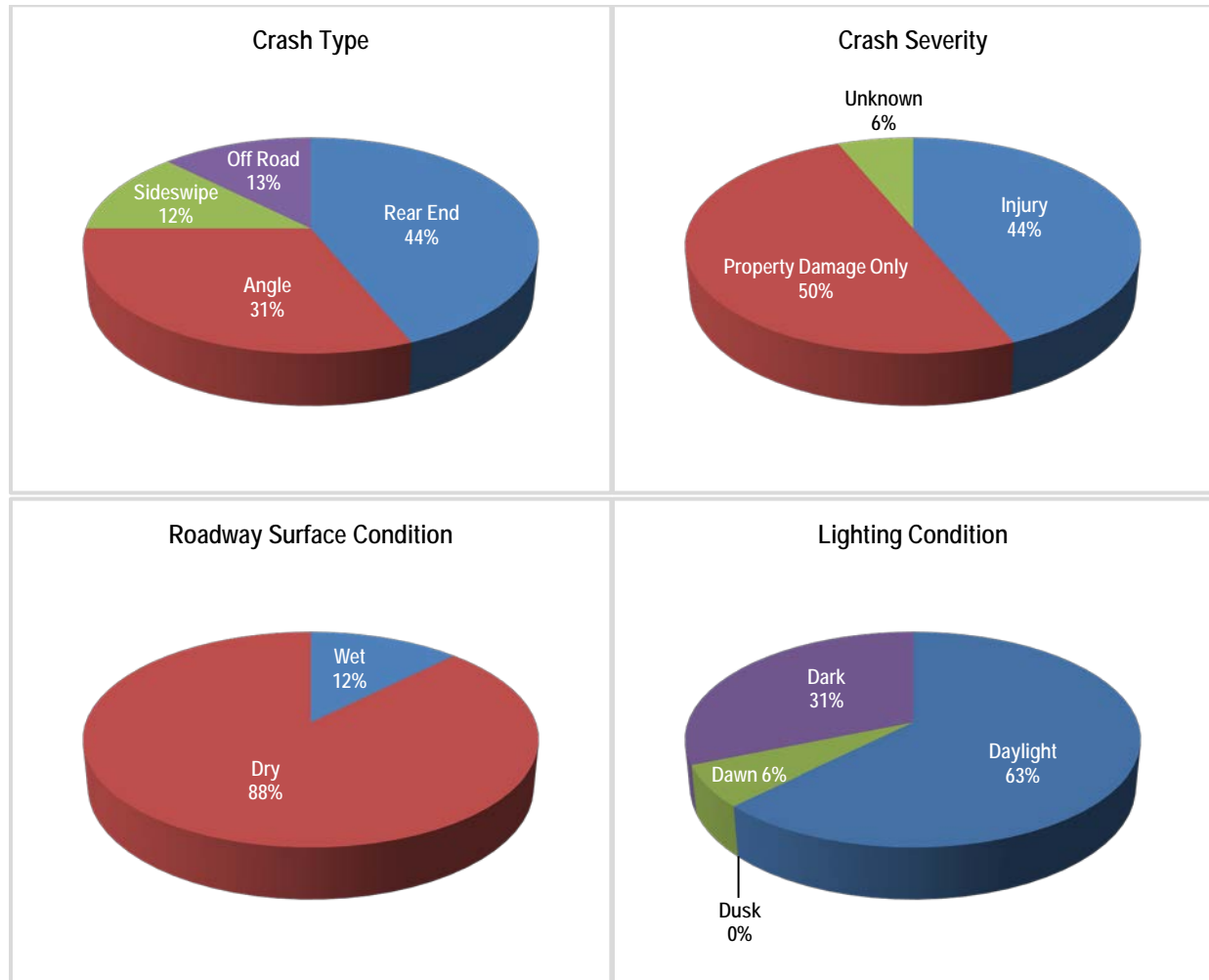
Figure 3.19
2012 through 2016 Crash Data Summary – SR 528 at Landstreet Road Interchange Ramps



SR 528 at McCoy Road Interchange Ramp Segments (MP 8)

A total of 16 crashes were reported along the McCoy Road/Jetport Drive interchange ramps during the five-year analysis period. Prominent crash types reported at the interchange include angle crashes (31 percent), rear-end crashes (44 percent) and sideswipe crashes (12 percent). As shown on **Figure 3.20**, 12 percent of the crashes occurred during wet conditions and 31 percent of the crashes occurred during night-time hours.

Figure 3.20
2012 through 2016 Crash Data Summary – SR 528 at McCoy Road Interchange Ramps



Actual crash rates for the ramp segments were computed and compared with average crash rates for similar facilities within Orange County to assess the safety condition within the study area. If a segment has an actual crash rate higher than the critical crash rate (i.e., safety ratio > 1.0), it may have a safety deficiency. The crash rates are presented in **Table 3.4**. The Consulate Drive ramps at the Florida’s Turnpike and SR 528 interchange have a safety ratio greater than one, indicating that these may be high crash locations. The Florida’s Turnpike southbound mainline and off-ramp to Consulate Drive experience severe congestion during the morning commute. The US 17/92/441 intersection at Consulate Drive is currently over capacity in the PM and traffic backs up to the SR 528 mainline. Also, Landstreet Road loop-ramps at SR 528 have a safety ratio greater than one. The other interchange ramp segments within the study area have actual crash rate lower than the critical crash rate indicating that these ramp segments have lower crash rates compared to similar segments within the state.

Table 3.4
2012 through 2016 Ramp Segments Crash Rates and Safety Ratios

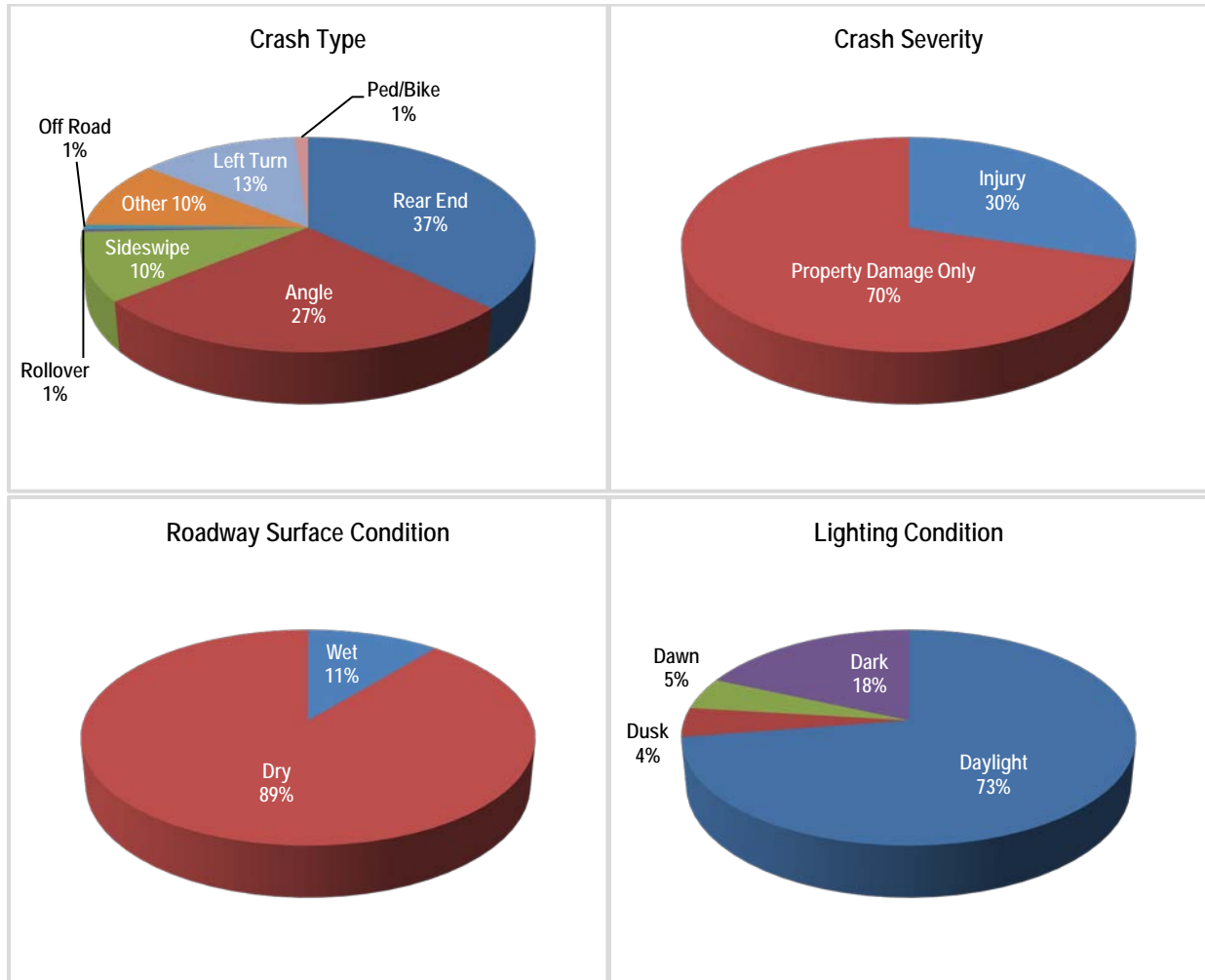
Description	Total Crashes	Actual Crash Rate	Average Crash Rate*	Critical Crash Rate	Safety Ratio
Florida’s Turnpike Interchanges					
I-4 Interchange Ramps	284	0.88	0.64	0.88	1.00
Consulate Drive Interchange Ramp	30	9.58	0.64	3.79	2.53
Orlando South Interchange Ramps	180	0.68	0.64	0.91	0.75
SR 528 Interchanges					
CR 423 Interchange Ramps	77	0.66	0.64	1.05	0.63
Consulate Drive Interchange Ramps	42	2.86	0.64	1.90	1.51
Landstreet Road Interchange Ramps	29	4.26	0.64	2.60	1.64
US 17/92/441 Interchange Ramps	29	0.70	0.64	0.70	0.99
McCoy Road Interchange Ramps	16	0.73	0.64	1.64	0.44

Notes:
 *FDOT CARS Orange County, 5-year Average Crash Rate
 Crash rate not available, used rate for “Toll Road Urban”
 All Interchange Ramps: Ramps Urban
 Freeways: Crashes per MVMT
 Highlighted Safety Ratio >1.0

Intersection crashes were extracted by providing a 250-foot influence area. A brief discussion of the crash analysis for each intersection is provided below.

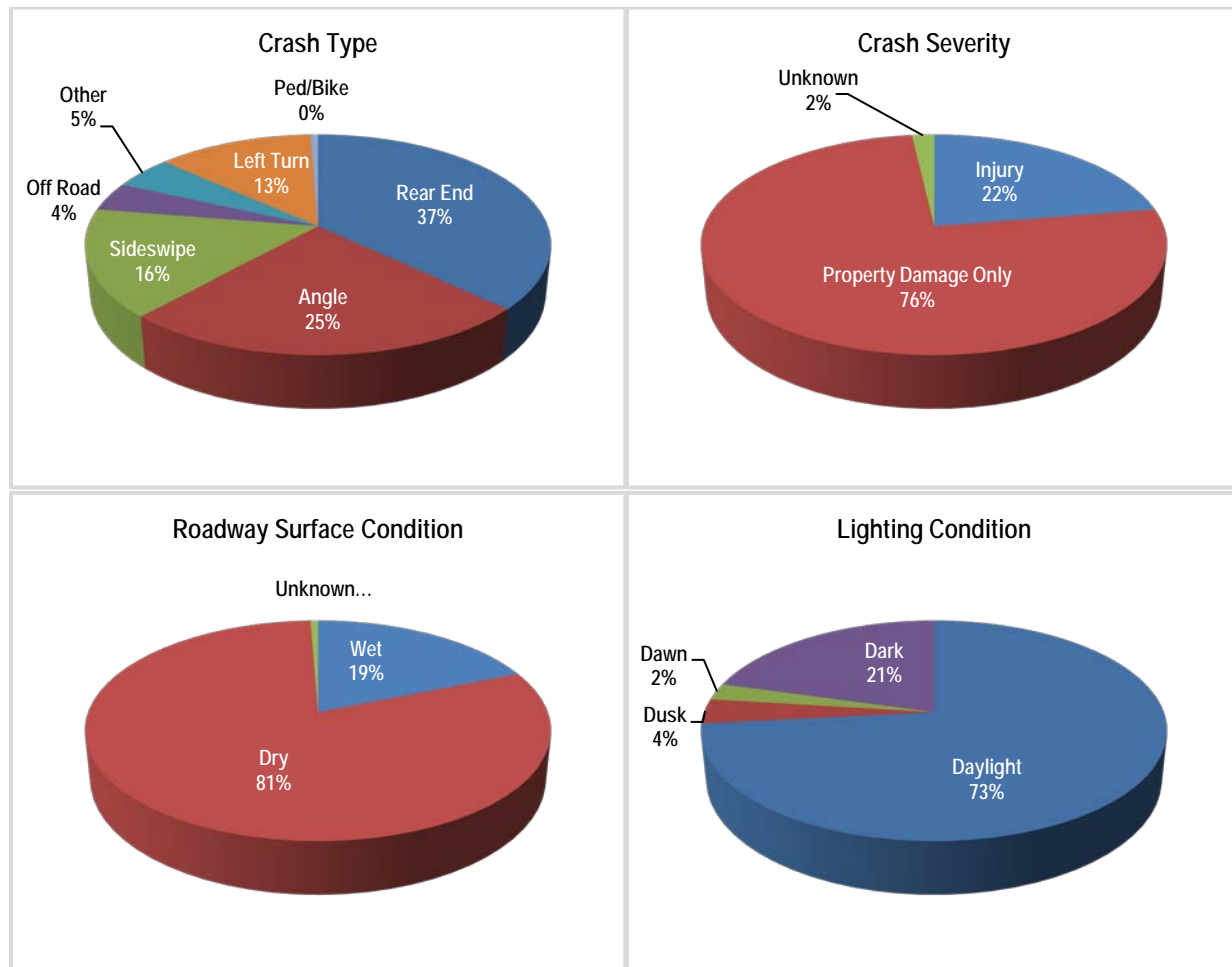
A total of 273 crashes were reported at the intersection of US 17/92/441 and Taft Vineland Road from 2012 through 2016. Two fatal crashes were reported during the five-year analysis period. Rear-end and angle crashes constituted the majority (37 percent and 27 percent, respectively) of the crashes. As shown on **Figure 3.21**, a majority of the crashes occurred under dry roadway conditions and 15 percent of the crashes occurred under dark lighting conditions.

Figure 3.21
2012 through 2016 Crash Data Summary – US 17/92/441 at Taft Vineland Road Intersection



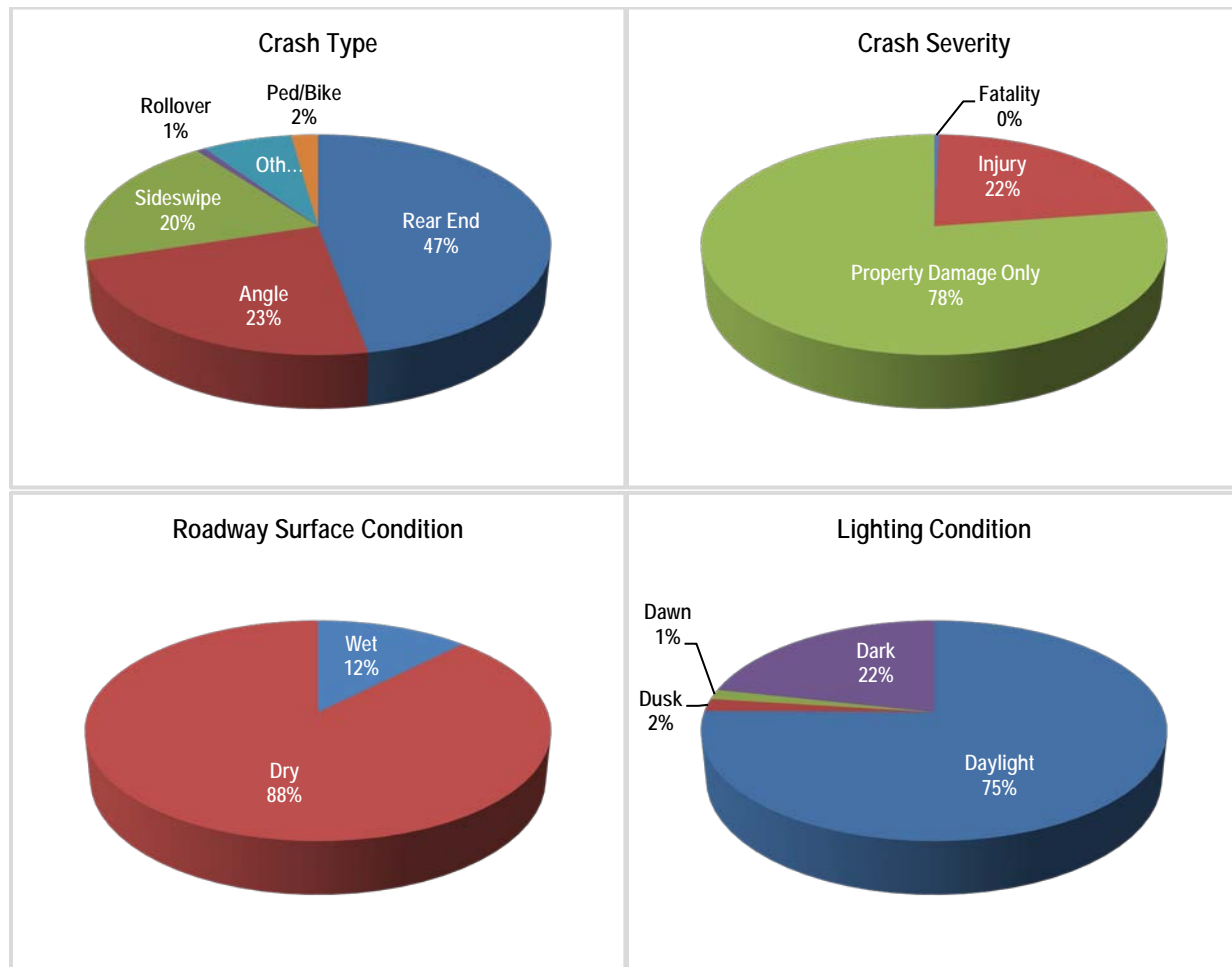
A total of 165 crashes were reported at the intersection of US 17/92/441 and Consulate Drive from 2012 through 2016. No fatal crashes were reported during the five-year analysis period. Rear-end and angle crashes constituted a majority (37 percent and 25 percent, respectively) of the crashes. As shown on **Figure 3.22**, the majority (81 percent) of the crashes occurred under dry roadway conditions and 21 percent of the crashes occurred under dark lighting conditions.

Figure 3.22
2012 through 2016 Crash Data Summary – US 17/92/441 at Consulate Drive Intersection



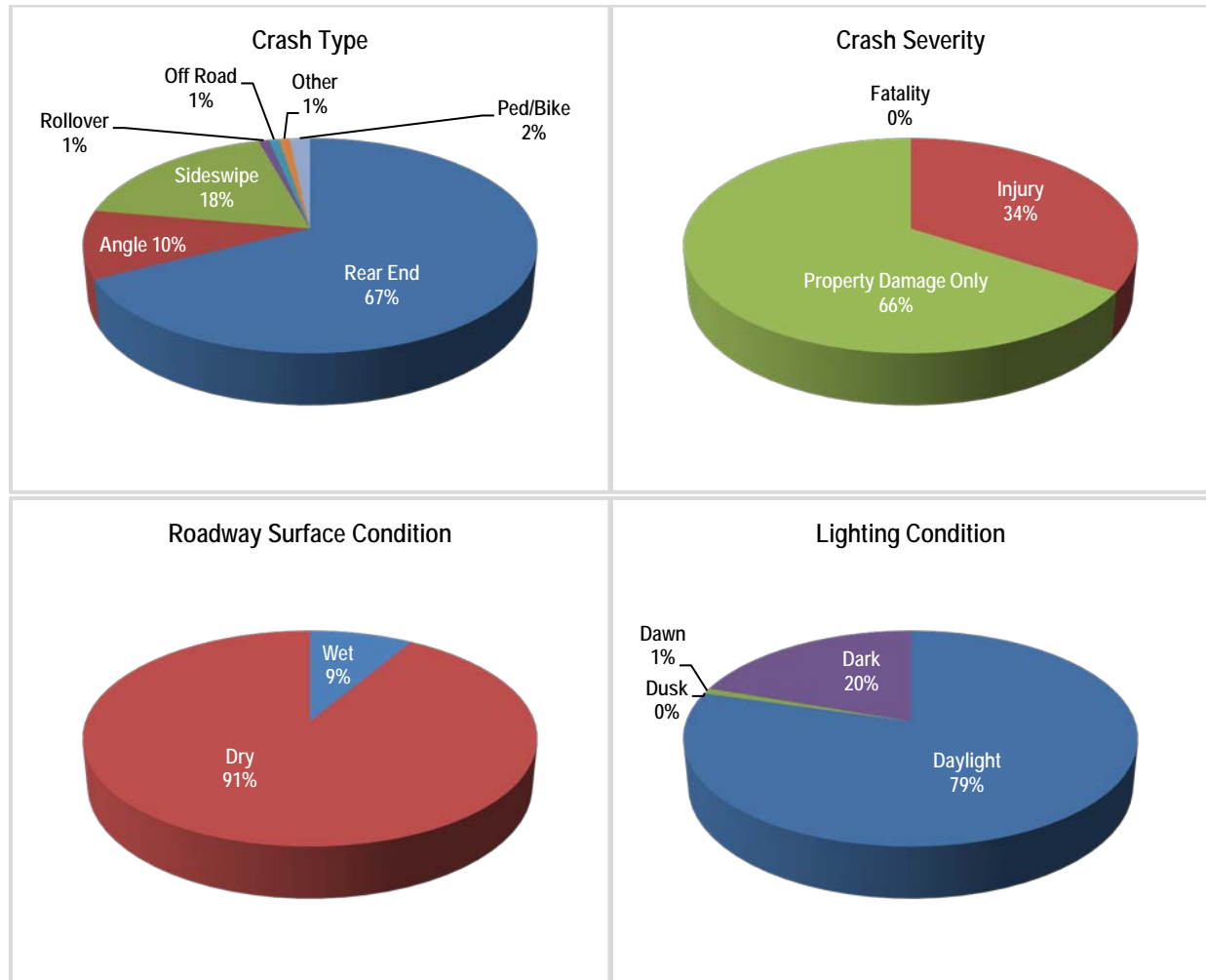
A total of 274 crashes were reported at the intersection of US 17/92/441 and Landstreet Road from 2012 through 2016. One fatal crash was reported during the five-year analysis period. Rear-end and angle crashes constituted a majority (47 percent and 23 percent, respectively) of the crashes. As shown on **Figure 3.23**, the majority (88 percent) of the crashes occurred under dry roadway conditions and 22 percent of the crashes occurred under dark lighting conditions.

Figure 3.23
2012 through 2016 Crash Data Summary – US 17/92/441 at Landstreet Road Intersection



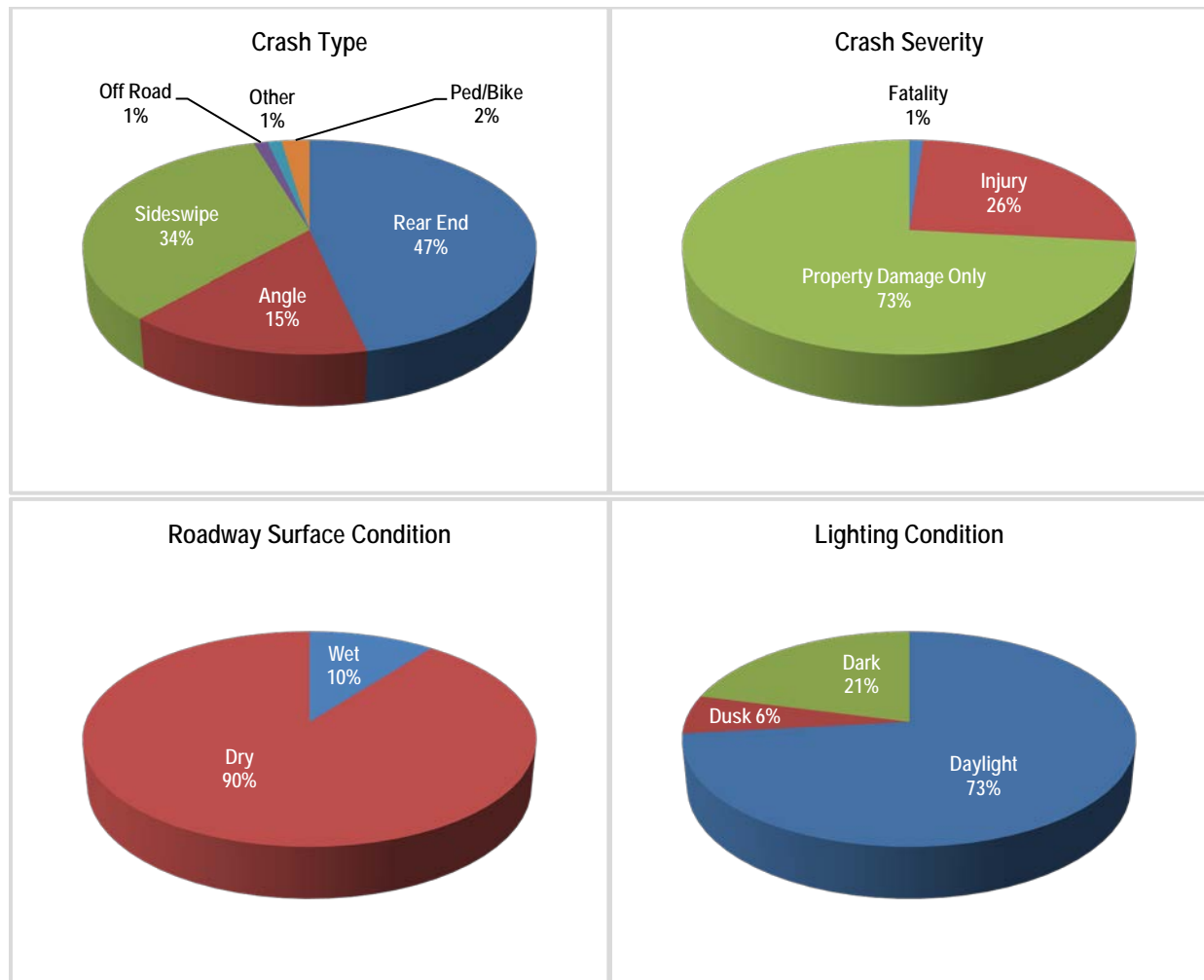
A total of 117 crashes were reported at the intersection of US17/92/441 and La Quinta Drive from 2012 through 2016. No fatal crash was reported during the five-year analysis period. Rear-end and sideswipe crashes constituted a majority (67 percent and 18 percent, respectively) of the crashes. As shown on **Figure 3.24**, the majority (91 percent) of the crashes occurred under dry roadway conditions and 20 percent of the crashes occurred under dark lighting conditions.

Figure 3.24
2012 through 2016 Crash Data Summary – US 17/92/441 at La Quinta Drive Intersection



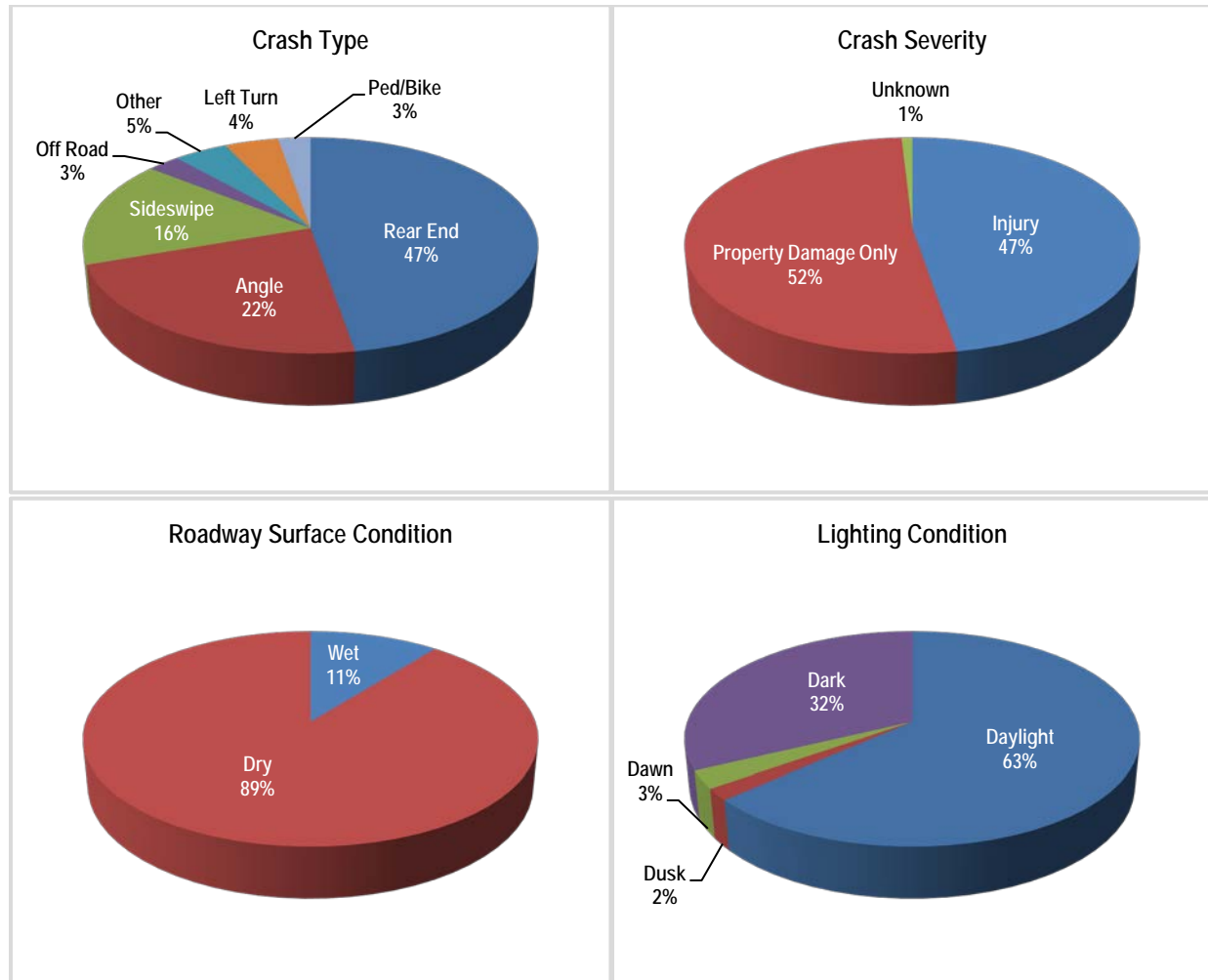
A total of 86 crashes were reported at the intersection of US 17/92/441 and Sunlife Path from 2012 through 2016. One fatal crash was reported during the five-year analysis period. Rear-end and sideswipe crashes constituted a majority (47 percent and 34 percent, respectively) of the crashes. As shown on **Figure 3.25**, the majority (90 percent) of the crashes occurred under dry roadway conditions and 21 percent of the crashes occurred under dark lighting conditions.

Figure 3.25
2012 through 2016 Crash Data Summary – US 17/92/441 at Sunlife Path Intersection



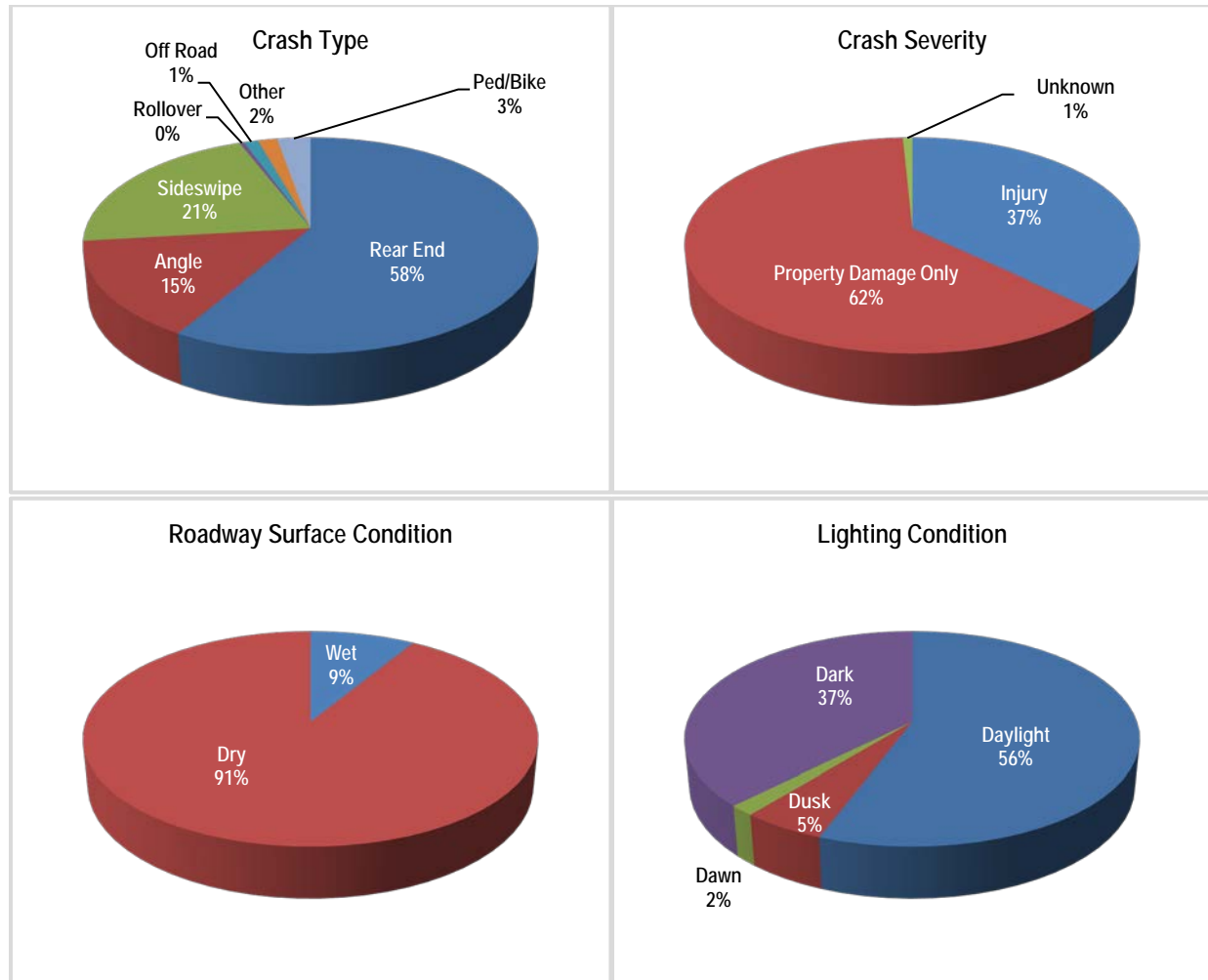
A total of 112 crashes were reported at the intersection of US 17/92/441 and August Lane from 2012 through 2016. No fatal crashes were reported during the five-year analysis period. As with other intersections, rear-end and angle crashes were again the majority (47 percent and 22 percent, respectively) of the crashes. As shown on **Figure 3.26**, the majority (89 percent) of the crashes occurred under dry roadway conditions and 32 percent of the crashes occurred under dark lighting conditions.

Figure 3.26
2012 through 2016 Crash Data Summary – US 17/92/441 at August Lane Intersection



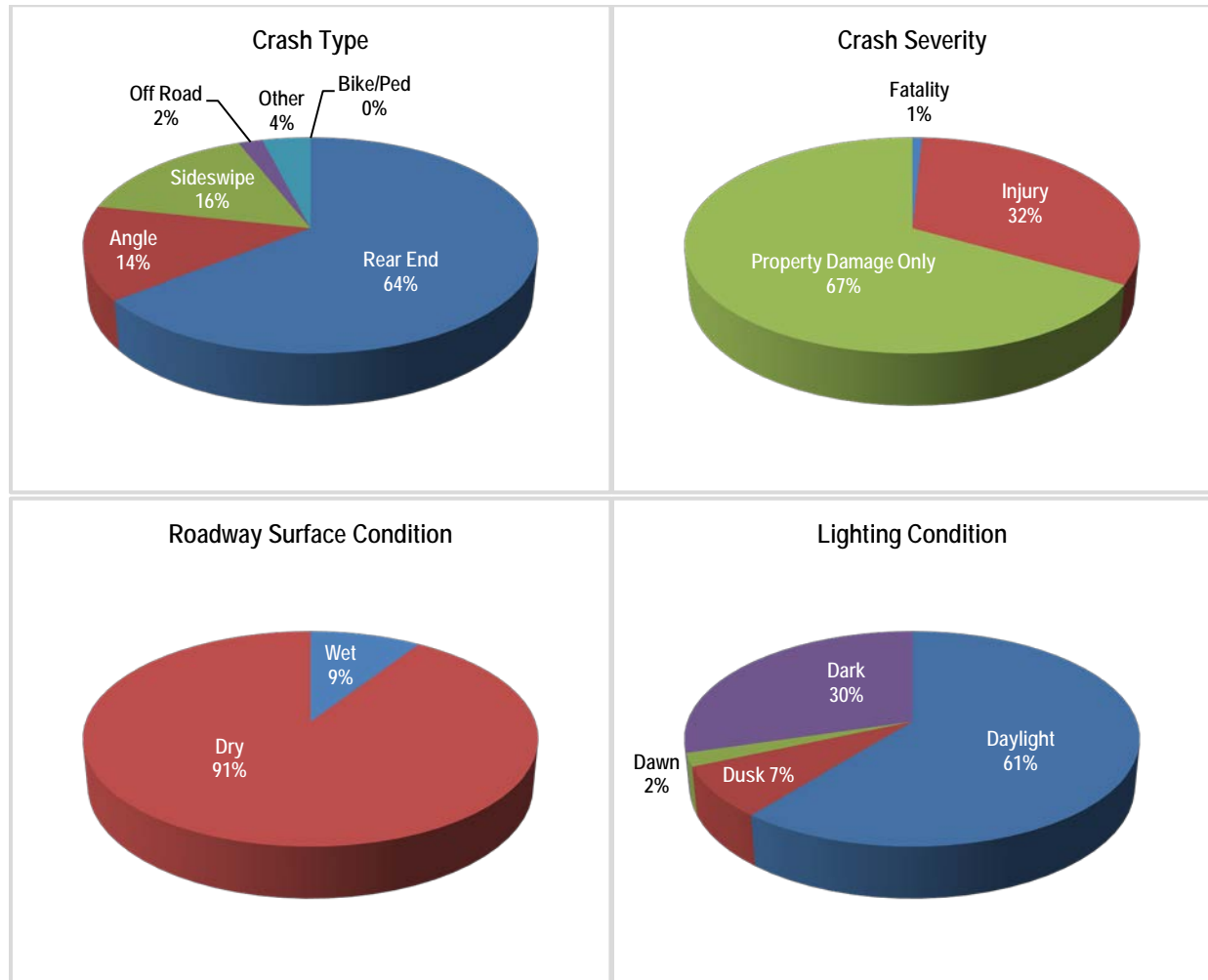
A total of 253 crashes were reported at the intersection of US 17/92/441 and SR 482 from 2012 through 2016. No fatal crashes were reported during the five-year analysis period. Rear-end and sideswipe crashes constituted a majority (approximately 58 percent and 21 percent, respectively) of the crashes. As shown on **Figure 3.27**, the majority (approximately 91 percent) of the crashes occurred under dry roadway conditions and 37 percent of the crashes occurred under dark lighting conditions.

Figure 3.27
2012 through 2016 Crash Data Summary – US 17/92/441 at SR 482 Intersection



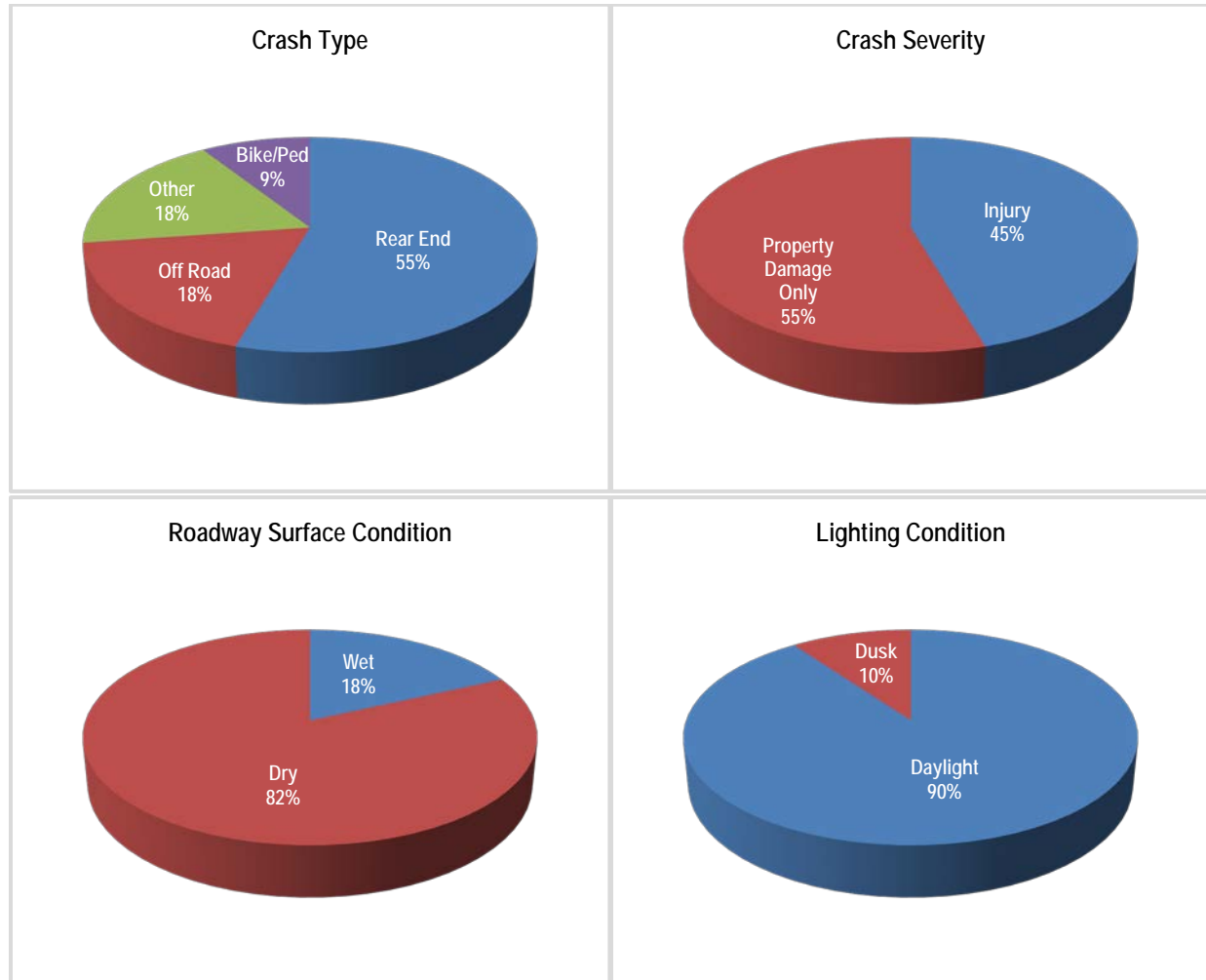
A total of 250 crashes were reported at the intersection of SR 482 and CR 423 from 2012 through 2016. Two fatal crashes were reported during the five-year analysis period. A majority of the crashes were rear-end, angle, and sideswipe crashes (approximately 64 percent, 14 percent, and 16 percent, respectively). As shown on **Figure 3.28**, the majority (91 percent) of the crashes occurred under dry roadway conditions and 30 percent of the crashes occurred under dark lighting conditions.

Figure 3.28
2012 through 2016 Crash Data Summary – SR 482 at CR 423 Intersection



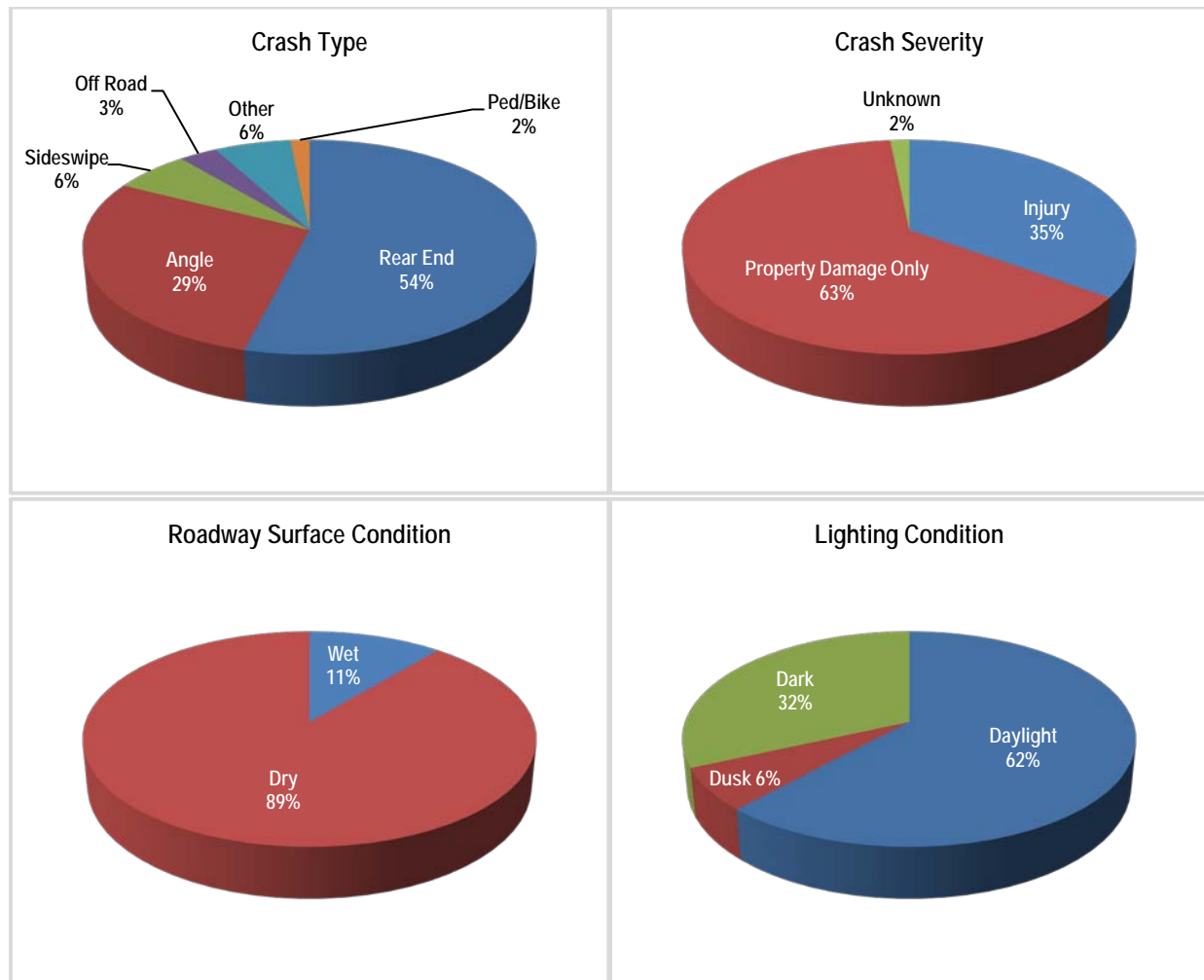
A total of 11 crashes were reported at the intersection of SR 482 and the Lowe’s/Wal-Mart entrance from 2012 through 2016. As shown on **Figure 3.29**, the majority (82 percent) of the crashes occurred under dry roadway conditions and 10 percent of the crashes occurred under dark lighting conditions. There was one pedestrian crash reported at this intersection.

Figure 3.29
2012 through 2016 Crash Data Summary – SR 482 at Lowe’s/Wal-Mart Entrance Intersection



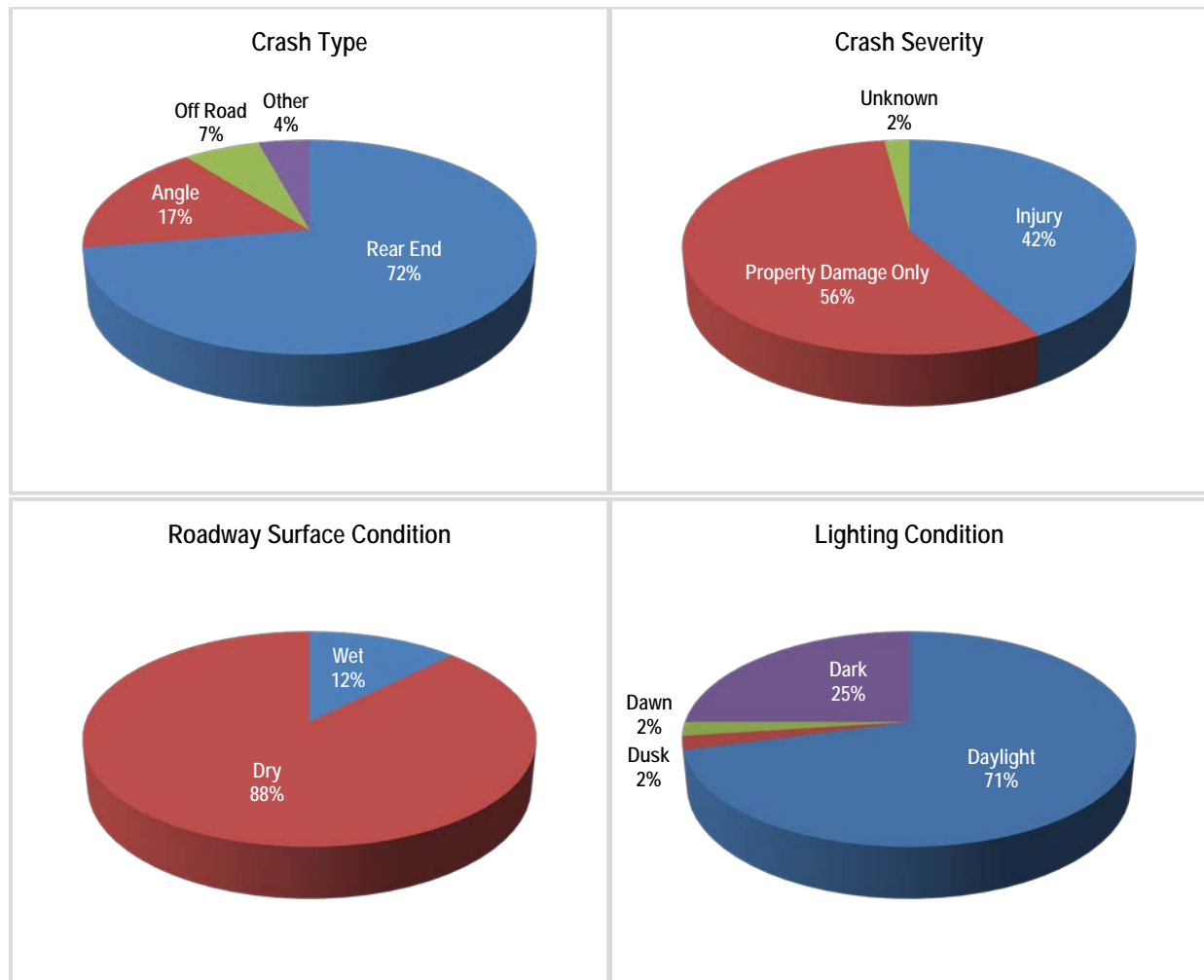
A total of 63 crashes were reported at the intersection of SR 482 at Presidents Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and angle crashes constituted a majority (54 percent and 29 percent, respectively) of the crashes. As shown on **Figure 3.30**, the majority (89 percent) of the crashes occurred under dry roadway conditions and 32 percent of the crashes occurred under dark lighting conditions.

Figure 3.30
2012 through 2016 Crash Data Summary – SR 482 at Presidents Drive Intersection



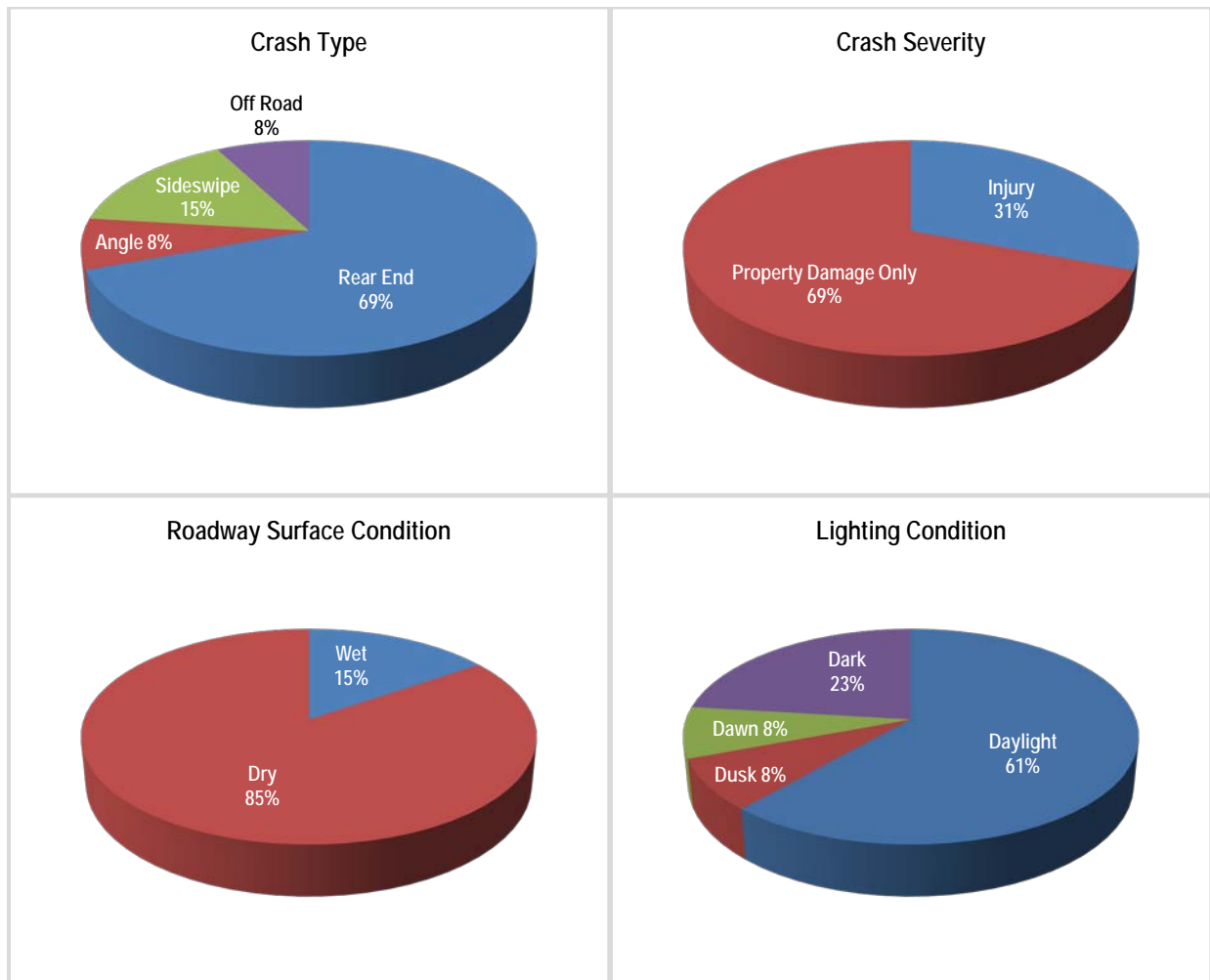
A total of 47 crashes were reported at the intersection of SR 482 and Chancellor Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and angle crashes constituted a majority (approximately 72 percent and 17 percent, respectively) of the crashes. As shown on **Figure 3.31**, the majority (88 percent) of the crashes occurred under dry roadway conditions and 25 percent of the crashes occurred under dark lighting conditions.

Figure 3.31
2012 through 2016 Crash Data Summary – SR 482 at Chancellor Drive Intersection



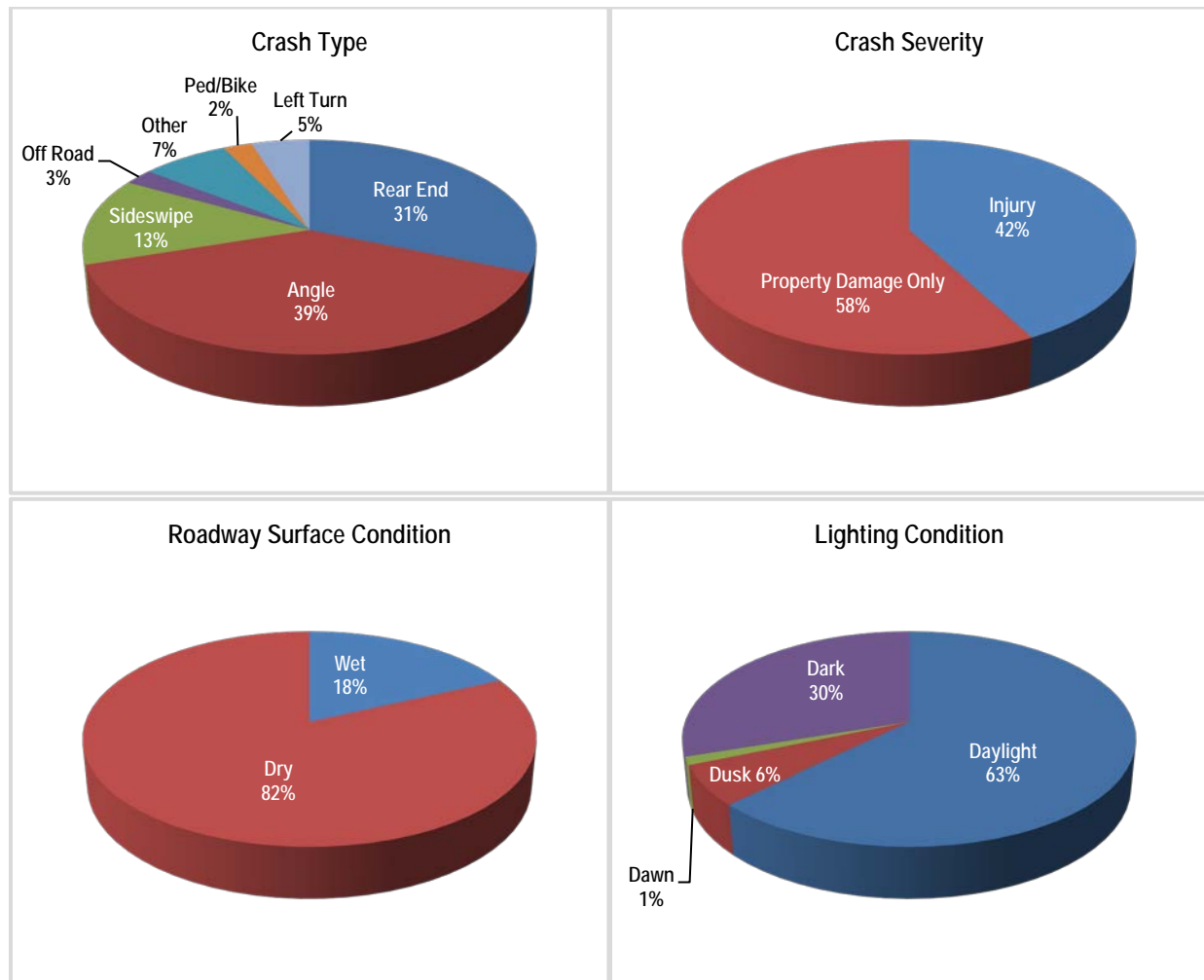
A total of 13 crashes were reported at the intersection of SR 482 and Lillwill Avenue from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and sideswipe crashes constituted the majority (69 percent and 15 percent, respectively) of the crashes. As shown on **Figure 3.32**, the majority (85 percent) of the crashes occurred under dry roadway conditions and 23 percent of the crashes occurred under dark lighting conditions.

Figure 3.32
2012 through 2016 Crash Data Summary – SR 482 and Lillwill Avenue Intersection



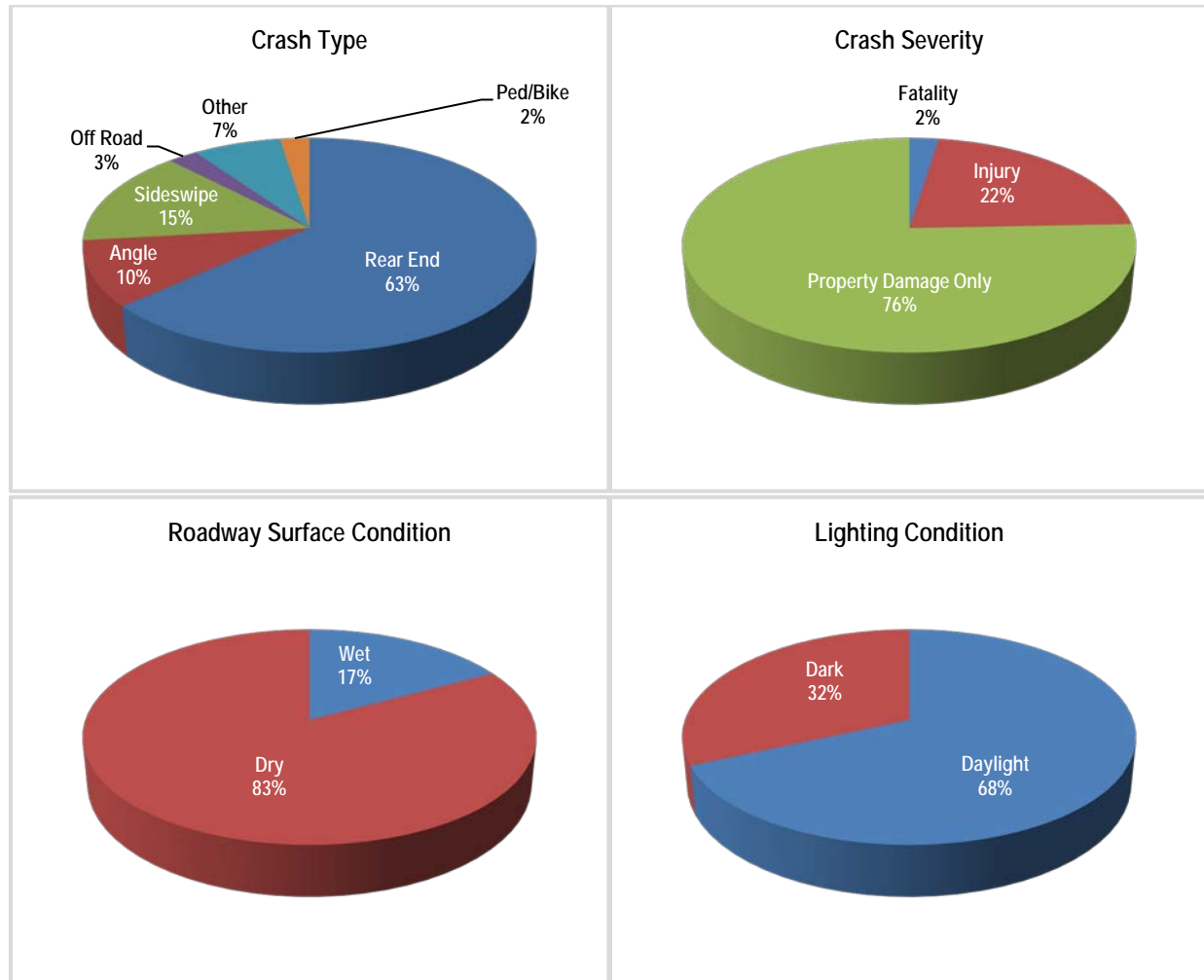
A total of 83 crashes were reported at the intersection of SR 482 and Skyview Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Angle and rear-end crashes constituted the majority (39 percent and 31 percent, respectively) of the crashes. As shown on **Figure 3.33**, the majority (82 percent) of the crashes occurred under dry roadway conditions and 30 percent of the crashes occurred under dark lighting conditions.

Figure 3.33
2012 through 2016 Crash Data Summary – SR 482 and Skyview Drive Intersection



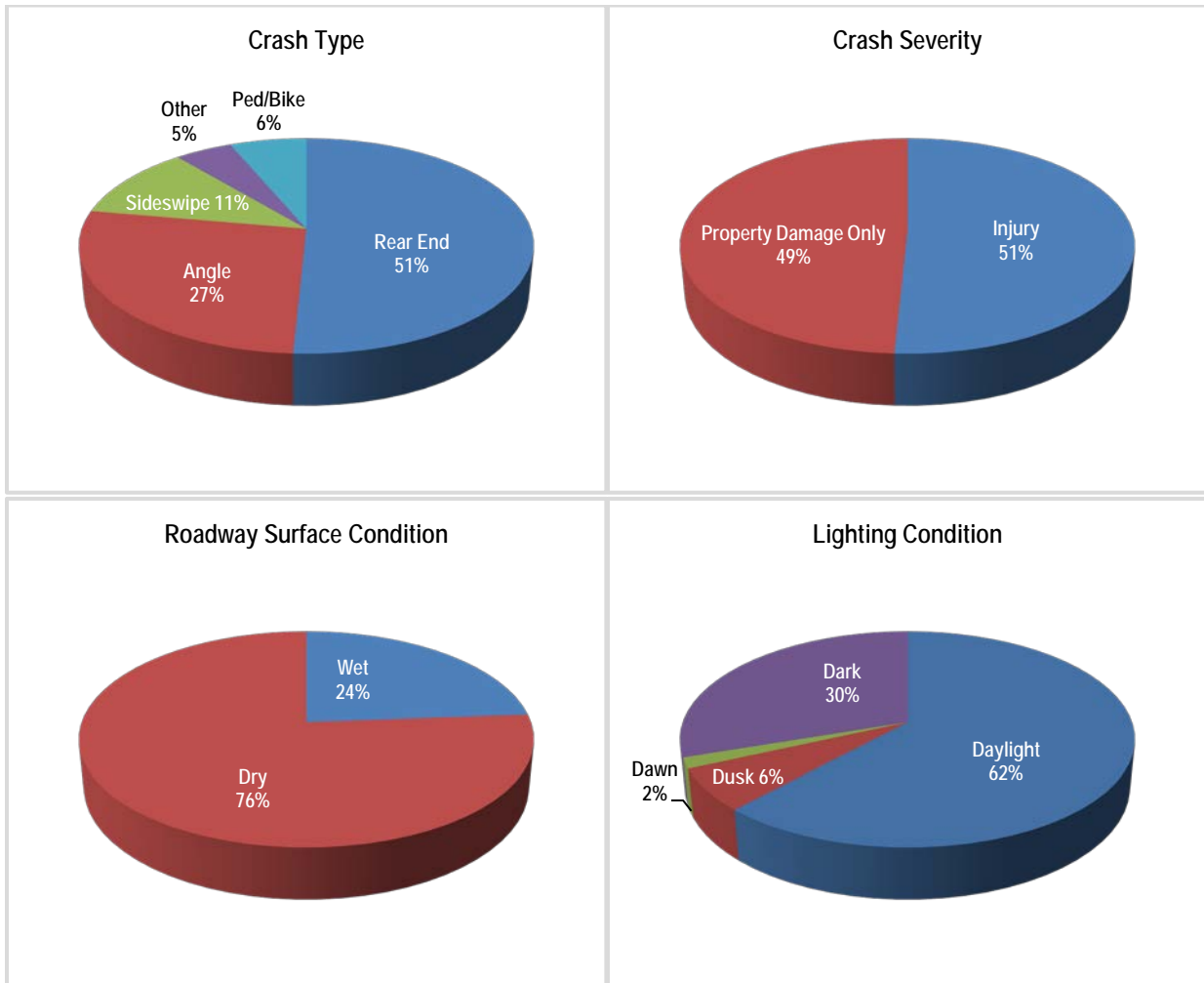
A total of 41 crashes were reported at the intersection of SR 482 and Golden Sky Lane from 2012 through 2016. One fatal crash was reported during the five-year analysis period. Rear-end and sideswipe crashes constituted the majority (63 percent and 15 percent, respectively) of the crashes. As shown on **Figure 3.34**, the majority (83 percent) of the crashes occurred under dry roadway conditions and 32 percent of the crashes occurred under dark lighting conditions.

Figure 3.34
2012 through 2016 Crash Data Summary – SR 482 and Golden Sky Lane Intersection



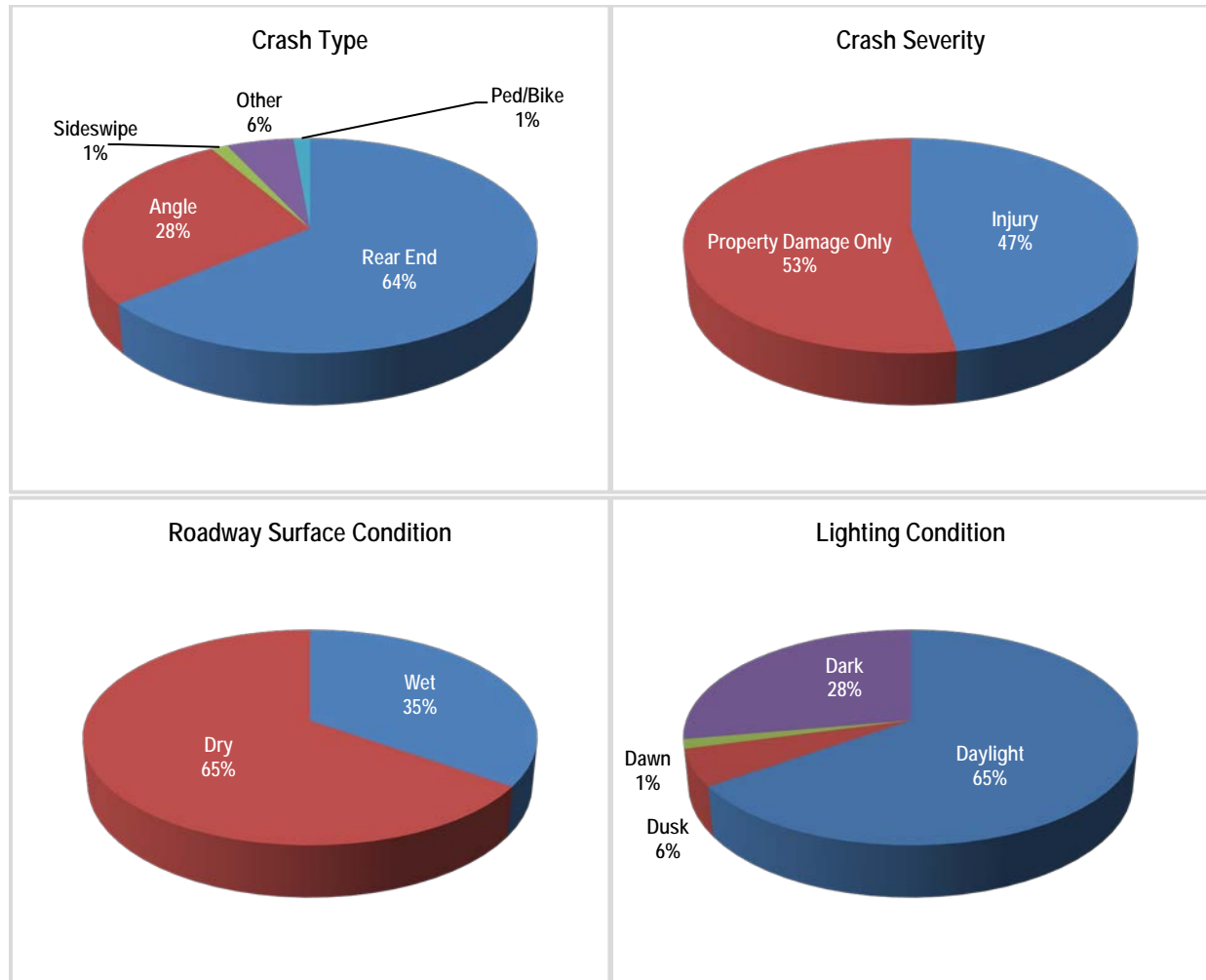
A total of 63 crashes were reported at the intersection of SR 482 and Voltaire Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and angle crashes constituted the majority (51 percent and 27 percent, respectively) of the crashes. As shown on **Figure 3.35**, the majority (76 percent) of the crashes occurred under dry roadway conditions and 30 percent of the crashes occurred under dark lighting conditions.

Figure 3.35
2012 through 2016 Crash Data Summary – SR 482 and Voltaire Drive Intersection



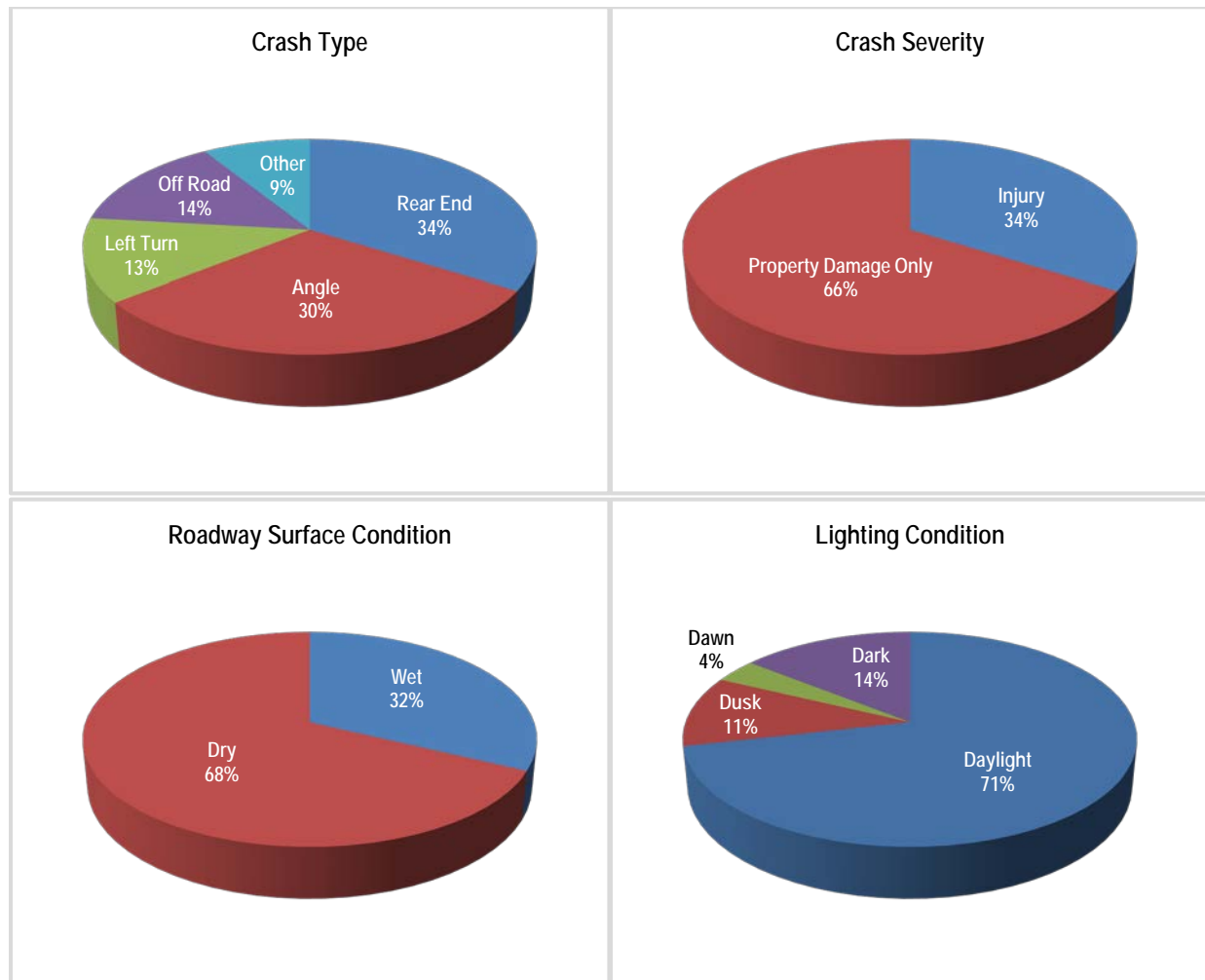
A total of 72 crashes were reported at the intersection of SR 482 and Horizon Park Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and angle crashes constituted the majority (64 percent and 28 percent, respectively) of the crashes. As shown on **Figure 3.36**, the majority (65 percent) of the crashes occurred under dry roadway conditions and 28 percent of the crashes occurred under dark lighting conditions.

Figure 3.36
2012 through 2016 Crash Data Summary – SR 482 and Horizon Park Drive Intersection



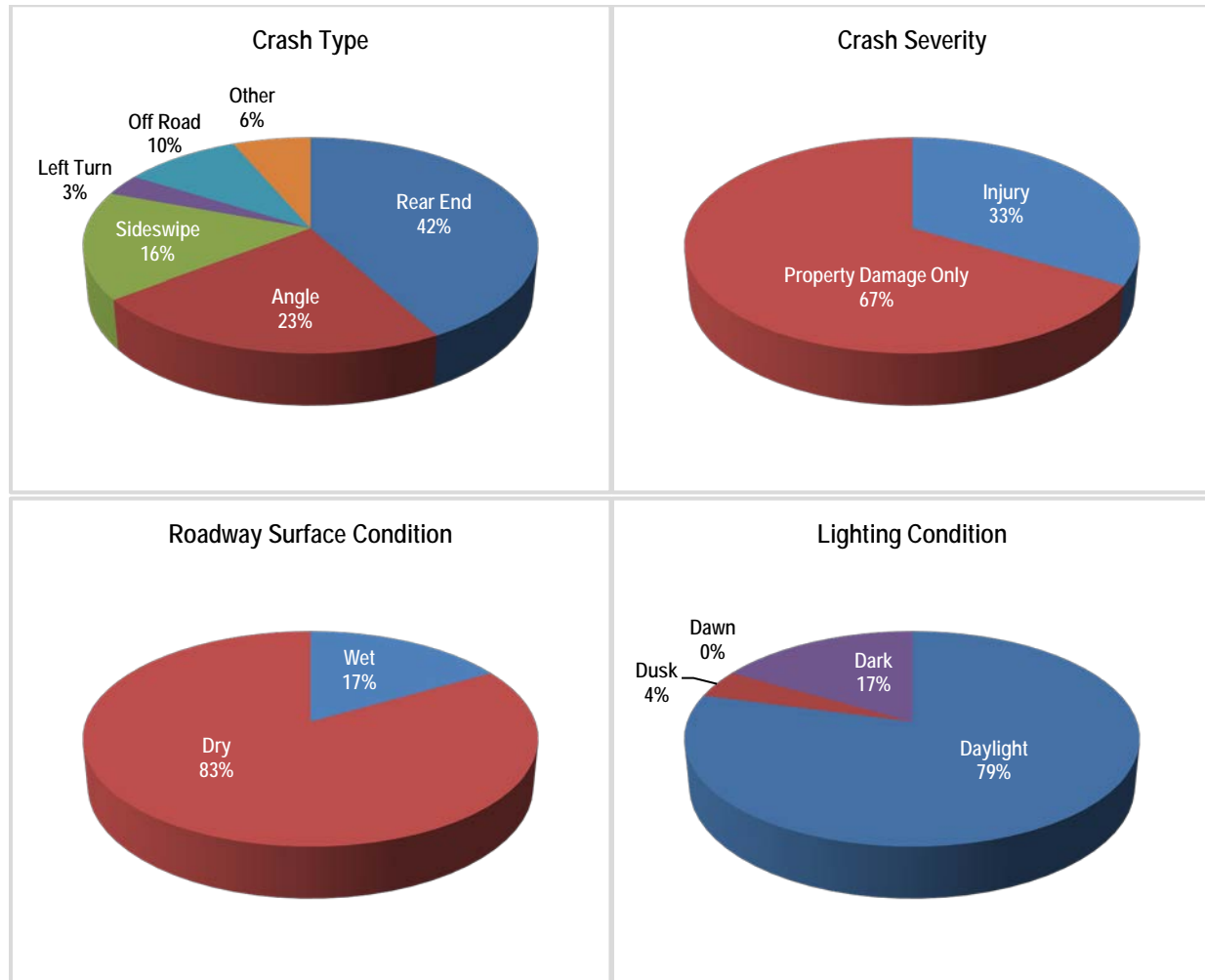
A total of 56 crashes were reported at the intersection of the SR 528 westbound on-ramp from Consulate Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Angle and rear-end crashes constituted the majority (30 percent and 34 percent, respectively) of the crashes. As shown on **Figure 3.37**, the majority (68 percent) of the crashes occurred under dry roadway conditions and 14 percent of the crashes occurred under dark lighting conditions.

