DRAFT

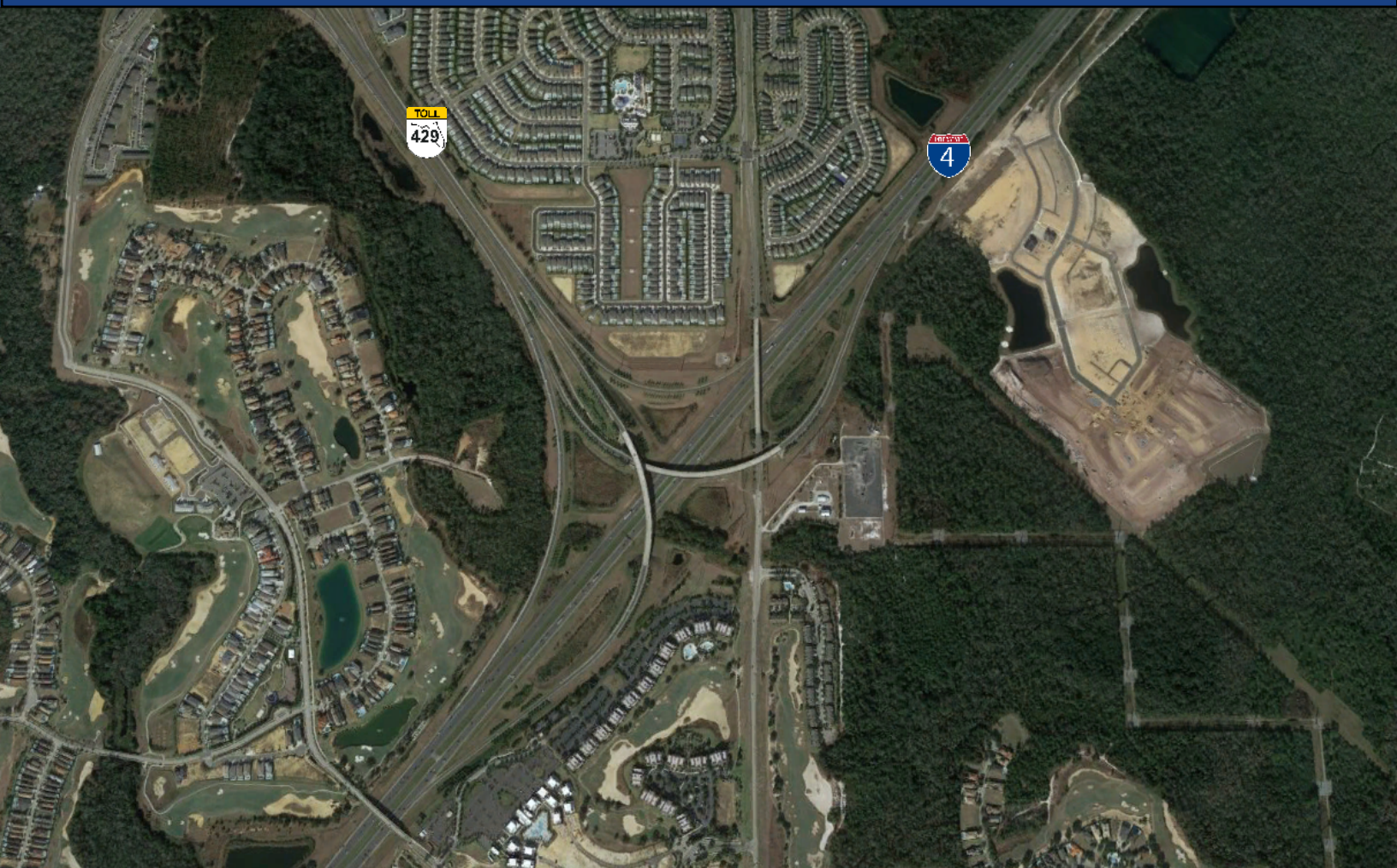
July 2023

Florida's Turnpike Enterprise

Systems Interchange Modification Report (SIMR)

Poinciana Parkway Extension Connector
From CR 532 to North of I-4/SR 429 Interchange Osceola County, Florida

Financial Project ID: 446581-1



Poinciana Parkway Extension Connector
From CR 532 to North of I-4 / SR 429 Interchange
Systems Interchange Modification Report
Financial Project No: 446581-1

Florida Department of Transportation

Determination of Safety, Operational and Engineering Acceptability

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

Requestor / Interchange Review Coordinator	Carol Scott, CPM Planning and Environmental Management Administrator	Date
District Interchange Review Coordinator	Melissa McKinney District Five Planning Manager	Date
Central Florida Expressway (CFX) Interchange Review Coordinator	Glenn Pressimone, PE CFX Chief of Infrastructure	Date
Systems Management Administrator	Jenna Bowman, PE Systems Implementation Office-Central Office	Date
Federal Highway Administration	Daniel Holt, PR, PTOE Office of Project Delivery Director, FHWA Florida Division	Date

QUALITY CONTROL CERTIFICATION FOR INTERCHANGE ACCESS REQUEST SUBMITTAL

Submittal Date: _____

FM Number: 446581-1

Project Title: Poinciana Parkway Extension Connector, Osceola County – Systems Interchange Modification Report (SIMR)

District: Turnpike

Requestor: Carol Scott, CPM Phone: 407-264-3023

District IRC: Carol Scott, CPM Phone: 407-264-3023

Document Type: ☐ MLOU ☐ IJR ☐ IMR ☐ IOAR ☑ OTHER SIMR

Status of Document

Final Submittal

Quality Control (QC) Statement

This document has been prepared following FDOT Procedure Topic 525-030-160 (New or Modified Interchanges) and complies with the Federal Highway Administration's (FHWA's) two policy requirements. Appropriate District-level quality control reviews have been conducted, and comments and issues have been resolved to their satisfaction. A record of the comments and responses provided during the QC review is available in the project file or the Electronic Review Comments (ERC) system.

Requestor: _____ Date: _____

Carol Scott, CPM

IRC: _____ Date: _____

Carol Scott, CPM

I, Steven Mikesell, PE number 58703, certify that I currently hold an active Professional Engineer's License in the State of Florida, and I am competent through education or experience to provide engineering services in the civil and traffic engineering disciplines contained in this report. I further certify that this report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that the statements, conclusions, and recommendations made herein are true and correct to the best of my knowledge and ability.

Project Description: Poinciana Parkway Extension Connector in Osceola County – Systems Interchange Modification Report (SIMR)

Steven D. Mikesell
7-27-2023

STEVEN D. MIKESELL
LICENSE
No. 58703
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Steven Mikesell, PE
Florida Registration PE No. 58703
AECOM Technical Services, Inc.
Orlando, Florida 32801

Table of Contents

Executive Summary **ES-1**

Section 1 Introduction **1-1**

1.1 Project Background 1-1
1.2 Purpose and Need 1-5
1.3 Project Area of Influence 1-7
1.4 Planned and Programmed Projects 1-10

Section 2 Analysis Procedure **2-1**

2.1 Traffic Operational Analysis Methodology 2-1
2.2 Traffic Factors 2-3
2.3 Analysis Years 2-5
2.4 Travel Demand Forecasting 2-5
2.5 Safety Study 2-5

Section 3 Existing Conditions **3-1**

3.1 Regional Population, Employment and Land use 3-1
3.2 Roadway Facilities 3-5
3.2.1 SR 429 3-5
3.2.2 I-4 3-5
3.2.3 Sinclair Road 3-5
3.2.4 CR 532 3-5
3.2.5 US 17/92 3-9
3.2.6 South Old Lake Wilson Road 3-9
3.2.7 World Drive 3-9
3.3 Data Collection 3-12
3.4 Existing Crash Data 3-13
3.4.1 Crash Data Analysis 3-13
3.4.2 Safety Ratio 3-29
3.4.3 Midblock Crashes 3-30
3.4.4 Pedestrian and Bicycle Safety Analysis 3-32

Section 4 Existing Traffic Analysis **4-1**

4.1 Existing Traffic Data 4-1
4.2 Existing Operational Performance 4-5
4.2.1 Intersection Analysis 4-5
4.2.2 Microsimulation Evaluation 4-7

Section 5 Future Traffic Data **5-1**

5.1 Travel Demand Model Development 5-1
5.1.1 Travel Demand Model 5-1

Table of Contents

5.1.2 Base Year Validation 5-1
5.1.3 Future Year Transportation Network 5-5
5.1.4 Future Socioeconomic Data and Land Use 5-6
5.1.5 Future Year Model Trip Matrix Adjustment 5-8

Section 6 Future Traffic Conditions 6-1

6.1 Considered Alternatives 6-1
6.1.1 No-Build Alternative 6-1
6.1.2 Build Alternatives 6-2
6.2 Future Operational Performance 6-9
6.2.1 Microsimulation Evaluation 6-9
6.2.2 Intersection Analysis (Synchro) 6-73
6.2.3 User Benefit Analysis 6-86
6.3 Future Safety Evaluation 6-86

Section 7 Funding Plan 7-1

Section 8 Conceptual Signing Plan 8-1

Section 9 Project Justification 9-1

9.1 Federal Highway Administration policy points 9-1

Section 10 Environmental Considerations 10-1

Section 11 Access Management Plan 11-1

Section 12 Anticipated Design Exceptions and Variations 12-1

Section 13 Summary 13-1

Tables

		Page
Table 1.1	Interchange Spacing and Description	1-7
Table 2.1	Signalized Intersection HCM Sixth Edition Level of Service Criteria	2-1
Table 2.2	Unsignalized Intersection HCM Sixth Edition Level of Service Criteria	2-1
Table 2.3	Freeway Segments HCM Sixth Edition Level of Service Criteria	2-2
Table 2.4	Ramp Roadway Capacity HCM Sixth Edition Level of Service Criteria	2-2
Table 2.5	Future Traffic Factors	2-4
Table 3.1	Historical Population and Growth	3-1
Table 3.2	Historical Employment and Growth	3-1
Table 3.3	Developments of Regional Impact	3-3
Table 3.4	Data Collection Locations	3-12
Table 3.5	I-4 and SR 429 Corridor Number of Crashes and Crash Severity by Year	3-13
Table 3.6	Crash Rates and Safety Ratios for 2014 through 2018	3-29
Table 3.7	Pedestrian and Bicycle Crash Severity Summary for 2014 through 2018	3-32
Table 4.1	2020 Annual Average Daily Traffic (AADT)	4-1
Table 4.2	2020 AM and PM Existing Peak Hour Intersection Level of Service	4-6
Table 4.3	2020 AM Existing Peak Hour Vissim Freeway Segment Performance	4-11
Table 4.4	2020 PM Existing Peak Hour Vissim Freeway Segment Performance	4-12
Table 4.5	2020 AM Existing Peak Hour Vissim Ramp Roadway Performance	4-13
Table 4.6	2020 PM Existing Peak Hour Vissim Ramp Roadway Performance	4-14
Table 4.7	2020 AM Existing Peak Hour Vissim Intersection Level of Service/Delay (s/veh)	4-15
Table 4.8	2020 PM Existing Peak Hour Vissim Intersection Level of Service/Delay (s/veh)	4-15
Table 4.9	2020 Existing Network-wide Statistics	4-16
Table 4.10	Comparison of Existing Max Queue Lengths vs. Available Storage	4-16
Table 4.11	Off-Ramp Queue Summary at Interchanges	4-18
Table 5.1	2015 Regional Time-of-Day Model Validation	5-2
Table 5.2	2017 Before ODME Subarea Time-of-Day Model Validation	5-3
Table 5.3	2017 After ODME Subarea Time-of-Day Model Validation	5-4
Table 5.4	Adjusted Population Projections with CAGR	5-7
Table 5.5	Adjusted Employment Projections with CAGR	5-7
Table 5.6	2030 and 2050 No-Build AADT	5-9
Table 5.7	2030 and 2050 Build AADT	5-10
Table 5.8	SR 429 Future No-Build Traffic Forecasts (Total Demand)	5-12
Table 5.9	SR 429 Future Build Traffic Forecasts (Total Demand)	5-14
Table 5.10	SR 429 Freeway Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements (No-Build)	5-25

Table 5.11 SR 429 Freeway Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements (Build) 5-27
Table 6.1 Roadway Number of Lanes 6-4
Table 6.2 Vissim Network Vehicle Performance 6-10
Table 6.3 I-4 Travel Time 6-13
Table 6.4 2030 No-Build AM Peak Hour Vissim Intersection Performance 6-18
Table 6.5 2030 No-Build PM Peak Hour Vissim Intersection Performance 6-20
Table 6.6 2050 No-Build AM Peak Hour Vissim Intersection Performance 6-22
Table 6.7 2050 No-Build PM Peak Hour Vissim Intersection Performance 6-24
Table 6.8 2030 Build AM Peak Hour Vissim Intersection Performance 6-26
Table 6.9 2030 Build PM Peak Hour Vissim Intersection Performance 6-28
Table 6.10 2050 Build AM Peak Hour Vissim Intersection Performance 6-30
Table 6.11 2050 Build PM Peak Hour Vissim Intersection Performance 6-32
Table 6.12 Westbound I-4/CR 532 Vissim Overall Intersection Delay (Seconds) and LOS 6-34
Table 6.13 Westbound I-4/CR 532 Vissim Overall Intersection Delay (Seconds) 6-34
Table 6.14 Vissim Overall Intersection Delay (Seconds) and LOS 6-35
Table 6.15 Vissim Overall Intersection Percent Served 6-36
Table 6.16 Westbound I-4 between World Drive and CR 532 Peak Hour Segment Performance 6-37
Table 6.17 2030 Peak Hour Mainline Segment Performance 6-58
Table 6.18 2050 Peak Hour Mainline Segment Performance 6-61
Table 6.19 2030 Peak Hour Ramp Segment Performance 6-64
Table 6.20 2050 Peak Hour Ramp Segment Performance 6-66
Table 6.21 2030 Peak Hour No-Build Intersection Level of Service/Delay 6-74
Table 6.22 2030 Peak Hour Build Intersection Level of Service/Delay 6-76
Table 6.23 2050 Peak Hour No-Build Intersection Level of Service/Delay 6-78
Table 6.24 2050 Peak Hour Build Intersection Level of Service/Delay 6-80
Table 6.25 2030 to 2050 Predicted Number of Crashes and Cost Saving 6-89

Figures

Figure 1.1 Project Location and Study Limits 1-2
Figure 1.2 Poinciana Parkway Overview Map 1-3
Figure 1.3 Future I-4/SR 429 Interchange Configuration 1-4
Figure 1.4 Travel Patterns 1-6
Figure 1.5 Area of Influence 1-8
Figure 1.6 Poinciana Parkway/CR 532 Interchange with and without the Poinciana Parkway Extension Connector 1-9
Figure 1.7 Planned and Programmed Projects within the Study Vicinity 1-11

Figure 3.1 Existing Land Use 3-2
Figure 3.2 Planned Unit Developments and Developments of Regional Impact 3-4
Figure 3.3 Aerial Photograph of Interchange I-4 /SR 429 3-6
Figure 3.4 Aerial Photograph of SR 429/Sinclair Road Interchange 3-7
Figure 3.5 Aerial Photograph of I-4/CR 532 Interchange 3-8
Figure 3.6 Aerial Photograph of CR 532/US 17/92 and S. Old Lake Wilson Road Intersections 3-10
Figure 3.7 Aerial Photograph of I-4/World Drive Interchange 3-11
Figure 3.8 SR 429 and I-4 Mainline and Ramps Historical Crash Heat Map (2014-2018) 3-14
Figure 3.9 Fatal Crash Location Map (2014-2018) 3-15
Figure 3.10 SR 429 Mainline between I-4 and Sinclair Road Crash Data Summary for 2014 through 2018 3-16
Figure 3.11 Interstate 4 Mainline between CR 532 and World Drive Crash Data Summary for 2014 through 2018 3-17
Figure 3.12 SR 429 at Sinclair Road Ramps Crash Data Summary for 2014 through 2018 3-18
Figure 3.13 I-4 at CR 532 Ramps Crash Data Summary for 2014 through 2018 3-19
Figure 3.14 I-4 at SR 429 System-to-System Ramps Crash Data Summary for 2014 through 2018 3-20
Figure 3.15 I-4 at World Drive Ramps Crash Data Summary for 2014 through 2018 3-21
Figure 3.16 SR 532 and US 17/US 92 Crash Density Map for 2014 through 2018 3-22
Figure 3.17 SR 429 Northbound Ramps and Sinclair Road Intersection Crash Data Summary for 2014 through 2018 3-23
Figure 3.18 I-4 Westbound Ramps and CR 532 Intersection Crash Data Summary for 2014 through 2018 3-24
Figure 3.19 I-4 Eastbound Ramps and CR 532 Intersection Crash Data Summary for 2014 through 2018 3-25
Figure 3.20 CR 532 and Old Lake Wilson Road Intersection Crash Data Summary for 2014 through 2018 3-26
Figure 3.21 CR 532 and US 17/92 Intersection Crash Data Summary for 2014 through 2018 3-27
Figure 3.22 US 17/92 and Ronald Reagan Intersection Crash Data Summary for 2014 through 2018 3-28
Figure 3.23 CR 532 Mid-Block Crash Data Summary for 2014 through 2018 3-30
Figure 3.24 US 17/92 Mid-Block Crash Data Summary for 2014 through 2018 3-31
Figure 3.25 Pedestrian and Bicycle Crash Locations 3-33
Figure 4.1 2020 Existing One-Way AADTs 4-2
Figure 4.2 2020 Existing Peak Hour Volumes 4-3
Figure 4.3 2020 Existing Lane Geometry 4-4
Figure 4.4 Speed Calibration during AM Peak Hour 4-7
Figure 4.5 Speed Calibration during PM Peak Hour 4-8

Figure 4.6 Speed Comparison during AM Peak Period 4-9
Figure 4.7 Speed Comparison during PM Peak Period 4-9
Figure 4.8 Lane Line Schematic Diagram during AM Peak Hour 4-19
Figure 4.9 Lane Line Schematic Diagram during PM Peak Hour 4-20
Figure 4.10 Traffic Congestion Map during AM and PM Peak Hour 4-21
Figure 5.1 2030 No-Build One-Way AADTs (without I-4 Express Lanes) 5-16
Figure 5.2 2050 No-Build One-Way AADTs (with I-4 Express Lanes) 5-17
Figure 5.3 2030 Build One-Way AADTs (without I-4 Express Lanes) 5-18
Figure 5.4 2050 Build One-Way AADTs (with I-4-Express Lanes) 5-19
Figure 5.5 2030 No-Build Design Hour Volumes (without I-4 Express Lanes) 5-20
Figure 5.6 2050 No-Build Design Hour Volumes (with I-4 Express Lanes) 5-21
Figure 5.7 2030 Build Design Hour Volumes (without I-4 Express Lanes) 5-22
Figure 5.8 2050 Build Design Hour Volumes (with I-4 Express Lanes) 5-23
Figure 6.1 2030 No-Build Alternative Lane Geometry 6-5
Figure 6.2 2050 No-Build Alternative Lane Geometry 6-6
Figure 6.3 2030 Build Alternative Lane Geometry 6-7
Figure 6.4 2050 Build Alternative Lane Geometry 6-8
Figure 6.5 Latent Demand Comparisons 6-11
Figure 6.6 Network-wide Travel Time Comparisons 6-12
Figure 6.7 Poinciana Parkway Extension Connector Travel Time Routes 6-13
Figure 6.8 Poinciana Parkway to SR 429Travel Time Comparisons 6-14
Figure 6.9 Poinciana Parkway to I-4 Travel Time Comparisons 6-15
Figure 6.10 2030 No-Build AM Peak Hour Lane Schematic 6-38
Figure 6.11 2030 Build AM Peak Hour Lane Schematic 6-40
Figure 6.12 2030 No-Build PM Peak Hour Lane Schematic 6-42
Figure 6.13 2030 Build PM Peak Hour Lane Schematic 6-44
Figure 6.14 2050 No-Build AM Peak Hour Lane Schematic 6-46
Figure 6.15 2050 Build AM Peak Hour Lane Schematic 6-49
Figure 6.16 2050 No-Build PM Peak Hour Lane Schematic 6-52
Figure 6.17 2050 Build PM Peak Hour Lane Schematic 6-55
Figure 6.18 2030 AM Peak Hour Vissim Level of Service No-Build and Build 6-69
Figure 6.19 2030 PM Peak Hour Vissim Level of Service No-Build and Build 6-70
Figure 6.20 2050 AM Peak Hour Vissim Level of Service No-Build and Build 6-71
Figure 6.21 2050 PM Peak Hour Vissim Level of Service No-Build and Build 6-72
Figure 6.22 2030 AM Peak Hour Synchro Level of Service No-Build and Build 6-82
Figure 6.23 2030 PM Peak Hour Synchro Level of Service No-Build and Build 6-83

Figure 6.24 2050 AM Peak Hour Synchro Level of Service No-Build and Build 6-84
Figure 6.25 2050 PM Peak Hour Synchro Level of Service No-Build and Build 6-85

Appendices

Appendix A Methodology Letter of Understanding (MLOU)
Appendix B 2014 to 2018 Crash Data
Appendix C 2020 (Existing) Conditions
- Appendix C1 Traffic Counts and Signal Timing Data
- Appendix C2 Synchro Intersections
- Appendix C3 Vissim Microsimulation
- Appendix C4 Historical Growth Rate

Appendix D Vissim Calibration Report
Appendix E Travel Demand Model Development Report
Appendix F Alternative Concepts
Appendix G Future Conditions
- Appendix G1 Synchro Intersections
- Appendix G2 Vissim Microsimulation

Appendix H Alternative Evaluation Memorandum
Appendix I Safety and User Benefit Analysis
Appendix J Conceptual Signing Plan

A Project Development and Environment (PD&E) (FPID: 446581-1) study is conducted by Florida's Turnpike Enterprise (FTE) to assess the feasibility of extending Poinciana Parkway Extension by approximately four miles. This new stretch of roadway (Poinciana Parkway Extension Connector – PPEC) will extend from south of Osceola Polk Line Road/County Road (CR) 532 to north of the I-4/State Road (SR) 429 interchange in Osceola and Polk Counties, Florida. Another PD&E Study is recently completed to Widen Western Beltway (SR 429) from four to eight lanes in Osceola and Orange Counties (FPID: 446164-1).

The purpose of this Systems Interchange Modification Report (SIMR) is to evaluate the safety, operational and engineering acceptability of providing the missing link of the Poinciana Parkway between the planned terminus at CR 532 and I-4/SR 429 interchange. The PPEC will enhance regional system linkage by increasing accessibility and mobility between communities, improve safety and traffic operations by redistributing trips in Osceola and Polk Counties, provide transportation infrastructure to support current and future traffic demand, and ensure compliance with local plans and policies.

Existing Year Traffic Conditions

- Poinciana Parkway is a tolled, limited-access, two-lane, facility that begins at Cypress Parkway [County Road (CR) 580] along the Polk-Osceola County line, heads north, then northwest, and transitions to into Ronald Reagan Parkway, which terminates at US 17/92 in Polk County, Florida. The Central Florida Expressway Authority (CFX) owns and operates the 7.2-mile existing segment of Poinciana Parkway and plans to widen it to four lanes. Local roads, mainly CR 532, provide access to I-4, SR 429, and the recreational and employment centers in the Orlando metro area.
- SR 429 is a limited-access toll road, known as the Daniel Webster Beltway or Western Expressway south of US 441, and the Wekiva Parkway north of US 441. The portion from I-4 to Seidel Road within the study area is owned and operated by FTE. During the PM peak hour, the traffic analysis indicates that the SR 429 southbound weaving section from Sinclair Road on-ramp to I-4 off-ramp is experiencing a reduction in travel speed of 36 mph, and congestion is observed at the system-to-system interchange of I-4 and SR 429.
- The westbound direction of the I-4 mainline from World Drive on-ramp to downstream of the CR 532 on-ramp currently experiences a reduction in travel speed of 23 mph.
- Using Vissim microsimulation to assess operations in detail, the signalized intersections showed long delays in the AM peak hour at the intersection of CR 532 at Old Lake Wilson Road and US 17/92 at Ronald Reagan Parkway. In the PM peak hour commute period, the intersections of CR 532 at Old Lake Wilson Road, CR 532 at US 17/92, and CR 532 at I-4 westbound ramp terminal experience lengthy delays.
- CFX is planning to extend the Poinciana Parkway as a four-lane limited-access toll facility from its current terminus at Ronald Reagan Parkway to CR 532, which is approximately 3.1 miles. Although the planned extension would enhance regional system linkage, it would not provide a direct connection to I-4 and SR 429.

Future 2050 No-Build Traffic Operations

The updated future No-Build network includes planned and programmed improvements within the study area that were considered in developing the traffic forecasts. As no Transportation Systems Management and Operations (TSM&O) strategies can fulfill the purpose and need for the project, no TSM&O options were identified for the study.

AM Peak Operations

- The densities at the I-4 eastbound freeway segments between SR 429 and the World Drive off-ramps increased to a range between Level of Service (LOS) C and F. The SR 429 southbound density increased to LOS E between the Sinclair Road on-ramp and I-4 east and westbound ramps weaving segment.

PM Peak Operations

- The densities at the I-4 westbound freeway segments between World Drive on-ramp and CR 532 off-ramp increased to LOS F. The SR 429 southbound density similarly increased to LOS F from Sinclair Road on-ramp to the I-4 east and westbound ramps weaving segment.

Under No-Build conditions, the intersections along CR 532 operate at unacceptable levels and are expected to experience longer delays and queues. During the AM and PM peak hours, congestion was observed at the ramp terminals of Poinciana Parkway Extension and US 17/92, Sinclair Road and SR 429 and the intersections of Old Lake Wilson Road at CR 532 and Ronald Reagan Parkway at US 17/92.

Overall, without the Poinciana Parkway Extension Connector, the No-Build condition leads to increased volumes along the I-4 freeway causing undue congestion. During the AM and PM peak directions, approximately 500 and 1,000 additional vehicles, respectively, use the freeway. This additional volume not only results in the freeway to be over-capacity but overwhelms some of the local roadways since the mainline, ramps, and interchange signalized intersections cannot handle/process the demand.

Purpose and Need

No-Build Alternative has several deficiencies that hinder efficient travel. For instance, reaching I-4 from Poinciana Parkway requires motorists to exit the limited-access Poinciana Parkway and travel approximately 3 miles on a congested portion of CR 532, a local collector roadway. Furthermore, to access SR 429, motorists must travel an additional 1.5 miles on I-4 which, is also congested, resulting in a total travel distance of approximately 4.5 miles. Alternatively, traffic on CR 532 can travel through Old Lake Wilson Road and Sinclair Road to access SR 429, a congested local route along minor roads, approximately 6.1 miles. These options would lead to substantial increase in travel times and congestion on both I-4 at CR 532 ramp terminals and the local roadway network.

The Systems Interchange Modification Report (SIMR) aims to address these issues by providing the missing link of the Poinciana Parkway between the planned terminus at CR 532 and I-4/SR 429. This will enhance regional system linkage by improving accessibility and mobility between the communities, as well as improving safety and traffic operations by redistributing trips in Osceola and Polk Counties. Additionally, the transportation infrastructure will support existing and future traffic demand while also being consistent with local plans and policies. The inclusion of the Poinciana Parkway Extension Connector improves the operations within the Area of Influence (AOI) by diverting surface street demand onto the Connector.

Future 2050 Build Traffic Operations

Two Build Alternatives were evaluated in addition to the No-Build Alternative. Both Build Alternatives were very similar but differed in their approaches to the Poinciana Parkway/I-4/SR 429 interchange. Alternative 1; provided connections between the Poinciana Parkway southbound lanes and the northbound lanes on either side of the Gas Transmission (FGT) and Gulfstream site. Alternative 2, was similar to Alternative 1 but had both directions of the Poinciana Parkway mainline south of the FGT/Gulfstream site. Alternative 2 was selected as

the Preferred Alternative, and this SIMR focuses on traffic analysis for No-Build and Preferred Build Alternative 2 (referred to as Build or Preferred Build herein).

AM Peak Operations

- The densities at the I-4 eastbound freeway segments between SR 429 and the World Drive off-ramps reduced to a range between LOS C to LOS D. The SR 429 southbound density from Sinclair Road on-ramp to I-4 east and westbound ramps weaving segment improved to LOS B or better.

PM Peak Operations

- The densities at the I-4 westbound freeway segments between World Drive on-ramp and CR 532 off-ramp, where reduced to LOS C. The SR 429 southbound density from Sinclair Road on-ramp to I-4 east and westbound ramps weaving segment improved to LOS C as well.

In the design year 2050, It is estimated that the Preferred Build Alternative will result in a 28 percent reduction in network travel time and 58 percent reduction in delay during the AM peak hour. Similarly, a reduction in network travel time and delay of 49 and 74 percent is estimated during the PM peak hour. This reduction is due to the construction of the Poinciana Parkway Extension Connector between the planned terminus at CR 532 and the I-4/SR 429 interchange. In addition, most of the intersections in the study area experienced less delay in the Preferred Build Alternative due to traffic being diverted to the Poinciana Parkway Extension Connector and a redistribution of surface street traffic. Any deficient intersections outside of the immediate project limits could be evaluated by other agencies for future improvements.

Safety Performance

Five years of crash data (2014 - 2018) were used for the safety evaluation for each facility within the Area of Influence (AOI). The data was obtained from the FDOT's Crash Analysis Reporting (CAR) Online system database for state roads. Crash data for non-state roads was obtained from the Signal Four Analytics tool, for the same analysis period. A total of 1,161 crashes were reported along I-4 and SR 429 during the 5-year study period from 2014 through 2018. Based on the crash data, the highest number of crashes (434) occurred along the I-4 mainline adjacent to the CR 532 interchange. Most of the crashes along the SR 429 mainline occurred at the merge/diverge areas of the I-4 and Sinclair Road interchanges. The number of crashes along I-4 are higher at the CR 532, SR 429, and World Drive interchanges due to congestion on the surface streets causing traffic to back onto the mainline. Actual crash rates at the intersections were computed and compared with average crash rates for similar facilities within Osceola County to assess safety conditions within the study area. The high crash intersections are:

- I-4 and CR 532 at both ramp terminals
- US 17/92 and CR 532
- US 17/92 and Ronald Reagan Parkway

A quantitative safety analysis was performed based on the Highway Safety Manual (HSM) and Interchange Access Request User's Guide Safety Analysis Guidance 2020. The analysis was conducted using the predictive methods in Chapters 12 and 19 of the HSM, where available, and the Enhanced Interchange Safety Analysis Tool (ISATe), which apply a combination of Safety Performance Functions (SPFs), and crash modification factors (CMFs) to estimate the frequency and cost of crashes for each segment and intersection. The cost of crashes was based on the KABCO distribution and crash values from the Florida Design Manual 2022. The Build Alternative is predicted to have a 21-year crash cost savings of approximately $20 million compared to the No-

Build Alternative, in the year 2022 present value. A user benefit over a 21-year project life span of the proposed modification was estimated using projected reductions in network travel time and improved safety. Fuel consumption and emissions were not included. Based on the year 2022 dollars, the estimated user benefit is $1.86 billion for travel time savings from years 2030 to 2050.

Funding

The project, as currently planned, is listed in the Metroplan Orlando 2045 Metropolitan Transportation Plan (MTP) (i.e., Long Range Transportation Plan), Cost Feasible Plan (adopted December 9, 2020, revised December 14, 2022) as a Florida's Turnpike Enterprises project (MTP ID # 1055). The PD&E study for this project is included in the current Orlando Urban Area Transportation Improvement Program (TIP) for Fiscal Years (FY) 2021/22 – 2025/26 (adopted July 7, 2021, revised February 9, 2022) and the current State Transportation Improvement Program (STIP) for FY 2022/23 – 2025/26. State funds are programmed for Design and Right-of-Way in the tentative FY 24-28 FDOT Work Program. Federal funds have not been identified at this time for this project. However, FTE is proceeding with steps required for Major Projects in the event that federal funds are used in the future.

A discussion of the access modifications with respect to conformance with the Federal Highway Administration (FHWA) policy points related to access is provided below.

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, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design Alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).***

An operational and safety analysis was conducted to assess the impacts of the proposed Build Alternative network within the AOI. The proposed Build Alternative includes various modifications such as the Poinciana Parkway Extension Connector, SR 429, and I-4 typical sections, among others.

- Poinciana Parkway Extension Connector (SR 538) – Six-lane toll roadway with option to accommodate eight lanes in the future. Direct connections of Express Lane (Els) between Poinciana Parkway Extension Connector and I-4 to the east have been proposed.
- SR 429 – Twelve-lane typical section consisting of four collector-distributor (C-D) lanes and two travel lanes in each direction. Ramp connections to the I-4 ELs were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound).

- I-4 – Twelve-lanes consisting of four general use lanes and two Express lanes in each direction is consistent with proposed improvements identified by the I-4 Beyond the Ultimate (BtU) project. Additional I-4 westbound auxiliary lanes have been included from World Drive to CR 532. I-4 BtU Express Lanes (Els) construction is anticipated to start beyond opening year 2030 and therefore, ELs have been included under design year 2050 only. Within the study area, the I-4 typical section includes six 12-foot lanes with a 52-foot median. The extension of Poinciana Parkway to SR 429 at I-4 will need to be consistent with the I-4 BtU plans for I-4, which include reconstructing I-4 to accommodate managed lanes in each direction, as well as a rail envelope. I-4 BtU is accommodating a rail envelope within the proposed typical section.

Several performance measures were used to compare the current and future networks under the No-Build and Build Alternatives, including network-wide travel time and delay, freeway speed, intersection delays and queues, and safety benefits. The analysis concluded that the proposed modifications will not adversely affect the operations and safety of the roadways within the study area. In fact, the Build Alternative is estimated to reduce network travel time and delays by 28 and 58 percent, respectively, in the design year 2050 during the AM peak hour. Similarly, a reduction in network travel time and delay of 49 and 74 percent is estimated for 2050 during the PM peak hour.

A major benefit of the Build scenario is vehicle queues no longer exceed the available storage and spill onto the I-4 mainline from CR 532 ramp terminals. The Vissim modeling effort confirmed that Poinciana Parkway Extension Connector provides many benefits in terms of reduced congestion, travel times, and delays.

Additionally, the intersections within the study area are expected to improve under the Build Alternative due to traffic diversion and redistribution.

Overall, the Build Alternative is predicted to have a 21-year crash cost savings of approximately $20 million in the year 2022 present value as PPEC relieves congestion and queues along I-4 and the study intersections. However, it is essential to note that available safety analysis tools are deterministic using the Annual Average Daily Traffic (AADT) in predicting crashes and do not account for vehicle interactions or peak periods. The No-Build Alternative, which is expected to have extensive congestion and queues, may potentially impact the estimated number of crashes.

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 or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.

According to the I-4 BtU Study and the approved PD&E Study concept plans, the Poinciana Parkway Extension Connector is planned to connect with the I-4/SR 429 interchange including ramp connections to I-4 General Use Lanes (GULs). Ramp connections to the I-4 ELs were evaluated and certain EL low volume direct connect ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound). Direct connections of ELs between Poinciana Parkway Extension Connector and I-4 to the east have been considered.

The proposed modifications to the interchange are aimed at maintaining and improving existing access to public roadways and the access locations will adhere to the design standards set by the American Association of State Highway and Transportation Officials (AASHTO) and FDOT Design Manual (FDM) design standards. If design exceptions or variations are required, they will be processed per FHWA and FDOT standards.

Poinciana Parkway is a two-lane, limited-access, tolled facility that begins at Cypress Parkway [County Road (CR) 580] along the Polk-Osceola County line, runs north, then northwest, and transitions to become Ronald Reagan Parkway, which terminates at US 17/92 in Polk County, Florida. This 7.2-mile existing segment of Poinciana Parkway is owned and operated by the Central Florida Expressway Authority (CFX) and plans are underway to widen it to four lanes. CFX is also planning to extend the Poinciana Parkway as a four-lane, limited-access, tolled facility from the current terminus at Ronald Reagan Parkway to Osceola Polk Line Road (CR 532), a length of approximately 3.1 miles. This CFX project will also add a full interchange at the intersection of US 17/92 with Poinciana Parkway.

Florida's Turnpike Enterprise (FTE) conducted a Project Development and Environment (PD&E) (FPID: 446581-1) study for the Poinciana Parkway Extension Connector. This new stretch of roadway will extend about four miles from Osceola Polk County Line Road/CR 532 to north of the I-4/State Road (SR) 429 interchange in Osceola and Polk Counties, Florida. A separate PD&E Study is being conducted to evaluate the Widening of the Western Beltway (SR 429) from four to eight lanes in Osceola and Orange Counties (FPID: 446164-1).

This PD&E study has evaluated a new limited-access facility with six general use toll lanes (three lanes in each direction) expandable to eight lanes (four lanes in each direction) to match the adjacent CFX Design project, south of CR 532. This study has evaluated capacity improvements at the existing I-4/SR 429 interchange associated with the connection of the Poinciana Parkway Extension Connector, SR 429 mainline between I-4 and Sinclair Road, I-4 mainline between CR 532 and World Drive, and at the SR 429/Sinclair Road interchange. **Figure 1.1** shows the project location and study limits. This Systems Interchange Modification Report (SIMR) has been prepared in support of the PD&E study and in continuous coordination with Florida Department of Transportation (FDOT) District Five, FDOT Systems Implementation Office (SIO), and Federal Highway Administration (FHWA).

1.1 PROJECT BACKGROUND

The Poinciana Parkway was initially proposed by the Osceola County Expressway Authority (OCX). The OCX was formed by Florida legislation in 2010 but was dissolved in December 2018. Poinciana Parkway opened in 2016 and CFX acquired Poinciana Parkway in December 2019. The Poinciana Parkway was recommended as part of the OCX 2040 Master Plan, which planned a new limited-access facility (Planned Regional Expressway System) from I-4 in Osceola County to the Boggy Creek Road and SR 417 interchange in Orange County. The projects in the OCX Master Plan have since been adopted by CFX, except for this approximately 2-mile section of Poinciana Parkway between I-4 and CR 532, which is currently being studied by FTE. The project is included in the MetroPlan Orlando Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP). The planned extension of the Poinciana Parkway to CR 532 will improve system linkage in the region but will not provide a direct connection to I-4 and SR 429. This missing system linkage is an important aspect of achieving future regional system connectivity and satisfies the need for continuation of another beltway in Osceola County. This continuation is represented by the Southport Connector from Poinciana Parkway to Florida's Turnpike (FPID: 433693-1) with its connection to the Turnpike and beyond (see **Figure 1.2**). This Poinciana Parkway Extension Connector is proposed to tie into the I-4 interchange as recommended by the I-4 Beyond the Ultimate (BtU) study and the approved PD&E study concept plans, including ramp connections to general use lanes (GULs). Ramp connections to the I-4 express lanes (ELs) were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (see **Figure 1.3**).

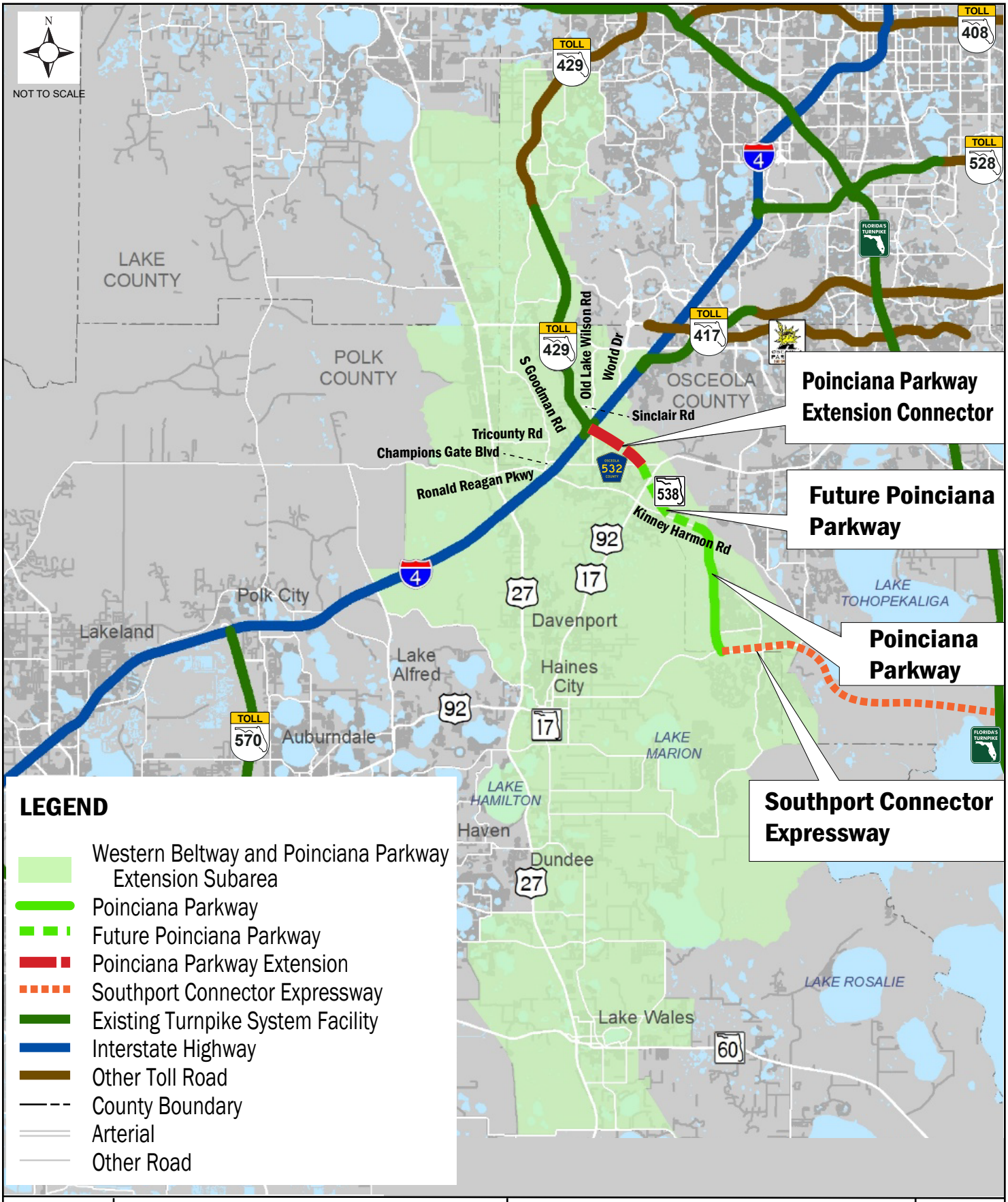


FLORIDA'S TURNPIKE

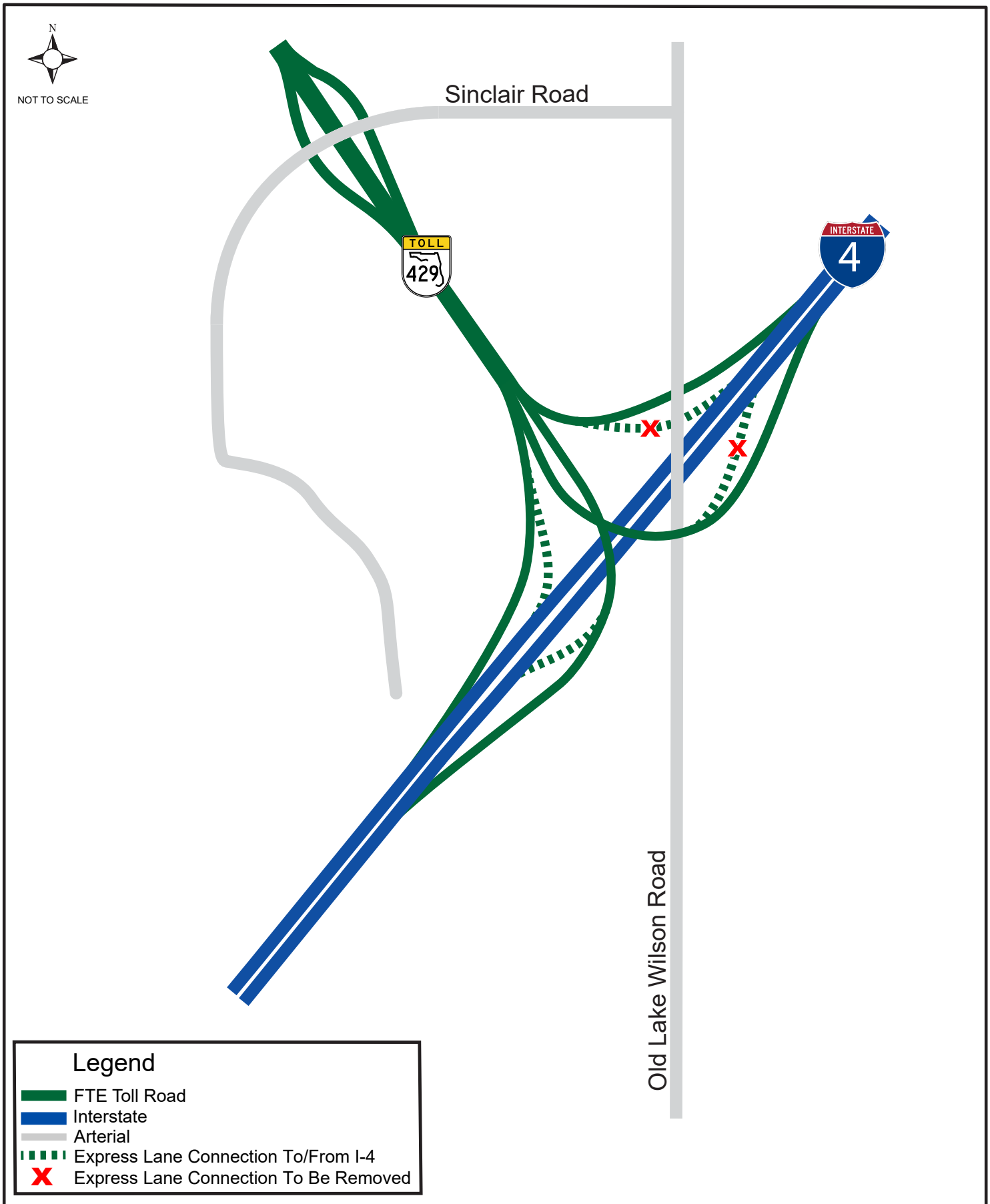
Poinciana Parkway Extension Connector
From CR 532 to North of I-4/SR 429 Interchange
Systems Interchange Modification Report (SIMR)

Project Location and Study Limits

Figure 1.1



FLORIDA'S TURNPIKE	**Poinciana Parkway Extension Connector From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)**	**Poinciana Parkway Overview Map**	**Figure 1.2**



FLORIDA'S TURNPIKE	**Poinciana Parkway Extension** **From CR 532 to North of I-4/SR 429 Interchange** **Systems Interchange Modification Report (SIMR)**	**Future I-4/SR 429 Interchange Configuration**	**Figure 1.3**

The primary purpose of the SIMR is to evaluate the location, design, acceptable traffic operations, and safety of the proposed Build Alternatives for the Poinciana Parkway Extension Connector interchange with I-4. The SIMR has been developed in accordance with 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 2022 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-k, Project Traffic Forecasting.

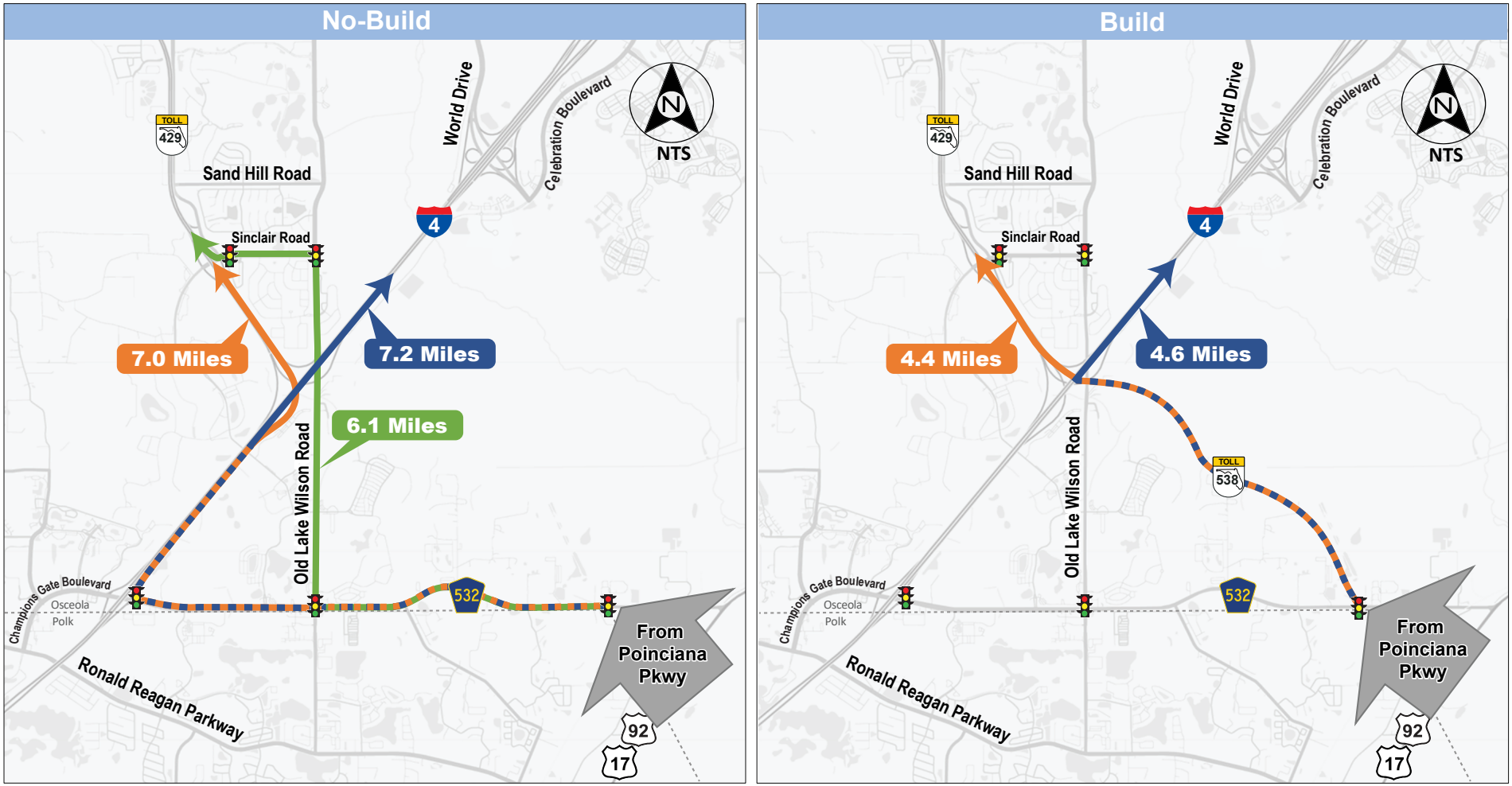
The Methodology Letter of Understanding (MLOU) for the SIMR was approved by FTE, the Requestor, FDOT District Five, CFX, FDOT SIO, and FHWA in November 2021. A copy of the signed MLOU is provided in **Appendix A**. Per the MLOU, analysis years for the SIMR are 2020 (existing), 2030 (opening), and 2050 (design).

1.2 PURPOSE AND NEED

The purpose of this project is to provide the missing link of the Poinciana Parkway between the planned terminus at CR 532 and the I-4/SR 429 interchange. Providing this missing link will improve regional system linkage by increasing accessibility and mobility between the communities in Poinciana and I-4/SR 429, enhance safety and traffic operations by redistributing trips in Osceola and Polk Counties, provide transportation infrastructure to support existing and future traffic demand, and provide consistency with local plans and policies. Poinciana, and the developed area to the south, are land locked. Without the proposed Poinciana Parkway Extension Connector, the only connection is through CR 532, which is currently congested.

The existing 7.2-mile Poinciana Parkway facility from CR 580 terminates at US 17/92 via Ronald Reagan Parkway. Access to I-4, SR 429, and recreational and employment centers in the Orlando metro area is provided through local roads, primarily CR 532, a local collector roadway. The planned extension of the Poinciana Parkway to CR 532 will improve system linkage in the region but will not provide a direct connection to I-4 and SR 429. Motorists would be required to exit the limited-access Poinciana Parkway and travel approximately 3 miles on a congested portion of CR 532 to access I-4. In addition, to access SR 429, motorists would then be required to travel an additional 1.5 miles on I-4, which is also congested. Alternatively, traffic on CR 532 can travel through Old Lake Wilson Road and Sinclair Road to access SR 429, a congested local route along minor roads, which is approximately 6.1 miles. **Figure 1.4** shows the travel patterns comparison. Also, a gap in the Poinciana Parkway would create a disjointed section in the Planned Regional Expressway System, a limited-access facility planned to form a portion of the beltway system around the Orlando metro area. The westernmost portion of the outer southern beltway is the Poinciana Parkway Extension Connector, starting from I-4 and extending to the east.

Traffic volume on SR 429 has been increasing by more than 10 percent per year in the recent past within the study limits. This can be attributed to the high increase in population and employment opportunities in the area, as well as recreational activities. Travel forecasts show that traffic on SR 429 between I-4 and Sinclair Road is expected to increase at average yearly rates of about 6 percent and 5 percent from 2020 to 2030 and from 2030 to 2050, respectively. As a result, the existing four-lane capacity on SR 429 will be exceeded by year 2040, triggering a need for additional capacity. Also, other roadways in the study area, such as CR 532 and I-4, are typically congested during peak travel. Even though improvements are planned for the existing roadways within the study area, anticipated traffic growth in the region will require additional improvements, complete roadway systems, and new direct routes. Other improvement projects include Sinclair Road Extension from Tradition Boulevard to Bella Citta Boulevard, widening of CR 532, Old Lake Wilson Road, US 17/92, and modification to the I-4 at Champions Gate/CR 532interchange.



FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Travel Patterns**	**Figure 1.4**

1.3 PROJECT AREA OF INFLUENCE

The Area of Influence (AOI) is depicted on **Figure 1.5,** as approved in the MLOU:

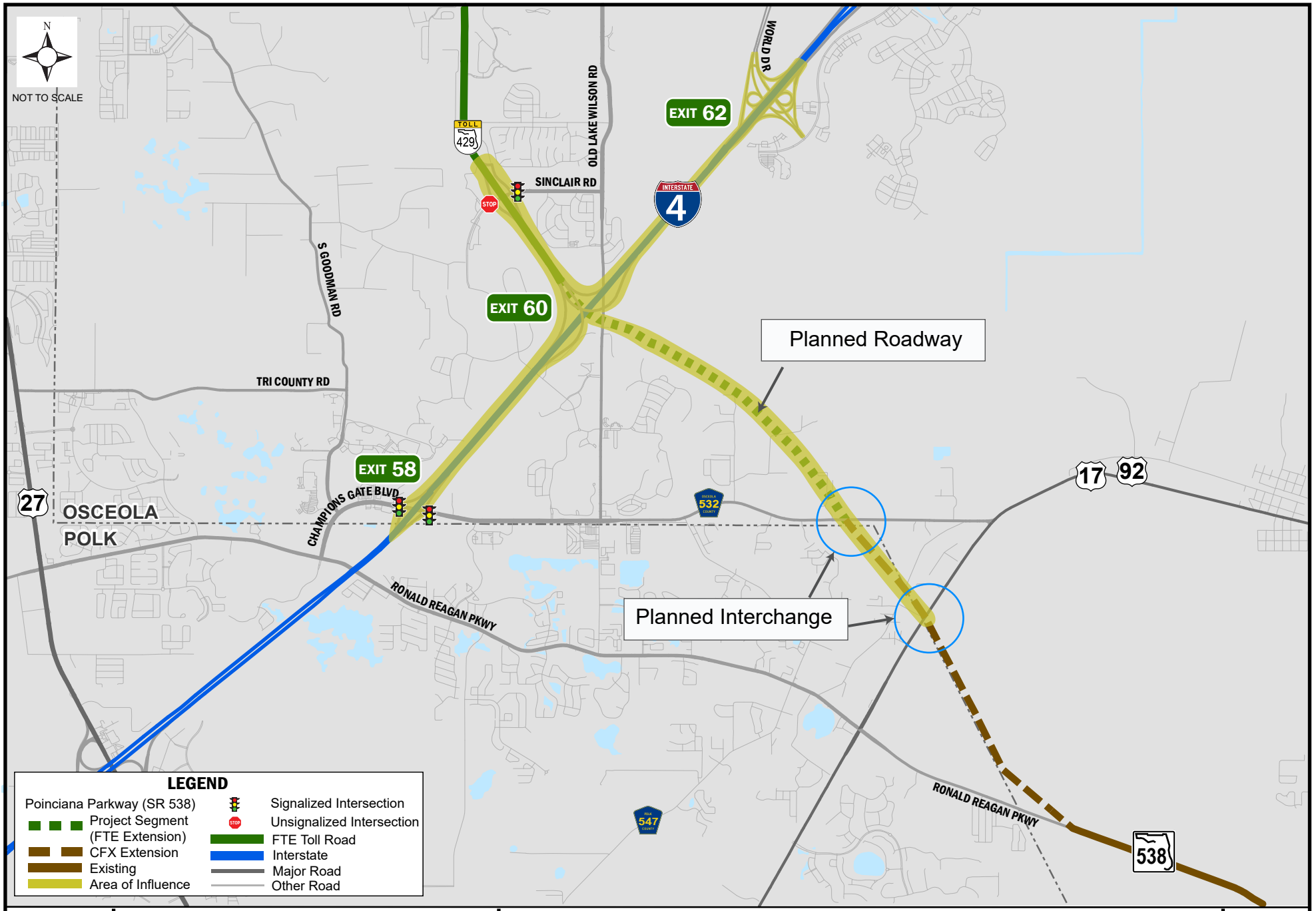
- Interchanges in study area:
  - I-4 at CR 532
  - I-4 at SR 429
  - I-4 at World Drive
  - Poinciana Parkway Extension Connector at US 17/92
  - Poinciana Parkway Extension Connector at CR 532: When constructed, the planned Poinciana Parkway will feature an at-grade signalized intersection at CR 532 to serve movements to/from the south. As part of the proposed Poinciana Parkway Extension Connector, the at-grade signalized intersection would be modified to implement a partial interchange with ramps to/from the north, resulting in the removal of access to/from the south (See **Figure 1.6**).
  - SR 429 at Sinclair Road
- Intersections in the study area include:
  - Poinciana Parkway Extension Connector northbound ramps at US 17/92
  - Poinciana Parkway Extension Connector southbound ramps at US 17/92
  - Poinciana Parkway Extension Connector southbound off-ramp at CR 532
  - Poinciana Parkway Extension Connector northbound on-ramp at CR 532
  - Poinciana Parkway Extension Connector northbound off-ramp and southbound on-ramp at CR 532 (No-Build Alternative only)
  - Southbound SR 429 ramps at Sinclair Road
  - Northbound SR 429 off-ramp at Sinclair Road/Connector Road
  - Northbound SR 429 on-ramp at Connector Road
  - Westbound I-4 ramps at CR 532
  - Eastbound I-4 ramps at CR 532

Table 1.1 shows the existing adjacent interchange spacing from the I-4/SR 429 interchange.

Table 1.1
Interchange Spacing and Description

Interchange	RCI Milepost	Spacing from I-4/SR 429 (Miles)	Description
I-4 and CR 532	0.127	1.928	Diamond Interchange*
I-4 and SR 429	2.055	0.000	Directional T-Interchange
I-4 and World Drive	4.200	2.145	Two-Quadrant Cloverleaf Interchange
SR 429 and Sinclair Road	0.747	0.747	Diamond Interchange

Source: RCI Roadway Characteristics Inventory (RCI); *Reconfigured to Diverging Diamond Interchange in 2023



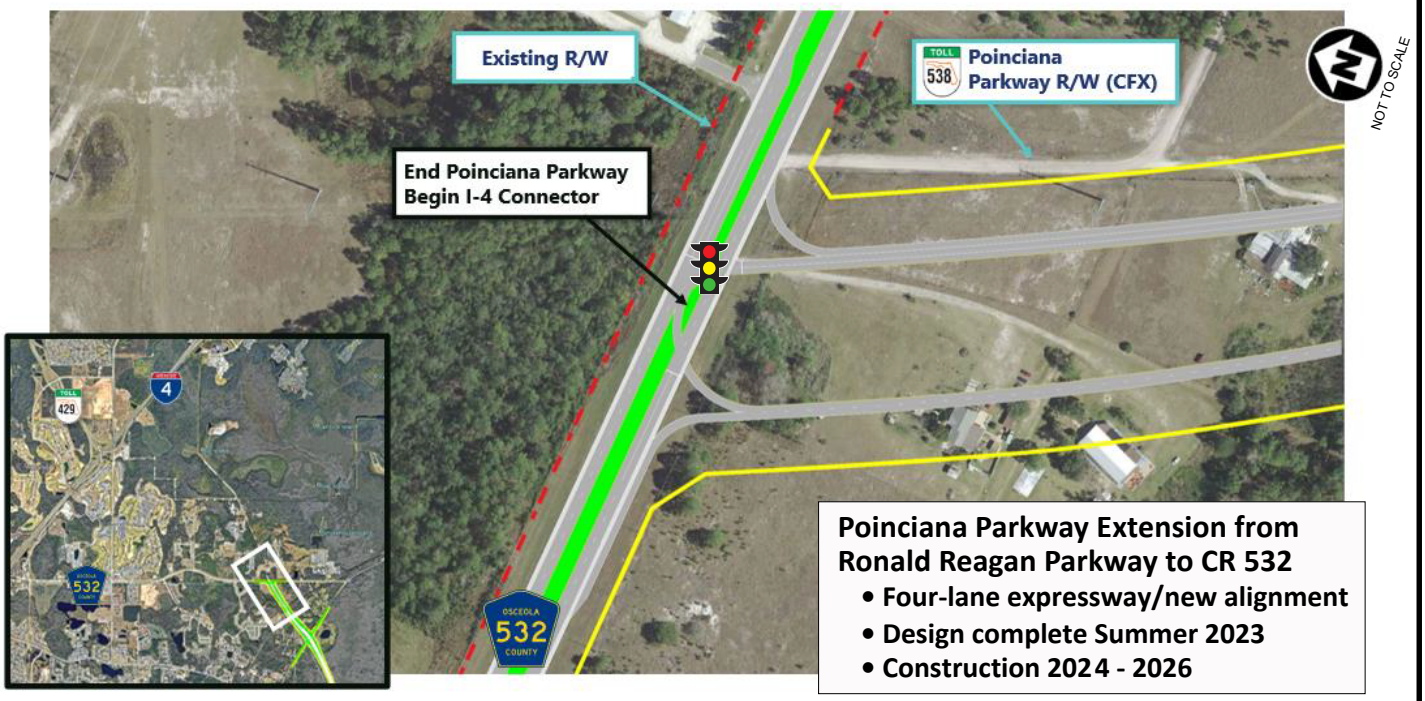
FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector
From CR 532 to North of I-4/SR 429 Interchange
Systems Interchange Modification Report (SIMR)

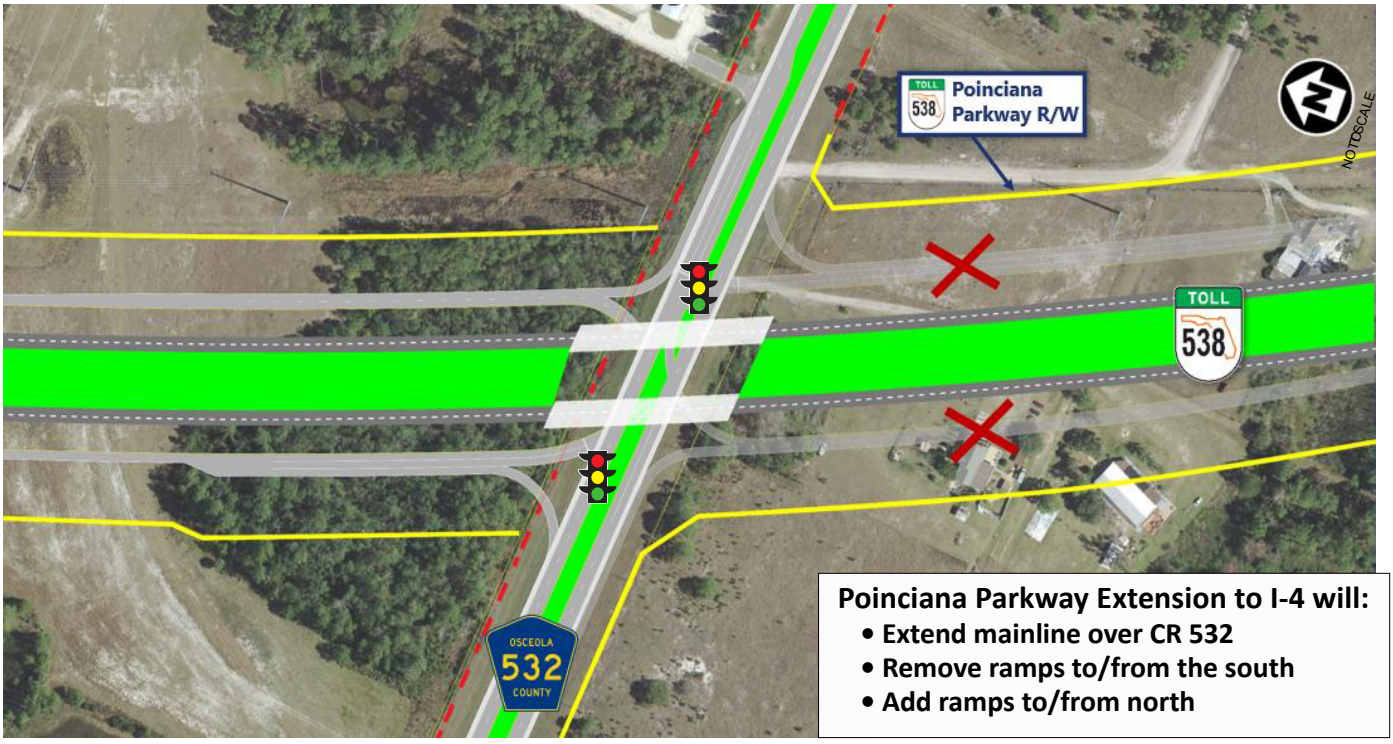
Area of Influence

Figure 1.5

Poinciana Parkway / CR 532 Interchange Interim Condition



Poinciana Parkway / CR 532 Interchange Ultimate Condition



FLORIDA'S TURNPIKE	Poinciana Parkway Extension From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Poinciana Parkway / CR 532 Interchange with and without the Poinciana Parkway Extension Connector**	Figure 1.6

1.4 PLANNED AND PROGRAMMED PROJECTS

Planned and programmed improvements within the study area were considered in developing the traffic and interchange concepts and were included in the future traffic analysis. The planned improvements are listed below and shown on **Figure 1.7**:

1. SR 429 Milling and Resurfacing from I-4 to Seidel Road (FPID No. 440289-1 and 440290-1) Completion Date: 01/2023.
2. SR 429 PD&E Study from North of I-4 to Seidel Road (FPID No. 446164-1) Completion Date: 02/2023.
3. I-4 Beyond the Ultimate (BtU) – Segment 1A from West of CR 532 to East of SR 522 (Osceola Parkway) (FPID No. 431456-1, not funded for construction, currently funded for right-of-way acquisition).
4. US 17/US 92 PD&E Study from Poinciana Parkway to West of Poinciana Boulevard (FPID No. 437200-1, under design in Fiscal Year (2026) Estimated Completion Date: 05/2023.
5. Poinciana Parkway from Ronald Reagan Parkway to CR 532 (CFX project, under design). Design completion summer 2023. Construction completion 2024-2026.
6. CR 532 Widening from South Old Lake Wilson Road to US 17/US 92 (CFX project, under design). Design completion Date: 06/2023.
7. South Old Lake Wilson Road PD&E Study from CR 532 to Sinclair Road (Osceola County project, under PD&E) Estimated Completion Date: 03/2023.
8. CR 532 Diverging Diamond Interchange (FPID No. 444187-1) Estimated Completion Date: 07/2023.
9. I-4 Auxiliary Lanes and Resurfacing from CR 532 to SR 429 (FPID No. 444329-1 and 443958-1, under construction) Estimated Completion Date: 08/2023.
10. Sinclair Road Extension from Tradition Boulevard to Bella Citta Boulevard (Osceola County project, under PD&E) Estimated Completion Date: 04/2023.
11. Brightline Phase 3 from Orlando International Airport to Tampa (Brightline project, under PD&E.)
12. Celebration Boulevard Extension (Osceola County Comprehensive Plan, under feasibility study).

1 **SR 429 Milling and Resurfacing from I-4 to Seidel Road**
(FPID No. 440289-1 & 440290-1, under construction)

2 **SR 429 PD&E Study from I-4 to Seidel Road**
(FPID No. 446164-1, under PD&E)

3 **I-4 Beyond the Ultimate – Segment 1A from W. of CR 532 to E. of SR 522**
(FPID No. 431456-1, not funded for construction)

4 **US 17/92 PD&E Study from Poinciana Parkway to West of Poinciana Blvd.**
(FPID No. 437200-1, under design in FY 26)

5 **Poinciana Parkway from Ronald Reagan Parkway to CR 532**
(CFX Project, under design)

6 **CR 532 Widening from from S. Old Lake Wilson Road to US 17/92**
(CFX Project, under design)

7 **S. Old Lake Wilson Road PD&E from CR 532 to Sinclair Road**
(Osceola County Project, under PD&E)

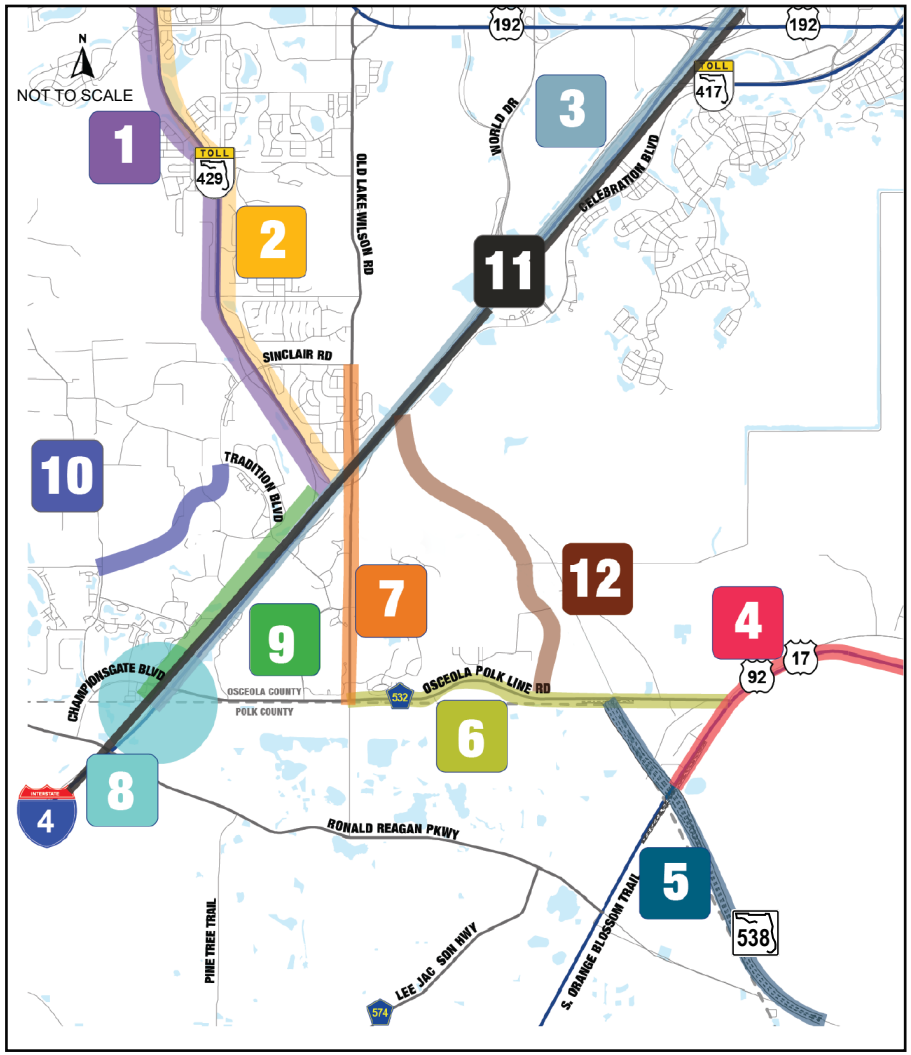
8 **CR 532 Diverging Diamond Interchange**
(FPID No. 444187-1, under construction)

9 **I-4 Auxiliary Lanes and Resurfacing from CR 532 to SR 429**
(FPID No. 444329-1 & 443958-1, under construction)

10 **Sinclair Road Extension from Tradition Boulevard to Bella Cita Boulevard**
(Osceola County Project, under PD&E)

11 **Brightline Phase 3 from Orlando International Airport to Tampa**
(Brightline Project, under PD&E)

12 **Celebration Boulevard Extension**
(Osceola County Comprehensive Plan, unfunded need)



FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector
From CR 532 to North of I-4/SR 429 Interchange
Systems Interchange Modification Report (SIMR)

Planned and Programmed Projects within the Study Vicinity

Figure 1.7

This section highlights the traffic operational analysis procedure and traffic factors used in the development of the analysis contained in this document.

2.1 TRAFFIC OPERATIONAL ANALYSIS METHODOLOGY

Signalized intersections were evaluated using Synchro Version 11, based on the Highway Capacity Manual (HCM), Sixth Edition Level of Service (LOS) and delay thresholds presented in **Table 2.1**. Unlike the HCM, Synchro 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 is expected to yield results that are more reflective of existing conditions observed in the field than HCM because of these additional refinements. Unsignalized intersections were evaluated using the Highway Capacity Software (HCS) Version 7.9, following the criteria presented in **Table 2.2**.

Table 2.1
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, level of service is defined solely by control delay. Control delay and volume-to-capacity ratio are used to characterize level of service for a lane group.

Table 2.2
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.

Future year capacity analysis for the freeway mainline was based on the capacity thresholds published in the 2020 FDOT Quality and LOS Handbook. The FDOT and HCM capacity thresholds were adjusted for local conditions such as speed, truck proportion, Peak Hour Factor (PHF), and driver population based on HCM Equation 12-9.

The HCM Sixth Edition LOS and density thresholds for freeway segments are listed in **Table 2.3**.

Table 2.3
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)

Table 2.4 shows capacity analysis for ramp roadways based on thresholds from the HCM Exhibit 14-12.

Table 2.4
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)

The Vissim microsimulation software version (21.0) was used to evaluate traffic operations for the entire study area. Freeway segments (basic, merge/diverge, and weave), ramps, and intersections within the AOI were evaluated. Vissim is a microscopic traffic flow simulation model based on car following, lane change, and queuing logic. Vissim models each individual vehicle within the network to identify the performance measures for freeways, ramps, and intersections.

The Vissim model was developed consistent with the latest FDOT Traffic Analysis Handbook, May 2021. Model development and parameter adjustments were performed using the latest techniques and best engineering practices.

The Vissim model calibration and analysis for freeway segments were based on the FDOT capacity thresholds adjusted for local conditions. Arterial links were calibrated based on flow rates from the HCM and to an actual flow in the network model depending on vehicle interactions, signal control, intersection geometry, truck proportion, and proximity of adjacent intersections. The calibration parameters were adjusted iteratively, to make sure that the model reasonably reflects existing field conditions. The model calibration thresholds shown in Table 7-7 of the FDOT Traffic Analysis Handbook was used.

In the Vissim microsimulation, Measures of Effectiveness (MOEs) selected for analysis of freeway segments include percentage of demand served, speed, and density in passenger cars per mile per lane (pcpmpl). As part of the freeway MOEs for this project, the Estimated Level of Service (LOS) was determined based on density. Research indicates that the HCM methodology for calculating density is different from microsimulation methods. Therefore, density estimated by microsimulation tools like Vissim cannot be directly related to HCM LOS criteria. However, density from Vissim files (vehicles per mile) will be converted to pcpmpl by dividing the Vissim density by the number of lanes and multiplying the density by a heavy vehicle factor. 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 delay, and queue lengths. Due to the incongruences between HCM and microsimulation methodologies, delay estimated by microsimulation tools like Vissim cannot be directly related to the HCM LOS criteria.

The following MOEs were used:

- Network-Wide Output: average speed, total travel time, total delay time, latent demand, and vehicles arrived.
- Freeway Segments: Estimated Level of Service (LOS) based on density, average speed, processed volume and density in hourly intervals to illustrate any operational concerns along the freeway mainline segments.
- Intersections/interchange performance: Demand percent served, average delay, LOS and average maximum queue length for all movements.

2.2 TRAFFIC FACTORS

The future year 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. The Directional Distribution Factor (D) is the proportion of traffic traveling in the peak direction during the design hour.

Consistent with other FDOT districts, FTE has developed standard K factors for use in planning and design applications. The K factors for the SR 429 ramps, as well as the D factors for the mainline and ramps, were estimated from the FTE's annual factor development, toll, and count data. The K and D factors were adjusted where applicable based on future projections to account for anticipated changes in land use and traffic patterns. Standard K factors for arterial roadways were derived from Florida Traffic Online (FTO) and the FDOT Project Traffic Forecasting Handbook. Existing PHFs were used for existing conditions and a PHF of 0.95 was assumed for future conditions. The truck factor will be used as an input for shoulder width criteria and pavement design during the Design Phase of the project.

Table 2.5
Future Traffic Factors

Roadway	K	D	T	Tf
Freeway Mainline				
SR 429	10.5%	58%	13%	7%
I-4	8.0%	56%	13%	7%
Poinciana Parkway	11.0%	60%	7%	4%
SR 429 at Sinclair Road				
Northbound on-ramp and southbound off-ramp	11%	65%	7%	4%
Northbound off-ramp and southbound on-ramp	9%	63%	7%	4%
SR 429 at I-4				
Northbound on-ramp and southbound off-ramp (I-4 east oriented ramps)	10%	58%	13%	7%
Northbound off-ramp and southbound on-ramp (I-4 west oriented ramps)	11%	67%	13%	7%
I-4 at CR 532				
Eastbound on-ramp and westbound off-ramp	9%	55%	13%	6%
Eastbound off-ramp and westbound on-ramp	9%	55%	13%	6%
I-4 at World Drive				
Eastbound off-ramp and westbound on-ramp	9%	59%	13%	7%
Poinciana Parkway at CR 532				
Northbound on-ramp and southbound off-ramp	11%	65%	11%	6%
Arterials				
Sinclair Road	9%	59%	7%	3%
CR 532	9%	56%	11%	6%
US 17/92	9%	55%	10%	5%
Old Lake Wilson Road	9%	55%	12%	6%
Ronald Reagan Parkway	9%	52%	10%	5%

Notes: Future Peak Hour Factor (PHF) = 0.95 Model Output Conversion Factor (MOCF) = 0.95
Sources: Arterials Standard K factors for arterial roadways are from FTO and the FDOT *Project Traffic Forecasting Handbook*. K for ramps, D, and T factors were estimated from FTE's annual factor development and toll and count data.

The Design Hour Truck (DHT) factor is the proportion of trucks within the peak hour and is assumed to be half of the daily truck (T_{24}) proportion rounded up to the nearest whole number for this study. Daily truck (T_{24}) factors for the SR 429 mainline and tolled ramps were estimated from FTE's monthly class data from *Fiscal Year 2019 Enterprise One Reports* (Toll Traffic by Vehicle Class by Month). The data were averaged to estimate daily trucks (3 axles and more) and adjusted to account for buses and 2-axle single unit trucks. Truck percentages for the non-tolled ramps along SR 429 were estimated from applicable adjacent truck toll data. A PHF of 0.95 was assumed for future conditions analysis. The PHF is calculated to be the ratio of the total peak hour volume divided by four times the peak 15-minute flow rate. It accounts for the variability of traffic flow within the hour. Traffic factors for SR 429 were generally assumed for the proposed Poinciana Parkway Extension Connector since traffic characteristics of the two roadways are expected to be similar. However, adjustments were made based on the forecast model and previous studies in the area.

2.3 ANALYSIS YEARS

The Traffic Forecasting and Traffic Operational Analysis years are shown below:

- Traffic Forecasting
  - Base year 2015 (The model was updated and validated to year 2017)
  - Opening year 2025
  - Horizon year 2045
- Traffic Operational Analysis
  - Existing year 2020
  - Opening year 2030
  - Design year 2050

2.4 TRAVEL DEMAND FORECASTING

The Central Florida Regional Planning Model (CFRPM), Version 6.1, developed by FDOT District 5, was used as the basis for the development of traffic forecasts for this SIMR. The CFRPM 6.1 was developed in two versions: a Daily model and a Time of Day (ToD) model, which included the most recent available socioeconomic data from MetroPlan Orlando. The ToD version of the model was revalidated for year 2015 by FTE, renamed as CFRPM v6.1 ToD FTE version, and adopted for this study.

The CFRPM 6.1 ToD FTE version is a Peak Season Weekday Average Daily Traffic (PSWADT) model. Years 2025 and 2045 model PSWADT were converted to Annual Average Daily Traffic (AADT) using the Model Output Conversion Factor (MOCF) for the study area. The model AADT volumes were then adjusted following the National Cooperative Highway Research Program (NCHRP) Report 765 methodology, where applicable, and supplemented with historical volumes, count data, and model proportions for turn movements. Reasonableness checks were made for growth rates, K factor, and D factor. Traffic Forecasts were compared for reasonableness with those from the following three studies: I-4 at CR 532/SR 429 SIMR (FPID: 444187-1 and 444329-1), CFX Lake Orange Connector PD&E Study (from US 27 to SR 429), and CFX Poinciana Parkway PD&E Study (from Polk County Line to CR 532).

Traffic volumes for years 2030 and 2050 were developed through interpolation/extrapolation, respectively, corresponding to the opening and design analysis years.

2.5 SAFETY STUDY

Five years of crash data (2014 - 2018) were used for the safety evaluation for each facility within the AOI. The data was obtained from the FDOT's Crash Analysis Reporting (CAR) Online system database for state roads. Crash data for non-state roads was obtained from the Signal Four Analytics tool, for the same analysis period. The future conditions safety 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), and crash modification factors (CMFs) to estimate frequency and cost of crashes for each segment and intersection. The cost of crashes was based on the KABCO distribution and crash values from the Florida Design Manual 2022.

Existing conditions such as population, land use, roadway facilities, existing traffic data collection, and crash data are described in this section.

3.1 REGIONAL POPULATION, EMPLOYMENT AND LAND USE

The project study area for this analysis includes Orange, Osceola, and Polk counties. According to the University of Florida's Bureau of Economic and Business Research (BEBR), between 2010 and 2017, each of the three counties featured total growth percentages higher than the state growth percentage of nine percent. Osceola County and Orange County featured the highest total growth percentages at 25.7 and 14.7 percent, respectively, during this period. **Table 3.1** summarizes the 2010 and 2017 county and statewide population and growth percentages.

Table 3.1
Historical Population and Growth

Area	US Census	BEBR Estimate	Change	
	2010	2017	2010-2017	2010-2017
Orange County	1,145,956	1,313,880	167,924	14.7%
Osceola County	268,685	337,614	68,929	25.7%
Polk County	602,095	661,645	59,550	9.9%
Florida	**18,801,330**	**20,484,142**	**1,682,812**	**9.0%**

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

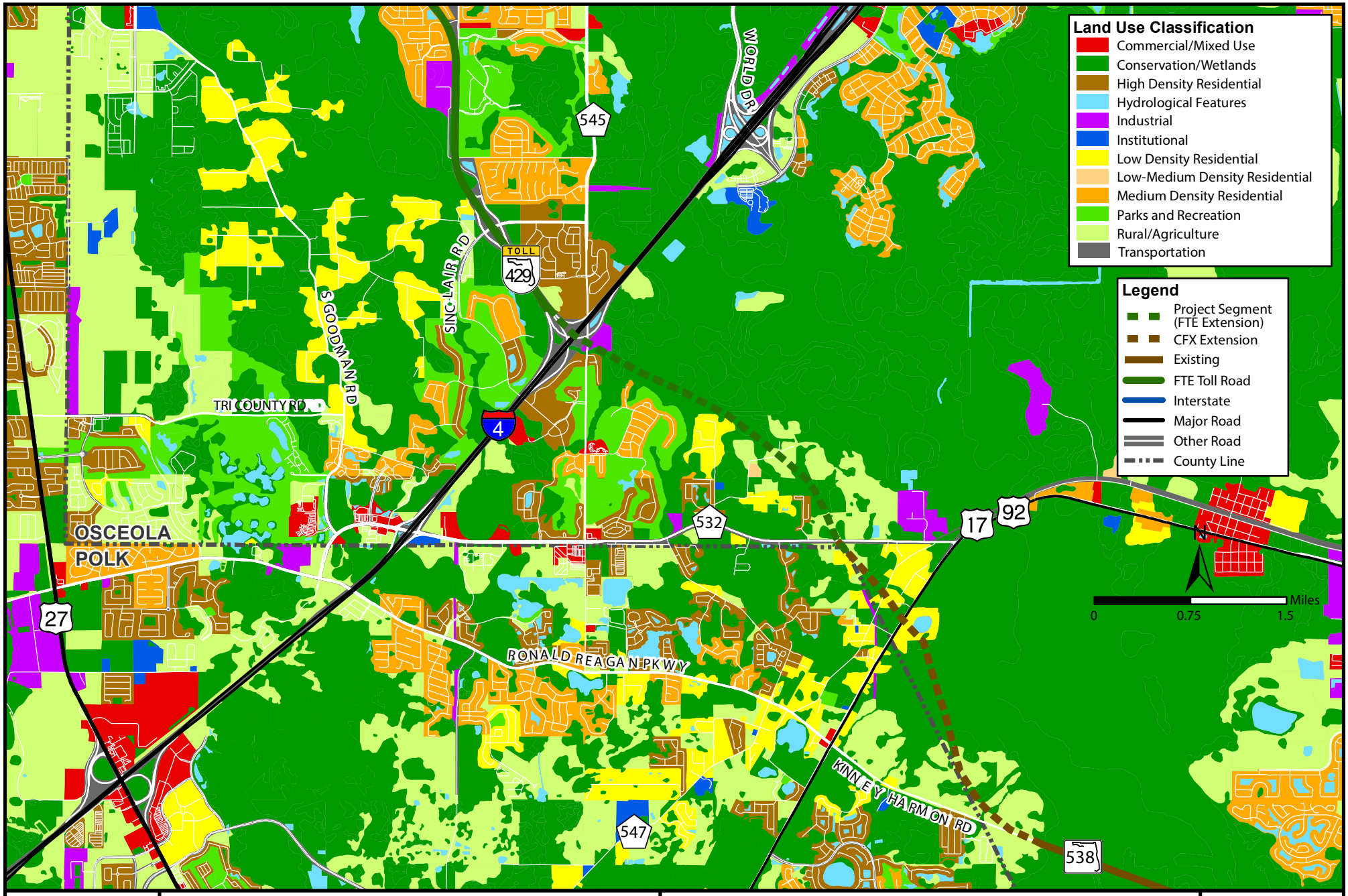
Employment totals in the three counties are shown below in **Table 3.2**. Two of the three counties in the study area grew at a faster rate than the statewide rate of 23.3 percent over the same time. Osceola and Orange Counties featured the highest employment growth rates of the three counties at 43.4 and 36.2 percent, respectively. Orange County, which contains the City of Orlando and is the primary economic hub of the east Central Florida area, contained more employment than the other study area counties combined in 2017.

