PROJECT TRAFFIC ANALYSIS REPORT

Florida Department of Transportation

District 5

SR 535 PD&E Study

from US 192 to North of World Center Drive (SR 536)

Orange and Osceola, Florida

Financial Management Number: 437174-2

ETDM Number: 14325

Date: March 2, 2023

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

Project Traffic Assumption Summary

Traffic forecast for the project was developed using:	
☒ Travel Demand Model	☐ Growth Rates
Type of Travel Demand Model Used: ☒ Metropolitan Planning Model ☐ Other Model _____	*Refer to appropriate section of Project Traffic Analysis Report that discusses growth rates*
Is the travel demand model based on the latest adopted Long Range Transportation Plan?	
☒ YES	☐ NO
12/9/2020 Date when MPO adopted the latest Long Range Transportation Plan	Explain why?
2015 Base Year of Travel Demand Model	
2045 Horizon Year of Travel Demand Model	
Long Range Transportation Plan documentation is available at (provide web address): https://metroplanorlando.org/plans/metropolitan-transportation-plan/	
Traffic Data and Factors	
Standard K = varies 7.5-9.0; see Section 3.6 D Factor = varies 52.2-56.6; see Section 3.6 T_{Daily} = varies 4.0-10.6; see Section 3.6	Data Collection Year = 2020 Opening Year = 2025 Interim Year = N/A Design Year = 2045
Discuss any changes in land use, economics, population and employment data since the model was built No significant changes in SE data since model was built.	
Traffic Analysis Assumptions	
Discuss study area, data calibration/validation parameters, analysis tools, analysis periods and MOEs Study area included SR 535 within the project limits as well as nearby side street signalized intersections. Analysis was performed using Trafficware's Synchro software for the AM and PM peak hours including, intersection and arterial MOEs as described in Section 1 of the report.	

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1 Introduction

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study, State Financial Project Number 437174-2, to evaluate the widening of a 2.35-mile section of SR 535 from US 192 (in Osceola County) to north of SR 536/World Center Drive (in Orange County). The portion of SR 535 included in the study falls within section 92040000 located in Osceola County and section 75035001 located in Orange County.

This Project Traffic Analysis Report (PTAR) analyzed the existing and future conditions and assesses the need for future capacity improvements along this portion of the SR 535 study corridor. This study was conducted based on methods and procedures described in the *Florida Department of Transportation* (FDOT) *PD&E Manual*, the *2021 FDOT Traffic Analysis Handbook, 2019 FDOT Safety Analysis Guidebook for PD&E Studies* (Safety Analysis Guidebook), and the *Highway Safety Manual* (HSM). The study area map is shown in **Figure 1-1**.

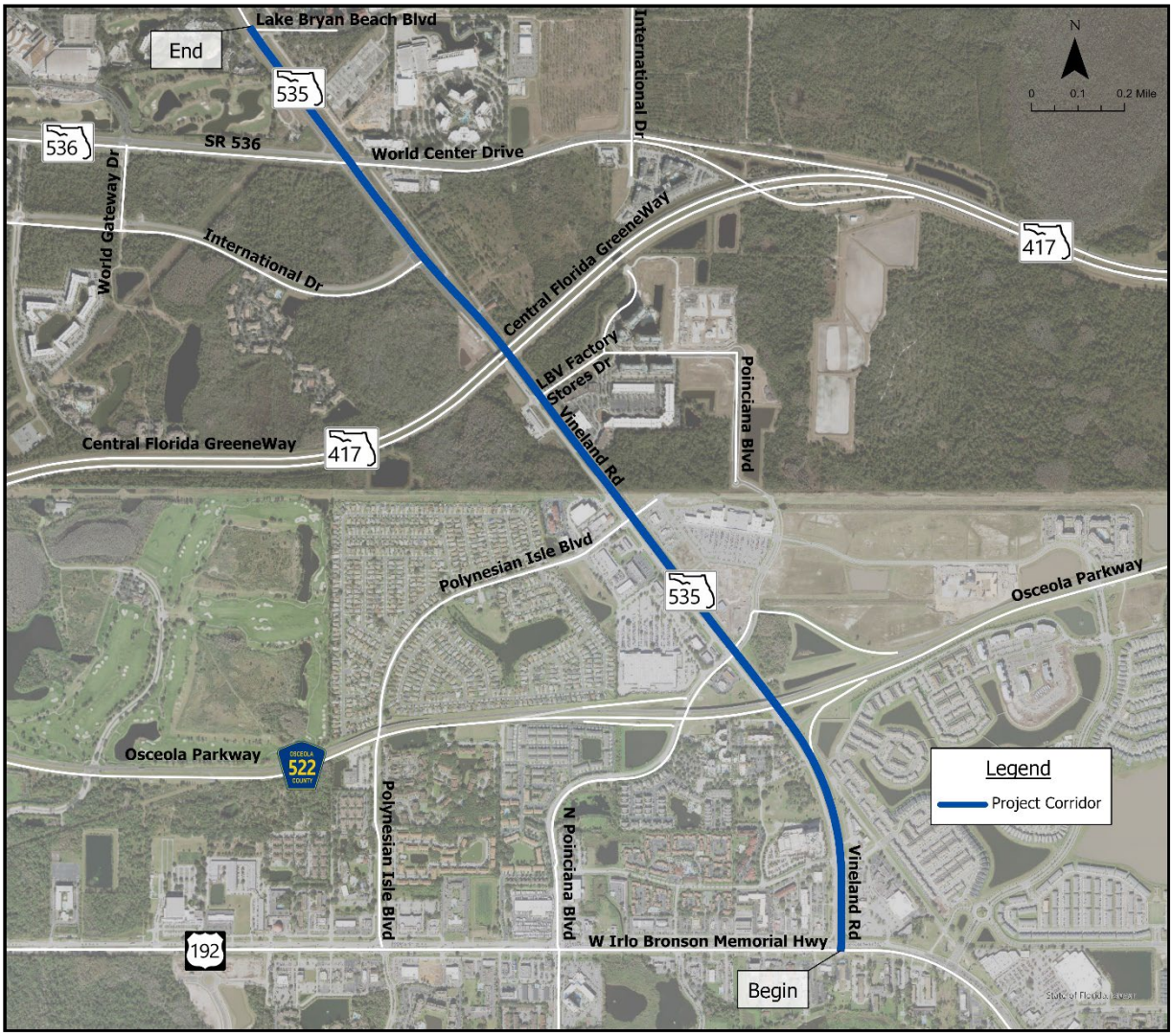


Figure 1-1 Study Segment

1.1 Description of Project

The SR 535 PD&E Study evaluates the additional capacity need of SR 535 from US 192 to north of SR 536/World Center Drive (SR 536). In the existing condition, SR 535 is an urban minor arterial, access class 3 facility with posted speeds ranging from 45 miles per hour (MPH) to 50 MPH. The roadway has four travel lanes (two in each direction) and a project length of approximately 2.35 miles from US 192 to north of SR 536. It should be noted that there is a third southbound travel lane from Calypso Cay Way to just north of Polynesian Isle Boulevard. The project is located in both Orange and Osceola Counties. The project study area of influence encompasses SR 535 from US 192 in Kissimmee to north of SR 536 in Orlando, and SR 536 from World Gateway Drive to the International Drive/SR 417 Ramps. The SR 535 segment between International Drive and north of SR 536 is currently six lanes (three lanes in each direction). As shown in **Figure 1-2**, SR 535 is designated under context classification C3C (suburban commercial). The purpose of this PD&E is to evaluate the need for any capacity and multimodal enhancements along the entire corridor.

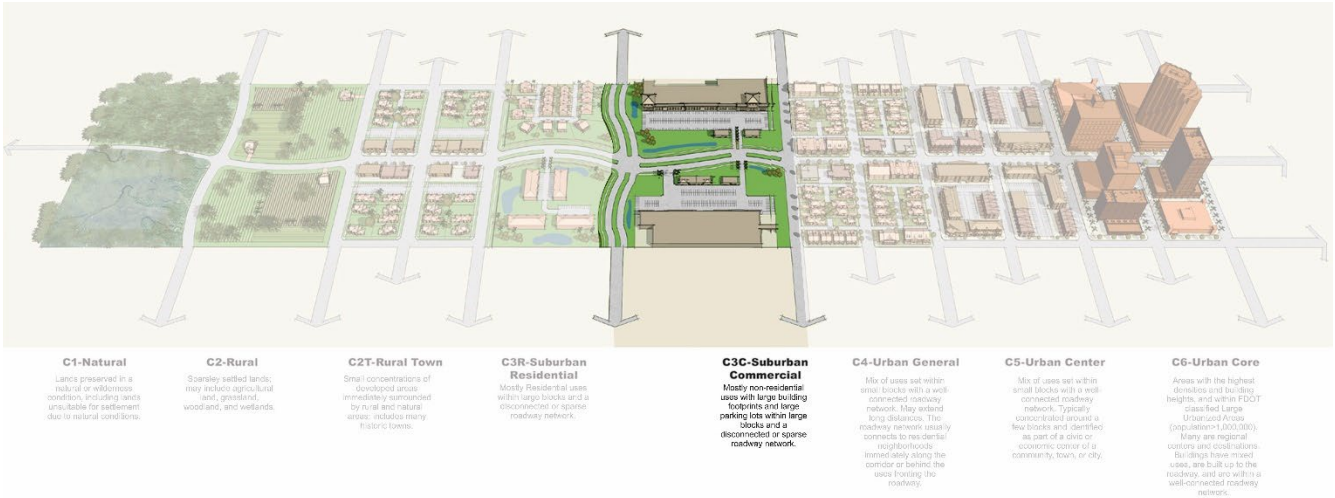


Figure 1-2 Context Classification

There are two distinct clusters of developed parcels at either end of the study corridor separated by large areas of vacant land or conservation open spaces. The southern cluster from US 192 to the Orange County/Osceola County Line is characterized by strip suburban retail centers and hotels on the western side of the study corridor. The majority of land between the Orange County/Osceola County Line and SR 536/World Center Drive is vacant or marked as conservation or open space. Only a few commercial parcels like the Lake Buena Vista Factory Stores and a RaceTrac gas station are developed within this segment. The northern cluster from SR 536/World Center Drive to Vineland Avenue/I-4 (north of study corridor) is characterized by hotels, resorts, multi-family vacation rental apartment complexes, and retail development.

Due to the relatively high number of hotels and resorts present along the corridor, tourist activity is prevalent and plays a significant role in the recommendations from this traffic study. The PD&E Study Team interacted with tourists regarding the walking/driving conditions of SR 535 during initial field review activities.

1.1.1 Project Intersections

Data collection and operational analyses efforts for this PTAR include the 22 project intersections listed below.

1. SR 535 and US 192 (West Irlo Bronson Memorial Parkway)
2. SR 535 and Kyngs Heath Road
3. SR 535 and Calypso Cay Way (unsignalized directional median opening)
4. SR 535 and Osceola Parkway EB On Ramp (signalized northbound and southbound left), northbound right turn movement to eastbound Osceola Parkway occurs at Calypso Cay Road
5. SR 535 and North Poinciana Boulevard
6. SR 535 and Polynesian Isle Boulevard
7. SR 535 and LBV Factory Stores Drive
8. SR 535 and International Drive
9. SR 535 and SR 536/World Center Drive (SR 536 west of SR 535; World Center Drive east of SR 535)
10. SR 535 and Lake Bryan Beach Boulevard (unsignalized intersection)
11. World Center Drive and International Drive
12. SR 536 and World Gateway Drive/World Center Drive
13. US 192 and Storey Lake Boulevard
14. Median opening between Poinciana Blvd and Polynesian Isle Boulevard (unsignalized bi-directional median opening)
15. Median opening between Polynesian Isle Boulevard and LBV Factory Stores Drive (unsignalized southbound directional median opening)
16. Poinciana Boulevard and Osceola Parkway Westbound On Ramp
17. US 192 and North Poinciana Boulevard
18. Poinciana Boulevard and Osceola Parkway Westbound Off Ramp

19. Poinciana Boulevard and Osceola Parkway Eastbound Off Ramp
20. International Drive and World Gateway Drive (unsignalized intersection)
21. World Center Drive and Buena Vista Suites (unsignalized intersection)
22. World Center Drive and Caribe Royale Driveway (unsignalized intersection)

1.2 Purpose and Need

The purpose and need of the project is to accommodate future projected traffic demand and improve safety. The purpose and need was established using data from the Efficient Transportation Decision Making process at the onset of the project. Details of the transportation demand and safety needs are described below.

1.2.1 Transportation Demand

In the existing condition, the section of SR 535 from US 192 to Kyngs Heath Road operates at LOS D with an AADT of 28,300; the section from Kyngs Heath Road to Poinciana Boulevard operates at LOS D with an AADT of 26,900; the section from Poinciana Boulevard to Polynesian Isle Boulevard operates at LOS D with an AADT of 46,800; the section from Polynesian Isle Boulevard to World Center Drive operates at LOS D with an AADT of 44,300. It should be noted that there is a third southbound travel lane from Calypso Cay Way to just north of Polynesian Isle Boulevard which increases the southbound capacity of the roadway facility.

In the future year (2045) No Build condition, the section of SR 535 from US 192 and Kyngs Heath Road is projected to operate at LOS F with an AADT of 42,000; the section from Kyngs Heath Road to Poinciana Boulevard is projected to operate at LOS E with an AADT of 40,000; the section from Poinciana Boulevard to Polynesian Isle Boulevard is projected to operate at LOS F with an AADT of 69,000; the section from Polynesian Isle Boulevard to World Center Drive is projected to operate at LOS F with an AADT of 66,000.

1.2.2 Safety

A total of 981 crashes were reported on SR 535 from US 192 to Lake Bryan Beach Boulevard in the five-year period from 2014 through 2018. Of those reported crashes, 463 (47%) resulted in injury and four (4) resulted in a fatality. The most frequent crash type was rear end with 605 (62%) total crashes, indicating congestion. Sideswipe crashes were the second highest with 106 (11%), followed by left-turn with 93 (9%) total crashes. Of the 981 crashes, 602 (61%) crashes occurred during daylight conditions. The crash rates along this segment of SR 535 exceed the FDOT statewide averages for similar facilities.

1.3 Methodology

The methodology used for the development of this PTAR is based on methods and procedures described in the latest *FDOT PD&E Manual*, *2021 Traffic Analysis Handbook*, and the procedures outlined in the *2019 FDOT Project Traffic Forecasting (PTF) Handbook*. Prior to initiating this traffic study, the proposed traffic analysis methodology was documented in a memorandum and discussed with the project team, local agencies, and stakeholders. A copy of the approved *Traffic Analysis Methodology Memorandum* is included in **Appendix A**.

1.3.1 Study Area

The project study area of influence encompasses SR 535 from US 192 in Kissimmee to north of SR 536 in Orlando, and SR 536/World Center Drive from World Gateway Drive to the International Drive/SR 417 Ramps. A total of fourteen (14) signalized and eight (8) unsignalized intersections/median openings are present within the project study limits.

1.3.2 Data Requirements

This section presents the data collected for this PTAR.

1.3.2.1 Transportation System Data

FDOT Straight-Line Diagrams (SLDs), Roadway Characteristics Inventory (RCI) and field observations are used along with the historical crash data, signal timings and prior studies.

1.3.2.2 Traffic Counts

The following data was collected in the field and supplemented with Florida Traffic Online (FTO) count data:

- 48-hour bi-directional classification counts (13 locations)
- 72-hour classification counts (5 locations)
- 8-hour (7:00-11:00 AM and 3:00-7:00 PM) intersection turning movement counts for AM and PM peak periods (22 locations)

1.3.2.3 Crash Data

The following crash data was collected for the safety analysis:

- Years: five-year period of January 1, 2014, through December 31, 2018
- Source: *FDOT Crash Analysis Reporting (CAR) System* database and *Signal Four Analytics (University of Florida)*

1.3.2.4 Land Use Data

The current land uses within the study area were identified through field reviews and aerial photography. Further, comprehensive plans and future land use maps were referenced to verify the proposed land uses in the approved regional planning model.

1.3.2.5 Planned and Programmed Projects

This study considers programmed and planned roadway improvements in the study area and is consistent with regional transportation plans including the following:

- FDOT Five Year Work Program
- FDOT Strategic Intermodal System (SIS) Plans
- Developer Partnership projects from local agencies
- Adopted LRTPs and Comprehensive Plans

1.3.3 Analysis Years

The following analysis years are used in this PTAR.

1.3.3.1 Traffic Forecasting

The corridor project traffic was forecasted for the following years:

- Existing Year 2020
- Opening Year 2025
- Design Year 2045

1.3.3.2 Traffic Operational Analysis

The corridor project traffic was forecasted for the following years:

- Existing Year 2020
- Opening Year 2025
- Design Year 2045

1.3.4 Project Alternatives

The following alternatives were evaluated as part of this study.

- No Build Alternative – The No Build alternative will represent the existing roadway and intersection configuration and any committed improvements within the area of influence.
- Build Alternatives – This PTAR evaluates vehicular traffic operational improvements of study build alternatives. TSM&O and multi-modal improvements including signal control and transit enhancements will be evaluated as part of the PD&E Study.

1.3.5 Traffic Operational Analysis

1.3.5.1 LOS Targets

Level of Service Targets per the State Highway System, Policy No. 000-525-006c, effective April 19, 2017, are summarized below:

- SR 535, SR 536/World Center Drive, US 192: LOS D

1.3.5.2 Analysis Tools & Measures of Effectiveness (MOEs)

Synchro 11 was used to perform the intersection operational analyses for the study intersections and SR 535 roadway segments. The intersection operational analyses were conducted for both the signalized and unsignalized study intersections. The intersection results using the Synchro percentile delay method were found to better reflect field conditions and queues observed when compared to the *Highway Capacity Manual (HCM) 6th Edition* reports. Therefore, the Synchro delay and queues are reported. Roadway segment LOS for the auto mode was computed using Synchro reported average speed and criteria from *Exhibit 18-1* of the *HCM 6th Edition*. The following MOEs are reported from Synchro.

- Movement: LOS, delay and 95th percentile queue lengths
- Overall Intersection: LOS and delay
- Arterial Analysis: Speed and LOS

The individual methodology steps followed in this PTAR are illustrated in **Figure 1-3** below.

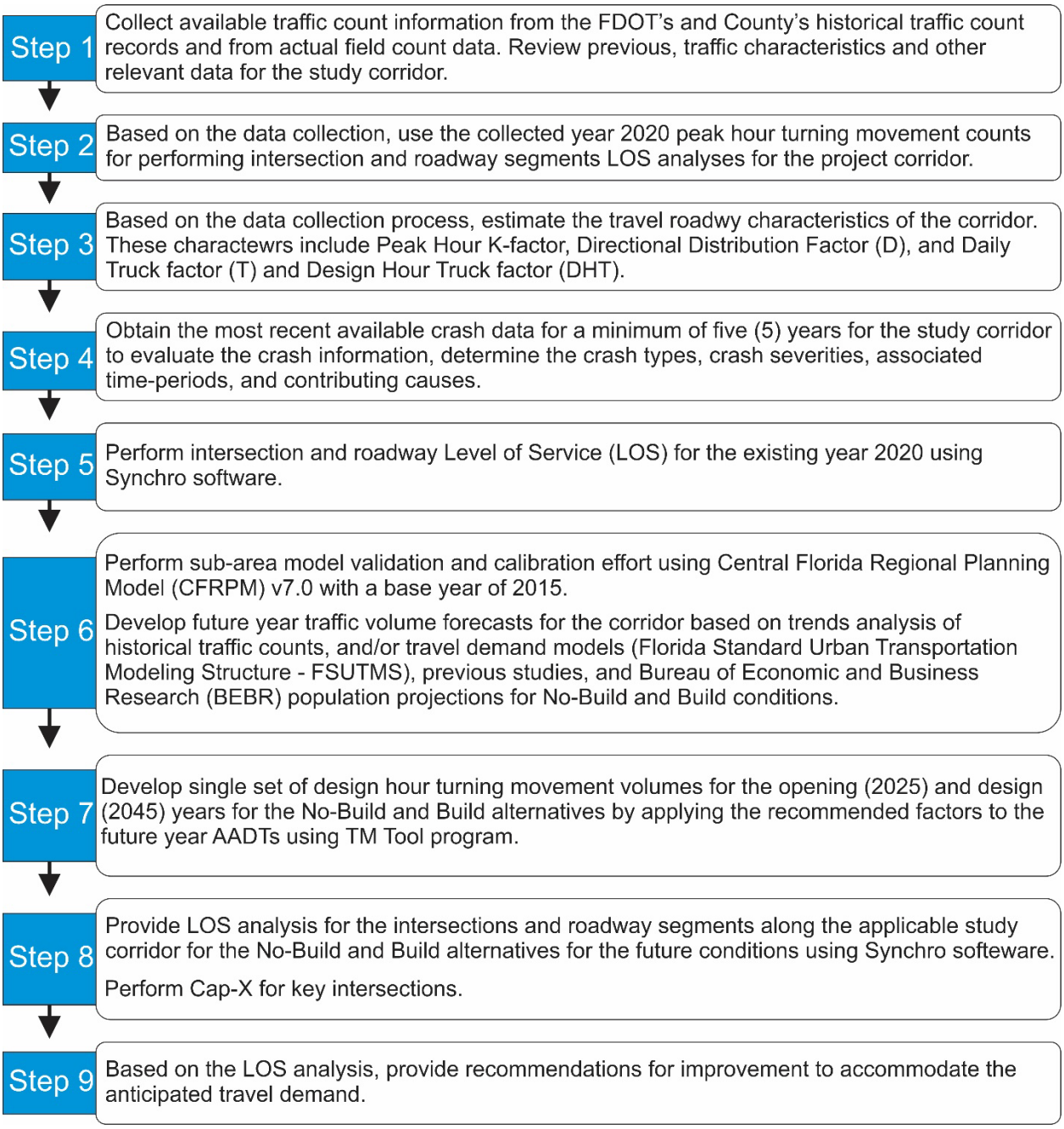


Figure 1-3 Traffic Analysis Methodology

1.3.6 Existing Transit Service

The existing LYNX Transit System bus routes that run within the study area can be seen on **Figure 1-4**. The following information describes the existing LYNX bus routes:

LYNX Bus Route 304 operates along SR 535 just north of the study limits where it also travels along World Center Drive (SR 536). This route connects the LYNX Central Station in Downtown Orlando to the Disney Springs West Side Transfer Station. Route 304 operates three (3) daily

buses (2 westbound and 1 eastbound). There are no current bus routes serving SR 535 south of World Center Drive (SR 536).

LYNX Bus Routes 55 and 56 operate along US 192 and feature bus stops just west of the SR 535/US 192 intersection (the project's beginning). Route 55 connects the Kissimmee Intermodal Station and the Four Corners Walmart while Route 56 connects the Kissimmee Intermodal Station and Disney's Magic Kingdom. Both bus routes rank among the top 10 routes in the LYNX system for Saturday ridership.

LYNX Bus Route 306 operates along US 192 and W Osceola Parkway. Route 306 connects to the Disney Springs transfer center and features a stop along US 192. Route 306 operates one (1) trip per direction which include one northbound AM service and one southbound PM service.

In addition to the existing routes, the LYNX master plan shows future LYNX services that are planned to traverse along the study area. The plans call for a traditional fixed-route and a limited-stop route, both traveling along the study having endpoints between the LYNX Kissimmee Intermodal Station and Disney Springs. There are also plans for an express route with service from Disney Springs to Poinciana SunRail and the Poinciana Walmart. Per coordination with LYNX staff members, there is no timeline for when these services will be implemented as well as no known bus stop locations within the project study area at this time. Coordination with LYNX will continue throughout the study.

The existing roadway characteristics that are relevant to this study, and Straight-Line Diagrams (SLDs) are provided in **Appendix B** of this report.