Figure 3.37
2012 through 2016 Crash Data Summary – SR 528 Westbound On-Ramp from Consulate Drive Intersection



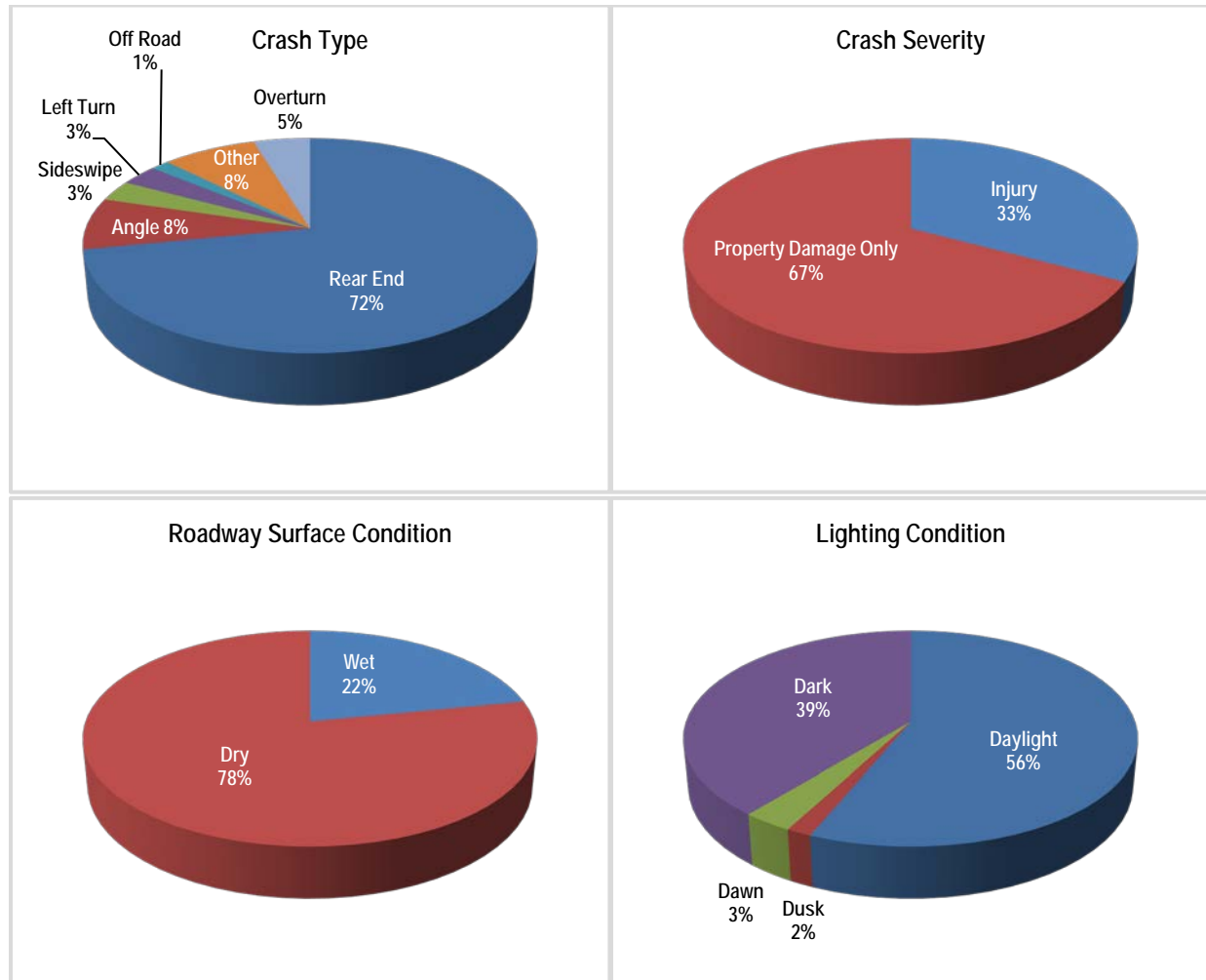
A total of 31 crashes were reported at the intersection of the SR 528 eastbound off-ramp to Consulate Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and angle crashes constituted a majority (42 percent and 23 percent, respectively) of the crashes. As shown on **Figure 3.38**, the majority (83 percent) of the crashes occurred under dry roadway conditions and 17 percent of the crashes occurred under dark lighting conditions.

Figure 3.38
2012 through 2016 Crash Data Summary – SR 528 Eastbound Off-Ramp to Consulate Drive Intersection



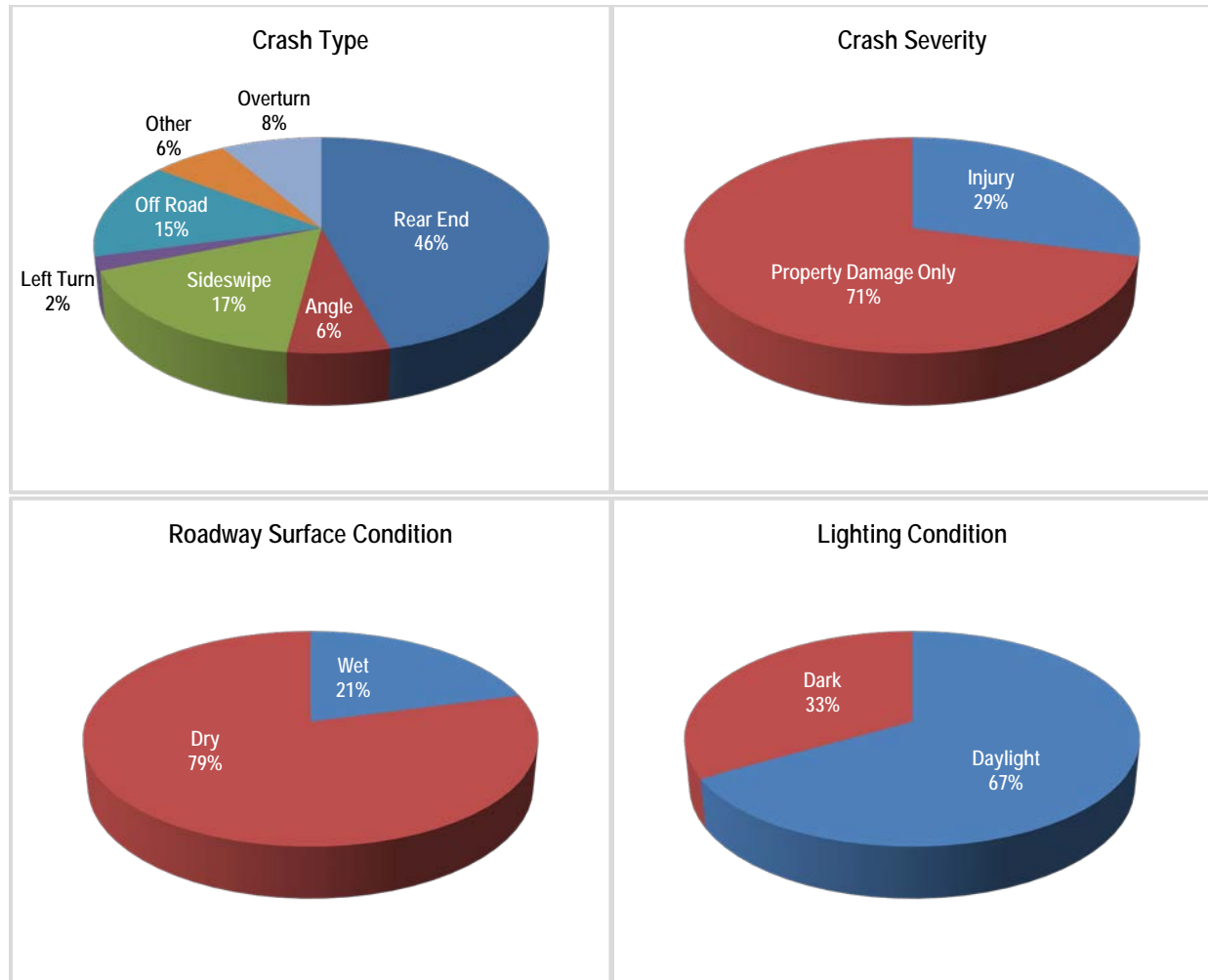
A total of 64 crashes were reported at the intersection of the SR 528 westbound ramps and CR 423 from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and angle crashes constituted a majority (72 percent and 8 percent, respectively) of the crashes. As shown on **Figure 3.39**, the majority (78 percent) of the crashes occurred under dry roadway conditions and 39 percent of the crashes occurred under dark lighting conditions.

Figure 3.39
2012 through 2016 Crash Data Summary – SR 528 Westbound Ramps and CR 423 Intersection



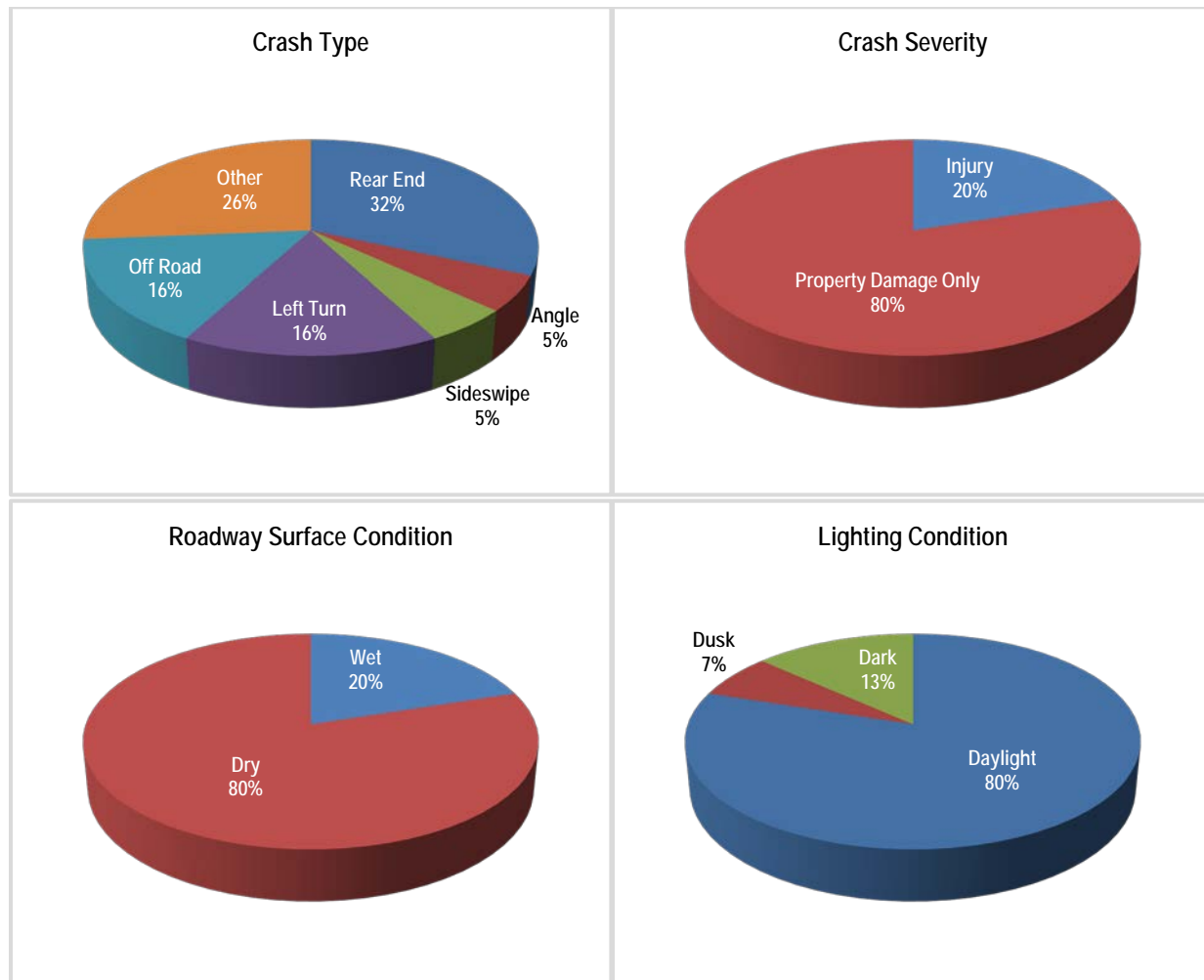
A total of 48 crashes were reported at the intersection of the SR 528 eastbound ramps and CR 423 from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and sideswipe crashes constituted the majority (approximately 46 percent and 17 percent, respectively) of the crashes. As shown on **Figure 3.40**, the majority (79 percent) of the crashes occurred under dry roadway conditions and 33 percent of the crashes occurred under dark lighting conditions.

Figure 3.40
2012 through 2016 Crash Data Summary – SR 528 Eastbound Ramps at CR 423 Intersection



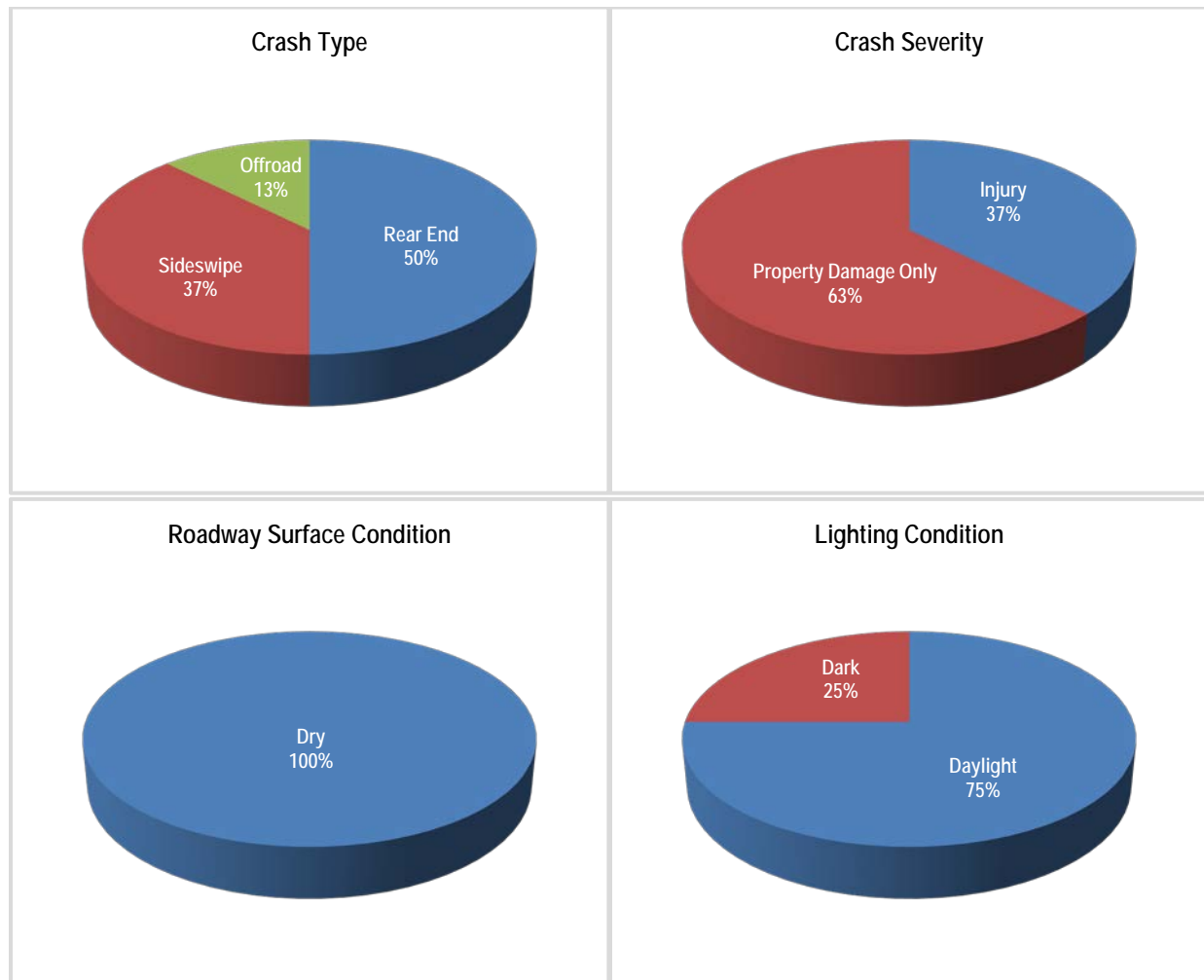
A total of 19 crashes were reported at the intersection of the SR 528 westbound off-ramp to Landstreet Road from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and left-turn crashes constituted the majority (approximately 32 percent and 16 percent, respectively) of the crashes. As shown on **Figure 3.41**, the majority (80 percent) of the crashes occurred under dry roadway conditions and 13 percent of the crashes occurred under dark lighting conditions.

Figure 3.41
2012 through 2016 Crash Data Summary – SR 528 Westbound Off-Ramp to Landstreet Road Intersection



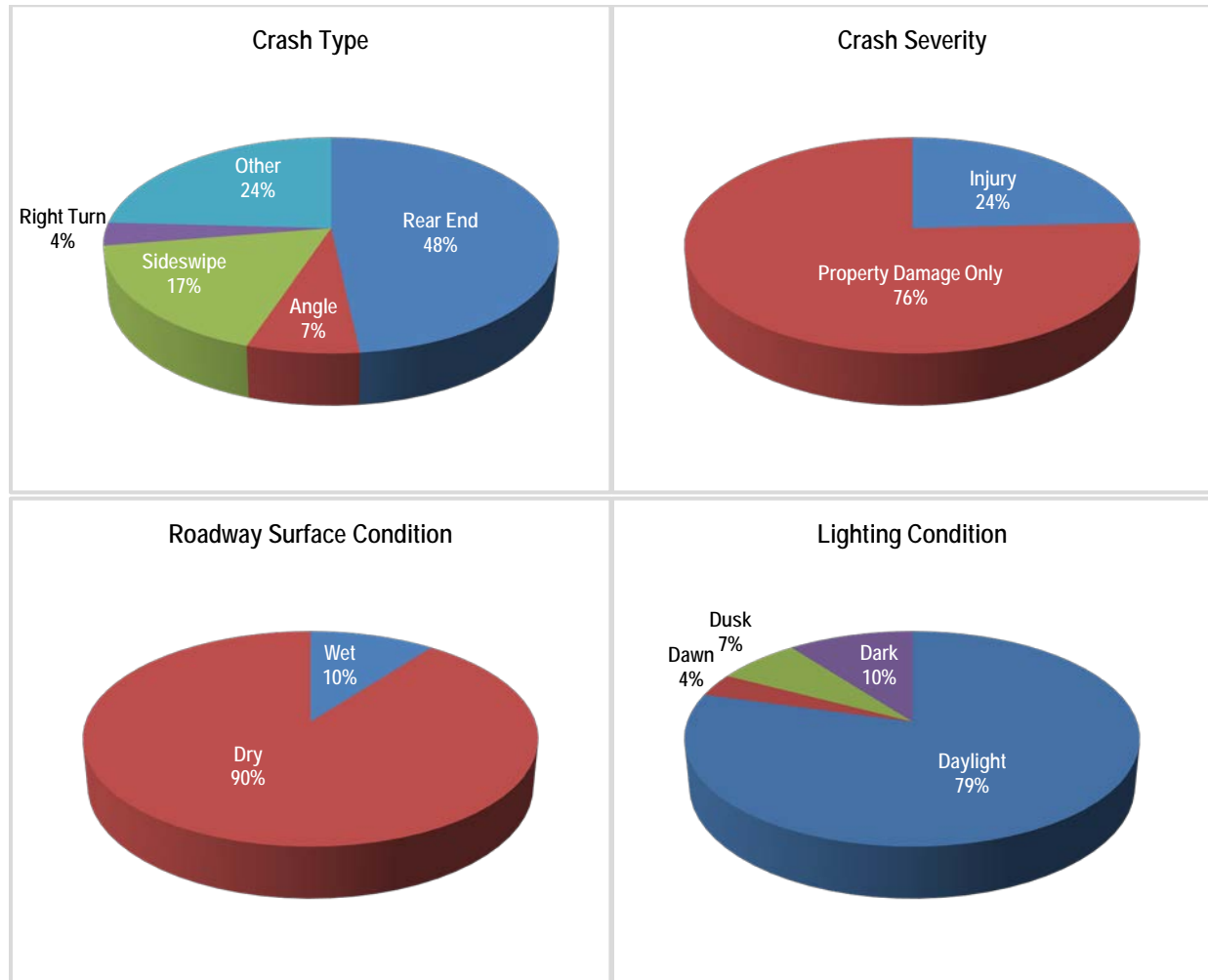
A total of eight crashes were reported at the intersection of the SR 528 eastbound on-ramp from Landstreet Road from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and sideswipe crashes constituted the majority (50 percent and 37 percent, respectively) of the crashes. As shown on **Figure 3.42**, a majority of the crashes occurred under dry roadway conditions and 25 percent of the crashes occurred under dark lighting conditions.

Figure 3.42
2012 through 2016 Crash Data Summary – SR 528 Eastbound On-Ramp and Landstreet Road Intersection



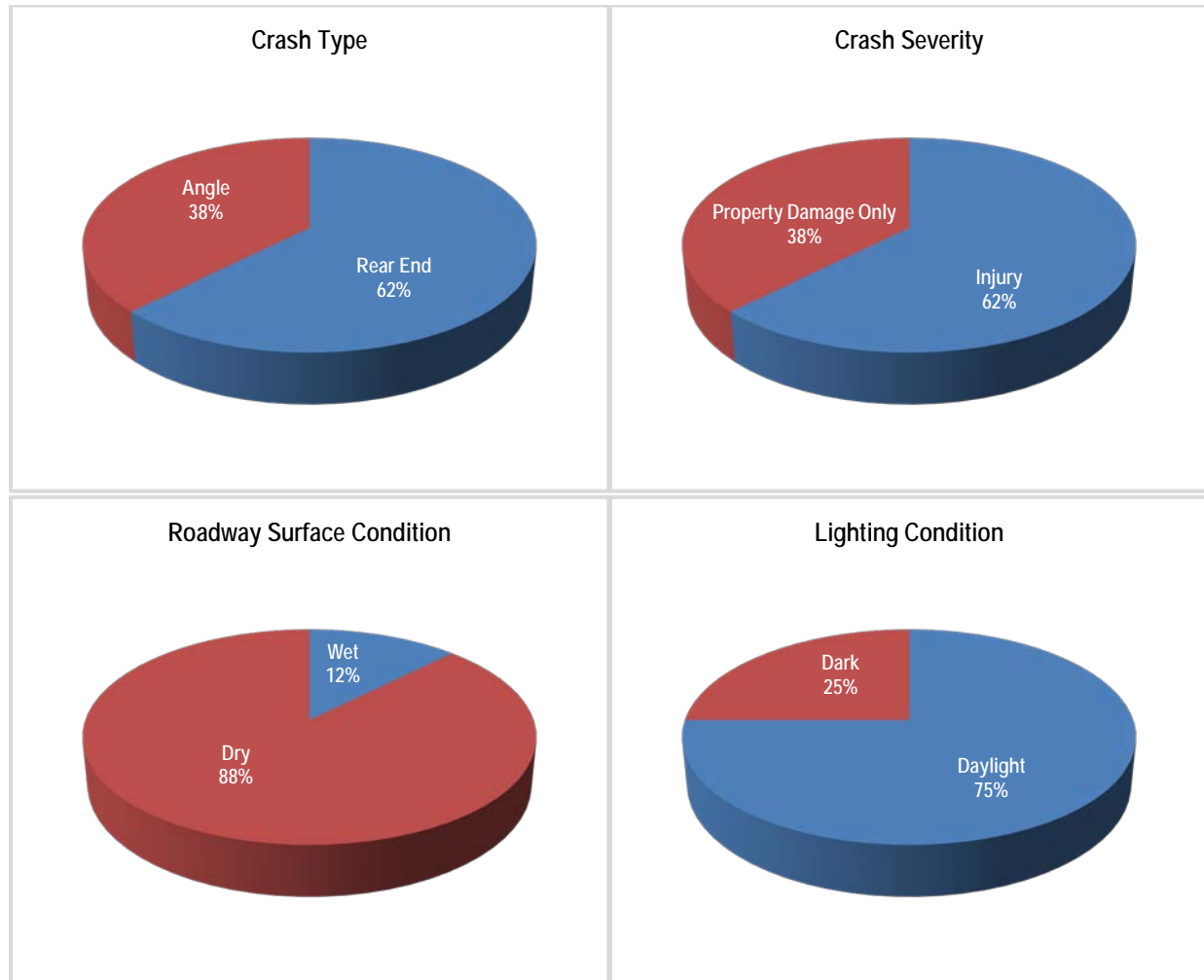
A total of 29 crashes were reported at the intersection of the SR 528 eastbound ramps and Jetport Drive from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and sideswipe crashes constituted the majority (48 percent and 17 percent, respectively) of the crashes. As shown on **Figure 3.43**, the majority (90 percent) of the crashes occurred under dry roadway conditions and 10 percent of the crashes occurred under dark lighting conditions.

Figure 3.43
2012 through 2016 Crash Data Summary – SR 528 Eastbound Ramps at Jetport Drive Intersection



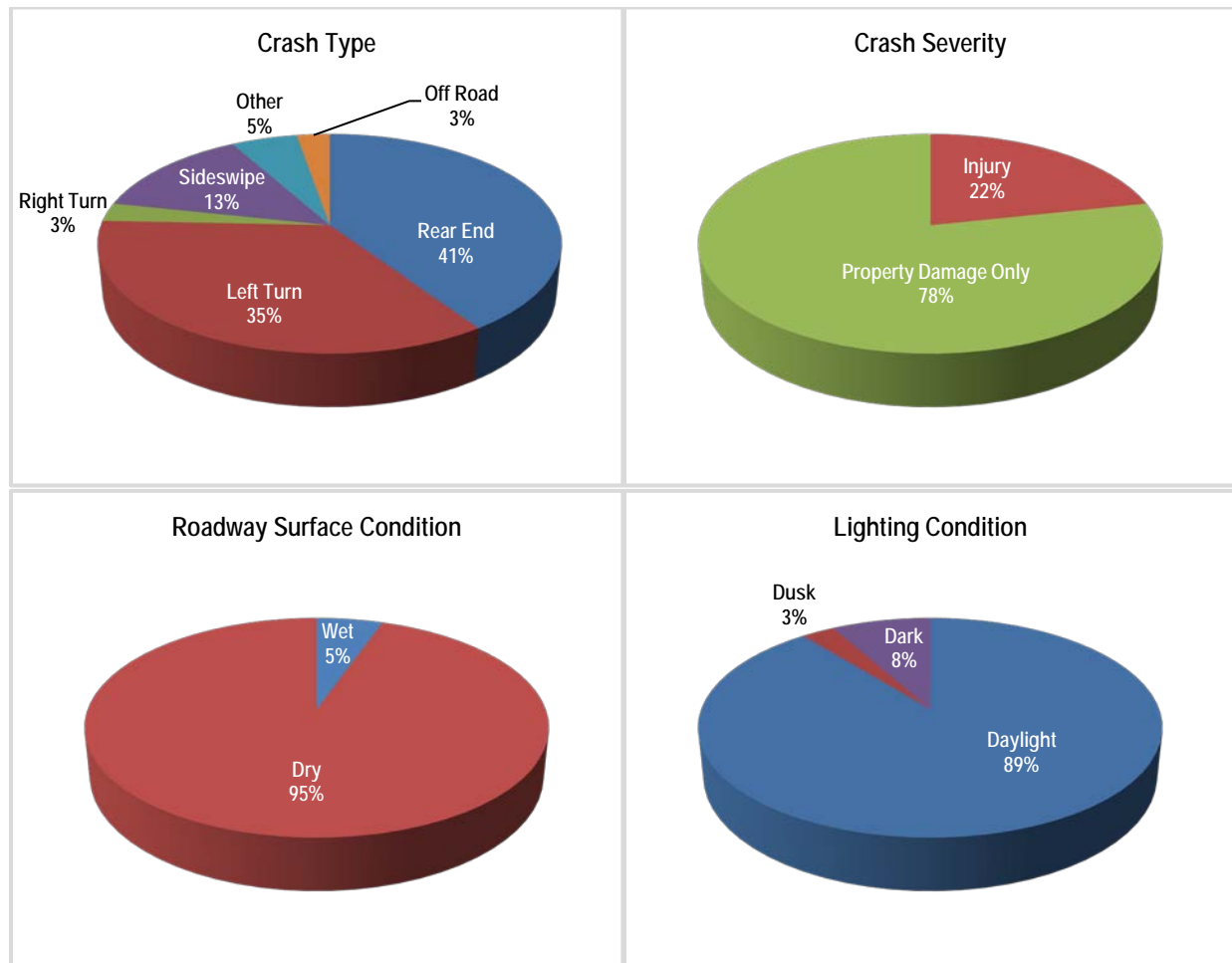
A total of eight crashes were reported at the intersection of SR 528 westbound ramps at McCoy Road from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and angle crashes constituted the majority (62 percent and 38 percent, respectively) of the crashes. As shown on **Figure 3.44**, the majority (88 percent) of the crashes occurred under dry roadway conditions and 25 percent of the crashes occurred under dark lighting conditions.

Figure 3.44
2012 through 2016 Crash Data Summary – SR 528 Westbound Ramps at McCoy Road Intersection



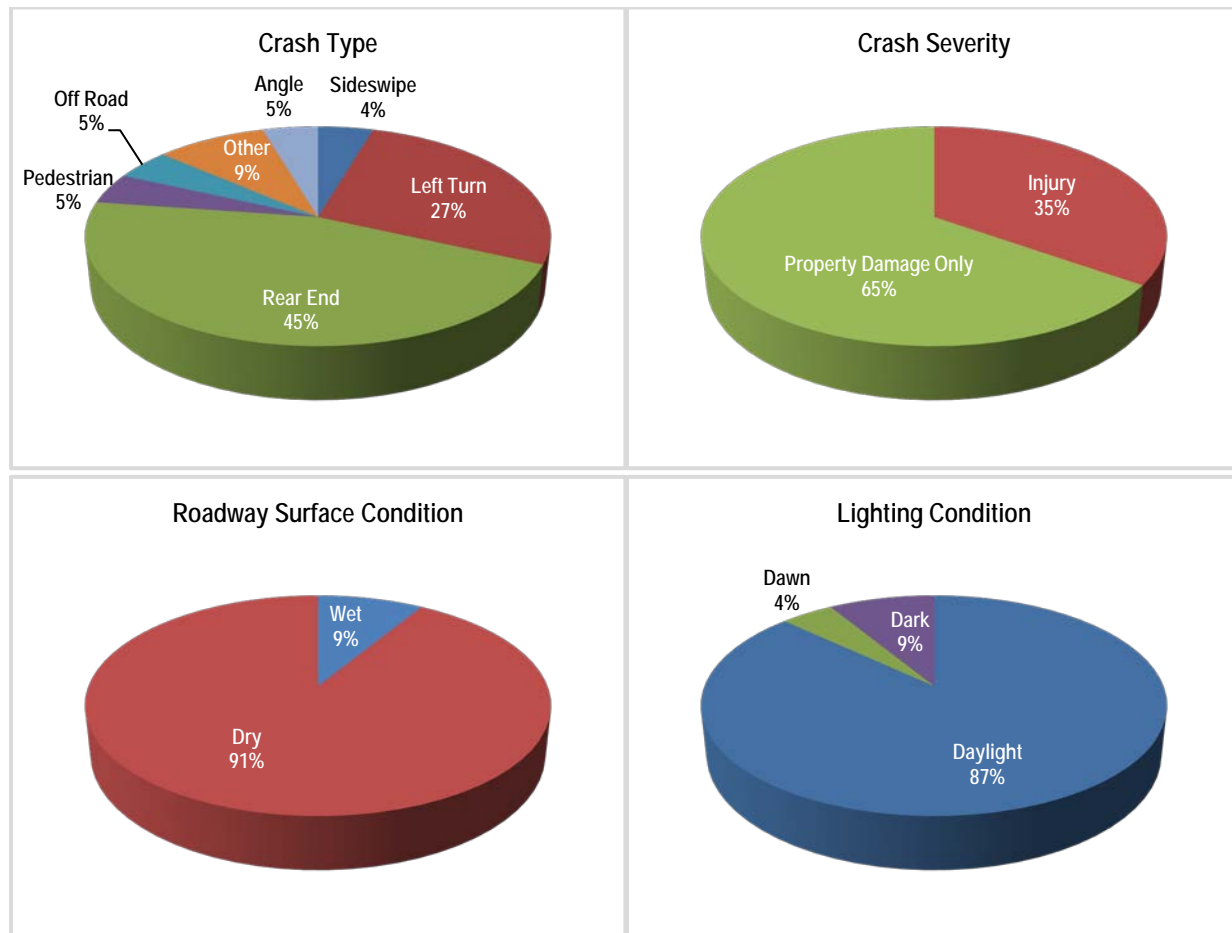
A total of 37 crashes were reported at the intersection of Taft Vineland Road and Satellite Road from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and left-turn crashes constituted a majority (41 percent and 35 percent, respectively) of the crashes. As shown on **Figure 3.45**, the majority (95 percent) of the crashes occurred under dry roadway conditions and 8 percent of the crashes occurred under dark lighting conditions.

Figure 3.45
2012 through 2016 Crash Data Summary – Taft Vineland Road at Satellite Road Intersection



A total of 23 crashes were reported at the intersection of Taft Vineland Road and Bachman Road from 2012 through 2016. No fatalities were reported during the five-year analysis period. Rear-end and left-turn crashes constituted a majority (45 percent and 27 percent, respectively) of the crashes. As shown on **Figure 3.46**, a majority of the crashes occurred under dry roadway conditions (91 percent) and nine percent crashes were reported during dark lighting conditions.

Figure 3.46
2012 through 2016 Crash Data Summary – Taft Vineland Road at Bachman Road Intersection



Actual crash rates at the intersections were computed and compared with average crash rates for similar facilities within Orange County to assess the safety conditions within the study area. Critical crash rates and safety ratios were also estimated. Crash rates for the intersections were estimated as crashes per Million Entering Vehicles (MEV). The critical crash rate is based on the average crash rate for a similar facility adjusted by vehicle exposure and a probability constant. The safety ratio represents the actual crash rate divided by the critical crash rate. If an intersection has an actual crash rate higher than the critical crash rate (i.e., safety ratio > 1.0), it may have a safety deficiency. The crash rates are presented in **Table 3.5**.

Table 3.5
2012 through 2016 Intersection Crash Rates and Safety Ratios

Description	Total Crashes	Actual Crash Rate	Average Crash Rate*	Critical Crash Rate	Safety Ratio
SR 482					
CR 423	250	1.43	0.733	1.08	1.31
Lowe's/Wal-Mart Entrance+	11	0.11	0.289	0.60	0.19
Presidents Drive	63	0.61	0.733	1.20	0.51
Chancellor Drive	47	0.49	0.733	1.21	0.40
Lillwill Avenue	13	0.14	0.733	1.23	0.12
US 17/92/441	253	1.53	0.733	1.09	1.40
Skyview Drive	83	0.79	0.733	1.19	0.66
Golden Sky Lane	41	0.41	0.733	1.20	0.34
Voltaire Drive	63	0.62	0.733	1.20	0.51
Horizon Park Drive	72	0.69	0.733	1.19	0.58
US 17/92/441					
August Lane	112	1.09	0.733	1.20	0.91
Sunlife Path	86	0.82	0.733	1.19	0.68
La Quinta Drive	117	1.18	0.733	1.21	0.98
Landstreet Road	274	2.16	0.733	1.15	1.88
Consulate Drive	165	1.49	0.733	1.18	1.27
Taft Vineland Road	273	2.83	0.733	1.21	2.34
Landstreet Road					
SR 528 Westbound off-ramp+	19	0.74	0.204	0.77	0.97
SR 528 Eastbound on-ramp+	8	0.21	0.356	0.93	0.23
Consulate Drive					
Turnpike Southbound off-ramp/Westbound on-ramp	56	1.68	0.350	0.96	1.75
SR 528 Eastbound off-ramp+	31	0.77	0.276	0.77	1.00
Taft Vineland Road					
Satellite Boulevard+	37	1.12	0.281	0.84	1.34
Bachman Road+	23	0.68	0.250	0.77	0.89
CR 423					
SR 528 Westbound Ramps	64	0.62	0.289	0.59	1.05
SR 528 Eastbound Ramps	48	0.46	0.289	0.59	0.78
McCoy Road					
SR 528 Westbound Ramps	8	0.10	0.276	0.62	0.16
SR 528 Eastbound Ramps+	29	0.45	0.276	0.66	0.69

*FDOT CARS Orange County, 5-year Average Crash Rate

+Unsignalized Intersection

Crash Rate: Intersections – Crashes per MEV, Urban 2-3 Lane 2-Way Divided Raised, Urban 2-3 Lane 2-Way Divided Paved, Urban 2-3 Lane 2-Way Undivided, Urban 4-5 Lane 2-Way Divided Raised, Urban 4-5 Lane 2-Way Undivided, Urban 6+ Lane 2-Way Divided Raised
Highlighted Safety Ratio > 1.0

Safety ratios are greater than 1.0 for these intersections from 2012 through 2016, indicating that these may be high crash locations.

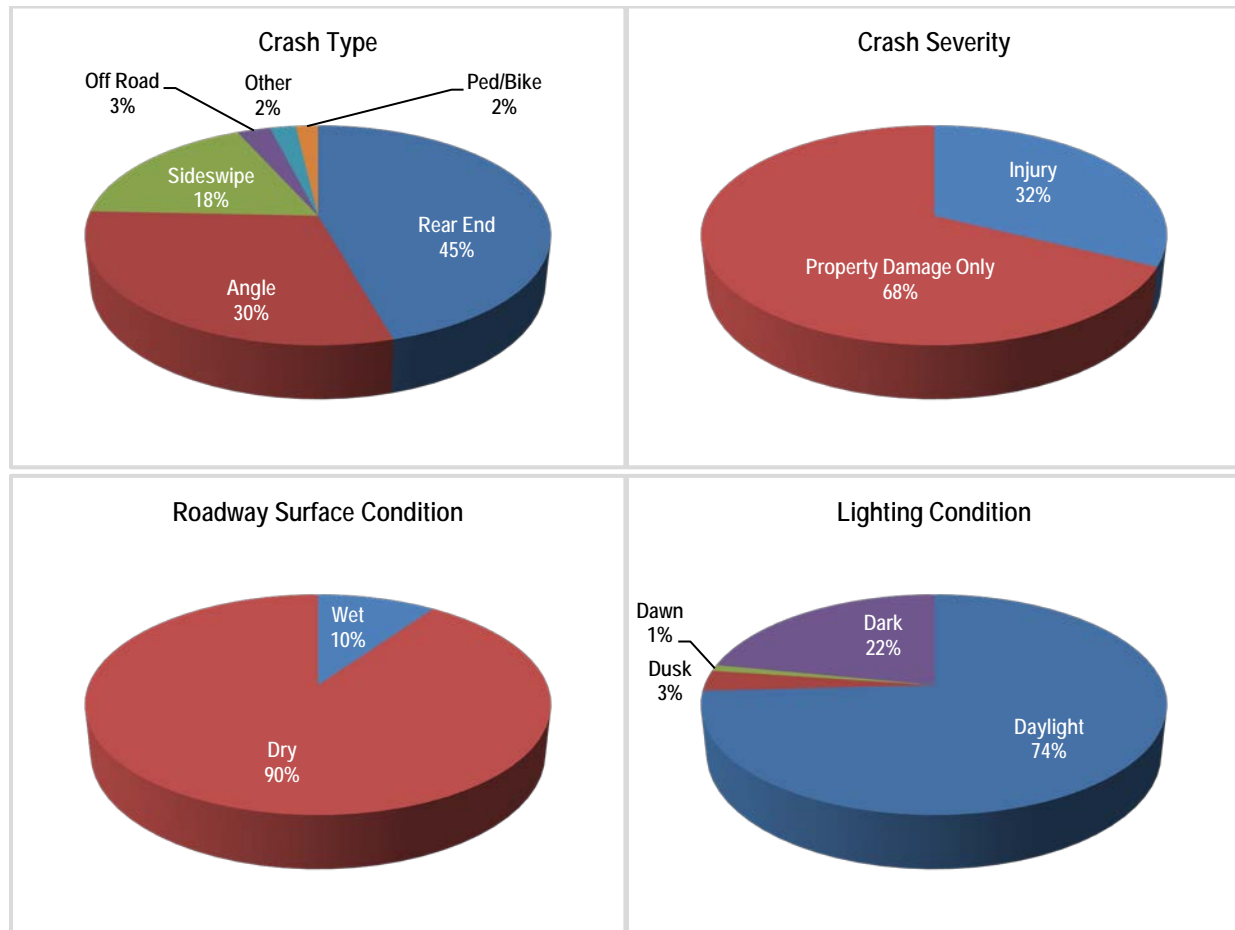
- CR 423 and SR 482
- US 17/92/441 and SR 482
- US 17/92/441 and Landstreet Road
- US 17/92/441 and Consulate Drive
- US 17/92/441 and Taft Vineland Road
- Turnpike southbound off-ramp/westbound on-ramp to SR 528, SR528 eastbound off-ramp to Consulate Drive
- Taft Vineland Road and Satellite Boulevard
- CR 423 and SR 528 westbound ramps

Crashes along the arterials at mid-block locations (i.e., outside the intersection influence areas) were also evaluated and a discussion is provided.

US 17/92/441 Mid-block from MP 5.0 to MP 6.1

A total of 329 crashes were reported on midblock sections of US 17/92/441 from Taft Vineland Road to SR 482 during the five-year analysis period. No fatal crashes were reported. Angle (30 percent) and rear-end (45 percent) crashes constituted a majority of the crashes. At least 32 percent of the crashes resulted in injuries. As shown on **Figure 3.47**, 10 percent of the crashes occurred on wet roadway conditions and 22 percent of the crashes occurred under dark lighting conditions.

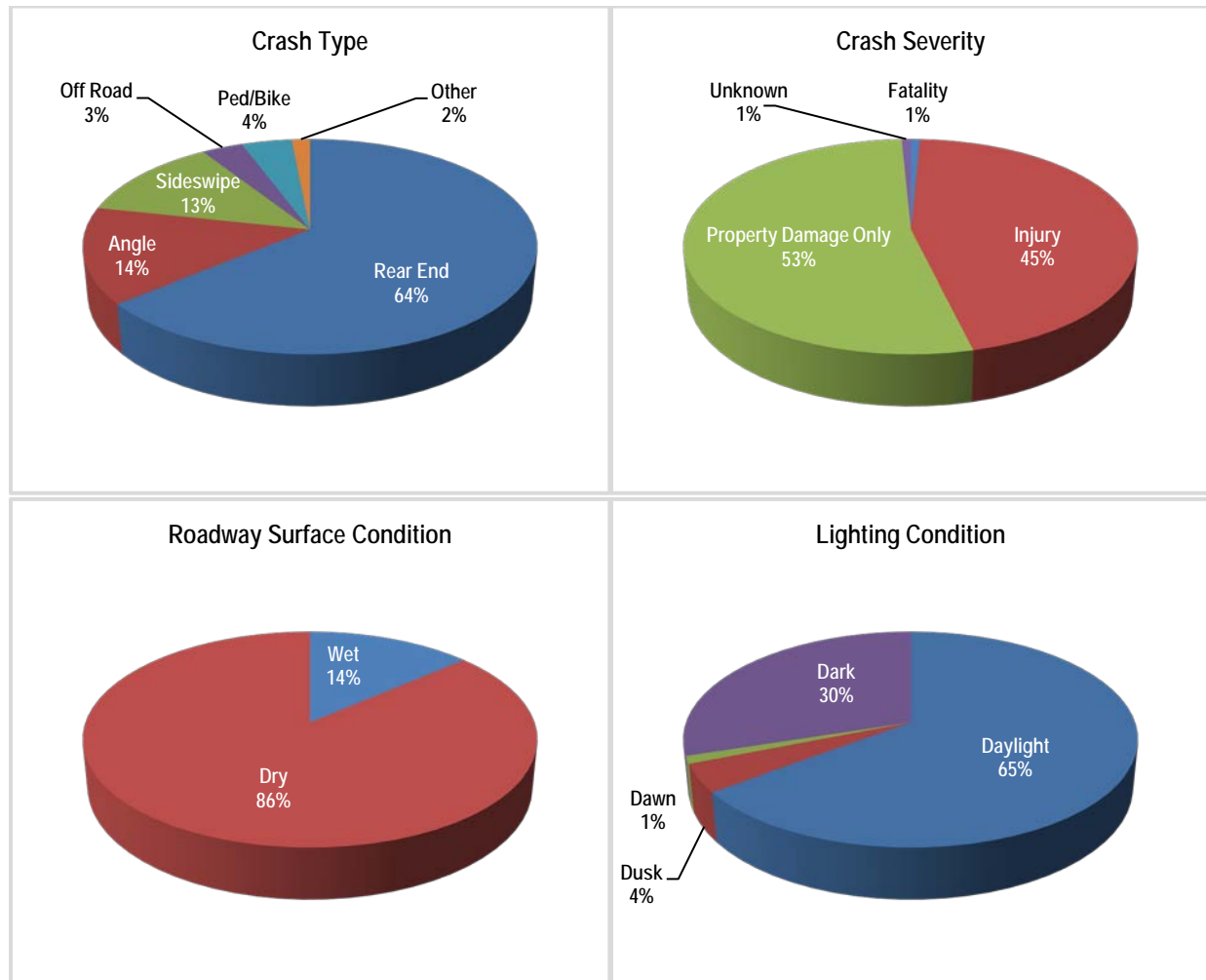
Figure 3.47
2012 through 2016 Crash Data Summary – US 17/92/441 Midblock



SR 482 Mid-block from MP 2.93 to MP 7.81

A total of 264 crashes were reported along midblock sections of SR 482 from CR 423 to Horizon Park Drive during the five-year analysis period. Two fatal crashes were reported during the five-year analysis period. Rear-end crashes constituted a majority (64 percent) of the crashes. At least 45 percent of the crashes resulted in injuries. As shown on **Figure 3.48**, 14 percent of the crashes occurred on wet roadway conditions and 30 percent of the crashes occurred under dark lighting conditions.

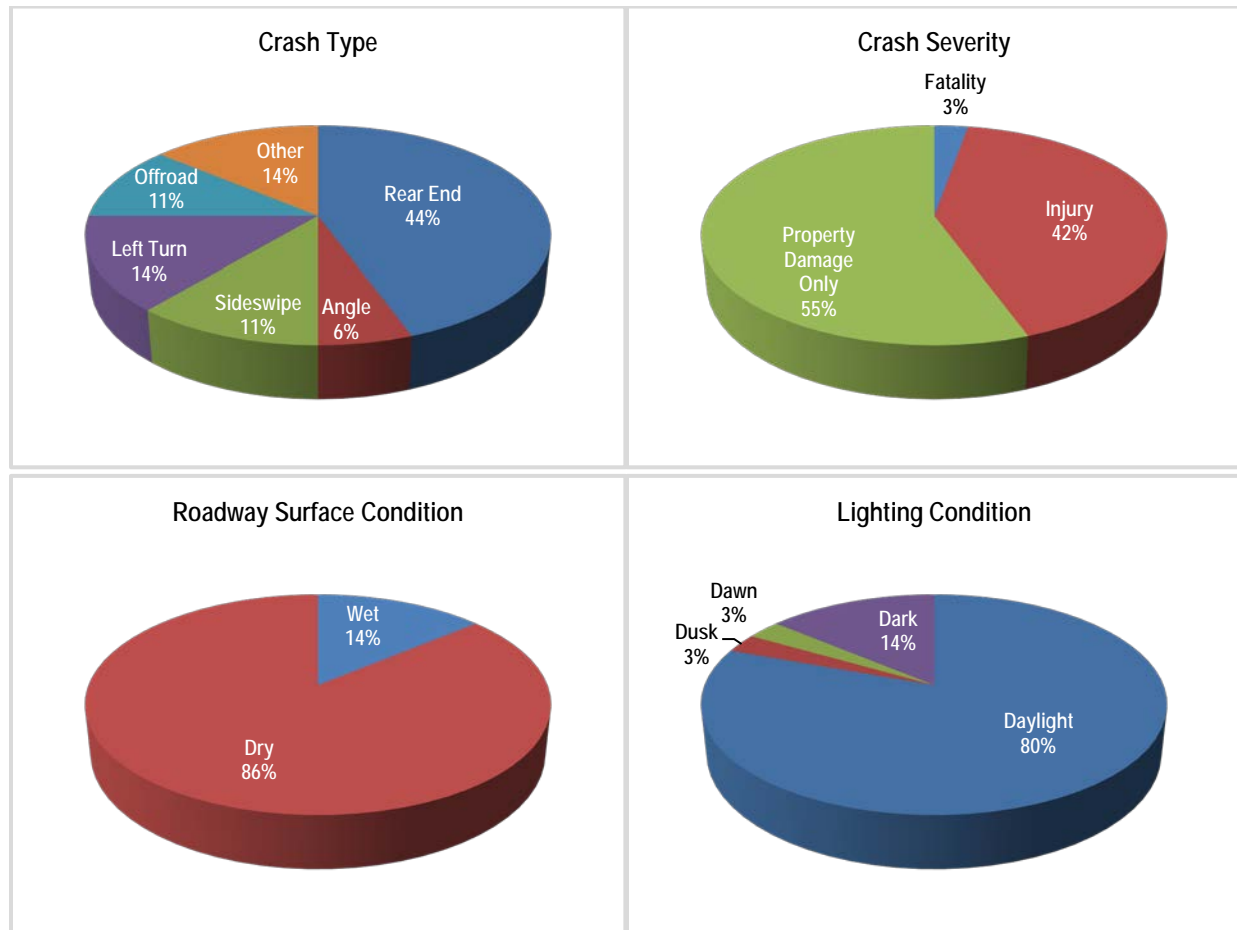
Figure 3.48
2012 through 2016 Crash Data Summary – SR 482 Midblock



Taft Vineland Road Mid-block from MP 0.0 to MP 0.75

A total of 36 crashes were reported along midblock sections of Taft Vineland Road from US 17/92/441 to Bachman Road from year 2012 through 2016. One fatal crash was reported during the five-year analysis period. Rear-end (44 percent) and left-turn (14 percent) crashes constituted majority of the crashes. Approximately 55 percent of the crashes resulted in property damage only. As shown on **Figure 3.49**, 14 percent of the crashes occurred on wet roadway conditions and 14 percent of the crashes occurred under dark lighting conditions.

Figure 3.49
2012 through 2016 Crash Data Summary – Taft Vineland Midblock

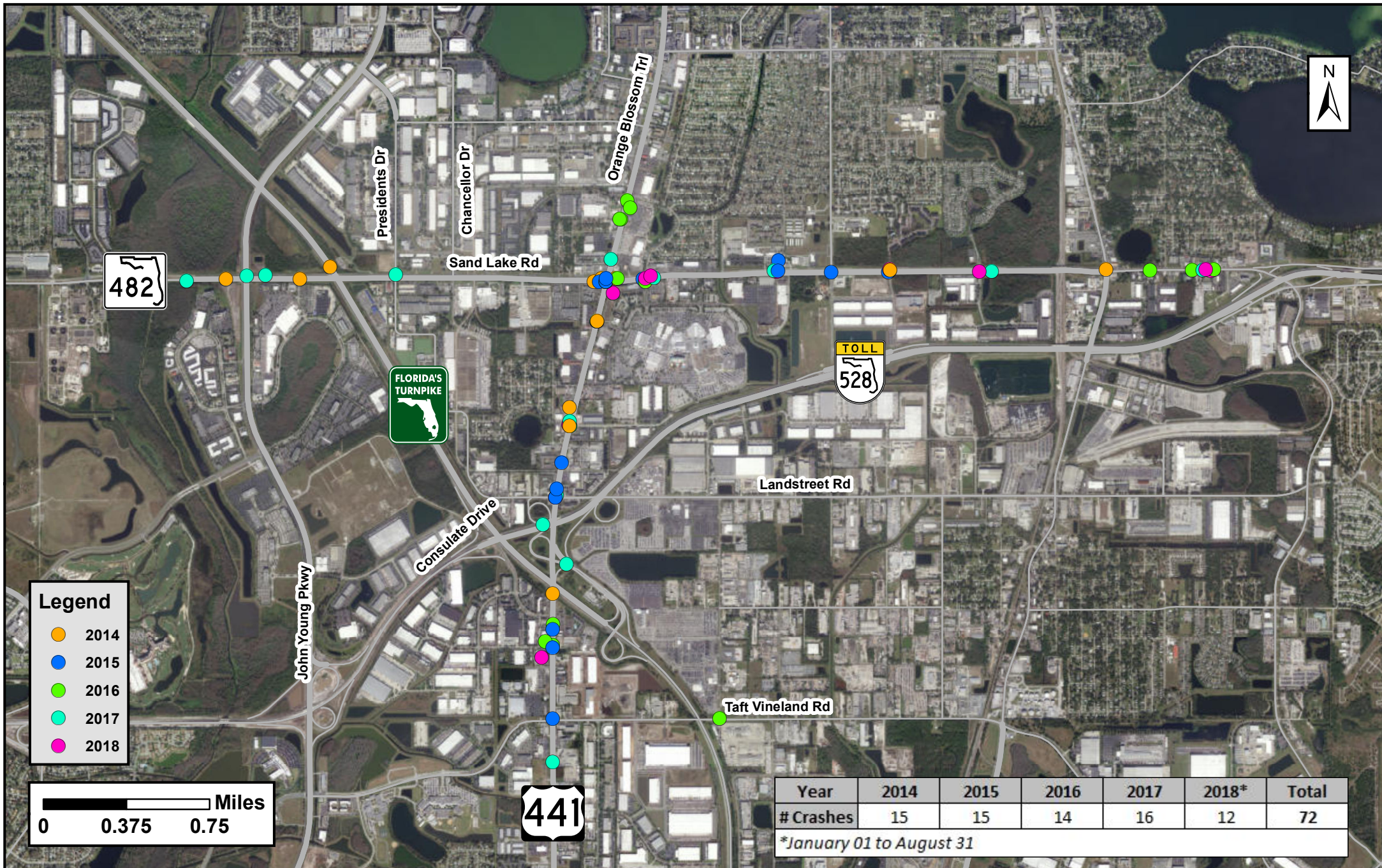


3.3.2 Pedestrian and Bicycle Safety Analysis

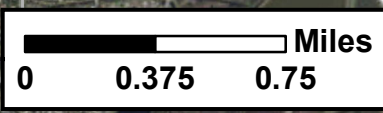
The state’s CARS database is only available through year 2016. With the need to estimate pedestrian and bicycle safety within the project limits in the recent past, crash data were obtained from the Signal Four Analytics tool, an FDOT-funded database developed in coordination with the state’s CARS. A total of 72 pedestrian and bicycle crashes were reported within the study area from 2014 through 2018. Crash locations by year and severity of crashes are depicted on **Figures 3.50** and **3.51**, respectively. As shown on the figures, more crashes occurred near the SR 482 and US 17/92/441 intersection. **Table 3.6** shows the summary of crash severity from 2014 through 2018.

Table 3.6
2014 through 2018 Pedestrian and Bicycle Crash Severity

Crash Severity	2014	2015	2016	2017	2018	Total	Proportion
Fatality	2	1	1	0	3	7	10%
Injury	11	13	11	13	8	56	78%
Property Damage Only	2	1	2	3	1	9	13%
Total	15	15	14	16	12	72	100.0%

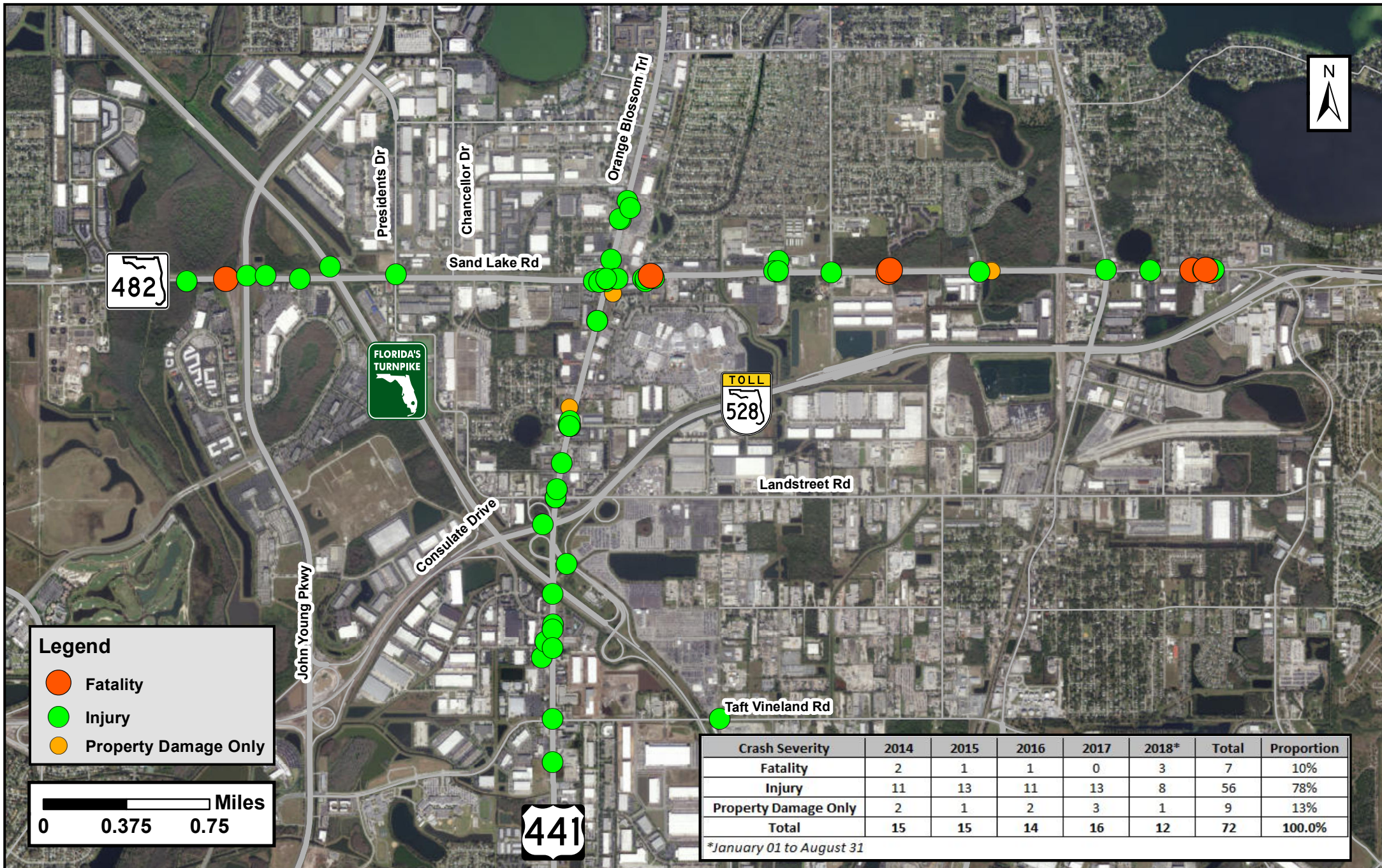


- Legend**
- 2014
 - 2015
 - 2016
 - 2017
 - 2018



Year	2014	2015	2016	2017	2018*	Total
# Crashes	15	15	14	16	12	72

*January 01 to August 31



Existing traffic data, geometry, and traffic operational analyses are provided in this chapter.

4.1 EXISTING TRAFFIC DATA AND GEOMETRY

Traffic volumes for the Florida’s Turnpike and SR 528 mainline and ramps were obtained from the FTE’s annual count program and available toll data for the month of February in 2017. The 2017 AADT volumes are shown in **Table 4.1**. The daily traffic for the Florida’s Turnpike mainline ranges from 69,500 vehicles per day (vpd) between SR 417 and Orlando South to 96,100 vpd between Consulate Drive and I-4. The lowest AADT on SR 528 is 81,100 vpd between CR 423 and the Florida’s Turnpike and the highest is 102,100 vpd east of McCoy Road.

Table 4.1
2017 (Existing) AADT

Milepost – Location	Profile	AADT
Florida’s Turnpike		
259 – I-4		94,000
		29,200
255 – Consulate Drive		31,300
		96,100
254 – Orlando South (US 17/92/441)		7,800
		88,300
251 – Central Florida GreeneWay (SR 417)		32,800
		14,000
		69,500
SR 528		
8- McCoy Road/Jetport Drive		11,000
		20,600
		79,100
		102,100
4 – US 17/92/441/Florida’s Turnpike		22,500
		7,500
		87,100
		26,100
3A/B – CR 423		20,100
		81,100
		11,700
		24,900
		94,300

2,220 = Mainline volume

2,220 = Combined ramp volume

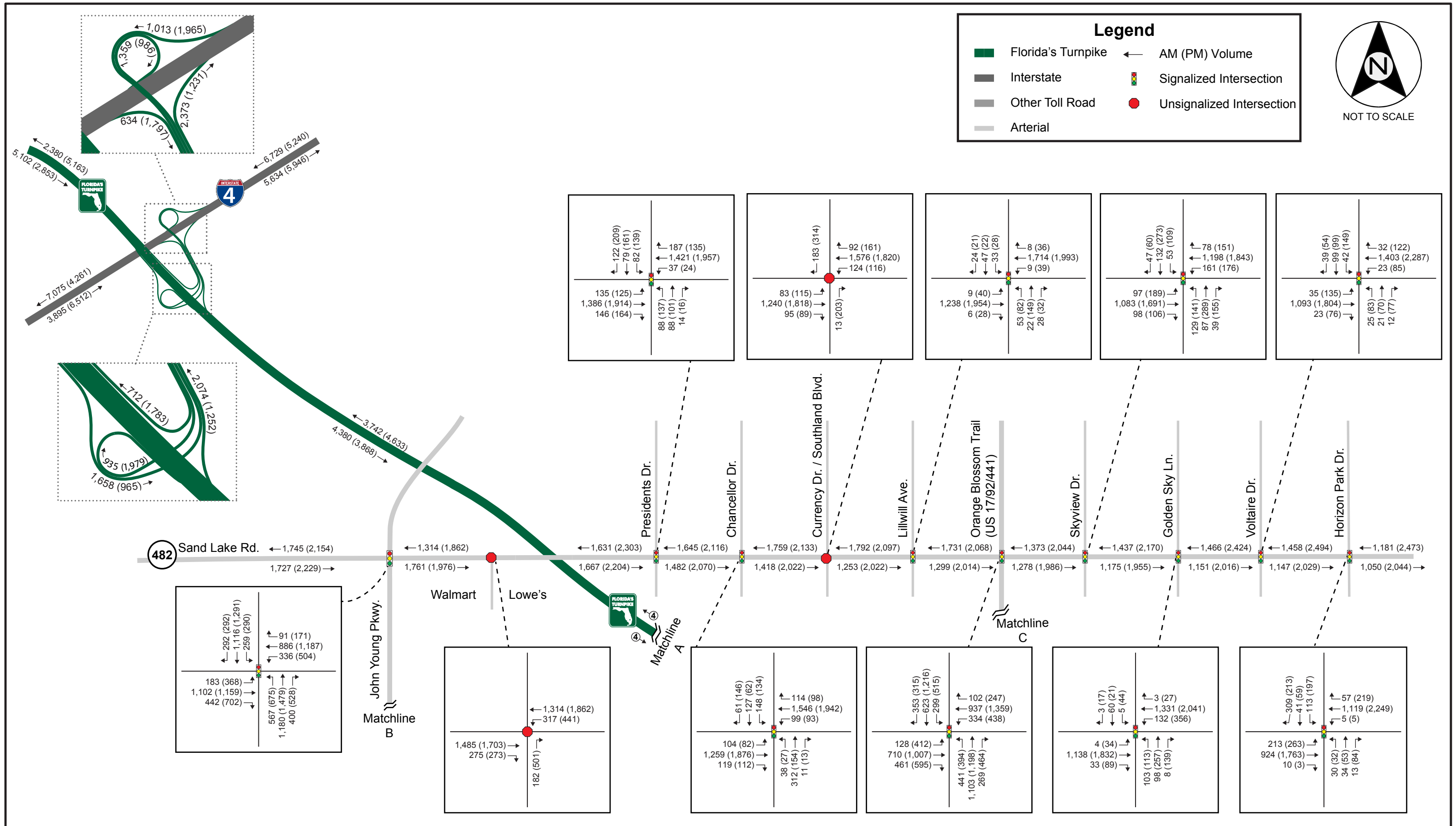
For arterials and intersections, traffic volumes were obtained from the *Florida’s Turnpike and SR 482 Interchange Justification Report* (approved in February 2017), which included most of the intersections within the study area. Hose and intersection movement counts were collected in December 2014 and July 2015 in accordance with the procedures from the latest edition of the FDOT’s *Manual on Uniform Traffic Studies* (MUTS), Manual Number 750-020-007. **Table 4.2** summarizes the count locations. Growth rates were developed from historical data and applied accordingly to develop a 2017 peak hour traffic profile. **Figure 4.1** summarizes the 2017 AM and PM peak hour volumes.

Table 4.2
Traffic Count Locations

Hose Counts
Presidents Drive, north of SR 482
Presidents Drive, south of SR 482
SR 482 between Florida’s Turnpike and Presidents Drive
US 17/92/441 southbound ramp to Turnpike
US 17/92/441 northbound ramp to Turnpike
Intersection Movement Counts
SR 482 and CR 423
SR 482 and Wal-Mart/Lowe’s Entrance
SR 482 and Presidents Drive
Consulate Drive, Florida’s Turnpike SB off-ramp and SR 528 westbound on-ramp
Consulate Drive and SR 528 eastbound off-ramp
US 17/92/441 and Consulate Drive
US 17/92/441 and Landstreet Road
Landstreet Road and SR 528 westbound off-ramp
Landstreet Road and SR 528 eastbound on-ramp

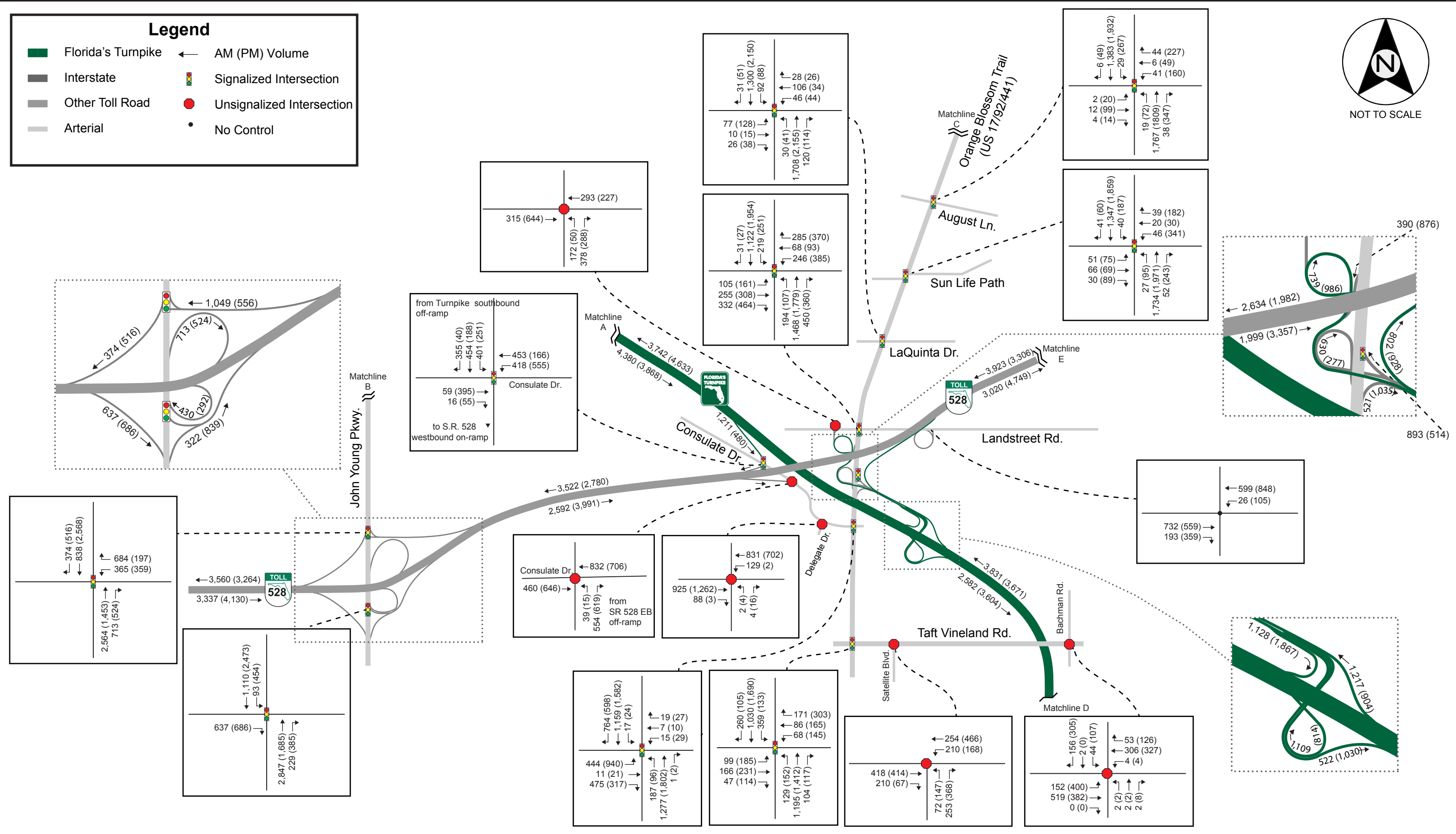
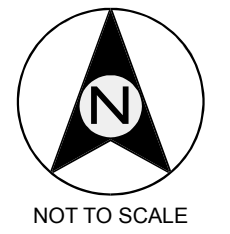
Signal timing data were provided by Orange County Traffic Management Center. Field investigations were conducted to confirm signal phasing and posted speeds. The 2017 field speeds were obtained from HERE data (HERE Global B.V. is a company that provides mapping and location data) and were supplemented with speed data documented in the report titled *Active Arterial Management, FDOT 2016*. Field observations were conducted throughout the study area to document prevailing traffic conditions in 2014 and supplemented with current Google Typical Traffic data.

Since the existing interchange does not provide the direct connections needed, motorists utilize US 17/92/441 and Consulate Drive as a pass-through to access numerous destinations. The pass-through traffic exacerbates traffic congestion at the intersections within the interchange. The major congestion spots include the Florida’s Turnpike southbound mainline and off-ramp to Consulate Drive, US 17/92/441 intersections at Consulate Drive, Turnpike ramps and Landstreet Road, and SR 528 westbound mainline and off-ramp to Turnpike/US 17/92/441. The SR 528 eastbound to Consulate Drive off-ramp also backs up, mainly due to downstream congestion effects at the US 17/92/441 intersection and weaving along the arterial. Traffic backups have also been observed within the toll plaza area due to weaving and ramp capacity deficiencies. The existing 2017 lane geometry is depicted on **Figure 4.2**.