Table 3.2
Historical Employment and Growth

Area	Estimate		Change	
	2010	2017	2010-2017	2010-2017
Orange County	822,557	1,120,417	297,860	36.2%
Osceola County	101,338	145,296	43,958	43.4%
Polk County	255,704	301,077	45,373	17.7%
Florida	**9,805,154**	**12,085,322**	**2,280,168**	**23.3%**

Source: U.S Bureau of Economic Analysis (BEA) and Bureau of Labor Statistics (BLS)

The existing land use within the project study area is shown on **Figure 3.1**.



Poinciana Parkway Extension Connector
From CR 532 to North of I-4/SR 429 Interchange
Systems Interchange Modification Report (SIMR)

Existing Land Use

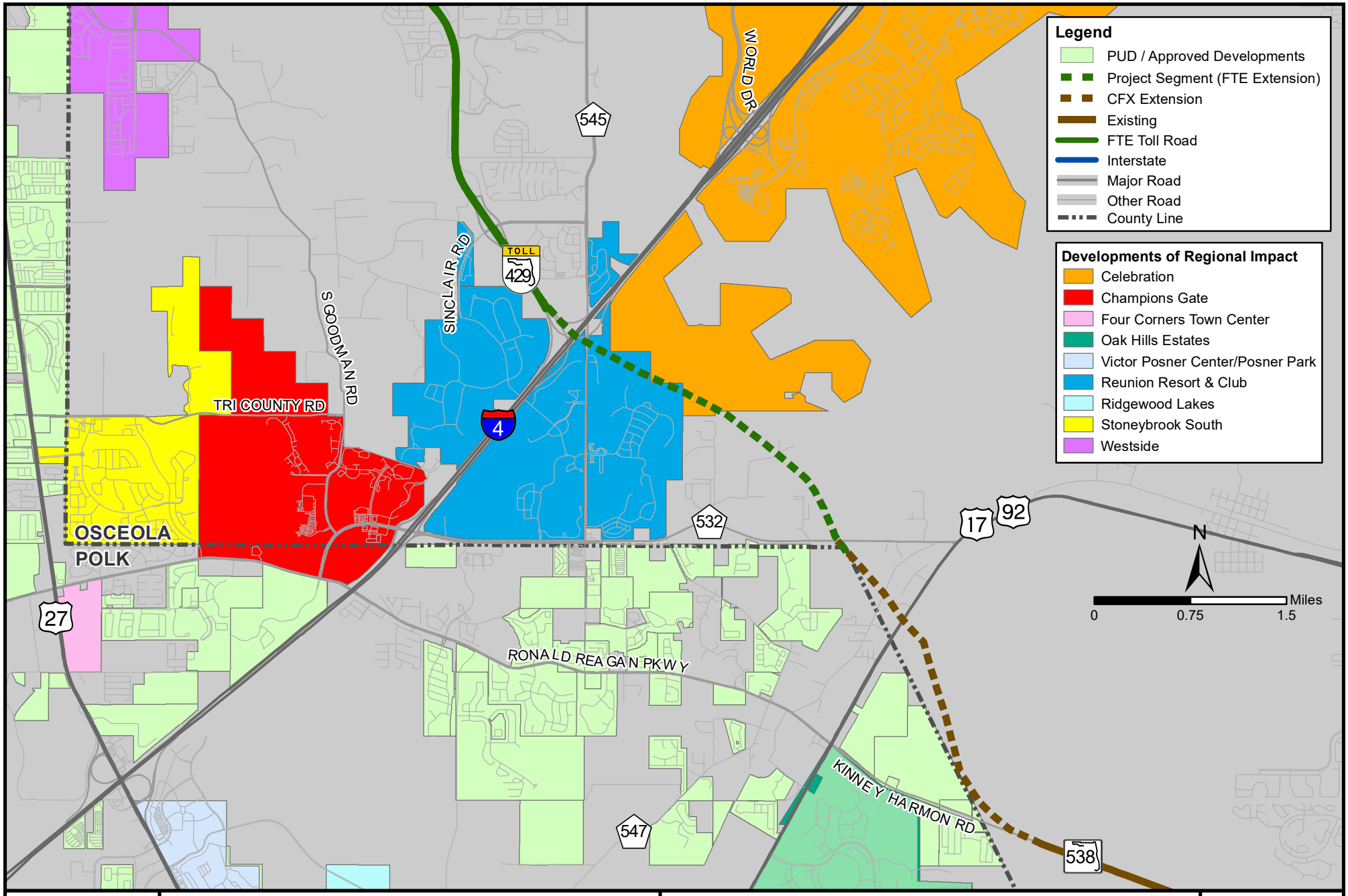
Figure 3.1

The area in the immediate vicinity of the proposed facility is comprised of varying land uses. The area north of I-4 and east of SR 429 is comprised of largely high and medium density residential development, with scattered commercial retail areas along Mystic Dunes Lane, north of Sinclair Road. The area north of I-4, west of SR 429 is comprised of low to medium density residential development that continues to grow at rapid pace with various development projects located between SR 429 and US 27. The project corridor area, between the SR 429/I-4 interchange and US 17/92, is comprised primarily of low to medium density residential on the west side of the proposed Poinciana Parkway Extension Connector's alignment and conservation/wetlands on the east side.

This area contains nine (9) Developments of Regional Impact (DRI) which vary by age and construction status. While some are completely built out and have reached their development capacities, others are currently under construction or have not yet begun construction. The immediate area also contains over fifty (50) Planned Unit Developments (PUDs) or Planned Developments (PDs), also varying by age, development type, and construction status. **Table 3.3** lists each of the DRIs and provides a status while **Figure 3.2** shows the locations of the DRIs, PUDs, and PDs in the study area.

Table 3.3
Developments of Regional Impact

Name	Year Approved	Current Status
Celebration	1991	Active
Champions Gate	1998	Active
Four Corners Town Center	2006	Active
Oak Hills Estates	1990	Active
Posner Park	1984	Active
Reunion	1988	Active
Ridgewood Lakes	1985	Active
Stoneybrook South	2004	Active
Westside	2002	Active



FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector
From CR 532 to North of I-4/SR 429 Interchange
Systems Interchange Modification Report (SIMR)

Planned Unit Developments and Developments of Regional Impact

Figure 3.2

3.2 ROADWAY FACILITIES

A description of the roadways within the study limits is provided below:

3.2.1 SR 429

SR 429, also known as the Daniel Webster Beltway or Western Expressway south of US 441, and the Wekiva Parkway north of US 441, is a limited-access toll road. The segment within the study area, specifically from I-4 to Seidel Road is owned and operated by FTE. The SR 429 mainline within the study area has two 12-foot lanes in each direction, a 10-foot outside shoulder, and an inside shoulder that varies in width from 2 to 4 feet. The posted speed limit is 70 mph. SR 429 serves north-south trips on the west side of the Orlando metropolitan area and provides access to Walt Disney World attractions around the study area.

3.2.2 I-4

I-4 is an east-west, six-lane, divided, urban interstate with a posted speed limit of 65 mph within the project limits. The roadway begins at an interchange with I-275 in Tampa and ends at an interchange with I-95 in Daytona Beach. I-4 forms a system-to-system interchange with SR 429. The ramps at the SR 429 interchange are non-tolled. An aerial depiction of the I-4 and SR 429 interchange is presented on **Figure 3.3**.

3.2.3 Sinclair Road

Sinclair Road is an east-west, four-lane, divided, urban major collector with a posted speed limit of 35 mph within the project area. Sinclair Road crosses SR 429 at approximately milepost (MP) 0.75, forming a diamond interchange with SR 429. The ramps to and from the south are tolled. The northbound ramp terminal intersection is signalized whereas the southbound ramp terminal intersection is unsignalized. There are several residential developments under construction along Sinclair Road. An aerial map of the Sinclair Road and SR 429 interchange is shown on **Figure 3.4**.

3.2.4 CR 532

CR 532 is an east-west, four-lane, divided, urban minor arterial from the I-4 interchange to Old Lake Wilson Road and becomes a two-lane undivided highway from Old Lake Wilson Road to US 17/92. The posted speed limit varies from 45 to 55 mph. CR 532 is called Champions Gate Boulevard west of the I-4 interchange. The roadway primarily connects local traffic to I-4, but also serves east-west travel in the region. It forms signalized intersections with the I-4 eastbound and westbound ramp terminal intersections, Kemp Road, Heritage Pass/Reunion Village Boulevard, Legacy Village Drive, Rafina Boulevard/Reunion Boulevard, Old Lake Wilson Road, and US 17/92 within the project limits. An aerial photograph of the interchange is presented on **Figure 3.5**. The ramp terminals are being reconfigured to a Diverging Diamond Interchange (DDI) configuration based on the I-4 BtU project. Construction began in spring 2021, with an anticipated completion in 2023.



FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Aerial Photograph of I-4/SR 429 Interchange**	**Figure 3.3**



FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Aerial Photograph of SR 429/Sinclair Road Interchange**	**Figure 3.4**



FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Aerial Photograph of I-4/CR 532 Interchange**	**Figure 3.5**

3.2.5 US 17/92

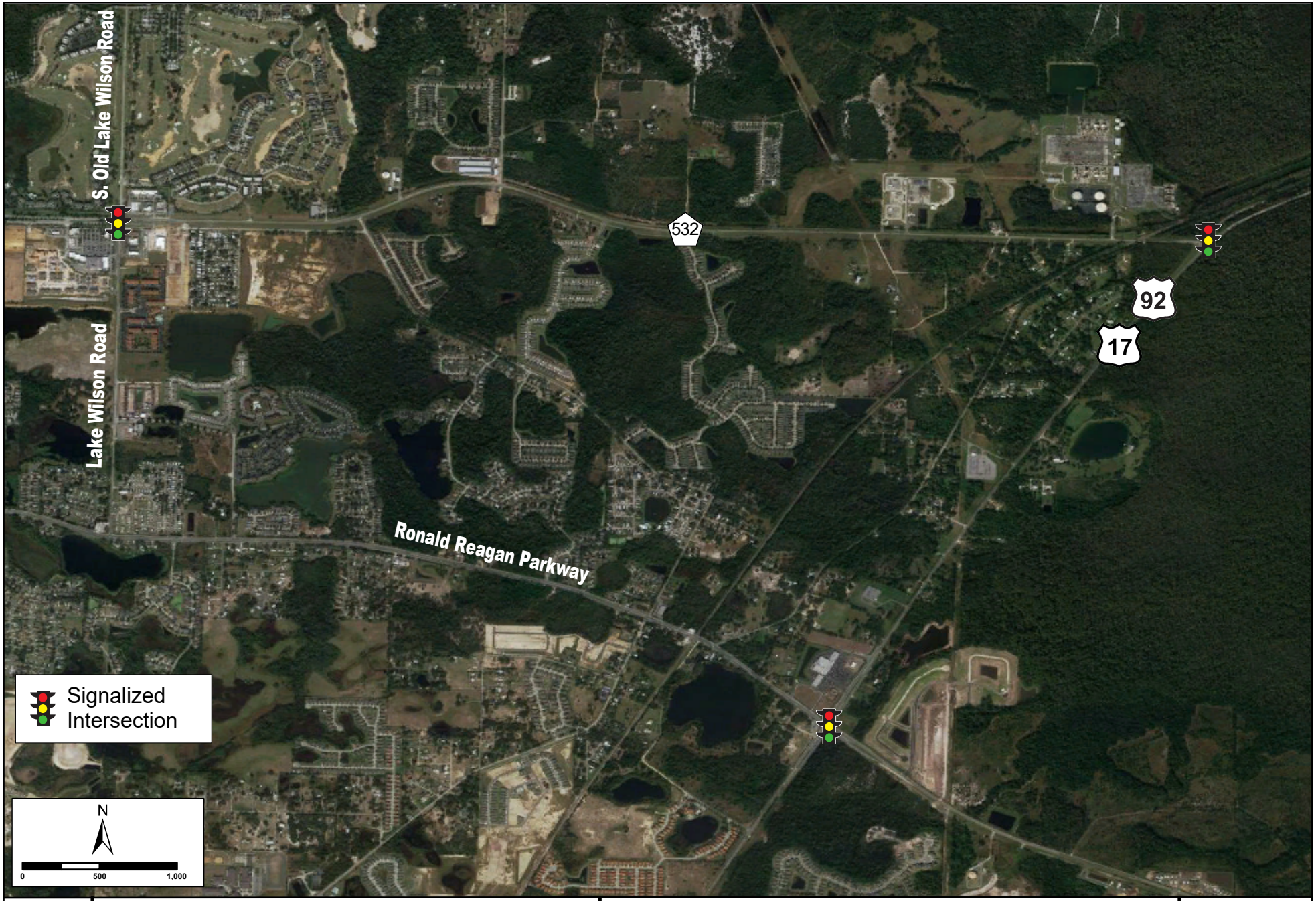
US 17/92 is a north-south, two-lane, urban principal arterial – other, undivided highway with a posted speed limit of 55 mph within the project limits. It forms a signalized intersection with CR 532. The roadway connects Davenport and Haines City to the south with Kissimmee to the north. An aerial photograph of the roadway is presented on **Figure 3.6**.

3.2.6 South Old Lake Wilson Road

South Old Lake Wilson Road is a north-south, two-lane, undivided, urban minor arterial within the project limits. The posted speed limit is 45 mph. Old Lake Wilson Road forms a four-legged signalized intersection with CR 532 which has exclusive left-turn lanes for all the approaches (See **Figure 3.6**).

3.2.7 World Drive

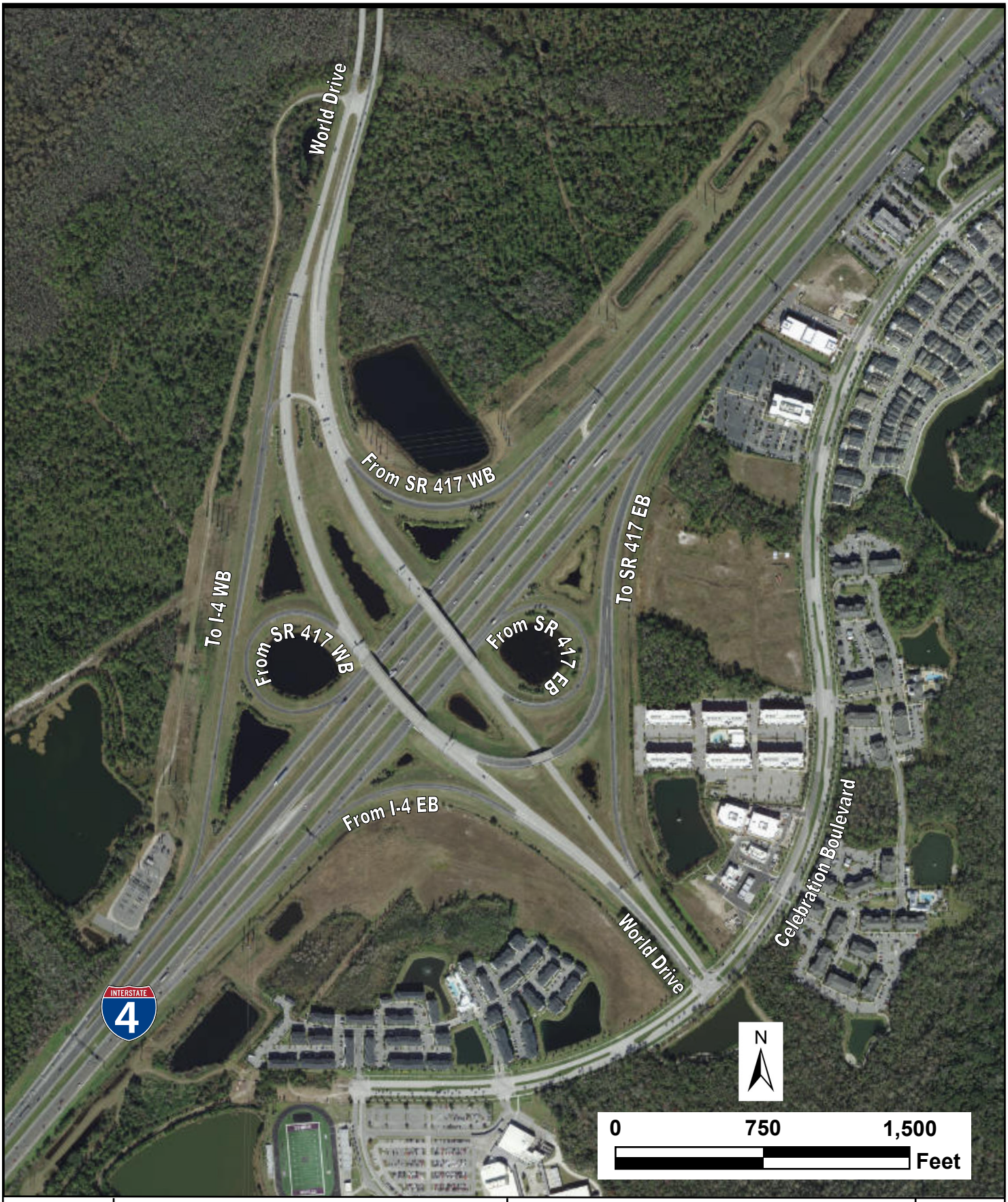
World Drive is a north-south, four-lane, divided, urban minor arterial from the US 192/Irlo Bronson Memorial Highway interchange in the north to the intersection with Celebration Boulevard in the south. Beyond the US 192/Irlo Bronson Memorial Highway interchange, World Drive continues north as a six-lane, divided, urban minor arterial up to the Epcot Center Drive interchange. The posted speed limit varies from 35 to 50 mph. The roadway primarily connects traffic between Walt Disney World and other roads in the study area. An aerial photograph of the interchange is shown on **Figure 3.7**.



Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

Aerial Photograph of CR 532/US 17/92 and S. Old Lake Wilson Road Intersections

Figure 3.6



FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Aerial Photograph of I-4/World Drive Interchange**	**Figure 3.7**

3.3 DATA COLLECTION

Existing conditions traffic data was obtained from the ongoing PD&E study conducted for the Poinciana Parkway Extension Connector from CR 532 to north of the I-4/SR 429 interchange. The data for the PD&E study were collected from Fiscal Year 2020 Enterprise One Reports, the FTO database, and the I-4 at CR 532/SR 429 SIMR. Additionally, traffic data collection was conducted at select locations in October 2019 and February 2020. The 2020 existing AADT and peak hour volumes were developed using the 2020 traffic counts and by applying growth rates to traffic counts collected in year 2018 and 2019. Growth rates were estimated based on historic traffic data. The data was then aggregated and balanced for continuity of flow and consistency. **Table 3.4** summarizes the locations and sources of traffic count data and the years of data collection.

Traffic volumes for the SR 429 mainline and tolled ramps were obtained from the Fiscal Year 2020 Enterprise One Reports. Additional daily hose and intersection movement counts were collected at the locations and dates listed in **Table 3.4**. The data collection was conducted in accordance with the procedures from the latest edition of the FDOT Manual on Uniform Traffic Studies (MUTS), FDOT Manual Number 750-020-007.

Table 3.4
Data Collection Locations

Traffic Count Source	Locations	Year of Count
FY 2020 Enterprise One Reports	SR 429 Mainline	2020
FTO	I-4 Mainline	2019
I-4 at CR 532/SR 429 SIMR	I-4 Mainline, CR 532 and World Drive ramps	2018
Poinciana Parkway Extension Connector PD&E Study from CR 532 to North of I-4/SR 429 Interchange	Sinclair Road/SR 429 Northbound on-ramp	2019 (intersection counts)
	Sinclair Road/SR 429 Southbound off-ramp	
	Sinclair Road/SR 429 Southbound ramps turning movement count	
	Sinclair Road/SR 429 Northbound ramps turning movement count	
	I-4 Eastbound to SR 429 Northbound ramp	2020 (hose counts)
	I-4 Westbound to SR 429 Northbound ramp	
	SR 429 Southbound to I-4 Eastbound ramp	
	SR 429 Southbound to I-4 Westbound ramp	

Source: FTO, FTE, and through traffic data collection.

Traffic data for the I-4 mainline and the ramps at CR 532 and World Drive were obtained for year 2018 from the I-4 at CR 532/SR 429 SIMR completed by FDOT District 5 in May 2020. Additional data for the I-4 mainline were obtained from the FTO database for 2019, for the Portable Traffic Monitoring Site (PTMS) No. 920321 located between SR 429 and World Drive. Traffic data for intersections along CR 532 and US 17/92 were obtained for 2018 from the Project Traffic Analysis Report (PTAR) completed by CFX in July 2019 for the Poinciana Parkway Extension Connector PD&E Study.

Field visits were conducted to collect information on existing lane geometry, storage lengths, and traffic signal timing related data. The signal timing plans for signalized intersections were obtained from Osceola and Polk Counties.

3.4 EXISTING CRASH DATA

3.4.1 Crash Data Analysis

Crash data for state roads within the project AOI were processed using the five-year data from the FDOT's CAR Online database, from 2014 through 2018. Crash data for non-state roads were obtained from the Signal Four Analytics tool, an FDOT-funded database developed in coordination with the state's CAR Online system. Signal Four data were processed from 2014 through 2018, the same time period as the CAR Online data. Detailed crash reports (long/short forms) were reviewed to verify the accuracy of the information obtained from the database. The safety analysis performed in this report follows the guidance provided in the FDOT Safety Office five-step process.

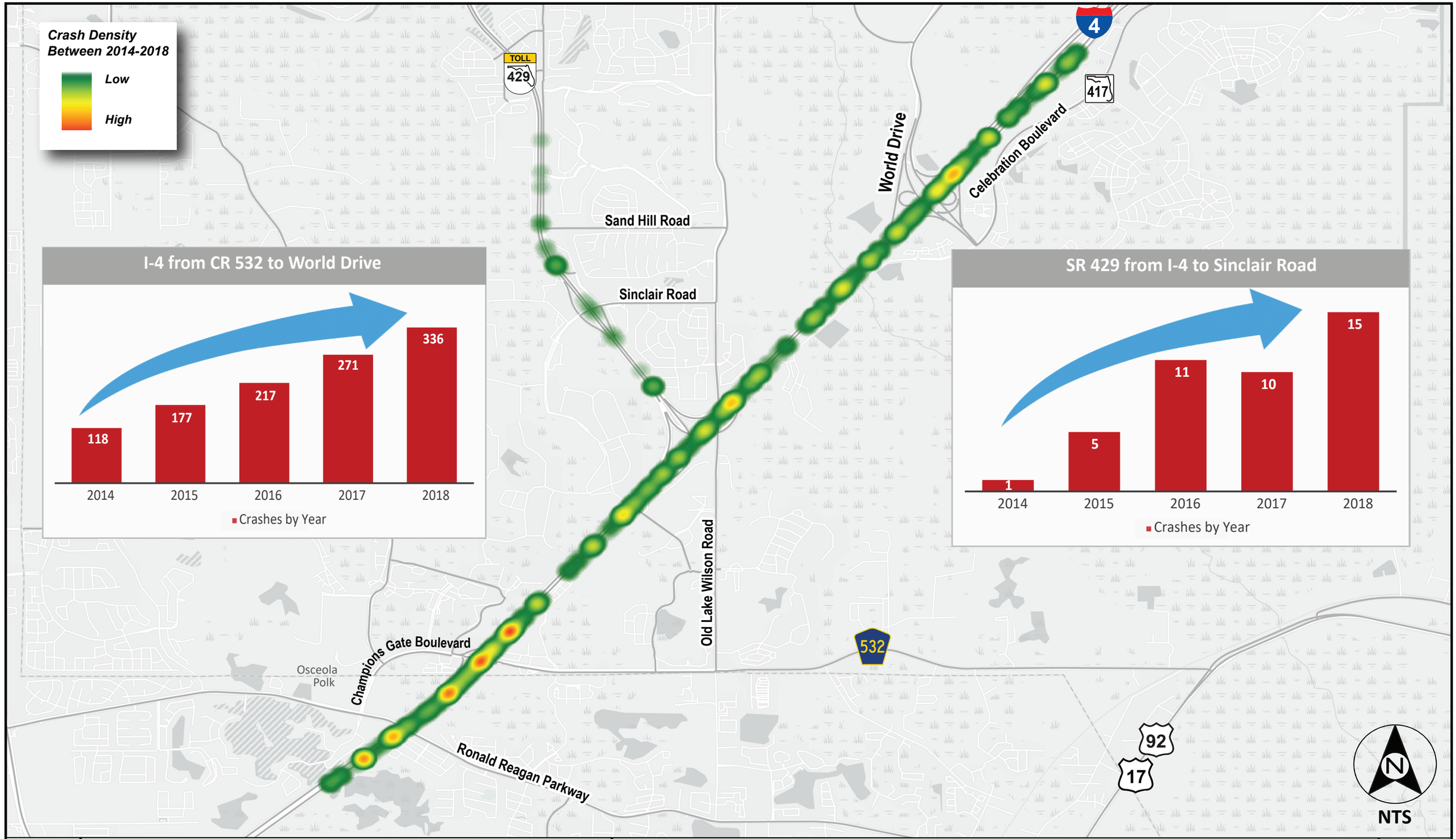
A total of 1,161 crashes were reported along I-4 and SR 429 during the 5-year study period from 2014 through 2018, as presented in **Table 3.5**. A total of 1,119 crashes were reported along the I-4 mainline. The number of crashes in the study area increased each year. Most of the crashes resulted in injury and property damage only. Six fatal crashes were reported along the I-4 mainline during the five-year analysis period. Four out of the six fatal crashes occurred due to a rollover or overturned vehicle. A single fatal crash was reported along SR 429 and consisted of a multi-vehicle crash.

Table 3.5
I-4 and SR 429 Corridor Number of Crashes and Crash Severity by Year

Crash Severity	2014	2015	2016	2017	2018	Total	Proportion
Fatality	0	3	2	0	2	7	**1%**
Injury	48	70	97	110	142	467	**40%**
Property Damage Only	71	109	129	171	207	687	**59%**
Total	**119**	**182**	**228**	**281**	**351**	**1,161**	**100%**

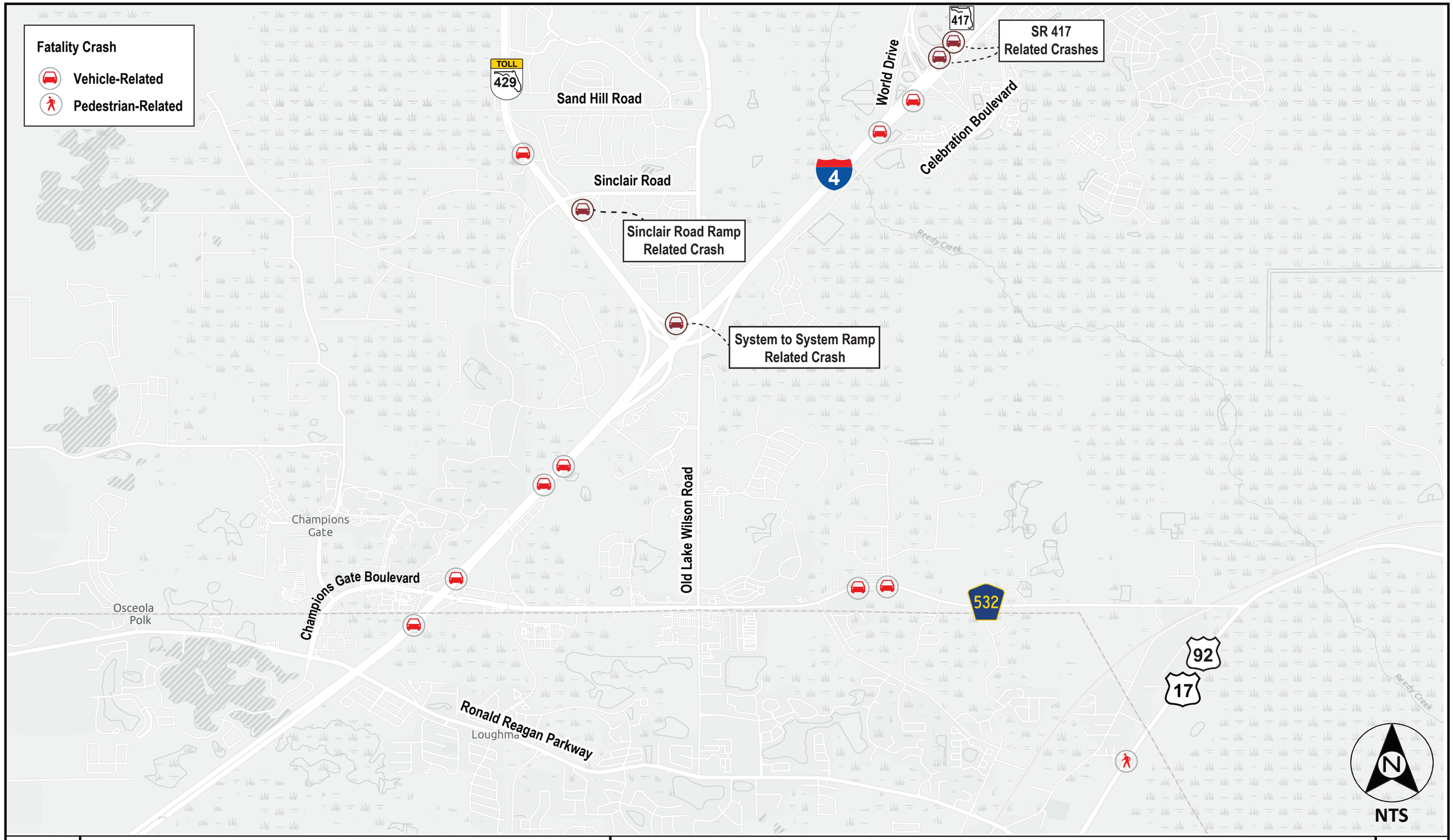
Source: Crash Analysis Reporting (CAR) Online

Figure 3.8 graphically depicts crash density along the SR 429 and I-4 mainlines. Based on the crash data, the highest number of crashes (434) occurred along the I-4 mainline adjacent to the CR 532 interchange. Most of the crashes along the SR 429 mainline occurred at the merge/diverge areas of the interchanges. The number of crashes along I-4 are higher at the CR 532, SR 429, and World Drive interchanges due to traffic congestion on the surface streets causing traffic to spill back onto the mainline. **Figure 3.9** shows all the fatal crashes within the study area.



FLORIDA'S TURNPIKE	**Poinciana Parkway Extension Connector** **From CR 532 to North of I-4/SR 429 Interchange** **Systems Interchange Modification Report (SIMR)**	**SR 429 and I-4 Mainline and Ramps** **Historical Crash Heat Map** **(2014 - 2018)**

Figure 3.8



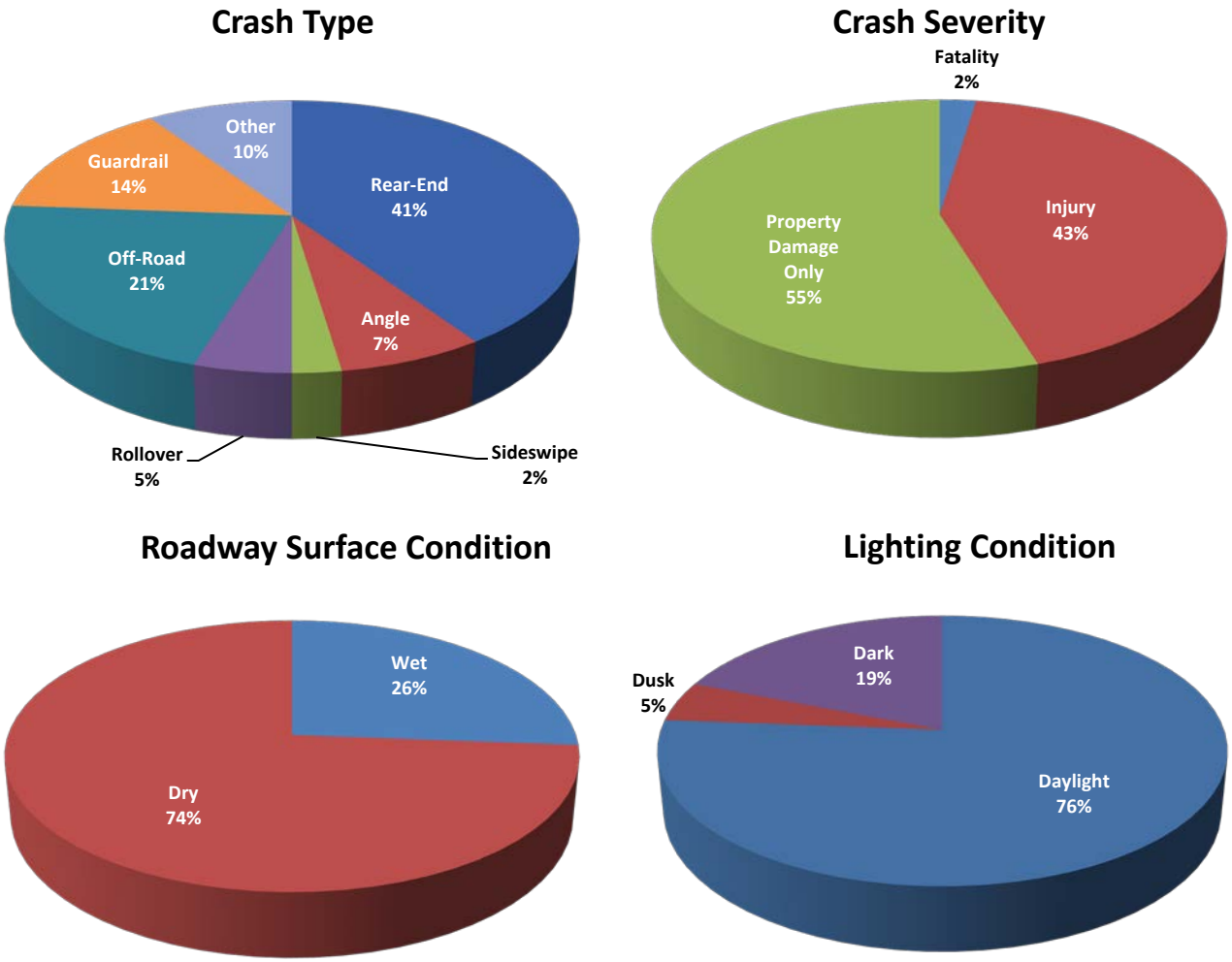
FLORIDA'S TURNPIKE	**Poinciana Parkway Extension Connector** **From CR 532 to North of I-4/SR 429 Interchange** **Systems Interchange Modification Report (SIMR)**	**Fatal Crash Location Map (2014 - 2018)**

Figure 3.9

SR 429 Mainline between I-4 and Sinclair Road

A total of 42 crashes were reported along the SR 429 mainline between I-4 and the Sinclair Road interchange during the five-year analysis period from 2014 through 2018. The mainline crashes were mostly rear-end (41 percent) and off-road (21 percent), as illustrated on **Figure 3.10**. Most of the crashes resulted in property damage only (55 percent) and occurred on dry pavement conditions during the day. One fatal crash was reported within the five-year study period, caused by a rear-end crash during the day.

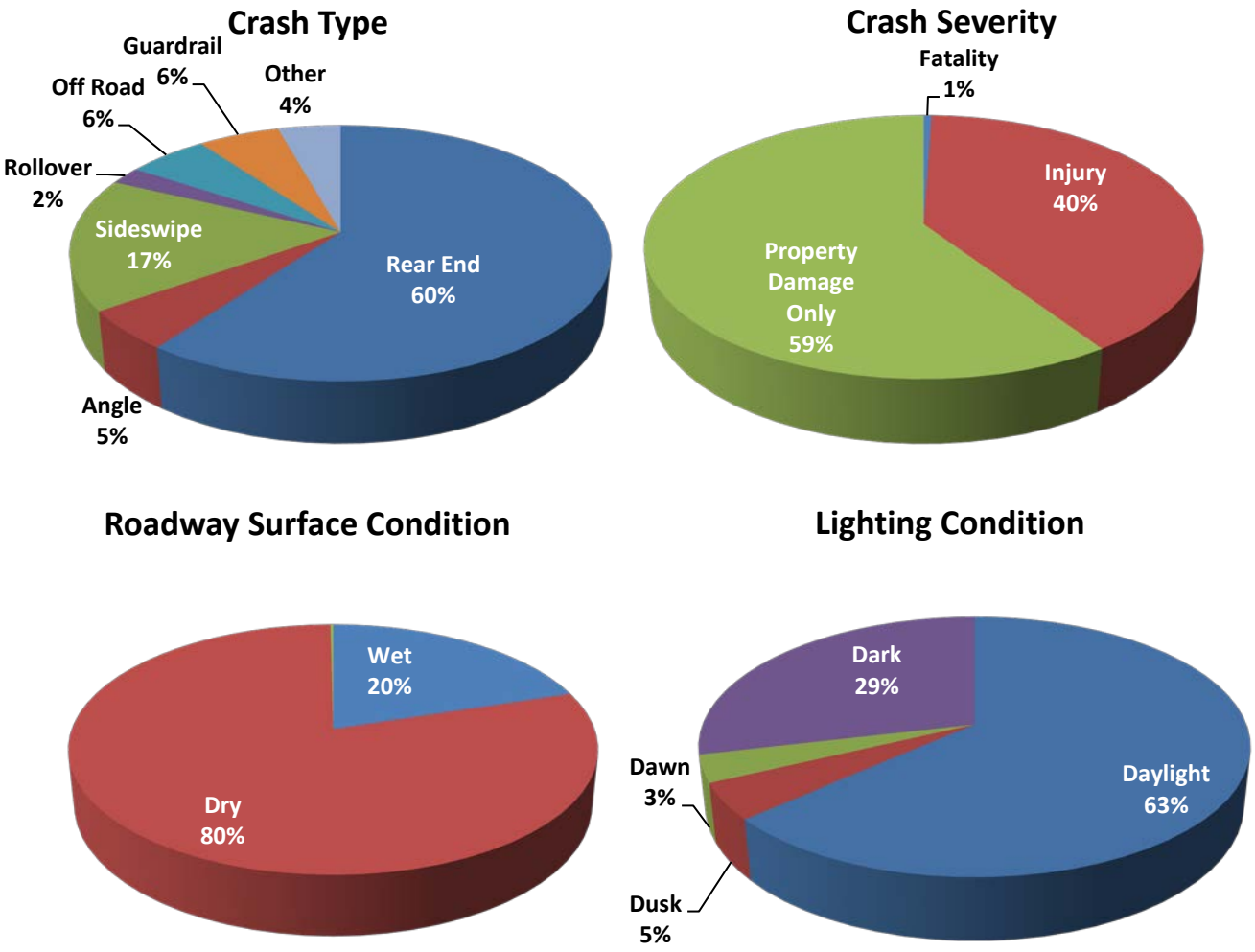
Figure 3.10
SR 429 Mainline between I-4 and Sinclair Road Crash Data Summary for 2014 through 2018



I- 4 Mainline between CR 532 and World Drive

A total of 1,119 crashes were reported along the I-4 mainline between CR 532 and World Drive during the five-year analysis period. The number of crashes varied from 118 to 336 between year 2014 and 2018. The highest number of crashes (434) occurred along the I-4 mainline adjacent to the CR 532 interchange. A total of six fatal crashes were reported, five of which involved single vehicles and four out of the six fatal crashes occurred due to a vehicle overturning or rolling over, and other crashes occurred due to rear-end and guardrail collisions. Rear-end (60 percent) and sideswipe (17 percent) crashes constitute most of the crashes. As shown on **Figure 3.11**, 40 percent of the crashes resulted in injury, 80 percent of the crashes occurred during dry conditions and 29 percent of the crashes occurred during nighttime.

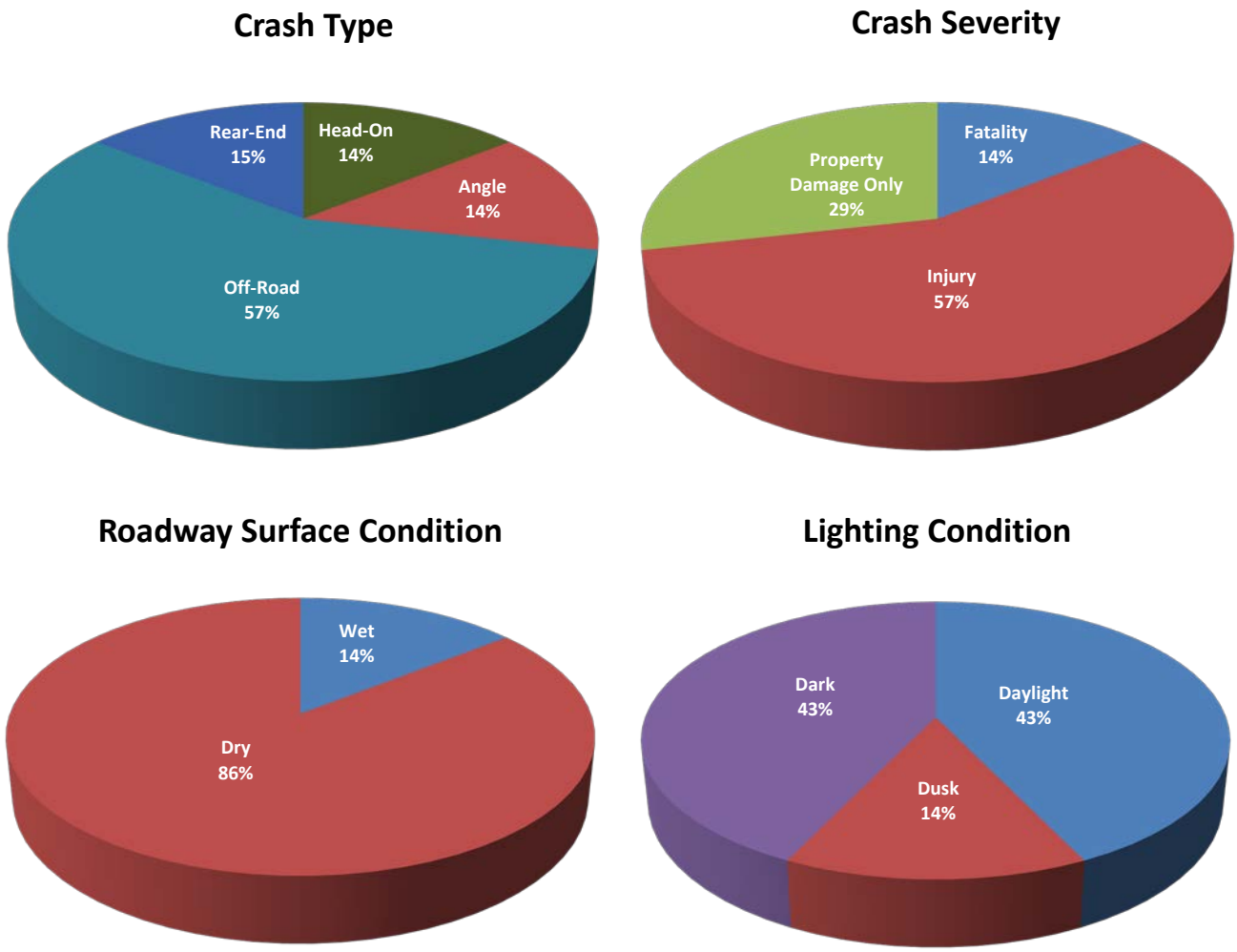
Figure 3.11
Interstate 4 Mainline between CR 532 and World Drive Crash Data Summary for 2014 through 2018



SR 429 at Sinclair Road Interchange Ramps

A total of seven crashes were reported along the Sinclair Road interchange ramps during the five-year analysis period. Four of the crashes were off-road crashes, one head-on, one rear-end, and one was an angle crash. One fatality was reported, which was caused by an off-road motorcycle crash at 5:40 PM on a Saturday. The crash report shows that the motorcycle was traveling in the wrong direction on the northbound off-ramp. The crashes occurred under dry road surface conditions mostly during the day, as shown on **Figure 3.12**.

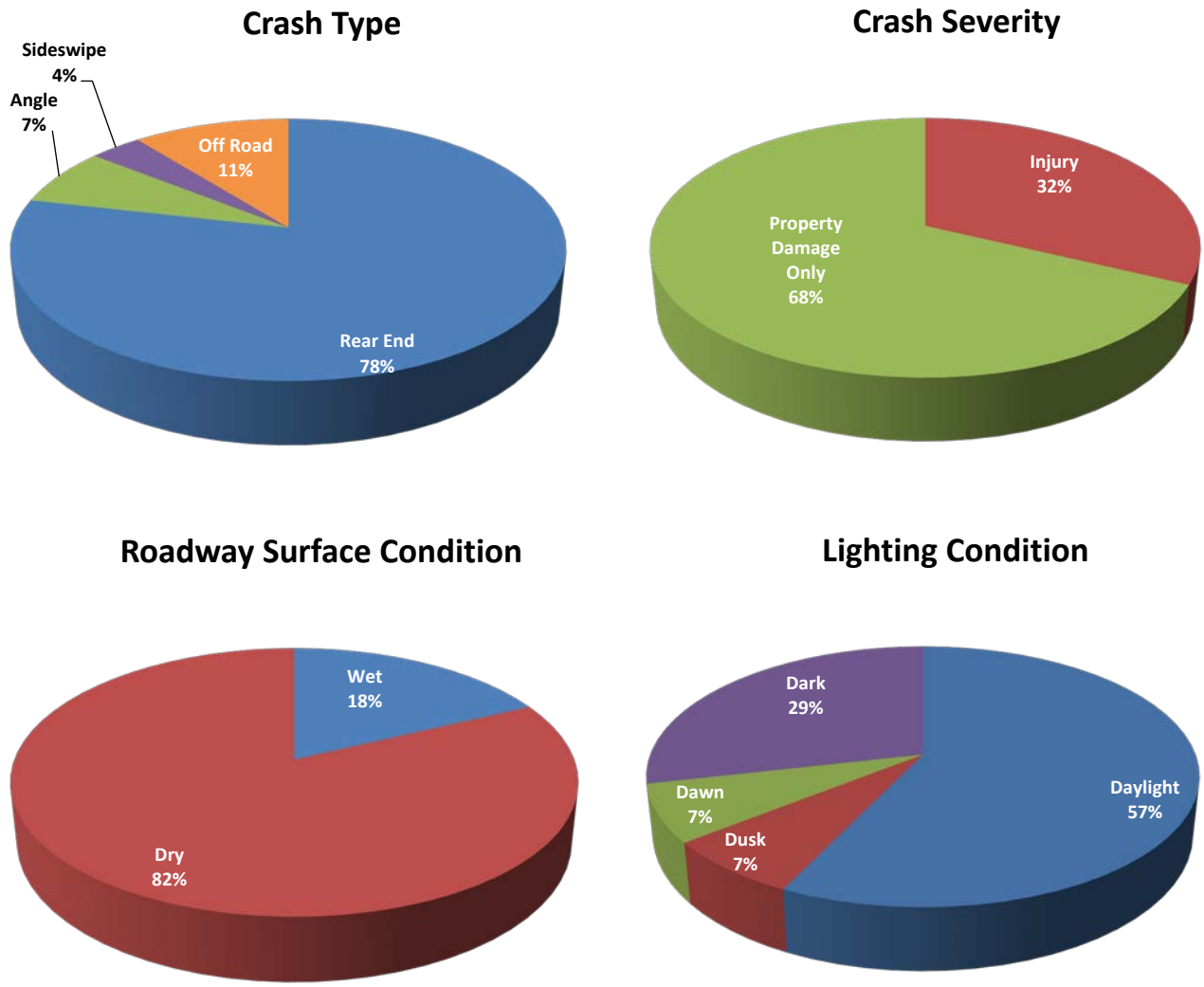
Figure 3.12
SR 429 at Sinclair Road Ramps Crash Data Summary for 2014 through 2018



I-4 at CR 532 Interchange Ramps

A total of 28 crashes were reported along the CR 532 interchange ramps during the five-year analysis period. There were no crash fatalities reported during the study period. An estimated 32 percent of the total crashes resulted in injuries. As shown on **Figure 3.13**, rear-end crashes were the most predominate crash type on the interchange ramps. Reports indicated that approximately 18 percent of the crashes occurred during wet roadway conditions and approximately 57 percent crashes occurred during daylight hours.

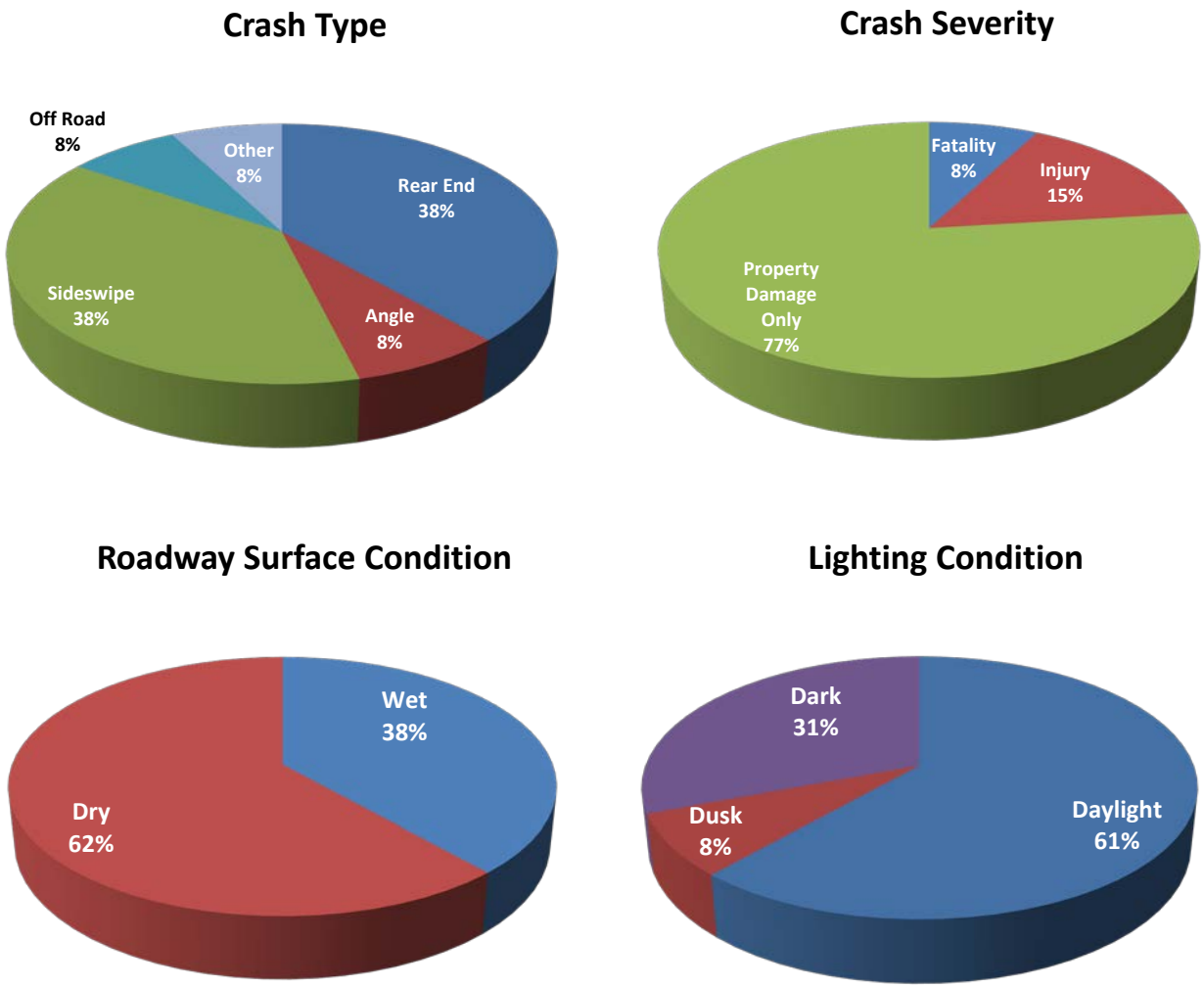
Figure 3.13
I-4 at CR 532 Ramps Crash Data Summary for 2014 through 2018



I-4 at SR 429 System-to-System Interchange Ramps

A total of 13 crashes were reported at the I-4 and SR 429 System-to System interchange ramps during the five-year analysis period. There is one fatal crash reported during the study period on the I-4 westbound to SR 429 northbound ramp, which involved a single vehicle collision with a tree. The crash occurred during nighttime hours, clear weather conditions, and on a dry surface. An estimated fifteen percent of the total crashes resulted in injuries. As shown on **Figure 3.14**, rear-end crashes were the most predominate crash type on the interchange ramps. Reports indicated that approximately 38 percent of the crashes occurred during wet roadway conditions and approximately 61 percent of crashes occurred during daylight hours.

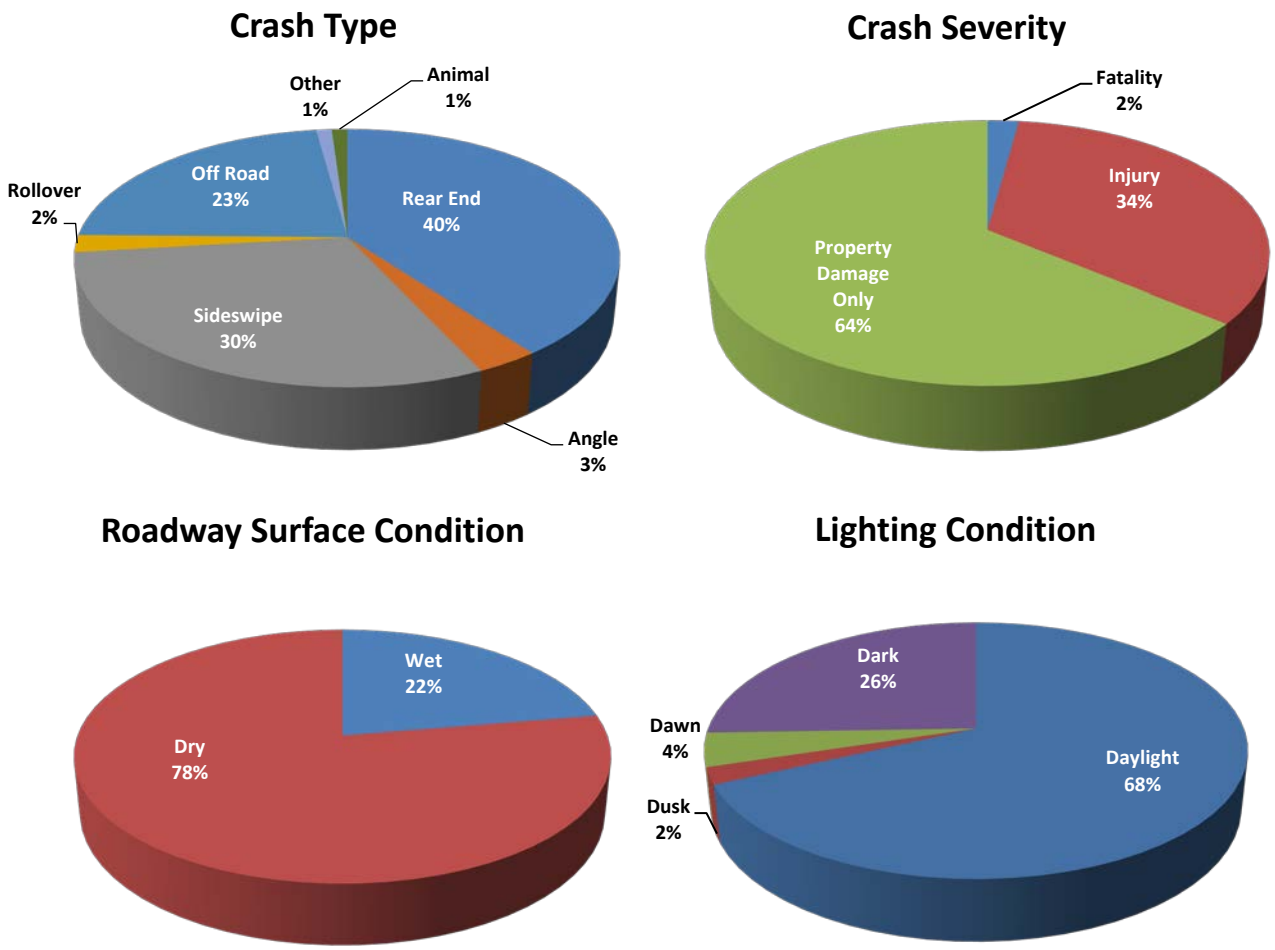
Figure 3.14
I-4 at SR 429 System-to-System Ramps Crash Data Summary for 2014 through 2018



I-4 at World Drive Interchange Ramps

A total of 94 crashes were reported along the World Drive interchange ramps during the five-year analysis period. There were two fatal crashes reported along the SR 417 westbound Collector-Distributor (C-D) road during the study period. An estimated 34 percent of the total crashes resulted in injuries. As shown on **Figure 3.15**, rear-end crashes were the prominent crash type on the interchange ramps. Reports indicated that approximately 22 percent of the crashes occurred during wet roadway conditions and approximately 68 percent occurred during daylight hours.

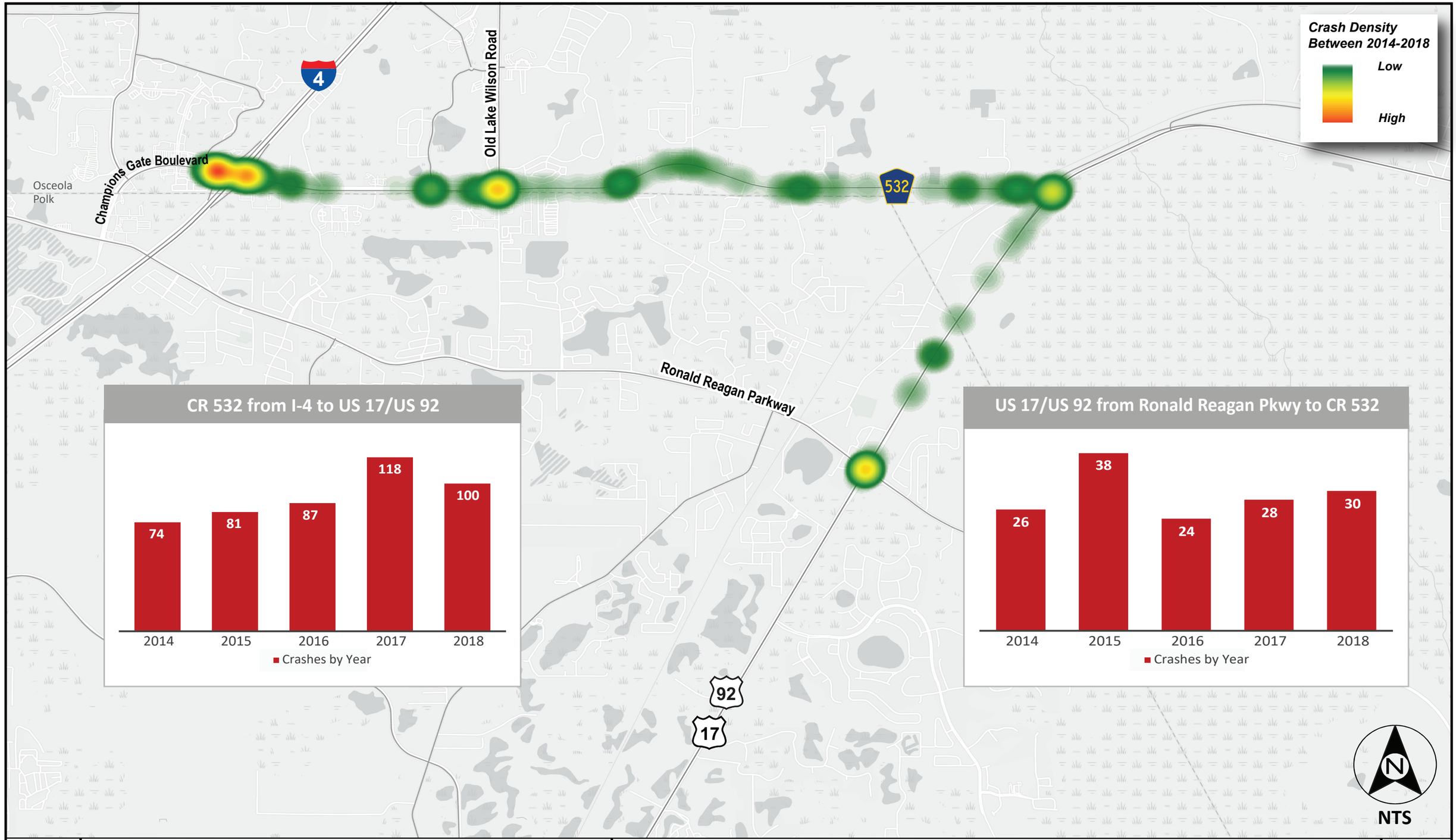
Figure 3.15
I-4 at World Drive Ramps Crash Data Summary for 2014 through 2018



Intersection Crashes

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

Figure 3.16 shows crash density along CR 532 and US 17/92. Most of the crashes along CR 532 occurred at the I-4 and Old Lake Wilson Road intersections. The number of crashes is higher at the I-4 interchange due to traffic congestion.



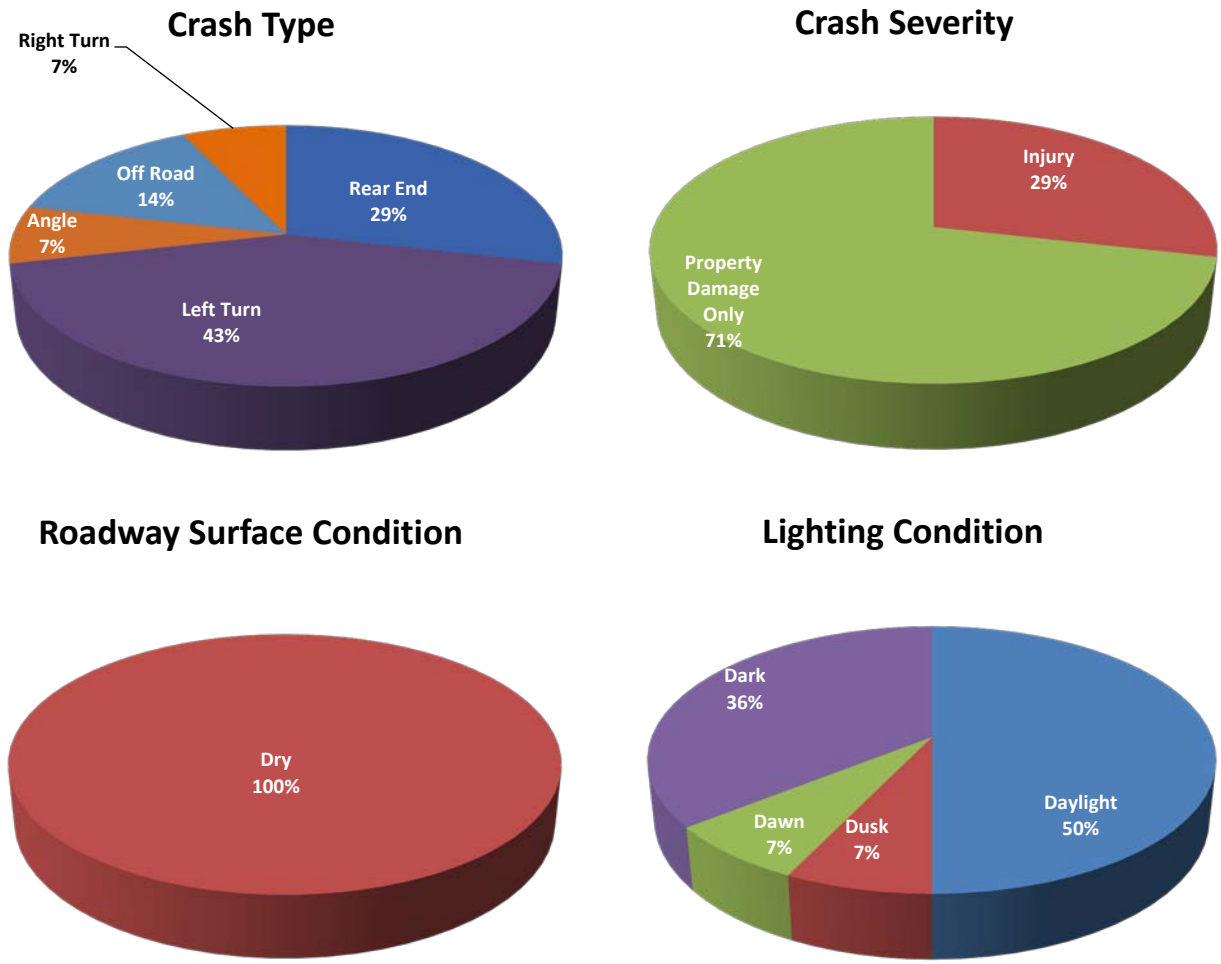
FLORIDA'S TURNPIKE	**Poinciana Parkway Extension Connector** **From CR 532 to North of I-4/SR 429 Interchange** **Systems Interchange Modification Report (SIMR)**	**CR 532 and US 17/US 92** **Historical Crash Heat Map** **(2014 - 2018)**

Figure 3.16

SR 429 at Sinclair Road Interchange Ramp Terminals

At the intersection of Sinclair Road and the SR 429 northbound ramps, 14 crashes were reported from 2014 through 2018, which resulted in injury and property damage only crashes. Most were left turn crashes that occurred under dry road surface conditions during the day, as shown on **Figure 3.17**. A single angle crash was reported at the Sinclair Road and SR 429 southbound off-ramp terminal intersection which resulted in an injury.

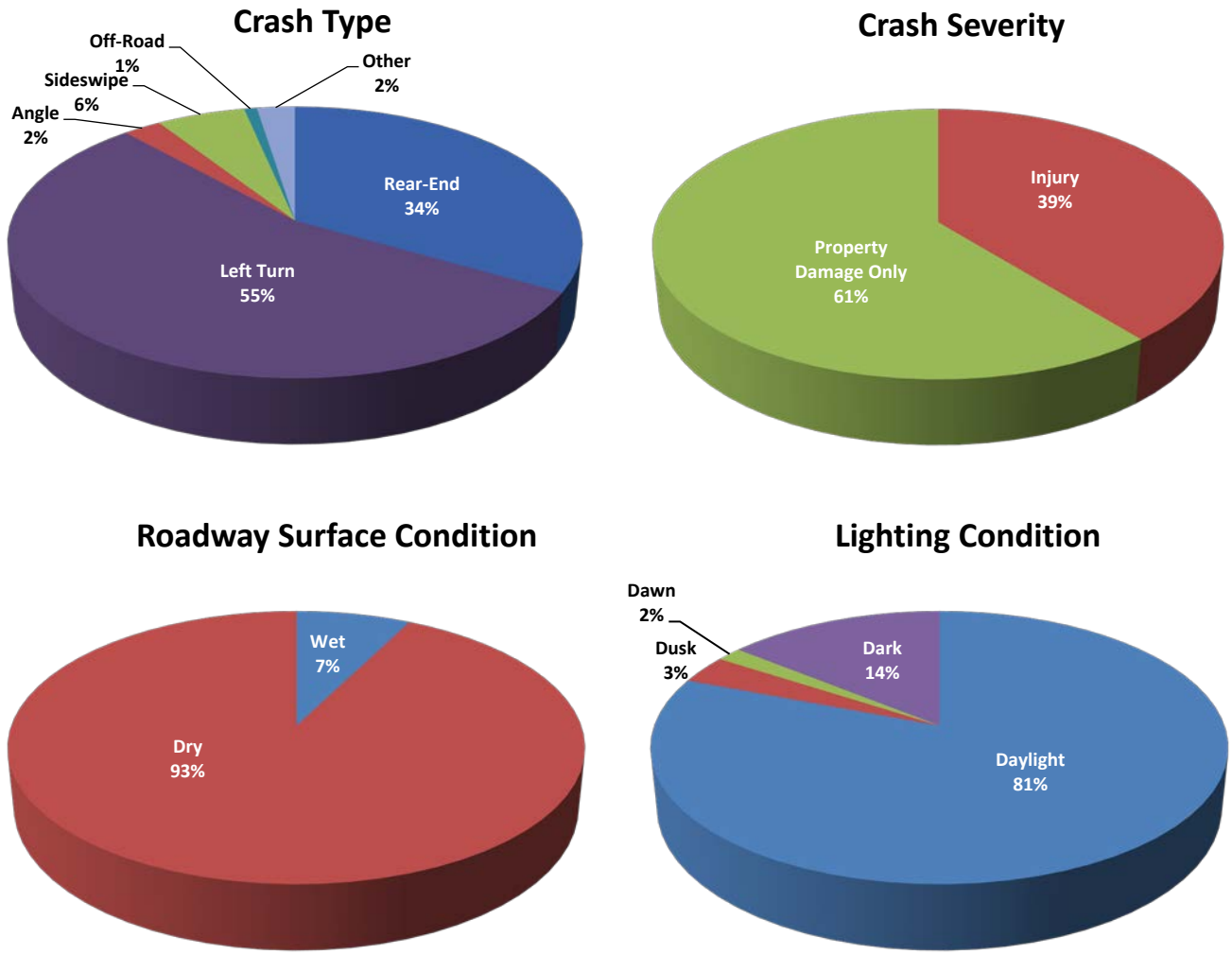
Figure 3.17
SR 429 Northbound Ramps and Sinclair Road Intersection Crash Data Summary for 2014 through 2018



I-4 at CR 532 Interchange Ramp Terminals

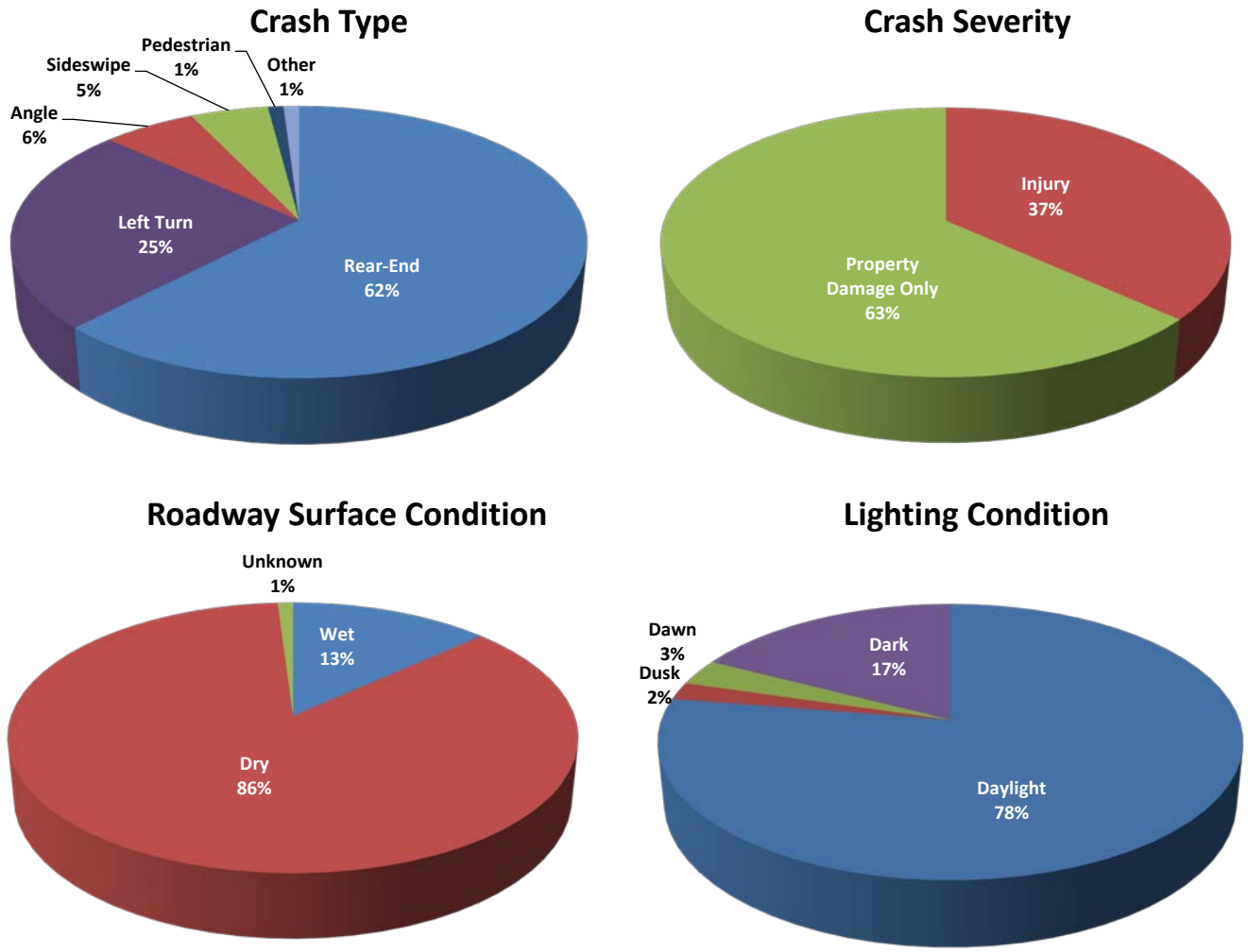
A total of 119 crashes were reported at the ramp terminal intersection of I-4 westbound and CR 532 from 2014 through 2018. There were no fatal crashes reported during the five-year analysis period. Left turn and rear-end crashes constituted most of the crashes. As shown on **Figure 3.18**, most of the crashes occurred under dry roadway conditions during the day.

Figure 3.18
I-4 Westbound Ramps and CR 532 Intersection Crash Data Summary for 2014 through 2018



A total of 98 crashes were reported at the ramp terminal intersection of I-4 eastbound and CR 532 from 2014 through 2018. There were no fatal crashes reported during the five-year analysis period. A pedestrian crash was reported at this intersection between the hours of 9:00 PM to 9:30 PM. Rear-end crashes constituted most of the crashes. As shown on **Figure 3.19**, most of the crashes occurred under dry roadway conditions and daylight.

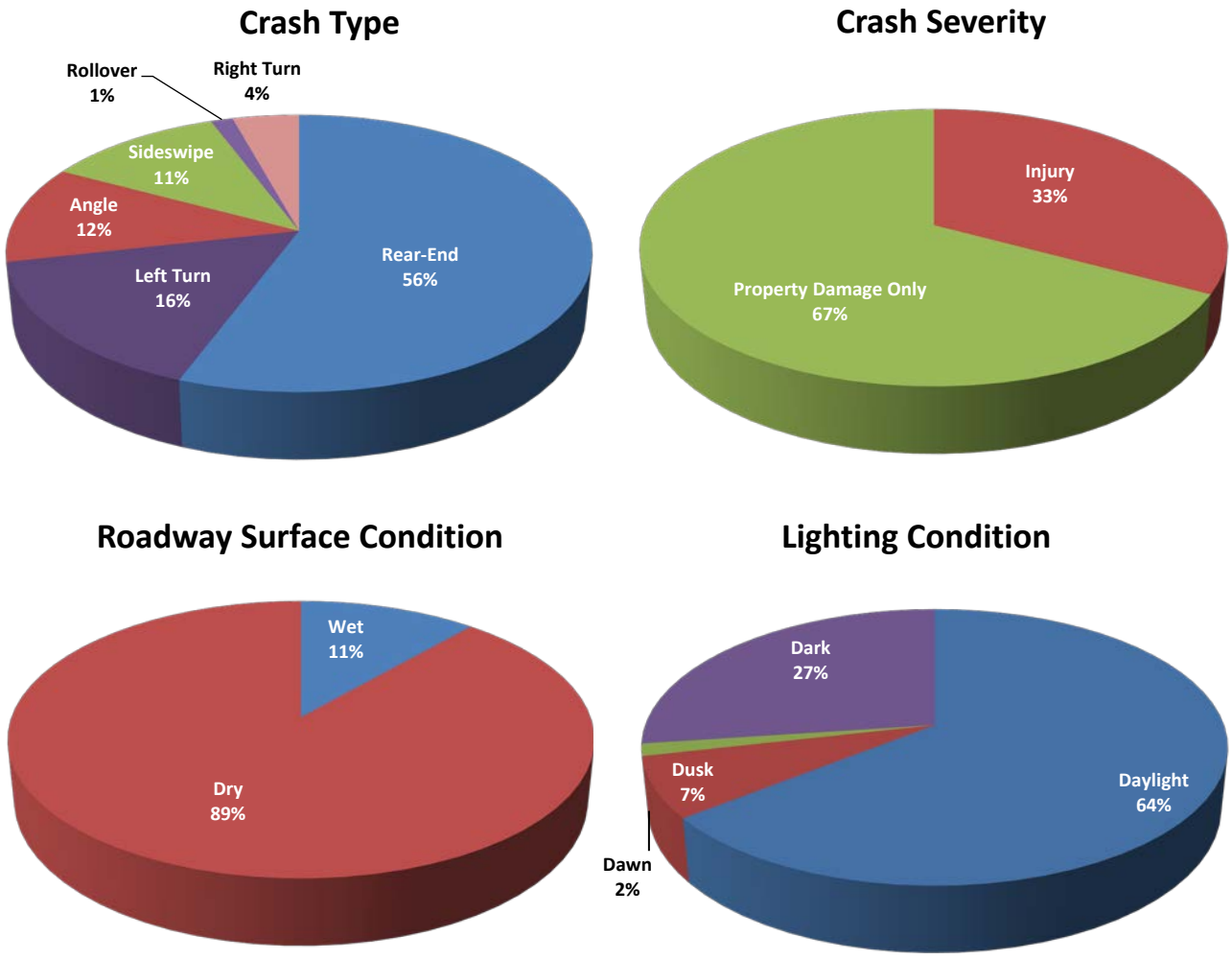
Figure 3.19
I-4 Eastbound Ramps and CR 532 Intersection Crash Data Summary for 2014 through 2018



CR 532 and Old Lake Wilson Road Intersection

A total of 70 crashes were reported at the CR 532 and Old Lake Wilson Road intersection during the five-year analysis period. Crash occurrence was more frequent during the weekdays compared to the weekends. As illustrated on **Figure 3.20**, most of the crashes were rear-end collisions and 67 percent of the crashes resulted in property damage only. There were no fatal crashes reported in the five-year period. Most of the crashes occurred under dry road surface conditions during the day.

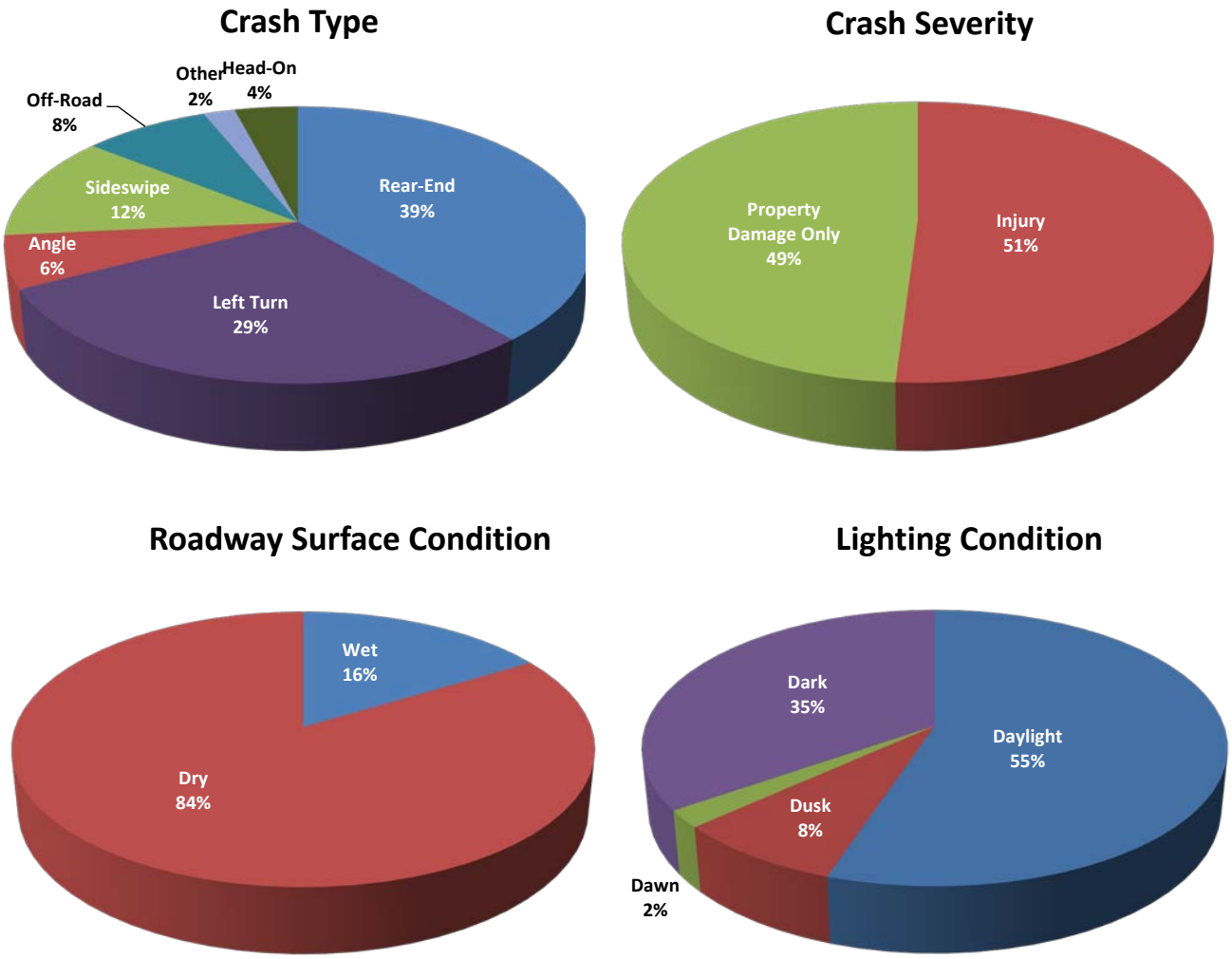
Figure 3.20
CR 532 and Old Lake Wilson Road Intersection Crash Data Summary for 2014 through 2018



CR 532 and US 17/92 Intersection

The reports showed that 49 crashes occurred at the CR 532 and US 17/92 intersection from 2014 through 2018. Crash occurrence was evenly distributed throughout the week. As depicted on **Figure 3.21**, the prominent crash types were rear-end and left turn crashes and occurred mostly under dry road surface conditions during the day. No fatal crashes were reported during the five-year analysis period.

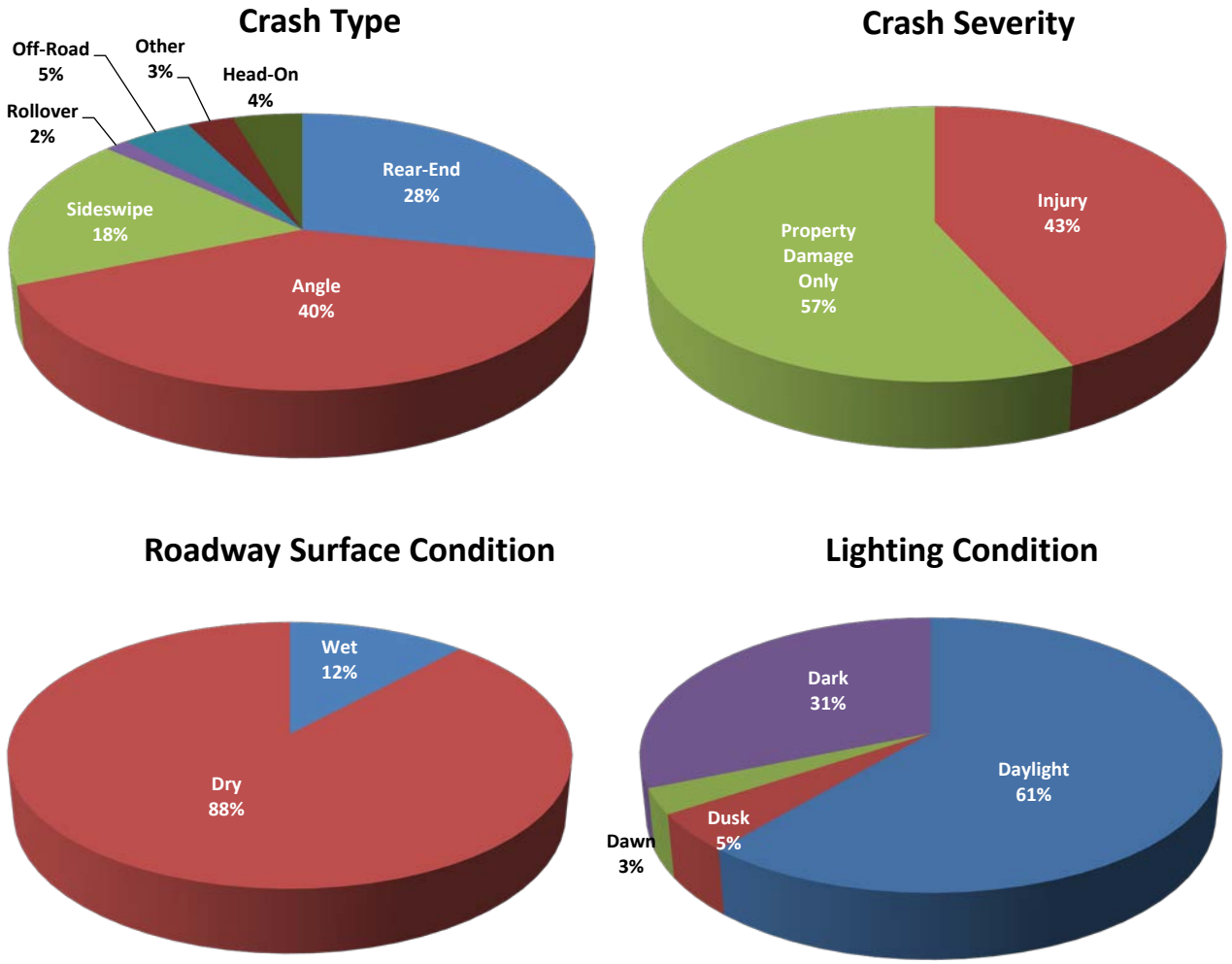
Figure 3.21
CR 532 and US 17/92 Intersection Crash Data Summary for 2014 through 2018



US 17/92 and Ronald Reagan Intersection

A total of 67 crashes were reported at the US 17/92 and Ronald Reagan intersection during the five-year analysis period. Crash occurrence was evenly distributed throughout the week. As illustrated on **Figure 3.22**, 40 percent of the crashes were angle collisions and 57 percent of the crashes resulted in property damage only. There were no fatal crashes reported in the five-year period. Most of the crashes occurred under dry road surface conditions during the day.