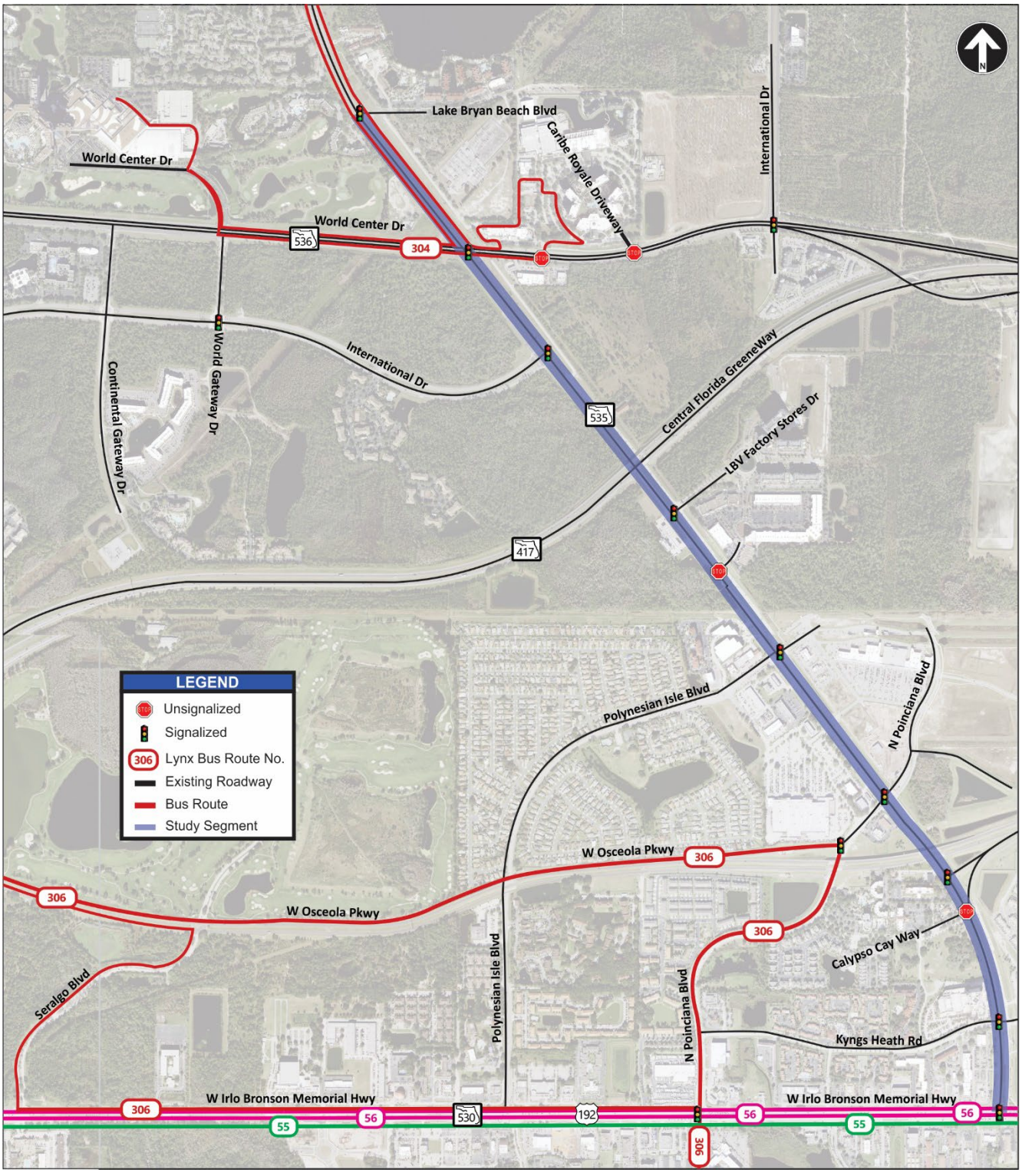


Figure 1-4 Existing Transit Routes

2 Existing Conditions

The purpose of the existing traffic conditions analysis is to gain an understanding of the corridor's existing performance and operations within the PD&E Study limits. Topics addressed include roadway characteristics and evaluation of existing traffic operations conditions.

2.1 Traffic Count Information

The project data collection within the study area mainly occurred between January 2020 and February 2020 with additional traffic counts (turning movement count locations #17 through #22) collected in August 2021. The project traffic count data collection included 48-hour bi-directional classification counts, 72-hour bi-directional classification counts, and 8-hour Turning Movement Counts (TMCs), the counts are included in **Appendix C**. Traffic data was also obtained from local agencies and included in **Appendix C**. Field visits were conducted to collect information on existing geometry, storage lengths, traffic signal heads, and to determine/verify signal phasing information, such as protected/permitted left-turn operations, right-turn-on-red restrictions, phase overlaps, etc.

Traffic data collected included 13 locations for 48-hour bi-directional classification counts, five (5) locations for 72-hour bi-directional classification counts and 22 locations for 8-hour turning movement/pedestrian counts (TMC's) collected during a 4-hour morning (AM) (7:00-11:00 am) and 4-hour afternoon (PM) (3:00-7:00 pm) period, as listed below and graphically depicted in **Figure 2-1** and **Figure 2-2**. Seasonal Factors (SF) were applied to counts corresponding with the data collection date; peak season factor category reports, extracted from FTO, are included in **Appendix C** for reference.

72-Hour Bi-Directional Classification Counts:

1. SR 535 between US 192 and the Eastbound On Ramp to Osceola Parkway
2. SR 535 between Poinciana Boulevard and Polynesian Isle Boulevard
3. SR 535 between LBV Factory Stores Drive and International Drive
4. SR 535 between International Drive and SR 536/World Center Drive
5. SR 535 between SR 536/World Center Drive and Lake Bryan Beach Boulevard

48-Hour Bi-Directional Classification Counts:

6. US 192, east of SR 535
7. US 192, west of SR 535

8. Kyngs Heath Road, west of SR 535
9. Calypso Cay Way, west of SR 535 Eastbound On Ramp to Osceola Parkway from SR 535
10. Eastbound On Ramp to Osceola Parkway
11. Poinciana Boulevard, west of SR 535
12. Poinciana Boulevard, east of SR 535
13. Polynesian Isle Boulevard, west of SR 535
14. LBV Factory Stores Drive, east of SR 535
15. International Drive, west of SR 535
16. SR 536, west of SR 535
17. World Center Drive, east of SR 535
18. Lake Bryan Beach Boulevard, east of SR 535

8 Hour Turning Movement Counts at the following Intersections:

1. SR 535 and US 192 (West Irlo Bronson Memorial Parkway)
2. SR 535 and Kyngs Heath Road
3. SR 535 and Calypso Cay Way (unsignalized directional median opening)
4. SR 535 and Osceola Parkway Eastbound On Ramp (signalized northbound and southbound Left), northbound right turn movement to eastbound Osceola Parkway occurs at Calypso Cay Road
5. SR 535 and North Poinciana Boulevard
6. SR 535 and Polynesian Isle Boulevard
7. SR 535 and LBV Factory Stores Drive
8. SR 535 and International Drive
9. SR 535 and SR 536/World Center Drive
10. SR 535 and Lake Bryan Beach Boulevard (unsignalized intersection)
11. World Center Drive and International Drive
12. SR 536 and World Gateway Drive/World Center Drive
13. US 192 and Storey Lake Boulevard

14. SR 535 median opening between Poinciana Blvd and Polynesian Isle Boulevard (unsignalized bi-directional median opening)
15. SR 535 median opening between Polynesian Isle Boulevard and LBV Factory Stores Drive (unsignalized SB directional median opening)
16. Poinciana Boulevard and Osceola Parkway Westbound On Ramp
17. US 192 and North Poinciana Boulevard
18. Poinciana Boulevard and Osceola Parkway Westbound Off Ramp
19. Poinciana Boulevard and Osceola Parkway Eastbound Off Ramp
20. International Drive and World Gateway Drive (unsignalized intersection)
21. World Center Drive and Buena Vista Suites (unsignalized intersection)
22. World Center Drive and Caribe Royale Driveway (unsignalized intersection)

Daily traffic data was also obtained from available sources, including the 2019 FDOT Florida Traffic Online (FTO), the 2019 Osceola County count program, and the 2019 Orange County count program. The data from various sources is graphically depicted and summarized; and included in **Appendix C**. Existing data sources have been summarized in **Table 2-1**

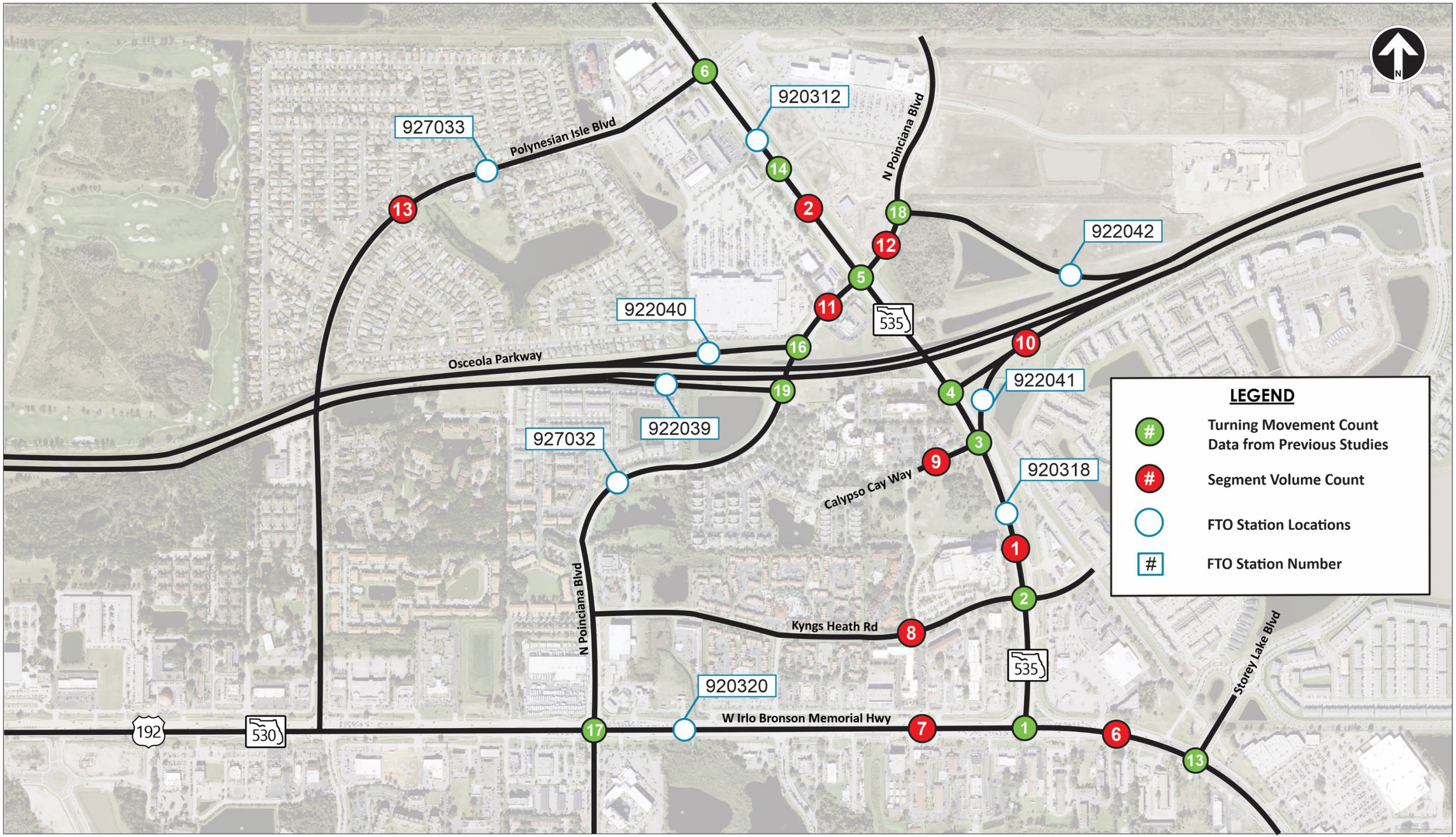


Figure 2-1 Project Data Collection Locations (1 of 2)

Figure 2-2 Project Data Collection Locations (2 of 2)

Table 2-1 Existing Data Sources Summary

Roadway	Segment	AADT/ADT				Site ID				Count Collection Date (Period)				Count Type			
		FTO (2019)	Data Collection (2020)	Orange County (2019)	Osceola County (2019)	FTO	Data Collection	Orange County	Osceola County	FTO	Data Collection	Orange County	Osceola County	FTO	Data Collection	Orange County	Osceola County
SR 535	US 192 and EB On Ramp to Osceola Pkwy	32,000	32,000	-	-	920318	1	-	-	5/21/2019	1/28/2020 to 1/30/2020	-	-	Volume Count	72-hr Class Count	-	-
	Poinciana Blvd to Polynesian Isle Blvd	53,000	42,500	-	50,300	920312	2	-	923	7/9/2019	1/28/2020 to 1/30/2020	-	3/7/2019	Classification Count	72-hr Class Count	-	24-hr Volume Count
	LBV Factory Stores Dr to International Dr	-	51,000	63,756	-	-	3	163	-	-	1/28/2020 to 1/30/2020	10/29/2019 to 10/31/2019	-	-	72-hr Class Count	72-hr Volume Count	-
	International Dr to SR 536/World Center Dr	-	47,500	-	-	-	4	-	-	-	1/28/2020 to 1/30/2020	-	-	-	72-hr Class Count	-	-
	SR 536/World Center Dr to Lake Bryan Beach Blvd	-	44,000	-	-	-	5	-	-	-	1/28/2020 to 1/30/2020	-	-	Volume Count	72-hr Class Count	-	-
	North of Lake Bryan Beach Blvd	50,500	-	49,841	-	750630	-	167	-	3/4/2019	1/28/2020 to 1/30/2020	10/29/2019 to 10/31/2019	-	Volume Count	72-hr Class Count	72-hr Volume Count	-
SR 536	West of SR 535	37,500	37,500	40,338	-	750595	16	595	-	2/11/2019	2/12/2020 to 2/13/2020	10/1/2019 to 10/3/2019	-	Classification Count	48-hr Class Count	-	-
World Center Drive	SR 535 to International Dr	22,000	36,000	43,719	-	758158	17	347	-	-	2/26/2020 to 2/27/2020	-	-	Second Year Estimate	48-hr Class Count	72-hr Volume Count	-
	SR 417 On Ramp/East of International Dr	21,000	-	-	-	752256	-	-	-	-	-	-	-	Computed	-	-	-
	SR 417 Off Ramp/East of International Dr	15,000	-	-	-	752255	-	-	-	-	-	-	-	Computed	-	-	-
US 192	SR 535 to Storey Lake Blvd	-	49,000	-	-	-	6	-	-	-	2/12/2020 to 2/13/2020	-	-	-	48-hr Class Count	-	-
	East of Storey Lake Blvd	59,500	-	-	55,724	920313	-	-	904	5/21/2019	-	-	3/5/2019	Volume Count	-	-	24-hr Volume Count
	Poinciana Blvd to SR 535	39,500	37,000	-	-	920320	7	-	-	-	2/12/2020 to 2/13/2020	-	-	First Year Estimate	48-hr Class Count	-	-

*Note: Seasonal Factors have been applied to counts corresponding with the data collection date; peak season factor category reports are provided in **Appendix D**.*

Table 2-1 Existing Data Sources Summary (Continued)

Roadway	Segment	AADT/ADT				Site ID				Count Collection Date (Period)				Count Type			
		FTO (2019)	Data Collection (2020)	Orange County (2019)	Osceola County (2019)	FTO	Data Collection	Orange County	Osceola County	FTO	Data Collection	Orange County	Osceola County	FTO	Data Collection	Orange County	Osceola County
Kyngs Heath Rd	West of SR 535	-	1,900	-	-	-	8	-	-	-	2/4/2020 to 2/5/2020	-	-	-	48-hr Class Count	-	-
	East of SR 535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calypso Cay Way	West of SR 535	-	1,800	-	-	-	9	-	-	-	2/4/2020 to 2/5/2020	-	-	-	48-hr Class Count	-	-
Osceola Pkwy Ramps	EB On Ramp (E. of SR 535)	4,300	5,000	-	-	922041	10	-	-	6/6/2019	-	-	-	Volume Count	48-hr Class Count	-	-
	WB Off Ramp (E. of SR 535)	3,400	-	-	-	922042	-	-	-	6/18/2019	-	-	-	Volume Count	-	-	-
	EB Off Ramp (W. of SR 535)	1,700	-	-	-	922039	-	-	-	6/6/2019	-	-	-	Volume Count	-	-	-
	WB On Ramp (W. of SR 535)	2,000	-	-	-	922040	-	-	-	6/6/2019	-	-	-	Volume Count	-	-	-
Poinciana Blvd	West of SR 535	25,500	21,500	-	25,699	927032	11	-	159	-	2/13/2020 to 2/14/2020	-	3/5/2019	First Year Estimate	48-hr Class Count	-	-
	East of SR 535	-	7,200	-	-	-	12	-	-	-	2/4/2020 to 2/5/2020	-	-	-	48-hr Class Count	-	-
Polynesian Isle Blvd	West of SR 535	11,100	12,000	-	11,515	927033	13	-	158	-	2/4/2020 to 2/5/2020	-	4/3/2019	First Year Estimate	48-hr Class Count	-	24-hr Volume Count
	East of SR 535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBV Factory Stores	East of SR 535	-	4,900	-	-	-	14	-	-	-	2/13/2020 to 2/14/2020	-	-	-	48-hr Class Count	-	24-hr Volume Count
International Dr	West of SR 535	5,000	6,400	-	-	758187	15	-	-	-	2/13/2020 to 2/14/2020	-	-	Second Year Estimate	48-hr Class Count	-	-
	North of World Center Dr	-	-	24,983	-	-	-	8175	-	-	-	10/29/2019 to 10/31/2019	-	-	-	72-hr Volume Count	-
Lake Bryan Beach Blvd	East of SR 535	-	1,400	-	-	-	18	-	-	-	2/4/2020 to 2/5/2020	-	-	-	48-hr Class Count	-	-

Note: Seasonal Factors have been applied to counts corresponding with the data collection date; peak season factor category reports are provided in ***Appendix D****.*

2.2 Existing Traffic Patterns and Observations

2.2.1 Existing Conditions Observations

Operational issues existed in both the AM and PM peak periods, with queuing extending more than a mile in certain areas along SR 535. Below is a summary of these issues during morning and evening peak periods observed. Note that these observations were made in January 2020, prior to the beginning of the COVID-19 pandemic.

AM Peak Period:

- During the AM peak hour, SR 535 from south of Poinciana Boulevard to LBV Factory Stores Drive experienced maximum queues reaching past the Osceola Parkway overpass in the northbound direction, approximately 800 feet.
- Eastbound queuing during the AM peak hour at the Poinciana Boulevard intersection extended approximately 850 feet west of SR 535.
- Northbound through vehicles were observed departing the Polynesian Isle Boulevard intersection and arriving at the back of the LBV Factory Stores Drive queue, approximately 1,600 feet long. It was observed several times that the signal was still showing a red indication for the northbound through movements, indicating phase failures.
- Westbound traffic along US 192 approaching SR 535 during the morning peak had maximum queues that exceeded 800 feet beyond the length of the westbound right turn lane.

PM Peak Period:

- Due to southbound queue spillback, the westbound left and eastbound right turn movements were not fully served leading to vehicles blocking the SR 536/World Center Drive intersection. Westbound left turn queue extended approximately 700 feet and spilled beyond the left turn queue storage.
    - Eastbound queueing extended approximately 0.30 miles; thus, the eastbound left turn lane was not being fully utilized because left turning vehicles had to wait behind eastbound through vehicles.
    - Both the eastbound right and westbound left turners utilized all three southbound lanes when making the turn, even though the inside left turn lane is a merge lane approximately 700 feet to 1,000 feet downstream.

- Slow moving traffic flow and congestion included northbound queuing in the PM peak hour extending from LBV Factory Stores Drive to Polynesian Isle Boulevard, a distance of approximately 1,500 feet (0.30 miles).
- Southbound SR 535 queuing in the PM peak hour from the US 192 intersection for left turning vehicles extended to the Osceola Parkway overpass, a distance of approximately 3,200 feet (0.60 miles). Aerial drone photos of these queues are shown in **Figure 2-3** and **Figure 2-4**.

Figure 2-3 Aerial Photograph looking south along SR 535 at US 192 intersection

Figure 2-4 Aerial Photograph looking south along SR 535 from Poinciana Blvd

2.3 Existing Geometry

Figure 2-5 and **Figure 2-6** show the existing year (2020) intersection geometry for all the intersections evaluated in this study. The existing year intersection geometry information was obtained and verified from field visits and aerial photographs. The existing geometry plays a vital role in assessing the intersection Level of Service (LOS). LOS is a qualitative measure of the traffic operations. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. The existing geometry will be considered as one of the factors in determining potential intersection improvements to accommodate the travel demand.