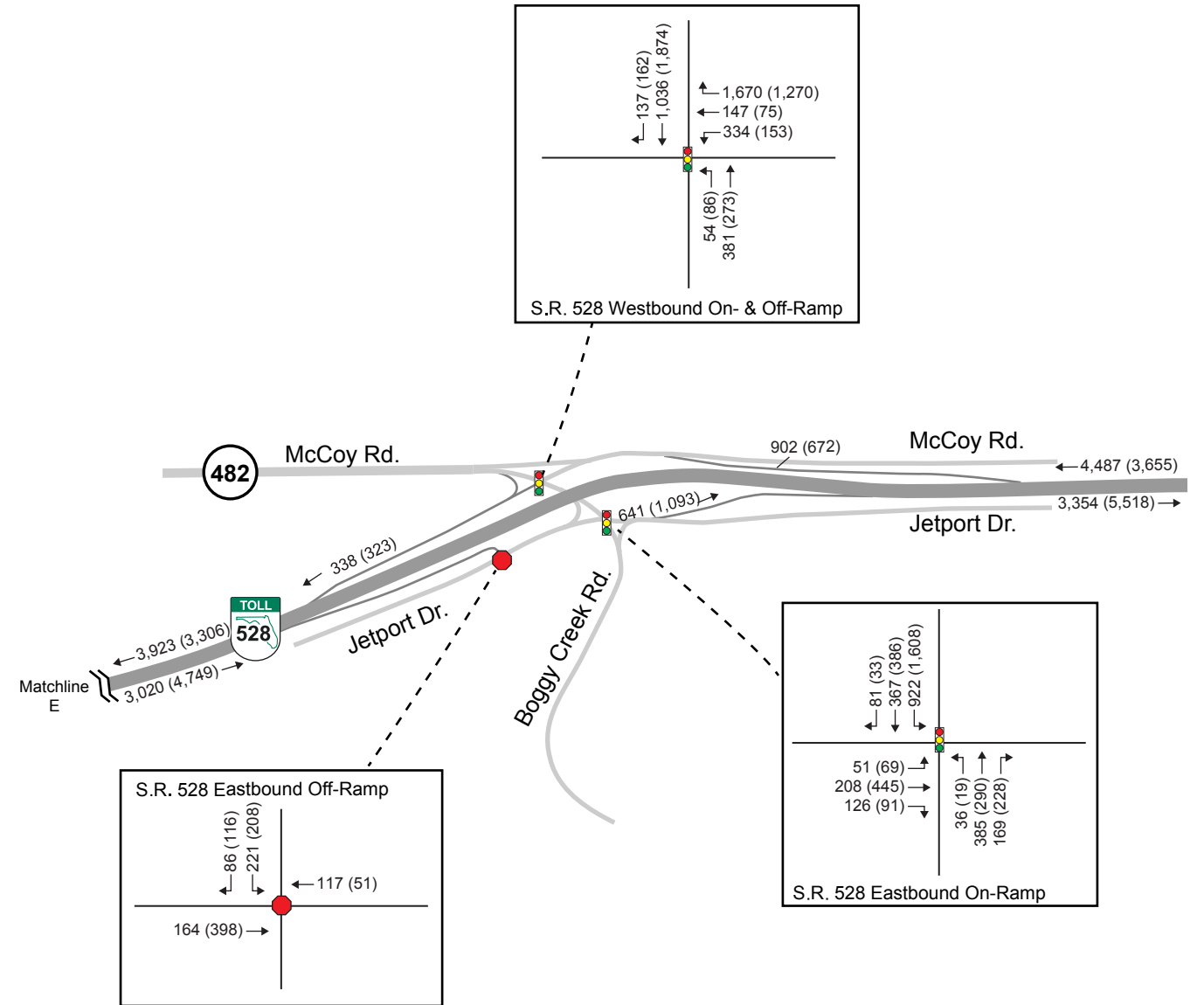
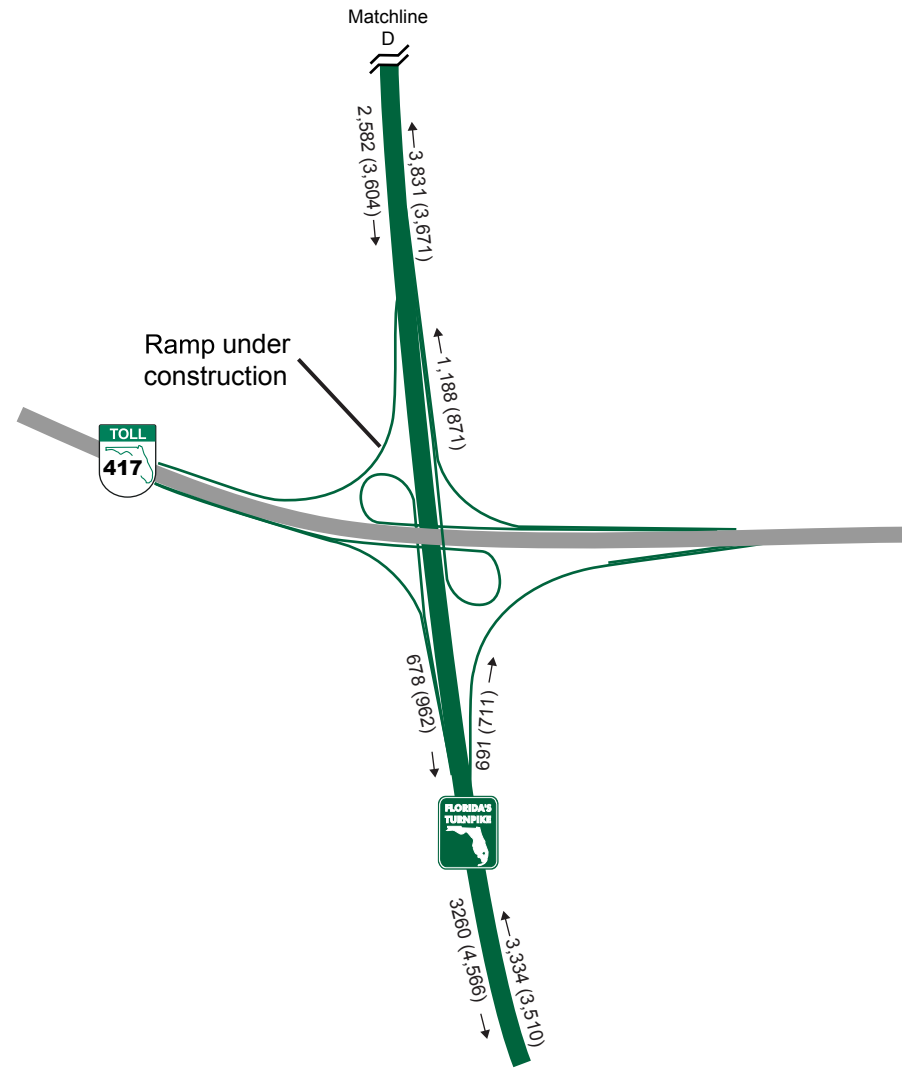
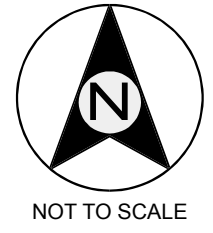
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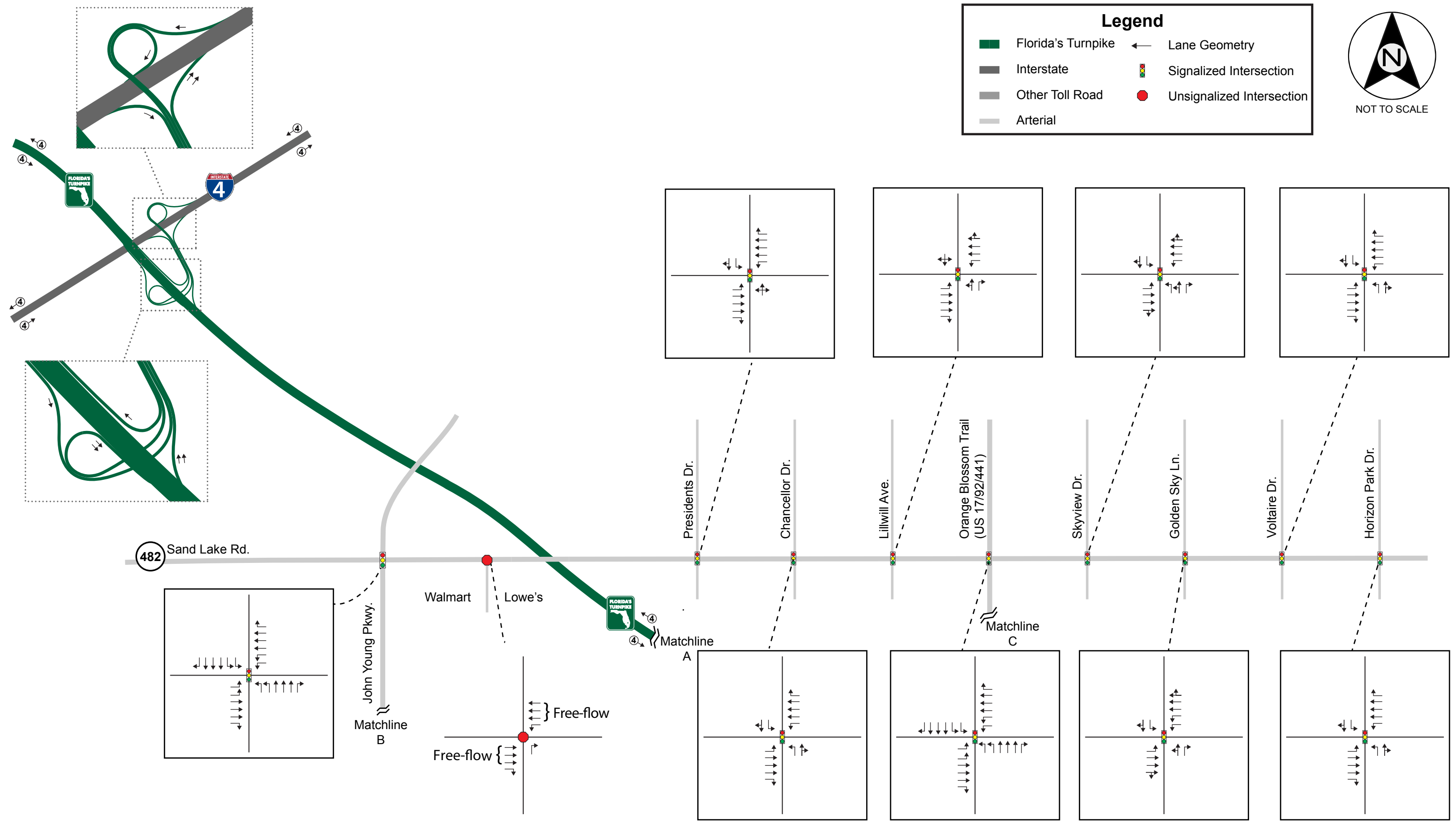
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- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- No Control



Legend

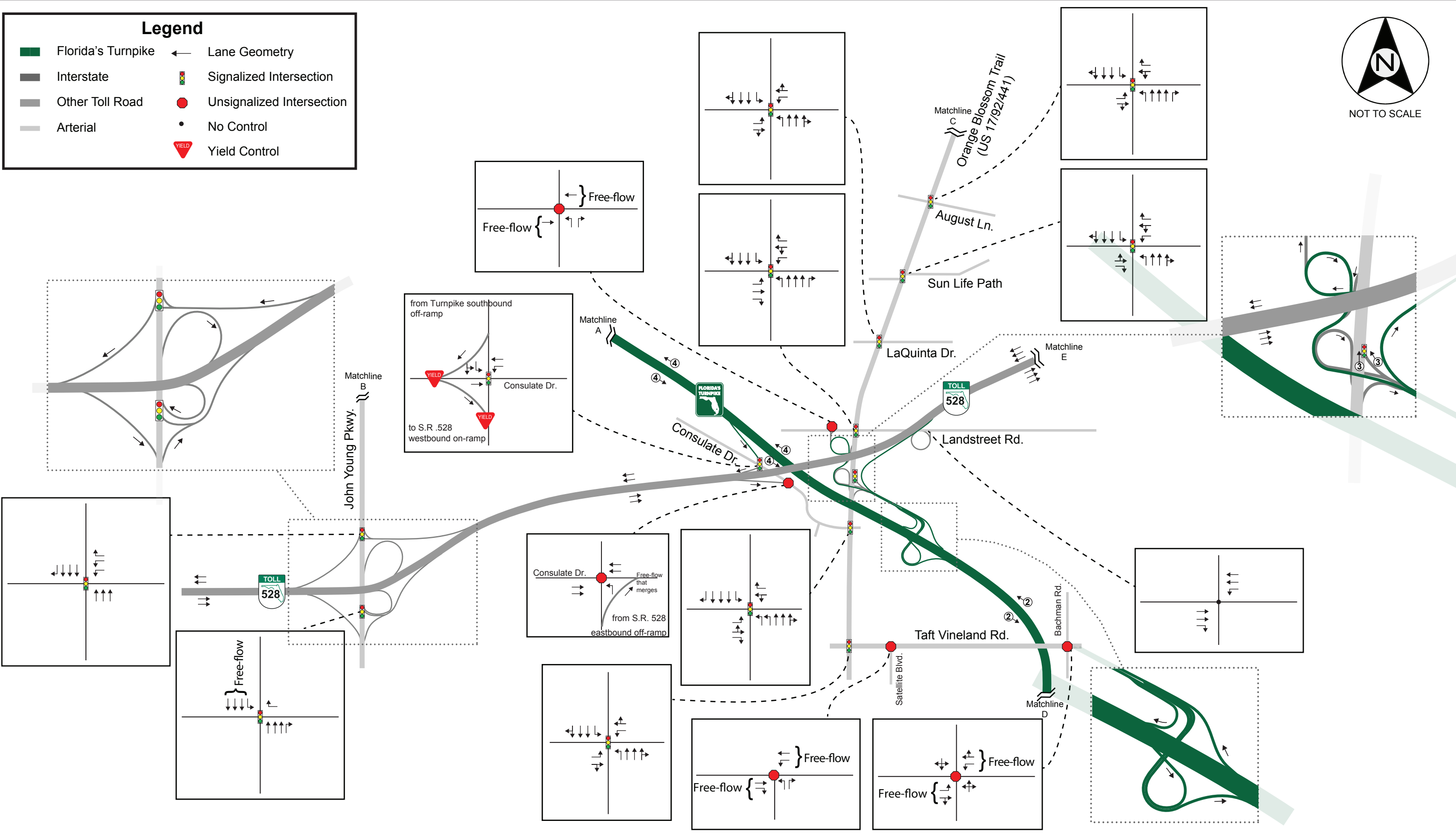
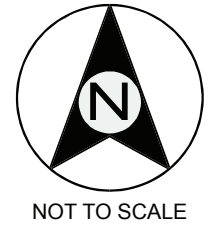
- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection





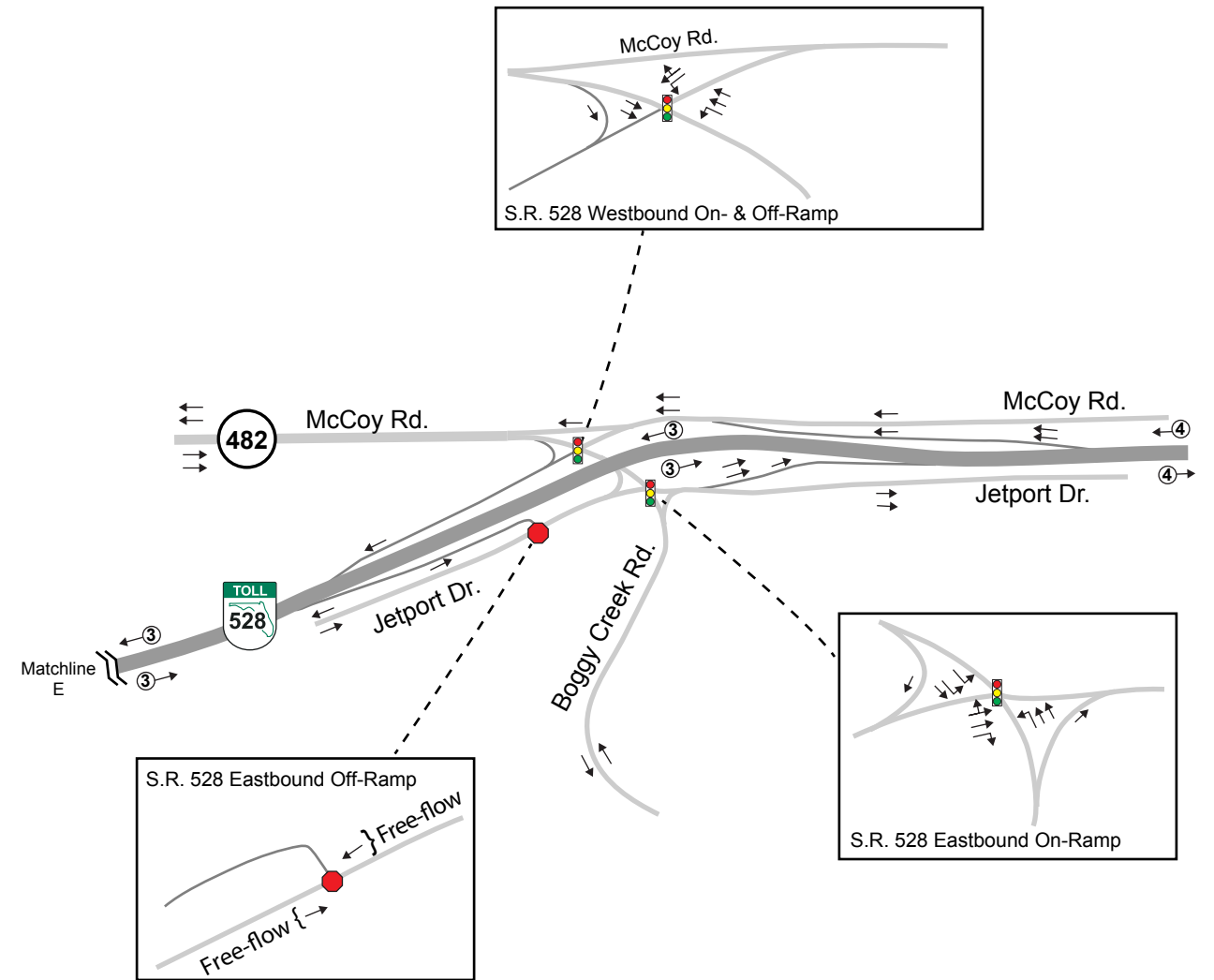
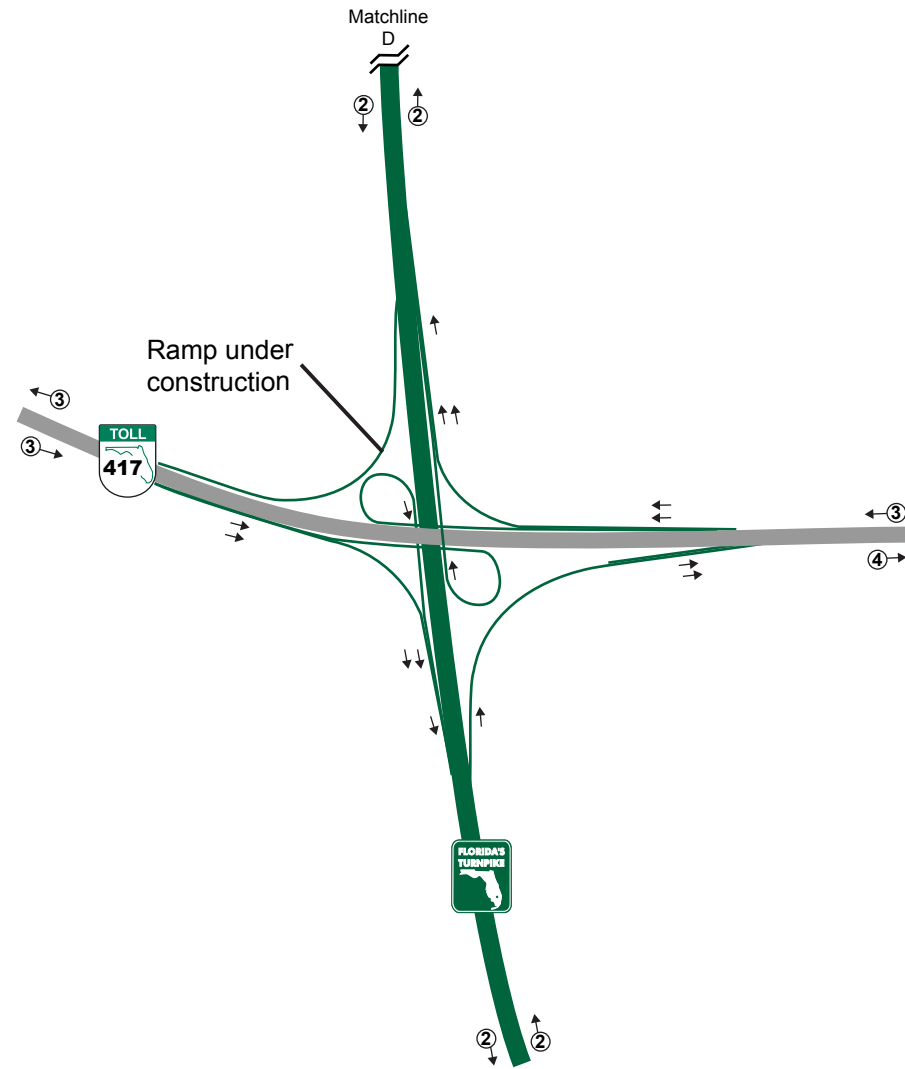
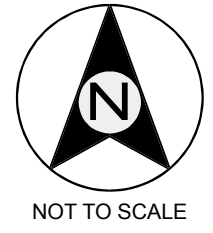
Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection
- No Control
- Yield Control



Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection



4.2 EXISTING OPERATIONAL PERFORMANCE

This section provides a summary of traffic performance results for existing conditions. Detailed output reports and analysis files are provided in **Appendix C**.

4.2.1 Freeway Segment Analysis

The 2017 AM and PM peak hour traffic volumes were evaluated in each direction for freeway segments: basic, weave, and merge/diverge influence areas. Weaving volumes were calculated utilizing the proportion of traffic from the off ramp and freeway. Exiting traffic volume was calculated by applying the ratio to the entrance ramp volume and freeway volume. HCS results are summarized in **Table 4.3**. The Florida's Turnpike segments currently operate at LOS D or better during AM peak hour. There are several freeway segments that operate at LOS E or F in one or both AM and PM peak hours. These segments are identified in **Table 4.3** and include:

- Florida's Turnpike southbound on-ramp from SR 417 merge area
- Florida's Turnpike southbound, downstream of SR 417 on-ramp basic segment
- Florida's Turnpike northbound from SR 417 on-ramp to Orlando South off-ramp basic segment
- Florida's Turnpike northbound off-ramp to Orlando South diverge area
- Florida's Turnpike northbound on-ramp from Orlando South merge area
- Florida's Turnpike northbound on-ramp from I-4 merge area

Most of the segments along SR 528 operate at LOS D or better, except the following locations, which operate at an unacceptable LOS E or F in one or both of the AM and PM peak hours:

- SR 528 westbound from Consulate Drive on-ramp to CR 423 off-ramp basic segment
- SR 528 westbound off-ramp to CR 423 diverge area
- SR 528 westbound, downstream of CR 423 on-ramp basic segment
- SR 528 eastbound upstream of CR 423 off-ramp basic segment
- SR 528 eastbound off-ramp to CR 423 diverge area
- SR 528 eastbound, downstream of Jetport Drive on-ramp basic segment

This section of SR 528 is currently being widened to eight lanes.

4.2.2 Ramp Capacity Analysis

Capacity for ramp roadways was assessed by comparing it with existing demand. The ramp Volume to Capacity (V/C) analysis is summarized in **Table 4.4**. Results show that most of the ramp roadways within the study area are currently operating under capacity ($V/C < 1.0$), except the northbound on-ramp from Orlando South to Florida's Turnpike, which is currently over capacity ($V/C = 1.03$). This on-ramp will be widened to two lanes as part of the ongoing Florida's Turnpike mainline widening.

CHAPTER 4

Existing Conditions Traffic Analysis

Table 4.3
2017 (Existing) Peak Hour HCS Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
Turnpike – Southbound						
Upstream of I-4 off-ramp	Basic	4	5,102	2,853	C/21	B/11
Upstream of I-4 off-ramp	Diverge	4	5,102	2,853	D/32	B/19
I-4 off-ramp to on-ramp	Basic	4	3,444	1,888	B/14	A/7
*I-4 on-ramp to Consulate Drive off-ramp	Merge	4	4,380	3,868	B/16	B/19
I-4 on-ramp to Consulate Drive off-ramp	Basic	4	4,380	3,868	B/17	B/15
*I-4 on-ramp to Consulate Drive off-ramp	Diverge	4	4,380	3,868	B/15	A/9
Consulate Drive off-ramp to Orlando South off-ramp	Basic	3	3,169	3,388	B/17	B/18
*Consulate Drive off-ramp to Orlando South off-ramp	Diverge	3	3,169	3,388	B/13	B/14
Orlando South off-ramp to on-ramp	Basic	2	2060	2574	B/16	C/21
Orlando South on-ramp to SR 417 off-ramp	Merge	2	2,582	3,604	C/21	D/29
Orlando South on-ramp to SR 417 off-ramp	Basic	2	2,582	3,604	C/21	D/35
Orlando South on-ramp to SR 417 off-ramp	Diverge	2	2,582	3,604	B/15	C/25
SR 417 off-ramp to on-ramp	Basic	2	2,582	3,604	C/21	D/35
Downstream of SR 417 on-ramp	Merge	2	3,260	4,566	D/29	F/40
Downstream of SR 417 on-ramp	Basic	2	3,260	4,566	D/29	F/>45
Turnpike – Northbound						
Upstream of SR 417 off-ramp	Basic	2	3,334	3,510	D/30	D/33
Upstream of SR 417 off-ramp	Diverge	2	3,334	3,510	D/34	E/36
SR 417 off-ramp to on-ramp	Basic	2	2,643	2,799	C/22	C/23
SR 417 on-ramp to Orlando South off-ramp	Merge	2	3,831	3,671	D/33	D/32
SR 417 on-ramp to Orlando South off-ramp	Basic	2	3,831	3,671	E/40	E/36
SR 417 on-ramp to Orlando South off-ramp	Diverge	2	3,831	3,671	E/39	E/38
Orlando South off-ramp to on-ramp	Basic	2	2,614	2,767	C/21	C/23
*Orlando South on-ramp to I-4 off-ramp	Merge	4	3,742	4,633	B/14	F/21
Orlando South on-ramp to I-4 off-ramp	Basic	4	3,742	4,633	B/15	C/18
*Orlando South on-ramp to I-4 off-ramp	Diverge	4	3,742	4,633	B/15	B/11
I-4 off-ramp to on-ramp	Basic	4	1,668	3,380	A/7	B/13
Downstream of I-4 on-ramp	Merge	4	2,380	5,163	B/11	F/25
Downstream of I-4 on-ramp	Basic	4	2,380	5,163	A/9	C/21

LOS E

LOS F

Density –passenger cars/mile/lane

*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

CHAPTER 4

Existing Conditions Traffic Analysis

Table 4.3 (continued)
2017 (Existing) Peak Hour HCS Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
SR 528 – Westbound						
*Upstream of McCoy Road off-ramp	Diverge	3	4,487	3,655	B/14	B/14
McCoy Road off-ramp to on-ramp	Basic	3	3,585	2,983	C/23	C/19
McCoy Road on-ramp to Turnpike off-ramp	Merge	3	3,923	3,306	C/23	B/20
McCoy Road on-ramp to Turnpike off-ramp	Basic	3	3,923	3,306	C/25	C/21
*McCoy Road on-ramp to Turnpike off-ramp	Diverge	3	3,923	3,306	B/17	B/14
Turnpike off-ramp to Consulate Drive on-ramp	Basic	2	2,634	1,982	C/25	C/19
Consulate Drive on-ramp to CR 423 off-ramp	Merge	2	3,522	2,780	D/31	C/24
Consulate Drive on-ramp to CR 423 off-ramp	Basic	2	3,522	2,780	E/36	D/26
Consulate Drive on-ramp to CR 423 off-ramp	Diverge	2	3,522	2,780	E/36	D/29
CR 423 off-ramp to CR 423 on-ramp (loop)	Basic	2	2,473	2,224	C/24	C/21
CR 423 on-ramp (loop) to CR 423 on-ramp (diagonal)	Merge	2	3,186	2,748	C/25	C/26
Downstream of CR 423 on-ramp (diagonal)	Merge	2	3,560	3,264	D/31	D/30
Downstream of CR 423 on-ramp (diagonal)	Basic	2	3,560	3,264	E/36	D/32
SR 528 – Eastbound						
Upstream of CR 423 off-ramp (diagonal)	Basic	2	3,337	4,130	D/33	F/>45
*Upstream of CR 423 off-ramp (diagonal)	Diverge	2	3,337	4,130	C/21	F/28
CR 423 off-ramp (diagonal) to CR 423 off-ramp (loop)	Diverge	2	2,700	3,444	C/24	D/30
CR 423 off-ramp (loop) to CR 423 on-ramp	Basic	2	2,270	3,152	C/22	D/30
CR 423 on-ramp to Consulate Drive off-ramp	Weaving	3	2,592	3,991	B/20	D/34
Consulate Drive off-ramp to Turnpike on-ramp	Basic	2	1,999	3,357	C/19	D/33
Turnpike on-ramp to Jetport Drive off-ramp	Merge	3	3,020	4,749	B/15	C/24
Turnpike on-ramp to Jetport Drive off-ramp	Basic	3	3,020	4,749	C/19	D/30
Turnpike on-ramp to Jetport Drive off-ramp	Diverge	3	3,020	4,749	C/23	D/31
Jetport Drive off-ramp to Jetport Drive on-ramp	Basic	3	2,713	4,425	B/17	D/28
*Downstream of Jetport Drive on-ramp	Merge	3	3,354	5,518	B/15	C/27
Downstream of Jetport Drive on-ramp	Basic	3	3,354	5,518	C/21	E/38

LOS E LOS F Density –passenger cars/mile/lane
*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 4.4
2017 (Existing) Peak Hour Ramp Roadway Capacity Analysis

Interchange	Ramp	Lanes	Volume (vph)		Capacity (vph)	V/C	
			AM	PM		AM	PM
Florida's Turnpike / I-4	Northbound off-ramp	2	2,074	1,252	3,640	0.57	0.34
	Southbound on-ramp (loop)	2	935	1,979	3,540	0.26	0.56
	Northbound on-ramp	1	712	1,783	1,820	0.39	0.98
	Southbound off-ramp	1	1,658	965	1,820	0.91	0.53
Florida's Turnpike / Orlando South	Southbound off-ramp (Consulate Drive)	1	1,211	480	1,820	0.67	0.26
	Southbound off-ramp (loop)	1	1,109	814	1,770	0.63	0.46
	Southbound on-ramp	1	522	1,030	1,820	0.29	0.57
	Northbound on-ramp	1	1,128	1,867	1,820	0.62	1.03
	Northbound off-ramp	1	1,217	904	1,820	0.67	0.50
SR 528 / Florida's Turnpike and US 17/92/441	Westbound off-ramp (loop)	1	1,289	1,324	1,810	0.71	0.73
	Eastbound on-ramp (loop)	1	1,021	1,392	1,810	0.56	0.77
	Westbound on-ramp	1	888	798	1,850	0.48	0.43
	Eastbound off-ramp	1	593	634	1,850	0.32	0.34
Florida's Turnpike / SR 417	Northbound off-ramp	1	691	711	1,820	0.38	0.39
	Southbound on-ramp	1	678	962	1,820	0.37	0.53
	Northbound on-ramp	1	1,188	871	1,820	0.65	0.48
	Southbound off-ramp	1	0	0	1,820	0.00	0.00
SR 528 / CR 423	Westbound off-ramp	1	1,049	556	1,850	0.57	0.30
	Eastbound on-ramp	1	322	839	1,850	0.17	0.45
	Westbound on-ramp (loop)	1	713	524	1,810	0.39	0.29
	Eastbound off-ramp (loop)	1	430	292	1,810	0.24	0.16
	Westbound on-ramp	1	374	516	1,850	0.20	0.28
	Eastbound off-ramp	1	637	686	1,850	0.34	0.37
SR 528 / McCoy Road	Westbound off-ramp	2	902	672	3,700	0.24	0.18
	Eastbound on-ramp	1	641	1,093	1,850	0.35	0.59
	Westbound on-ramp	1	338	323	1,850	0.18	0.17
	Eastbound off-ramp	1	307	324	1,850	0.17	0.18

Highlighted: V/C ≥ 1.0

4.2.3 Intersection Analysis

Signalized intersections were analyzed using Synchro Version 10.1. Unsignalized intersections were analyzed using the HCS software Version 7.5. The analysis output summary for AM and PM peak hours are presented in **Tables 4.5** and **4.6**, respectively. For the unsignalized intersections, output is reported for the worst movement. Several intersections within the AOI are operating at LOS E or F in one or both AM and PM peak hours. These intersections include:

- SR 482 at CR 423
- SR 482 at Lowe's/Wal-Mart Entrance (unsignalized)
- SR 482 at US 17/92/441
- SR 482 at Skyview Drive
- US 17/92/441 at Sunlife Path
- US 17/92/441 at Landstreet Road
- US 17/92/441 at Taft Vineland Road
- SR 528 westbound off-ramp at Landstreet Road (unsignalized)
- SR 528 eastbound off-ramp at Consulate Drive (unsignalized)
- Taft Vineland Road at Satellite Boulevard (unsignalized)
- Taft Vineland Road at Bachman Road (unsignalized)
- SR 528 westbound off-ramp at McCoy Road
- McCoy Road at Jetport Drive

**Table 4.5
2017 (Existing) AM Peak Hour Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
SR 482													
CR 423	E/72	E/79	A/1	F/96	E/75	A/1	F/89	E/60	A/1	E/72	E/65	B/16	E/61
Lowe's/Wal-Mart Entrance*	-	-	-	F/569	-	-	-	-	E/36	-	-	-	F/569
Presidents Drive	E/76	C/28	A/4	C/27	B/14	A/2	-	E/75	-	D/50	D/41	-	C/25
Chancellor Drive	E/77	C/31	A/9	F/88	C/24	A/4	D/48	F/251	-	F/122	E/69	-	D/53
Lillwill Avenue	F/120	A/1	A/1	E/58	A/5	-	-	F/90	A/1	-	F/82	-	A/9
US 17/92/441	F/108	D/36	B/15	D/45	C/26	A/1	E/80	E/63	B/12	E/73	D/51	C/26	D/45
Skyview Drive	B/15	C/24	-	B/15	B/18	-	F/113	F/112	A/1	E/75	F/209	-	D/38
Golden Sky Lane	D/36	C/24	-	F/93	A/1	-	-	F/310	A/1	E/68	E/70	-	D/37
Voltaire Drive	F/85	A/5	A/1	E/74	A/8	A/1	E/64	D/43	-	E/65	E/76	-	B/13
Horizon Park Drive	F/95	A/1	A/1	E/71	C/22	A/1	F/119	D/44	-	E/73	D/49	-	C/27
US 17/92/441													
August Lane	E/63	D/55	-	-	F/86	A/6	F/105	A/4	A/1	F/81	A/4	-	A/6
Sunlife Path	-	F/90	A/1	E/72	E/80	A/1	E/62	A/10	-	E/69	B/15	-	B/17
La Quinta Drive	F/108	C/27	-	E/65	E/76	-	E/59	B/18	-	F/82	B/12	-	C/23
Landstreet Road	E/67	F/126	C/30	F/83	F/84	C/24	F/86	D/43	A/1	F/90	D/36	-	D/47
Ramp from Florida's Turnpike	-	-	-	-	-	E/58	-	B/14	-	-	A/1	-	C/20
Consulate Drive	E/70	E/70	C/26	-	E/76	A/1	D/36	A/5	-	E/79	C/24	A/7	C/21
Taft Vineland Road	D/55	E/64	-	D/43	E/65	-	E/77	D/44	-	E/75	B/12	-	D/40

- Not Applicable

*Unsignalized. Level of Service/Delay reported for worst movement.

Delay - seconds per vehicle

**Table 4.5 (continued)
2017 (Existing) AM Peak Hour Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Landstreet Road													
SR 528 westbound off-ramp*	-	-	-	-	-	-	E/48	-	E/48	-	-	-	E/48
SR 528 eastbound on-ramp*	-	-	-	A/9	-	-	-	-	-	-	-	-	A/9
Consulate Drive													
Florida's Turnpike southbound off-ramp/westbound on-ramp	-	D/42	-	D/43	D/35	-	-	-	-	B/18	D/49	-	D/39
SR 528 Eastbound off-ramp*	D/31	-	D/31	-	-	-	-	-	-	-	-	-	D/31
Delegates Drive*	C/25	-	B/12	-	-	-	B/12	-	-	-	-	-	C/25
Taft Vineland Road													
Satellite Boulevard*	-	-	-	B/10	-	-	E/41	-	B/15	-	-	-	E/41
Bachman Road*	A/9	-	-	A/9	-	-	-	D/29	-	-	D/27	-	D/27
CR 423													
SR 528 westbound ramps	-	-	-	F/94	-	-	-	B/18	-	-	A/5	-	B/18
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	A/8	-	F/98	-	-	A/8
McCoy Road													
SR 528 westbound ramps	-	C/32	A/1	A/6	A/8	-	-	-	-	D/44	D/35	-	C/27
Jetport Drive	-	E/74	B/14	-	-	-	D/54	E/70	C/27	B/10	B/10	-	C/29
SR 528 eastbound off-ramp*	B/13	-	A/9	-	-	-	-	-	-	-	-	-	B/13

- Not Applicable

*Unsignalized. Level of Service/Delay reported for worst movement.

Delay - seconds per vehicle

**Table 4.6
2017 (Existing) PM Peak Hour Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
SR 482													
CR 423	F/94	F/116	A/1	F/157	F/140	A/1	F/106	E/67	A/1	F/85	E/79	B/17	F/83
Lowe's/Wal-Mart Entrance*	-	-	-	F/>999	-	-	-	-	F/521	-	-	-	F/>999
Presidents Drive	F/103	C/29	A/7	D/50	A/8	A/1	-	F/366	-	E/63	E/66	-	D/42
Chancellor Drive	E/77	B/16	A/1	F/80	C/32	A/5	D/49	F/97	-	E/62	E/55	-	C/31
Lillwill Avenue	F/107	C/26	A/1	E/56	A/2	-	-	F/130	A/1	-	F/87	-	C/22
US 17/92/441	F/155	F/95	F/86	F/130	F/85	D/44	F/131	F/119	E/77	F/121	E/68	B/19	F/95
Skyview Drive	F/290	E/59	-	F/224	C/26	-	E/69	F/113	B/15	E/73	F/171	-	E/70
Golden Sky Lane	F/90	C/30	-	F/101	C/20	-	-	F/92	B/13	E/70	C/31	-	D/36
Voltaire Drive	E/78	D/53	B/17	F/94	B/14	A/3	E/79	E/59	-	F/124	E/67	-	D/38
Horizon Park Drive	F/160	A/4	A/1	F/87	D/45	A/6	E/69	D/46	-	F/118	D/55	-	D/38
US 17/92/441													
August Lane	E/58	E/60	-	-	F/109	C/21	F/119	C/26	A/7	F/106	B/14	-	C/30
Sunlife Path	-	F/99	A/2	F/113	F/114	B/13	F/109	F/88	-	F/81	E/72	-	E/80
La Quinta Drive	F/118	C/29	-	E/76	D/54	-	D/53	D/42	-	F/96	B/11	-	C/32
Landstreet Road	E/74	F/114	E/71	F/112	F/108	C/33	F/136	F/115	A/1	F/102	E/60	-	F/81
Ramp from Florida's Turnpike	-	-	-	-	-	D/44	-	A/10	-	-	A/1	-	A/9
Consulate Drive	F/112	F/112	C/22	-	F/97	A/1	E/63	C/25	-	F/106	C/31	A/6	D/41
Taft Vineland Road	F/81	E/66	-	D/44	F/131	-	F/158	F/85	-	D/42	D/36	-	E/69

- Not Applicable

*Unsignalized. Level of Service/Delay reported for worst movement.

Delay - seconds per vehicle

Table 4.6 (continued)
2017 (Existing) PM Peak Hour Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Landstreet Road													
SR 528 westbound off-ramp*	-	-	-	-	-	-	E/40	-	E/40	-	-	-	E/40
SR 528 eastbound on-ramp*	-	-	-	A/10	-	-	-	-	-	-	-	-	A/10
Consulate Drive													
Florida's Turnpike southbound off-ramp/westbound on-ramp	-	D/42	-	E/59	A/8	-	-	-	-	D/39	D/40	-	D/44
SR 528 Eastbound off-ramp*	F/62	-	F/62	-	-	-	-	-	-	-	-	-	F/62
Delegates Drive*	D/26	-	B/14	-	-	-	B/12	-	-	-	-	-	D/26
Taft Vineland Road													
Satellite Boulevard*	-	-	-	-	-	-	F/119	-	C/19	-	-	-	F/119
Bachman Road*	B/10	-	-	A/8	-	-	-	F/53	-	-	F/741	-	F/741
CR 423													
SR 528 westbound ramps	-	-	-	F/98	-	-	-	A/1	-	-	A/10	-	B/12
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	C/26	-	F/80	-	-	B/18
McCoy Road													
SR 528 westbound ramps	-	E/75	A/1	F/92	A/1	-	-	-	-	E/77	E/68	-	E/63
Jetport Drive	-	F/84	B/12	-	-	-	E/70	F/83	F/104	E/78	B/15	-	E/71
SR 528 eastbound off-ramp*	C/17	-	A/9	-	-	-	-	-	-	-	-	-	C/17

- Not Applicable

*Unsignalized. Level of Service/Delay reported for worst movement.

Delay - seconds per vehicle

4.2.4 Microsimulation Evaluation

The existing conditions VISSIM model development and calibration documentation is provided in **Appendix D**. The model included the I-4, Consulate Drive, and Orlando South interchanges along the Turnpike and intersections along SR 482, Consulate Drive, CR 423, US 17/92/441, and Landstreet Road. More details on the AOI are provided in **Chapter 1.3**. The model was calibrated for 2017 AM and PM peak period conditions: four hours of simulation with 30 minutes seeding time. Calibration of the model was based on traffic volumes (freeway mainline, ramps, and intersections), travel time, speed, and observed queues at selected crucial locations to accurately represent field conditions. The calibration documentation includes: model development inputs, existing peak hour traffic, hourly distributions used in generating volumes for each of the four analysis hours, and calibration output for both 2017 AM and PM. Analysis was based on the average of 10 random seed runs to account for the stochasticity of the microsimulation model.

Tables 4.7 through **4.12** highlight the MOEs for the 2017 AM and PM calibrated models for the peak hour only. The output for each hour during the AM and PM peak periods is presented in the calibration documentation in **Appendix D**. As shown in **Tables 4.7**, most of the Turnpike Mainline freeway segments currently operate at or close to the posted speed of 70 mph during peak hours. The exception is the northbound merge from SR 417 and Orlando South diverge area, which experiences a reduction in speed in the AM, consistent with field operations. The tables also show that most of the existing demand is served during the peak hours. As shown in **Table 4.8**, the Turnpike Mainline operates at speed between 51 mph to 70 mph except for SR 417 merge area, which operates at 32 mph resulting in slow downs, consistent with field observations. The small unmet demand in the PM in the southbound direction downstream of I-4 is due to upstream metering impacts at the I-4 westbound to Turnpike off-ramp. This off-ramp has a single lane and cannot serve the current demand during the evening commute and results in low travel speeds along the I-4 mainline due to queue backups. The unmet demand during the peak hour is served during the subsequent hours.

SR 528 currently experiences a reduction in speed during the AM commute period west of Consulate Drive due to proximity of interchanges and weaving maneuvers. In addition, queues currently back up on the SR 528 mainline in the westbound direction at the Turnpike off-ramp in the PM, resulting in reduction in mainline speed, as shown in **Table 4.8**. The queue backups start downstream of the SR 528 westbound off-ramp where it merges with the US 17/92/441 southbound on-ramp to the Turnpike, forming a single lane section that is currently over capacity. The posted speed on I-4 and SR 528 is 55 mph within the study area.

The ramp output shown in **Tables 4.9** and **4.10** was processed for the section immediately downstream of an off-ramp or upstream of an on-ramp gore. The unmet demand in the PM is due to the upstream metering impacts at the I-4 westbound off-ramp to Turnpike, but the demand is served by the end of the four-hour simulation period. This also applies to the intersection output presented in **Tables 4.11** and **4.12**. Overall, intersection delay and queues for most of the intersections are within acceptable levels. However, the SR 482 and CR 423 intersection and the intersections along US 17/92/441 experience long delays, especially the Landstreet Road intersection in the PM.

Table 4.7
2017 (Existing) AM Peak Hour VISSIM Freeway Segment Performance

Segment	Lanes	Demand	Processed	% Served	Speed	Density pc/mi/ln
Turnpike Southbound						
Upstream of I-4 off-ramp – Basic	4	5,102	5,090	100%	69	19
Upstream of I-4 off-ramp – Diverge	4	5,102	5,076	99%	63	21
I-4 off-ramp to on-ramp – Basic	4	3,444	3,406	99%	70	13
I-4 on-ramp to Consulate Drive off-ramp – Merge	5	4,380	4,344	99%	68	12
I-4 on-ramp to Consulate Drive off-ramp – Basic	4	4,380	4,340	99%	70	16
I-4 on-ramp to Consulate Drive off-ramp – Diverge	4	4,380	4,273	98%	54	24
Consulate Drive off-ramp to Orlando South off-ramp – Basic	3	3,169	3,118	98%	70	13
Consulate Drive off-ramp to Orlando South off-ramp – Diverge	3	3,169	3,122	99%	68	16
Orlando South off-ramp to on-ramp – Basic	2	2,060	2,034	99%	70	15
Orlando South on-ramp to SR 417 on-ramp – Merge	2	2,582	2,551	99%	67	17
Orlando South on-ramp to SR 417 on-ramp – Basic	2	2,582	2,543	98%	69	20
Downstream of SR 417 on-ramp – Merge	2	3,260	3,210	98%	68	20
Downstream of SR 417 on-ramp – Basic	2	3,260	3,208	98%	68	25
Turnpike Northbound						
Upstream of SR 417 off-ramp – Basic	2	3,334	3,324	100%	68	26
Upstream of SR 417 off-ramp – Diverge	2	3,334	3,320	100%	65	27
SR 417 off-ramp to on-ramp – Basic	2	2,643	2,630	100%	67	21
SR 417 on-ramp to Orlando South off-ramp – Merge	2	3,831	3,766	98%	39	47
SR 417 on-ramp to Orlando South off-ramp – Basic	2	3,831	3,733	97%	64	31
SR 417 on-ramp to Orlando South off-ramp – Diverge	2	3,831	3,714	97%	55	33
Orlando South off-ramp to on-ramp – Basic	2	2,614	2,537	97%	66	20
Orlando South on-ramp to I-4 off-ramp – Merge	5	3,742	3,609	96%	69	11
Orlando South on-ramp to I-4 off-ramp – Basic	5	3,742	3,633	97%	70	14
Orlando South on-ramp to I-4 off-ramp – Diverge	5	3,742	3,625	97%	70	11
I-4 off-ramp to on-ramp – Basic	4	1,668	1,610	96%	72	6
Downstream of I-4 on-ramp – Merge	4	2,380	2,316	97%	71	7
Downstream of I-4 on-ramp – Basic	4	2,380	2,310	97%	71	9
I-4 Eastbound						
Upstream of Turnpike off-ramp – Basic	4	3,895	3,887	100%	56	18
Upstream of Turnpike off-ramp – Diverge	4	3,895	3,883	100%	56	18
Turnpike off-ramp to on-ramp	3	3,261	3,241	99%	55	20
Downstream of Turnpike on-ramp – Merge	5	5,634	5,578	99%	56	21
Downstream of Turnpike on-ramp – Basic	5	5,634	5,571	99%	55	26

Highlighted: unmet demand >5% and/or speed <35 mph.

Table 4.7 (continued)
2017 (Existing) AM Peak Hour VISSIM Freeway Segment Performance

Segment	Lanes	Demand	Processed	% Served	Speed	Density pc/mi/ln
I-4 Westbound						
Upstream of Turnpike off-ramp – Basic	4	6,729	6,707	100%	54	32
Upstream of Turnpike off-ramp – Diverge	4	6,729	6,683	99%	52	33
Turnpike off-ramp to on-ramp	3	5,716	5,661	99%	52	38
Downstream of Turnpike on-ramp – Merge	4	7,075	6,969	99%	54	34
Downstream of Turnpike on-ramp – Basic	4	7,075	6,978	99%	54	34
SR 528 (Beachline) Eastbound						
Upstream of CR 423 off-ramp (diagonal) – Basic	2	3,337	3,330	100%	53	33
Upstream of CR 423 off-ramp (diagonal) – Diverge	2	3,337	3,323	100%	50	35
CR 423 off-ramp (diagonal) to CR 423 off-ramp (loop) – Diverge	2	2,700	2,682	99%	55	22
CR 423 off-ramp (loop) to CR 423 on-ramp – Basic	2	2,270	2,245	99%	55	21
CR 423 on-ramp to Consulate Drive off-ramp – Weave	3	2,592	2,574	99%	53	22
Consulate Drive off-ramp to Turnpike on-ramp – Basic	3	1,999	1,986	99%	56	13
Turnpike on-ramp to McCoy Road off-ramp – Merge	4	3,020	2,972	98%	56	14
Turnpike on-ramp to McCoy Road off-ramp – Basic	3	3,020	2,971	98%	55	18
SR 528 (Beachline) Westbound						
McCoy Road on-ramp to Turnpike off-ramp – Basic	3	3,923	3,872	99%	54	25
McCoy Road on-ramp to Turnpike off-ramp – Diverge	3	3,923	3,864	98%	51	26
Turnpike off-ramp to Consulate Drive on-ramp	2	2,634	2,598	99%	51	27
Consulate Drive on-ramp to CR 423 off-ramp – Weave	2	3,522	3,428	97%	32	54
CR 423 off-ramp to CR 423 on-ramp (loop) – Basic	2	2,473	2,401	97%	53	23
CR 423 on-ramp (loop) to CR 423 on-ramp (diagonal) – Merge	2	3,186	3,106	97%	53	25
Downstream of CR 423 on-ramp (diagonal) – Merge	2	3,560	3,474	98%	50	27
Downstream of CR 423 on-ramp (diagonal) – Basic	2	3,560	3,466	97%	52	34

Highlighted: unmet demand >5% and/or speed <35 mph.

Table 4.8
2017 (Existing) PM Peak Hour VISSIM Freeway Segment Performance

Segment	Lanes	Demand	Processed	% Served	Speed	Density pc/mi/ln
Turnpike Southbound						
Upstream of I-4 off-ramp – Basic	4	2,853	2,849	100%	71	11
Upstream of I-4 off-ramp – Diverge	4	2,853	2,848	100%	70	11
I-4 off-ramp to on-ramp – Basic	4	1,888	1,867	99%	71	7
I-4 on-ramp to Consulate Drive off-ramp – Merge	5	3,868	3,661	95%	66	11
I-4 on-ramp to Consulate Drive off-ramp – Basic	4	3,868	3,668	95%	71	14
I-4 on-ramp to Consulate Drive off-ramp – Diverge	4	3,868	3,652	94%	71	14
Consulate Drive Off-ramp to Orlando South off-ramp – Basic	3	3,388	3,213	95%	71	13
Consulate Drive off-ramp to Orlando South off-ramp – Diverge	3	3,388	3,214	95%	69	16
Orlando South off-ramp to on-ramp – Basic	2	2,574	2,435	95%	69	19
Orlando South on-ramp to SR 417 on-ramp – Merge	2	3,604	3,417	95%	60	25
Orlando South on-ramp to SR 417 on-ramp – Basic	2	3,604	3,370	94%	49	39
Downstream of SR 417 on-ramp – Merge	2	4,566	4,162	91%	32	69
Downstream of SR 417 on-ramp – Basic	2	4,566	4,158	91%	62	35
Turnpike Northbound						
Upstream of SR 417 off-ramp – Basic	2	3,510	3,505	100%	67	28
Upstream of SR 417 off-ramp – Diverge	2	3,510	3,504	100%	64	29
SR 417 off-ramp to on-ramp – Basic	2	2,799	2,799	100%	69	22
SR 417 on-ramp to Orlando South off-ramp – Merge	2	3,671	3,663	100%	61	25
SR 417 on-ramp to Orlando South off-ramp – Basic	2	3,671	3,650	99%	65	30
SR 417 on-ramp to Orlando South off-ramp – Diverge	2	3,671	3,635	99%	59	30
Orlando South off-ramp to on-ramp – Basic	2	2,766	2,750	99%	66	22
Orlando South on-ramp to I-4 off-ramp – Merge	5	4,633	4,461	96%	66	14
Orlando South on-ramp to I-4 off-ramp – Basic	5	4,633	4,498	97%	70	17
Orlando South on-ramp to I-4 off-ramp – Diverge	5	4,633	4,497	97%	70	14
I-4 off-ramp to on-ramp – Basic	4	3,381	3,281	97%	71	12
Downstream of I-4 on-ramp – Merge	4	5,163	4,953	96%	69	16
Downstream of I-4 on-ramp – Basic	4	5,163	4,949	96%	70	19
I-4 Eastbound						
Upstream of Turnpike off-ramp – Basic	4	6,512	6,430	99%	37	48
Upstream of Turnpike off-ramp – Diverge	4	6,512	6,301	97%	25	66
Turnpike off-ramp to on-ramp	3	4,715	4,573	97%	54	29
Downstream of Turnpike on-ramp – Merge	5	5,946	5,793	97%	56	22
Downstream of Turnpike on-ramp – Basic	5	5,946	5,805	98%	55	27

Highlighted: unmet demand >5% and/or speed <35 mph.

**Table 4.8 (continued)
2017 (Existing) PM Peak Hour VISSIM Freeway Segment Performance**

Segment	Lanes	Demand	Processed	% Served	Speed	Density pc/mi/ln
I-4 Westbound						
Upstream of Turnpike off-ramp – Basic	4	5,240	5,066	97%	24	57
Upstream of Turnpike off-ramp – Diverge	4	5,240	4,863	93%	19	68
Turnpike off-ramp to on-ramp	3	3,275	3,096	95%	56	19
Downstream of Turnpike on-ramp – Merge	4	4,261	4,070	96%	56	19
Downstream of Turnpike on-ramp – Basic	4	4,261	4,086	96%	56	19
SR 528 (Beachline) Eastbound						
Upstream of CR 423 off-ramp (diagonal) – Basic	2	4,130	3,996	97%	41	52
Upstream of CR 423 off-ramp (diagonal) – Diverge	2	4,130	3,976	96%	42	50
CR 423 off-ramp (diagonal) to CR 423 off-ramp (loop) – Diverge	2	3,444	3,321	96%	48	34
CR 423 off-ramp (loop) to CR 423 on-ramp – Basic	2	3,152	3,019	96%	41	46
CR 423 on-ramp to Consulate Drive off-ramp – Weave	3	3,991	3,832	96%	38	50
Consulate Drive off-ramp to Turnpike on-ramp – Basic	3	3,357	3,214	96%	55	22
Turnpike on-ramp to McCoy Road off-ramp – Merge	4	4,749	4,556	96%	56	21
Turnpike on-ramp to McCoy Road off-ramp – Basic	3	4,749	4,559	96%	54	28
SR 528 (Beachline) Westbound						
McCoy Road on-ramp to Turnpike off-ramp – Basic	3	3,306	3,284	99%	53	22
McCoy Road on-ramp to Turnpike off-ramp – Diverge	3	3,306	3,235	98%	30	49
Turnpike off-ramp to Consulate Drive on-ramp	2	1,982	1,954	99%	55	18
Consulate Drive on-ramp to CR 423 off-ramp – Weave	2	2,780	2,706	97%	52	25
CR 423 off-ramp to CR 423 on-ramp (loop) – Basic	2	2,224	2,164	97%	55	21
CR 423 on-ramp (loop) to CR 423 on-ramp (diagonal) – Merge	2	2,748	2,694	98%	54	21
Downstream of CR 423 on-ramp (diagonal) – Merge	2	3,264	3,207	98%	52	24
Downstream of CR 423 on-ramp (diagonal) – Basic	2	3,264	3,205	98%	53	31

Highlighted: unmet demand >5% and/or speed <35 mph.

**Table 4.9
2017 (Existing) AM Peak Hour VISSIM Freeway Ramp Roadway Performance**

Interchange	Ramp	Lanes	Demand	Processed	Served	Speed
Florida's Turnpike / I-4	Southbound off-ramp	1	1,658	1,645	99%	50
	Northbound on-ramp	1	712	702	99%	63
	Southbound on-ramp	2	935	926	99%	31
	Northbound off-ramp	2	2,074	2,005	97%	68
Florida's Turnpike / Consulate Drive / SR 528	Turnpike Southbound to Consulate Drive off-ramp	1	1,211	1,167	96%	24
	SR 528 eastbound to Consulate Drive off-ramp	1	593	582	98%	51
	Consulate Drive to SR 528 westbound on-ramp	1	888	855	96%	37
Florida's Turnpike / Orlando South	Southbound off-ramp	1	1,109	1,075	97%	35
	Northbound on-ramp	1	1,128	1,101	98%	52
	Southbound on-ramp	1	522	511	98%	48
	Northbound off-ramp	1	1,217	1,187	97%	52
Florida's Turnpike / SR 417	Northbound on-ramp	1	1,188	1,166	98%	47
	Southbound on-ramp	1	678	677	100%	53
	Northbound off-ramp	1	691	687	99%	69
SR 528 / CR 423	Westbound off-ramp	1	1,049	1,023	98%	48
	Eastbound on-ramp	1	322	320	99%	56
	Westbound on-ramp (loop)	1	713	702	98%	46
	Westbound on-ramp (diagonal)	1	374	374	100%	56
	Eastbound off-ramp (diagonal)	1	637	632	99%	50
	Eastbound off-ramp (loop)	1	430	425	99%	46
SR 528 / Orlando South	Turnpike to SR 528 eastbound on-ramp	2	1,021	988	97%	53
	SR 528 westbound to Turnpike off-ramp	1	1,289	1,261	98%	36
SR 528 / McCoy Road	Westbound off-ramp	1	902	914	101%	39
	Eastbound on-ramp	1	641	624	97%	51
	Westbound on-ramp	1	338	324	96%	48
	Eastbound off-ramp	1	307	299	98%	56

Highlighted: unmet demand > 5%.

Ramp output is for the section immediately downstream of an off-ramp or upstream of an on-ramp gore

Table 4.10
2017 (Existing) PM Peak Hour VISSIM Freeway Ramp Roadway Performance

Interchange	Ramp	Lanes	Demand	Processed	Served	Speed
Florida's Turnpike / I-4	Southbound off-ramp	1	965	970	101%	61
	Northbound on-ramp	1	1,783	1,658	93%	53
	Southbound on-ramp	2	1,980	1,785	90%	30
	Northbound off-ramp	2	1,252	1,211	97%	70
Florida's Turnpike / Consulate Drive / SR 528	Turnpike southbound to Consulate Drive off-ramp	1	480	448	93%	60
	SR 528 eastbound to Consulate Drive off-ramp	1	634	603	95%	36
	Consulate Drive to SR 528 westbound on-ramp	1	798	753	94%	48
Florida's Turnpike / Orlando South	Southbound off-ramp	1	814	772	95%	41
	Northbound on-ramp	1	1,867	1,745	93%	40
	Southbound on-ramp	1	1,030	974	95%	48
	Northbound off-ramp	1	904	896	99%	55
Florida's Turnpike / SR 417	Northbound on-ramp	1	871	867	99%	69
	Southbound on-ramp	1	962	946	98%	40
	Northbound off-ramp	1	711	704	99%	69
SR 528 / CR 423	Westbound off-ramp	1	556	547	98%	53
	Eastbound on-ramp	1	839	830	99%	39
	Westbound on-ramp (loop)	1	524	528	101%	46
	Westbound on-ramp (diagonal)	1	516	511	99%	56
	Eastbound off-ramp (diagonal)	1	686	647	94%	50
	Eastbound off-ramp (loop)	1	292	275	94%	47
SR 528 / Orlando South	Turnpike to SR 528 eastbound on-ramp	2	1,392	1,338	96%	50
	SR 528 westbound to Turnpike off-ramp	1	1,324	1,251	94%	17
SR 528 / McCoy Road	Westbound off-ramp	1	672	686	102%	40
	Eastbound on-ramp	1	1,093	1,061	97%	51
	Westbound on-ramp	1	323	316	98%	48
	Eastbound off-ramp	1	324	314	97%	48

Highlighted: unmet demand > 5%.

Ramp output is for the section immediately downstream of an off-ramp or upstream of an on-ramp gore.

Table 4.11
2017 (Existing) AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
SR 482 and CR 423	567	1,180	400	259	1,116	292	183	1,102	442	336	886	91	6,856
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	182	-	-	-	-	1,485	275	317	1,314	-	3,574
SR 482 and Presidents Drive	88	88	14	82	79	122	135	1,386	146	37	1,421	187	3,786
Turnpike southbound off-ramp and Consulate Drive	418	453	-	-	59	16	-	-	-	401	454	355	2,157
SR 528 eastbound off-ramp and Consulate Drive*	-	832	-	-	460	-	39	-	554	-	-	-	1,885
SR 528 westbound ramps and CR 423	-	2,564	713	-	838	374	-	-	-	365	-	684	5,538
SR 528 eastbound on-ramp and CR 423	-	2,847	229	93	1,110	-	-	-	637	-	-	-	4,916
SR 528 westbound off-ramp and Landstreet Road*	172	-	378	-	-	-	-	315	-	-	293	-	1,158
Landstreet Road and US 17/92/441	194	1,468	450	219	1,122	31	105	255	332	246	68	285	4,775
Landstreet Road and SR 528 eastbound on-ramp*	-	-	-	-	-	-	-	732	193	26	599	-	1,550
Turnpike off-ramp and US 17/92/441	-	1,218	-	-	-	-	-	-	-	-	893	-	2,111
Consulate Drive and US 17/92/441	187	1,277	1	17	1,159	764	444	11	475	15	7	19	4,377
Percentage Served													
SR 482 and CR 423	99%	100%	99%	98%	99%	100%	100%	100%	97%	100%	97%	100%	99%
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	98%	-	-	-	-	99%	100%	98%	99%	-	99%
SR 482 and Presidents Drive	100%	98%	98%	97%	95%	100%	100%	98%	97%	98%	98%	100%	98%
Turnpike southbound off-ramp and Consulate Drive	97%	98%	-	-	96%	99%	-	-	-	98%	96%	95%	97%
SR 528 eastbound off-ramp and Consulate Drive*	-	98%	-	-	98%	-	100%	-	98%	-	-	-	98%
SR 528 westbound ramps and CR 423	-	100%	99%	-	100%	100%	-	-	-	97%	-	98%	99%
SR 528 eastbound on-ramp and CR 423	-	100%	100%	96%	99%	-	-	-	100%	-	-	-	100%
SR 528 westbound off-ramp and Landstreet Road*	100%	-	96%	-	-	-	-	99%	-	-	97%	-	98%
Landstreet Road and US 17/92/441	96%	98%	98%	96%	98%	97%	98%	97%	97%	99%	100%	100%	98%
Landstreet Road and SR 528 Eastbound on-ramp*	-	-	-	-	-	-	-	97%	100%	91%	100%	-	98%
Turnpike off-ramp and US 17/92/441	-	98%	-	-	-	-	-	-	-	-	98%	-	98%
Consulate Drive and US 17/92/441	99%	99%	100%	90%	97%	98%	98%	90%	98%	100%	100%	91%	98%

- Not Applicable

* Unsignalized

Table 4.11 (continued)
2017 (Existing) AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Average Delay (Seconds) for the worst 30-Minute Period													
SR 482 and CR 423	76	42	2	94	57	3	68	70	3	82	69	5	53
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	16	-	-	-	-	1	8	29	2	-	5
SR 482 and Presidents Drive	67	66	56	62	60	38	76	18	10	47	5	5	19
Florida's Turnpike southbound off-ramp and Consulate Drive	33	24	-	-	40	17	-	-	-	90	104	89	65
SR 528 eastbound off-ramp and Consulate Drive*	-	1	-	-	0	-	18	-	6	-	-	-	3
SR 528 westbound ramps and CR 423	-	15	5	-	5	1	-	-	-	92	-	14	16
SR 528 eastbound on-ramp and CR 423	-	6	2	77	0	-	-	-	5	-	-	-	6
SR 528 westbound off-ramp and Landstreet Road*	31	-	19	-	-	-	-	5	-	-	1	-	13
Landstreet Road and US 17/92/441	100	41	16	65	26	28	92	107	40	64	63	11	42
Landstreet Road and SR 528 eastbound on-ramp*	-	-	-	-	-	-	-	0	2	5	1	-	1
Florida's Turnpike off-ramp and US 17/92/441	-	7	-	-	-	-	-	-	-	-	66	-	32
Consulate Drive and US 17/92/441	35	6	6	99	26	23	61	61	21	81	80	9	23
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
SR 482 and CR 423	179 (495)	179 (495)	44 (293)	199 (597)	199 (597)	36 (358)	229 (623)	229 (623)	108 (480)	198 (493)	198 (493)	61 (327)	-
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	14 (159)	-	-	-	-	3 (152)	3 (152)	54 (390)	-	-	-
SR 482 and Presidents Drive	83 (320)	83 (320)	21 (210)	66 (300)	66 (300)	4 (112)	115 (635)	115 (635)	115 (635)	24 (298)	24 (298)	24 (298)	-
Florida's Turnpike southbound off-ramp and Consulate Drive	105 (477)	105 (477)	-	-	12 (110)	1 (38)	-	-	-	1272 (2612)	1272 (2612)	1058 (2525)	-
SR 528 eastbound off-ramp and Consulate Drive*	-	1 (19)	-	-	-	-	3 (61)	-	-	-	-	-	-
SR 528 westbound ramps and CR 423	-	112 (804)	9 (251)	-	9 (142)	-	-	-	-	108 (339)	-	2 (94)	-
SR 528 eastbound on-ramp and CR 423	-	42 (586)	0 (11)	42 (202)	-	-	-	-	-	-	-	-	-
SR 528 westbound off-ramp and Landstreet Road*	77 (702)	-	63 (580)	-	-	-	-	3 (35)	-	-	-	-	-
Landstreet Road and US 17/92/441	211 (743)	211 (743)	211 (743)	145 (537)	145 (537)	145 (537)	210 (513)	210 (513)	210 (513)	109 (339)	109 (339)	109 (339)	-
Landstreet Road and SR 528 eastbound on-ramp*	-	-	-	-	-	-	-	0 (8)	0 (7)	0 (26)	0 (26)	-	-
Florida's Turnpike off-ramp and US 17/92/441	-	62 (291)	-	-	-	-	-	-	-	-	184 (732)	-	-
Consulate Drive and US 17/92/441	39 (265)	39 (265)	39 (265)	103 (569)	103 (569)	103 (569)	140 (482)	140 (482)	140 (482)	13 (95)	13 (95)	13 (95)	-

-Not Applicable

* Unsignalized

Table 4.12
2017 (Existing) PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
SR 482 and CR 423	675	1,479	528	290	1,291	292	368	1,159	702	504	1,187	171	8,646
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	501	-	-	-	-	1,703	273	441	1,862	-	4,780
SR 482 and Presidents Drive	137	101	16	139	161	209	125	1,914	164	24	1,957	135	5,084
Florida's Turnpike southbound off-ramp and Consulate Drive	555	166	-	-	395	55	-	-	-	251	188	40	1,650
SR 528 eastbound off-ramp and Consulate Drive*	-	706	-	-	646	-	15	-	619	-	-	-	1,986
SR 528 westbound ramps and CR 423	-	1,453	524	-	2,568	516	-	-	-	359	-	197	5,618
SR 528 eastbound on-ramp and CR 423	-	1,685	385	454	2,473	-	-	-	686	-	-	-	5,684
SR 528 westbound off-ramp and Landstreet Road*	50	-	288	-	-	-	-	644	-	-	227	-	1,209
Landstreet Road and US 17/92/441	107	1,779	360	251	1,954	27	161	308	464	385	93	370	6,259
Landstreet Road and SR 528 eastbound on-ramp*	-	-	-	-	-	-	-	559	359	105	848	-	1,872
Florida's Turnpike off-ramp and US 17/92/441	-	1,733	-	-	-	-	-	-	-	-	514	-	2,247
Consulate Drive and US 17/92/441	96	1,802	2	24	1,582	598	940	21	317	29	10	27	5,447
Percentage Served													
SR 482 and CR 423	100%	100%	99%	98%	100%	100%	99%	99%	99%	98%	97%	98%	99%
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	99%	-	-	-	-	99%	98%	99%	99%	-	99%
SR 482 and Presidents Drive	96%	98%	100%	97%	99%	100%	100%	99%	100%	92%	99%	100%	99%
Florida's Turnpike southbound off-ramp and Consulate Drive	94%	91%	-	-	100%	98%	-	-	-	94%	93%	94%	95%
SR 528 eastbound off-ramp and Consulate Drive*	-	94%	-	-	97%	-	100%	-	93%	-	-	-	95%
SR 528 westbound ramps and CR 423	-	99%	100%	-	100%	99%	-	-	-	98%	-	99%	100%
SR 528 eastbound on-ramp and CR 423	-	100%	99%	100%	100%	-	-	-	96%	-	-	-	99%
SR 528 westbound off-ramp and Landstreet Road*	89%	-	91%	-	-	-	-	88%	-	-	94%	-	90%
Landstreet Road and US 17/92/441	93%	95%	95%	97%	94%	97%	89%	91%	88%	95%	95%	97%	94%
Landstreet Road and SR 528 eastbound on-ramp*	-	-	-	-	-	-	-	95%	93%	99%	100%	-	97%
Florida's Turnpike off-ramp and US 17/92/441	-	95%	-	-	-	-	-	-	-	-	97%	-	95%
Consulate Drive and US 17/92/441	92%	97%	94%	89%	94%	94%	93%	82%	93%	100%	90%	97%	95%

- Not Applicable

* Unsignalized

Table 4.12 (continued)
2017 (Existing) PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Average Delay (Seconds) for the worst 30-Minute Period													
SR 482 and CR 423	99	53	5	86	64	7	94	147	10	>180	140	8	88
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	175	-	-	-	-	84	37	75	11	-	60
SR 482 and Presidents Drive	>180	>180	>180	104	103	90	>180	166	128	71	8	6	88
Florida's Turnpike southbound off-ramp and Consulate Drive	30	8	-	-	36	35	-	-	-	28	30	10	29
SR 528 eastbound off-ramp and Consulate Drive*	-	0	-	-	26	-	100	-	107	-	-	-	42
SR 528 westbound ramps and CR 423	-	2	5	-	8	2	-	-	-	89	-	3	11
SR 528 eastbound on-ramp and CR 423	-	20	2	75	4	-	-	-	7	-	-	-	15
SR 528 westbound off-ramp and Landstreet Road*	>180	-	>180	-	-	-	-	>180	-	-	0	-	>180
Landstreet Road and US 17/92/441	>180	98	63	120	108	146	152	157	107	>180	>180	97	116
Landstreet Road and SR 528 eastbound on-ramp*	-	-	-	-	-	-	-	0	3	6	8	-	4
Florida's Turnpike off-ramp and US 17/92/441	-	56	-	-	-	-	-	-	-	-	77	-	61
Consulate Drive and US 17/92/441	65	27	51	118	35	16	166	175	121	91	90	16	59
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
SR 482 and CR 423	324 (771)	324 (771)	178 (569)	271 (815)	271 (815)	97 (577)	557 (1125)	557 (1125)	415 (982)	673 (1175)	673 (1175)	507 (1008)	-
SR 482 and Lowe's/Wal-Mart Entrance*	-	-	397 (825)	-	-	-	-	131 (193)	131 (193)	273 (1209)	3 (90)	-	-
SR 482 and Presidents Drive	452 (817)	452 (817)	347 (708)	293 (886)	293 (886)	146 (698)	340 (919)	340 (919)	340 (919)	107 (801)	107 (801)	107 (801)	-
Florida's Turnpike southbound off-ramp and Consulate Drive	97 (506)	97 (506)	-	-	99 (486)	41 (325)	-	-	-	67 (352)	67 (352)	0 (18)	-
SR 528 eastbound off-ramp and Consulate Drive*	-	0 (12)	-	-	34 (100)	-	1 (47)	-	1901 (3678)	-	-	-	-
SR 528 westbound ramps and CR 423	-	4 (129)	3 (171)	-	48 (521)	1 (127)	-	-	-	115 (362)	-	3 (117)	-
SR 528 eastbound on-ramp and CR 423	-	106 (610)	0 (15)	241 (779)	0 (21)	-	-	-	-	-	-	-	-
SR 528 westbound off-ramp and Landstreet Road*	948 (2179)	-	1616 (2932)	-	-	-	-	2376 (3023)	-	-	-	-	-
Landstreet Road and US 17/92/441	583 (1147)	583 (1147)	583 (1147)	854 (1495)	854 (1495)	854 (1495)	472 (680)	472 (680)	472 (680)	795 (1223)	795 (1223)	795 (1223)	-
Landstreet Road and SR 528 eastbound on-ramp*	-	-	-	-	-	-	-	0 (6)	0 (69)	69 (296)	69 (296)	-	-
Florida's Turnpike off-ramp and US 17/92/441	-	248 (665)	-	-	-	-	-	-	-	-	310 (990)	-	-
Consulate Drive and US 17/92/441	211 (508)	211 (508)	211 (508)	192 (859)	192 (859)	192 (859)	872 (1169)	872 (1169)	872 (1169)	26 (143)	26 (143)	26 (143)	-

- Not Applicable

* Unsignalized

Table 4.13 shows the Network Performance of the AM and PM peak hours for four consecutive peak hours. The processed demand is 100 percent for the AM peak hour and 99.3 percent for the PM peak hour.

Table 4.13
2017 (Existing) AM and PM Peak Hour VISSIM Network Performance

Performance Measure	Existing	
	AM	PM
Vehicle Network Performance Processed Demand	100.0%	99.3%
Total Travel Time (hour)	20,519	24,198
Total Delay Time (hour)	3,905	8,385
Average Delay (secs/veh)	79	169
Average Speed (mph)	47	38

5.1 TRAVEL DEMAND MODEL

This section provides information on the development of future traffic daily forecasts, design hour volumes, and future lane requirements. A summary of the travel demand modeling process is provided herein. The full Travel Demand Model Development Report is provided in **Appendix E**.

5.1.1 Travel Demand Model

The Central Florida Regional Planning Model (CFRPM) developed by FDOT District 5, CFRPM 6.1, was used as the basis for the Orlando South project. The CFRPM 6.1 was developed in two versions: a Daily and Time-of-Day (ToD) model, which included the most recent available Socioeconomic (SE) data from MetroPlan Orlando and Polk County Transportation Planning Organization (TPO). The base year for the CFRPM 6.1 was 2010 and it includes cost feasible scenarios for year 2015 up to 2045 in 5-year increments. The ToD version of the model was validated for year 2015 and adopted for this study.

5.1.2 Base Year Validation

The CFRPM 6.1 ToD is a Peak Season Weekday Average Daily Traffic (PSWADT) model. The regional 2015 cost feasible scenario was updated. The statistics for the subarea were extracted out of the regional model. Therefore, the emphasis was put on the subarea. **Figure 5.1** displays the subarea. The following updates were made: highway network, land use data, toll rates, speed limits, observed traffic counts, and model parameters. The regional model was then validated to reflect 2015 conditions with an emphasis on the subarea.

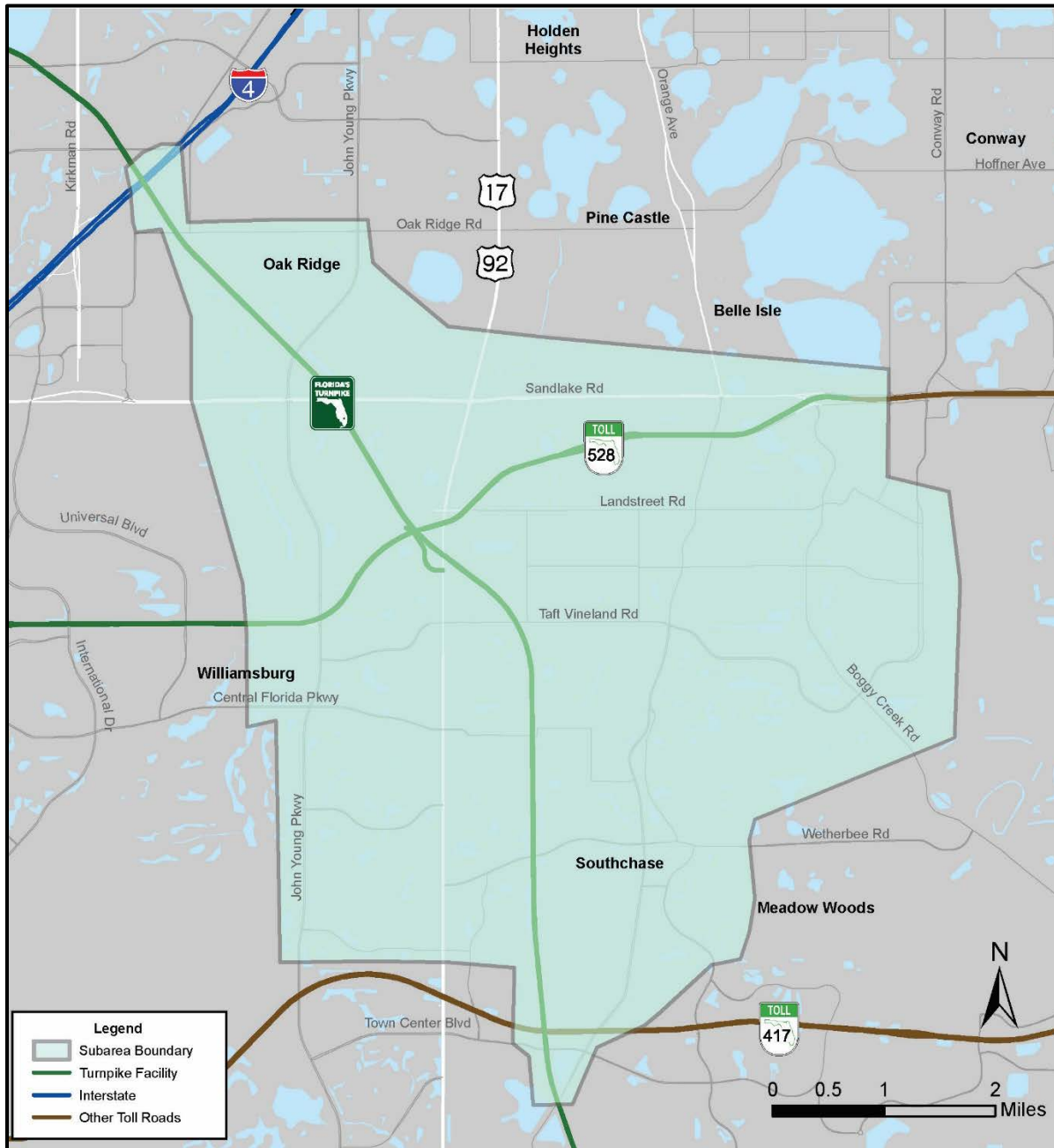
During the validation for the year 2015, the Volume to Count (V/Cnt) ratio was reviewed by ToD period and daily to verify the accuracy of the regional model validation emphasizing the subarea, as compared with the base year 2010.

Table 5.1 summarizes the results of the V/Cnt ratio by ToD period and daily. The results at the ToD period and daily level for the new base year 2015 show a substantial improvement in the subarea, as compared with the base year 2010.

Table 5.1
Regional Time-of-Day Model Validation Statistics for the Subarea (V/Cnt Ratio)

Period	Base Year 2010 V/Cnt Ratio	2015 Cost Feasible Scenario V/Cnt Ratio
AM Period	1.33	1.03
MD Period	1.31	1.13
PM Period	1.21	1.04
NT Period	1.46	0.97
Daily	1.29	1.08

Figure 5.1
Subarea Definition



However, a regional validation with an emphasis on the subarea is insufficient to demonstrate the reliability of the model for smaller areas. Therefore, an additional model validation for the Orlando South subarea was performed by extracting the subarea from the regional model with the corresponding trip tables. Subsequently, the subarea trip tables were adjusted through Origin Destination Matrix Estimation (ODME) to improve the subarea adjustment.

An assessment was made of the quality of the subarea trip tables by period before and after applying the ODME process. This was performed through a comparison of the Root Mean Square Error (RMSE) of assigned values to traffic counts by volume group by ToD period. The V/Cnt ratio

was also assessed. **Tables 5.2** and **5.3** display key statistics before and after applying the ODME process. As compared with the pre-ODME results, the post-ODME results show a significant improvement. The overall results surpass the acceptable range, which suggests that the model is reliable to replicate real world conditions. With the subarea validation using the ODME process, the RMSE statistics for the subarea provide a very low RMSE. Therefore, the model can be used with confidence for forecasting future traffic in the subarea.

Table 5.2
Before ODME Subarea Time-of-Day Model Validation Statistics

Volume Group	RMSE (%)	Acceptable RMSE (%)	V/Cnt	Number of Counts
AM Period				
1	56.625	45 – 55	0.90	85
2	35.852	35 – 45	0.87	20
3	30.182	27 – 35	1.08	3
ALL	48.282	32 – 39	0.91	108
MD Period				
1	84.180	45 – 55	1.17	61
2	55.837	35 – 45	0.83	20
3	41.426	27 – 35	1.21	25
ALL	59.354	32 – 39	1.12	108
PM Period				
1	51.472	45 – 55	0.92	68
2	45.134	35 – 45	0.94	33
3	35.219	27 – 35	1.20	7
ALL	51.891	32 – 39	0.99	108
NT Period				
1	59.819	45 – 55	0.93	65
2	52.552	35 – 45	0.80	29
3	24.136	27 – 35	0.91	12
4	46.926	24 – 27	1.32	2
ALL	52.395	32 – 39	0.91	108

Table 5.3
After ODME Subarea Time-of-Day Model Validation Statistics

Volume Group	RMSE (%)	Acceptable RMSE (%)	V/Cnt	Number of Counts
AM Period				
1	19.031	45 – 55	0.98	85
2	11.076	35 – 45	0.97	20
3	17.248	27 – 35	1.09	3
ALL	17.388	32 – 39	0.99	108
MD Period				
1	24.274	45 – 55	0.94	61
2	3.278	35 – 45	0.99	20
3	3.133	27 – 35	1.00	25
ALL	7.556	32 – 39	0.99	108
PM Period				
1	19.637	45 – 55	0.96	68
2	4.927	35 – 45	1.01	33
3	9.607	27 – 35	1.06	7
ALL	11.036	32 – 39	1.01	108
NT Period				
1	15.376	45 – 55	0.96	65
2	2.685	35 – 45	1.00	29
3	1.674	27 – 35	1.00	12
4	1.735	24 – 27	1.01	2
ALL	5.593	32 – 39	0.99	108

5.1.3 Future Year Transportation Network

The future No-Build network was updated to include the following planned and programmed improvements within the study area:

- Florida’s Turnpike mainline widening (FPN: 411406-1) from four to eight lanes: two GTL and two EL in each direction. This project extends from Osceola Parkway interchange at MP 248.93 to the Orlando South interchange at MP 254. It will include widening ramps to and from the north at Orlando South to two lanes. It is expected to be completed by year 2020.
- Implementation of ELs from Orlando South to I-4 (MP 254 to 259) and direct connect ramps to/from I-4 (FPN: 437166-2 and 437987-3). This project is expected to be implemented by year 2021/2022. It includes an EL ingress/egress weaving zone between SR 482 and I-4, direct connection of the EL from Florida’s Turnpike (south of I-4) to I-4 (east of Florida’s

Turnpike) and widening of to/from north ramps at the I-4 interchange. The I-4 ramps will be converted to AET. This project will also include implementation of the following interim improvements at the Florida's Turnpike southbound off-ramp terminal intersection with Consulate Drive: an exclusive free southbound right turn lane with a receiving lane along Consulate Drive, a second westbound left turn lane, and a second receiving lane on the westbound on-ramp to SR 528 that terminates upstream of the gore.

- SR 528 widening (FPN: 406090-5) from four to eight lanes to include two GTLs, two ELs, and an auxiliary lane in each direction from I-4 (MP 0.0) to the Florida's Turnpike (MP 4.3). The construction of this project has been completed.
- SR 528 widening (FPN: 437156-1) from six to eight lanes to include three GTLs and one EL in each direction from the Florida's Turnpike (MP 4.3) to the McCoy Road interchange (MP 8.4). The construction of this project has been completed.
- Orlando South interchange resurfacing (FPN: 437156-2). This project includes widening of SR 528 westbound to Florida's Turnpike off-ramp single lane section downstream of the US 17/92/441 southbound on-ramp to two lanes. The two-lane ramp widening was completed in 2018.
- Florida's Turnpike interchange at SR 482 at MP 257 (FPN: 433663-1). This will be a full interchange with tolled ramps to and from the north.
- AET conversion at tolled ramps (FPN: 441322-1).
- SPUI at the SR 482 and CR 423 intersection. The construction has been completed.
- Taft Vineland Road widening from two to four lanes from US 17/92/441 to the bridge over the Florida's Turnpike.
- SR 482 and Destination Parkway widening to six lanes just west of CR 423.

Most of the planned improvements are within FTE's system and will be funded by FTE. The only exception is the last three (SR 482 and CR 423 interchange, Taft Vineland Road widening, and SR 482 and Destination Parkway widening), which are being designed and constructed by others.

5.1.4 Future Socioeconomic Data and Land Use

Future year model SE data were updated and integrated into the full CFRPM dataset. Both the model population and employment projections were compared to future year county projections in order to confirm reasonability. **Table 5.4** shows the population projections used in the model, along with the annual growth percentage from the 2015 model base year to 2045.

Table 5.4
Population Projections

Area	CFRPM Model Population			Change	% Annual Change
	2015	2025	2045	2015 – 2045	2015 – 2045
Study Area	50,293	54,410	57,480	7,187	0.45
Orange County	1,254,894	1,525,200	1,934,326	679,432	1.45
Florida	19,815,183	22,799,508	27,217,568	7,402,385	1.06

Source: 2010 Census and Bureau of Economic and Business Research (BEBR), Florida Population Study 175

Table 5.5 displays the study area and county employment projections used in the model. The future year employment projections were compared with the model year totals from Woods and Poole economics.

Table 5.5
Employment Projections

Area	CFRPM Employment			Change	% Annual Change
	2015	2025	2045	2015 – 2045	2015 – 2045
Study Area	81,260	87,810	98,880	17,620	0.66
Orange County	867,562	1,158,662	1,583,184	715,622	2.03
Florida	9,216,000	13,326,000	17,830,000	8,614,000	2.22

Source: US Bureau of Economic Analysis and Woods & Poole 2016 Employment Projections

In the 2030 Orange County Comprehensive Plan, future land uses in the study area do not differ from the existing land uses. Much of the land within the study area will remain a mixture of industrial and residential land uses comprising most of the area south of the Central Florida Parkway. The population and employment associated with DRIs and PUDs is expected to increase in future years as the developments reach their permitted build-out. Future year growth was assigned to traffic analysis zones in the model based on zonal capacity and locations of known future growth. Zones that had no capacity for further growth or zones in areas where growth was identified as unlikely to occur were not assigned future population or employment. Local future land use growth and development information was also acquired from local county planning staff, which provided input regarding future development patterns and growth potential for established DRIs and PUDs.

5.1.5 Future Year Model Trip Matrix Adjustment

The O-D matrices for the future year 2045 were developed based on the traffic growth between the future year 2045 and the base year 2015. This growth was then added to the adjusted matrix estimation base year 2015 trip matrices. Some minor adjustments were applied to the trip matrices to better reflect the observed travel pattern in the Orlando South subarea. The resulting O-D matrices were then used for developing the future year 2045 forecasts.

The adjusted matrix estimation base year 2015 trip tables and the future year 2045 trip matrices were used to develop the intermediate year 2025 matrices by interpolation. The interpolated O-D matrices were then used for developing the intermediate year 2025 forecasts.

5.2 TRAFFIC FORECASTS

Traffic projections were developed using the updated ToD model (CFRPM) for years 2025 and 2045, corresponding to the opening and design analysis years for the PD&E study, respectively. The PSWADT from the model was converted to AADT by applying a Model Output Calibration Factor (MOCF) of 0.98. The period volumes were then adjusted accordingly. Model AM and PM peak hour volumes were developed by applying a factor of 0.42 and 0.35, respectively, to the period volumes. The factors were estimated using traffic counts. The model AADT, AM, and PM peak hour volumes were then adjusted following the National Cooperative Highway Research Program (NCHRP) 765 (an update to NCHRP 255 report) methodology. Additional adjustments were made based on growth rates and traffic factors (K and D) for reasonableness and accuracy. The volumes were eventually adjusted for continuity of flow to develop profiles for AADT and Directional Design Hour Volumes (DDHV).

The mainline and ramp AADTs and DDHVs for years 2025, 2035, and 2045 are provided in **Tables 5.6** and **5.7** for the No-Build and Build conditions, respectively. The year 2035 volumes were developed through interpolation. The bold values represent the mainline volumes and the non-bold values represent ramp volumes.

Table 5.6
Future No-Build Traffic Forecasts (Total Demand)

Location	Florida's Turnpike	2025				2035				2045						
		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV	
			SB	NB	SB	NB		SB	NB	SB	NB		SB	NB	SB	NB
263 - Turkey Lake Service Area		120,800	6,730	4,250	4,250	6,730	150,000	7,710	5,350	5,350	7,710	178,800	8,710	6,430	6,430	8,710
259 - Interstate 4 (I-4)		33,500	1,860	1,090	1,090	1,860	40,900	2,190	1,280	1,280	2,190	48,300	2,510	1,470	1,470	2,510
		37,400	1,460	2,260	2,260	1,460	44,400	1,710	2,420	2,420	1,710	51,400	1,950	2,570	2,570	1,950
		124,700	6,330	5,420	5,420	6,330	153,500	7,230	6,490	6,490	7,230	181,900	8,150	7,530	7,530	8,150
257 - Sand Lake Road (S.R. 482)		14,500	1,180	950	950	1,180	21,600	1,620	990	990	1,620	28,600	2,060	1,030	1,030	2,060
		11,200	450	670	670	450	18,300	740	1,100	1,100	740	25,400	1,020	1,520	1,520	1,020
		121,400	5,600	5,140	5,140	5,600	150,200	6,350	6,600	6,600	6,350	178,700	7,110	8,020	8,020	7,110
255 - Consulate Drive		10,800	1,360		630		13,200	1,540		810		15,500	1,720		980	
		110,600	4,240	5,140	4,510	5,600	137,000	4,810	6,600	5,790	6,350	163,200	5,390	8,020	7,040	7,110
254 - Orlando South (S.R. 528 & U.S. 17/92/441)		41,500	1,340	1,530	900	2,700	47,800	1,550	1,800	990	3,090	54,100	1,760	2,050	1,070	3,480
		16,600	1,040	1,530	1,530	1,040	18,600	1,140	1,660	1,660	1,140	20,600	1,230	1,790	1,790	1,230
		85,700	3,940	5,140	5,140	3,940	107,800	4,400	6,460	6,460	4,400	129,700	4,860	7,760	7,760	4,860
251 - S.R. 417 (Central Florida Greenway)		25,200	990	1,360	1,360	990	27,800	1,080	1,590	1,590	1,080	30,300	1,170	1,810	1,810	1,170
		24,300	850	1,300	1,300	850	26,700	990	1,520	1,520	990	29,100	1,120	1,740	1,740	1,120
		84,800	3,800	5,080	5,080	3,800	106,700	4,310	6,390	6,390	4,310	128,500	4,810	7,690	7,690	4,810

Note: Values in RED indicate Peak direction and values in BLUE indicate Off-Peak direction.