Figure 3.22
US 17/92 and Ronald Reagan Intersection Crash Data Summary for 2014 through 2018



3.4.2 Safety Ratio

Actual crash rates were computed and compared with average crash rates for similar facilities within Polk and Osceola Counties to assess the safety condition within the study area. Critical crash rates and safety ratios were also estimated. Crash rates for the freeway mainline and ramps were estimated as crashes per Million Vehicle Miles Traveled (MVMT) and for the intersections 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 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 listed in **Table 3.6**.

Table 3.6
Crash Rates and Safety Ratios for 2014 through 2018

Description	Total Crashes	Actual Crash Rate	Average Crash Rate*	Critical Crash Rate	Safety Ratio
Freeway Mainline and Ramps					
SR 429 Mainline between I-4 and Sinclair Road	42	0.48	0.65	1.13	0.43
I-4 Mainline between CR 532 and World Drive	1,119	0.79	0.76	0.88	0.89
SR 429 at Sinclair Road Interchange Ramps*	7	0.54	0.65	2.01	0.27
I-4 at CR 532 Interchange Ramps**	28	0.47	0.76	1.39	0.34
I-4 at SR 429 System-to-System Interchange Ramps**	13	0.11	0.76	1.20	0.09
I-4 at World Drive Interchange Ramps**	94	1.21	0.76	1.31	0.92
Intersection					
SR 429 Northbound off-ramp at Sinclair Road/ Connector Road	14	0.90	0.27	1.11	0.81
SR 429 Northbound on-ramp at Connector Road					
SR 429 Southbound Ramps at Sinclair Road	1	0.08	0.27	1.21	0.06
I-4 Westbound Ramps and CR 532	119	1.98	0.27	0.65	3.03
I-4 Eastbound Ramps and CR 532	98	1.88	0.27	0.69	2.75
CR 532 at Old Lake Wilson Road	70	1.16	0.69	1.30	0.90
CR 532 at US 17/92	49	1.10	0.08	0.35	3.12
US 17/92 at Ronald Reagan Parkway	67	1.13	0.23	0.59	1.89

* FDOT CAR Online Osceola County, five-year Average Crash Rate (2014-2018)
SR 429: Mainline Toll Road Urban; SR 429 Ramps: Ramp Urban Crash Rate not available, used rate for mainline
I-4: Mainline Urban Interstate; ** I-4 and SR 429 Ramps: Ramp Urban Crash Rate not available, used rate for mainline
Crash Rate: Highway/Ramps: Crashes per Million Vehicle Miles Traveled (MVMT)
Intersections: Crashes per Million Entering Vehicles (MEV)
Intersections : Suburban 4-5 Lane 2way Divided Raised, Suburban 2-3 Lane 2 Way Undivided

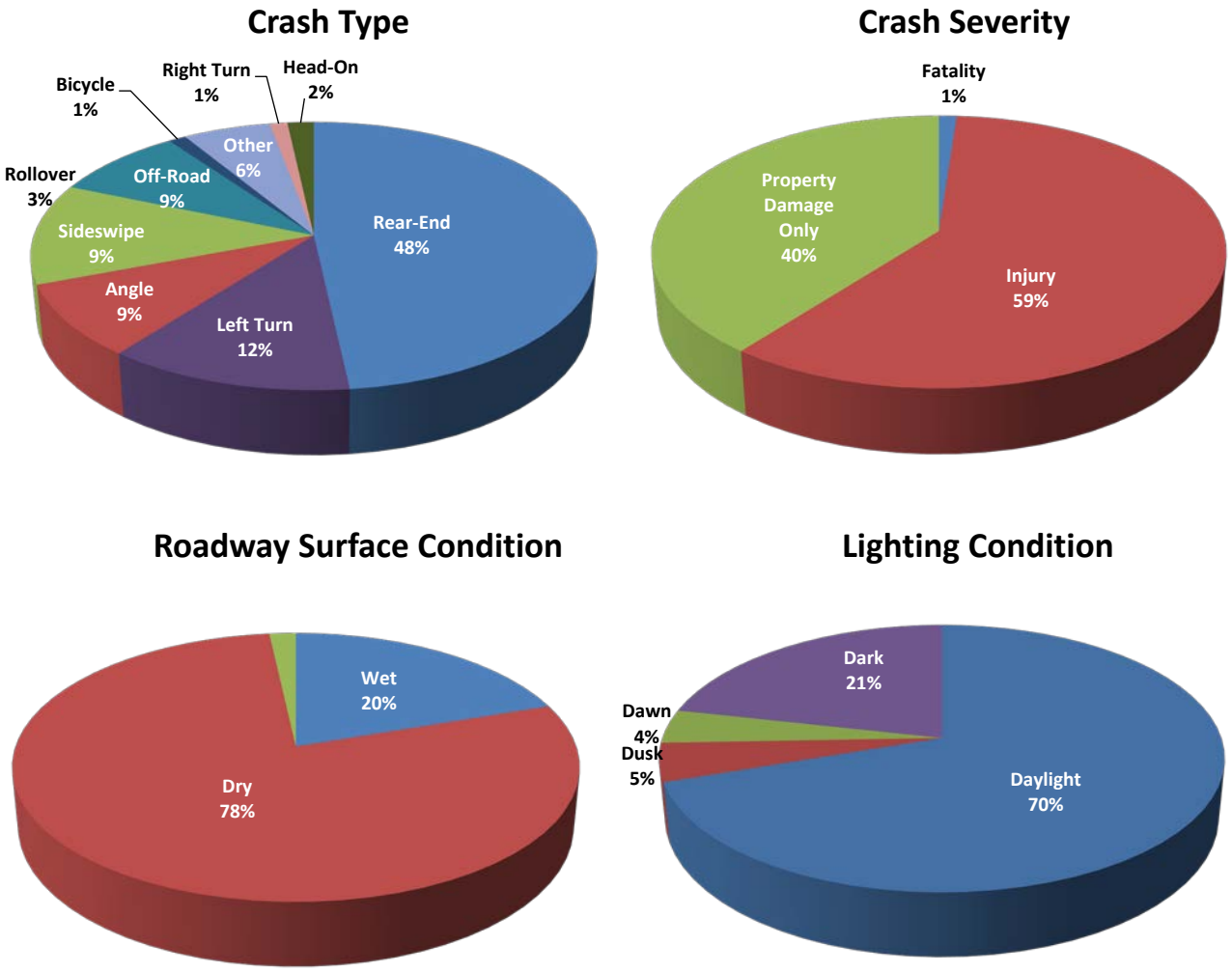
Rear-end and left-turn crashes were prominent at the I-4 and CR 532 ramp terminals. Congestion and long queues contributed to the high number of crashes at those locations. Safety ratios are greater than 1.0 at the US 17/92 with CR 532, and Ronald Reagan Parkway intersections, indicating that these may be high crash locations where left-turn, angle, and rear-end crashes are the most prominent.

3.4.3 Midblock Crashes

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

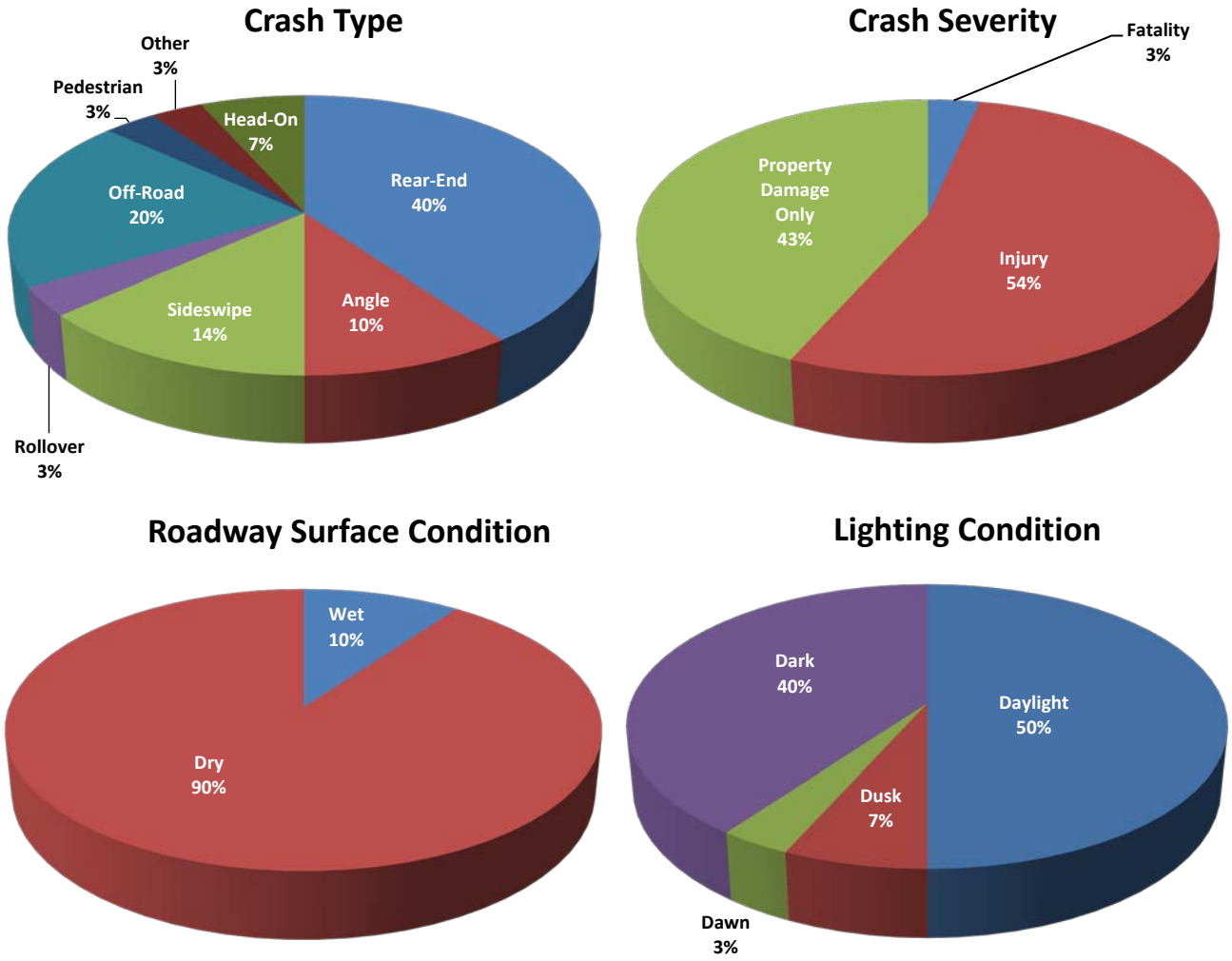
Figure 3.23 show the crash analysis summary at arterial CR 532 mid-block locations, which represent 34 percent of the total crashes within the CR 532 corridor, from 2014 through 2018. A total of 172 crashes were reported at CR 532 mid-block locations within the study limits. Two bicycle crashes were reported along this corridor. Most of them were rear-end and resulted in injuries, as illustrated on **Figure 3.23.** Most of the crashes occurred under dry pavement conditions during the day. There were two fatalities reported at the intersection of Sullivan Road within the five-years.

Figure 3.23
CR 532 Mid-Block Crash Data Summary for 2014 through 2018



A total of 30 crashes were reported at US 17/92 mid-block locations during the five-year analysis period. A pedestrian crash was reported along this corridor. Most of the crashes were rear-end and resulted in injuries, as illustrated on **Figure 3.24**. Most of the crashes occurred under dry pavement and 50 percent of them happened during the day. One fatality pedestrian-related crash was reported in the five-year period.

Figure 3.24
US 17/92 Mid-Block Crash Data Summary for 2014 through 2018



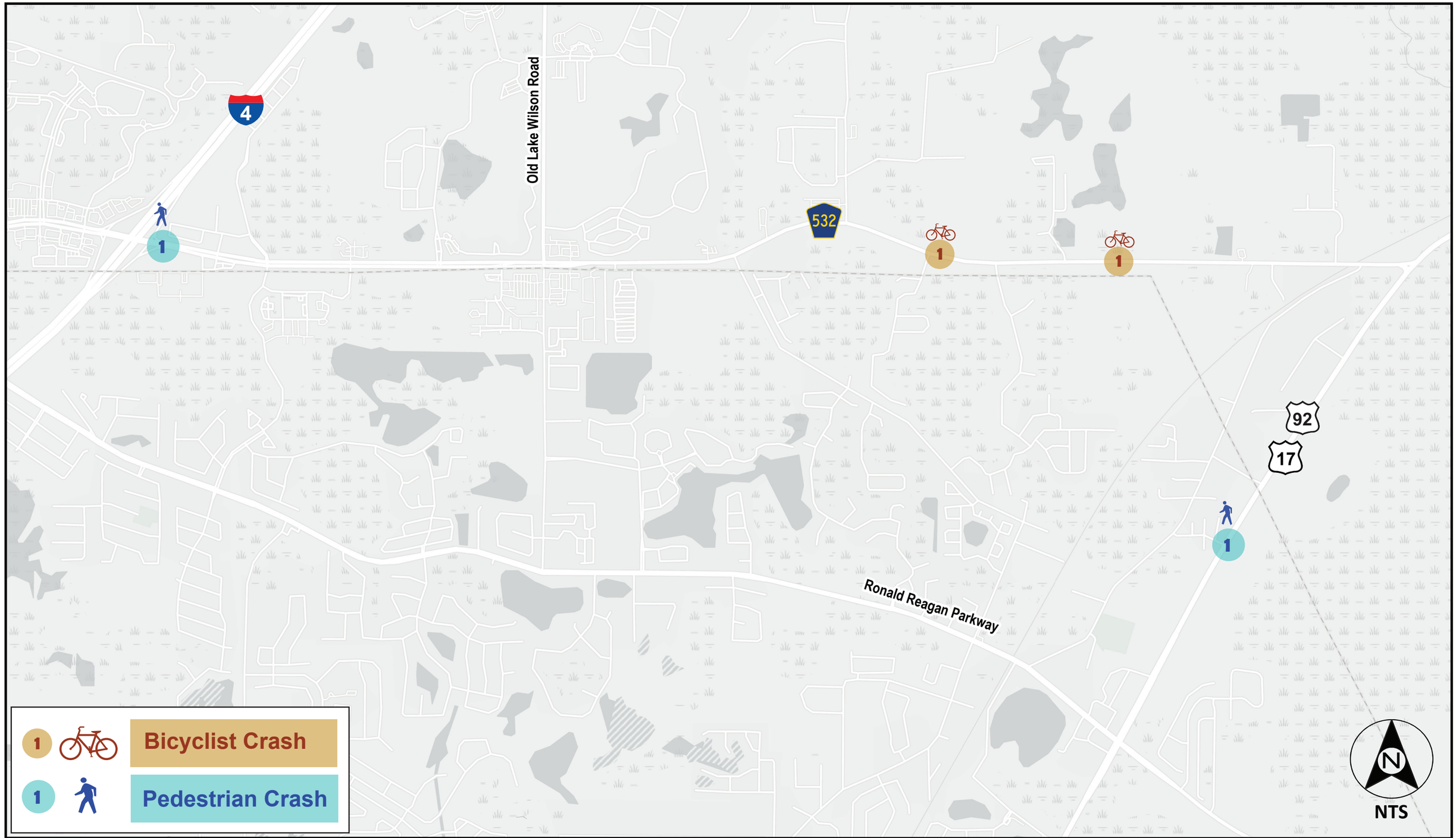
3.4.4 Pedestrian and Bicycle Safety Analysis

Bicycle and pedestrian crashes data were extracted from the CAR Online database and Signal Four Analytics tool for the study area. A total of four pedestrian and bicycle crashes were reported along the arterials from 2014 through 2018. Crash severity by year of crashes is depicted in **Table 3.7**. As shown on **Figure 3.25**, one pedestrian and two bicycle crashes occurred along CR 532 resulting in injuries. One fatal pedestrian crash was reported along US 17/92 during a dark-lighted condition. It is important to note that this incident occurred outside the project limits. There were no pedestrian/bicycle crashes reported at the SR 429 and Sinclair Road ramp terminals.

Table 3.7
Pedestrian and Bicycle Crash Severity Summary for 2014 through 2018

Crash Severity	2014	2015	2016	2017	2018	Total	Proportion
Fatality	0	0	0	0	1	1	**25%**
Injury	0	1	0	1	1	3	**75%**
Property Damage Only	0	0	0	0	0	0	**0%**
Total	0	1	0	1	2	4	**100%**

Source: Crash Analysis Reporting (CAR) Online and Signal Four Analytics tool



FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector From CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	CR 532 and US 92/US17 Pedestrian and Bicycle Crash Location Map (2014 - 2018)

Figure 3.25

Existing traffic data and traffic operational analyses are provided in this section. Detailed output reports and analysis files are provided in **Appendix C**.

4.1 EXISTING TRAFFIC DATA

The 2020 existing AADT and peak hour volumes for SR 429 were calculated based on the daily counts and the four highest consecutive 15-minute periods in the morning and evening. Seasonal and axle adjustment factors were applied to the data where necessary. Growth rates estimated from historical data were applied to the volumes obtained from previous studies and from FTO for I-4, CR 532, and US 17/92. The data were then aggregated and balanced for continuity of flow and consistency. The final 2020 AADT volumes are summarized in **Table 4.1**. The data show that daily traffic on the SR 429 mainline is higher in the southbound direction than in the northbound direction within the study limits. The daily directional split of traffic is 58 percent on southbound SR 429 between Sinclair Road and I-4. The directional split on the I-4 mainline is roughly 50 percent on a daily level. **Figure 4.1** shows the 2020 existing AADTs. **Figure 4.2** summarizes the final 2020 AM and PM peak hour volumes. Field observations and high-resolution aerial maps were used to verify the geometry. The existing lane geometry is depicted on **Figure 4.3**.

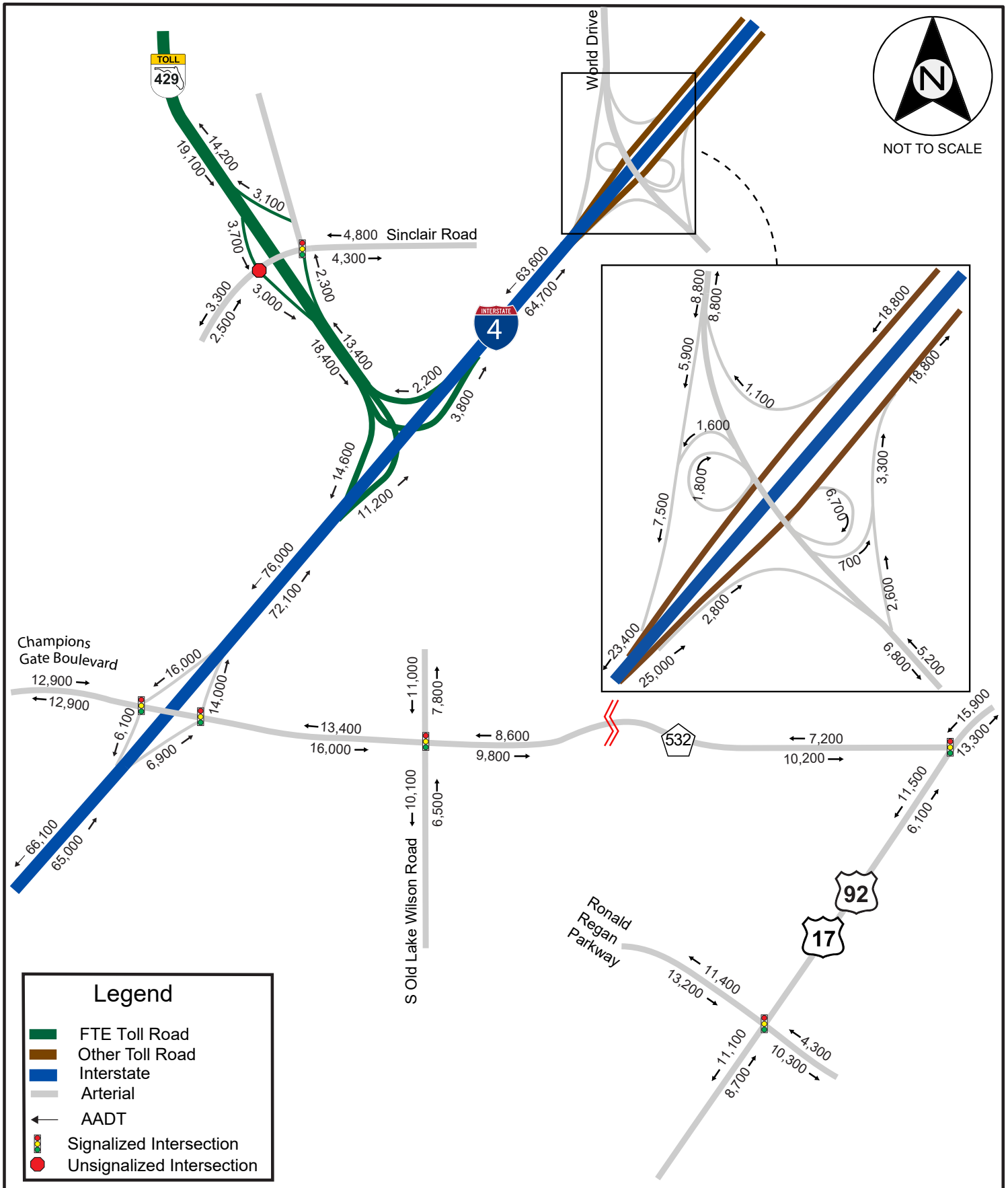
Table 4.1
2020 Annual Average Daily Traffic (AADT)

Location	SR 429	Southbound	Northbound	Total
		19,100	**14,200**	**33,300**
Sinclair Road		3,700	3,100	6,800
		3,000	2,300	5,300
		18,400	**13,400**	**31,800**
I-4 To/From I-4 West		14,600	11,200	25,800
I-4 To/From I-4 East		3,800	2,200	6,000

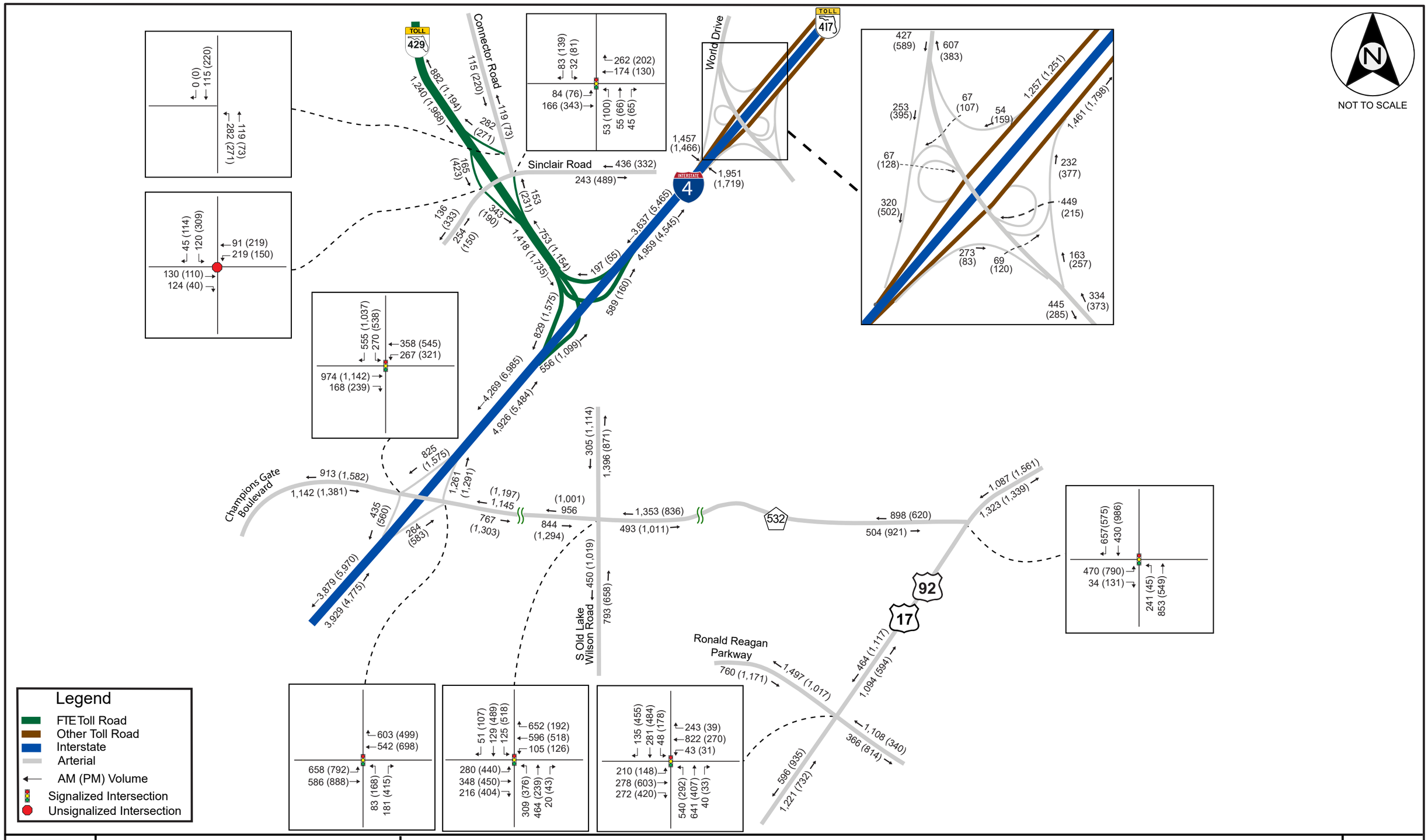
Location	I-4	Eastbound	Westbound	Total
		39,700	**40,200**	**79,900**
World Drive		25,000	23,400	48,400
		64,700	**63,600**	**128,300**
SR 429		3,800	2,200	6,000
		11,200	14,600	25,800
		72,100	**76,000**	**148,100**
CR 532		14,000	16,000	30,000
		6,900	6,100	13,000
		65,000	**66,100**	**131,100**

X,XXX = Mainline volume X,XXX = Ramp volume Legend — Ramp Toll Plaza

Field visits were conducted to collect information on existing lane geometry, storage lengths, and traffic signal timing related data. The signal timing plans for signalized intersections were obtained from Osceola and Polk Counties.



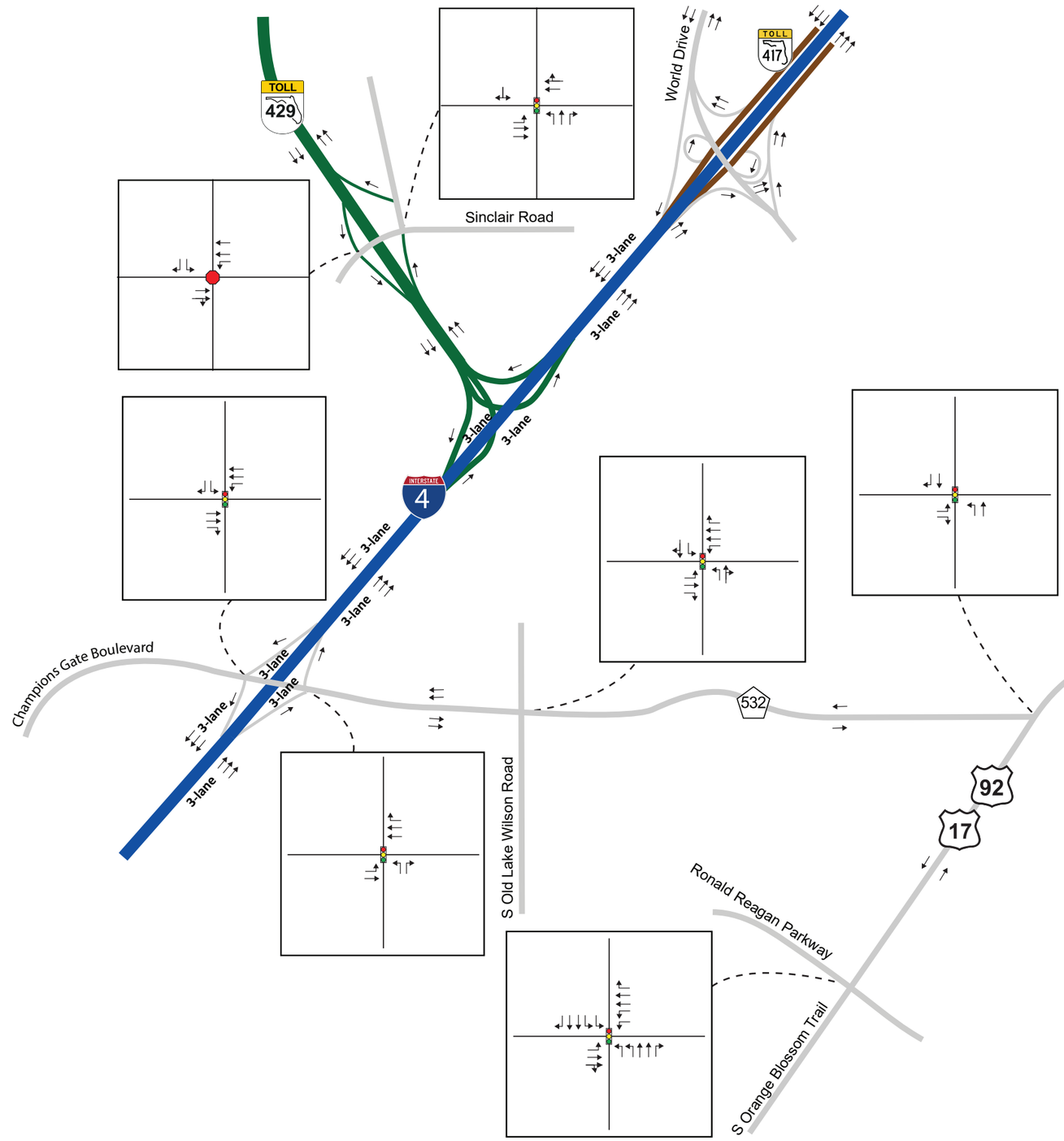
FLORIDA'S TURNPIKE	**Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)**	**2020 Existing One-Way AADTs**	**Figure 4.1**



Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2020 Existing Peak Hour Volumes

Figure 4.2



N

NOT TO SCALE

FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2020 Existing Lane Geometry

Figure 4.3

4.2 EXISTING OPERATIONAL PERFORMANCE

This section provides a summary of traffic performance results for existing conditions. LOS was used as a primary MOE. The LOS target for state roads during peak travel hours is LOS D in urbanized areas, per the State Highway System Policy No. 000-525-006c, effective April 19, 2017. However, the overall objective is to deliver enhancements that provide an improved LOS in consideration of both project and corridor constraints.

4.2.1 Intersection Analysis

Signalized intersections were analyzed using Synchro Version 11 and unsignalized intersections using HCS Version 7.9. The analysis output summary is presented in **Table 4.2**. For the unsignalized intersection, output is reported for the worst movement. Several intersections within the AOI are operating at LOS E or F in one or both of the AM and PM peak hours. These intersections include:

- SR 429 Southbound Ramps at Sinclair Road (Unsignalized)
- I-4 Westbound Ramps at CR 532
- CR 532 at Old Lake Wilson Road
- CR 532 at US 17/92
- US 17/92 at Ronald Reagan Parkway

Table 4.2
2020 AM and PM Existing Peak Hour Intersection Level of Service

Arterial	Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	AM Movement/Approach LOS (Delay)												Intersection
				Eastbound			Westbound			Northbound			Southbound			AM LOS (Delay)
				Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road	SR 429 Northbound Ramp Terminal	Volume		84	166			174	262	53	55	45	32		83	A (7.5)
		LOS (Delay)	Movement	B (12.1)	A (9.6)			A (4.9)		A (9.5)	A (9.3)	A (3.7)		B (11.1)		
			Approach	B (10.4)			A (4.9)			A (7.7)			B (11.1)			
		Queue Length 95th (ft)	Movement	47	35			47		23	24	13		44		
	SR 429 Southbound Ramp Terminal*	Volume			130	124	219	91					120		45	C (18.9)
		LOS (Delay)	Movement		-		A (8.4)						C 18.9)		A (8.8)	
			Approach	-			A (6.0)						C (16.1)			
		Queue Length 95th (ft)	*Movement*		-		25						50		25	
	SR 429 Northbound Ramp and Connector Road*	Volume								282	119			115		A (6.2)
		LOS (Delay)	Movement							A (8.1)				-		
			Approach							A (6.2)			-			
		Queue Length 95th (ft)	Movement							25				-		
CR 532	I-4 Westbound Ramps	Volume			974	168	267	358					270		555	C (32.6)
		LOS (Delay)	Movement		D (46.8)	A (0.2)	C (24.6)	B (14.0)					F (99.8)		A (0.8)	
			Approach	D (40.0)			B (18.5)						C (33.2)			
		Queue Length 95th (ft)	Movement		641	0	100	66					#531		0	
	I-4 Eastbound Ramps	Volume		658	586			542	603	83		181				D (37.0)
		LOS (Delay)	Movement	C (20.0)	A (4.1)			E (71.2)	E (66.2)	D (49.0)		A (0.2)				
			Approach	B (12.5)			E (68.6)			B (15.4)						
		Queue Length 95th (ft)	*Movement*	*263*	*192*			*433*	*#765*	*133*		*0*				
	Lake Wilson Road	Volume		230	348	266	105	596	452	309	464	20	125	129	51	E (55.5)
		LOS (Delay)	Movement	F (91.8)	E (62.0)	C (25.5)	F (99.6)	E (71.2)	B (14.5)	D (38.7)	E (71.4)		D (41.1)	E (62.3)		
			Approach	E (58.6)			D (51.6)			E (58.7)			D (53.6)			
		Queue Length 95th (ft)	*Movement*	#572	625	257	237	521	208	*383*	*835*		153	307		
	US 17/92	Volume		470		34				241	853			430	657	C (30.3)
		LOS (Delay)	Movement	D (51.9)		A (7.9)				C (29.1)	D (45.6)			B (19.2)	A (3.8)	
			Approach	D (48.9)						D (42.0)			A (9.9)			
		Queue Length 95th (ft)	Movement	#483		22				*242*	#908			301		
US 17/92	Ronald Reagan Parkway	Volume		210	278	272	43	822	243	540	641	40	48	281	135	E (66.2)
		LOS (Delay)	Movement	F (108.6)	C (23.0)		D (54.3)	E (62.7)	A (6.9)	F (188.6)	D (42.2)	A (0.3)	D (54.3)	D (43.1)	A (5.4)	
			Approach	D (46.7)			D (50.1)			F (105.5)			C (33.3)			
		Queue Length 95th (ft)	*Movement*	*#355*	*207*		*37*	*#517*	*67*	*#424*	*312*	*0*	*41*	*143*	*33*	

Arterial	Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	PM Movement/Approach LOS (Delay)												Intersection
				Eastbound			Westbound			Northbound			Southbound			PM LOS (Delay)
				Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road	SR 429 Northbound Ramp Terminal	Volume		76	343			130	202	100	66	65	81		0	B (13.1)
		LOS (Delay)	Movement	B (18.2)	B (15.7)			A (7.4)		A (8.3)	A (7.4)	A (2.6)		C (22.9)		
			Approach	B (16.2)			A (7.4)			A (6.4)			C (22.9)			
		Queue Length 95th (ft)	Movement	*51*	*91*			*48*		*37*	*27*	*14*		*108*		
	SR 429 Southbound Ramp Terminal*	Volume			110	40	150	219					309		114	C (18.9)
		LOS (Delay)	Movement		-		A (7.9)						E (37.0)		A (9.6)	
			Approach	-			A (3.2)						D (29.6)			
		Queue Length 95th (ft)	*Movement*		-		25						175		25	
	SR 429 Northbound Ramp and Connector Road*	Volume								271	73			220		A (6.2)
		LOS (Delay)	Movement							A (8.5)				-		
			Approach							A (7.1)			-			
		Queue Length 95th (ft)	Movement							25				-		
CR 532	I-4 Westbound Ramps	Volume			1142	239	321	545					538		1037	E (56.6)
		LOS (Delay)	Movement		E (57.1)	A (0.2)	D (41.2)	C (26.2)					F (224.1)		A (3.0)	
			Approach	D (47.3)			C (31.7)						E (78.5)			
		Queue Length 95th (ft)	Movement		*858*	*0*	*m201*	*m95*					*#1270*		*0*	
	I-4 Eastbound Ramps	Volume		792	888			698	499	168		415				D (47.1)
		LOS (Delay)	Movement	C (21.3)	A (7.5)			F (112.9)	E (57.7)	F (188.5)		A (0.5)				
			Approach	B (14.0)			F (89.9)			D (54.7)						
		Queue Length 95th (ft)	Movement	*m453*	*m338*			*#692*	*#605*	*#464*		*0*				
	Lake Wilson Road	Volume		290	500	404	126	518	192	376	239	43	418	489	107	F (115.2)
		LOS (Delay)	Movement	F (273.5)	F (157.0)	E (64.7)	F (141.6)	F (92.1)	A (9.4)	F (140.0)	E (66.5)		D (46.2)	F (141.9)		
			Approach	F (154.0)			F (80.6)			F (108.5)			F (102.5)			
		Queue Length 95th (ft)	Movement	*#928*	*#1303*	*614*	*311*	*510*	*81*	*#956*	*532*		*570*	*#1494*		
	US 17/92	Volume		746		125				45	549			986	575	F (84.1)
		LOS (Delay)	Movement	F (167.8)		B (13.6)				F (83.9)	C (24.7)			F (109.7)	A (3.6)	
			Approach	F (145.6)						C (29.2)			E (70.6)			
		Queue Length 95th (ft)	Movement	*#942*		*75*				*#101*	*417*			*#1124*	*56*	
US 17/92	Ronald Reagan Parkway	Volume		148	603	420	31	270	39	292	407	33	178	480	453	D (44.7)
		LOS (Delay)	Movement	E (57.8)	E (61.1)		D (50.5)	D (41.4)	A (0.5)	D (35.6)	D (35.6)	D (50.8)	D (49.3)	D (41.1)	B (18.3)	
			Approach	E (60.7)			D (37.5)			D (40.0)			C (33.1)			
		Queue Length 95th (ft)	Movement	*#215*	*#625*		*29*	*143*	*0*	*166*	*191*	*166*	*106*	*226*	*195*	

Synchro Version 11 Build 168. *HCM6 output used for unsignalized intersections due to limitations in Synchro.
- Not Applied
* Unsignalized. Level of Service/Delay reported for worst movement

LOS notes:
Delay is in sec/veh units
:Level Of Service (LOS) E reflecting at capacity operations
:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:
~: Volume exceeds capacity, queue is theoretically infinite
#: 95th percentile volume exceeds capacity
m: Upstream metering is in effect

4.2.2 Microsimulation Evaluation

This section provides a summary of the traffic performance results for existing conditions in 2020. The development and calibration documentation for the Vissim model used in the existing conditions analysis are provided in Appendix D. The Vissim model was developed and calibrated for the entire AOI as depicted in **Figure 1.4**. Vissim calibration was performed along I-4 referring using the latest approved I-4 at CR 532/SR 429 Systems Interchange Modification Report (SIMR), dated May 2020. This document prepared for FDOT District 5 was approved by all local, state, and federal stakeholders, including FHWA and FDOT Central Office. Vissim models were constructed and calibrated to 2018 AM and PM peak hour conditions and Vissim modeled speeds and travel times along I-4 were evaluated and compared against the speeds used in the approved I-4 at CR 532/SR 429 SIMR. The model was produced to include AM and PM peak periods, with four hours of simulation and a 30-minute seeding time. The model was calibrated based on traffic volumes, travel time, speed, and observed queues at selected critical locations to ensure an accurate representation of the field conditions. The calibration documentation includes information on the 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 AM and PM peak periods. The microsimulation analysis results were based on the average of 10 random seed runs to account for the stochasticity of the microsimulation model.

The model was calibrated using speed data obtained from HERE data speeds (HERE Global B.V. is a company that provides mapping and location data) along I-4 used in the approved I-4 at CR 532/SR 429 SIMR for the AM and PM peak hours within the project area. For other facilities, the model was calibrated using speed data obtained from HERE for the AM and PM peak hours in year 2020. **Figures 4.4** and **4.5** demonstrates that the Vissim model closely matched the field-collected speed during both the AM and PM peak hours, meeting the calibration criteria.

Also, **Figures 4.6** and **4.7** show the comparison of Vissim simulated speeds versus field speeds during the AM and PM peak periods of four hours each derived from HERE data and speeds documented in the I-4 at CR 532/ SR 429 SIMR. As displayed in **Figures 4.6** and **4.7**, the Vissim model speeds closely matched the field collected speeds during the AM and PM peak periods.

Figure 4.4
Speed Calibration during AM Peak Hour

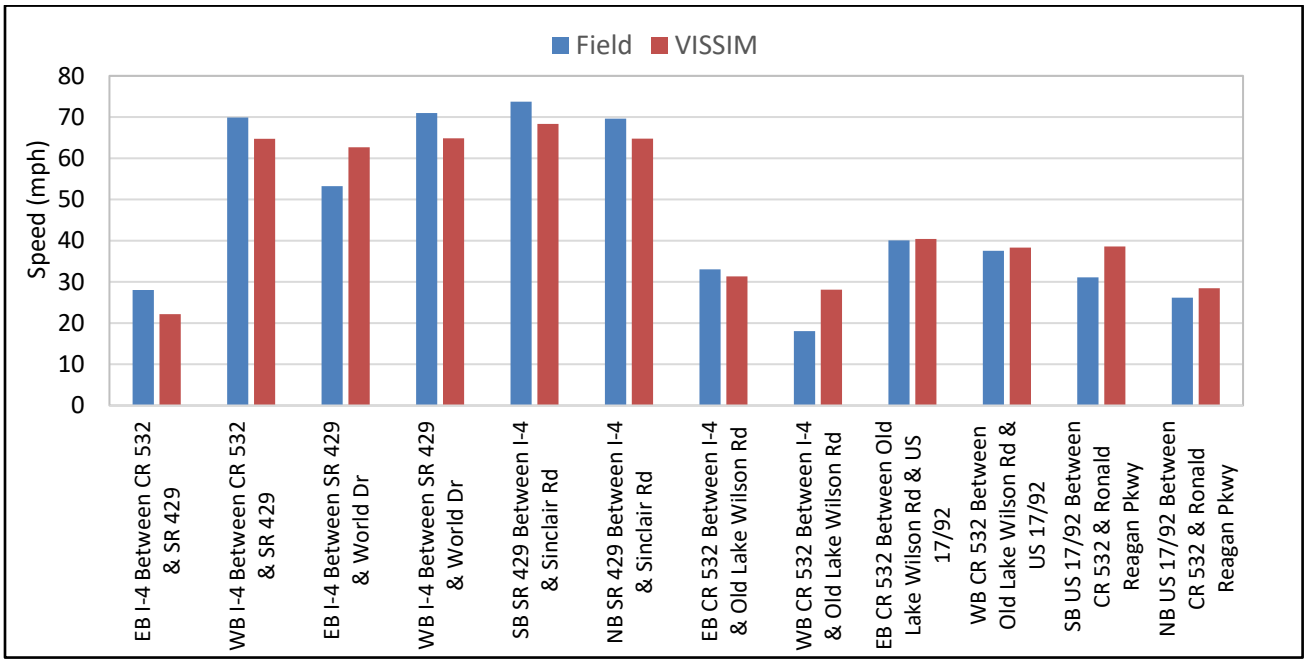


Figure 4.5
Speed Calibration during PM Peak Hour

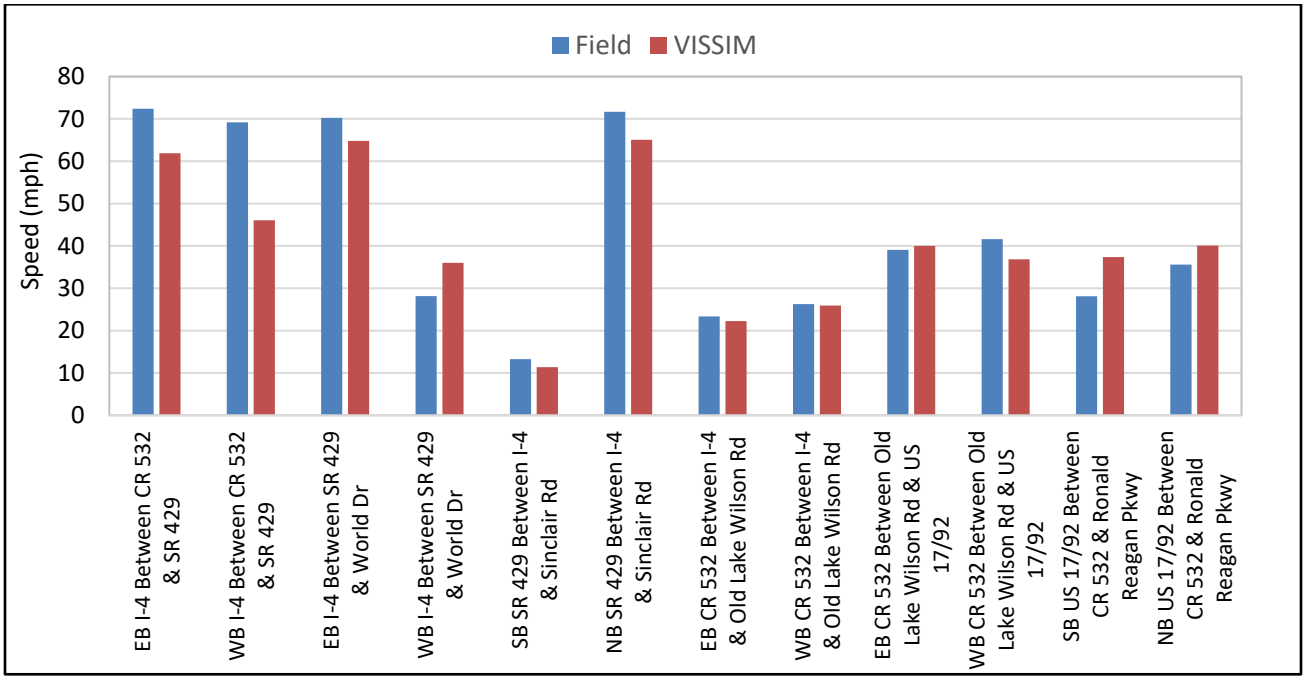


Figure 4.6
Speed Comparison during AM Peak Period

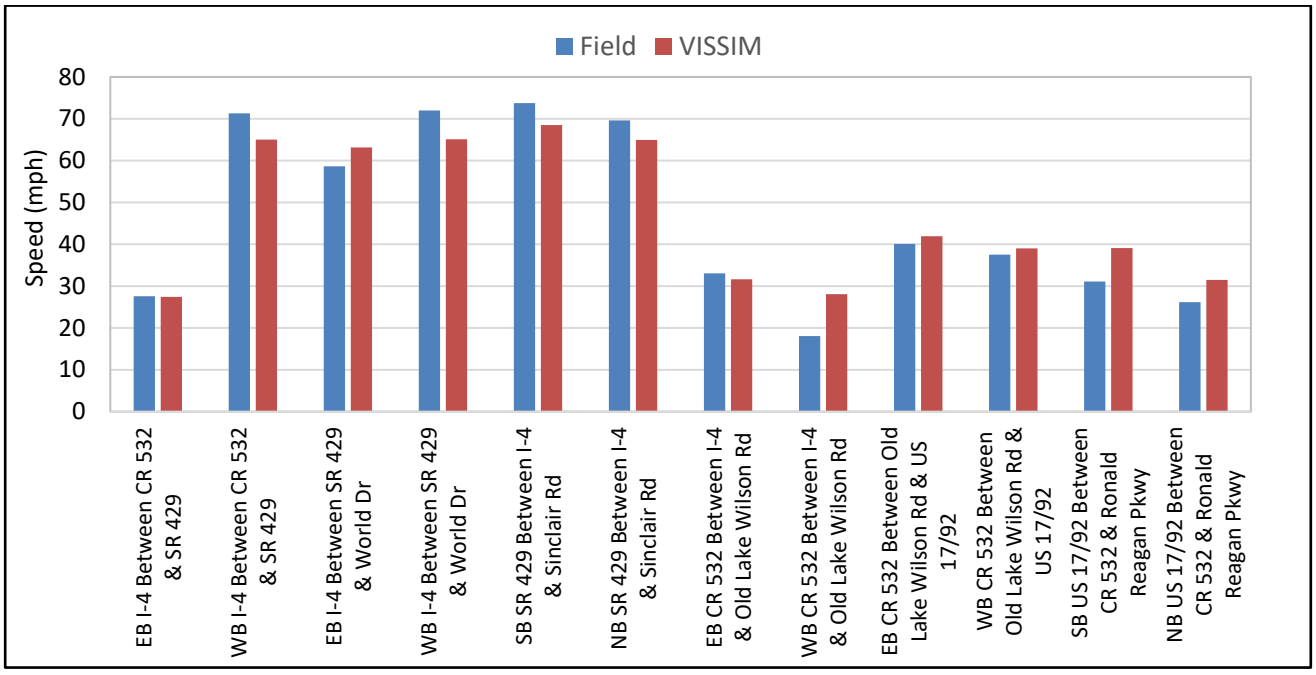
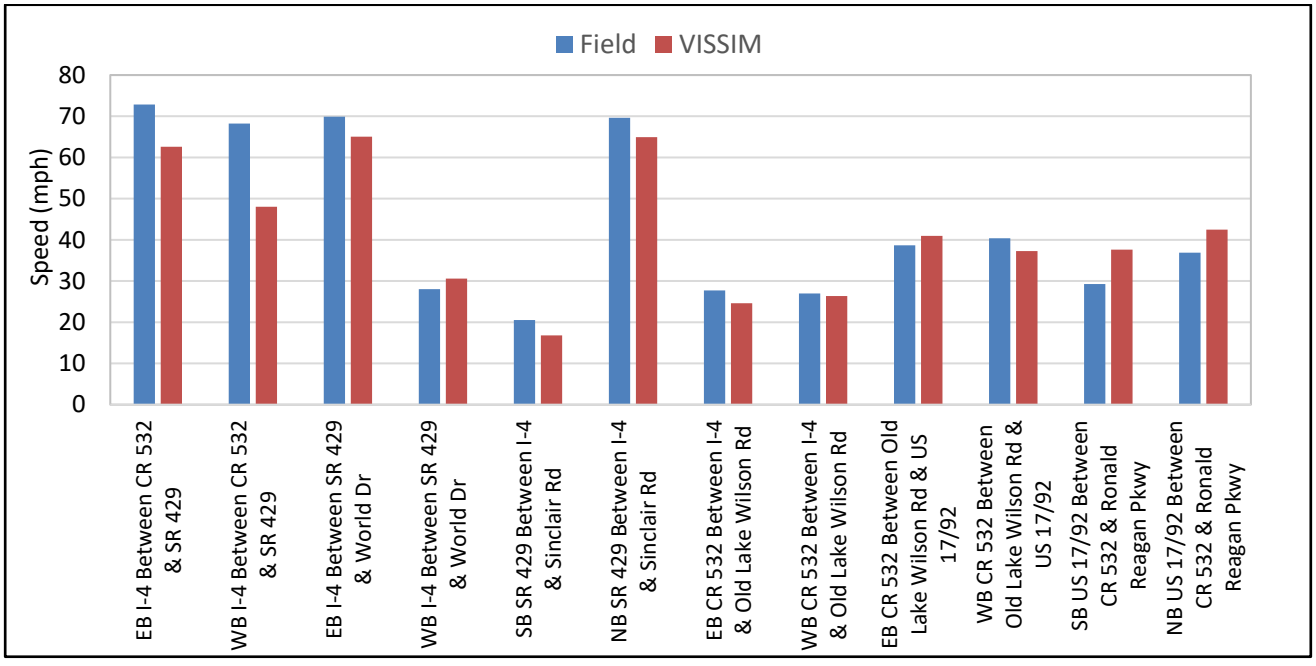


Figure 4.7
Speed Comparison during PM Peak Period



Freeway Segment Analysis

Tables 4.3 and **4.4** highlight the MOEs for the peak hour of the Vissim calibrated models of the I-4 and SR 429 mainline segments in 2020. The calibration documentation in **Appendix C** provides outputs for each of the four hours during the AM and PM peak periods. **Table 4.3** indicates that the I-4 eastbound segments were experiencing congestion located west of the SR 429 interchange during AM peak hour. In **Table 4.4,** the PM peak hour speeds for the SR 429 southbound weaving section from Sinclair Road on-ramp to the I-4 off-ramp and the I-4 westbound segment from the World Drive on-ramp to downstream of the CR 532 on-ramp were 34 mph and 45 mph on average, respectively. These microsimulation-based speeds aligned with field-measured speeds. During the PM peak hour, there is severe traffic congestion at the system-to-system interchange of I-4 and SR 429, with significant interaction between these two facilities. The MOE tables also demonstrate that most of the existing demand is met during the peak hours, with the unmet demand in the eastbound direction along I-4 during the AM peak hour as a result of interactions between I-4 and CR 532. During the PM peak hour, the unmet demand in the westbound direction along I-4 is caused by capacity constraints on I-4 between World Drive and CR 532.

All demand is served by the end of the four-hour simulation period.

Roadway Ramp Analysis

Tables 4.5 and **4.6** present the output data from Vissim for the ramp roadway section located immediately downstream of the mainline/ramp gore for off-ramps or upstream of the mainline/ramp gore for on-ramps. The results indicate that the unmet demand was observed on the CR 532, SR 429, and World Drive on and off ramps in the I-4 eastbound. During the PM peak hour, unmet demand was observed at the SR 429 on- and off-ramps and the CR 532 off-ramp in the I-4 westbound direction of I-4. Additionally, unmet demand was also noted at the on-ramp from SR 429 and World Drive in the eastbound direction of I-4.

All demand is served by the end of the four-hour simulation period.

Intersection Analysis

The signalized intersections were further analyzed in Vissim to assess operations at a detailed level. The 2020 intersection Vissim output is presented in **Tables 4.7** and **4.8**. The results indicates that long delays in the AM at the CR 532 at Old Lake Wilson Road and US 17/92 at Ronald Reagan Parkway. The intersections of CR 532 at Old Lake Wilson Road, US 17/92 at Ronald Reagan Parkway and CR 532 at I-4 westbound ramp terminal experience long delays in the PM peak hour.

Table 4.3
2020 AM Existing Peak Hour Vissim Freeway Segment Performance

	Segment	Segment Type	Lanes	Demand	Processed	% Served	Speed	Density pc/mi/ln	Estimated LOS
SR 429 SB	North of Sinclair Road off-ramp	Basic	2	1,240	1,239	100%	71	9	A
	Sinclair Road off-ramp	Diverge	2	1,240	1,232	99%	71	9	A
	Between Sinclair Road off-ramp and Sinclair Road on-ramp	Basic	2	1,075	1,071	100%	71	8	A
	Sinclair Road on-ramp to I-4 EB/WB off-ramps	Weave	2	1,418	1,398	99%	69	10	A
I-4 WB	East of World Drive on-ramp	Basic	3	2,180	2,175	100%	66	11	B
	World Drive on-ramp	Merge	3	3,637	3,628	100%	64	17	B
	World Drive on-ramp to SR 429 NB off-ramp	Basic	3	3,637	3,620	100%	65	19	C
	SR 429 NB off-ramp	Diverge	3	3,637	3,617	99%	65	16	B
	SR 429 NB off-ramp to SR 429 SB on-ramp	Basic	3	3,440	3,421	99%	66	18	C
	SR 429 SB on-ramp	Merge	3	4,269	4,256	100%	64	20	B
	SR 429 SB on-ramp to CR 532 off-ramp	Basic	3	4,269	4,243	99%	65	23	C
	CR 532 off-ramp	Diverge	3	4,269	4,253	100%	60	24	C
	Between CR 532 off-ramp and CR 532 on-ramp	Basic	3	3,445	3,428	100%	66	18	C
	CR 532 on-ramp	Merge	3	3,880	3,852	99%	63	20	B
	West of CR 532 on-ramp	Basic	3	3,880	3,850	99%	65	21	C
SR 429 NB	EB/WB on-ramps to Sinclair Road off-ramp	Weave	2	753	727	96%	68	6	A
	Between Sinclair Road off-ramp and Sinclair Road on-ramp	Basic	2	600	577	96%	72	4	A
	Sinclair Road on-ramp	Merge	3	882	848	96%	69	5	A
	North of Sinclair Road on-ramp	Basic	2	882	849	96%	71	6	A
I-4 EB	West of CR 532 off-ramp	Basic	3	3,930	3,920	100%	65	21	C
	CR 532 off-ramp	Diverge	3	3,930	3,906	99%	42	33	D
	Between CR 532 off-ramp and CR 532 on-ramp	Basic	3	3,665	3,591	98%	41	40	E
	CR 532 on-ramp	Merge	3	4,926	4,644	94%	27	64	F
	CR 532 on-ramp to SR 429 NB off-ramp	Basic	3	4,926	4,634	94%	21	78	F
	SR 429 NB off-ramp	Diverge	3	4,926	4,610	94%	22	63	F
	SR 429 NB off-ramp to SR 429 SB on-ramp	Basic	3	4,370	4,083	93%	61	23	C
	SR 429 SB on-ramp	Merge	3	4,959	4,658	94%	63	22	C
	SR 429 SB on-ramp to World Drive off-ramp	Basic	3	4,959	4,662	94%	62	25	C
	World Drive off-ramp	Diverge	4	4,959	4,666	94%	65	19	B
	East of World Drive off-ramp	Basic	3	3,008	2,833	94%	66	15	B

Brown color: Congested segment

Table 4.4
2020 PM Existing Peak Hour Vissim Freeway Segment Performance

	Segment	Segment Type	Lanes	Demand	Processed	% Served	Speed	Density pc/mi/ln	Estimated LOS
SR 429 SB	North of Sinclair Road off-ramp	Basic	2	1,968	1,966	100%	71	15	B
	Sinclair Road off-ramp	Diverge	2	1,968	1,947	99%	68	15	B
	Between Sinclair Road off-ramp and Sinclair Road on-ramp	Basic	2	1,545	1,511	98%	55	21	C
	Sinclair Road on-ramp to I-4 EB/WB off-ramps	Weave	2	1,735	1,606	93%	34	65	F
I-4 WB	East of World Drive on-ramp	Basic	3	3,999	3,981	100%	61	23	C
	World Drive on-ramp	Merge	3	5,465	5,311	97%	44	46	F
	World Drive on-ramp to SR 429 NB off-ramp	Basic	3	5,465	5,206	95%	42	49	F
	SR 429 NB off-ramp	Diverge	3	5,465	5,143	94%	40	45	E
	SR 429 NB off-ramp to SR 429 SB on-ramp	Basic	3	5,410	5,041	93%	30	74	F
	SR 429 SB on-ramp	Merge	3	6,985	6,173	88%	31	69	F
	SR 429 SB on-ramp to CR 532 off-ramp	Basic	3	6,985	6,140	88%	59	37	E
	CR 532 off-ramp	Diverge	3	6,985	6,155	88%	48	45	F
	Between CR 532 off-ramp and CR 532 on-ramp	Basic	3	5,410	4,758	88%	61	27	D
	CR 532 on-ramp	Merge	3	5,970	5,292	89%	53	32	D
	West of CR 532 on-ramp	Basic	3	5,970	5,303	89%	63	29	D
SR 429 NB	EB/WB on-ramps to Sinclair Road off-ramp	Weave	2	1,154	1,127	98%	68	9	A
	Between Sinclair Road off-ramp and Sinclair Road on-ramp	Basic	2	923	907	98%	72	7	A
	Sinclair Road on-ramp	Merge	3	1,194	1,166	98%	70	7	A
	North of Sinclair Road on-ramp	Basic	2	1,194	1,170	98%	71	9	A
I-4 EB	West of CR 532 off-ramp	Basic	3	4,775	4,696	98%	59	31	D
	CR 532 off-ramp	Diverge	3	4,775	4,620	97%	50	41	E
	Between CR 532 off-ramp and CR 532 on-ramp	Basic	3	4,192	4,041	96%	63	22	C
	CR 532 on-ramp	Merge	3	5,484	5,254	96%	59	29	D
	CR 532 on-ramp to SR 429 NB off-ramp	Basic	3	5,484	5,280	96%	65	28	D
	SR 429 NB off-ramp	Diverge	3	5,484	5,279	96%	62	26	C
	SR 429 NB off-ramp to SR 429 SB on-ramp	Basic	3	4,385	4,202	96%	65	22	C
	SR 429 SB on-ramp	Merge	3	4,545	4,326	95%	64	20	C
	SR 429 SB on-ramp to World Drive off-ramp	Basic	3	4,545	4,324	95%	65	22	C
	World Drive off-ramp	Diverge	4	4,545	4,324	95%	65	17	B
	East of World Drive off-ramp	Basic	3	2,825	2,704	96%	65	14	B

Highlighted: unmet demand > 5%

Table 4.5
2020 AM Existing Peak Hour Vissim Ramp Roadway Performance

	Segment	Lanes	Demand	Processed	% Served	Speed	Density	Estimated
SR 429 SB	Sinclair Road off-ramp	1	165	167	101%	55	3	A
	Sinclair Road on-ramp	1	343	346	101%	52	7	A
I-4 WB	World Drive/I-4 C-D road on-ramp	1	1,457	1,451	100%	52	29	D
	SR 429 NB off-ramp	1	197	200	101%	66	3	A
	SR 429 SB on-ramp	1	829	823	99%	65	13	B
	CR 532 off-ramp	1	825	818	99%	49	18	B
	CR 532 on-ramp	1	435	422	97%	44	10	B
	I-4 C-D road east of World Drive NB off-ramp	4	1,257	1,256	100%	56	6	A
	World Drive NB off-ramp from I-4 C-D road	2	54	56	104%	47	1	A
	I-4 C-D road between World Drive NB off-ramp and World Drive SB off-ramp	2	1,203	1,200	100%	54	10	A
	I World Drive SB off-ramp from I-4 C-D road	1	67	65	97%	30	2	A
	I-4 C-D road between World Drive SB off-ramp and World Drive NB/SB on-ramp	1	1,136	1,130	99%	53	18	B
	World Drive NB/SB on-ramp from I-4 C-D road	1	321	321	100%	45	7	A
SR 429 NB	Sinclair Road off-ramp	1	153	147	96%	43	4	A
	Sinclair Road on-ramp	1	282	270	96%	46	6	A
I-4 EB	CR 532 off-ramp	1	264	269	102%	50	6	A
	CR 532 on-ramp	1	1,261	1,193	95%	32	54	F
	SR 429 NB off-ramp	1	556	527	95%	55	10	B
	SR 429 SB on-ramp	1	589	589	100%	53	12	B
	World Drive/I-4 C-D road off-ramp	2	1,951	1,832	94%	53	18	B
	World Drive SB off-ramp from I-4 C-D road	1	270	257	95%	32	8	A
	I-4 C-D road between World Drive SB off-ramp and World Drive NB off-ramp	2	1,680	1,583	94%	51	14	B
	World Drive NB off-ramp from I-4 C-D road	1	500	479	96%	26	19	B
	I-4 C-D road between World Drive NB off-ramp and World Drive NB/SB on-ramp	2	1,180	1,104	94%	56	10	B
	World Drive NB/SB on-ramp to I-4 C-D road	2	230	230	100%	42	3	A
	I-4 C-D road east of World Drive NB/SB on-ramp	4	1,410	1,333	95%	56	6	A

Brown color: Congested segment

Table 4.6
2020 PM Existing Peak Hour Vissim Ramp Roadway Performance

Segment		Lanes	Demand	Processed	% Served	Speed	Density pc/mi/ln	Estimated LOS
SR 429 SB	Sinclair Road off-ramp	1	423	422	100%	54	8	A
	Sinclair Road on-ramp	1	190	189	99%	52	4	A
I-4 WB	World Drive/I-4 C-D road on-ramp	1	1,466	1,425	97%	43	38	E
	SR 429 NB off-ramp	1	55	50	91%	67	1	A
	SR 429 SB on-ramp	1	1,575	1,299	82%	20	79	F
	CR 532 off-ramp	1	1,575	1,388	88%	38	43	E
	CR 532 on-ramp	1	560	531	95%	36	18	B
	I-4 C-D road east of World Drive NB off-ramp	4	1,251	1,249	100%	56	6	A
	World Drive NB off-ramp from I-4 C-D road	2	159	161	101%	47	2	A
	I-4 C-D road between World Drive NB off-ramp and World Drive SB off-ramp	2	1,092	1,088	100%	55	9	A
	I World Drive SB off-ramp from I-4 C-D road	1	128	130	102%	29	5	A
	I-4 C-D road between World Drive SB off-ramp and World Drive NB/SB on-ramp	1	964	952	99%	50	18	B
	World Drive NB/SB on-ramp from I-4 C-D road	1	502	502	100%	44	12	B
SR 429 NB	Sinclair Road off-ramp	1	231	215	93%	43	5	A
	Sinclair Road on-ramp	1	271	260	96%	46	6	A
I-4 EB	CR 532 off-ramp	1	582	562	97%	21	65	F
	CR 532 on-ramp	1	1,291	1,237	96%	52	25	C
	SR 429 NB off-ramp	1	1,099	1,076	98%	53	21	C
	SR 429 SB on-ramp	1	160	141	88%	54	3	A
	World Drive/I-4 C-D road off-ramp	2	1,719	1,616	94%	53	16	B
	World Drive SB off-ramp from I-4 C-D road	1	80	79	99%	33	3	A
	I-4 C-D road between World Drive SB off-ramp and World Drive NB off-ramp	2	1,640	1,542	94%	51	13	B
	World Drive NB off-ramp from I-4 C-D road	1	220	207	94%	27	8	A
	I-4 C-D road between World Drive NB off-ramp and World Drive NB/SB on-ramp	2	1,420	1,336	94%	56	13	B
	World Drive NB/SB on-ramp to I-4 C-D road	2	380	370	97%	42	5	A
	I-4 C-D road east of World Drive NB/SB on-ramp	4	1,800	1,709	95%	55	8	A

Highlighted: unmet demand > 5%

Table 4.7
2020 AM Existing Peak Hour Vissim Intersection Level of Service/Delay (s/veh)

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Sinclair Road and SR 429 Northbound off-ramp	A	A	-	-	A	A	**148/F**	**156/F**	**154/F**	43/D	-	13/B	29/C
Sinclair Road and SR 429 Southbound ramps	-	A	A	A	A	-	-	-	-	11/B	-	A	A
CR 532 and Old Lake Wilson Road	80/E	52/D	12/B	**104/F**	**88/F**	**88/F**	**271/F**	**275/F**	**274/F**	45/D	53/D	41/D	**118/F**
CR 532 and US 17/92	**83/F**	-	55/E	-	-	-	**158/F**	**141/F**	-	-	18/B	A	77/E
US 17/92 and Ronald Reagan Parkway	**90/F**	38/D	A	55/E	48/D	A	**304/F**	**176/F**	**137/F**	61/E	51/D	22/C	**103/F**
CR 532 and I-4 Eastbound ramps	39/D	A	-	-	78/E	52/D	**116/F**	-	23/C	-	-	-	43/D
CR 532 and I-4 Westbound ramps	-	46/D	A	15/B	A	-	-	-	-	**112/F**	-	21/C	36/D

Table 4.8
2020 PM Existing Peak Hour Vissim Intersection Level of Service/Delay (s/veh)

Intersection	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Sinclair Road and SR 429 Northbound off-ramp	A	A	-	-	A	A	41/D	40/D	33/C	**92/F**	-	65/E	24/C
Sinclair Road and SR 429 Southbound ramps	-	A	A	A	A	-	-	-	-	19/B	-	A	A
CR 532 and Old Lake Wilson Road	**135/F**	**112/F**	21/C	**103/F**	**87/F**	24/C	**84/F**	67/E	61/E	**522/F**	**533/F**	**521/F**	**192/F**
CR 532 and US 17/92	**85/F**	-	78/E	-	-	-	**105/F**	33/C	-	-	**114/F**	76/E	**83/F**
US 17/92 and Ronald Reagan Parkway	73/E	**100/F**	A	47/D	37/D	A	54/D	37/D	A	65/E	55/D	42/D	52/D
CR 532 and I-4 Eastbound ramps	39/D	A	-	-	**85/F**	31/C	**386/F**	-	**234/F**	-	-	-	75/E
CR 532 and I-4 Westbound ramps	-	**103/F**	A	58/E	A	-	-	-	-	**387/F**	-	**306/F**	**169/F**

Network-wide Statistics

Table 4.9 summarizes the Vissim Network-wide Vehicle Performance MOEs including processed demand percentages, total travel times, total delay times, average delays, and average speeds. The **Table 4.9** shows that the network can process the traffic demand during both AM and PM peak periods. However, congestion is more pronounced during the PM period compared to the AM.

Table 4.9
2020 Existing Network-wide Statistics

Performance Measures	Existing Conditions	
	AM	PM
Vehicle Network Performance Processed Demand	100%	100%
Total Travel Time (hour)	6,850	10,426
Total Delay Time (hour)	1,545	3,993
Average Delay (sec/veh)	85	192
Average Speed (mph)	47	39

Queue Length Analysis

Maximum queue derived from Vissim node evaluation were compared with available storages and results are summarized in **Table 4.10** for both AM and PM peak hours. As displayed in **Table 4.10**, during peak hours, maximum queues extend beyond available storages at multiple intersections especially during the PM peak hour. Detailed individual movement queues for all study intersections are summarized in **Appendix C.**

Table 4.10
Comparison of Existing Max Queue Lengths vs. Available Storage

Intersection	Approach	Movement	Number of Lanes	Available Storage (feet)	Max Queue (feet)	
					AM	PM
Sinclair Road at SR 429 Northbound Off-Ramp	Eastbound	Lt	1	230	66	80
		Thru	2	580	66	80
	Westbound	Thru/Rt	2	3,490	134	125
	Northbound	Lt	1	1,550	104	123
		Thru	1	1,075	104	123
		Rt	1	1,075	102	128
	Southbound	Lt/Thru/Rt	1	1,325	173	457
Sinclair Road at SR 429 Southbound Off-Ramp	Eastbound	Thru/Rt	2	1,120	0	0
	Westbound	Lt	1	250	67	62
		Thru	2	630	67	62
	Southbound	Lt	1	1,670	114	237
		Rt	1	290	99	246

Table 4.10 (continued)
Comparison of Existing Max Queue Lengths vs. Available Storage

Intersection	Approach	Movement	Number of Lanes	Available Storage (feet)	Max Queue (feet)	
					AM	PM
CR 532 at Lake Wilson Road	Eastbound	Lt	1	490	656	1,783
		Thru	1	4,040	656	1,783
		Rt	1	4,040	708	1,835
	Westbound	Lt	1	510	**522**	437
		Thru	2	5,370	522	437
		Rt	1	750	522	437
	Northbound	Lt	1	340	**3,516**	**1,222**
		Thru/Rt	1	5,280	3,548	1,222
	Southbound	Lt	1	310	298	**4,683**
		Thru/Rt	1	10,560	334	4,720
CR 532 at US17/92	Eastbound	Lt	1	250	**891**	**887**
		Rt	1	10,000	67	613
	Northbound	Lt	1	520	**4,702**	**752**
		Thru	1	9,210	4,702	752
	Southbound	Thru	1	10,560	337	3,155
		Rt	1	400	135	**2,943**
US 17/92 at Ronald Reagan Parkway	Eastbound	Lt	1	590	450	**1,551**
		Thru/Rt	2	2,020	472	1,573
	Westbound	Lt	2	390	**503**	171
		Thru	2	1,670	503	171
		Rt	1	660	503	171
	Northbound	Lt	2	440	**3,419**	217
		Thru	2	3,350	**3,419**	217
		Rt	1	440	**3,440**	238
	Southbound	Lt	2	410	194	349
		Thru	2	9,570	194	349
		Rt	1	550	229	384
CR 532 at I-4 Westbound Off-Ramp	Eastbound	Thru	2	340	**1,064**	**1,868**
		Rt	1	370	**795**	**1,599**
	Westbound	Lt	1	240	115	**241**
		Thru	2	645	115	241
	Southbound	Lt	1	1,950	934	**2,775**
		Rt	1	750	734	**2,574**
CR 532 at I-4 Eastbound Off-Ramp	Eastbound	Lt	1	700	580	568
		Thru	1	700	580	568
	Westbound	Thru	2	1,090	**1,107**	748
		Rt	1	430	**1,131**	**772**
	Northbound	Lt	1	1,600	248	**6,852**
		Rt	1	510	25	**6,575**

Bold: Queue exceed storage length

The maximum off-ramp approach queues derived from Vissim node evaluation were also compared with the off-ramp lengths for both AM and PM peak hours and comparative results are listed in **Table 4.11.** As displayed in **Table 4.11**, maximum queues at two ramp terminals of CR 532 at I-4 extend over the length of off-ramps. It is consistent with field observations that queues on both ramps extend beyond the off-ramp and spill over to the I-4 mainline.

Table 4.11
Off-Ramp Queue Summary at Interchanges

Movement	Off-Ramp Length (feet)	Simulation Max Queue (feet)	
		AM	PM
Sinclair Road at SR 429 Northbound Off-Ramp	1,550	104	128
Sinclair Road at SR 429 Southbound Off-Ramp	1,670	114	246
CR 532 at I-4 Westbound Off-Ramp	1,950	934	**2,775**
CR 532 at I-4 Eastbound Off-Ramp	1,600	248	**6,852**

Bold: Queue exceed storage length

Visual Observations

A comparison of modeled existing traffic conditions with the field observed congestion was performed to ensure proper operations of roadways within the study area.

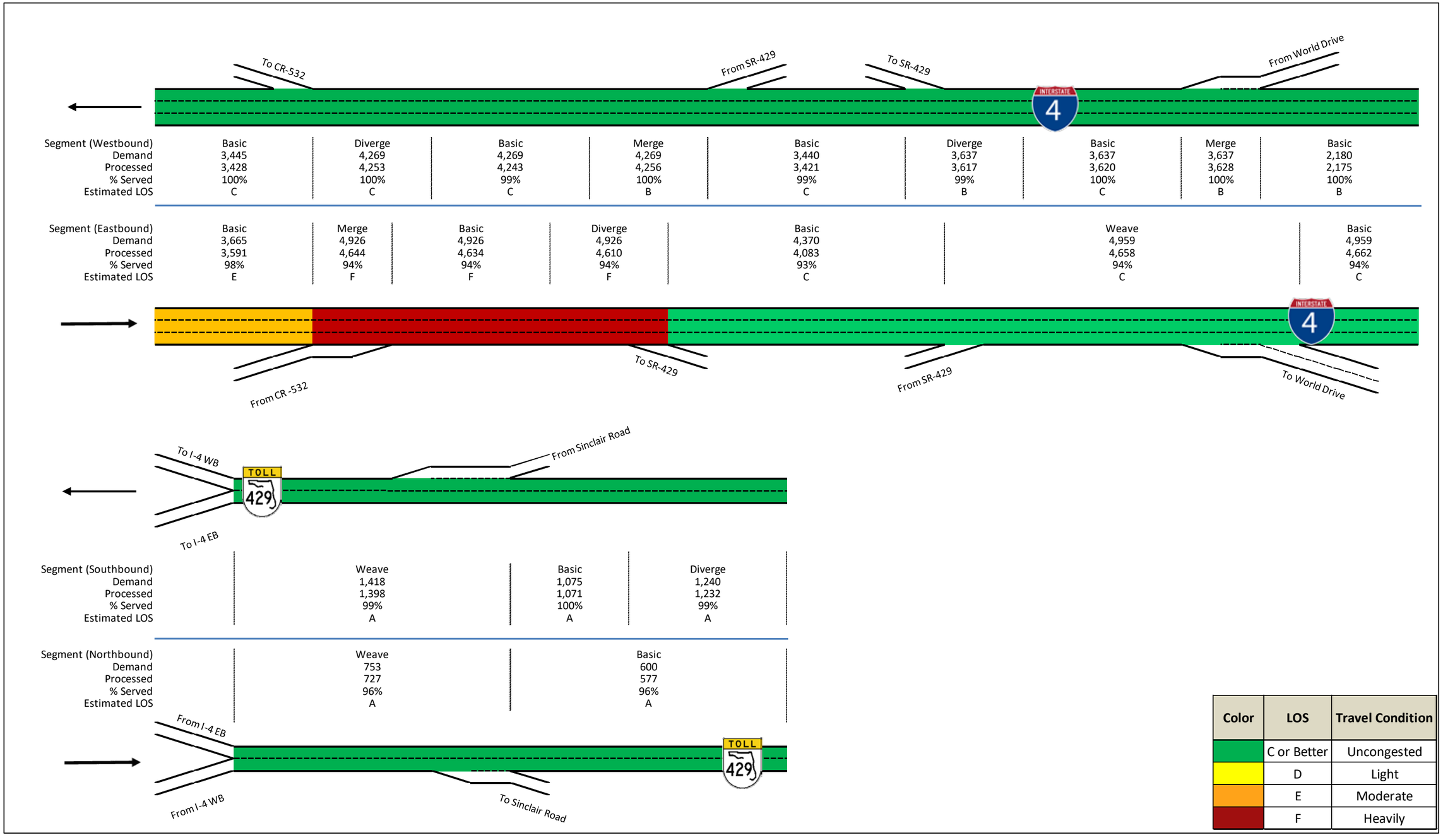
Visual representations of the existing traffic operations were created in **Figures 4.8** and **4.9** to highlight segment types, demand, processed volume, percent served, speed and estimated Level of Service (LOS) based on density. The results for each freeway and ramp segments can be found in **Tables 4.3** through **4.6** for both the AM and PM peak hours.

During the AM peak hour, as shown in **Figure 4.8**, the peak direction on I-4 is eastbound, and congestion is observed west of the SR 429 interchange. During the PM peak hour, as depicted in **Figure 4.9**, the peak direction on I-4 is westbound, and severe traffic congestion is observed in the vicinity of the interchange with SR 429. The merging of traffic from SR 429 southbound with I-4 westbound is failing due to lack of gaps and queues extend over to the SR 429 mainline.

Figure 4.10 illustrated the existing traffic conditions documented in the latest approved I-4 at CR 532/SR 429 SIMR, shows the traffic congestions along I-4. The Vissim visual representations depicted in **Figures 4.8** and **4.9** generally match the I-4 at CR 532/SR 429 SIMR.

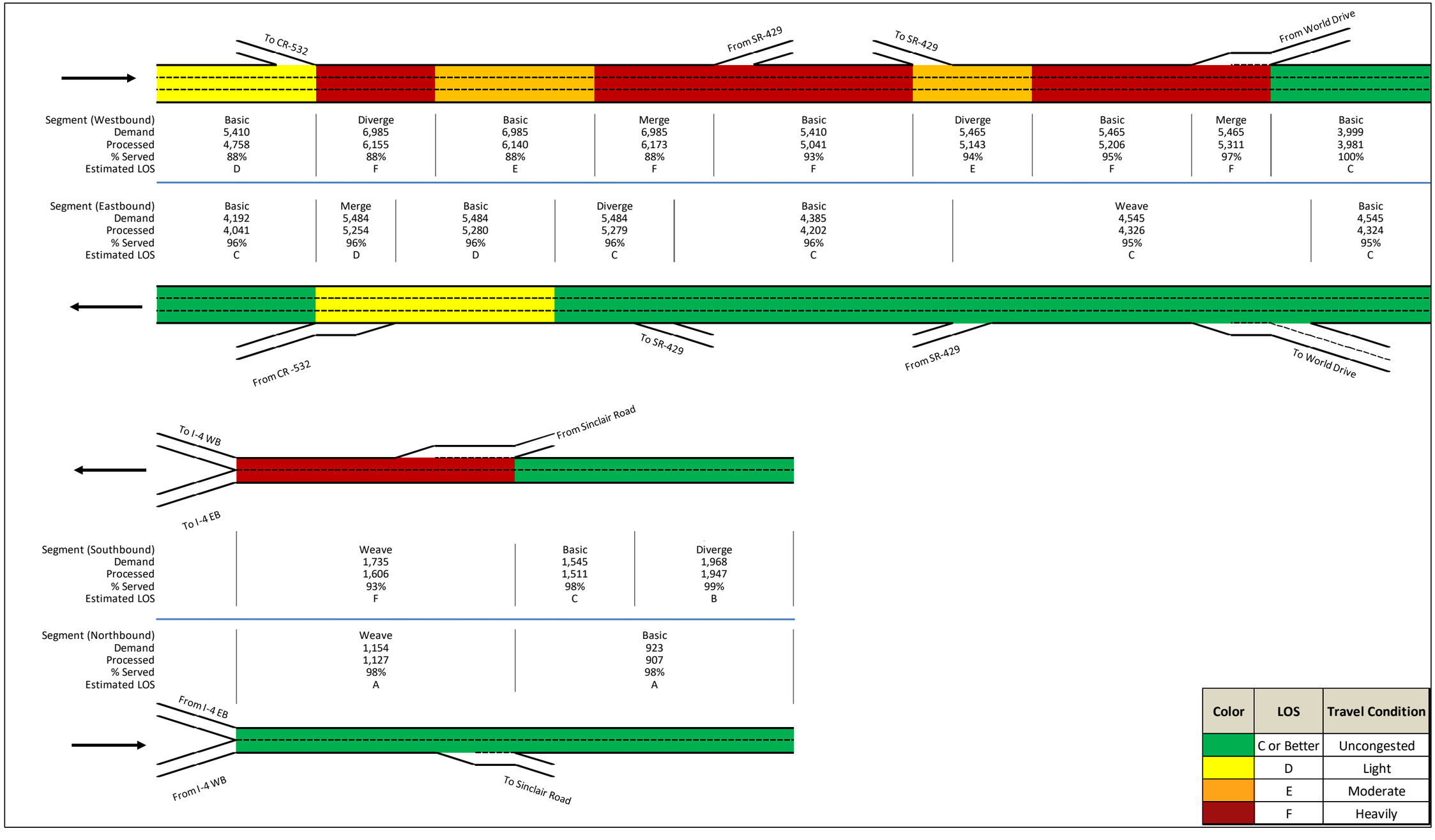
According to the observations of the Vissim simulations during the AM peak period, congestion continues to deteriorate during the post peak hour (3rd) along I-4 eastbound and congestion has dissipated during the fourth hour. During the PM peak period, congestion along I-4 westbound continues to deteriorate during the post peak hour(3rd) and starts to decrease before the end of the analysis period.