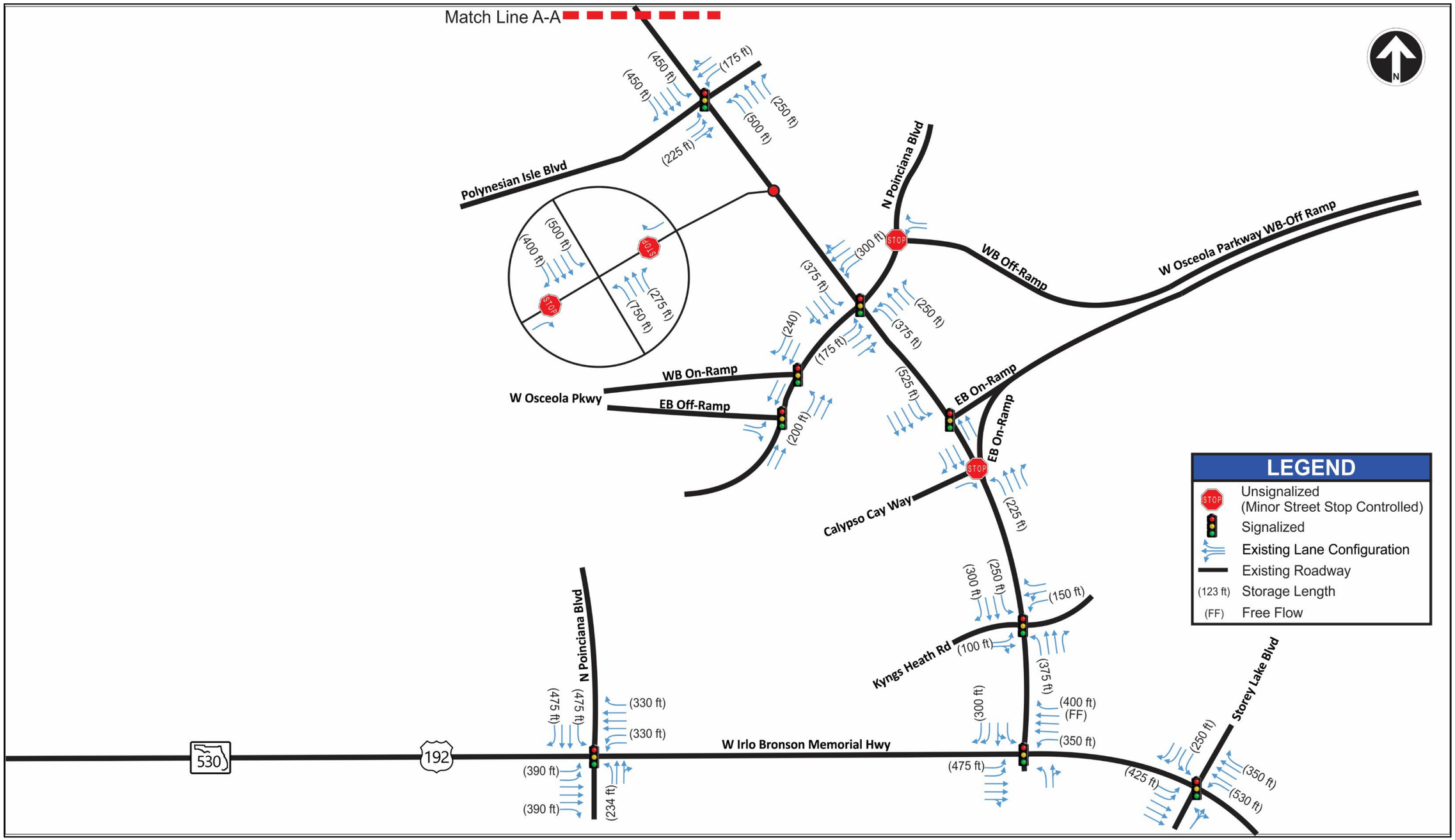


Figure 2-5 Existing Lane Geometry (1 of 2)

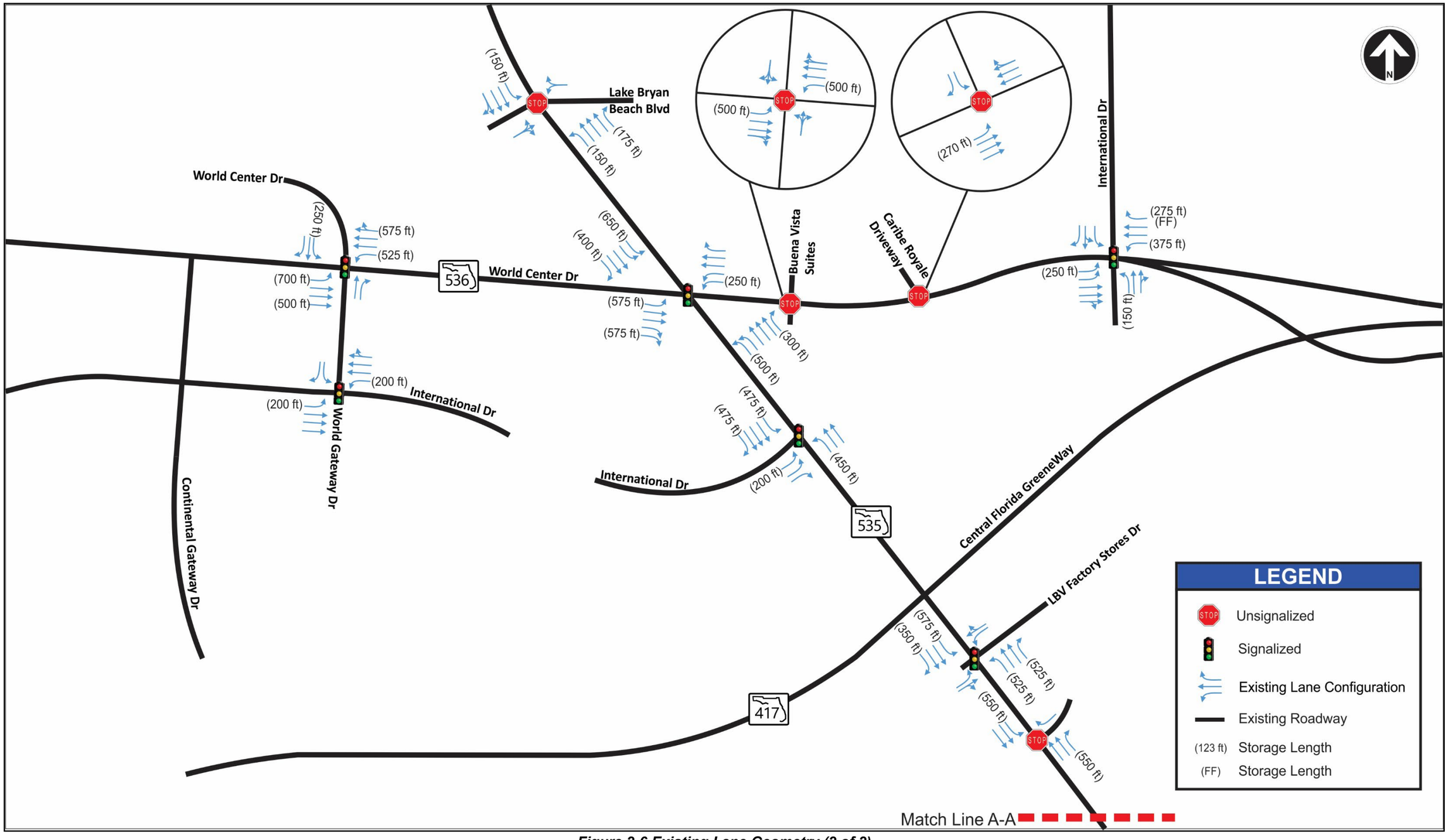


Figure 2-6 Existing Lane Geometry (2 of 2)

2.4 Existing AADT

The traffic count information available from the data collection effort was used to develop existing traffic characteristics for the SR 535 study corridor and the side streets. Based on **Table 2-2**, the following observations were made:

- Several Orange County sites show that the Average Daily Traffic (ADT) data collected in the month of October 2019 is significantly higher than FTO and data from other sources within the study area.
- SR 535 data between SR 536 and Osceola Parkway appear to be consistent between different data sources (FTO and County sources), indicating less variability between different times of the year.
- SR 535 volume and classification counts between Osceola Parkway and US 192 appear to show variability in AADT compared to FTO and County sources. It was also observed that the 72-hour classification count between Poinciana Boulevard and Polynesian Isle Boulevard (42,500) was lower than both FTO and Osceola County AADT.
- For a majority of the locations, the 2019 AADT from FTO or County were generally higher than the traffic data collected during 2020.

Based on above findings and observations, FTO counts were used along SR 535. **Table 2-2** summarizes the recommended existing (2020) AADTs and source for all roadways within the study area. **Figure 2-7** graphically shows the information. Growth rates, based on appropriate trends, were applied to 2019 FTO traffic data to develop 2020 AADTs. Appropriate seasonal factors were applied to collected traffic data for 2020 AADTs based on collected data. Seasonal factors ranged from 0.98 to 1.02 depending on the date of collection and location (Orange or Osceola Counties).

Table 2-2 Existing 2020 Annual Average Daily Traffic (AADT)

Intersection	Segments	2020 AADT	Collected (C) or Estimated (E)*
SR 535 @ Lake Bryan Beach Blvd	Lake Bryan Beach Blvd, west of SR 535	500	E
	Lake Bryan Beach Blvd, East of SR 535	1,400	C
	SR 535, North of Lake Bryan Beach Blvd	50,000	C
	SR 535, South of Lake Bryan Beach Blvd	51,500	C
SR 535 @ World Center Dr	World Center Dr, west of SR 535	37,500	C
	World Center Dr, East of SR 535	36,000	C
	SR 535, North of World Center Dr	51,500	C
	SR 535, South of World Center Dr	49,500	C
SR 535 @ International Dr S	International Dr S, West of SR 535	6,400	C
	International Dr S, East of SR 535	-	-
	SR 535, North of International Dr S	49,500	C
	SR 535, South of International Dr S	48,000	C
SR 535 @ LBV Factory Stores Dr	LBV Factory Stores Dr, west of SR 535	500	C
	LBV Factory Stores Dr, East of SR 535	4,900	C
	SR 535, North of LBV Factory Stores Dr	48,000	C
	SR 535, South LBV Factory Stores Dr	56,000	C
SR 535 @ Median Opening N	Median Opening North, East of SR 535	1,500	E
	SR 535, North of Median Opening North	56,000	C
	SR 535, South of Median Opening North	56,000	C
SR 535 @ Polynesian Isle Blvd	Polynesian Isle Blvd, west of SR 535	12,000	C
	Polynesian Isle Blvd, East of SR 535	4,300	C
	SR 535, North of Polynesian Isle Blvd	56,000	C
	SR 535, South of Polynesian Isle Blvd	54,000	C
SR 535 @ Median Opening S	Median Opening S, West of SR 535	3,400	E
	Median Opening S, East of SR 535	1,900	E
	SR 535, North of Median Opening S	54,000	C
	SR 535, South of Median Opening S	54,000	C
SR 535 @ Poinciana Blvd	Poinciana Blvd, west of SR 535	21,500	C
	Poinciana Blvd, East of SR 535	7,200	C
	SR 535, North of Poinciana Blvd	54,000	C
	SR 535, South of Poinciana Blvd	39,500	C
SR 535 @ Osceola Pkwy On Ramps (North)	Osceola Pkwy EB On Ramp	5,100	C
	SR 535, North of Osceola Pkwy On Ramps	39,500	C
	SR 535, South of Osceola Pkwy On Ramps	33,500	C
SR 535 @ Osceola Pkwy On Ramps (South)	Calypso Cay Way, west of SR 535	1,800	C
	Osceola Pkwy On Ramp (WB), East of SR 535	2,000	C
	SR 535, North of Osceola Pkwy On Ramp	33,500	C
	SR 535, South of Osceola Pkwy On Ramp	32,500	C

**Estimated AADTs are calculated based on collected turning movement counts and recommended traffic factors provided in Section 3.*

Table 2-2 Existing 2020 AADT (Continued)

Intersection	Segments	2020 AADT	Collected (C) or Estimated (E)*
SR 535 @ Kyngs Heath Rd	Kyngs Heath Rd, west of SR 535	1,900	C
	Kyngs Heath Rd, East of SR 535	2,700	C
	SR 535, North of Kyngs Heath Rd	32,500	C
	SR 535, South of Kyngs Heath Rd	29,500	C
SR 535 @ US 192	US 192, west of SR 535	37,000	C
	US 192, East of SR 535	49,000	C
	SR 535, North of US 192	29,500	C
	SR 535, South of US 192	200	E
World Center Dr @ International Dr	World Center Dr, West of International Dr	36,000	C
	SR 417 Ramp	38,500	C
	International Dr, North of World Center Dr	25,000	C
	International Dr, South of World Center Dr	4,500	E
US 192 @ Storey Lake Blvd	US 192, west of Storey Lake Blvd	49,000	C
	US 192, east of Storey Lake Blvd	60,000	C
	Storey Lake Blvd, north of US 192	3,000	C
US 192 @ N Poinciana Blvd	US 192, west of Poinciana Blvd	45,000	E
	US 192, east of Poinciana Blvd	37,000	C
	Poinciana Blvd, north of US 192	17,500	E
	Poinciana Blvd, south of US 192	27,000	E
W Osceola Ramp @ N Poinciana Blvd (W of SR 535)	Osceola ramp, north of Poinciana Blvd	3,700	C
	Poinciana Blvd, east of Osceola On Ramp	21,500	C
	Poinciana Blvd, west of Osceola Off Ramp	25,500	C
W Osceola Off Ramp @ N Poinciana Blvd (WB)	Osceola Off ramp, South of Poinciana Blvd	3,400	C
	Poinciana Blvd, East of Osceola Off Ramp	5,500	E
	Poinciana Blvd, West of Osceola Off Ramp	7,200	C
World Gateway Drive @ World Center Drive	SR 536, west of World Gateway Dr	40,500	E
	SR 536, east of World Gateway Dr	37,500	C
	World Gateway Dr, north of SR 536	9,600	E
	World Gateway Dr, south of SR 536	16,700	E
World Gateway Drive @ International Drive	International Dr, west of World Gateway Dr	10,500	C
	International Dr, east of World Gateway Dr	6,400	C
	World Gateway Dr, north of International Dr	9,600	E
World Center Dr @ Buena Vista Suites	World Center Dr, west of Buena Vista Suites	36,000	C
	World Center Dr, east of Buena Vista Suites	36,000	C
	Buena Vista Suites, north of World Center Dr	1,000	E
	Buena Vista Suites, south of World Center Dr	1,300	E
World Center Dr @ Caribe Royale Orlando	World Center Dr, west of Caribe Royale Orlando	36,000	C
	World Center Dr, east of Caribe Royale Orlando	36,000	C
	Caribe Royale Orlando, North of World Center Dr	1,650	E

**Estimated AADTs are calculated based on collected turning movement counts and recommended traffic factors provided in Section 3.*

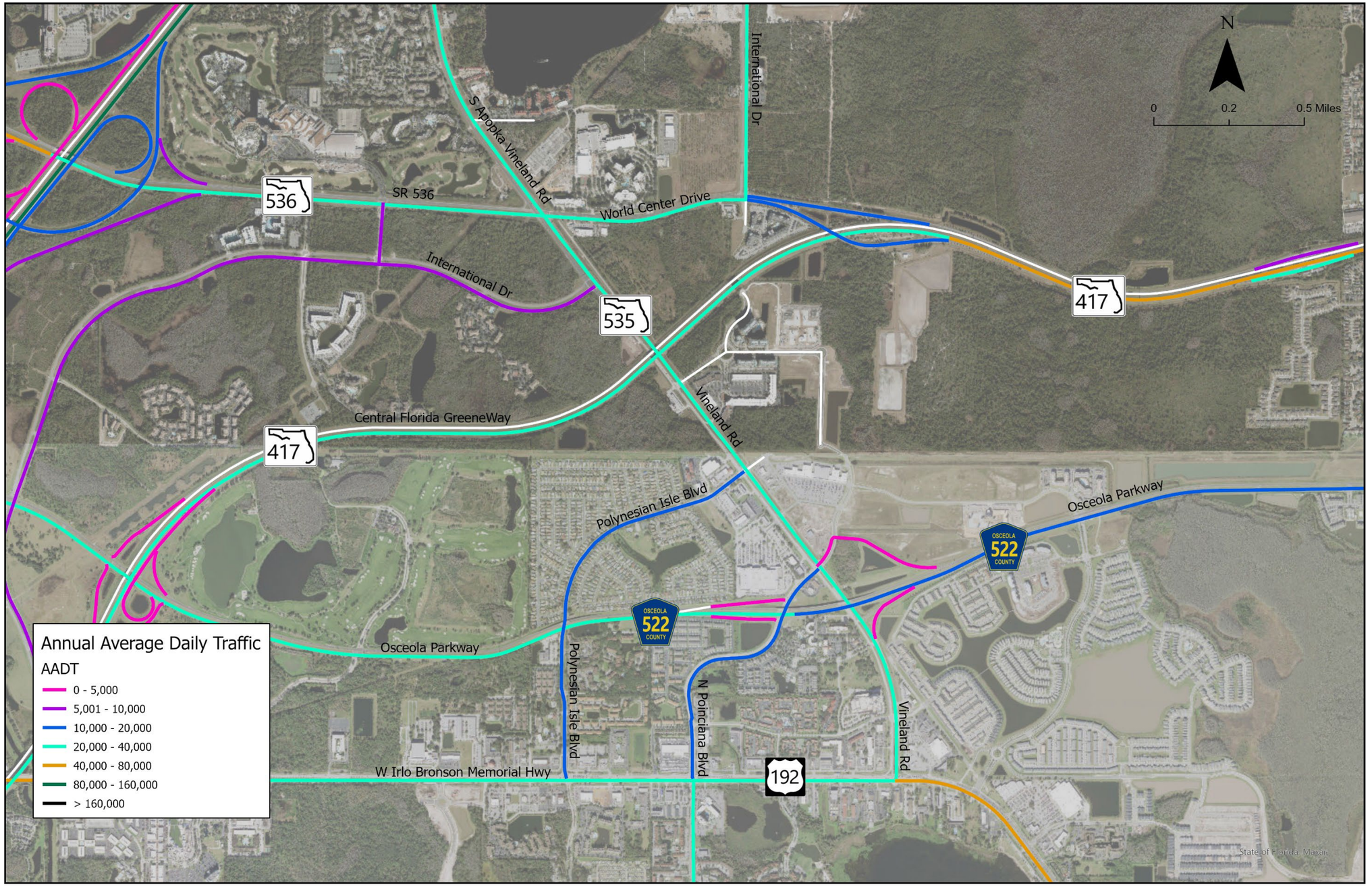


Figure 2-7 Existing 2020 AADT

2.5 Signal Timing Data

The existing traffic signal timings for signalized intersections were obtained from Orange and Osceola Counties and are included in **Appendix C**. Portions of the study area intersections are operating using InSync Adaptive Traffic Signal Technology (Rhythm) to provide real-time dynamic coordinated signal control. For these intersections, the traffic signal splits in Synchro were estimated based on the available back-up timings from Orange County for the adjacent adaptive signals and were optimized and considered to run the same cycle length.

2.6 Existing Year (2020) Turning Movement Counts

Global peak hours were determined for the AM and PM peak periods; the global AM peak hour begins at 7:30 AM while the global PM peak hour begins at 4:30 PM. The turning movement volumes for the network were seasonally adjusted and balanced. Unbalanced and balanced worksheets are provided in **Appendix C**. The balanced 2020 turning movement volumes are shown in **Figure 2-8** and **Figure 2-9**.

2.7 Existing Year (2020) Level of Service (LOS) Analysis

As previously mentioned in **Section 1.3**, Synchro 11 was used to perform the intersection operational analyses for the study intersections and SR 535 roadway segments. The intersection operational analyses were conducted for both the signalized and unsignalized study intersections. Synchro results provide delays, LOS, and queues which are summarized in the following section. Arterial operations were evaluated based on arterial LOS outputs (average speed, segment length, and travel time) provided by Synchro, and calculated using criteria from *Exhibit 18-1 of the HCM 6th Edition*.

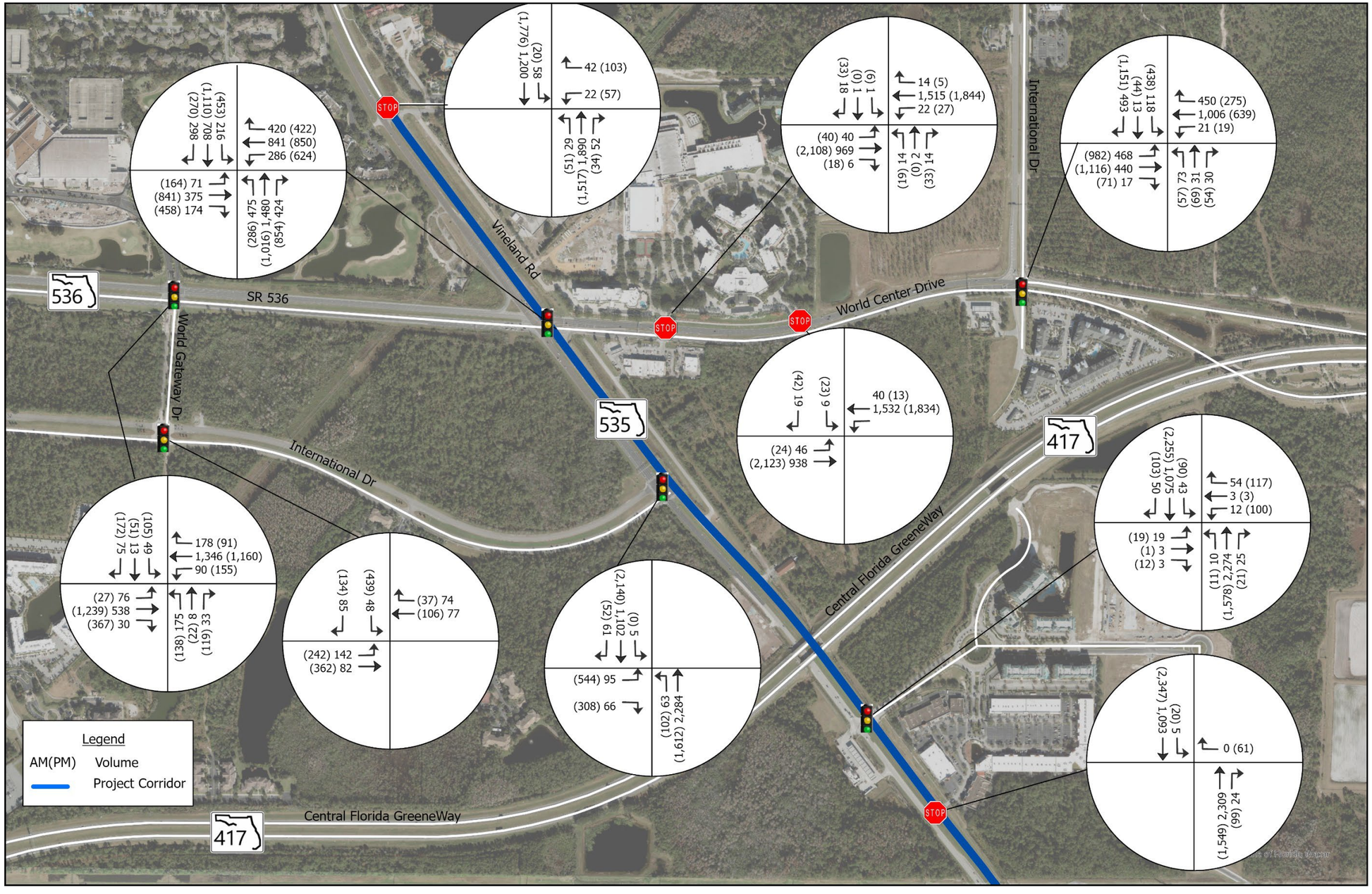


Figure 2-8 Existing Turning Movement Volumes (1 of 2)

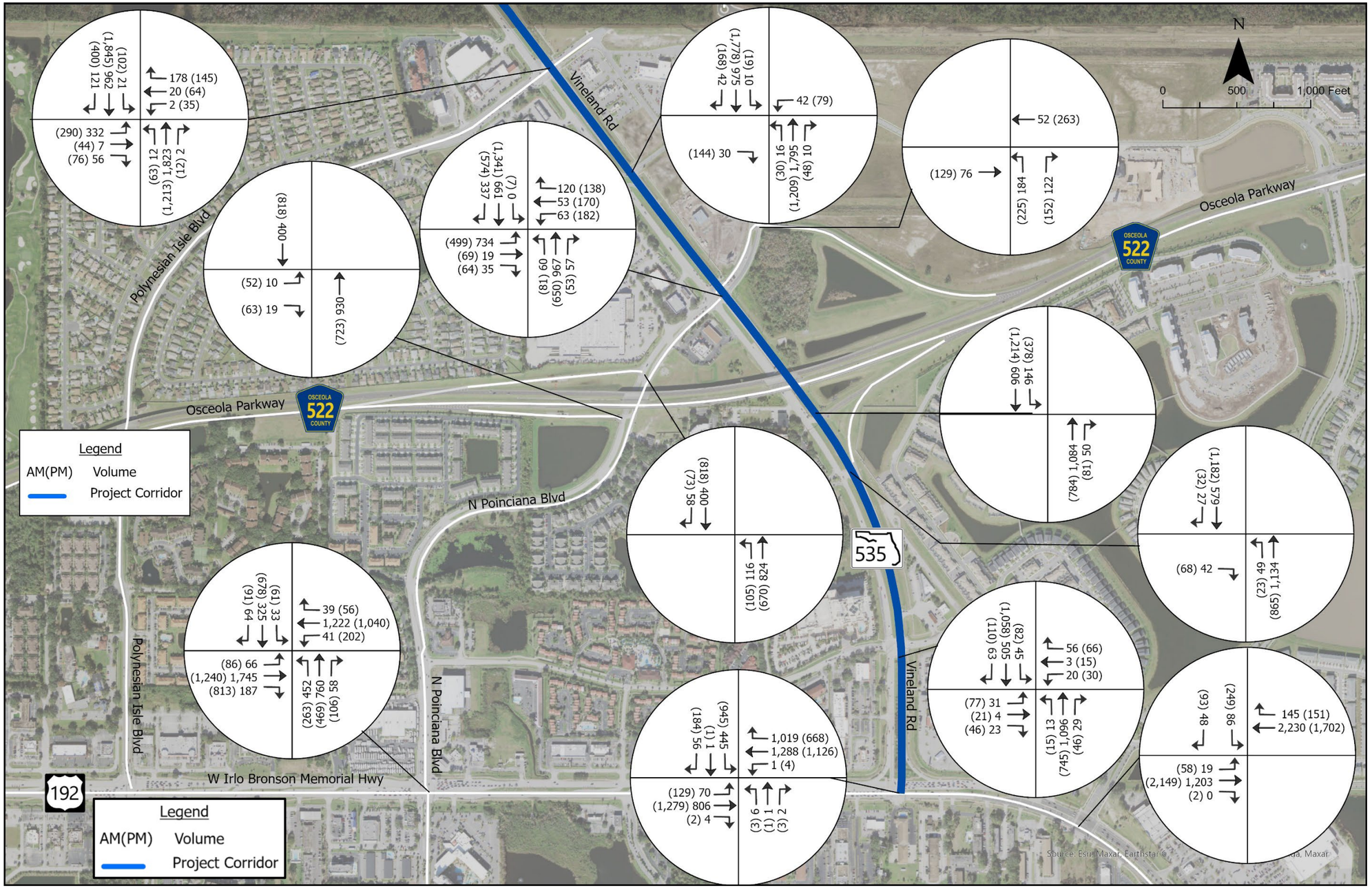


Figure 2-9 Existing Turning Movement Volumes (2 of 2)

2.7.1 Existing Year (2020) Intersection LOS analysis

Intersection capacity analyses were conducted to assess the existing quality of flow at intersections in the study area using the existing year turning movement volumes with existing geometry and signal timings. Existing signal timings were obtained from the Orange and Osceola County Traffic Operations Divisions (provided in **Appendix C**). The existing Peak Hour Factor (PHF) was calculated from the existing turning movement counts for each intersection during AM and PM peak hours.