Table 5.6 (continued)
Future No-Build Traffic Forecasts (Total Demand)

Location	S.R. 528	2025					2035					2045				
		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV	
			WB	EB	WB	WB		WB	EB	WB	WB		WB	EB	WB	WB
		119,800	5,790	3,920	3,920	5,790	135,600	6,530	4,500	4,500	6,530	151,200	7,270	5,070	5,070	7,270
8 - McCoy Road/Jetport Drive		23,100	1,100	690	690	1,100	23,800	1,130	710	710	1,130	24,400	1,160	720	720	1,160
		7,700	460	500	500	460	10,100	610	560	560	610	12,500	760	620	620	760
6 - BEACHLINE WEST TOLL PLAZA		104,400	5,150	3,730	3,730	5,150	121,900	6,010	4,350	4,350	6,010	139,300	6,870	4,970	4,970	6,870
4 - Orlando South (Turnpike & U.S. 17/92/441)		32,100	1,730	1,580	1,580	1,730	38,000	1,920	1,770	1,770	1,920	43,800	2,110	1,960	1,960	2,110
		23,300	1,110	1,060	1,060	1,110	26,000	1,330	1,170	1,170	1,330	28,600	1,550	1,270	1,270	1,550
		95,600	4,530	3,210	3,210	4,530	109,900	5,420	3,750	3,750	5,420	124,100	6,310	4,280	4,280	6,310
3A/B - John Young Parkway (C.R. 423)		15,600	1,330	940	940	1,330	21,700	1,610	1,040	1,040	1,610	27,800	1,890	1,140	1,140	1,890
		29,100	1,650	1,590	1,590	1,650	34,900	1,840	1,700	1,700	1,840	40,600	2,030	1,800	1,800	2,030
		109,100	4,850	3,860	3,860	4,850	123,100	5,650	4,410	4,410	5,650	136,900	6,450	4,940	4,940	6,450

Note: Values in RED indicate Peak direction and values in BLUE indicate Off-Peak direction.

Table 5.7
Future Build Traffic Forecast (Total Demand)

Location	Florida's Turnpike	2025				2035				2045						
		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV	
			SB	NB	SB	NB		SB	NB	SB	NB		SB	NB	SB	NB
263 - Turkey Lake Service Area		120,800	6,730	4,250	4,250	6,730	149,900	7,720	5,340	5,340	7,720	178,800	8,710	6,430	6,430	8,710
259 - Interstate 4 (I-4)		33,500	1,860	1,090	1,090	1,860	40,900	2,190	1,280	1,280	2,190	48,300	2,510	1,470	1,470	2,510
		37,400	1,460	2,260	2,260	1,460	44,400	1,710	2,420	2,420	1,710	51,400	1,950	2,570	2,570	1,950
		124,700	6,330	5,420	5,420	6,330	153,400	7,240	6,480	6,480	7,240	181,900	8,150	7,530	7,530	8,150
257 - Sand Lake Road (S.R. 482)		9,800	760	400	400	760	15,100	1,060	480	480	1,060	20,300	1,360	560	560	1,360
		10,800	400	550	550	400	18,000	670	1,090	1,090	670	25,200	930	1,620	1,620	930
		125,700	5,970	5,570	5,570	5,970	156,300	6,850	7,090	7,090	6,850	186,800	7,720	8,590	8,590	7,720
255 - Consulate Drive		4,100	860		400		4,800	910		430		5,500	960		450	
		121,600	5,110	5,570	5,170	5,970	151,500	5,940	7,090	6,660	6,850	181,300	6,760	8,590	8,140	7,720
254 - Orlando South (S.R. 528 & U.S. 17/92/441)		39,400	1,300	1,500	1,100	2,160	44,900	1,680	1,820	1,390	2,590	50,400	2,050	2,130	1,680	3,010
		9,600	660	1,160	1,160	660	11,200	740	1,290	1,290	740	12,700	820	1,420	1,420	820
		91,800	4,470	5,230	5,230	4,470	117,800	5,000	6,560	6,560	5,000	143,600	5,530	7,880	7,880	5,530
253 - Taft Vineland Road		9,500	750	530	530	750	15,000	900	680	680	900	20,500	1,050	830	830	1,050
		3,400	220	440	440	220	5,000	300	580	580	300	6,600	380	710	710	380
		85,700	3,940	5,140	5,140	3,940	107,800	4,400	6,460	6,460	4,400	129,700	4,860	7,760	7,760	4,860
251 - S.R. 417 (Central Florida Greenway)		25,200	990	1,360	1,360	990	27,800	1,080	1,590	1,590	1,080	30,300	1,170	1,810	1,810	1,170
		24,300	850	1,300	1,300	850	26,700	990	1,520	1,520	990	29,100	1,120	1,740	1,740	1,120
		84,800	3,800	5,080	5,080	3,800	106,700	4,310	6,390	6,390	4,310	128,500	4,810	7,690	7,690	4,810

Note: Values in RED indicate Peak direction and values in BLUE indicate Off-Peak direction.

Table 5.7 (continued)
Future Build Traffic Forecast (Total Demand)

Location	S.R. 528	2025					2035					2045				
		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV		AADT	AM - DDHV		PM - DDHV	
			WB	EB	WB	WB		WB	EB	WB	WB		WB	EB	WB	WB
		119,800	5,790	3,920	3,920	5,790	135,500	6,540	4,500	4,500	6,540	151,200	7,270	5,070	5,070	7,270
8 - McCoy Road/Jetport Drive		20,600	1,000	550	550	1,000	21,100	1,020	580	580	1,020	21,600	1,030	600	600	1,030
		7,900	490	450	450	490	11,100	670	560	560	670	14,200	850	660	660	850
6 - BEACHLINE WEST TOLL PLAZA		107,100	5,280	3,820	3,820	5,280	125,500	6,190	4,480	4,480	6,190	143,800	7,090	5,130	5,130	7,090
6 - Voltaire Drive		13,300	730	520	520	730	15,800	810	580	580	810	18,200	880	630	630	880
		5,300	290	390	390	290	5,700	300	410	410	300	6,000	300	430	430	300
		99,100	4,840	3,690	3,690	4,840	115,400	5,680	4,310	4,480	6,190	131,600	6,510	4,930	4,930	6,510
4 - Orlando South (Turnpike & U.S. 17/92/441)		21,400	1,150	1,300	1,300	1,150	27,500	1,370	1,570	1,570	1,370	33,600	1,580	1,840	1,840	1,580
		21,500	1,230	1,170	1,170	1,230	28,100	1,540	1,350	1,350	1,540	34,700	1,840	1,530	1,530	1,840
		99,200	4,920	3,560	3,560	4,920	116,000	5,850	4,090	4,090	5,850	132,700	6,770	4,620	4,620	6,770
3A/B - John Young Parkway (C.R. 423)		16,500	1,580	1,160	1,160	1,580	23,500	1,810	1,190	1,190	1,810	30,400	2,040	1,220	1,220	2,040
		26,400	1,510	1,460	1,460	1,510	30,500	1,620	1,500	1,500	1,620	34,600	1,720	1,540	1,540	1,720
		109,100	4,850	3,860	3,860	4,850	123,000	5,660	4,400	4,400	5,660	136,900	6,450	4,940	4,940	6,450

Note: Values in RED indicate Peak direction and values in BLUE indicate Off-Peak direction.

5.3 MAINLINE AND RAMP LANE REQUIREMENTS

Future lane requirements were evaluated to provide an estimated timeline for the onset of capacity deficiencies along the Florida's Turnpike and SR 528. Freeway mainline level of service targets were based on the FDOT's Quality/LOS Handbook. Capacity analysis for ramp roadways was based on targets from the HCM. The FDOT and HCM targets were adjusted for local conditions such as speed, truck proportion, PHF, and driver population. **Tables 5.8** through **5.11** show the color-coded lane requirements corresponding to LOS D constraints for No-Build, Base Build, and Full Build conditions, respectively. The lane requirements discussed in this section are based on total demand (GTL plus EL).

The No-Build analysis (**Table 5.8**) shows that five lanes per direction will be needed along the Florida's Turnpike mainline by year 2028 to the north of I-4, by 2033 between SR 482 and I-4, by 2038 between Orlando South and SR 482, and by 2040 to the south of SR 417. Each of the Florida's Turnpike ramps at the I-4 interchange will need two lanes by the 2025 opening year, as well as the northbound on-ramp at Orlando South. A two-lane southbound exit will be needed at SR 482 by 2040. The southbound on-ramp at Orlando South will require two lanes by 2044. Other ramps along the Florida's Turnpike will require a single lane through the design year. The analysis of SR 528 under No-Build conditions shown in **Table 5.9** indicates that the mainline will require four lanes per direction between Orlando South and McCoy Road by year 2028, and by 2044 to the west of CR 423. The section between CR 423 and Orlando South will need three lanes per direction by 2026. Single-lane ramps will be under capacity through the design year at the McCoy Road interchange and Orlando South to/from the west. Ramps to/from the east at Orlando South will require two lanes by year 2032. At the CR 423 interchange, two-lane exits will be needed by 2036 and 2044 respectively, for the ramps to/from the west and to/from east.

For the Build alternative, there will be a need for five lanes per direction along the Florida's Turnpike mainline as shown in **Table 5.10**, starting from year 2028 to 2040. Two lane exits will only be needed at the I-4 interchange and ramps to/from north at Orlando South. Along SR 528 (**Table 5.11**), four lanes per direction will be needed west of McCoy Road between year 2026 and 2044, depending on the location. The northbound and southbound on-ramps at Orlando South will require two lanes by 2025 and 2044, respectively. The ramps to/from the east at CR 423 will need two lanes by 2037. Analysis results show that the projected 2045 design year volume for the ramps does not exceed the capacity for a single lane.

Table 5.8
 Florida's Turnpike Lane Requirements by Year for No-Build Alternative (Total Demand)
Mainline Maximum Service Volume (LOS D) and Ramp Capacity (LOS E)
 DDHV - Worst Case AM or PM Peak Hour

Location	Florida's Turnpike	Model	Interpolated Volumes																			Model	
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		2044
263 - Turkey Lake Service Area			6,730	6,830	6,930	7,020	7,120	7,220	7,320	7,420	7,510	7,610	7,710	7,810	7,910	8,010	8,110	8,210	8,310	8,410	8,510	8,610	8,710
259 - Interstate 4 (I-4)	SB		1,860	1,890	1,930	1,960	1,990	2,030	2,060	2,090	2,120	2,160	2,190	2,220	2,250	2,290	2,320	2,350	2,380	2,410	2,450	2,480	2,510
		NB	1,860	1,890	1,930	1,960	1,990	2,030	2,060	2,090	2,120	2,160	2,190	2,220	2,250	2,290	2,320	2,350	2,380	2,410	2,450	2,480	2,510
	SB		2,260	2,280	2,290	2,310	2,320	2,340	2,360	2,370	2,390	2,400	2,420	2,440	2,450	2,470	2,480	2,500	2,510	2,530	2,540	2,560	2,570
		NB	2,260	2,280	2,290	2,310	2,320	2,340	2,360	2,370	2,390	2,400	2,420	2,440	2,450	2,470	2,480	2,500	2,510	2,530	2,540	2,560	2,570
		6,330	6,420	6,510	6,600	6,690	6,780	6,870	6,960	7,050	7,140	7,230	7,320	7,410	7,510	7,600	7,690	7,780	7,870	7,970	8,060	8,150	
257 - Sand Lake Road (S.R. 482)			1,180	1,220	1,270	1,310	1,360	1,400	1,440	1,490	1,530	1,580	1,620	1,660	1,710	1,750	1,800	1,840	1,880	1,930	1,970	2,020	2,060
			670	710	760	800	840	890	930	970	1,010	1,060	1,100	1,140	1,180	1,230	1,270	1,310	1,350	1,390	1,440	1,480	1,520
		5,600	5,700	5,800	5,900	6,000	6,100	6,200	6,300	6,400	6,500	6,600	6,740	6,880	7,030	7,170	7,310	7,450	7,590	7,740	7,880	8,020	
255 - Consulate Drive			1,360	1,380	1,400	1,410	1,430	1,450	1,470	1,490	1,500	1,520	1,540	1,560	1,580	1,590	1,610	1,630	1,650	1,670	1,680	1,700	1,720
			5,600	5,700	5,800	5,900	6,000	6,100	6,200	6,300	6,400	6,500	6,600	6,740	6,880	7,030	7,170	7,310	7,450	7,590	7,740	7,880	8,020
254 - Orlando South (S.R. 528 & U.S. 17/92/441)	SB		1,340	1,360	1,380	1,400	1,420	1,450	1,470	1,490	1,510	1,530	1,550	1,570	1,590	1,610	1,630	1,660	1,680	1,700	1,720	1,740	1,760
		NB	2,700	2,740	2,780	2,820	2,860	2,900	2,930	2,970	3,010	3,050	3,090	3,130	3,170	3,210	3,250	3,290	3,320	3,360	3,400	3,440	3,480
	SB		1,530	1,540	1,560	1,570	1,580	1,600	1,610	1,620	1,630	1,650	1,660	1,670	1,690	1,700	1,710	1,730	1,740	1,750	1,760	1,780	1,790
		NB	1,530	1,540	1,560	1,570	1,580	1,600	1,610	1,620	1,630	1,650	1,660	1,670	1,690	1,700	1,710	1,730	1,740	1,750	1,760	1,780	1,790
		5,140	5,270	5,400	5,540	5,670	5,800	5,930	6,060	6,200	6,330	6,460	6,590	6,720	6,850	6,980	7,110	7,240	7,370	7,500	7,630	7,760	
251 - S.R. 417 (Central Florida Greenway)			1,360	1,380	1,410	1,430	1,450	1,480	1,500	1,520	1,540	1,570	1,590	1,610	1,630	1,660	1,680	1,700	1,720	1,740	1,770	1,790	1,810
			1,300	1,320	1,340	1,370	1,390	1,410	1,430	1,450	1,480	1,500	1,520	1,540	1,560	1,590	1,610	1,630	1,650	1,670	1,700	1,720	1,740
		5,080	5,210	5,340	5,470	5,600	5,740	5,870	6,000	6,130	6,260	6,390	6,520	6,650	6,780	6,910	7,040	7,170	7,300	7,430	7,560	7,690	

Inputs	
Truck % (t _r)	8.00%
Free Flow Speed (mph)	75
Peak Hour Factor (PHF)	0.95

Freeway LOS Thresholds	
Lanes	LOS D
2	3,500
3	5,250
4	7,000
5	8,750
6	10,500

Ramp Capacity by Number of Lanes	
1	1,820
2	3,640
3	5,460

Speed - 40 to 50 MPH

Ramp Capacity by Number of Lanes	
1	1,770
2	3,540

Speed 25 MPH

Table 5.9
SR 528 Lane Requirements by Year for No-Build Alternative (Total Demand)
Mainline Maximum Service Volume (LOS D) and Ramp Capacity (LOS E)
DDHV - Worst Case AM or PM Peak Hour

Location	S.R. 528	Model	Interpolated Volumes																			Model
		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
8 - McCoy Road/Jetport Drive		5,790	5,860	5,940	6,010	6,090	6,160	6,230	6,310	6,380	6,460	6,530	6,600	6,680	6,750	6,830	6,900	6,970	7,050	7,120	7,200	7,270
		1,100 500	1,100 510	1,110 520	1,110 530	1,110 540	1,120 560	1,120 570	1,120 580	1,120 590	1,130 600	1,130 610	1,130 630	1,140 640	1,140 660	1,140 670	1,150 690	1,150 700	1,150 720	1,150 730	1,160 750	1,160 760
6 - BEACHLINE WEST TOLL PLAZA		5,150	5,240	5,320	5,410	5,490	5,580	5,670	5,750	5,840	5,920	6,010	6,100	6,180	6,270	6,350	6,440	6,530	6,610	6,700	6,780	6,870
		1,730	1,750	1,770	1,790	1,810	1,830	1,840	1,860	1,880	1,900	1,920	1,940	1,960	1,980	2,000	2,020	2,030	2,050	2,070	2,090	2,110
4 - Orlando South (Turnpike & U.S. 17/92/441)		1,110	1,130	1,150	1,180	1,200	1,220	1,240	1,260	1,290	1,310	1,330	1,350	1,370	1,400	1,420	1,440	1,460	1,480	1,510	1,530	1,550
		4,530	4,620	4,710	4,800	4,890	4,980	5,060	5,150	5,240	5,330	5,420	5,510	5,600	5,690	5,780	5,870	5,950	6,040	6,130	6,220	6,310
3A/B - John Young Parkway (C.R. 423)		1,330	1,360	1,390	1,410	1,440	1,470	1,500	1,530	1,550	1,580	1,610	1,640	1,670	1,690	1,720	1,750	1,780	1,810	1,830	1,860	1,890
		1,650	1,670	1,690	1,710	1,730	1,750	1,760	1,780	1,800	1,820	1,840	1,860	1,880	1,900	1,920	1,940	1,950	1,970	1,990	2,010	2,030
		4,850	4,930	5,010	5,090	5,170	5,250	5,330	5,410	5,490	5,570	5,650	5,730	5,810	5,890	5,970	6,050	6,130	6,210	6,290	6,370	6,450

Assumptions	
Truck % (t _r)	4.0%
Free Flow Speed (mph)	70
Peak Hour Factor (PHF)	0.95

Freeway LOS Thresholds			
Lanes	LOS D	Lanes*	LOS D
2	3,560	2+1	4,560
3	5,340	3+1	6,340
4	7,120	4+1	8,120
5	8,900	5+1	9,900
6	10,680	6+1	11,680

*With Auxiliary Lane

Ramp Capacity by Number of Lanes	
1	1,850
2	3,700
3	5,550

Speed - 40 to 50 MPH

Table 5.10
 Florida's Turnpike Lane Requirements by Year for Build Alternative (Total Demand)
 Mainline Maximum Service Volume (LOS D) and Ramp Capacity (LOS E)
 DDHV - Worst Case AM or PM Peak Hour

Location	Florida's Turnpike	Model	Interpolated Volumes																			Model	
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		2044
263 - Turkey Lake Service Area			6,730	6,830	6,930	7,030	7,130	7,230	7,320	7,420	7,520	7,620	7,720	7,820	7,920	8,020	8,120	8,220	8,310	8,410	8,510	8,610	8,710
259 - Interstate 4 (I-4)	SB		1,860	1,890	1,930	1,960	1,990	2,030	2,060	2,090	2,120	2,160	2,190	2,220	2,250	2,290	2,320	2,350	2,380	2,410	2,450	2,480	2,510
		NB	1,860	1,890	1,930	1,960	1,990	2,030	2,060	2,090	2,120	2,160	2,190	2,220	2,250	2,290	2,320	2,350	2,380	2,410	2,450	2,480	2,510
	NB		2,260	2,280	2,290	2,310	2,320	2,340	2,360	2,370	2,390	2,400	2,420	2,440	2,450	2,470	2,480	2,500	2,510	2,530	2,540	2,560	2,570
		SB	2,260	2,280	2,290	2,310	2,320	2,340	2,360	2,370	2,390	2,400	2,420	2,440	2,450	2,470	2,480	2,500	2,510	2,530	2,540	2,560	2,570
			6,330	6,420	6,510	6,600	6,690	6,790	6,880	6,970	7,060	7,150	7,240	7,330	7,420	7,510	7,600	7,700	7,790	7,880	7,970	8,060	8,150
257 - Sand Lake Road (S.R. 482)			760	790	820	850	880	910	940	970	1,000	1,030	1,060	1,090	1,120	1,150	1,180	1,210	1,240	1,270	1,300	1,330	1,360
			550	600	660	710	770	820	870	930	980	1,040	1,090	1,140	1,200	1,250	1,300	1,360	1,410	1,460	1,510	1,570	1,620
			5,970	6,080	6,190	6,310	6,420	6,530	6,640	6,750	6,870	6,980	7,090	7,240	7,390	7,540	7,690	7,840	7,990	8,140	8,290	8,440	8,590
255 - Consulate Drive			860	870	870	880	880	890	890	900	900	910	910	920	920	930	930	940	940	950	950	960	960
			5,970	6,080	6,190	6,310	6,420	6,530	6,640	6,750	6,870	6,980	7,090	7,240	7,390	7,540	7,690	7,840	7,990	8,140	8,290	8,440	8,590
254 - Orlando South (S.R. 528 & U.S. 17/92/441)	SB		1,300	1,340	1,380	1,410	1,450	1,490	1,530	1,570	1,600	1,640	1,680	1,720	1,750	1,790	1,830	1,870	1,900	1,940	1,980	2,010	2,050
		NB	2,160	2,200	2,250	2,290	2,330	2,380	2,420	2,460	2,500	2,550	2,590	2,630	2,670	2,720	2,760	2,800	2,840	2,880	2,930	2,970	3,010
	NB		1,160	1,170	1,190	1,200	1,210	1,230	1,240	1,250	1,260	1,280	1,290	1,300	1,320	1,330	1,340	1,360	1,370	1,380	1,390	1,410	1,420
		SB	1,160	1,170	1,190	1,200	1,210	1,230	1,240	1,250	1,260	1,280	1,290	1,300	1,320	1,330	1,340	1,360	1,370	1,380	1,390	1,410	1,420
		5,230	5,360	5,500	5,630	5,760	5,900	6,030	6,160	6,290	6,430	6,560	6,690	6,820	6,960	7,090	7,220	7,350	7,480	7,620	7,750	7,880	
253 - Taft Vineland Rd.			750	770	780	800	810	830	840	860	870	890	900	920	930	950	960	980	990	1,010	1,020	1,040	1,050
			440	450	470	480	500	510	520	540	550	570	580	590	610	620	630	650	660	670	680	700	710
			5,140	5,270	5,400	5,540	5,670	5,800	5,930	6,060	6,200	6,330	6,460	6,590	6,720	6,850	6,980	7,110	7,240	7,370	7,500	7,630	7,760
251 - S.R. 417 (Central Florida Greenway)			1,360	1,380	1,410	1,430	1,450	1,480	1,500	1,520	1,540	1,570	1,590	1,610	1,630	1,660	1,680	1,700	1,720	1,740	1,770	1,790	1,810
			1,300	1,320	1,340	1,370	1,390	1,410	1,430	1,450	1,480	1,500	1,520	1,540	1,560	1,590	1,610	1,630	1,650	1,670	1,700	1,720	1,740
		5,080	5,210	5,340	5,470	5,600	5,740	5,870	6,000	6,130	6,260	6,390	6,520	6,650	6,780	6,910	7,040	7,170	7,300	7,430	7,560	7,690	

Inputs	
Truck % (t _r)	8.00%
Free Flow Speed (mph)	75
Peak Hour Factor (PHF)	0.95

Freeway LOS Thresholds	
Lanes	LOS D
2	3,500
3	5,250
4	7,000
5	8,750
6	10,500

Ramp Capacity by Number of Lanes	
1	1,820
2	3,640
3	5,460

Speed - 40 to 50 MPH

Ramp Capacity by Number of Lanes	
1	1,770
2	3,540

Speed 25 MPH

Table 5.11
SR 528 Lane Requirements by Year for Build Alternative (Total Demand)
Mainline Maximum Service Volume (LOS D) and Ramp Capacity (LOS E)
DDHV - Worst Case AM or PM Peak Hour

Location	S.R. 528	Model	Interpolated Volumes																			Model
		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
8 - McCoy Road/Jetport Drive		5,790	5,870	5,940	6,020	6,090	6,170	6,240	6,320	6,390	6,470	6,540	6,610	6,690	6,760	6,830	6,910	6,980	7,050	7,120	7,200	7,270
		1,000 490	1,000 510	1,000 530	1,010 540	1,010 560	1,010 580	1,010 600	1,010 620	1,020 630	1,020 650	1,020 670	1,020 690	1,020 710	1,020 720	1,020 740	1,030 760	1,030 780	1,030 800	1,030 810	1,030 830	1,030 850
6 - BEACHLINE WEST TOLL PLAZA		5,280	5,370	5,460	5,550	5,640	5,740	5,830	5,920	6,010	6,100	6,190	6,280	6,370	6,460	6,550	6,640	6,730	6,820	6,910	7,000	7,090
6 - Voltaire Drive		730 390	740 390	750 390	750 400	760 400	770 400	780 400	790 400	790 410	800 410	810 410	820 410	820 410	830 420	840 420	850 420	850 420	860 420	870 430	870 430	880 430
		4,840	4,980	5,110	5,250	5,380	5,520	5,650	5,790	5,920	6,060	6,190	6,220	6,250	6,290	6,320	6,350	6,380	6,410	6,450	6,480	6,510
4 - Orlando South (Turnpike & U.S. 17/92/441)		1,300	1,330	1,350	1,380	1,410	1,440	1,460	1,490	1,520	1,540	1,570	1,600	1,620	1,650	1,680	1,710	1,730	1,760	1,790	1,810	1,840
		1,230	1,260	1,290	1,320	1,350	1,390	1,420	1,450	1,480	1,510	1,540	1,570	1,600	1,630	1,660	1,690	1,720	1,750	1,780	1,810	1,840
3A/B - John Young Parkway (C.R. 423)		1 Aux. 4,920	5,010	5,110	5,200	5,290	5,390	5,480	5,570	5,660	5,760	5,850	5,940	6,030	6,130	6,220	6,310	6,400	6,490	6,590	6,680	6,770
		1,580 1,510	1,600 1,520	1,630 1,530	1,650 1,540	1,670 1,550	1,700 1,570	1,720 1,580	1,740 1,590	1,760 1,600	1,790 1,610	1,810 1,620	1,830 1,630	1,860 1,640	1,880 1,650	1,900 1,660	1,930 1,670	1,950 1,680	1,970 1,690	1,990 1,700	2,020 1,710	2,040 1,720
	1 Aux.	4,850	4,930	5,010	5,090	5,170	5,260	5,340	5,420	5,500	5,580	5,660	5,740	5,820	5,900	5,980	6,060	6,130	6,210	6,290	6,370	6,450

Assumptions	
Truck % (t _r)	4.0%
Free Flow Speed (mph)	70
Peak Hour Factor (PHF)	0.95

Freeway LOS Thresholds			
Lanes	LOS D	Lanes*	LOS D
2	3,560	2+1	4,560
3	5,340	3+1	6,340
4	7,120	4+1	8,120
5	8,900	5+1	9,900
6	10,680	6+1	11,680

*With Auxiliary Lane

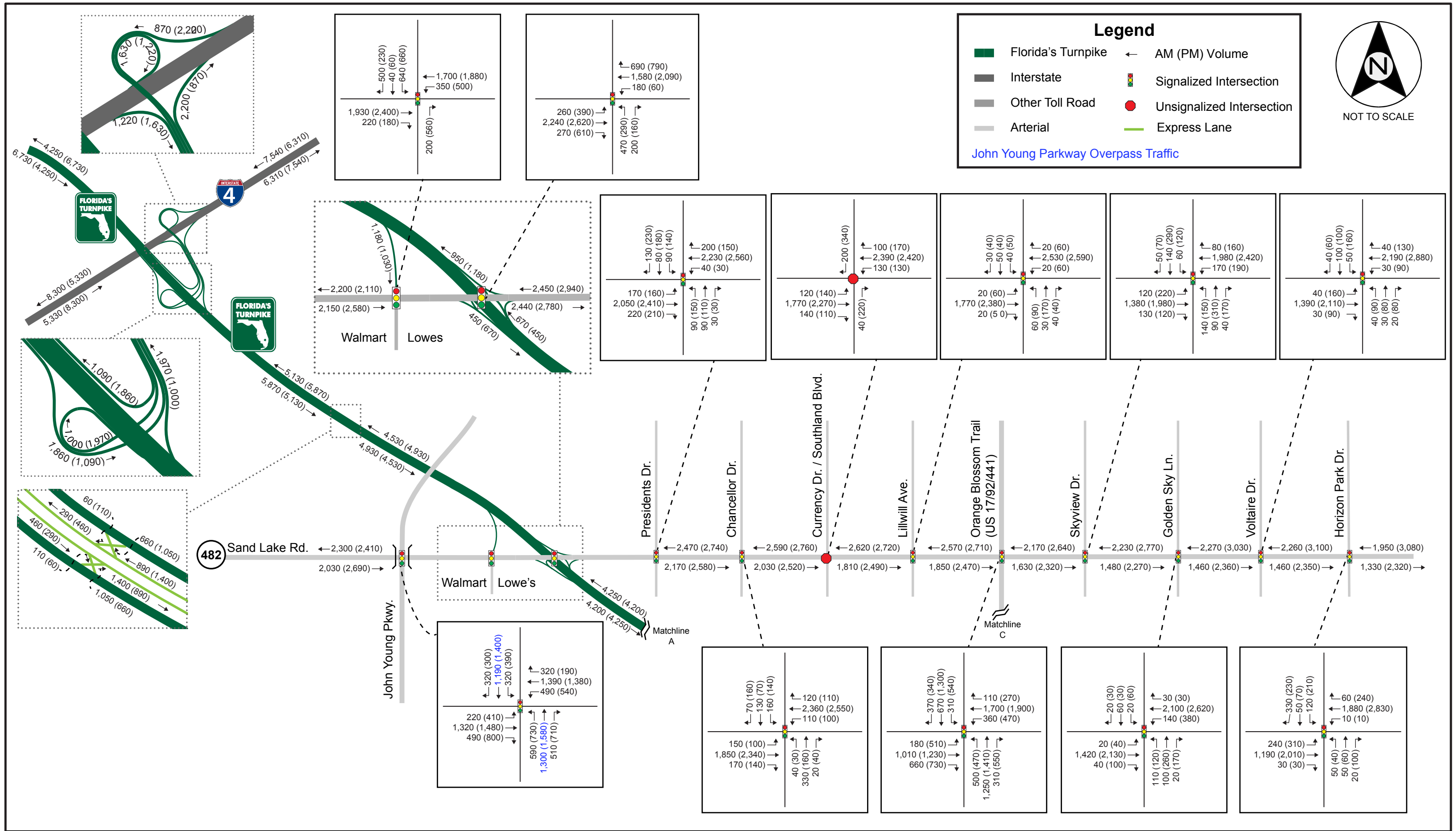
Ramp Capacity by Number of Lanes	
1	1,850
2	3,700
3	5,550

Speed - 40 to 50 MPH

5.4 EXPRESS LANE TIME OF DAY (ELTOD) MODEL

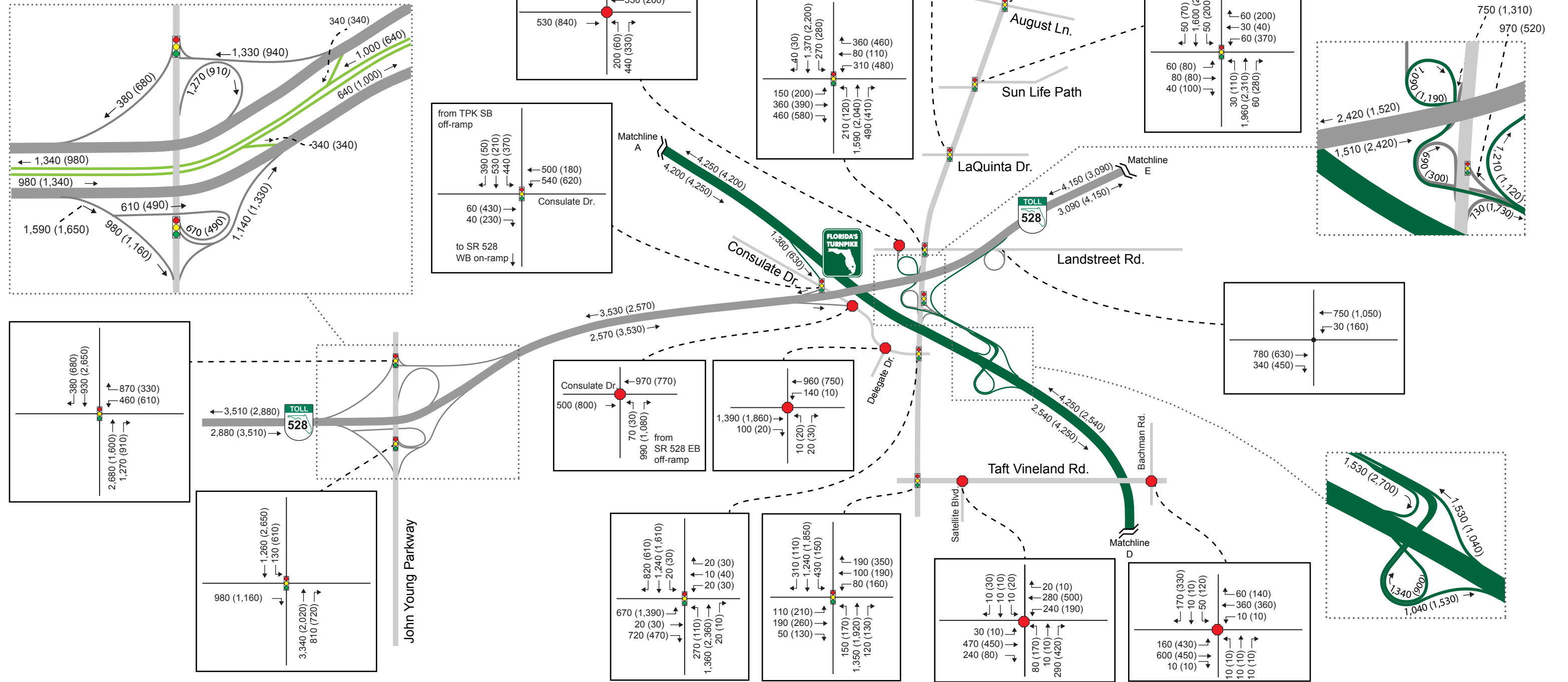
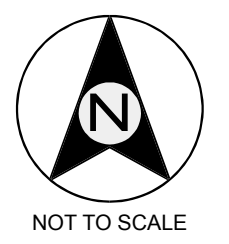
The EL volumes for the Orlando South project were estimated using proportions previously developed for the proposed Sand Lake Road interchange. The Florida's Turnpike ELToD model had been used to identify the share between the GTL and EL. The AOI for the Sand Lake Road project included Orlando South. Therefore, the total demand presented in **Tables 5.6** and **5.7** was split using the ELToD proportions to estimate traffic in the GTL and EL.

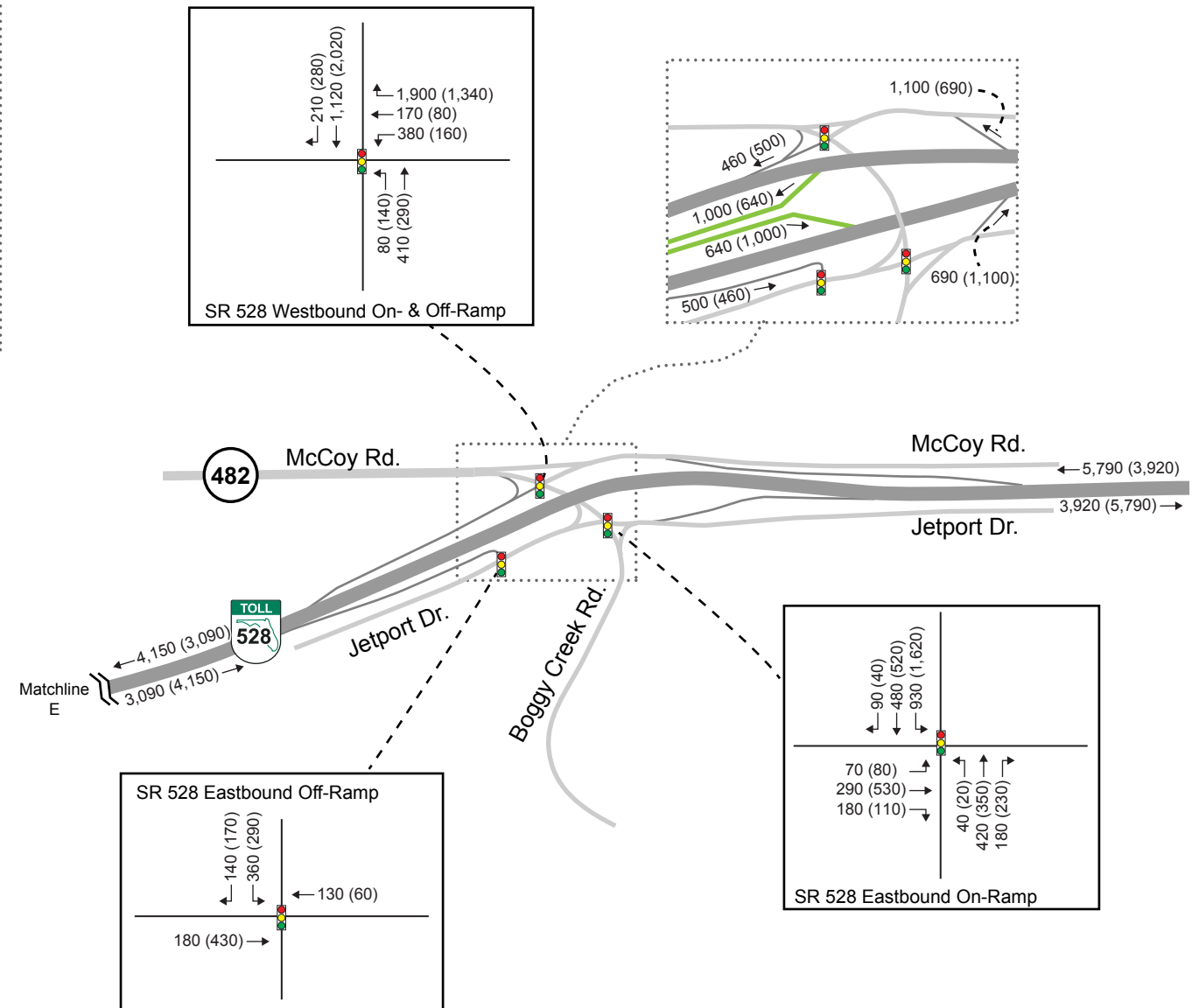
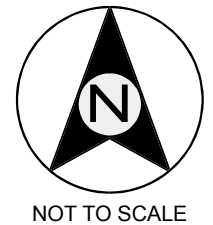
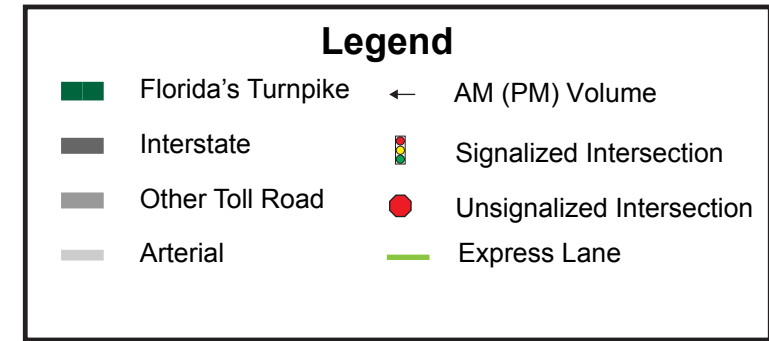
Future year turn movement volumes for the intersections were generally developed using the projected link peak hour volumes and existing turn proportions. Additional refinements were made using model turn proportions and engineering judgment, especially for the Build conditions. The 2025 opening and 2045 design year peak hour volumes are presented on **Figures 5.2** through **5.5** for the No-Build and Build conditions.

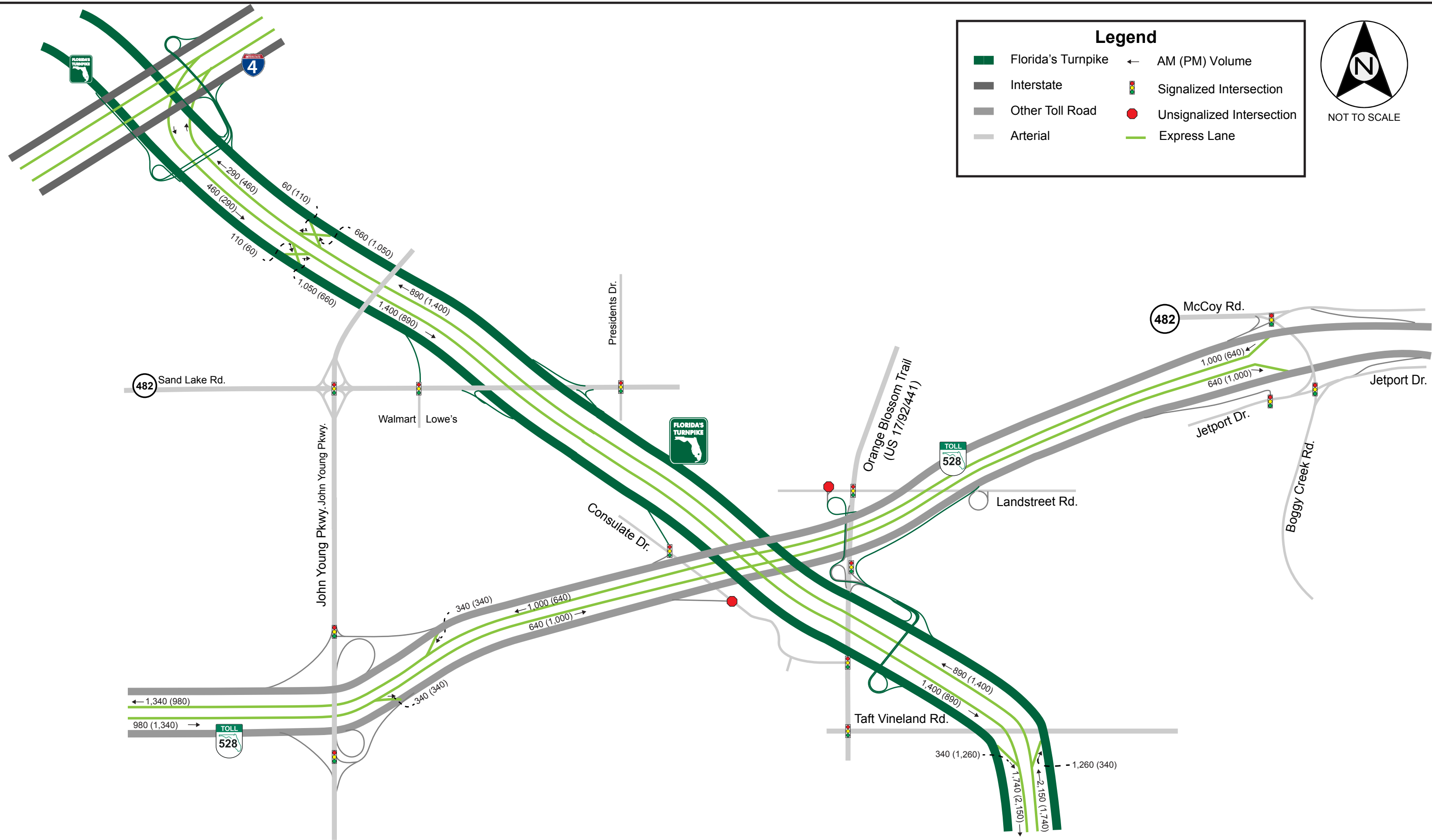


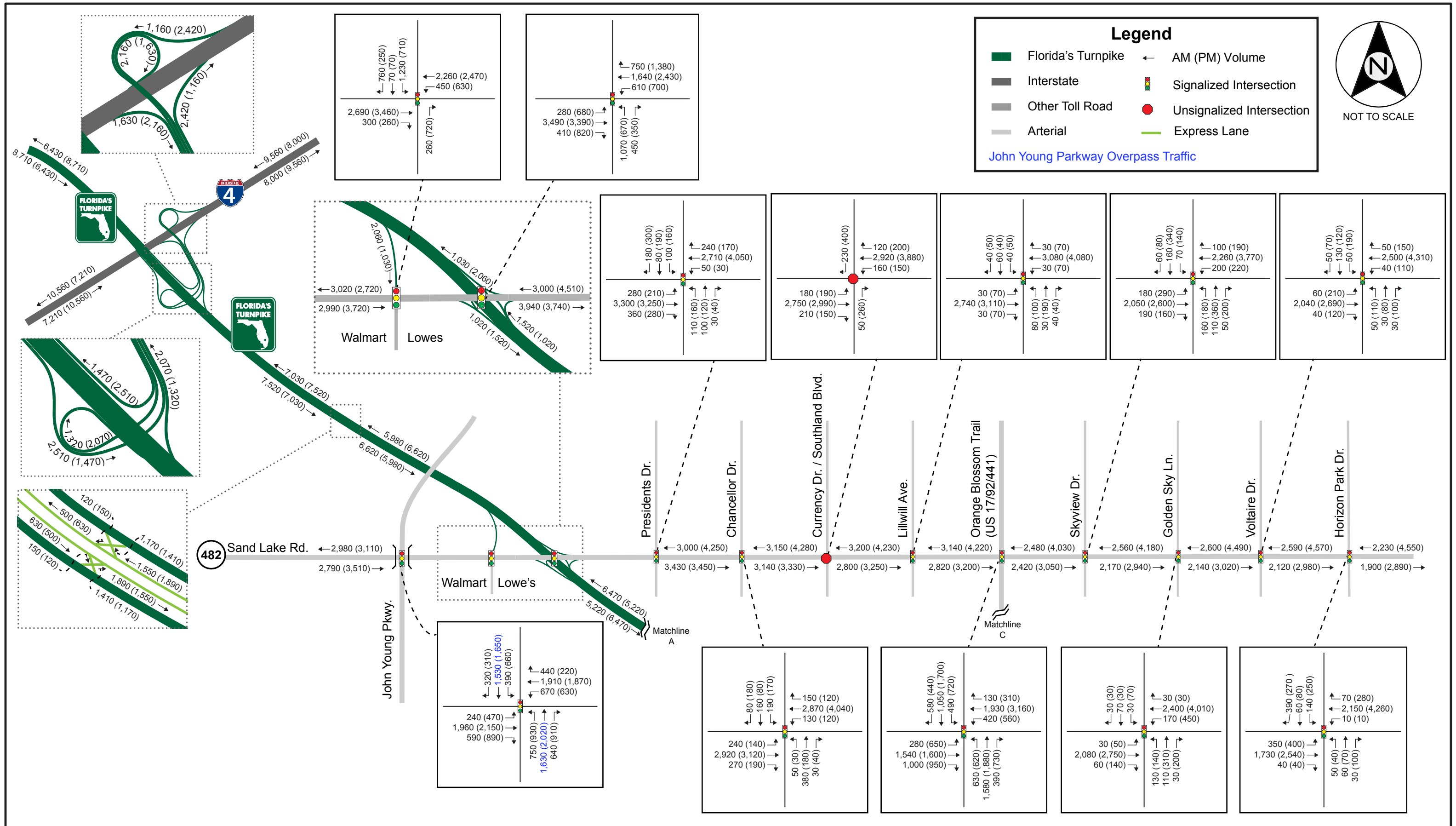
Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- Express Lane



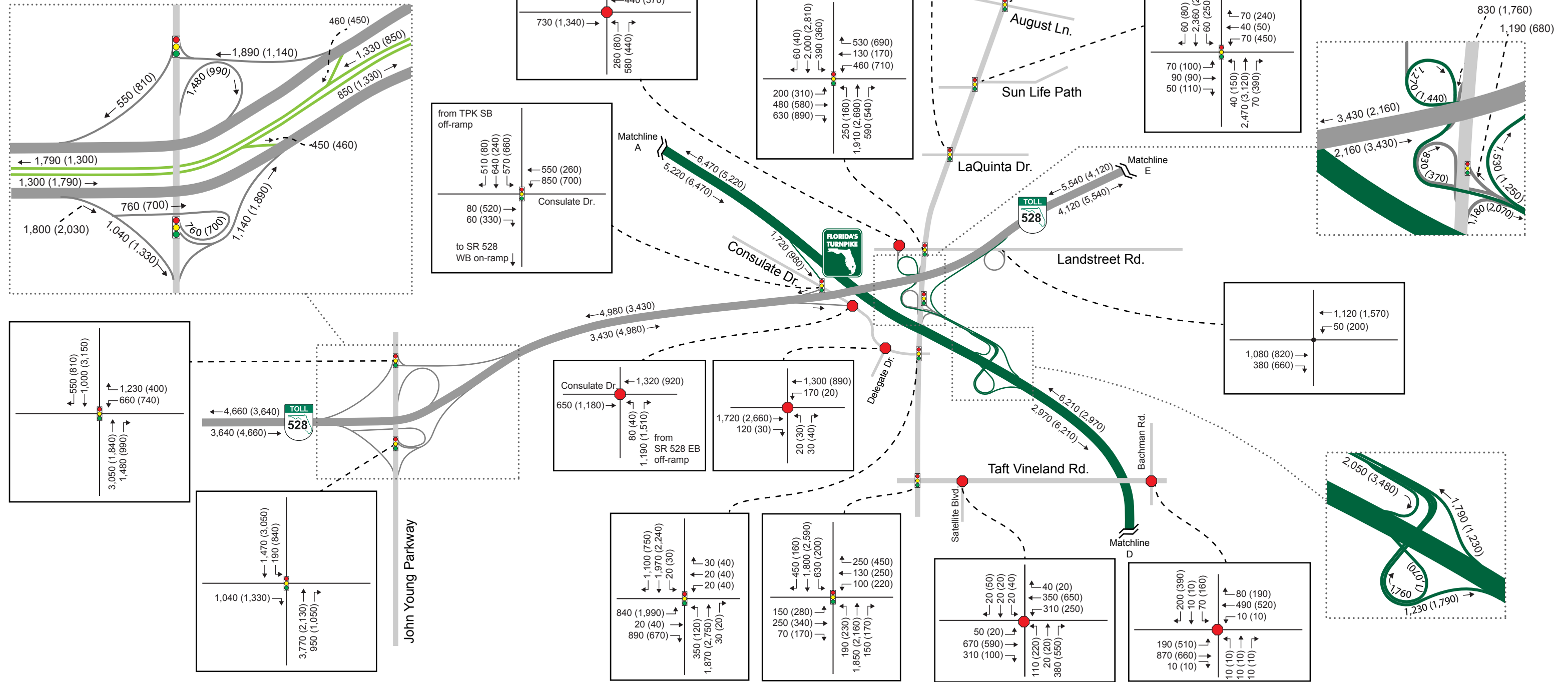
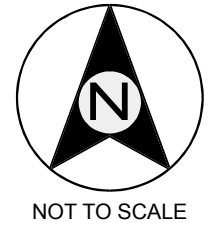






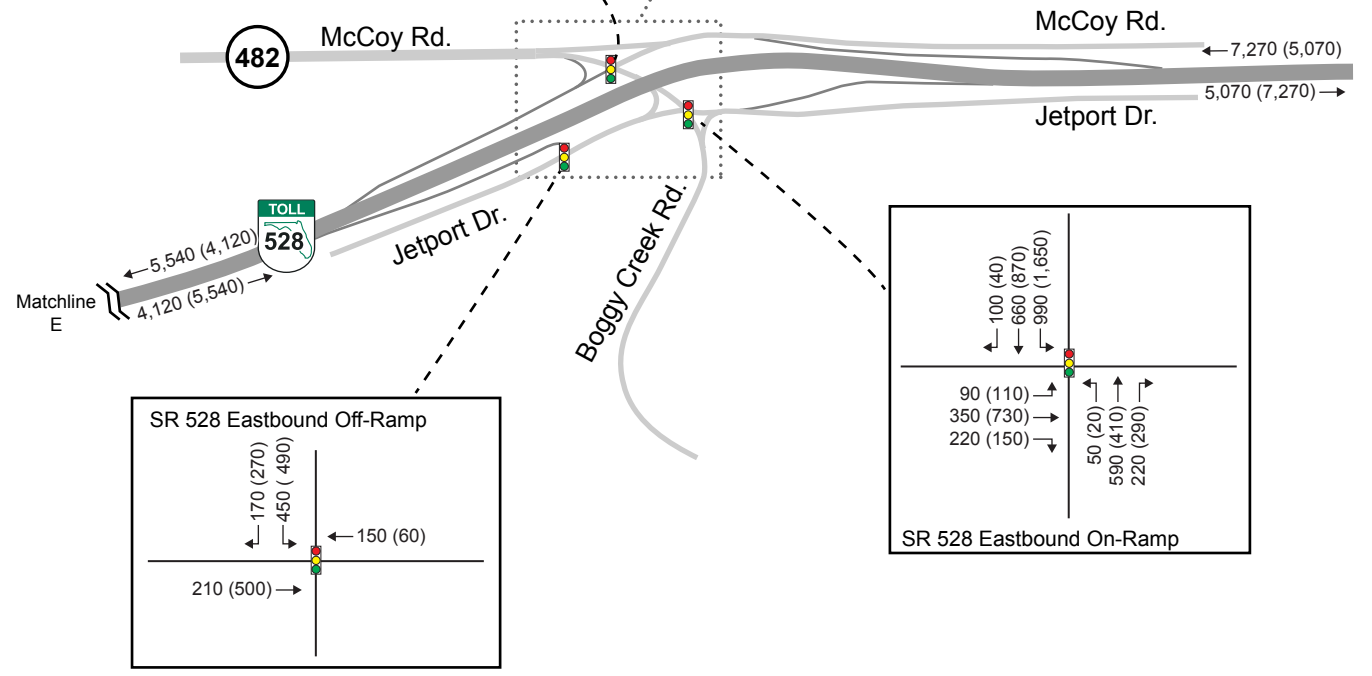
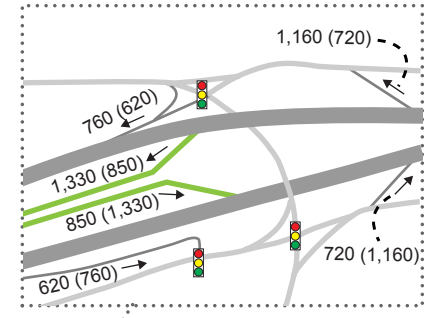
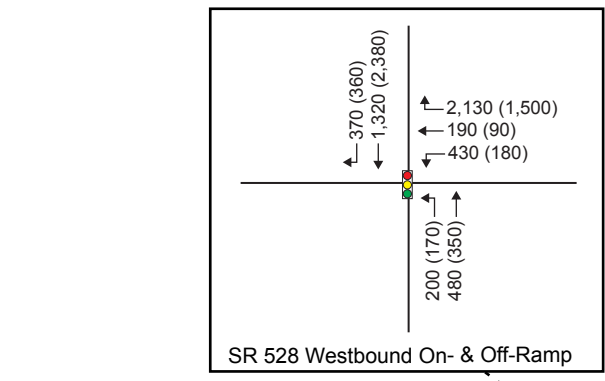
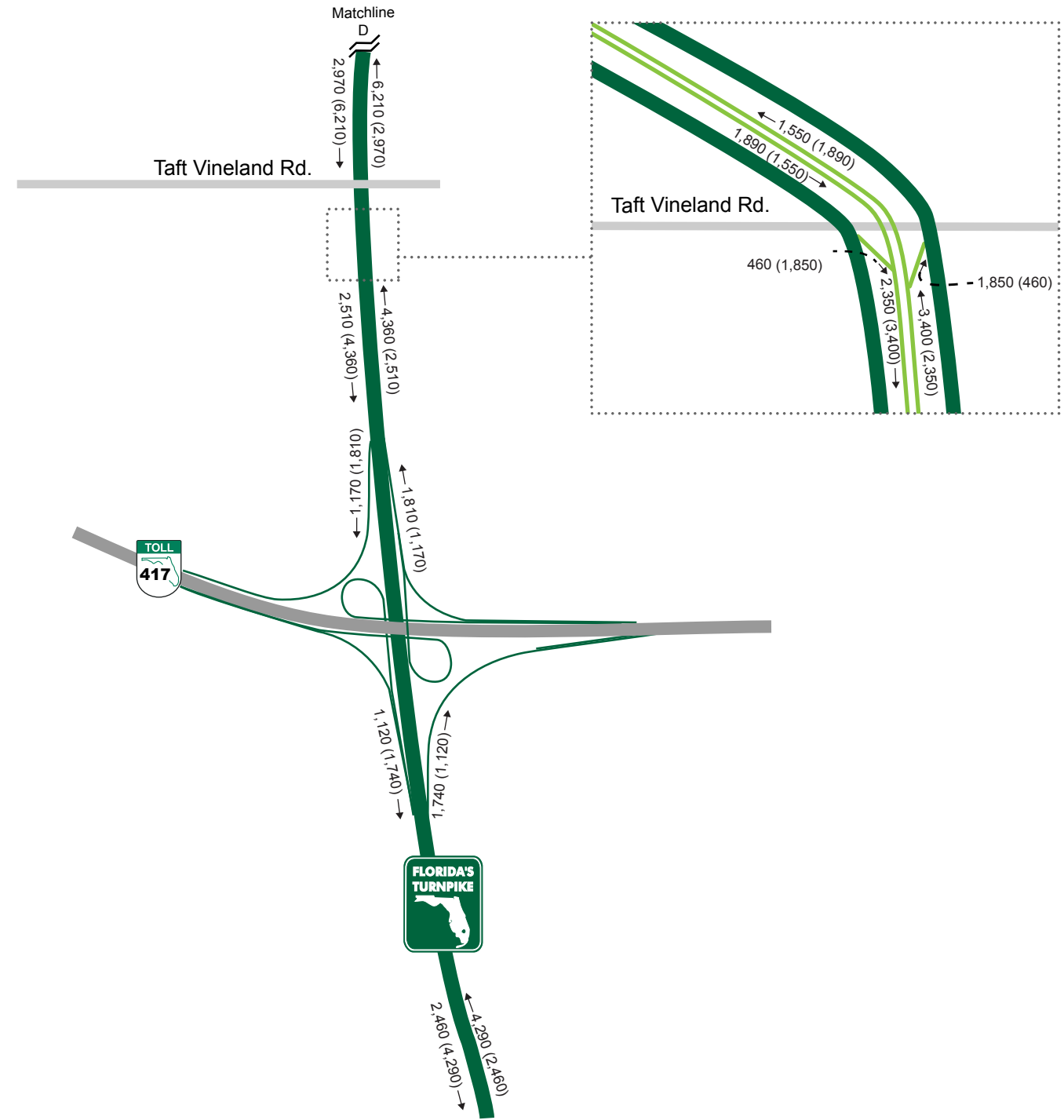
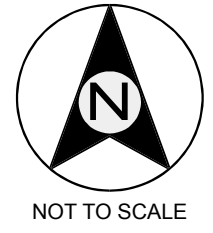
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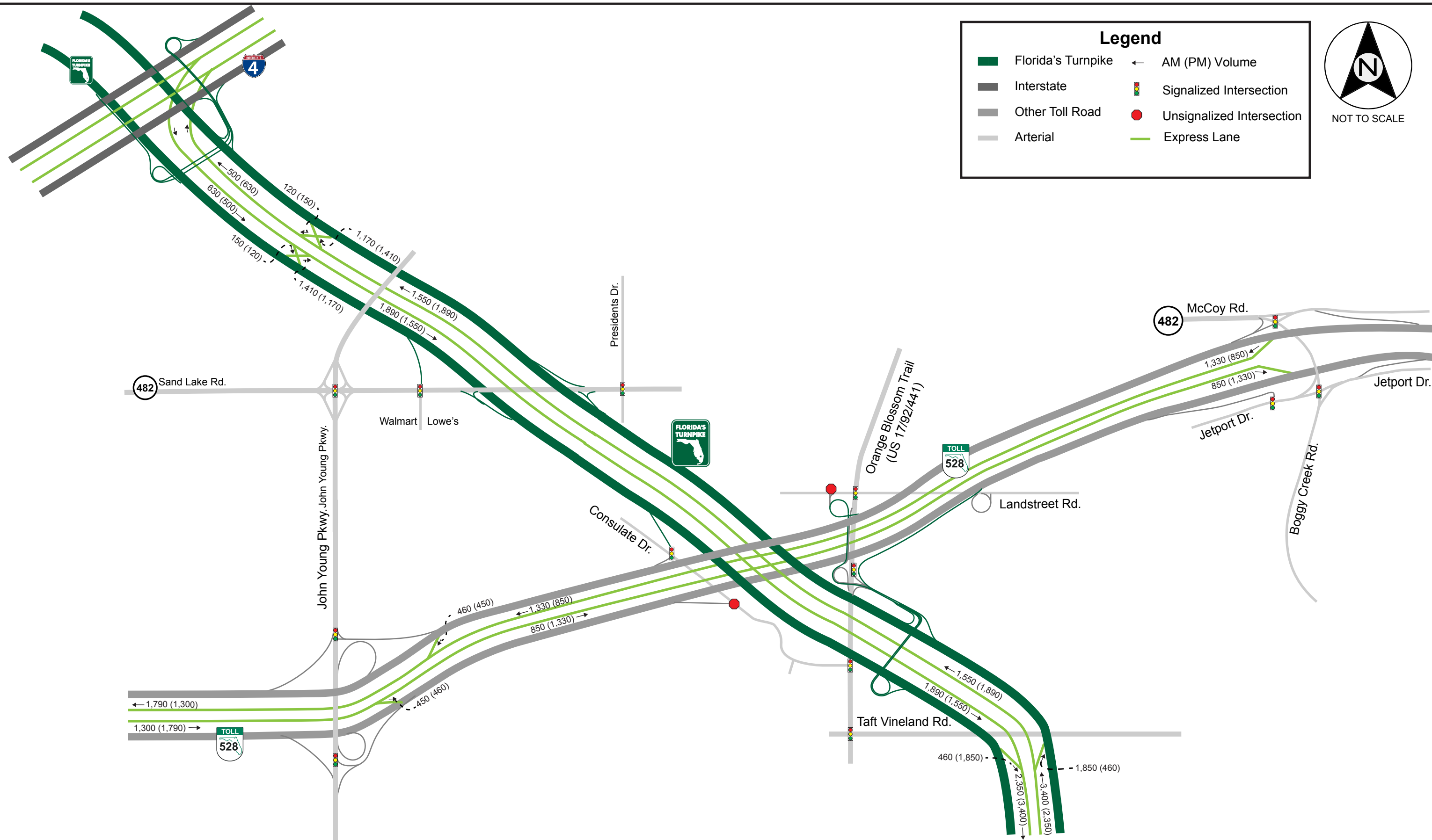
- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- Express Lane

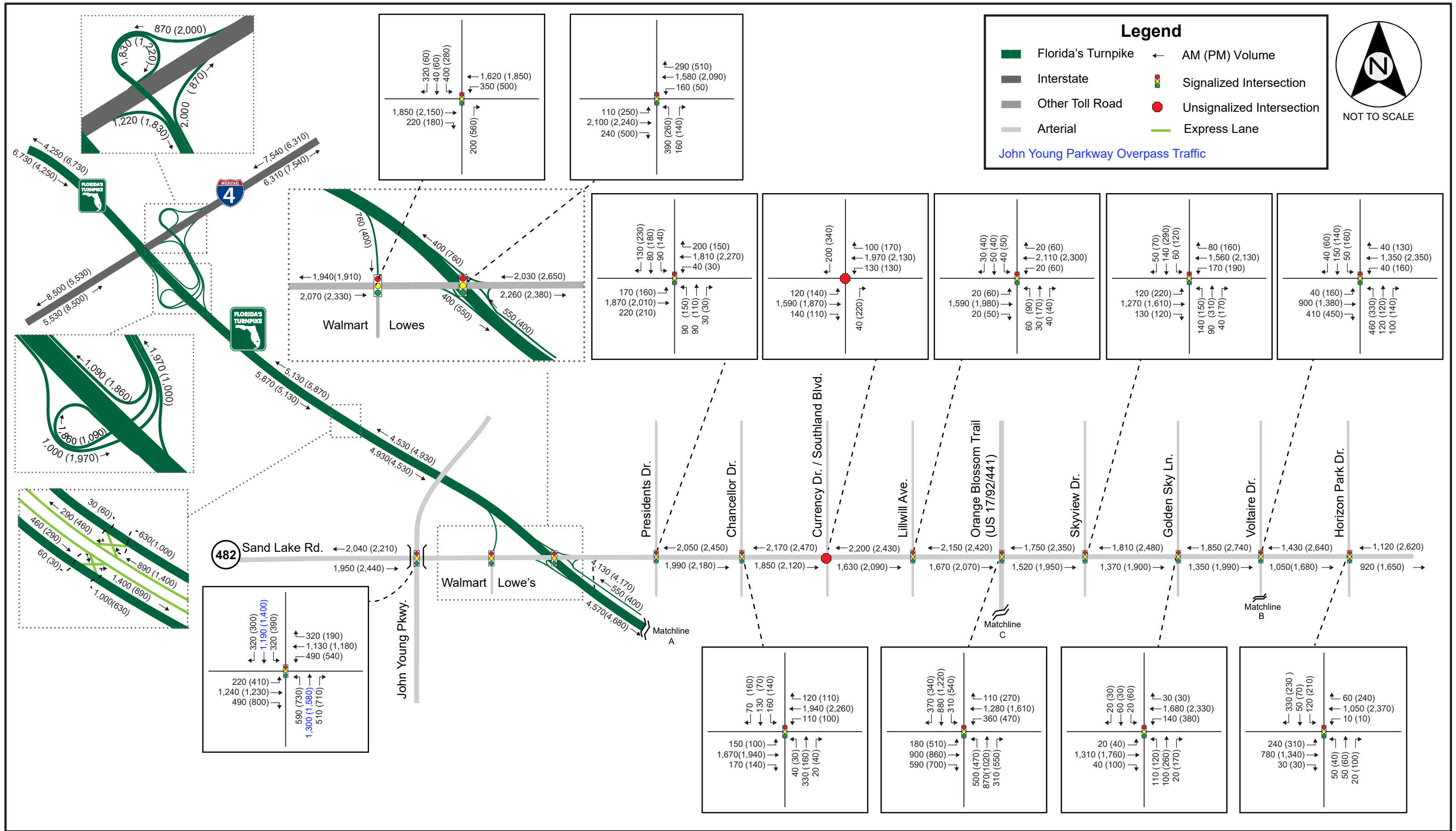


Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- Express Lane
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- Express Lane

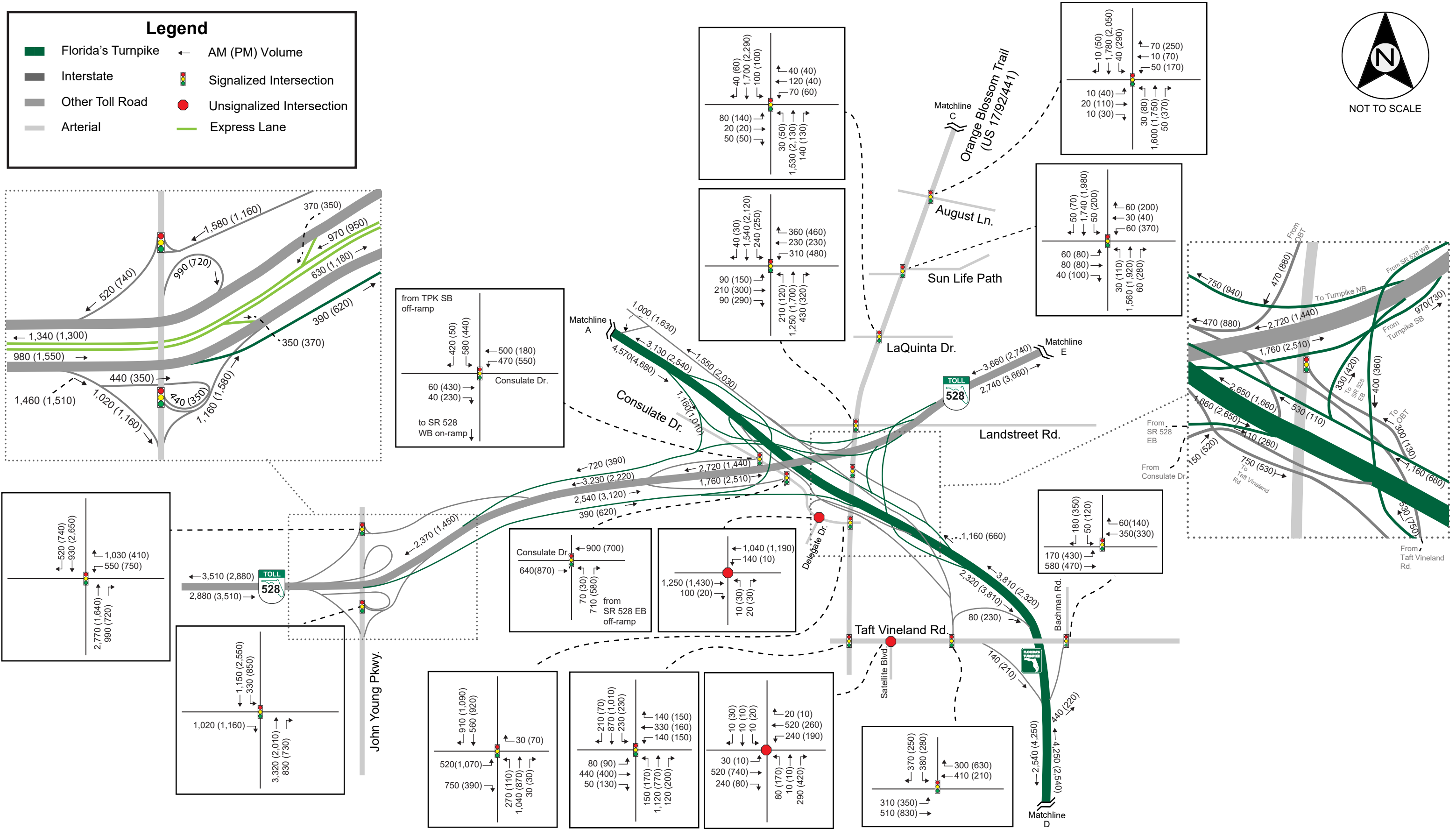
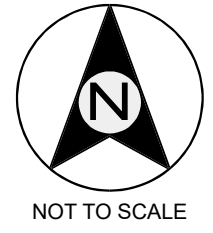






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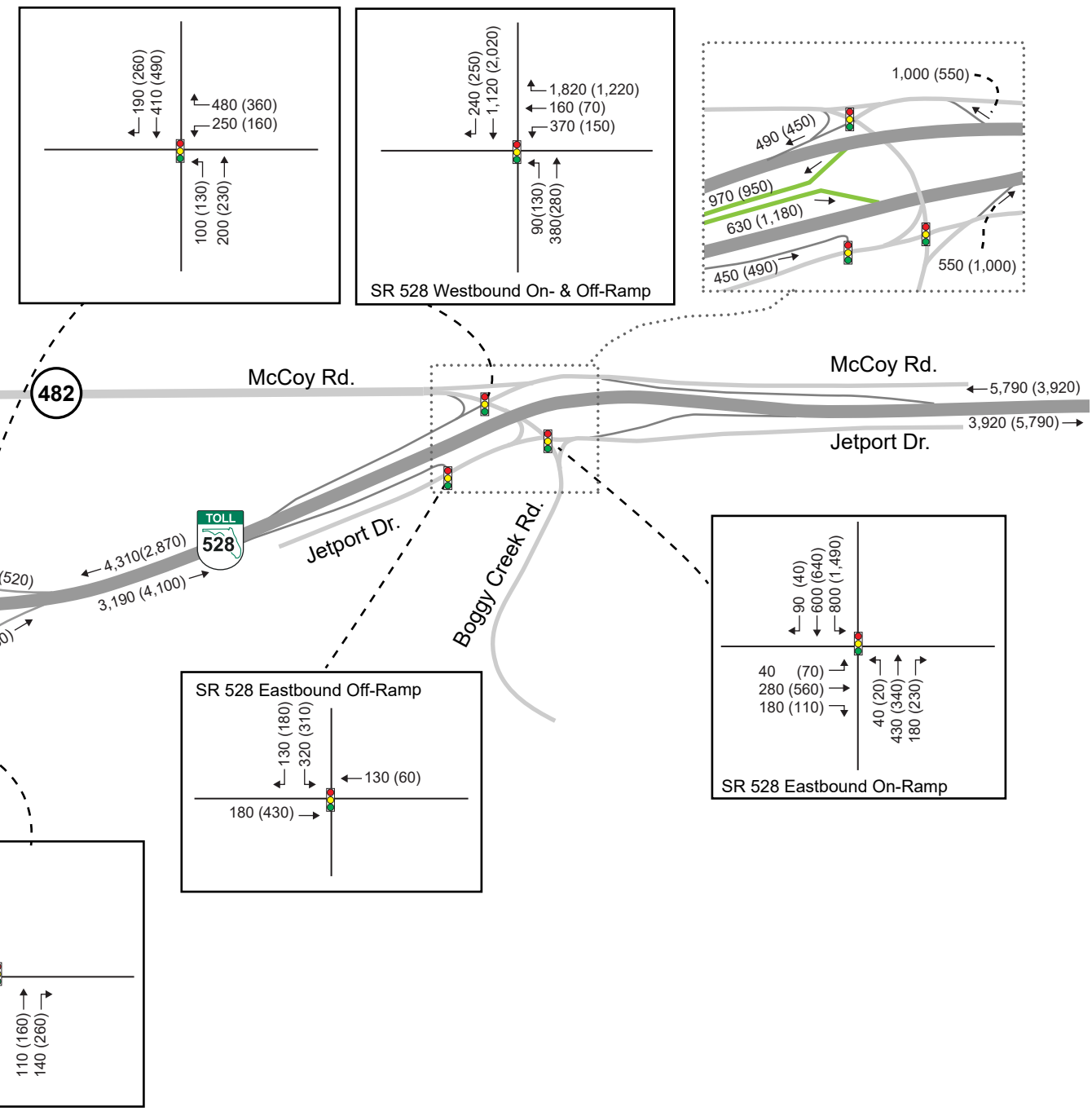
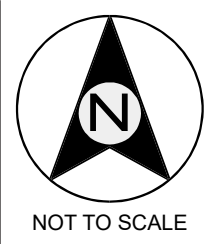
- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- Express Lane
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- Express Lane

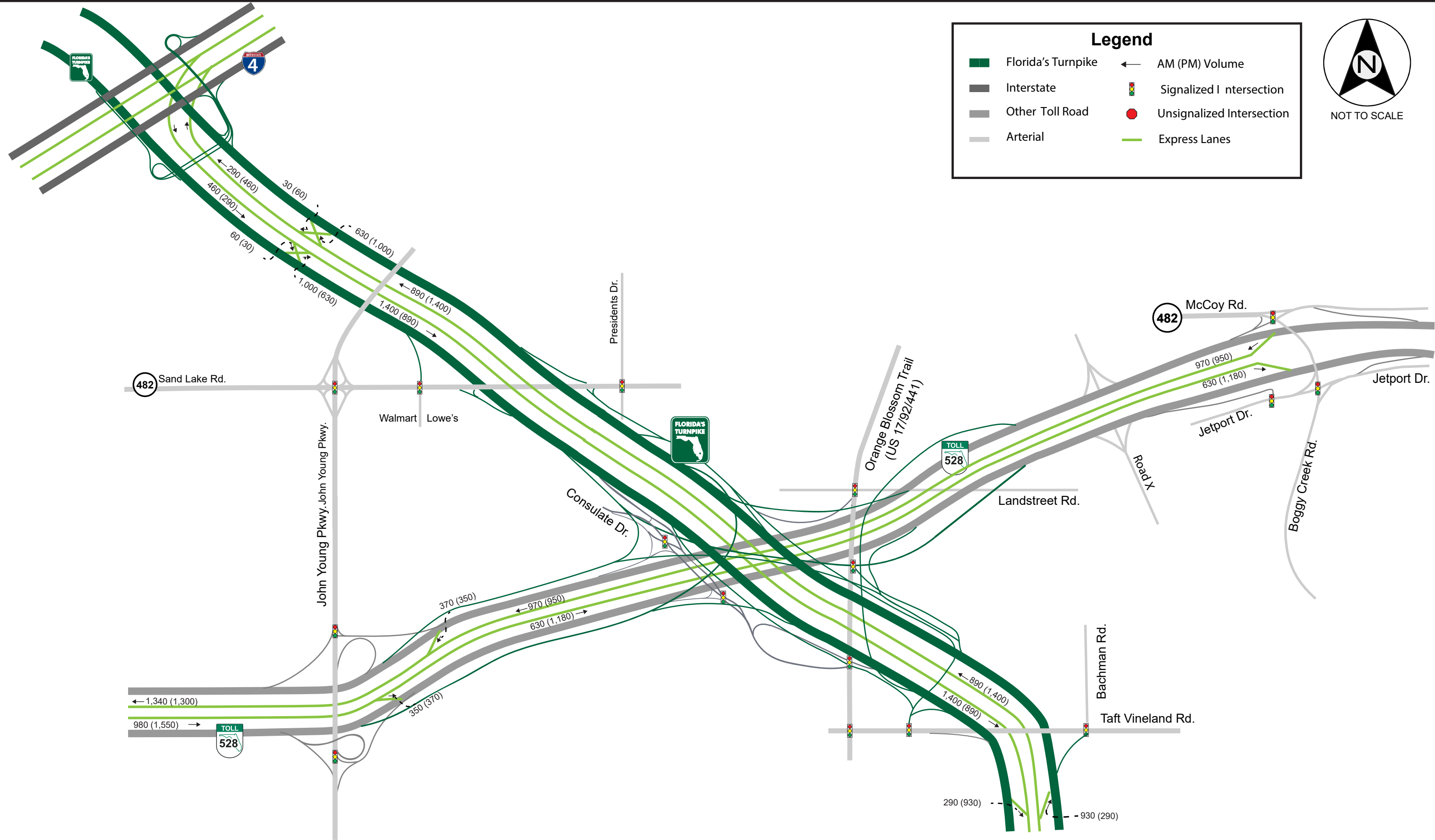


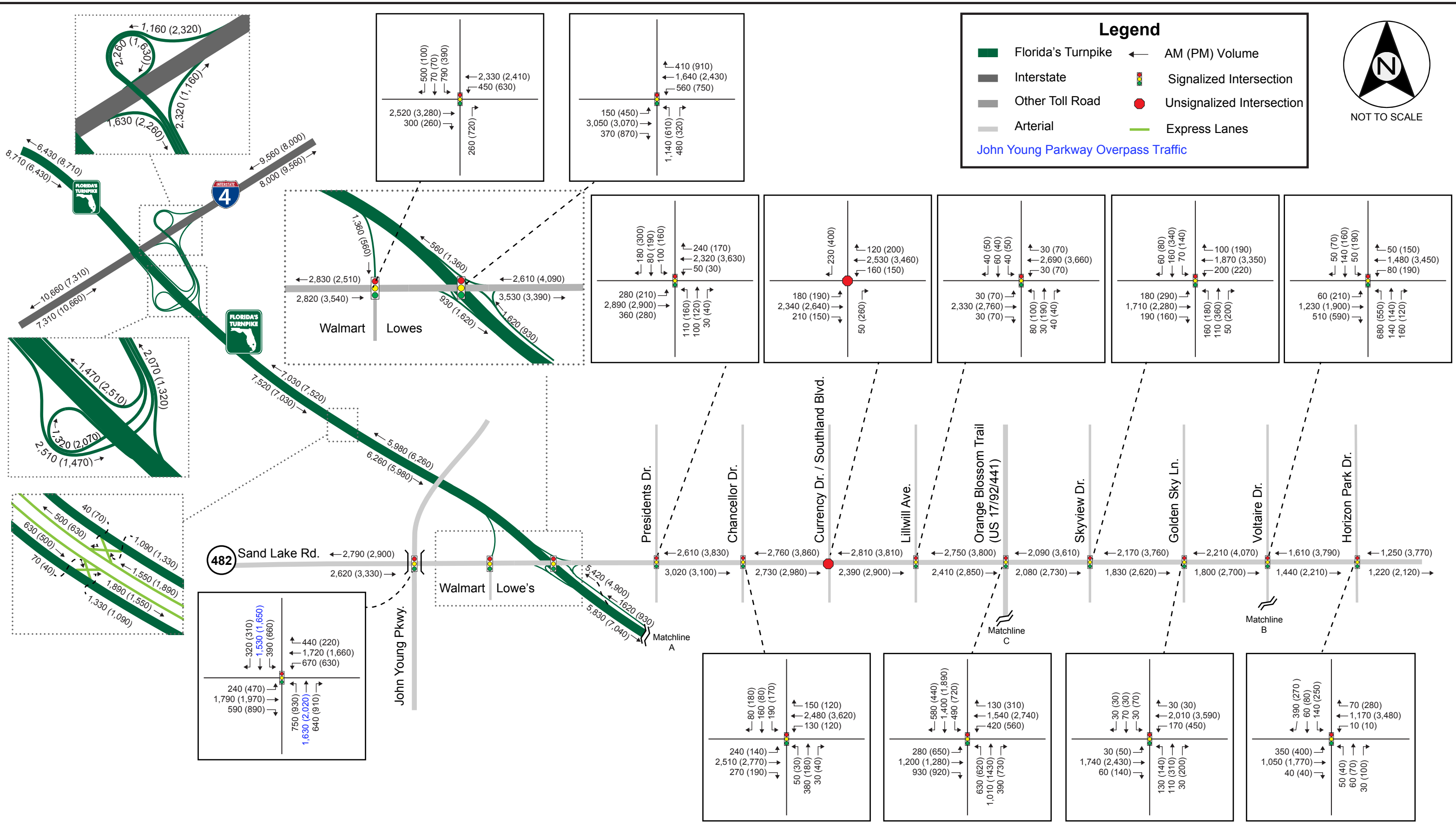


Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- Express Lane

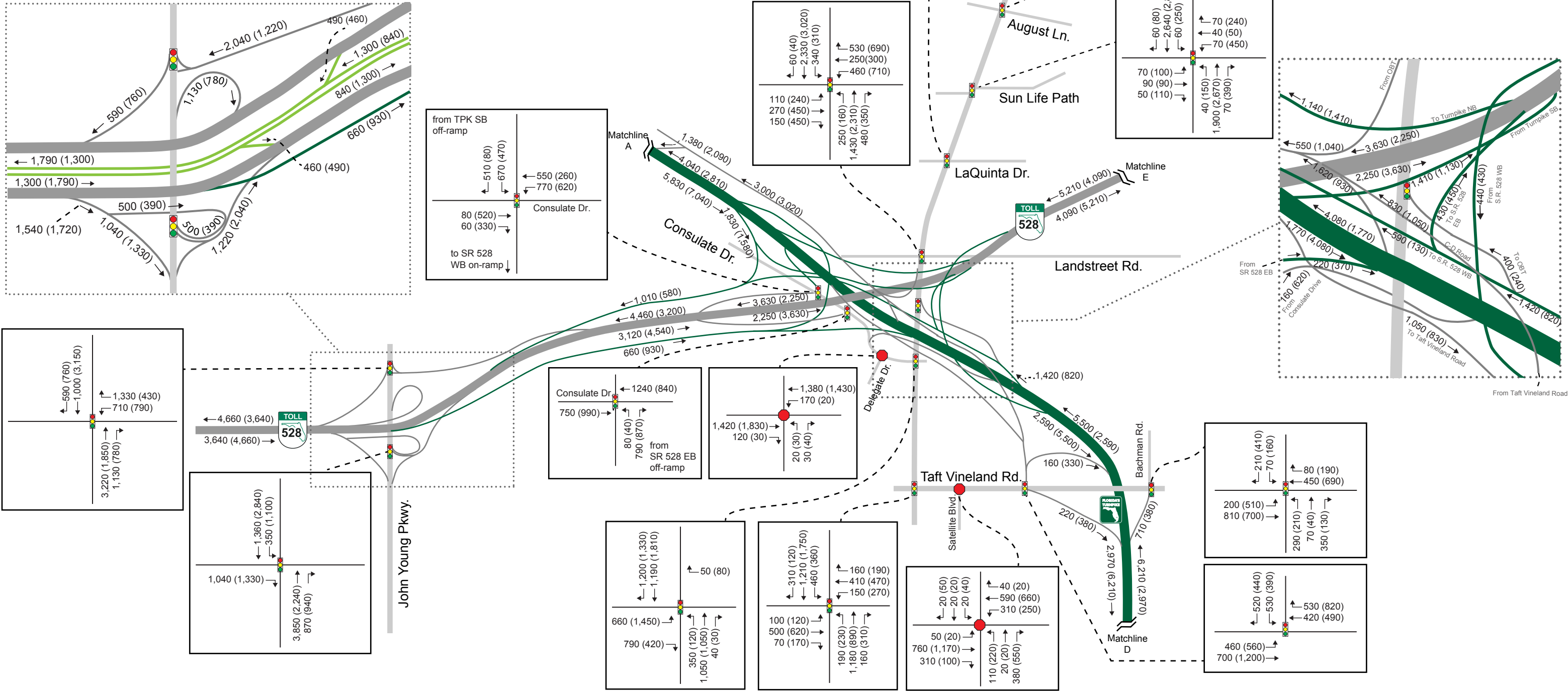
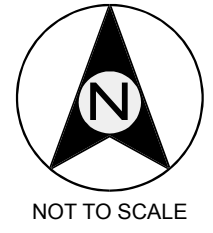