Figure 4.8
Lane Line Schematic Diagram during AM Peak Hour



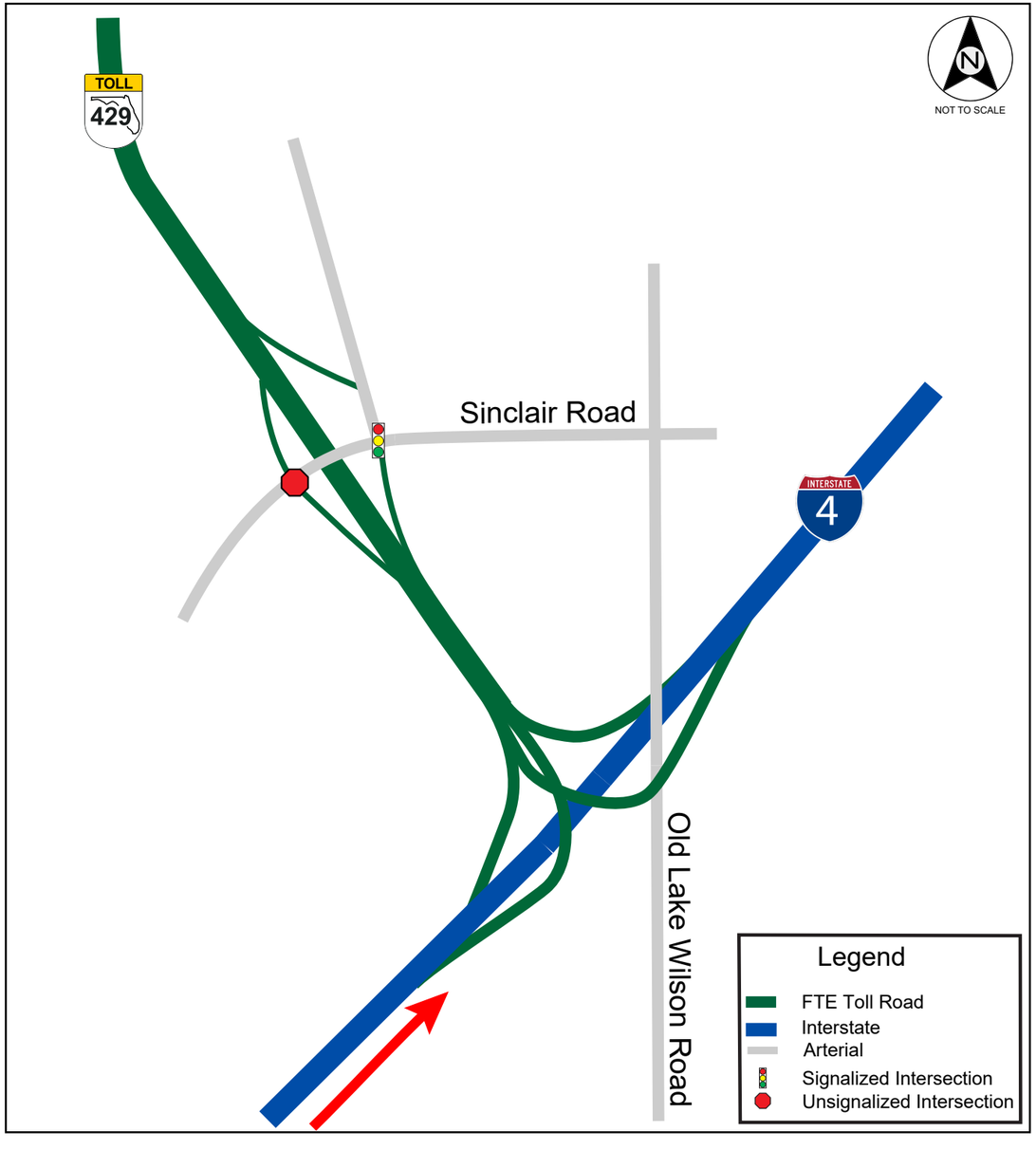
Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 4.9
Lane Line Schematic Diagram during PM Peak Hour

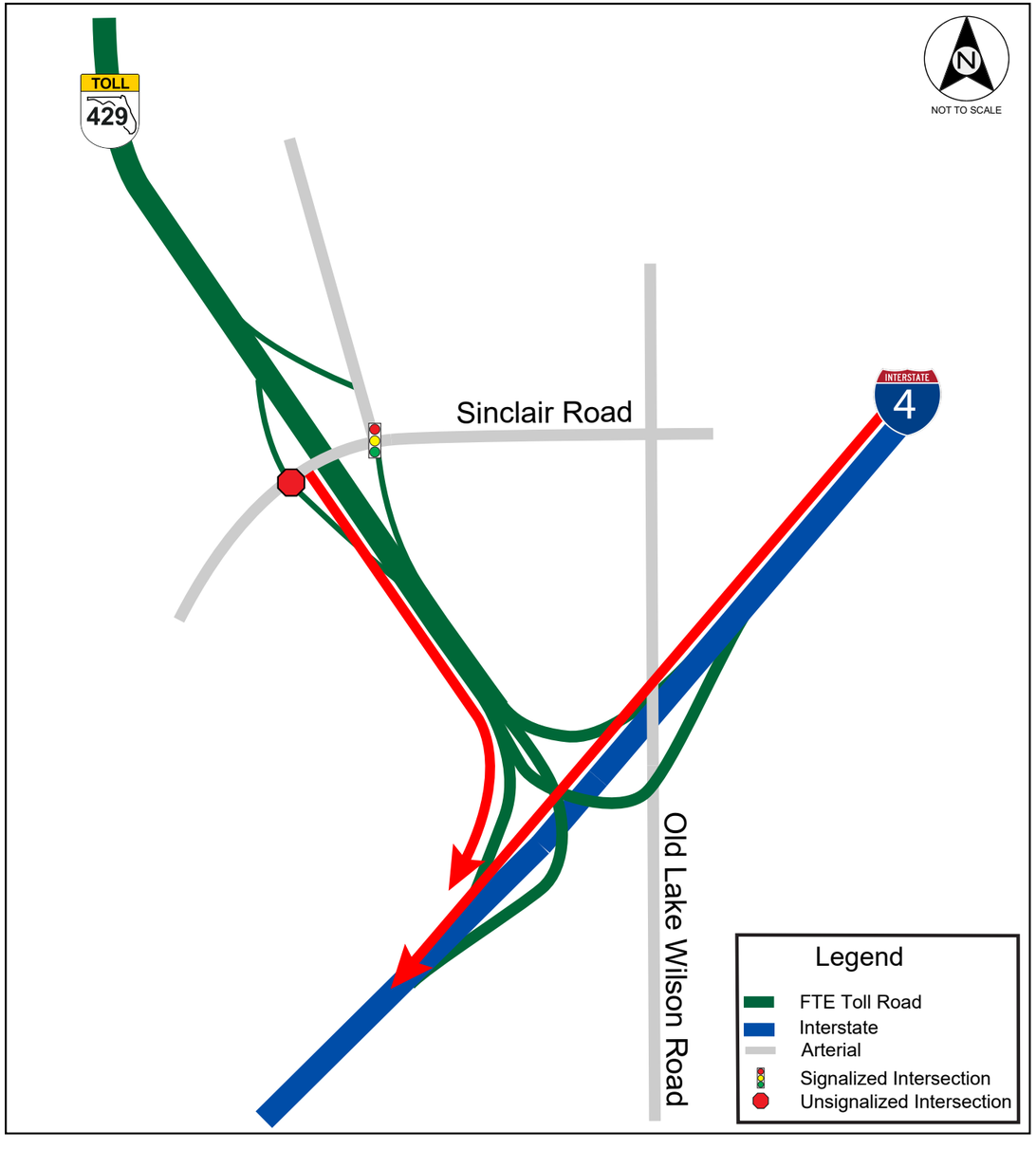


Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

AM Peak Hour



PM Peak Hour



Severe Congestion

FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Traffic Congestion Map during AM and PM Peak Hour**	**Figure 4.10**

This section provides information on the development of daily traffic forecasts, future design hour traffic volumes, and design year 2050 freeway 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 TRAVEL DEMAND MODEL DEVELOPMENT

5.1.1 Travel Demand Model

The Central Florida Regional Planning Model (CFRPM) developed by FDOT District 5, CFRPMv6.1, was used as the basis for this project. The CFRPMv6.1 was developed in two versions, a Daily model and a Time-of-Day (ToD) model. The CFRPMv6.1 ToD was released in November of 2016 with a 2010 base year and cost feasible scenarios for years 2015 through 2045 in 5-year increments. FTE revalidated the ToD version of the model, CFRPMv6.1 ToD FTE, for the year 2015 which included the most recent available Socioeconomic (SE) data from MetroPlan Orlando and adopted the model for this study. The model was updated and revalidated to year 2017 based on existing land use data and traffic counts. The updated CFRPMv6.1 FTE has been applied for several projects in the region. The latest CFRPM7 was not used as it was released in March 2021 and was not available when the modeling effort started in early 2020. In addition, the CFRPMv7 was not calibrated for official toll and revenue forecasting.

5.1.2 Base Year Validation

The CFRPMv6.1 ToD FTE is a Peak Season Weekday Average Daily Traffic (PSWADT) model. The 2015 cost feasible scenario was updated with 2015 daily and ToD period counts, land use for the study area, and toll data. The model was then revalidated based on year 2015 conditions. During validation, the Root Mean Square Error (RMSE) statistic was reviewed for daily and by ToD periods to verify the accuracy of the model validation. **Table 5.1** summarizes the results of the RMSE statistic for the regional model for 2015 Daily, AM, Midday (MD), PM, and Night (NT). As shown in the table, RMSE percentages are higher than acceptable ranges for some daily and ToD periods and volume groups. A RMSE greater than the acceptable range indicates that the model is not well validated for the 2015 base year. However, the focus was on the project study area validation and on the project corridor itself. Therefore, the regional model was further refined for year 2017 at the project subarea level to better account for the local changes in land use and traffic since the 2015 base year. An additional model validation for the subarea for the Western Beltway and Poinciana Parkway Extension Connector linear corridor 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) process to improve the subarea adjustment.

An assessment was done regarding the quality of the subarea trip tables by period before and after applying the ODME process. This was performed through a comparison of the RMSE of assigned model traffic volumes to traffic counts by volume group and by ToD period. The Volume to Count (V/C) ratio was also assessed. **Tables 5.2** and **5.3** display key statistics for year 2017 before and after applying the ODME process. As compared with the pre-ODME results, the post-ODME results show improvement. The post-ODME results show that all volume group RMSE percentages are within the acceptable range, and most of the volume groups for each time period performed within range. Also, 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 5.1
2015 Regional Time-of-Day Model Validation

Volume Group	RMSE (%)	Acceptable RMSE (%)	Volume/Count	Number of Counts
Daily				
1 - 5,000	97.3	45 - 55	1.06	5,470
5,000 - 10,000	53.1	35 - 45	0.94	2,786
10,000 - 20,000	**34.6**	27 - 35	0.95	2,570
20,000 - 30,000	29.8	24 - 27	0.98	743
30,000 - 40,000	30.4	22 - 24	1.05	156
40,000 - 50,000	27.2	20 - 22	1.22	53
50,000 - 60,000	28.4	18 - 20	1.16	19
60,000 - 70,000	21.1	17 - 18	1.16	21
70,000 - 80,000	40.0	16 - 17	1.30	12
80,000 - 90,000	32.7	15 - 16	1.29	23
90,000 - 100,000	19.6	14 - 15	1.17	5
100,000 - 500,000	18.4	< 14	1.13	4
All Groups 1 - 500,000	51.8	32 - 39	1.00	11,862
AM Period				
1 - 500	143.3	45 - 100	1.30	3,475
500 - 1,250	**69.9**	45 - 100	0.95	3,123
1,250 - 2,500	49.3	35 - 45	0.97	2,546
2,500 - 5,000	38.7	27 - 35	0.93	1,374
5,000 - 10,000	41.4	24 - 27	0.95	199
10,000 - 20,000	32.0	18 - 24	1.18	53
20,000 - 50,000	*	14 - 18	0.82	1
All Groups 1 - 50,000	64.0	35 - 45	0.98	10,771
MD Period				
1 - 500	266.8	45 - 100	1.84	1,151
500 - 1,250	108.0	45 - 100	1.12	2,077
1,250 - 2,500	71.0	35 - 45	0.95	2,506
2,500 - 5,000	56.8	27 - 35	1.01	2,541
5,000 - 10,000	38.0	24 - 27	0.98	2,087
10,000 - 20,000	34.6	18 - 24	1.07	341
20,000 - 50,000	45.1	14 - 18	1.39	68
All Groups 1 - 50,000	62.9	35 - 45	1.03	10,771
PM Period				
1 - 500	185.5	45 - 100	1.58	2,111
500 - 1,250	**76.4**	45 - 100	0.96	2,940
1,250 - 2,500	55.8	35 - 45	0.92	2,673
2,500 - 5,000	36.4	27 - 35	0.90	2,389
5,000 - 10,000	40.4	24 - 27	0.95	572
10,000 - 20,000	30.4	18 - 24	1.17	84
20,000 - 50,000	**16.1**	14 - 18	1.11	2
All Groups 1 - 50,000	57.3	35 - 45	0.96	10,771

Table 5.1 (continued)
2015 Regional Time-of-Day Model Validation

Volume Group	RMSE (%)	Acceptable RMSE (%)	Volume/Count	Number of Counts
NT Period				
1 - 500	162.8	45 - 100	1.32	2,386
500 - 1,250	**74.2**	45 - 100	0.90	2,930
1,250 - 2,500	52.9	35 - 45	0.91	2,504
2,500 - 5,000	37.5	27 - 35	0.90	2,086
5,000 - 10,000	31.4	24 - 27	0.86	731
10,000 - 20,000	27.8	18 - 24	0.90	93
20,000 - 50,000	22.1	14 - 18	1.01	41
All Groups 1 - 50,000	54.1	35 - 45	0.91	10,771

Notes: Bold format indicates RMSE was better or within the allowable limits.
*RMSE cannot be calculated with only one link.
Source: Table produced by Florida's Turnpike Enterprise / AECOM with data generated by this study.

Table 5.2
2017 Before ODME Subarea Time-of-Day Model Validation

Volume Group	RMSE (%)	Acceptable RMSE (%)	Volume/Count	Number of Counts
Daily				
1 - 5,000	62.5	45 - 55	1.06	171
5,000 - 10,000	50.0	35 - 45	1.04	84
10,000 - 20,000	**34.1**	27 - 35	1.06	52
20,000 - 30,000	**17.6**	24 - 27	0.99	33
30,000 - 40,000	**23.5**	22 - 24	0.80	11
50,000 - 60,000	21.1	18 - 20	1.18	4
60,000 - 70,000	**15.3**	17 - 18	1.12	4
All Groups 1 - 500,000	**37.4**	32 - 39	1.02	359
AM Period				
1 – 500	144.6	45 - 100	1.29	97
500 - 1,250	**69.6**	45 - 100	0.98	107
1,250 - 2,500	91.6	35 - 45	1.23	68
2,500 - 5,000	46.9	27 - 35	1.17	33
5,000 - 10,000	36.9	24 - 27	0.80	15
10,000 - 20,000	**22.0**	18 - 24	1.15	3
All Groups 1 - 50,000	75.1	35 - 45	1.08	323
MD Period				
1 – 500	174.5	45 - 100	1.65	26
500 - 1,250	**74.2**	45 - 100	1.04	71
1,250 - 2,500	61.6	35 - 45	1.14	101
2,500 - 5,000	54.6	27 - 35	1.12	46
5,000 - 10,000	27.7	24 - 27	1.05	56
10,000 - 20,000	25.8	18 - 24	1.04	18
20,000 - 50,000	29.7	14 - 18	1.25	5
All Groups 1 - 50,000	47.0	35 - 45	1.10	323

Table 5.2 (continued)
2017 Before ODME Subarea Time-of-Day Model Validation

Volume Group	RMSE (%)	Acceptable RMSE (%)	Volume/Count	Number of Counts
PM Period				
1 – 500	179.2	45 - 100	1.49	54
500 - 1,250	**58.2**	45 - 100	1.03	119
1,250 - 2,500	64.7	35 - 45	1.03	67
2,500 - 5,000	49.2	27 - 35	1.18	50
5,000 - 10,000	43.2	24 - 27	0.97	27
10,000 - 20,000	26.9	18 - 24	1.18	6
All Groups 1 - 50,000	63.2	35 - 45	1.08	323
NT Period				
1 – 500	**94.4**	45 - 100	0.91	58
500 - 1,250	**53.7**	45 - 100	0.96	97
1,250 - 2,500	47.4	35 - 45	0.90	72
2,500 - 5,000	44.5	27 - 35	0.83	51
5,000 - 10,000	32.0	24 - 27	0.77	31
10,000 - 20,000	31.1	18 - 24	0.79	13
20,000 - 30,000	*	14 - 18	0.73	1
All Groups 1 - 50,000	54.1	35 - 45	0.83	323

Notes: Bold format indicates RMSE was better or within the allowable limits.

*RMSE cannot be calculated with only one link.

Source: Table produced by Florida's Turnpike Enterprise / AECOM with data generated by this study.

Table 5.3
2017 After ODME Subarea Time-of-Day Model Validation

Volume Group	RMSE (%)	Acceptable RMSE (%)	Volume/Count	Number of Counts
Daily				
1 - 5,000	**45.5**	45 - 55	1.07	171
5,000 - 10,000	**36.3**	35 - 45	1.05	84
10,000 - 20,000	**20.2**	27 - 35	1.00	52
20,000 - 30,000	**7.8**	24 - 27	0.99	33
30,000 - 40,000	**16.1**	22 - 24	0.87	11
50,000 - 60,000	**6.4**	18 - 20	0.97	4
60,000 - 70,000	**7.0**	17 - 18	1.04	4
All Groups 1 - 500,000	**22.8**	32 - 39	1.00	359
AM Period				
1 – 500	100.6	45 - 100	1.35	97
500 - 1,250	**25.3**	45 - 100	0.96	107
1,250 - 2,500	**24.2**	35 - 45	1.03	68
2,500 - 5,000	**7.9**	27 - 35	1.04	33
5,000 - 10,000	**15.5**	24 - 27	0.91	15
10,000 - 20,000	**9.9**	18 - 24	1.02	3
All Groups 1 - 50,000	**24.7**	35 - 45	1.01	323

Table 5.3 (continued)
2017 After ODME Subarea Time-of-Day Model Validation

MD Period				
1 – 500	**80.9**	45 - 100	1.13	26
500 - 1,250	**47.9**	45 - 100	1.10	71
1,250 - 2,500	**34.0**	35 - 45	1.06	101
2,500 - 5,000	**24.0**	27 - 35	0.99	46
5,000 - 10,000	**5.7**	24 - 27	1.00	56
10,000 - 20,000	**11.1**	18 - 24	0.96	18
20,000 - 50,000	**4.5**	14 - 18	1.01	5
All Groups 1 - 50,000	**17.7**	35 - 45	1.01	323
PM Period				
1 – 500	125.0	45 - 100	1.41	54
500 - 1,250	**34.2**	45 - 100	1.05	119
1,250 - 2,500	**27.5**	35 - 45	0.99	67
2,500 - 5,000	**13.4**	27 - 35	1.00	50
5,000 - 10,000	**16.0**	24 - 27	0.91	27
10,000 - 20,000	**12.4**	18 - 24	1.06	6
All Groups 1 - 50,000	**24.7**	35 - 45	1.00	323
NT Period				
1 – 500	230.9	45 - 100	1.58	58
500 - 1,250	**41.5**	45 - 100	1.08	97
1,250 - 2,500	45.5	35 - 45	1.05	72
2,500 - 5,000	**25.9**	27 - 35	1.07	51
5,000 - 10,000	**17.3**	24 - 27	0.93	31
10,000 - 20,000	**20.2**	18 - 24	0.90	13
20,000 - 50,000	*	14 - 18	0.95	1
All Groups 1 - 50,000	**35.8**	35 - 45	1.00	323

Notes: Bold format indicates RMSE was better or within the allowable limits.
*RMSE cannot be calculated with only one link.
Source: Table produced by Florida's Turnpike Enterprise / AECOM with data generated by this study.

5.1.3 Future Year Transportation Network

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

- Florida's Turnpike/SR 91 mainline widening (FPID: 435784-1) from four to eight lanes. This project extends from SR 50 in Clermont to the Orange County/Lake County Line. The project is expected to be completed by year 2026.
- Florida's Turnpike/SR 91 mainline widening (FPID: 435785-1) from four to eight lanes. The limits for this project are from the Orange County/Lake County Line to Hancock Road in Minneola. It is expected to be completed by year 2024.

- Florida's Turnpike/SR 91 mainline widening (FPID: 435786-1,-2,-3) from four to eight lanes. The limits for this project are from Hancock Road in Minneola to Obrien Road and from Obrien Road to US 27/SR 19 (North). It is expected to be completed by year 2026.
- Western Beltway/SR 429 widening from four to six lanes by CFX from Tilden Road to John Land Apopka Expressway/SR 414. It is expected to be completed by year 2024.
- Poinciana Parkway from Ronald Reagan Parkway to south of US 17/92 and from south of US 17/92 to County Road 532/Osceola Polk County Line Road. It is expected to be completed by year 2026.
- Poinciana Parkway from Ronald Reagan Parkway to Cypress Parkway/CR 580, widening from an undivided two-lane roadway to a divided four-lane expressway. It is expected to be completed by year 2023.
- I-4 from County Line Road to west of US 27 and from west of US 27 to west of Kirkman Road/SR 435, widening to 10 lanes (including managed lanes).
- Lake/Orange Expressway (SR 516), a new four-lane limited access expressway from US 27 to Western Beltway/SR 429. Construction is expected to be completed by year 2025.
- Southport Connector Expressway, a divided four lane tolled expressway from Poinciana Parkway to Canoe Creek Road with a half interchange at the Florida's Turnpike/SR 91 in the first/interim phase. PD&E Study completion date 2023
- Avalon Road widening from two to four lanes from US 192 to McKinney Road.

The first three improvements are within the FTE's system and will be funded by FTE. The rest are being designed and constructed by others. The Build Alternative network included the Poinciana Parkway Extension Connector from CR 532 to I-4 with full interchanges at I-4 and US 17/92 and a partial interchange at CR 532 with north ramps access only.

5.1.4 Future Socioeconomic Data and Land Use

The CFRPMv6.1 FTE 2025 and 2045 SE data were updated for consistency with the Bureau of Economic and Business Research (BEBR) medium-level population projections and future year employment projections from Woods and Poole Economics (W&P), which were used as county-wide population and employment control totals. Future year model SE data in the study area which included the four counties of Lake, Orange, Osceola, and Polk were updated and integrated into the CFRPM. Population and employment projections were compared to future year county projections to ensure reasonability. **Table 5.4** shows the base year and adjusted future year populations in the model, along with the compound annual growth rate (CAGR) percentage from the 2017 model base year to the 2025 interim year and from the 2025 interim year to the 2045 outer year. The forecasted 2025 and 2045 traffics were then interpolated and extrapolated to provide the opening year 2030 AADT and the design year 2050 AADT.

Table 5.4
Adjusted Population Projections with CAGR

Area	CFRPM Population			CAGR
	2017	2025	2045	2025 – 2045
Lake	331,724	408,271	531,538	1.33%
Orange	1,313,880	1,560,168	1,959,304	1.13%
Osceola	337,614	454,722	637,957	1.71%
Polk	661,645	757,373	915,469	0.95%
Total	**2,644,863**	**3,186,534**	**4,044,268**	**1.20%**

Source: Source: BEBR, Florida Population Study 186 (Medium), January 2020. Adjusted for by AECOM

Table 5.5 shows the base year and adjusted future year employment in the model, along with the compound annual growth rate (CAGR) percentage from the 2017 model base year to the 2025 interim year and from the 2025 interim year to the 2045 outer year.

Table 5.5
Adjusted Employment Projections with CAGR

Area	CFRPM Employment			CAGR	
	2017	2025	2045	2017 – 2025	2025 – 2045
Lake	143,309	159,243	221,371	1.33%	1.66%
Orange	1,090,417	1,244,206	1,769,424	1.67%	1.78%
Osceola	145,296	169,319	276,010	1.93%	2.47%
Polk	301,077	321,022	380,494	0.81%	0.85%
Total	**1,680,099**	**1,894,252**	**2,647,299**	**1.43%**	**1.69%**

Source: Woods and Poole State Profile, 2019. Adjusted for by AECOM

Osceola County's proximity to Orange County will continue to contribute to the county's future population and employment growth. To better manage this growth the county has enacted an Urban Growth Boundary and has also targeted specific areas for urban infill and expansion.

5.1.5 Future Year Model Trip Matrix Adjustment

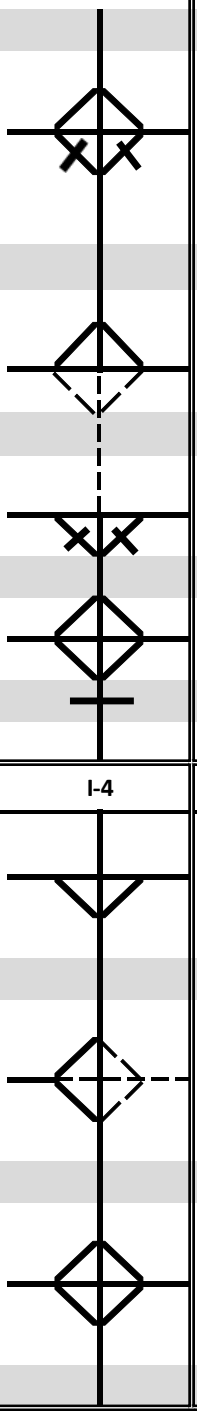
The subarea Origin-Destination (O-D) matrices for the future years 2025 and 2045 were extracted from the regional model, corresponding to the opening and design years for the PD&E study. Then correction factors, which were developed based on the subarea trip tables before and after the ODME process, were applied to create the future year trip tables. These trip tables were then used to run the subarea model for the No-Build and Build scenarios, which were then summarized in traffic profiles.

Traffic projections were developed using the updated CFRPM ToD model for years 2025 and 2045. The PSWADT from the model was converted to AADT by applying a Model Output Conversion Factor (MOCF) of 0.95 for the SR 429 and Poinciana Parkway Extension Connector facilities. The MOCF used was from the original model with the 2010 base year. The AADT counts were converted to PSWADT using the model MOCF. Several MOCFs were used for the major roadways based on their locations in a county with a global county specific MOCF for the county minor roadways. The model period volumes (AM, MD, PM, NT) were adjusted accordingly based on AADT. 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) Report 765 (an update to NCHRP Report 255) methodology. Additional adjustments were made based on growth rates and traffic factors (K and D) to ensure reasonableness and accuracy. The volumes were eventually adjusted for continuity of flow to develop final profiles for future AADT and Directional Design Hour Volumes (DDHV). Traffic volumes on the SR 429 corridor were balanced using traffic volume at the SR 429 Mainline Plaza north of US 192 as an anchor point since detail toll data are available for both historical and different time of day periods. The I-4 BtU express lane splits were adopted for this study.

The forecasted 2025 and 2045 traffic volumes were then interpolated and extrapolated to provide the opening year 2030 AADT and the design year 2050 AADT. **Table 5.6** shows the AADT for the No-Build Alternative with widening of the Western Beltway and no Poinciana Parkway (SR 538) Extension Connector. **Table 5.7** shows the AADT for the Build Alternative with widening of the Western Beltway (SR 429) and construction of the Poinciana Parkway (SR 538) Extension Connector without south ramps at CR 532.

Table 5.6
2030 and 2050 No-Build AADT

Location	SR 429	No-Build AADT 2030	No-Build AADT 2050	2030-2050 No-Build CAGR
		47,600	90,000	3.2%
Sinclair Rd		8,200	13,200	2.4%
		7,400	13,800	3.2%
		46,800	90,600	3.4%
I-4		46,800	90,600	3.4%
CR 532				
		5,800	12,200	3.8%
		5,800	12,200	3.8%
US 17/92		2,000	3,200	2.4%
		12,200	24,600	3.6%
Marigold Plaza		16,000	33,600	3.8%
	I-4			
		106,400	127,600	0.9%
World Drive		53,000	69,200	1.3%
		159,400	196,800	1.1%
SR 429		12,400	22,600	3.0%
		34,400	68,000	3.5%
		181,400	242,200	1.5%
CR 532		42,800	62,400	1.9%
		16,600	27,800	2.6%
		155,200	207,600	1.5%



Source: Table produced by Florida's Turnpike Enterprise / AECOM with data generated by this study.
Legend — Toll Gantry

Table 5.7
2030 and 2050 Build AADT

Location	SR 429	Build AADT 2030	Build AADT 2050	2030-2050 Build CAGR
		50,800	96,400	3.3%
Sinclair Rd		7,400	11,400	2.2%
		7,800	14,400	3.1%
		51,200	99,400	3.4%
I-4		43,600	81,800	3.2%
		16,400	28,400	2.8%
Poinciana Parkway Extension Connector	(TBD)	24,000	46,000	3.3%
CR 532		8,400	14,200	2.7%
		15,600	31,800	3.6%
US 17/92		8,800	15,800	3.0%
		9,200	17,600	3.3%
Marigold Plaza		16,000	33,600	3.8%
	I-4			
		109,200	133,800	1.0%
World Drive		54,400	72,600	1.5%
		163,600	206,400	1.2%
SR 429		27,200	48,000	2.9%
		32,800	62,200	3.3%
		169,200	220,600	1.3%
CR 532		34,200	46,600	1.6%
		15,400	24,800	2.4%
		150,400	198,800	1.4%

Source: Table produced by Florida's Turnpike Enterprise / AECOM with data generated by this study.
Legend — Toll Gantry; ▪▪▪▪ Toll Gantry to be determined (TBD)

The final mainline and ramp AADTs for years 2030, and 2050 are provided in **Tables 5.8** and **5.9** for the No-Build and Build conditions, respectively. The bold values represent the mainline volumes, and the non-bold values represent ramp volumes.

Future year turn movement volumes for ramp-terminal intersections were developed using the projected ramp DDHVs. Turn proportions were estimated using peak period data from the CFRPM model and adjusted using existing conditions volumes where applicable. Traffic volumes for cross-street through movements and adjacent intersections were developed using growth rates estimated from historical data and verified with the CFRPM model. A linear growth rate of 4.6 percent was applied from years 2018 to 2025 and 3.6 percent from years 2025 to 2045. ***The forecasted years 2025 and 2045 traffic volumes were then interpolated and extrapolated to provide the opening year 2030 DDHVs and the design year 2050 DDHVs.***

The volumes for the No-Build and Build extension to I-4 remains the same at Marigold Toll Plaza as there are no capacity constraints at Poinciana Parkway future 4-lane section beyond the design year 2050. With the No-Build, all the traffic will have to end at CR 532, whereas with the Build scenario, the south ramps to CR 532 are removed and the positive impact of the pass-through traffic using the extension connector to I-4 are balanced by the negative impact due to the removal of the south ramps to CR 532.

Overall, projected traffic should be looked at from a global/network perspective (diversion/induced) along US 17/92, CR 532, Ronald Reagan Parkway, and I-4 instead of a single isolated location. Nevertheless, the inclusion of the Poinciana Parkway Extension Connector benefits is noticeable for all stakeholder facilities. Poinciana Parkway Extension Connector improves the overall delay at the Freeway/Expressway and local intersections in the vicinity of project by dispersing surface street traffic demand and completing the missing link of a series of existing and planned roadways connecting I-4 to Florida's Turnpike, SR 429, and SR 417.

Future traffic data for the I-4 mainline and the ramps at CR 532 and World Drive were compared with the I-4 at CR 532/SR 429 SIMR completed by FDOT District 5 in May 2020. Future traffic data for intersections along CR 532 and US 17/92 were compared with the Project Traffic Analysis Report (PTAR) completed by CFX in July 2019 for the Poinciana Parkway Extension Connector PD&E Study.

The 2030 and 2050 AADTs are presented on **Figures 5.1** through **5.4**, for No-Build and Build conditions, respectively. The 2030 and 2050 design hour volumes are presented on **Figures 5.5** through **5.8**, for the No-Build and Build conditions, respectively.

Table 5.8
SR 429 Future No-Build Traffic Forecasts (Total Demand)

Location	SR 429	2030 AADT	2030 AM - DDHV SB	2030 AM - DDHV NB	2030 PM - DDHV SB	2030 PM - DDHV NB	2050 AADT	2050 AM - DDHV SB	2050 AM - DDHV NB	2050 PM - DDHV SB	2050 PM - DDHV NB
		47,600	**2,670**	**1,670**	**2,920**	**2,320**	**90,000**	**4,210**	**3,440**	**5,050**	**3,920**
Sinclair Road		8,200	320	600	600	320	13,200	510	990	990	510
		7,400	540	260	260	540	13,800	820	470	470	820
		46,800	**2,890**	**1,330**	**2,580**	**2,540**	**90,600**	**4,520**	**2,920**	**4,530**	**4,230**
I-4		46,800	2,890	1,330	2,580	2,540	90,600	4,520	2,920	4,530	4,230
	PPEC										
CR 532		5,800	240	480	480	240	12,200	480	840	840	480
		5,800	**240**	**480**	**480**	**240**	**12,200**	**480**	**840**	**840**	**480**
US 17/92		2,000	80	140	140	80	3,200	120	220	220	120
		12,200	500	940	940	500	24,600	960	1,740	1,740	960
Marigold Plaza		**16,000**	**660**	**1,280**	**1,280**	**660**	**33,600**	**1,320**	**2,360**	**2,360**	**1,320**

Note: Values in RED indicate PEAK direction and values in BLUE indicate OFF-PEAK direction Legend ▬ Toll Gantry

Table 5.8 (continued)
I-4 Future No-Build Traffic Forecasts (Total Demand)

Location	I-4	2030 AADT	2030 AM - DDHV WB	2030 AM - DDHV EB	2030 PM - DDHV WB	2030 PM - DDHV EB	2050 AADT	2050 AM - DDHV WB	2050 AM - DDHV EB	2050 PM - DDHV WB	2050 PM - DDHV EB
		106,400	**3,900**	**5,020**	**5,020**	**3,900**	**127,600**	**4,650**	**5,970**	**5,970**	**4,650**
World Drive		53,000	1,730	2,970	1,880	2,290	69,200	2,120	4,150	2,550	2,980
		159,400	**5,630**	**7,990**	**6,900**	**6,190**	**196,800**	**6,770**	**10,120**	**8,520**	**7,630**
SR 429		12,400	420	1,110	710	390	22,600	830	1,440	1,160	710
		34,400	1,780	910	2,190	1,830	68,000	3,080	2,090	3,820	3,070
		181,400	**6,990**	**7,790**	**8,380**	**7,630**	**242,200**	**9,020**	**10,770**	**11,180**	**9,990**
CR 532		42,800	1,430	2,260	2,150	1,830	62,400	2,240	3,090	3,020	2,690
		16,600	820	610	650	760	27,800	1,280	980	1,020	1,070
		155,200	**6,380**	**6,140**	**6,880**	**6,560**	**207,600**	**8,060**	**8,660**	**9,180**	**8,370**

Note: Values in RED indicate PEAK direction and values in BLUE indicate OFF-PEAK direction

Table 5.9
SR 429 Future Build Traffic Forecasts (Total Demand)

Location	SR 429	2030 AADT	2030 AM - DDHV SB	2030 AM - DDHV NB	2030 PM - DDHV SB	2030 PM - DDHV NB	2050 AADT	2050 AM - DDHV SB	2050 AM - DDHV NB	2050 PM - DDHV SB	2050 PM - DDHV NB
		50,800	**2,350**	**2,150**	**3,100**	**2,280**	**96,400**	**4,090**	**4,110**	**5,790**	**4,030**
Sinclair Road		7,400	290	540	540	290	11,400	440	820	820	440
		7,800	540	270	270	540	14,400	850	490	490	850
		51,200	**2,600**	**1,880**	**2,830**	**2,530**	**99,400**	**4,500**	**3,780**	**5,460**	**4,440**
I-4		43,600	2,250	1,400	2,350	2,180	81,800	3,680	2,550	4,230	3,610
	(TBD)	16,400	620	1,380	1,380	620	28,400	990	1,980	1,980	990
	PPEC	**24,000**	**970**	**1,860**	**1,860**	**970**	**46,000**	**1,810**	**3,210**	**3,210**	**1,820**
CR 532		8,400	330	600	600	330	14,200	550	1,010	1,010	550
		15,600	**640**	**1,260**	**1,260**	**640**	**31,800**	**1,260**	**2,200**	**2,200**	**1,270**
US 17/92		8,800	340	630	630	340	15,800	610	1,120	1,120	610
		9,200	360	650	650	360	17,600	670	1,280	1,280	670
Marigold Plaza		**16,000**	**660**	**1,280**	**1,280**	**660**	**33,600**	**1,320**	**2,360**	**2,360**	**1,330**

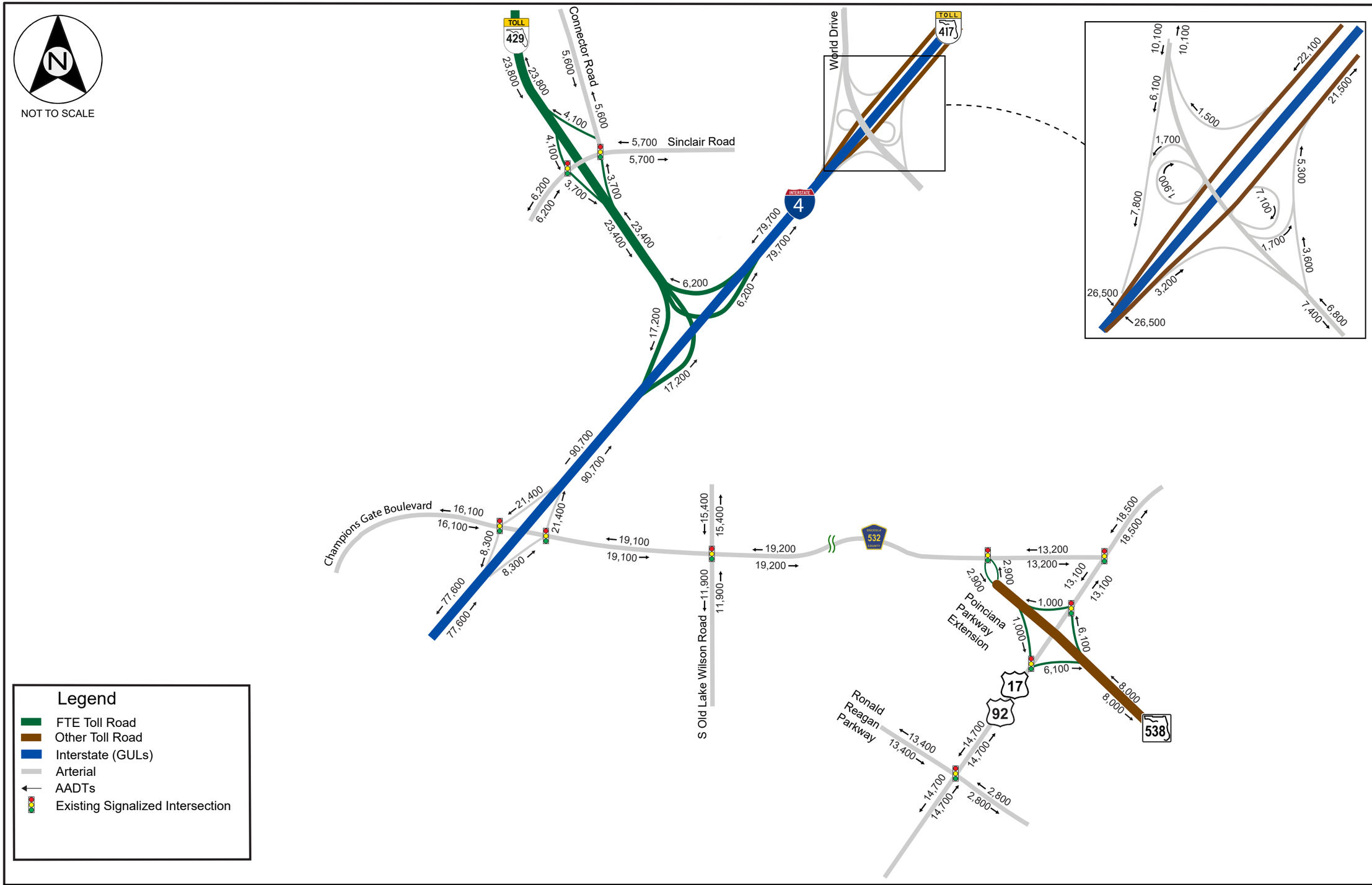
Note: Values in RED indicate PEAK direction and values in BLUE indicate OFF-PEAK direction Legend ━ Toll Gantry, ▪▪▪▪ Toll Gantry to be determined (TBD)

Table 5.9 (continued)
I-4 Future Build Traffic Forecasts (Total Demand)

Location	I-4	2030 AADT	2030 AM - DDHV WB	2030 AM - DDHV EB	2030 PM - DDHV WB	2030 PM - DDHV EB	2050 AADT	2050 AM - DDHV WB	2050 AM - DDHV EB	2050 PM - DDHV WB	2050 PM - DDHV EB
		109,200	**4,020**	**5,360**	**5,340**	**4,020**	**133,800**	**4,790**	**6,380**	**6,380**	**4,790**
World Drive		54,400	1,790	3,090	2,020	2,350	72,600	2,300	4,380	2,600	3,050
		163,600	**5,810**	**8,450**	**7,360**	**6,370**	**206,400**	**7,090**	**10,760**	**8,980**	**7,840**
SR 429		27,200	820	1,900	1,860	910	48,000	1,460	2,790	2,720	1,590
		32,800	1,730	1,200	2,060	1,700	62,200	2,870	2,080	3,630	2,870
		169,200	**6,720**	**7,750**	**7,560**	**7,160**	**220,600**	**8,500**	**10,050**	**9,890**	**9,120**
CR 532		34,200	1,200	1,790	1,680	1,580	46,600	1,840	2,380	2,270	2,240
		15,400	740	520	600	680	24,800	1,060	880	930	840
		150,400	**6,260**	**6,480**	**6,480**	**6,260**	**198,800**	**7,720**	**8,550**	**8,550**	**7,720**

Note: Values in RED indicate PEAK direction and values in BLUE indicate OFF-PEAK direction

NOT TO SCALE



Legend

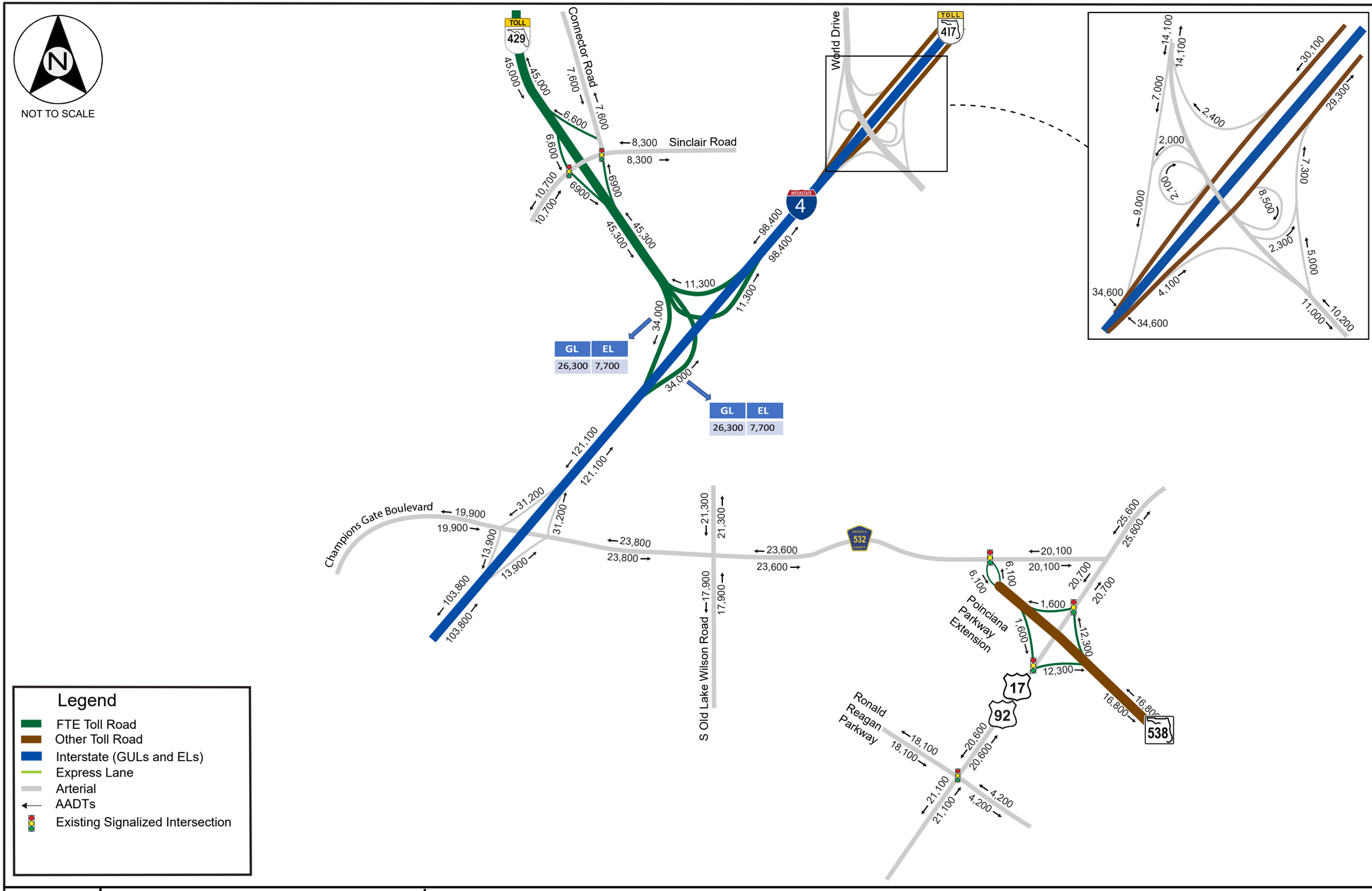
- FTE Toll Road
- Other Toll Road
- Interstate (GULs)
- Arterial
- AADTs
- Existing Signalized Intersection

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 No-Build One-Way AADTs (without I-4 Express Lane)

Figure 5.1

NOT TO SCALE



Legend

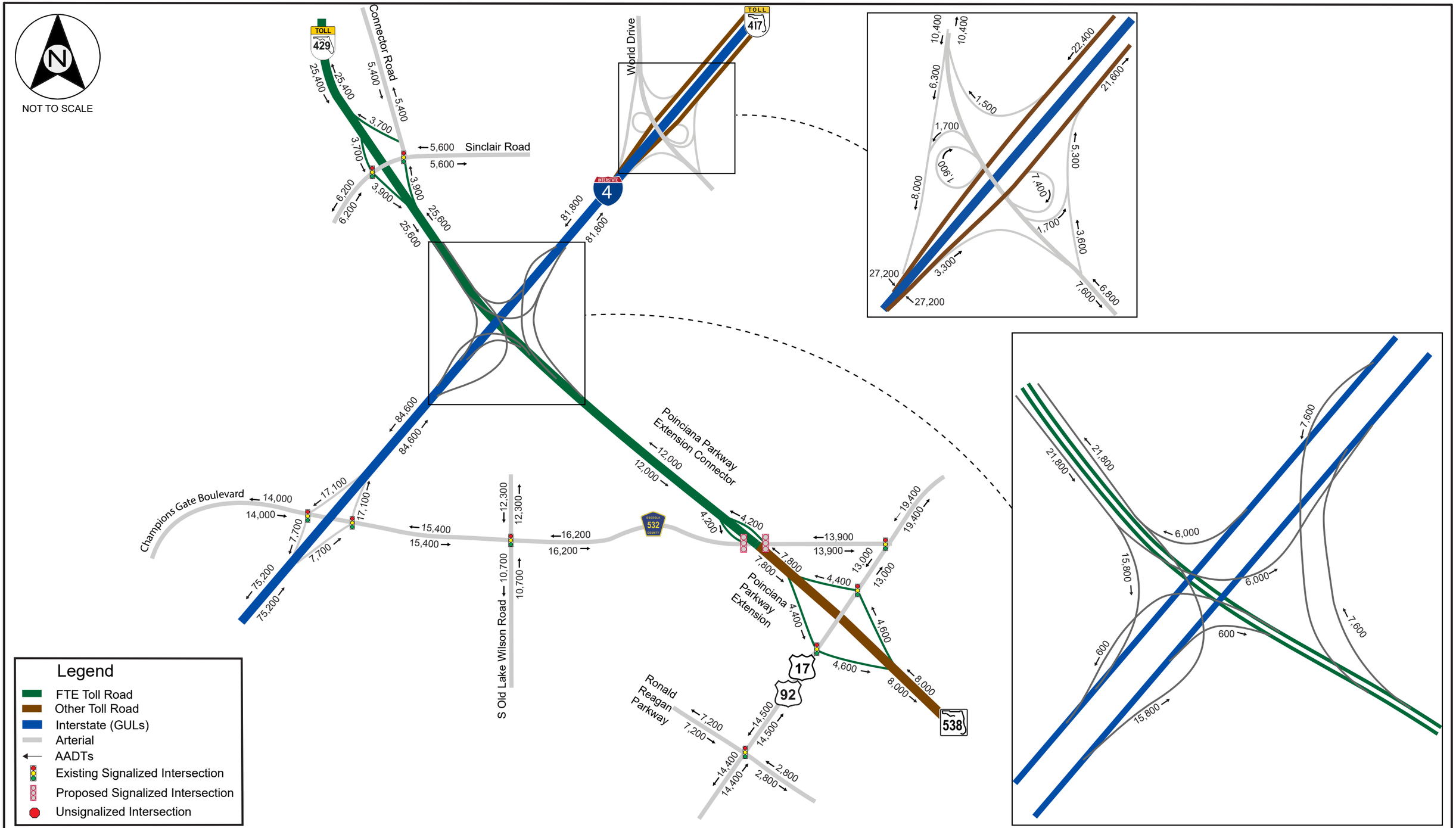
- FTE Toll Road
- Other Toll Road
- Interstate (GULs and ELs)
- Express Lane
- Arterial
- AADTs
- Existing Signalized Intersection

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 No-Build One-Way AADTs (with I-4 Express Lane)

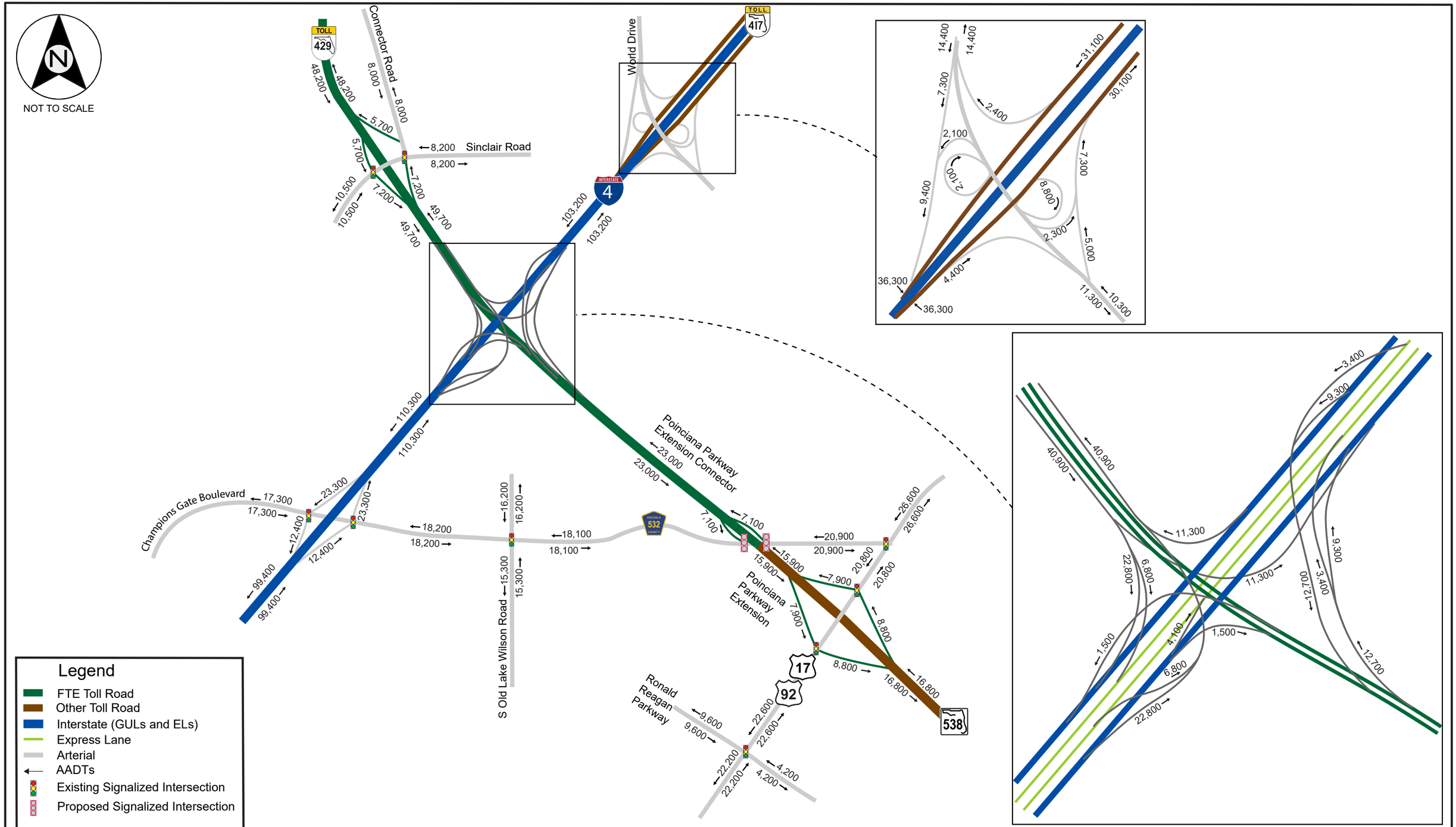
Figure 5.2

NOT TO SCALE



FLORIDA'S TURNPIKE	**Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)**	**2030 Build One-Way AADTs (without I-4 Express Lane**	**Figure 5.3**

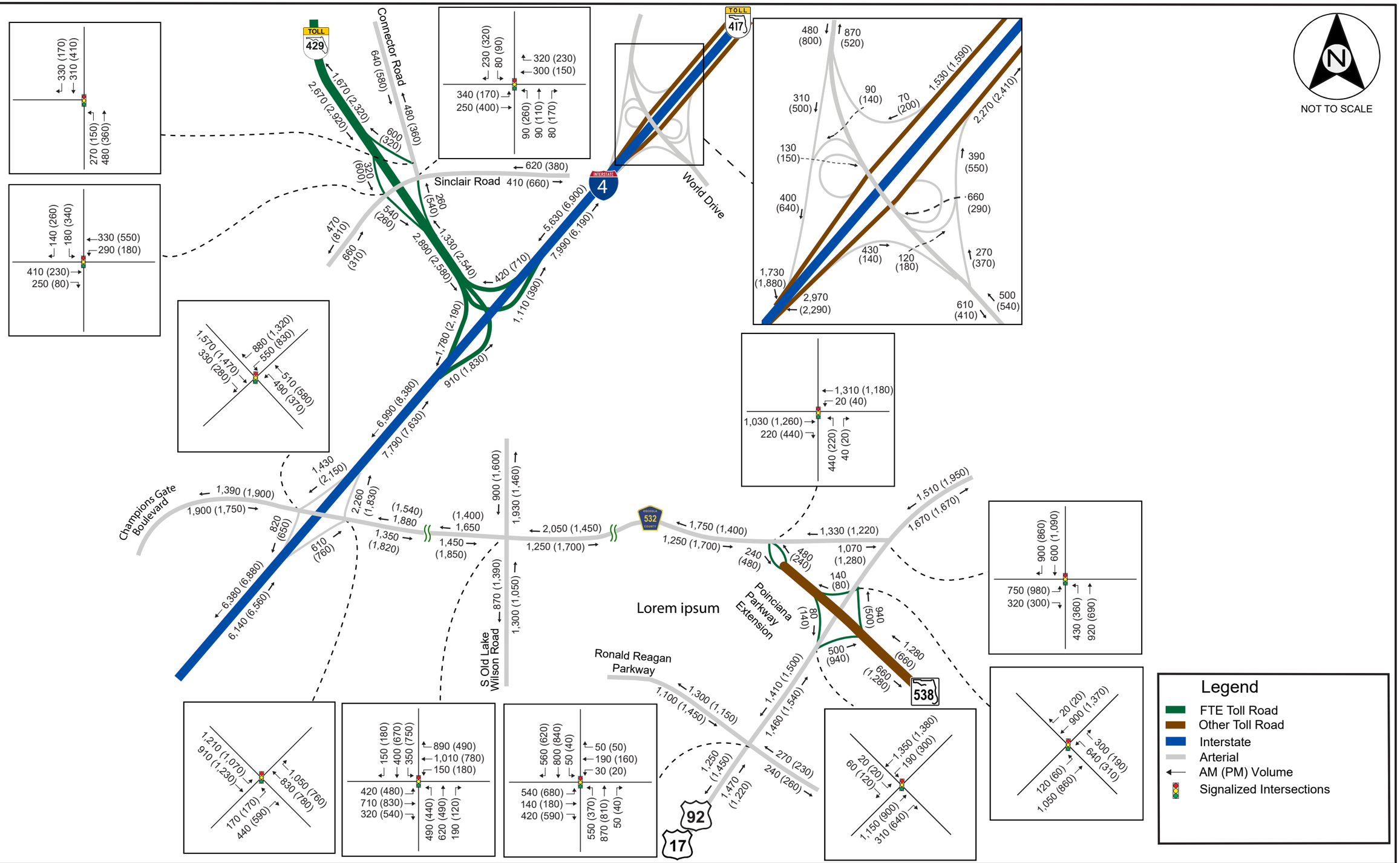
NOT TO SCALE



Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 Build One-Way AADTs (with I-4 Express Lane)

Figure 5.4



Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 No-Build Design Hour Volumes (without I-4 Express Lane)

Figure 5.5

NOT TO SCALE

Peak	GL	EL
AM	2,310	770
PM	2,870	950

Peak	GL	EL
AM	1,570	520
PM	2,310	760

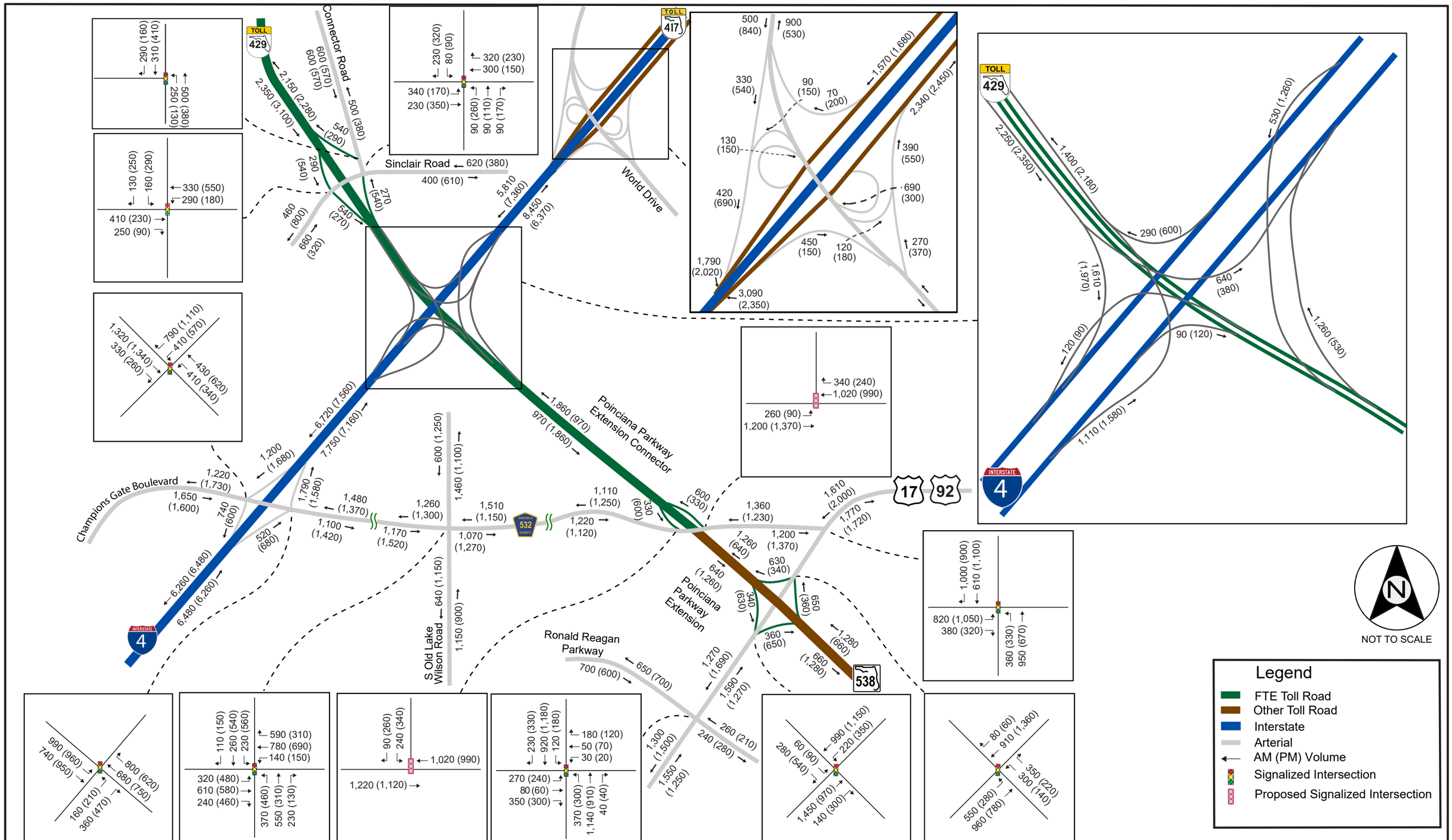
Legend

- FTE Toll Road
- Other Toll Road
- Interstate
- Express Lane
- Arterial
- AM (PM) Volume
- Signalized Intersection
- AM (PM) Volume - GULs
- AM (PM) Volume - GULs and ELs

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 No-Build Design Hour Volumes (with I-4 Express Lane)

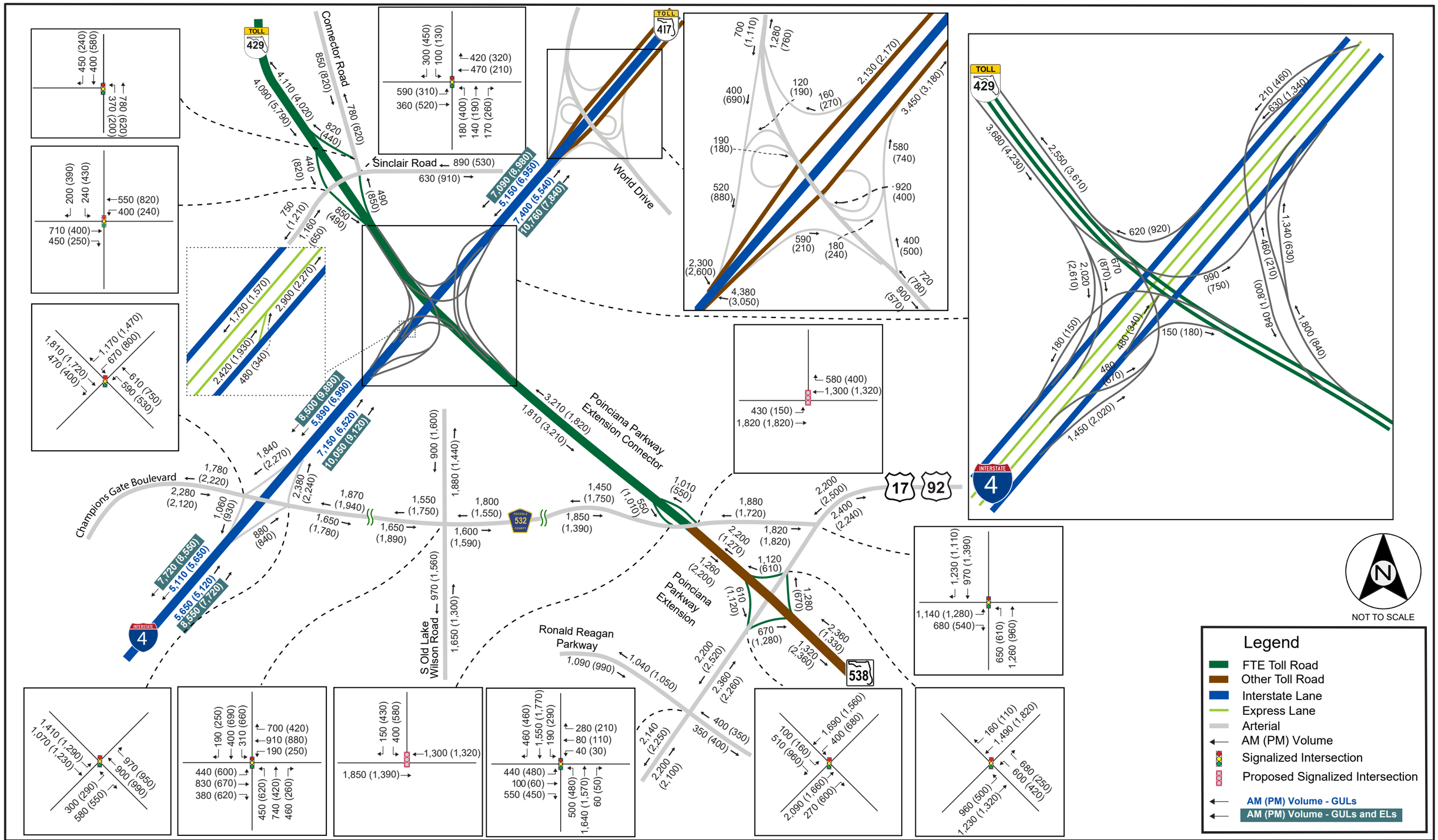
Figure 5.6



Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 Build Design Hour Volumes (without I-4 Express Lane)

Figure 5.7



Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 Build Design Hour Volumes (with I-4 Express Lane)

Figure 5.8

5.2 MAINLINE AND RAMPS LANE REQUIREMENTS

Future lane requirements were evaluated to provide an estimated timeline for the onset of capacity deficiencies along the freeway mainline and ramp roadways. The freeway mainline capacity evaluation was based on the 2020 FDOT Quality and LOS Handbook generalized service volumes for the target LOS. Capacity analysis for ramp roadways was based on thresholds from the HCM 6th Edition. The FDOT and HCM 6th Edition thresholds were adjusted for local conditions. **Tables 5.10** and **5.11** show the detailed color-coded future lane requirements corresponding to LOS D (maximum service volume) for No-Build and Build conditions, respectively, for the freeway mainline. The two tables show ramp roadway lane requirements for LOS E. ***The Turnpike standard procedures use ramp capacity as the measure to identify needed additional ramp lanes. Ramp capacity, LOS of the ramp merge and diverge influence areas, and intersection performance (which controls ramp flow) are used as the measures to identify needed improvements. The capacities were adjusted based on an I-4 and a SR 429 mainline truck percentage of seven percent (7%).***

The LOS D analysis (**Table 5.10**) shows that the SR 429 mainline will require three lanes of travel in each direction north of Sinclair Road by year 2037and by year 2040 for the segment between Sinclair Road and I-4 under No-Build conditions.

Table 5.10 shows that most of the ramp roadways within the study limits along SR 429 will require one lane through the design year 2050, except for the ramps to and from the north at I-4. The ramps to and from the north will need two lanes each by year 2030 and three lanes by year 2040. Five lanes per direction will be required by year 2030 between CR 532 and SR 429 interchange along I-4. Six lanes per direction will be required by year 2034.

The LOS D analysis (**Table 5.11**) shows that the SR 429 mainline will require three lanes of travel in each direction north of Sinclair Road by year 2035 and by year 2037 for the segment between Sinclair Road and I-4 under Build conditions. The proposed Poinciana Parkway segments south of I-4 will require two lanes of travel per direction through the 2050 design year.

Table 5.11 shows that most of the ramp roadways within the study limits along SR 429 will require one lane through the design year 2050, except for the ramps to and from I-4. The ramps to and from I-4 east will need two lanes each by year 2030 and three lanes by 2045 and the ramps to and from I-4 west will need two lanes by year 2046.

Table 5.11 shows the lane requirements for the I-4 mainline based on LOS D capacity thresholds under Build conditions. As illustrated in **Table 5.11**, five lanes per direction will be required by year 2030 and six lanes per direction will be required by year 2042 for the I-4 mainline between the CR 532 and SR 429 interchanges. Most of the ramp roadways along I-4 require two lanes through the design year 2050. The ramps to and from World Drive will require three lanes by year 2040.

It should be noted that the results shown in Tables 5.10 and 5.11 are for general planning purpose only and do not determine the engineering and operational acceptability.

Table 5.10
SR 429 Freeway Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements (No-Build)

Mainline Maximum Service Volume (LOS D) and Ramp Roadway Capacity (LOS E) - Urbanized Area

DDHV - Worst Case AM or PM Design Hour

Location	SR 429	Model	Analysis Years																			Model
		2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
		2,920	**3,030**	**3,130**	**3,240**	**3,350**	**3,460**	**3,560**	**3,670**	**3,780**	**3,880**	**3,990**	**4,100**	**4,200**	**4,310**	**4,410**	**4,520**	**4,630**	**4,730**	**4,840**	**4,940**	**5,050**
Sinclair Road		600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	910	930	950	970	990
		540	550	570	580	600	610	620	640	650	670	680	690	710	720	740	750	760	780	790	810	820
		2,890	**2,970**	**3,050**	**3,130**	**3,210**	**3,300**	**3,380**	**3,460**	**3,540**	**3,620**	**3,700**	**3,780**	**3,870**	**3,950**	**4,030**	**4,120**	**4,200**	**4,280**	**4,360**	**4,450**	**4,530**
I-4		2,890	2,970	3,050	3,140	3,220	3,300	3,380	3,460	3,550	3,630	3,710	3,790	3,870	3,960	4,040	4,120	4,200	4,280	4,370	4,450	4,530
CR 532	PPEC	480	500	520	530	550	570	590	610	620	640	660	680	700	710	730	750	770	790	800	820	840
		480	**500**	**520**	**530**	**550**	**570**	**590**	**610**	**620**	**640**	**660**	**680**	**700**	**710**	**730**	**750**	**770**	**790**	**800**	**820**	**840**
US 17/92		140	140	150	150	160	160	160	170	170	180	180	180	190	190	200	200	200	210	210	220	220
		940	980	1,020	1,060	1,100	1,140	1,180	1,220	1,260	1,300	1,340	1,380	1,420	1,460	1,500	1,540	1,580	1,620	1,660	1,700	1,740
		1,280	**1,270**	**1,260**	**1,240**	**1,230**	**1,220**	**1,210**	**1,200**	**1,180**	**1,170**	**1,160**	**1,280**	**1,400**	**1,520**	**1,640**	**1,760**	**1,880**	**2,000**	**2,120**	**2,240**	**2,360**

Assumptions	
Truck % (t_f)	7.0%
Free Flow Speed (mph)	75
Peak Hour Factor (PHF)	0.95

Freeway LOS Targets	
Lanes	**LOS D**
2	3,640
3	5,460
4	7,280
5	9,100
6	10,920

Ramp Capacity	
Lanes	**LOS E**
1	1,850
2	3,700
3	5,550

Speed - 40 to 50 MPH

Legend — Toll Gantry

Table 5.10 (continued)
I-4 Freeway Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements (No-Build)

Mainline Maximum Service Volume (LOS D) and Ramp Roadway Capacity (LOS E) - Urbanized Area

DDHV - Worst Case AM or PM Design Hour

Location	I-4	Model	Interpolated																		Model
		2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
World Drive		2,970	3,030	3,090	3,150	3,210	3,270	3,320	3,380	3,440	3,500	3,560	3,620	3,680	3,740	3,800	3,860	3,910	3,970	4,030	4,090	4,150
		7,990	8,100	8,210	8,310	8,420	8,530	8,640	8,750	8,850	8,960	9,070	9,180	9,280	9,390	9,490	9,600	9,700	9,810	9,910	10,020	10,120
SR 429		1,110	1,130	1,140	1,160	1,180	1,200	1,210	1,230	1,250	1,260	1,280	1,300	1,310	1,330	1,340	1,360	1,380	1,390	1,410	1,420	1,440
		2,190	2,270	2,350	2,440	2,520	2,600	2,680	2,760	2,850	2,930	3,010	3,090	3,170	3,250	3,330	3,420	3,500	3,580	3,660	3,740	3,820
		8,380	8,520	8,660	8,800	8,940	9,080	9,220	9,360	9,500	9,640	9,780	9,920	10,060	10,200	10,340	10,480	10,620	10,760	10,900	11,040	11,180
CR 532		2,260	2,300	2,340	2,390	2,430	2,470	2,510	2,550	2,600	2,640	2,680	2,720	2,760	2,800	2,840	2,890	2,930	2,970	3,010	3,050	3,090
		820	840	870	890	910	940	960	980	1,000	1,030	1,050	1,070	1,100	1,120	1,140	1,170	1,190	1,210	1,230	1,260	1,280
		6,880	7,000	7,110	7,230	7,340	7,460	7,570	7,690	7,800	7,920	8,030	8,150	8,260	8,380	8,490	8,610	8,720	8,840	8,950	9,070	9,180

Assumptions	
Truck % (t_f)	7.0%
Free Flow Speed (mph)	70
Peak Hour Factor (PHF)	0.95

Freeway LOS Targets	
Lanes	LOS D
2	3,620
3	5,430
4	7,240
5	9,050
6	10,860

Ramp Capacity	
Lanes	LOS E
1	1,850
2	3,700
3	5,550

Speed - 40 to 50 MPH

Table 5.11
SR 429 Freeway Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements (Build)

Mainline Maximum Service Volume (LOS D) and Ramp Roadway Capacity (LOS E) - Urbanized Area

DDHV - Worst Case AM or PM Design Hour

Location	SR 429	Model	Analysis Years																		Model
		2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Sinclair Road		540	550	570	580	600	610	620	640	650	670	680	690	710	720	740	750	760	780	790	810	820
		540	560	570	590	600	620	640	650	670	680	700	720	730	750	760	780	790	810	820	840	850
		2,830	**2,960**	**3,090**	**3,230**	**3,360**	**3,490**	**3,620**	**3,750**	**3,890**	**4,020**	**4,150**	**4,280**	**4,410**	**4,540**	**4,670**	**4,810**	**4,940**	**5,070**	**5,200**	**5,330**	**5,460**
I-4		2,350	2,440	2,540	2,630	2,730	2,820	2,910	3,010	3,100	3,200	3,290	3,380	3,480	3,570	3,670	3,760	3,850	3,950	4,040	4,140	4,230
		1,380	1,410	1,440	1,470	1,500	1,530	1,560	1,590	1,620	1,650	1,680	1,710	1,740	1,770	1,800	1,830	1,860	1,890	1,920	1,960	1,980
	PPEC (TBD)	**1,860**	**1,930**	**2,000**	**2,060**	**2,130**	**2,200**	**2,270**	**2,340**	**2,400**	**2,470**	**2,540**	**2,610**	**2,670**	**2,740**	**2,810**	**2,880**	**2,940**	**3,010**	**3,080**	**3,140**	**3,210**
CR 532		600	620	640	660	680	710	730	750	770	790	810	830	850	870	890	910	930	950	970	990	1,010
		1,260	**1,310**	**1,350**	**1,400**	**1,450**	**1,500**	**1,540**	**1,590**	**1,640**	**1,680**	**1,730**	**1,780**	**1,820**	**1,870**	**1,920**	**1,970**	**2,010**	**2,060**	**2,110**	**2,150**	**2,200**
US 17/92		630	660	680	710	730	760	780	810	830	860	880	900	930	950	980	1,000	1,020	1,050	1,070	1,100	1,120
		650	680	710	750	780	810	840	870	910	940	970	1,000	1,030	1,060	1,090	1,130	1,160	1,190	1,220	1,250	1,280
		1,280	**1,330**	**1,390**	**1,440**	**1,500**	**1,550**	**1,600**	**1,660**	**1,710**	**1,770**	**1,820**	**1,870**	**1,930**	**1,980**	**2,040**	**2,090**	**2,140**	**2,200**	**2,250**	**2,310**	**2,360**

Assumptions	
Truck % (t_f)	7.0%
Free Flow Speed (mph)	75
Peak Hour Factor (PHF)	0.95

Freeway LOS Targets	
Lanes	LOS D
2	3,640
3	5,460
4	7,280
5	9,100
6	10,920

Ramp Capacity	
Lanes	LOS E
1	1,850
2	3,700
3	5,550

Speed - 40 to 50 MPH

Legend —Toll Gantry, ▪▪▪▪Toll Gantry to be determined (TBD)

Table 5.11 (continued)
I-4 Freeway Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements (Build)

Mainline Maximum Service Volume (LOS D) and Ramp Roadway Capacity (LOS E) - Urbanized Area
DDHV - Worst Case AM or PM Design Hour

Location	I-4	Model	Analysis Years																			Model
		2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
		1,790	1,820	1,840	1,870	1,890	1,920	1,950	1,970	2,000	2,020	2,050	2,080	2,100	2,130	2,150	2,180	2,200	2,230	2,250	2,280	2,300
World Drive		3,090	3,160	3,220	3,290	3,350	3,420	3,480	3,550	3,610	3,680	3,740	3,800	3,870	3,930	4,000	4,060	4,120	4,190	4,250	4,320	4,380
		8,450	**8,570**	**8,680**	**8,800**	**8,920**	**9,040**	**9,150**	**9,270**	**9,390**	**9,500**	**9,620**	**9,730**	**9,850**	**9,960**	**10,080**	**10,190**	**10,300**	**10,420**	**10,530**	**10,650**	**10,760**
SR 429		1,900	1,950	1,990	2,040	2,080	2,130	2,170	2,220	2,260	2,310	2,350	2,390	2,440	2,480	2,530	2,570	2,610	2,660	2,700	2,750	2,790
		2,060	2,140	2,220	2,300	2,380	2,460	2,530	2,610	2,690	2,770	2,850	2,930	3,010	3,080	3,160	3,240	3,320	3,400	3,470	3,550	3,630
		7,750	**7,870**	**7,980**	**8,100**	**8,210**	**8,330**	**8,450**	**8,560**	**8,680**	**8,790**	**8,910**	**9,020**	**9,140**	**9,250**	**9,370**	**9,480**	**9,590**	**9,710**	**9,820**	**9,940**	**10,050**
CR 532		1,790	1,820	1,850	1,880	1,910	1,940	1,970	2,000	2,030	2,060	2,090	2,120	2,150	2,180	2,210	2,240	2,260	2,290	2,320	2,350	2,380
		740	760	770	790	800	820	840	850	870	880	900	920	930	950	960	980	1,000	1,010	1,030	1,040	1,060
		6,480	**6,580**	**6,690**	**6,790**	**6,900**	**7,000**	**7,100**	**7,210**	**7,310**	**7,420**	**7,520**	**7,620**	**7,730**	**7,830**	**7,930**	**8,040**	**8,140**	**8,240**	**8,340**	**8,450**	**8,550**

Assumptions	
Truck % (t_f)	7.0%
Free Flow Speed (mph)	70
Peak Hour Factor (PHF)	0.95

Freeway LOS Targets	
Lanes	LOS D
2	3,620
3	5,430
4	7,240
5	9,050
6	10,860

Ramp Capacity	
Lanes	LOS E
1	1,850
2	3,700
3	5,550

Speed - 40 to 50 MPH

The Build Alternative improvements are described in this section as well as the results of the future traffic operational analysis and safety assessment.

6.1 CONSIDERED ALTERNATIVE

Transportation Systems Management and Operations (TSM&O) considers safety and minor operational improvements to existing facilities that may include additional turn lanes, intersection improvements, traffic signal optimization, intelligent transportation systems (ITS) technology implementation, and/or pavement marking improvements to enhance safety and mobility. No TSM&O Alternative can fulfill the purpose and need for the project; therefore, no TSM&O options were identified for the study.

6.1.1 No-Build Alternative

The No-Build Alternative assumed that the connector of Poinciana Parkway Extension to I-4 and the widening of SR 429 from I-4 to north of Sinclair Road is not constructed. Only other projects included in the MetroPlan Orlando 2045 Metropolitan Transportation Plan (MTP) Cost Feasible Plan were assumed to be provided to meet the transportation need (see Section 5.1.1). The results of the No-Build Alternative analysis formed the basis of the comparative analysis for the Build Alternatives. Following future interchange and intersection improvements were considered under No-Build:

1. I-4 at CR 532 interchange (FPID 444187-1) reconfigure to a DDI.
2. I-4 at SR 429 interchange configuration was based on I-4 BtU (FPID 431456-1) . Note that ramp connections to the I-4 ELs were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound). I-4 BtU Express Lanes (Els) construction is anticipated to start beyond opening year 2030 and therefore, ELs have been included under design year 2050 only.
3. SR 429 at Sinclair Road interchange configuration was based on Western Beltway PD&E Study (FPID 446164-1).
4. Old Lake Wilson Road at CR 532 intersection configuration was taken from the Old Lake Wilson Road PD&E Study (FM 448781-1).
5. Poinciana Parkway Extension at CR 532 interchange configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.
6. CR 532 at US 17/92 intersection configuration was based on US 17/92 PD&E Study (FPID 437200-1-22-01).
7. Poinciana Parkway Extension at US 17/92 interchange configuration was taken from the 90% Signing and Marking Plans prepared by CFX.
8. US 17/92 at Ronald Reagan Parkway intersection configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX. Additional capacity improvements have been proposed at the ramp terminals.

SR 429

FTE is conducting a separate PD&E Study to widen Western Beltway (SR 429) from I-4 to Seidel Road (FPID: 446164-1). SR 429, from Sinclair Road to Seidel Road, currently has a four-lane divided typical section with a 56-

foot median. The PD&E Study is evaluating improving this portion of SR 429 to an eight-lane expressway with a 26-foot median.

CR 532

The CR 532 typical section includes two 12-foot lanes. CFX and Osceola County are planning on widening CR 532 to a four-lane divided roadway with a 40-foot median, 7-foot bicycle lanes, and pedestrian facilities. The limit of the project is from Old Lake Wilson Road to US 17/92.

Old Lake Wilson Road

The Old Lake Wilson Road typical section includes two 12-foot lanes. Osceola County is currently conducting a PD&E Study to improve this portion of Old Lake Wilson Road to a four-lane divided roadway. Osceola County anticipates construction to begin in 2025.

Poinciana Parkway Extension (SR 538)

Poinciana Parkway Extension (SR 538) from Ronald Reagan Parkway to CR 532 is currently in design by CFX. The typical section for Poinciana Parkway includes four 12-foot lanes. Poinciana Parkway extension will terminate at CR 532 and will be designed for the expressway to be extended north of CR 532. Construction is programmed by CFX in 2024.

6.1.2 Build Alternatives

Two Build Alternatives were evaluated in addition to the No-Build Alternative. Both Build Alternatives are identical except for differences at the Poinciana Parkway Extension Connector/I-4/SR 429 interchange. Below is a summary of the alternatives considered by segment and interchange:

- Poinciana Parkway Extension Connector (SR 538) Typical Section – Six-lane typical section with option to accommodate eight lanes in the future. Direct connections of ELs between Poinciana Parkway Extension Connector and I-4 have been proposed except Poinciana Parkway Extension Connector northbound to I-4 westbound and I-4 eastbound to Poinciana Parkway Connector southbound.
- SR 429 Typical Section – Twelve-lane typical section consisting of four collector-distributor (C-D) lanes and two travel lanes in each direction. Ramp connections to the I-4 ELs were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound).
- I-4 Typical Section – Twelve- lane typical section consisting of four general use lanes and two managed lanes in each direction. This typical section is consistent with proposed improvements identified by the I-4 BtU project. Additional auxiliary lanes have been proposed along I-4 eastbound and westbound from CR 532 to World Drive. I-4 BtU Express Lanes (Els) construction is anticipated to start beyond opening year 2030 and therefore, ELs have been included under design year 2050 only. Within the study area, the I-4 typical section includes six 12-foot lanes with a 52-foot median. The extension of Poinciana Parkway to SR 429 at I-4 will need to be consistent with the I-4 BtU plans for I-4, which include reconstructing I-4 to accommodate managed lanes in each direction, as well as a rail envelope.
- Poinciana Parkway Extension Connector (SR 538) at CR 532 Interchange – Partial diamond interchange providing access to/from the north.

- Poinciana Parkway Extension Connector (SR 538)/I-4/SR 429 Interchange – Alternative 1: Provides system-to-system connections with the Poinciana Parkway Extension Connector southbound lanes located south of the Florida Gas Transmission (FGT) and Gulfstream site and the northbound lanes located north of the FTG/Gulfstream site. Alternative 2: Similar to Alternative 1, except both directions of the Poinciana Parkway Extension Connector mainline are located south of the FGT/Gulfstream site.
- SR 429 at Sinclair Road Interchange – interchange configuration was based on Western Beltway PD&E Study (FPID 446164-1)
- World Drive at I-4 Interchange – Added a third lane along eastbound C-D road. Three-lane eastbound off-ramp and two- lane westbound on-ramp have been proposed at this interchange with the I-4 mainline.
- Additional capacity improvements have been proposed at the following intersections: US 17/92 at CR 532 and Ronald Reagan Parkway intersections.

A Draft Preliminary Engineering Report (PER) was prepared for this project. Build Alternatives development and selection of the Preferred Build Alternative are discussed in detail in the PER. Alternative 2 has been recommended as the Preferred Alternative based on the Evaluation Matrix (PER). Alternative 2 is recommended as the Preferred Alternative for the following reasons (source PER):

- Alternative 2 requires less ROW and has a smaller footprint than Alternative 1, reducing impacts. Alternative 1 has more direct wetland impacts than Alternative 2. Secondary impacts for each alternative were also assessed within 150 feet of the direct impacts. The combined direct and secondary impacts are greater in Alternative 1.
- Alternative 2 is preferred by FGT over Alternative 1 due to fewer impacts to their facility. Additionally, Alternative 2 does not have direct impacts to FGT's Gas Mains.
- Alternative 2 has lower ROW cost. While it has a higher construction cost than Alternative 1 (as well as a higher total cost), the following was considered:
  - Alternative 1 has direct gas main impacts that do not occur with Alternative 2 (the actual cost of the gas main relocation has not been determined, as they required evaluation by the gas companies).
  - Possible refinements only applicable to the Alternative 2 design may assist with lowering and shortening some of the bridges and thus reducing the project construction cost.
- Alternative 2 is located further away from the Celebration Island Village residential lots (approximately 600 feet) than Alternative 1 (approximately 110 feet).
- Alternative 2 is located further away from the Reunion Development (approximately 605 feet) than Alternative 1 (approximately 519 feet).
- Alternative 2 allows a more perpendicular crossing of Davenport Creek, reducing the creek realignment, number of bridge piers in the water and reducing the impact to the creek

The Alternative Evaluation Memorandum is included in **Appendix H**.

The Poinciana Parkway Extension Connector is a proposed new expressway which would extend from the portion of Poinciana Parkway Extension currently under design by CFX. The Poinciana Parkway Extension Connector would start south of CR 532 and travel north to SR 429 at I-4. Modifications to SR 429 are included from I-4 to the north of Sand Hill Road.

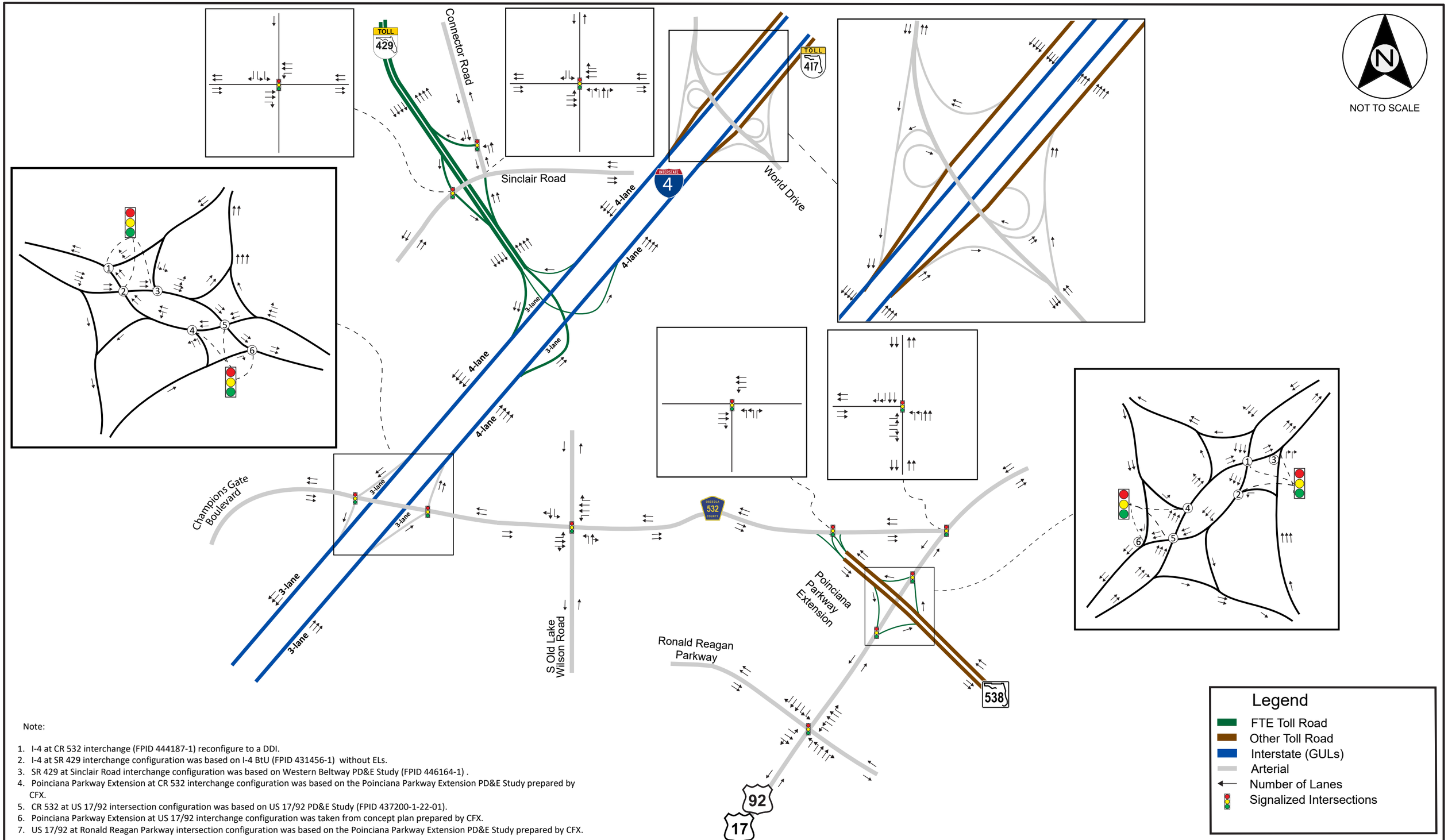
Table 6.1 identifies existing and planned number of lanes for roadways in the study area.