A summary of the signalized intersection analysis is included in **Table 2-3**. Detailed Synchro movement delay, LOS and 95th percentile queue length for the AM and PM peak hours for 2020 Existing Conditions are included in **Appendix D**. The analysis shows all intersections are generally operating at the target LOS D or better in the AM peak hour, with the exception of the intersection of US 192 at North Poinciana Boulevard which operates at an overall LOS E. In the PM peak hour, all intersections are operating at the target LOS D or better, with the exception of the intersections of SR 535 at SR 536/World Center Drive and US 192 at North Poinciana Boulevard. The presence of a third southbound travel lane from Calypso Cay Way to just north of Polynesian Isle Boulevard increases the intersection capacity for those subject intersections thus generally resulting in better operations than the northbound direction.

A summary of the unsignalized intersection analysis is included in **Table 2-4**. Summarized results include the storage length, 95th percentile queue length, volume, v/c ratio, delay, and LOS for each stop-controlled movement based on Synchro output reports which employ *HCM 6th Edition Two-Way Stop Controlled (TWSC)* methodology. Detailed reports are included in **Appendix D**. The analysis shows that the AM peak hour performs better than the PM peak hour. During the AM peak hour, five (5) of 23 movements do not meet the LOS D Target while 11 of 23 movements do not meet the LOS D Target during the PM peak hour. Deficient operations are generally occurring on side street movements.

Table 2-3 Existing Signalized Intersection LOS

Existing Conditions 2020 AM												Existing Conditions 2020 PM											
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Approach Delay	Approach LOS	Intersection Delay	Intersection LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Approach Delay	Approach LOS	Intersection Delay	Intersection LOS
SR 535 & US 192	EBL	475	78	70	0.52	101.3	F	18.2	B	26.9	C	EBL	475	140	129	0.68	113.7	F	25.8	C	54.6	D
	EBT	-	226	806	0.24	11.1	B					EBT	-	571	1279	0.51	16.9	B				
	WBL	350	m1	1	0.04	108.0	F	13.5	B			WBL	350	22	4	0.09	103.8	F	15.5	B		
	WBT	-	m686	1288	0.41	16.6	A					WBT	-	529	1126	0.52	23.8	C				
	WBR	400	m533	1019	0.69	9.5	A					WBR	400	0	668	0.46	1.0	A				
	NBL	-	28	6	0.12	94.7	F	85.7	F			NBL	-	19	3	0.06	101.7	F	83.3	F		
	NBT	-	15	1	0.05	67.7	E					NBT	-	18	1	0.08	69.5	E				
	SBL	-	427	445	0.87	113.3	F	102.3	F			SBL	-	822	945	0.77	179.1	F	152.7	F		
	SBT	-	431	1	0.88	113.9	F					SBT	-	823	1	0.77	179.9	F				
	SBR	300	11	56	0.09	12.6	B					SBR	300	49	184	0.14	14.9	B				
SR 535 & Kyngs Heath Road	EBL	100	83	31	0.42	103.4	F	74.6	E	18.7	B	EBL	100	163	77	0.65	107.6	F	75.5	E	21.8	C
	EBT	-	43	4	0.30	40.6	D					EBT	-	83	21	0.43	38.5	D				
	EBR	-		23								EBR			46							
	WBL	150	43	20	0.24	99.6	F	34.5	C			WBL	150	69	30	0.36	102.4	F	48.8	D		
	WBT	-	43	3	0.23	98.3	F					WBT	-	69	15	0.34	100.1	F				
	WBR	-	5	56	0.39	8.2	A					WBR	-	22	66	0.43	12.8	B				
	NBL	375	m26	13	0.23	85.5	F	15.5	B			NBL	375	51	15	0.25	97.9	F	15.5	B		
	NBT	-	450	1096	0.43	15.1	B					NBT	-	310	745	0.33	14.8	B				
	NBR	-	m0	29	0.03	0.0	A					NBR	-	0	46	0.05	0.1	A				
	SBL	250	111	45	0.52	83.4	F	17.2	B			SBL	250	172	82	0.65	107.5	F	17.3	B		
	SBT	-	250	505	0.20	12.7	B					SBT	-	412	1058	0.43	11.8	B				
	SBR	300	39	63	0.05	5.9	A					SBR	300	33	110	0.10	2.7	A				
SR 535 & Osceola Pkwy On-Ramp	NBT	-	111	1084	0.43	3.2	A	3.2	A	5.2	A	NBT	-	143	784	0.36	7.2	A	7.2	A	8.8	A
	NBR	-	0	0	0.00	0.0	0					NBR	-	0	0	0.00	0.0	0				
	SBL	525	111	146	0.50	41.2	D	8.0	A			SBL	525	145	378	0.70	39.9	D	9.6	A		
	SBT	-	0	606	0.13	0.1	A					SBT	-	0	1214	0.25	0.1	A				
SR 535 & Poinciana Blvd	EBL	175	550	734	0.88	81.2	F	77.0	E	42.9	D	EBL	175	386	499	0.85	88.2	F	76.4	E	42.5	D
	EBT	-	28	19	0.07	19.6	B					EBT	-	71	69	0.20	32.2	C				
	EBR			35								EBR			64							
	WBL	300	74	63	0.45	96.8	F	67.0	E			WBL	300	167	182	0.69	97.4	F	84.3	F		
	WBT	-	102	53	0.74	56.2	E					WBT	-	209	170	0.82	76.6	E				
	NBL	375	65	60	0.45	103.9	F	27.4	C			NBL	375	87	81	0.54	100.2	F	28.5	C		
	NBT	-	554	967	0.54	24.3	C					NBT	-	352	650	0.33	21.9	C				
	NBR	250	4	57	0.07	0.3	A					NBR	250	0	53	0.06	0.1	A				
	SBT	-	225	661	0.49	27.0	C	27.0	C			SBT	-	438	1341	0.79	26.1	C	26.3	C		
SR 535 & Polynesian Isle Blvd	EBL	-	270	332	0.81	96.6	F	83.8	F	36.4	D	EBL	-	248	290	0.79	97.1	F	86.3	F	36.3	D
	EBT	-	55	7	0.17	16.3	B					EBT	-	182	44	0.49	60.2	E				
	WBL	175	14	2	0.06	93.5	F	59.2	E			WBL	175	91	35	0.47	106.5	F	48.2	D		
	WBT	-	118	20	0.95dr	58.9	E					WBT	-	93	64	0.68	38.4	D				
	NBL	500	m13	12	0.14	100.7	F	36.7	D			NBL	500	m72	63	0.46	96.0	F	42.6	D		
	NBT	-	1262	1823	0.81	36.3	D					NBT	-	874	1213	0.61	40.2	D				
	NBR	250	m0	2	0.00	0.0	A					NBR	250	m0	12	0.01	0.0	A				
	SBL	450	62	21	0.35	103.9	F	14.9	B			SBL	450	206	102	0.73	110.2	F	22.8	C		
	SBT	-	268	962	0.30	14.6	B					SBT	-	646	1845	0.60	22.4	C				
	SBR	450	24	121	0.12	1.8	A					SBR	450	50	400	0.37	2.2	A				

Table 2-3 Existing Signalized Intersection LOS (2 of 3)

Existing Conditions 2020 AM												Existing Conditions 2020 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Approach Delay	Approach LOS	Intersection Delay	Intersection LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Approach Delay	Approach LOS	Intersection Delay	Intersection LOS
SR 535 & LBV Factory Stores	EBL	-	53	19	0.32	84.6	F	78.4	E	21.9	C	EBL	-	48	19	0.19	67.2	E	51.9	D	38.2	D
	EBT	-	20	3	0.08	56.4	E					EBT	-	23	1	0.07	28.4	C				
	WBL	-	37	12	0.16	75.2	E	35.4	D			WBL	-	167	100	0.68	90.1	F	56.8	E		
	WBT	-	54	3	0.45	27.1	C					WBT	-	101	3	0.51	29.1	C				
	NBL	525	34	10	0.15	77.9	E	24.6	C			NBL	525	34	11	0.15	77.9	E	24.0	C		
	NBT	-	#1595	2274	0.91	24.7	C					NBT	-	763	1578	0.73	23.9	C				
	NBR	525	0	25	0.02	0.0	A					NBR	525	0	21	0.02	0.0	A				
	SBL	575	101	43	0.44	60.5	E	14.4	B			SBL	575	m101	90	0.44	50.9	D	45.7	D		
	SBT	-	373	1075	0.41	13.1	B					SBT	-	#1473	2255	0.85	47.2	D				
	SBR	350	15	50	0.04	2.2	A					SBR	350	m58	103	0.09	8.6	A				
SR 535 & International Dr	EBL	200	88	95	0.48	79.2	E	55.6	E	18.4	B	EBL	200	346	544	0.81	69.3	E	60.4	E	40.7	D
	EBR	-	54	66	0.43	21.9	C					EBR	-	296	308	0.74	44.7	D				
	NBL	450	m74	63	0.53	93.8	F	12.1	B			NBL	450	m137	102	0.58	85.9	F	13.6	B		
	NBT	-	#1591	2284	0.87	9.8	A					NBT	-	713	1612	0.70	9.1	A				
	SBL	475	m11	5	0.07	47.0	D	25.9	C			SBL	475	0	0	0.00	0.0	0	54.1	D		
	SBT	-	363	1102	0.35	26.4	C					SBT	-	m#945	2140	0.84	55.0	E				
	SBR	475	m58	61	0.06	15.8	B					SBR	475	m23	52	0.07	17.9	B				
SR 535 & SR 536/World Center Dr	EBL	575	#181	71	0.76	135.7	F	43.1	D	52.9	D	EBL	575	#366	164	0.80	103.9	F	95.2	F	86.1	F
	EBT	-	169	375	0.46	44.2	D					EBT	-	#708	841	1.15	130.4	F				
	EBR	575	0	174	0.19	2.6	A					EBR	575	244	458	0.55	27.3	C				
	WBL	250	211	286	0.74	98.2	F	48.2	D			WBL	250	#509	624	0.89	83.9	F	55.1	E		
	WBT	-	420	841	0.81	55.1	E					WBT	-	475	850	0.82	61.2	E				
	WBR	-	0	420	0.28	0.4	A					WBR	-	0	422	0.29	0.4	A				
	NBL	500	m314	475	0.58	70.5	E	56.9	E			NBL	500	200	286	0.73	78.2	E	37.8	D		
	NBT	-	658	1480	0.88	68.7	E					NBT	-	390	1016	0.75	57.3	E				
	NBR	300	m0	424	0.29	0.2	A					NBR	300	0	854	0.56	1.1	A				
	SBL	650	#198	216	0.78	91.0	F	56.1	E			SBL	650	#509	453	1.93	470.1	F	167.6	F		
	SBT	-	302	708	0.78	69.0	E					SBT	-	#551	1110	0.99	84.8	F				
	SBR	400	0	298	0.21	0.3	A					SBR	400	0	270	0.18	0.3	A				
World Gateway Dr & SR 536	EBL	700	144	76	0.58	85.8	F	27.9	C	24.7	C	EBL	700	66	27	0.34	82.8	F	28.6	C	26.4	C
	EBT	-	172	538	0.23	21.2	C					EBT	-	467	1239	0.59	34.6	C				
	EBR	500	0	30	0.04	0.1	A					EBR	500	67	367	0.43	4.0	A				
	WBL	525	m136	90	0.60	85.5	F	18.7	B			WBL	525	m241	155	0.55	74.2	E	17.4	B		
	WBT	-	284	1346	0.54	16.4	B					WBT	-	178	1160	0.41	11.1	B				
	WBR	575	m51	178	0.21	2.5	A					WBR	575	m11	91	0.10	1.2	A				
	NBL	-	255	175	0.63	63.8	E	56.5	E			NBL	-	194	138	0.54	57.0	E	39.6	D		
	NBT	-	51	8	0.17	25.7	C					NBT	-	98	22	0.56	22.7	C				
	SBL	250	80	49	0.31	53.3	D	30.1	C			SBL	250	144	105	0.48	56.1	E	43.0	D		
	SBT	-	40	13	0.20	79.5	E					SBT	-	104	51	0.47	84.3	F				
	SBR	-	0	75	0.42	6.5	A					SBR	-	84	172	0.68	22.7	C				

Table 2-3 Existing Signalized Intersection LOS (3 of 3)

Existing Conditions 2020 AM												Existing Conditions 2020 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Approach Delay	Approach LOS	Intersection Delay	Intersection LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Approach Delay	Approach LOS	Intersection Delay	Intersection LOS
International Dr & World Center Dr/SR 536	EBL	250	320	468	0.80	46.4	D	34.8	C	29.6	C	EBL	250	m#702	982	0.84	34.4	C	33.7	C	34.4	C
	EBT	-	300	440	0.23	22.9	C					EBT	-	m585	1116	0.60	33.2	C				
	WBL	375	56	21	0.31	82.6	F	26.7	C			WBL	375	51	19	0.25	82.6	F	45.0	D		
	WBT	-	610	1006	0.70	37.1	D					WBT	-	350	639	0.78	63.1	E				
	WBR	275	0	450	0.34	0.6	A					WBR	275	0	275	0.17	0.2	A				
	NBL	150	#175	73	0.71	103.1	F	75.4	E			NBL	150	109	57	0.51	87.0	F	58.7	E		
	NBT	-	44	31	0.28	42.3	D					NBT	-	72	69	0.48	45.6	D				
	SBL	-	133	118	0.57	87.1	F	19.0	B			SBL	-	351	438	0.81	82.7	F	26.6	C		
	SBT	-	134	13	0.57	86.8	F					SBT	-	350	44	0.80	82.3	F				
	SBR	-	0	493	0.42	0.9	A					SBR	-	0	1151	0.74	3.2	A				
US 192 & Storey Lake Blvd	EBL	425	m26	19	0.17	90.2	F	4.6	A	9.1	A	EBL	425	79	58	0.43	116.4	F	10.1	B	16.7	B
	EBT	-	212	1203	0.30	3.2	A					EBT	-	429	2149	0.53	7.2	A				
	WBL	530	-	0	-	-	-	8.5	A			WBL	530	-	0	-	-	-	11.7	B		
	WBT	-	532	2230	0.59	8.9	A					WBT	-	460	1702	0.47	12.6	B				
	WBR	350	26	145	0.12	1.3	A					WBR	350	40	151	0.13	2.3	A				
	NBT	-	-	0	-	-	-	-	-			NBT	-	-	0	-	-	-	-	-		
	SBL	250	94	86	0.49	95.4	F	62.0	E			SBL	250	258	249	0.77	115.7	F	85.6	F		
	SBT	-	-	0	0.17	2.3	A					SBT	-	11	0	0.23	5.3	A				
	SBR	-	-	48	0.16	2.2	A					SBR	-	11	93	0.23	5.0	A				
Poinciana Blvd & Osceola Pkwy WB On Ramp	NBL	-	112	116	0.58	52.2	D	6.6	A	6.2	A	NBL	-	103	105	0.56	50.9	D	7.0	A	7.7	A
	NBT	-	0	824	0.24	0.2	A					NBT	-	0	670	0.20	0.1	A				
	SBT	-	89	400	0.20	5.6	A	5.6	A			SBT	-	213	818	0.40	8.2	A	8.2	A		
N Poinciana Blvd & US 192	EBL	390	75	66	0.42	97.1	F	57.1	E	56.2	E	EBL	390	105	86	0.53	117.6	F	113.0	F	79.6	E
	EBT	-	896	1745	0.89	60.1	E					EBT	-	742	1240	0.81	78.3	E				
	EBR	390	122	187	0.28	14.5	B					EBR	390	#1588	813	1.25	165.5	F				
	WBL	330	52	41	0.30	95.5	F	50.9	D			WBL	330	211	202	0.72	117.0	F	70.3	E		
	WBT	-	560	1222	0.65	51.0	D					WBT	-	563	1040	0.61	64.8	E				
	WBR	330	0	39	0.06	0.2	A					WBR	330	17	56	0.10	3.2	A				
	NBL	234	#783	452	1.04	98.0	F	66.6	E			NBL	234	303	263	0.75	46.3	D	43.2	D		
	NBT	-	557	760	0.62	49.2	D					NBT	-	370	469	0.38	41.9	D				
	SBL	475	49	33	0.18	31.2	C	37.6	D			SBL	475	80	61	0.17	29.0	C	44.8	D		
	SBT	-	212	325	0.28	45.6	D					SBT	-	480	678	0.48	51.8	D				
	SBR	475	0	64	0.10	0.3	A					SBR	475	30	91	0.13	3.8	A				
Poinciana Blvd & Osceola Pkwy EB Off Ramp	EBL	-	37	19	0.19	49.8	D	42.2	D	2.5	A	EBL	-	73	52	0.39	52.9	D	34.4	C	4.6	A
	EBR	-	17	10	0.12	26.8	C					EBR	-	41	63	0.42	19.3	B				
	NBT	-	67	930	0.30	1.4	A	1.4	A			NBT	-	65	723	0.25	1.9	A	1.9	A		
	SBT	-	16	400	0.17	2.2	A	2.2	A			SBT	-	29	818	0.37	2.7	A	2.7	A		

Table 2-4 Existing Unsignalized Major Movement LOS

Study Intersection	2020 AM							2020 PM						
	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS
SR 535 & Calypso Cay Way/Osceola Pkwy On Ramp	EBR	-	5	42	0.07	10.6	B	EBR	-	15	68	0.18	15.4	C
	NBL	225	5	49	0.06	9.1	A	NBL	225	2.5	23	0.05	11.9	B
SR 535 & Lake Bryan Beach Blvd	WBL	-		22	1.94	693.0	F	WBL	-		57	3.37	1236.9	F
	WBT	-	185	0				WBT	-	457.5	0			
	WBR	-		42				WBR	-		103			
	NBL	150	7.5	29	0.10	18.1	C	NBL	150	37.5	51	0.36	42.2	E
	SBL	150	55	58	0.48	57.8	F	SBL	150	10	20	0.12	28.2	D
SR 535 & Median Opening S	EBR	-	7.5	30	0.08	14.7	B	EBR	-	120	144	0.73	55.7	F
	WBR	-	17.5	42	0.19	23.0	C	WBR	-	20	79	0.21	16.2	C
	NBL	750	5	16	0.05	16.0	C	NBL	750	22.5	30	0.24	40.1	E
	SBL	500	2.5	10	0.04	19.7	C	SBL	500	2.5	19	0.04	12.5	B
SR 535 & Median Opening N	WBR	-	0	0	0.00	0.0	A	WBR	-	20	61	0.21	19.5	C
	SBL	550	2.5	5	0.04	33.0	D	SBL	550	5	20	0.06	15.8	C
Poinciana Blvd & Westbound Off Ramp	WBL	-	20	184	0.22	10.2	B	WBL	-	37.5	225	0.34	12.8	B
	WBR	-	10	122	0.13	9.0	A	WBR	-	15	152	0.16	9.4	A
International Dr & World Gateway Dr	EBL	200	17.5	142	0.19	9.6	A	EBL	200	27.5	242	0.26	10.0	B
	SBL	-	12.5	48	0.14	14.7	B	SBL	-	705	439	1.61	319.2	F
	SBR	-	12.5	85	0.13	10.2	B	SBR	-	15	134	0.17	10.3	B
World Center Dr & Buena Vista Suites	EBL	500	17.5	40	0.20	26.7	D	EBL	500	30	40	0.31	43.0	E
	WBL	500	5	22	0.06	14.6	B	WBL	500	25	27	0.27	53.0	F
	NBL	-		14	0.38	74.2	F	NBL	-		19	3.35	1545.6	F
	NBT	-	37.5	2				NBT	-	185	0			
	NBR	-		14				NBR	-		33			
	SBL	-		1	0.15	36.4	E	SBL	-		6	0.94	262.4	F
	SBT	-	12.5	1				SBT	-	92.5	0			
	SBR	-		18				SBR	-		33			
World Center Dr & Caribe Royale Orlando	EBL	-	25	46	0.25	30.5	D	EBL	-	17.5	24	0.19	38.5	E
	SBL	-	20	9	0.24	124.0	F	SBL	-	62.5	23	0.75	263.7	F
	SBR	-	5	19	0.07	19.3	C	SBR	-	17.5	42	0.20	25.4	D

2.7.2 Existing Year (2020) Arterial LOS analysis

The roadway arterial operational analysis was performed for the existing year traffic conditions for AM and PM peak hours using Synchro 11 software. **Table 2-5**, summarizes the speed and arterial LOS for the SR 535 study corridor. Detailed Synchro Arterial LOS reports are provided in **Appendix D**.

During the AM peak hour condition, five (5) segments show deficient operations; three (3) of which are noted on northbound segments while two (2) are noted on southbound segments. Overall, the northbound and southbound SR 535 arterial segments operate at LOS E and LOS D, respectively. During the PM peak hour condition, six (6) segments show deficient operations; three (3) of which are noted on northbound segments and three (3) are noted on southbound segments. Overall, northbound SR 535 arterial segments operate at LOS D while southbound SR 535 operates at LOS E. In general, the southbound SR 535 segments between Calypso Cay Way and Polynesian Isle Boulevard operate at LOS D or better, which may be attributed to the third southbound lane.