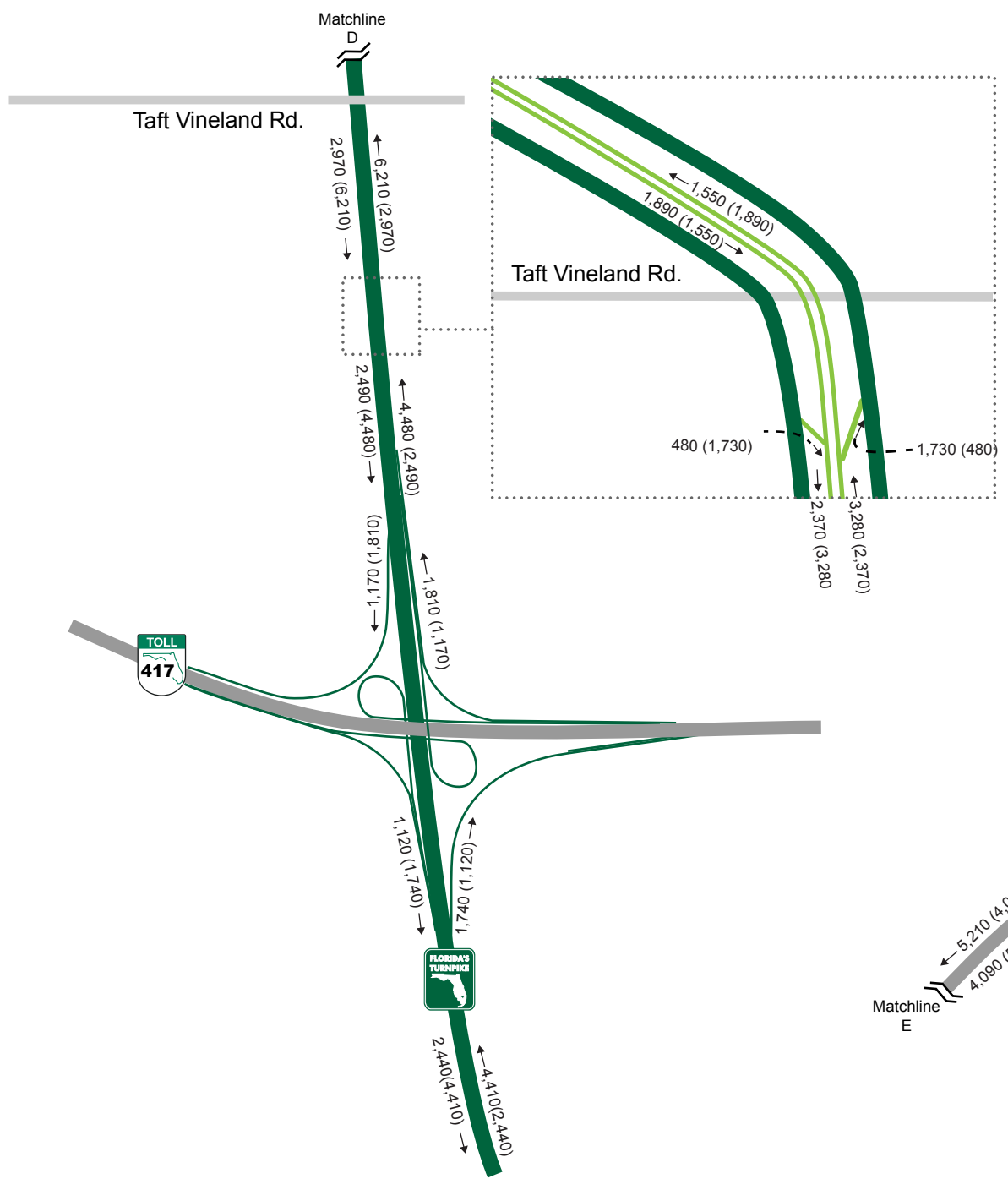




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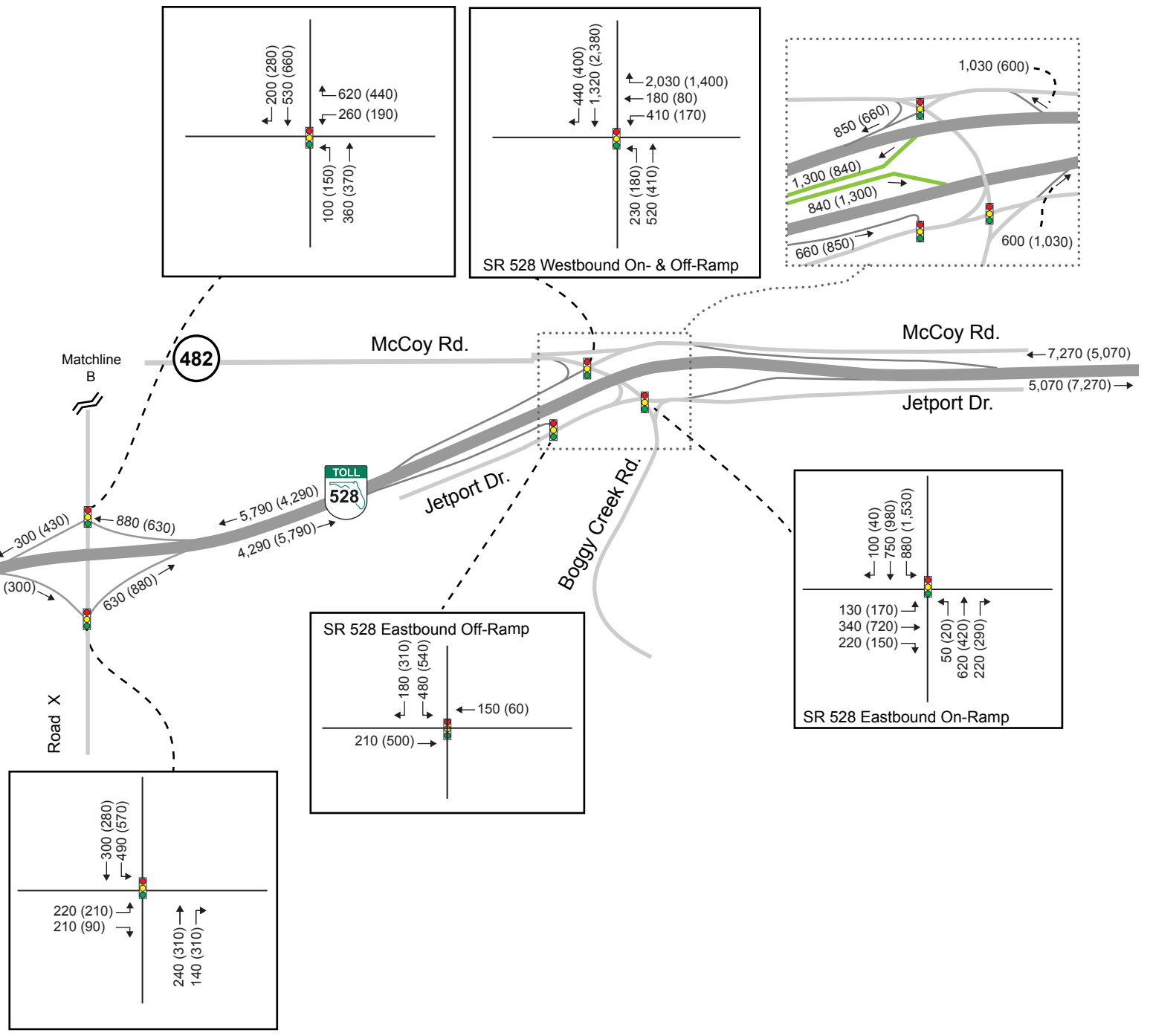
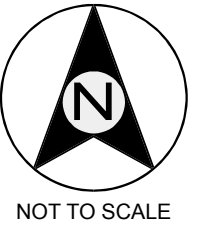
- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- Express Lanes
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- Express Lanes

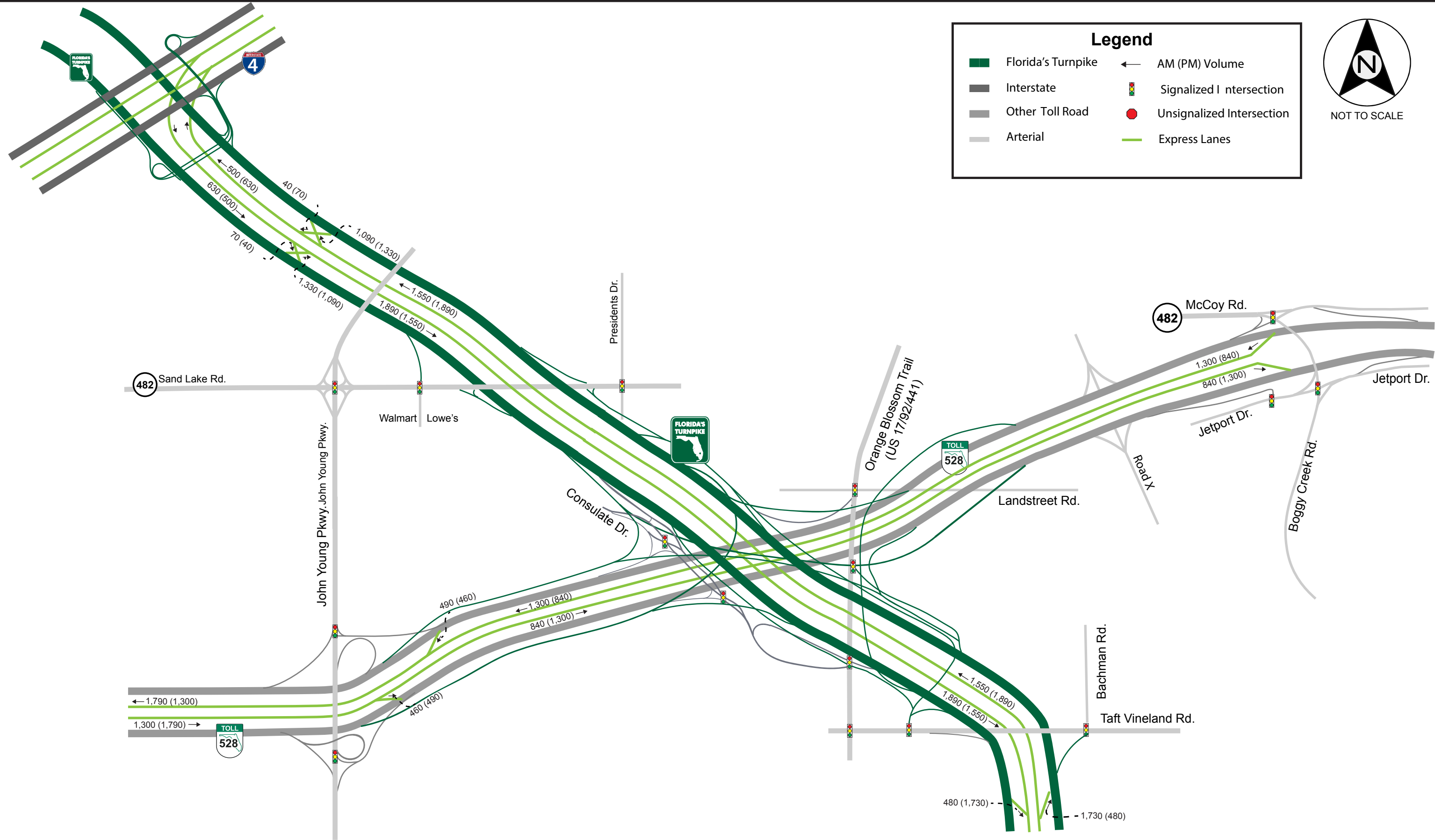




Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection
- Express Lanes





The build alternatives are described in this section as well as future traffic operational analysis and safety assessment.

6.1 ANALYSIS ALTERNATIVES

Several Transportation System Management and Operations (TSM&O) measures have been implemented within the study area. These TSM&O considerations included the following: the installation of a new traffic signal along US 17/92/441 at the Turnpike ramps merge and signal timing optimization at the Turnpike southbound off-ramp terminal intersection with Consulate Drive. Adaptive signal control is also being considered at the Consulate Drive intersection as well as lane geometry modifications, to be implemented as part of the implementation of the EL project from Orlando South to I-4 and direct connect ramps to/from I-4 (FPN: 437166-2 and 437987-3). The Orlando South interchange resurfacing project (FPN: 437156-2), will also include widening of SR 528 westbound to Turnpike off-ramp single lane section to two lanes, downstream of the US 17/92/441 southbound on-ramp.

These TSM&O improvements and other similar future changes are not expected to satisfy the need for direct access ramps between the Florida's Turnpike and SR 528, improve access to the surface streets, and alleviate traffic congestion within the interchange. Therefore, this PD&E study and the SIJR did not consider a standalone TSM&O alternative. However, planned and programmed improvements within the study area were considered in developing the traffic and interchange concepts. The viable build alternatives considered improvements included in the No-Build alternative (see **Chapter 5.1.3**) and additional improvements were made to enhance safety, address traffic needs, improve travel time reliability and provide long-term mobility for the Orlando South interchange.

A Draft Preliminary Engineering Report (PER) was prepared for the Orlando South PD&E study. Build alternatives development and selection of the Preferred Build alternative are discussed in detail in the PER. A summary of the Build alternatives is provided in this SIJR. The concepts for the alternatives are provided in **Appendix F**.

6.1.1 Alternative 1

Alternative 1 was a reconfiguration of the Orlando South interchange only, to address the need for system-to-system connections. It included the following improvements:

- Directional GTL systems ramps
- Directional north/east EL ramps
- Realignment of SR 528 to provide longer spans for a ten-lane Florida's Turnpike typical section
- Maintaining the Landstreet Road ramps connected to SR 528
- Maintaining Consulate Drive entry/exit ramps connected to SR 528 and the southbound exit from Florida's Turnpike with a Diverging Diamond Interchange (DDI)
- Modifications to the remaining US 17/92/441 ramps to preclude weaving
- A new southbound entry ramp to Florida's Turnpike southbound via Consulate Drive

- A new more direct entry to Florida's Turnpike northbound from US 17/92/441 southbound
- A new southbound Florida's Turnpike to northbound US 17/92/441 flyover to provide a higher speed ramp
- Use of the southbound Florida's Turnpike exit to Consulate Drive for access to US 17/92/441 southbound
- Ramp braiding between CR 423 and Consulate Drive to preclude adverse weaving

6.1.2 Alternative 2

Alternative 2 Options 1 and 2 included the improvements in Alternative 1, plus two new interchanges for surface street access away from the Orlando South interchange. The two options differed in the configuration of the reliever interchanges.

Other common changes for both options included:

- The removal of Landstreet Road ramps connecting to SR 528
- The removal of US 17/92/441 ramps to/from south at the Orlando South interchange
- Northbound US 17/92/441 to northbound/southbound Florida's Turnpike
- Northbound Florida's Turnpike to southbound US 17/92/441

A description of each reliever interchange option follows.

Florida's Turnpike Reliever Interchange

The interchange at Taft Vineland Road includes:

- Trumpet style interchange in the northwest quadrant of the Florida's Turnpike
- Modification of the proposed Taft Vineland Road median to accommodate dual left-turn eastbound lanes
- A diamond ramp (eastbound to southbound) in the southeast quadrant

Two options for the northbound exit ramp were carried forward:

Alternative 2 Option 1

This option includes a northbound exit, directly connected to Taft Vineland Road and Bachman Road, east of the Florida's Turnpike.

Alternative 2 Option 2

This option includes a northbound exit to Rocket Boulevard with arterial connections to Taft Vineland Road. This option requires termination of Rocket Boulevard where the alignment changes from north-south to east-west for limited access limits. Impacts and mitigation for these impacts include:

- A new connector road linking Rocket Boulevard to General Drive.
- An additional northbound lane on General Drive (Rocket Boulevard to Taft Vineland Road) to accommodate added traffic from the exit.

- An additional westbound lane on Taft Vineland Road (General Drive to Bachman Road) beyond the limits of Orange County's widening to accommodate added traffic from the exit.

SR 528 Reliever Interchange

Both concepts (Build Alternative 2 Options 1 and 2) include a new four-lane divided arterial facility, connecting SR 528 with SR 482 to the north and Landstreet Road to the south. Two options were developed for the north leg of this reliever interchange. The difference in the concepts are alignment and the resulting interchange type. These options were incorporated into Build Alternative 2 Options 1 and 2, and are described as follows:

Alternative 2 Option 1

The north arterial leg includes using the existing Horizon Park Drive alignment and widening to a four-lane divided arterial facility. When combined with the south leg, this arterial results in a *split interchange*.

Alternative 2 Option 2

The north arterial leg is an extension of the southern alignment along the east side of the Terrace at Florida Mall. The intersection with SR 482 includes a realignment of Voltaire Drive north of SR 482 to form the fourth leg of this intersection. This option includes a SPUI at SR 528.

6.1.3 Alternative 3

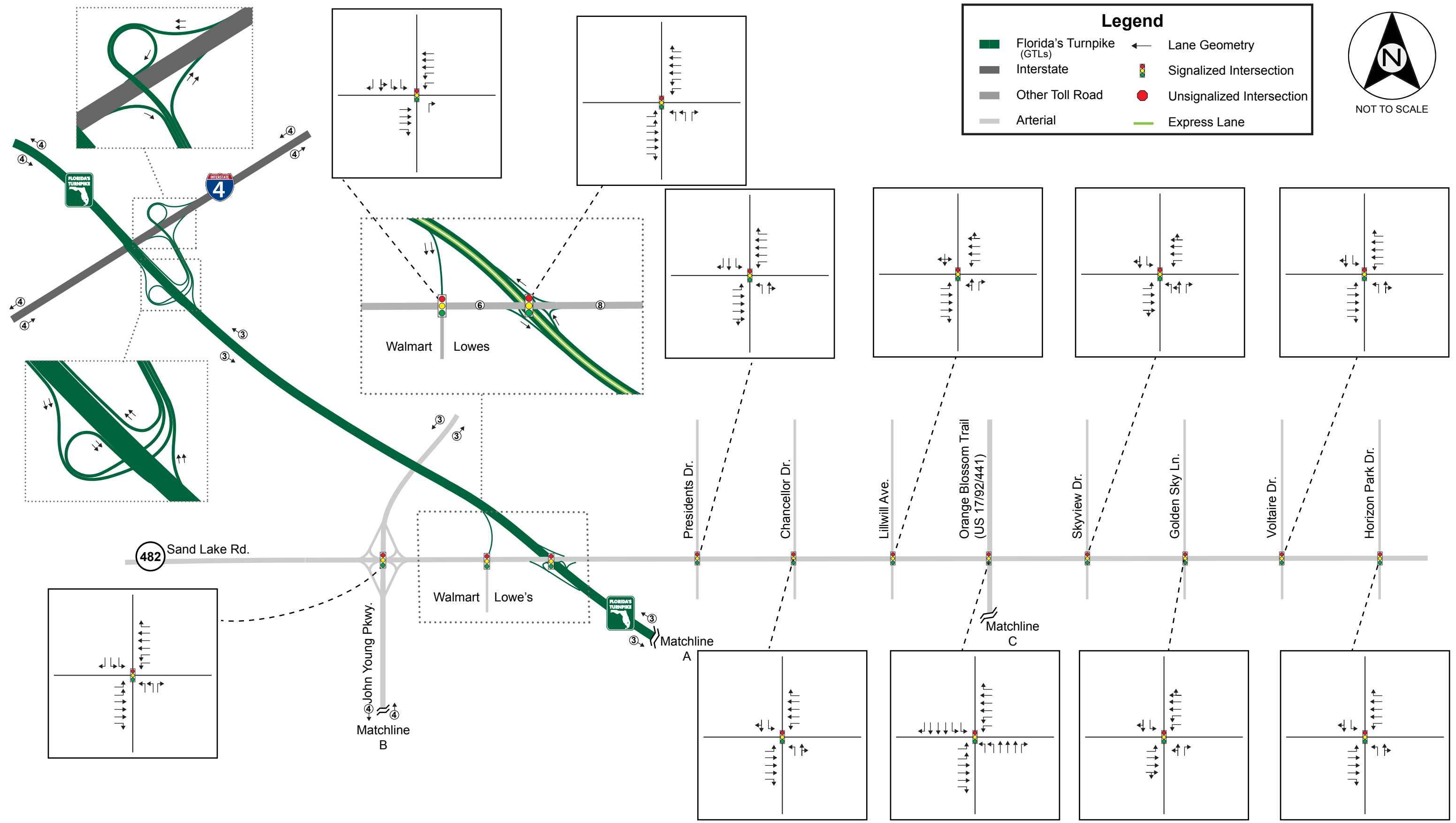
Alternative 3 was developed following a Public Information Meeting (PIM) for the project and internal coordination. The following refinements were made to Alternative 2 based on comments received at the PIM, to minimize right-of-way impacts, reduce cost and improve constructability:

- Removal of EL direct connect ramps to/from the north of Florida's Turnpike to/from the east of SR 528.
- Removal of southbound Florida's Turnpike to northbound US 17/92/441 ramp and reassign traffic to the Consulate Drive exit. To accommodate the additional traffic at the Consulate Drive and US 17/92/441 intersection, the following improvements were made:
 - A third lane was added to the eastbound Consulate Drive to northbound US 17/92/441 movement by reallocating the median width of Consulate Drive
 - A northbound US 17/92/441 turbo configuration (delineator separated receiving lanes from the Consulate Drive triple lefts) for the intersection was added to further improve the efficiency of the intersection.
 - The triple left-turn from westbound Consulate Drive plus two northbound US 17/92/441 through lanes tapers to four lanes that are carried to Landstreet Road. The outer lane is a drop right lane at Landstreet Road and US 17/92/441 intersection with three through lanes carried north of the intersection.
- Northbound Florida's Turnpike C-D road to minimize the potential impacts of queuing on the Florida's Turnpike and minimize lane changes

- A Tight-Urban Diamond Interchange (TUDI) for the SR 528 reliever interchange
- A revised alignment of Voltaire Drive
- Relocated trumpet ramp intersection at the Florida's Turnpike reliever interchange and elimination of "free-flow" movement for westbound right turn
- Taft Vineland Road modifications east of the Florida's Turnpike:
 - Realignment of the northbound Florida's Turnpike exit ramp to include a northbound through movement on Bachman Road. Also, exclusive southbound left and right turn lanes were included.
 - The two eastbound Taft Vineland Road through lanes will transition to a left turn and through lane at Bachman Road. This approach is subject to further coordination with Orange County.
 - An extended second westbound Taft Vineland Road through lane between Bachman Road and General Drive within the existing right-of-way

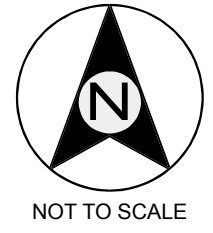
With these refinements, Alternative 3 was selected as the Preferred Build concept because it reduced wetland and right-of-way impacts, reduced costs and improved constructability. Documentation of the selection criteria is provided in the PER.

This SIJR only documents traffic and safety analysis for the No-Build and the Preferred Build (also referred to Build herein) alternatives. The results are provided for the 2025 opening and 2045 design years. The No-Build and Preferred Build Alternative 3 lane configurations are comprehensively depicted on **Figures 6.1** and **6.2**, respectively.



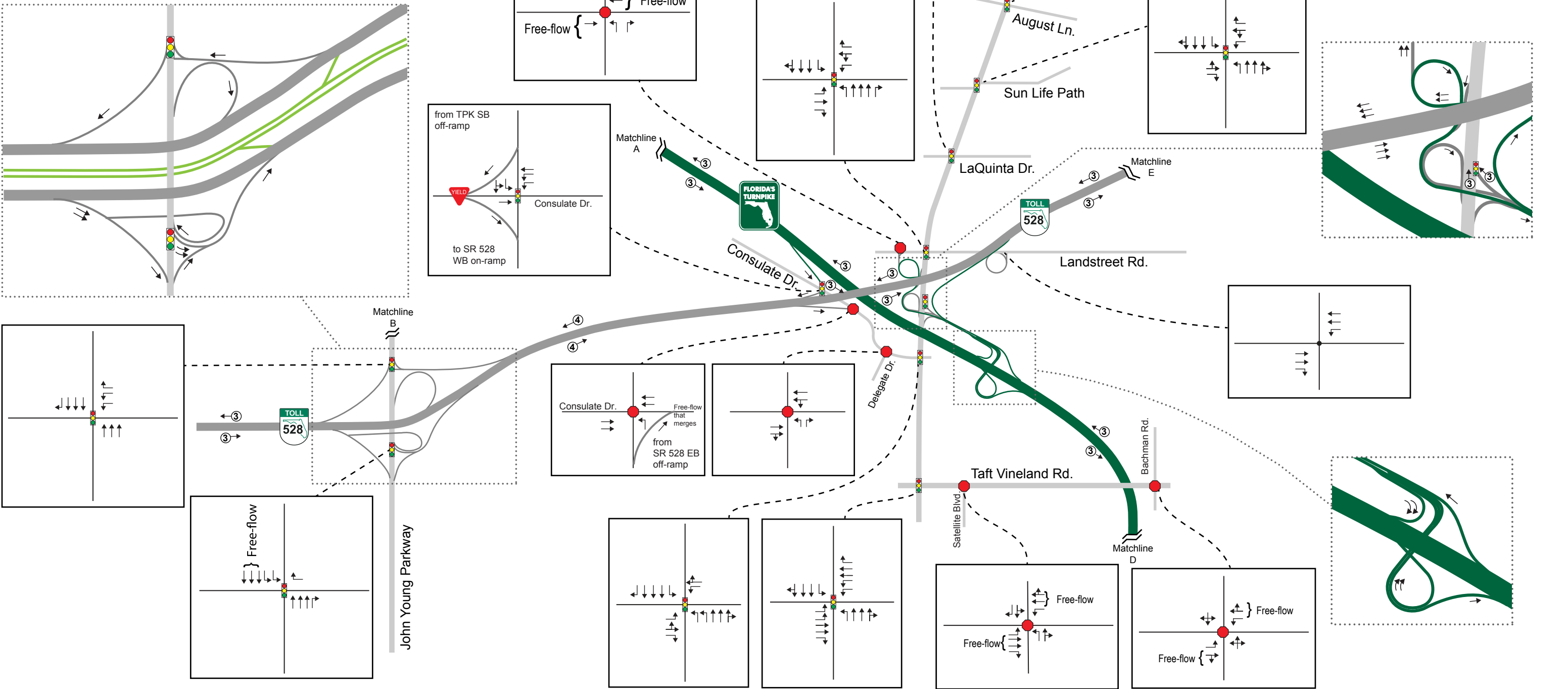
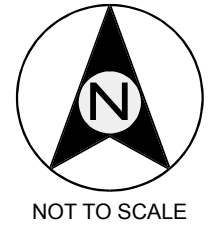
Legend

- Florida's Turnpike (GTLs)
- Interstate
- Other Toll Road
- Arterial
- Express Lane
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection
- Express Lane



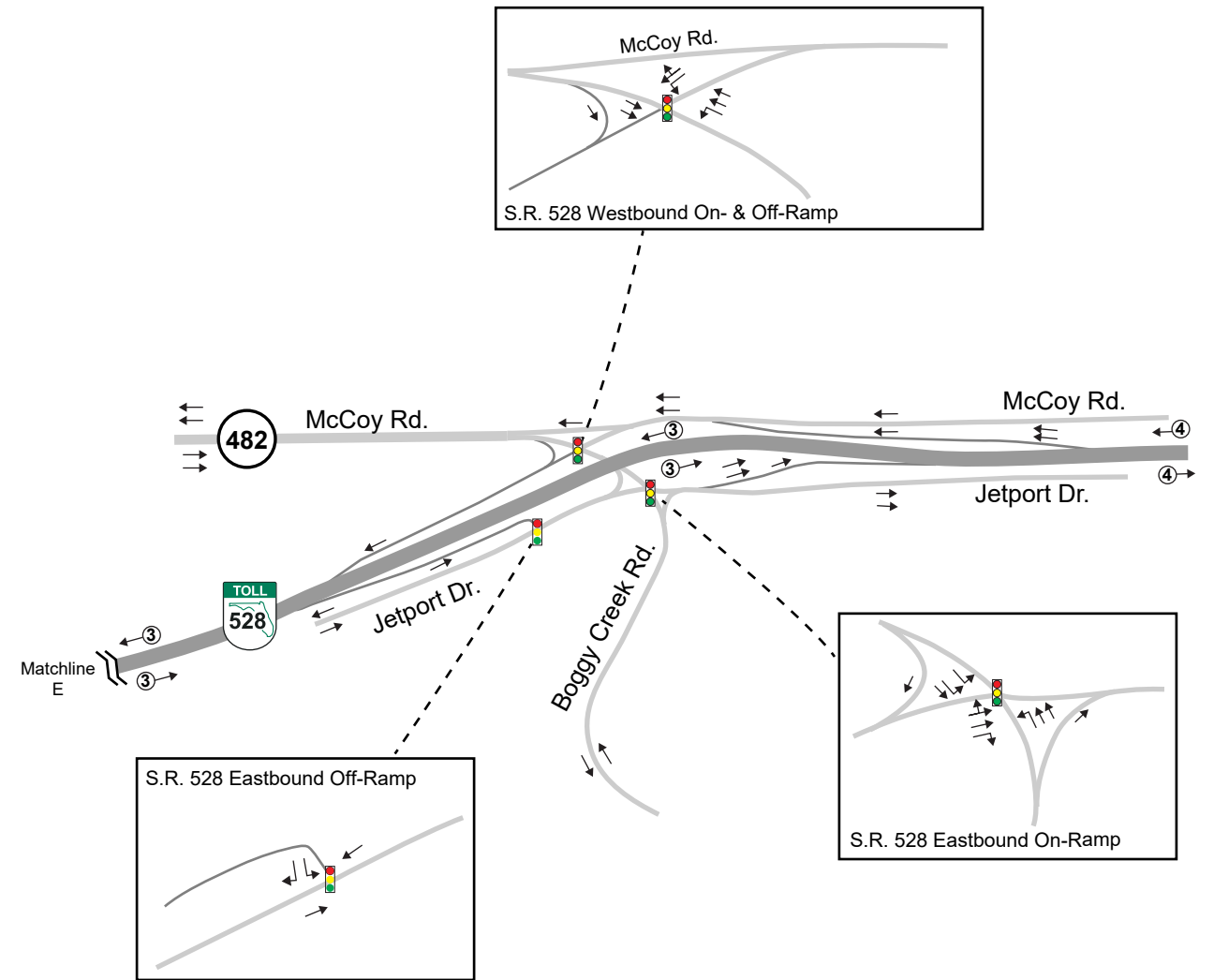
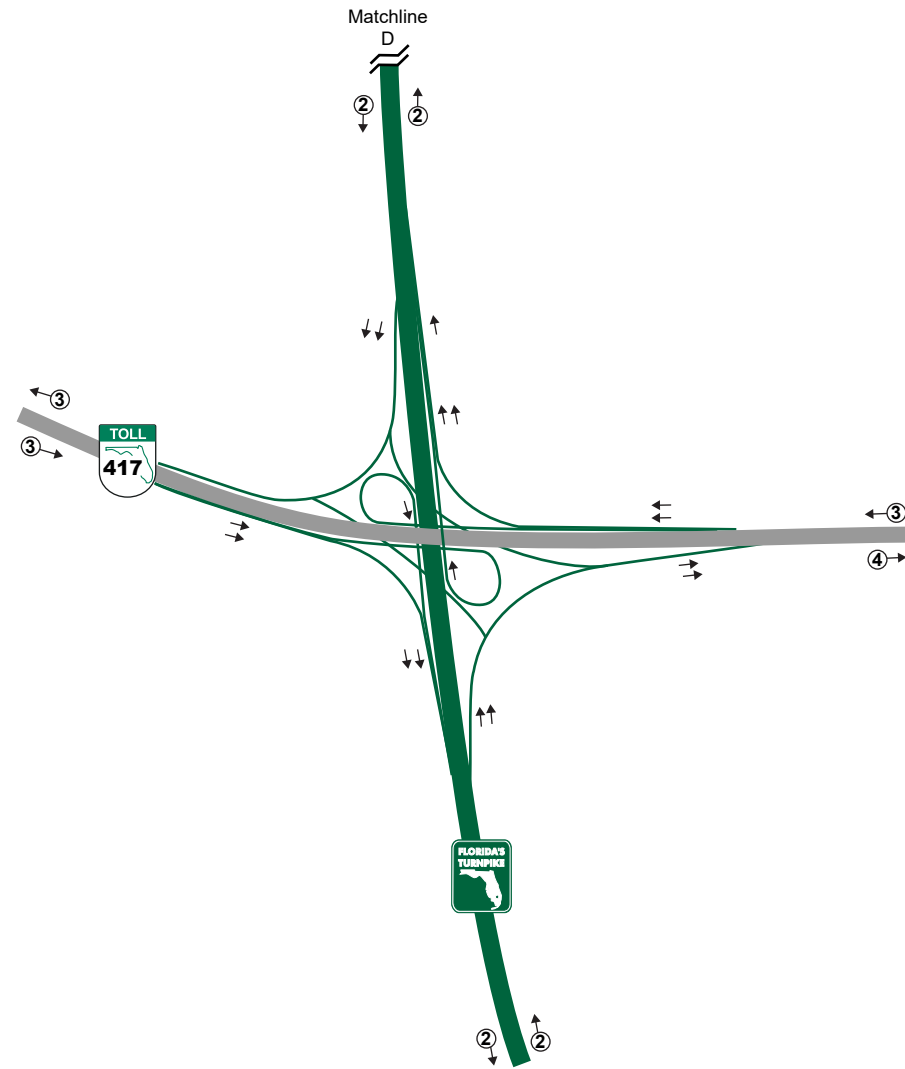
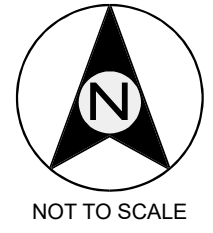
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- Florida's Turnpike (GTLs)
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- Arterial
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection
- No control
- Yield Control



Legend

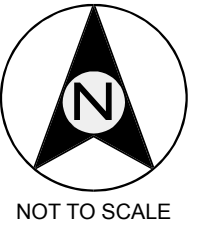
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- Interstate
- Other Toll Road(GTLs)
- Arterial
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection

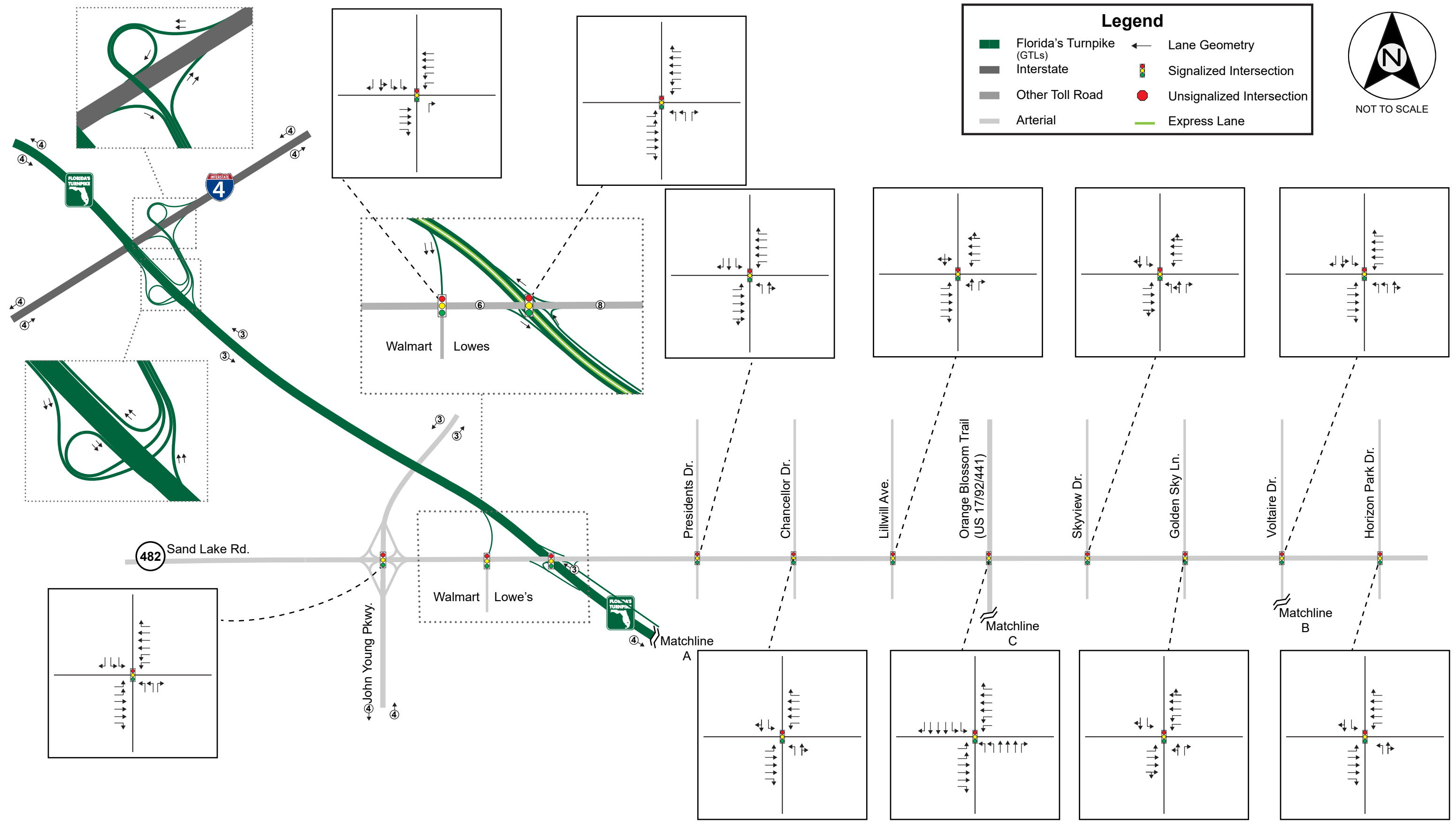




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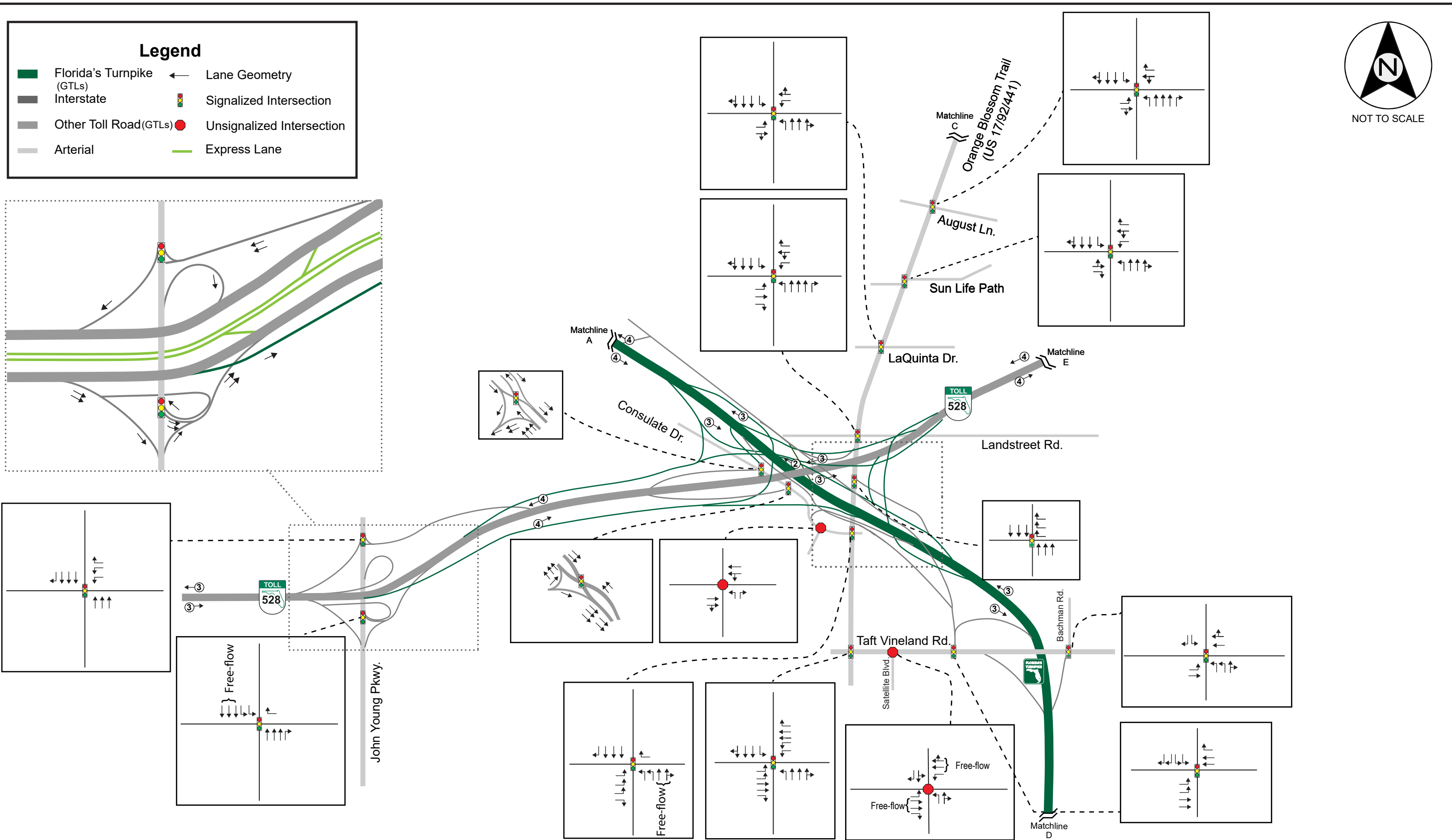
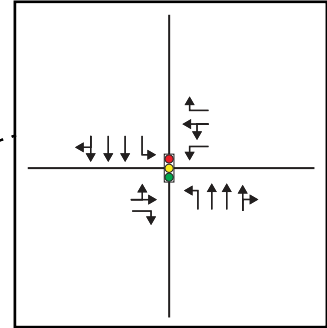
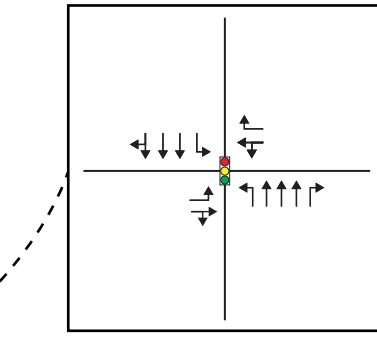
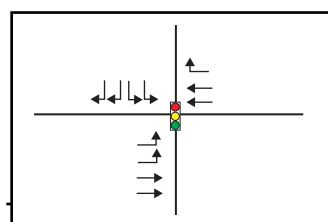
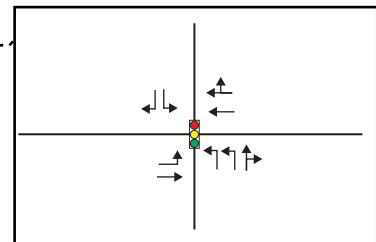
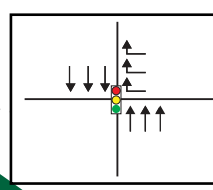
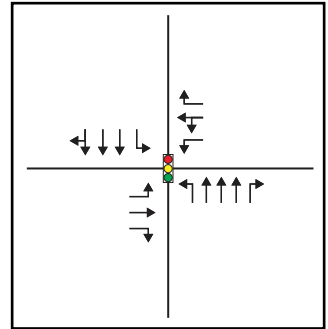
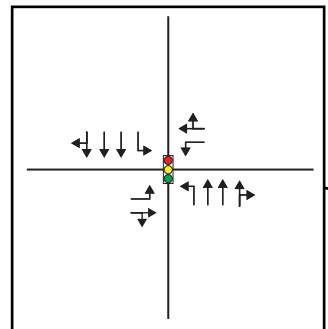
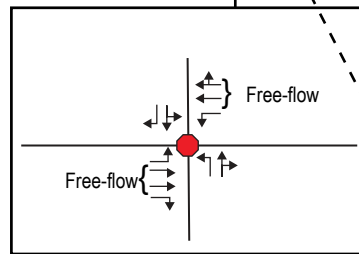
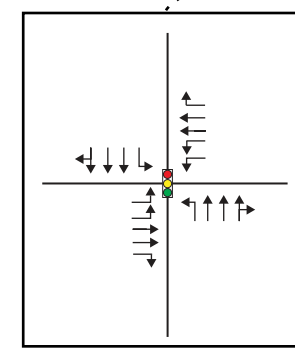
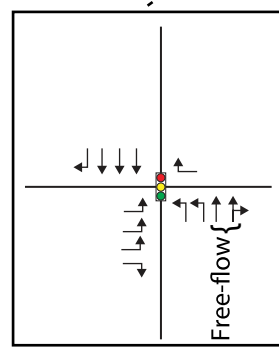
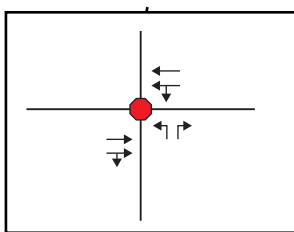
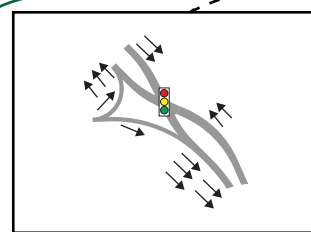
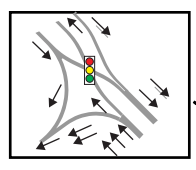
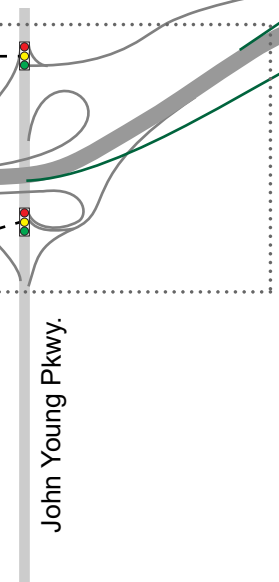
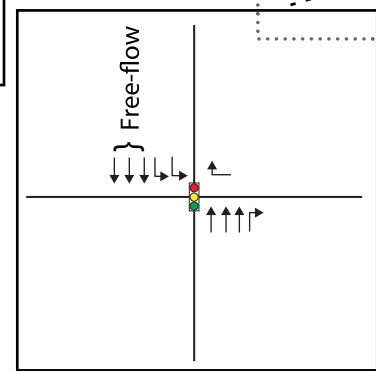
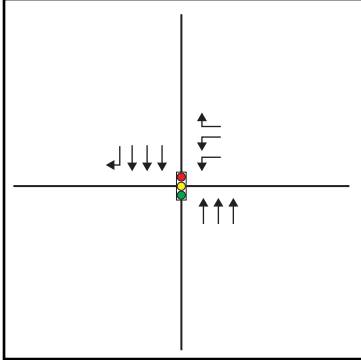
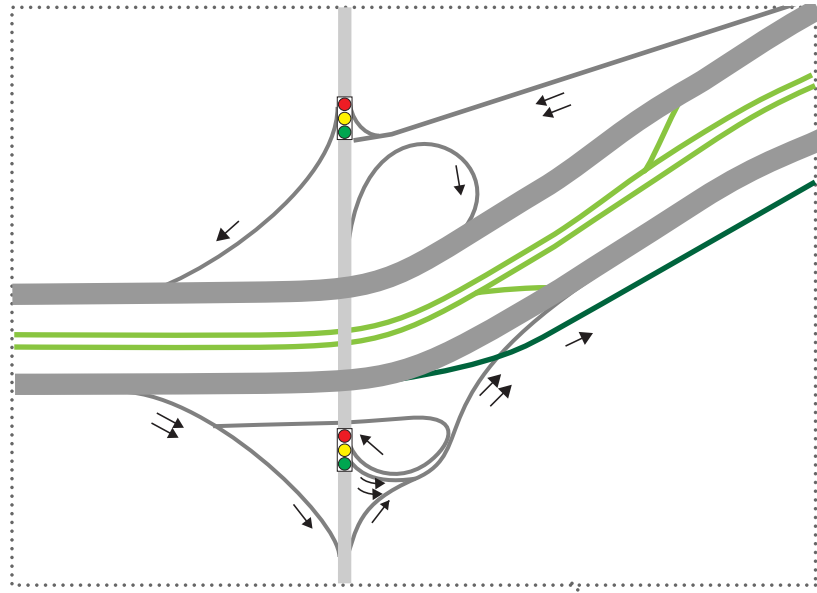
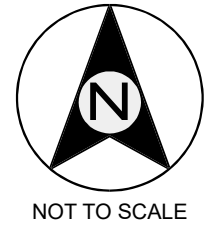
- Florida's Turnpike (GTLs)
- Interstate
- Other Toll Road (GTLs)
- Arterial
- Express Lanes
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection

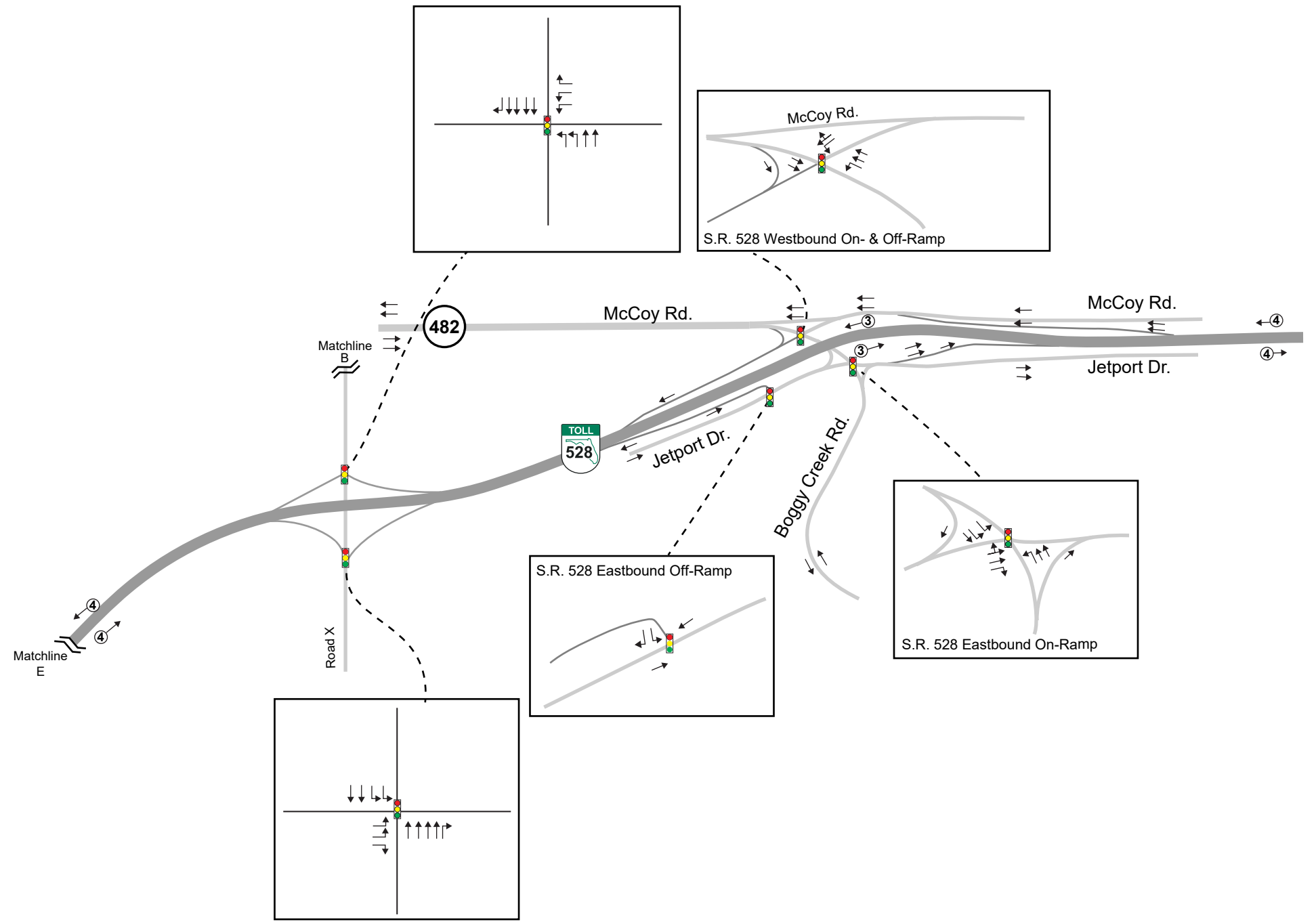
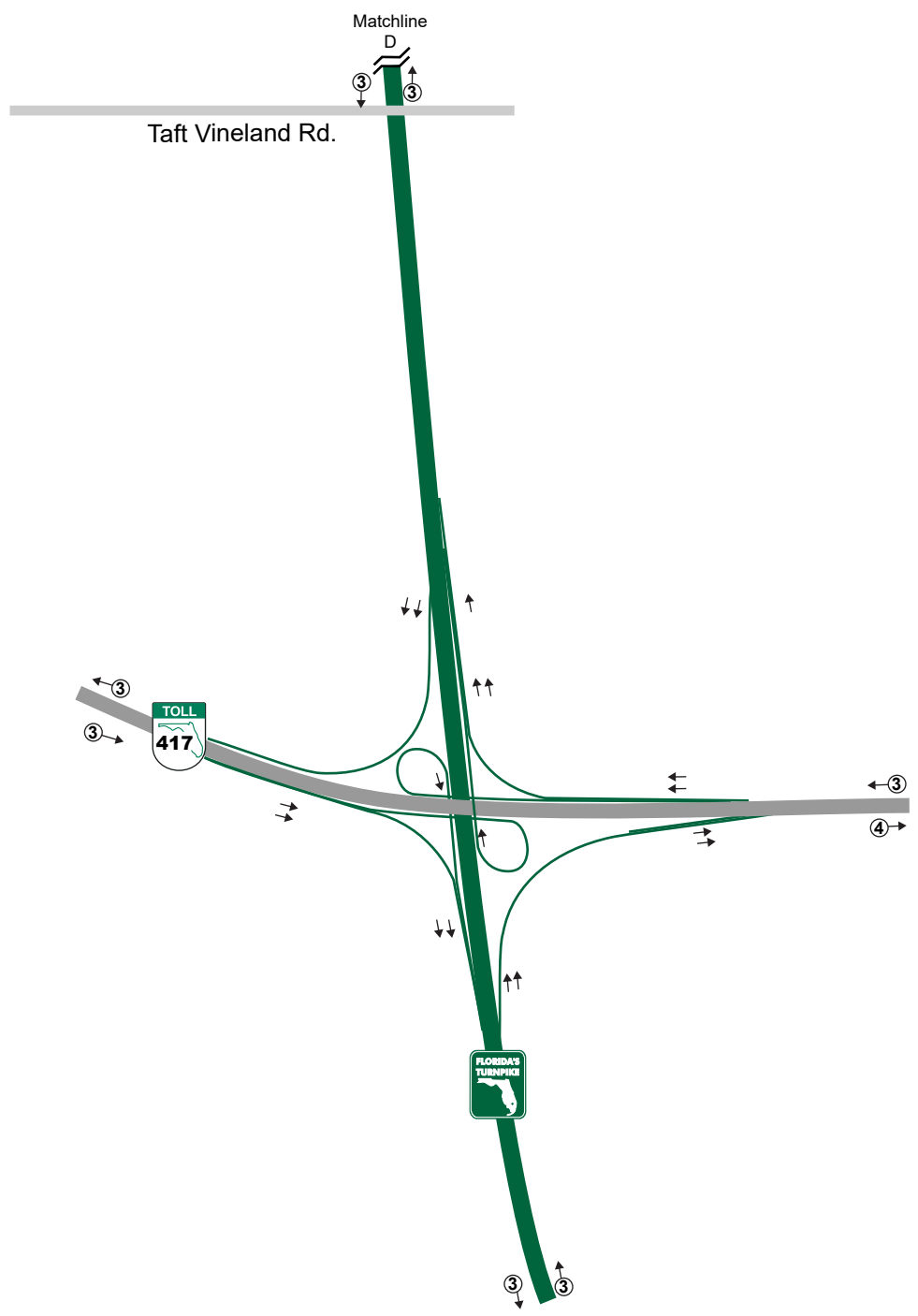




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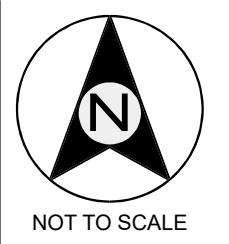
- Florida's Turnpike (GTLs)
- Interstate
- Other Toll Road(GTLs)
- Arterial
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection
- Express Lane

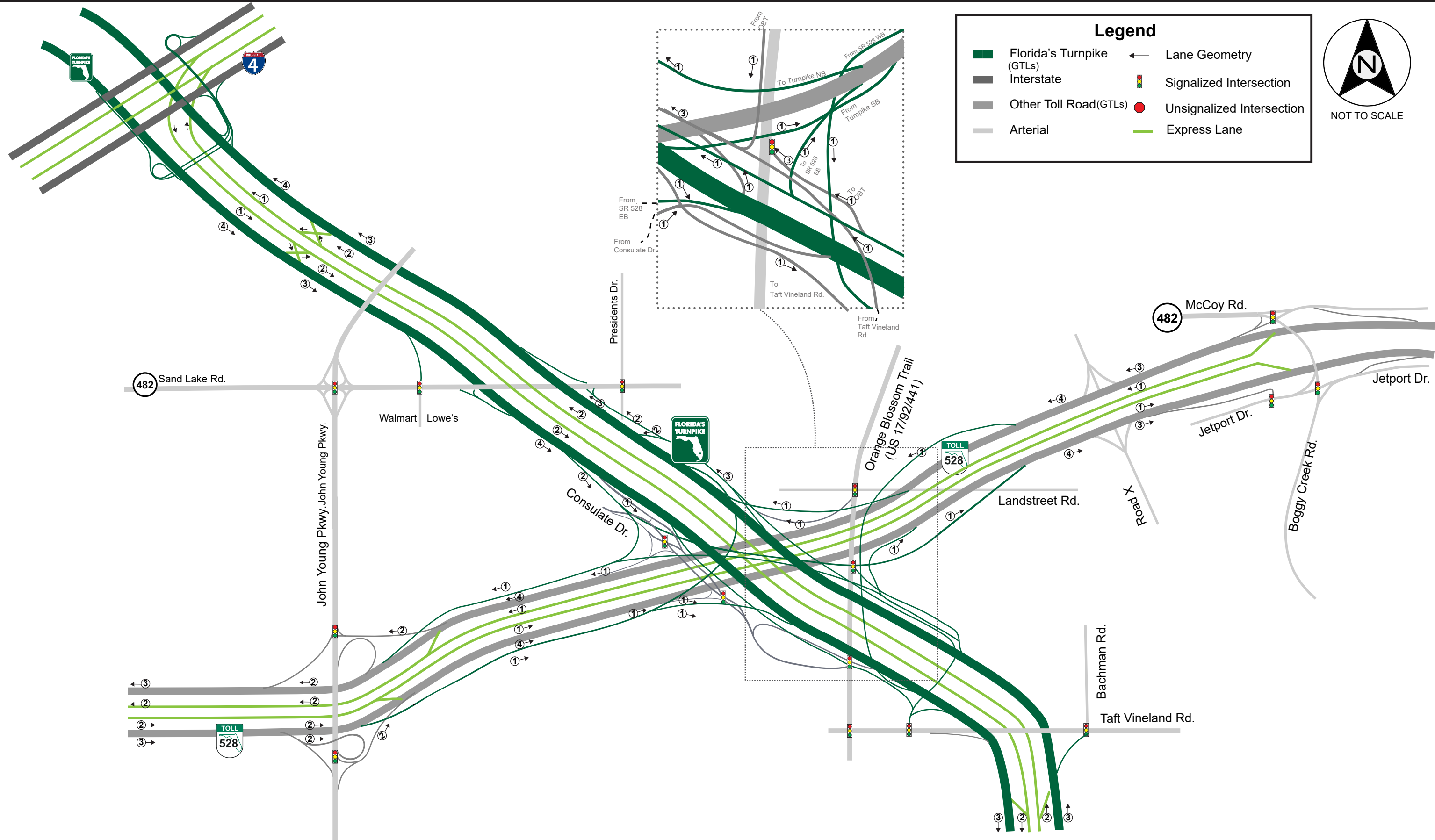




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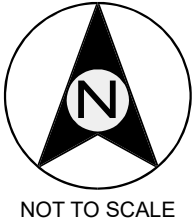
- Florida's Turnpike (GTLs)
- Interstate
- Other Toll Road(GTLs)
- Arterial
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection
- Express Lane





Legend

- Florida's Turnpike (GTLs)
- Interstate
- Other Toll Road(GTLs)
- Arterial
- Express Lane
- Lane Geometry
- Signalized Intersection
- Unsignalized Intersection
- Express Lane



6.2 FUTURE OPERATIONAL PERFORMANCE

This section provides a summary of traffic performance results for future conditions. Detailed output reports and analysis files are provided in **Appendix G**.

6.2.1 Freeway Segment Analysis

The future traffic volumes were evaluated in each direction for freeway segments: basic, weave, and merge/diverge influence areas. Weaving volumes were calculated utilizing the proportion of traffic from the off ramp and freeway. Exiting traffic volume was calculated by applying the ratio to the entrance ramp volume and freeway volume. HCS analysis results for Florida's Turnpike and SR 528 freeway segments for opening year 2025 are summarized in **Tables 6.1** and **6.2** for No-Build and Build alternatives, respectively. Most of the Florida's Turnpike freeway segments within the study area are expected to operate at LOS D or better under No-Build and Build. No capacity constraints were identified along SR 528 under both the 2025 No-Build and Build conditions

The interim year (2035) HCS output for the GTLs are summarized in **Table 6.3** for the Build alternative only. The analysis was performed by adjusting the speed and capacity adjustment factor to 1.0 (applied to design year 2045 HCS Build files). The adjustment factor was calculated based on a global factor of 88.7 percent estimated using 2045 and 2025 VISSIM input total volumes to reduce 2045 volumes to interim year 2035. The Florida's Turnpike and SR 528 freeway segments within the project limits are expected to operate at LOS D or better.

The design year (2045) HCS output for the GTLs only is summarized in **Tables 6.4** and **6.5** for the No-Build and Build alternatives, respectively. Most of the freeway segments along Florida's Turnpike are expected to operate over capacity under No-Build, which indicates that the mainline needs 10 lanes. Most of the freeway segments along SR 528 are expected to operate at LOS D or better. Under Build conditions, performance along Florida's Turnpike south of the Taft Vineland Road to south of Sand Lake Road (SR 482) and from west of CR 423 to the Beachline West Toll Plaza on SR 528 improved compared to No-Build conditions. Following are the key points for traffic operation improvements under Build compared to No-Build:

- Direct GTLs system-to system connections that will improve system and surface street operations
- Northbound C-D road that will improve Florida's Turnpike northbound mainline congestion and reduce turbulence experienced in the No-Build conditions
- Two new reliever interchanges at Taft Vineland Road at Florida's Turnpike and Voltaire Drive Extension at SR 528 are projected to accommodate future traffic demand
- Ramp braiding along the Florida's Turnpike between the new reliever interchange at Florida's Turnpike/Taft Vineland Road interchange and the SR 528 direct connect ramps to preclude adverse weaving
- Ramp braiding along SR 528 between CR 423 and Consulate Drive to preclude adverse weaving
- Additional auxiliary lanes between interchanges southbound Florida's Turnpike between the exit to the SR 528 and the entry from SR 482 will improve traffic operations

- Additional auxiliary lanes on eastbound and westbound along SR 528 between Florida’s Turnpike and the new reliever interchange at Voltaire Drive Extension will improve traffic operations

However, congestions are expected at I-4 and Florida’s Turnpike interchange under design year (2045) both No-Build and Build conditions. FTE is initiating a PD&E study in the near future to evaluate winding of the Turnpike mainline and reconfiguration of the I-4 interchange.

As stated in the MLOU Section 2.0 “A year of failure analysis shall be performed for Preferred Alternative, in case a failing LOS is obtained in Design Year.” The interim year 2035 analysis showed that under Build conditions, performance along Florida’s Turnpike south of the Taft Vineland Road to south of Sand Lake Road (SR 482) and from west of CR 423 to the Beachline West Toll Plaza on SR 528 anticipated to operate at an acceptable LOS D or better.