Table 6.1
Roadway Number of Lanes

Roadway	From	To	Existing	Number of Lanes	
				2030 Planned	2050 Planned
SR 429	I-4	Sand Hill Road	4	8	8
I-4	CR 532	World Drive	6	8	12
CR 532	S. Old Lake Wilson Road	US 17/92	2	4	4
Sinclair Road	West of SR 429	East of SR 429	4	4	4
Sand Hill Road	West of SR 429	S. Old Lake Wilson Road	2	2	2
S. Old Lake Wilson Road	CR 532	Sand Hill Road	2	4	4
Connector Road	Sinclair Road	Sand Hill Road	2	2	2
Poinciana Parkway Extension Connector	CR 532	SR 429	0	6*	6*

*Expandable to eight lanes

The No-Build and Preferred Build Alternative Lane configurations are comprehensively depicted on **Figures 6.1** through **6.4**, respectively. The concepts for the alternatives are provided in **Appendix F**.



Note:

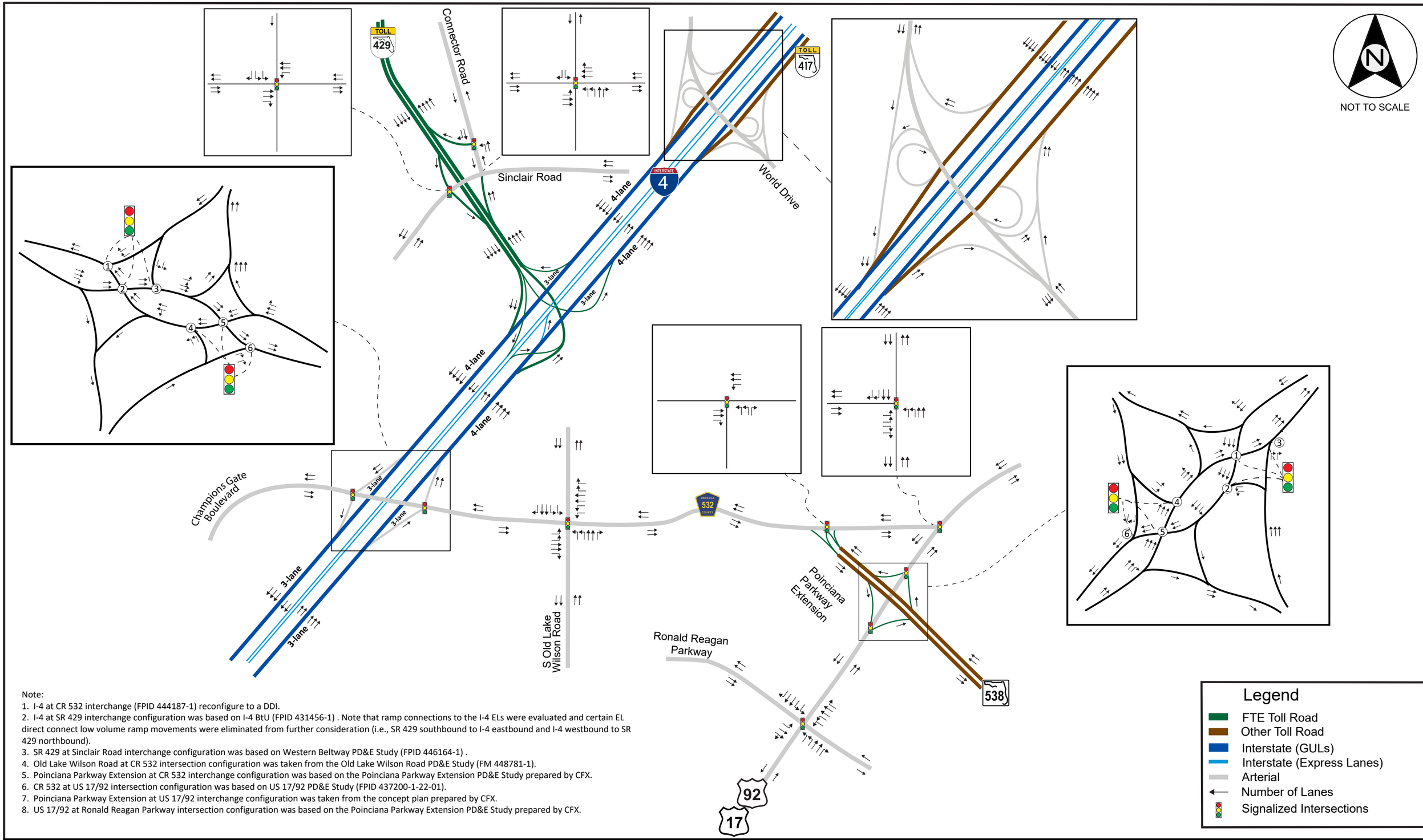
1. I-4 at CR 532 interchange (FPID 444187-1) reconfigure to a DDI.
2. I-4 at SR 429 interchange configuration was based on I-4 BtU (FPID 431456-1) without ELs.
3. SR 429 at Sinclair Road interchange configuration was based on Western Beltway PD&E Study (FPID 446164-1) .
4. Poinciana Parkway Extension at CR 532 interchange configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.
5. CR 532 at US 17/92 intersection configuration was based on US 17/92 PD&E Study (FPID 437200-1-22-01).
6. Poinciana Parkway Extension at US 17/92 interchange configuration was taken from concept plan prepared by CFX.
7. US 17/92 at Ronald Reagan Parkway intersection configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.

FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 No-Build Alternative Lane Geometry

Figure 6.1



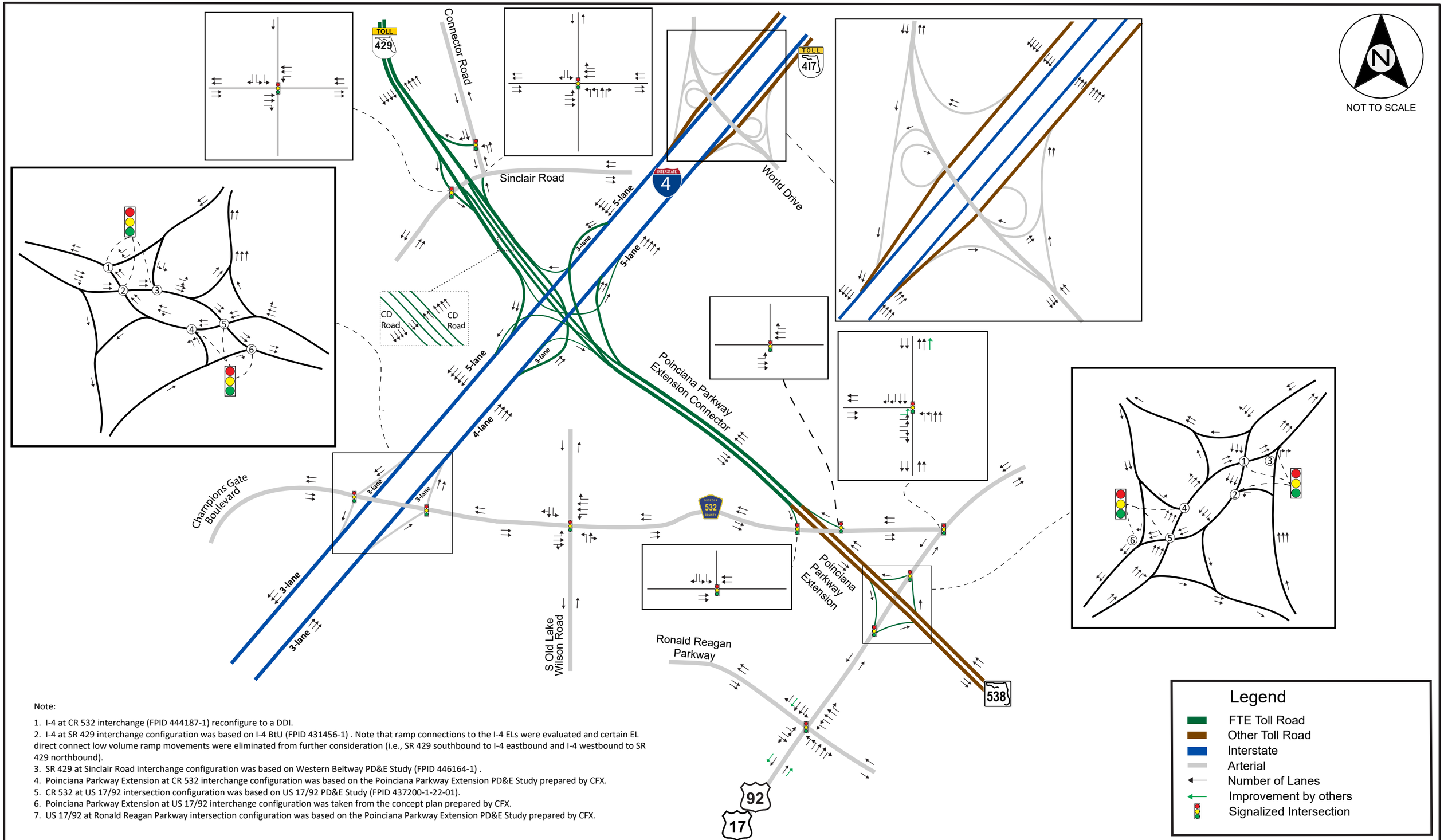
Note:
1. I-4 at CR 532 interchange (FPID 444187-1) reconfigure to a DDI.
2. I-4 at SR 429 interchange configuration was based on I-4 BtU (FPID 431456-1) . Note that ramp connections to the I-4 ELs were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound).
3. SR 429 at Sinclair Road interchange configuration was based on Western Beltway PD&E Study (FPID 446164-1) .
4. Old Lake Wilson Road at CR 532 intersection configuration was taken from the Old Lake Wilson Road PD&E Study (FM 448781-1).
5. Poinciana Parkway Extension at CR 532 interchange configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.
6. CR 532 at US 17/92 intersection configuration was based on US 17/92 PD&E Study (FPID 437200-1-22-01).
7. Poinciana Parkway Extension at US 17/92 interchange configuration was taken from the concept plan prepared by CFX.
8. US 17/92 at Ronald Reagan Parkway intersection configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.

FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 No-Build Alternative Lane Geometry

Figure 6.2



Note:

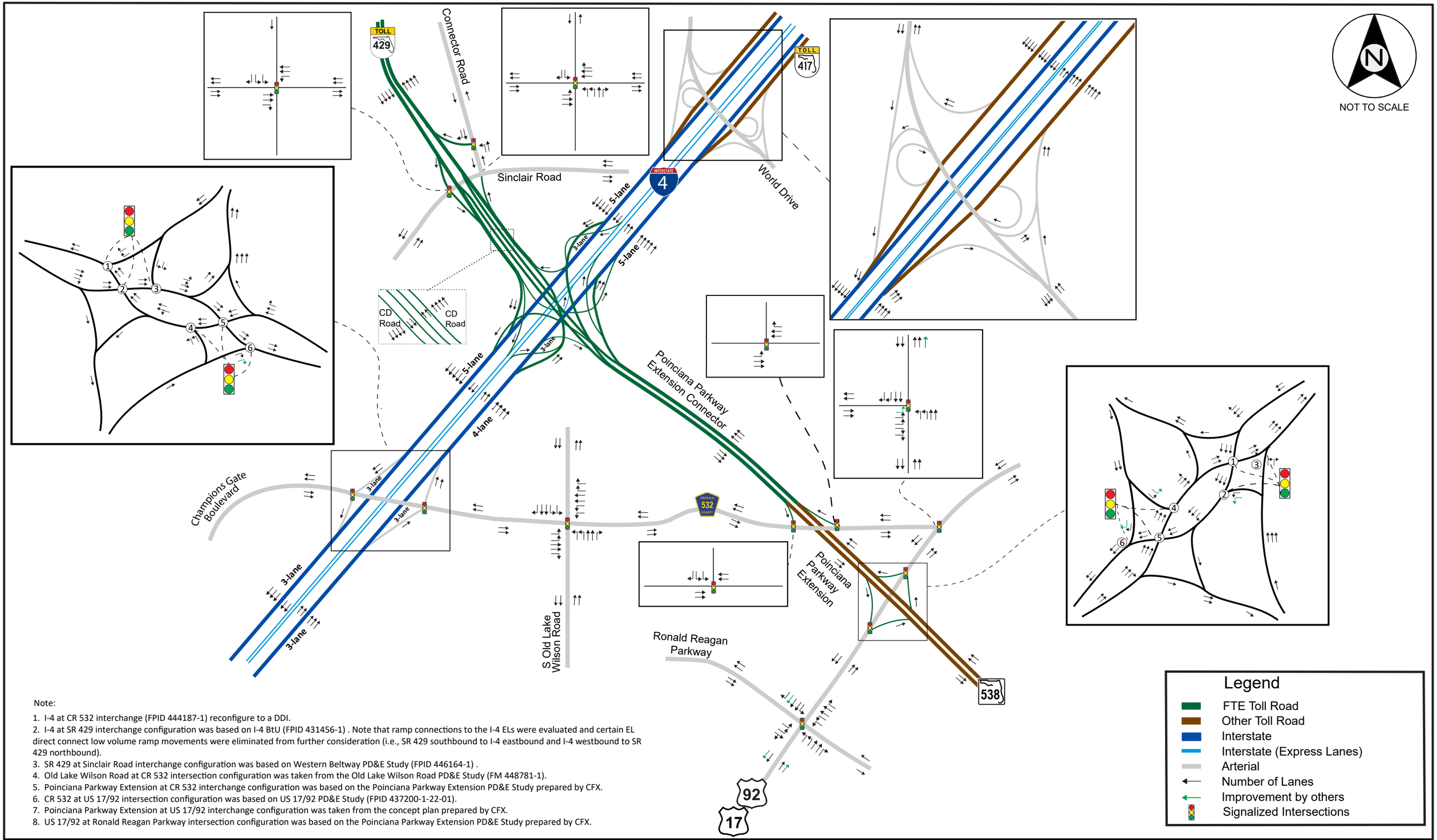
1. I-4 at CR 532 interchange (FPID 444187-1) reconfigure to a DDI.
2. I-4 at SR 429 interchange configuration was based on I-4 BtU (FPID 431456-1) . Note that ramp connections to the I-4 ELs were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound).
3. SR 429 at Sinclair Road interchange configuration was based on Western Beltway PD&E Study (FPID 446164-1) .
4. Poinciana Parkway Extension at CR 532 interchange configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.
5. CR 532 at US 17/92 intersection configuration was based on US 17/92 PD&E Study (FPID 437200-1-22-01).
6. Poinciana Parkway Extension at US 17/92 interchange configuration was taken from the concept plan prepared by CFX.
7. US 17/92 at Ronald Reagan Parkway intersection configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.

FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 Build Alternative Lane Geometry

Figure 6.3



Note:

1. I-4 at CR 532 interchange (FPID 444187-1) reconfigure to a DDI.
2. I-4 at SR 429 interchange configuration was based on I-4 BtU (FPID 431456-1) . Note that ramp connections to the I-4 ELs were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound).
3. SR 429 at Sinclair Road interchange configuration was based on Western Beltway PD&E Study (FPID 446164-1) .
4. Old Lake Wilson Road at CR 532 intersection configuration was taken from the Old Lake Wilson Road PD&E Study (FM 448781-1).
5. Poinciana Parkway Extension at CR 532 interchange configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.
6. CR 532 at US 17/92 intersection configuration was based on US 17/92 PD&E Study (FPID 437200-1-22-01).
7. Poinciana Parkway Extension at US 17/92 interchange configuration was taken from the concept plan prepared by CFX.
8. US 17/92 at Ronald Reagan Parkway intersection configuration was based on the Poinciana Parkway Extension PD&E Study prepared by CFX.

FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 Build Alternative Lane Geometry

Figure 6.4

6.2 FUTURE OPERATIONAL PERFORMANCE

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

6.2.1 Microsimulation Evaluation

Vissim driving behavior parameters used to calibrate the existing conditions model were carried over to the future year analysis models. Driving parameters for the I-4 Express Lane (EL) segments were adopted from the Existing Freeway Basic criteria. The speed distribution on the ELs was assumed to be 5 mph higher than on the adjacent general Use lanes (GLs). Emergency stop and lane change distances for connectors were adjusted at locations where geometry changed. Future conditions Vissim analysis was performed to evaluate the following alternatives:

- No-Build 2030
- Build 2030
- No-Build 2050
- Build 2050

This report section provides a summary of the No-Build and Build analyses as presented in **Tables 6.2** through **6.10**. **Table 6.2** summarizes the Vissim Network-wide Vehicle Performance MOEs, including volume processed rates, total travel times, total delay times, average delays, and average speeds. A comparison between the Build Alternative and No-Build conditions revealed improvements in eastbound and westbound I-4, as well as southbound SR 429 during both AM and PM peak hours. The eastbound/westbound I-4 auxiliary lanes assisted in improving traffic operations in both No-Build and Build Alternatives for year 2050. The proposed direct connect ramps between I-4 and Poinciana Parkway Extension Connector (PPEC) also improved the diverge/merge segments operations on I-4 to/from SR 429/Poinciana Parkway Extension Connector, decreased mainline congestion and reduced turbulence experienced in the No-Build conditions. It is essential to note that while improvements were observed in 2030, delays are attributed to the interim Diverging Diamond Interchange (DDI) configuration, which failed with traffic diverted to PPEC. These intersections delays are discussed in the Vissim Intersection Analysis section of this report. Moreover, the 2030 models had lower speeds due to the exclusion of the I-4 Beyond the Ultimate (BtU) project. This is shown in the Average Speed in **Table 6.2**, except for No-Build PM.

The Vissim Managed Lane (ML) module was not used on this study as I-4 was only included for a small section within the Area of Influence (AOI). To make the Vissim ML module have an impact on dynamic traffic volumes, a much longer portion of I-4 would be required. Therefore, static volumes were used in the analysis to compare the No Build and Build Alternatives.

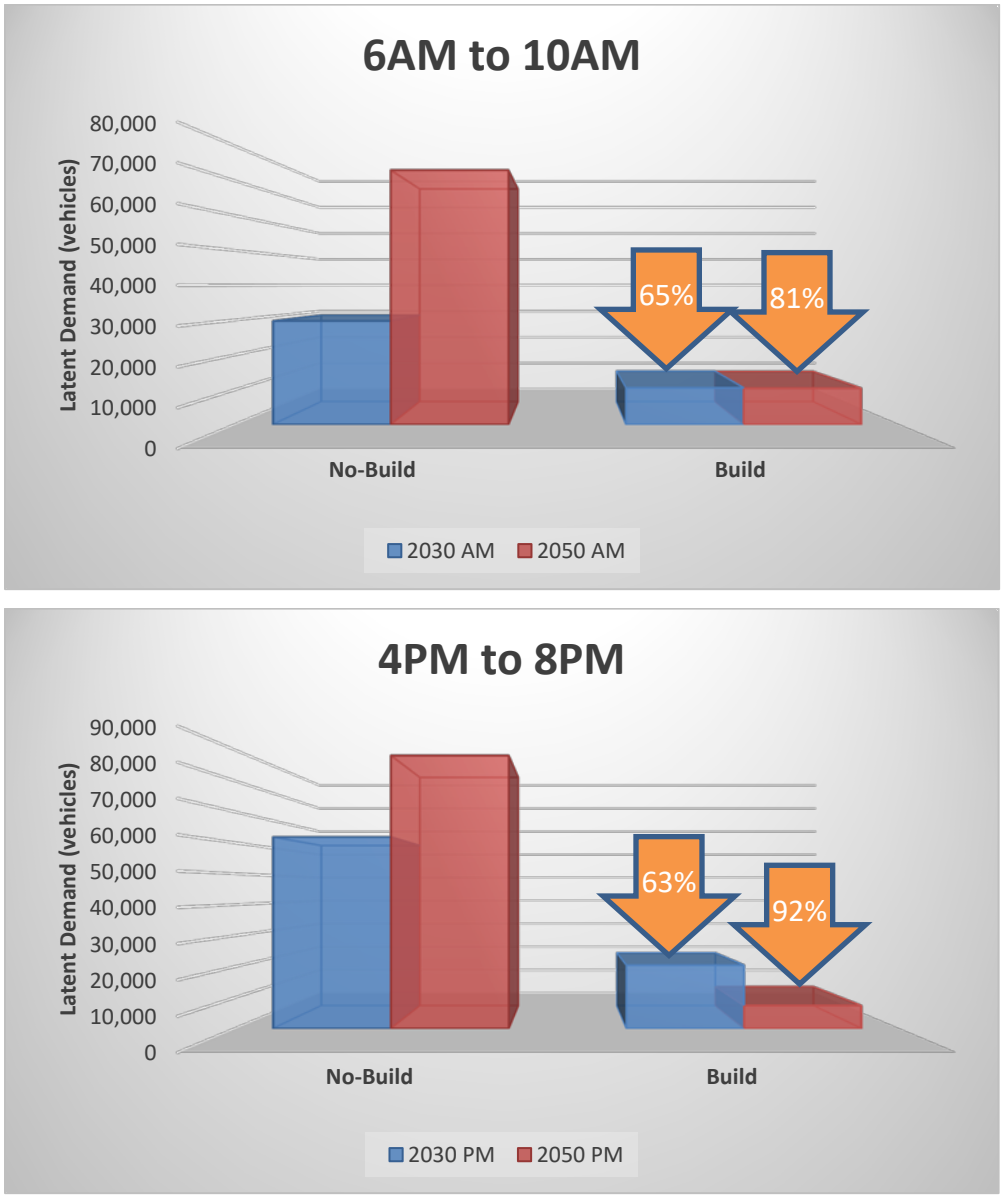
Table 6.2
Vissim Network Vehicle Performance

Performance Measures	No-Build		Build		% Difference	
	AM	PM	AM	PM	AM	PM
2030						
Vehicle Network Performance Processed Demand*	91%	90%	97%	97%	6%	8%
Total Travel Time (hour)	18,795	22,041	14,425	15,297	-23%	-31%
Total Delay Time (hour)	9,760	12,609	5,297	5,860	-46%	-54%
Average Delay (sec/veh)	346	427	193	213	-44%	-50%
Average Speed (mph)	29	27	39	38	33%	42%
2050						
Vehicle Network Performance Processed Demand*	88%	81%	98%	99%	9%	18%
Total Travel Time (hour)	23,630	35,749	16,938	18,314	-28%	-49%
Total Delay Time (hour)	11,565	23,635	4,839	6,238	-58%	-74%
Average Delay (sec/veh)	288	589	125	165	-57%	-72%
Average Speed (mph)	31	22	43	40	41%	84%

*Process rate calculated from Latent Demand

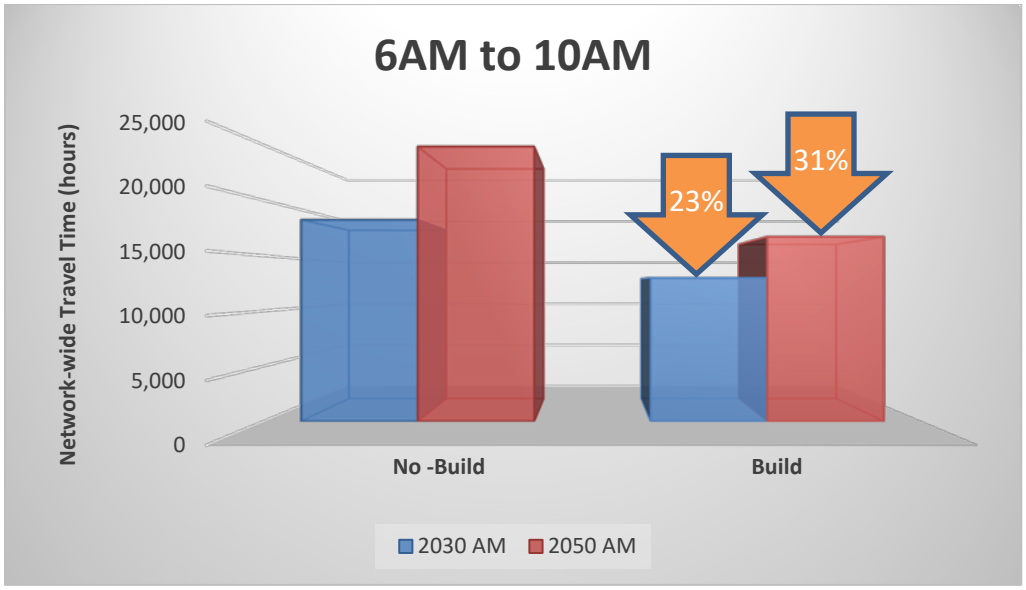
Figure 6.5 shows the latent demand for both the No-Build and Build Alternatives in the years 2030 and 2050. It is noteworthy for the Build Alternative, the latent demand in the year 2050 is either similar or lower than the latent demand in year 2030. The reduction in latent demand is attributed to the additional mainline capacity created by the I-4 BtU project. The overall reduction in latent demand for the Build Conditions is indicative of the benefit of the direct connect ramp between I-4 and Poinciana Parkway Extension Connector project, along with diverted trips from surface streets and I-4 between SR 429 and CR 532 interchanges.

Figure 6.5
Latent Demand Comparisons



Additionally, **Figure 6.6** represents the Network-wide travel time, which shows a 23 percent and 28 percent reduction in total travel time in the year 2030 between the No-Build AM/PM and the Build AM/PM, respectively. The 2050 AM and PM models show a reduction in travel time of 31 percent and 49 percent, respectively.

Figure 6.6
Network-wide Travel Time Comparisons



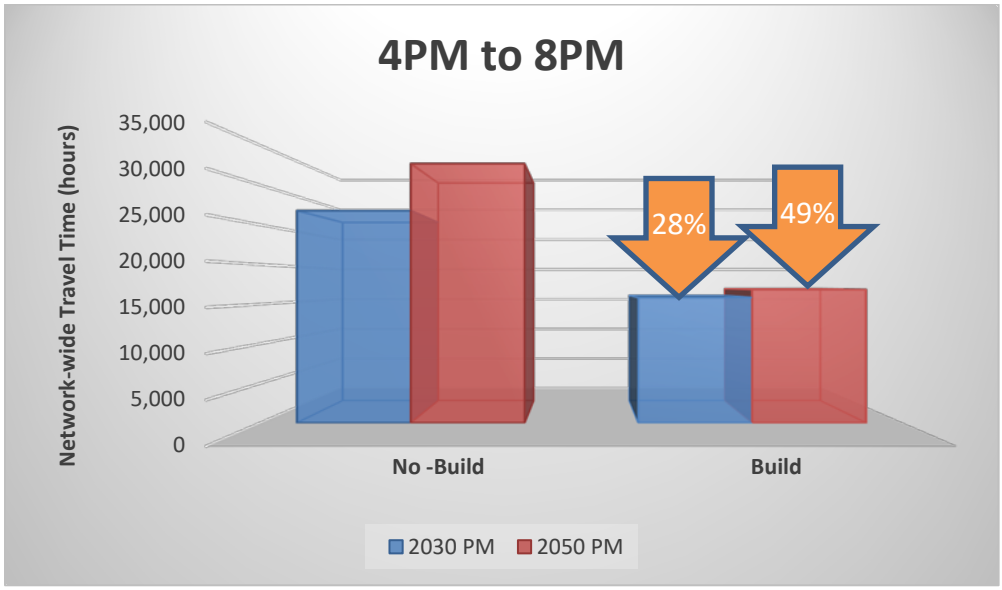
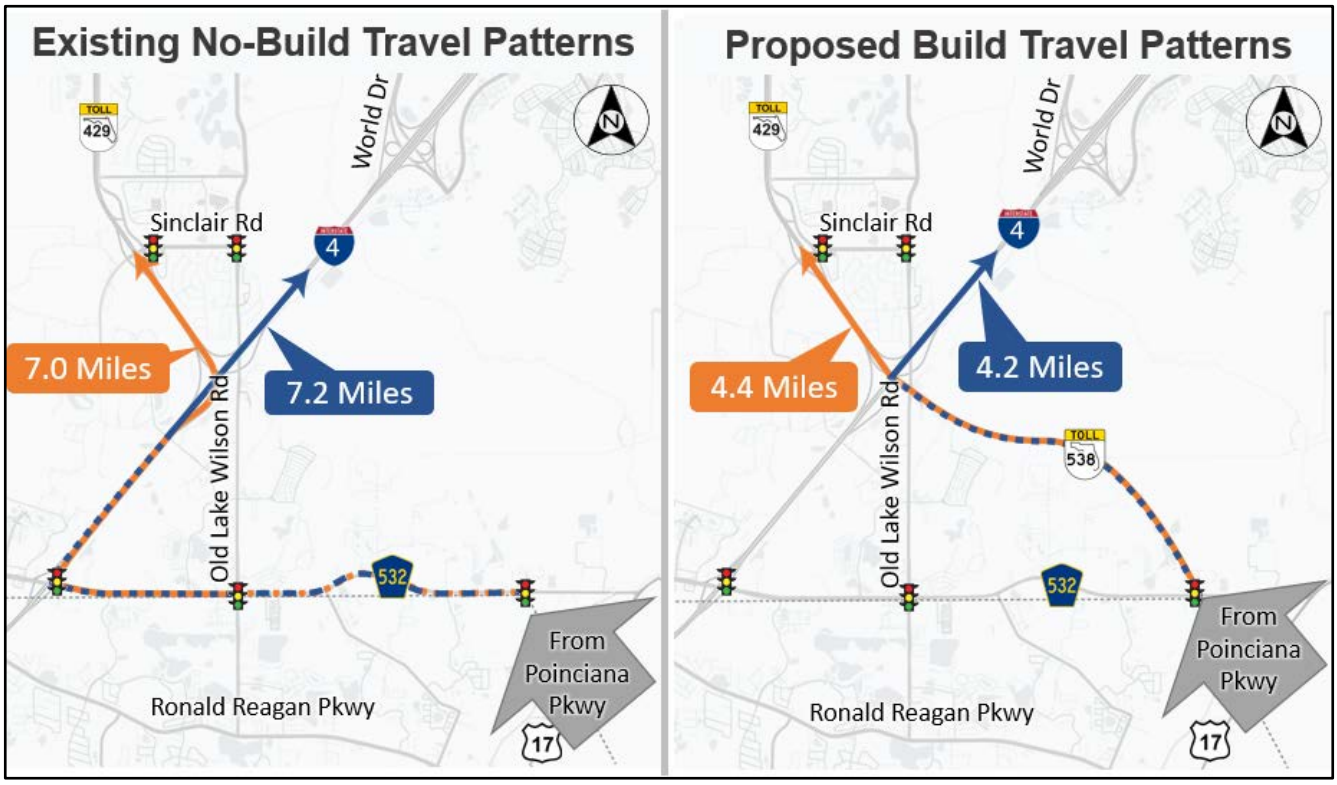


Figure 6.7 shows the routes and associated distances from the PPE to SR-429 and I4 for the No-Build and Build conditions. In No-Build, vehicles must travel westbound on CR 532 to I-4 to get to their destination of eastbound I-4 or Northbound SR-429. For Build, vehicles can bypass CR 532 by continuing northbound on PPE and use the connectors to access eastbound I-4 and northbound SR-429, reducing the travel distance by 3.0 and 2.6 miles, respectively.

Figure 6.7
Poinciana Parkway Extension Connector Travel Time Routes



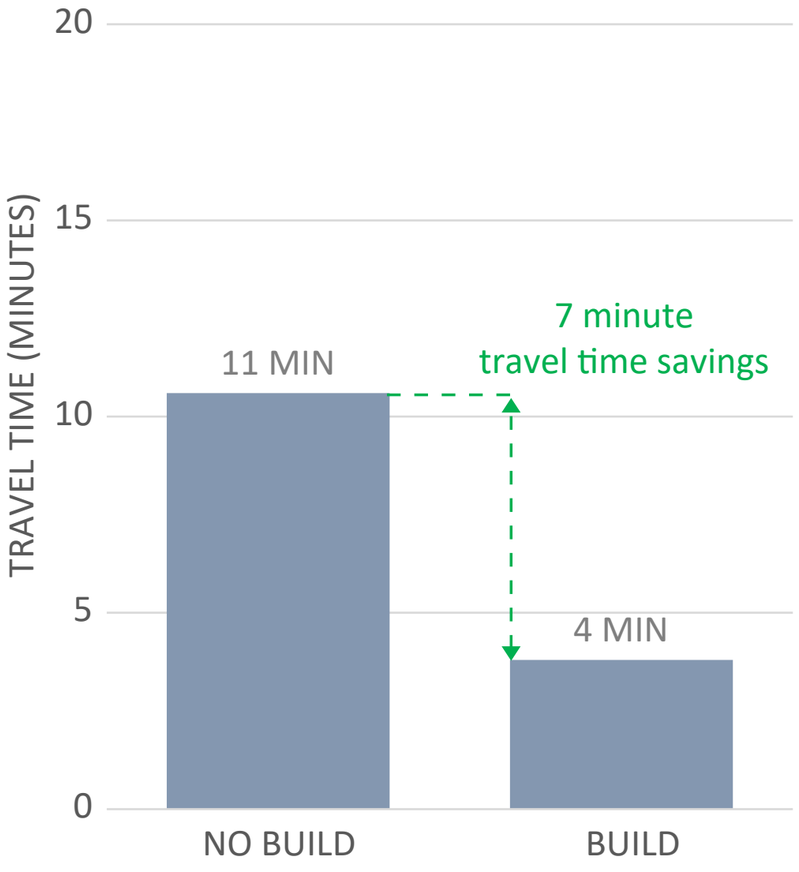
Figures 6.8 and **6.9** highlight the reduction in travel time between Poinciana Parkway and SR 429 and I-4 due to as a result of the Poinciana Parkway Extension Connector project. In the AM period of 2030, the travel times to both SR 429 and I-4 from Poinciana Parkway decrease by 84/83 percent. Similarly, the 2050 PM period depicts a reduction in travel time of 80/78 percent. The travel time segments from Poinciana Parkway to SR 429 and I-4 display a larger reduction during the AM time period in 2030 due to the weave between SR 429 and off-ramp to World Drive in conjunction with limited capacity along I-4 without Express Lanes present.

Table 6.3 provides a comparison of the travel times for eastbound and westbound I-4 to showcase the improvements that the PPEC, express lanes and other projects within the study limits have on the I-4 corridor. During the AM period, the Eastbound I-4 travel time reduces by 25% and 43% in Build 2030 and 2050, respectively. On the other hand, the Westbound I-4, which peaks during the PM period, shows a travel time reduction of 47% and 72% in Build 2030 and 2050, respectively.

Table 6.3
I-4 Travel Time

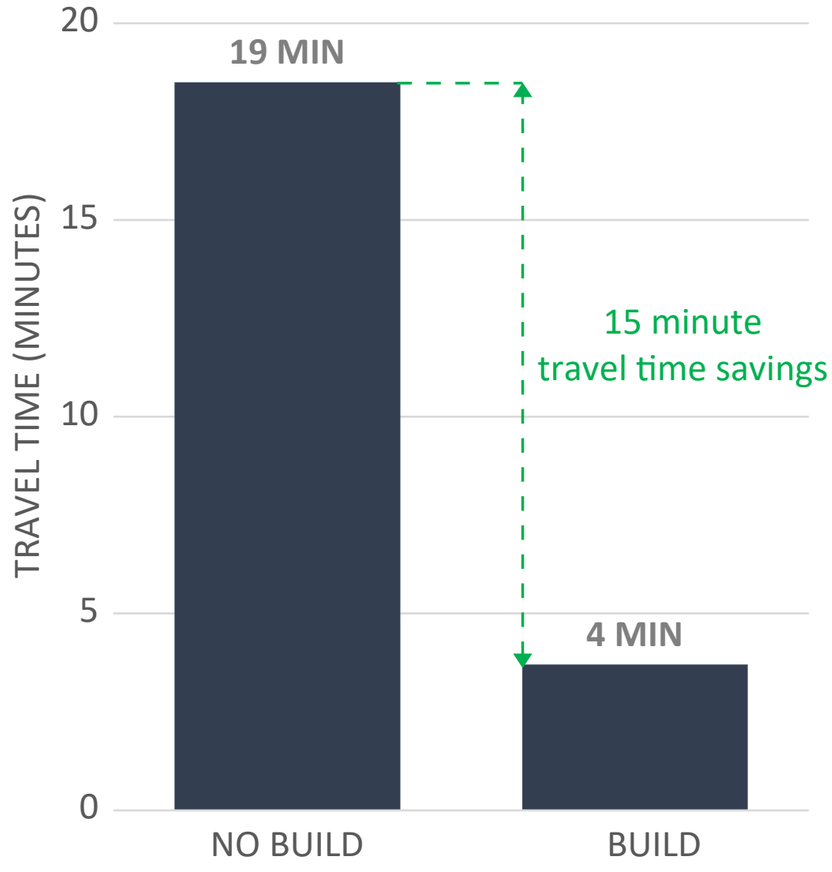
Year	Time	Eastbound			Westbound		
		No-Build	Build	% Difference	No-Build	Build	% Difference
2030	AM	**7.0**	**5.3**	**-25%**	**4.5**	**3.9**	**-13%**
	PM	4.0	3.8	-6%	8.8	4.7	-47%
2050	AM	**6.8**	**3.9**	**-43%**	**2.6**	**3.5**	**36%**
	PM	3.4	3.6	8%	12.8	3.5	-72%

Morning Peak Period



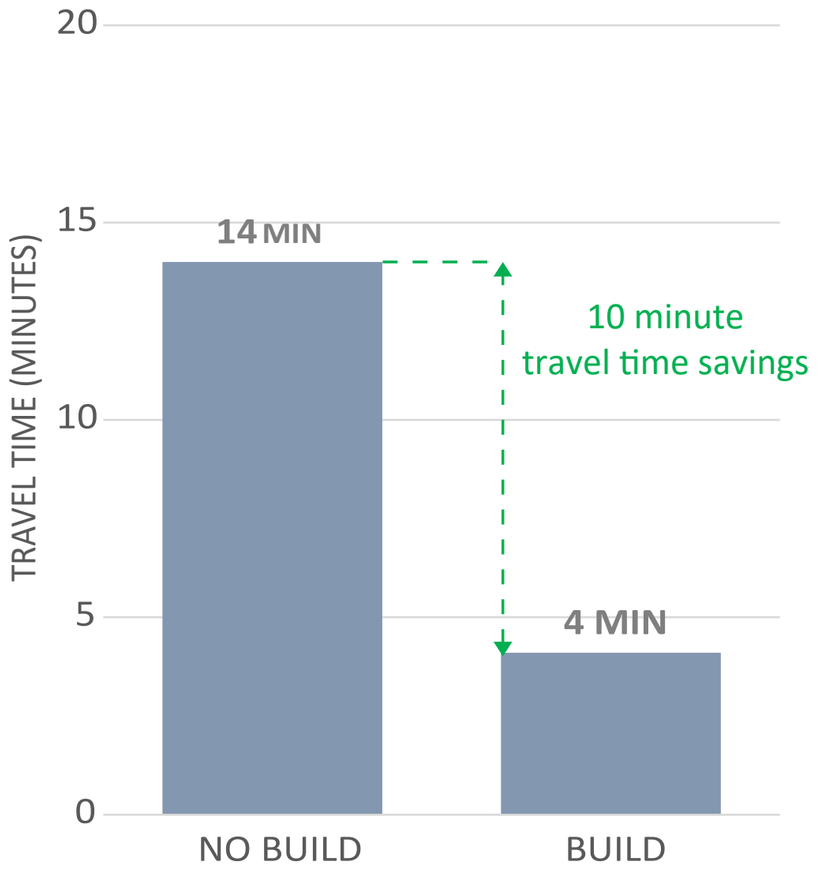


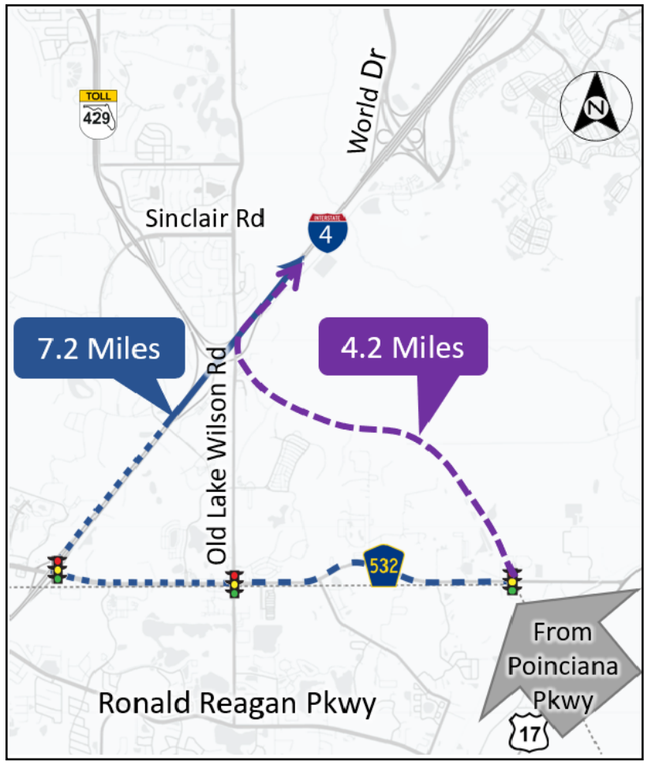
Evening Peak Period



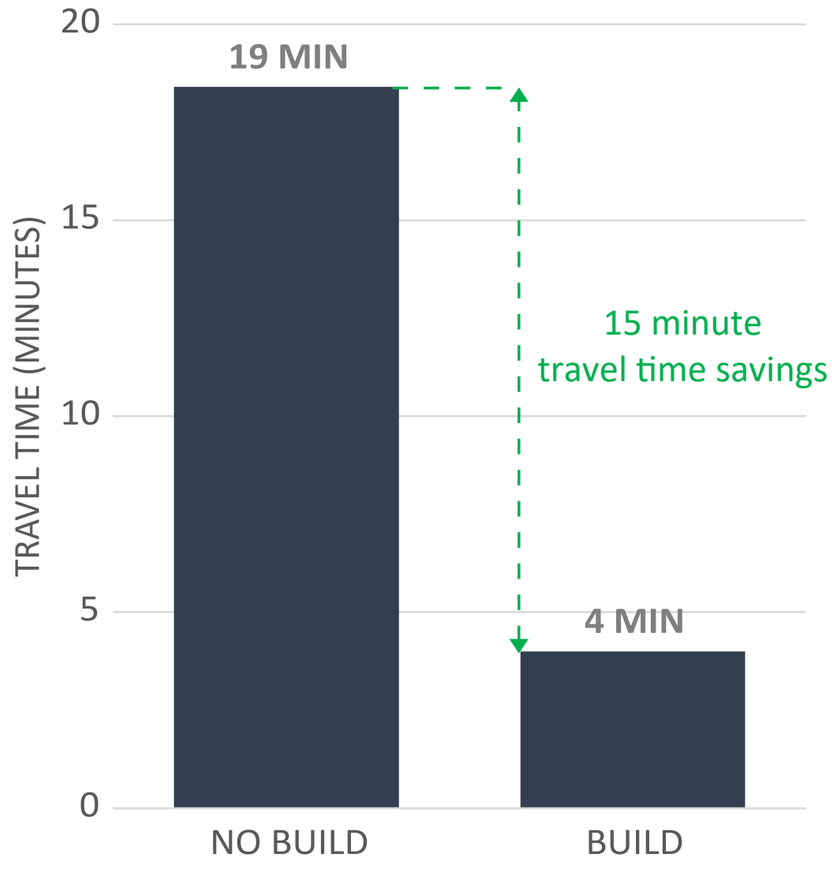
FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Poinciana Parkway to SR 429 Travel Time Comparisons**	**Figure 6.8**

Morning Peak Period





Evening Peak Period



FLORIDA'S TURNPIKE	Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)	**Poinciana Parkway to I-4 Travel Time Comparisons**	**Figure 6.9**

Vissim intersection analysis results are summarized in **Tables 6.4** through **6.11** for the 2030 and 2050 No-Build and Build alternatives**.** The Vissim summaries include percent served, delay, level of service (estimated), and queues. These results supplement the Synchro results but provide a greater level of accuracy to the stochastic nature of the microsimulation model.

It is noteworthy that there are different geometric configurations between the 2030 and 2050 models outside of the I-4 BtU. It was observed that the 2050 No-Build and Build models warranted improvements at the WB I-4/CR-532 interchange and PPE/US 17/92. For the EB I-4 off-ramp to CR-532, dual right turn lanes instead of a single lane are identified as a need for both 2050 Build and No-Build conditions. To avoid any potential congestion on the mainline, it is recommended that the off-ramp operations be examined more closely during the I-4 BtU project's design phase, and if deemed necessary, D5 should construct the second right turn lane. For US 17/92, dual left-turn/right-turn lanes are needed for both 2050 Build and No-Build conditions. It is recommended to monitor the off-ramp operations to prevent any congestion on the mainline. If deemed necessary, the responsible agency should construct additional improvements such as TSM&O to tackle the issue.

The following intersections operate at LOS F in the No-Build 2030 AM and/or PM models:

- CR 532 and Lake Wilson Road
- CR 532 and US17/92 (PM only)
- US 17/92 and Ronald Reagan Parkway
- CR 532 and I-4 WB ramps
- PPE and US 17/92 SB ramps

The 2030 No-Build level of service deficiencies are due to the capacity limitations on Lake Wilson Road, Ronald Reagan Parkway, CR 532, and US 17/92. The 2030 Build AM conditions show improved operations these failing intersections with the exception of the intersections at US 17/92 and Ronald Reagan Parkway. The 2030 Build PM conditions show improved delay at all deficient intersections except for CR 532 and Lake Wilson Road intersection.

The 2050 No-Build models also show most intersections failing because of high demand and lack of capacity. The following locations are failing in the AM and/or PM models:

- Sinclair Road and SR-429 NB ramps (PM only)
- Sinclair Road and SR-429 SB ramps (PM only)
- CR 532 and Lake Wilson Road
- CR 532 and US17/92 (PM only)
- US 17/92 and Ronald Reagan Parkway
- CR 532 and I-4 EB ramps (PM only)
- CR 532 and I-4 WB ramps
- PPE and US 17/92 NB ramps (AM only)
- PPE and US 17/92 SB ramps (PM only)

All intersections show an improvement in delay in the Build 2050 AM condition. For the Build 2050 PM, all locations show an improvement in delay except for PPEC and US 17/92 NB ramps.

A comparison of the average and maximum queues lengths against available storage length can be found in the tables below. The available storage length is exported from Vissim for each approach movement and extends the length of the lane(s), intersection to intersection corridor and/or mainline (ramps only). The following approaches have average queues that extend past the available storage length in the 2030 No-Build models:

- CR 532 and Lake Wilson Road SB, EB and WB (PM only)
- CR 532 and US 17/92 SB (PM only)
- US 17/92 and Ronald Reagan Parkway SB
- PPEC and US 17/92 SB ramps EB

The 2030 AM Build models show similar approaches where the queue length exceeds available storage length while the PM model only has excessive queues at the CR 532 and Lake Wilson Road approaches similar to No-Build. Future capacity improvements to Lake Wilson Road, Ronald Reagan Parkway, CR 532, and US 17/92 could reduce queues.

The following approaches have average queues that exceed the available storage length in the 2050 No-Build models:

- CR 532 and Lake Wilson Road NB, SB, EB and WB
- CR 532 and US 17/92 SB (PM only)
- US 17/92 and Ronald Reagan Parkway NB and SB
- CR 532 and I-4 EB ramps NB (PM only) and WB
- CR 532 and I-4 WB ramps SB (PM only) and EB
- PPE and US 17/92 SB ramps EB (PM only)
- PPE and US 17/92 NB ramps NB (AM only) and WB (AM only)

It is important to note that the queues no longer exceed the available storage at CR 532 and I-4 EB/WB ramps in both the AM and PM 2050 Build models. This is a result of the reduced demand at these intersections with vehicles diverted to the direct connection between SR 429/I-4 and Poinciana Parkway, bypassing CR 532. Overall, the PPEC introduces improvements at the intersection level when comparing the Build models to the No-Build models. Any deficient intersections outside of the immediate project limits could be evaluated by other agencies for future improvements.

Table 6.4
2030 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)													
Sinclair Road and SR 429 NB ramps	90	90	80	80	-	230	340	250	-	-	300	320	1,780
Sinclair Road and SR 429 SB ramps	-	-	-	180	-	140	-	410	250	290	330	-	1,600
CR 532 and Lake Wilson Road	490	620	190	350	400	150	420	710	320	150	1,010	890	5,700
CR 532 and US 17/92	430	920	-	-	610	900	750	-	320	-	-	-	3,930
US 17/92 and Ronald Regan Parkway	550	870	50	50	800	560	540	140	420	30	190	50	4,250
CR 532 and I-4 EB ramps	170	-	440	-	-	-	1,210	910	-	-	830	1,050	4,610
CR 532 and I-4 WB ramps	-	-	-	550	-	880	-	1,570	330	490	510	-	4,330
PPEC and CR 532 NB ramps	440	-	40	-	-	-	-	-	220	20	1,330	-	2,050
PPEC and US 17/92 SB ramps	-	-	-	20	-	60	-	1,150	310	190	1,350	-	3,080
PPEC and US 17/92 NB ramps	640	-	300	-	-	-	120	1,050	-	-	900	20	3,030
Connector Road and SR 429 NB on-ramp	270	480	-	-	310	330	-	-	-	-	-	-	1,390
Percentage Served													
Sinclair Road and SR 429 NB ramps	78%	78%	80%	100%	-	100%	100%	100%	-	-	100%	98%	97%
Sinclair Road and SR 429 SB ramps	-	-	-	100%	-	99%	-	99%	100%	100%	94%	-	99%
CR 532 and Lake Wilson Road	44%	45%	43%	55%	54%	54%	81%	94%	92%	61%	77%	53%	65%
CR 532 and US 17/92	87%	83%	-	-	100%	99%	91%	-	70%	-	-	-	90%
US 17/92 and Ronald Regan Parkway	70%	73%	76%	100%	90%	100%	93%	97%	97%	93%	99%	100%	88%
CR 532 and I-4 EB ramps	72%	-	74%	-	-	-	100%	94%	-	-	70%	72%	83%
CR 532 and I-4 WB ramps	-	-	-	90%	-	94%	-	98%	96%	86%	65%	-	91%
PPEC and CR 532 NB ramps	97%	-	98%	-	-	-	-	-	60%	100%	100%	-	100%
PPEC and US 17/92 SB ramps	-	-	-	0%	-	100%	-	81%	81%	86%	94%	-	88%
PPEC and US 17/92 NB ramps	16%	-	100%	-	-	-	85%	79%	-	-	89%	95%	82%
Connector Road and SR 429 NB on-ramp	99%	95%	-	-	100%	98%	-	-	-	-	-	-	98%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.4 (continued)
2030 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	136/F	154/F	102/F	50/D	-	A	10/B	A	-	-	15/B	11/B	26/C
Sinclair Road and SR 429 SB ramps	-	-	-	43/D	-	15/B	-	A	A	16/B	A	-	12/B
CR 532 and Lake Wilson Road	998/F	1180/F	1163/F	947/F	913/F	910/F	1126/F	126/F	133/F	1061/F	985/F	1419/F	863/F
CR 532 and US 17/92	55/E	24/C	-	-	39/D	A	41/D	-	23/C	-	-	-	29/C
US 17/92 and Ronald Regan Parkway	410/F	487/F	321/F	96/F	78/E	47/D	360/F	131/F	115/F	86/F	76/E	206/F	213/F
CR 532 and I-4 EB ramps	257/F	-	269/F	-	-	-	A	25/C	-	-	107/F	48/D	64/E
CR 532 and I-4 WB ramps	-	-	-	409/F	-	390/F	-	52/D	23/C	13/B	68/E	-	155/F
PPEC and CR 532 NB ramps	41/D	-	A	-	-	-	-	18/B	A	142/F	15/B	-	79/E
PPEC and US 17/92 SB ramps	-	-	-	-	-	49/D	-	345/F	241/F	A	20/B	-	152/F
PPEC and US 17/92 NB ramps	A	-	42/D	-	-	-	A	10/B	-	-	52/D	A	36/D
Connector Road and SR 429 NB on-ramp	A	A	-	-	A	A	-	-	-	-	-	-	A
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	27 (137)	27 (137)	27 (137)	29 (152)	-	36 (171)	16 (153)	16 (153)	-	-	23 (172)	23 (172)	
Available Storage Length (ft)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	27 (122)	-	22 (164)	-	7 (131)	2 (104)	22 (171)	22 (171)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3623 (3707)	3623 (3707)	3623 (3707)	4492 (4669)	4492 (4669)	4492 (4669)	3704 (4184)	3704 (4184)	3770 (4251)	9109 (9753)	9109 (9753)	9109 (9753)	
Available Storage Length (ft)	**4010**	**4010**	**4010**	**315**	**4650**	**4650**	**490**	**4775**	**4775**	**500**	**5350**	**5350**	
CR 532 and US 17/92	74 (307)	74 (307)	-	-	169 (701)	19 (261)	102 (422)	-	50 (383)	-	-	-	
Available Storage Length (ft)	**520**	**3760**	**-**	**-**	**3155**	**645**	**4945**	**-**	**4945**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	4621 (5159)	4621 (5159)	4643 (5181)	172 (519)	172 (519)	185 (554)	1030 (1820)	1030 (1820)	1056 (1845)	79 (196)	79 (196)	79 (196)	
Available Storage Length (ft)	**450**	**5155**	**450**	**425**	**4935**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	6 (92)	-	57 (372)	-	-	-	58 (372)	87 (442)	-	-	382 (838)	237 (576)	
Available Storage Length (ft)	**1695**	**-**	**620**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2035**	**345**	
CR 532 and I-4 WB ramps	-	-	-	73 (332)	-	35 (317)	-	542 (1509)	347 (1268)	15 (317)	87 (287)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1850**	**-**	**1055**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 NB ramps	44 (210)	-	44 (210)	-	-	-	-	75 (413)	24 (286)	802 (1285)	68 (210)	-	
Available Storage Length (ft)	**2120**	**-**	**430**	**-**	**-**	**-**	**-**	**4940**	**425**	**425**	**4560**	**-**	
PPEC and US 17/92 SB ramps	-	-	-	-	-	31 (177)	-	4938 (5167)	4754 (4984)	10 (254)	92 (445)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**-**	**-**	**885**	**-**	**4935**	**650**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	34 (517)	-	179 (898)	-	-	-	34 (517)	33 (212)	-	-	103 (374)	18 (205)	
Available Storage Length (ft)	**2405**	**-**	**780**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**3735**	**615**	
Connector Road and SR 429 NB on-ramp	2 (99)	2 (99)	-	-	4 (148)	4 (148)	-	-	-	-	-	-	
Available Storage Length (ft)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

Table 6.5
2030 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)													
Sinclair Road and SR 429 NB ramps	260	110	170	90	-	320	170	400	-	-	150	230	1,900
Sinclair Road and SR 429 SB ramps	-	-	-	340	-	260	-	230	80	180	550	-	1,640
CR 532 and Lake Wilson Road	440	490	120	750	670	180	480	830	540	180	780	490	5,950
CR 532 and US 17/92	360	690	-	-	1,090	860	980	-	300	-	-	-	4,280
US 17/92 and Ronald Regan Parkway	370	810	40	40	840	620	680	180	590	20	160	50	4,400
CR 532 and I-4 EB ramps	170	-	590	-	-	-	1,070	1,230	-	-	780	760	4,600
CR 532 and I-4 WB ramps	-	-	-	830	-	1,320	-	1,470	280	370	580	-	4,850
PPEC and CR 532 NB ramps	220	-	20	-	-	-	-	1,260	440	40	1,220	-	3,200
PPEC and US 17/92 SB ramps	-	-	-	20	-	120	-	900	640	300	1,380	-	3,360
PPEC and US 17/92 NB ramps	310	-	190	-	-	-	60	860	-	-	1,370	20	2,810
Connector Road and SR 429 NB on-ramp	150	360	-	-	410	170	-	-	-	-	-	-	1,090
Percentage Served													
Sinclair Road and SR 429 NB ramps	72%	69%	72%	99%	-	100%	99%	100%	-	-	100%	97%	92%
Sinclair Road and SR 429 SB ramps	-	-	-	100%	-	99%	-	100%	98%	100%	87%	-	96%
CR 532 and Lake Wilson Road	55%	54%	58%	35%	35%	34%	82%	84%	82%	68%	83%	69%	63%
CR 532 and US 17/92	82%	77%	-	-	60%	60%	87%	-	39%	-	-	-	69%
US 17/92 and Ronald Regan Parkway	77%	75%	78%	68%	72%	76%	75%	79%	78%	95%	99%	90%	77%
CR 532 and I-4 EB ramps	79%	-	83%	-	-	-	100%	87%	-	-	75%	80%	86%
CR 532 and I-4 WB ramps	-	-	-	81%	-	83%	-	98%	97%	87%	70%	-	87%
PPEC and CR 532 NB ramps	95%	-	100%	-	-	-	-	74%	37%	65%	83%	-	74%
PPEC and US 17/92 SB ramps	-	-	-	0%	-	100%	-	77%	77%	61%	71%	-	74%
PPEC and US 17/92 NB ramps	15%	-	100%	-	-	-	78%	75%	-	-	63%	75%	68%
Connector Road and SR 429 NB on-ramp	97%	90%	-	-	100%	99%	-	-	-	-	-	-	96%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.5 (continued)
2030 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	276/F	304/F	233/F	43/D	-	14/B	A	A	-	-	11/B	A	72/E
Sinclair Road and SR 429 SB ramps	-	-	-	43/D	-	18/B	-	A	A	12/B	A	-	16/B
CR 532 and Lake Wilson Road	986/F	1236/F	1264/F	815/F	768/F	762/F	641/F	594/F	597/F	101/F	77/E	45/D	556/F
CR 532 and US 17/92	51/D	25/C	-	-	470/F	191/F	44/D	-	23/C	-	-	-	160/F
US 17/92 and Ronald Regan Parkway	501/F	536/F	386/F	123/F	78/E	22/C	1015/F	750/F	735/F	120/F	103/F	742/F	453/F
CR 532 and I-4 EB ramps	66/E	-	99/F	-	-	-	A	31/C	-	-	70/E	15/B	37/D
CR 532 and I-4 WB ramps	-	-	-	431/F	-	409/F	-	45/D	17/B	A	64/E	-	200/F
PPEC and CR 532 NB ramps	25/C	-	A	-	-	-	-	18/B	A	47/D	A	-	16/B
PPEC and US 17/92 SB ramps	-	-	-	-	-	54/D	-	404/F	243/F	A	A	-	163/F
PPEC and US 17/92 NB ramps	A	-	31/C	-	-	-	A	A	-	-	42/D	11/B	27/C
Connector Road and SR 429 NB on-ramp	A	A	-	-	A	A	-	-	-	-	-	-	A
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	36 (155)	36 (155)	36 (155)	35 (176)	-	45 (195)	11 (110)	11 (110)	-	-	8 (112)	8 (112)	
Available Storage Length (ft)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	45 (215)	-	53 (251)	-	5 (90)	1 (63)	13 (132)	13 (132)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3619 (3712)	3619 (3712)	3619 (3712)	4468 (4674)	4468 (4674)	4468 (4674)	6015 (6448)	6015 (6448)	6082 (6515)	209 (548)	209 (548)	209 (548)	
Available Storage Length (ft)	**4010**	**4010**	**4010**	**315**	**4650**	**4650**	**490**	**4775**	**4775**	**500**	**5350**	**5350**	
CR 532 and US 17/92	58 (262)	58 (262)	-	-	3021 (3188)	2146 (2329)	134 (545)	-	40 (428)	-	-	-	
Available Storage Length (ft)	**520**	**3760**	**-**	**-**	**3155**	**645**	**4945**	**-**	**4945**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	4668 (5160)	4668 (5160)	4690 (5182)	161 (511)	161 (511)	173 (546)	4426 (4618)	4426 (4618)	4452 (4644)	173 (269)	173 (269)	173 (269)	
Available Storage Length (ft)	**450**	**5155**	**450**	**425**	**4935**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	6 (100)	-	299 (770)	-	-	-	93 (503)	130 (631)	-	-	138 (495)	16 (255)	
Available Storage Length (ft)	**1695**	**-**	**620**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2035**	**345**	
CR 532 and I-4 WB ramps	-	-	-	97 (415)	-	64 (454)	-	379 (1282)	208 (1041)	18 (313)	103 (419)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1850**	**-**	**1055**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 NB ramps	19 (131)	-	19 (131)	-	-	-	-	88 (451)	32 (324)	39 (358)	-	-	
Available Storage Length (ft)	**2120**	**-**	**430**	**-**	**-**	**-**	**-**	**4940**	**425**	**425**	**4560**	**-**	
PPEC and US 17/92 SB ramps	-	-	-	-	-	44 (243)	-	4888 (5173)	4705 (4989)	2 (175)	20 (203)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**-**	**-**	**885**	**-**	**4935**	**650**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	9 (264)	-	54 (390)	-	-	-	9 (264)	16 (139)	-	-	77 (339)	10 (170)	
Available Storage Length (ft)	**2405**	**-**	**780**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**3735**	**615**	
Connector Road and SR 429 NB on-ramp	1 (72)	1 (72)	-	-	3 (142)	3 (142)	-	-	-	-	-	-	
Available Storage Length (ft)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

Table 6.6
2050 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)													
Sinclair Road and SR 429 NB ramps	180	140	150	100	-	300	620	370	-	-	450	420	2,730
Sinclair Road and SR 429 SB ramps	-	-	-	280	-	230	-	710	440	380	550	-	2,590
CR 532 and Lake Wilson Road	710	780	360	560	590	250	610	980	510	220	1,390	1,240	8,200
CR 532 and US 17/92	730	1,260	-	-	970	1,130	1,040	-	630	-	-	-	5,760
US 17/92 and Ronald Regan Parkway	900	1,140	60	80	1,290	950	820	210	670	40	290	70	6,520
CR 532 and I-4 EB ramps	290	-	690	-	-	-	1,700	1,320	-	-	1,200	1,390	6,590
CR 532 and I-4 WB ramps	-	-	-	870	-	1,370	-	2,150	520	760	730	-	6,400
PPEC and CR 532 NB ramps	780	-	60	-	-	-	-	1,610	440	40	1,860	-	4,790
PPEC and US 17/92 SB ramps	-	-	-	30	-	90	-	1,450	580	380	2,230	-	4,760
PPEC and US 17/92 NB ramps	1,060	-	680	-	-	-	170	1,310	-	-	1,550	50	4,820
Connector Road and SR 429 NB on-ramp	450	730	-	-	400	540	-	-	-	-	-	-	2,120
Percentage Served													
Sinclair Road and SR 429 NB ramps	93%	89%	94%	100%	-	98%	99%	100%	-	-	100%	97%	98%
Sinclair Road and SR 429 SB ramps	-	-	-	98%	-	97%	-	98%	99%	99%	97%	-	98%
CR 532 and Lake Wilson Road	60%	60%	60%	73%	72%	71%	80%	92%	89%	45%	80%	62%	72%
CR 532 and US 17/92	51%	49%	-	-	100%	98%	100%	-	65%	-	-	-	78%
US 17/92 and Ronald Regan Parkway	48%	49%	47%	81%	59%	81%	52%	53%	51%	100%	100%	100%	60%
CR 532 and I-4 EB ramps	93%	-	98%	-	-	-	54%	84%	-	-	70%	73%	73%
CR 532 and I-4 WB ramps	-	-	-	98%	-	100%	-	45%	44%	82%	72%	-	72%
PPEC and CR 532 NB ramps	50%	-	48%	-	-	-	-	88%	63%	90%	90%	-	80%
PPEC and US 17/92 SB ramps	-	-	-	0%	-	100%	-	56%	57%	84%	63%	-	65%
PPEC and US 17/92 NB ramps	9%	-	52%	-	-	-	56%	55%	-	-	84%	100%	54%
Connector Road and SR 429 NB on-ramp	99%	96%	-	-	99%	99%	-	-	-	-	-	-	98%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.6 (continued)
2050 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	117/F	132/F	90/F	56/E	-	19/B	26/C	10/B	-	-	41/D	72/E	40/D
Sinclair Road and SR 429 SB ramps	-	-	-	75/E	-	47/D	-	A	A	29/C	A	-	18/B
CR 532 and Lake Wilson Road	698/F	378/F	299/F	1204/F	385/F	297/F	731/F	86/F	55/E	104/F	89/F	69/E	313/F
CR 532 and US 17/92	59/E	20/C	-	-	49/D	17/B	54/D	-	30/C	-	-	-	37/D
US 17/92 and Ronald Regan Parkway	491/F	409/F	315/F	343/F	355/F	522/F	724/F	1066/F	1055/F	103/F	88/F	11/B	497/F
CR 532 and I-4 EB ramps	27/C	-	49/D	-	-	-	10/B	37/D	-	-	103/F	76/E	49/D
CR 532 and I-4 WB ramps	-	-	-	61/E	-	61/E	-	382/F	311/F	14/B	48/D	-	135/F
PPEC and CR 532 NB ramps	29/C	-	12/B	-	-	-	-	19/B	A	54/D	A	-	18/B
PPEC and US 17/92 SB ramps	-	-	-	-	-	92/F	-	72/E	13/B	A	56/E	-	51/D
PPEC and US 17/92 NB ramps	A	-	1827/F	-	-	-	A	A	-	-	260/F	162/F	509/F
Connector Road and SR 429 NB on-ramp	A	A	-	-	19/B	33/C	-	-	-	-	-	-	14/B
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	51 (204)	51 (204)	51 (204)	52 (228)	-	63 (248)	86 (425)	86 (425)	-	-	163 (476)	163 (476)	
Available Storage Length (ft)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	41 (172)	-	45 (207)	-	19 (247)	12 (220)	47 (205)	47 (205)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3507 (3706)	3507 (3706)	3538 (3737)	4575 (4693)	4575 (4693)	4606 (4724)	3138 (3937)	3138 (3937)	3138 (3937)	1017 (1852)	1017 (1852)	1017 (1852)	
Available Storage Length (ft)	**335**	**4010**	**335**	**315**	**4650**	**315**	**490**	**4775**	**490**	**500**	**5345**	**745**	
CR 532 and US 17/92	86 (389)	86 (389)	-	-	243 (762)	183 (718)	242 (849)	-	160 (734)	-	-	-	
Available Storage Length (ft)	**520**	**7180**	**-**	**-**	**3155**	**645**	**4810**	**-**	**4805**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	4655 (5160)	4655 (5160)	4677 (5182)	4656 (5133)	4656 (5133)	4692 (5168)	4503 (4626)	4503 (4626)	4528 (4652)	100 (284)	100 (284)	100 (284)	
Available Storage Length (ft)	**450**	**5155**	**450**	**425**	**4940**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	15 (128)	-	112 (379)	-	-	-	110 (500)	165 (617)	-	-	1638 (2081)	1426 (1816)	
Available Storage Length (ft)	**1680**	**-**	**885**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2040**	**345**	
CR 532 and I-4 WB ramps	-	-	-	71 (391)	-	112 (562)	-	2983 (3192)	2742 (2951)	36 (416)	95 (477)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1860**	**-**	**1060**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 NB ramps	43 (307)	-	43 (307)	-	-	-	-	275 (502)	178 (375)	87 (578)	-	-	
Available Storage Length (ft)	**2700**	**-**	**1015**	**-**	**-**	**-**	**-**	**4845**	**85**	**445**	**4430**	**-**	
PPEC and US 17/92 SB ramps	-	-	-	-	-	86 (243)	-	238 (886)	118 (702)	204 (500)	428 (794)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**-**	**-**	**575**	**-**	**4940**	**780**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	1 (124)	-	7781 (7877)	-	-	-	1 (124)	-	-	-	1393 (2305)	1237 (2136)	
Available Storage Length (ft)	**2405**	**-**	**785**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**6285**	**610**	
Connector Road and SR 429 NB on-ramp	11 (216)	11 (216)	-	-	146 (786)	146 (786)	-	-	-	-	-	-	
Available Storage Length (ft)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

Table 6.7
2050 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)													
Sinclair Road and SR 429 NB ramps	400	190	230	130	-	450	310	620	-	-	200	320	2,850
Sinclair Road and SR 429 SB ramps	-	-	-	530	-	460	-	400	240	230	820	-	2,680
CR 532 and Lake Wilson Road	640	690	320	1,100	830	320	700	980	820	250	1,140	710	8,500
CR 532 and US 17/92	660	950	-	-	1,390	1,060	1,190	-	520	-	-	-	5,770
US 17/92 and Ronald Regan Parkway	700	1,250	50	80	1,150	720	1,020	270	960	40	230	70	6,540
CR 532 and I-4 EB ramps	250	-	820	-	-	-	1,440	1,810	-	-	1,050	1,250	6,620
CR 532 and I-4 WB ramps	-	-	-	1,370	-	1,650	-	1,880	420	600	700	-	6,620
PPEC and CR 532 NB ramps	780	-	60	-	-	-	-	1,670	440	40	1,860	-	4,850
PPEC and US 17/92 SB ramps	-	-	-	50	-	170	-	1,280	1,060	680	1,780	-	5,020
PPEC and US 17/92 NB ramps	580	-	380	-	-	-	90	1,240	-	-	1,880	30	4,200
Connector Road and SR 429 NB on-ramp	230	590	-	-	580	280	-	-	-	-	-	-	1,680
Percentage Served													
Sinclair Road and SR 429 NB ramps	79%	82%	80%	100%	-	97%	84%	83%	-	-	100%	98%	88%
Sinclair Road and SR 429 SB ramps	-	-	-	67%	-	65%	-	99%	100%	100%	89%	-	84%
CR 532 and Lake Wilson Road	60%	61%	61%	49%	48%	48%	62%	69%	67%	56%	81%	58%	61%
CR 532 and US 17/92	65%	61%	-	-	79%	79%	93%	-	40%	-	-	-	74%
US 17/92 and Ronald Regan Parkway	54%	56%	56%	93%	80%	87%	43%	45%	44%	93%	98%	100%	62%
CR 532 and I-4 EB ramps	64%	-	68%	-	-	-	51%	64%	-	-	66%	72%	63%
CR 532 and I-4 WB ramps	-	-	-	67%	-	68%	-	43%	42%	83%	59%	-	59%
PPEC and CR 532 NB ramps	93%	-	93%	-	-	-	-	81%	38%	82%	95%	-	80%
PPEC and US 17/92 SB ramps	-	-	-	0%	-	100%	-	54%	55%	74%	82%	-	68%
PPEC and US 17/92 NB ramps	8%	-	100%	-	-	-	54%	52%	-	-	73%	100%	65%
Connector Road and SR 429 NB on-ramp	100%	85%	-	-	99%	99%	-	-	-	-	-	-	94%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.7 (continued)
2050 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	252/F	240/F	223/F	114/F	-	103/F	14/B	12/B	-	-	18/B	10/B	91/F
Sinclair Road and SR 429 SB ramps	-	-	-	817/F	-	802/F	-	A	A	12/B	A	-	152/F
CR 532 and Lake Wilson Road	836/F	400/F	298/F	810/F	280/F	213/F	1365/F	472/F	482/F	891/F	929/F	868/F	697/F
CR 532 and US 17/92	58/E	25/C	-	-	205/F	147/F	482/F	-	411/F	-	-	-	239/F
US 17/92 and Ronald Regan Parkway	379/F	351/F	256/F	206/F	189/F	125/F	587/F	835/F	815/F	104/F	84/F	33/C	350/F
CR 532 and I-4 EB ramps	804/F	-	1086/F	-	-	-	49/D	94/F	-	-	114/F	52/D	229/F
CR 532 and I-4 WB ramps	-	-	-	1321/F	-	1132/F	-	533/F	421/F	14/B	60/E	-	765/F
PPEC and CR 532 NB ramps	29/C	-	13/B	-	-	-	-	22/C	A	65/E	A	-	27/C
PPEC and US 17/92 SB ramps	-	-	-	-	-	61/E	-	599/F	449/F	A	12/B	-	198/F
PPEC and US 17/92 NB ramps	A	-	45/D	-	-	-	A	A	-	-	43/D	A	32/C
Connector Road and SR 429 NB on-ramp	A	A	-	-	A	A	-	-	-	-	-	-	A
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	56 (222)	56 (222)	56 (222)	356 (773)	-	375 (792)	28 (175)	28 (175)	-	-	23 (147)	23 (147)	
Available Storage Length (ft)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	69 (390)	-	91 (433)	-	13 (138)	5 (111)	23 (152)	23 (152)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3568 (3717)	3568 (3717)	3599 (3748)	4533 (4687)	4533 (4687)	4564 (4719)	6834 (6991)	6834 (6991)	6834 (6991)	7722 (8435)	7722 (8435)	7722 (8435)	
Available Storage Length (ft)	**335**	**4010**	**335**	**315**	**4650**	**315**	**490**	**4775**	**490**	**500**	**5345**	**745**	
CR 532 and US 17/92	96 (347)	96 (347)	-	-	2750 (3177)	2797 (3223)	3912 (4578)	-	3900 (4565)	-	-	-	
Available Storage Length (ft)	**520**	**7180**	**-**	**-**	**3155**	**645**	**4810**	**-**	**4805**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	4556 (5166)	4556 (5166)	4579 (5188)	1373 (2528)	1373 (2528)	1403 (2563)	4485 (4627)	4485 (4627)	4510 (4653)	79 (245)	79 (245)	79 (245)	
Available Storage Length (ft)	**450**	**5155**	**450**	**425**	**4940**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	1854 (2834)	-	13008 (13916)	-	-	-	381 (590)	486 (718)	-	-	920 (1622)	711 (1367)	
Available Storage Length (ft)	**1680**	**-**	**885**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2040**	**345**	
CR 532 and I-4 WB ramps	-	-	-	23568 (25618)	-	23672 (25723)	-	3022 (3202)	2781 (2960)	27 (402)	95 (392)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1860**	**-**	**1060**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 NB ramps	41 (197)	-	41 (197)	-	-	-	-	227 (502)	136 (375)	191 (717)	14 (67)	-	
Available Storage Length (ft)	**2700**	**-**	**1015**	**-**	**-**	**-**	**-**	**4845**	**85**	**445**	**4430**	**-**	
PPEC and US 17/92 SB ramps	-	-	-	-	-	50 (197)	-	3811 (4504)	3627 (4320)	34 (439)	63 (440)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**-**	**-**	**575**	**-**	**4940**	**780**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	1 (75)	-	81 (427)	-	-	-	1 (75)	1 (11)	-	-	126 (553)	52 (384)	
Available Storage Length (ft)	**2405**	**-**	**785**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**6285**	**610**	
Connector Road and SR 429 NB on-ramp	5 (138)	5 (138)	-	-	7 (196)	7 (196)	-	-	-	-	-	-	
Available Storage Length (ft)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

Table 6.8
2030 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)													
Sinclair Road and SR 429 NB ramps	90	90	90	80	-	230	340	230	-	-	300	320	1,770
Sinclair Road and SR 429 SB ramps	-	-	-	160	-	130	-	410	250	290	330	-	1,570
CR 532 and Lake Wilson Road	370	550	230	230	260	110	320	610	240	140	780	590	4,430
CR 532 and US 17/92	360	950	-	-	610	1,000	820	-	380	-	-	-	4,120
US 17/92 and Ronald Regan Parkway	370	1,140	40	120	920	230	270	80	350	30	50	180	3,780
CR 532 and I-4 EB ramps	160	-	360	-	-	-	990	740	-	-	680	800	3,730
CR 532 and I-4 WB ramps	-	-	-	410	-	790	-	1,320	330	410	430	-	3,690
PPEC and CR 532 SB ramps	-	-	-	240	-	90	-	1,220	-	-	1,020	-	2,570
PPEC and CR 532 NB ramps	-	-	-	-	-	-	260	1,200	-	-	1,020	340	2,820
PPEC and US 17/92 SB ramps	-	-	-	60	-	280	-	1,450	140	220	990	-	3,140
PPEC and US 17/92 NB ramps	300	-	350	-	-	-	550	960	-	-	910	80	3,150
Connector Road and SR 429 NB on-ramp	250	500	-	-	310	290	-	-	-	-	-	-	1,350
Percentage Served													
Sinclair Road and SR 429 NB ramps	83%	90%	84%	100%	-	100%	99%	100%	-	-	100%	98%	97%
Sinclair Road and SR 429 SB ramps	-	-	-	99%	-	100%	-	99%	100%	100%	95%	-	99%
CR 532 and Lake Wilson Road	53%	56%	52%	89%	87%	85%	86%	95%	97%	91%	92%	86%	81%
CR 532 and US 17/92	88%	87%	-	-	100%	99%	93%	-	90%	-	-	-	93%
US 17/92 and Ronald Regan Parkway	75%	77%	83%	100%	96%	99%	99%	100%	100%	90%	100%	73%	88%
CR 532 and I-4 EB ramps	79%	-	76%	-	-	-	100%	98%	-	-	85%	90%	91%
CR 532 and I-4 WB ramps	-	-	-	96%	-	99%	-	98%	97%	84%	87%	-	95%
PPEC and CR 532 SB ramps	-	-	-	98%	-	100%	-	90%	-	-	96%	-	94%
PPEC and CR 532 NB ramps	-	-	-	-	-	-	86%	92%	-	-	96%	100%	94%
PPEC and US 17/92 SB ramps	-	-	-	100%	-	100%	-	82%	80%	95%	95%	-	90%
PPEC and US 17/92 NB ramps	94%	-	98%	-	-	-	83%	84%	-	-	95%	99%	90%
Connector Road and SR 429 NB on-ramp	99%	96%	-	-	100%	99%	-	-	-	-	-	-	98%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.8 (continued)
2030 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	103/F	110/F	76/E	47/D	-	10/B	11/B	A	-	-	17/B	11/B	25/C
Sinclair Road and SR 429 SB ramps	-	-	-	44/D	-	14/B	-	A	A	15/B	A	-	11/B
CR 532 and Lake Wilson Road	950/F	1089/F	1058/F	669/F	590/F	584/F	487/F	51/D	48/D	257/F	284/F	664/F	486/F
CR 532 and US 17/92	48/D	19/B	-	-	55/E	A	33/C	-	22/C	-	-	-	27/C
US 17/92 and Ronald Regan Parkway	743/F	766/F	647/F	84/F	57/E	30/C	95/F	87/F	63/E	215/F	217/F	1244/F	374/F
CR 532 and I-4 EB ramps	170/F	-	175/F	-	-	-	A	20/C	-	-	68/E	19/B	42/D
CR 532 and I-4 WB ramps	-	-	-	35/D	-	18/B	-	30/C	A	A	67/E	-	27/C
PPEC and CR 532 SB ramps	-	-	-	57/E	-	32/C	-	11/B	-	-	A	-	13/B
PPEC and CR 532 NB ramps	-	-	-	-	-	-	A	A	-	-	15/B	A	A
PPEC and US 17/92 SB ramps	-	-	-	48/D	-	49/D	-	289/F	178/F	A	14/B	-	121/F
PPEC and US 17/92 NB ramps	27/C	-	60/E	-	-	-	A	29/C	-	-	52/D	A	36/D
Connector Road and SR 429 NB on-ramp	A	A	-	-	A	A	-	-	-	-	-	-	A
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	30 (155)	30 (155)	30 (155)	27 (149)	-	33 (168)	19 (165)	19 (165)	-	-	26 (182)	26 (182)	
Available Storage Length (ft)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	24 (121)	-	15 (155)	-	7 (131)	3 (104)	20 (171)	20 (171)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3628 (3713)	3628 (3713)	3588 (3674)	3475 (4085)	3475 (4085)	3510 (4120)	1100 (1508)	1100 (1508)	1162 (1570)	3293 (3946)	3293 (3946)	3293 (3946)	
Available Storage Length (ft)	**4010**	**4010**	**4010**	**315**	**4650**	**4650**	**490**	**4775**	**4775**	**500**	**5345**	**5345**	
CR 532 and US 17/92	65 (282)	65 (282)	-	-	274 (909)	30 (371)	74 (319)	-	47 (307)	-	-	-	
Available Storage Length (ft)	**520**	**4870**	**-**	**-**	**3155**	**645**	**4810**	**-**	**4805**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	4977 (5177)	4977 (5177)	4999 (5199)	99 (361)	99 (361)	103 (396)	244 (738)	244 (738)	262 (758)	862 (1177)	862 (1177)	862 (1177)	
Available Storage Length (ft)	**450**	**5155**	**450**	**425**	**4945**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	6 (91)	-	22 (259)	-	-	-	27 (317)	53 (307)	-	-	133 (506)	15 (236)	
Available Storage Length (ft)	**1695**	**-**	**590**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2035**	**350**	
CR 532 and I-4 WB ramps	-	-	-	47 (239)	-	31 (269)	-	184 (871)	62 (630)	11 (235)	95 (281)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1860**	**-**	**1060**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 SB ramps	-	-	-	37 (149)	-	1 (77)	-	20 (327)	-	-	10 (85)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1800**	**-**	**1800**	**-**	**4755**	**-**	**-**	**470**	**-**	
PPEC and CR 532 NB ramps	-	-	-	-	-	-	3 (120)	3 (120)	-	-	46 (362)	10 (230)	
Available Storage Length (ft)	**-**	**-**	**-**	**-**	**-**	**-**	**210**	**300**	**-**	**-**	**4620**	**445**	
PPEC and US 17/92 SB ramps	-	-	-	12 (121)	-	70 (402)	-	4497 (5167)	4313 (4983)	5 (221)	47 (218)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**2660**	**-**	**890**	**-**	**4950**	**780**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	38 (295)	-	138 (563)	-	-	-	218 (554)	231 (740)	-	-	117 (409)	25 (240)	
Available Storage Length (ft)	**2410**	**-**	**785**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**5025**	**610**	
Connector Road and SR 429 NB on-ramp	2 (94)	2 (94)	-	-	4 (129)	4 (129)	-	-	-	-	-	-	
Available Storage Length (ft)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

Table 6.9
2030 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)													
Sinclair Road and SR 429 NB ramps	260	110	170	90	-	320	170	350	-	-	150	230	1,850
Sinclair Road and SR 429 SB ramps	-	-	-	290	-	250	-	230	90	180	550	-	1,590
CR 532 and Lake Wilson Road	460	310	130	560	540	150	480	580	460	150	690	310	4,820
CR 532 and US 17/92	330	670	-	-	1,100	900	1,050	-	320	-	-	-	4,370
US 17/92 and Ronald Regan Parkway	300	910	40	180	1,180	330	240	60	300	20	70	120	3,750
CR 532 and I-4 EB ramps	210	-	470	-	-	-	960	950	-	-	750	620	3,960
CR 532 and I-4 WB ramps	-	-	-	570	-	1,110	-	1,340	260	340	620	-	4,240
PPEC and CR 532 SB ramps	-	-	-	340	-	260	-	1,120	-	-	990	-	2,710
PPEC and CR 532 NB ramps	-	-	-	-	-	-	90	1,370	-	-	990	240	2,690
PPEC and US 17/92 SB ramps	-	-	-	90	-	540	-	970	300	350	1,150	-	3,400
PPEC and US 17/92 NB ramps	140	-	220	-	-	-	280	780	-	-	1,360	60	2,840
Connector Road and SR 429 NB on-ramp	130	380	-	-	410	160	-	-	-	-	-	-	1,080
Percentage Served													
Sinclair Road and SR 429 NB ramps	95%	95%	98%	100%	-	100%	98%	100%	-	-	100%	97%	99%
Sinclair Road and SR 429 SB ramps	-	-	-	100%	-	99%	-	99%	99%	100%	97%	-	99%
CR 532 and Lake Wilson Road	78%	77%	81%	42%	43%	42%	81%	93%	95%	92%	100%	89%	77%
CR 532 and US 17/92	98%	97%	-	-	75%	75%	80%	-	73%	-	-	-	81%
US 17/92 and Ronald Regan Parkway	98%	100%	95%	86%	86%	88%	98%	98%	100%	90%	99%	100%	93%
CR 532 and I-4 EB ramps	86%	-	88%	-	-	-	99%	95%	-	-	83%	95%	92%
CR 532 and I-4 WB ramps	-	-	-	91%	-	93%	-	98%	97%	83%	87%	-	93%
PPEC and CR 532 SB ramps	-	-	-	95%	-	100%	-	73%	-	-	89%	-	86%
PPEC and CR 532 NB ramps	-	-	-	-	-	-	57%	79%	-	-	89%	84%	83%
PPEC and US 17/92 SB ramps	-	-	-	94%	-	94%	-	98%	100%	82%	83%	-	91%
PPEC and US 17/92 NB ramps	100%	-	99%	-	-	-	100%	97%	-	-	81%	78%	90%
Connector Road and SR 429 NB on-ramp	96%	97%	-	-	99%	98%	-	-	-	-	-	-	98%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.9 (continued)
2030 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	102/F	115/F	86/F	44/D	-	16/B	A	A	-	-	12/B	A	40/D
Sinclair Road and SR 429 SB ramps	-	-	-	42/D	-	18/B	-	A	A	11/B	A	-	14/B
CR 532 and Lake Wilson Road	1330/F	836/F	823/F	860/F	838/F	823/F	1316/F	353/F	342/F	174/F	85/F	28/C	576/F
CR 532 and US 17/92	78/E	19/B	-	-	331/F	152/F	51/D	-	34/C	-	-	-	129/F
US 17/92 and Ronald Regan Parkway	57/E	27/C	A	45/D	56/E	33/C	50/D	52/D	30/C	60/E	54/D	10/B	41/D
CR 532 and I-4 EB ramps	35/D	-	47/D	-	-	-	A	25/C	-	-	72/E	14/B	28/C
CR 532 and I-4 WB ramps	-	-	-	501/F	-	481/F	-	33/C	A	15/B	71/E	-	223/F
PPEC and CR 532 SB ramps	-	-	-	108/F	-	64/E	-	11/B	-	-	A	-	27/C
PPEC and CR 532 NB ramps	-	-	-	-	-	-	A	A	-	-	A	A	A
PPEC and US 17/92 SB ramps	-	-	-	100/F	-	123/F	-	133/F	36/D	A	12/B	-	54/D
PPEC and US 17/92 NB ramps	29/C	-	44/D	-	-	-	A	21/C	-	-	53/D	14/B	35/D
Connector Road and SR 429 NB on-ramp	A	A	-	-	A	A	-	-	-	-	-	-	A
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	45 (187)	45 (187)	45 (187)	38 (190)	-	48 (209)	12 (112)	12 (112)	-	-	9 (104)	9 (104)	
Available Storage Length (ft)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	39 (170)	-	48 (211)	-	4 (84)	1 (57)	12 (122)	12 (122)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3627 (3706)	3627 (3706)	3588 (3666)	4486 (4670)	4486 (4670)	4521 (4705)	5767 (6124)	5767 (6124)	5830 (6186)	339 (817)	339 (817)	339 (817)	
Available Storage Length (ft)	**4010**	**4010**	**4010**	**315**	**4650**	**4650**	**490**	**4775**	**4775**	**500**	**5345**	**5345**	
CR 532 and US 17/92	94 (325)	94 (325)	-	-	2867 (3190)	2599 (2928)	122 (483)	-	80 (471)	-	-	-	
Available Storage Length (ft)	**520**	**4870**	**-**	**-**	**3155**	**645**	**4810**	**-**	**4805**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	119 (435)	119 (435)	116 (457)	91 (342)	91 (342)	100 (378)	92 (425)	92 (425)	108 (446)	23 (93)	23 (93)	23 (93)	
Available Storage Length (ft)	**450**	**5155**	**450**	**425**	**4945**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	8 (97)	-	78 (406)	-	-	-	57 (341)	88 (438)	-	-	167 (590)	28 (321)	
Available Storage Length (ft)	**1695**	**-**	**590**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2035**	**350**	
CR 532 and I-4 WB ramps	-	-	-	69 (326)	-	55 (387)	-	206 (898)	77 (657)	57 (477)	168 (591)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1860**	**-**	**1060**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 SB ramps	-	-	-	43 (195)	-	7 (180)	-	20 (242)	-	-	5 (79)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1800**	**-**	**1800**	**-**	**4755**	**-**	**-**	**470**	**-**	
PPEC and CR 532 NB ramps	-	-	-	-	-	-	0 (32)	0 (32)	-	-	19 (298)	3 (167)	
Available Storage Length (ft)	**-**	**-**	**-**	**-**	**-**	**-**	**210**	**300**	**-**	**-**	**4620**	**445**	
PPEC and US 17/92 SB ramps	-	-	-	10 (144)	-	230 (693)	-	738 (2329)	571 (2145)	8 (257)	40 (213)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**2660**	**-**	**890**	**-**	**4950**	**780**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	22 (198)	-	57 (306)	-	-	-	113 (553)	140 (772)	-	-	136 (546)	49 (377)	
Available Storage Length (ft)	**2410**	**-**	**785**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**5025**	**610**	
Connector Road and SR 429 NB on-ramp	1 (66)	1 (66)	-	-	2 (129)	2 (129)	-	-	-	-	-	-	
Available Storage Length (ft)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