Table 2-5 Existing Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	Arterial Speed %	LOS
AM	**Northbound**								
		US 192	Kyngs Heath Road	1003	45	28.7	23.6	43%	D
		Kyngs Heath Road	Osceola Pkwy on-ramp	1637	50	33.0	33.6	68%	B
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	40.7	17.9	33%	E
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	70.6	18.5	38%	E
		Polynesian Isle Blvd	LBV Factory Stores	1742	50	54.6	21.7	43%	D
		LBV Factory Stores	International Dr	2112	50	43.8	32.5	65%	C
		International Dr	SR 536/World Center Dr	1373	50	95.0	10.0	20%	F
			Total	**2.05**	**50**	**366.4**	**17.8**	**39%**	**E**
	Southbound								
		Entry Link	SR 536/World Center Dr	4594	50	131.7	23.8	48%	D
		SR 536/World Center Dr	International Dr	1373	50	52.7	18.0	36%	E
		International Dr	LBV Factory Stores	2112	50	47.1	30.3	61%	C
		LBV Factory Stores	Polynesian Isle Blvd	1742	50	44.5	26.6	53%	C
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	60.1	21.8	44%	D
		Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.3	35.9	72%	B
		Osceola Pkwy on-ramp	Kyngs Heath Road	1637	50	42.0	26.4	53%	C
		Kyngs Heath Road	US 192	1003	45	133.5	5.1	14%	F
			Total	**2.92**	**50**	**531.9**	**19.8**	**42%**	**E**
PM	**Northbound**								
		US 192	Kyngs Heath Road	1003	45	34.4	19.7	44%	D
		Kyngs Heath Road	Osceola Pkwy on-ramp	1637	50	36.5	30.4	61%	C
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	42.1	17.3	35%	E
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	73.3	17.9	36%	E
		Polynesian Isle Blvd	LBV Factory Stores	1742	50	53.8	22.0	44%	D
		LBV Factory Stores	International Dr	2112	50	43.1	33.1	66%	C
		International Dr	SR 536/World Center Dr	1373	50	83.6	11.3	23%	F
			Total	**2.05**	**50**	**366.8**	**17.7**	**40%**	**E**
	Southbound								
		Entry Link	SR 536/World Center Dr	4594	50	147.5	21.2	42%	**D**
		SR 536/World Center Dr	International Dr	1373	50	81.3	11.6	23%	F
		International Dr	LBV Factory Stores	2112	50	81.2	17.5	35%	E
		LBV Factory Stores	Polynesian Isle Blvd	1742	50	52.3	22.6	45%	D
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	59.2	22.1	44%	D
		Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.3	35.9	72%	B
		Osceola Pkwy on-ramp	Kyngs Heath Road	1637	50	41.1	27.0	54%	C
		Kyngs Heath Road	US 192	1003	45	199.5	3.4	18%	F
			Total	**2.92**	**50**	**682.4**	**15.4**	**37%**	**F**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

3 Development of Design Traffic Characteristics

The traffic factors established in this section were used in developing design hour volumes (DHV's) at the study intersections for the future conditions. These characteristics are determined based on the procedures outlined in the *2019 FDOT PTF Handbook*. These factors are important as they play a role in determining the appropriate number of lanes along a facility or design features such as pavement thickness. Key traffic factors include K-factor, Directional Distribution Factor (D-factor), and percentage of trucks for both the design hour and daily demand (DHT and T-Daily) which are further described in this section.

3.1 Standard K Factor and Alternate K Factor

In general terms, the K-factor is the percentage of the daily traffic volume that occurs during the peak hour of the day. Specifically, the K-factor is used to convert an AADT volume into a two-way DHV for a given roadway segment. The FDOT has implemented standardized K-factors to be used in traffic forecasting statewide. The Standard K-factor is dependent upon the area type and facility type for a given project. A standard K-factor of 9 percent is typically used for most urban arterials. This means that 9 percent of the daily traffic occurs in the design hour. The 2019 FDOT PTF Handbook states that there are also cases where Standard K Factors may not directly apply, and it recommends the project team coordinate with FDOT Central Office for approval of an Alternate K Factor. The selection of an Alternate K Factor for study roadways is discussed in **Section 3.4**.

3.2 D Factor

The D-factor represents the percentage of traffic traveling in the peak direction along a roadway segment during the design hour. By applying a D-factor to the previously developed two-way design hour volume, the Directional Design Hourly Volumes (DDHVs) will be calculated for a given roadway segment. These segment DDHVs for each leg of an intersection will be utilized in developing design hour intersection volumes.

3.3 T and DHT Factors

The ratio of passenger vehicles and larger trucks is also important in the analysis and design of roadway improvements. T-Daily (T) factor is the percentage of trucks over the course of an average day. DHT is defined as one-half of the T-Daily factor.

3.4 Traffic Factors from Project Data Collection

K-factor, D-factor and T-Daily from 72-hour and 48-hour classification counts were reviewed and summarized in **Table 3-1;** indicating that the K-factor varies between 5.2 percent and 6.2 percent for the segments on SR 535. Similarly, the K-factor for major roadways including SR 536 and US 192 are below seven percent (<7%). The K-factor for all remaining arterials varies between 4.4 percent and 12.8 percent during peak hours. The lower K-factor represents the prevailing multi-hour peak period rather than a single peak hour within the study area. The prevailing multi-hour peak period within the SR 535 corridor area is due to the unique location. The SR 535 study area is located within close proximity to the heavy tourist area in Orlando which includes Disney World (including its four parks and Disney Springs), Sea World, and Universal Studios Resort generating a significant amount of tourist traffic as well as “shift work” trips. These types of trips do not have the same peaking characteristics as the more traditional residential and commercial areas which are directional in nature and typically peak during the morning and afternoon commute time periods. The tourist and shift work trips are dispersed and directionally balanced in their peaks and thus generate a longer peak with more total traffic rather than more directional traffic.

Table 3-1 Traffic Factors from 72-Hr and 48-Hr Classification Counts

Road Name	Segment	K-Factor (K)		D-Factor (D)				T-Daily (T)
		AM PEAK	PM PEAK	AM PEAK	DIRECTION	PM PEAK	DIRECTION	
72-Hr Classification Count								
SR 535	Kyngs Heath Rd to Calypso Cay Way	5.20%	6.20%	62.50%	NB	52.90%	SB	8.30%
	Poinciana Blvd to Polynesian Isle Blvd	5.40%	5.70%	62.30%	NB	52.30%	SB	10.20%
	LBV Factory Stores to International DR	5.30%	5.70%	64.40%	NB	51.10%	SB	8.40%
	International Dr to SR 536	5.30%	6.00%	63.80%	NB	52.70%	SB	8.40%
	SR 536 to Lake Bryan Beach Blvd	6.00%	5.90%	51.80%	NB	52.20%	SB	11.60%
	Average	**5.40%**	**5.90%**	**60.90%**	**-**	**-**	**-**	**9.40%**
48-Hr Classification Count								
US 192	West of SR 535 and East of Poinciana Blvd	5.40%	6.30%	58.90%	WB	53.00%	EB	4.50%
	SR 535 to Storey Lake Blvd	5.50%	6.40%	63.50%	WB	54.80%	EB	7.60%
	Average	**5.50%**	**6.40%**	**61.20%**	**-**	**53.90%**	**-**	**6.10%**
SR 536	West of SR 535	5.70%	6.80%	57.10%	WB	56.60%	EB	6.00%
World Center Dr	SR 535 to International Dr	5.50%	6.40%	51.20%	WB	52.60%	EB	6.20%
Osceola Pkwy EB On Ramp	EB On Ramp (east of SR 535)	4.40%	9.30%	100.00%	EB	100.00%	EB	10.60%
Other Roadways								
Kyngs Heath Rd	West of SR 535	4.8%	7.7%	5.4%	WB	50.8%	WB	1.6%
Calypso Cay Wy	West of SR 535	7.1%	5.9%	72.2%	WB	56.7%	EB	1.1%
Poinciana Blvd	West of SR 535	4.6%	5.9%	64.6%	EB	56.4%	WB	8.2%
	East of SR 535	4.5%	8.3%	74.3%	WB	67.8%	WB	4.0%
Polynesian Isle Blvd	West of SR 535	5.1%	7.1%	60.1%	EB	56.1%	WB	5.6%
LBV Factory Stores Dr	East of SR 535	6.1%	7.6%	51.5%	EB	55.6%	WB	4.3%
International Dr	West of SR 535	4.9%	12.8%	59.1%	EB	79.5%	EB	4.0%
Lake Bryan Beach Blvd	East of SR 535	6.9%	6.2%	53.9%	EB	55.6%	WB	5.7%
Average (Other Roadways)		**5.5%**	**7.7%**	**60.8%**	**-**	**59.8%**	**-**	**4.3%**

3.5 Historic K, D and T-Daily factors

Historical information obtained from FTO count stations were reviewed to estimate historic K, D and T-Daily factors. Historic K-factors were reviewed from FTO synopsis reports for FTO count stations on SR 535, SR 536 and US 192 roadway segments for entire day and presented in **Appendix E**. Additionally, AM and PM peak-hours between 7 AM and 9 AM and 4 PM and 6 PM were reviewed and summarized in **Table 3-2**. The peak-hour K-factor varies between 5.3 percent and 7 percent based on data shown in **Table 3-2**. Historical data indicates a K-factor below 7.5 percent for SR 535 count locations. **Table 3-3** summarizes historical D factors and T-Daily factors from FTO count locations.

Table 3-2 K-Factor (in Percentages) from Historical Data

Year	SR 535			SR 536	US 192	
	Station 750630	Station 920312	Station 920318	Station 750595	Station 920320	Station920313
	North of Lake Bryan Beach Blvd	Poinciana Blvd to Polynesian Isle Blvd	Kyngs Heath Rd to Calypso Cay Wy	West of SR 535	West of SR 535 and East of Poinciana Blvd	East of Storey Lake Blvd
AM Peak Hour						
2019	6.0%	5.4%	5.4%	5.5%	-	6.7%
2018	5.9%	4.1%	-	5.7%	5.9%	5.6%
2017	5.1%	-	5.7%	5.8%	5.3%	5.8%
2016	5.1%	6.2%	5.7%	5.6%	5.4%	5.9%
2015	5.5%	5.6%	5.3%	5.7%	5.2%	5.7%
2014	5.8%	6.2%	5.7%	5.7%	5.3%	6.1%
2013	5.1%	5.9%	5.2%	5.2%	5.0%	5.9%
2012	5.4%	4.5%	5.9%	5.3%	5.0%	5.9%
Average	**5.5%**	**5.4%**	**5.5%**	**5.6%**	**5.3%**	**6.0%**
PM Peak Hour						
2019	6.2%	5.6%	6.8%	6.7%	-	6.7%
2018	6.3%	6.1%	-	6.4%	7.0%	6.3%
2017	6.7%	-	6.8%	6.2%	6.7%	7.0%
2016	6.9%	6.7%	7.0%	7.9%	7.1%	7.0%
2015	6.9%	6.8%	6.7%	6.3%	6.9%	7.9%
2014	6.7%	6.5%	6.7%	7.1%	7.2%	7.4%
2013	6.8%	6.8%	6.3%	7.1%	7.3%	7.2%
2012	6.4%	7.2%	7.0%	7.4%	6.8%	6.7%
Average	**6.6%**	**6.5%**	**6.8%**	**6.9%**	**7.0%**	**7.0%**

Table 3-3 D & T-Daily Factors (in Percentages) from Historical Data

Year	SR 535			SR 536	World Center Dr			International Dr	Polynesian Isle Blvd	Poinciana Blvd	US 192	
	Station 750630	Station 920312	Station 920318	Station 750595	Station 758158	Station 752256	Station 752255	Station 758187	Station 927033	Station 927032	Station 920320	Station920313
	North of Lake Bryan Beach Blvd	Poinciana Blvd to Polynesian Isle Blvd	Kyngs Heath Rd to Calypso Cay Wy	West of SR 535	SR 535 to International Dr	SR 417 On-ramp/East of International Dr	SR 417 Off-ramp/East of International Dr	West of SR 535	West of SR 535	West of SR 535	West of SR 535 and East of Poinciana Blvd	East of Storey Lake Blvd
AM Peak Hour												
2019	52.6	53.2	53.2	52.6	52.6	100	100	52.6	53.2	53.2	53.2	53.2
2018	53.2	53.6	53.6	53.2	53.2	100	100	53.2	53.6	53.6	53.6	53.6
2017	52.6	52.8	52.8	52.6	52.6	100	100	52.6	52.8	52.8	52.8	52.8
2016	52.5	52.5	52.5	52.5	52.5	100	100	52.5	52.5	52.5	52.5	52.5
2015	53.2	52.7	52.7	53.2	53.2	100	100	53.2	52.7	52.7	52.7	52.7
2014	53.2	52.8	52.8	53.2	53.2	100	100	53.2	52.8	52.8	52.8	52.8
2013	53.3	53	53	53.3	53.3	-	-	53.3	53	53	53	53
2012	52.9	53.1	53.1	52.9	52.9	-	-	52.9	53.1	53.1	53.1	53.1
2011	52.7	53.1	53.1	52.7	52.7	-	-	52.7	53.1	53.1	53.1	53.1
2010	52.8	53.5	53.5	52.8	-	-	-	-	53.5	53.5	53.5	53.5
Average	**52.9**	**53**	**53**	**52.9**	**52.9**	**100**	**100**	**52.9**	**53**	**53**	**53**	**53**
PM Peak Hour												
2019	4.1	7.8	6.1	4.4	3.8	4.1	4.1	2.1	1.3	5.2	4	5.8
2018	4.1	7.9	6.1	4.2	4.3	5.8	5.8	2.1	1.3	5.2	4	5.8
2017	4.4	3.9	3.7	3.4	3.9	6.2	6.2	2.1	7.3	34.2	3.9	3.9
2016	4.1	3.9	4.1	4.3	5.7	6	6	2.2	7.3	27.8	5.9	5.9
2015	4.9	3.8	4.9	6	4.4	7.2	7.2	2.2	7.3	4.2	5.8	5.8
2014	4.4	3.4	4.4	5.4	3.8	5.7	5.7	3.8	1.8	4.2	3.8	3.8
2013	3.6	3.1	3.6	4.1	4.1	-	-	4.1	1.8	4.2	3.9	3.9
2012	3.5	3	3.5	4	3.6	-	-	3.6	24.5	24.5	5.6	5.6
2011	3.6	3.1	3.6	4.1	3.5	-	-	3.5	20.9	20.9	4.6	4.6
2010	3.1	3	3.1	3.1	-	-	-	-	25.3	25.3	3.7	3.7
Average	**4**	**4.3**	**4.3**	**4.3**	**4.1**	**5.8**	**5.8**	**2.9**	**9.9**	**15.6**	**4.5**	**4.9**

3.6 Recommended Design Traffic Characteristics

The recommended K, D, and T factors were selected based on a review of the available historical, data collection counts and input from the FDOT Central Office. All recommended traffic factors are summarized in **Table 3-4.**

- A K-factor of 7.5% is recommended for the major roadways including SR 535, US 192 and SR 536 based on prevailing traffic conditions as seen from the data collection counts and historic information. For the remaining roadways, an alternate K-factor (mostly based on field collected PM peak-hour data) is recommended.
- A D-factor of 52.2% is recommended for SR 535, 53.9 % for US 192, 56.6 % for SR 536 and 52.6 % for World Center Drive. For the remaining roadways, a D-factor mostly based on field collected PM peak-hour data is recommended.
- A T-Daily factor of 9.4% was recommended for SR 535 based on the average of all field-collected data. The T-Daily factor all the remaining roadways were obtained from the field-collected count stations.
- For all new roadways, K, D, and T-Daily factors from adjacent and similar roadways will be utilized.

Table 3-4 Recommended Traffic Factors

Intersection	Segments	K	D	T
SR 535 @ Lake Bryan Beach Blvd	Lake Bryan Beach Blvd, west of SR 535 (Local)	6.20%	55.60%	5.70%
	Lake Bryan Beach Blvd, East of SR 535 (Local)	6.20%	55.60%	-
	SR 535, North of Lake Bryan Beach Blvd (Regional)	7.50%	52.20%	-
	SR 535, South of Lake Bryan Beach Blvd (Regional)	7.50%	52.20%	9.40%
SR 535 @ World Center Dr	World Center Dr, west of SR 535 (Regional)	7.50%	56.60%	6.00%
	World Center Dr, East of SR 535 (Regional)	7.50%	52.60%	6.20%
	SR 535, North of World Center Dr (Regional)	7.50%	52.20%	9.40%
	SR 535, South of World Center Dr (Regional)	7.50%	52.20%	9.40%
SR 535 @ International Dr S	International Dr S, West of SR 535 (Regional)	9.00%	57.90%	4.00%
	International Dr S, East of SR 535 (Regional)	9.00%	57.90%	-
	SR 535, North of International Dr S (Regional)	7.50%	52.20%	9.40%
	SR 535, South of International Dr S (Regional)	7.50%	52.20%	9.40%
SR 535 @ LBV Factory Stores Dr	LBV Factory Stores Dr, west of SR 535 (Local)	-	-	-
	LBV Factory Stores Dr, East of SR 535 (Local)	7.60%	55.60%	4.30%
	SR 535, North of LBV Factory Stores Dr (Regional)	7.50%	52.20%	9.40%
	SR 535, South LBV Factory Stores Dr (Regional)	7.50%	52.20%	9.40%
SR 535 @ Median Opening N	Median Opening North, East of SR 535 (Local)	7.60%	55.60%	-
	SR 535, North of Median Opening North (Regional)	7.50%	52.20%	9.40%
	SR 535, South of Median Opening North (Regional)	7.50%	52.20%	9.40%
SR 535 @ Polynesian Isle Blvd	Polynesian Isle Blvd, west of SR 535 (Local)	7.10%	56.10%	5.60%
	Polynesian Isle Blvd, East of SR 535 (Local)	7.10%	56.10%	-
	SR 535, North of Polynesian Isle Blvd (Regional)	7.50%	52.20%	9.40%
	SR 535, South of Polynesian Isle Blvd (Regional)	7.50%	52.20%	9.40%
SR 535 @ Median Opening S	Median Opening S, West of SR 535 (Local)	7.10%	56.10%	-
	Median Opening S, East of SR 535 (Local)	7.10%	56.10%	-
	SR 535, North of Median Opening S (Regional)	7.50%	52.20%	9.40%
	SR 535, South of Median Opening S (Regional)	7.50%	52.20%	9.40%
SR 535 @ Poinciana Blvd	Poinciana Blvd, west of SR 535 (Regional)	5.90%	56.40%	8.20%
	Poinciana Blvd, East of SR 535 (Local)	8.30%	57.90%	4.00%
	SR 535, North of Poinciana Blvd (Regional)	7.50%	52.20%	9.40%
	SR 535, South of Poinciana Blvd (Regional)	7.50%	52.20%	9.40%
SR 535 @ Osceola Pkwy On Ramps (North)	Osceola Pkwy EB On Ramp	9.00%	99.90%	10.60%
	SR 535, North of Osceola Pkwy On Ramps (Regional)	7.50%	52.20%	-
	SR 535, South of Osceola Pkwy On Ramps (Regional)	7.50%	52.20%	-
SR 535 @ Osceola Pkwy On Ramps (South)	Calypso Cay Way, west of SR 535 (Local)	7.10%	56.70%	1.10%
	SR 535, North of Osceola Pkwy On Ramp (Regional)	7.50%	52.20%	-
	SR 535, South of Osceola Pkwy On Ramp (Regional)	7.50%	52.20%	-
SR 535 @ Kyngs Heath Rd	Kyngs Heath Rd, west of SR 535 (Local)	7.70%	50.80%	1.60%
	Kyngs Heath Rd, East of SR 535 (Local)	7.70%	50.80%	-
	SR 535, North of Kyngs Heath Rd (Regional)	7.50%	52.20%	9.40%
	SR 535, South of Kyngs Heath Rd (Regional)	7.50%	52.20%	9.40%

Table 3-4 Recommended Traffic Factors (Continued)

Intersection	Segments	K	D	T
SR 535 @ US 192	US 192, west of SR 535 (Regional)	7.50%	53.90%	4.50%
	US 192, East of SR 535 (Regional)	7.50%	53.90%	7.60%
	SR 535, North of US 192 (Regional)	7.50%	52.20%	9.40%
	SR 535, South of US 192 (Local)	7.50%	53.90%	9.40%
World Center Dr @ International Dr	World Center Dr, West of International Dr (Regional)	7.50%	52.60%	6.20%
	SR 417 Ramp	7.50%	52.60%	5.50%
	International Dr, North of World Center Dr (Regional)	9.00%	57.90%	-
	International Dr, South of World Center Dr (Regional)	9.00%	57.90%	-
US 192 @ Storey Lake Blvd	US 192, west of Storey Lake Blvd (Regional)	7.50%	53.90%	7.60%
	US 192, east of Storey Lake Blvd (Regional)	7.50%	53.90%	-
	Storey Lake Blvd, north of US 192 (Local)	7.70%	50.80%	-
US 192 @ N Poinciana Blvd	US 192, west of Poinciana Blvd (Regional)	7.50%	53.90%	-
	US 192, east of Poinciana Blvd (Regional)	7.50%	53.90%	4.50%
	Poinciana Blvd, north of US 192 (Local)	9.00%	53.20%	-
	Poinciana Blvd, south of US 192 (Local)	9.00%	53.20%	-
W Osceola Ramp @ N Poinciana Blvd (W of SR 535)	Osceola Ramp, north of Poinciana Blvd (Regional)	5.90%	56.40%	4.90%
	Poinciana Blvd, east of Osceola On Ramp (Local)	5.90%	56.40%	8.20%
	Poinciana Blvd, west of Osceola Off Ramp (Local)	5.90%	56.40%	4.00%
W Osceola Off Ramp @ N Poinciana Blvd (E of SR 535)	Osceola Off ramp, South of Poinciana Blvd (Regional)	9.00%	99.90%	10.60%
	Poinciana Blvd, East of Osceola Off Ramp (Local)	8.30%	57.90%	-
	Poinciana Blvd, West of Osceola Off Ramp (Local)	8.30%	57.90%	-
World Gateway Drive @ World Center Drive	SR 536, west of World Gateway Dr (Regional)	7.50%	56.60%	-
	SR 536, east of World Gateway Dr (Regional)	7.50%	56.60%	-
	World Gateway Dr, north of SR 536 (Local)	9.00%	52.60%	-
	World Gateway Dr, south of SR 536 (Local)	9.00%	52.60%	-
World Gateway Drive @ International Drive	International Dr, west of World Gateway Dr (Regional)	9.00%	52.60%	4.00%
	International Dr, east of World Gateway Dr (Regional)	9.00%	57.90%	-
	World Gateway Dr, north of International Dr (Local)	9.00%	52.60%	-
World Center Dr @ Buena Vista Suites	World Center Dr, west of Buena Vista Suites	7.50%	52.60%	6.20%
	World Center Dr, east of Buena Vista Suites	7.50%	52.60%	6.20%
	Buena Vista Suites, north of World Center Dr	7.50%	53.90%	-
	Buena Vista Suites, south of World Center Dr	7.50%	53.90%	-
World Center Dr @ Caribe Royale Orlando	World Center Dr, west of Caribe Royale Orlando	7.50%	52.60%	6.20%
	World Center Dr, east of Caribe Royale Orlando	7.50%	52.60%	6.20%
	Caribe Royale Orlando, North of World Center Dr	7.50%	53.90%	-

4 Crash Data Review

Crash data for the five-year period of January 1, 2014 through December 31, 2018 was obtained from the FDOT Crash+ Analysis Reporting (CAR) System database and Signal Four Analytics. **Figure 4-1** shows the breakdown of intersections and segments analyzed. In addition to the five-year crash summaries, the analysis utilized crash rates, statewide average crash rates and High Crash Location lists to identify high crash locations. Detailed crash data and collision diagrams are provided in the SR 535 PD&E Existing Safety Report in **Appendix F**.

4.1 Crash Summary by Year and Conditions

Based on the crash data obtained from CAR System and Signal Four Analytics for the five-year period, a total of 1,809 crashes were identified within the study area. Three-hundred-and-four (304) crashes were reported in 2014, 358 crashes in 2015, 391 crashes in 2016, 413 crashes in 2017, and 343 crashes in 2018. The project crash statistics are summarized in **Table 4-1** and graphically presented in **Figure 4-1**. Six-hundred and sixty-eight (668) crashes involving injuries were reported during the five-year period. In addition, three (3) fatal crashes were recorded in 2014, one (1) in 2015, and two (2) in 2016. Rear-end crashes were the most reported crash type, accounting for 1,006 crashes (56% of all crashes). Left Turn crashes were the second highest type of crashes accounting for 256 crashes (14% of all crashes). Most of the crashes (64%) occurred during the daytime and the majority of crashes (89%) under dry conditions. **Figure 4-2** through **Figure 4-7** illustrate the concentration of key crash statistics with heat maps. **Figure 4-8** illustrates the location of pedestrian and bicycle crashes.