Table 6.1
2025 Peak Hour HCS No-Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
Florida’s Turnpike – Southbound						
Upstream of I-4 off-ramp	Basic	4	6,730	4,250	D/32	B/17
*Upstream of I-4 off-ramp	Diverge	4	6,730	4,250	C/21	A/9
I-4 off-ramp to on-ramp	Basic	3	4,870	3,160	D/30	B/17
*I-4 on-ramp to SR 482/I-4 Ingress/Egress	Merge	3	5,870	5,130	F/29	D/29
I-4 on-ramp to SR 482/I-4 Ingress/Egress	Basic	3	5,870	5,130	E/45	D/33
SR 482/I-4 Ingress/Egress	Weaving	4	5,980	5,190	D/33	C/27
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Basic	3	4,930	4,530	D/31	D/27
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Diverge	3	4,930	4,530	B/19	B/16
SR 482 off-ramp to on-ramp	Basic	3	3,750	3,580	C/21	C/20
SR 482 on-ramp to Consulate Drive off-ramp	Weaving	3	4,200	4,250	D/31	D/30
Consulate Drive off-ramp to Orlando South off-ramp	Basic	3	2,840	3,620	B/15	C/20
*Consulate Drive off-ramp to Orlando South off-ramp	Diverge	3	2,840	3,620	B/10	B/12
Orlando South off-ramp to on-ramp	Basic	3	1,500	2,720	A/8	B/15
*Orlando South on-ramp to SR 417 off-ramp/EL Ingress	Merge	3	2,540	4,250	B/13	C/24
Orlando South on-ramp to SR 417 off-ramp/EL Ingress	Basic	3	2,540	4,250	B/14	C/25
Orlando South on-ramp to SR 417 off-ramp/EL Ingress	Diverge	2	2,200	2,990	B/12	B/20
SR 417 off-ramp to on-ramp	Basic	2	1,210	1,630	A/10	B/13
*Downstream of SR 417 on-ramp	Merge	2	2,060	2,930	B/14	C/21
Downstream of SR 417 on-ramp	Basic	2	2,060	2,930	B/17	C/26

LOS E LOS F Density –passenger cars/mile/lane
*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.1 (continued)
2025 Peak Hour HCS No-Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
Turnpike – Northbound						
Upstream of SR 417 off-ramp	Basic	2	2,930	2,060	C/26	B/17
*Upstream of SR 417 off-ramp	Diverge	2	2,930	2,060	B/19	B/11
SR 417 off-ramp to on-ramp	Basic	2	1,630	1,210	B/13	A/10
SR 417 on-ramp to EL Egress	Merge	2	2,990	2,200	C/25	B/18
SR 417 on-ramp to EL Egress	Basic	2	2,990	2,200	D/27	C/18
EL Egress to Orlando South off-ramp	Basic	3	4,250	2,540	C/25	B/14
EL Egress to Orlando South off-ramp	Diverge	3	4,250	2,540	C/22	B/11
Orlando South off-ramp to on-ramp	Basic	3	2,720	1,500	B/15	A/8
*Orlando South on-ramp to SR 482 off-ramp	Merge	3	4,250	4,200	C/23	C/26
Orlando South on-ramp to SR 482 off-ramp	Basic	3	4,250	4,200	C/25	C/24
Orlando South on-ramp/SR 482 off-ramp	Diverge	3	4,250	4,200	D/31	D/30
SR 482 off-ramp to on-ramp	Basic	3	3,580	3,750	C/20	C/21
SR 482 on-ramp to SR 482/I-4 EL Ingress/Egress	Merge	3	4,530	4,930	C/24	C/27
SR 482 on-ramp to SR 482/I-4 EL Ingress/Egress	Basic	3	4,530	4,930	D/27	D/31
SR 482/I-4 EL Ingress/Egress	Weave	4	5,190	5,980	C/27	D/34
SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Basic	3	5,130	5,870	D/33	E/45
*SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Diverge	3	5,130	5,870	C/24	F/25
I-4 off-ramp to on-ramp	Basic	3	3,160	4,870	B/17	D/30
*Downstream of I-4 on-ramp	Merge	3	4,250	6,730	C/21	F/36
Downstream of I-4 on-ramp	Basic	4	4,250	6,730	B/17	D/32
SR 528 – Westbound						
Upstream of McCoy Road off-ramp	Diverge	4	5,790	3,920	B/13	A/6
McCoy Road off-ramp to EL Ingress	Basic	4	4,690	3,230	C/20	B/14
McCoy Road EL Ingress to on-ramp	Basic	3	3,690	2,590	C/21	B/15
McCoy Road on-ramp to Turnpike off-ramp	Merge	3	4,150	3,090	C/24	B/18
McCoy Road on-ramp to Turnpike off-ramp	Basic	3	4,150	3,090	C/24	B/17
McCoy Road on-ramp to Turnpike off-ramp	Diverge	3	4,150	3,090	B/17	B/12
Turnpike off-ramp to Consulate Drive on-ramp	Basic	3	2,420	1,510	B/14	A/9
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Weaving	4	3,530	2,570	B/19	B/13

LOS E

LOS F

Density –passenger cars/mile/lane

*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.1 (continued)
2025 Peak Hour HCS No-Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density		
			AM	PM	AM	PM	
SR 528 – Westbound							
CR 423 off-ramp/EL Ingress to CR 423 on-ramp (loop)	Basic	2	1,860	1,290	B/16	A/11	
CR 423 on-ramp (loop) to CR 423 on-ramp (diagonal)	Merge	2	3,130	2,200	C/24	B/16	
*Downstream of CR 423 on-ramp (diagonal)	Merge	2	3,510	2,880	C/26	C/20	
Downstream of CR 423 on-ramp (diagonal)	Basic	3	3,510	2,880	C/20	B/16	
SR 528 – Eastbound							
Upstream of CR 423 off-ramp	Basic	3	2,880	3,510	B/16	C/20	
*Upstream of CR 423 off-ramp	Diverge	3	2,880	3,510	B/11	B/14	
CR 423 off-ramp to CR 423 on-ramp/EL Egress	Basic	2	1,630	2,200	B/14	C/19	
CR 423 on-ramp/EL Egress to Consulate Drive off-ramp	Weaving	4	2,570	3,530	B/13	B/19	
Consulate Drive off-ramp to Turnpike on-ramp	Basic	3	1,510	2,420	A/9	B/14	
*Turnpike on-ramp to Jetport Drive off-ramp	Merge	3	3,090	4,150	B/17	C/23	
Turnpike on-ramp to Jetport Drive off-ramp	Basic	3	3,090	4,150	B/17	C/24	
Turnpike on-ramp to Jetport Drive off-ramp	Diverge	3	3,090	4,150	C/24	D/30	
Jetport Dr. off-ramp to Jetport Drive on-ramp/EL Egress	Basic	3	2,590	3,690	B/15	C/21	
*Downstream of Jetport Drive on-ramp/EL Egress	Merge	3	3,920	5,790	C/23	D/33	
Downstream of Jetport Drive on-ramp	Basic	4	3,920	5,790	B/17	C/25	

LOS E LOS F Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane > 1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.2
2025 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density		
			AM	PM	AM	PM	
Turnpike – Southbound							
Upstream of I-4 off-ramp	Basic	4	6,730	4,250	D/32	B/17	
*Upstream of I-4 off-ramp	Diverge	4	6,730	4,250	C/21	A/9	
I-4 off-ramp to on-ramp	Basic	3	4,870	3,160	D/30	B/17	
*I-4 on-ramp to SR 482/I-4 Ingress/Egress	Merge	3	5,870	5,130	F/29	D/29	
I-4 on-ramp to SR 482/I-4 Ingress/Egress	Basic	4	5,870	5,130	C/26	C/22	
SR 482/I-4 Ingress/Egress	Weaving	5	5,930	5,160	C/23	B/19	
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Basic	3	4,930	4,530	D/31	D/27	

LOS E LOS F Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane > 1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.2 (continued)
2025 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density		
			AM	PM	AM	PM	
Turnpike – Southbound							
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Diverge	3	4,930	4,530	B/18	B/16	
SR 482 off-ramp to on-ramp	Basic	3	4,170	4,130	C/24	C/24	
SR 482 on-ramp to SR 528 East/Westbound off-ramp	Weaving	4	4,570	4,680	C/21	C/22	
SR 528 East/Westbound off-ramp to Consulate Drive off-ramp	Diverge	3	3,410	3,670	C/24	C/24	
Consulate Drive off-ramp to Taft Vineland off-ramp	Diverge	3	2,410	3,180	C/21	C/25	
Taft Vineland off-ramp to SR 528 Eastbound on-ramp	Basic	3	1,660	2,650	A/9	B/14	
Taft Vineland off-ramp to SR 528 Eastbound on-ramp	Merge	3	1,770	2,930	B/10	B/17	
SR 528 Eastbound on-ramp to Consulate Drive on-ramp	Merge	3	1,920	3,450	B/12	C/21	
Consulate Drive on-ramp to SR 528 Westbound on-ramp	Basic	3	1,920	3,450	A/10	C/19	
Consulate Drive on-ramp to SR 528 Westbound on-ramp	Merge	3	2,320	3,810	B/14	C/22	
*SR 528 Westbound on-ramp to Taft Vineland Westbound on-ramp	Merge	3	2,400	4,040	A/10	B/19	
Taft Vineland Westbound on-ramp to Taft Vineland Eastbound on-ramp	Merge	3	2,540	4,250	B/15	C/24	
Taft Vineland Eastbound on-ramp to SR 417 off-ramp/EL Ingress	Basic	3	2,250	3,320	B/12	C/18	
Taft Vineland Eastbound on-ramp to SR 417 off-ramp/EL Ingress	Diverge	3	2,250	3,320	A/6	B/13	
SR 417 off-ramp to on-ramp	Basic	3	1,260	1,960	A/7	A/11	
*Downstream of SR 417 on-ramp	Merge	3	2,110	3,260	A/10	B/17	
Downstream of SR 417 on-ramp	Basic	3	2,110	3,260	B/12	B/18	
Turnpike – Northbound							
Upstream of SR 417 off-ramp	Basic	3	3,260	2,110	B/18	B/12	
*Upstream of SR 417 off-ramp	Diverge	3	3,260	2,110	B/12	A/5	
SR 417 off-ramp to on-ramp	Basic	3	1,960	1,260	A/11	A/7	
SR 417 on-ramp to EL Egress	Merge	3	3,320	2,250	C/21	B/14	
EL Egress to Taft Vineland off-ramp	Basic	3	4,250	2,540	C/25	B/14	
EL Egress to Taft Vineland off-ramp	Diverge	3	4,250	2,540	B/18	A/8	
Taft Vineland off-ramp to SR 528/US 17/92/441 off-ramp	Diverge	3	3,810	2,320	C/21	B/12	
SR 528/US 17/92/441 off-ramp to CD-Road off-ramp	Basic	3	2,650	1,660	B/14	A/9	
*SR 528/US 17/92/441 off-ramp to CD-Road off-ramp	Diverge	3	2,650	1,660	A/10	A/3	
CD-Road off-ramp to SR 528 Westbound on-ramp	Basic	2	2,100	1,260	B/17	A/10	
*CD-Road off-ramp to SR 528 Westbound on-ramp	Merge	2	2,850	2,200	C/21	B/16	

LOS E
 LOS F
 Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.2 (continued)
2025 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density		
			AM	PM	AM	PM	
Turnpike – Northbound							
SR 528 Westbound on-ramp to SR 528 Eastbound on-ramp	Merge	3	3,130	2,540	B/15	B/12	
*SR 528 Eastbound on-ramp to C-D Road on-ramp	Merge	3	4,130	4,170	C/20	C/23	
C-D Road on-ramp to SR 482 on-ramp	Basic	3	4,130	4,170	C/24	C/24	
C-D Road on-ramp to SR 482 on-ramp	Merge	3	4,530	4,930	C/22	C/25	
SR 482 on-ramp to SR 482/I-4 EL Ingress/Egress	Basic	3	4,530	4,930	D/27	D/31	
SR 482/I-4 EL Ingress/Egress	Weaving	5	4,500	4,870	B/19	C/23	
SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Basic	3	5,130	5,870	D/33	E/45	
*SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Diverge	3	5,130	5,870	C/24	F/25	
I-4 off-ramp to on-ramp	Basic	3	3,160	4,870	B/17	D/30	
*Downstream of I-4 on-ramp	Merge	3	4,250	6,730	C/21	F/36	
Downstream of I-4 on-ramp	Basic	4	4,250	6,730	B/17	D/32	
Turnpike – Northbound CD Road							
US 17/92/441 on-ramp to SR 482 off-ramp	Weaving	2	530	750	A/11	B/19	
Florida's Turnpike on-ramp to SR 482 off-ramp	Weaving	3	1,550	2,030	A/11	B/15	
SR 528 – Westbound							
Upstream of McCoy Road off-ramp	Diverge	4	5,790	3,920	B/13	A/6	
McCoy Road off-ramp to EL Ingress	Basic	4	4,790	3,370	C/20	B/14	
McCoy Road EL Ingress to on-ramp	Basic	3	3,820	2,420	C/22	B/14	
McCoy Road on-ramp to Voltaire Drive off-ramp	Merge	3	4,310	2,870	C/25	B/17	
McCoy Road on-ramp to Voltaire Drive off-ramp	Basic	3	4,310	2,870	C/25	B/16	
McCoy Road on-ramp to Voltaire Drive off-ramp	Diverge	3	4,310	2,870	D/31	C/23	
Voltaire Drive off-ramp to on-ramp	Basic	3	3,580	2,350	C/20	B/13	
Voltaire Drive on-ramp to Turnpike Southbound off-ramp	Weaving	4	3,870	2,740	B/19	B/13	
*Turnpike Southbound off-ramp to Turnpike Northbound off-ramp	Diverge	3	3,470	2,380	B/14	A/8	
Turnpike Northbound off-ramp to Consulate Drive on-ramp	Basic	3	2,720	1,440	B/15	A/8	
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Weaving	4	3,230	2,220	B/15	B/10	
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Basic	2	1,280	710	A/11	A/6	

LOS E
LOS F
 Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.2 (continued)
2025 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
SR 528 – Westbound						
CR 423 off-ramp/EL Ingress to Turnpike Northbound and Southbound on-ramp	Merge	2	2,000	1,100	B/19	B/11
Turnpike Northbound and Southbound on-ramp to CR 423 on-ramp (loop)	Merge	2	2,990	1,820	C/28	B/18
*Downstream of CR 423 on-ramp (diagonal)	Merge	2	3,510	2,560	C/26	B/18
Downstream of CR 423 on-ramp (diagonal)	Basic	3	3,510	2,560	C/20	B/14
SR 528 – Eastbound						
Upstream of CR 423 off-ramp	Basic	3	2,880	3,300	B/16	C/19
*Upstream of CR 423 off-ramp	Diverge	3	2,880	3,300	B/11	B/13
CR 423 off-ramp to Turnpike Northbound and Southbound off-ramp	Diverge	2	1,420	1,790	B/17	C/20
Turnpike Northbound and Southbound off-ramp to CR 423 on-ramp/EL Egress	Basic	2	1,380	1,540	B/12	B/13
CR 423 on-ramp/EL Egress to Consulate Drive off-ramp	Weaving	4	2,540	3,120	B/13	B/17
Consulate Drive off-ramp to Turnpike Northbound on-ramp	Basic	3	1,760	2,510	A/10	B/14
Turnpike Northbound on-ramp to Southbound on-ramp	Merge	3	2,090	2,930	B/14	B/18
Turnpike Southbound on-ramp to Voltaire Drive off-ramp	Weaving	4	3,060	3,660	B/15	B/18
Voltaire Drive off-ramp to on-ramp	Basic	3	2,670	3,370	B/15	C/19
Voltaire Drive on-ramp Jetport Drive off-ramp	Merge	3	3,190	4,100	B/20	C/25
Voltaire Drive on-ramp Jetport Drive off-ramp	Basic	3	3,190	4,100	B/18	C/24
Voltaire Drive on-ramp Jetport Drive off-ramp	Diverge	3	3,190	4,100	C/24	D/29
Jetport Drive off-ramp to Jetport Drive on-ramp/EL Egress	Basic	3	2,740	3,610	B/15	C/20
*Downstream of Jetport Drive on-ramp/EL Egress	Merge	3	3,920	5,790	B/19	C/27
Downstream of Jetport Drive on-ramp	Basic	4	3,920	5,790	B/17	C/25

LOS E

LOS F

Density –passenger cars/mile/lane

*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.3
2035 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	LOS/Density	
			AM	PM
Turnpike – Southbound				
Upstream of I-4 off-ramp	Basic	4	F/>45	D/27
*Upstream of I-4 off-ramp	Diverge	4	F/31	B/18
I-4 off-ramp to on-ramp	Basic	3	E/43	D/28
*I-4 on-ramp to SR 482/I-4 Ingress/Egress	Merge	3	F/41	F/39
I-4 on-ramp to SR 482/I-4 Ingress/Egress	Basic	4	E/35	D/31
SR 482/I-4 Ingress/Egress	Weaving	5	D/28	C/26
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Basic	3	E/44	E/40
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Diverge	3	D/29	C/26
SR 482 off-ramp to on-ramp	Basic	3	D/28	D/33
SR 482 on-ramp to SR 528 East/Westbound off-ramp	Weaving	4	C/27	E/35
SR 528 East/Westbound off-ramp to Consulate Drive off-ramp	Diverge	3	D/29	D/33
Consulate Drive off-ramp to Taft Vineland off-ramp	Diverge	3	C/24	D/34
Taft Vineland off-ramp to SR 528 Eastbound on-ramp	Basic	3	A/9	C/22
Taft Vineland off-ramp to SR 528 Eastbound on-ramp	Merge	3	B/12	C/25
SR 528 Eastbound on-ramp to Consulate Drive on-ramp	Merge	3	B/13	D/30
Consulate Drive on-ramp to SR 528 Westbound on-ramp	Basic	3	A/11	D/29
Consulate Drive on-ramp to SR 528 Westbound on-ramp	Merge	3	B/16	D/31
*SR 528 Westbound on-ramp to Taft Vineland Westbound on-ramp	Merge	3	B/12	D/29
Taft Vineland Westbound on-ramp to Taft Vineland Eastbound on-ramp	Merge	3	B/17	D/35
Taft Vineland Eastbound on-ramp to SR 417 off-ramp/EL Ingress	Basic	3	B/13	C/24
Taft Vineland Eastbound on-ramp to SR 417 off-ramp/EL Ingress	Diverge	3	A/8	C/20
SR 417 off-ramp to on-ramp	Basic	3	A/7	B/14
*Downstream of SR 417 on-ramp	Merge	3	B/12	C/24
Downstream of SR 417 on-ramp	Basic	3	B/12	C/24
Turnpike – Northbound				
Upstream of SR 417 off-ramp	Basic	3	C/24	B/12
*Upstream of SR 417 off-ramp	Diverge	3	B/20	A/8
SR 417 off-ramp to on-ramp	Basic	3	B/14	A/7
SR 417 on-ramp to EL Egress	Merge	3	D/29	B/16
EL Egress to Taft Vineland off-ramp	Basic	3	E/43	B/15
EL Egress to Taft Vineland off-ramp	Diverge	3	D/28	B/11

LOS E LOS F Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.3 (continued)
2035 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	LOS/Density	
			AM	PM
Turnpike – Northbound				
Taft Vineland off-ramp to SR 528/US 17/92/441 off-ramp	Diverge	3	D/30	B/14
SR 528/US 17/92/441 off-ramp to CD-Road off-ramp	Basic	3	C/22	A/9
*SR 528/US 17/92/441 off-ramp to CD-Road off-ramp	Diverge	3	B/20	A/5
CD-Road off-ramp to SR 528 Westbound on-ramp	Basic	2	C/19	A/6
*CD-Road off-ramp to SR 528 Westbound on-ramp	Merge	2	C/28	B/17
SR 528 Westbound on-ramp to SR 528 Eastbound on-ramp	Merge	3	C/21	B/14
*SR 528 Eastbound on-ramp to C-D Road on-ramp	Merge	3	D/28	C/28
C-D Road on-ramp to SR 482 on-ramp	Basic	3	D/33	D/28
C-D Road on-ramp to SR 482 on-ramp	Merge	3	D/31	D/34
SR 482 on-ramp to SR 482/I-4 EL Ingress/Egress	Basic	3	E/40	E/44
SR 482/I-4 EL Ingress/Egress	Weaving	5	C/26	D/28
SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Basic	3	F/>45	F/>45
*SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Diverge	3	F/36	F/41
I-4 off-ramp to on-ramp	Basic	3	D/28	E/43
*Downstream of I-4 on-ramp	Merge	3	F/34	F/51
Downstream of I-4 on-ramp	Basic	4	D/27	F/>45
Turnpike – Northbound CD Road				
US 17/92/441 on-ramp to SR 482 off-ramp	Weaving	2	B/16	C/25
Florida's Turnpike on-ramp to SR 482 off-ramp	Weaving	3	C/27	C/25
SR 528 – Westbound				
Upstream of McCoy Road off-ramp	Diverge	4	B/18	A/10
McCoy Road off-ramp to EL Ingress	Basic	4	C/26	B/18
McCoy Road EL Ingress to on-ramp	Basic	3	D/27	C/19
McCoy Road on-ramp to Voltaire Drive off-ramp	Merge	3	D/33	C/25
McCoy Road on-ramp to Voltaire Drive off-ramp	Basic	3	D/35	C/23
McCoy Road on-ramp to Voltaire Drive off-ramp	Diverge	3	E/37	D/30
Voltaire Drive off-ramp to on-ramp	Basic	3	D/27	C/19
Voltaire Drive on-ramp to Turnpike Southbound off-ramp	Weaving	4	C/25	B/19
*Turnpike Southbound off-ramp to Turnpike Northbound off-ramp	Diverge	3	C/21	B/17
Turnpike Northbound off-ramp to Consulate Drive on-ramp	Basic	3	C/19	B/12
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Weaving	4	C/20	B/14

LOS E LOS F Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.3 (continued)
2035 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	LOS/Density	
			AM	PM
SR 528 – Westbound				
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Basic	2	B/15	B/12
CR 423 off-ramp/EL Ingress to Turnpike Northbound and Southbound on-ramp	Merge	2	C/27	B/20
Turnpike Northbound and Southbound on-ramp to CR 423 on-ramp (loop)	Merge	2	E/37	C/27
*Downstream of CR 423 on-ramp (diagonal)	Merge	2	F/36	C/27
Downstream of CR 423 on-ramp (diagonal)	Basic	3	C/25	C/19
SR 528 – Eastbound				
Upstream of CR 423 off-ramp	Basic	3	C/19	C/25
*Upstream of CR 423 off-ramp	Diverge	3	B/14	B/19
CR 423 off-ramp to Turnpike Northbound and Southbound off-ramp	Diverge	2	C/23	D/31
Turnpike Northbound and Southbound off-ramp to CR 423 on-ramp/EL Egress	Basic	2	B/15	C/20
CR 423 on-ramp/EL Egress to Consulate Drive off-ramp	Weaving	4	B/15	C/24
Consulate Drive off-ramp to Turnpike Northbound on-ramp	Basic	3	B/12	C/19
Turnpike Northbound on-ramp to Southbound on-ramp	Merge	3	B/17	C/24
Turnpike Southbound on-ramp to Voltaire Drive off-ramp	Weaving	4	B/20	C/26
Voltaire Drive off-ramp to on-ramp	Basic	3	C/19	D/27
Voltaire Drive on-ramp Jetport Drive off-ramp	Merge	3	C/26	D/34
Voltaire Drive on-ramp Jetport Drive off-ramp	Basic	3	C/23	D/35
Voltaire Drive on-ramp Jetport Drive off-ramp	Diverge	3	D/30	E/38
Jetport Drive off-ramp to Jetport Drive on-ramp/EL Egress	Basic	3	C/19	D/27
*Downstream of Jetport Drive on-ramp/EL Egress	Merge	3	D/28	F/41
Downstream of Jetport Drive on-ramp	Basic	4	C/20	D/32

LOS E LOS F

Density –passenger cars/mile/lane

*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.4
2045 Peak Hour HCS No-Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
Turnpike – Southbound						
Upstream of I-4 off-ramp	Basic	4	8,710	6,430	F/>45	D/30
*Upstream of I-4 off-ramp	Diverge	4	8,710	6,430	F/31	B/18
I-4 off-ramp to on-ramp	Basic	3	6,200	4,960	F/>45	D/31
*I-4 on-ramp to SR 482/I-4 Ingress/Egress	Merge	3	7,520	7,030	F/41	F/39
I-4 on-ramp to SR 482/I-4 Ingress/Egress	Basic	3	7,520	7,030	F/>45	F/>45
SR 482/I-4 Ingress/Egress	Weaving	4	7,670	7,150	F/>43	F/>43
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Basic	3	6,260	5,980	F/>45	F/>45
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Diverge	3	6,260	5,980	F/29	F/26
SR 482 off-ramp to on-ramp	Basic	3	4,200	4,950	C/24	D/31
SR 482 on-ramp to Consulate Drive off-ramp	Weaving	3	5,220	6,470	F/>43	F/>43
Consulate Drive off-ramp to Orlando South off-ramp	Basic	3	3,500	5,490	C/19	E/38
*Consulate Drive off-ramp to Orlando South off-ramp	Diverge	3	3,500	5,490	B/16	C/21
Orlando South off-ramp to on-ramp	Basic	3	1,740	4,420	A/9	D/26
*Orlando South on-ramp to SR 417 off-ramp/EL Ingress	Merge	3	2,970	6,210	B/16	F/35
Orlando South on-ramp to SR 417 off-ramp/EL Ingress	Basic	3	2,970	6,210	B/16	F/>45
Orlando South on-ramp to SR 417 off-ramp/EL Ingress	Diverge	2	2,510	4,360	B/15	F/33
SR 417 off-ramp to on-ramp	Basic	2	1,340	2,550	A/11	C/22
*Downstream of SR 417 on-ramp	Merge	2	2,460	4,290	B/17	F/33
Downstream of SR 417 on-ramp	Basic	2	2,460	4,290	C/21	F/>45
Turnpike – Northbound						
Upstream of SR 417 off-ramp	Basic	2	4,290	2,460	F/>45	C/21
*Upstream of SR 417 off-ramp	Diverge	2	4,290	2,460	F/33	B/15
SR 417 off-ramp to on-ramp	Basic	2	2,550	1,340	C/22	A/11
SR 417 on-ramp to EL Egress	Merge	2	4,360	2,510	F/37	C/21
SR 417 on-ramp to EL Egress	Basic	2	4,360	2,510	F/>45	C/21
EL Egress to Orlando South off-ramp	Basic	3	6,210	2,970	F/>45	B/16
EL Egress to Orlando South off-ramp	Diverge	3	6,210	2,970	F/31	B/14
Orlando South off-ramp to on-ramp	Basic	3	4,420	1,740	D/26	A/9
*Orlando South on-ramp to SR 482 off-ramp	Merge	3	6,470	5,220	F/36	F/34
Orlando South on-ramp to SR 482 off-ramp	Basic	3	6,470	5,220	F/>45	D/35
Orlando South on-ramp/SR 482 off-ramp	Diverge	3	6,470	5,220	F/43	E/36
SR 482 off-ramp to on-ramp	Basic	3	4,950	4,200	D/31	C/24

LOS E

LOS F

Density –passenger cars/mile/lane

*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.4 (continued)
2045 Peak Hour HCS No-Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density		
			AM	PM	AM	PM	
Turnpike – Northbound							
SR 482 on-ramp to SR 482/I-4 EL Ingress/Egress	Merge	3	5,980	6,260	F/32	F/36	
SR 482 on-ramp to SR 482/I-4 EL Ingress/Egress	Basic	3	5,980	6,260	F/>45	F/>45	
SR 482/I-4 EL Ingress/Egress	Weaving	4	7,150	7,670	F/>43	F/>43	
SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Basic	3	7,030	7,520	F/>45	F/>45	
*SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Diverge	3	7,030	7,520	F/36	F/41	
I-4 off-ramp to on-ramp	Basic	3	4,960	6,200	D/31	F/>45	
*Downstream of I-4 on-ramp	Merge	3	6,430	8,710	F/34	F/51	
Downstream of I-4 on-ramp	Basic	4	6,430	8,710	D/30	F/>45	
SR 528 – Westbound							
Upstream of McCoy Road off-ramp	Diverge	4	7,270	5,070	B/18	A/10	
McCoy Road off-ramp to EL Ingress	Basic	4	6,110	4,350	D/27	C/18	
McCoy Road EL Ingress to on-ramp	Basic	3	4,780	3,500	D/29	C/20	
McCoy Road on-ramp to Turnpike off-ramp	Merge	3	5,540	4,120	D/32	C/24	
McCoy Road on-ramp to Turnpike off-ramp	Basic	3	5,540	4,120	E/38	C/24	
McCoy Road on-ramp to Turnpike off-ramp	Diverge	3	5,540	4,120	C/25	B/18	
Turnpike off-ramp to Consulate Drive on-ramp	Basic	3	3,430	2,160	C/19	B/12	
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Weaving	4	4,980	3,430	F/>43	B/18	
CR 423 off-ramp/EL Ingress to CR 423 on-ramp (loop)	Basic	2	2,630	1,840	C/22	B/16	
CR 423 on-ramp (loop) to CR 423 on-ramp (diagonal)	Merge	2	4,110	2,830	F/32	C/22	
*Downstream of CR 423 on-ramp (diagonal)	Merge	2	4,660	3,640	F/36	C/27	
Downstream of CR 423 on-ramp (diagonal)	Basic	3	4,660	3,640	D/28	C/21	
SR 528 – Eastbound							
Upstream of CR 423 off-ramp	Basic	3	3,640	4,660	C/21	D/28	
*Upstream of CR 423 off-ramp	Diverge	3	3,640	4,660	B/16	C/21	
CR 423 off-ramp to CR 423 on-ramp/EL Egress	Basic	2	2,290	3,090	C/19	D/28	
CR 423 on-ramp/EL Egress to Consulate Drive off-ramp	Weaving	4	3,430	4,980	B/18	F/>43	
Consulate Drive off-ramp to Turnpike on-ramp	Basic	3	2,160	3,430	B/12	C/19	
*Turnpike on-ramp to Jetport Drive off-ramp	Merge	3	4,120	5,540	F/23	F/31	
Turnpike on-ramp to Jetport Drive off-ramp	Basic	3	4,120	5,540	C/24	E/38	
Turnpike on-ramp to Jetport Drive off-ramp	Diverge	3	4,120	5,540	D/30	E/37	
Jetport Drive off-ramp to Jetport Drive on-ramp/EL Egress	Basic	3	3,500	4,780	C/20	D/29	
*Downstream of Jetport Drive on-ramp/EL Egress	Merge	3	5,070	7,270	D/29	F/41	
Downstream of Jetport Drive on-ramp	Basic	4	5,070	7,270	C/22	E/36	

LOS E
LOS F
 Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.5
2045 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
Turnpike – Southbound						
Upstream of I-4 off-ramp	Basic	4	8,710	6,430	F/>45	D/30
*Upstream of I-4 off-ramp	Diverge	4	8,710	6,430	F/31	B/18
I-4 off-ramp to on-ramp	Basic	3	6,200	4,960	F/>45	D/31
*I-4 on-ramp to SR 482/I-4 Ingress/Egress	Merge	3	7,520	7,030	F/41	F/39
I-4 on-ramp to SR 482/I-4 Ingress/Egress	Basic	4	7,520	7,030	E/41	E/35
SR 482/I-4 Ingress/Egress	Weaving	5	7,590	7,070	D/30	C/28
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Basic	3	6,260	5,980	F/>45	F/>45
SR 482/I-4 Ingress/Egress to SR 482 off-ramp	Diverge	3	6,260	5,980	F/29	F/26
SR 482 off-ramp to on-ramp	Basic	3	4,900	5,420	D/31	E/37
SR 482 on-ramp to SR 528 East/Westbound off-ramp	Weaving	4	5,830	7,040	D/29	E/38
SR 528 East/Westbound off-ramp to Consulate Drive off-ramp	Diverge	3	4,000	5,460	D/29	D/33
Consulate Drive off-ramp to Taft Vineland off-ramp	Diverge	3	2,820	4,910	C/24	D/34
Taft Vineland off-ramp to SR 528 Eastbound on-ramp	Basic	3	1,770	4,080	A/10	C/23
Taft Vineland off-ramp to SR 528 Eastbound on-ramp	Merge	3	1,990	4,450	B/12	C/25
SR 528 Eastbound on-ramp to Consulate Drive on-ramp	Merge	3	2,150	5,070	B/13	D/30
Consulate Drive on-ramp to SR 528 Westbound on-ramp	Basic	3	2,150	5,070	B/12	D/33
Consulate Drive on-ramp to SR 528 Westbound on-ramp	Merge	3	2,590	5,500	B/16	D/32
*SR 528 Westbound on-ramp to Taft Vineland Westbound on-ramp	Merge	3	2,750	5,830	B/12	F/29
Taft Vineland Westbound on-ramp to Taft Vineland Eastbound on-ramp	Merge	3	2,970	6,210	B/17	F/35
Taft Vineland Eastbound on-ramp to SR 417 off-ramp/EL Ingress	Basic	3	2,490	4,480	B/14	D/27
Taft Vineland Eastbound on-ramp to SR 417 off-ramp/EL Ingress	Diverge	3	2,490	4,480	A/8	C/20
SR 417 off-ramp to on-ramp	Basic	3	1,320	2,670	A/7	B/15
*Downstream of SR 417 on-ramp	Merge	3	2,440	4,410	B/12	C/24
Downstream of SR 417 on-ramp	Basic	3	2,440	4,410	B/13	C/26
Turnpike – Northbound						
Upstream of SR 417 off-ramp	Basic	3	4,410	2,440	C/26	B/13
*Upstream of SR 417 off-ramp	Diverge	3	4,410	2,440	B/20	A/8
SR 417 off-ramp to on-ramp	Basic	3	2,670	1,320	B/15	A/7
SR 417 on-ramp to EL Egress	Merge	3	4,480	2,490	F/29	B/16
EL Egress to Taft Vineland off-ramp	Basic	3	6,210	2,970	F/>45	B/16
EL Egress to Taft Vineland off-ramp	Diverge	3	6,210	2,970	F/28	B/11

LOS E

LOS F

Density –passenger cars/mile/lane

*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.5 (continued)
2045 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density		
			AM	PM	AM	PM	
Turnpike – Northbound							
Taft Vineland off-ramp to SR 528/US 17/92/441 off-ramp	Diverge	3	5,500	2,590	D/30	B/14	
SR 528/US 17/92/441 off-ramp to CD-Road off-ramp	Basic	3	4,080	1,770	C/23	A/10	
*SR 528/US 17/92/441 off-ramp to CD-Road off-ramp	Diverge	3	4,080	1,770	B/20	A/5	
CD-Road off-ramp to SR 528 Westbound on-ramp	Basic	2	2,460	840	C/21	A/7	
*CD-Road off-ramp to SR 528 Westbound on-ramp	Merge	2	3,600	2,250	C/28	B/17	
SR 528 Westbound on-ramp to SR 528 Eastbound on-ramp	Merge	3	4,040	2,810	C/21	B/14	
*SR 528 Eastbound on-ramp to C-D Road on-ramp	Merge	3	5,420	4,900	D/28	C/28	
C-D Road on-ramp to SR 482 on-ramp	Basic	3	5,420	4,900	E/37	D/31	
C-D Road on-ramp to SR 482 on-ramp	Merge	3	5,980	6,260	F/31	F/34	
SR 482 on-ramp to SR 482/I-4 EL Ingress/Egress	Basic	3	5,980	6,260	F/>45	F/>45	
SR 482/I-4 EL Ingress/Egress	Weaving	5	5,940	6,190	C/28	D/30	
SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Basic	3	7,030	7,520	F/>45	F/>45	
*SR 482/I-4 EL Ingress/Egress to I-4 off-ramp	Diverge	3	7,030	7,520	F/36	F/41	
I-4 off-ramp to on-ramp	Basic	3	4,960	6,200	D/31	F/>45	
*Downstream of I-4 on-ramp	Merge	3	6,430	8,710	F/34	F/51	
Downstream of I-4 on-ramp	Basic	4	6,430	8,710	D/30	F/>45	
Turnpike – Northbound CD Road							
US 17/92/441 on-ramp to SR 482 off-ramp	Weaving	2	830	1,050	B/16	C/25	
Florida's Turnpike on-ramp to SR 482 off-ramp	Weaving	3	3,000	3,020	C/29	C/25	
SR 528 – Westbound							
Upstream of McCoy Road off-ramp	Diverge	4	7,270	5,070	B/18	A/10	
McCoy Road off-ramp to EL Ingress	Basic	4	6,240	4,470	D/28	C/19	
McCoy Road EL Ingress to on-ramp	Basic	3	4,940	3,630	D/31	C/20	
McCoy Road on-ramp to Voltaire Drive off-ramp	Merge	3	5,790	4,290	D/33	C/25	
McCoy Road on-ramp to Voltaire Drive off-ramp	Basic	3	5,790	4,290	E/41	C/25	
McCoy Road on-ramp to Voltaire Drive off-ramp	Diverge	3	5,790	4,290	E/37	D/30	
Voltaire Drive off-ramp to on-ramp	Basic	3	4,910	3,660	D/30	C/21	
Voltaire Drive on-ramp to Turnpike Southbound off-ramp	Weaving	4	5,210	4,090	C/27	C/21	
*Turnpike Southbound off-ramp to Turnpike Northbound off-ramp	Diverge	3	4,770	3,660	C/21	B/17	
Turnpike Northbound off-ramp to Consulate Drive on-ramp	Basic	3	3,630	2,250	C/20	B/13	
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Weaving	4	4,460	3,200	C/22	B/16	
Consulate Drive on-ramp to CR 423 off-ramp/EL Ingress	Basic	2	1,930	1,520	B/16	B/13	

LOS E

LOS F

Density –passenger cars/mile/lane

*Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

Table 6.5 (continued)
2045 Peak Hour HCS Build Freeway Segment Level of Service/Density for GTL

Segment	Segment Type	Lanes	Volume (vph)		LOS/Density	
			AM	PM	AM	PM
SR 528 – Westbound						
CR 423 off-ramp/EL Ingress to Turnpike Northbound and Southbound on-ramp	Merge	2	2,940	2,100	C/27	B/20
Turnpike Northbound and Southbound on-ramp to CR 423 on-ramp (loop)	Merge	2	4,070	2,880	F/37	C/27
*Downstream of CR 423 on-ramp (diagonal)	Merge	2	4,660	3,640	F/36	C/27
Downstream of CR 423 on-ramp (diagonal)	Basic	3	4,660	3,640	D/28	C/21
SR 528 – Eastbound						
Upstream of CR 423 off-ramp	Basic	3	3,640	4,660	C/21	D/28
*Upstream of CR 423 off-ramp	Diverge	3	3,640	4,660	B/14	B/19
CR 423 off-ramp to Turnpike Northbound and Southbound off-ramp	Diverge	2	2,100	2,940	C/23	D/31
Turnpike Northbound and Southbound off-ramp to CR 423 on-ramp/EL Egress	Basic	2	1,900	2,500	B/16	C/21
CR 423 on-ramp/EL Egress to Consulate Drive off-ramp	Weaving	4	3,120	4,540	B/16	F/>43
Consulate Drive off-ramp to Turnpike Northbound on-ramp	Basic	3	2,250	3,630	B/13	C/20
Turnpike Northbound on-ramp to Southbound on-ramp	Merge	3	2,680	4,080	B/17	C/24
Turnpike Southbound on-ramp to Voltaire Drive off-ramp	Weaving	4	4,090	5,210	C/22	C/28
Voltaire Drive off-ramp to on-ramp	Basic	3	3,660	4,910	C/21	D/30
Voltaire Drive on-ramp Jetport Drive off-ramp	Merge	3	4,290	5,790	C/26	D/34
Voltaire Drive on-ramp Jetport Drive off-ramp	Basic	3	4,290	5,790	C/25	E/41
Voltaire Drive on-ramp Jetport Drive off-ramp	Diverge	3	4,290	5,790	D/30	E/38
Jetport Drive off-ramp to Jetport Drive on-ramp/EL Egress	Basic	3	3,630	4,940	C/20	D/31
*Downstream of Jetport Drive on-ramp/EL Egress	Merge	3	5,070	7,270	D/28	F/41
Downstream of Jetport Drive on-ramp	Basic	4	5,070	7,270	C/22	E/36

LOS E LOS F Density –passenger cars/mile/lane
 *Lane add/Drop or Acceleration/Deceleration Lane>1,500 feet HCM Methodology is limited to 1,500 feet

6.2.2 Ramp Capacity Analysis

Table 6.6 and **6.7** summarize the evaluation of ramp capacities for the No-Build and Build alternatives for 2025 and 2045, respectively. The results showed that the ramps within the study area under Build conditions are expected to operate under capacity by year 2045.

**Table 6.6
2025 and 2045 Peak Hour No-Build Ramp Roadway Capacity Analysis**

Interchange	Ramp	Lanes	Volume (vph)		Capacity (vph)	V/C	
			AM	PM		AM	PM
Opening Year 2025							
Florida's Turnpike / I-4	Northbound off-ramp	2	1,970	1,000	3,640	0.54	0.27
	Southbound on-ramp (loop)	2	1,000	1,970	3,540	0.28	0.56
	Northbound on-ramp	2	1,090	1,860	3,640	0.30	0.51
	Southbound off-ramp	2	1,860	1,090	3,640	0.51	0.30
Florida's Turnpike / SR 482	Northbound off-ramp	1	670	450	1,820	0.37	0.25
	Southbound on-ramp	1	450	670	1,820	0.25	0.37
	Northbound on-ramp	1	950	1,180	1,820	0.52	0.65
	Southbound off-ramp	2	1,180	950	3,640	0.32	0.26
Florida's Turnpike / Orlando South	Southbound off-ramp (Consulate Drive)	1	1,360	630	1,820	0.75	0.35
	Southbound off-ramp (loop)	2	1,340	900	3,540	0.38	0.25
	Southbound on-ramp	1	1,040	1,530	1,820	0.57	0.84
	Northbound on-ramp	2	1,530	2,700	3,640	0.42	0.74
	Northbound off-ramp	1	1,530	1,040	1,820	0.84	0.57
Florida's Turnpike / SR 417	Northbound off-ramp	2	1,300	850	3,640	0.36	0.23
	Southbound on-ramp	2	850	1,300	3,640	0.23	0.36
	Northbound on-ramp	1	1,360	990	1,820	0.75	0.54
	Southbound off-ramp	2	990	1,360	3,640	0.27	0.37
SR 528 / CR 423	Westbound off-ramp	1	1,330	940	1,850	0.72	0.51
	Eastbound on-ramp	1	940	1,330	1,850	0.51	0.72
	Westbound on-ramp (loop)	1	1,270	910	1,810	0.70	0.50
	Westbound on-ramp	1	380	680	1,850	0.21	0.37
	Eastbound off-ramp	2	1,590	1,650	3,700	0.43	0.45
SR 528 / Florida's Turnpike and US 17/92/441	Westbound off-ramp (loop)	2	1,730	1,580	3,620	0.48	0.44
	Eastbound on-ramp (loop)	1	1,580	1,730	1,810	0.87	0.96
	Westbound on-ramp	1	1,110	1,060	1,850	0.60	0.57
	Eastbound off-ramp	1	1,060	1,110	1,850	0.57	0.60
SR 528 / McCoy Road	Westbound off-ramp	2	1,100	690	3,700	0.30	0.19
	Eastbound on-ramp	1	690	1,100	1,850	0.37	0.59
	Westbound on-ramp	1	460	500	1,850	0.25	0.27
	Eastbound off-ramp	1	500	460	1,850	0.27	0.25

Highlighted: V/C ≥ 1.0

Table 6.6 (continued)
2025 and 2045 Peak Hour No-Build Ramp Roadway Capacity Analysis

Interchange	Ramp	Lanes	Volume (vph)		Capacity (vph)	V/C	
			AM	PM		AM	PM
Design Year 2045							
Florida's Turnpike / I-4	Northbound off-ramp	2	2,070	1,320	3,640	0.57	0.36
	Southbound on-ramp (loop)	2	1,320	2,070	3,540	0.37	0.58
	Northbound on-ramp	2	1,470	2,510	3,640	0.40	0.69
	Southbound off-ramp	2	2,510	1,470	3,640	0.69	0.40
Florida's Turnpike / SR 482	Northbound off-ramp	1	1,520	1,020	1,820	0.84	0.56
	Southbound on-ramp	1	1,020	1,520	1,820	0.56	0.84
	Northbound on-ramp	1	1,030	2,060	1,820	0.57	1.13
	Southbound off-ramp	2	2,060	1,030	3,640	0.57	0.28
Florida's Turnpike / Orlando South	Southbound off-ramp (Consulate Drive)	1	1,720	980	1,820	0.95	0.54
	Southbound off-ramp (loop)	2	1,760	1,070	3,540	0.50	0.30
	Southbound on-ramp	1	1,230	1,790	1,820	0.68	0.98
	Northbound on-ramp	2	2,050	3,480	3,640	0.56	0.96
	Northbound off-ramp	1	1,790	1,230	1,820	0.98	0.68
Florida's Turnpike / SR 417	Northbound off-ramp	2	1,740	1,120	3,640	0.48	0.31
	Southbound on-ramp	2	1,120	1,740	3,640	0.31	0.48
	Northbound on-ramp	1	1,810	1,170	1,820	0.99	0.64
	Southbound off-ramp	2	1,170	1,810	3,640	0.32	0.50
SR 528 / CR 423	Westbound off-ramp	1	1,890	1,140	1,850	1.02	0.62
	Eastbound on-ramp	1	1,140	1,890	1,850	0.62	1.02
	Westbound on-ramp (loop)	1	1,480	990	1,810	0.82	0.55
	Westbound on-ramp	1	550	810	1,850	0.30	0.44
	Eastbound off-ramp	2	1,800	2,030	3,700	0.49	0.55
SR 528 / Florida's Turnpike and US 17/92/441	Westbound off-ramp (loop)	2	2,110	1,960	3,620	0.58	0.54
	Eastbound on-ramp (loop)	1	1,960	2,110	1,810	1.08	1.17
	Westbound on-ramp	1	1,550	1,270	1,850	0.84	0.69
	Eastbound off-ramp	1	1,270	1,550	1,850	0.69	0.84
SR 528 / McCoy Road	Westbound off-ramp	2	1,160	720	3,700	0.31	0.19
	Eastbound on-ramp	1	720	1,160	1,850	0.39	0.63
	Westbound on-ramp	1	760	620	1,850	0.41	0.34
	Eastbound off-ramp	1	620	760	1,850	0.34	0.41

Highlighted: V/C ≥ 1.0

**Table 6.7
2025 and 2045 Peak Hour Build Ramp Roadway Capacity Analysis**

Interchange	Ramp	Lanes	Volume (vph)		Capacity (vph)	V/C	
			AM	PM		AM	PM
Opening Year 2025							
Florida's Turnpike / I-4	Northbound off-ramp	2	1,970	1,000	3,640	0.54	0.27
	Southbound on-ramp (loop)	2	1,000	1,970	3,540	0.28	0.56
	Northbound on-ramp	2	1,090	1,860	3,640	0.30	0.51
	Southbound off-ramp	2	1,860	1,090	3,640	0.51	0.30
Florida's Turnpike / SR 482	Southbound on-ramp	1	400	550	1,820	0.22	0.30
	Northbound on-ramp	1	400	760	1,820	0.22	0.42
	Southbound off-ramp	2	760	400	3,640	0.21	0.11
Florida's Turnpike / Orlando South	Northbound off-ramp to SR 528/US 17/92/441	1	1,160	660	1,820	0.64	0.36
	Southbound on-ramp from SR 528 Eastbound	1	110	280	1,820	0.06	0.15
	Southbound on-ramp from Consulate Drive	1	150	520	1,820	0.08	0.29
	Southbound on-ramp from SR 528 Westbound	1	400	360	1,820	0.22	0.20
	Northbound off-ramp to C-D Road	1	550	400	1,820	0.30	0.22
	Northbound on-ramp from SR 528 Westbound	1	750	940	1,820	0.41	0.52
	Northbound on-ramp from SR 528 Eastbound	1	280	340	1,820	0.15	0.19
	Northbound on-ramp from C-D Road	2	1,000	1,630	3,640	0.27	0.45
	Southbound off-ramp to SR 528 East/Westbound	2	1,160	1,010	3,640	0.32	0.28
Florida's Turnpike / Taft Vineland	Northbound off-ramp	1	440	220	1,820	0.24	0.12
	Southbound on-ramp from Westbound	1	80	230	1,820	0.04	0.13
	Southbound on-ramp from Eastbound	1	140	210	1,820	0.08	0.12
	Northbound on-ramp to C-D Road	1	530	750	1,820	0.29	0.41
	Southbound off-ramp to Taft Vineland and US 17/92/441	1	750	530	1,820	0.41	0.29
Florida's Turnpike / SR 417	Northbound off-ramp	2	1,300	850	3,640	0.36	0.23
	Southbound on-ramp	2	850	1,300	3,640	0.23	0.36
	Northbound on-ramp	1	1,360	990	1,820	0.75	0.54
	Southbound off-ramp	2	990	1,360	3,640	0.27	0.37
SR 528 / CR 423	Westbound off-ramp	2	1,580	1,160	3,700	0.43	0.31
	Eastbound on-ramp	2	1,160	1,580	3,700	0.31	0.43
	Westbound on-ramp (loop)	1	990	720	1,810	0.55	0.40
	Westbound on-ramp	1	520	740	1,850	0.28	0.40
	Eastbound off-ramp	2	1,460	1,510	3,700	0.39	0.41

**Table 6.7 (continued)
2025 and 2045 Peak Hour Build Ramp Roadway Capacity Analysis**

Interchange	Ramp	Lanes	Volume (vph)		Capacity (vph)	V/C	
			AM	PM		AM	PM
Opening Year 2025							
SR 528 / Florida's Turnpike	Westbound off-ramp to Turnpike Southbound	1	400	360	1,850	0.22	0.19
	Westbound off-ramp to Turnpike Northbound	1	750	940	1,850	0.41	0.51
	Eastbound on-ramp from Turnpike Southbound	1	970	730	1,850	0.52	0.39
	Eastbound on-ramp from Turnpike Northbound	1	330	420	1,850	0.18	0.23
	Westbound on-ramp from Consulate Drive	1	510	780	1,850	0.28	0.42
	Westbound on-ramp from Turnpike North/Southbound	1	720	390	1,850	0.39	0.21
	Eastbound off-ramp to Turnpike North/Southbound	1	390	620	1,850	0.21	0.34
	Eastbound off-ramp to Consulate Drive	1	780	610	1,850	0.42	0.33
SR 528 / Voltaire Drive	Westbound off-ramp	1	730	520	1,850	0.39	0.28
	Eastbound on-ramp	1	520	730	1,850	0.28	0.39
	Westbound on-ramp	1	290	390	1,850	0.16	0.21
	Eastbound off-ramp	2	390	290	3,700	0.11	0.08
SR 528 / McCoy Road	Westbound off-ramp	2	1,000	550	3,700	0.27	0.15
	Eastbound on-ramp	1	550	1,000	1,850	0.30	0.54
	Westbound on-ramp	1	490	450	1,850	0.26	0.24
	Eastbound off-ramp	1	450	490	1,850	0.24	0.26
Design Year 2045							
Florida's Turnpike / I-4	Northbound off-ramp	2	2,070	1,320	3,640	0.57	0.36
	Southbound on-ramp (loop)	2	1,320	2,070	3,540	0.37	0.58
	Northbound on-ramp	2	1,470	2,510	3,640	0.40	0.69
	Southbound off-ramp	2	2,510	1,470	3,640	0.69	0.40
Florida's Turnpike / SR 482	Southbound on-ramp	1	930	1,620	1,820	0.51	0.89
	Northbound on-ramp	1	560	1,360	1,820	0.31	0.75
	Southbound off-ramp	2	1,360	560	3,640	0.37	0.15
Florida's Turnpike / Orlando South	Southbound off-ramp (Consulate Drive)	1	1,180	550	1,820	0.65	0.30
	Northbound off-ramp to SR 528/US 17/92/441	1	1,420	820	1,820	0.78	0.45
	Southbound on-ramp from SR 528 Eastbound	1	220	370	1,820	0.12	0.20
	Southbound on-ramp from Consulate Drive	1	160	620	1,820	0.09	0.34
	Southbound on-ramp from SR 528 Westbound	1	440	430	1,820	0.24	0.24

**Table 6.7 (continued)
2025 and 2045 Peak Hour Build Ramp Roadway Capacity Analysis**

Interchange	Ramp	Lanes	Volume (vph)		Capacity (vph)	V/C	
			AM	PM		AM	PM
Design Year 2045							
Florida's Turnpike / Orlando South	Northbound off-ramp to C-D Road	1	1,620	930	1,820	0.89	0.51
	Northbound on-ramp from SR 528 Westbound	1	1,140	1,410	1,820	0.63	0.77
	Northbound on-ramp from SR 528 Eastbound	1	440	560	1,820	0.24	0.31
	Northbound on-ramp from C-D Road	2	1,380	2,090	3,640	0.38	0.57
	Southbound off-ramp to SR 528 East/Westbound	2	1,830	1,580	3,640	0.50	0.43
Florida's Turnpike / Taft Vineland	Northbound off-ramp	1	710	380	1,820	0.39	0.21
	Southbound on-ramp from Westbound	1	160	330	1,820	0.09	0.18
	Southbound on-ramp from Eastbound	1	220	380	1,820	0.12	0.21
	Northbound on-ramp to C-D Road	1	830	1,050	1,820	0.46	0.58
	Southbound off-ramp to Taft Vineland and US 17/92/441	1	1,050	830	1,820	0.58	0.46
Florida's Turnpike / SR 417	Northbound off-ramp	2	1,740	1,120	3,640	0.48	0.31
	Southbound on-ramp	2	1,120	1,740	3,640	0.31	0.48
	Northbound on-ramp	1	1,810	1,170	1,820	0.99	0.64
	Southbound off-ramp	2	1,170	1,810	3,640	0.32	0.50
SR 528 / CR 423	Westbound off-ramp	2	2,040	1,220	3,700	0.55	0.33
	Eastbound on-ramp	2	1,220	2,040	3,700	0.33	0.55
	Westbound on-ramp (loop)	1	1,130	780	1,810	0.62	0.43
	Westbound on-ramp	1	590	760	1,850	0.32	0.41
	Eastbound off-ramp	2	1,540	1,720	3,700	0.42	0.46
SR 528 / Florida's Turnpike	Westbound off-ramp to Turnpike Southbound	1	440	430	1,850	0.24	0.23
	Westbound off-ramp to Turnpike Northbound	1	1,140	1,410	1,850	0.62	0.76
	Eastbound on-ramp from Turnpike Southbound	1	1,410	1,130	1,850	0.76	0.61
	Eastbound on-ramp from Turnpike Northbound	1	430	450	1,850	0.23	0.24
	Westbound on-ramp from Consulate Drive	1	830	950	1,850	0.45	0.51
	Westbound on-ramp from Turnpike North/Southbound	1	1,010	580	1,850	0.55	0.31
	Eastbound off-ramp to Turnpike North/Southbound	1	660	930	1,850	0.36	0.50
	Eastbound off-ramp to Consulate Drive	1	870	910	1,850	0.47	0.49

Table 6.7 (continued)
2025 and 2045 Peak Hour Build Ramp Roadway Capacity Analysis

Interchange	Ramp	Lanes	Volume (vph)		Capacity (vph)	V/C	
			AM	PM		AM	PM
Design Year 2045							
SR 528 / Voltaire Drive	Westbound off-ramp	1	880	630	1,850	0.48	0.34
	Eastbound on-ramp	1	630	880	1,850	0.34	0.48
	Westbound on-ramp	1	300	430	1,850	0.16	0.23
	Eastbound off-ramp	2	430	300	3,700	0.12	0.08
SR 528 / McCoy Road	Westbound off-ramp	2	1,030	600	3,700	0.28	0.16
	Eastbound on-ramp	1	600	1,030	1,850	0.32	0.56
	Westbound on-ramp	1	850	660	1,850	0.46	0.36
	Eastbound off-ramp	1	660	850	1,850	0.36	0.46

6.2.3 Intersection Analysis

Synchro results for the No-Build and Build alternatives are summarized in **Tables 6.8** through **6.12** for 2025 opening, 2035 interim, and 2045 design years. Interim year 2035 analysis was performed for Build conditions only by applying growth factor of 88.7 percent to design year 2045 Synchro files. The adjustment factor was calculated based on a global factor of 88.7 percent estimated using 2045 and 2025 VISSIM input total volumes to reduce the 2045 volumes to year 2035 projected traffic.

It is anticipated that most of the intersections within the AOI will be over capacity, particularly during the PM peak hour from opening to design years under the No-Build conditions. Key deficiencies of the No-Build include no direct ramps between SR 528 west and Florida’s Turnpike, resulting in travelers using the surface street to connect between the two facilities. Congestion along US 17/92/441, Consulate Drive, and CR 482 are expected to propagate onto the freeway system. However, operations within the AOI are expected to be improved with the Build conditions.

The inclusion of two new full reliever interchanges at Taft Vineland Road at Florida’s Turnpike and Voltaire Drive Extension at SR 528 improves the operations by dispersing surface street demand. In addition, these interchanges reduce the need for surface street improvements along constrained facilities. The modified or proposed new intersections are expected to operate at an acceptable LOS D or better by design year 2045 except intersection of Voltaire Drive and SR 482 during PM peak hour. However, the delay at this intersection is less than No-Build conditions due to proposed improvements. The list of modified and new intersections or interchanges:

- Voltaire Drive and SR 482
- Consulate Drive and US 17/92/441
- Consulate Drive and Florida’s Turnpike/SR 528 interchange (Existing interchange modified to DDI)

- Taft Vineland Road and Florida's Turnpike interchange (New Trumpet interchange)
- Taft Vineland Road and Bachman Road
- Voltaire Drive Extension and SR 528 interchange (New TUDI)

Overall, Synchro results indicated a 45 and 48 percent reduction in total signalized intersection control delay within the AOI during the 2045 design year AM and PM peak hours, respectively, when compared to No-Build condition (See **Figure 6.3**).

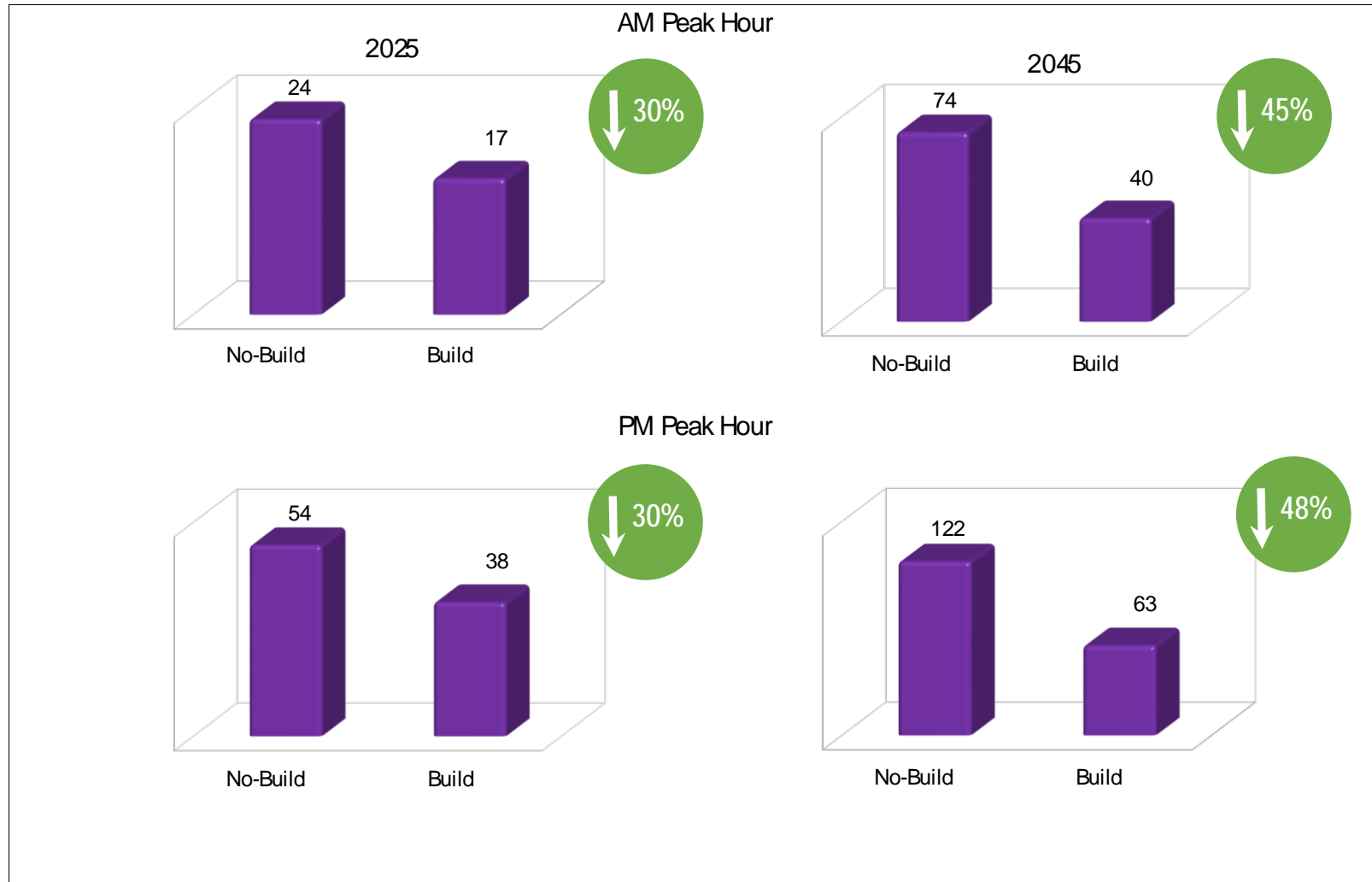
However, due to the rerouting of traffic from the two new interchange relievers, the following intersections showed overall delays higher than No-Build in design year 2045:

- US 17/92/441 at Landstreet Road: Westbound through delay is expected to increase due to rerouting of traffic from the new interchange at SR 528 and Voltaire Drive.
- Taft Vineland Road at Satellite Boulevard: Northbound Left, Southbound Left and overall delay is expected to increase due to new interchange of Florida's Turnpike and Taft Vineland Road. A traffic signal is required at Satellite Boulevard under No-Build conditions, this has been brought to the attention of Orange County.
- CR 423 at SR 528 interchange ramp terminal: traffic is expected to increase under build conditions due to rerouting of traffic of two new interchange relievers.
- McCoy Road and Jetport Drive: Traffic volumes at this intersection are expected to slightly increase under future Build conditions due to the rerouting of traffic from the two new interchange relievers, resulting in minor increases in intersection delay.

Nevertheless, the inclusion of system ramps and two new full reliever interchanges improves the overall delay at most of the intersections by dispersing surface street traffic demand.

Preliminary signal warrant analyses were performed based on opening year 2025 volumes at the following intersections: Taft Vineland Road and Bachman Road, Consulate Drive and Florida's Turnpike/SR 528 interchange (DDI), Jet port Drive and McCoy Road, Taft Vineland Road and Florida's Turnpike interchange, Voltaire Drive Extension and SR 528 interchange. Traffic signals are warranted at the listed intersections.

Figure 6.3
Signalized Intersections Cumulative Delay (minutes)



**Table 6.8
2025 Peak Hour No-Build Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
SR 482													
CR 423 SPUI	F/82	D/37	A/8	E/77	C/28	A/4	E/69	-	A/1	D/53	-	A/1	C/35
Lowe's/Walmart Entrance	-	E/75	A/6	F/112	A/9	-	-	-	E/71	D/43	D/44	E/73	D/50
Turnpike SPUI	D/44	D/54	A/1	D/37	D/42	B/20	E/59	-	C/32	-	-	-	D/43
Presidents Drive	E/73	C/32	-	E/57	C/26	A/2	E/65	F/158	-	E/73	F/111	A/7	C/34
Chancellor Drive	F/157	C/22	A/4	F/97	E/76	A/3	D/42	F/138	-	F/143	E/55	-	E/62
Lillwill Avenue	E/77	C/23	A/1	E/71	C/25	-	-	F/103	A/2	-	F/89	-	C/27
US 17/92/441	E/72	D/52	E/56	F/98	F/81	B/13	F/117	F/99	B/19	F/91	E/58	D/48	E/74
Skyview Drive	E/77	D/44	-	D/39	C/21	-	F/94	F/90	A/1	E/72	F/154	-	D/41
Golden Sky Lane	F/83	A/10	-	E/62	D/44	-	-	E/62	A/1	D/55	D/47	-	C/33
Voltaire Drive	F/107	A/8	A/1	E/67	C/31	A/4	E/70	D/43	-	E/66	E/77	-	C/26
Horizon Park Drive	E/66	C/24	A/3	E/75	D/46	A/1	F/143	D/41	-	E/56	D/38	-	D/40
US 17/92/441													
August Lane	E/64	D/49	-	-	F/86	A/8	E/60	B/19	A/3	E/77	A/7	-	B/16
Sunlife Path	-	F/95	A/1	E/77	F/93	A/2	D/46	B/11	-	F/94	B/18	-	B/19
La Quinta Drive	F/123	C/23	-	E/68	E/77	-	E/57	C/33	-	F/90	A/6	-	C/28
Landstreet Road	E/58	F/119	D/41	F/106	F/107	C/24	F/157	F/120	A/1	F/97	D/42	-	E/76
Ramp from Turnpike	-	-	-	-	-	D/50	-	D/35	-	-	A/1	-	C/26
Consulate Drive	E/56	E/55	D/53	-	F/96	A/1	E/70	C/31	-	F/87	E/60	C/33	D/47
Taft Vineland Road	F/87	F/92	A/2	F/86	E/77	C/23	F/87	D/46	-	E/68	C/30	-	D/47
Landstreet Road													
SR 528 westbound off-ramp*	-	-	-	-	-	-	E/40	-	E/44	-	-	-	E/44
SR 528 eastbound on-ramp*	-	-	-	A/10	-	-	-	-	-	-	-	-	A/10

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.8 (continued)
2025 Peak Hour No-Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp	-	D/44	-	D/46	C/31	-	-	-	-	C/25	C/32	A/1	C/29
SR 528 eastbound off-ramp*	F/313	-	F/313	-	-	-	-	-	-	-	-	-	F/313
Delegates Drive*	E/46	-	C/17	-	-	-	C/19	-	-	-	-	-	E/46
Taft Vineland Road													
Satellite Boulevard*	A/8	-	-	B/11	-	-	E/43	-	C/15	F/57	-	A/9	F/57
Bachman Road*	A/9	-	-	A/9	-	-	-	F/55	-	-	F/95	-	F/95
CR 423													
SR 528 westbound ramps	-	-	-	F/83	-	-	-	A/8	-	-	A/8	-	B/17
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	A/10	-	F/110	-	-	A/10
McCoy Road													
SR 528 westbound ramps	-	C/27	A/1	C/30	C/31	-	-	-	-	E/69	D/44	-	C/34
Jetport Drive	-	E/74	B/12	-	-	-	B/14	B/16	-	D/53	E/70	D/37	C/33
SR 528 eastbound off-ramp	A/6	-	A/1	-	-	-	-	A/1	-	-	D/46	-	B/10

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.8 (continued)
2025 Peak Hour No-Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
SR 482													
CR 423 SPUI	F/95	D/48	C/28	E/75	D/50	B/16	E/78	-	A/1	E/58	-	A/1	D/47
Lowe's/Walmart Entrance	-	F/84	A/8	B/17	A/2	-	-	-	F/146	F/283	F/305	F/141	F/83
Turnpike SPUI	F/92	F/104	A/2	D/46	D/41	B/16	E/65	-	D/38	-	-	-	E/62
Presidents Drive	F/117	B/12	-	F/85	B/18	A/1	F/213	F/161	-	F/146	F/250	D/37	D/36
Chancellor Drive	F/137	B/19	A/1	F/120	C/29	A/1	E/59	F/131	-	F/88	E/68	-	C/34
Lillwill Avenue	F/214	C/31	A/5	F/181	B/14	-	-	F/122	A/4	-	F/150	-	C/33
US 17/92/441	F/241	D/53	E/60	F/251	E/62	A/3	F/214	F/194	F/119	F/232	F/139	C/32	F/126
Skyview Drive	F/195	C/24	-	F/227	F/97	-	F/83	F/289	C/29	F/82	F/311	-	F/100
Golden Sky Lane	F/126	C/23	-	F/110	D/43	-	-	F/100	C/21	F/97	C/30	-	D/44
Voltaire Drive	F/141	A/4	A/1	E/70	D/45	A/9	F/88	E/66	-	F/164	E/70	-	D/37
Horizon Park Drive	F/185	A/8	A/1	F/96	F/122	B/10	F/103	D/54	-	F/191	E/72	-	F/81
US 17/92/441													
August Lane	E/62	E/57	-	-	F/118	B/20	F/180	D/50	C/31	F/165	D/36	-	D/53
Sunlife Path	-	F/108	A/4	F/190	F/220	B/16	F/86	F/116	-	F/141	C/22	-	F/82
La Quinta Drive	F/125	C/29	-	E/77	D/54	-	F/99	E/58	-	F/105	A/7	-	D/38
Landstreet Road	E/77	F/172	F/91	F/187	F/173	E/60	F/90	F/154	A/1	F/241	F/189	-	F/148
Ramp from Turnpike	-	-	-	-	-	D/43	-	A/8	-	-	-	-	A/9
Consulate Drive	F/185	F/165	C/31	-	F/104	A/1	F/108	F/202	-	F/111	E/55	B/15	F/128
Taft Vineland Road	F/108	E/78	A/9	F/96	E/75	E/69	F/120	D/47	-	F/114	E/68	-	E/65

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.8 (continued)
2025 Peak Hour No-Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
Landstreet Road													
SR 528 westbound off-ramp*	-	-	-	-	-	-	D/29	-	F/90	-	-	-	F/90
SR 528 eastbound on-ramp*	-	-	-	A/10	-	-	-	-	-	-	-	-	A/10
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp	-	E/61	-	F/100	B/10	-	-	-	-	E/61	D/49	A/1	E/65
SR 528 eastbound off-ramp*	F/517	-	F/517	-	-	-	-	-	-	-	-	-	F/517
Delegates Drive*	F/68	-	C/22	-	-	-	C/19	-	-	-	-	-	F/68
Taft Vineland Road													
Satellite Boulevard*	A/9	-	-	A/10	-	-	F/79	-	C/19	F/75	-	B/10	F/79
Bachman Road*	B/11	-	-	A/8	-	-	-	F/669	-	-	F/>999	-	F/>999
CR 423													
SR 528 westbound ramps	-	-	-	F/88	-	-	-	A/5	-	-	C/21	-	C/24
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	B/19	-	E/79	-	-	B/16
McCoy Road													
SR 528 westbound ramps	-	E/69	A/1	F/95	A/7	-	-	-	-	F/125	F/82	-	E/61
Jetport Drive	-	F/82	B/16	-	-	-	E/68	F/88	F/101	E/80	C/24	-	E/71
SR 528 eastbound off-ramp	A/5	-	A/1	-	-	-	-	B/12	-	-	D/40	-	A/10

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.9
2025 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
SR 482													
CR 423 SPUI	E/74	D/37	A/8	E/65	D/36	B/11	E/67	-	A/1	D/54	-	A/1	D/35
Lowe's/Walmart Entrance	-	C/21	A/4	F/81	A/7	-	-	-	E/61	D/54	E/56	E/68	C/27
Turnpike SPUI	E/58	C/26	A/1	D/38	D/41	A/7	E/67	-	D/36	-	-	-	C/33
Presidents Drive	F/88	C/32	-	D/51	C/28	A/1	E/60	F/96	-	E/63	E/80	A/7	C/34
Chancellor Drive	F/161	B/19	A/4	F/81	D/49	B/13	D/42	F/138	-	F/114	D/54	-	D/49
Lillwill Avenue	F/95	A/5	A/1	E/67	C/23	-	-	F/90	A/2	-	E/80	-	B/19
US 17/92/441	D/54	D/32	D/37	D/48	C/25	A/1	F/101	E/70	C/32	E/64	E/66	D/44	D/49
Skyview Drive	E/57	B/12	-	E/61	B/18	-	F/87	F/84	A/1	E/62	F/90	-	C/27
Golden Sky Lane	E/70	C/30	-	E/60	C/27	-	-	E/61	A/1	D/46	D/42	-	C/32
Voltaire Drive	F/88	B/17	A/1	F/90	C/28	A/1	E/71	E/64	-	E/61	F/84	A/1	C/33
Horizon Park Drive	E/75	C/24	A/6	E/73	C/29	A/1	F/219	D/43	-	E/65	D/47	-	D/39
US 17/92/441													
August Lane	E/64	D/49	-	-	F/86	B/17	E/62	B/17	A/5	E/74	A/7	-	B/15
Sunlife Path	-	F/88	A/1	E/75	F/87	A/2	E/62	B/14	-	F/83	B/13	-	B/19
La Quinta Drive	F/117	C/23	-	E/67	E/75	-	E/56	C/32	-	F/82	A/8	-	C/26
Landstreet Road	E/68	F/120	A/3	E/76	F/198	C/24	F/154	E/58	A/1	D/55	D/36	-	E/60
Ramp from Turnpike	-	-	-	-	-	E/71	-	B/12	-	-	-	-	B/12
Consulate Drive	C/23	-	C/29	-	-	A/2	D/51	A/1	-	-	C/34	C/29	C/23
Taft Vineland Road	E/74	E/77	A/1	E/80	E/58	B/10	F/87	D/44	-	E/63	C/23	-	D/46

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.9 (continued)
2025 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp (DDI)	-	E/77	-	-	-	-	-	A/2	-	-	-	-	A/10
SR 528 Eastbound off-ramp (DDI)	-	-	-	-	C/35	-	-	-	-	-	C/20	-	C/29
Delegates Drive*	E/40	-	C/15	-	-	-	C/17	-	-	-	-	-	E/40
Taft Vineland Road													
Satellite Boulevard*	A/9	-	-	B/12	-	-	F/66	-	C/17	F/85	-	B/10	F/85
Turnpike's Ramps	E/76	A/5	-	-	C/20	A/7	-	-	-	E/68	-	D/37	C/33
Bachman Road	B/17	C/25	-	-	C/23	-	E/64	D/45	-	E/79	-	C/21	C/32
CR 423													
SR 528 westbound ramps	-	-	-	E/80	-	-	-	A/9	-	-	A/9	-	B/19
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	B/14	-	F/127	-	-	B/19
McCoy Road													
SR 528 westbound ramps	-	C/27	A/1	C/25	C/25	-	-	-	-	E/72	D/45	-	C/32
Jetport Drive	-	E/74	B/13	-	-	-	D/53	E/70	C/26	B/13	C/20	-	C/33
SR 528 eastbound off-ramp	A/6	-	A/1	-	-	-	-	A/1	-	-	D/46	-	B/11
Voltaire Drive													
SR 528 westbound ramps	-	-	-	D/43	-	C/24	D/44	A/1	-	-	E/63	A/7	C/33
SR 528 eastbound ramps	F/89	-	A/4	-	-	-	-	E/56	A/3	D/52	A/1	-	C/34

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.9 (continued)
2025 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
SR 482													
CR 423 SPUI	F/90	D/45	B/19	E/69	D/54	B/18	E/58	-	A/1	E/76	-	A/1	D/45
Lowe's/Walmart Entrance	-	F/82	A/7	C/30	A/2	-	-	-	F/125	F/113	F/132	C/22	D/55
Turnpike SPUI	F/85	D/49	A/1	D/54	C/24	A/7	E/79	-	D/50	-	-	-	D/35
Presidents Drive	F/146	C/22	-	E/62	C/23	A/1	F/88	F/111	-	E/73	F/179	C/35	D/36
Chancellor Drive	F/240	A/4	A/1	F/218	A/9	A/1	E/72	F/192	-	F/160	F/96	-	C/30
Lillwill Avenue	F/104	C/27	A/3	F/111	B/10	-	-	F/101	A/4	-	F/108	-	C/27
US 17/92/441	F/211	E/69	F/82	F/161	C/34	B/10	F/185	E/71	F/111	F/190	F/115	C/29	F/97
Skyview Drive	F/254	B/16	-	F/185	D/51	-	F/81	F/264	C/28	E/80	F/286	-	F/81
Golden Sky Lane	F/129	B/11	-	E/72	E/61	-	-	F/99	C/21	F/95	C/30	-	D/46
Voltaire Drive	F/210	C/21	A/1	F/120	C/30	A/4	F/86	F/177	-	F/176	F/132	A/2	D/49
Horizon Park Drive	F/264	A/5	A/1	F/89	D/46	A/6	F/130	E/56	-	F/223	E/78	-	E/57
US 17/19/441													
August Lane	E/58	E/55	-	-	F/109	B/12	E/75	E/79	D/50	E/58	C/32	-	D/54
Sunlife Path	-	F/166	A/5	F/144	F/163	B/14	F/102	E/67	-	F/136	C/28	-	E/62
La Quinta Drive	F/186	C/27	-	E/75	D/55	-	F/85	B/12	-	E/71	C/29	-	C/28
Landstreet Road	E/78	F/140	D/43	F/148	F/283	E/56	F/182	E/58	A/1	F/207	F/94	-	F/97
Ramp from Turnpike	-	-	-	-	-	D/41	-	A/4	-	-	-	-	A/3
Consulate Drive	D/41	-	C/21	-	-	A/4	F/115	A/1	-	-	D/43	C/28	C/30
Taft Vineland Road	E/66	F/86	A/8	F/87	F/87	B/19	F/98	D/39	-	E/60	B/18	-	D/45

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.9 (continued)
2025 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp (DDI)	-	D/43	-	-	-	-	-	A/4	-	-	-	-	C/31
SR 528 eastbound off-ramp (DDI)	-	-	-	-	E/58	-	-	-	-	-	B/11	-	C/32
Delegates Drive*	E/44	-	C/17	-	-	-	B/14	-	-	-	-	-	E/44
Taft Vineland Road													
Satellite Boulevard*	A/8	-	-	B/12	-	-	F/120	-	D/32	F/>999	-	A/9	F/>999
Turnpike's Ramps	D/37	A/10	-	-	B/10	A/9	-	-	-	D/42	-	B/18	B/18
Bachman Road	C/25	B/16	-	-	C/35	-	F/91	D/38	-	F/99	-	B/17	C/34
CR 423													
SR 528 westbound ramps	-	-	-	F/89	-	-	-	A/7	-	-	C/26	-	C/29
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	C/29	-	E/76	-	-	C/23
McCoy Road													
SR 528 westbound ramps	-	C/32	A/1	E/57	A/10	-	-	-	-	F/121	F/82	-	C/34
Jetport Drive	-	F/83	B/18	-	-	-	E/68	F/87	F/101	E/56	D/36	-	E/62
SR 528 eastbound off-ramp	A/5	-	A/1	-	-	-	-	B/13	-	-	D/40	-	A/10
Voltaire Drive													
SR 528 westbound ramps	-	-	-	E/56	-	C/27	D/45	A/1	-	-	C/32	A/3	C/26
SR 528 eastbound ramps	F/88	-	A/3	-	-	-	-	D/39	B/10	D/42	A/1	-	C/34

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

**Table 6.10
2035 Peak Hour Build Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
SR 482													
CR 423 SPUI	E/74	D/44	B/16	E/67	C/27	A/4	F/121	-	A/1	E/59	-	A/1	D/42
Lowe's/Walmart Entrance	-	E/74	A/4	F/110	A/4	-	-	-	F/90	E/56	E/62	F/105	D/52
Turnpike SPUI	D/47	F/148	A/1	F/135	D/48	A/10	F/273	-	D/44	-	-	-	F/122
Presidents Drive	F/94	C/23	-	E/71	C/29	A/3	E/67	F/145	-	E/71	F/92	B/12	C/32
Chancellor Drive	F/147	C/27	A/3	F/120	E/77	A/6	D/43	F/155	-	F/163	E/57	-	E/63
Lillwill Avenue	F/94	B/11	A/1	E/65	C/20	-	-	F/100	A/1	-	E/76	-	B/20
US 17/92/441	F/88	C/24	F/97	F/135	C/23	A/1	F/156	E/76	D/46	F/82	F/147	F/117	F/83
Skyview Drive	E/79	B/16	-	F/93	C/21	-	F/92	F/92	A/1	E/63	F/95	-	C/32
Golden Sky Lane	E/64	D/41	-	E/68	C/29	-	-	D/54	A/1	D/46	D/40	-	D/37
Voltaire Drive	F/87	C/23	A/1	F/98	C/28	A/1	E/66	D/55	-	E/65	F/89	A/1	C/35
Horizon Park Drive	E/72	C/28	A/7	E/73	C/35	A/1	F/182	D/40	-	E/62	D/49	-	D/41
US 17/92/441													
August Lane	E/65	D/45	-	-	F/86	B/13	E/60	B/14	A/5	F/83	B/13	-	B/16
Sunlife Path	-	F/96	A/1	F/85	F/121	A/2	E/73	B/12	-	F/95	B/13	-	B/18
La Quinta Drive	F/132	C/25	-	E/65	E/73	-	E/73	B/18	-	F/85	A/8	-	B/20
Landstreet Road	E/69	F/154	A/10	F/141	F/316	C/33	F/177	E/57	A/1	E/60	F/93	-	F/92
Ramp from Turnpike	-	-	-	-	-	E/70	-	B/14	-	-	A/1	-	B/12
Consulate Drive	C/26	-	C/30	-	-	A/2	E/61	-	-	-	D/38	D/48	C/31
Taft Vineland Road	F/83	F/82	A/1	F/95	E/65	A/10	F/90	D/52	-	E/67	C/26	-	D/51

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.10 (continued)
2035 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp (DDI)	-	E/78	-	-	-	-	-	A/3	-	-	-	-	B/13
SR 528 eastbound off-ramp (DDI)	-	-	-	-	C/30	-	-	-	-	-	C/30	-	C/30
Delegates Drive*	F/71	-	C/18	-	-	-	C/22	-	-	-	-	-	F/71
Taft Vineland Road													
Satellite Boulevard*	A/9	-	-	C/19	-	-	F/>999	-	F/182	E/40	-	B/11	F/>999
Turnpike's ramps	E/67	A/7	-	-	C/24	A/9	-	-	-	E/65	-	C/31	C/32
Bachman Road	B/14	C/28	-	-	C/30	-	D/54	E/65	-	F/91	-	C/22	D/38
CR 423													
SR 528 westbound ramps	-	-	-	E/76	-	-	-	B/15	-	-	B/11	-	C/23
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	B/16	-	F/125	A/1	-	B/19
McCoy Road													
SR 528 westbound ramps	-	C/32	A/1	C/29	B/18	-	-	-	-	E/77	D/47	-	C/32
Jetport Drive	-	F/81	B/12	-	-	-	D/51	E/77	C/28	B/16	C/32	-	D/42
SR 528 eastbound off-ramp	A/6	-	A/1	-	-	-	-	A/2	-	-	D/46	-	B/10
Voltaire Drive													
SR 528 westbound ramps	-	-	-	D/39	-	C/21	C/28	A/2	-	-	E/71	A/7	C/32
SR 528 eastbound ramps	F/89	-	A/4	-	-	-	-	E/62	A/3	D/46	A/1	-	D/37

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.10 (continued)
2035 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
SR 482													
CR 423 SPUI	F/91	E/62	D/44	E/78	E/56	B/14	F/84	-	A/1	E/63	-	A/1	D/54
Lowe's/Walmart Entrance	-	F/143	B/10	B/20	A/1	-	-	-	F/191	F/148	F/169	D/41	F/89
Turnpike SPUI	F/91	F/86	B/15	F/254	C/23	B/11	F/166	-	D/53	-	-	-	E/73
Presidents Drive	F/145	B/18	-	E/73	F/107	A/1	F/193	F/145	-	F/138	F/195	D/43	E/74
Chancellor Drive	F/197	B/16	A/1	F/93	E/73	A/3	E/71	F/187	-	F/218	F/106	-	E/60
Lillwill Avenue	F/189	C/28	A/5	F/169	E/64	-	-	F/116	A/2	-	F/121	-	D/55
US 17/92/441	F/272	E/76	F/129	F/227	F/226	B/11	F/294	F/153	F/202	F/280	F/274	D/51	F/198
Skyview Drive	F/344	B/19	-	F/195	F/216	-	F/83	F/285	C/29	F/81	F/312	-	F/157
Golden Sky Lane	F/161	B/14	-	F/116	F/133	-	-	F/113	B/19	F/152	C/29	-	F/86
Voltaire Drive	F/208	C/23	A/1	F/88	F/146	A/6	F/198	F/150	-	F/220	F/153	A/3	F/107
Horizon Park Drive	F/218	A/4	A/1	F/91	F/169	B/12	F/153	E/57	-	F/237	F/87	-	F/116
US 17/92/441													
August Lane	E/57	D/54	-	-	F/116	B/16	F/242	F/84	D/51	F/61	F/81	-	F/84
Sunlife Path	-	F/183	A/5	F/165	F/192	B/14	F/142	F/136	-	F/165	E/58	-	F/105
La Quinta Drive	F/200	D/44	-	E/77	F/84	-	F/153	E/58	-	F/114	C/26	-	D/49
Landstreet Road	F/93	F/261	E/66	F/269	F/423	F/119	F/256	F/131	A/1	F/248	F/211	-	F/186
Ramp from Turnpike	-	-	-	-	-	D/41	-	A/8	-	-	-	-	A/6
Consulate Drive	D/52	-	C/25	-	-	A/5	F/126	-	-	-	D/45	D/41	D/38
Taft Vineland Road	E/77	F/96	B/11	F/108	F/91	B/18	F/112	E/61	-	C/31	B/16	-	D/52

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.10 (continued)
2035 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp (DDI)	-	D/45	-	-	A/6	-	-	-	-	-	-	-	C/32
SR 528 eastbound off-ramp (DDI)	-	-	-	-	E/56	-	-	-	-	-	C/20	-	D/37
Delegates Drive*	F/87	-	C/23	-	-	-	C/19	-	-	-	-	-	F/87
Taft Vineland Road													
Satellite Boulevard*	A/10	-	-	C/21	-	-	F/>999	-	F/379	F/>999	-	B/12	F/>999
Turnpike's Ramps	D/42	A/9	-	-	B/12	C/21	-	-	-	D/43	-	B/18	C/21
Bachman Road	D/47	B/13	-	-	D/48	-	F/99	E/76	-	F/110	-	B/17	D/44
CR 423													
SR 528 westbound ramps	-	-	-	F/88	-	-	-	A/9	-	-	C/27	-	C/30
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	C/35	-	E/75	-	-	C/26
McCoy Road													
SR 528 westbound ramps	-	D/45	A/1	E/79	B/10	-	-	-	-	F/126	F/82	-	D/42
Jetport Drive	-	F/103	C/22	-	-	-	E/68	F/89	F/120	E/60	F/86	-	F/81
SR 528 eastbound off-ramp	B/12	-	A/3	-	-	-	-	C/28	-	-	C/29		B/16
Voltaire Drive													
SR 528 westbound ramps	-	-	-	D/54	-	C/25	C/31	A/2	-	-	D/43	A/4	C/27
SR 528 eastbound ramps	F/86	-	A/4	-	-	-	-	D/41	A/8	D/37	A/1	-	C/31

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

**Table 6.11
2045 Peak Hour No-Build Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
SR 482													
CR 423 SPUI	F/92	F/83	C/23	F/92	C/20	A/1	F/104	-	A/1	D/55	-	A/1	D/50
Lowe's/Walmart Entrance	-	F/195	B/18	F/189	B/12	-	-	-	F/136	E/58	E/68	F/240	F/117
Turnpike SPUI	D/45	F/305	A/2	F/240	C/34	B/17	F/307	-	D/46	-	-	-	F/189
Presidents Drive	F/163	D/45	-	E/73	F/81	A/4	E/73	F/208	-	F/81	F/109	B/15	E/65
Chancellor Drive	F/213	F/113	A/1	F/182	F/167	A/1	D/48	F/249	-	F/258	E/66	-	F/141
Lillwill Avenue	E/69	D/40	A/1	E/68	D/42	-	-	F/126	A/2	-	F/89	-	D/44
US 17/92/441	F/200	D/44	F/179	F/183	D/54	A/1	F/227	F/224	D/42	F/238	F/104	F/197	F/134
Skyview Drive	F/87	C/22	-	F/100	D/38	-	F/135	F/137	A/2	E/64	F/116	-	D/43
Golden Sky Lane	D/40	C/30	-	F/85	A/8	-	-	F/276	A/1	F/120	E/63	-	C/34
Voltaire Drive	F/83	C/20	A/1	D/50	D/46	A/6	E/75	D/35	-	E/61	E/78	-	D/37
Horizon Park Drive	F/169	A/9	A/1	E/75	E/69	A/1	F/215	D/42	-	E/60	E/63	-	D/54
US 17/92/441													
August Lane	E/65	D/48	-	-	F/89	B/16	E/63	B/16	A/3	E/70	B/12	-	B/16
Sunlife Path	-	F/111	A/1	F/86	F/131	A/3	E/63	B/16	-	F/119	B/16	-	C/22
La Quinta Drive	F/138	C/27	-	E/64	E/71	-	E/70	C/31	-	F/104	A/5	-	C/26
Landstreet Road	E/64	F/250	F/92	F/227	F/250	D/53	F/237	F/215	A/1	F/236	F/150	-	F/161
Ramp from Turnpike	-	-	-	-	-	D/46	-	D/49	-	-	-	-	C/26
Consulate Drive	F/116	F/105	F/184	F/84	E/59	-	E/62	C/30	-	F/87	F/131	F/125	F/103
Taft Vineland Road	F/156	F/196	A/3	F/147	F/103	C/27	F/96	F/117	-	F/141	C/36	-	F/88

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.11 (continued)
2045 Peak Hour No-Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Landstreet													
SR 528 westbound off-ramp*	-	-	-	-	-	-	F/262	-	F/280	-	-	-	F/280
SR 528 eastbound on-ramp*	-	-	-	B/12	-	-	-	-	-	-	-	-	B/12
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp	-	E/70	-	E/65	D/38	-	-	-	-	C/35	D/50	A/1	D/43
SR 528 eastbound off-ramp*	F/588	-	F/588	-	-	-	-	-	-	-	-	-	F/588
Delegates Drive*	F/119	-	C/22	-	-	-	E/36	-	-	-	-	-	F/119
Taft Vineland Road													
Satellite Boulevard*	A/9	-	-	C/17	-	-	F/584	-	F/60	F/>999	-	A/9	F/>999
Bachman Road*	A/9	-	-	B/10	-	-	-	F/267	-	-	F/920	-	F/920
CR 423													
SR 528 westbound ramps	-	-	-	E/76	-	-	-	C/21	-	-	B/12	-	C/27
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	B/20	-	F/111	-	-	B/18
McCoy Road													
SR 528 westbound ramps	-	D/45	A/1	E/64	C/35	-	-	-	-	E/70	D/42	-	D/43
Jetport Drive	-	F/83	B/11	-	-	-	D/51	E/79	D/48	B/19	C/31	-	D/43
SR 528 eastbound off-ramp	A/7	-	A/1	-	-	-	-	A/2	-	-	D/46	-	B/11

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.11 (continued)
2045 Peak Hour No-Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
SR 482													
CR 423 SPUI	F/107	F/113	F/80	F/116	E/58	A/10	F/116	-	A/2	E/67	-	A/1	E/78
Lowe's/Walmart Entrance	-	F/261	B/13	C/21	A/2	-	-	-	F/278	F/336	F/347	F/172	F/167
Turnpike SPUI	F/232	F/245	D/47	F/256	E/59	F/144	F/127	-	D/48	-	-	-	F/159
Presidents Drive	F/233	C/27	-	E/73	F/230	A/1	F/240	F/199	-	F/207	F/278	D/52	F/139
Chancellor Drive	F/224	D/41	A/1	F/201	F/194	A/3	E/74	F/265	-	F/275	F/144	-	F/132
Lillwill Avenue	F/262	D/43	A/5	F/259	F/188	-	-	F/154	A/4	-	F/259	-	F/130
US 17/92/441	F/382	F/112	F/172	F/371	F/384	A/4	F/393	F/388	F/286	F/416	F/280	F/107	F/302
Skyview Drive	F/349	F/113	-	F/307	F/370	-	F/90	F/388	D/37	F/86	F/419	-	F/270
Golden Sky Lane	F/138	F/126	-	F/232	F/251	-	-	F/133	C/26	F/378	C/30	-	F/193
Voltaire Drive	F/281	A/9	A/1	E/76	F/237	A/9	F/178	E/73	-	F/400	F/84	-	F/150
Horizon Park Drive	F/480	A/9	A/1	F/96	F/314	B/12	F/223	E/60	-	F/358	F/122	-	F/204
US 17/92/441													
August Lane	E/71	E/60	-	-	F/223	C/29	F/311	F/153	C/32	F/273	F/86	-	F/123
Sunlife Path	-	F/294	A/8	F/252	F/297	C/29	F/186	F/241	-	F/250	E/57	-	F/167
La Quinta Drive	F/178	D/50	-	F/83	E/60	-	F/335	F/91	-	F/296	B/14	-	E/65
Landstreet Road	F/120	F/401	F/302	F/414	F/399	F/184	F/93	F/319	A/1	F/390	F/340	-	F/302
Ramp from Turnpike	-	-	-	-	-	E/61	-	C/23	-	-	A	-	B/18
Consulate Drive	F/415	F/382	E/78	-	F/109	A/1	F/95	F/301	-	F/115	F/198	D/39	F/251
Taft Vineland Road	F/186	F/89	B/14	F/112	E/77	F/154	F/184	E/77	-	F/109	F/154	-	F/120

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.11 (continued)
2045 Peak Hour No-Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
Landstreet													
SR 528 westbound off-ramp*	-	-	-	-	-	-	F/177	-	F/857	-	-	-	F/857
SR 528 eastbound on-ramp*	-	-	-	B/12	-	-	-	-	-	-	-	-	B/12
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp	-	F/151	-	F/187	B/12	-	-	-	-	F/193	D/52	A/1	F/140
SR 528 eastbound off-ramp*	F/>999	-	F/>999	-	-	-	-	-	-	-	-	-	F/>999
Delegates Drive*	F/471	-	E/49	-	-	-	E/39	-	-	-	-	-	F/471
Taft Vineland Road													
Satellite Boulevard*	A/9	-	-	B/11	-	-	F/620	-	F/81	E/47	-	B/11	F/620
Bachman Road*	C/17	-	-	A/9	-	-	-	F/>999	-	-	F/>999	-	F/>999
CR 423													
SR 528 westbound ramps	-	-	-	F/88	-	-	-	A/7	-	-	D/40	-	D/35
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	C/30	-	E/66	-	-	C/20
McCoy Road													
SR 528 westbound ramps	-	E/78	A/1	F/369	A/8	-	-	-	-	F/143	F/84	-	F/81
Jetport Drive	-	F/119	C/24	-	-	-	E/68	F/97	F/155	E/79	F/81	-	F/92
SR 528 eastbound off-ramp	B/15	-	A/5	-	-	-	-	C/31	-	-	C/26	-	B/20

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

**Table 6.12
2045 Peak Hour Build Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
SR 482													
CR 423 SPUI	E/74	E/59	C/22	E/69	C/26	A/2	F/171	-	A/1	E/62	-	A/1	D/50
Lowe's/Walmart Entrance	-	E/72	A/4	F/134	A/7	-	-	-	F/132	E/60	E/67	F/149	E/58
Turnpike SPUI	D/52	F/214	A/1	F/192	D/44	B/10	F/351	-	D/50	-	-	-	F/163
Presidents Drive	F/144	C/28	-	E/57	C/30	A/1	E/73	F/208	-	F/81	F/109	B/15	D/38
Chancellor Drive	F/189	E/58	A/2	F/180	F/127	A/6	D/44	F/207	-	F/214	E/60	-	F/101
Lillwill Avenue	F/91	B/19	A/1	E/63	C/25	-	-	F/117	A/2	-	F/85	-	C/26
US 17/92/441	F/115	C/23	F/152	F/190	C/31	A/2	F/200	E/77	D/49	F/109	F/205	F/173	F/110
Skyview Drive	F/86	C/22	-	F/110	C/20	-	F/109	F/111	A/2	E/63	F/107	-	D/36
Golden Sky Lane	E/65	C/20	-	F/85	C/35	-	-	F/88	A/1	E/63	D/52	-	C/34
Voltaire Drive	F/109	B/17	A/1	F/121	C/28	A/1	E/72	E/59	-	E/68	F/102	A/1	D/35
Horizon Park Drive	E/79	C/27	A/3	E/76	D/43	A/1	F/214	D/38	-	E/56	D/50	-	D/43
US 17/92/441													
August Lane	E/64	D/47	-	-	F/87	B/15	E/66	B/13	A/4	F/92	B/18	-	B/19
Sunlife Path	-	F/104	A/1	F/86	F/131	A/3	E/77	B/14	-	F/93	C/25	-	C/26
La Quinta Drive	F/139	C/26	-	E/63	E/71	-	F/81	B/15	-	F/88	A/8	-	B/19
Landstreet Road	E/72	F/199	B/12	F/164	F/364	D/41	F/220	E/62	A/1	F/99	F/162	-	F/128
Ramp from Turnpike	-	-	-	-	-	E/69	-	B/15	-	-	A/2	-	B/13
Consulate Drive	C/21	-	D/47	-	-	A/3	E/55	-	-	-	E/56	F/86	D/45
Taft Vineland Road	F/87	F/96	A/1	F/116	E/68	B/11	F/96	E/60	-	F/89	C/29	-	E/59

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.12 (continued)
2045 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp (DDI)	-	E/79	-	-	-	-	-	A/4	-	-	-	-	B/14
SR 528 eastbound off-ramp (DDI)	-	-	-	-	C/27	-	-	-	-	-	D/39	-	C/32
Delegates Drive*	F/72	-	C/18	-	-	-	C/22	-	-	-	-	-	F/72
Taft Vineland Road													
Satellite Boulevard*	A/10	-	-	C/19	-	-	F/>999	-	F/192	E/42	-	B/11	F/>999
Turnpike's ramps	E/64	A/9	-	-	C/26	A/9	-	-	-	E/63	-	C/27	C/31
Bachman Road	B/16	D/39	-	-	C/34	-	D/51	E/69	-	F/98	-	C/22	D/43
CR 423													
SR 528 westbound ramps	-	-	-	E/74	-	-	-	C/31	-	-	B/13	-	C/34
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	C/32	-	F/135	-	-	C/31
McCoy Road													
SR 528 westbound ramps	-	D/43	A/1	D/42	C/24	-	-	-	-	F/82	D/46	-	D/39
Jetport Drive	-	F/90	B/11	-	-	-	D/51	F/89	D/41	B/18	D/46	-	D/50
SR 528 eastbound off-ramp	A/7	-	A/1	-	-	-	-	A/2	-	-	D/46	-	B/11
Voltaire Drive													
SR 528 westbound ramps	-	-	-	D/39	-	C/20	C/29	A/3	-	-	E/74	A/6	C/32
SR 528 eastbound ramps	F/87	-	A/4	-	-	-	-	E/68	A/3	D/48	A/1	-	D/38

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.12 (continued)
2045 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
SR 482													
CR 423 SPUI	F/95	F/91	E/77	F/103	E/59	B/12	F/109	-	A/2	E/66	-	A/1	E/70
Lowe's/Walmart Entrance	-	F/211	B/11	C/20	A/1	-	-	-	F/255	F/186	F/204	D/47	F/125
Turnpike SPUI	F/96	F/124	E/55	F/330	C/24	B/13	F/219	-	E/56	-	-	-	F/100
Presidents Drive	F/199	C/22	-	E/73	F/174	A/1	F/240	F/174	-	F/207	F/242	D/49	F/110
Chancellor Drive	F/201	B/20	A/1	F/105	F/146	A/3	E/73	F/234	-	F/235	F/124	-	F/98
Lillwill Avenue	F/275	C/30	A/6	F/269	F/127	-	-	F/143	A/4	-	F/223	-	F/93
US 17/92/441	F/345	E/80	F/186	F/300	F/305	B/12	F/372	F/216	F/274	F/355	F/351	E/74	F/260
Skyview Drive	F/430	E/66	-	F/263	F/292	-	F/87	F/359	D/36	F/84	F/389	-	F/220
Golden Sky Lane	F/145	D/52	-	F/171	F/190	-	-	F/149	C/23	F/497	C/32	-	F/136
Voltaire Drive	F/330	C/26	A/1	F/90	F/201	A/7	F/259	F/193	-	F/274	F/181	A/2	F/143
Horizon Park Drive	F/385	A/4	A/1	F/96	F/223	B/13	F/222	E/57	-	F/279	F/96	-	F/156
US 17/92/441													
August Lane	E/62	E/56	-	-	F/169	C/21	F/311	F/127	D/55	F/225	F/93	-	F/111
Sunlife Path	-	F/226	A/8	F/206	F/244	C/21	F/161	F/199	-	F/215	F/116	-	F/160
La Quinta Drive	F/195	D/48	-	E/79	F/112	-	F/333	E/63	-	F/135	D/52	-	E/65
Landstreet Road	F/106	F/331	F/85	F/341	F/519	F/170	F/311	F/190	A/1	F/309	F/280	-	F/246
Ramp from Turnpike	-	-	-	-	-	D/41	-	A/10	-	-	A/6	-	A/9
Consulate Drive	D/55	-	C/30	-	-	A/10	F/147	-	-	-	E/77	E/69	D/54
Taft Vineland Road	F/82	F/115	B/11	F/147	F/91	B/16	F/132	E/67	-	C/34	C/22	-	E/60

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.12 (continued)
2045 Peak Hour Build Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
PM													
Consulate Drive													
Turnpike southbound off-ramp/westbound on-ramp (DDI)	-	D/43	-	-	A/8	-	-	-	-	-	-	-	C/31
SR 528 eastbound off-ramp (DDI)	-	-	-	-	D/53	-	-	-	-	-	C/23	-	D/37
Delegates Drive*	F/88	-	C/23	-	-	-	C/19	-	-	-	-	-	F/88
Taft Vineland Road													
Satellite Boulevard*	A/10	-	-	C/22	-	-	F/>999	-	F/376	F/>999	-	B/11	F/>999
Turnpike's Ramps	D/53	B/11	-	-	B/14	D/35	-	-	-	D/47	-	B/18	C/27
Bachman Road	F/81	B/14	-	-	E/60	-	F/103	F/94	-	F/116	-	B/16	D/55
CR 423													
SR 528 westbound ramps	-	-	-	F/90	-	-	-	B/14	-	-	D/43	-	D/41
SR 528 eastbound on-ramp	-	-	-	-	-	-	-	D/43	-	E/72	-	-	C/29
McCoy Road													
SR 528 westbound ramps	-	F/80	A/1	F/108	B/11	-	-	-	-	F/173	F/84	-	E/70
Jetport Drive	-	F/140	C/25	-	-	-	E/68	F/100	F/155	F/81	F/128	-	F/109
SR 528 eastbound off-ramp	B/16	-	A/5	-	-	-	-	C/34	-	-	C/23		C/20
Voltaire Drive													
SR 528 westbound ramps	-	-	-	D/52	-	C/23	C/29	A/2	-	-	D/48	A/4	C/28
SR 528 eastbound ramps	F/86	-	A/4	-	-	-	-	D/47	A/9	D/35	A/1	-	C/32

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

6.2.4 Microsimulation Evaluation

VISSIM driving behavior parameters used to calibrate the existing conditions model were carried over to the future year analysis. In addition, parameter sets for the EL Basic Freeway and Merge/Diverge segments were created in the future year models. Driving parameters for the EL segments were adopted from the previous Interchange Justification Report (IJR) VISSIM models that identified the EL driving behavior parameters. The driving behavior parameters adjusted for the purposes of evaluating the proposed interchange are documented in the calibration report provided in **Appendix D**. The speed distribution on the ELs was assumed to be 5 mph higher than on the adjacent GTL. Emergency stop and lane change distances for connectors were adjusted at a few locations where geometry changed. Analysis for the future years assumed AET at the toll plazas. The future conditions VISSIM analysis was performed for the purpose of evaluating the following alternatives:

- No-Build
- Alternative 1
- Alternative 2, Option 1
- Alternative 2, Option 2
- Alternative 3

The alternative evaluation analysis is provided in **Appendix H**.