Table 6.10
2050 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)													
Sinclair Road and SR 429 NB ramps	180	140	170	100	-	300	590	360	-	-	470	420	2,730
Sinclair Road and SR 429 SB ramps	-	-	-	240	-	200	-	710	450	400	550	-	2,550
CR 532 and Lake Wilson Road	450	740	460	310	400	190	440	830	380	190	910	700	6,000
CR 532 and US 17/92	650	1,260	-	-	970	1,230	1,140	-	680	-	-	-	5,930
US 17/92 and Ronald Regan Parkway	500	1,640	60	190	1,550	460	440	100	550	40	80	280	5,890
CR 532 and I-4 EB ramps	300	-	580	-	-	-	1,410	1,070	-	-	900	970	5,230
CR 532 and I-4 WB ramps	-	-	-	670	-	1,170	-	1,810	470	590	610	-	5,320
PPEC and CR 532 SB ramps	-	-	-	400	-	150	-	1,850	-	-	1,300	-	3,700
PPEC and CR 532 NB ramps	-	-	-	-	-	-	430	1,820	-	-	1,300	580	4,130
PPEC and US 17/92 SB ramps	-	-	-	100	-	510	-	2,090	270	400	1,690	-	5,060
PPEC and US 17/92 NB ramps	600	-	680	-	-	-	960	1,230	-	-	1,490	160	5,120
Connector Road and SR 429 NB on-ramp	370	780	-	-	400	450	-	-	-	-	-	-	2,000
Percentage Served													
Sinclair Road and SR 429 NB ramps	95%	94%	97%	100%	-	100%	99%	100%	-	-	100%	97%	99%
Sinclair Road and SR 429 SB ramps	-	-	-	99%	-	100%	-	99%	98%	100%	99%	-	99%
CR 532 and Lake Wilson Road	92%	93%	93%	100%	99%	99%	97%	93%	95%	92%	97%	91%	95%
CR 532 and US 17/92	85%	88%	-	-	98%	99%	98%	-	93%	-	-	-	94%
US 17/92 and Ronald Regan Parkway	73%	74%	82%	100%	91%	98%	67%	67%	70%	98%	100%	98%	82%
CR 532 and I-4 EB ramps	94%	-	95%	-	-	-	75%	90%	-	-	80%	88%	85%
CR 532 and I-4 WB ramps	-	-	-	99%	-	100%	-	63%	61%	86%	91%	-	82%
PPEC and CR 532 SB ramps	-	-	-	100%	-	100%	-	95%	-	-	93%	-	96%
PPEC and CR 532 NB ramps	-	-	-	-	-	-	96%	96%	-	-	93%	100%	96%
PPEC and US 17/92 SB ramps	-	-	-	99%	-	100%	-	81%	84%	93%	94%	-	89%
PPEC and US 17/92 NB ramps	95%	-	96%	-	-	-	82%	82%	-	-	93%	93%	89%
Connector Road and SR 429 NB on-ramp	98%	98%	-	-	100%	98%	-	-	-	-	-	-	98%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.10 (continued)
2050 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	41/D	59/E	20/C	51/D	-	16/B	24/C	10/B	-	-	46/D	64/E	35/C
Sinclair Road and SR 429 SB ramps	-	-	-	45/D	-	18/B	-	A	A	32/C	A	-	14/B
CR 532 and Lake Wilson Road	262/F	232/F	213/F	84/F	58/E	19/B	92/F	49/D	23/C	101/F	132/F	109/F	125/F
CR 532 and US 17/92	68/E	18/B	-	-	45/D	15/B	46/D	-	34/C	-	-	-	34/C
US 17/92 and Ronald Regan Parkway	501/F	435/F	390/F	367/F	180/F	132/F	1011/F	1452/F	1423/F	86/F	76/E	36/D	419/F
CR 532 and I-4 EB ramps	30/C	-	59/E	-	-	-	A	40/D	-	-	96/F	44/D	43/D
CR 532 and I-4 WB ramps	-	-	-	36/D	-	24/C	-	271/F	219/F	13/B	58/E	-	107/F
PPEC and CR 532 SB ramps	-	-	-	50/D	-	23/C	-	60/E	-	-	A	-	38/D
PPEC and CR 532 NB ramps	-	-	-	-	-	-	14/B	A	-	-	28/C	A	A
PPEC and US 17/92 SB ramps	-	-	-	43/D	-	50/D	-	72/E	13/B	A	37/D	-	43/D
PPEC and US 17/92 NB ramps	155/F	-	139/F	-	-	-	A	18/B	-	-	225/F	164/F	118/F
Connector Road and SR 429 NB on-ramp	A	A	-	-	A	10/B	-	-	-	-	-	-	A
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	29 (157)	29 (157)	29 (157)	26 (146)	-	33 (165)	19 (206)	19 (206)	-	-	31 (201)	31 (201)	
Available Storage Length (ft)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	27 (128)	-	19 (171)	-	9 (159)	4 (132)	23 (156)	23 (156)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3632 (3727)	3632 (3727)	3592 (3687)	4490 (4658)	4490 (4658)	4525 (4693)	2942 (3373)	2942 (3373)	2942 (3373)	1929 (2307)	1929 (2307)	1929 (2307)	
Available Storage Length (ft)	**4010**	**4010**	**4010**	**315**	**4650**	**4650**	**490**	**4775**	**4775**	**500**	**5345**	**5345**	
CR 532 and US 17/92	67 (403)	67 (403)	-	-	223 (972)	26 (230)	80 (315)	-	56 (303)	-	-	-	
Available Storage Length (ft)	**520**	**4870**	**-**	**-**	**3155**	**645**	**4810**	**-**	**4805**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	4987 (5194)	4987 (5194)	5009 (5216)	110 (400)	110 (400)	118 (435)	197 (744)	197 (744)	216 (765)	863 (1271)	863 (1271)	863 (1271)	
Available Storage Length (ft)	**450**	**5155**	**450**	**425**	**4945**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	6 (80)	-	16 (224)	-	-	-	24 (324)	53 (275)	-	-	131 (429)	8 (160)	
Available Storage Length (ft)	**1695**	**-**	**590**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2035**	**350**	
CR 532 and I-4 WB ramps	-	-	-	49 (214)	-	39 (282)	-	187 (895)	64 (653)	8 (310)	94 (250)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1860**	**-**	**1060**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 SB ramps	-	-	-	41 (186)	-	2 (82)	-	29 (403)	-	-	11 (116)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**1800**	**-**	**1800**	**-**	**4755**	**-**	**-**	**470**	**-**	
PPEC and CR 532 NB ramps	-	-	-	-	-	-	5 (197)	5 (197)	-	-	44 (374)	8 (243)	
Available Storage Length (ft)	**-**	**-**	**-**	**-**	**-**	**-**	**210**	**300**	**-**	**-**	**4620**	**445**	
PPEC and US 17/92 SB ramps	-	-	-	17 (132)	-	62 (419)	-	4579 (5155)	4395 (4971)	6 (273)	49 (226)	-	
Available Storage Length (ft)	**-**	**-**	**-**	**2660**	**-**	**890**	**-**	**4950**	**780**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	40 (422)	-	124 (601)	-	-	-	248 (564)	328 (764)	-	-	119 (382)	23 (214)	
Available Storage Length (ft)	**2410**	**-**	**785**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**5025**	**610**	
Connector Road and SR 429 NB on-ramp	1 (93)	1 (93)	-	-	5 (128)	5 (128)	-	-	-	-	-	-	
Available Storage Length (ft)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

Table 6.11
2050 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)													
Sinclair Road and SR 429 NB ramps	400	190	260	130	-	450	310	520	-	-	210	320	2,790
Sinclair Road and SR 429 SB ramps	-	-	-	430	-	390	-	400	250	240	820	-	2,530
CR 532 and Lake Wilson Road	620	420	260	660	690	250	600	670	620	250	880	420	6,340
CR 532 and US 17/92	610	960	-	-	1,390	1,110	1,280	-	540	-	-	-	5,890
US 17/92 and Ronald Regan Parkway	480	1,570	50	290	1,770	460	480	60	450	30	110	210	5,960
CR 532 and I-4 EB ramps	290	-	550	-	-	-	1,290	1,230	-	-	990	950	5,300
CR 532 and I-4 WB ramps	-	-	-	800	-	1,470	-	1,720	400	530	750	-	5,670
PPEC and CR 532 SB ramps	-	-	-	580	-	430	-	1,390	-	-	1,320	-	3,720
PPEC and CR 532 NB ramps	-	-	-	-	-	-	150	1,820	-	-	1,320	400	3,690
PPEC and US 17/92 SB ramps	-	-	-	160	-	960	-	1,660	600	680	1,560	-	5,620
PPEC and US 17/92 NB ramps	420	-	250	-	-	-	500	1,320	-	-	1,820	110	4,420
Connector Road and SR 429 NB on-ramp	200	620	-	-	580	240	-	-	-	-	-	-	1,640
Percentage Served													
Sinclair Road and SR 429 NB ramps	97%	100%	96%	100%	-	96%	99%	98%	-	-	100%	98%	98%
Sinclair Road and SR 429 SB ramps	-	-	-	94%	-	92%	-	99%	100%	100%	97%	-	97%
CR 532 and Lake Wilson Road	85%	94%	97%	74%	77%	75%	86%	96%	95%	86%	100%	92%	89%
CR 532 and US 17/92	87%	88%	-	-	84%	86%	93%	-	89%	-	-	-	88%
US 17/92 and Ronald Regan Parkway	87%	89%	98%	88%	89%	94%	82%	78%	79%	97%	100%	93%	88%
CR 532 and I-4 EB ramps	95%	-	95%	-	-	-	86%	94%	-	-	72%	83%	86%
CR 532 and I-4 WB ramps	-	-	-	99%	-	99%	-	75%	72%	73%	82%	-	85%
PPEC and CR 532 SB ramps	-	-	-	96%	-	100%	-	89%	-	-	90%	-	94%
PPEC and CR 532 NB ramps	-	-	-	-	-	-	84%	92%	-	-	90%	93%	91%
PPEC and US 17/92 SB ramps	-	-	-	97%	-	97%	-	87%	86%	88%	91%	-	90%
PPEC and US 17/92 NB ramps	97%	-	98%	-	-	-	86%	89%	-	-	89%	91%	90%
Connector Road and SR 429 NB on-ramp	100%	99%	-	-	99%	97%	-	-	-	-	-	-	99%

Note: Cells highlighted in red represent less than 95% demand served. - Not Applicable

Table 6.11 (continued)
2050 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	
Average Delay (Seconds) for the worst 30-minute Period and Estimated LOS													
Sinclair Road and SR 429 NB ramps	39/D	53/D	25/C	157/F	-	155/F	46/D	13/B	-	-	29/C	15/B	55/D
Sinclair Road and SR 429 SB ramps	-	-	-	44/D	-	28/C	-	A	A	14/B	A	-	16/B
CR 532 and Lake Wilson Road	775/F	275/F	206/F	906/F	382/F	288/F	776/F	112/F	118/F	90/F	76/E	38/D	339/F
CR 532 and US 17/92	217/F	31/C	-	-	189/F	138/F	63/E	-	42/D	-	-	-	113/F
US 17/92 and Ronald Regan Parkway	424/F	373/F	330/F	335/F	146/F	116/F	1193/F	1598/F	1546/F	137/F	184/F	496/F	417/F
CR 532 and I-4 EB ramps	22/C	-	63/E	-	-	-	A	34/C	-	-	508/F	396/F	173/F
CR 532 and I-4 WB ramps	-	-	-	45/D	-	23/C	-	236/F	194/F	25/C	85/F	-	99/F
PPEC and CR 532 SB ramps	-	-	-	61/E	-	32/C	-	16/B	-	-	A	-	21/C
PPEC and CR 532 NB ramps	-	-	-	-	-	-	A	A	-	-	12/B	A	A
PPEC and US 17/92 SB ramps	-	-	-	60/E	-	112/F	-	330/F	253/F	A	35/C	-	130/F
PPEC and US 17/92 NB ramps	146/F	-	96/F	-	-	-	A	A	-	-	142/F	96/F	84/F
Connector Road and SR 429 NB on-ramp	A	A	-	-	A	A	-	-	-	-	-	-	A
Average and (Maximum) Queue in Feet for the worst 30-minute Period													
Sinclair Road and SR 429 NB ramps	29 (157)	29 (157)	29 (157)	26 (146)	-	33 (165)	19 (206)	19 (206)	-	-	31 (201)	31 (201)	
Available Storage Length (feet)	**315**	**1900**	**470**	**1415**	**-**	**355**	**245**	**605**	**-**	**-**	**3470**	**310**	
Sinclair Road and SR 429 SB ramps	-	-	-	27 (128)	-	19 (171)	-	9 (159)	4 (132)	23 (156)	23 (156)	-	
Available Storage Length (feet)	**-**	**-**	**-**	**1300**	**-**	**275**	**-**	**2915**	**280**	**265**	**635**	**-**	
CR 532 and Lake Wilson Road	3632 (3727)	3632 (3727)	3592 (3687)	4490 (4658)	4490 (4658)	4525 (4693)	2942 (3373)	2942 (3373)	2942 (3373)	1929 (2307)	1929 (2307)	1929 (2307)	
Available Storage Length (feet)	**4010**	**4010**	**4010**	**315**	**4650**	**4650**	**490**	**4775**	**4775**	**500**	**5345**	**5345**	
CR 532 and US 17/92	67 (403)	67 (403)	-	-	223 (972)	26 (230)	80 (315)	-	56 (303)	-	-	-	
Available Storage Length (feet)	**520**	**4870**	**-**	**-**	**3155**	**645**	**4810**	**-**	**4805**	**-**	**-**	**-**	
US 17/92 and Ronald Regan Parkway	4987 (5194)	4987 (5194)	5009 (5216)	110 (400)	110 (400)	118 (435)	197 (744)	197 (744)	216 (765)	863 (1271)	863 (1271)	863 (1271)	
Available Storage Length (feet)	**450**	**5155**	**450**	**425**	**4945**	**645**	**4600**	**4600**	**4600**	**400**	**1705**	**675**	
CR 532 and I-4 EB ramps	6 (80)	-	16 (224)	-	-	-	24 (324)	53 (275)	-	-	131 (429)	8 (160)	
Available Storage Length (feet)	**1695**	**-**	**590**	**-**	**-**	**-**	**515**	**615**	**-**	**-**	**2035**	**350**	
CR 532 and I-4 WB ramps	-	-	-	49 (214)	-	39 (282)	-	187 (895)	64 (653)	8 (310)	94 (250)	-	
Available Storage Length (feet)	**-**	**-**	**-**	**1860**	**-**	**1060**	**-**	**3045**	**340**	**670**	**755**	**-**	
PPEC and CR 532 SB ramps	-	-	-	41 (186)	-	2 (82)	-	29 (403)	-	-	11 (116)	-	
Available Storage Length (feet)	**-**	**-**	**-**	**1800**	**-**	**1800**	**-**	**4755**	**-**	**-**	**470**	**-**	
PPEC and CR 532 NB ramps	-	-	-	-	-	-	5 (197)	5 (197)	-	-	44 (374)	8 (243)	
Available Storage Length (feet)	**-**	**-**	**-**	**-**	**-**	**-**	**210**	**300**	**-**	**-**	**4620**	**445**	
PPEC and US 17/92 SB ramps	-	-	-	17 (132)	-	62 (419)	-	4579 (5155)	4395 (4971)	6 (273)	49 (226)	-	
Available Storage Length (feet)	**-**	**-**	**-**	**2660**	**-**	**890**	**-**	**4950**	**780**	**705**	**810**	**-**	
PPEC and US 17/92 NB ramps	40 (422)	-	124 (601)	-	-	-	248 (564)	328 (764)	-	-	119 (382)	23 (214)	
Available Storage Length (feet)	**2410**	**-**	**785**	**-**	**-**	**-**	**610**	**785**	**-**	**-**	**5025**	**610**	
Connector Road and SR 429 NB on-ramp	1 (93)	1 (93)	-	-	5 (128)	5 (128)	-	-	-	-	-	-	
Available Storage Length (feet)	**360**	**1345**	**-**	**-**	**975**	**265**	**-**	**-**	**-**	**-**	**-**	**-**	

- Not Applicable

A comparison of results between the No-Build and the Build Alternatives revealed traffic conditions for the westbound I-4 off-ramp to CR 532 improved in both the year 2030 and year 2050 AM and PM peak hours. This location was congested in the No-Build Alternative, but the. Build Alternative traffic operations improved due to the Poinciana Parkway Extension Connector project's construction and the diverted trips to it. In the Build Alternative, the demand for the westbound I-4/CR 532 ramp was lower because of the direct connect ramp, which allowed vehicles to bypass CR 532 by taking Poinciana Parkway Extension Connector via I-4. The intersection delay at the westbound I-4 and CR 532 averaged 107 seconds and 99 seconds for the year 2050 Build AM and PM peak hours, respectively, while the intersection delay was 135 seconds and 765 seconds for the year 2050 No-Build AM and PM peak hours, respectively. See **Table 6.12** for a summary of the overall intersection delay for Westbound I-4/CR 532.

Table 6.12
Westbound I-4/CR 532 Vissim Overall Intersection Delay (Seconds) and LOS

Year	No-Build		Build		Difference	
	AM	PM	AM	PM	AM	PM
2030	155/F	200/F	27/C	223/F	-128	23
2050	135/F	765/F	107/F	99/F	-28	-666

*Delays are contributed to interim DDI configuration which fails with traffic diverted to PPEC

For the Build conditions, the westbound I-4 off-ramp processed 95 percent and 93 percent of the demand volumes for the AM and PM peak hours, respectively, for the year 2030, and 82 percent and 85 percent for the AM and PM peak hours, respectively, for the year 2050. Under No-Build conditions, the westbound I-4 off-ramp processed 91 percent and 87 percent of the demand volumes for the AM and PM peak hours, respectively, for the year 2030, and 72 percent and 59 percent for the AM and PM peak hours, respectively, for the year 2050. The Build Alternative outperforms the No-Build Alternative for both simulated analysis years, as indicated in **Table 6.13**.

Table 6.13
Westbound I-4/CR 532 Vissim Overall Intersection Delay (Seconds)

Year	No-Build		Build		Difference	
	AM	PM	AM	PM	AM	PM
2030	91%	87%	95%	93%	4%	6%
2050	72%	59%	82%	85%	10%	26%

Although this location was the only intersection refined due to its impact from the proposed Poinciana Parkway Extension Connector, most of the intersections within the study area report improved delays and demand served in the Build Alternative compared to the No-Build Alternative due to traffic being diverted to the Poinciana Parkway Extension Connector and redistribution of surface street traffic. **Tables 6.14 and 6.15** show a summary of the overall intersection delay/LOS and percent of traffic demand served, respectively.

Table 6.14
Vissim Overall Intersection Delay (Seconds) and LOS

Intersection	No-Build		Build		Difference	
	AM	PM	AM	PM	AM	PM
2030						
Sinclair Road and SR 429 Northbound ramps	26/C	72/E	25/C	40/D	-1	-32
Sinclair Road and SR 429 Southbound ramps	12/B	16/B	11/B	14/B	-1	-2
CR 532 and Lake Wilson Road*	863/F	556/F	486/F	576/F	-377	20
CR 532 and US 17/92	29/C	160/F	27/C	129/F	-2	-31
US 17/92 and Ronald Reagan Parkway	213/F	453/F	374/F	41/D	161	-412
CR 532 and I-4 Eastbound ramps	64/E	37/D	42/D	28/C	-22	-9
CR 532 and I-4 Westbound ramps	155/F	200/F	27/C	223/F	-128	23
PPE and CR 532 SB ramps	-	-	13/B	27/C	-	-
PPE and CR 532 NB ramps	79/E	16/B	A	A	-	-
PPE and US 17/92 SB ramps	152/F	163/F	121/F	54/D	-31	-109
PPE and US 17/92 NB ramps	36/D	27/C	36/D	35/D	0	8
Connector Road and SR 429 NB on-ramp	A	A	A	A	-	-
2050						
Sinclair Road and SR 429 Northbound ramps	40/D	91/F	35/C	55/D	-5	-36
Sinclair Road and SR 429 Southbound ramps	18/B	152/F	14/B	16/B	-4	-136
CR 532 and Lake Wilson Road	313/F	697/F	125/F	339/F	-188	-358
CR 532 and US 17/92	37/D	239/F	34/C	113/F	-3	-126
US 17/92 and Ronald Reagan Parkway	497/F	350/F	419/F	417/F	-78	67
CR 532 and I-4 Eastbound ramps	49/D	229/F	43/D	173/F	-6	-56
CR 532 and I-4 Westbound ramps	135/F	765/F	107/F	99/F	-28	-666
PPE and CR 532 SB ramps	-	-	38/D	21/C	-	-
PPE and CR 532 NB ramps	18/B	27/C	A	A	-	-
PPE and US 17/92 SB ramps	51/D	198/F	43/D	130/F	-8	-68
PPE and US 17/92 NB ramps	509/F	32/C	118/F	84/F	-391	52
Connector Road and SR 429 NB on-ramp	14/B	A	A	A	-	-

*Intersection fails due to queues from I-4 and CR 532 ramps

- Not Applicable

Table 6.15
Vissim Overall Intersection Percent Served

Intersection	No-Build		Build		Difference	
	AM	PM	AM	PM	AM	PM
2030						
Sinclair Road and SR 429 Northbound ramps	97%	92%	97%	99%	0%	7%
Sinclair Road and SR 429 Southbound ramps	99%	96%	99%	99%	0%	4%
CR 532 and Lake Wilson Road	65%	63%	81%	77%	16%	14%
CR 532 and US 17/92	90%	69%	93%	81%	3%	12%
US 17/92 and Ronald Reagan Parkway	88%	77%	88%	93%	0%	17%
CR 532 and I-4 Eastbound ramps	83%	86%	91%	92%	8%	6%
CR 532 and I-4 Westbound ramps	91%	87%	95%	93%	4%	6%
PPE and CR 532 SB Ramps	-	-	94%	86%	-	-
PPE and CR 532 NB Ramps	100%	74%	94%	83%	-6%	9%
PPE and US 17/92 SB Ramps	88%	74%	90%	91%	1%	17%
PPE and US 17/92 NB Ramps	82%	68%	90%	90%	8%	21%
Connector Road and SR 429 NB on-ramp	98%	96%	98%	98%	0%	2%
2050						
Sinclair Road and SR 429 Northbound ramps	98%	88%	99%	98%	1%	10%
Sinclair Road and SR 429 Southbound ramps	98%	84%	99%	97%	1%	13%
CR 532 and Lake Wilson Road	72%	61%	95%	89%	22%	27%
CR 532 and US 17/92	78%	74%	94%	88%	16%	14%
US 17/92 and Ronald Reagan Parkway	60%	62%	82%	88%	22%	26%
CR 532 and I-4 Eastbound ramps	73%	63%	85%	86%	12%	22%
CR 532 and I-4 Westbound ramps	72%	59%	82%	85%	10%	26%
PPE and CR 532 SB Ramps	-	-	96%	94%	-	-
PPE and CR 532 NB Ramps	80%	80%	96%	91%	16%	11%
PPE and US 17/92 SB Ramps	65%	68%	89%	90%	24%	22%
PPE and US 17/92 NB Ramps	54%	65%	89%	90%	34%	25%
Connector Road and SR 429 NB on-ramp	98%	94%	98%	99%	0%	4%

Freeway and Ramp Analysis

The implementation of the Build Alternative has led to an improvement in the performance of the basic, merge and diverge segments along SR 429, I-4 between World Drive and CR 532, as well as CR 532 and US 17/92. This has been achieved by increasing the processing rate and the average speed during both AM and PM peak hours. The construction of eastbound and westbound I-4 auxiliary lanes, as well as the capacity enhancement via Express Lanes within the model limits and the Poinciana Parkway Extension Connector project, has attributed to these improvements.

Although the demand for both the No-Build and Build along I-4 is similar, with near or over-capacity in both models, the slight reduction in Build due to the PPEC shows improvements along this corridor. The I-4 express lanes included in the 2050 No-Build models alone would not be sufficient to alleviate vehicle demand to substantially improve traffic operations.

The Network Performance results shown in **Table 6.2** highlight how the 2030 No-Build Conditions process 91 percent of the demand while averaging 29 mph in the AM peak hour and 90 percent of the demand while averaging 27 mph in the PM peak hour. In comparison, the 2030 Build Alternatives increase the process rate to 97 percent while averaging 39 mph in the AM peak hour, and 97 percent at 38 mph in the PM peak hour. The congested segment of westbound I-4 between World Drive and CR 532 during the PM peak period illustrates substantial improvement due to the Poinciana Parkway Extension Connector direct connect ramps, as seen in **Table 6.16**. In the 2030 No-Build model, 81 percent of the demand is processed while averaging 17 mph, whereas the Build Alternative processes 97 percent of the demand with average speeds of 49 mph. The increased processing rate and speeds in the Build Alternative indicates that more of the demand can reach the I-4 ramps than in the No-Build conditions.

The same trend is observed in the Build Year 2050 results shown in **Tables 6.2**. In the No-Build Conditions, 88 percent of the network-wide demand is processed while averaging 31 mph in the AM peak hour, and 81 percent of the demand is processed while averaging 22 mph in the PM peak hour. The process rate increases to 98 percent while averaging 43 mph in the AM peak hour, and 99 percent at 40 mph in the PM peak hour in the 2050 Build Alternatives. **Table 6.16** showed the crucial segment along I-4, westbound I-4 between World Drive and CR 532, processes 99 percent at 64 mph and 75 percent at 15 mph for AM and PM peak hour, respectively, for the 2050 No-Build Conditions. The same segment shows results of 100 percent at 65 mph in the 2050 Build AM peak hour and 99 percent at 64 mph for the PM peak hours.

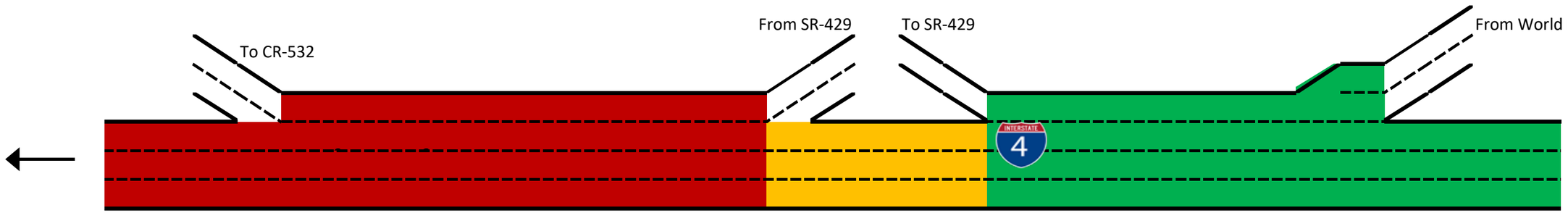
Table 6.16
Westbound I-4 between World Drive and CR 532 Peak Hour Segment Performance

Year	AM				PM				Difference			
	No-Build		Build		No-Build		Build		AM		PM	
	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
2030	97%	50	98%	62	81%	17	97%	49	1%	12	16%	32
2050	99%	64	100%	65	75%	15	99%	64	0%	0	24%	49

Improvements in operations were observed in the four Build models for eastbound I-4 and northbound and southbound SR 429, in addition to westbound I-4. these improvements are illustrated in **Figures 6.10** through **6.17** as well as **Tables 6.17** and **6.18**. The figures highlight the segment types, demand, volume processed, percent served, and estimated LOS based on density. Estimated Densities of LOS C or better represent generally uncongested conditions while LOS D, E and F represent light, moderate and heavily congested conditions, respectively.

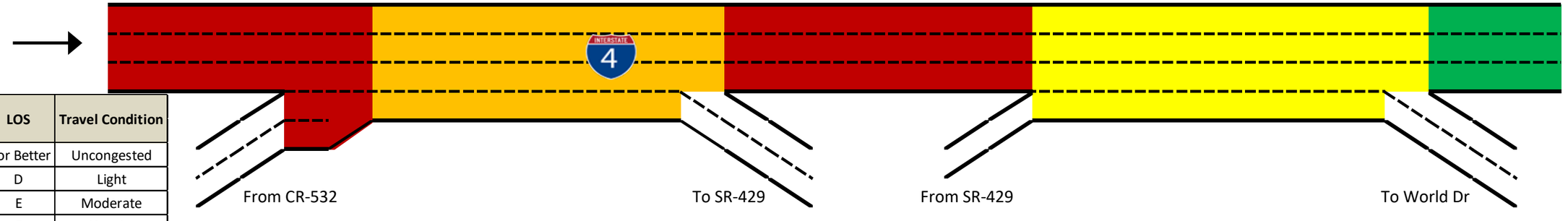
The overall segment results for the No-Build and Build models were summarized and compared to demonstrate the improvements. The peak hour performance results for each of the individual freeway and ramp segments can also be seen in **Tables 6.17** through **6.20**.

Figure 6.10
2030 No-Build AM Peak Hour Lane Schematic



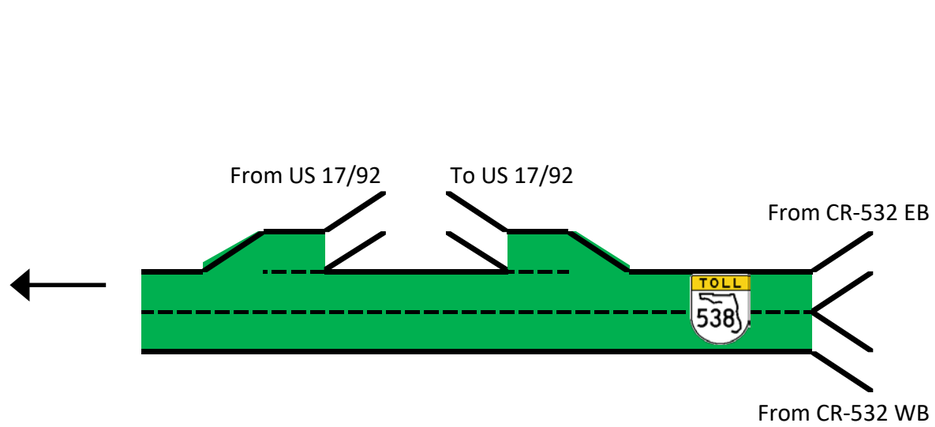
Segment (Westbound)	Basic	Diverge	Basic	Merge	Basic	Diverge	Basic	Merge	Basic
Demand	5,560	6,990	6,990	6,990	5,210	5,630	5,630	5,630	3,900
Processed	4,971	6,439	6,689	6,779	5,134	5,613	5,571	5,562	3,893
% Served	89%	92%	96%	97%	99%	100%	99%	99%	100%
Estimated LOS	F	F	F	F	E	C	C	C	C

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Basic	Weave	Basic
Demand	5,530	7,790	7,790	7,790	6,880	7,990	5,020
Processed	4,515	6,466	6,491	6,507	5,918	7,008	4,400
% Served	82%	83%	83%	84%	86%	88%	88%
Estimated LOS	F	F	E	E	F	D	C



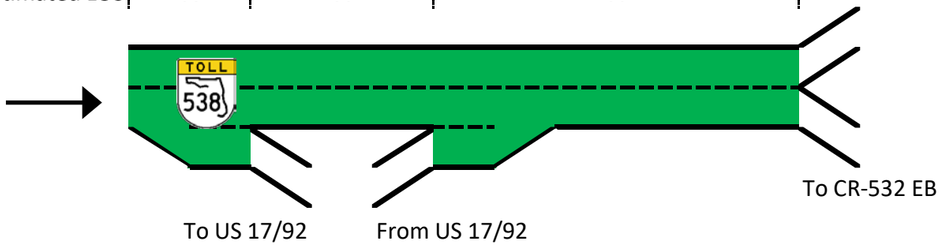
Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.10 (continued)
2030 No-Build AM Peak Hour Lane Schematic



Segment (Southbound)	Merge	Basic	Diverge
Demand	660	160	240
Processed	462	46	152
% Served	70%	29%	64%
Estimated LOS	A	A	A

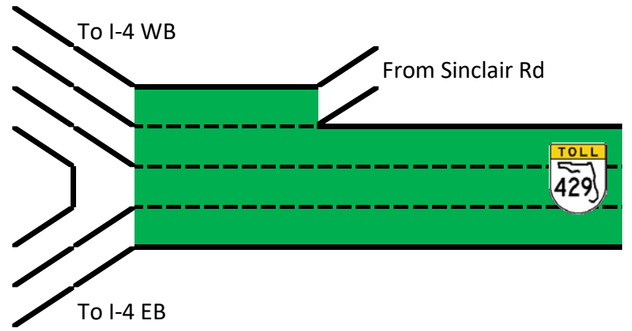
Segment (Northbound)	Diverge	Basic	Merge
Demand	1,280	340	480
Processed	1,278	340	461
% Served	100%	100%	96%
Estimated LOS	A	A	A



CR-532

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

I-4



	Weave	Basic
	2,890	2,350
	2,872	2,335
	99%	99%
	B	B

	Weave	Basic
	1,330	1,070
	1,004	801
	75%	75%
	A	A

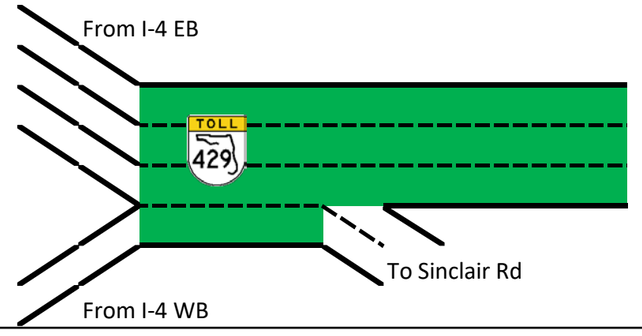
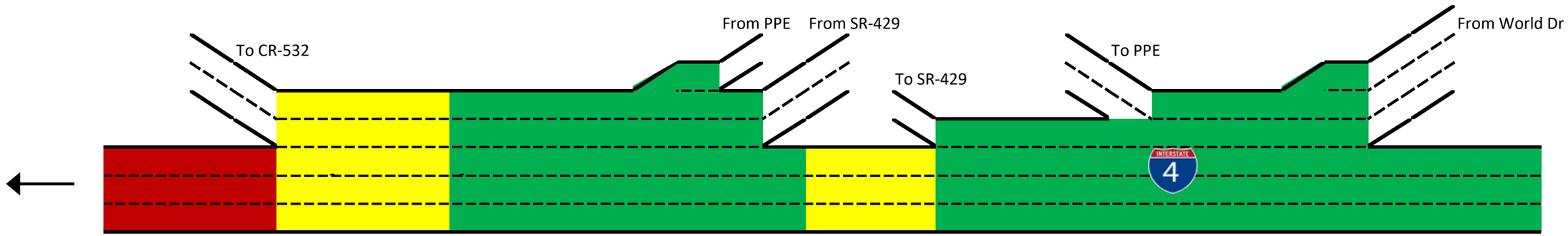
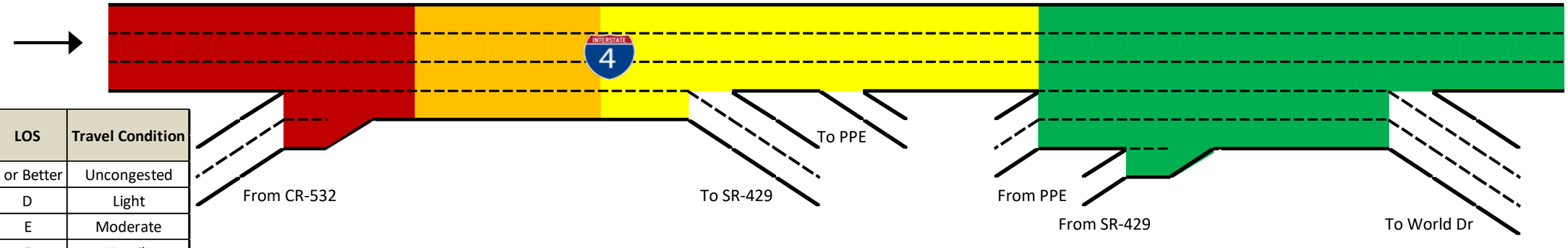


Figure 6.11
2030 Build AM Peak Hour Lane Schematic



Segment (Westbound)	Basic	Diverge	Basic	Merge	Merge	Basic	Diverge	Basic	Weave	Basic
Demand	5,520	6,720	6,720	6,720	6,600	4,990	5,280	5,280	5,810	4,020
Processed	5,140	6,439	6,476	6,481	6,361	4,979	5,266	5,257	5,794	4,013
% Served	93%	96%	96%	96%	96%	100%	100%	100%	100%	100%
Estimated LOS	F	D	C	C	C	D	C	C	C	C

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Diverge	Basic	Merge	Weave	Basic
Demand	5,960	7,750	7,750	7,750	6,640	6,550	7,810	8,450	5,360
Processed	5,084	6,687	6,694	6,712	5,730	5,648	6,819	7,392	4,615
% Served	85%	86%	86%	87%	86%	86%	87%	87%	86%
Estimated LOS	F	F	E	D	D	D	C	C	C



Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.11 (continued)
2030 Build AM Peak Hour Lane Schematic

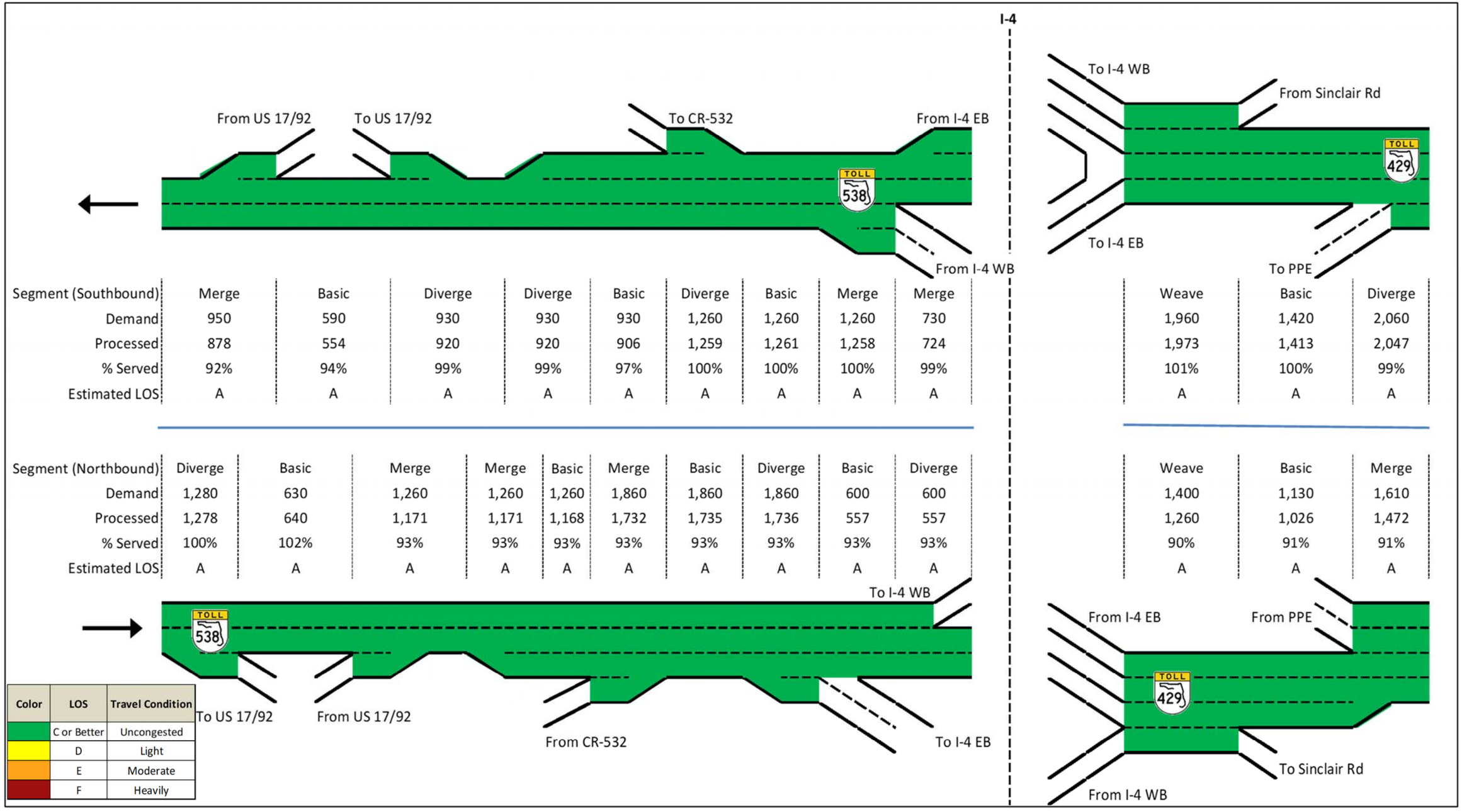
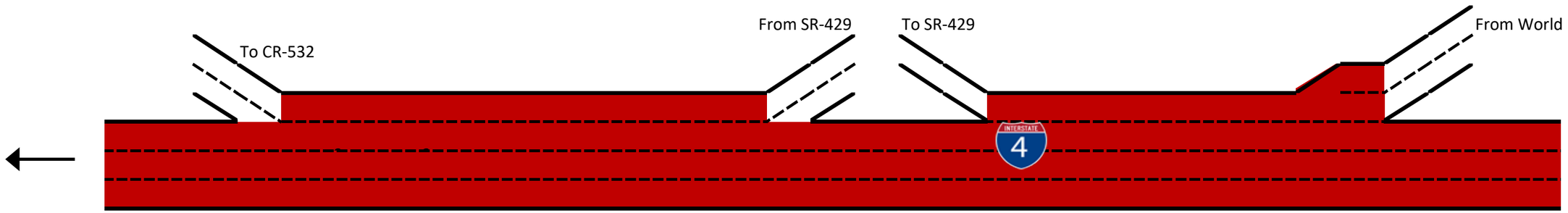
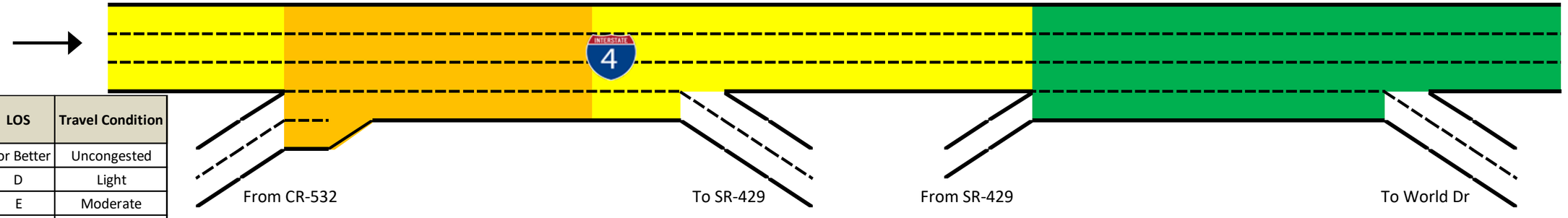


Figure 6.12
2030 No-Build PM Peak Hour Lane Schematic



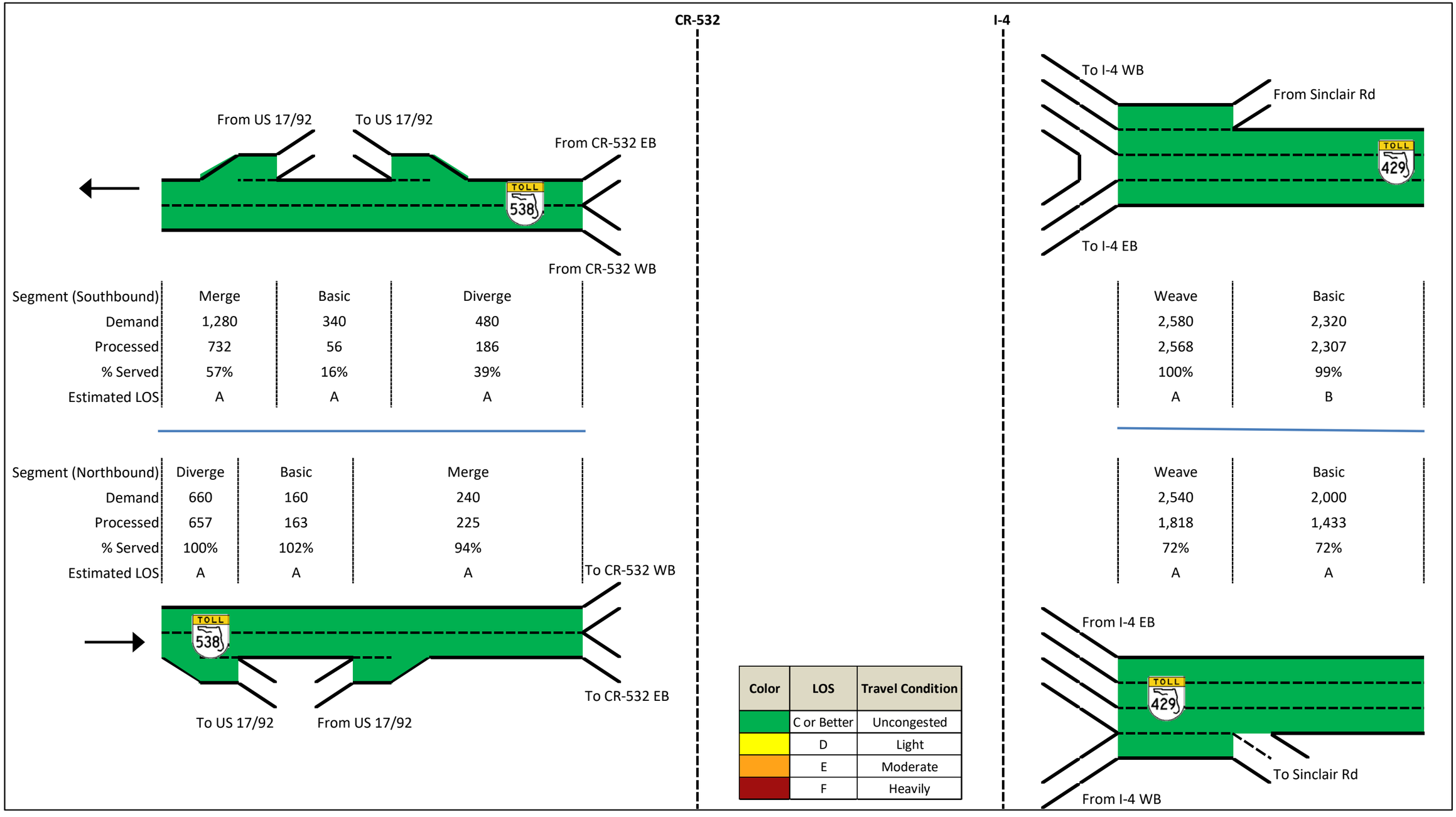
Segment (Westbound)	Basic	Diverge	Basic	Merge	Basic	Diverge	Basic	Merge	Basic
Demand	6,230	8,380	8,380	8,380	6,190	6,900	6,900	6,900	5,020
Processed	5,106	6,881	6,901	6,896	4,802	5,461	5,494	5,692	4,544
% Served	82%	82%	82%	82%	78%	79%	80%	82%	91%
Estimated LOS	F	F	F	F	F	F	F	F	F

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Basic	Weave	Basic
Demand	5,800	7,630	7,630	7,630	5,800	6,190	3,900
Processed	5,324	6,926	6,942	6,955	5,685	6,062	3,813
% Served	92%	91%	91%	91%	98%	98%	98%
Estimated LOS	D	E	E	D	D	C	C



Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.12 (continued)
2030 No-Build PM Peak Hour Lane Schematic



Segment (Southbound)	Merge	Basic	Diverge
Demand	1,280	340	480
Processed	732	56	186
% Served	57%	16%	39%
Estimated LOS	A	A	A

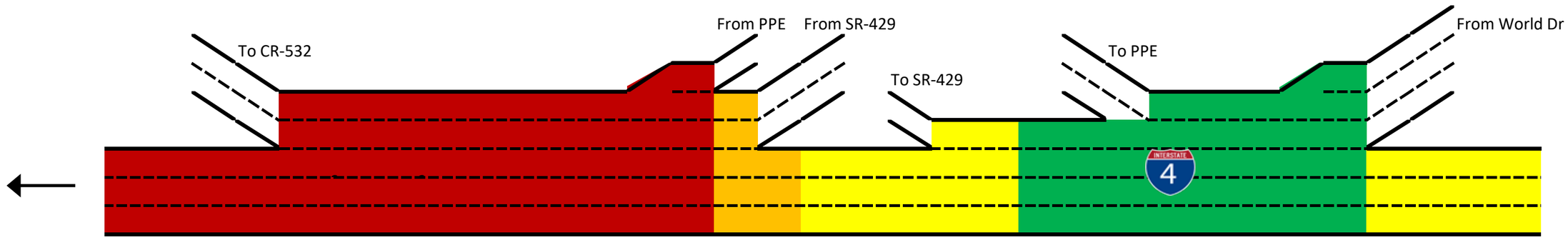
Segment (Northbound)	Diverge	Basic	Merge
Demand	660	160	240
Processed	657	163	225
% Served	100%	102%	94%
Estimated LOS	A	A	A

Weave	Basic
2,580	2,320
2,568	2,307
100%	99%
A	B

Weave	Basic
2,540	2,000
1,818	1,433
72%	72%
A	A

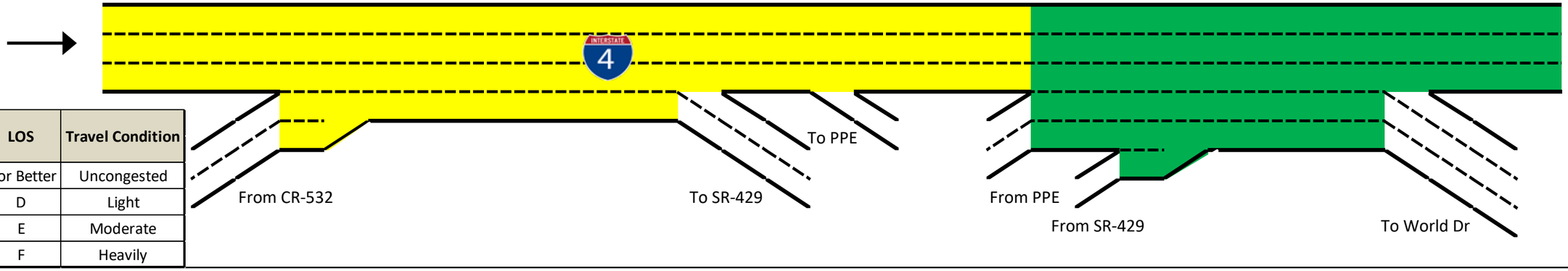
Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.13
2030 Build PM Peak Hour Lane Schematic



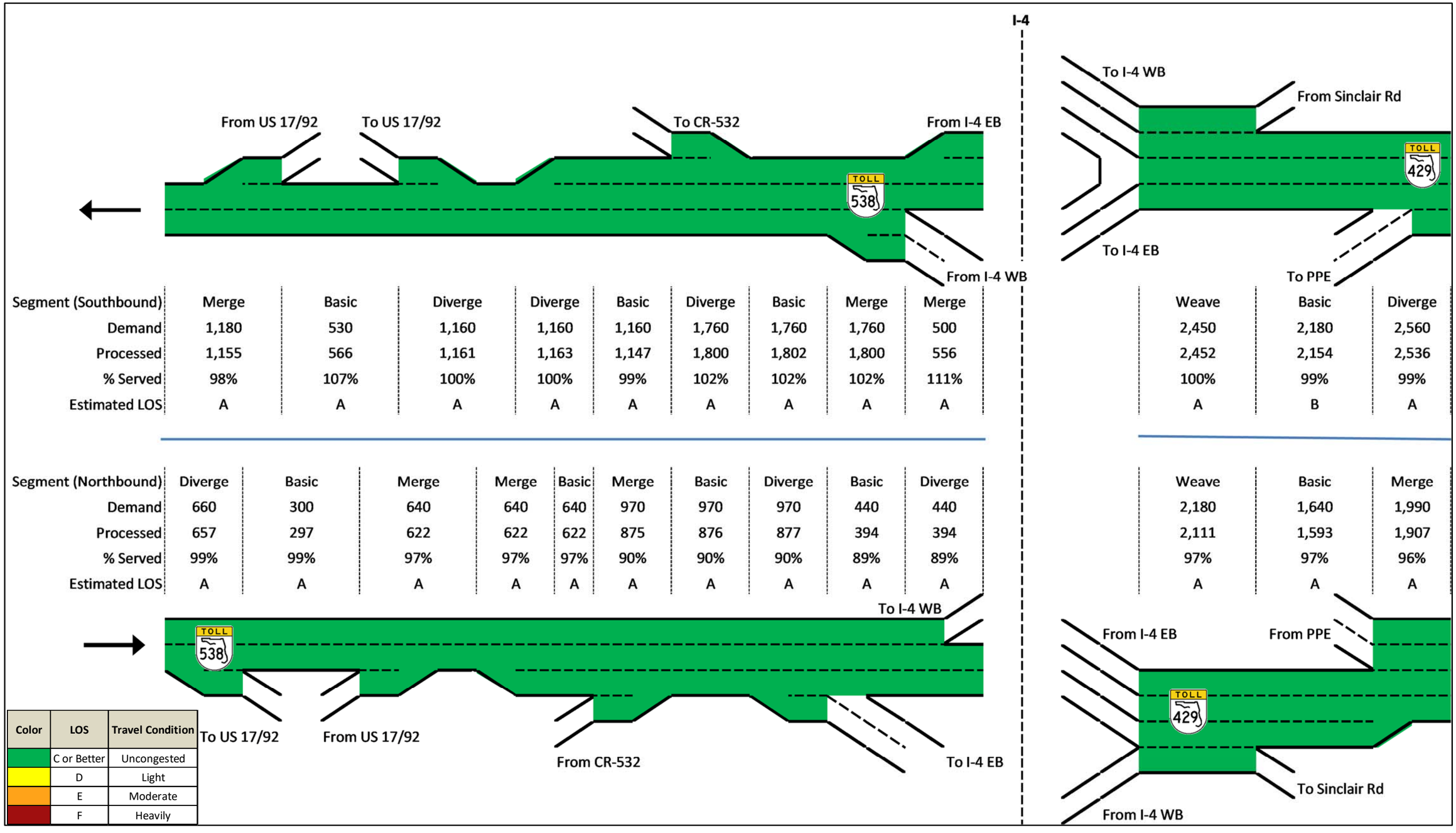
Segment (Westbound)	Basic	Diverge	Basic	Merge	Merge	Basic	Diverge	Basic	Weave	Basic
Demand	5,880	7,560	7,560	7,560	7,470	5,500	6,100	6,100	7,360	5,340
Processed	5,255	6,947	7,110	7,259	7,314	5,414	6,057	6,052	7,305	5,326
% Served	89%	92%	94%	96%	98%	98%	99%	99%	99%	100%
Estimated LOS	F	F	F	F	E	D	D	C	C	D

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Diverge	Basic	Merge	Weave	Basic
Demand	5,580	7,160	7,160	7,160	5,580	5,460	5,990	6,370	4,020
Processed	5,359	6,850	6,863	6,865	5,325	5,144	5,619	6,013	3,772
% Served	96%	96%	96%	96%	95%	94%	94%	94%	94%
Estimated LOS	D	D	D	D	D	D	C	C	C



Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.13 (continued)
2030 Build PM Peak Hour Lane Schematic



Segment (Southbound)	Merge	Basic	Diverge	Diverge	Basic	Diverge	Basic	Merge	Merge
Demand	1,180	530	1,160	1,160	1,160	1,760	1,760	1,760	500
Processed	1,155	566	1,161	1,163	1,147	1,800	1,802	1,800	556
% Served	98%	107%	100%	100%	99%	102%	102%	102%	111%
Estimated LOS	A	A	A	A	A	A	A	A	A

Segment (Northbound)	Diverge	Basic	Merge	Merge	Basic	Merge	Basic	Diverge	Basic	Diverge
Demand	660	300	640	640	640	970	970	970	440	440
Processed	657	297	622	622	622	875	876	877	394	394
% Served	99%	99%	97%	97%	97%	90%	90%	90%	89%	89%
Estimated LOS	A	A	A	A	A	A	A	A	A	A

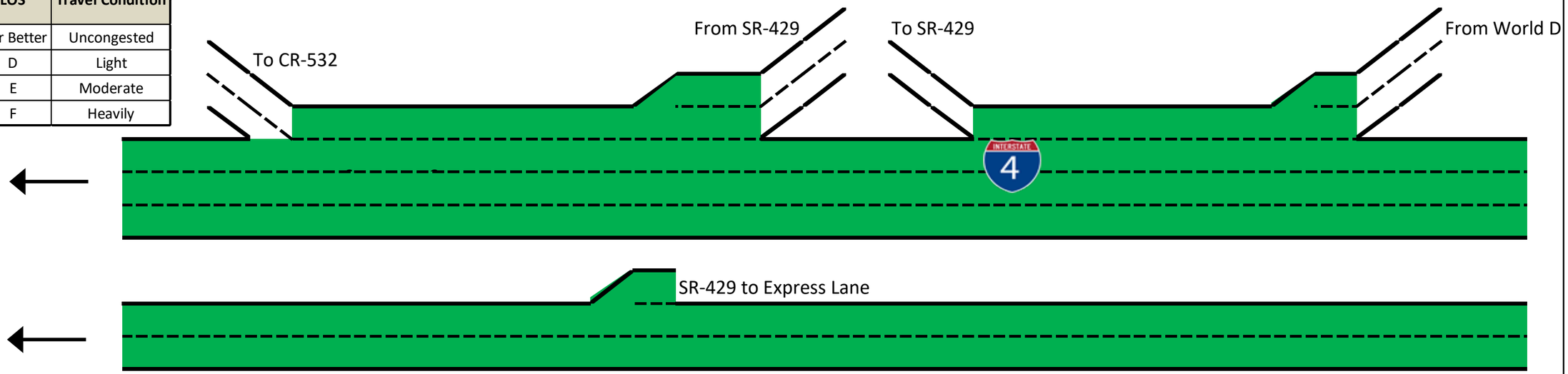
Weave	Basic	Diverge
2,450	2,180	2,560
2,452	2,154	2,536
100%	99%	99%
A	B	A

Weave	Basic	Merge
2,180	1,640	1,990
2,111	1,593	1,907
97%	97%	96%
A	A	A

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.14
2050 No-Build AM Peak Hour Lane Schematic

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily



General Purpose Lanes

Segment (Westbound)	Basic	Diverge	Basic	Merge	Basic	Diverge	Basic	Merge	Basic
Demand	4,200	6,440	6,440	6,440	4,130	4,960	4,960	4,960	2,840
Processed	4,146	6,371	6,372	6,355	4,141	4,961	4,944	4,940	2,835
% Served	99%	99%	99%	99%	100%	100%	100%	100%	100%
Estimated LOS	C	C	C	C	C	C	C	C	B

Express Lanes

Segment (Westbound)	Basic	Merge	Basic
Demand	2,580	2,580	1,810
Processed	2,552	2,550	1,807
% Served	99%	99%	100%
Estimated LOS	C	C	B

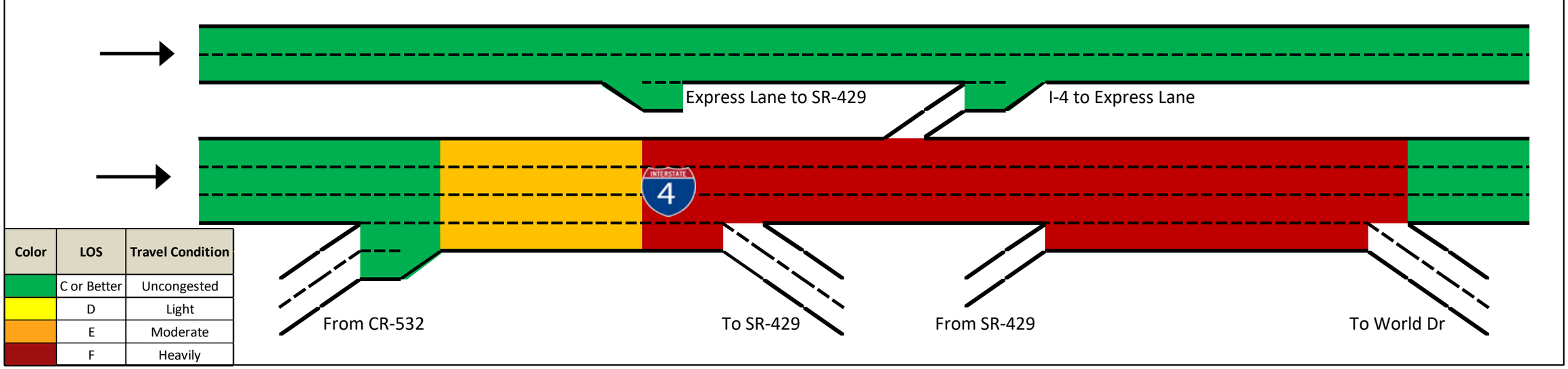
Figure 6.14 (continued)
2050 No-Build AM Peak Hour Lane Schematic

Express Lanes

Segment (Eastbound)	Basic	Diverge	Basic	Merge	Basic
Demand	3,700	3,700	3,180	3,800	3,800
Processed	3,156	3,143	2,625	3,001	3,002
% Served	85%	85%	83%	79%	79%
Estimated LOS	C	C	C	C	C

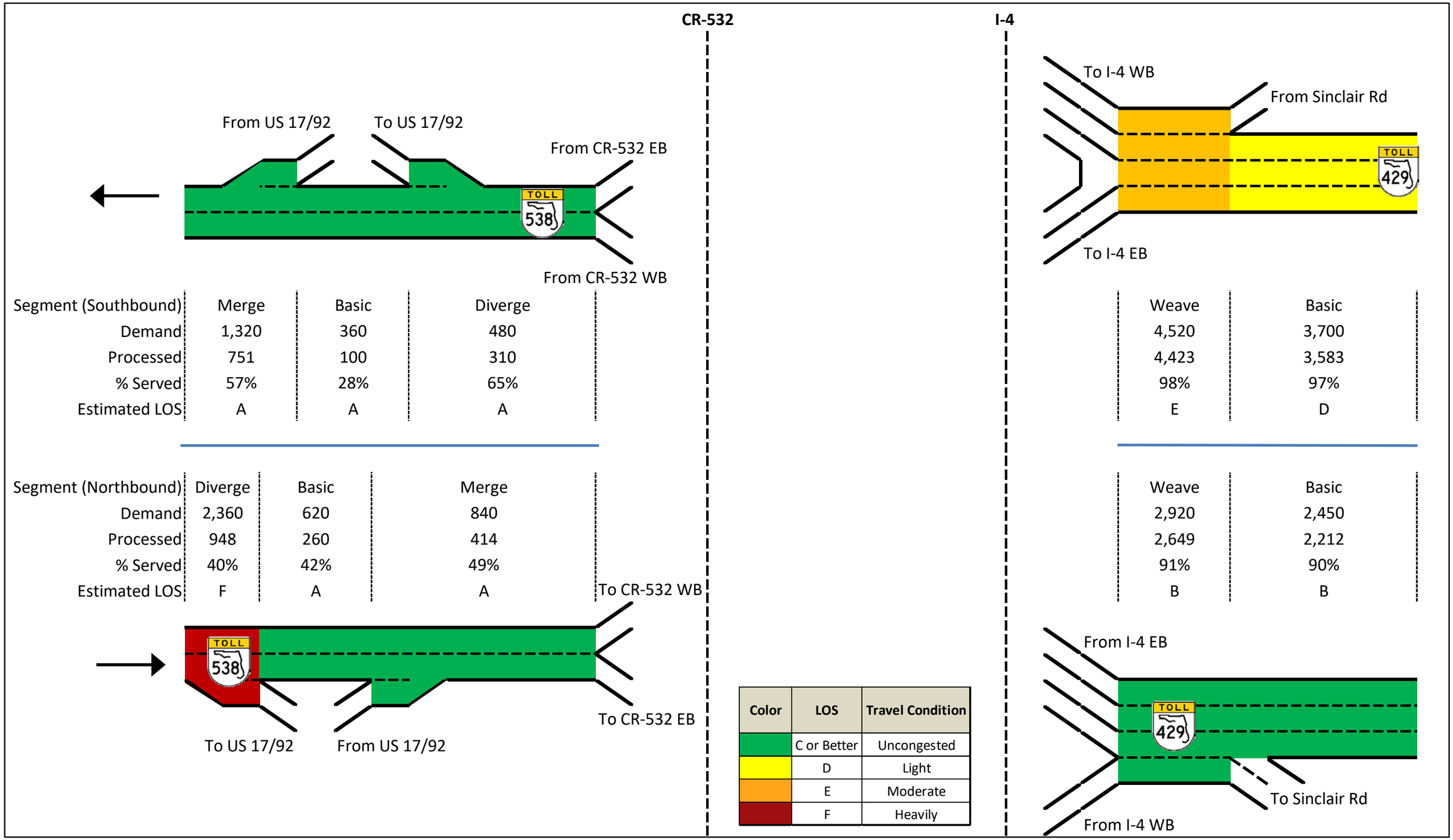
General Purpose Lanes

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Basic	Diverge	Basic	Weave	Basic
Demand	4,520	7,610	7,610	7,610	6,040	6,040	5,420	6,860	2,710
Processed	4,479	6,395	6,355	6,289	4,914	4,890	4,539	5,536	2,164
% Served	99%	84%	84%	83%	81%	81%	84%	81%	80%
Estimated LOS	C	C	E	F	F	F	F	F	B



Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.14 (continued)
2050 No-Build AM Peak Hour Lane Schematic



Segment (Southbound)	Merge	Basic	Diverge
Demand	1,320	360	480
Processed	751	100	310
% Served	57%	28%	65%
Estimated LOS	A	A	A

Segment (Northbound)	Diverge	Basic	Merge
Demand	2,360	620	840
Processed	948	260	414
% Served	40%	42%	49%
Estimated LOS	F	A	A

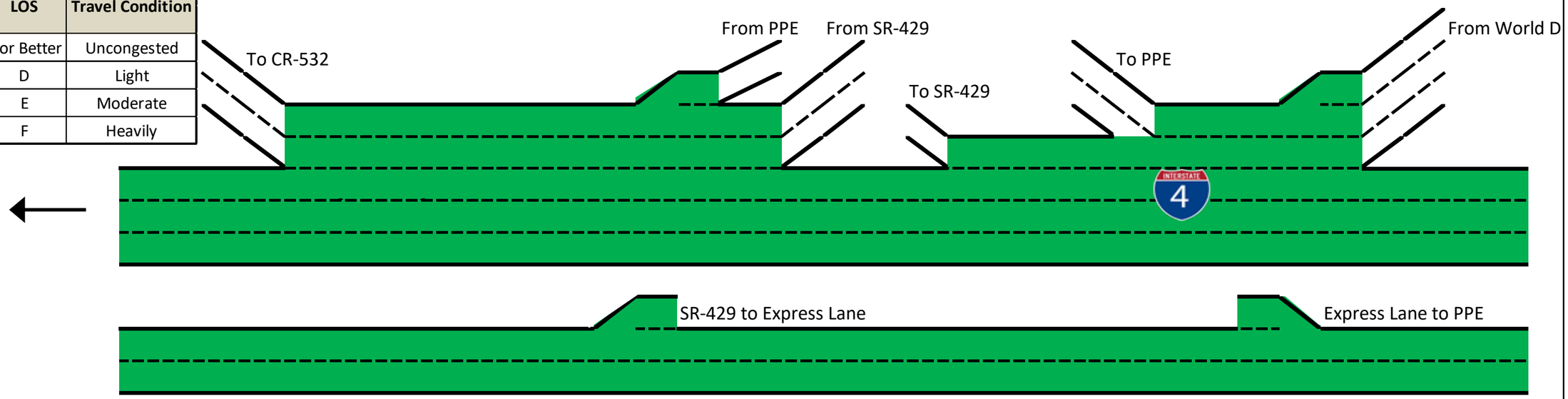
	Weave	Basic
	4,520	3,700
	4,423	3,583
	98%	97%
	E	D

	Weave	Basic
	2,920	2,450
	2,649	2,212
	91%	90%
	B	B

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.15
2050 Build AM Peak Hour Lane Schematic

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily



Segment (Westbound)	Basic	Diverge	Basic	Merge	Merge	Basic	Diverge	Basic	Weave	Basic
Demand	4,050	5,890	5,890	5,890	5,710	3,690	4,310	4,310	4,940	2,640
Processed	4,042	5,872	5,869	5,885	5,703	3,691	4,299	4,290	4,930	2,634
% Served	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Estimated LOS	C	C	C	B	C	C	B	B	B	B

Express Lanes

Segment (Westbound)	Basic	Merge	Basic	Diverge	Basic
Demand	2,610	2,610	1,940	2,150	2,150
Processed	2,593	2,593	1,927	2,144	2,147
% Served	99%	99%	99%	100%	100%
Estimated LOS	C	C	B	B	B

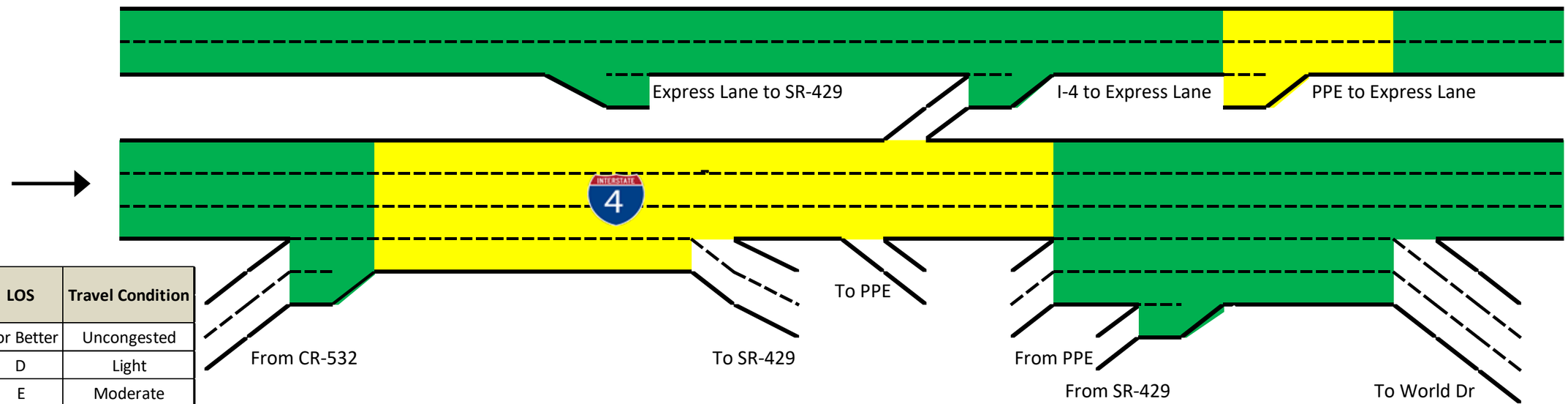
Figure 6.15 (continued)
2050 Build AM Peak Hour Lane Schematic

Express Lanes

Segment (Eastbound)	Basic	Diverge	Basic	Merge	Basic	Merge	Basic
Demand	2,900	2,900	2,420	2,900	2,900	3,360	3,360
Processed	2,897	2,889	2,412	2,795	2,793	3,196	3,216
% Served	100%	100%	100%	96%	96%	95%	96%
Estimated LOS	C	C	C	C	C	D	C

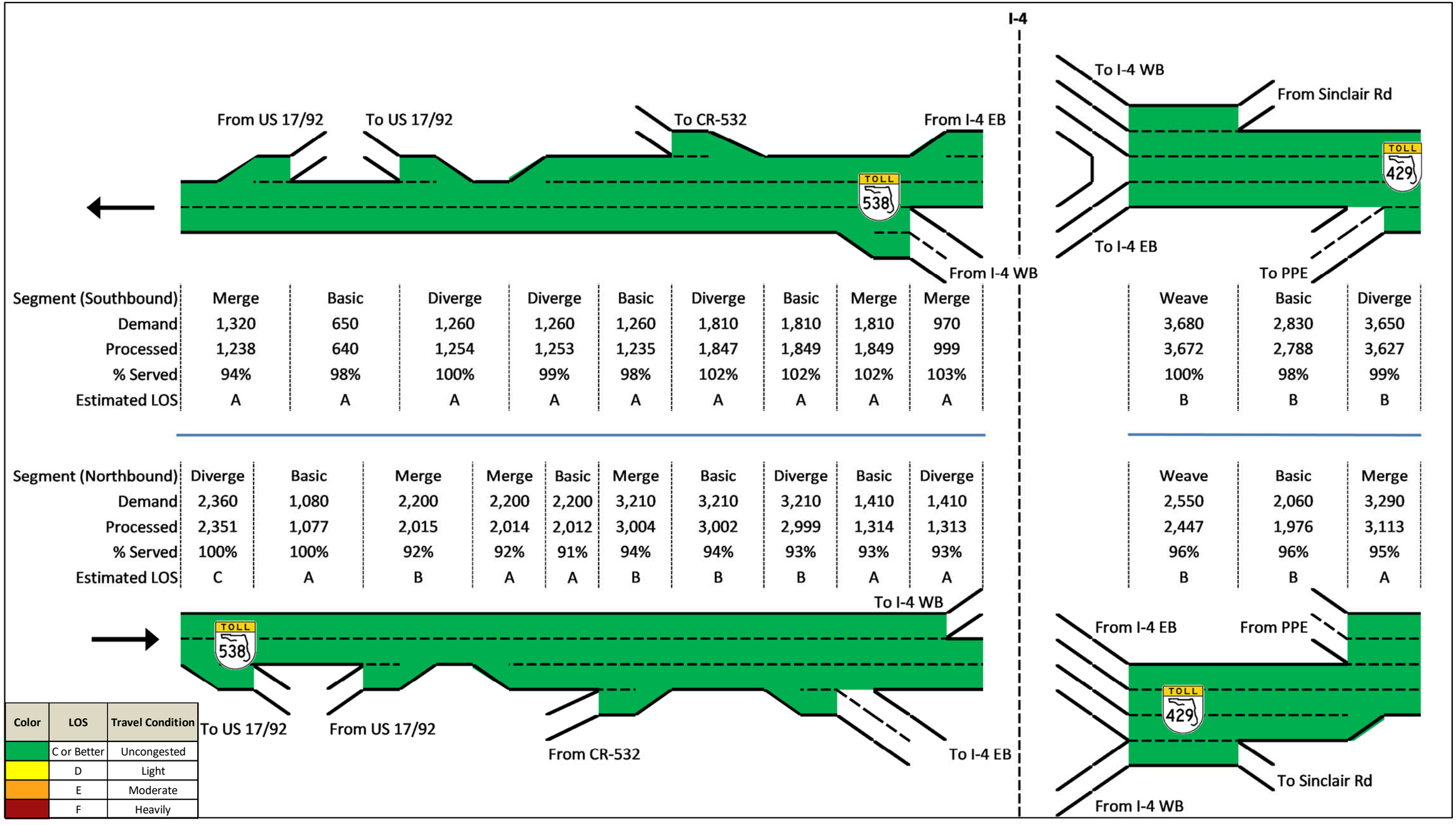
General Purpose Lanes

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Diverge	Diverge	Basic	Merge	Weave	Basic
Demand	4,770	7,150	7,150	7,150	5,700	5,550	5,070	6,410	7,400	3,020
Processed	4,735	6,629	6,649	6,661	5,285	5,122	4,862	6,001	6,965	2,767
% Served	99%	93%	93%	93%	93%	92%	96%	94%	94%	92%
Estimated LOS	C	C	D	D	D	D	D	C	C	B



Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.15 (continued)
2050 Build AM Peak Hour Lane Schematic



Segment (Southbound)	Merge	Basic	Diverge	Diverge	Basic	Diverge	Basic	Merge	Merge
Demand	1,320	650	1,260	1,260	1,260	1,810	1,810	1,810	970
Processed	1,238	640	1,254	1,253	1,235	1,847	1,849	1,849	999
% Served	94%	98%	100%	99%	98%	102%	102%	102%	103%
Estimated LOS	A	A	A	A	A	A	A	A	A

Segment (Northbound)	Diverge	Basic	Merge	Merge	Basic	Merge	Basic	Diverge	Basic	Diverge
Demand	2,360	1,080	2,200	2,200	2,200	3,210	3,210	3,210	1,410	1,410
Processed	2,351	1,077	2,015	2,014	2,012	3,004	3,002	2,999	1,314	1,313
% Served	100%	100%	92%	92%	91%	94%	94%	93%	93%	93%
Estimated LOS	C	A	B	A	A	B	B	B	A	A

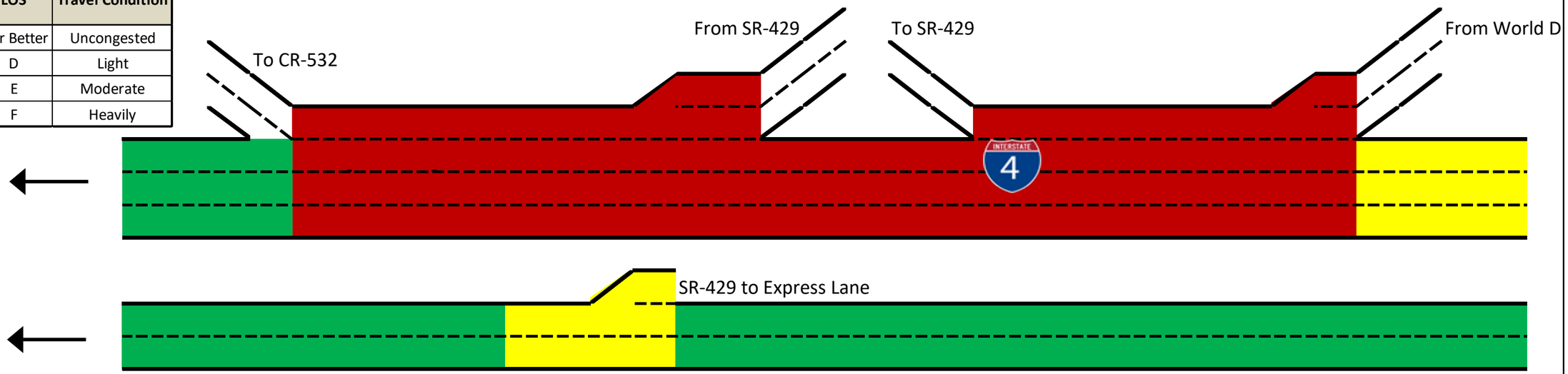
Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Segment (Southbound)	Weave	Basic	Diverge
Demand	3,680	2,830	3,650
Processed	3,672	2,788	3,627
% Served	100%	98%	99%
Estimated LOS	B	B	B

Segment (Northbound)	Weave	Basic	Merge
Demand	2,550	2,060	3,290
Processed	2,447	1,976	3,113
% Served	96%	96%	95%
Estimated LOS	B	B	A

Figure 6.16
2050 No-Build PM Peak Hour Lane Schematic

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily



General Purpose Lanes

Segment (Westbound)	Basic	Diverge	Basic	Merge	Basic	Diverge	Basic	Merge	Basic
Demand	4,950	7,970	7,970	7,970	5,100	6,260	6,260	6,260	3,710
Processed	3,303	5,344	5,353	5,412	3,994	5,008	5,114	5,286	3,669
% Served	67%	67%	67%	68%	78%	80%	82%	84%	99%
Estimated LOS	C	F	F	F	F	F	F	F	D

Express Lanes

Segment (Westbound)	Basic	Merge	Basic
Demand	3,210	3,210	2,260
Processed	2,803	2,795	2,256
% Served	87%	87%	100%
Estimated LOS	C	D	B

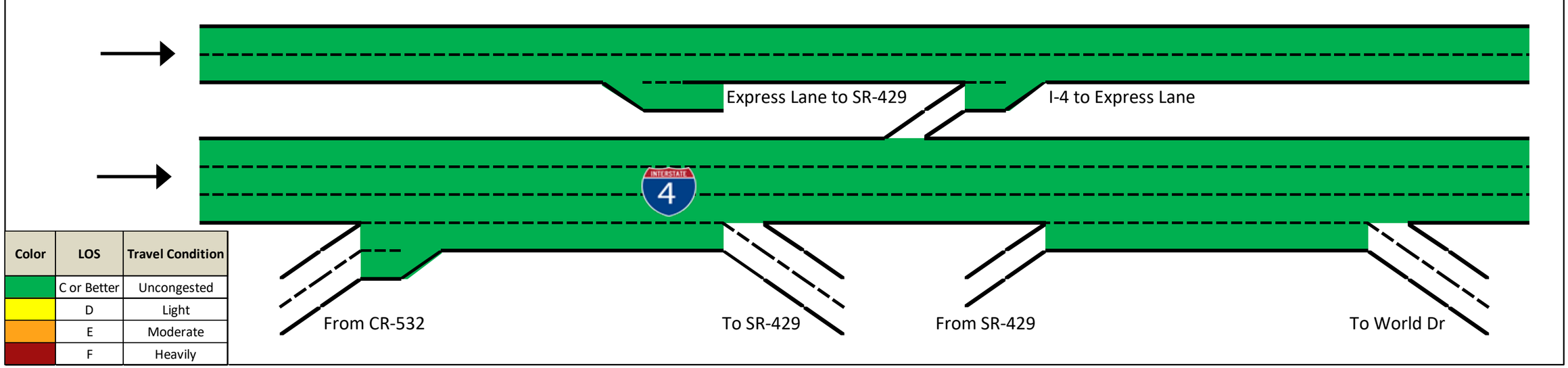
Figure 6.16 (continued)
2050 No-Build PM Peak Hour Lane Schematic

Express Lanes

Segment (Eastbound)	Basic	Diverge	Basic	Merge	Basic
Demand	3,140	3,140	2,380	2,780	2,780
Processed	2,663	2,649	1,897	2,149	2,144
% Served	85%	84%	80%	77%	77%
Estimated LOS	C	C	B	B	B