Within the project limits, a total of 981 crashes were reported on SR 535 from US 192 to Lake Bryan Beach Boulevard in the five-year period from 2014 through 2018. Of those reported crashes, 463 (47%) resulted in injury and four (4) resulted in a fatality. The most frequent crash type was rear end with 605 (62%) total crashes, indicating congestion. Sideswipe crashes were the second highest with 106 (11%), followed by left-turn with 93 (9%) total crashes. Of the 981 crashes, 602 (61%) crashes occurred during daylight conditions. The crash rates along this segment of SR 535 exceed the FDOT statewide averages for similar facilities.

4.2 Potential Safety Countermeasures

Based on the identified contributing factors for each intersection and segment, the following countermeasures are recommended for consideration during the development of alternatives:

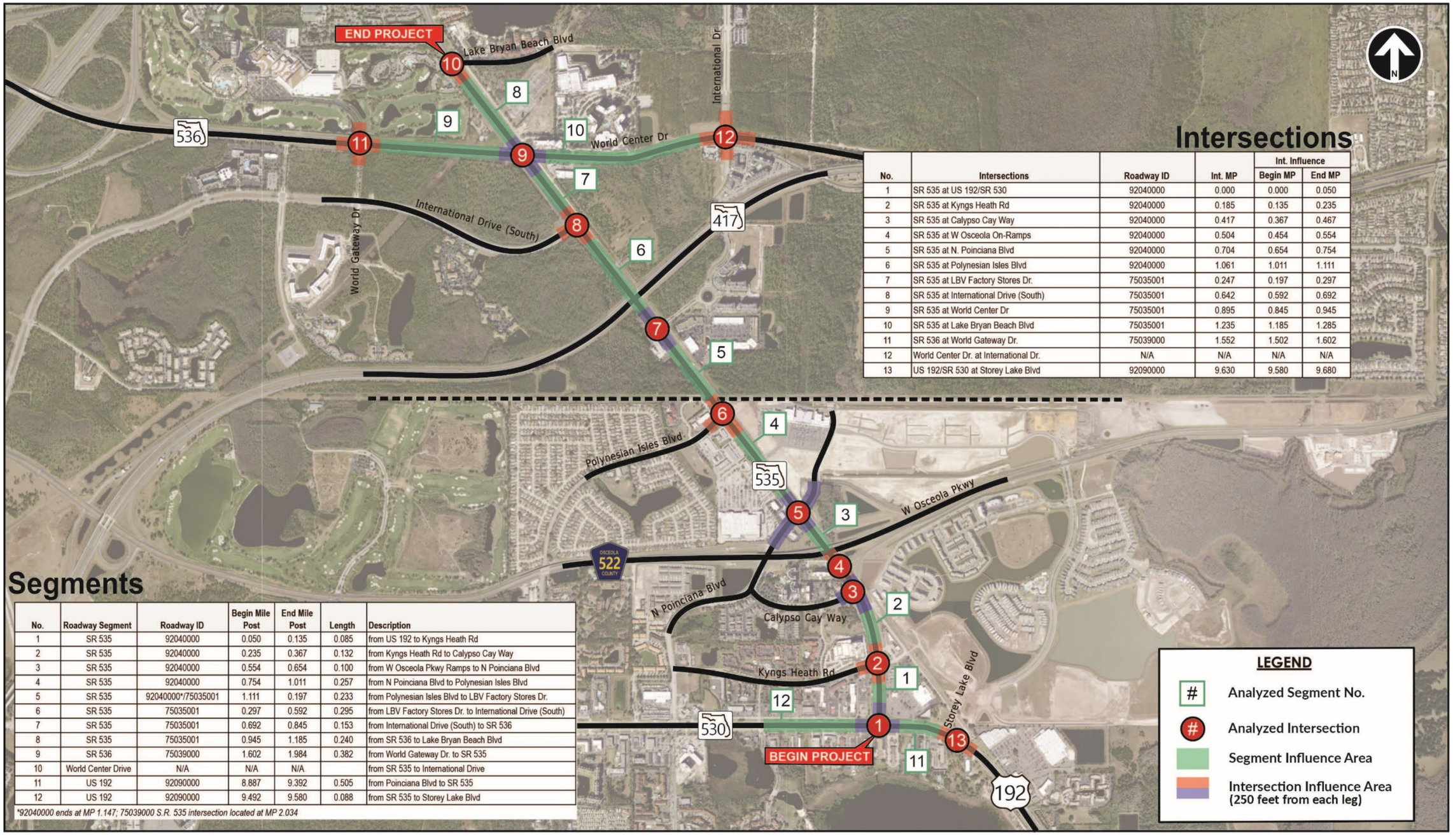
- Signalization
  - Review yellow and all-red clearance intervals

- Improve signal progression
- Review left turn phase operations
- Improve visibility of signal heads through improvements such as retroreflective backplates or additional signal heads (especially at large intersections)
- Provide pedestrian and bicycle detection

- Geometric
  - Reduce conflict points by the addition of indirect left-turns (median U-turns, quadrant roads, etc.)
  - Increase left turn storage and/or capacity
  - Increase through lane capacity
  - Improve signage
  - Provide pedestrian and bicycle facilities
  - Driveway consolidation/access management enhancements
  - Improve horizontal curvature
  - Remove/relocate fixed objects

Table 4-1 Crash Summary

Crash Severity & Type		Year					Total
		2014	2015	2016	2017	2018	
Severity	Fatal	3	1	2	0	0	6
	Injury	96	151	131	146	144	668
	PDO	205	206	258	267	199	1135
Crash Type	Rear-End	176	196	235	220	179	1006
	Head-On	1	1	1	0	0	3
	Angle	21	28	22	26	30	127
	Left-Turn	33	48	41	75	59	256
	Right-Turn	4	6	3	4	4	21
	Sideswipe	31	44	43	45	41	204
	Backed Into	0	0	0	0	1	1
	Pedestrian	5	0	3	2	1	11
	Pedalcycle	1	2	3	3	0	9
	Fixed Objects	9	5	11	8	8	41
	Other Non-Fixed Objects	1	2	0	1	0	4
	Non-Collisions	2	5	5	3	1	16
	Other	20	21	24	26	19	110
	Overall	**304**	**358**	**391**	**413**	**343**	**1809**



Intersections

No.	Intersections	Roadway ID	Int. MP	Int. Influence	
				Begin MP	End MP
1	SR 535 at US 192/SR 530	92040000	0.000	0.000	0.050
2	SR 535 at Kyngs Heath Rd	92040000	0.185	0.135	0.235
3	SR 535 at Calypso Cay Way	92040000	0.417	0.367	0.467
4	SR 535 at W Osceola On-Ramps	92040000	0.504	0.454	0.554
5	SR 535 at N. Poinciana Blvd	92040000	0.704	0.654	0.754
6	SR 535 at Polynesian Isles Blvd	92040000	1.061	1.011	1.111
7	SR 535 at LBV Factory Stores Dr.	75035001	0.247	0.197	0.297
8	SR 535 at International Drive (South)	75035001	0.642	0.592	0.692
9	SR 535 at World Center Dr	75035001	0.895	0.845	0.945
10	SR 535 at Lake Bryan Beach Blvd	75035001	1.235	1.185	1.285
11	SR 536 at World Gateway Dr.	75039000	1.552	1.502	1.602
12	World Center Dr. at International Dr.	N/A	N/A	N/A	N/A
13	US 192/SR 530 at Storey Lake Blvd	92090000	9.630	9.580	9.680

Segments

No.	Roadway Segment	Roadway ID	Begin Mile Post	End Mile Post	Length	Description
1	SR 535	92040000	0.050	0.135	0.085	from US 192 to Kyngs Heath Rd
2	SR 535	92040000	0.235	0.367	0.132	from Kyngs Heath Rd to Calypso Cay Way
3	SR 535	92040000	0.554	0.654	0.100	from W Osceola Pkwy Ramps to N Poinciana Blvd
4	SR 535	92040000	0.754	1.011	0.257	from N Poinciana Blvd to Polynesian Isles Blvd
5	SR 535	92040000*/75035001	1.111	0.197	0.233	from Polynesian Isles Blvd to LBV Factory Stores Dr.
6	SR 535	75035001	0.297	0.592	0.295	from LBV Factory Stores Dr. to International Drive (South)
7	SR 535	75035001	0.692	0.845	0.153	from International Drive (South) to SR 536
8	SR 535	75035001	0.945	1.185	0.240	from SR 536 to Lake Bryan Beach Blvd
9	SR 536	75039000	1.602	1.984	0.382	from World Gateway Dr. to SR 535
10	World Center Drive	N/A	N/A	N/A		from SR 535 to International Drive
11	US 192	92090000	8.887	9.392	0.505	from Poinciana Blvd to SR 535
12	US 192	92090000	9.492	9.580	0.088	from SR 535 to Storey Lake Blvd