This section of the report provides a summary of the No-Build and Build (Preferred Alternative or Alternative 3) analyses. Build Alternative 3, which is also the Preferred Alternative or Build Conditions, and No-Build Alternative were evaluated for the 2025 opening, 2035 interim, and 2045 design years as presented in **Tables 6.14** through **6.25**.

To assess the operational aspects of the proposed design with the future demand in the three Future Build Years, the vehicle network performance process rates, total travel times, total delay times, average delays, and average speeds were compared between the No-Build and Build Conditions. **Table 6.13** summarize the VISSIM Network-wide Vehicle Performance measure of effectiveness.

The analysis of the Preferred Alternative in comparison to No-Build conditions revealed improvements to the eastbound SR 528 Consulate Drive off-ramp and the Consulate Drive at US 17/92/441 intersection for both AM and PM peak hours. Ramp braiding along the Florida's Turnpike between the new reliever interchange at Florida's Turnpike/Taft Vineland Road interchange and the SR 528 direct connect ramps improves the weaving segment by improving the process rates that are achieved. The southbound Florida's Turnpike auxiliary lane between the SR 482 on-ramp and the SR 528 direct connect off-ramps assist in improving traffic operations. The new northbound C-D road in the Build Conditions improves the mainline congestion and reduces turbulence experienced in the No-Build conditions.

Table 6.13
VISSIM Network Vehicle Performance

Performance Measure	No-Build		Build		% Difference	
	AM	PM	AM	PM	AM	PM
2025						
Vehicle Network Performance Processed Demand*	98.5%	97.9%	99.2%	99.1%	0.7%	1.2%
Total Travel Time (hour)	30,102	43,865	27,289	32,366	-9%	-26%
Total Delay Time (hour)	9,298	22,062	6,673	10,890	-28%	-51%
Average Delay (sec/veh)	152	323	108	162	-29%	-50%
Average Speed (mph)	43	30	47	40	10%	32%
2035						
Vehicle Network Performance Processed Demand*	96.8%	90.3%	98.0%	95.4%	1.2%	5.1%
Total Travel Time (hour)	44,347	67,331	35,956	47,728	-19%	-29%
Total Delay Time (hour)	20,376	41,864	12,063	22,578	-41%	-46%
Average Delay (sec/veh)	290	538	171	293	-41%	-45%
Average Speed (mph)	35	23	42	32	19%	37%
2045						
Vehicle Network Performance Processed Demand*	91.8%	85.2%	94.9%	92.0%	3.1%	6.8%
Total Travel Time (hour)	63,630	90,815	48,539	63,236	-24%	-30%
Total Delay Time (hour)	37,156	62,442	22,067	35,091	-41%	-44%
Average Delay (sec/veh)	468	713	278	403	-41%	-44%
Average Speed (mph)	28	20	35	27	24%	38%

*Process rate calculated from Latent Demand.

Figure 6.4 shows the latent demand for the years 2025, 2035, and 2045 for No-Build conditions and the Build Conditions. It is noteworthy that the latent demand for 2045 is proportionally higher than the other future years and the latent demand is higher overall in the PM peak hour. The reduction in latent demand for the Build Conditions is indicative of the presence of more vehicles on the mainline and surface street corridors. However, when more demand is processed it can result in more saturated traffic conditions and reduced speeds on adjacent corridors.

Figure 6.4
Latent Demand Comparisons

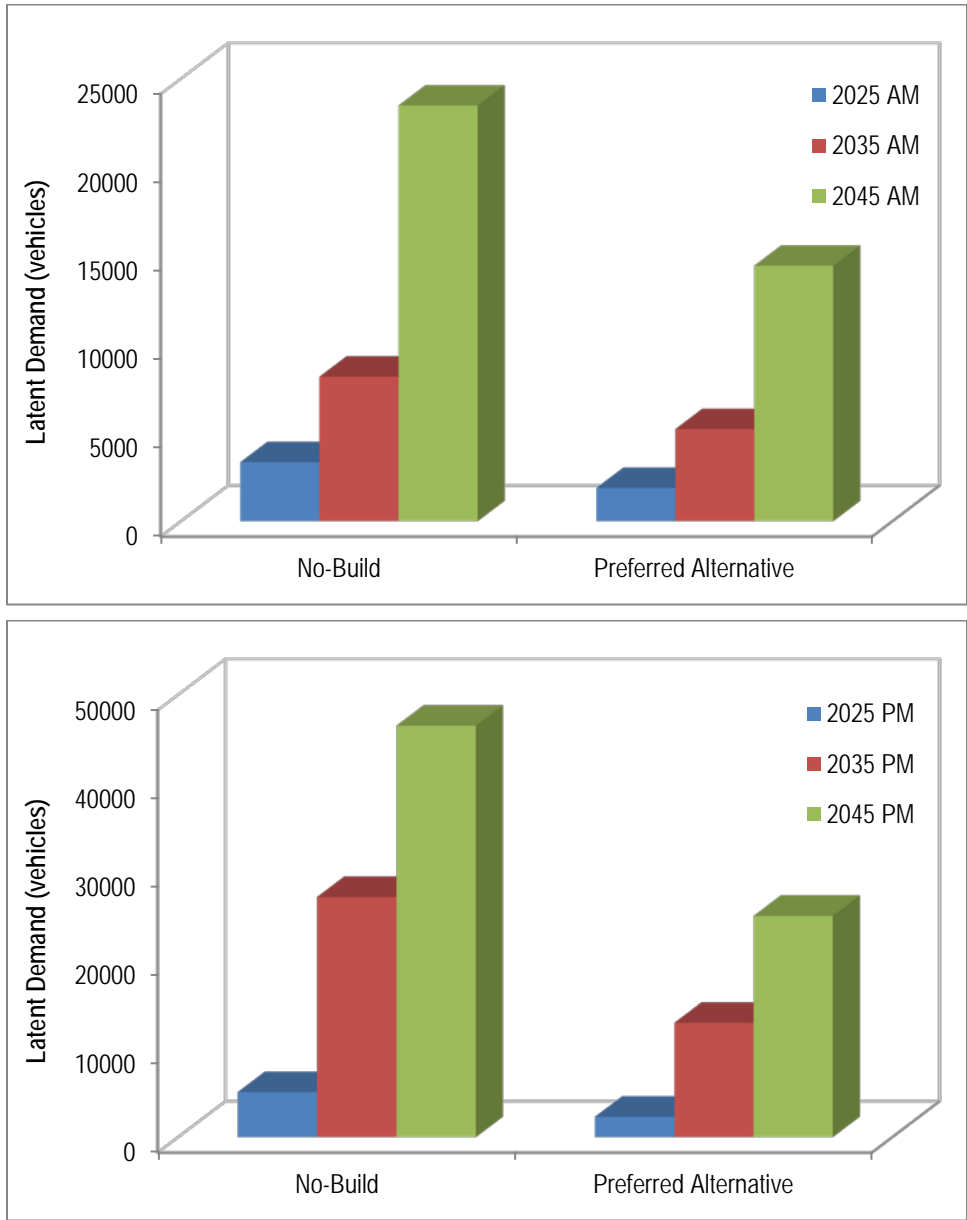


Table 6.14
2025 No-Build AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	590	1,300	510	320	1,190	320	220	1,320	490	490	1,390	320	8,460
S.R. 482 & Lowe's/Walmart Entrance*	-	-	200	640	40	500	-	1,930	220	350	1,700	-	5,580
S.R. 482 & Presidents Drive	90	90	30	90	80	130	170	2,050	220	40	2,230	200	5,420
Landstreet Road & U.S. 17/92/441	210	1,590	490	270	1,370	40	150	360	460	310	80	360	5,690
Turnpike Off-ramp & U.S. 17/92/441	-	1,320	-	-	-	-	-	-	-	-	970	-	2,290
Consulate Drive & U.S. 17/92/441	270	1,360	20	20	1,240	820	670	20	720	20	10	20	5,190
S.R. 528 Westbound Off-ramp & Landstreet Road*	200	-	440	-	-	-	-	530	-	-	330	-	1,500
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	780	340	30	750	-	1,900
Turnpike Southbound Off-ramp & Consulate Drive	540	500	-	-	60	40	-	-	-	440	530	390	2,500
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	970	-	-	500	-	70	-	990	-	-	-	2,530
S.R. 528 Westbound Ramps & C.R. 423	-	2,680	1,270	-	930	380	-	-	-	460	-	870	6,590
S.R. 528 Eastbound On-ramp & C.R. 423	-	3,340	810	130	1,260	-	-	-	980	-	-	-	6,520
Percentage Served													
S.R. 482 & C.R. 423	100%	100%	100%	100%	100%	89%	38%	50%	39%	99%	100%	97%	91%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	100%	100%	100%	100%	-	72%	69%	89%	97%	-	94%
S.R. 482 & Presidents Drive	85%	80%	73%	99%	83%	100%	100%	100%	99%	81%	81%	84%	93%
Landstreet Road & U.S. 17/92/441	94%	93%	94%	100%	100%	100%	98%	95%	95%	100%	100%	100%	100%
Turnpike Off-ramp & U.S. 17/92/441	-	94%	-	-	-	-	-	-	-	-	96%	-	95%
Consulate Drive & U.S. 17/92/441	100%	100%	100%	76%	100%	100%	90%	78%	88%	86%	100%	100%	100%
S.R. 528 Westbound Off-ramp & Landstreet Road*	92%	-	95%	-	-	-	-	98%	-	-	100%	-	98%
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	100%	82%	100%	100%	-	100%
Turnpike Southbound Off-ramp & Consulate Drive	100%	87%	-	-	100%	100%	-	-	-	0%	0%	0%	49%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	100%	-	-	94%	-	95%	-	92%	-	-	-	98%
S.R. 528 Westbound Ramps & C.R. 423	-	94%	95%	-	95%	100%	-	-	-	100%	-	100%	100%
S.R. 528 Eastbound On-ramp & C.R. 423	-	92%	99%	100%	98%	-	-	-	0%	-	-	-	81%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	1	157	83	0	1	>180	>180	>180	47	31	0	167
S.R. 482 & Lowe's/Walmart Entrance*	-	-	22	37	46	19	-	>180	>180	37	5	-	76
S.R. 482 & Presidents Drive	>180	>180	>180	59	68	27	57	11	11	119	92	61	87
Landstreet Road & U.S. 17/92/441	172	90	44	>180	101	101	118	121	64	>180	>180	107	123
Turnpike Off-ramp & U.S. 17/92/441	-	69	-	-	-	-	-	-	-	-	47	-	59
Consulate Drive & U.S. 17/92/441	47	7	9	88	34	8	80	91	54	80	78	11	30
S.R. 528 Westbound Off-ramp & Landstreet Road*	>180	-	160	-	-	-	-	>180	-	-	-	-	>180
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0	0	>180	>180	-	168
Turnpike Southbound Off-ramp & Consulate Drive	31	16	-	-	42	8	-	-	-	-	-	-	19
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	0	-	-	14	-	>180	-	>180	-	-	-	104
S.R. 528 Westbound Ramps & C.R. 423	-	12	5	-	8	0	-	-	-	56	-	3	12
S.R. 528 Eastbound On-ramp & C.R. 423	-	49	20	59	-	-	-	-	-	-	-	-	29
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	1662 (2451)	-	1681 (2470)	131 (361)	-	45 (389)	15475	15475	15477	155 (498)	155 (498)	30 (437)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	38 (263)	215 (528)	215 (528)	215 (528)	-	1057 (1287)	1057 (1287)	92 (401)	92 (401)	-	-
S.R. 482 & Presidents Drive	1744 (2032)	1744 (2032)	1633 (1922)	61 (217)	61 (217)	61 (217)	105 (359)	105 (359)	105 (359)	869 (1356)	869 (1356)	869 (1356)	-
Landstreet Road & U.S. 17/92/441	677 (1161)	677 (1161)	677 (1161)	1094 (1537)	1094 (1537)	1094 (1537)	582 (701)	582 (701)	582 (701)	1416 (1508)	1416 (1508)	1416 (1508)	-
Turnpike Off-ramp & U.S. 17/92/441	-	326 (746)	-	-	-	-	-	-	-	-	126 (389)	-	-
Consulate Drive & U.S. 17/92/441	233 (935)	233 (935)	233 (935)	306 (1109)	306 (1109)	306 (1109)	1096 (1237)	1096 (1237)	1124 (1265)	26 (138)	26 (138)	26 (138)	-
S.R. 528 Westbound Off-ramp & Landstreet Road*	21752	-	21629	-	-	-	-	4778 (5180)	-	-	-	-	-
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0 (24)	0 (46)	1903 (2441)	1903 (2441)	-	-
Turnpike Southbound Off-ramp & Consulate Drive	116 (511)	116 (511)	-	-	22 (175)	2 (56)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	0 (39)	-	-	1 (51)	-	2637 (3198)	-	3782 (4531)	-	-	-	-
S.R. 528 Westbound Ramps & C.R. 423	-	293 (1392)	106 (825)	-	28 (241)	-	-	-	-	137 (582)	-	23 (337)	-
S.R. 528 Eastbound On-ramp & C.R. 423	-	7793 (8820)	7100 (8127)	46 (189)	-	-	-	-	-	-	-	-	-

- Not Applicable

*Unsignalized

Table 6.15
2025 No-Build PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	730	1,580	710	390	1,400	300	410	1,480	800	540	1,380	190	9,910
S.R. 482 & Lowe's/Walmart Entrance*	-	-	560	660	60	230	-	2,400	180	500	1,880	-	6,470
S.R. 482 & Presidents Drive	150	110	30	140	180	230	160	2,410	210	30	2,560	150	6,360
Landstreet Road & U.S. 17/92/441	120	2,040	410	280	2,200	30	200	390	580	480	110	460	7,300
Turnpike Off-ramp & U.S. 17/92/441	-	2,050	-	-	-	-	-	-	-	-	520	-	2,570
Consulate Drive & U.S. 17/92/441	110	2,360	10	30	1,610	610	1,390	30	470	30	40	30	6,720
S.R. 528 Westbound Off-ramp & Landstreet Road*	60	-	330	-	-	-	-	840	-	-	260	-	1,490
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	630	450	160	1,050	-	2,290
Turnpike Southbound Off-ramp & Consulate Drive	620	180	-	-	430	230	-	-	-	370	210	50	2,090
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	770	-	-	800	-	30	-	1,080	-	-	-	2,680
S.R. 528 Westbound Ramps & C.R. 423	-	1,600	910	-	2,650	680	-	-	-	610	-	330	6,780
S.R. 528 Eastbound On-ramp & C.R. 423	-	2,020	720	610	2,650	-	-	-	1,160	-	-	-	7,160
Percentage Served													
S.R. 482 & C.R. 423	86%	87%	82%	94%	98%	98%	99%	94%	96%	89%	88%	90%	91%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	56%	96%	100%	97%	-	89%	89%	84%	87%	-	87%
S.R. 482 & Presidents Drive	60%	64%	59%	97%	97%	99%	83%	84%	87%	82%	87%	88%	86%
Landstreet Road & U.S. 17/92/441	78%	81%	80%	81%	79%	82%	71%	75%	73%	84%	83%	84%	80%
Turnpike Off-ramp & U.S. 17/92/441	-	76%	-	-	-	-	-	-	-	-	99%	-	81%
Consulate Drive & U.S. 17/92/441	67%	71%	63%	80%	81%	82%	83%	84%	85%	83%	81%	79%	78%
S.R. 528 Westbound Off-ramp & Landstreet Road*	98%	-	95%	-	-	-	-	65%	-	-	81%	-	76%
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	80%	76%	85%	84%	-	82%
Turnpike Southbound Off-ramp & Consulate Drive	81%	77%	-	-	93%	93%	-	-	-	0%	0%	0%	60%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	80%	-	-	94%	-	73%	-	75%	-	-	-	82%
S.R. 528 Westbound Ramps & C.R. 423	-	69%	58%	-	94%	96%	-	-	-	92%	-	94%	83%
S.R. 528 Eastbound On-ramp & C.R. 423	-	56%	33%	85%	95%	-	-	-	0%	-	-	-	61%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	25	>180	>180	12	>180	126	>180	78	47	33	3	121
S.R. 482 & Lowe's/Walmart Entrance*	-	-	>180	>180	>180	33	-	112	124	>180	7	-	135
S.R. 482 & Presidents Drive	>180	>180	>180	146	113	49	139	86	58	110	66	46	124
Landstreet Road & U.S. 17/92/441	154	60	24	>180	125	150	126	130	80	>180	>180	110	116
Turnpike Off-ramp & U.S. 17/92/441	-	8	-	-	-	-	-	-	-	-	34	-	14
Consulate Drive & U.S. 17/92/441	165	>180	>180	123	34	3	82	80	45	>180	>180	>180	116
S.R. 528 Westbound Off-ramp & Landstreet Road*	51	-	51	-	-	-	-	>180	-	-	-	-	>180
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	-	0	>180	>180	-	>180
Turnpike Southbound Off-ramp & Consulate Drive	33	7	-	-	>180	>180	-	-	-	-	-	-	99
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	-	-	80	-	>180	-	>180	-	-	-	>180
S.R. 528 Westbound Ramps & C.R. 423	-	8	1	-	>180	79	-	-	-	79	-	2	149
S.R. 528 Eastbound On-ramp & C.R. 423	-	>180	>180	>180	1	-	-	-	-	-	-	-	>180
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	5311 (5798)	-	5327 (5817)	1900 (2984)	-	1865 (2964)	2282 (3931)	2282 (3931)	2237 (3933)	202 (615)	202 (615)	56 (576)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	3966 (4069)	434 (916)	434 (916)	434 (916)	-	800 (1296)	800 (1296)	380 (776)	380 (776)	-	-
S.R. 482 & Presidents Drive	2491 (2552)	2491 (2552)	2381 (2442)	437 (989)	437 (989)	437 (989)	581 (1166)	581 (1166)	581 (1166)	346 (814)	346 (814)	346 (814)	-
Landstreet Road & U.S. 17/92/441	405 (1032)	405 (1032)	405 (1032)	1384 (1812)	1384 (1812)	1384 (1812)	505 (682)	505 (682)	505 (682)	1383 (1515)	1383 (1515)	1383 (1515)	-
Turnpike Off-ramp & U.S. 17/92/441	-	49 (332)	-	-	-	-	-	-	-	-	61 (210)	-	-
Consulate Drive & U.S. 17/92/441	2219 (2518)	2219 (2518)	2219 (2518)	202 (793)	202 (793)	202 (793)	841 (1229)	841 (1229)	868 (1257)	845 (951)	845 (951)	845 (951)	-
S.R. 528 Westbound Off-ramp & Landstreet Road*	204 (735)	-	232 (1232)	-	-	-	-	5363 (5576)	-	-	-	-	-
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0 (19)	2 (145)	5155 (5789)	5155 (5789)	-	-
Turnpike Southbound Off-ramp & Consulate Drive	81 (342)	81 (342)	-	-	2462 (3516)	2426 (3545)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	-	-	213 (623)	-	2522 (2873)	-	6937 (7114)	-	-	-	-
S.R. 528 Westbound Ramps & C.R. 423	-	32 (234)	-	-	3004 (4414)	2675 (4017)	-	-	-	214 (677)	-	54 (432)	-
S.R. 528 Eastbound On-ramp & C.R. 423	-	4399 (4564)	8092 (8137)	1143 (1410)	-	-	-	-	-	-	-	-	-

- Not Applicable

*Unsignalized

Table 6.16
2035 No-Build AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	665	1,445	567	346	1,356	284	213	1,737	523	594	1,693	390	9,811
S.R. 482 & Lowe's/Walmart Entrance*	-	-	230	1,090	62	674	-	2,384	266	399	2,003	-	7,108
S.R. 482 & Presidents Drive	97	89	27	89	71	160	248	2,925	319	44	2,402	213	6,682
Landstreet Road & U.S. 17/92/441	222	1,693	523	346	1,773	53	177	425	558	408	115	470	6,762
Turnpike Off-ramp & U.S. 17/92/441	-	1,383	-	-	-	-	-	-	-	-	1,055	-	2,437
Consulate Drive & U.S. 17/92/441	310	1,657	27	18	1,746	975	744	18	789	18	18	27	6,346
S.R. 528 Westbound Off-ramp & Landstreet Road*	230	-	514	-	-	-	-	647	-	-	390	-	1,781
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	957	337	44	993	-	2,331
Turnpike Southbound Off-ramp & Consulate Drive	753	487	-	-	71	53	-	-	-	505	567	452	2,889
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	1,170	-	-	576	-	71	-	1,055	-	-	-	2,871
S.R. 528 Westbound Ramps & C.R. 423	-	2,703	1,312	-	886	487	-	-	-	585	-	1,090	7,063
S.R. 528 Eastbound On-ramp & C.R. 423	-	3,341	842	168	1,303	-	-	-	922	-	-	-	6,576
Percentage Served													
S.R. 482 & C.R. 423	95%	99%	95%	97%	100%	100%	39%	38%	37%	82%	82%	80%	79%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	98%	83%	80%	81%	-	58%	57%	78%	82%	-	73%
S.R. 482 & Presidents Drive	79%	81%	82%	100%	94%	100%	70%	74%	68%	73%	75%	79%	76%
Landstreet Road & U.S. 17/92/441	89%	88%	88%	81%	86%	86%	83%	81%	78%	85%	86%	91%	86%
Turnpike Off-ramp & U.S. 17/92/441	-	89%	-	-	-	-	-	-	-	-	88%	-	89%
Consulate Drive & U.S. 17/92/441	98%	99%	96%	85%	85%	86%	81%	87%	80%	97%	100%	96%	88%
S.R. 528 Westbound Off-ramp & Landstreet Road*	80%	-	81%	-	-	-	-	80%	-	-	88%	-	82%
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	84%	83%	95%	93%	-	88%
Turnpike Southbound Off-ramp & Consulate Drive	89%	89%	-	-	100%	97%	-	-	-	0%	0%	0%	43%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	88%	-	-	81%	-	94%	-	86%	-	-	-	86%
S.R. 528 Westbound Ramps & C.R. 423	-	94%	92%	-	100%	100%	-	-	-	89%	-	87%	93%
S.R. 528 Eastbound On-ramp & C.R. 423	-	92%	95%	100%	94%	-	-	-	0%	-	-	-	80%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	1	157	83	0	1	>180	>180	>180	47	31	0	167
S.R. 482 & Lowe's/Walmart Entrance*	-	-	22	37	46	19	-	>180	>180	37	5	-	76
S.R. 482 & Presidents Drive	>180	>180	>180	59	68	27	57	11	11	119	92	61	87
Landstreet Road & U.S. 17/92/441	172	90	44	>180	101	101	118	121	64	>180	>180	107	123
Turnpike Off-ramp & U.S. 17/92/441	-	69	-	-	-	-	-	-	-	-	47	-	59
Consulate Drive & U.S. 17/92/441	47	7	9	88	34	8	80	91	54	80	78	11	30
S.R. 528 Westbound Off-ramp & Landstreet Road*	>180	-	160	-	-	-	-	>180	-	-	-	-	>180
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0	0	>180	>180	-	168
Turnpike Southbound Off-ramp & Consulate Drive	31	16	-	-	42	8	-	-	-	-	-	-	19
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	0	-	-	14	-	>180	-	>180	-	-	-	104
S.R. 528 Westbound Ramps & C.R. 423	-	12	5	-	8	0	-	-	-	56	-	3	12
S.R. 528 Eastbound On-ramp & C.R. 423	-	49	20	59	-	-	-	-	-	-	-	-	29
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	1662 (2451)	-	1681 (2470)	131 (361)	-	45 (389)	15475	15475	15477	155 (498)	155 (498)	30 (437)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	38 (263)	215 (528)	215 (528)	215 (528)	-	1057 (1287)	1057 (1287)	92 (401)	92 (401)	-	-
S.R. 482 & Presidents Drive	1744 (2032)	1744 (2032)	1633 (1922)	61 (217)	61 (217)	61 (217)	105 (359)	105 (359)	105 (359)	869 (1356)	869 (1356)	869 (1356)	-
Landstreet Road & U.S. 17/92/441	677 (1161)	677 (1161)	677 (1161)	1094 (1537)	1094 (1537)	1094 (1537)	582 (701)	582 (701)	582 (701)	1416 (1508)	1416 (1508)	1416 (1508)	-
Turnpike Off-ramp & U.S. 17/92/441	-	326 (746)	-	-	-	-	-	-	-	-	126 (389)	-	-
Consulate Drive & U.S. 17/92/441	233 (935)	233 (935)	233 (935)	306 (1109)	306 (1109)	306 (1109)	1096 (1237)	1096 (1237)	1124 (1265)	26 (138)	26 (138)	26 (138)	-
S.R. 528 Westbound Off-ramp & Landstreet Road*	21752	-	21629	-	-	-	-	4778 (5180)	-	-	-	-	-
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0 (24)	0 (46)	1903 (2441)	1903 (2441)	-	-
Turnpike Southbound Off-ramp & Consulate Drive	116 (511)	116 (511)	-	-	22 (175)	2 (56)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	0 (39)	-	-	1 (51)	-	2637 (3198)	-	3782 (4531)	-	-	-	-
S.R. 528 Westbound Ramps & C.R. 423	-	293 (1392)	106 (825)	-	28 (241)	-	-	-	-	137 (582)	-	23 (337)	-
S.R. 528 Eastbound On-ramp & C.R. 423	-	7793 (8820)	7100 (8127)	46 (189)	-	-	-	-	-	-	-	-	-

- Not Applicable

*Unsignalized

Table 6.17
2035 No-Build PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	827	1,797	810	587	1,468	276	418	1,913	792	560	1,664	196	11,307
S.R. 482 & Lowe's/Walmart Entrance*	-	-	641	632	62	222	-	3,078	231	560	2,197	-	7,624
S.R. 482 & Presidents Drive	142	107	36	142	169	267	187	2,891	249	27	3,603	151	7,971
Landstreet Road & U.S. 17/92/441	142	2,393	480	320	2,500	36	276	516	792	632	151	614	8,852
Turnpike Off-ramp & U.S. 17/92/441	-	2,411	-	-	-	-	-	-	-	-	605	-	3,016
Consulate Drive & U.S. 17/92/441	107	2,447	18	27	1,993	667	1,770	36	596	36	36	36	7,767
S.R. 528 Westbound Off-ramp & Landstreet Road*	71	-	391	-	-	-	-	1,192	-	-	329	-	1,984
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	730	587	178	1,397	-	2,891
Turnpike Southbound Off-ramp & Consulate Drive	623	231	-	-	463	294	-	-	-	587	214	71	2,482
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	818	-	-	1,050	-	36	-	1,343	-	-	-	3,247
S.R. 528 Westbound Ramps & C.R. 423	-	1,637	881	-	2,802	721	-	-	-	658	-	356	7,055
S.R. 528 Eastbound On-ramp & C.R. 423	-	1,895	934	747	2,713	-	-	-	1,183	-	-	-	7,473
Percentage Served													
S.R. 482 & C.R. 423	68%	67%	66%	67%	71%	68%	76%	75%	75%	74%	77%	78%	72%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	48%	86%	87%	87%	-	72%	72%	76%	76%	-	73%
S.R. 482 & Presidents Drive	67%	68%	66%	96%	98%	100%	69%	72%	71%	69%	73%	72%	74%
Landstreet Road & U.S. 17/92/441	73%	73%	74%	71%	70%	70%	52%	57%	55%	63%	62%	64%	67%
Turnpike Off-ramp & U.S. 17/92/441	-	71%	-	-	-	-	-	-	-	-	86%	-	74%
Consulate Drive & U.S. 17/92/441	68%	71%	60%	66%	69%	69%	66%	73%	67%	86%	74%	81%	69%
S.R. 528 Westbound Off-ramp & Landstreet Road*	95%	-	95%	-	-	-	-	42%	-	-	68%	-	58%
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	70%	63%	64%	64%	-	65%
Turnpike Southbound Off-ramp & Consulate Drive	71%	68%	-	-	60%	61%	-	-	-	0%	0%	0%	43%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	70%	-	-	76%	-	60%	-	58%	-	-	-	67%
S.R. 528 Westbound Ramps & C.R. 423	-	32%	3%	-	43%	47%	-	-	-	86%	-	88%	42%
S.R. 528 Eastbound On-ramp & C.R. 423	-	3%	1%	46%	52%	-	-	-	0%	-	-	-	24%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	32	>180	>180	45	>180	>180	>180	170	58	26	2	178
S.R. 482 & Lowe's/Walmart Entrance*	-	-	>180	>180	>180	>180	-	113	130	117	5	-	164
S.R. 482 & Presidents Drive	>180	>180	>180	136	98	34	117	53	37	92	25	19	87
Landstreet Road & U.S. 17/92/441	>180	94	54	>180	128	143	130	136	81	>180	>180	108	128
Turnpike Off-ramp & U.S. 17/92/441	-	55	-	-	-	-	-	-	-	-	>180	-	130
Consulate Drive & U.S. 17/92/441	175	>180	>180	111	36	4	79	85	43	>180	>180	>180	114
S.R. 528 Westbound Off-ramp & Landstreet Road*	97	-	87	-	-	-	-	>180	-	-	-	-	>180
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0	0	>180	>180	-	>180
Turnpike Southbound Off-ramp & Consulate Drive	47	9	-	-	>180	>180	-	-	-	-	-	-	180
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	-	-	135	-	>180	-	>180	-	-	-	>180
S.R. 528 Westbound Ramps & C.R. 423	-	9	0	-	>180	>180	-	-	-	76	-	2	>180
S.R. 528 Eastbound On-ramp & C.R. 423	-	>180	>180	>180	1	-	-	-	-	-	-	-	157
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	6331 (6467)	-	6350 (6486)	6423 (6823)	-	6425 (6870)	11672	11672	11673	180 (542)	180 (542)	27 (357)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	3964 (4063)	10849 (12632)	10849	10849 (12632)	-	912 (1304)	912 (1304)	276 (713)	276 (713)	-	-
S.R. 482 & Presidents Drive	2490 (2554)	2490 (2554)	2379 (2444)	225 (613)	225 (613)	225 (613)	375 (787)	375 (787)	375 (787)	395 (1326)	395 (1326)	395 (1326)	-
Landstreet Road & U.S. 17/92/441	727 (1177)	727 (1177)	727 (1177)	1398 (1802)	1398 (1802)	1398 (1802)	532 (689)	532 (689)	532 (689)	1389 (1509)	1389 (1509)	1389 (1509)	-
Turnpike Off-ramp & U.S. 17/92/441	-	349 (814)	-	-	-	-	-	-	-	-	4526 (5833)	-	-
Consulate Drive & U.S. 17/92/441	2183 (2521)	2183 (2521)	2183 (2521)	219 (833)	219 (833)	219 (833)	829 (1229)	829 (1229)	857 (1257)	813 (929)	813 (929)	813 (929)	-
S.R. 528 Westbound Off-ramp & Landstreet Road*	2008 (3244)	-	1998 (3199)	-	-	-	-	5406 (5575)	-	-	-	-	-
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0 (24)	3 (161)	7099 (7247)	7099 (7247)	-	-
Turnpike Southbound Off-ramp & Consulate Drive	98 (404)	98 (404)	-	-	4839 (4974)	4860 (5004)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	-	-	524 (808)	-	10117	-	13554	-	-	-	-
S.R. 528 Westbound Ramps & C.R. 423	-	20 (201)	-	-	6088 (6171)	5690 (5774)	-	-	-	213 (784)	-	57 (539)	-
S.R. 528 Eastbound On-ramp & C.R. 423	-	6154 (6234)	8097 (8130)	1295 (1421)	-	-	-	-	-	-	-	-	-

- Not Applicable

*Unsignalized

Table 6.18
2045 No-Build AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	750	1,630	640	390	1,530	320	240	1,960	590	670	1,910	440	11,070
S.R. 482 & Lowe's/Walmart Entrance*	-	-	260	1,230	70	760	-	2,690	300	450	2,260	-	8,020
S.R. 482 & Presidents Drive	110	100	30	100	80	180	280	3,300	360	50	2,710	240	7,540
Landstreet Road & U.S. 17/92/441	250	1,910	590	390	2,000	60	200	480	630	460	130	530	7,630
Turnpike Off-ramp & U.S. 17/92/441	-	1,560	-	-	-	-	-	-	-	-	1,190	-	2,750
Consulate Drive & U.S. 17/92/441	350	1,870	30	20	1,970	1,100	840	20	890	20	20	30	7,160
S.R. 528 Westbound Off-ramp & Landstreet Road*	260	-	580	-	-	-	-	730	-	-	440	-	2,010
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	1,080	380	50	1,120	-	2,630
Turnpike Southbound Off-ramp & Consulate Drive	850	550	-	-	80	60	-	-	-	570	640	510	3,260
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	1,320	-	-	650	-	80	-	1,190	-	-	-	3,240
S.R. 528 Westbound Ramps & C.R. 423	-	3,050	1,480	-	1,000	550	-	-	-	660	-	1,230	7,970
S.R. 528 Eastbound On-ramp & C.R. 423	-	3,770	950	190	1,470	-	-	-	1,040	-	-	-	7,420
Percentage Served													
S.R. 482 & C.R. 423	84%	88%	84%	86%	89%	89%	35%	34%	32%	72%	73%	71%	70%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	87%	73%	71%	72%	-	52%	51%	69%	73%	-	65%
S.R. 482 & Presidents Drive	70%	72%	73%	89%	83%	89%	62%	66%	60%	65%	67%	70%	67%
Landstreet Road & U.S. 17/92/441	79%	78%	78%	72%	76%	76%	73%	71%	69%	75%	77%	80%	76%
Turnpike Off-ramp & U.S. 17/92/441	-	79%	-	-	-	-	-	-	-	-	78%	-	79%
Consulate Drive & U.S. 17/92/441	87%	87%	85%	76%	76%	76%	72%	78%	71%	86%	91%	85%	78%
S.R. 528 Westbound Off-ramp & Landstreet Road*	71%	-	72%	-	-	-	-	71%	-	-	78%	-	73%
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	75%	73%	84%	82%	-	78%
Turnpike Southbound Off-ramp & Consulate Drive	79%	79%	-	-	89%	86%	-	-	-	0%	0%	0%	38%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	78%	-	-	72%	-	83%	-	76%	-	-	-	76%
S.R. 528 Westbound Ramps & C.R. 423	-	83%	82%	-	88%	88%	-	-	-	79%	-	77%	83%
S.R. 528 Eastbound On-ramp & C.R. 423	-	82%	84%	91%	84%	-	-	-	0%	-	-	-	71%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	1	157	83	0	1	>180	>180	>180	47	31	0	167
S.R. 482 & Lowe's/Walmart Entrance*	-	-	22	37	46	19	-	>180	>180	37	5	-	76
S.R. 482 & Presidents Drive	>180	>180	>180	59	68	27	57	11	11	119	92	61	87
Landstreet Road & U.S. 17/92/441	172	90	44	>180	101	101	118	121	64	>180	>180	107	123
Turnpike Off-ramp & U.S. 17/92/441	-	69	-	-	-	-	-	-	-	-	47	-	59
Consulate Drive & U.S. 17/92/441	47	7	9	88	34	8	80	91	54	80	78	11	30
S.R. 528 Westbound Off-ramp & Landstreet Road*	>180	-	160	-	-	-	-	>180	-	-	-	-	>180
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0	0	>180	>180	-	168
Turnpike Southbound Off-ramp & Consulate Drive	31	16	-	-	42	8	-	-	-	-	-	-	19
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	0	-	-	14	-	>180	-	>180	-	-	-	104
S.R. 528 Westbound Ramps & C.R. 423	-	12	5	-	8	0	-	-	-	56	-	3	12
S.R. 528 Eastbound On-ramp & C.R. 423	-	49	20	59	-	-	-	-	-	-	-	-	29
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	1662 (2451)	-	1681 (2470)	131 (361)	-	45 (389)	15475	15475	15477	155 (498)	155 (498)	30 (437)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	38 (263)	215 (528)	215 (528)	215 (528)	-	1057 (1287)	1057 (1287)	92 (401)	92 (401)	-	-
S.R. 482 & Presidents Drive	1744 (2032)	1744 (2032)	1633 (1922)	61 (217)	61 (217)	61 (217)	105 (359)	105 (359)	105 (359)	869 (1356)	869 (1356)	869 (1356)	-
Landstreet Road & U.S. 17/92/441	677 (1161)	677 (1161)	677 (1161)	1094 (1537)	1094 (1537)	1094 (1537)	582 (701)	582 (701)	582 (701)	1416 (1508)	1416 (1508)	1416 (1508)	-
Turnpike Off-ramp & U.S. 17/92/441	-	326 (746)	-	-	-	-	-	-	-	-	126 (389)	-	-
Consulate Drive & U.S. 17/92/441	233 (935)	233 (935)	233 (935)	306 (1109)	306 (1109)	306 (1109)	1096 (1237)	1096 (1237)	1124 (1265)	26 (138)	26 (138)	26 (138)	-
S.R. 528 Westbound Off-ramp & Landstreet Road*	21752	-	21629	-	-	-	-	4778 (5180)	-	-	-	-	-
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0 (24)	0 (46)	1903 (2441)	1903 (2441)	-	-
Turnpike Southbound Off-ramp & Consulate Drive	116 (511)	116 (511)	-	-	22 (175)	2 (56)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	0 (39)	-	-	1 (51)	-	2637 (3198)	-	3782 (4531)	-	-	-	-
S.R. 528 Westbound Ramps & C.R. 423	-	293 (1392)	106 (825)	-	28 (241)	-	-	-	-	137 (582)	-	23 (337)	-
S.R. 528 Eastbound On-ramp & C.R. 423	-	7793 (8820)	7100 (8127)	46 (189)	-	-	-	-	-	-	-	-	-

- Not Applicable

*Unsignalized

Table 6.19
2045 No-Build PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	930	2,020	910	660	1,650	310	470	2,150	890	630	1,870	220	12,710
S.R. 482 & Lowe's/Walmart Entrance*	-	-	720	710	70	250	-	3,460	260	630	2,470	-	8,570
S.R. 482 & Presidents Drive	160	120	40	160	190	300	210	3,250	280	30	4,050	170	8,960
Landstreet Road & U.S. 17/92/441	160	2,690	540	360	2,810	40	310	580	890	710	170	690	9,950
Turnpike Off-ramp & U.S. 17/92/441	-	2,710	-	-	-	-	-	-	-	-	680	-	3,390
Consulate Drive & U.S. 17/92/441	120	2,750	20	30	2,240	750	1,990	40	670	40	40	40	8,730
S.R. 528 Westbound Off-ramp & Landstreet Road*	80	-	440	-	-	-	-	1,340	-	-	370	-	2,230
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	820	660	200	1,570	-	3,250
Turnpike Southbound Off-ramp & Consulate Drive	700	260	-	-	520	330	-	-	-	660	240	80	2,790
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	920	-	-	1,180	-	40	-	1,510	-	-	-	3,650
S.R. 528 Westbound Ramps & C.R. 423	-	1,840	990	-	3,150	810	-	-	-	740	-	400	7,930
S.R. 528 Eastbound On-ramp & C.R. 423	-	2,130	1,050	840	3,050	-	-	-	1,330	-	-	-	8,400
Percentage Served													
S.R. 482 & C.R. 423	68%	67%	66%	62%	64%	63%	62%	62%	63%	67%	69%	69%	65%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	43%	74%	75%	73%	-	63%	64%	68%	68%	-	64%
S.R. 482 & Presidents Drive	52%	52%	50%	97%	99%	100%	61%	63%	63%	62%	64%	64%	66%
Landstreet Road & U.S. 17/92/441	64%	64%	64%	63%	62%	62%	46%	51%	48%	57%	56%	57%	60%
Turnpike Off-ramp & U.S. 17/92/441	-	63%	-	-	-	-	-	-	-	-	73%	-	65%
Consulate Drive & U.S. 17/92/441	61%	63%	57%	58%	62%	61%	59%	65%	60%	73%	62%	66%	61%
S.R. 528 Westbound Off-ramp & Landstreet Road*	84%	-	85%	-	-	-	-	37%	-	-	60%	-	52%
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	62%	55%	58%	57%	-	58%
Turnpike Southbound Off-ramp & Consulate Drive	63%	61%	-	-	54%	55%	-	-	-	0%	0%	0%	38%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	62%	-	-	67%	-	57%	-	53%	-	-	-	60%
S.R. 528 Westbound Ramps & C.R. 423	-	26%	1%	-	38%	42%	-	-	-	77%	-	77%	37%
S.R. 528 Eastbound On-ramp & C.R. 423	-	1%	1%	42%	47%	-	-	-	0%	-	-	-	22%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	30	>180	>180	48	>180	>180	>180	>180	59	31	1	>180
S.R. 482 & Lowe's/Walmart Entrance*	-	-	>180	>180	>180	>180	-	128	156	119	6	-	163
S.R. 482 & Presidents Drive	>180	>180	>180	>180	145	78	142	80	56	90	22	15	101
Landstreet Road & U.S. 17/92/441	>180	101	60	>180	125	131	131	139	83	>180	>180	128	131
Turnpike Off-ramp & U.S. 17/92/441	-	81	-	-	-	-	-	-	-	-	>180	-	168
Consulate Drive & U.S. 17/92/441	167	>180	>180	114	37	5	80	80	43	>180	>180	>180	119
S.R. 528 Westbound Off-ramp & Landstreet Road*	147	-	137	-	-	-	-	>180	-	-	-	-	>180
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	-	0	>180	>180	-	>180
Turnpike Southbound Off-ramp & Consulate Drive	44	8	-	-	>180	>180	-	-	-	-	-	-	>180
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	-	-	137	-	>180	-	>180	-	-	-	>180
S.R. 528 Westbound Ramps & C.R. 423	-	9	0	-	>180	173	-	-	-	92	-	10	>180
S.R. 528 Eastbound On-ramp & C.R. 423	-	>180	>180	>180	2	-	-	-	-	-	-	-	>180
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	6338 (6469)	-	6356 (6488)	6828 (7269)	-	6834 (7294)	15283	15283	15285	198 (530)	198 (530)	19 (370)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	3960 (4064)	15611 (16016)	15611 (16016)	15611 (16016)	-	922 (1297)	922 (1297)	309 (727)	309 (727)	-	-
S.R. 482 & Presidents Drive	2497 (2560)	2497 (2560)	2386 (2449)	585 (1132)	585 (1132)	585 (1132)	551 (1021)	551 (1021)	551 (1021)	422 (1287)	422 (1287)	422 (1287)	-
Landstreet Road & U.S. 17/92/441	758 (1167)	758 (1167)	758 (1167)	1400 (1809)	1400 (1809)	1400 (1809)	546 (691)	546 (691)	546 (691)	1383 (1511)	1383 (1511)	1383 (1511)	-
Turnpike Off-ramp & U.S. 17/92/441	-	522 (1076)	-	-	-	-	-	-	-	-	14094	-	-
Consulate Drive & U.S. 17/92/441	2188 (2528)	2188 (2528)	2188 (2528)	230 (832)	230 (832)	230 (832)	825 (1228)	825 (1228)	852 (1256)	987 (1034)	987 (1034)	987 (1034)	-
S.R. 528 Westbound Off-ramp & Landstreet Road*	14635	-	14512	-	-	-	-	5417 (5581)	-	-	-	-	-
Landstreet Road & S.R. 528 Eastbound On-ramp*	-	-	-	-	-	-	-	0 (41)	2 (168)	7095 (7250)	7095 (7250)	-	-
Turnpike Southbound Off-ramp & Consulate Drive	89 (387)	89 (387)	-	-	4829 (4971)	4858 (5000)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	-	-	520 (787)	-	8169 (8836)	-	13753	-	-	-	-
S.R. 528 Westbound Ramps & C.R. 423	-	20 (178)	-	-	6089 (6175)	5691 (5777)	-	-	-	338 (1240)	-	175 (995)	-
S.R. 528 Eastbound On-ramp & C.R. 423	-	7034 (7063)	8098 (8123)	1291 (1423)	-	-	-	-	-	-	-	-	-

- Not Applicable

*Unsignalized

Table 6.20
2025 Build AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	665	1,445	567	346	1,357	284	213	1,587	523	594	1,525	390	9,496
S.R. 482 & Lowe's/Walmart Entrance*	-	-	231	700	62	443	-	2,234	266	399	2,066	-	6,401
Road X at Landstreet Rd	-	-	-	142	-	310	115	780	-	-	736	222	2,305
S.R. 482 & Presidents Drive	98	89	27	89	71	160	248	2,562	319	44	2,057	213	5,976
S.R. 482 & Voltaire Drive	603	124	142	44	124	44	53	1,091	452	71	1,312	44	4,105
Landstreet Road & U.S. 17/92/441	222	1,268	426	301	2,066	53	98	239	133	408	222	470	5,905
Turnpike Off-ramp & U.S. 17/92/441	-	1,560	-	-	-	-	-	-	-	-	355	-	1,915
Consulate Drive & U.S. 17/92/441	310	931	35	-	1,055	1,064	585	-	700	-	-	44	4,726
Turnpike Southbound Off-ramp & Consulate Drive	683	488	-	-	71	53	-	-	-	594	-	452	2,341
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	1,099	-	-	665	-	71	-	700	-	-	-	2,536
Taft Vineland Road & Bachman Road*	257	62	310	62	-	186	177	718	-	-	399	71	2,243
Voltaire Drive Interchange	89	124	124	434	35	177	195	-	186	231	-	550	2,146
Turnpike Ramps at Taft Vineland	-	-	-	470	-	461	408	621	-	-	372	470	2,802
Percentage Served													
S.R. 482 & C.R. 423	89%	89%	89%	89%	88%	100%	100%	78%	91%	81%	71%	82%	85%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	85%	54%	54%	66%	-	80%	84%	85%	77%	-	76%
Road X at Landstreet Rd	-	-	-	100%	-	99%	40%	80%	-	-	87%	100%	88%
S.R. 482 & Presidents Drive	94%	99%	100%	100%	100%	83%	65%	70%	69%	87%	86%	93%	79%
S.R. 482 & Voltaire Drive	74%	94%	71%	100%	100%	91%	78%	80%	88%	58%	100%	84%	88%
Landstreet Road & U.S. 17/92/441	93%	96%	99%	75%	73%	72%	96%	86%	65%	62%	87%	64%	80%
Turnpike Off-ramp & U.S. 17/92/441	-	58%	-	-	-	-	-	-	-	-	100%	-	100%
Consulate Drive & U.S. 17/92/441	85%	100%	83%	-	49%	82%	85%	-	100%	-	-	63%	84%
Turnpike Southbound Off-ramp & Consulate Drive	9%	99%	-	-	85%	71%	-	-	-	91%	-	83%	67%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	79%	-	-	91%	-	98%	-	100%	-	-	-	88%
Taft Vineland Road & Bachman Road*	68%	65%	69%	86%	-	94%	95%	76%	-	-	88%	80%	79%
Voltaire Drive Interchange	100%	7%	100%	86%	84%	100%	92%	-	100%	100%	-	86%	100%
Turnpike Ramps at Taft Vineland	-	-	-	76%	-	78%	74%	81%	-	-	100%	63%	79%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	54	0	0	48	-	0	49	23	3	55	35	1	19
S.R. 482 & Lowe's/Walmart Entrance*	-	-	8	32	31	5	-	20	13	52	11	-	18
Road X at Landstreet Rd	-	-	-	54	-	21	69	4	-	-	17	1	24
S.R. 482 & Presidents Drive	61	89	63	54	81	3	87	2	1	65	13	6	15
S.R. 482 & Voltaire Drive	49	50	31	60	61	5	95	5	0	48	13	0	19
Landstreet Road & U.S. 17/92/441	98	56	14	27	10	10	59	67	6	73	82	15	36
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	1	-	7
Consulate Drive & U.S. 17/92/441	84	0	0	-	6	4	53	-	3	-	-	2	14
Turnpike Southbound Off-ramp & Consulate Drive	7	2	-	-	7	-	-	-	-	1	-	1	1
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	6	-	-	46	-	0	-	0	-	-	-	6
Taft Vineland Road & Bachman Road*	51	51	22	77	-	0	5	4	-	-	14	9	16
Voltaire Drive Interchange	47	73	0	45	65	0	74	-	1	23	-	0	5
Turnpike Ramps at Taft Vineland	-	-	-	54	-	21	69	4	-	-	17	1	24
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	141 (453)	-	-	69 (237)	-	-	123 (441)	123 (441)	56 (444)	149 (427)	149 (427)	62 (428)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	12 (169)	56 (209)	56 (209)	63 (224)	-	(519)	(519)	(415)	(415)	-	-
Road X at Landstreet Rd	-	-	-	118 (382)	-	86 (382)	86 (234)	66 (234)	-	-	66 (367)	66 (239)	-
S.R. 482 & Presidents Drive	90 (277)	90 (277)	113 (303)	64 (212)	64 (212)	85 (285)	105 (330)	105 (330)	75 (384)	106 (542)	106 (542)	106 (542)	-
S.R. 482 & Voltaire Drive	116 (432)	116 (432)	14 (303)	79 (313)	79 (313)	96 (334)	43 (261)	43 (261)	43 (261)	70 (417)	70 (417)	0 (17)	-
Landstreet Road & U.S. 17/92/441	231 (506)	231 (506)	157 (419)	99 (521)	99 (521)	99 (521)	108 (360)	108 (360)	108 (360)	229 (642)	229 (642)	229 (642)	-
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	15 (256)	-	-
Consulate Drive & U.S. 17/92/441	95 (325)	95 (325)	95 (325)	-	92 (516)	92 (516)	239 (782)	-	267 (817)	-	-	2 (74)	-
Turnpike Southbound Off-ramp & Consulate Drive	-	10 (252)	-	-	-	-	-	-	-	0 (8)	-	0 (8)	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	33 (342)	-	-	95 (468)	-	-	-	-	-	-	-	-
Taft Vineland Road & Bachman Road*	68 (247)	68 (247)	86 (272)	30 (146)	-	32 (178)	22 (268)	22 (268)	-	-	30 (227)	43 (259)	-
Voltaire Drive Interchange	31 (124)	31 (124)	8 (138)	75 (304)	75 (304)	75 (304)	53 (174)	-	7 (121)	31 (191)	-	12 (193)	-
Turnpike Ramps at Taft Vineland	-	-	-	92 (302)	-	92 (302)	92 (259)	92 (259)	-	-	40 (289)	6 (250)	-

- Not Applicable

*Unsignalized

CHAPTER 6

Future Traffic Conditions

Table 6.21
2025 Build PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	730	1,580	710	390	1,400	300	410	1,230	800	540	1,180	190	9,460
S.R. 482 & Lowe's/Walmart Entrance*	-	-	560	280	60	60	-	2,150	180	500	1,850	-	5,640
Road X at Landstreet Rd	-	-	-	70	-	200	280	640	-	-	570	140	1,900
S.R. 482 & Presidents Drive	150	110	30	140	180	230	160	2,010	210	30	2,270	150	5,670
S.R. 482 & Voltaire Drive	330	120	140	160	140	60	160	1,380	450	160	2,350	130	5,580
Landstreet Road & U.S. 17/92/441	120	1,700	320	250	2,120	30	150	300	290	480	230	460	6,450
Turnpike Off-ramp & U.S. 17/92/441	-	2,010	-	-	-	-	-	-	-	-	130	-	2,140
Consulate Drive & U.S. 17/92/441	110	870	30	-	920	1,090	1,070	-	390	-	-	70	4,550
Turnpike Southbound Off-ramp & Consulate Drive	550	180	-	-	430	230	-	-	-	440	-	50	1,880
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	700	-	-	870	-	30	-	580	-	-	-	2,180
Taft Vineland Road & Bachman Road*	160	20	40	120	-	350	430	470	-	-	330	140	2,060
Voltaire Drive Interchange	130	30	260	470	20	260	200	-	90	160	-	360	1,980
Turnpike Ramps at Taft Vineland	-	-	-	280	-	250	350	830	-	-	210	630	2,550
Percentage Served													
S.R. 482 & C.R. 423	100%	99%	99%	100%	100%	100%	99%	100%	98%	96%	95%	96%	99%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	56%	97%	100%	100%	-	99%	100%	96%	95%	-	93%
Road X at Landstreet Rd	-	-	-	100%	-	94%	82%	83%	-	-	100%	100%	100%
S.R. 482 & Presidents Drive	91%	95%	100%	99%	98%	100%	88%	91%	92%	86%	94%	95%	93%
S.R. 482 & Voltaire Drive	96%	94%	99%	90%	85%	83%	100%	94%	96%	84%	86%	83%	90%
Landstreet Road & U.S. 17/92/441	97%	99%	97%	91%	89%	90%	71%	71%	70%	92%	93%	94%	91%
Turnpike Off-ramp & U.S. 17/92/441	-	35%	-	-	-	-	-	-	-	-	100%	-	100%
Consulate Drive & U.S. 17/92/441	98%	98%	100%	-	86%	88%	99%	-	96%	-	-	98%	93%
Turnpike Southbound Off-ramp & Consulate Drive	78%	91%	-	-	100%	100%	-	-	-	97%	-	100%	92%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	89%	-	-	98%	-	100%	-	99%	-	-	-	96%
Taft Vineland Road & Bachman Road*	100%	100%	100%	96%	-	100%	99%	96%	-	-	100%	98%	99%
Voltaire Drive Interchange	100%	98%	98%	90%	89%	94%	99%	-	97%	100%	-	95%	100%
Turnpike Ramps at Taft Vineland	-	-	-	98%	-	100%	98%	97%	-	-	100%	100%	99%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	57	0	1	50	0	0	62	32	5	77	53	4	25
S.R. 482 & Lowe's/Walmart Entrance*	-	-	>180	77	89	6	-	47	50	68	5	-	74
Road X at Landstreet Rd	-	-	-	33	-	11	30	3	-	-	8	0	10
S.R. 482 & Presidents Drive	>180	>180	>180	86	120	13	83	28	20	37	26	20	48
S.R. 482 & Voltaire Drive	49	62	45	>180	>180	>180	93	60	28	84	49	19	80
Landstreet Road & U.S. 17/92/441	166	57	23	174	101	116	>180	>180	119	>180	>180	155	112
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	1	-	2
Consulate Drive & U.S. 17/92/441	106	0	0	-	36	5	47	-	4	-	-	1	22
Turnpike Southbound Off-ramp & Consulate Drive	69	9	-	-	69	71	-	-	-	1	-	0	14
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	9	-	-	36	-	-	-	0	-	-	-	6
Taft Vineland Road & Bachman Road*	74	73	18	71	-	0	13	9	-	-	42	37	25
Voltaire Drive Interchange	74	60	1	36	30	0	81	-	1	45	-	0	6
Turnpike Ramps at Taft Vineland	-	-	-	33	-	11	30	3	-	-	8	0	10
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	236 (828)	- (149)	3 (4067)	90 (304)	- (94)	- (103)	186 (545)	186 (545)	131 (550)	223 (544)	223 (544)	155 (554)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	(4067)	(258)	(258)	(274)	-	(1012)	(1012)	(694)	(694)	-	-
Road X at Landstreet Rd	-	-	-	191 (248)	- (248)	174 (248)	174 (311)	120 (311)	-	-	60 (2529)	113 (2401)	-
S.R. 482 & Presidents Drive	745 (1180)	745 (1180)	771 (1207)	201 (557)	201 (557)	246 (631)	200 (752)	200 (752)	217 (807)	296 (1106)	296 (1106)	296 (1106)	-
S.R. 482 & Voltaire Drive	147 (493)	147 (493)	92 (523)	1582 (1780)	1582 (1780)	1603 (1801)	513 (1125)	513 (1125)	513 (1125)	584 (1038)	584 (1038)	203 (597)	-
Landstreet Road & U.S. 17/92/441	378 (849)	378 (849)	293 (762)	1120 (1795)	1120 (1795)	1120 (1795)	638 (748)	638 (748)	638 (748)	1504 (1702)	1504 (1702)	1504 (1702)	-
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	13 (232)	-	-
Consulate Drive & U.S. 17/92/441	51 (179)	51 (179)	51 (179)	-	168 (665)	168 (665)	180 (817)	-	207 (851)	-	-	4 (91)	-
Turnpike Southbound Off-ramp & Consulate Drive	428 (599)	14 (176)	-	-	428 (599)	428 (599)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	(408)	-	113 (532)	-	-	-	-	-	-	-	-
Taft Vineland Road & Bachman Road*	60 (191)	60 (191)	80 (215)	64 (272)	- (79)	74 (304)	70 (472)	70 (472)	-	-	98 (380)	121 (412)	-
Voltaire Drive Interchange	50 (175)	50 (175)	35 (221)	79 (360)	79 (360)	79 (360)	61 (204)	- (85)	3	37 (157)	-	10 (163)	-
Turnpike Ramps at Taft Vineland	-	-	-	48 (186)	-	48 (186)	58 (233)	58 (233)	-	-	11 (116)	4 (179)	-

- Not Applicable

*Unsignalized

Table 6.22
2035 Build AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	665	1,445	567	346	1,357	284	213	1,587	523	594	1,525	390	9,496
S.R. 482 & Lowe's/Walmart Entrance*	-	-	231	700	62	443	-	2,234	266	399	2,066	-	6,401
Road X at Landstreet Rd	-	-	-	142	-	310	115	780	-	-	736	222	2,305
S.R. 482 & Presidents Drive	98	89	27	89	71	160	248	2,562	319	44	2,057	213	5,976
S.R. 482 & Voltaire Drive	603	124	142	44	124	44	53	1,091	452	71	1,312	44	4,105
Landstreet Road & U.S. 17/92/441	222	1,268	426	301	2,066	53	98	239	133	408	222	470	5,905
Turnpike Off-ramp & U.S. 17/92/441	-	1,560	-	-	-	-	-	-	-	-	355	-	1,915
Consulate Drive & U.S. 17/92/441	310	931	35	-	1,055	1,064	585	-	700	-	-	44	4,726
Turnpike Southbound Off-ramp & Consulate Drive	683	488	-	-	71	53	-	-	-	594	-	452	2,341
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	1,099	-	-	665	-	71	-	700	-	-	-	2,536
Taft Vineland Road & Bachman Road*	257	62	310	62	-	186	177	718	-	-	399	71	2,243
Voltaire Drive Interchange	89	124	124	434	35	177	195	-	186	231	-	550	2,146
Turnpike Ramps at Taft Vineland	-	-	-	470	-	461	408	621	-	-	372	470	2,802
Percentage Served													
S.R. 482 & C.R. 423	98%	99%	98%	89%	100%	99%	53%	51%	52%	94%	94%	94%	86%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	98%	81%	81%	79%	-	67%	65%	94%	97%	-	82%
Road X at Landstreet Rd	-	-	-	100%	-	89%	87%	88%	-	-	100%	100%	100%
S.R. 482 & Presidents Drive	95%	95%	95%	100%	95%	100%	76%	77%	77%	92%	95%	96%	86%
S.R. 482 & Voltaire Drive	96%	91%	96%	100%	97%	100%	93%	89%	90%	100%	100%	96%	95%
Landstreet Road & U.S. 17/92/441	94%	95%	97%	91%	91%	94%	100%	99%	97%	82%	83%	84%	92%
Turnpike Off-ramp & U.S. 17/92/441	-	65%	-	-	-	-	-	-	-	-	100%	-	100%
Consulate Drive & U.S. 17/92/441	100%	98%	94%	-	88%	90%	91%	-	91%	-	-	97%	92%
Turnpike Southbound Off-ramp & Consulate Drive	10%	92%	-	-	100%	97%	-	-	-	81%	-	78%	63%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	92%	-	-	83%	-	100%	-	97%	-	-	-	91%
Taft Vineland Road & Bachman Road*	98%	99%	100%	100%	-	98%	89%	88%	-	-	100%	100%	95%
Voltaire Drive Interchange	100%	100%	100%	92%	91%	91%	90%	-	91%	96%	-	96%	100%
Turnpike Ramps at Taft Vineland	-	-	-	82%	-	82%	96%	97%	-	-	99%	99%	92%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	163	0	102	>180	1	68	>180	>180	>180	48	37	0	140
S.R. 482 & Lowe's/Walmart Entrance*	-	-	18	33	36	10	-	>180	>180	51	8	-	72
Road X at Landstreet Rd	-	-	-	54	-	19	57	5	-	-	19	1	23
S.R. 482 & Presidents Drive	>180	>180	>180	54	71	12	164	6	3	135	51	27	46
S.R. 482 & Voltaire Drive	53	51	34	62	61	4	92	8	0	56	13	0	22
Landstreet Road & U.S. 17/92/441	154	58	16	75	49	55	71	85	16	>180	>180	134	79
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	2	-	9
Consulate Drive & U.S. 17/92/441	72	0	0	-	9	7	50	-	1	-	-	2	14
Turnpike Southbound Off-ramp & Consulate Drive	7	2	-	-	7	0	-	-	-	1	-	1	1
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	6	-	-	46	-	0	-	0	-	-	-	5
Taft Vineland Road & Bachman Road*	54	76	54	76	-	0	7	6	-	-	18	14	26
Voltaire Drive Interchange	44	65	1	45	62	0	73	-	0	23	-	0	5
Turnpike Ramps at Taft Vineland	-	-	-	54	-	19	57	5	-	-	19	1	23
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	958 (1644)	-	942 (1664)	1049 (1622)	-	-	15436	15436	15441	198 (544)	198 (544)	44 (487)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	(220)	(297)	(297)	(313)	-	1124 (1392)	1124 (1392)	(549)	(549)	-	-
Road X at Landstreet Rd	-	-	-	(337)	-	(337)	141 (278)	67 (278)	-	-	66 (490)	66 (362)	-
S.R. 482 & Presidents Drive	466 (699)	466 (699)	490 (725)	57 (210)	57 (210)	88 (284)	248 (629)	248 (629)	247 (681)	444 (1146)	444 (1146)	444 (1146)	-
S.R. 482 & Voltaire Drive	183 (624)	183 (624)	73 (508)	64 (277)	64 (277)	80 (298)	52 (329)	52 (329)	52 (329)	80 (381)	80 (381)	0 (25)	-
Landstreet Road & U.S. 17/92/441	312 (577)	312 (577)	234 (489)	568 (1292)	568 (1292)	568 (1292)	164 (423)	164 (423)	164 (423)	1183 (1524)	1183 (1524)	1183 (1524)	-
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	18 (266)	-	-
Consulate Drive & U.S. 17/92/441	95 (313)	95 (313)	95 (313)	-	156 (751)	156 (751)	145 (586)	-	172 (621)	-	-	3 (79)	-
Turnpike Southbound Off-ramp & Consulate Drive	-	10 (249)	-	-	-	-	-	-	-	0 (8)	-	0 (8)	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	46 (423)	-	-	81 (394)	-	-	-	-	-	-	-	-
Taft Vineland Road & Bachman Road*	166 (583)	166 (583)	184 (608)	42 (162)	-	48 (193)	33 (308)	33 (308)	-	-	44 (273)	60 (306)	-
Voltaire Drive Interchange	48 (151)	48 (151)	27 (194)	87 (320)	87 (320)	87 (320)	52 (182)	-	7 (136)	30 (216)	-	14 (236)	-
Turnpike Ramps at Taft Vineland	-	-	-	106 (340)	-	106 (340)	104 (329)	104 (329)	-	-	44 (299)	13 (299)	-

- Not Applicable

*Unsignalized

CHAPTER 6

Future Traffic Conditions

Table 6.23
2035 Build PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	825	1,791	807	585	1,463	275	417	1,747	789	559	1,472	195	10,923
S.R. 482 & Lowe's/Walmart Entrance*	-	-	638	346	62	89	-	2,908	231	559	2,137	-	6,969
Road X at Landstreet Rd	-	-	-	80	-	248	355	754	-	-	895	195	2,527
S.R. 482 & Presidents Drive	142	106	35	142	168	266	186	2,571	248	27	3,218	151	7,261
S.R. 482 & Voltaire Drive	488	124	106	168	142	62	186	1,685	523	168	3,059	133	6,845
Landstreet Road & U.S. 17/92/441	142	2,048	310	275	2,678	35	213	399	399	630	266	612	8,006
Turnpike Off-ramp & U.S. 17/92/441	-	2,287	-	-	-	-	-	-	-	-	213	-	2,500
Consulate Drive & U.S. 17/92/441	106	931	27	-	1,605	1,179	1,286	-	372	-	-	71	5,577
Turnpike Southbound Off-ramp & Consulate Drive	550	231	-	-	461	293	-	-	-	417	-	71	2,021
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	745	-	-	878	-	35	-	771	-	-	-	2,429
Taft Vineland Road & Bachman Road*	186	35	115	142	-	364	452	621	-	-	612	168	2,695
Voltaire Drive Interchange	133	142	275	505	80	248	186	-	80	168	-	390	2,208
Turnpike Ramps at Taft Vineland	-	-	-	346	-	390	497	1,064	-	-	434	727	3,458
Percentage Served													
S.R. 482 & C.R. 423	99%	99%	97%	92%	98%	96%	58%	60%	59%	82%	84%	83%	84%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	29%	98%	100%	97%	-	75%	77%	82%	83%	-	76%
Road X at Landstreet Rd	-	-	-	94%	-	89%	76%	75%	-	-	63%	67%	72%
S.R. 482 & Presidents Drive	87%	88%	89%	95%	97%	100%	69%	74%	74%	67%	75%	74%	77%
S.R. 482 & Voltaire Drive	90%	87%	94%	86%	83%	84%	82%	77%	79%	63%	65%	63%	73%
Landstreet Road & U.S. 17/92/441	92%	92%	92%	67%	69%	72%	53%	52%	52%	73%	74%	74%	75%
Turnpike Off-ramp & U.S. 17/92/441	-	41%	-	-	-	-	-	-	-	-	100%	-	100%
Consulate Drive & U.S. 17/92/441	94%	95%	99%	-	66%	69%	97%	-	99%	-	-	97%	82%
Turnpike Southbound Off-ramp & Consulate Drive	84%	78%	-	-	100%	100%	-	-	-	93%	-	93%	91%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	73%	-	-	97%	-	100%	-	100%	-	-	-	90%
Taft Vineland Road & Bachman Road*	100%	100%	100%	100%	-	100%	89%	87%	-	-	99%	100%	95%
Voltaire Drive Interchange	75%	72%	72%	76%	74%	78%	95%	-	99%	93%	-	96%	100%
Turnpike Ramps at Taft Vineland	-	-	-	90%	-	93%	87%	88%	-	-	100%	99%	92%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	98	1	48	>180	4	113	>180	>180	>180	70	54	2	128
S.R. 482 & Lowe's/Walmart Entrance*	-	-	>180	120	148	6	-	112	131	68	5	-	111
Road X at Landstreet Rd	-	-	-	33	-	8	28	3	-	-	13	1	11
S.R. 482 & Presidents Drive	>180	>180	>180	>180	>180	128	111	46	30	>180	58	46	101
S.R. 482 & Voltaire Drive	76	71	51	>180	>180	>180	163	65	28	74	58	27	93
Landstreet Road & U.S. 17/92/441	>180	117	73	>180	112	111	>180	>180	117	>180	>180	153	139
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	96	-	109
Consulate Drive & U.S. 17/92/441	100	1	0	-	48	6	55	-	12	-	-	3	31
Turnpike Southbound Off-ramp & Consulate Drive	8	9	-	-	8	1	-	-	-	1	-	2	2
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	8	-	-	38	-	0	-	1	-	-	-	5
Taft Vineland Road & Bachman Road*	71	78	30	66	-	1	41	15	-	-	66	62	40
Voltaire Drive Interchange	75	71	1	37	29	0	80	-	1	46	-	0	5
Turnpike Ramps at Taft Vineland	-	-	-	33	-	8	28	3	-	-	13	1	11
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	961 (1734)	-	906 (1754)	2320 (3120)	-	-	15369 (15369)	15373		241 (625)	241 (625)	109 (603)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	(4070)	164 (356)	164 (356)	174 (371)	-	1013 (1387)	1013 (1387)	192 (624)	192 (624)	-	-
Road X at Landstreet Rd	-	-	-	11538 (279)	-	11538 (279)	11538 (338)	11538 (338)	-	-	81 (2527)	899 (2400)	-
S.R. 482 & Presidents Drive	2088 (2433)	2088 (2433)	2114 (2460)	830 (1386)	830 (1386)	880 (1460)	284 (873)	284 (873)	308 (928)	687 (1311)	687 (1311)	687 (1311)	-
S.R. 482 & Voltaire Drive	186 (529)	186 (529)	46 (474)	1771 (1871)	1771 (1871)	1792 (1892)	400 (860)	400 (860)	400 (860)	596 (1032)	596 (1032)	230 (706)	-
Landstreet Road & U.S. 17/92/441	849 (1150)	849 (1150)	762 (1056)	1249 (1808)	1249 (1808)	1249 (1808)	634 (746)	634 (746)	634 (746)	1498 (1705)	1498 (1705)	1498 (1705)	-
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	628 (1218)	-	-
Consulate Drive & U.S. 17/92/441	50 (183)	50 (183)	50 (183)	-	235 (806)	235 (806)	287 (955)	-	315 (990)	-	-	5 (89)	-
Turnpike Southbound Off-ramp & Consulate Drive	15 (369)	17 (190)	-	-	15 (369)	15 (369)	-	-	-	-	-	-	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	32 (355)	-	-	118 (596)	-	3 (48)	-	3 (48)	-	-	-	-
Taft Vineland Road & Bachman Road*	76 (235)	76 (235)	95 (259)	83 (305)	-	95 (335)	195 (719)	195 (719)	-	-	278 (754)	306 (787)	-
Voltaire Drive Interchange	52 (147)	52 (147)	51 (190)	60 (287)	60 (287)	60 (287)	55 (186)	-	3 (103)	34 (178)	-	9 (153)	-
Turnpike Ramps at Taft Vineland	-	-	-	56 (216)	-	56 (216)	70 (280)	70 (280)	-	-	38 (280)	14 (288)	-