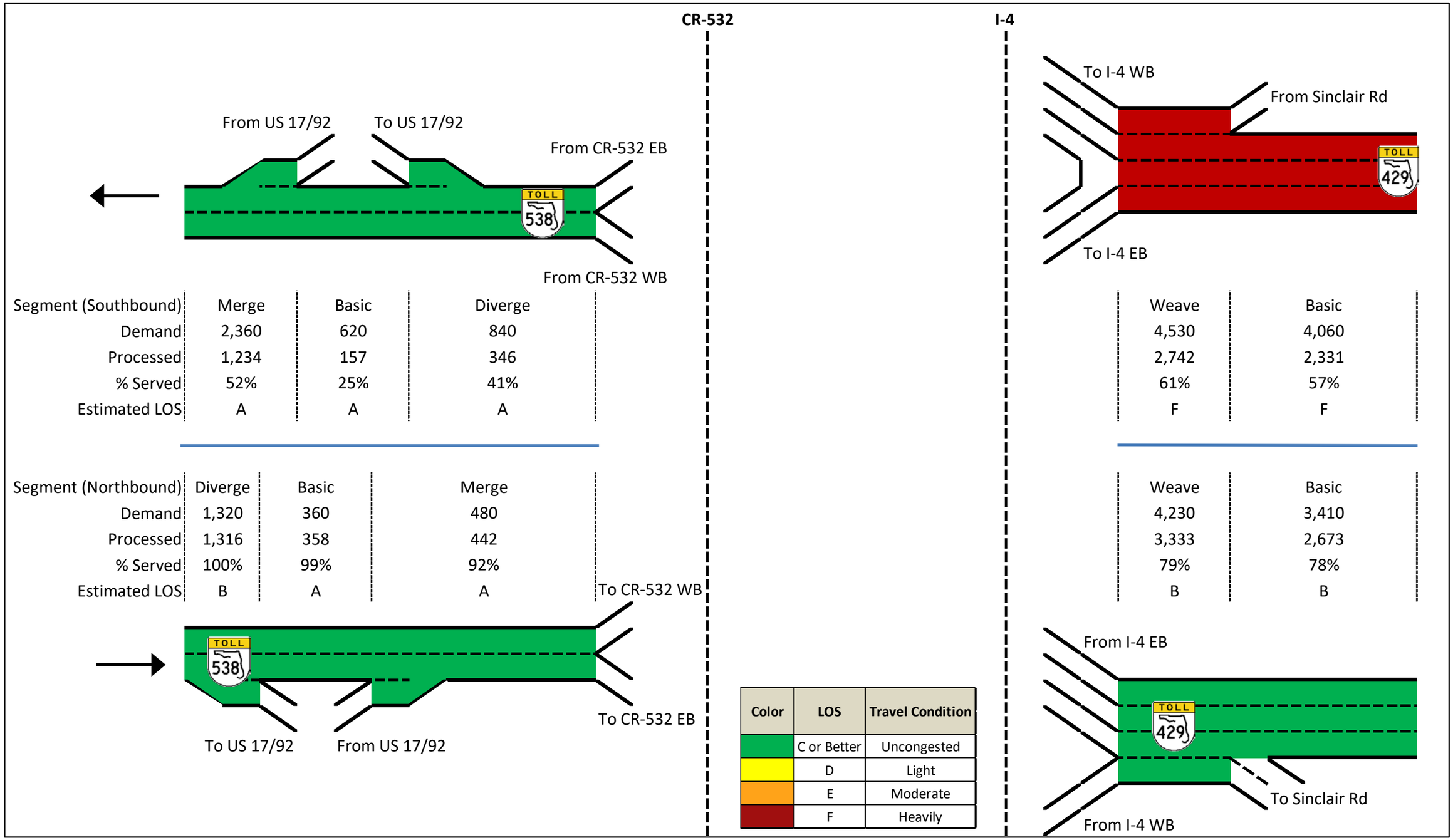
General Purpose Lanes

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Basic	Diverge	Basic	Weave	Basic
Demand	4,630	7,320	7,320	7,320	5,010	5,010	4,610	5,320	2,340
Processed	3,596	5,257	5,278	5,293	3,590	3,601	3,423	3,755	1,640
% Served	78%	72%	72%	72%	72%	72%	74%	71%	70%
Estimated LOS	C	B	C	C	C	C	C	B	A



Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.16 (continued)
2050 No-Build PM Peak Hour Lane Schematic



Segment (Southbound)	Merge	Basic	Diverge
Demand	2,360	620	840
Processed	1,234	157	346
% Served	52%	25%	41%
Estimated LOS	A	A	A

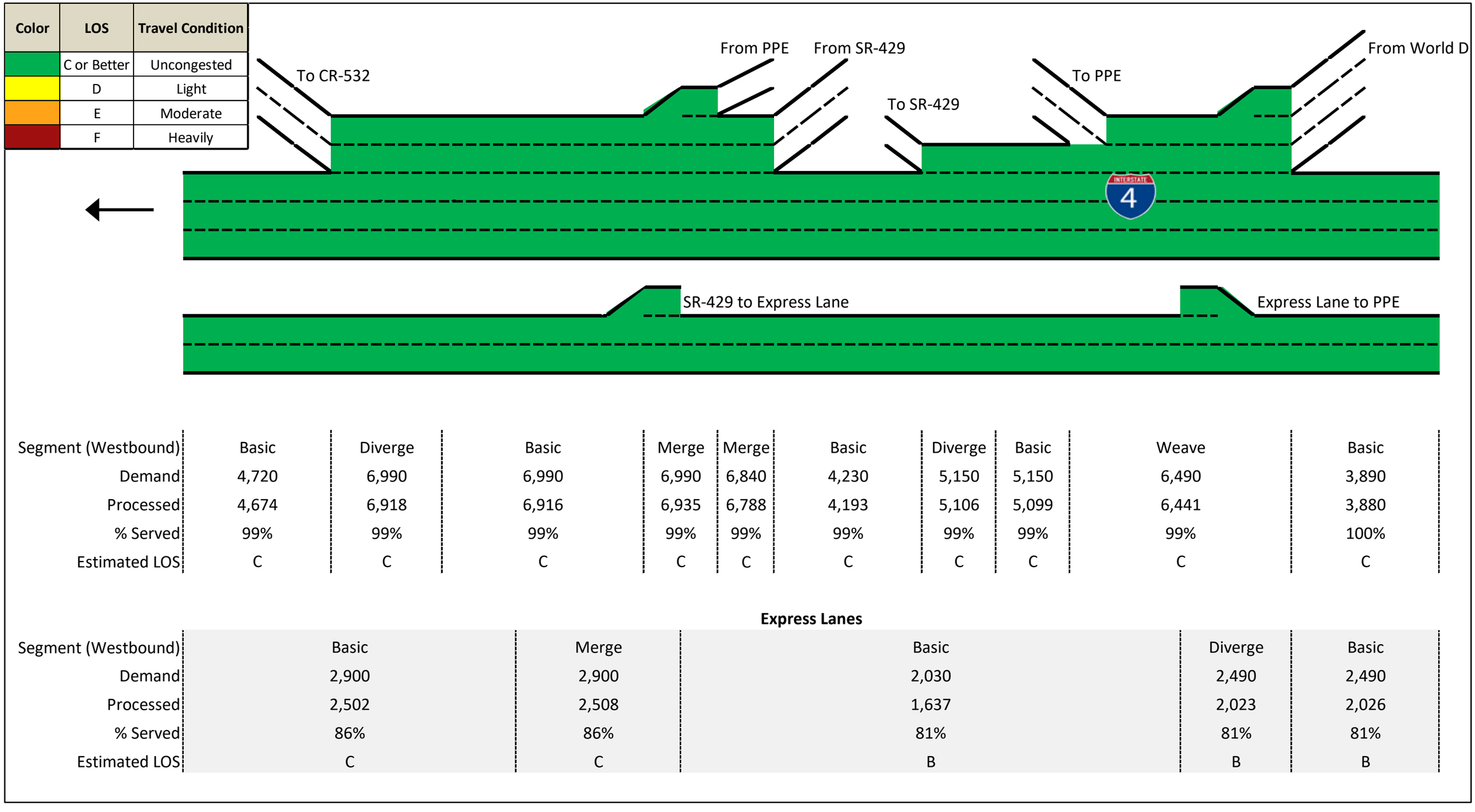
	Weave	Basic
	4,530	4,060
	2,742	2,331
	61%	57%
	F	F

Segment (Northbound)	Diverge	Basic	Merge
Demand	1,320	360	480
Processed	1,316	358	442
% Served	100%	99%	92%
Estimated LOS	B	A	A

	Weave	Basic
	4,230	3,410
	3,333	2,673
	79%	78%
	B	B

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.17
2050 Build PM Peak Hour Lane Schematic



Segment (Westbound)	Basic	Diverge	Basic	Merge	Merge	Basic	Diverge	Basic	Weave	Basic
Demand	4,720	6,990	6,990	6,990	6,840	4,230	5,150	5,150	6,490	3,890
Processed	4,674	6,918	6,916	6,935	6,788	4,193	5,106	5,099	6,441	3,880
% Served	99%	99%	99%	99%	99%	99%	99%	99%	99%	100%
Estimated LOS	C	C	C	C	C	C	C	C	C	C

Express Lanes

Segment (Westbound)	Basic	Merge	Basic	Diverge	Basic
Demand	2,900	2,900	2,030	2,490	2,490
Processed	2,502	2,508	1,637	2,023	2,026
% Served	86%	86%	81%	81%	81%
Estimated LOS	C	C	B	B	B

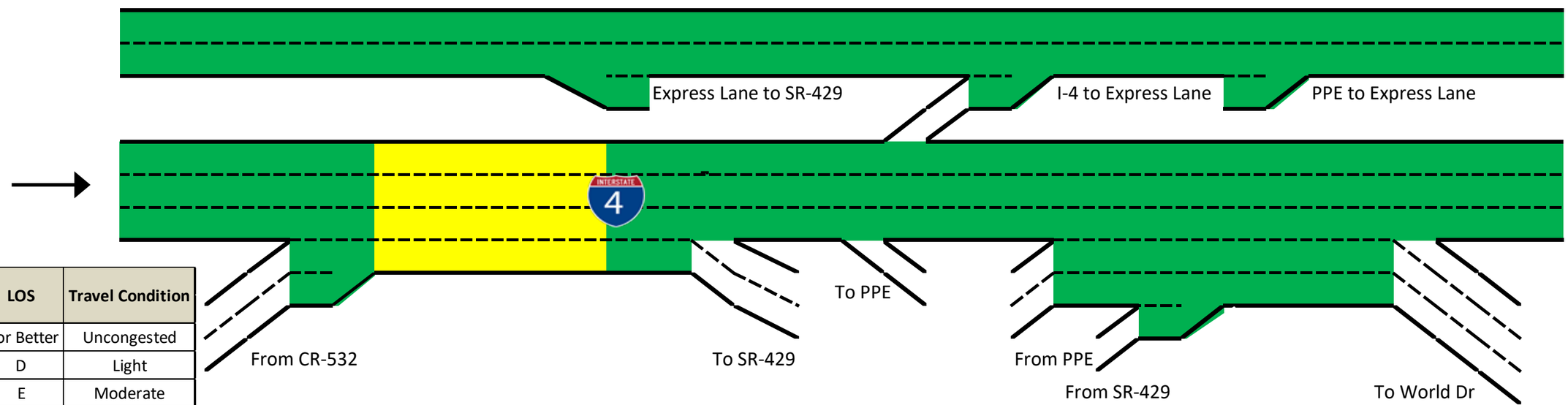
Figure 6.17 (continued)
2050 Build PM Peak Hour Lane Schematic

Express Lanes

Segment (Eastbound)	Basic	Diverge	Basic	Merge	Basic	Merge	Basic
Demand	2,600	2,600	1,930	2,270	2,270	2,480	2,480
Processed	2,593	2,584	1,915	2,187	2,184	2,353	2,373
% Served	100%	99%	99%	96%	96%	95%	96%
Estimated LOS	B	C	B	B	B	B	B

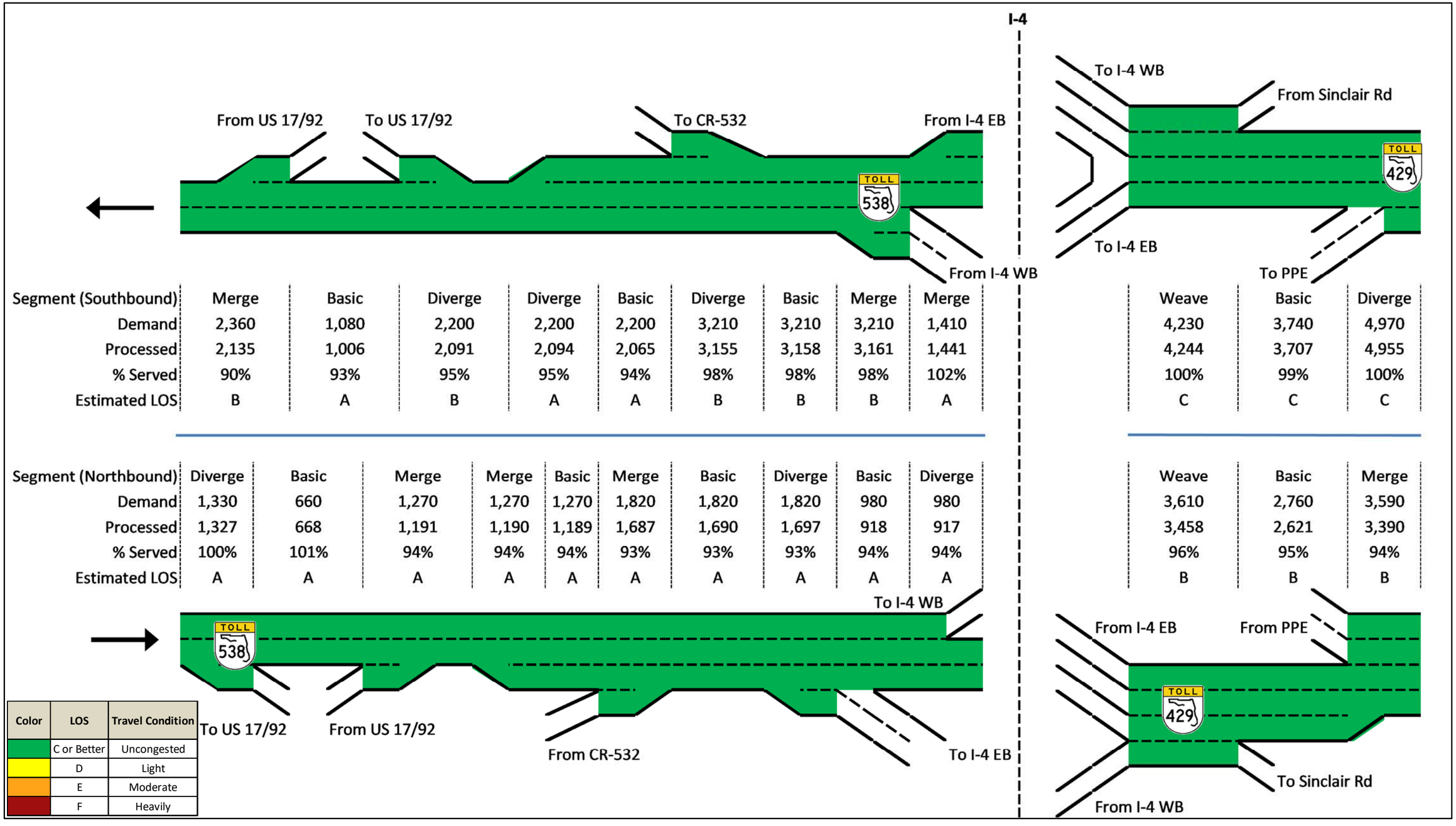
General Purpose Lanes

Segment (Eastbound)	Basic	Merge	Basic	Diverge	Diverge	Diverge	Basic	Merge	Weave	Basic
Demand	4,280	6,520	6,520	6,520	4,500	4,320	3,980	4,610	5,360	2,310
Processed	4,245	6,102	6,112	6,118	4,223	4,010	3,824	4,322	5,061	2,157
% Served	99%	94%	94%	94%	94%	93%	96%	94%	94%	93%
Estimated LOS	C	C	D	C	C	C	C	B	B	B



Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Figure 6.17 (continued)
2050 Build PM Peak Hour Lane Schematic



Segment (Southbound)	Merge	Basic	Diverge	Diverge	Basic	Diverge	Basic	Merge	Merge
Demand	2,360	1,080	2,200	2,200	2,200	3,210	3,210	3,210	1,410
Processed	2,135	1,006	2,091	2,094	2,065	3,155	3,158	3,161	1,441
% Served	90%	93%	95%	95%	94%	98%	98%	98%	102%
Estimated LOS	B	A	B	A	A	B	B	B	A

Segment (Southbound)	Weave	Basic	Diverge
Demand	4,230	3,740	4,970
Processed	4,244	3,707	4,955
% Served	100%	99%	100%
Estimated LOS	C	C	C

Segment (Northbound)	Diverge	Basic	Merge	Merge	Basic	Merge	Basic	Diverge	Basic	Diverge
Demand	1,330	660	1,270	1,270	1,270	1,820	1,820	1,820	980	980
Processed	1,327	668	1,191	1,190	1,189	1,687	1,690	1,697	918	917
% Served	100%	101%	94%	94%	94%	93%	93%	93%	94%	94%
Estimated LOS	A	A	A	A	A	A	A	A	A	A

Segment (Northbound)	Weave	Basic	Merge
Demand	3,610	2,760	3,590
Processed	3,458	2,621	3,390
% Served	96%	95%	94%
Estimated LOS	B	B	B

Color	LOS	Travel Condition
	C or Better	Uncongested
	D	Light
	E	Moderate
	F	Heavily

Table 6.17
2030 Peak Hour Mainline Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
SR 429 Southbound (SB)													
Upstream of Sinclair Road Off-ramp_Basic	Upstream of Sinclair Road Off-ramp_Basic	100%	72	100%	72	100%	71	100%	71	0%	0	0%	0
Upstream of Sinclair Road Off-ramp_Diverge	Upstream of Sinclair Road Off-ramp_Diverge	100%	74	100%	74	100%	72	100%	72	0%	0	0%	1
Sinclair Road SB Off-ramp to PPE Off ramp_Basic	Sinclair Road SB Off-ramp to PPE Off ramp_Basic	99%	71	99%	71	99%	70	99%	70	0%	0	0%	0
PPE Off ramp to Sinclair Road On-ramp	PPE Off ramp to Sinclair Road On-ramp	99%	63	100%	64	99%	63	99%	63	0%	1	-1%	0
Sinclair Road On-ramp to I-4 EB Off-ramp_Weave	Sinclair Road On-ramp to I-4 EB Off-ramp_Weave	99%	59	101%	61	100%	61	100%	61	1%	2	1%	0
I-4 EB Off-ramp to I-4 WB Off-ramp_Basic	I-4 EB Off-ramp to I-4 WB Off-ramp_Basic	100%	55	107%	56	100%	54	99%	55	7%	1	-1%	0
Upstream of World Drive On-ramp_Basic	Upstream of World Drive On-ramp_Basic	100%	65	100%	65	91%	34	100%	63	0%	0	9%	29
I-4 Westbound (WB)													
Upstream of World Drive On-ramp_Basic	Upstream of World Drive On-ramp_Basic	100%	65	100%	65	91%	34	100%	63	0%	0	9%	29
World Drive On-ramp to SR 429 Off-ramp_Merge	-	99%	64	-	-	82%	18	-	-	-	-	-	-
-	World Drive On-ramp to PPE Off-ramp_Weave	-	-	100%	64	-	-	99%	64	-	-	-	-
World Drive On-ramp to SR 429 Off-ramp_Basic	-	99%	64	-	-	80%	18	-	-	-	-	-	-
World Drive On-ramp to SR 429 Off-ramp_Diverge	-	100%	61	-	-	79%	16	-	-	-	-	-	-
-	PPE Off-ramp to SR 429 Off-ramp_Basic	-	-	100%	62	-	-	99%	62	-	-	-	-
-	PPE Off-ramp to SR 429 Off-ramp_Diverge	-	-	100%	63	-	-	99%	59	-	-	-	-
SR 429 Off-ramp to On-ramp	SR 429 Off-ramp to On-ramp	99%	54	100%	65	78%	13	98%	59	1%	11	21%	46
SR 429 On-ramp to CR 532 Off-ramp_Merge	-	97%	45	-	-	82%	18	-	-	-	-	-	-
-	SR 429 On-ramp to PPE On-ramp_Merge	-	-	96%	65	-	-	98%	47	-	-	-	-
PPE On-ramp to CR 532 Off-ramp_Basic	-	96%	36	-	-	82%	17	-	-	-	-	-	-
-	PPE On-ramp to CR 532 Off-ramp_Merge	-	-	96%	64	-	-	96%	42	-	-	-	-
SR 429 On-ramp to CR 532 Off-ramp_Diverge	-	92%	29	-	-	82%	21	-	-	-	-	-	-
-	PPE On-ramp to CR 532 Off-ramp_Basic	-	-	96%	63	-	-	94%	32	-	-	-	-
-	PPE On-ramp to CR 532 Off-ramp_Diverge	-	-	96%	53	-	-	92%	27	-	-	-	-
CR 532 Off-ramp to On-ramp_Basic	CR 532 Off-ramp to On-ramp_Basic	89%	15	93%	23	82%	13	89%	16	4%	9	7%	3
Downstream of CR 532 On-ramp_Merge	Downstream of CR 532 On-ramp_Merge	87%	38	90%	39	82%	39	87%	40	3%	1	5%	1
Downstream of CR 532 On-ramp_Basic	Downstream of CR 532 On-ramp_Basic	89%	62	91%	62	83%	62	89%	61	3%	0	6%	0
I-4 CD Upstream of off ramp to World Dr N	I-4 CD Upstream of off ramp to World Dr N	100%	56	100%	57	100%	54	100%	57	0%	0	0%	2
I-4 CD Between World Dr off ramps	I-4 CD Between World Dr off ramps	100%	56	100%	56	96%	34	100%	56	0%	0	3%	22
I-4 CD Between off ramp to World Dr S & on ramp from World Dr	I-4 CD Between off ramp to World Dr S & on ramp from World Dr	100%	55	100%	56	87%	21	99%	56	0%	1	12%	35
PPE Southbound (SB)													
-	SR 429 off-ramp to EB I-4 On ramp_Basic	-	-	98%	72	-	-	97%	72	-	-	-	-
-	EB I-4 On-ramp to WB-I-4 On ramp_Merge	-	-	99%	70	-	-	111%	68	-	-	-	-
-	WB I-4 On-ramp to CR 532 Off ramp_Merge	-	-	100%	71	-	-	102%	68	-	-	-	-

- Not Applicable

Table 6.17 (continued)
2030 Peak Hour Mainline Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
PPE Southbound (SB) (continued)													
-	WB I-4 On-ramp to CR 532 Off ramp_Basic	-	-	100%	72	-	-	102%	71	-	-	-	-
-	WB I-4 On-ramp to CR 532 Off ramp_Diverge	-	-	100%	67	-	-	102%	64	-	-	-	-
-	CR 532 Off-ramp to CPP Off ramp_Basic	-	-	99%	71	-	-	100%	71	-	-	-	-
CPP Off ramp to US 17/92 Off ramp_Diverge	CPP Off ramp to US 17/92 Off ramp_Diverge	64%	47	99%	65	39%	47	100%	62	35%	18	61%	16
US 17/92 Off-ramp to US 17/92 On-ramp	US 17/92 Off-ramp to US 17/92 On-ramp	29%	52	94%	72	16%	52	107%	72	65%	19	90%	19
US 17/92 On-ramp_Merge	US 17/92 On-ramp_Merge	70%	67	92%	70	57%	67	98%	70	22%	3	41%	3
Downstream of US 17/92 On-ramp_Basic	Downstream of US 17/92 On-ramp_Basic	70%	69	93%	71	57%	69	98%	71	23%	3	41%	2
SR 429 Northbound (NB)													
I4 to Sinclair Off-ramp_Weave	I4 to Sinclair Off-ramp_Weave	75%	61	90%	61	72%	61	97%	61	15%	0	25%	0
Sinclair Off-ramp to PPE On-ramp_Basic	Sinclair Off-ramp to PPE On-ramp_Basic	75%	62	91%	62	72%	62	97%	61	16%	0	25%	0
PPE On-Ramp to Sinclair Rd On-ramp_Merge	PPE On-Ramp to Sinclair Rd On-ramp_Merge	75%	70	91%	70	72%	70	96%	70	17%	0	24%	0
Downstream of Sinclair On-ramp_Merge	Downstream of Sinclair On-ramp_Merge	83%	68	94%	70	75%	70	96%	70	11%	1	21%	0
Downstream of SInclair On-ramp_Basic	Downstream of SInclair On-ramp_Basic	84%	72	94%	72	76%	72	96%	71	10%	0	21%	0
I-4 Eastbound (EB)													
Upstream of CR 532 Off-ramp_Basic	Upstream of CR 532 Off-ramp_Basic	83%	25	88%	39	92%	57	96%	57	4%	14	4%	0
Upstream of CR 532 Off-ramp_Diverge	Upstream of CR 532 Off-ramp_Diverge	82%	22	86%	34	92%	61	96%	62	4%	12	4%	1
CR 532 Off-ramp to On-ramp	CR 532 Off-ramp to On-ramp	82%	18	85%	26	92%	59	96%	62	4%	8	4%	2
CR 532 On-ramp to SR 429 Off-ramp_Merge	CR 532 On-ramp to SR 429 Off-ramp_Merge	83%	15	86%	19	91%	44	96%	54	3%	4	5%	10
CR 532 On-ramp to SR 429 Off-ramp_Basic	CR 532 On-ramp to SR 429 Off-ramp_Basic	83%	38	86%	47	91%	52	96%	56	3%	8	5%	4
CR 532 On-ramp to SR 429 Off-ramp_Diverge	CR 532 On-ramp to SR 429 Off-ramp_Diverge	84%	40	87%	60	91%	61	96%	62	3%	20	5%	1
SR 429 Off-ramp to SR 429 On-ramp_Basic	-	86%	45	-	-	98%	61	-	-	-	-	-	-
-	SR 429 Off-ramp to PPE Off-ramp_Diverge	-	-	86%	59	-	-	95%	61	-	-	-	-
-	PPE Off ramp to PPE On-ramp_Basic	-	-	86%	62	-	-	94%	63	-	-	-	-
-	PPE On ramp to SR 429 On-ramp	-	-	87%	64	-	-	94%	65	-	-	-	-
SR 429 On-ramp to World Dirve Off-ramp_Weave	SR 429 On-ramp to World Dirve Off-ramp_Weave	88%	59	87%	62	98%	63	94%	64	0%	3	-4%	2
Downstream of World Drive Off-ramp_Basic	Downstream of World Drive Off-ramp_Basic	88%	64	86%	63	98%	64	94%	65	-2%	0	-4%	0
I-4 CD Between World Dr ramps	I-4 CD Between World Dr ramps	87%	51	90%	51	97%	51	96%	51	3%	0	-2%	0
I-4 CD Between off ramp to World Dr S & On Ramp	I-4 CD Between off ramp to World Dr S & On Ramp	87%	56	90%	55	98%	55	95%	55	3%	0	-2%	0
I-4 CD Downstream of World Dr on ramp	I-4 CD Downstream of World Dr on ramp	89%	55	91%	55	98%	55	96%	55	3%	0	-2%	0

- Not Applicable

Table 6.17 (continued)
2030 Peak Hour Mainline Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
PPE Northbound (NB)													
Upstream of US 17/92 Off-ramp_Basic	Upstream of US 17/92 Off-ramp_Basic	100%	71	100%	71	100%	72	100%	72	0%	0	0%	0
Upstream of US 17/92 Off-ramp_Diverge	Upstream of US 17/92 Off-ramp_Diverge	100%	59	100%	63	100%	61	99%	64	0%	4	0%	3
US 17/92 Off-ramp to On-ramp	US 17/92 Off-ramp to On-ramp	100%	72	102%	71	102%	72	99%	72	2%	0	-3%	0
US 17-92 On-ramp to CPP_Merge	US 17-92 On-ramp to CPP_Merge	96%	64	93%	69	94%	64	97%	70	-3%	5	4%	5
-	CPP On-ramp to CR 532 On-ramp_Merge	-	-	93%	71	-	-	97%	72	-	-	-	-
-	CPP On-ramp to CR 532 On-ramp_Basic	-	-	93%	71	-	-	97%	72	-	-	-	-
-	CR 532 On-ramp to I-4 EB Off-ramp_Merge	-	-	93%	70	-	-	90%	71	-	-	-	-
-	CR 532 On-ramp to I-4 EB Off-ramp_Basic	-	-	93%	71	-	-	90%	72	-	-	-	-
-	CR 532 On-ramp to I-4 EB Off-ramp_Diverge	-	-	93%	71	-	-	90%	72	-	-	-	-
-	I-4 EB Off-ramp to I-4 WB Off-ramp_Basic	-	-	93%	72	-	-	89%	72	-	-	-	-
-	I-4 EB Off-ramp to I-4 WB Off-ramp_Diverge	-	-	93%	72	-	-	89%	72	-	-	-	-
-	I-4 WB Off-ramp to SR 429_Basic	-	-	93%	72	-	-	90%	72	-	-	-	-

- Not Applicable

Table 6.18
2050 Peak Hour Mainline Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
SR 429 Southbound (SB)													
Upstream of Sinclair Road Off-ramp_Basic	Upstream of Sinclair Road Off-ramp_Basic	100%	71	100%	71	74%	26	100%	70	0%	0	26%	43
Upstream of Sinclair Road Off-ramp_Diverge	Upstream of Sinclair Road Off-ramp_Diverge	99%	68	100%	73	67%	17	100%	69	0%	5	33%	52
Sinclair Road SB Off-ramp to PPE Off ramp_Basic	Sinclair Road SB Off-ramp to PPE Off ramp_Basic	98%	63	99%	68	61%	10	100%	61	1%	5	39%	50
PPE Off ramp to Sinclair Road On-ramp	PPE Off ramp to Sinclair Road On-ramp	97%	56	98%	62	57%	10	99%	59	2%	6	42%	49
Sinclair Road On-ramp to I-4 EB Off-ramp_Weave	Sinclair Road On-ramp to I-4 EB Off-ramp_Weave	98%	45	100%	56	61%	6	100%	55	2%	11	40%	49
I-4 EB Off-ramp to I-4 WB Off-ramp_Basic	I-4 EB Off-ramp to I-4 WB Off-ramp_Basic	97%	51	100%	53	57%	6	100%	49	3%	2	43%	43
Upstream of World Drive On-ramp_Basic	Upstream of World Drive On-ramp_Basic	100%	66	100%	66	99%	49	100%	65	0%	0	1%	15
I-4 Westbound (WB)													
Upstream of World Drive On-ramp_Basic	Upstream of World Drive On-ramp_Basic	100%	66	100%	66	99%	49	100%	65	0%	0	1%	15
World Drive On-ramp to SR 429 Off-ramp_Merge	-	100%	63	-	-	84%	26	-	-	-	-	-	-
-	World Drive On-ramp to PPE Off-ramp_Weave	-	-	100%	62	-	-	99%	63	-	-	-	-
World Drive On-ramp to SR 429 Off-ramp_Basic	-	100%	65	-	-	82%	20	-	-	-	-	-	-
World Drive On-ramp to SR 429 Off-ramp_Diverge	-	100%	64	-	-	80%	17	-	-	-	-	-	-
-	PPE Off-ramp to SR 429 Off-ramp_Basic	-	-	100%	63	-	-	99%	64	-	-	-	-
-	PPE Off-ramp to SR 429 Off-ramp_Diverge	-	-	100%	65	-	-	99%	64	-	-	-	-
SR 429 Off-ramp to On-ramp	SR 429 Off-ramp to On-ramp	100%	66	100%	66	78%	11	99%	66	0%	0	21%	55
SR 429 On-ramp to CR 532 Off-ramp_Merge	-	99%	63	-	-	68%	10	-	-	-	-	-	-
-	SR 429 On-ramp to PPE On-ramp_Merge	-	-	100%	65	-	-	99%	65	-	-	-	-
PPE On-ramp to CR 532 Off-ramp_Basic	-	99%	65	-	-	67%	10	-	-	-	-	-	-
-	PPE On-ramp to CR 532 Off-ramp_Merge	-	-	100%	65	-	-	99%	63	-	-	-	-
SR 429 On-ramp to CR 532 Off-ramp_Diverge	-	99%	64	-	-	67%	13	-	-	-	-	-	-
-	PPE On-ramp to CR 532 Off-ramp_Basic	-	-	100%	66	-	-	99%	65	-	-	-	-
-	PPE On-ramp to CR 532 Off-ramp_Diverge	-	-	100%	65	-	-	99%	65	-	-	-	-
CR 532 Off-ramp to On-ramp_Basic	CR 532 Off-ramp to On-ramp_Basic	99%	66	100%	66	67%	63	99%	65	1%	0	32%	2
Downstream of CR 532 On-ramp_Merge	Downstream of CR 532 On-ramp_Merge	91%	55	95%	55	66%	60	94%	51	4%	0	28%	-10
Downstream of CR 532 On-ramp_Basic	Downstream of CR 532 On-ramp_Basic	92%	63	96%	63	68%	64	95%	63	4%	0	28%	-2
I-4 CD Upstream of off ramp to World Dr N	I-4 CD Upstream of off ramp to World Dr N	100%	56	100%	56	96%	39	100%	56	0%	0	4%	17
I-4 CD Between World Dr off ramps	I-4 CD Between World Dr off ramps	100%	56	100%	56	88%	32	100%	56	0%	0	12%	24
I-4 CD Between off ramp to World Dr S & on ramp from World Dr	I-4 CD Between off ramp to World Dr S & on ramp from World Dr	99%	52	99%	55	81%	20	99%	55	0%	3	18%	36
PPE Southbound (SB)													
-	SR 429 off-ramp to EB I-4 On ramp_Basic	-	-	100%	71	-	-	99%	71	-	-	-	-
-	EB I-4 On-ramp to WB-I-4 On ramp_Merge	-	-	103%	69	-	-	102%	68	-	-	-	-
-	WB I-4 On-ramp to CR 532 Off ramp_Merge	-	-	102%	70	-	-	98%	66	-	-	-	-

- Not Applicable

Table 6.18 (continued)
2050 Peak Hour Mainline Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
PPE Southbound (SB) (continued)													
-	WB I-4 On-ramp to CR 532 Off ramp_Basic	-	-	102%	71	-	-	98%	70	-	-	-	-
-	WB I-4 On-ramp to CR 532 Off ramp_Diverge	-	-	102%	65	-	-	98%	61	-	-	-	-
-	CR 532 Off-ramp to CPP Off ramp_Basic	-	-	99%	71	-	-	95%	68	-	-	-	-
CPP Off ramp to US 17/92 Off ramp_Diverge	CPP Off ramp to US 17/92 Off ramp_Diverge	65%	47	100%	62	41%	47	95%	58	35%	16	54%	11
US 17/92 Off-ramp to US 17/92 On-ramp_Basic	US 17/92 Off-ramp to US 17/92 On-ramp	28%	52	98%	72	25%	52	93%	71	70%	19	68%	19
US 17/92 On-ramp_Merge	US 17/92 On-ramp_Merge	57%	66	94%	69	52%	64	90%	66	37%	4	38%	2
Downstream of US 17/92 On-ramp_Basic	Downstream of US 17/92 On-ramp_Basic	57%	67	94%	71	52%	65	90%	69	37%	4	38%	4
SR 429 Northbound (NB)													
I4 to Sinclair Off-ramp_Weave	I4 to Sinclair Off-ramp_Weave	91%	61	96%	61	79%	60	96%	60	5%	0	17%	0
Sinclair Off-ramp to PPE On-ramp_Basic	Sinclair Off-ramp to PPE On-ramp_Basic	90%	61	96%	61	78%	61	95%	61	6%	0	17%	0
PPE On-Ramp to Sinclair Rd On-ramp_Merge	PPE On-Ramp to Sinclair Rd On-ramp_Merge	90%	69	95%	70	78%	68	94%	69	4%	1	16%	1
Downstream of Sinclair On-ramp_Merge	Downstream of Sinclair On-ramp_Merge	93%	69	96%	69	82%	70	95%	70	3%	1	14%	0
Downstream of SInclair On-ramp_Basic	Downstream of SInclair On-ramp_Basic	93%	71	96%	71	82%	71	95%	71	3%	0	14%	0
I-4 Eastbound (EB)													
Upstream of CR 532 Off-ramp_Basic	Upstream of CR 532 Off-ramp_Basic	100%	62	100%	62	81%	22	100%	63	0%	0	19%	41
Upstream of CR 532 Off-ramp_Diverge	Upstream of CR 532 Off-ramp_Diverge	99%	63	99%	62	77%	16	99%	63	0%	-1	22%	47
CR 532 Off-ramp to On-ramp	CR 532 Off-ramp to On-ramp	99%	63	99%	64	78%	61	99%	64	0%	1	22%	3
CR 532 On-ramp to SR 429 Off-ramp_Merge	CR 532 On-ramp to SR 429 Off-ramp_Merge	84%	56	93%	56	72%	62	94%	58	9%	0	22%	-4
CR 532 On-ramp to SR 429 Off-ramp_Basic	CR 532 On-ramp to SR 429 Off-ramp_Basic	84%	50	93%	56	72%	63	94%	60	9%	7	22%	-4
CR 532 On-ramp to SR 429 Off-ramp_Diverge	CR 532 On-ramp to SR 429 Off-ramp_Diverge	83%	38	93%	62	72%	57	94%	64	11%	25	22%	7
SR 429 Off-ramp to EL Slip Ramp_Basic	-	81%	41	-	-	72%	62	-	-	-	-	-	-
SR 429 Off-ramp to EL Slip Ramp_Diverge	-	81%	40	-	-	72%	65	-	-	-	-	-	-
EL Slip ramp to PPE On ramp	-	84%	27	-	-	74%	64	-	-	-	-	-	-
-	SR 429 Off-ramp to PPE Off-ramp_Diverge	-	-	93%	59	-	-	94%	64	-	-	-	-
-	PPE Off ramp to EL Slip Ramp_Diverge	-	-	92%	58	-	-	93%	64	-	-	-	-
-	EL Slip ramp to PPE On ramp	-	-	96%	58	-	-	96%	63	-	-	-	-
-	PPE On ramp to SR 429 On-ramp	-	-	94%	64	-	-	94%	65	-	-	-	-
SR 429 On-ramp to World Dirve Off-ramp_Weave	SR 429 On-ramp to World Dirve Off-ramp_Weave	81%	20	94%	61	71%	65	94%	65	13%	41	24%	0
Downstream of World Drive Off-ramp_Basic	Downstream of World Drive Off-ramp_Basic	80%	65	92%	66	70%	66	93%	66	12%	1	23%	0
I-4 CD Between World Dr ramps	I-4 CD Between World Dr ramps	81%	50	96%	48	72%	51	96%	50	15%	-2	24%	-1
I-4 CD Between off ramp to World Dr S & On Ramp	I-4 CD Between off ramp to World Dr S & On Ramp	81%	55	97%	54	72%	55	96%	54	16%	-2	24%	-1
I-4 CD Downstream of World Dr on ramp	I-4 CD Downstream of World Dr on ramp	84%	55	97%	55	78%	54	96%	54	13%	0	18%	0

- Not Applicable

Table 6.18 (continued)
2050 Peak Hour Mainline Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
PPE Northbound (NB)													
Upstream of US 17/92 Off-ramp_Basic	Upstream of US 17/92 Off-ramp_Basic	40%	3	100%	69	100%	71	100%	71	60%	66	0%	0
Upstream of US 17/92 Off-ramp_Diverge	Upstream of US 17/92 Off-ramp_Diverge	40%	3	100%	54	100%	59	100%	63	59%	51	0%	4
US 17/92 Off-ramp to On-ramp_Basic	US 17/92 Off-ramp to On-ramp	42%	65	100%	70	99%	71	101%	71	58%	5	2%	0
US 17-92 On-ramp to CPP_Merge	US 17-92 On-ramp to CPP_Merge	49%	63	92%	68	92%	64	94%	69	42%	4	2%	5
-	CPP On-ramp to CR 532 On-ramp_Merge	-	-	92%	71	-	-	94%	71	-	-	-	-
-	CPP On-ramp to CR 532 On-ramp_Basic	-	-	91%	71	-	-	94%	71	-	-	-	-
-	CR 532 On-ramp to I-4 EB Off-ramp_Merge	-	-	94%	68	-	-	93%	70	-	-	-	-
-	CR 532 On-ramp to I-4 EB Off-ramp_Basic	-	-	94%	70	-	-	93%	71	-	-	-	-
-	CR 532 On-ramp to I-4 EB Off-ramp_Diverge	-	-	93%	68	-	-	93%	71	-	-	-	-
-	I-4 EB Off-ramp to I-4 WB Off-ramp_Basic	-	-	93%	71	-	-	94%	71	-	-	-	-
-	I-4 EB Off-ramp to I-4 WB Off-ramp_Diverge	-	-	93%	71	-	-	94%	71	-	-	-	-
-	I-4 WB Off-ramp to SR 429_Basic	-	-	93%	71	-	-	93%	71	-	-	-	-

- Not Applicable

Table 6.19
2030 Peak Hour Ramp Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
SR 429 Southbound (SB)													
Sinclair Road SB Off-ramp	Sinclair Road SB Off-ramp	97%	43	98%	43	97%	43	95%	43	1%	0	-2%	-1
Sinclair Rd On-ramp	Sinclair Rd On-ramp	100%	46	100%	47	100%	46	101%	49	0%	2	1%	3
I-4 Westbound (WB)													
World Drive On-ramp	World Drive On-ramp	100%	34	99%	49	100%	34	99%	46	0%	15	-1%	11
-	PPE Off-ramp	-	-	101%	56	-	-	100%	56	-	-	-	-
-	SR 429 Off-ramp	-	-	99%	49	-	-	99%	47	-	-	-	-
SR 429 On-ramp	SR 429 On-ramp	96%	38	99%	55	96%	38	99%	54	3%	18	3%	16
-	PPE On-ramp	-	-	96%	54	-	-	93%	54	-	-	-	-
CR 532 Off-ramp	CR 532 Off-ramp	99%	65	100%	66	99%	65	99%	65	0%	0	0%	0
CR 532 On-ramp	CR 532 On-ramp	70%	28	80%	29	70%	28	77%	29	11%	1	7%	1
I-4 CD Off ramp to World Dr N	I-4 CD Off ramp to World Dr N	103%	48	101%	48	103%	48	102%	48	-1%	0	-1%	0
I-4 CD Off ramp to World Dr S	I-4 CD Off ramp to World Dr S	102%	29	104%	29	102%	29	102%	29	2%	0	0%	0
I-4 CD World Dr on ramp from N & S	I-4 CD World Dr on ramp from N & S	104%	45	105%	45	104%	45	100%	43	1%	0	-3%	-2
PPE Southbound (SB)													
-	EB I-4 On-ramp	-	-	118%	51	-	-	123%	51	-	-	-	-
-	WB I-4 On-ramp	-	-	101%	52	-	-	96%	50	-	-	-	-
-	CR 532 Off-ramp	-	-	106%	49	-	-	103%	46	-	-	-	-
US 17/92 Off-ramp	US 17/92 Off-ramp	174%	51	-	-	174%	51	-	-	-	-	-	-
US 17/92 On-ramp	US 17/92 On-ramp	68%	45	99%	61	68%	45	96%	55	32%	17	28%	10
SR 429 Northbound (NB)													
Sinclair Off-ramp	Sinclair Off-ramp	92%	62	95%	60	92%	62	97%	59	3%	-1	5%	-3
-	PPE On ramp	-	-	93%	71	-	-	93%	71	-	-	-	-
Sinclair On-ramp	Sinclair On-ramp	99%	45	99%	45	99%	45	99%	45	0%	0	0%	1

- Not Applicable

Table 6.19 (continued)
2030 Peak Hour Ramp Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
I-4 Eastbound (EB)													
CR 532 Off-ramp	CR 532 Off-ramp	101%	58	101%	59	101%	58	100%	60	0%	1	-1%	1
CR 532 On-ramp	CR 532 On-ramp	61%	44	78%	45	61%	44	81%	44	17%	1	20%	1
SR 429 Off-ramp	SR 429 Off-ramp	82%	51	92%	58	82%	51	91%	57	11%	7	10%	6
-	PPE Off ramp	-	-	118%	51	-	-	123%	51	-	-	-	-
EL Slip ramp	EL Slip ramp	60%	52	79%	58	60%	52	79%	61	20%	6	20%	9
-	PPE On ramp	-	-	94%	50	-	-	93%	51	-	-	-	-
SR 429 On-ramp	SR 429 On-ramp	89%	20	99%	61	89%	20	100%	62	10%	41	11%	42
World Drive Off-ramp	World Drive Off-ramp	80%	36	95%	46	80%	36	94%	54	15%	10	14%	18
I-4 CD Off ramp to World Dr S	I-4 CD Off ramp to World Dr S	79%	31	96%	31	79%	31	90%	32	17%	0	11%	1
I-4 CD Off ramp to World Dr N	I-4 CD Off ramp to World Dr N	80%	25	92%	24	80%	25	95%	26	12%	-1	15%	1
I-4 CD On ramp from World Dr N & S	I-4 CD On ramp from World Dr N & S	98%	41	99%	41	98%	41	98%	41	0%	0	0%	0
PPE Northbound (NB)													
US 17/92 Off-ramp	US 17/92 Off-ramp	39%	5	98%	44	39%	5	97%	52	59%	40	58%	47
US 17/92 On-ramp	US 17/92 On-ramp	70%	42	83%	40	70%	42	86%	40	13%	-2	16%	-2
-	CR 532 On-ramp	-	-	98%	48	-	-	90%	51	-	-	-	-
-	I-4 EB Off-ramp	-	-	94%	50	-	-	93%	52	-	-	-	-
-	I-4 WB Off-ramp	-	-	96%	54	-	-	93%	54	-	-	-	-

- Not Applicable

Table 6.20
2050 Peak Hour Ramp Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
SR 429 Southbound (SB)													
Sinclair Road SB Off-ramp	Sinclair Road SB Off-ramp	100%	44	97%	44	99%	43	98%	43	-3%	0	0%	0
Sinclair Rd On-ramp	Sinclair Rd On-ramp	101%	48	101%	48	101%	49	103%	49	0%	0	1%	0
I-4 Westbound (WB)													
World Drive On-ramp	World Drive On-ramp	100%	42	101%	52	78%	11	100%	50	0%	10	22%	39
-	PPE Off-ramp	-	-	101%	57	-	-	99%	57	-	-	-	-
-	SR 429 Off-ramp	-	-	100%	49	-	-	99%	48	-	-	-	-
SR 429 On-ramp	SR 429 On-ramp	99%	48	85%	56	98%	14	102%	54	-13%	8	3%	40
-	PPE On-ramp	-	-	90%	54	-	-	87%	55	-	-	-	-
CR 532 Off-ramp	CR 532 Off-ramp	93%	60	98%	66	83%	57	93%	64	5%	6	10%	6
CR 532 On-ramp	CR 532 On-ramp	90%	21	90%	25	92%	29	90%	29	0%	4	-2%	1
I-4 CD Off ramp to World Dr N	I-4 CD Off ramp to World Dr N	104%	48	103%	48	102%	48	102%	47	-1%	0	0%	0
I-4 CD Off ramp to World Dr S	I-4 CD Off ramp to World Dr S	102%	30	101%	30	96%	29	100%	30	-1%	0	4%	0
I-4 CD World Dr on ramp from N & S	I-4 CD World Dr on ramp from N & S	104%	45	104%	45	85%	21	100%	44	0%	0	15%	23
PPE Southbound (SB)													
-	EB I-4 On-ramp	-	-	108%	51	-	-	156%	50	-	-	-	-
-	WB I-4 On-ramp	-	-	101%	53	-	-	99%	51	-	-	-	-
-	CR 532 Off-ramp	-	-	101%	50	-	-	104%	48	-	-	-	-
US 17/92 Off-ramp	US 17/92 Off-ramp	133%	51	-	-	92%	51	-	-	-	-	-	-
US 17/92 On-ramp	US 17/92 On-ramp	83%	45	107%	64	72%	44	94%	62	23%	19	22%	18
SR 429 Northbound (NB)													
Sinclair Off-ramp	Sinclair Off-ramp	77%	62	85%	61	71%	62	95%	60	8%	-1	24%	-2
-	PPE On ramp	-	-	93%	72	-	-	90%	72	-	-	-	-
Sinclair On-ramp	Sinclair On-ramp	99%	45	99%	45	99%	45	98%	45	1%	0	-1%	0

- Not Applicable

Table 6.20 (continued)
2050 Peak Hour Ramp Segment Performance

Segment		AM				PM				Difference			
No-Build	Build	No-Build		Build		No-Build		Build		AM		PM	
		%	Speed	%	Speed	%	Speed	%	Speed	%	Speed	%	Speed
I-4 Eastbound (EB)													
CR 532 Off-ramp	CR 532 Off-ramp	83%	54	86%	56	92%	56	96%	56	2%	1	4%	0
CR 532 On-ramp	CR 532 On-ramp	84%	25	91%	39	87%	44	93%	44	7%	14	6%	1
SR 429 Off-ramp	SR 429 Off-ramp	63%	54	86%	58	68%	58	94%	58	23%	5	26%	0
-	PPE Off ramp	-	-	108%	51	-	-	156%	50	-	-	-	-
-	PPE On ramp	-	-	93%	50	-	-	90%	51	-	-	-	-
SR 429 On-ramp	SR 429 On-ramp	100%	61	89%	63	98%	64	107%	64	-10%	2	9%	0
World Drive Off-ramp	World Drive Off-ramp	87%	49	89%	54	97%	52	94%	56	2%	5	-3%	4
I-4 CD Off ramp to World Dr S	I-4 CD Off ramp to World Dr S	87%	31	88%	31	102%	32	94%	32	2%	0	-8%	0
I-4 CD Off ramp to World Dr N	I-4 CD Off ramp to World Dr N	90%	25	91%	25	98%	26	95%	26	1%	0	-3%	0
I-4 CD On ramp from World Dr N & S	I-4 CD On ramp from World Dr N & S	98%	42	98%	42	99%	41	99%	41	0%	0	0%	0
PPE Northbound (NB)													
US 17/92 Off-ramp	US 17/92 Off-ramp	99%	49	96%	52	98%	53	98%	53	-3%	2	-1%	1
US 17/92 On-ramp	US 17/92 On-ramp	85%	42	84%	41	76%	42	95%	41	-1%	-1	19%	-1
-	CR 532 On-ramp	-	-	94%	51	-	-	76%	52	-	-	-	-
-	I-4 EB Off-ramp	-	-	93%	52	-	-	91%	53	-	-	-	-
-	I-4 WB Off-ramp	-	-	90%	54	-	-	87%	55	-	-	-	-

- Not Applicable

Vissim Traffic Operation Summary

It is estimated that the network travel time will see a reduction of 28 percent in network travel time and a 58 percent reduction in delays in the design year 2050 AM peak hour. Likewise, during the 2050 PM peak hour, it is anticipated that network travel time and delays will be reduced by 49 and 74 percent, respectively. This reduction can be attributed to the inclusion of the Poinciana Parkway Extension Connector, which directly connects the planned termini at CR 532 and I-4/SR 429 and the integration of express lanes along the I-4 corridor as part of the I-4 BtU project.

Future 2050 No-Build Traffic Operations

AM Peak Operations

- The densities at the I-4 eastbound freeway segments between SR 429 and the World Drive off-ramps increased to a range between LOS C and F. The SR 429 southbound density increased to LOS E between the Sinclair Road on-ramp and I-4 east and westbound ramps weaving segment.

PM Peak Operations

- The densities at the I-4 westbound freeway segments between World Drive on-ramp and CR 532 off-ramp increased to LOS F. The SR 429 southbound density similarly increased to LOS F from Sinclair Road on-ramp to the I-4 east and westbound ramps weaving segment.

Under No-Build conditions, the intersections along CR 532 operate at unacceptable levels and expected to experience longer delays and queues. During the AM and PM peak hours, congestion was observed at the ramp terminals of Poinciana Parkway Extension and US 17/92, Sinclair Road and SR 429 and the intersections of Old Lake Wilson Road at CR 532 and Ronald Reagan Parkway at US 17/92.

Future 2050 Build Traffic Operations

AM Peak Operations

- The densities at the I-4 eastbound freeway segments between SR 429 and the World Drive off-ramps reduced to a range between LOS C to LOS D. The SR 429 southbound density from Sinclair Road on-ramp to I-4 east and westbound ramps weaving segment improved to LOS B or better.

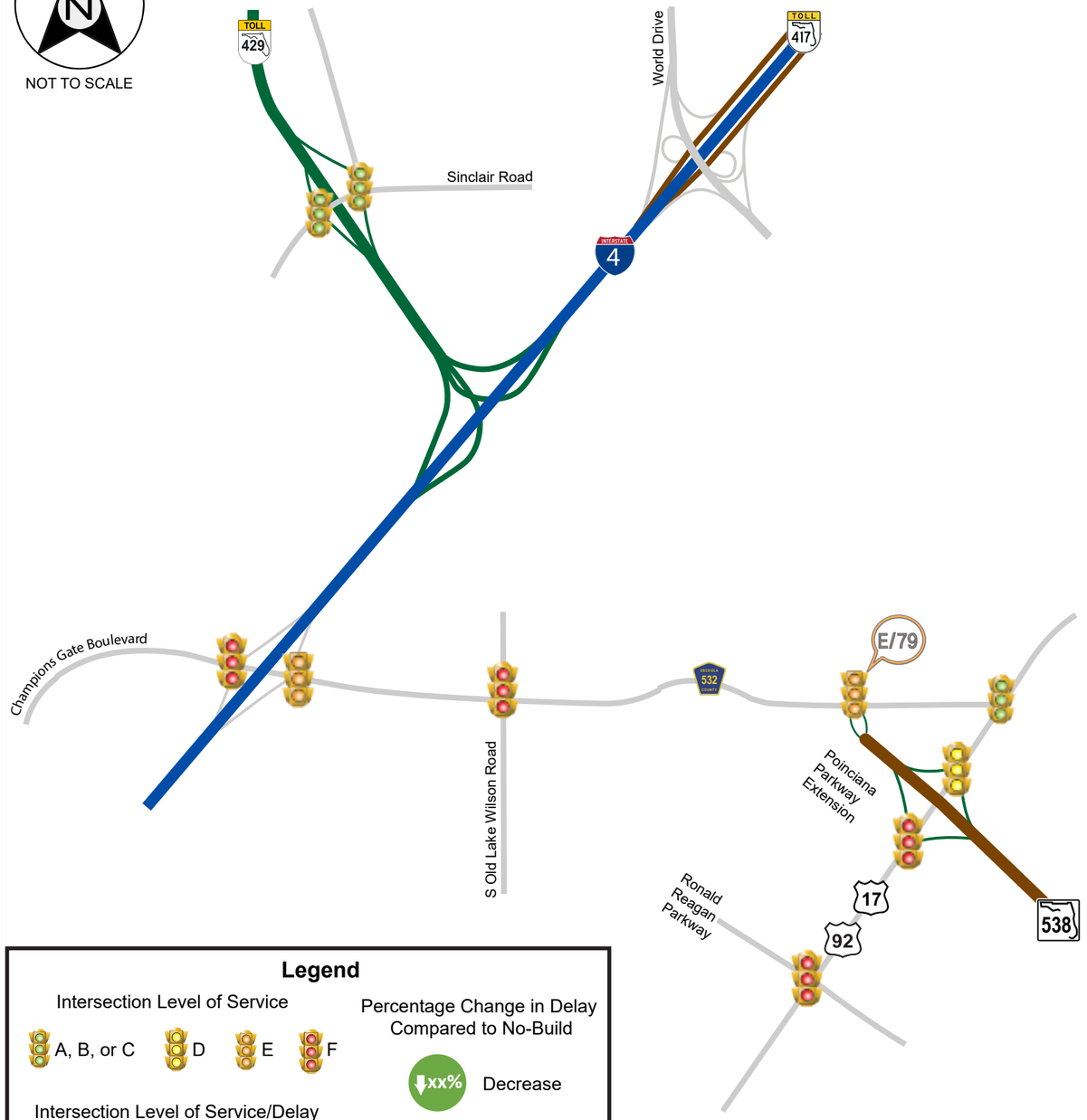
PM Peak Operations

- The densities at the I-4 westbound freeway segments between World Drive on-ramp and CR 532 off-ramp, where reduced to LOS C. The SR 429 southbound density from Sinclair Road on-ramp to I-4 east and westbound ramps weaving segment improved to LOS C as well.

Overall, Vissim results estimate the Build Alternative will reduce total intersection control delay by approximately 41 percent and 48 percent within the AOI during the 2050 design year during AM and PM peak hours, respectively, when compared to the No-Build Alternative. **Figure 6.18** thru **6.21** illustrates the No-Build and Build LOS comparisons and percent difference of delays at the intersections.

The benefits of the Build alternative must be looked at from a global perspective due to the extensive nature of the improvements, as opposed to single isolated locations. Therefore, the inclusion of system ramps and direct connection of Poinciana Parkway Extension Connector to I-4/SR 429 improves the overall speed along freeway facilities and delay at the study intersections by dispersing surface street traffic demand.

NO-BUILD



BUILD



FLORIDA'S TURNPIKE

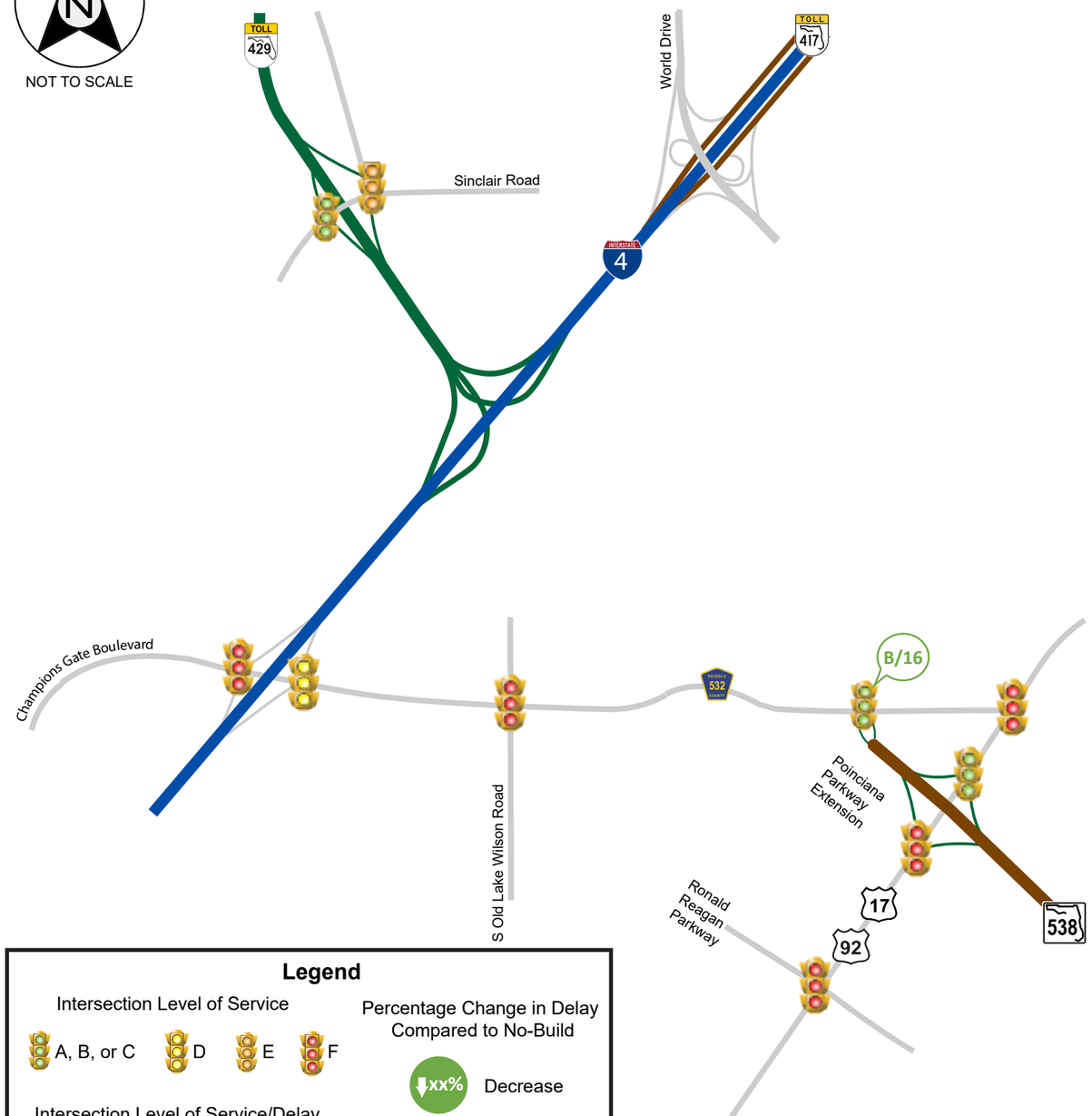
Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 AM Peak Hour VISSIM Level of Service No-Build and Build

Figure 6.18

NO-BUILD

NOT TO SCALE



BUILD



Legend

Intersection Level of Service

A, B, or C | D | E | F

Intersection Level of Service/Delay

B/20

Percentage Change in Delay Compared to No-Build

xx% Decrease

xx% Increase

FLORIDA'S TURNPIKE

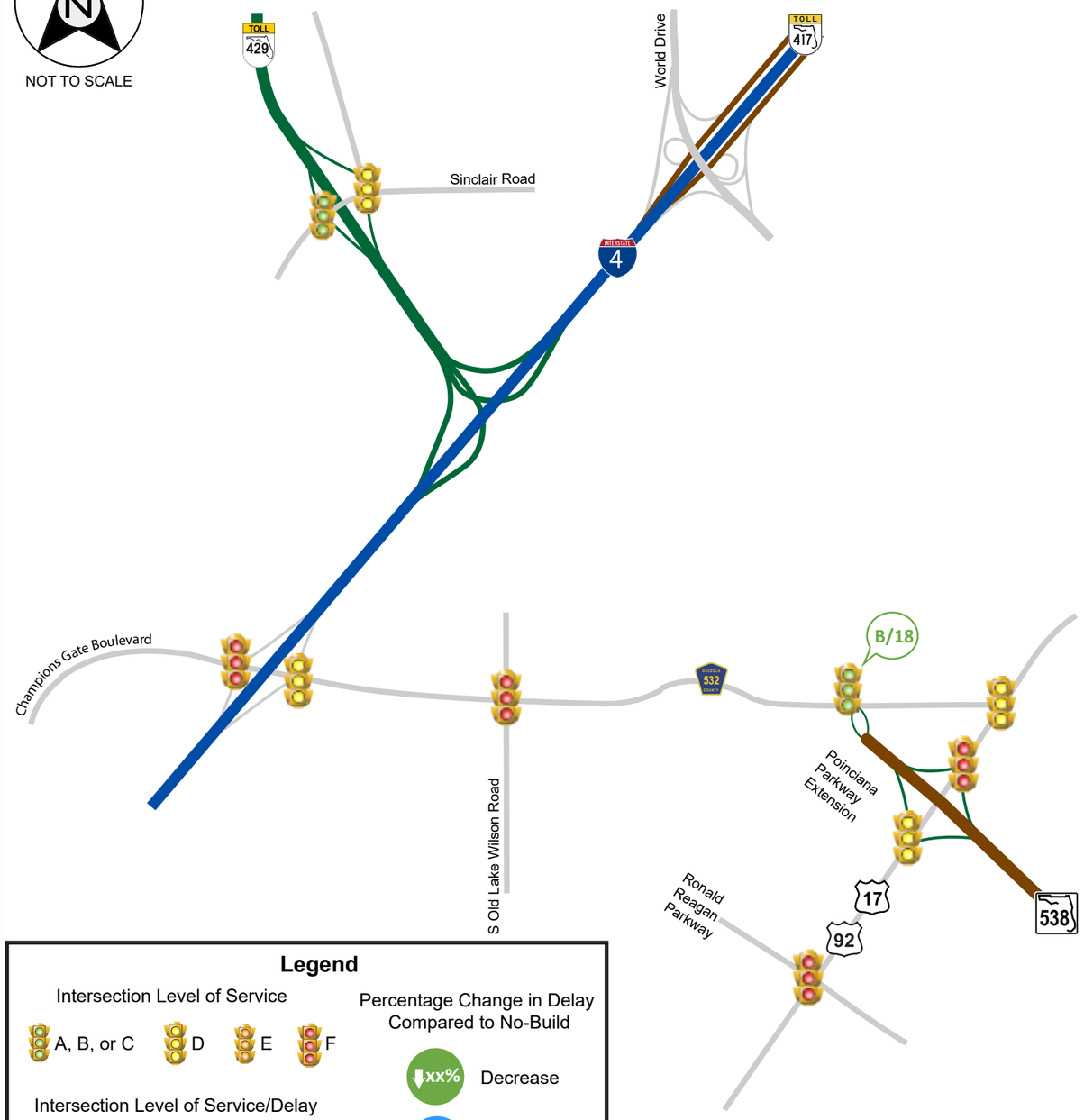
Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 PM Peak Hour VISSIM Level of Service No-Build and Build

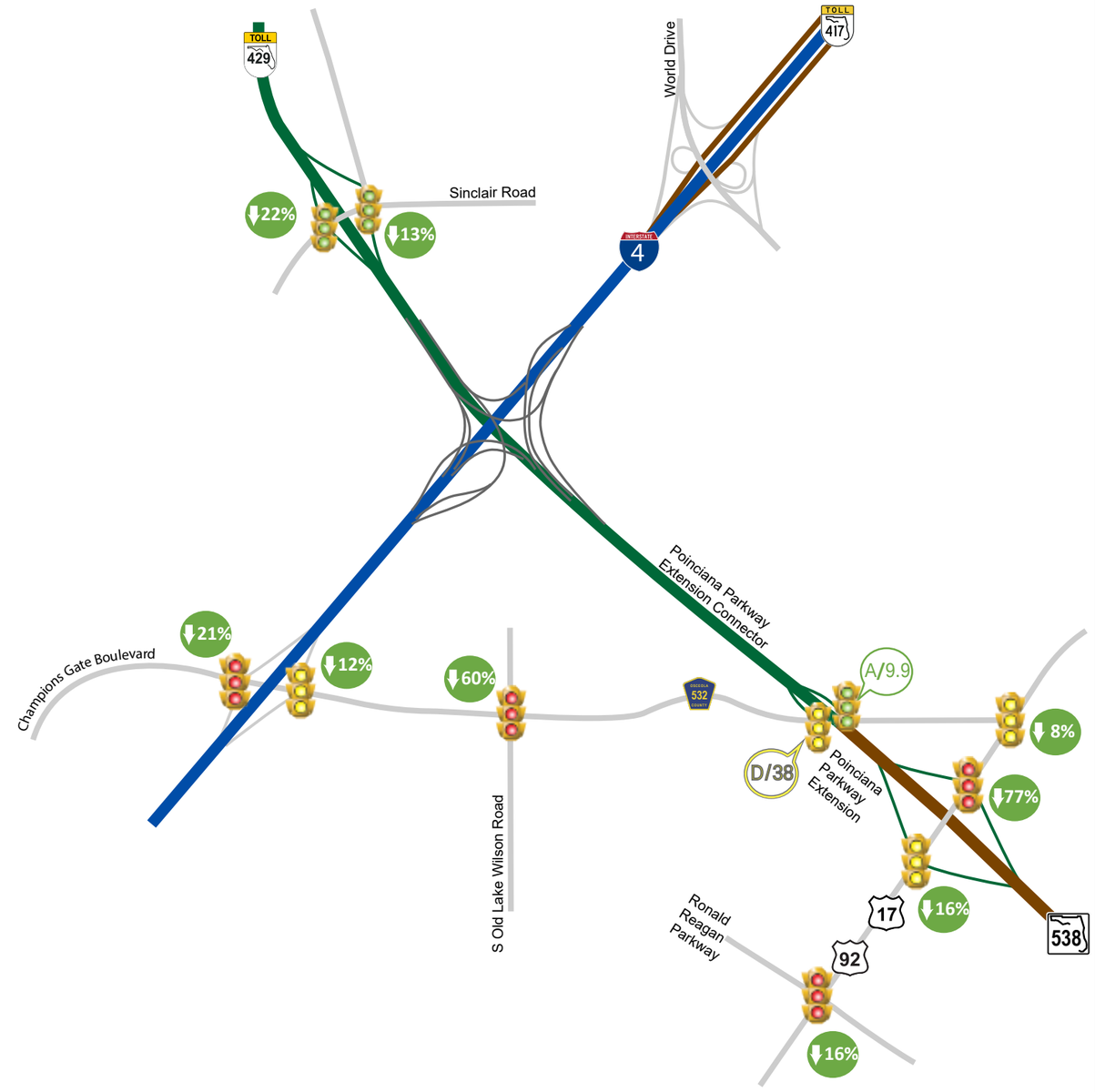
Figure 6.19

NOT TO SCALE

NO-BUILD



BUILD



Legend

Intersection Level of Service

A, B, or C | D | E | F

Intersection Level of Service/Delay

B/20

Percentage Change in Delay Compared to No-Build

xx% Decrease

xx% Increase

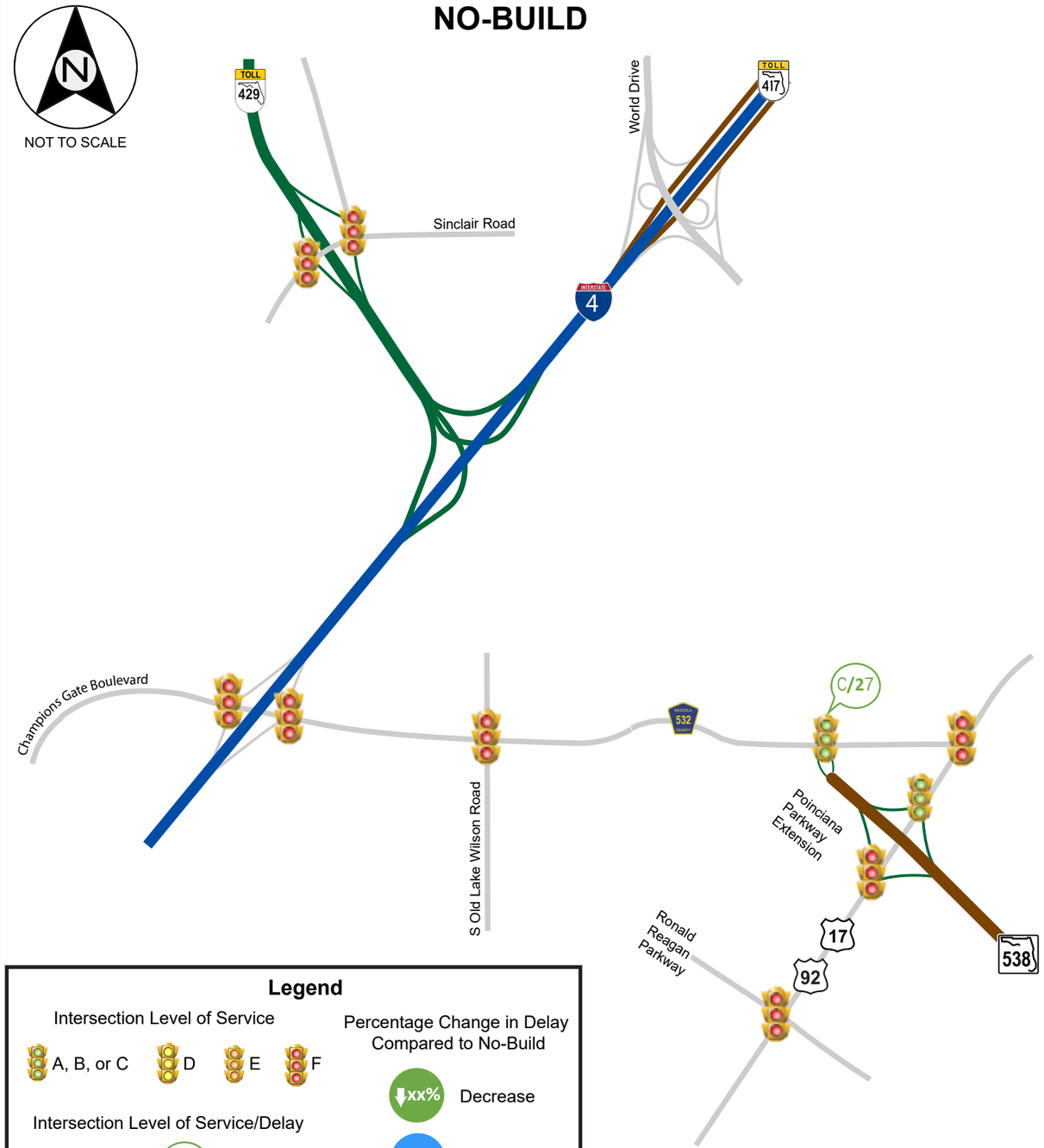
FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 AM Peak Hour VISSIM Level of Service No-Build and Build

Figure 6.20

NO-BUILD



BUILD



FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 PM Peak Hour VISSIM Level of Service No-Build and Build

Figure 6.21

6.2.2 Intersection Analysis (Synchro)

Synchro results for the No-Build and Build Alternatives are summarized in **Tables 6.21** through **6.24** for the 2030 opening and 2050 design years, respectively. Key deficiencies of the No-Build Alternative include reaching I-4 from Poinciana Parkway, motorists would be required to exit the limited-access Poinciana Parkway and travel approximately 3 miles on CR 532, a local collector roadway. In addition, to access SR 429, motorists would then be required to travel an additional 1.5 miles on a congested portion of I-4. Therefore, motorists would travel approximately 4.5 miles total to reach SR 429. This would add a substantial number of trips to I-4, CR 532 and other local roadways increasing travel times and adding congestion on both I-4 at CR 532 ramp terminals and the local roadway network.

The inclusion of the Poinciana Parkway Extension Connector improves the operations within the AOI by dispersing surface street demand. The list of modified intersections and interchanges include:

- I-4 and CR 532 ramp terminals (a traffic reduction is expected due to direct connect of Poinciana Parkway Extension Connector)
- CR 532 and Old Lake Wilson Road (a traffic reduction is expected due to direct connection of Poinciana Parkway Extension Connector)
- CR 532 and US 17/92 (provided capacity improvements: additional eastbound left turn lane)
- US 17/92 and Poinciana Parkway Extension (a traffic reduction is expected due to direct connect of Poinciana Parkway Extension Connector)
- US 17/92 and Ronald Reagan Parkway (provided capacity improvements: three southbound thru lanes)

Overall, Synchro results estimate the Build Alternative will reduce total intersection control delay by approximately 50 percent within the AOI during the 2050 design year during both AM and PM peak hours, respectively, when compared to the No-Build Alternative. However, due to the rerouting of traffic and signal timing optimization, the following intersections showed approach(s) delays higher than No-Build in design year 2050:

- CR 532 and Old Lake Wilson Road southbound approach delay is higher than No-Build Alternative during PM peak period (signal timing optimization and rerouting of traffic).
- CR 532 and US 17/92 southbound approach delay is higher than No-Build Alternative during PM peak period (signal timing optimization and rerouting of traffic)
- US 17/92 at Poinciana Parkway Extension Connector Intersection No. 1 and No. 3, northbound approach (AM peak period), Build Alternative delay is higher than No-Build Alternative (signal timing optimization and rerouting of traffic). Intersection No. 1 westbound and No. 6 southbound approaches Build Alternative delay is higher than No-Build Alternative (signal timing optimization and rerouting of traffic).
- US 17/92 and Ronald Reagan Parkway southbound approach delay is higher than No-Build Alternative during both AM and PM peak periods (provided single southbound left turn lane).

The benefits of the Build alternative must be looked at from a global perspective due to the extensive nature of the improvements, as opposed to single isolated locations. Therefore, the inclusion of system ramps and direct connection of the Poinciana Parkway Extension Connector to I-4/SR 429 improves the overall delay at the study intersections by dispersing surface street traffic demand. **Figure 6.22** thru **6.25** illustrates the No-Build and Build LOS comparisons and percent difference of delays at the intersections.