*92040000 ends at MP 1.147; 75039000 S.R. 535 intersection located at MP 2.034

Figure 4-1 Crash Analysis Segmentation

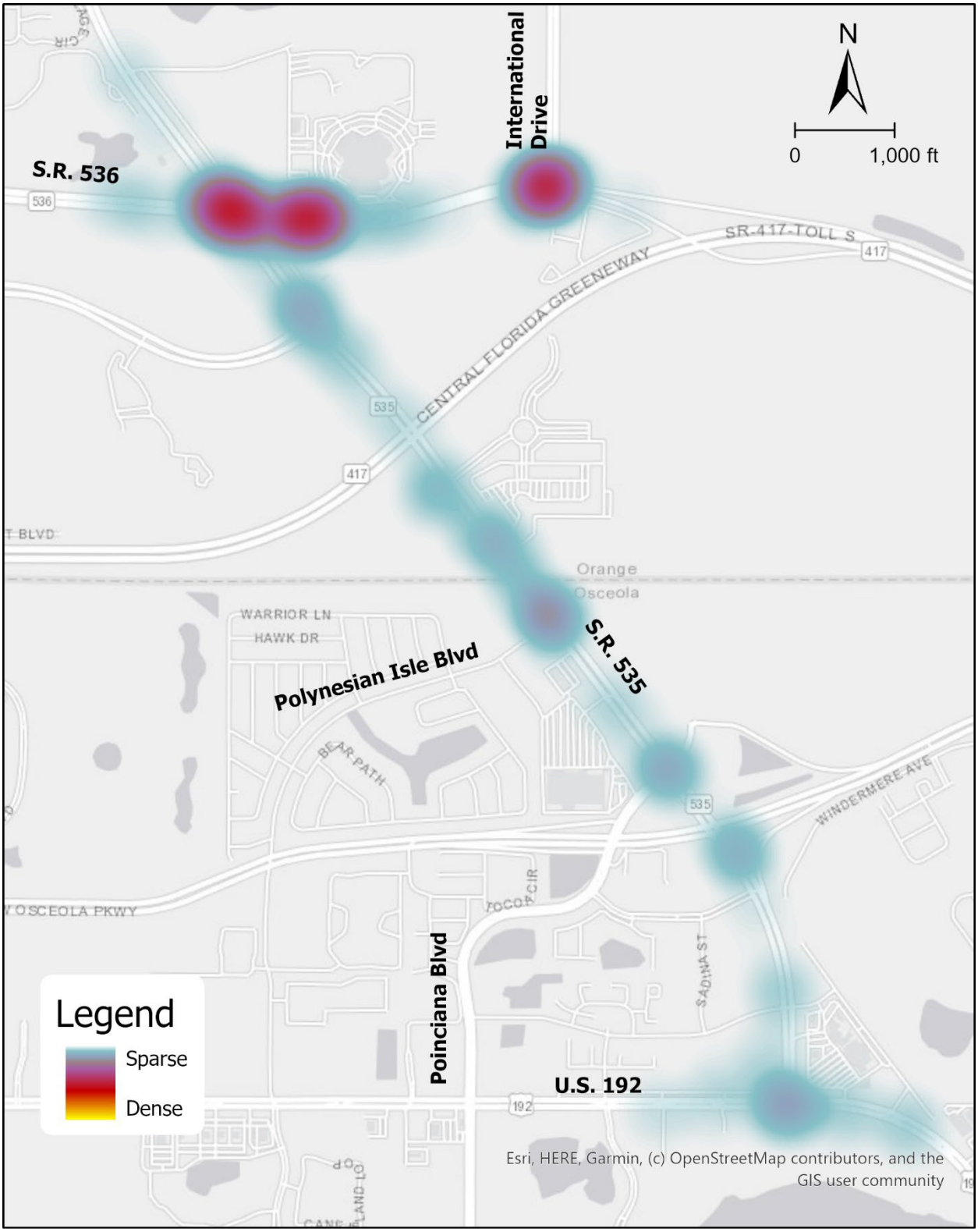


Figure 4-2 Angle/Left Turn Crashes Heat Map

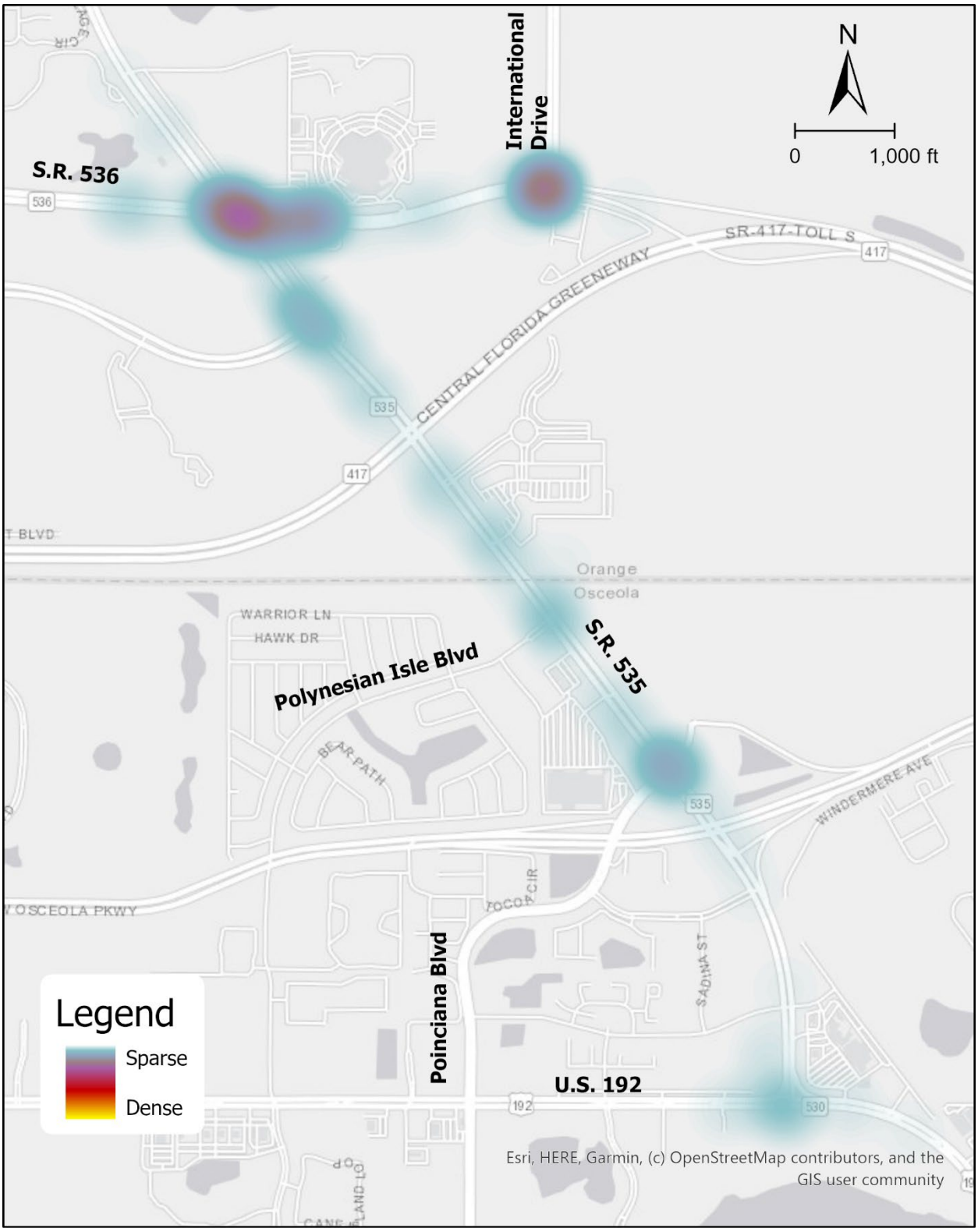


Figure 4-3 Sideswipe Crashes Heat Map

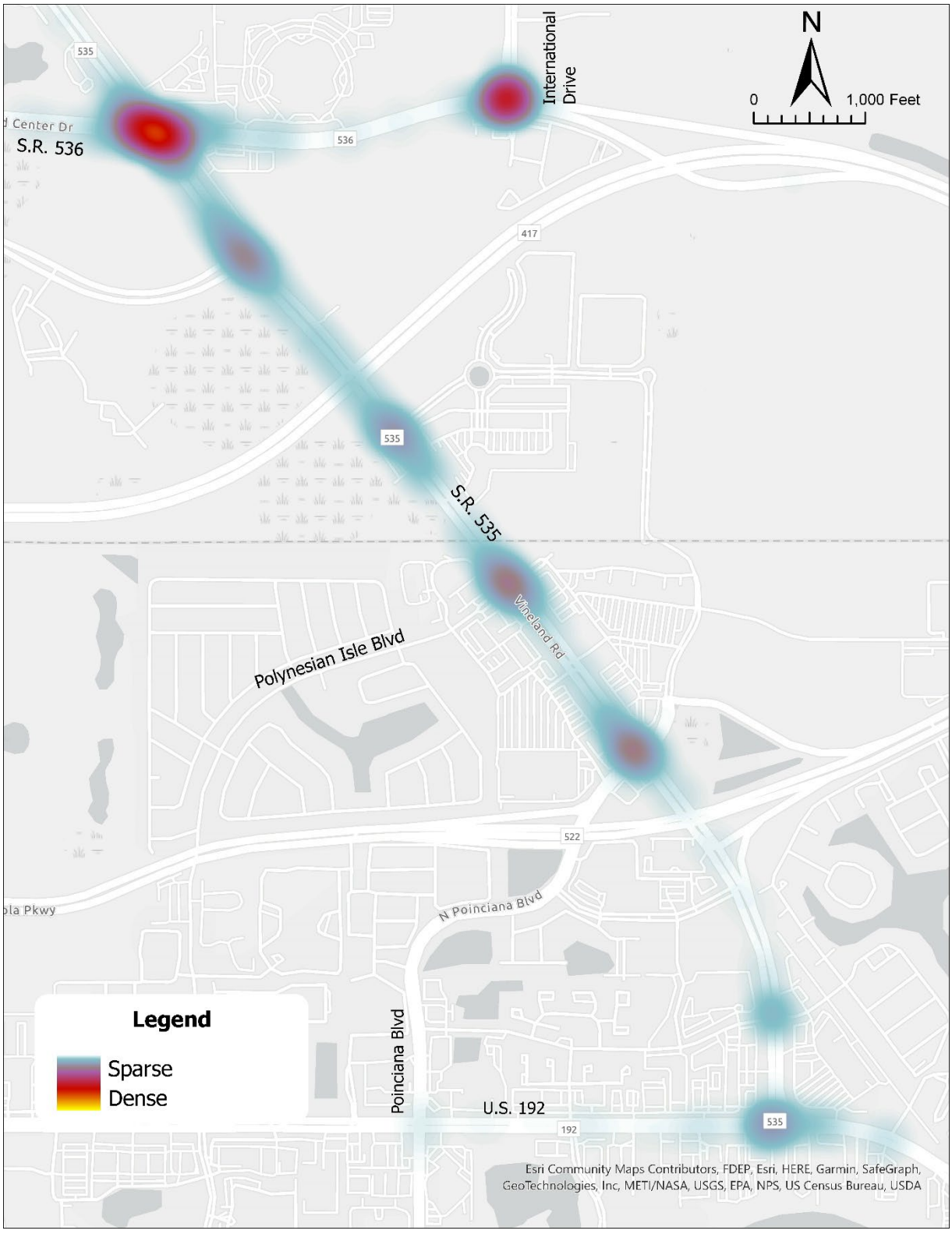


Figure 4-4 Rear End Crashes Heat Map

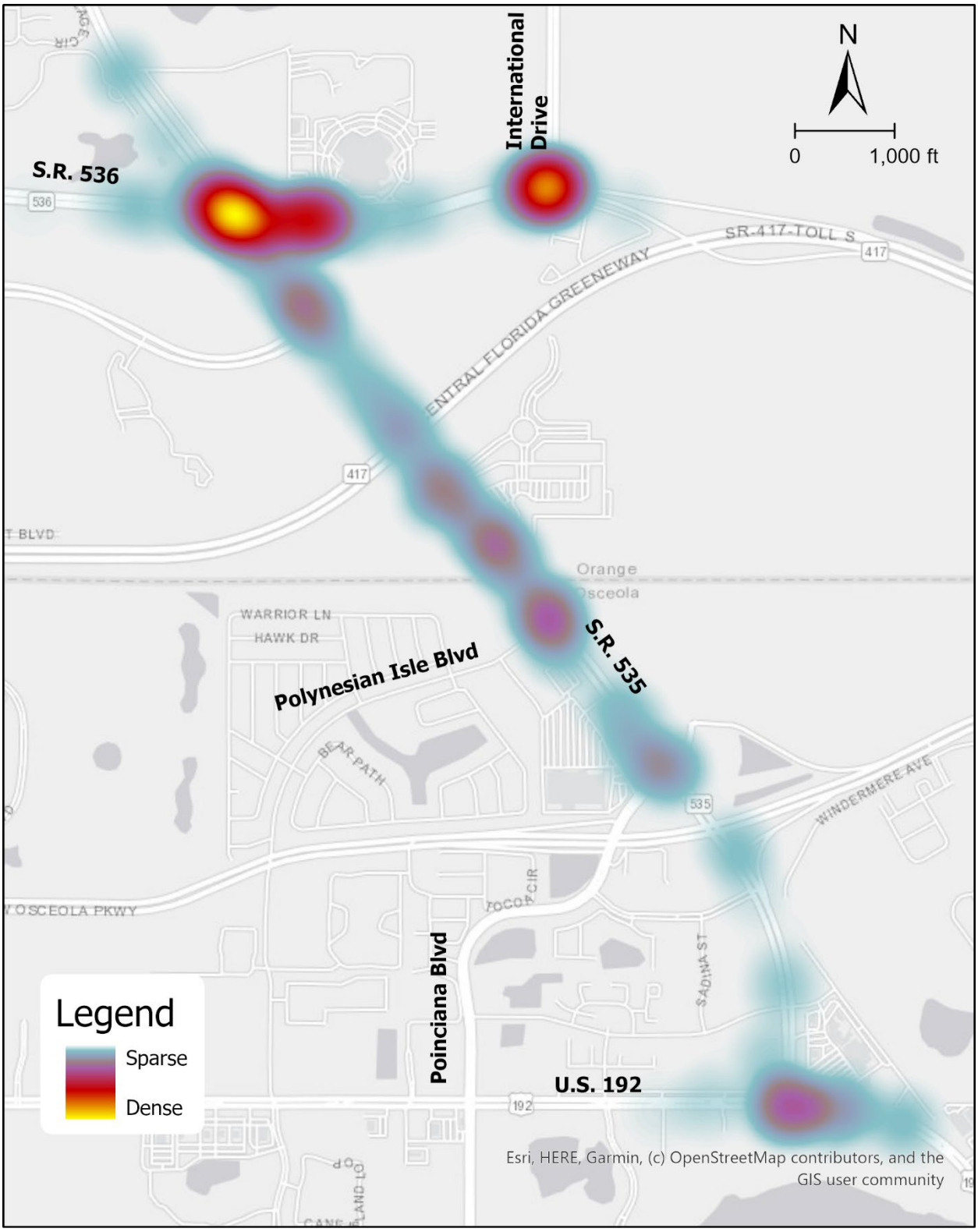


Figure 4-5 Crashes Involving Injuries Heat Map

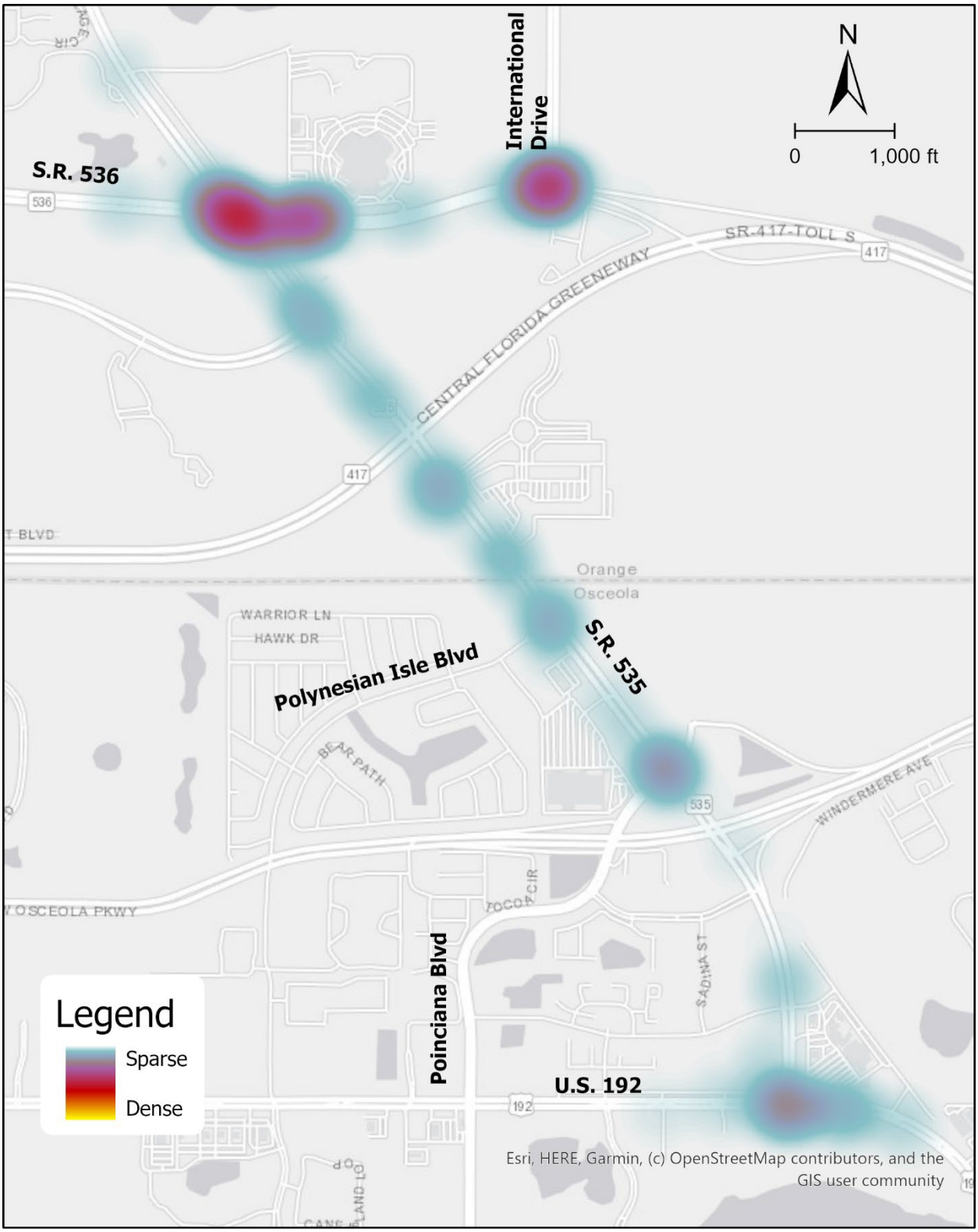


Figure 4-6 Crashes Under Wet Road Surface Conditions Heat Map

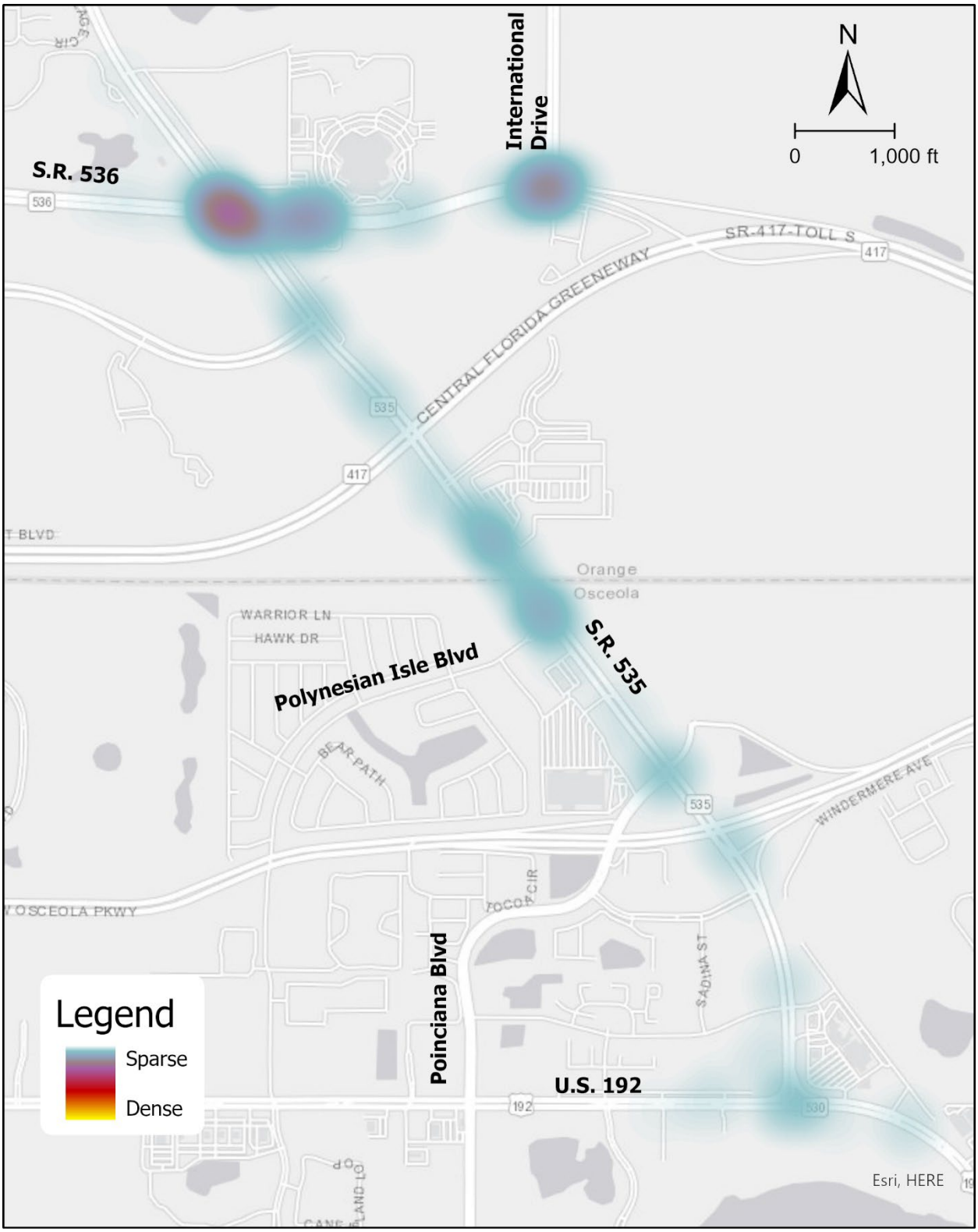


Figure 4-7 Crashes Under Dark Lighting Conditions Heat Map

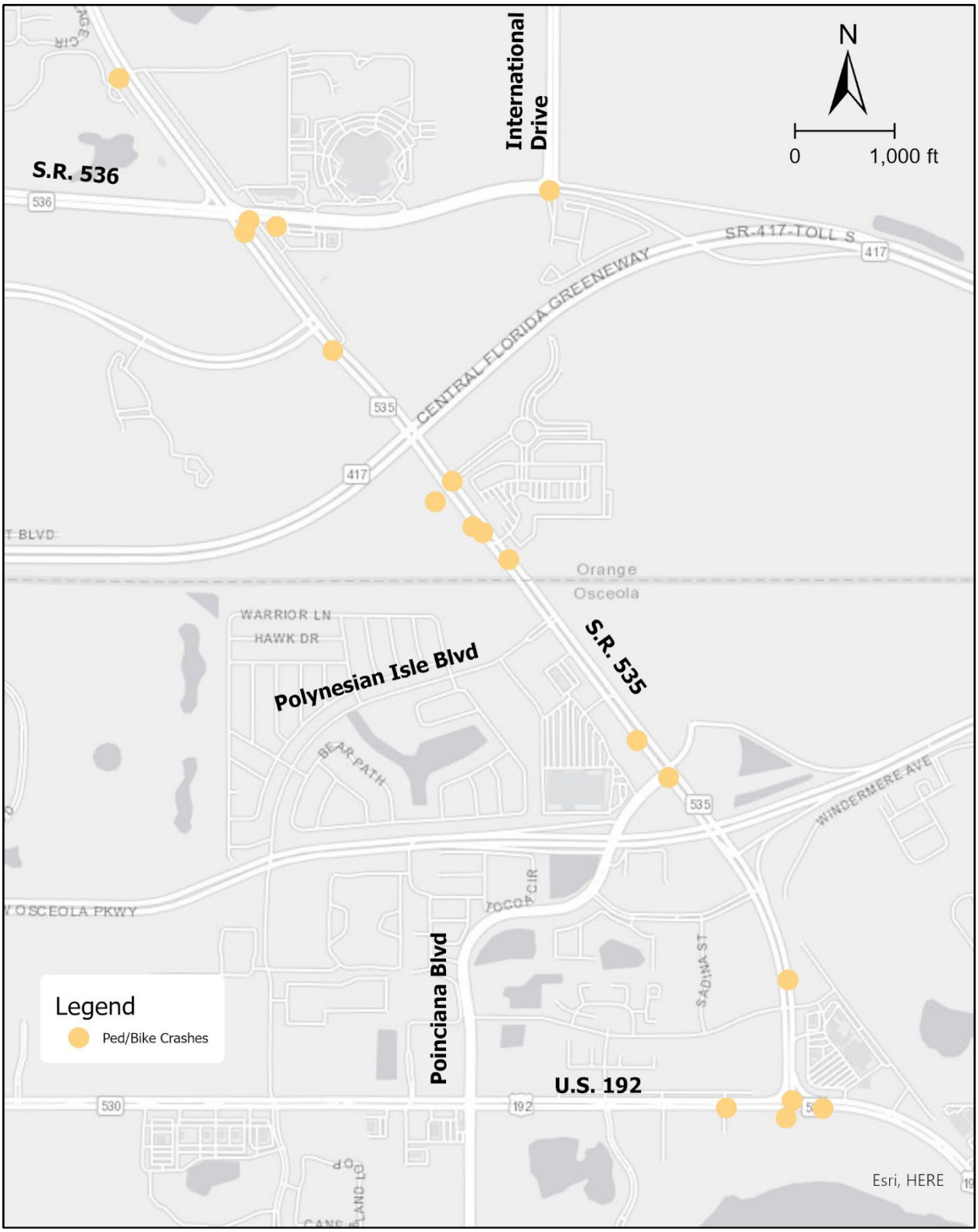


Figure 4-8 Pedestrian/Bicycle Crash Locations

4.3 Crash Rate Comparison

Table 4-2 and **Table 4-3** provide a comprehensive summary of the five-year crash totals, crash rates and identified locations on the FDOT High Crash Location List. Crash rates were calculated per million entering vehicles (MEV) for intersections and per million vehicle miles traveled (MVMT) for segments. Intersection and segment crash rate categories were determined based on the coded category within the obtained crash data. Crash rate categories were modified as needed based on intersection or segment characteristics. The following crash rate categories were used in the analysis and are referenced in **Table 4-2** and **Table 4-3**.

- 21 – Suburban 4-5 Lane Divided Raised
- 27 – Urban 6+ Lane Divided Raised
- 30 – Suburban 6+ Lane Divided Raised

The SR 535 PD&E Existing Safety Analysis report included in **Appendix F** summarizes the crash data, crash types and severities, crash rates, and safety ratio results in greater detail for each of the study intersections and includes a comparison of the crash rates against statewide averages and ranked crash lists.

Table 4-2 Intersection Crash Rates and Safety Ratios (2014 - 2018)

No.	Roadway	Roadway ID	Intersection MP	Influence Begin MP	Influence End MP	No. of Crashes	Annual Crash Frequency	AADT	Crash Rate (per MEV)	Crash Rate Category Code	Number of Legs	Statewide Crash Rates	On High Crash List
1	SR 535 at US 192/SR 530	92040000	0.000	0.000	0.050	72	14.4	57,300	**0.689**	30	4	0.744	Yes
2	SR 535 at Kyngs Heath Rd	92040000	0.185	0.135	0.235	34	6.8	33,000	**0.565**	21	4	0.526	No
3	SR 535 at Calypso Cay Way	92040000	0.417	0.367	0.467	7	1.4	33,710	**0.114**	21	3	0.270	Yes
4	SR 535 at W Osceola EB On-Ramps	92040000	0.504	0.467	0.554	31	6.2	41,530	**0.409**	21	3	0.270	Yes
5	SR 535 at N. Poinciana Blvd	92040000	0.704	0.654	0.754	101	20.2	60,730	**0.911**	21	4	0.526	Yes
6	SR 535 at Polynesian Isles Blvd	92040000/75035001	1.061	1.011	1.111	95	19.0	68,150	**0.764**	21	4	0.526	Yes
7	SR 535 at LBV Factory Stores Dr.	75035001	0.247	0.197	0.297	57	11.4	52,450	**0.595**	21	4	0.526	Yes
8	SR 535 at International Drive (South)	75035001	0.642	0.592	0.692	102	20.4	50,950	**1.097**	21	3	0.270	Yes
9	SR 535 at SR 536/World Center Dr.	75035001	0.895	0.845	0.945	260	52.0	88,700	**1.606**	30	4	0.744	Yes
10	SR 535 at Lake Bryan Beach Blvd	75035001	1.235	1.185	1.285	12	2.4	51,450	**0.128**	30	4	0.744	No
11	SR 536 at World Gateway Dr.	75039000	1.552	1.502	1.602	71	14.2	46,600	**0.835**	30	4	0.744	Yes
12	World Center Dr. at International Dr.	75039000	N/A	N/A	N/A	160	32.0	36,850	**2.379**	30	4	0.744	N/A
13	US 192/SR 530 at Storey Lake Blvd	92090000	9.63	9.580	9.680	44	8.8	55,620	**0.433**	30	4	0.744	No

Table 4-3 Segment Crash Rates and Safety Ratio (2014 - 2018)

No.	Segment	Roadway ID	Begin MP	End MP	Length (mi)	No. of Crashes	Annual Crash Frequency	AADT	Crash Rate (per MEV)	Crash Rate Category Code	Statewide Crash Rates	On High Crash List
1	SR 535 from US 192 to Kyngs Heath Rd	92040000	0.050	0.135	0.085	2	0.4	29,500	0.437	30	2.754	Yes
2	SR 535 from Kyngs Heath Rd to Calypso Cay Way	92040000	0.235	0.367	0.132	6	1.2	32,500	0.766	21	1.747	Yes
3	SR 535 from W Osceola Pkwy Ramps to N Poinciana Blvd	92040000	0.554	0.654	0.100	15	3.0	39,500	2.081	21	1.747	Yes
4	SR 535 from N Poinciana Blvd to Polynesian Isles Blvd	92040000	0.754	1.011	0.257	51	10.2	54,000	2.014	21	1.747	Yes
5	SR 535 from Polynesian Isles Blvd to LBV Factory Stores Dr.	75035001	1.111	0.197	0.233	44	8.8	56,000	1.848	21	1.747	Yes
6	SR 535 from LBV Factory Stores Dr. to International Drive (South)	75035001	0.297	0.592	0.295	41	8.2	48,000	1.587	21	1.747	Yes
7	SR 535 from International Drive (South) to SR 536/World Center Dr.	75035001	0.692	0.845	0.153	37	7.4	49,500	2.677	21	1.747	Yes
8	SR 535 from SR 536 to Lake Bryan Beach Blvd	75035001	0.945	1.185	0.240	14	2.8	51,500	0.621	21	1.747	Yes
9	SR 536 from World Gateway Dr. to SR 535	75039000	1.602	1.984	0.382	74	14.8	37,500	2.831	27	4.903	Yes
10	World Center Drive from SR 535 to International Drive	N/A	N/A	N/A	0.515	429	85.8	36,000	12.679	27	4.903	N/A
11	US 192 from Poinciana Blvd to SR 535	92090000	8.887	9.392	0.505	34	6.8	37,000	0.997	27	4.903	Yes
12	US 192 from SR 535 to Storey Lake Blvd	92090000	9.492	9.580	0.088	16	3.2	49,000	2.033	27	4.903	Yes

FORMULAS

Crash Rates: *Intersection:* $ACR = \frac{1{,}000{,}000 \text{ x } C}{365 \text{ x } N \text{ x } V}$ Segment: $ACR = \frac{1{,}000{,}000 \text{ x } C}{365 \text{ x } N \text{ x } V \text{ x } L}$

Where (MVMT used for segments and MEV for intersections):

ACR = Crash rate expressed as crashes per million entering vehicles (MEV) (million vehicle miles traveled [MVMT] for segments).
C = Total number of intersection/segment crashes in the study period.
N = Number of years of data.
V = AADT
L = Segment Length (miles)

*See **Appendix F** for additional details.*

5 Base Year Model Validation

The latest adopted Central Florida Regional Planning Model (CFRPM) v7.0 was utilized for *SR 535 PD&E Study Project Traffic Analysis from US 192 to North of World Center Drive (SR 536) Orange and Osceola Counties*. The CFRPM v7.0 was developed in accordance with the Long-Range Transportation Plans (LRTP) throughout FDOT District 5, which was validated for year 2015.

The subarea and study corridor for the *SR 535 PD&E Study* are shown in **Figure 5-1** and **Figure 5-2.** The model refinement was performed by fine-tuning the network using the guidelines identified in the *FDOT Project Traffic Forecasting Handbook (2019)*. The handbook establishes the acceptable standards of volume over count ratios for divided and undivided arterials at ± 15%, and collectors at ± 25%; the acceptable areawide Root Mean Square Error (RMSE) should be no more than 45% according to the handbook. These validation thresholds were used to refine model performance.

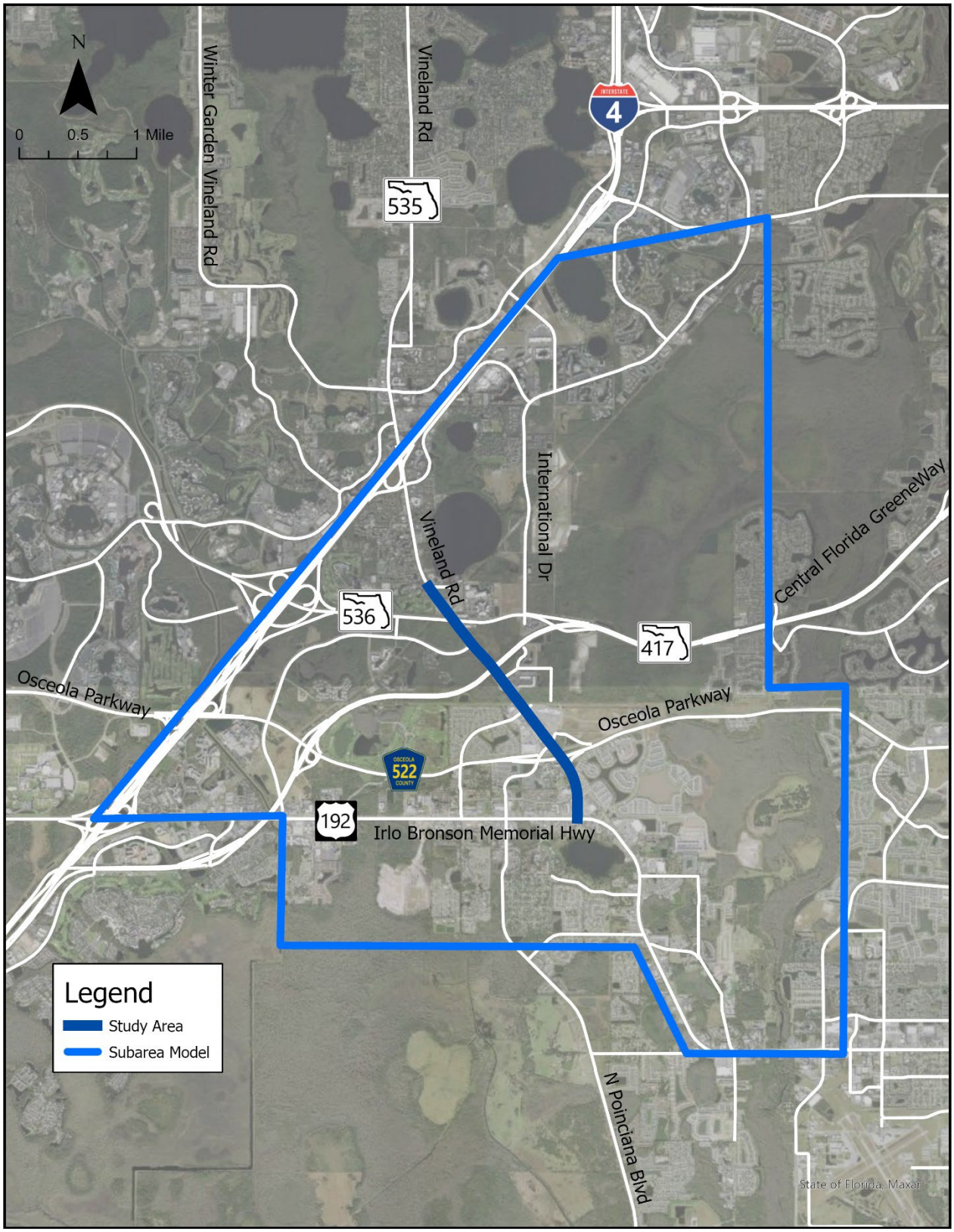


Figure 5-1 SR 535 Subarea

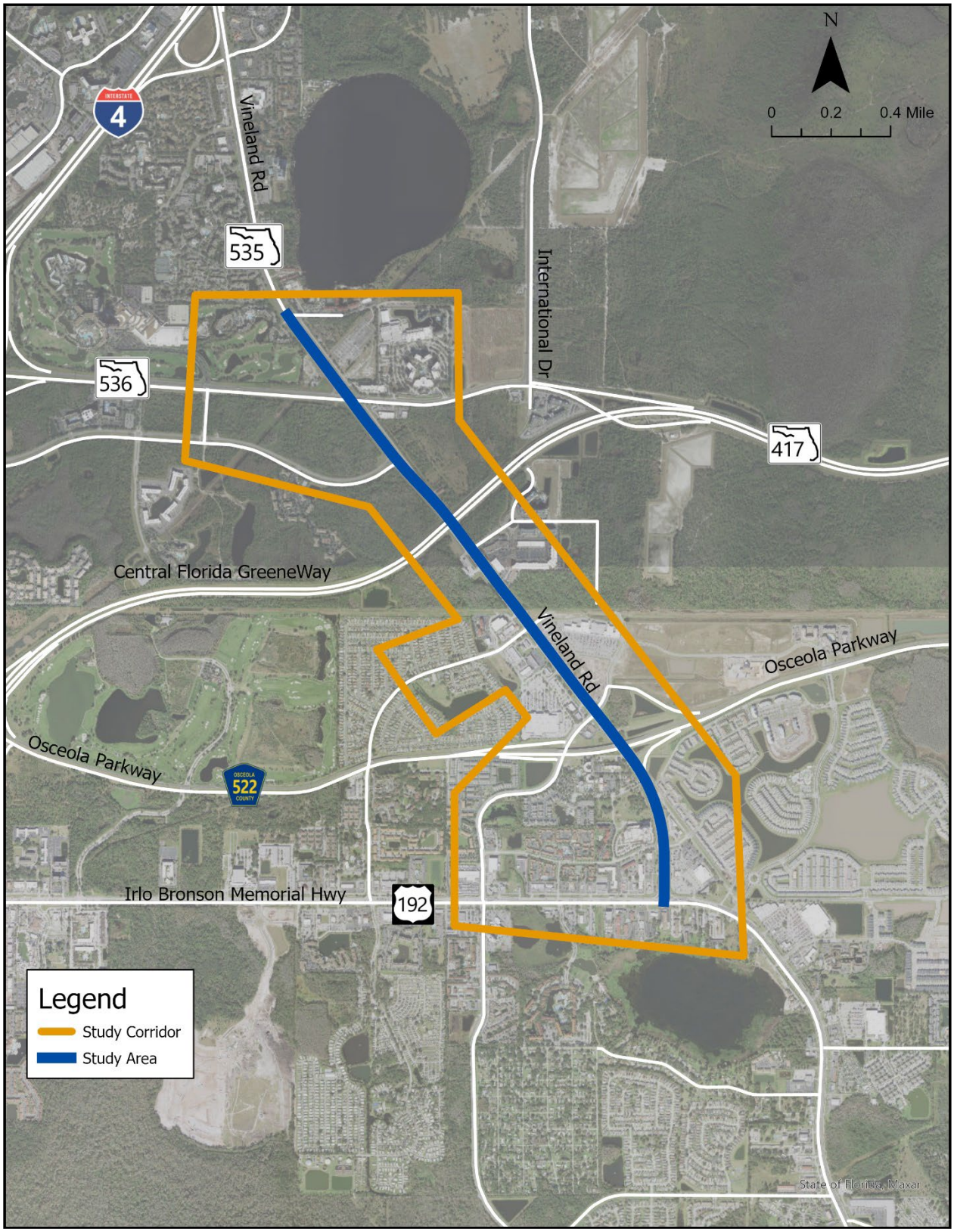


Figure 5-2 SR 535 Study Corridor

5.1 Base Year 2015 Model Calibration and Validation

The goal of base year model calibration and validation is to improve the correlation between model estimates and observed conditions on the roadways within the study area. The 2015 FTO AADT data was used for the model validation. When the model forecasts for the known condition correlate with actual traffic counts within acceptable tolerance, confidence will be established in the model's validity, and it will be considered ready to conduct various scenario analyses.