- Not Applicable

*Unsignalized

Table 6.24
2045 Build AM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	665	1,445	567	346	1,357	284	213	1,587	523	594	1,525	390	9,496
S.R. 482 & Lowe's/Walmart Entrance*	-	-	231	700	62	443	-	2,234	266	399	2,066	-	6,401
Road X at Landstreet Rd	-	-	-	142	-	310	115	780	-	-	736	222	2,305
S.R. 482 & Presidents Drive	98	89	27	89	71	160	248	2,562	319	44	2,057	213	5,976
S.R. 482 & Voltaire Drive	603	124	142	44	124	44	53	1,091	452	71	1,312	44	4,105
Landstreet Road & U.S. 17/92/441	222	1,268	426	301	2,066	53	98	239	133	408	222	470	5,905
Turnpike Off-ramp & U.S. 17/92/441	-	1,560	-	-	-	-	-	-	-	-	355	-	1,915
Consulate Drive & U.S. 17/92/441	310	931	35	-	1,055	1,064	585	-	700	-	-	44	4,726
Turnpike Southbound Off-ramp & Consulate Drive	683	488	-	-	71	53	-	-	-	594	-	452	2,341
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	1,099	-	-	665	-	71	-	700	-	-	-	2,536
Taft Vineland Road & Bachman Road*	257	62	310	62	-	186	177	718	-	-	399	71	2,243
Voltaire Drive Interchange	89	124	124	434	35	177	195	-	186	231	-	550	2,146
Turnpike Ramps at Taft Vineland	-	-	-	470	-	461	408	621	-	-	372	470	2,802
Percentage Served													
S.R. 482 & C.R. 423	100%	100%	100%	94%	100%	100%	50%	49%	48%	93%	94%	91%	89%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	100%	71%	73%	69%	-	68%	67%	96%	98%	-	81%
Road X at Landstreet Rd	-	-	-	100%	-	96%	95%	95%	-	-	100%	100%	100%
S.R. 482 & Presidents Drive	98%	97%	99%	100%	100%	100%	75%	77%	77%	98%	96%	97%	87%
S.R. 482 & Voltaire Drive	100%	100%	100%	100%	100%	100%	96%	93%	93%	100%	100%	100%	100%
Landstreet Road & U.S. 17/92/441	99%	100%	100%	95%	93%	96%	100%	100%	100%	82%	82%	84%	95%
Turnpike Off-ramp & U.S. 17/92/441	-	58%	-	-	-	-	-	-	-	-	100%	-	100%
Consulate Drive & U.S. 17/92/441	100%	100%	100%	-	91%	92%	93%	-	92%	-	-	100%	97%
Turnpike Southbound Off-ramp & Consulate Drive	11%	97%	-	-	100%	100%	-	-	-	73%	-	70%	62%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	96%	-	-	78%	-	100%	-	100%	-	-	-	94%
Taft Vineland Road & Bachman Road*	100%	100%	100%	100%	-	100%	89%	88%	-	-	100%	100%	100%
Voltaire Drive Interchange	100%	100%	100%	100%	99%	98%	93%	-	92%	100%	-	100%	100%
Turnpike Ramps at Taft Vineland	-	-	-	74%	-	73%	100%	100%	-	-	100%	100%	96%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	8	>180	>180	7	>180	>180	>180	>180	46	37	0	171
S.R. 482 & Lowe's/Walmart Entrance*	-	-	17	33	36	10	-	>180	>180	50	7	-	71
Road X at Landstreet Rd	-	-	-	55	-	18	55	5	-	-	19	1	22
S.R. 482 & Presidents Drive	>180	>180	>180	57	79	13	>180	9	6	111	64	32	74
S.R. 482 & Voltaire Drive	100	79	66	63	65	18	98	7	0	100	80	18	54
Landstreet Road & U.S. 17/92/441	>180	63	20	101	79	85	147	157	63	>180	>180	176	107
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	7	-	12
Consulate Drive & U.S. 17/92/441	71	0	0	-	10	11	52	-	1	-	-	2	15
Turnpike Southbound Off-ramp & Consulate Drive	7	2	-	-	7	-	-	-	-	0	-	0	1
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	5	-	-	46	-	0	-	0	-	-	-	5
Taft Vineland Road & Bachman Road*	83	130	106	86	-	0	9	6	-	-	19	15	40
Voltaire Drive Interchange	43	67	0	47	67	0	70	-	1	25	-	1	5
Turnpike Ramps at Taft Vineland	-	-	-	55	-	18	55	5	-	-	19	1	22
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	2795	-	2813	3341	-	-	15472	15472	15477	200	200	40	-
	(3627)	-	(3646)	(4127)	-	-	-	-	-	(548)	(548)	(483)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	31	71	71	78	-	1119	1119	144	144	-	-
	-	-	(246)	(270)	(270)	(286)	-	(1394)	(1394)	(530)	(530)	-	-
Road X at Landstreet Rd	-	-	-	2908	-	2908	2908	2901	-	-	72	72	-
	-	-	-	(502)	-	(502)	(274)	(274)	-	-	(1479)	(1352)	-
S.R. 482 & Presidents Drive	1413	1413	1439	67	67	98	439	439	463	589	589	589	-
	(1734)	(1734)	(1760)	(211)	(211)	(285)	(851)	(851)	(907)	(1305)	(1305)	(1305)	-
S.R. 482 & Voltaire Drive	322	322	197	79	79	96	58	58	58	345	345	0	-
	(791)	(791)	(687)	(284)	(284)	(305)	(410)	(410)	(410)	(770)	(770)	(26)	-
Landstreet Road & U.S. 17/92/441	454	454	371	877	877	877	420	420	420	1564	1564	1564	-
	(718)	(718)	(630)	(1507)	(1507)	(1507)	(655)	(655)	(655)	(1707)	(1707)	(1707)	-
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	34	-	-
	-	-	-	-	-	-	-	-	-	-	(313)	-	-
Consulate Drive & U.S. 17/92/441	110	110	110	-	253	253	130	-	157	-	-	3	-
	(395)	(395)	(395)	-	(993)	(993)	(591)	-	(626)	-	-	(80)	-
Turnpike Southbound Off-ramp & Consulate Drive	0	14	-	-	0	0	-	-	-	0	-	0	-
	(2)	(310)	-	-	(2)	(2)	-	-	-	(13)	-	(13)	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	45	-	-	62	-	-	-	-	-	-	-	-
	-	(441)	-	-	(299)	-	-	-	-	-	-	-	-
Taft Vineland Road & Bachman Road*	570	570	592	49	-	59	38	38	-	-	56	73	-
	(1571)	(1571)	(1595)	(195)	-	(227)	(284)	(284)	-	-	(331)	(363)	-
Voltaire Drive Interchange	49	49	29	96	96	96	52	-	7	34	-	19	-
	(161)	(161)	(205)	(365)	(365)	(365)	(173)	-	(127)	(260)	-	(279)	-
Turnpike Ramps at Taft Vineland	-	-	-	90	-	90	111	111	-	-	47	17	-
	-	-	-	(297)	-	(297)	(352)	(352)	-	-	(329)	(352)	-

- Not Applicable

*Unsignalized

Table 6.25
2045 Build PM Peak Hour VISSIM Intersection Performance

Intersection	Northbound			Southbound			Eastbound			Westbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Input Volumes (Demand)													
S.R. 482 & C.R. 423	930	2,020	910	660	1,650	310	470	1,970	890	630	1,660	220	12,320
S.R. 482 & Lowe's/Walmart Entrance*	-	-	720	390	70	100	-	3,280	260	630	2,410	-	7,860
Road X at Landstreet Rd	-	-	-	90	-	280	400	850	-	-	1,010	220	2,850
S.R. 482 & Presidents Drive	160	120	40	160	190	300	210	2,900	280	30	3,630	170	8,190
S.R. 482 & Voltaire Drive	550	140	120	190	160	70	210	1,900	590	190	3,450	150	7,720
Landstreet Road & U.S. 17/92/441	160	2,310	350	310	3,020	40	240	450	450	710	300	690	9,030
Turnpike Off-ramp & U.S. 17/92/441	-	2,580	-	-	-	-	-	-	-	-	240	-	2,820
Consulate Drive & U.S. 17/92/441	120	1,050	30	-	1,810	1,330	1,450	-	420	-	-	80	6,290
Turnpike Southbound Off-ramp & Consulate Drive	620	260	-	-	520	330	-	-	-	470	-	80	2,280
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	840	-	-	990	-	40	-	870	-	-	-	2,740
Taft Vineland Road & Bachman Road*	210	40	130	160	-	410	510	700	-	-	690	190	3,040
Voltaire Drive Interchange	150	160	310	570	90	280	210	-	90	190	-	440	2,490
Turnpike Ramps at Taft Vineland	-	-	-	390	-	440	560	1,200	-	-	490	820	3,900
Percentage Served													
S.R. 482 & C.R. 423	87%	86%	86%	78%	80%	81%	48%	50%	49%	73%	75%	74%	73%
S.R. 482 & Lowe's/Walmart Entrance*	-	-	24%	89%	92%	87%	-	64%	67%	73%	74%	-	66%
Road X at Landstreet Rd	-	-	-	89%	-	84%	69%	69%	-	-	50%	51%	63%
S.R. 482 & Presidents Drive	73%	75%	74%	89%	90%	93%	63%	65%	64%	61%	67%	67%	68%
S.R. 482 & Voltaire Drive	86%	82%	87%	72%	70%	69%	71%	69%	70%	56%	56%	55%	65%
Landstreet Road & U.S. 17/92/441	82%	83%	83%	61%	61%	65%	47%	47%	46%	63%	64%	63%	66%
Turnpike Off-ramp & U.S. 17/92/441	-	37%	-	-	-	-	-	-	-	-	100%	-	100%
Consulate Drive & U.S. 17/92/441	83%	86%	89%	-	59%	61%	87%	-	88%	-	-	99%	73%
Turnpike Southbound Off-ramp & Consulate Drive	79%	68%	-	-	95%	92%	-	-	-	82%	-	81%	84%
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	63%	-	-	88%	-	96%	-	92%	-	-	-	82%
Taft Vineland Road & Bachman Road*	99%	96%	100%	97%	-	100%	83%	81%	-	-	96%	98%	92%
Voltaire Drive Interchange	64%	61%	62%	67%	65%	69%	91%	-	92%	92%	-	95%	100%
Turnpike Ramps at Taft Vineland	-	-	-	81%	-	83%	80%	81%	-	-	100%	97%	87%
Average Delay (Seconds) for the worst 30-Minute Period													
S.R. 482 & C.R. 423	>180	16	>180	>180	13	>180	>180	>180	>180	69	55	1	177
S.R. 482 & Lowe's/Walmart Entrance*	-	-	>180	>180	>180	73	-	117	145	69	6	-	131
Road X at Landstreet Rd	-	-	-	35	-	8	28	3	-	-	14	2	11
S.R. 482 & Presidents Drive	>180	>180	>180	>180	>180	169	111	35	21	>180	42	30	108
S.R. 482 & Voltaire Drive	144	133	115	>180	>180	>180	>180	39	18	86	69	28	108
Landstreet Road & U.S. 17/92/441	>180	135	82	>180	109	108	>180	>180	113	>180	>180	>180	146
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	>180	-	>180
Consulate Drive & U.S. 17/92/441	149	5	4	-	58	5	163	-	70	-	-	15	65
Turnpike Southbound Off-ramp & Consulate Drive	>180	25	-	-	>180	>180	-	-	-	175	-	59	64
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	9	-	-	140	-	142	-	156	-	-	-	30
Taft Vineland Road & Bachman Road*	72	76	33	67	-	1	72	28	-	-	>180	>180	91
Voltaire Drive Interchange	78	74	1	39	35	0	82	-	1	43	-	0	5
Turnpike Ramps at Taft Vineland	-	-	-	35	-	8	28	3	-	-	14	2	11
Average and (Maximum) Queue in Feet for the worst 30-Minute Period													
S.R. 482 & C.R. 423	5749 (6322)	-	5769 (6341)	9380 (10039)	-	-	15400	15400	15404	242 (633)	242 (633)	90 (617)	-
S.R. 482 & Lowe's/Walmart Entrance*	-	-	4005 (4073)	394 (832)	394 (832)	406 (847)	-	1026 (1387)	1026 (1387)	195 (620)	195 (620)	-	-
Road X at Landstreet Rd	-	-	-	15333 (294)	-	15333 (294)	15333 (341)	15333 (341)	-	90 (2536)	1214 (2408)	-	-
S.R. 482 & Presidents Drive	2455 (2531)	2455 (2531)	2481 (2557)	1708 (2424)	1708 (2424)	1772 (2498)	327 (921)	327 (921)	352 (976)	576 (1327)	576 (1327)	576 (1327)	-
S.R. 482 & Voltaire Drive	405 (788)	405 (788)	291 (680)	1780 (1870)	1780 (1870)	1801 (1891)	500 (1036)	500 (1036)	500 (1036)	635 (1034)	635 (1034)	247 (673)	-
Landstreet Road & U.S. 17/92/441	899 (1184)	899 (1184)	811 (1094)	1249 (1813)	1249 (1813)	1249 (1813)	634 (753)	634 (753)	634 (753)	1526 (1705)	1526 (1705)	1526 (1705)	-
Turnpike Off-ramp & U.S. 17/92/441	-	-	-	-	-	-	-	-	-	-	1328 (1657)	-	-
Consulate Drive & U.S. 17/92/441	84 (249)	84 (249)	84 (249)	-	279 (784)	279 (784)	849 (1219)	-	882 (1253)	-	-	10 (108)	-
Turnpike Southbound Off-ramp & Consulate Drive	2565 (3075)	33 (229)	-	-	2565 (3075)	2565 (3075)	-	-	-	1252 (2390)	-	1252 (2390)	-
S.R. 528 Eastbound Off-ramp & Consulate Drive*	-	-	-	-	560 (837)	-	1317 (2012)	-	1321 (2017)	-	-	-	-
Taft Vineland Road & Bachman Road*	91 (272)	91 (272)	111 (296)	87 (342)	-	103 (374)	339 (937)	339 (937)	-	-	1033 (1596)	1065 (1628)	-
Voltaire Drive Interchange	50 (172)	50 (172)	55 (216)	66 (328)	66 (328)	66 (328)	60 (213)	-	3 (101)	40 (205)	-	13 (207)	-
Turnpike Ramps at Taft Vineland	-	-	-	63 (255)	-	63 (255)	72 (299)	72 (299)	-	-	47 (297)	18 (318)	-

- Not Applicable

*Unsignalized

The analysis of the Build Conditions in comparison to No-Build conditions revealed improvements to the eastbound SR 528 Consulate Drive off-ramp for both the 2045 AM and PM peak hours. The processed demand rate averages 93 percent for both AM and PM peak hours for 2045 Build Conditions, while the processed demand rate is 73 percent and 53 percent for AM peak hour and PM peak hour, respectively, for the 2045 No-Build conditions. The improvement in traffic operations can be attributed to the addition of direct connect ramps between SR 528 and the Florida’s Turnpike and the improved operations at the intersection of Consulate Drive and US 17/92/441. The overall intersection delay for this intersection averages 15 seconds and 65 seconds for AM peak hour and PM peak hour, respectively, for 2045 Build Conditions, while the delay averages 30 seconds and 119 seconds for AM peak hour and PM peak hour, respectively, for 2045 No-Build conditions. See **Table 6.26** for the overall intersection delay for Consulate Drive and US 17/92/441.

Table 6.26
2045 Consulate Drive at US 17/92/441 VISSIM Overall Intersection Delay (Seconds)

No-Build		Build		Difference	
AM	PM	AM	PM	AM	PM
30	119	15	65	-15	-54

For the Build Conditions, the eastbound SR 528 Consulate Drive off-ramp processes 98 percent and 99 percent of the demand volumes for AM and PM peak hours, respectively, for Year 2025, and 97 percent and 100 percent for AM and PM peak hours, respectively, for Year 2035. For No-Build Conditions, the eastbound SR 528 Consulate Drive off-ramp processes 97 percent and 75 percent for AM and PM peak hours, respectively, for Year 2025, and 87 percent and 58 percent for AM and PM peak hours, respectively, for Year 2035. The Build Conditions outperforms the No-Build conditions in the three simulated Build years. See **Table 6.27** for the process rates for the Consulate Drive off-ramp from eastbound SR 528 in the Build Years.

Table 6.27
Consulate Drive off-ramp at Eastbound SR 528 VISSIM Performance

Consulate Drive off-ramp Processing Rate by Year	No-Build		Build		Difference	
	AM	PM	AM	PM	AM	PM
2025	97%	75%	98%	99%	1%	24%
2035	87%	58%	97%	100%	10%	42%
2045	73%	53%	93%	93%	20%	40%

For the Build Conditions, the first adjacent major intersections on either side of proposed change in access were analyzed to evaluate the impacts on local streets. It was indicative that other local intersections such as Landstreet Road at US 17/92/441, Florida’s Turnpike off-ramp at US 17/92/441, SR 482 at Presidents Drive, and SR 482 at Wal-Mart/Lowe’s Driveway were improved overall, with the exception of a few locations. Landstreet Road at US 17/92/441 experiences an increase in overall intersection delay in the PM peak hour for two of the three Build Years: 2035 and 2045. The overall intersection delays are 112 seconds, 139 seconds, and 146 seconds for

Build Years 2025, 2035 and 2045, respectively. For No-Build conditions, the overall intersection delays are 116 seconds, 128 seconds, and 131 seconds for Years 2025, 2035, and 2045, respectively. See **Table 6.28** for the overall intersection delay for Landstreet Road at US 17/92/441. The improved US 17/92/441 at Consulate Drive intersection with the free northbound through movement saturates the upstream intersection. The northbound queue spillback from the intersection of Landstreet Road at US 17/92/441 upstream also impacts Florida’s Turnpike off-ramp at US 17/92/441 intersection, particularly in Build Years 2035 and 2045. One other exception is at SR 482 and Presidents Drive in the PM peak hour for Build Years 2035 and 2045. As the congestion along eastbound SR 482 builds, the storage space for the northbound Florida’s Turnpike off-ramp vehicles from the improved C-D road increase the overall intersection at this intersection.

Table 6.28
Landstreet Road at US 17/92/441 VISSIM Intersection Performance in Delay (seconds)

No-Build			Build			Difference		
2025	2035	2045	2025	2035	2045	2025	2035	2045
116	128	131	112	139	146	-4	11	15

Results for redesigned intersections indicate that undue delay is not expected. The new intersection at the Voltaire Drive at SR 528 interchange experiences an overall simulated intersection delay of 5 seconds in the AM and PM peak hours, respectively, in Build Year 2045. However, because VISSIM Node Evaluations report each link inbound and outbound of a node structure, performance of the SR 528 mainline is considered in the results. Individual movements of the signalized intersection do not exceed 70 seconds in the AM peak hour. The worst movement is eastbound off-ramp left turn to Voltaire Drive at 82 seconds. The redesigned intersection at Taft Vineland Road at Bachman Road results in an overall intersection delay of 40 seconds and 91 seconds in the AM and PM peak hours, respectively, in Build Year 2045. The intersection of Landstreet Road at Road X (south of Voltaire Drive) results in an overall intersection delay of 22 seconds and 11 seconds in the AM and PM peak hours, respectively. The intersection of Florida’s Turnpike southbound off-ramp at Consulate Drive results in an overall intersection delay of 1 second and 64 seconds in the AM and PM peak hours, respectively. See **Table 6.29** for intersection performance summaries. The southbound Florida’s Turnpike off-ramp through movement results in 180+ seconds as an individual movement in the PM peak hour. This is largely due to the queue spillback from the eastbound left turn at Consulate Drive at US 17/92/441.

Table 6.29
2045 Build VISSIM Intersections Overall Intersection Delay (Seconds)

Intersection	AM	PM
Taft Vineland Road at Bachman Road	40	91
Landstreet Road at Road X (south of Voltaire Drive)	22	11
Florida’s Turnpike southbound off-ramp at Consulate Drive	1	64
Florida’s Turnpike southbound off-ramp movement	1	180

Ramp braiding along SR 528 between the CR 423 and Consulate Drive improves the weaving segment by improving the process rate and the average speeds that are achieved. In the 2045 No-Build Conditions, the westbound weaving segment between the Consulate Drive on-ramp to CR 423 off-ramp has a process rate of 75 percent with an average speed of 50 mph in the AM peak hour, and 77 percent at 63 mph in the PM peak hour. In the 2045 Build Conditions, the process rate is 94 percent with an average speed of 61 mph for the in AM peak hour, and 85 percent at 48 mph for the PM peak hour. The process rate is increased, but the speed is reduced in the Build Conditions for the PM peak hour. This is likely due to increased process rates increasing weaving vehicles present in the corridor, causing some congestion.

In the eastbound weaving segment between the CR 423 on-ramp and the Consulate Drive off-ramp the process rate and speed are improved by not only the ramp braiding, but the operation of the Consulate Drive off-ramp, which has been improved. Thus, the improvements are more substantial than the westbound weaving segment. In the 2045 No-Build Conditions, the process rate is 91 percent with an average speed of 23 mph in the AM peak hour, and 51 percent at 5 mph in the PM peak hour. In 2045 Build Conditions, the process rate is 93 percent with an average speed of 65 mph in AM peak hour, and 95 percent at 56 mph for the PM peak hour. The significantly higher process rate is achieved, and a higher speed is maintained in the 2045 Build Conditions, thus the Build Conditions outperforms the No-Build conditions. See **Table 6.30** for the performance of the weaving segment between CR 423 and Consulate Drive along SR 582.

Table 6.30
2045 SR 528 Weaving Segment between CR 423 and Consulate Drive Performance

Weaving Segment Process Rate (%) & Speed (mph)	AM				PM				Difference			
	No-Build		Build		No-Build		Build		AM		PM	
	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
Westbound	75%	50	94%	61	77%	63	85%	48	19%	11	8%	-15
Eastbound	91%	23	93%	65	51%	5	95%	56	2%	42	44%	51

The eastbound and westbound weaving segment along SR 528 between Florida’s Turnpike and the new reliever interchange at Voltaire Drive is improved with the addition of an auxiliary lane. In the eastbound direction, the process rate is 83 percent and maintains an average speed of 65 mph in the AM peak hour and 94 percent at 58 mph in the PM peak hour for Build Year 2045. In the westbound direction, the process rate is 96 percent and averages 64 mph in the AM peak hour and 91 percent at 65 mph in the PM peak hour. See **Table 6.31** for the performance results for 2045 Build Year results.

Table 6.31
2045 Build SR 528 Weaving Segment between Orlando South and Voltaire Drive Performance

Weaving Segment Process Rate (%) & Speed (mph)	AM		PM	
	%	Speed	%	Speed
Westbound	96%	64	91%	65
Eastbound	83%	65	94%	58

Ramp braiding along the Florida's Turnpike between the new reliever interchange at Florida's Turnpike/Taft Vineland Road interchange and the SR 528 direct connects improves the weaving segment by improving the process rate and the average speed that is achieved. The southbound Florida's Turnpike auxiliary lane between the SR 482 on-ramp and the SR 528 direct connect off-ramps assist in improving traffic operations. The southbound Florida's Turnpike off-ramp to eastbound and westbound SR 528 direct connects are proposed in the Build Conditions between the SR 482 on-ramp and the Consulate Drive off-ramp. In the 2045 No-Build Conditions, 61 percent of the demand is processed while averaging 68 mph in the AM peak hour, and 73 percent of the demand is processed while averaging 62 mph in the PM peak hour. The process rate is 64 percent while averaging 68 mph in the AM peak hour, and 83 percent at 20 mph in the PM peak hour in the 2045 Build Conditions. It is noteworthy that between the 2045 Build Conditions and 2045 No-Build conditions, the process rate improves by 10 percent, but the speed drops. This is due to the shortened weaving segment while increased demand volume between No-Build Conditions and the Build Conditions. The increased processed rate in the Build Conditions indicates that more of the demand is able to reach the weaving segment than in the No-Build conditions. However, the slower speeds along this weaving segment indicate that with the increased processing rate at eastbound SR 528 Consulate Drive off-ramp (which it competes with for surface street storage space), there is some congestion spillback from the Florida's Turnpike Consulate Drive off-ramp.

The same trend can be observed with Build Year 2035 results. In 2035, the southbound Florida's Turnpike weaving segment between the SR 482 on-ramp and the SR 528 off-ramp processes 79 percent at 66 mph and 92 percent at 42 mph for AM and PM peak hour, respectively, for the Build Conditions. The same weaving segment processes 78 percent at 66 mph and 86 percent at 60 mph for AM and PM peak hours, respectively, for the No-Build Conditions. In 2025, the southbound Florida's Turnpike weaving segment between the SR 482 on-ramp and the SR 528 off-ramp processes 92 percent at 67 mph and 98 percent at 66 mph for AM and PM peak hour, respectively, for the Build Conditions. The same weaving segment processes 92 percent at 65 mph and 98 percent at 68 mph for AM and PM peak hours, respectively, for the No-Build Conditions. See **Table 6.32** for the performance of the weaving segment along southbound Florida's Turnpike in the Build Years.

Table 6.32
Southbound Florida's Turnpike Weaving Segment Performance

Weaving Segment Process Rates & Speeds* by Year	AM				PM				Difference			
	No-Build		Build		No-Build		Build		AM		PM	
	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
2045	61%	68	64%	68	73%	62	83%	20	3%	0	10%	-42
2035	78%	66	79%	66	86%	60	92%	43	1%	0	6%	-17
2025	92%	65	92%	67	96%	68	98%	66	0%	2	2%	-2

*Lowest speed observed used for comparison

The northbound Florida’s Turnpike weaving segment proposed to be on a C-D road adjacent to the Mainline in the Build Conditions averages process rate of 91 percent with average speed of 56 in the AM peak hour, and 81 percent at 53 mph in the PM peak hour in Build Year 2045. In the 2045 No-Build conditions, the weaving segment process rate is 84 percent at 51 mph in the AM peak hour, and 74 percent at 59 mph in the PM peak hour. The dip in speeds for the PM peak hour is due to the increased congestion induced from increased processed vehicles. See **Table 6.33** for the performance of the C-D road segment along northbound Florida’s Turnpike in the Build Years.

Table 6.33
2045 Florida’s Turnpike Northbound Performance: Mainline versus C-D Road

Northbound Weave Segment (%) & Speed (mph)	AM				PM				Difference			
	No-Build		Build		No-Build		Build		AM		PM	
	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
2045	84%	51	91%	56	74%	59	81%	53	7%	5	7%	-6

The C-D road in the Build Conditions is designed to collect from eastbound and westbound Taft Vineland Road and southbound US 17/92/441 and distribute to Florida’s Turnpike Mainline and SR 482. In the AM peak hour for Build Year 2045, 95 percent of the combined Taft Vineland Road on-ramp demand is expected to be processed, 93 percent of the Southbound US 17/92/441 on-ramp demand is expected to be processed, and 91 percent of the SR 482 exit ramp demand is expected to be processed. In the PM peak hour, 90 percent of the combined Taft Vineland Road on-ramp demand, 74 percent of the southbound US 17/92/441 on-ramp demand, and 95 percent of the SR 482 exit ramp demand is anticipated to be processed. In Build Year 2035 the AM peak hour, 97 percent of the combined Taft Vineland Road on-ramp demand, 93 percent of the southbound US 17/92/441 on-ramp demand, and 91 percent of the SR 482 exit ramp demand is expected to be processed. In the PM peak hour, 94 percent of the combined Taft Vineland Road on-ramp demand, 81 percent of the Southbound US 17/92/441 on-ramp demand, and 99 percent of the SR 482 exit ramp demand is anticipated to be processed. In the AM peak hour for Build Year 2045, 98 percent of the combined Taft Vineland on-ramp demand, 96 percent of the southbound US 17/92/441 on-ramp demand, and 99 percent of the SR 482 exit ramp demand is expected to be processed. In the PM peak hour, 99 percent of the combined Taft Vineland Road on-ramp demand, 93 percent of the southbound US 17/92/441 on-ramp demand, and 99 percent of the SR 482 exit ramp demand is expected to be processed. See **Table 6.34** for the process rate for each individual C-D Road component.

Table 6.34
Northbound C-D Road VISSIM Process Rate

Collector Distributor Component	AM			PM		
	2025	2035	2045	2025	2035	2045
Taft Vineland Road on-ramp	98%	97%	95%	99%	94%	90%
Southbound US 17/92/441 on-ramp	96%	94%	93%	93%	81%	74%
SR 482 off-ramp	99%	99%	91%	99%	99%	95%

Adjacent interchanges to the new Orlando South interchange and Taft Vineland Road interchange were analyzed to fully evaluate whether the proposed changes negatively impact neighboring interchanges. The Florida’s Turnpike and I-4 interchange processes more vehicles for each Future Build Year in both AM and PM peak hours when compared to No-Build conditions. The CR 423 at SR 528 interchange is also improved for each Future Build Year in both the AM and the PM peak hours except for the 2045 AM peak hour, but the process rate is higher in the Build Conditions. The Florida’s Turnpike and SR 417 interchange is also improved for each Future Build Year in both the AM and the PM peak hours except for the 2025 Build Year, in which the processed rate is somewhat lower in the Build Conditions compared to No-Build conditions. The generation of congestion along northbound Florida’s Turnpike from the added access points between the Orlando South interchange and this interchange becomes fully saturated in 2045, and therefore remains comparable between No-Build Conditions and the Build Conditions.

The newly proposed interchange at Voltaire Drive at SR 528 processes 94 to 105 percent in the AM peak hour, and 92 to 97 percent in the PM peak hour in Build Year 2025. The interchange processes 89 to 97 percent in the AM peak hour, and 74 to 95 percent in the PM peak hour in Build Year 2035. The interchange processes 81 to 96 percent in the AM peak hour and 67 to 94 percent in the PM peak hour in Build Year 2045. See **Table 6.35** for the interchange process rate for the Build years. The inability to process more traffic is due to the congestion experienced at the eastbound SR 528 off-ramp to McCoy Road, which spills back to the SR 528 mainline and affects the adjacent interchange.

Table 6.35
Voltaire Drive at SR 528 Interchange VISSIM Process Rate

Process Rate (%)	AM			PM		
	2025	2035	2045	2025	2035	2045
Voltaire Drive at SR 528 Interchange	94 ~ 105	89 ~ 97	81 ~ 96	92 ~ 97	74 ~ 95	67 ~ 94

The conclusions from this study are that the improvements at the Consulate Drive/US 17/92/441 intersection with the Build Conditions improves the northbound US 17/92/441 corridor south of Consulate Drive. The overall intersection delay/level of service improves, but the free northbound US 17/92/441 through at Consulate Drive movement at this intersection reduces the capacity for the eastbound Consulate left turn at US 17/92/441 movement capacity. The queues in turn affect the eastbound SR 528 Consulate off-ramp and southbound Florida’s Turnpike Consulate off-ramp. The Consulate Drive off-ramp along eastbound SR 528 is improved but the Consulate Drive off-ramp along southbound Florida’s Turnpike remains comparable with other alternatives. The Taft Vineland Road ramps and the reliever ramps improve the mainline Florida’s Turnpike corridors between the I-4 interchange and SR 417 interchange overall, but specific locations see more delays. Such locations include the southbound Florida’s Turnpike weaving segment between the SR 482 on-ramp and SR 528 off-ramp in the PM peak hour.

Conclusions regarding local streets indicate that on average local streets perform better for the Build Conditions in comparison to No-Build conditions except at the Landstreet Road at US 17/92/441 intersection and the southbound Florida’s Turnpike off-ramp at Consulate Drive intersection. The intersections experience some queue spillback from the eastbound Consulate

Drive at US 17/92/441 with the turbo northbound through operations. The surface streets performances are improved overall in levels of delay experienced as well as processing rates.

6.3 FUTURE SAFETY EVALUATION

A safety analysis was conducted to study the impacts of the proposed Build alternative on local street network within the AOI. The study area focused on the Florida's Turnpike and SR 528 freeway segments, ramp terminals and ramp segments, SR 482, US 17/92/441, Taft Vineland Road and Landstreet Road arterial segments and major intersections along the arterials. The analysis was conducted using the predictive methods in Chapters 12 and 19 of the Highway Safety Manual (HSM), where available, and the Enhanced Interchange Safety Analysis Tool (ISATe), which apply a combination of Safety Performance Functions (SPFs), crash modification factors (CMFs), and calibration factors to estimate frequency and cost of crashes for each segment and intersection.

It is important to note that the current edition of the HSM does not include a predictive method for arterial segments with six or more lanes. A research effort under the NCHRP Project 17-58 is underway to develop predictive methods for six-lane urban and suburban arterials and will be included in the next edition of the HSM (Chapter 12). The analysis was conducted assuming the predictive methods for four-lane divided arterials for both the No-Build and Build alternatives.

The No-Build and Build alternatives were evaluated and the predicted number of crashes and associated costs were compared for the 2025 to 2045 analysis period. The results of the safety analysis are summarized in **Table 6.36**. It is important to note that the safety analysis tools available to date are deterministic in nature and estimate future crashes mainly based on AADT and roadway characteristics. These tools do not account for vehicle interactions. No-Build is expected to have extensive congestion and queues that may potentially impact crashes. Predicted crashes for No-Build would be higher than shown in **Table 6.36** if congestion and queuing impacts were considered. Consequently, cost savings would be higher than reported. Nevertheless, the overall predicted crashes are lower for Build compared to No-Build due to added capacity along the Florida's Turnpike mainline and system-to-system connections that divert traffic from the arterials. Based on these results, the Build alternative is predicted to have a 20-year crash cost savings of approximately \$504 Million compared to the No-Build alternative, in 2019 present value. Detailed analysis tables are provided in **Appendix I**.

6.3.1 User Benefit Analysis

A user benefit over a 20-year project life span of the proposed Orlando South ultimate interchange modification was estimated using projected reductions in network travel time and improved safety. The 2015 Urban Mobility Report published by the Texas Transportation Institute was used as a reference for value of time. Based on 2017 dollars, the estimated user benefit is \$1.6 Billion based on travel time, from year 2025 to 2045. The table used to estimate the user benefit is presented in **Appendix I**.

Table 6.36
2025 to 2045 Predicted Number of Crashes and Cost Saving

Site	No-Build		Build	
	N _{predicted} *	2019 Present Value	N _{predicted} *	2019 Present Value
Florida's Turnpike				
Freeway segments	5,724.0	\$536,568,032	4,526.3	\$465,286,377
Ramp segments	4,344.4	\$298,960,316	3,403.7	\$211,677,271
Ramp Terminals	1,206.9	\$40,233,000	955.0	\$32,397,008
SR 528				
Freeway segments	2,370.9	\$204,813,051	2,384.7	\$208,941,353
Ramp segments	1,339.6	\$130,898,834	547.0	\$57,797,915
Ramp Terminals	1,815.7	\$62,563,397	1,793.2	\$54,645,595
Subtotal	16,801.5	\$1,274,036,630	13,609.8	\$1,030,745,519
SR 482 Intersections				
CR 423	1,500.2	\$158,391,427	1,488.3	\$157,339,180
Lowes Entrance	149.4	\$15,723,180	135.7	\$14,261,423
President Drive	389.7	\$41,118,924	345.3	\$36,308,812
Chancellor Drive	304.9	\$32,191,178	268.1	\$28,209,461
Lillwill Avenue	85.2	\$9,015,539	74.8	\$7,882,775
US 17/92/441	1,832.1	\$191,544,217	1,593.7	\$166,249,156
Skyview Drive	543.8	\$57,487,334	478.5	\$50,433,200
Golden Sky Lane	270.8	\$28,654,642	239.2	\$25,245,684
Voltaire Drive	374.5	\$39,676,544	305.7	\$32,285,271
Horizon Park Drive	412.0	\$43,650,144	323.0	\$34,220,474
SR 482 Segments				
CR 423 to Lowes Entrance	133.9	\$14,144,296	120.6	\$12,693,010
Lowes Entrance to President Drive	97.5	\$10,288,540	85.3	\$8,995,012
President Drive to Chancellor Drive	97.6	\$10,264,010	83.8	\$8,776,953
Chancellor Drive to Lillwill Avenue	461.3	\$48,507,099	395.0	\$41,389,449
Lillwill Avenue to US 17/92/441	381.5	\$37,153,403	326.1	\$31,640,249
US 17/92/441 to Skyview Drive	47.8	\$4,655,442	40.8	\$3,957,330
Skyview Drive to Golden Sky Lane	100.0	\$9,759,619	85.9	\$8,359,631
Golden Sky Lane to Voltaire Drive	79.6	\$7,777,023	68.8	\$6,707,182
Voltaire Drive to Horizon Park Drive	39.5	\$3,856,311	29.4	\$2,873,730

**Table 6.36 (continued)
2025 to 2045 Predicted Number of Crashes and Cost Saving**

Site	No-Build		Build	
	N _{predicted} *	2019 Present Value	N _{predicted} *	2019 Present Value
US 17/92/441 Intersections				
August Lane	591.2	\$62,925,808	546.9	\$57,889,563
Sun Life Path	511.9	\$54,450,312	474.8	\$50,220,144
La Quinta Drive	642.4	\$68,191,398	597.6	\$63,095,186
Landstreet Road	1,718.1	\$182,157,394	1,508.4	\$159,249,110
Consulate Drive	1,052.4	\$112,161,712	853.3	\$89,953,663
Taft Vineland Road	1,421.9	\$151,445,294	848.4	\$88,585,532
US 17/92/441 Segments				
Sand Lake Road to August Lane	79.2	\$8,414,611	71.9	\$7,592,923
August Lane to Sun Life Path	181.4	\$19,289,771	165.4	\$17,469,253
Sun Life Path to La Quinta Drive	109.6	\$11,657,539	100.8	\$10,652,198
La Quinta Drive to Landstreet Road	343.5	\$36,490,198	314.6	\$33,211,546
Landstreet Road to Consulate Drive	620.0	\$65,828,883	395.7	\$41,650,426
Consulate Drive to Taft Vineland Road	697.3	\$74,416,734	335.2	\$35,233,970
Taft Vineland Road Intersections				
Satellite Boulevard	213.8	\$22,742,543	246.9	\$25,760,414
Bachman Road	130.1	\$13,904,094	213.9	\$22,380,758
Taft Vineland Road Segments				
US 17/92/441 to Satellite Boulevard	66.5	\$7,090,342	82.6	\$8,547,385
Satellite Boulevard to Bachman Road	32.2	\$3,423,399	39.7	\$4,149,438
Landstreet Road Intersection				
Voltaire Road Extension/Road X	-	-	53.4	\$5,576,257
Landstreet Road Segments				
East of US 17/92/441	29.3	\$3,323,385	21.5	\$2,451,856
West of US 17/92/441	94.9	\$6,442,573	87.8	\$5,983,639
Subtotal	15,837.1	\$1,668,214,864	13,446.7	\$1,407,481,240
Total	32,638.6	\$2,942,251,494	27,056.5	\$2,438,226,759
Crash Cost Savings	\$504,024,734			

*Predicted Crash







6.4 ADDITIONAL INTERSECTIONS EVALUATION

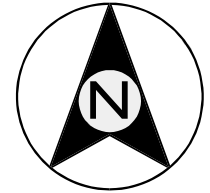
This section presents the additional traffic analysis requested by Orange County. This analysis is outside the scope of the project and AOI defined in the approved MLOU. The request was to evaluate and compare operations at the following intersections:

- Landstreet Road and Gills Drive
- Landstreet Road and Bachman Road
- Bachman Road and Thorpe Road
- General Drive and Taft Vineland Road
- General Drive and Rocket Boulevard

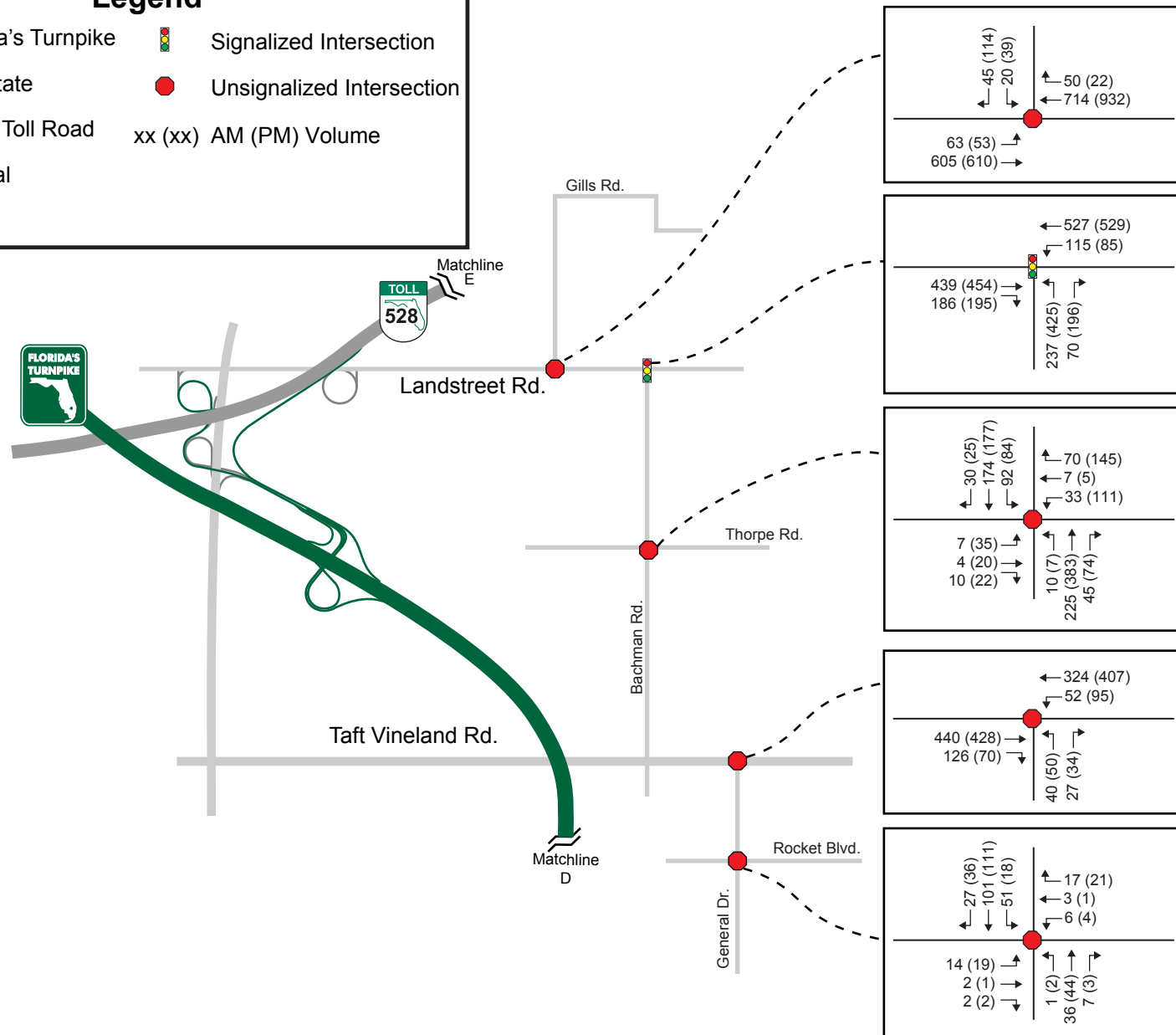
Peak hour traffic data for these additional intersections are presented on **Figures 6.5** through **6.7**. The additional analysis was performed using Synchro for the opening year 2025, interim year 2035, and design year 2045 for Build conditions. No-Build analysis was performed for opening year 2025 and design year 2045. The additional intersections under the Build design year are expected to operate at an acceptable LOS D or better, except Landstreet Road at Gills Drive and Bachman Road at Thorpe Road unsignalized intersections. However, these two unsignalized intersections are also expected to be congested under No-Build conditions. A new arterial Voltaire Drive Extension will be built to connect the SR 528 reliever interchange with Landstreet Road. The intersection of Landstreet Road and Voltaire Drive Extension/Road X is expected to operate at LOS D or better. The results are presented in **Tables 6.37** through **6.42**.

Legend

-  Florida's Turnpike
-  Interstate
-  Other Toll Road
-  Arterial
-  Signalized Intersection
-  Unsignalized Intersection
- xx (xx) AM (PM) Volume



NOT TO SCALE



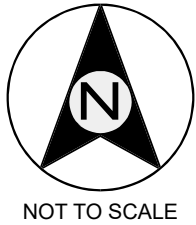
Systems Interchange Justification Report (SIJR)
 Florida's Turnpike & SR 528
 Orlando South Ultimate Interchange PD&E Study

2017 (Existing) Additional Intersections
 Peak Hour Volumes

Figure
 6.5

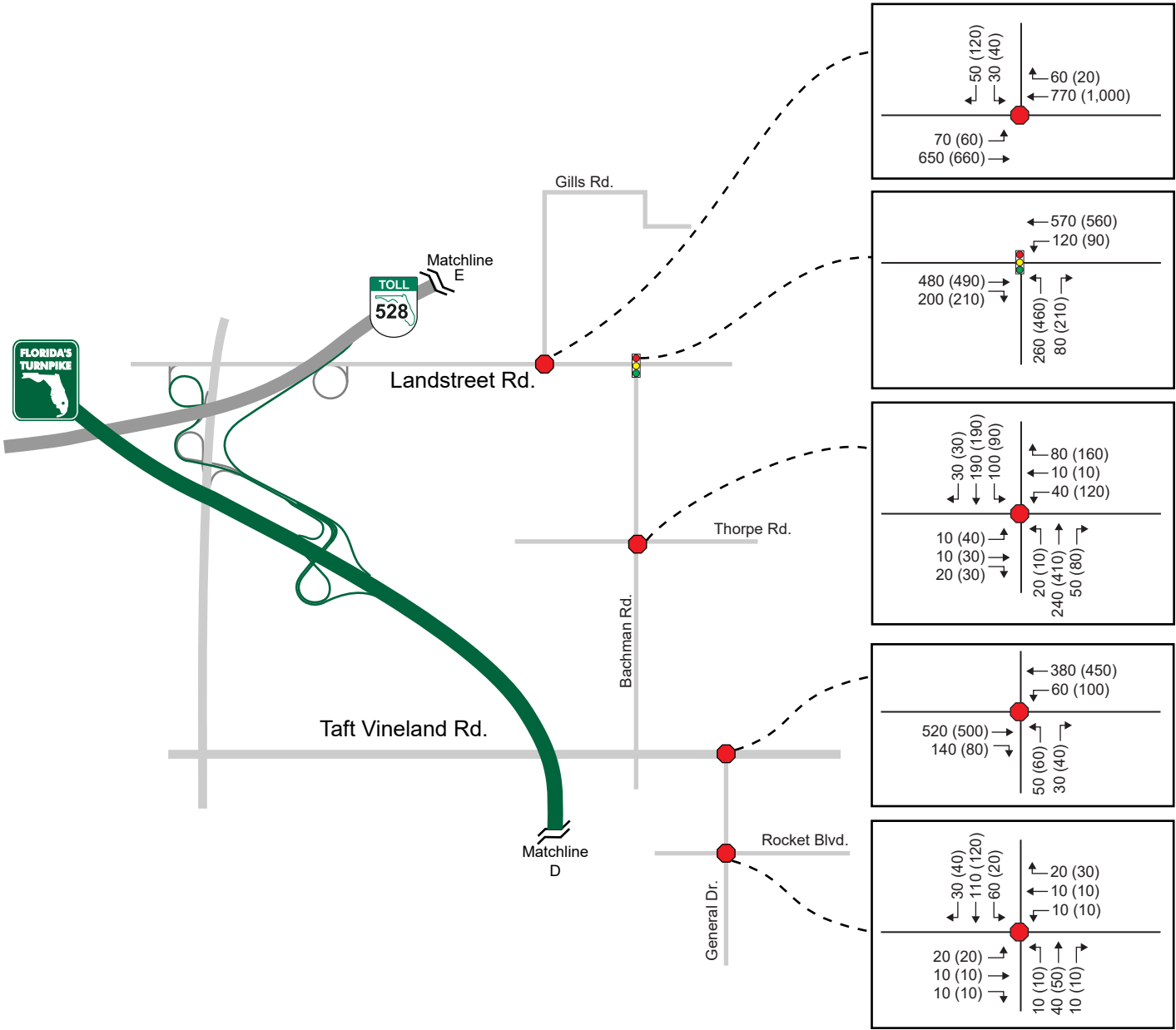
Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection

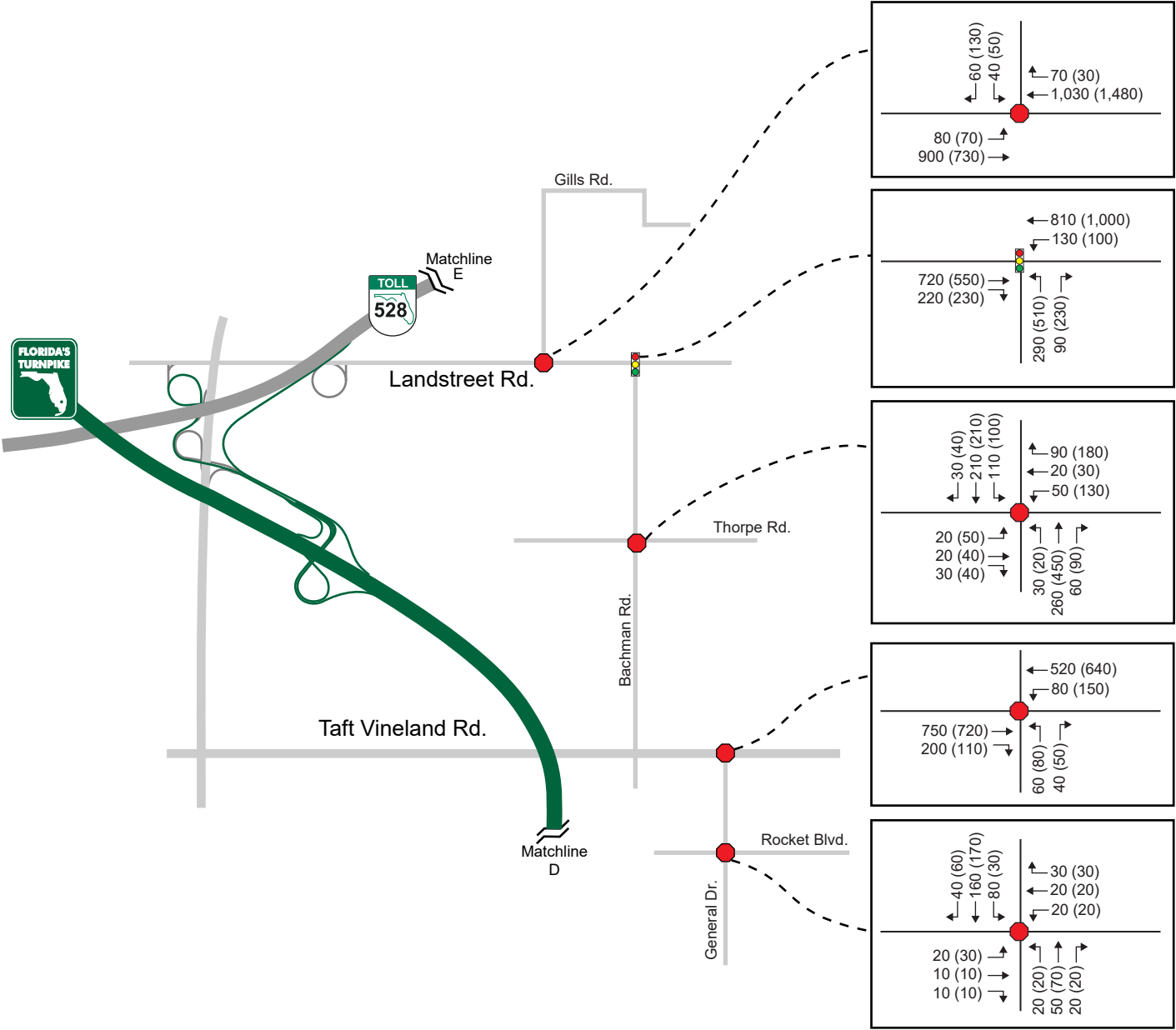


Additional Intersections Evaluation

2025



2045



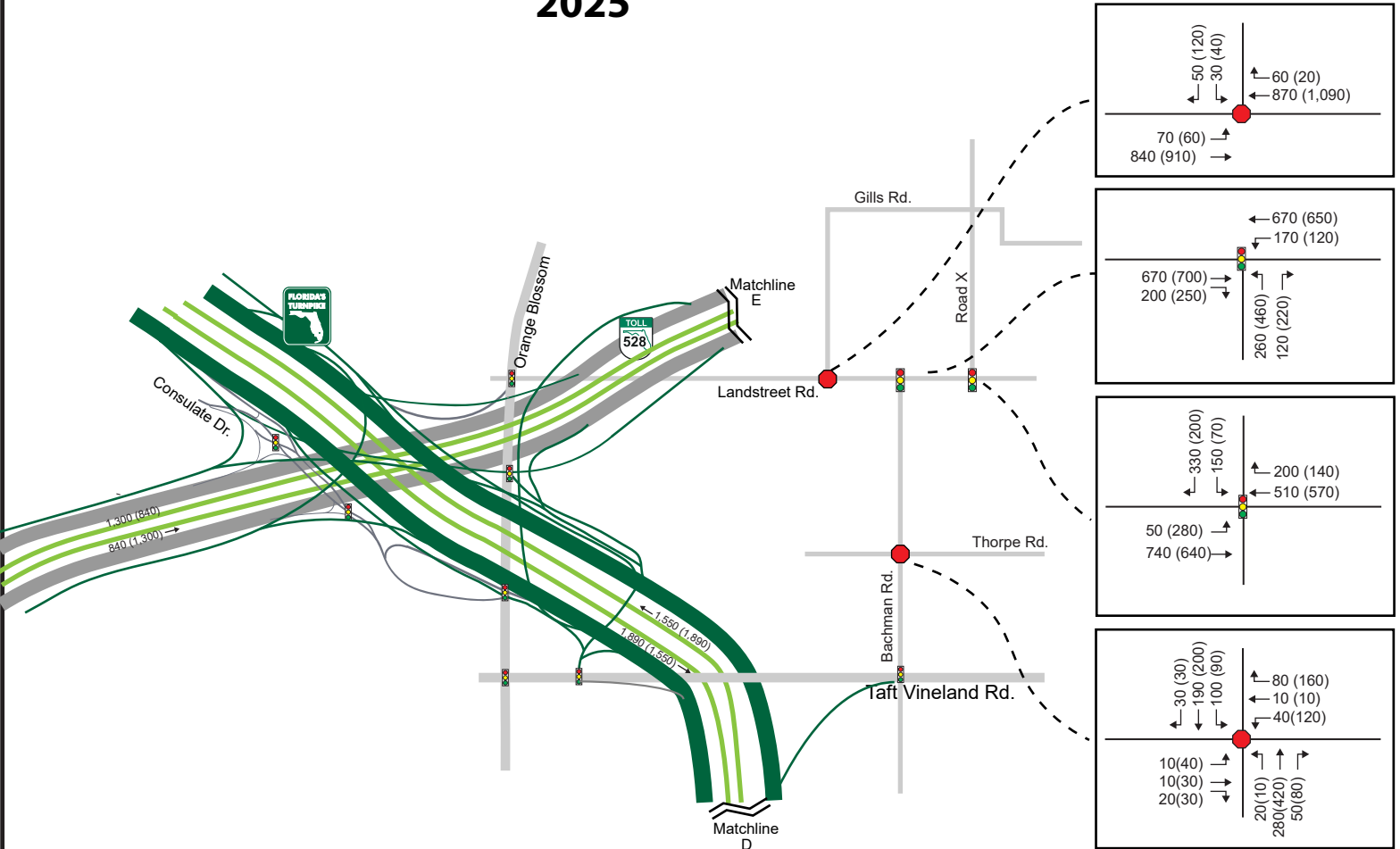
Legend

- Florida's Turnpike
- Interstate
- Other Toll Road
- Arterial
- AM (PM) Volume
- Signalized Intersection
- Unsignalized Intersection

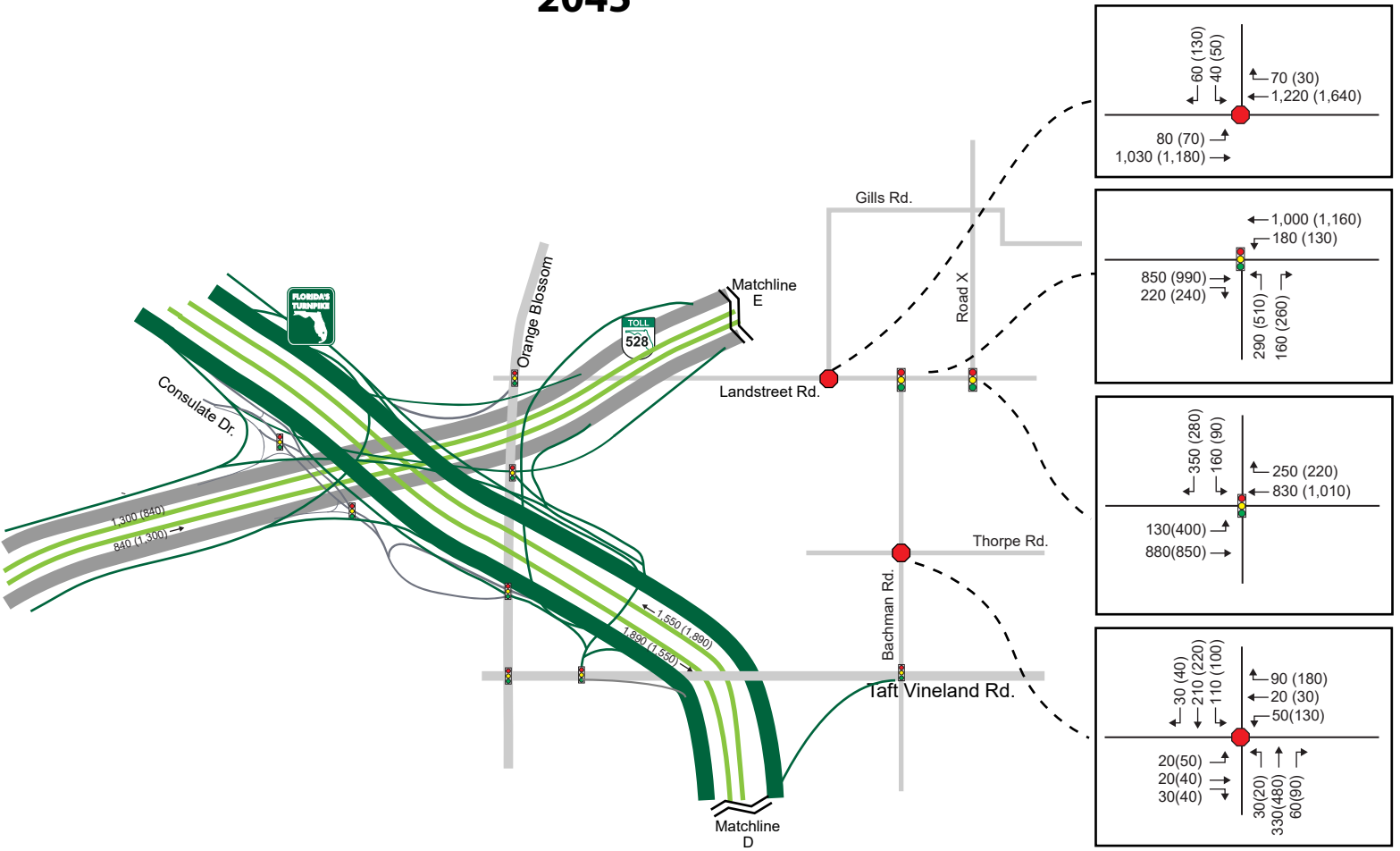


Additional Intersections Evaluation

2025



2045



Systems Interchange Justification Report (SIJR)
 Florida's Turnpike & SR 528
 Orlando South Ultimate Interchange PD&E Study

**Build Additional Intersections
 Design Hour Volumes**

**Figure
 6.7**

Table 6.37
2017 (Existing) Additional Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Landstreet Road													
Gills Drive*	A/10	-	-	-	-	-	-	-	-	-	B/15	-	B/15
Bachman Road	-	B/17	-	B/10	A/9	-	C/26	-	A/3	-	-	-	B/14
Bachman Road													
Thorpe Road*	-	B/14	-	-	B/14	-	A/8	-	-	A/8	-	-	B/14
General Drive													
Taft Vineland Road*	-	-	-	A/9	-	-	-	C/20	-	-	-	-	C/20
Rocket Boulevard*	-	B/11	-	-	A/10	-	A/8	-	-	A/8	-	-	B/11
PM													
Landstreet Road													
Gills Drive*	B/11	-	-	-	-	-	-	-	-	-	C/21	-	C/21
Bachman Road	-	C/22	-	B/11	B/10	-	D/48	-	A/5	-	-	-	C/22
Bachman Road													
Thorpe Road*	-	D/26	-	-	E/43	-	A/8	-	-	A/9	-	-	E/43
General Drive													
Taft Vineland Road*	-	-	-	A/9	-	-	-	C/25	-	-	-	-	C/25
Rocket Boulevard*	-	B/10	-	-	A/9	-	A/8	-	-	A/7	-	-	B/10

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

**Table 6.38
2025 Peak Hour No-Build Additional Intersection Level of Service/Delay**

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Landstreet Road													
Gills Drive*	B/10	-	-	-	-	-	-	-	-	C/17	-	-	C/17
Bachman Road	-	B/18		B/11	A/9	-	C/28	-	A/3	-	-	-	B/15
Bachman Road													
Thorpe Road*	-	C/15	-	-	C/16	-	A/8	-	-	A/8	-	-	C/16
General Drive													
Taft Vineland Road*	-	-	-	A/10	-	-	-	D/27	-	-	-	-	D/27
Rocket Boulevard*	-	B/11		-	B/10	-	A/8	-	-	A/8	-	-	B/11
PM													
Landstreet Road													
Gills Drive*	B/11	-	-	-	-	-	-	-	-	C/23	-	-	C/23
Bachman Road	-	C/24	-	B/11	B/10	-	E/60	-	A/6	-	-	-	C/26
Bachman Road													
Thorpe Road*	-	E/35	-	-	F/87	-	A/8	-	-	A/3	-	-	F/87
General Drive													
Taft Vineland Road*	-	-	-	A/9	-	-	-	E/35	-	-	-	-	E/35
Rocket Boulevard*	-	B/11	-	-	A/10	-	A/8	-	-	A/8	-	-	B/11

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.39
2045 Peak Hour No-Build Additional Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Landstreet Road													
Gills Drive*	B/12	-	-	-	-	-	-	-	-	-	D/26	-	D/26
Bachman Road	-	C/32		B/13	B/11	-	C/30	-	A/7	-	-	-	C/22
Bachman Road													
Thorpe Road*	-	C/20	-	-	C/23	-	A/8	-	-	A/8	-	-	C/23
General Drive													
Taft Vineland Road*	-	-	-	B/11	-	-	-	F/94	-	-	-	-	F/94
Rocket Boulevard*	-	B/13	-	-	B/12	-	A/8	-	-	A/8	-	-	B/13
PM													
Landstreet Road													
Gills Drive*	C/16	-	-	-	-	-	-	-	-	-	F/81	-	F/81
Bachman Road	-	C/29	-	B/12	B/14	-	F/91	-	A/8	-	-	-	C/33
Bachman Road													
Thorpe Road*	-	F/92	-	-	F/278	-	A/8	-	-	A/9	-	-	F/278
General Drive													
Taft Vineland Road*	-	-	-	B/11	-	-	-	F/329	-	-	-	-	F/329
Rocket Boulevard*	-	B/13	-	-	B/12	-	A/8	-	-	A/8	-	-	B/13

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.40
2025 Peak Hour Build Additional Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Landstreet Road													
Gills Drive*	B/11	-	-	-	-	-	-	-	-	-	C/19	-	C/19
Bachman Road	-	C/25		B/14	A/9	-	D/38	-	A/5	-	-	-	B/19
Road X	A/8	A/8	-	-	B/13	-	-	-	-	E/74	-	A/6	B/18
Bachman Road													
Thorpe Road*	-	C/16	-	-	C/17	-	A/8	-	-	A/8	-	-	C/17
PM													
Landstreet Road													
Gills Drive*	B/12	-	-	-	-	-	-	-	-	-	D/28	-	D/28
Bachman Road	-	D/36	-	B/19	B/13	-	D/53	-	B/10	-	-	-	C/30
Road X	A/7	A/4	-	-	B/11	-	-	-	-	E/70	-	B/16	B/13
Bachman Road													
Thorpe Road*	-	E/38	-	-	F/97	-	A/8	-	-	A/9	-	-	F/97

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.41
2035 Peak Hour Build Additional Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Landstreet Road													
Gills Drive*	B/14	-	-	-	-	-	-	-	-	-	D/34	-	D/34
Bachman Road	-	C/26	-	B/15	A/10	-	D/39	-	A/9	-	-	-	B/20
Road X	A/9	A/8	-	-	B/16	-	-	-	-	E/74	-	C/21	B/19
Bachman Road													
Thorpe Road*	-	C/22	-	-	D/27	-	A/8	-	-	A/9	-	-	D/27
PM													
Landstreet Road													
Gills Drive*	C/18	-	-	-	-	-	-	-	-	-	F/143	-	F/143
Bachman Road	-	D/43	-	B/18	B/16	-	D/52	-	B/13	-	-	-	C/32
Road X	C/29	A/5	-	-	C/30	-	-	-	-	F/86	-	D/40	C/27
Bachman Road													
Thorpe Road*	-	F/114	-	-	F/324	-	A/8	-	-	A/9	-	-	F/324

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

Table 6.42
2045 Peak Hour Build Additional Intersection Level of Service/Delay

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Landstreet Road													
Gills Drive*	B/14	-	-	-	-	-	-	-	-	-	D/35	-	D/35
Bachman Road	-	C/34	-	B/20	B/11	-	D/43	-	B/12	-	-	-	C/24
Road X	B/12	A/9	-	-	B/19	-	-	-	-	E/74	-	C/29	C/22
Bachman Road													
Thorpe Road*	-	C/23	-	-	D/27	-	A/8	-	-	A/9	-	-	D/27
PM													
Landstreet Road													
Gills Drive*	C/19	-	-	-	-	-	-	-	-	-	F/147	-	F/147
Bachman Road	-	D/54	-	C/27	B/17	-	E/71	-	B/16	-	-	-	D/39
Road X	D/52	A/6	-	-	D/46	-	-	-	-	F/87	-	D/45	D/38
Bachman Road													
Thorpe Road*	-	F/116	-	-	F/328	-	A/8	-	-	A/9	-	-	F/328

*Unsignalized – LOS/Delay based on HCS Analysis, Delay - seconds per vehicle; - Not applicable

The Orlando South PD&E study (FPID: 438547-1-22-01) is expected to be completed by Spring 2020. Design of the system interchange (FPID: 438547-2) is programmed in Fiscal Year (FY) 2020, right of way in 2022-2024 and construction in 2027. Design of the Taft Vineland Road and Florida's Turnpike interchange (FPID: 444980-1) is programmed in FY 2020 and 2026-2027. Design of the Voltaire Drive and SR 528 interchange (FPID: 444979-1) is programmed in FY 2026-2027. Right of way and construction of the last two projects are not yet programmed.

There are no anticipated signing issues with the proposed Orlando South, SR 528 and Voltaire Drive, and Florida's Turnpike and Taft Vineland Road interchanges. A conceptual signing plan is presented in **Appendix J**.

CHAPTER 9 Compliance with FHWA General Requirements

The Florida's Turnpike and SR 528 are both tolled limited-access facilities, under the operation and management of the FTE. This section discusses the proposed Build alternative with regard to Federal Highway Administration's (FHWA) two policy points.

Point 1

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

The Orlando South Interchange is a complex interchange that includes a combination of ramps that connect Florida's Turnpike, SR 528, and Orange Blossom Trail (US 17/92/441). Since the existing interchange does not provide many of the direct connections needed, motorists utilize US 17/92/441 and Consulate Drive and other local streets as a pass-through to access numerous destinations. The pass-through traffic exacerbates traffic congestion at the intersections within the interchange. The existing microsimulation traffic analysis indicates that SR 528 is currently experiencing reductions in travel speeds during the AM peak hour commute period west of Consulate Drive due to the proximity of interchanges and associated weaving maneuvers. In addition, traffic queues currently spill back along the SR 528 mainline in the westbound direction at Florida's Turnpike off-ramp during the PM peak hour, resulting in a reduction in mainline travel speeds. The queue backups start downstream of the SR 528 westbound off-ramp where it merges with the US 17/92/441 southbound on-ramp to Florida's Turnpike, forming a single-lane section that is currently over capacity. The SR 482 and CR 423 intersection and the intersections along US 17/92/441 experience long delays, especially at Landstreet Road during the PM peak hour. The traffic operations are expected to degrade in the future under No-Build condition. The proposed Build Alternative will enhance safety, add capacity, increase mobility, accommodate future traffic demands, and reduce evacuation travel times in Central Orange County.

An operational and safety analysis was conducted to study the impacts of the proposed Build alternative on Florida's Turnpike, SR 528, and local street network within the analysis AOI. Several performance measures were used to compare the operations and safety of the current

CHAPTER 9 Compliance with FHWA General Requirements

and future networks under the No-Build and Build alternatives. Key measures included network-wide travel time and delay, average speed, intersection delays and queues, safety benefits, and user benefit.

It is estimated that network travel time and delay will reduce by 24 and 41 percent, respectively, in the design year 2045 AM peak hour. A reduction in network travel time and delay of 30 and 44 percent is estimated for 2045 PM peak hour. This reduction is due to new ramps connecting Florida's Turnpike northbound and southbound to the SR 528 west, replacement ramps connecting northbound and southbound Florida's Turnpike to the SR 528 east, reconstruction of remaining service ramps, added capacity on Florida's Turnpike, and dispersing surface street demand, with two new reliever interchanges on SR 528 and the Florida's Turnpike. Also, average speed within the network is expected to increase by 24 to 38 percent during the AM and PM peak hours, respectively, due to the proposed improvements.

The analysis of the Build alternative in comparison to No-Build conditions revealed substantial improvements to the eastbound SR 528 to Consulate Drive off-ramp and the Consulate Drive at US 17/92/441 intersection for both AM and PM peak hours. Ramp braiding along Florida's Turnpike between the new reliever interchange at Florida's Turnpike and Taft Vineland Road interchange and the SR 528 direct connect ramps improves the weaving segment by improving the process rate of vehicles. The southbound Florida's Turnpike auxiliary lane between the SR 482 on-ramp and the SR 528 direct connect off-ramps assist in improving traffic operations. The new northbound C-D road in the Build alternative is expected to reduce mainline congestion and turbulence experienced with the No-Build conditions.

A user benefit over a 20-year project life span of the proposed Orlando South ultimate interchange modification was estimated using projected reductions in network travel time and improved safety. Based on 2017 dollars, the estimated user benefit is \$1.6 Billion for travel benefit from year 2025 to 2045. The Build alternative is predicted to have a 20-year crash cost saving of approximately \$504 Million compared to No-Build alternative, in 2019 present value.

The operational and safety analysis conducted for this SIJR confirmed that the proposed improvements under the Build alternative do not have an adverse impact on the operations and safety of Florida's Turnpike, SR 528 or on the local street network, and improves traffic operations through the design year.

Point 2

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

CHAPTER 9 Compliance with FHWA General Requirements

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.

New service interchanges are being evaluated along SR 528 at Voltaire Drive Extension and along the Florida's Turnpike at Taft Vineland Road to provide access to local streets and further relief congestion at the systems interchange. The inclusion of two new full reliever interchanges improves the operations of the Orlando South interchange by dispersing surface street traffic demand. In addition, these interchanges reduce the need for surface street improvements along constrained facilities.

The proposed accesses connect to public roads only and will provide for all traffic movements.

Florida's Turnpike Enterprise (FTE) conducted a Project Development and Environment (PD&E) Study (FPID: 438547-1-22-01) for the Orlando South Ultimate Interchange at Florida's Turnpike (SR 91) and Beachline Expressway (SR 528), in Orange County, Florida. This study evaluated the potential to provide direct-access ramps between Florida's Turnpike and SR 528 in addition to improving access to the surface streets. The project study limits extend from south of the Taft Vineland Road to south of SR 482 on the Florida's Turnpike and from west of CR 423 to the Beachline West Toll Plaza on SR 528. This SIJR documents traffic forecasts, lane requirement evaluations, traffic operations analysis, and safety evaluation conducted for the proposed Build alternative.

The existing traffic analysis showed that SR 528 currently experiences a reduction in speed during the AM peak hour commute period west of Consulate Drive due to proximity of interchanges and weaving maneuvers. In addition, queues currently back up on the SR 528 mainline in the westbound direction at Florida's Turnpike off-ramp in the PM peak hour, resulting in reduction in mainline speed. The queue backups start downstream of the SR 528 westbound off-ramp where it merges with the US 17/92/441 southbound on-ramp to Florida's Turnpike, forming a single lane section that is currently over capacity. Overall, intersection delays and queues for most of the intersections are within acceptable levels. However, the SR 482 and CR 423 intersection and the intersections along US 17/92/441 experience long delays, especially at Landstreet Road in the PM peak hour.

Crash data for the most recent five years (2012-2016) reported a total of 763 crashes along Florida's Turnpike mainline and a total of 412 crashes along the SR 528 mainline. Both Florida's Turnpike and SR 528 have actual crash rates lower than the critical crash rate. The Consulate Drive interchange ramps at the Florida's Turnpike and SR 528 have a safety ratio greater than one, indicating that these may be high crash locations. Also, Landstreet Road loop-ramps at SR 528 have a safety ratio greater than one. Actual crash rates at the intersections were computed and compared with average crash rates for similar facilities within Orange County to assess the safety conditions within the study area. The high crash intersections are:

- CR 423 and SR 482
- US 17/92/441 at SR 482, Landstreet Road, Consulate Drive, and Taft Vineland Road
- Turnpike southbound off-ramp/westbound on-ramp to SR 528, SR528 eastbound off-ramp to Consulate Drive
- Taft Vineland Road and Satellite Boulevard
- CR 423 and SR 528 westbound ramps

The future No-Build network was updated to include the following planned and programmed improvements within the study area:

- Florida's Turnpike mainline widening (FPID: 411406-1) from four to eight lanes
- Implementation of ELs from Orlando South to I-4 (MP 254 to 259) and direct connect ramps to/from I-4 (FPN: 437166-2 and 437987-3)
- SR 528 widening (FPN: 406090-5) from four to eight lanes to include two GTLs, two ELs, and an auxiliary lane in each direction from I-4 (MP 0.0) to the Florida's Turnpike (MP 4.3)

- SR 528 widening (FPN: 437156-1) from six to eight lanes to include three GTLs and one EL in each direction from the Florida's Turnpike (MP 4.3) to the McCoy Road interchange (MP 8.4)
- Orlando South interchange resurfacing (FPN: 437156-2)
- Florida's Turnpike interchange at Sand Lake Road (SR 482) at MP 257 (FPN: 433663-1)
- AET conversion at the tolled ramps (FPN: 441322-1)
- SPUI at the SR 482 and CR 423 intersection and grade separation of through movement
- Taft Vineland Road widening from two to four lanes from US 17/92/441 to the bridge over the Florida's Turnpike
- SR 482 and Destination Parkway widening to six lanes just west of CR 423
- Combined westbound SR 528 off-ramp to CR 423

Future lane requirement analysis showed that five lanes per direction will be needed along the Florida's Turnpike mainline under No-Build conditions from north of I-4 to the south of SR 417 by 2040. The analysis of SR 528 under No-Build conditions indicates that the mainline will require four lanes per direction between Orlando South and McCoy Road by year 2028, and by 2044 to the west of CR 423.

Several TSM&O measures have been implemented within the study area. However, TSM&O improvements are not expected to adequately satisfy the need for direct access ramps between the Florida's Turnpike and SR 528, improve access to the surface streets, and alleviate traffic congestion within the interchange.

Various Build Alternatives (Alternative 1, Alternative 2.1, Alternative 2.2, and Alternative 3) were evaluated for this study. Alternative 3 was developed following a PIM for the project and internal coordination. Refinements were made to Alternative 2 based on the comments received at the PIM, to minimize right-of-way impacts, reduce cost, and improve constructability. With these refinements, Alternative 3 was selected as the Preferred Build Alternative. This SIJR only documents traffic analysis for the No-Build condition and the Preferred Build Alternative 3 (referred to as Build or Preferred Build herein). The Build alternative addresses all the project objectives:

- New ramps connecting Florida's Turnpike northbound/southbound to the SR 528 west to improve system and surface street operations,
- Replacement ramps connecting northbound/southbound Florida's Turnpike to the SR 528 east to improve operating speeds,
- Reconstruction of remaining service ramps to improve operations and safety,
- Added EL capacity on Florida's Turnpike to provide traveler choices, and
- Dispersing surface street demand, with new reliever interchanges on the SR 528 and Florida's Turnpike.

It is anticipated that most of the intersections within the studies AOI will be over capacity by the design year 2045 under No-Build conditions. Key deficiencies of the No-Build include no direct ramps between SR 528 west and Florida's Turnpike, resulting in travelers using the surface street to connect between the two facilities. Congestion along US 17/92/441, Consulate Drive and CR 482 are expected to propagate onto the freeway system. However, operations within the AOI are

expected to be improved with the Build conditions. Overall, Synchro results showed a 45 and 48 percent reduction in total signalized intersection control delay within the AOI in the 2045 design year AM and PM peak hour, respectively, when compared to the No-Build.

It is estimated that reduction in network travel time for the entire project will range from 24 to 30 percent during 2045 peak periods. The average delay reduction in network for the entire project is 42 percent in design year 2045. This is reduction due to the anticipated diversion of traffic from surface street to the proposed GTLs system-to-system connections, added capacity and higher speed ramps. Following are the list of improvements under the Build alternative:

- Direct GTLs system-to system connections that will improve system and surface street operations
- Northbound C-D road that will improve Florida's Turnpike northbound mainline congestion and reduce turbulence experienced in the No-Build conditions
- Two new reliever interchanges at Taft Vineland Road at Florida's Turnpike and Voltaire Drive Extension at SR 528 are projected to accommodate future traffic demand
- Ramp braiding along the Florida's Turnpike between the new reliever interchange at Florida's Turnpike/Taft Vineland Road interchange and the SR 528 direct connect ramps to preclude adverse weaving
- Ramp braiding along SR 528 between CR 423 and Consulate Drive to preclude adverse weaving
- Additional auxiliary lanes between interchanges southbound Florida's Turnpike between the exit to the SR 528 and the entry from SR 482 will improve traffic operations
- Additional auxiliary lanes on eastbound and westbound along SR 528 between Florida's Turnpike and the new reliever interchange at Voltaire Drive Extension will improve traffic operations
- Surface street ramp modifications will improve traffic operations:
 - Removal of the Landstreet Road ramps connecting to SR 528 will also improve safety as loop ramps have higher crash rates
 - Maintaining Consulate Drive entry/exit ramps connecting to SR 528 and the southbound exit from Florida's Turnpike with a new Diverging Diamond Interchange configuration
 - Removal of Florida's Turnpike ramps connecting to US 17/92/441, except the northbound Florida's Turnpike exit to northbound US 17/92/441
 - A new southbound entry ramp to Florida's Turnpike via Consulate Drive
 - A new direct northbound entry to Florida's Turnpike from southbound US 17/92/441
- Reconfiguration of the Consulate Drive and US 17/92/441 intersection to provide triple left turn lanes eastbound and a turbo configuration along northbound US 17/92/441 for through movements will provide additional capacity
- Reconfiguration of the SR 482 and Voltaire Drive intersection will provide additional capacity

- Reconfiguration and signalization of the Taft Vineland Road and Bachman Road will provide additional capacity
- A new arterial connection Road X (Voltaire Drive Extension) between Landstreet Road and SR 482

User benefit for a 20-year life span of the proposed Orlando South ultimate interchange modification was estimated using network travel time and safety. Based on 2017 dollars, the estimated user benefit is \$1.6 Billion based on travel time, from year 2025 to 2045. The Build alternative is predicted to have a 20-year crash cost savings of approximately \$504 Million compared to the No-Build alternative, in 2019 present value. The safety benefit would have been higher if the safety analysis tools could consider queuing impacts in estimating potential crashes.

The Orlando South PD&E study (FPID: 438547-1-22-01) is expected to be completed by Spring 2020. Design of the system interchange (FPID: 438547-2) is programmed in FY 2020, right of way in 2022-2024 and construction in 2027. Design of the Taft Vineland Road and Florida's Turnpike interchange (FPID: 444980-1) is programmed in FY 2020 and 2026-2027. Design of the Voltaire Drive and SR 528 interchange (FPID: 444979-1) is programmed in FY 2026-2027. Right of way and construction of the last two projects are not yet programmed.

APPENDICES

PROVIDED ELECTRONICALLY