Table 6.2**1**

2030 Peak Hour No-Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	AM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			AM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			410	250	290	330					180		140	B (10.1)
	LOS (Delay)	Movement		A (4.5)	A (1.0)	B (15.4)	A (5.2)					D (36.3)		A (9.7)	
		Approach	A (3.2)			A (10.0)						C (24.6)			
	Queue Length 95th (ft)	Movement		51	19	201	60					82		51	
Sinclair Road & SR 429 Northbound	Volume		340	250			300	320	90	90	80	80		230	B (16.5)
	LOS (Delay)	Movement	B (15.9)	A (3.8)			B (18.3)	A (2.3)	C (27.8)	E (60.7)	A (2.6)	E (56.1)		B (17.7)	
		Approach	B (10.8)			B (10.0)			C (31.5)			C (27.6)			
	Queue Length 95th (ft)	Movement	209	23			99	41	41	#113	0	#100		#76	
SR 429 Northbound Ramp & Connector Road	Volume								270	480			310	330	A (1.2)
	LOS (Delay)	Movement							A (1.3)	A (0.4)			A (2.9)	A (0.8)	
		Approach							A (0.7)			A (1.8)			
	Queue Length 95th (ft)	*Movement*							*1*	*0*			*56*	*14*	
CR 532 & I-4 Intersection #1	Volume							880		510					D (37.5)
	LOS (Delay)	Movement						E (59.2)		A (0.1)					
		Approach				E (59.2)			A (0.1)						
	Queue Length 95th (ft)	*Movement*						679		*0*					
CR 532 & I-4 Intersection #2	Volume									510			1570		F (109.9)
	LOS (Delay)	Movement								C (29.6)			F (136.0)		
		Approach							C (29.6)			F (136.0)			
	Queue Length 95th (ft)	Movement								196			#1361		
CR 532 & I-4 Intersection #3	Volume					550							1570		A (9.5)
	LOS (Delay)	Movement				B (14.1)							A (7.9)		
		Approach				B (14.1)							A (7.9)		
	Queue Length 95th (ft)	*Movement*				*152*							*m17*		
CR 532 & I-4 Intersection #4	Volume		170							830					A (1.9)
	LOS (Delay)	Movement	A (0.1)							A (2.2)					
		Approach	A (0.1)						A (2.2)						
	Queue Length 95th (ft)	Movement	*0*							*m0*					
CR 532 & I-4 Intersection #5	Volume									830			910		D (53.9)
	LOS (Delay)	Movement								F (109.5)			A (3.3)		
		Approach							F (109.5)			A (3.3)			
	Queue Length 95th (ft)	Movement								*#729*			*58*		
CR 532 & I-4 Intersection #6	Volume				440								910		A (9.3)
	LOS (Delay)	Movement			C (28.2)								A (0.2)		
		Approach	A (2.0)									A (0.2)			
	Queue Length 95th (ft)	Movement			*326*								*0*		
CR 532 & Lake Wilson Road	Volume		420	710	320	150	1010	890	490	620	190	350	400	150	F (258.8)
	LOS (Delay)	Movement	F (260.0)	D (44.2)		F (612.8)	F (100.5)	F (186.7)	F (389.8)	F (543.2)		F (339.7)	F (382.8)		
		Approach	F (106.7)			F (175.5)			F (485.4)			F (366.1)			
	Queue Length 95th (ft)	Movement	*#935*	*627*		*#461*	*#855*	*#1681*	*#1143*	*#1866*		*#840*	*#1255*		
CR 532 & Poinciana Parkway Extension Northbound on-ramp	Volume			1030	220	20	1310		440		40				B (19.9)
	LOS (Delay)	Movement		C (24.3)	A (3.2)	D (44.8)	B (16.4)		C (28.9)		A (0.3)				
		Approach	C (20.6)			B (16.8)			C (26.5)						
	Queue Length 95th (ft)	Movement		*335*	*40*	*35*	*354*		*158*		*0*				
CR 532 & US 17/92	Volume		750		320				430	920			600	900	C (25.0)
	LOS (Delay)	Movement	D (39.0)		B (13.0)				D (48.7)	B (16.3)			C (33.8)	A (9.1)	
		Approach	C (31.2)						C (26.6)			B (19.0)			
	Queue Length 95th (ft)	Movement	*341*		*97*				*210*	*258*			*254*	*214*	
US 17/92 & Poinciana Parkway Extension Intersection #1	Volume			1050			900								D (44.2)
	LOS (Delay)	Movement		E (60.8)			C (24.8)								
		Approach	E (60.8)			C (24.8)									
	Queue Length 95th (ft)	Movement		*386*			*267*								
US 17/92 & Poinciana Parkway Extension Intersection #2	Volume						900		640						B (13.1)
	LOS (Delay)	Movement					A (0.1)		C (31.4)						
		Approach				A (0.1)			C (31.4)						
	Queue Length 95th (ft)	Movement					*0*		*581*						
US 17/92 & Poinciana Parkway Extension Intersection #3	Volume			1050							300				A (7.3)
	LOS (Delay)	Movement		A (3.1)							C (21.9)				
		Approach	A (3.1)						C (21.9)						
	Queue Length 95th (ft)	Movement		*0*							*130*				
US 17/92 & Poinciana Parkway Extension Intersection #4	Volume			1150								20			A (0.4)
	LOS (Delay)	Movement		A (0.4)								A (0.1)			
		Approach	A (0.4)									A (0.1)			
	Queue Length 95th (ft)	Movement		*0*								*0*			
US 17/92 & Poinciana Parkway Extension Intersection #5	Volume			1150			1350								D (45.1)
	LOS (Delay)	Movement		E (74.3)			C (20.2)								
		Approach	E (74.3)			C (20.2)									
	Queue Length 95th (ft)	Movement		*575*			*771*								
US 17/92 & Poinciana Parkway Extension Intersection #6	Volume						1350							60	A (3.6)
	LOS (Delay)	Movement					A (1.5)							D (50.7)	
		Approach				A (1.5)						D (50.7)			
	Queue Length 95th (ft)	Movement					*0*							*101*	
US 17/92 & Ronald Reagan Parkway	Volume		540	140	420	30	190	50	550	870	50	50	800	560	F (88.4)
	LOS (Delay)	Movement	F (89.1)	C (21.2)		F (90.5)	F (239.0)	A (1.4)	F (305.7)	D (54.2)	A (0.3)	E (63.6)	E (56.3)	A (7.0)	
		Approach	D (54.6)			F (178.2)			F (146.5)			D (37.0)			
	Queue Length 95th (ft)	Movement	*#918*	*203*		*38*	*#242*	*0*	*#588*	*553*	*0*	*50*	*484*	*95*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

Table 6.2**1 (Continued)**

2030 Peak Hour No-Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	PM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			PM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			230	80	180	550					340		260	B (13.4)
	LOS (Delay)	Movement		A (5.4)	A (1.6)	A (9.3)	A (4.3)					D (37.1)		B (15.1)	
		Approach	A (4.4)			A (5.5)						C (27.6)			
	Queue Length 95th (ft)	Movement		40	15	99	58					131		102	
Sinclair Road & SR 429 Northbound	Volume		170	400			150	230	260	110	170	90		320	B (17.6)
	LOS (Delay)	Movement	B (12.9)	B (12.9)			B (19.2)	A (2.3)	C (25.3)	D (50.5)	B (12.6)	D (45.2)		B (13.3)	
		Approach	B (12.9)			A (9.0)			C (26.4)			C (20.3)			
	Queue Length 95th (ft)	Movement	119	101			62	37	80	113	56	92		46	
SR 429 Northbound Ramp & Connector Road	Volume								150	360			410	170	A (1.5)
	LOS (Delay)	Movement							A (0.8)	A (0.3)			A (3.2)	A (0.6)	
		Approach								A (0.4)			A (2.5)		
	Queue Length 95th (ft)	*Movement*							*1*	*0*			*78*	*11*	
CR 532 & I-4 Intersection #1	Volume							1320		580					F (117.4)
	LOS (Delay)	Movement						F (169.0)		A (0.1)					
		Approach				F (253.1)				A (0.1)					
	Queue Length 95th (ft)	*Movement*						#1315		*0*					
CR 532 & I-4 Intersection #2	Volume									580			1470		E (76.6)
	LOS (Delay)	Movement								C (26.0)			F (96.6)		
		Approach								C (26.0)			F (96.6)		
	Queue Length 95th (ft)	Movement								204			#1201		
CR 532 & I-4 Intersection #3	Volume					830							1470		B (10.0)
	LOS (Delay)	Movement				B (19.7)							A (4.6)		
		Approach				B (19.7)							A (4.6)		
	Queue Length 95th (ft)	*Movement*				*289*							*m17*		
CR 532 & I-4 Intersection #4	Volume		170							780					A (1.3)
	LOS (Delay)	Movement	A (0.1)							A (1.6)					
		Approach	A (0.1)							A (1.6)					
	Queue Length 95th (ft)	Movement	*0*							*m0*					
CR 532 & I-4 Intersection #5	Volume									780			1230		D (42.3)
	LOS (Delay)	Movement								F (101.0)			A (5.1)		
		Approach								F (101.0)			A (5.1)		
	Queue Length 95th (ft)	Movement								*#673*			*135*		
CR 532 & I-4 Intersection #6	Volume				590								1230		D (46.9)
	LOS (Delay)	Movement			F (144.3)								A (0.3)		
		Approach		C (30.9)									A (0.3)		
	Queue Length 95th (ft)	Movement			*#952*								*0*		
CR 532 & Lake Wilson Road	Volume		480	830	540	180	780	490	440	490	120	750	670	180	F (286.1)
	LOS (Delay)	Movement	F (364.6)	F (269.6)		F (342.2)	F (228.5)	D (43.0)	F (361.5)	F (336.5)		F (374.4)	F (296.5)		
		Approach	F (294.3)			F (179.9)			F (347.0)			F (333.0)			
	Queue Length 95th (ft)	Movement	*#1108*	*#1343*		*#491*	*#809*	*626*	*#1029*	*#1345*		*#1633*	*#1753*		
CR 532 & Poinciana Parkway Extension Northbound on-ramp	Volume			1260	440	40	1180		220		20				B (14.6)
	LOS (Delay)	Movement		B (19.6)	A (2.6)	D (52.0)	A (9.3)		C (33.2)		A (0.2)				
		Approach		B (15.2)			B (10.7)			C (30.4)					
	Queue Length 95th (ft)	Movement		*372*	*44*	*57*	*225*		*93*		*0*				
CR 532 & US 17/92	Volume		980		300				360	690			1090	860	D (44.4)
	LOS (Delay)	Movement	E (72.8)		C (23.8)				F (85.6)	B (19.9)			E (55.4)	A (7.9)	
		Approach	E (61.3)							D (42.5)			C (34.5)		
	Queue Length 95th (ft)	Movement	*#776*		*151*				*285*	*267*			*743*	*241*	
US 17/92 & Poinciana Parkway Extension Intersection #1	Volume			860			1370								D (44.8)
	LOS (Delay)	Movement		D (35.6)			D (50.6)								
		Approach		D (35.6)			D (50.6)								
	Queue Length 95th (ft)	Movement		*275*			*597*								
US 17/92 & Poinciana Parkway Extension Intersection #2	Volume						1370		310						A (2.3)
	LOS (Delay)	Movement					A (0.1)		B (12.1)						
		Approach					A (0.1)			B (12.1)					
	Queue Length 95th (ft)	Movement					*0*		*169*						
US 17/92 & Poinciana Parkway Extension Intersection #3	Volume			860							190				A (7.5)
	LOS (Delay)	Movement		A (1.2)							D (36.1)				
		Approach		A (1.2)						D (36.1)					
	Queue Length 95th (ft)	Movement		*0*							*113*				
US 17/92 & Poinciana Parkway Extension Intersection #4	Volume			900								20			A (0.1)
	LOS (Delay)	Movement		A (0.1)								A (0.0)			
		Approach		A (0.1)											
	Queue Length 95th (ft)	Movement		*0*								*0*			
US 17/92 & Poinciana Parkway Extension Intersection #5	Volume			900			1380								C (30.3)
	LOS (Delay)	Movement		E (65.4)			A (7.5)								
		Approach		E (65.4)			A (7.5)								
	Queue Length 95th (ft)	Movement		*435*			*106*								
US 17/92 & Poinciana Parkway Extension Intersection #6	Volume						1380							120	A (6.0)
	LOS (Delay)	Movement					A (1.7)							E (55.0)	
		Approach					A (1.7)						E (55.0)		
	Queue Length 95th (ft)	Movement					*0*							*186*	
US 17/92 & Ronald Reagan Parkway	Volume		680	180	590	20	160	50	370	810	40	40	840	620	F (109.3)
	LOS (Delay)	Movement	E (68.8)	C (24.6)		F (91.5)	F (435.2)	A (1.7)	F (597.1)	E (67.8)	A (0.2)	E (79.0)	E (71.1)	A (8.3)	
		Approach	D (45.3)			F (310.4)			F (226.0)			D (45.3)			
	Queue Length 95th (ft)	Movement	*#1057*	*335*		*30*	*#248*	*0*	*#503*	*#661*	*0*	*47*	*621*	*120*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

Table 6.2**2**
2030 Peak Hour Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	AM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			AM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			410	250	290	330					160		130	A (9.3)
	LOS (Delay)	Movement		A (4.5)	A (1.0)	B (14.2)	A (4.4)					D (35.7)		A (9.7)	
		Approach		A (3.2)			A (9.0)						C (24.0)		
	Queue Length 95th (ft)	Movement		51	19	227	14					74		50	
Sinclair Road & SR 429 Northbound	Volume		340	230			300	320	90	90	90	80		230	B (16.4)
	LOS (Delay)	Movement	B (17.3)	A (4.7)			C (21.0)	A (2.7)	C (25.4)	D (51.4)	A (2.7)	D (49.9)		B (16.0)	
		Approach		B (12.2)			B (11.5)			C (26.5)			C (24.7)		
	Queue Length 95th (ft)	Movement	229	26			113	46	38	99	0	91		69	
SR 429 Northbound Ramp & Connector Road	Volume								250	500			310	290	A (1.2)
	LOS (Delay)	Movement							A (1.1)	A (0.4)			A (2.9)	A (0.7)	
		Approach								A (0.6)			A (1.8)		
	Queue Length 95th (ft)	*Movement*							*1*	*0*			*56*	*13*	
CR 532 & I-4 Intersection #1	Volume							790		430					B (16.0)
	LOS (Delay)	Movement						C (24.7)		A (0.1)					
		Approach					C (24.0)			A (0.1)					
	Queue Length 95th (ft)	*Movement*						337		*0*					
CR 532 & I-4 Intersection #2	Volume									430			1320		C (26.5)
	LOS (Delay)	Movement								A (9.2)			C (32.1)		
		Approach								A (9.2)			C (32.1)		
	Queue Length 95th (ft)	Movement								82			553		
CR 532 & I-4 Intersection #3	Volume					410							1320		A (1.4)
	LOS (Delay)	Movement				A (4.4)							A (0.5)		
		Approach					A (4.4)						A (0.5)		
	Queue Length 95th (ft)	*Movement*				*38*							*0*		
CR 532 & I-4 Intersection #4	Volume		160							680					A (0.1)
	LOS (Delay)	Movement	A (0.1)							A (0.1)					
		Approach		A (0.1)						A (0.1)					
	Queue Length 95th (ft)	Movement	*0*							*0*					
CR 532 & I-4 Intersection #5	Volume									680			740		D (36.4)
	LOS (Delay)	Movement								E (64.7)			B (10.3)		
		Approach								E (64.7)			B (10.3)		
	Queue Length 95th (ft)	Movement								*477*			*160*		
CR 532 & I-4 Intersection #6	Volume				360								740		A (2.1)
	LOS (Delay)	Movement			A (6.0)								A (0.2)		
		Approach		A (0.7)									A (0.2)		
	Queue Length 95th (ft)	Movement			*64*								*0*		
CR 532 & Lake Wilson Road	Volume		320	610	240	140	780	590	370	550	230	230	260	110	F (136.9)
	LOS (Delay)	Movement	F (210.5)	E (80.0)		F (150.8)	F (133.4)	F (119.6)	F (106.4)	F (201.2)		F (193.6)	F (93.5)		
		Approach		F (115.7)			F (129.7)			F (170.7)			F (131.8)		
	Queue Length 95th (ft)	Movement	*#719*	*#671*		*#337*	*#724*	*#1080*	*#688*	*#1512*		*#537*	*#657*		
CR 532 & Poinciana Parkway Extension Connector Southbound off-ramp	Volume			1220			1020					240		90	A (9.4)
	LOS (Delay)	Movement		A (6.6)			A (5.6)					D (39.7)		B (10.1)	
		Approach		A (6.6)			A (5.6)						C (31.7)		
	Queue Length 95th (ft)	Movement		*222*			*54*					*101*		*40*	
CR 532 & Poinciana Parkway Extension Connector Northbound on-ramp	Volume		260	1200			1020	340							A (7.7)
	LOS (Delay)	Movement	A (5.6)	A (0.3)			B (18.5)	A (3.0)							
		Approach		A (1.2)			B (14.6)								
	Queue Length 95th (ft)	Movement	*62*	*0*			*334*	*49*							
CR 532 & US 17/92	Volume		820		380				360	950			610	1000	C (23.7)
	LOS (Delay)	Movement	C (30.5)		B (13.0)				D (53.5)	B (18.6)			D (35.6)	A (9.1)	
		Approach		C (25.0)						C (28.2)			B (19.1)		
	Queue Length 95th (ft)	Movement	*217*		*111*				*184*	*295*			*266*	*235*	
US 17/92 & Poinciana Parkway Extension Connector Intersection #1	Volume			960			910								C (27.8)
	LOS (Delay)	Movement		A (7.9)			D (48.8)								
		Approach		A (7.9)			D (48.8)								
	Queue Length 95th (ft)	Movement		*74*			*384*								
US 17/92 & Poinciana Parkway Extension Connector Intersection #2	Volume						910		300						A (0.6)
	LOS (Delay)	Movement					A (0.1)		A (2.3)						
		Approach					A (0.1)			A (2.3)					
	Queue Length 95th (ft)	Movement					*0*		*45*						
US 17/92 & Poinciana Parkway Extension Connector Intersection #3	Volume			960							350				B (12.2)
	LOS (Delay)	Movement		A (0.8)							D (43.5)				
		Approach		A (0.8)						D (43.5)					
	Queue Length 95th (ft)	Movement		*0*							*214*				
US 17/92 & Poinciana Parkway Extension Connector Intersection #3	Volume			1450								60			A (0.1)
	LOS (Delay)	Movement		A (0.1)								A (0.1)			
		Approach		A (0.1)									A (0.1)		
	Queue Length 95th (ft)	Movement		*0*								*0*			
US 17/92 & Poinciana Parkway Extension Connector Intersection #5	Volume			1450			990								C (31.0)
	LOS (Delay)	Movement		D (44.6)			B (11.0)								
		Approach		D (44.6)			B (11.0)								
	Queue Length 95th (ft)	Movement		*598*			*109*								
US 17/92 & Poinciana Parkway Extension Connector Intersection #6	Volume						990							280	A (9.2)
	LOS (Delay)	Movement					A (1.5)							D (36.6)	
		Approach					A (1.5)						D (36.6)		
	Queue Length 95th (ft)	Movement					*0*							*320*	
US 17/92 & Ronald Reagan Parkway	Volume		270	80	350	30	50	180	370	1140	40	120	920	230	D (50.4)
	LOS (Delay)	Movement	E (76.8)	E (57.5)		F (96.0)	E (59.5)	A (6.0)	E (73.7)	D (52.5)	A (0.1)	F (91.6)	D (42.9)	A (3.0)	
		Approach		E (65.0)			C (26.8)			E (56.2)			D (40.3)		
	Queue Length 95th (ft)	Movement	*223*	*#549*		*#41*	*51*	*48*	*290*	*774*	*0*	*#246*	*390*	*46*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

Table 6.2**2 (Continued)**

2030 Peak Hour Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	PM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			PM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			230	90	180	550					290		250	B (11.0)
	LOS (Delay)	Movement		A (4.8)	A (1.4)	A (6.8)	A (3.4)					D (37.3)		A (9.4)	
		Approach		A (3.9)			A (4.3)						C (24.4)		
	Queue Length 95th (ft)	Movement		36	15	83	18					118		66	
Sinclair Road & SR 429 Northbound	Volume		170	350			150	230	260	110	170	90		320	B (16.8)
	LOS (Delay)	Movement	B (20.0)	A (3.5)			B (19.2)	A (2.3)	C (25.2)	D (50.2)	B (12.5)	D (45.3)		B (15.1)	
		Approach		A (8.9)			A (9.0)			C (26.3)			C (21.7)		
	Queue Length 95th (ft)	Movement	141	26			62	37	80	113	56	94		90	
SR 429 Northbound Ramp & Connector Road	Volume								130	380			410	160	A (1.5)
	LOS (Delay)	Movement							A (0.6)	A (0.3)			A (3.2)	A (0.6)	
		Approach								A (0.4)			A (2.5)		
	Queue Length 95th (ft)	*Movement*							*1*	*0*			*78*	*10*	
CR 532 & I-4 Intersection #1	Volume							1110		620					0 (31.9)
	LOS (Delay)	Movement						D (49.6)		A (0.1)					
		Approach					D (48.4)			A (0.1)					
	Queue Length 95th (ft)	*Movement*						#728		*0*					
CR 532 & I-4 Intersection #2	Volume									620			1340		C (30.2)
	LOS (Delay)	Movement								B (16.7)			D (36.4)		
		Approach								B (16.7)			D (36.4)		
	Queue Length 95th (ft)	Movement								158			657		
CR 532 & I-4 Intersection #3	Volume					570							1340		A (3.9)
	LOS (Delay)	Movement				B (11.2)							A (0.7)		
		Approach				B (11.2)							A (0.7)		
	Queue Length 95th (ft)	*Movement*				*114*							*0*		
CR 532 & I-4 Intersection #4	Volume		210							750					A (0.1)
	LOS (Delay)	Movement	A (0.1)							A (0.1)					
		Approach		A (0.1)						A (0.1)					
	Queue Length 95th (ft)	Movement	*0*							*0*					
CR 532 & I-4 Intersection #5	Volume									750			950		D (38.1)
	LOS (Delay)	Movement								E (67.9)			B (14.6)		
		Approach								E (67.9)			B (14.6)		
	Queue Length 95th (ft)	Movement								*536*			*189*		
CR 532 & I-4 Intersection #6	Volume				470								950		B (10.4)
	LOS (Delay)	Movement			C (31.1)								A (0.2)		
		Approach		A (3.7)									A (0.2)		
	Queue Length 95th (ft)	Movement			*384*								*0*		
CR 532 & Lake Wilson Road	Volume		480	580	460	150	690	310	460	310	130	560	540	150	F (192.7)
	LOS (Delay)	Movement	F (284.8)	F (93.6)		F (247.7)	F (169.2)	C (23.6)	F (285.7)	F (142.5)		F (272.2)	F (271.0)		
		Approach		F (154.0)			F (140.2)			F (215.7)			F (271.5)		
	Queue Length 95th (ft)	Movement	*#1062*	*#826*		*#403*	*#684*	*198*	*#1025*	*#859*		*#1201*	*#1439*		
CR 532 & Poinciana Parkway Extension Connector Southbound off-ramp	Volume			1120			990					340		260	B (10.8)
	LOS (Delay)	Movement		A (9.6)			A (4.9)					C (34.7)		A (7.7)	
		Approach		A (9.6)			A (4.9)						C (23.0)		
	Queue Length 95th (ft)	Movement		*205*			*37*					*139*		*64*	
CR 532 & Poinciana Parkway Extension Connector Northbound on-ramp	Volume		90	1370			990	240							A (6.5)
	LOS (Delay)	Movement	A (0.5)	A (0.3)			B (16.6)	A (2.4)							
		Approach		A (0.3)			B (13.8)								
	Queue Length 95th (ft)	Movement	*1*	*0*			*267*	*35*							
CR 532 & US 17/92	Volume		1050		320				330	670			1100	900	D (39.8)
	LOS (Delay)	Movement	D (44.9)		B (19.1)				E (77.8)	C (22.4)			E (66.3)	A (8.0)	
		Approach		D (38.8)						D (40.7)			D (40.1)		
	Queue Length 95th (ft)	Movement	*417*		*134*				*246*	*280*			*#859*	*265*	
US 17/92 & Poinciana Parkway Extension Connector Intersection #1	Volume			780			1360								C (28.7)
	LOS (Delay)	Movement		A (4.2)			D (42.7)								
		Approach		A (4.2)			D (42.7)								
	Queue Length 95th (ft)	Movement		*25*			*546*								
US 17/92 & Poinciana Parkway Extension Connector Intersection #2	Volume						1360		140						A (0.3)
	LOS (Delay)	Movement					A (0.1)		A (2.4)						
		Approach					A (0.1)			A (2.4)					
	Queue Length 95th (ft)	Movement					*0*		*28*						
US 17/92 & Poinciana Parkway Extension Connector Intersection #3	Volume			780							220				A (7.8)
	LOS (Delay)	Movement		A (1.1)							C (31.4)				
		Approach		A (1.1)						C (31.4)					
	Queue Length 95th (ft)	Movement		*0*							*119*				
US 17/92 & Poinciana Parkway Extension Connector Intersection #4	Volume			970								90			A (0.1)
	LOS (Delay)	Movement		A (0.1)								A (0.1)			
		Approach		A (0.1)									A (0.1)		
	Queue Length 95th (ft)	Movement		*0*								*0*			
US 17/92 & Poinciana Parkway Extension Connector Intersection #5	Volume			970			1150								C (29.0)
	LOS (Delay)	Movement		D (50.1)			B (11.2)								
		Approach		D (50.1)			B (11.2)								
	Queue Length 95th (ft)	Movement		*415*			*107*								
US 17/92 & Poinciana Parkway Extension Connector Intersection #6	Volume						1150							540	C (25.2)
	LOS (Delay)	Movement					A (2.5)							E (73.5)	
		Approach					A (2.5)						E (73.5)		
	Queue Length 95th (ft)	Movement					*0*							*#860*	
US 17/92 & Ronald Reagan Parkway	Volume		240	60	300	20	70	120	300	910	40	180	1180	330	D (44.0)
	LOS (Delay)	Movement	E (63.7)	D (46.5)		E (68.3)	D (53.8)	A (6.0)	E (63.9)	D (46.8)	A (0.1)	E (72.5)	D (40.1)	B (15.4)	
		Approach		D (53.4)			C (27.9)			D (49.4)			D (38.7)		
	Queue Length 95th (ft)	Movement	*167*	*#431*		*26*	*62*	*45*	*202*	*489*	*0*	*#322*	*428*	*208*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

Table 6.2**3**

2050 Peak Hour No-Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	AM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			AM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			710	440	380	550					280		230	B (13.0)
	LOS (Delay)	Movement		A (5.1)	A (1.3)	D (37.0)	A (3.8)					D (39.9)		A (9.8)	
		Approach		A (3.7)			B (17.3)						C (26.3)		
	Queue Length 95th (ft)	Movement		92	24	m#345	45					122		64	
Sinclair Road & SR 429 Northbound	Volume		620	370			450	420	180	140	150	100		300	C (29.0)
	LOS (Delay)	Movement	C (29.0)	B (18.2)			C (32.8)	B (18.9)	C (28.3)	F (90.0)	B (11.9)	E (65.1)		B (19.2)	
		Approach		C (24.9)			C (26.1)			D (41.4)			C (30.6)		
	Queue Length 95th (ft)	Movement	#394	130			182	245	72	#197	47	#136		#105	
SR 429 Northbound Ramp & Connector Road	Volume								450	730			400	540	A (1.6)
	LOS (Delay)	Movement							A (2.0)	A (0.4)			A (3.2)	A (1.7)	
		Approach								A (1.0)			A (2.4)		
	Queue Length 95th (ft)	*Movement*							*m0*	*m0*			*76*	*35*	
CR 532 & I-4 Intersection #1	Volume							1370		730					F (133.4)
	LOS (Delay)	Movement						F (204.3)		A (0.2)					
		Approach				F (204.3)				A (0.2)					
	Queue Length 95th (ft)	*Movement*						#1409		*0*					
CR 532 & I-4 Intersection #2	Volume									730			2150		F (246.9)
	LOS (Delay)	Movement								D (42.1)			F (316.4)		
		Approach								D (42.1)			F (316.4)		
	Queue Length 95th (ft)	Movement								353			#2127		
CR 532 & I-4 Intersection #3	Volume					870							2150		C (24.6)
	LOS (Delay)	Movement				C (25.7)							C (24.1)		
		Approach				C (25.7)							C (24.1)		
	Queue Length 95th (ft)	*Movement*				*380*							*m17*		
CR 532 & I-4 Intersection #4	Volume		290							1200					A (9.6)
	LOS (Delay)	Movement	A (0.1)							B (11.9)					
		Approach		A (0.1)						B (11.9)					
	Queue Length 95th (ft)	Movement	*0*							*m0*					
CR 532 & I-4 Intersection #5	Volume									1200			1320		F (141.6)
	LOS (Delay)	Movement								F (283.8)			B (12.2)		
		Approach								F (283.8)			B (12.2)		
	Queue Length 95th (ft)	Movement								*#1231*			*334*		
CR 532 & I-4 Intersection #6	Volume				690								1320		B (15.6)
	LOS (Delay)	Movement			D (45.0)								A (0.3)		
		Approach		D (45.0)									A (0.3)		
	Queue Length 95th (ft)	Movement			*379*								*0*		
CR 532 & Lake Wilson Road	Volume		610	980	510	220	1390	1240	710	780	360	560	590	250	F (118.9)
	LOS (Delay)	Movement	F (276.6)	D (51.1)	B (16.1)	F (110.6)	F (160.3)	D (53.3)	F (204.4)	F (111.8)	D (46.6)	F (217.3)	F (97.9)	C (23.1)	
		Approach		F (108.1)			F (109.9)			F (134.6)			F (132.3)		
	Queue Length 95th (ft)	Movement	*#664*	*641*	*294*	*#220*	*#1256*	*#994*	*#714*	*#693*	*382*	*#591*	*#515*	*174*	
CR 532 & Poinciana Parkway Extension Northbound on-ramp	Volume			1610	440	40	1820		780		60				D (54.1)
	LOS (Delay)	Movement		F (95.5)	A (3.6)	D (52.0)	D (36.8)		D (41.5)		A (0.9)				
		Approach		E (75.8)			D (37.1)			D (38.6)					
	Queue Length 95th (ft)	Movement		*#732*	*53*	*57*	*#729*		*#326*		*4*				
CR 532 & US 17/92	Volume		1040		630				730	1260			970	1130	E (60.2)
	LOS (Delay)	Movement	F (109.7)		B (16.9)				F (184.3)	B (19.2)			D (51.3)	B (11.8)	
		Approach		E (74.7)						E (79.8)			C (30.1)		
	Queue Length 95th (ft)	Movement	*#593*		*206*				*#478*	*407*			*#496*	*311*	
US 17/92 & Poinciana Parkway Extension Intersection #1	Volume						1550					1310			E (71.7)
	LOS (Delay)	Movement					F (93.9)					D (45.5)			
		Approach				F (93.9)						D (45.5)			
	Queue Length 95th (ft)	Movement					*#855*					*524*			
US 17/92 & Poinciana Parkway Extension Intersection #2	Volume						1550		1060						A (7.8)
	LOS (Delay)	Movement					A (2.0)		B (16.4)						
		Approach					A (2.0)			B (16.4)					
	Queue Length 95th (ft)	Movement					*m0*		*352*						
US 17/92 & Poinciana Parkway Extension Intersection #3	Volume			1310							680				D (41.1)
	LOS (Delay)	Movement		A (5.3)							E (56.4)				
		Approach		A (5.3)						E (56.4)					
	Queue Length 95th (ft)	Movement		*0*							*461*				
US 17/92 & Poinciana Parkway Extension Intersection #4	Volume			1450								30			A (2.7)
	LOS (Delay)	Movement		A (2.7)								A (0.0)			
		Approach		A (2.7)									A (0.0)		
	Queue Length 95th (ft)	Movement		*m0*								*0*			
US 17/92 & Poinciana Parkway Extension Intersection #5	Volume			1450			2230								F (84.9)
	LOS (Delay)	Movement		F (107.5)			E (70.2)								
		Approach		F (107.5)			E (70.2)								
	Queue Length 95th (ft)	Movement		*#828*			*#1721*								
US 17/92 & Poinciana Parkway Extension Intersection #6	Volume						2230							90	D (49.0)
	LOS (Delay)	Movement					D (49.0)							D (47.6)	
		Approach					D (49.0)						D (47.6)		
	Queue Length 95th (ft)	Movement					*m40*							*70*	
US 17/92 & Ronald Reagan Parkway	Volume		820	210	670	40	290	70	900	1140	60	80	1290	950	F (264.0)
	LOS (Delay)	Movement	F (413.7)	D (53.1)		F (124.7)	F (692.1)	A (2.4)	F (950.8)	F (131.7)	A (0.4)	E (59.5)	E (66.6)	C (34.7)	
		Approach		F (227.0)			F (514.3)			F (478.9)			D (53.3)		
	Queue Length 95th (ft)	Movement	*#1795*	*537*		*#60*	*#421*	*0*	*#1135*	*#1012*	*0*	*70*	*#973*	*#929*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

Table 6.22 **(Continued)**

2050 Peak Hour No-Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	PM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			PM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			400	240	230	820					530		460	B (16.8)
	LOS (Delay)	Movement		B (12.9)	A (2.8)	B (17.1)	A (7.6)					C (24.4)		C (34.7)	
		Approach	A (9.1)			A (9.7)						C (29.2)			
	Queue Length 95th (ft)	Movement		107	40	200	118					155		302	
Sinclair Road & SR 429 Northbound	Volume		310	620			200	320	400	190	230	130		450	B (18.7)
	LOS (Delay)	Movement	C (24.9)	A (8.2)			C (27.2)	A (5.8)	C (22.0)	D (54.7)	B (10.1)	D (42.8)		B (13.3)	
		Approach	B (13.8)			B (14.0)			C (26.2)			B (19.9)			
	Queue Length 95th (ft)	Movement	272	86			89	81	106	178	63	121		131	
SR 429 Northbound Ramp & Connector Road	Volume								230	590			580	280	A (1.9)
	LOS (Delay)	Movement							A (1.4)	A (0.5)			A (4.0)	A (0.7)	
		Approach							A (0.7)			A (3.0)			
	Queue Length 95th (ft)	*Movement*							*1*	*0*			*123*	*13*	
CR 532 & I-4 Intersection #1	Volume							1650		700					F (204.6)
	LOS (Delay)	Movement						F (291.4)		A (0.1)					
		Approach				F (408.2)			A (0.1)						
	Queue Length 95th (ft)	*Movement*						#1782		*0*					
CR 532 & I-4 Intersection #2	Volume									700			1880		F (161.6)
	LOS (Delay)	Movement								D (40.9)			F (206.5)		
		Approach							D (40.9)			F (206.5)			
	Queue Length 95th (ft)	Movement								325			#1733		
CR 532 & I-4 Intersection #3	Volume					1370							1880		C (25.3)
	LOS (Delay)	Movement				D (39.3)							B (15.0)		
		Approach				D (39.3)						B (15.0)			
	Queue Length 95th (ft)	*Movement*				*785*							*m17*		
CR 532 & I-4 Intersection #4	Volume		250							1050					A (7.5)
	LOS (Delay)	Movement	A (0.1)							A (9.2)					
		Approach	A (0.1)						A (9.2)						
	Queue Length 95th (ft)	Movement	*0*							*m0*					
CR 532 & I-4 Intersection #5	Volume									1050			1810		F (101.5)
	LOS (Delay)	Movement								F (247.4)			B (16.9)		
		Approach							F (247.4)			B (16.9)			
	Queue Length 95th (ft)	Movement								*#1065*			*626*		
CR 532 & I-4 Intersection #6	Volume				820								1810		D (46.5)
	LOS (Delay)	Movement			F (148.2)								A (0.4)		
		Approach	F (139.4)									A (0.4)			
	Queue Length 95th (ft)	Movement			*#767*								*0*		
CR 532 & Lake Wilson Road	Volume		700	980	820	250	1140	710	640	690	320	1100	830	320	F (156.5)
	LOS (Delay)	Movement	F (335.6)	F (93.2)	F (146.1)	F (146.0)	F (270.0)	C (20.7)	F (205.6)	F (293.7)	D (55.0)	F (102.9)	E (64.9)	C (20.8)	
		Approach	F (178.4)			F (171.0)			F (213.2)			E (77.2)			
	Queue Length 95th (ft)	Movement	*#776*	*#814*	*#1215*	*#275*	*#1165*	*322*	*#655*	*#763*	*#361*	*#912*	*594*	*225*	
CR 532 & Poinciana Parkway Extension Northbound on-ramp	Volume			1670	780	60	1660		440		40				C (24.1)
	LOS (Delay)	Movement		D (38.5)	A (4.2)	E (65.0)	B (13.7)		D (40.6)		A (0.5)				
		Approach	C (27.6)			B (15.5)			D (37.3)						
	Queue Length 95th (ft)	Movement		*#676*	*54*	*#93*	*416*		*180*		*0*				
CR 532 & US 17/92	Volume		1190		520				660	960			1390	1060	F (86.1)
	LOS (Delay)	Movement	F (148.2)		C (27.4)				F (210.0)	C (21.9)			F (98.4)	B (10.3)	
		Approach	F (111.5)						F (98.5)			E (60.2)			
	Queue Length 95th (ft)	Movement	*#1055*		*271*				*#675*	*406*			*#1145*	*334*	
US 17/92 & Poinciana Parkway Extension Intersection #1	Volume			1240			1880								E (55.4)
	LOS (Delay)	Movement		F (80.5)			D (38.8)								
		Approach	F (80.5)			D (38.8)									
	Queue Length 95th (ft)	Movement		*#562*			*747*								
US 17/92 & Poinciana Parkway Extension Intersection #2	Volume						1880		580						A (6.9)
	LOS (Delay)	Movement					A (0.1)		C (28.6)						
		Approach				A (0.1)			C (28.6)						
	Queue Length 95th (ft)	Movement					*0*		*252*						
US 17/92 & Poinciana Parkway Extension Intersection #3	Volume			1240							380				B (13.5)
	LOS (Delay)	Movement		B (10.0)							C (24.8)				
		Approach	B (10.0)						C (24.8)						
	Queue Length 95th (ft)	Movement		*m14*							*172*				
US 17/92 & Poinciana Parkway Extension Intersection #4	Volume			1280								50			A (2.0)
	LOS (Delay)	Movement		A (2.1)								A (0.0)			
		Approach	A (2.1)									A (0.0)			
	Queue Length 95th (ft)	Movement		*m0*								*0*			
US 17/92 & Poinciana Parkway Extension Intersection #5	Volume			1280			1780								D (50.3)
	LOS (Delay)	Movement		F (103.6)			B (19.2)								
		Approach	F (103.6)			B (19.2)									
	Queue Length 95th (ft)	Movement		*#731*			*1171*								
US 17/92 & Poinciana Parkway Extension Intersection #6	Volume						1780							170	A (7.2)
	LOS (Delay)	Movement					A (2.8)							D (52.9)	
		Approach				A (2.8)						D (52.9)			
	Queue Length 95th (ft)	Movement					*0*							*125*	
US 17/92 & Ronald Reagan Parkway	Volume		1020	270	960	40	230	70	700	1250	50	80	1150	720	F (326.2)
	LOS (Delay)	Movement	F (216.3)	D (43.5)		F (106.0)	F (858.0)	A (2.7)	F (1613.2)	F (263.0)	A (0.4)	F (81.8)	F (157.4)	B (17.0)	
		Approach	F (121.8)			F (593.0)			F (728.9)			F (102.5)			
	Queue Length 95th (ft)	Movement	*#1942*	*762*		*50*	*#355*	*0*	*#959*	*#1258*	*0*	*80*	*#1055*	*333*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

Table 6.2**4**
2050 Peak Hour Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	AM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			AM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			710	450	400	550					240		200	B (12.3)
	LOS (Delay)	Movement		A (5.1)	A (1.4)	D (37.7)	A (1.8)					D (38.2)		A (9.7)	
		Approach		A (3.7)			B (16.9)						C (25.3)		
	Queue Length 95th (ft)	Movement		92	24	#417	11					106		60	
Sinclair Road & SR 429 Northbound	Volume		590	360			470	420	180	160	170	100		300	C (28.8)
	LOS (Delay)	Movement	D (36.6)	A (4.9)			C (34.6)	B (19.4)	C (26.7)	F (83.4)	B (13.4)	E (58.5)		B (17.1)	
		Approach		C (24.6)			C (27.4)			D (40.0)			C (27.4)		
	Queue Length 95th (ft)	Movement	#493	38			193	247	70	#217	60	#124		#99	
SR 429 Northbound Ramp & Connector Road	Volume								370	800			400	450	A (1.3)
	LOS (Delay)	Movement							A (1.3)	A (0.5)			A (3.2)	A (1.0)	
		Approach								A (0.8)			A (2.0)		
	Queue Length 95th (ft)	*Movement*							*m0*	*m0*			*76*	*16*	
CR 532 & I-4 Intersection #1	Volume							1170		610					D (38.0)
	LOS (Delay)	Movement						E (57.8)		A (0.1)					
		Approach					E (60.2)			A (0.1)					
	Queue Length 95th (ft)	*Movement*						#809		*0*					
CR 532 & I-4 Intersection #2	Volume									610			1810		F (84.9)
	LOS (Delay)	Movement								C (27.0)			F (104.4)		
		Approach								C (27.0)			F (104.4)		
	Queue Length 95th (ft)	Movement								214			#1247		
CR 532 & I-4 Intersection #3	Volume			1810								670			A (9.4)
	LOS (Delay)	Movement		A (5.1)								C (21.1)			
		Approach		A (5.1)									C (21.1)		
	Queue Length 95th (ft)	*Movement*		*m15*								*218*			
CR 532 & I-4 Intersection #4	Volume						900		300						A (1.4)
	LOS (Delay)	Movement					A (1.9)		A (0.1)						
		Approach					A (1.9)			A (0.1)					
	Queue Length 95th (ft)	Movement					*m0*		*0*						
CR 532 & I-4 Intersection #5	Volume									900			1070		D (51.9)
	LOS (Delay)	Movement								F (96.9)			B (14.0)		
		Approach								F (96.9)			B (14.0)		
	Queue Length 95th (ft)	Movement								*#747*			*236*		
CR 532 & I-4 Intersection #6	Volume				580								1070		A (6.0)
	LOS (Delay)	Movement			B (16.7)								A (0.2)		
		Approach		B (16.5)									A (0.2)		
	Queue Length 95th (ft)	Movement			*165*								*0*		
CR 532 & Lake Wilson Road	Volume		440	830	380	190	910	700	450	740	460	310	400	190	E (61.7)
	LOS (Delay)	Movement	F (117.9)	D (48.0)	A (5.1)	F (91.7)	E (62.8)	C (34.5)	F (86.7)	E (74.8)	D (49.6)	F (101.7)	E (68.3)	B (10.6)	
		Approach		E (56.8)			D (54.8)			E (71.1)			E (67.6)		
	Queue Length 95th (ft)	Movement	*#430*	*531*	*75*	*168*	*637*	*418*	*350*	*554*	*#528*	*#298*	*310*	*81*	
CR 532 & Poinciana Parkway Extension Connector Southbound off-ramp	Volume			1850			1300					400		150	C (20.2)
	LOS (Delay)	Movement		B (16.4)			C (21.7)					D (37.5)		A (7.5)	
		Approach		B (16.4)			C (21.7)						C (29.3)		
	Queue Length 95th (ft)	Movement		*578*			*m#490*					*153*		*47*	
CR 532 & Poinciana Parkway Extension Connector Northbound on-ramp	Volume		430	1820			1300	580							B (16.7)
	LOS (Delay)	Movement	B (11.4)	A (0.4)			D (42.5)	B (14.0)							
		Approach		A (2.5)			C (33.7)								
	Queue Length 95th (ft)	Movement	*m146*	*0*			*#610*	*261*							
CR 532 & US 17/92	Volume		1140		680				650	1260			970	1230	D (39.1)
	LOS (Delay)	Movement	E (61.3)		B (19.7)				F (109.2)	B (16.0)			D (41.8)	B (13.9)	
		Approach		D (45.7)						D (47.7)			C (26.2)		
	Queue Length 95th (ft)	Movement	*#395*		*243*				*#399*	*368*			*438*	*380*	
US 17/92 & Poinciana Parkway Extension Connector Intersection #1	Volume						1490					1230			E (63.5)
	LOS (Delay)	Movement					F (94.0)					C (26.6)			
		Approach					F (94.0)						C (26.6)		
	Queue Length 95th (ft)	Movement					*#823*					*351*			
US 17/92 & Poinciana Parkway Extension Connector Intersection #2	Volume						1490		600						A (3.9)
	LOS (Delay)	Movement					A (1.9)		A (9.1)						
		Approach					A (1.9)			A (9.1)					
	Queue Length 95th (ft)	Movement					*m0*		*127*						
US 17/92 & Poinciana Parkway Extension Connector Intersection #3	Volume			1230							680				D (46.2)
	LOS (Delay)	Movement		D (39.4)							E (58.6)				
		Approach		D (39.4)						E (58.6)					
	Queue Length 95th (ft)	Movement		#768							468				
US 17/92 & Poinciana Parkway Extension Connector Intersection #4	Volume			2090								100			A (4.3)
	LOS (Delay)	Movement		A (4.3)								A (2.9)			
		Approach		A (4.3)									A (2.9)		
	Queue Length 95th (ft)	Movement		*m0*								*14*			
US 17/92 & Poinciana Parkway Extension Connector Intersection #5	Volume			2090			1690								E (77.7)
	LOS (Delay)	Movement		F (104.8)			D (44.3)								
		Approach		F (104.8)			D (44.3)								
	Queue Length 95th (ft)	Movement		*#1160*			*#1304*								
US 17/92 & Poinciana Parkway Extension Connector Intersection #6	Volume						1690							510	C (24.7)
	LOS (Delay)	Movement					C (20.4)							D (39.0)	
		Approach					C (20.4)						D (39.0)		
	Queue Length 95th (ft)	Movement					*m3*							*288*	
US 17/92 & Ronald Reagan Parkway	Volume		440	100	550	40	80	280	500	1640	60	190	1550	460	F (98.4)
	LOS (Delay)	Movement	F (80.5)	F (160.4)		F (124.7)	E (74.1)	C (25.5)	F (98.6)	F (102.4)	A (0.2)	F (463.5)	E (69.0)	C (21.0)	
		Approach		F (128.1)			D (45.1)			F (98.7)			F (93.0)		
	Queue Length 95th (ft)	Movement	*324*	*#1118*		*#60*	*82*	*#162*	*#429*	*#1348*	*0*	*#538*	*#789*	*352*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

Table 6.2**4 (Continued)**

2050 Peak Hour Build Intersection Level of Service/Delay

Signal Controlled Intersections	Measure of Effectiveness (MOE)	Location	PM Movement/Approach LOS (Delay)												Intersection
			Eastbound			Westbound			Northbound			Southbound			PM LOS (Delay)
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Sinclair Road & SR 429 Southbound	Volume			400	250	240	820					430		390	B (14.7)
	LOS (Delay)	Movement		A (9.5)	A (2.1)	B (11.5)	A (4.9)					C (29.2)		C (34.6)	
		Approach		A (6.6)			A (6.4)						C (31.7)		
	Queue Length 95th (ft)	Movement		92	35	170	86					140		244	
Sinclair Road & SR 429 Northbound	Volume		310	520			210	320	400	190	260	130		450	B (18.7)
	LOS (Delay)	Movement	C (26.3)	A (7.8)			C (32.1)	A (3.6)	C (21.3)	D (49.9)	A (9.5)	D (42.8)		B (13.5)	
		Approach		B (14.7)			B (14.9)			C (24.1)			C (20.1)		
	Queue Length 95th (ft)	Movement	276	72			100	50	96	169	62	121		132	
SR 429 Northbound Ramp & Connector Road	Volume								200	620			580	240	A (1.9)
	LOS (Delay)	Movement							A (1.2)	A (0.5)			A (4.0)	A (0.7)	
		Approach								A (0.7)			A (3.0)		
	Queue Length 95th (ft)	*Movement*							*1*	*0*			*123*	*12*	
CR 532 & I-4 Intersection #1	Volume							1470		750					F (100.1)
	LOS (Delay)	Movement						F (151.1)		A (0.1)					
		Approach				F (154.9)				A (0.1)					
	Queue Length 95th (ft)	*Movement*						#1228		*0*					
CR 532 & I-4 Intersection #2	Volume									750			1720		E (67.4)
	LOS (Delay)	Movement								C (33.6)			F (82.1)		
		Approach								C (33.6)			F (82.1)		
	Queue Length 95th (ft)	Movement								279			#1132		
CR 532 & I-4 Intersection #3	Volume					800							1720		B (11.6)
	LOS (Delay)	Movement				C (28.6)							A (3.7)		
		Approach					C (28.6)						A (3.7)		
	Queue Length 95th (ft)	*Movement*				*282*							*m15*		
CR 532 & I-4 Intersection #4	Volume		290							990					A (2.9)
	LOS (Delay)	Movement	A (0.1)							A (3.7)					
		Approach		A (0.1)						A (3.7)					
	Queue Length 95th (ft)	Movement	*0*							*m0*					
CR 532 & I-4 Intersection #5	Volume									990			1230		E (65.5)
	LOS (Delay)	Movement								F (126.5)			B (16.4)		
		Approach								F (126.5)			B (16.4)		
	Queue Length 95th (ft)	Movement								*#868*			*331*		
CR 532 & I-4 Intersection #6	Volume				550								2		A (7.4)
	LOS (Delay)	Movement			C (23.2)								0.3 (0.0)		
		Approach		C (23.0)											
	Queue Length 95th (ft)	Movement			*202*								*0*		
CR 532 & Lake Wilson Road	Volume		600	670	620	250	880	420	620	420	260	660	690	250	F (87.0)
	LOS (Delay)	Movement	F (234.6)	D (50.2)	C (24.1)	F (105.9)	E (73.0)	C (23.5)	F (104.2)	E (69.8)	C (20.9)	F (118.2)	F (112.7)	C (26.8)	
		Approach		F (100.2)			E (64.9)			E (76.4)			F (101.6)		
	Queue Length 95th (ft)	Movement	*#640*	*428*	*442*	*#240*	*643*	*202*	*#546*	*321*	*170*	*#601*	*#630*	*198*	
CR 532 & Poinciana Parkway Extension Connector Southbound off-ramp	Volume			1390			1320					580		430	B (17.2)
	LOS (Delay)	Movement		B (10.5)			A (6.5)					E (59.2)		B (14.8)	
		Approach		B (10.5)			A (6.5)						D (40.3)		
	Queue Length 95th (ft)	Movement		*290*			*73*					*#279*		*141*	
CR 532 & Poinciana Parkway Extension Connector Northbound on-ramp	Volume		150	1820			1320	400							A (8.7)
	LOS (Delay)	Movement	A (9.2)	A (0.4)			C (21.9)	A (2.7)							
		Approach		A (1.1)			B (17.4)								
	Queue Length 95th (ft)	Movement	*m40*	*m0*			*411*	*44*							
CR 532 & US 17/92	Volume		1280		540				610	960			1390	1110	E (78.6)
	LOS (Delay)	Movement	E (57.9)		B (19.5)				F (91.9)	C (25.1)			F (202.3)	B (15.1)	
		Approach		D (46.5)						D (51.0)			F (119.2)		
	Queue Length 95th (ft)	Movement	*574*		*234*				*#501*	*436*			*#1317*	*446*	
US 17/92 & Poinciana Parkway Extension Connector Intersection #1	Volume			1320			1820								D (38.6)
	LOS (Delay)	Movement		B (10.4)			E (58.9)								
		Approach		B (10.4)			E (58.9)								
	Queue Length 95th (ft)	Movement		*49*			*872*								
US 17/92 & Poinciana Parkway Extension Connector Intersection #2	Volume						1820		420						A (3.3)
	LOS (Delay)	Movement					A (0.4)		B (16.2)						
		Approach					A (0.4)			B (16.2)					
	Queue Length 95th (ft)	Movement					*0*		*131*						
US 17/92 & Poinciana Parkway Extension Connector Intersection #3	Volume			1320							250				A (8.1)
	LOS (Delay)	Movement		A (3.2)							C (34.0)				
		Approach		A (3.2)						C (34.0)					
	Queue Length 95th (ft)	Movement		*0*							*140*				
US 17/92 & Poinciana Parkway Extension Connector Intersection #4	Volume			1660								160			A (1.0)
	LOS (Delay)	Movement		A (1.0)								A (0.7)			
		Approach		A (1.0)									A (0.7)		
	Queue Length 95th (ft)	Movement		*m0*								*7*			
US 17/92 & Poinciana Parkway Extension Connector Intersection #5	Volume			1660			1560								D (49.7)
	LOS (Delay)	Movement		E (72.3)			C (25.7)								
		Approach		E (72.3)			C (25.7)								
	Queue Length 95th (ft)	Movement		*#869*			*391*								
US 17/92 & Poinciana Parkway Extension Connector Intersection #6	Volume						1560							960	C (27.2)
	LOS (Delay)	Movement					A (7.9)							E (58.4)	
		Approach					A (7.9)						E (58.4)		
	Queue Length 95th (ft)	Movement					*0*							*672*	
US 17/92 & Ronald Reagan Parkway	Volume		480	60	450	30	110	210	450	1570	50	290	1770	460	E (79.3)
	LOS (Delay)	Movement	F (96.6)	F (137.3)		F (93.1)	F (105.7)	C (30.2)	F (118.9)	E (59.4)	A (0.1)	F (350.9)	D (44.5)	B (12.5)	
		Approach		F (117.6)			E (59.4)			E (70.9)			E (73.9)		
	Queue Length 95th (ft)	Movement	*#414*	*#840*		*41*	*#121*	*188*	*#429*	*#1157*	*0*	*#728*	*743*	*285*	

Synchro Version 11 Build 168

LOS notes:

Delay is in sec/veh units

:Level Of Service (LOS) E reflecting at capacity operations

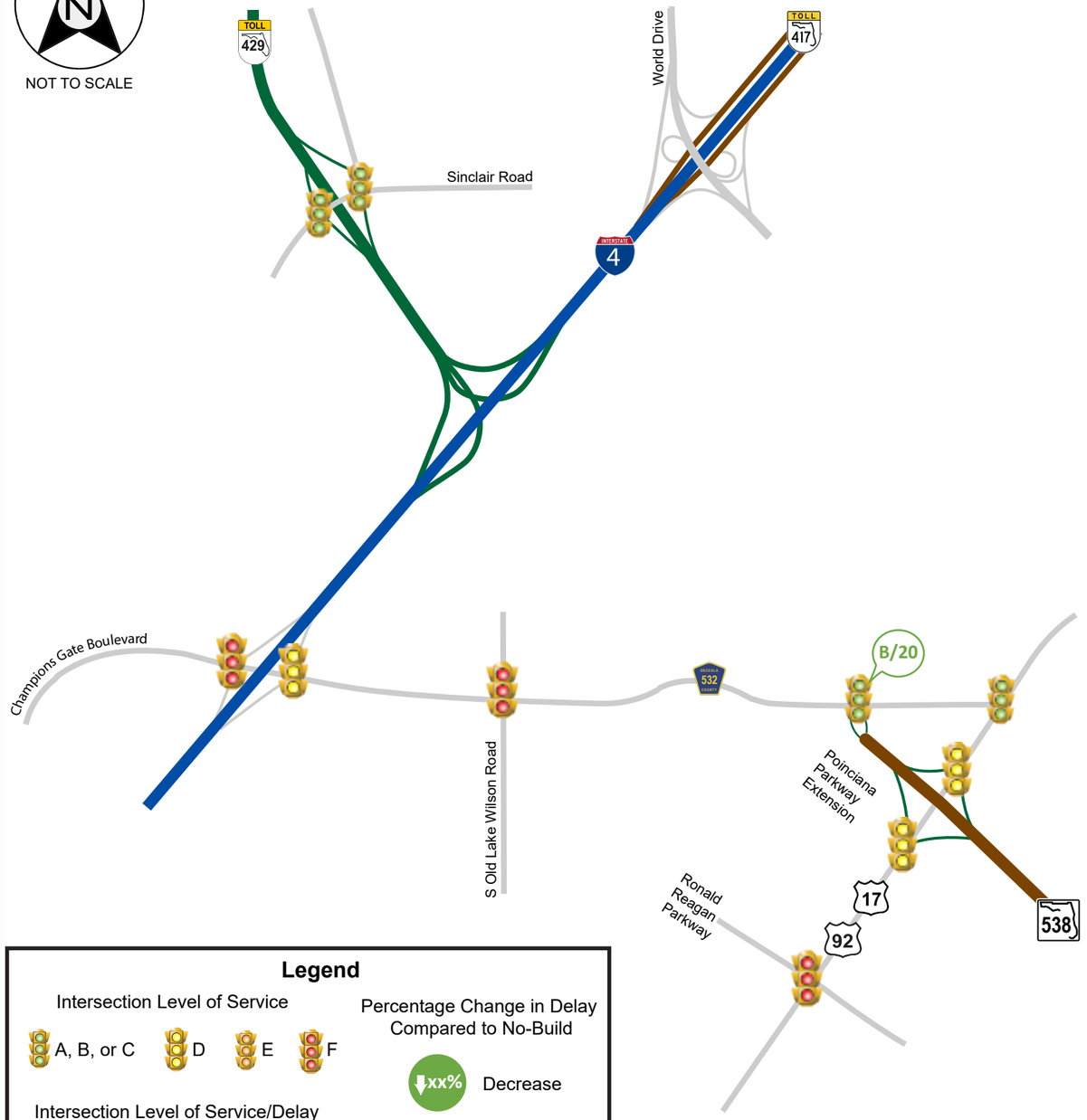
:Level Of Service (LOS) F reflecting over capacity operations

Queue notes:

#: 95th percentile volume exceeds capacity

m: Upstream metering is in effect

NO-BUILD

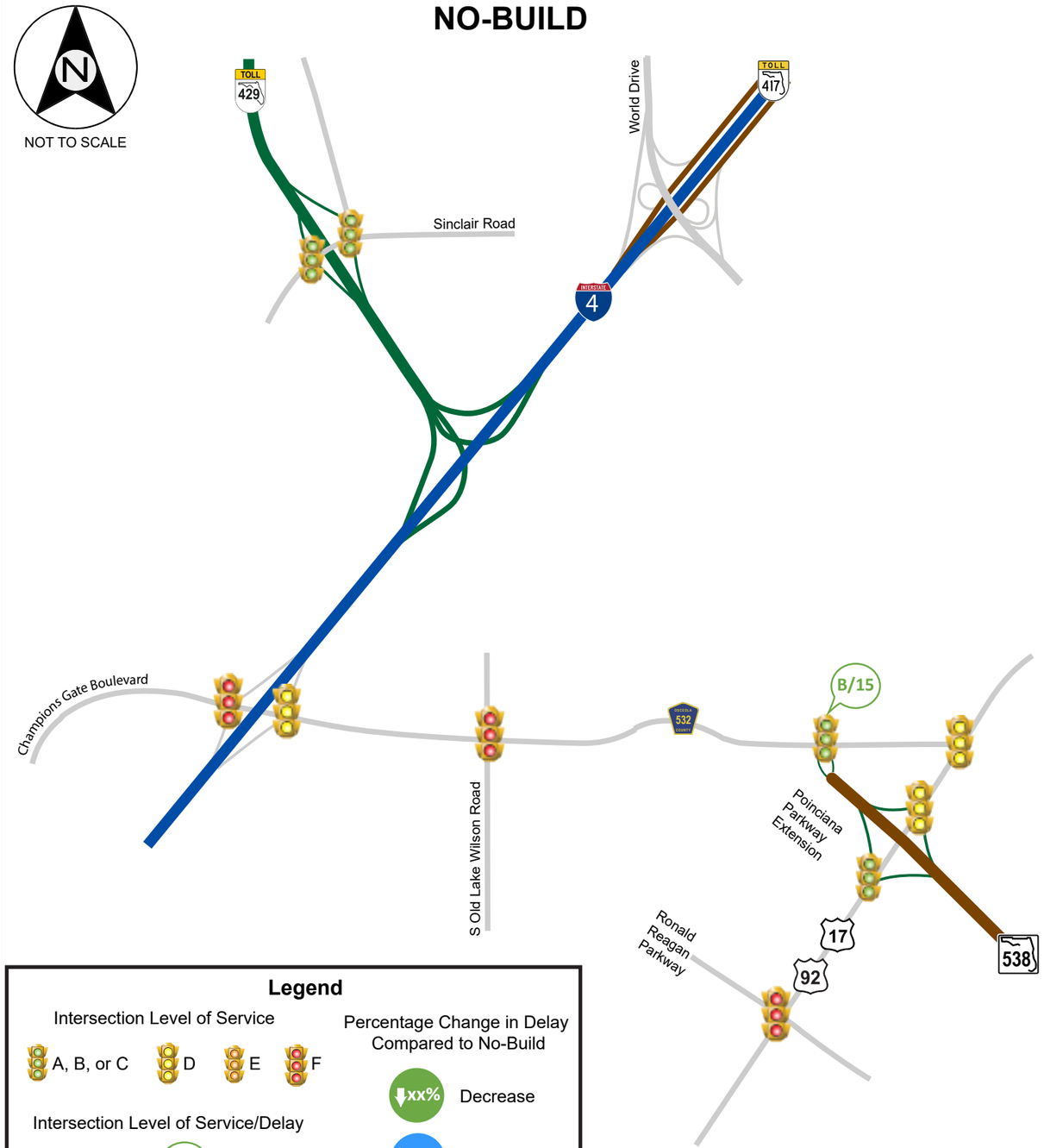


BUILD



FLORIDA'S TURNPIKE	**Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)**	**2030 AM Peak Hour Synchro Level of Service No-Build and Build**	**Figure 6.22**

NO-BUILD



BUILD

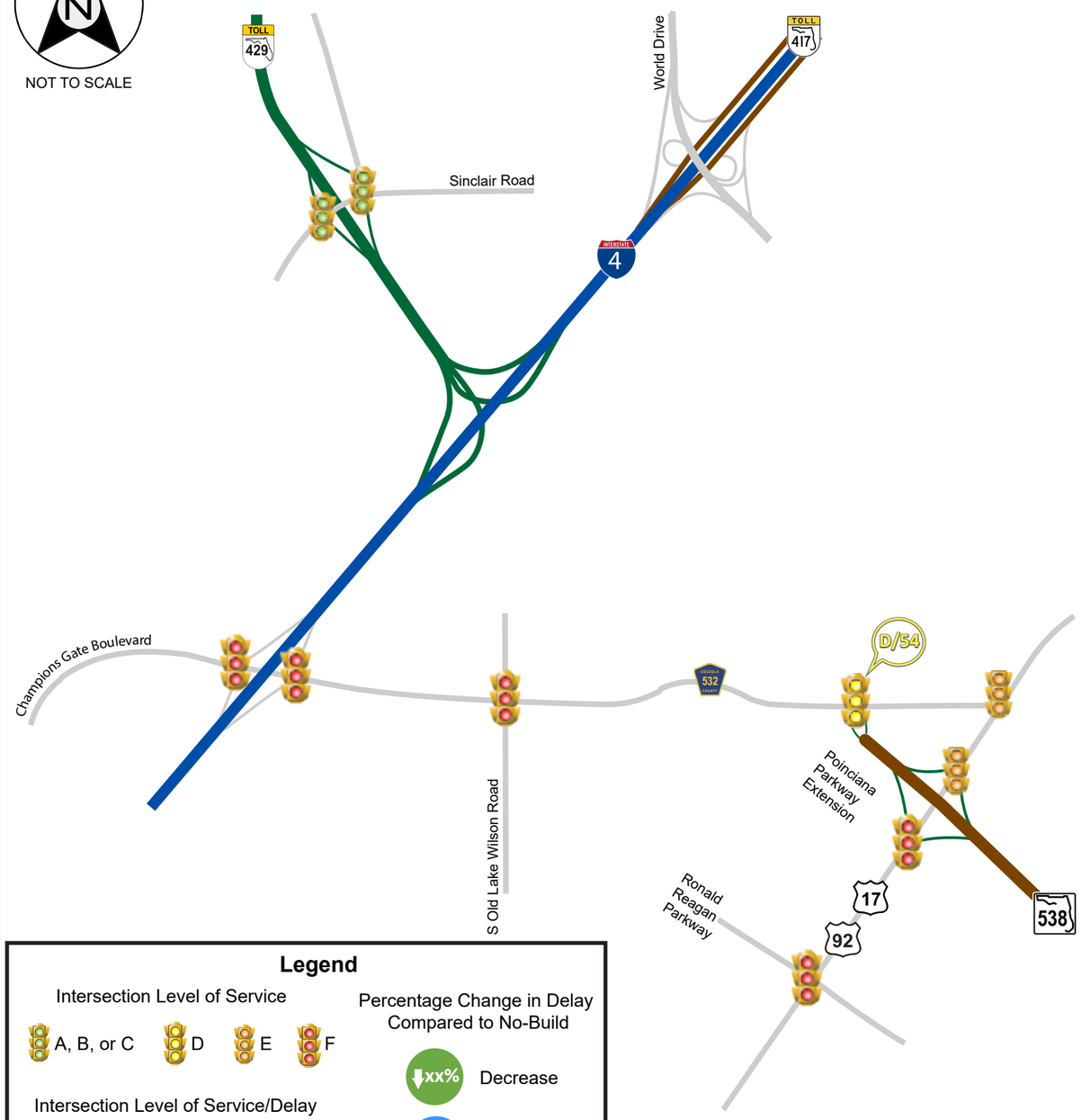


Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2030 PM Peak Hour Synchro Level of Service No-Build and Build

Figure 6.23

NO-BUILD



BUILD



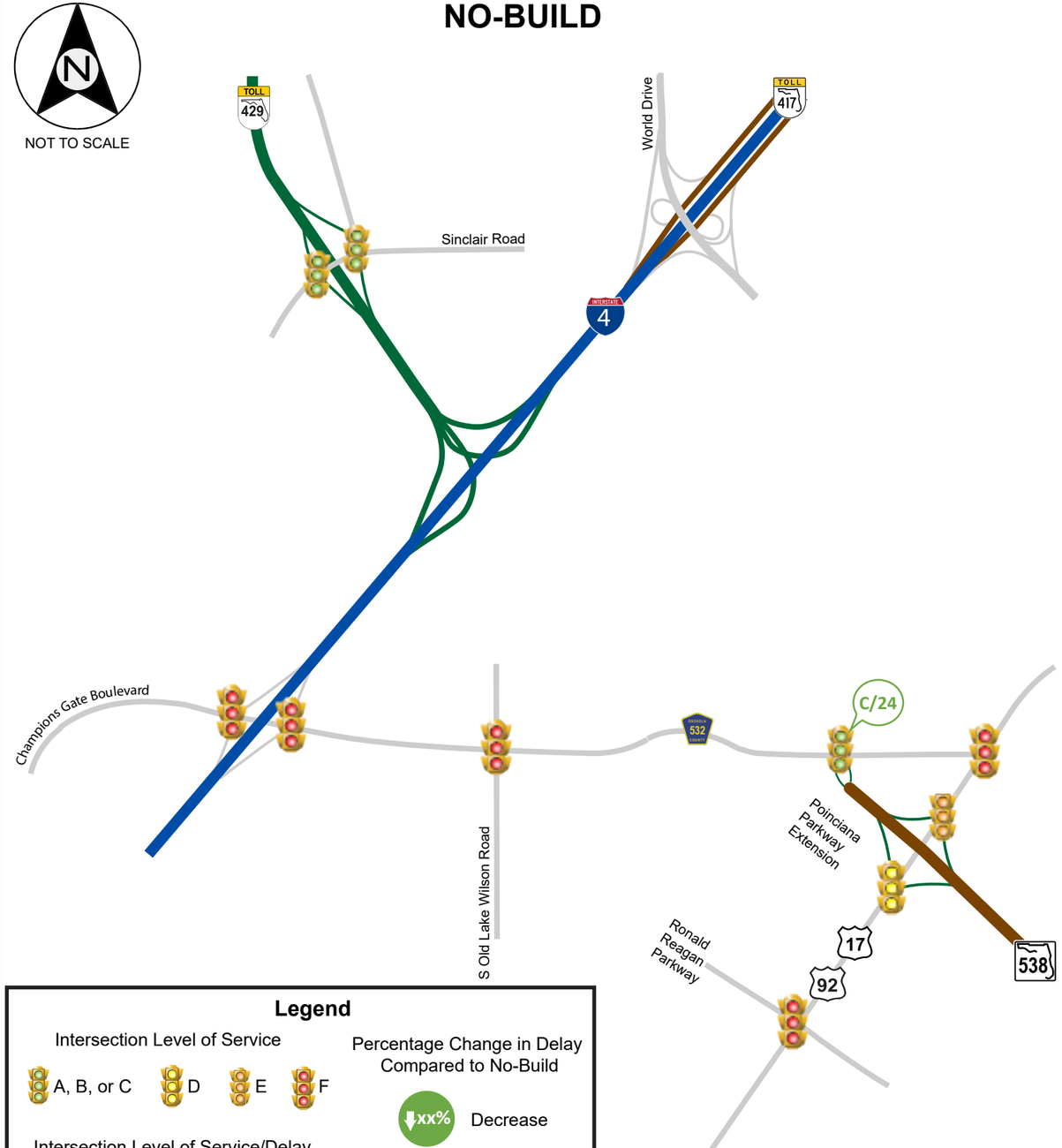
FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 AM Peak Hour Synchro Level of Service No-Build and Build

Figure 6.24

NO-BUILD



BUILD



FLORIDA'S TURNPIKE

Poinciana Parkway Extension Connector from CR 532 to North of I-4/SR 429 Interchange Systems Interchange Modification Report (SIMR)

2050 PM Peak Hour Synchro Level of Service No-Build and Build

Figure 6.25

The Synchro analysis is a deterministic model that operates under the assumption of no variability, focusing solely on individual intersections. In contrast, the Vissim analysis is a stochastic model that introduces randomness and considers the interactions between corridor intersections, including both upstream and downstream intersections of the intersection in the question. Vissim calculates average hourly delays beyond each Node's boundaries (intersection), resulting in an expanded area if approaches (entry links) are extended to capture all input traffic, as well as it considers the impact of neighboring intersections. Moreover, in Vissim, if there are failures at downstream intersections, it may lead to reduction in the number of processed vehicles, leading to higher delays at the intersections in question which is mimics the driver experience.

On the other hand, Synchro reports delays during two cycles for static vehicle inputs on each approach but does not account for downstream congestion. Consequently, there might be discrepancies between the results obtained from the Synchro and Vissim analyses when evaluating intersections. It is worth noting that the 2021 FDOT traffic analysis handbook recommended reporting only the microsimulation (i.e. Vissim) results while excluding Synchro/HCS results. However, for illustrative purposes, both sets of results are included in this report.

6.2.3 User Benefit Analysis

The estimated benefits of users of the Build Alternative were calculated over a 21-year project life span by projecting the reduction in network travel time. The calculations did not factor in fuel consumption and emissions. The estimated user benefit, based on 2022 dollars, is $1.86 billion for travel time savings from year 2030 to 2050. By incorporating the direct connection of the Poinciana Parkway Extension Connector to I-4 and SR 429, the Build alternative is expected to improve operations within the AOI. This improvement is attributed to the anticipated reduction in congestion, redistribution of traffic, direct connections, and modified intersections, which are expected to reduce vehicular travel times. The data used to estimate the user benefit is presented in **Appendix I**.

6.3 FUTURE SAFETY EVALUATION

Future safety analysis was conducted to study the impacts of the proposed Build Alternative on the network within the AOI. The study area focused on the I-4, SR 429, Poinciana Parkway freeway segments, ramp terminals and ramp segments, CR 532 and US 17/92 arterial segments and major intersections along the arterials. A quantitative safety analysis was performed based on the HSM and Interchange Access Request User's Guide Safety Analysis Guidance 2020. The analysis was conducted using the predictive methods in Chapters 12 and 19 of the HSM, where available, and ISATe Tool, which apply a combination of SPFs, and CMFs to estimate the frequency of crashes for each segment and intersection. Note that the resulting predictions should be used with caution if the input AADTs (highlighted cell in the HSM tools) exceed the range of data used to develop one or more of the SPFs. The growth rates used in the ISATe analysis were estimated based on 2030 and 2050 AADTs.

The following crash severity level costs were used for the crash cost saving analysis (Source: *FDOT 2022 Design Manual Crash Cost Table 122.6.2*)

- Fatal (K) $10,890,000
- Severe Injury (A) $888,030
- Moderate Injury (B) $180,180
- Minor Injury (C) $103,950

- Property damage Only (O) $7,700

The No-Build and Build Alternatives were evaluated, and the predicted number of crashes and associated costs were compared for the year 2030 to year 2050 analysis periods. The results of the safety analysis are summarized in **Table 6.25**. 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 (driver behavior). The No-Build Alternative is expected to have extensive congestion and queues that may potentially impact crashes, especially along the I-4 mainline. Consequently, cost savings of implementing the Build Alternative would be higher than reported. Nevertheless, the overall number of predicted crashes is lower for the Build Alternative than the No-Build Alternative due to added auxiliary lanes along the I-4 mainline in the westbound direction from World Drive to CR 532 and in the eastbound direction from SR 429 to World Drive, added capacity at the I-4/SR 429 system-to-system and I-4/World Drive interchanges, and inclusion of the Poinciana Parkway Extension Connector. The enhanced ramp reconfigurations under the Build Alternative are anticipated to provide safer operations with less congested traffic and smoother merging/diverging movements. Relief in congestion, redistribution of traffic at the CR 532 arterial, and modified ramp segments are expected to result in a reduction in the number of potential crashes by an average of 4 percent. Detailed analysis tables are provided in **Appendix I**.

Under the Build conditions, the I-4 and CR 532 to/from east ramps will experience a reduction in crashes due to the diversion of traffic from this interchange to the new I-4/PPEC ramps.

The Build Alternative has additional merge and diverge segments and a new facility (Poinciana Parkway Extension Connector) when compared to the No-Build Alternative, which results in a greater potential for crashes to occur. Following is the list of locations where Build Alternative anticipated to have higher crash than No-Build:

- SR 429 and I-4 System-to system ramps (predictive crash increased due to additional ramps to/from Poinciana Parkway Extension Connector and rerouting of traffic)
- World Drive ramps and C-D road (predictive crash increased due rerouting of traffic)
- Poinciana Parkway Extension Connector mainline (predictive crash increased due to new facility)
- US 17/92 and Poinciana Parkway Extension ramps (predictive crash increased due to rerouting of traffic)
- CR 532 and Poinciana Parkway Extension ramps (predictive crash increased due to rerouting of traffic)
- US 17/92 and Poinciana Parkway Extension ramp terminals (predictive crash increased due to rerouting of traffic)
- Sinclair Road and SR 429 ramps (predictive crash increased due to rerouting of traffic)
- US 17/92 and CR 532 intersection (predictive crash increased due to rerouting of traffic)
- US 17/92 segment from Ronald Reagan Parkway to Poinciana Parkway Extension southbound off-ramp terminal (predictive crash increased due to rerouting of traffic)
- CR 532 segment from Poinciana Parkway Extension Connector ramp terminal to US 17/92(predictive crash increased due to rerouting of traffic)

It should be noted that the ISAT software does not consider certain factors such as lighting conditions, cost of improvements, freeway managed lanes with buffer separation, vertical geometry, ramp in urban areas with 3 or more lanes, and Toll plazas. Nevertheless, the Build Alternative is expected to have fewer potential crashes

than the No-Build Alternative. Based on these results, the Build Alternative is predicted to save approximately $20 million in crash costs over 21-year, in present value for 2022

Moving forward into the Design Phase, ongoing coordination with local government(s) and other stakeholders will be continued to prioritize pedestrian and bicyclist safety improvements. Below are some common design features and countermeasures for intersections that can enhance pedestrian and bicycle safety:

- Sidewalk - maintained sidewalk and in areas where higher levels of pedestrian and/or bicyclist activity is expected, wider sidewalks and multi-use paths are desirable.
- Crosswalk - FHWA recommends three main crosswalk visibility enhancements as part of the Proven Safety Countermeasures: high-visibility crosswalks, improved lighting, and enhanced signing and pavement markings.
- Pedestrian Refuge Island
- Bikeways and Bike Crossing
- Accessible Pedestrian Signals (APS)

Table 6.25
2030 to 2050 Predicted Number of Crashes and Cost Saving

Site	No-Build		Build	
	$N_{predicted}$*	2022 Present Value	$N_{predicted}$*	2022 Present Value
I-4 Corridor				
I-4 from CR 532 to World Drive Mainline	4767.13	$248,057,342	4290.92	$235,232,706
CR 532 Ramps	119.67	$12,294,703	94.96	$9,620,647
SR 429 and I-4 System-to-system Ramps	189.40	$13,337,380	328.89	$20,468,448
World Drive Ramps and C-D Road	835.03	$70,587,415	871.60	$74,421,169
CR 532 Ramp Terminals	1068.68	$24,125,741	873.15	$18,230,099
SUBTOTAL	**6979.92**	**$368,402,579**	**6459.53**	**$357,973,069**
Poinciana Parkway				
Poinciana Parkway Mainline	83.50	$7,367,385	406.32	$34,087,331
US 17/92 Ramps	65.40	$6,925,098	79.89	$8,711,637
CR 532 Ramps	6.45	$576,091	13.10	$1,120,633
US 17/92 Ramp Terminals	459.95	$11,592,692	564.49	$14,465,933
CR 532 Ramp Terminals	202.48	$6,389,116	176.68	$5,999,544
SUBTOTAL	**817.78**	**$32,850,382**	**1240.49**	**$64,385,077**
SR 429				
SR 429 Mainline	692.96	$47,186,158	653.93	$44,216,997
Sinclair Road Ramps	124.14	$16,292,462	125.01	$16,475,324
Sinclair Road Ramp Terminals	145.47	$4,132,819	141.33	$4,039,036
SUBTOTAL	**962.57**	**$67,611,440**	**920.26**	**$64,731,357**
US 17/92 Intersections				
US 17/ 92 at Ronald Reagan Parkway	284.13	$33,572,718	257.27	$30,159,119
US 17/92 at CR 532	409.99	$48,306,496	434.06	$51,194,043
US 17/92 Segments				
Ronald Reagan Parkway to Poinciana Parkway Ramp Terminal	121.81	$14,394,128	128.73	$15,066,494
Poinciana Parkway Ramp Terminal to CR 532	104.74	$12,243,818	104.73	$12,227,916
SUBTOTAL (US 17/92)	**920.67**	**$108,517,160**	**924.78**	**$108,647,572**
CR 532 Intersections				
CR 532 at Old Lake Wilson Road	347.77	$41,467,741	261.09	$31,377,314
CR 532 Segments				
I-4 to Old Lake Wilson Road	394.16	$47,060,708	290.98	$34,911,203
Old Lake Wilson Road to Poinciana Parkway Ramp Terminal	622.17	$74,357,830	471.56	$56,863,904
Poinciana Parkway Ramp Terminal to US 17/92	186.98	$21,941,189	198.38	$23,291,862
SUBTOTAL (CR 532)	**1,551.09**	**$184,827,469**	**1,222.01**	**$146,444,282**
TOTAL	***11,232.03***	***$762,209,029***	***10,767.08***	***$742,181,357***
Crash Reduction	**464.95**			
Crash Cost Savings	**$20,027,672.53**			

*Predicted Crashes; Sources: FDOT 2022 Design Manual Crash Cost Table 122.6.2 HSM Crash Distribution for Florida Table 122.6.4

The project, as currently planned, is listed in the Metroplan Orlando 2045 Metropolitan Transportation Plan (MTP) (i.e., Long Range Transportation Plan), Cost Feasible Plan (adopted December 9, 2020, revised December 14, 2022) as a Florida's Turnpike Enterprises project (MTP ID # 1055). The PD&E study for this project is included in the current Orlando Urban Area Transportation Improvement Program (TIP) for Fiscal Years (FY) 2021/22 – 2025/26 (adopted July 7, 2021, revised February 9, 2022) and the current State Transportation Improvement Program (STIP) for FY 2022/23 – 2025/26. State funds are programmed for Design and Right-of-Way in the tentative FY 24-28 FDOT Work Program. Federal funds have not been identified at this time for this project. However, FTE is proceeding with steps required for Major Projects in the event that federal funds are used in the future.

A conceptual signing and marking plan, in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), was prepared for the Build Alternative and is provided in **Appendix J**. The purpose of the signing plan is to demonstrate that advanced signing will be provided to safely guide drivers entering and/or exiting the I-4, SR 429, and Poinciana Parkway Extension interchanges under the proposed Build Alternative configuration. The conceptual signing plan also identifies existing signs that will need to be relocated and new signs that will need to be installed because of the proposed Build Alternative's construction. The signing plan provided in the SIMR is conceptual in nature and is subject to change in final design for construction.

9.1 FEDERAL HIGHWAY ADMINISTRATION POLICY POINTS

A discussion of the access modifications with respect to conformance with the Federal Highway Administration (FHWA) policy points related to access is provided below.

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, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design Alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

An operational and safety analysis was conducted to assess the impacts of the proposed Build Alternative network within the AOI. The proposed Build Alternative includes various modifications such as the Poinciana Parkway Extension Connector, SR 429, and I-4 typical sections, among others.

- Poinciana Parkway Extension Connector (SR 538) – Six-lane toll roadway with option to accommodate eight lanes in the future. Direct connections of Express Lane (Els) between Poinciana Parkway Extension Connector and I-4 to the east have been proposed.
- SR 429 – Twelve-lane typical section consisting of four collector-distributor (C-D) lanes and two travel lanes in each direction. Ramp connections to the I-4 ELs were evaluated and certain EL direct connect low volume ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound).
- I-4 – Twelve-lane consists of four general use lanes and two Express lanes in each direction in consistent with proposed improvements identified by the I-4 Beyond the Ultimate (BtU) project. Additional I-4 westbound auxiliary lanes have been included along from World Drive to CR 532. I-4 BtU Express Lanes (Els) construction is anticipated to start beyond opening year 2030 and therefore, ELs have been included under design year 2050 only. Within the study area, the I-4 typical section includes six 12-foot lanes with a 52-foot median. The extension of Poinciana Parkway to SR 429 at I-4 will need to be consistent with the I-4 BtU plans for I-4, which include reconstructing I-4 to accommodate managed lanes in each direction, as well as a rail envelope. I-4 BtU is accommodating a rail envelope within the proposed typical section.

Several performance measures were used to compare the current and future networks under the No-Build and Build Alternatives, including network-wide travel time and delay, freeway speed, intersection delays and queues, and safety benefits. The analysis concluded that the proposed modifications will not adversely affect the operations and safety of the roadways within the study area. In fact, the Build Alternative is estimated to

reduce network travel time and delays by 28 and 58 percent, respectively, in the design year 2050 during the AM peak hour. Similarly, a reduction in network travel time and delay of 49 and 74 percent is estimated for 2050 during the PM peak hour.

A major benefit of the Build scenario is vehicle queues no longer exceed the available storage and spill onto the I-4 mainline from CR 532 ramp terminals. The Vissim modeling effort confirmed that Poinciana Parkway Extension Connector provides many benefits in terms of reduced congestion, travel times, and delays.

Additionally, the intersections within the study area are expected to improve under the Build Alternative due to traffic diversion and redistribution.

Overall, the Build Alternative is predicted to have a 21-year crash cost savings of approximately $20 million in the year 2022 present value as PPEC relieves congestion and queues along I-4 and the study intersections. However, it is essential to note that available safety analysis tools are deterministic using the Annual Average Daily Traffic (AADT) in predicting crash and do not account for vehicle interactions or peak periods. The No-Build Alternative, which is expected to have extensive congestion and queues, may potentially impact the estimated number of crashes.

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 or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.

According to the I-4 BtU Study and the approved PD&E Study concept plans, the Poinciana Parkway Extension Connector is planned to connect with the I-4/SR 429 interchange including ramp connections to I-4 General Use Lanes (GULs). Ramp connections to the I-4 ELs were evaluated and certain EL low volume direct connect ramp movements were eliminated from further consideration (i.e., SR 429 southbound to I-4 eastbound and I-4 westbound to SR 429 northbound). Direct connections of ELs between Poinciana Parkway Extension Connector and I-4 to the east have been considered.

The proposed modifications to the interchange are aimed at maintaining and improving existing access to public roadways and the access locations will adhere to the design standards set by the American Association of State Highway and Transportation Officials (AASHTO) and FDOT Design Manual (FDM) design standards. In the event that design exceptions or variations are required, they will be processed per FHWA and FDOT standards.

The Build Alternative meets the future traffic demands with no significant environmental impacts:

a. Social and Economic

The project will convert primarily undeveloped open land to transportation use and will not result in significant or disproportionate impacts to minority or low-income populations or significant impacts related economic, land use, mobility, or aesthetic effects. The project will result in one residential relocation. In response, the Right of Way and Relocation Assistance Program will be carried out in accordance with Florida Statute (F.S.) 421.55 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law 100-17).

b. Cultural Resources

The project will not result in significant impacts related to Section 4(f) resources. In addition, the project will not result in significant impacts related to historic or archaeological sites; however additional analysis will be conducted for the proposed pond sites during the design phase. The State Historic Preservation Officer (SHPO) concurred with the findings related to historic and archaeological resources.

Natural Environment:

c. Wetlands

The project will not result in significant impacts to wetlands or other surface waters. The Preferred Alternative will directly impact 133.27 acres of wetlands and 15.45 acres of surface waters. An additional 118.89 acres of wetland impacts are located within the 100-foot buffer and subject to secondary impacts. In addition, there are 24.55 acres of direct wetland impacts for the preferred pond sites and 28.06 acres of secondary impacts. Additionally, 10.81 acres of wetlands are under a conservation easement within the preferred pond sites. Permanent wetland and surface water impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. §1344. Compensatory mitigation for this project will be completed through the use of mitigation banks and any other mitigation options that satisfy state and federal requirements.

d. Water Quality

The project will not result in significant impacts to water quality. Project improvements will be designed to meet the regulatory requirements of the applicable water management districts, the requirements outlined in the FDOT Drainage Manual, and the requirements of Florida's Turnpike Enterprise (FTE).

e. Floodplains

The project will not result in significant impacts to floodplains. Although the Preferred Alternative has 103.57 acres of floodplain impacts, mitigation alternatives have been identified for each encroachment. Floodplain encroachments will be mitigated by using dedicated floodplain compensation sites.

f. Wildlife and Habitat

The project will not result in significant impacts to protected species and habitat. A Natural Resource Evaluation report was provided to the U.S. Fish and Wildlife Service (USFWS). The USFWS responded that FTE's proposal to reinitiate formal consultation for the sand skink and blue-tailed mole skink during design and permitting is acceptable to USFWS. The USFWS also stated that concurrence for "may affect but is not likely to adversely affect" (MANLAA) determinations would be provided at a later time; however, those for federally-listed plant species can be changed to no effect. The Natural Resource Evaluation report was also provided to the Florida

Fish and Wildlife Conservation Commission (FWC) who responded that they agree with the determinations of effect, support the project implementation measures and commitments for protected species, agree with the consideration of wildlife enhancements and wildlife crossing modifications, and endorse coordinating with FDOT District 5 to ensure that wildlife crossing elements designed for the I-4 BtU roadway will be accommodated within the PPEC limits.

Physical Impacts:

g. Air Quality

The project is located in an area that is designated in attainment for all of the NAAQS under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project. No significant impacts are anticipated as a result of this project.

h. Noise

Noise levels at 579 residences and 26 special-use sites are predicted to approach or exceed the NAC for the design year 2050 Build Alternative. One hundred twenty-six residences and four special-use sites are expected to experience a substantial increase (15 dB(A)) in traffic noise compared to existing conditions. Noise barriers could potentially provide reasonable and feasible noise abatement for 258 of the 579 impacted residences and provide a benefit to 44 non-impacted residences. The special use analysis determined that noise abatement was not feasible and reasonable for any of the 26 impacted special use sites; however, some special use locations will receive incidental benefits from noise barriers for the residential areas. The PD&E noise analysis indicates that noise barriers are feasible and reasonable in four noise-sensitive areas. These noise barriers may benefit 258 residences with predicted noise levels that approach or exceed the NAC. The noise barriers meet the FDOT's cost-per-benefit criteria with a preliminary cost under the $42,000 per benefited receptor criterion. Consequently, noise barriers are a potentially viable abatement measure at three locations along the project limits and will be given further consideration during the Design phase of this project.

i. Construction

Construction methods and staging locations have not been identified and will be determined by the contractor. Construction activities may cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to applicable FDOT Standard Specifications for Road and Bridge Construction.

j. Contamination

There are no High rated sites that would impact the Preferred Alternative. However, there are two Medium rated sites. Level II testing will be performed during final design for all medium risk rated sites, as warranted.

k. Bicycles and Pedestrians

Poinciana Parkway (SR 538), I-4, and SR 429 are limited access facilities; therefore, the Preferred Alternative does not include bicycle or pedestrian accommodations. The Preferred Alternative would accommodate planned improvements to CR 532 by Osceola County that includes bicycle and pedestrian facilities.

Note that if the Build alternative is modified in the National Environmental Policy Act (NEPA) process then FHWA will be notified of the changes and how they impact the alternative that was analyzed in this SIMR.

No modification of access to businesses within the AOI are proposed. Regional access will be enhanced by the additional accessibility to/from the Poinciana Parkway Extension Connector. The proposed interchange modification also enhances access between local arterial networks, SR 429, and I-4.

SECTIONTWELVE Anticipated Design Exceptions and Variations

Border width and cross slope design variations will be reviewed in accordance with FHWA and FDOT standards. In situation, where elements meet AASHTO standards but not FDOT standards, any required design exceptions or additional design variations will be processed according to FHWA and FDOT guidelines/standards, and FHWA will be notified.

A Project Development and Environment (PD&E) (FPID: 446581-1) study is conducted by Florida's Turnpike Enterprise (FTE) to assess the feasibility of extending Poinciana Parkway Extension by approximately four miles. This new stretch of roadway (Poinciana Parkway Extension Connector – PPEC) will extend from south of Osceola Polk Line Road/County Road (CR) 532 to north of the I-4/State Road (SR) 429 interchange in Osceola and Polk Counties, Florida. Another PD&E Study is recently completed to Widen Western Beltway (SR 429) from four to eight lanes in Osceola and Orange Counties (FPID: 446164-1).

The purpose of this Systems Interchange Modification Report (SIMR) is to evaluate the safety, operational and engineering acceptability of providing the missing link of the Poinciana Parkway between the planned terminus at CR 532 and I-4/SR 429 interchange. The PPEC will enhance regional system linkage by increasing accessibility and mobility between communities, improve safety and traffic operations by redistributing trips in Osceola and Polk Counties, provide transportation infrastructure to support current and future traffic demand, and ensure compliance with local plans and policies.

Existing Year Traffic Conditions

- Poinciana Parkway is a tolled, limited-access, two-lane, facility that begins at Cypress Parkway [County Road (CR) 580] along the Polk-Osceola County line, heads north, then northwest, and transitions to into Ronald Reagan Parkway, which terminates at US 17/92 in Polk County, Florida. The Central Florida Expressway Authority (CFX) owns and operates the 7.2-mile existing segment of Poinciana Parkway and plans to widen it to four lanes. Local roads, mainly CR 532, provide access to I-4, SR 429, and the recreational and employment centers in the Orlando metro area.
- SR 429 is limited-access toll road, known as the Daniel Webster Beltway or Western Expressway south of US 441, and the Wekiva Parkway north of US 441. The portion from I-4 to Seidel Road within the study area is owned and operated by FTE. During the PM peak hour, the traffic analysis indicates that the SR 429 southbound weaving section from Sinclair Road on-ramp to I-4 off-ramp is experiencing a reduction in travel speed of 36 mph, and congestion is observed at the system-to-system interchange of I-4 and SR 429.
- The westbound direction of the I-4 mainline from World Drive on-ramp to downstream of the CR 532 on-ramp currently experiences a reduction in travel speed of 23 mph .
- Using Vissim microsimulation to assess operations in detail, the signalized intersections showed long delays in the AM peak hour at the intersection of CR 532 at Old Lake Wilson Road and US 17/92 at Ronald Reagan Parkway. In the PM peak hour commute period, the intersections of CR 532 at Old Lake Wilson Road, CR 532 at US 17/92, and CR 532 at I-4 westbound ramp terminal experience lengthy delays.
- CFX is planning to extend the Poinciana Parkway as a four-lane limited-access toll facility from its current terminus at Ronald Reagan Parkway to CR 532, which is approximately 3.1 miles. Although the planned extension would enhance regional system linkage, it would not provide a direct connection to I-4 and SR 429.

Future 2050 No-Build Traffic Operations

The future No-Build network includes planned and programmed improvements within the study area that were considered in developing the traffic forecasts. As no Transportation Systems Management and Operations (TSM&O) strategies can fulfill the purpose and need for the project, no TSM&O options were identified for the study.

AM Peak Operations

- The densities at the I-4 eastbound freeway segments between SR 429 and the World Drive off-ramps increased to a range between LOS C and F. The SR 429 southbound density increased to LOS E between the Sinclair Road on-ramp and I-4 east and westbound ramps weaving segment.

PM Peak Operations

- The densities at the I-4 westbound freeway segments between World Drive on-ramp and CR 532 off-ramp increased to LOS F. The SR 429 southbound density similarly increased to LOS F from Sinclair Road on-ramp to the I-4 east and westbound ramps weaving segment.

Under No-Build conditions, the intersections along CR 532 operate at unacceptable levels and expected to experience longer delays and queues. During the AM and PM peak hours, congestion was observed at the ramp terminals of Poinciana Parkway Extension and US 17/92, Sinclair Road and SR 429 and the intersections of Old Lake Wilson Road at CR 532 and Ronald Reagan Parkway at US 17/92 .

Key deficiencies of the No-Build Alternative include reaching I-4 from Poinciana Parkway, motorists would be required to exit the limited-access Poinciana Parkway and travel approximately 3 miles on a congested portion of CR 532, a local collector roadway. In addition, to access SR 429, motorists would then be required to travel an additional 1.5 miles on I-4 which is also congested. Therefore, motorists would travel approximately 4.5 miles total to reach SR 429. Alternatively, traffic on CR 532 can travel through Old Lake Wilson Road and Sinclair Road to access SR 429, a congested local route along minor roads, approximately 6.1 miles. This would add a substantial number of trips to I-4, CR 532 and other local roadways increasing travel times and adding congestion on both I-4 at CR 532 ramp terminals and the local roadway network.

Future 2050 Build Traffic Operations

Two Build Alternatives were evaluated in addition to the No-Build Alternative. Both Build Alternatives were very similar, butt differed in their approaches to the Poinciana Parkway/I-4/SR 429 interchange. Alternative 1; provided connections between the Poinciana Parkway southbound lanes and the northbound lanes on either side of the Gas Transmission (FGT) and Gulfstream site. Alternative 2, was similar to Alternative 1 but had both directions of the Poinciana Parkway mainline south of the FGT/Gulfstream site. Alternative 2 was selected as the Preferred Alternative, and this SIMR focuses on traffic analysis for No-Build and Preferred Build Alternative 2 (referred to as Build or Preferred Build herein).

AM Peak Operations

- The densities at the I-4 eastbound freeway segments between SR 429 and the World Drive off-ramps reduced to a range between LOS C to LOS D. The SR 429 southbound density from Sinclair Road on-ramp to I-4 east and westbound ramps weaving segment improved to LOS B or better.

PM Peak Operations

- The densities at the I-4 westbound freeway segments between World Drive on-ramp and CR 532 off-ramp, where reduced to LOS C. The SR 429 southbound density from Sinclair Road on-ramp to I-4 east and westbound ramps weaving segment improved to LOS C as well.

In the design year 2050, It is estimated that the Preferred Build Alternative will result in a 28 percent reduction in network travel time and 58 percent reduction in delay during the AM peak hour. Similarly, a reduction in network travel time and delay of 49 and 74 percent is estimated during the PM peak hour. This reduction is due

to the construction of the Poinciana Parkway Extension Connector between the planned terminus at CR 532 and the I-4/SR 429 interchange. In addition, most of the intersections in the study area experienced less delay in the Preferred Build Alternative due to traffic being diverted to the Poinciana Parkway Extension Connector and a redistribution of surface street traffic. Any deficient intersections outside of the immediate project limits could be evaluated by other agencies for future improvements.

Safety Study

The five years of crash data (2014 - 2018) was used for the safety evaluation for each facility within the AOI. The data was obtained from the FDOT's Crash Analysis Reporting (CAR) Online database for state roads. Crash data for non-state roads was obtained from the Signal Four Analytics tool, for the same analysis period. A total of 1,161 crashes were reported along I-4 and SR 429 during the 5-year study period from 2014 through 2018. Based on the crash data, the highest number of crashes (434) occurred along the I-4 mainline adjacent to the CR 532 interchange. Most of the crashes along the SR 429 mainline occurred at the merge/diverge areas of the interchanges. The crashes are especially higher at the CR 532, SR 429, and World Drive interchanges along I-4 due to surface street congestion backing onto the mainline. Actual crash rates at the intersections were computed and compared with average crash rates for similar facilities within Osceola County to assess the safety conditions within the study area. The high crash intersections are:

- I-4 and CR 532 both ramp terminals
- US 17/92 and CR 532 intersection
- US 17/92 and Ronald Reagan Parkway intersection

A quantitative safety analysis was conducted using the HSM and Interchange Access Request User's Guide Safety Analysis Guidance 2020 to evaluate the level of safety associated with the proposed PPEC project. The analysis utilized predictive methods found in Chapters 12 and 19 of the HSM, where available, and the ISATe tool, which applied a combination of SPFs and CMFs to estimate the frequency of crashes for each segment and intersection. The cost of crashes was based on the KABCO distribution and crash values from the 2022 FDM. Based on the analysis, it was determined that the Build Alternative would result in crash cost savings of approximately $20 million in 2022 present value over 21-year project life span, when compared to the No-Build Alternative.

Additionally, a user benefit was estimated over the same 21-year project life span, considering the projected reductions in network travel time and improved safety of the proposed modification. However, the analysis did not include fuel consumption and emissions. The estimated user benefit in 2022 dollars from year 2030 to 2050 is $1.86 billion.