5.1.1 Base Year 2015 Network Update

The physical and operational features of the area roadway networks are among the important data that must conform to the actual conditions of the validation year. The network review is focused on roadway characteristics, such as area type (AT), facility type (FT), number of lanes, speed and turn penalty.

First, reviews of the appropriate physical roadway conditions in 2015 including number of lanes, travel speeds, and available traffic counts, checking on the AT, FT, number of lanes and turn penalties were conducted to the CFRPM v7.0 model network. The following adjustments were applied to the SR 535 mainline study corridor to reflect field conditions and improve sub-area calibration:

- Posted speed on links between World Center Drive to US 192 were increased by 5 mph.
- Southbound segment between Poinciana Boulevard and Osceola Parkway on ramp were modified to three lanes, based on Google Earth.
- Turn Penalty at SR 535 and World Center Drive intersection were adjusted from 0.11 to 0.25 in off peak period and from 0.13 to 0.50 in peak period to improve the calibration of World Center Drive and SR 535.

Additionally, the following 13 side street segments that intersect with SR 535 were added to model network to be consistent with the data collection and traffic analysis plan:

1. Lake Bryan Beach Boulevard, west of SR 535
2. Lake Bryan Beach Boulevard, east of SR 535
3. LBV Factory Stores Drive, west of SR 535
4. LBV Factory Stores Drive, east of SR 535
5. Median Opening North, west of SR 535
6. Polynesian Isle Boulevard, east of SR 535
7. Median Opening South, west of SR 535

8. Median Opening South, east of SR 535
9. Calypso Cay Way, west of SR 535
10. Kyngs Health Road, west of SR 535
11. Kyngs Health Road, east of SR 535
12. SR 535, south of US 192
13. International Drive, south of World Center Drive

Finally, centroids and centroid connectors were added to the model network to reflect the physical roadway conditions in 2015. Additional supporting documentation of base year model updates are provided in **Appendix G**.

5.2 Model Validation Result

The validation of a travel demand model involves verifying the accuracy of the model generated volumes using various statistical means against actual traffic counts taken on network links throughout the sub-area. Two measures of effectiveness: the assigned volume to count (V/C) ratio on individual roadway links, and Root Mean Square Error (RMSE) by link volume groups, were used in the validation; to evaluate whether the base year 2015 model is a valid predictor of trips when compared against actual traffic counts within acceptable statistical tolerances.

5.2.1 Volume to Count Ratios

The model V/C ratios were used as a measurement for accuracy of the forecasting model. The V/C ratios were summarized by facility type at the SR 535 subarea (**Table 5-1**) and corridor level (**Table 5-2).** The subarea level overall V/C were both 0.99 for baseline and the post-calibration scenario. Since the post-calibration scenario shows a better RMSE, the subarea validation result is considered improved after the sub-area model calibration. The corridor level overall V/C was 0.97 in the baseline and 0.96 in the post-calibration scenario. Since the post-calibration scenario shows a better RMSE, the corridor validation result is considered improved after the sub-area model calibration. Moreover, a majority of the individual roadway segments performed within acceptable statistical standards for model validation.

Table 5-1: SR 535 Subarea Level V/C by Facility Type

Facility Type	Standard		Number of Links	Count	Baseline		After Calibration	
	Acceptable	Preferable			Volume	V/C	Volume	V/C
Freeway	+/-6%	+/-5%	12	339,284	322,782	0.95	325,424	0.96
Divided Arterial	+/-10%	+/-7%	38	655,140	645,167	0.98	641,721	0.98
Undivided Arterial	+/-10%	+/-7%	2	19,114	15,003	0.78	14,990	0.78
Collector	+/-15%	+/-10%	16	61,577	60,321	0.98	59,863	0.97
Ramps	-	-	15	100,427	124,534	1.24	120,602	1.20
Overall	-	-	83	1,175,542	1,167,807	0.99	1,162,600	0.99

Table 5-2: SR 535 Corridor Level V/C by Facility Type

Facility Type	Standard		Number of Links	Count	Baseline		After Calibration	
	Acceptable	Preferable			Volume	V/C	Volume	V/C
Divided Arterial	+/-10%	+/-7%	20	339,217	331,103	0.98	326,342	0.96
Collector	+/-15%	+/-10%	2	9,243	7,483	0.81	7,051	0.76
Overall	-	-	22	348,460	338,586	0.97	333,393	0.96

5.2.2 RMSE

The RMSE is an aggregate measure of how well the model compares against the ground counts within the study area. The base year 2015 model generates a RMSE of 24% in the SR 535 subarea level (**Table 5-3**) for the baseline. After sub-area calibration and validation, the RMSE for the subarea improved to 21%. The corridor level RMSE (**Table 5-4**) was improved from 26% in baseline to 20% after calibration. Both subarea-level and corridor-level overall RMSE meet the FDOT preferable standards. The RMSE measurements show that the validated 2015 CFRPM v7.0 with an enhanced roadway network in SR 535 subarea is fine-tuned to generate traffic volumes that reasonably reflect base year traffic counts.

Table 5-3: SR 535 Subarea Level RMSE (%)

Volume Range	Standards (%)		Number of Links	Baseline %	After Calibration %
	Acceptable	Preferable			
< 5,000	100	45	26	88	88
5,000 – 9,999	45	35	15	52	49
1,0000 – 14,999	35	27	10	30	27
15,000 – 19,999	30	25	10	29	22
20,000 – 29,999	27	15	17	12	11
30,000 – 49,999	25	15	1	21	19
50,000 – 59,999	20	10	1	1	2
60,000+	19	10	3	5	5
Overall	**45**	**35**	**83**	**24**	**21**

Table 5-4: SR 535 Corridor Level RMSE (%)

Volume Range	Standards (%)		Number of Links	Baseline %	After Calibration %
	Acceptable	Preferable			
< 5,000	100	45	6	58	51
1,0000 – 14,999	35	27	2	9	7
15,000 – 19,999	30	25	7	32	23
20,000 – 29,999	27	15	6	14	11
30,000 – 49,999	25	15	1	21	19
Overall	**45**	**35**	**22**	**26**	**20**

6 Future Year Model Development

The Year 2045 Build scenario was developed in the validated travel demand model CFRPM v7.0 for the study, by carrying forward all modifications made to the base year network.

Consistent with the approved methodology, a single set of future demand volumes was used to evaluate the No Build and Build conditions. The 2045 CFRPM v7.0 Cost Feasible model shows a constrained network under the existing four-lane condition; therefore, inclusion of the proposed widening of SR 535 to six-lanes from US 192 to SR 536 in the future 2045 model provides a clearer understanding of the demand volumes along SR 535 and the needs of the corridor.

6.1 Future Year Network Update

To develop the 2045 Build network, all modifications made to the base year network were carried forward to the CFRPM v7.0 2045 Cost Feasible network which already reflects most of the future roadway developments in the study area. Based on coordination with the Department, the following three Developer Partnership Projects were added to the Build network since they are not in the CFRPM v7.0 2045 Cost Feasible network:

- International Drive Extension (SR 535 to World Center Drive)
- Poinciana Boulevard Extension North (LBV Factory Stores Drive to International Drive Extension)
- Polynesian Isle Boulevard (North of County line to Poinciana Boulevard Extension)

Since the 2045 No Build network showed a constrained network under the existing four lane condition, the SR 535 model segment from Word Center Drive to US 192 was updated from four lanes to six lanes to provide a clearer understanding of the demand volumes along the segment. CFRPM v7.0

6.2 Future Multimodal Network

In addition to the existing routes, the LYNX master plan shows future LYNX services that are planned to traverse along the study area. The plans call for a traditional fixed-route and a limited-stop route, both traveling along the study having endpoints between the LYNX Kissimmee Intermodal Station and Disney Springs. There are also plans for an express route with service from Disney Springs to Poinciana SunRail and the Poinciana Walmart. Per coordination with LYNX staff members, there is no timeline for when these services will be implemented as well as no known bus stop locations within the project study area at this time. Coordination with LYNX will continue throughout the study. It should be noted that the proposed typical section will include

consist of either an inside widening with shared-use paths, outside widening with shared-use paths, outside widening with separated bike lanes and wider sidewalks. No impacts to transit or other forms of transportation are anticipated to occur due to the proposed improvements.

6.3 Future Year Trip Table

The CFRPM v7.0 2045 cost feasible model trip table was used for the Build alternative to maintain the same travel demand in sub-area modeling. A single set of future demand volumes was used to evaluate the No Build and Build conditions.

6.4 Future Land Use

No significant land use changes are anticipated based on available land use maps. There is potential development in the northwest area of the project between SR 417 and World Center Drive east of SR 535. However, no development or permits have been approved/submitted. A review of Traffic Analysis Zones data within the CFRPM currently accounts for an increase in population and employment.

7 Future AADT and DDHV Development

This chapter documents the development of the future AADTs and DDHVs for the Opening Year 2025 and the Design Year 2045.

7.1 Methodology

For the segment traffic development, the future projected traffic volume was generated by applying the CFRPM model volume growth rate to the 2020 AADT following the NCHRP 765 procedure where existing year counts are available on the segment. For Build conditions, different growth rates were used to develop future AADTs. For the side streets where the 2020 AADTs are unavailable, model volumes were used instead.

- Build Condition Opening Year (2025):
    - The Opening Year (2025) AADT were developed by applying the annual growth rate between 2045 model Build scenario and 2015 scenario to the 2020 AADT following NCHRP 765 procedure.
- Build Condition Design Year (2045):
    - The Design Year (2045) AADT were developed by applying the annual growth rate between 2045 model Build scenario and 2015 scenario to the 2020 AADT following NCHRP 765 procedure.

The build traffic forecast volume growth was reviewed for reasonableness and adjusted if necessary. Future year AADTs were reviewed for reasonableness check and a few segments were adjusted or smoothed due to unreasonable model growth rate. For SR 535 Mainline, International Drive and World Center Drive where the segment growth rate is unreasonable, the growth rates were smoothed to adjacent segments. For the side streets on which the growth rates were unreasonable, the growth rates were reviewed and adjusted based on recommended growth rates, which were determined based on comparing FTO historical AADT growth rate, BEBR growth rate, Socio-Economic data (SE data) growth and maximum trip load from impacted TAZ.

The FTO historical AADT trend and BEBR growth rate are shown in **Appendix G**. A summarized comparison of estimated future AADTs using different data sources is provided in **Appendix G.**

7.2 Segment Growth Rate and AADT

Based on the methodology mentioned above, model growth for Build was calculated and smoothed for reasonableness; growth rates, future year developed AADTs, and DDHVs are summarized **Table 7-1**.

Table 7-1 Recommended Segment Growth Rate and Future AADT

Intersection	Segments	2020 AADT	Build Growth Rate	Build 2025	Build 2045	DDHV 2025	DDHV 2045	Growth Rate Source
SR 535 @ Lake Bryan Beach Blvd	Lake Bryan Beach Blvd, west of SR 535	500	1.18%	550	650	20	20	Model Volume
	Lake Bryan Beach Blvd, East of SR 535	1,400	1.59%	1,600	2,000	60	70	NCHRP 765
	SR 535, North of Lake Bryan Beach Blvd	50,000	0.76%	52,000	60,000	2,040	2,350	NCHRP 765
	SR 535, South of Lake Bryan Beach Blvd	51,500	0.83%	54,000	62,500	2,110	2,450	NCHRP 765
SR 535 @ World Center Dr	World Center Dr, west of SR 535	37,500	1.69%	41,000	53,500	1,740	2,270	NCHRP 765
	World Center Dr, East of SR 535	36,000	0.51%	37,000	41,000	1,460	1,620	NCHRP 765
	SR 535, North of World Center Dr	51,500	0.83%	54,000	62,500	2,110	2,450	NCHRP 765
	SR 535, South of World Center Dr	49,500	0.45%	51,000	55,500	2,000	2,170	NCHRP 765
SR 535 @ International Dr S	International Dr S, West of SR 535	6,400	9.52%	9,500	22,000	500	1,150	NCHRP 765
	International Dr S, East of SR 535	-	6.00%	17,500	33,000	910	1,720	Model Volume
	SR 535, North of International Dr	49,500	0.45%	51,000	55,500	2,000	2,170	NCHRP 765
	SR 535, South of International Dr S	48,000	1.21%	51,000	63,000	2,000	2,470	NCHRP 765
SR 535 @ LBV Factory Stores Dr	LBV Factory Stores Dr, west of SR 535	500	2.29%	600	800	-	-	NCHRP 765
	LBV Factory Stores Dr, East of SR 535	4,900	8.39%	7,000	15,500	300	660	NCHRP 765
	SR 535, North of LBV Factory Stores Dr	48,000	1.17%	51,000	62,500	2,000	2,450	NCHRP 765
	SR 535, South LBV Factory Stores Dr	56,000	1.24%	59,500	73,500	2,330	2,880	NCHRP 765
SR 535 @ Median Opening N	Median Opening North, East of SR 535	1,500	4.26%	1,900	3,100	80	130	NCHRP 765
	SR 535, North of Median Opening North	56,000	1.24%	59,500	73,500	2,330	2,880	NCHRP 765
	SR 535, South of Median Opening North	56,000	0.93%	59,000	69,000	2,310	2,700	NCHRP 765
SR 535 @ Polynesian Isle Blvd	Polynesian Isle Blvd, west of SR 535	12,000	2.08%	13,500	18,500	540	740	NCHRP 765
	Polynesian Isle Blvd, East of SR 535	4,300	7.88%	6,000	13,000	240	520	NCHRP 765
	SR 535, North of Polynesian Isle Blvd	56,000	0.93%	59,000	69,000	2,310	2,700	NCHRP 765
	SR 535, South of Polynesian Isle Blvd	54,000	1.08%	57,000	69,000	2,230	2,700	NCHRP 765
SR 535 @ Median Opening S	Median Opening S, West of SR 535	3,400	0.22%	3,500	3,600	140	140	Employment Growth Rate
	Median Opening S, East of SR 535	1,900	6.45%	2,600	5,000	100	200	NCHRP 765
	SR 535, North of Median Opening S	54,000	1.08%	57,000	69,000	2,230	2,700	NCHRP 765
	SR 535, South of Median Opening S	54,000	1.18%	57,500	70,000	2,250	2,740	NCHRP 765
SR 535 @ Poinciana Blvd	Poinciana Blvd, west of SR 535	21,500	0.62%	22,500	25,000	750	830	NCHRP 765
	Poinciana Blvd, East of SR 535	7,200	5.03%	9,100	16,500	440	790	NCHRP 765
	SR 535, North of Poinciana Blvd	54,000	1.18%	57,500	70,000	2,250	2,740	NCHRP 765
	SR 535, South of Poinciana Blvd	39,500	1.45%	42,500	54,000	1,660	2,110	NCHRP 765
SR 535 @ Osceola Pkwy On-Ramps (North)	Osceola Pkwy EB On-Ramp	5,100	3.44%	6,000	9,500	540	850	NCHRP 765
	SR 535, North of Osceola Pkwy On-Ramps	39,500	1.45%	42,500	54,000	1,660	2,110	NCHRP 765
	SR 535, South of Osceola Pkwy On-Ramps	33,500	1.16%	35,500	43,500	1,390	1,700	NCHRP 765
SR 535 @ Osceola Pkwy On-Ramps (South)	Calypso Cay Way, west of SR 535	1,800	0.61%	1,900	2,100	80	90	NCHRP 765
	Osceola Pkwy On ramp (WB), East of SR 535	2,000	1.55%	2,200	2,800	-	-	NCHRP 765
	SR 535, North of Osceola Pkwy On ramp	33,500	1.16%	35,500	43,500	1,390	1,700	NCHRP 765
	SR 535, South of Osceola Pkwy On ramp	32,500	1.23%	34,500	42,500	1,350	1,660	NCHRP 765
SR 535 @ Kyngs Heath Rd	Kyngs Heath Rd, west of SR 535	1,900	5.33%	2,500	4,500	100	180	NCHRP 765
	Kyngs Heath Rd, East of SR 535	2,700	9.76%	4,100	9,300	160	360	Employment Growth Rate
	SR 535, North of Kyngs Heath Rd	32,500	1.23%	34,500	42,500	1,350	1,660	NCHRP 765
	SR 535, South of Kyngs Heath Rd	29,500	1.27%	31,500	39,000	1,230	1,530	NCHRP 765
SR 535 @ US 192	US 192, west of SR 535	37,000	0.44%	38,000	41,500	1,540	1,680	NCHRP 765
	US 192, East of SR 535	49,000	0.80%	51,000	59,000	2,060	2,390	NCHRP 765
	SR 535, North of US 192	29,500	1.27%	31,500	39,000	1,230	1,530	NCHRP 765
	SR 535, South of US 192	200	3.40%	250	400	10	20	NCHRP 765

Table 7-1 Recommended Segment Growth Rate and Future AADT (Continued)

Intersection	Segments	2020 AADT	Build Growth Rate	Build 2025	Build 2045	DDHV 2025	DDHV 2045	Growth Rate Source
World Center Dr @ International Dr	World Center Dr, West of International Dr	36,000	0.71%	37,500	42,500	1,480	1,680	NCHRP 765
	SR 417 Ramp	38,500	3.22%	45,000	70,000	1,780	2,760	NCHRP 765
	International Dr, North of World Center Dr	25,000	4.55%	31,000	53,500	1,620	2,790	NCHRP 765
	International Dr, South of World Center Dr	4,500	6.00%	27,500	53,000	1,430	2,760	Model Volume
US 192 @ Storey Lake Blvd	US 192, west of Storey Lake Blvd	49,000	0.80%	51,000	59,000	2,060	2,390	NCHRP 765
	US 192, east of Storey Lake Blvd	60,000	0.97%	63,000	75,000	2,550	3,030	NCHRP 765
	Storey Lake Blvd, north of US 192	3,000	9.76%	4,500	10,500	180	410	Model Volume
US 192 @ N Poinciana Blvd	US 192, west of Poinciana Blvd	45,000	0.62%	46,500	52,500	1,880	2,120	NCHRP 765
	US 192, east of Poinciana Blvd	37,000	0.44%	38,000	41,500	1,540	1,680	NCHRP 765
	Poinciana Blvd, north of US 192	17,500	1.53%	19,000	24,500	910	1,170	NCHRP 765
	Poinciana Blvd, south of US 192	27,000	0.82%	28,500	33,000	1,370	1,580	NCHRP 765
W Osceola ramp @ N Poinciana Blvd (W of SR 535)	Osceola ramp, north of Poinciana Blvd	3,700	0.17%	3,800	3,900	130	130	NCHRP 765
	Poinciana Blvd, east of Osceola on Ramp	21,500	0.62%	22,500	25,000	750	830	NCHRP 765
	Poinciana Blvd, west of Osceola off Ramp	25,500	0.56%	26,500	29,500	880	980	NCHRP 765
W Osceola Off ramp @ N poinciana Blvd (WB)	Osceola Off ramp, South of Poinciana Blvd	3,400	5.60%	4,400	8,200	400	740	NCHRP 765
	Poinciana Blvd, East of Osceola off Ramp	5,500	5.03%	6,900	12,500	330	600	NCHRP 765
	Poinciana Blvd, West of Osceola off Ramp	7,200	5.03%	9,100	16,500	440	790	NCHRP 765
World Gateway Drive @ World Center Drive	SR 536, west of World Gateway Dr	40,500	2.30%	45,500	64,000	1,930	2,720	NCHRP 765
	SR 536, east of World Gateway Dr	37,500	1.69%	41,000	53,500	1,740	2,270	NCHRP 765
	World Gateway Dr, north of SR 536	9,600	1.45%	10,500	13,500	500	640	NCHRP 765
	World Gateway Dr, south of SR 536	16,700	0.16%	17,000	17,500	810	830	NCHRP 765
World Gateway Drive @ International Drive	International Dr, west of World Gateway Dr	10,500	5.23%	13,500	24,500	640	1,160	NCHRP 765
	International Dr, east of World Gateway Dr	6,400	9.52%	9,500	22,000	500	1,150	NCHRP 765
	World Gateway Dr, north of International Dr	9,600	0.20%	9,700	10,500	460	500	NCHRP 765
World Center Dr @ Buena Vista Suites	World Center Dr, west of Buena Vista Suites	36,000	0.51%	37,000	41,000	1,460	1,620	NCHRP 765
	World Center Dr, east of Buena Vista Suites	36,000	0.51%	37,000	41,000	1,460	1,620	NCHRP 765
	Buena Vista Suites, north of World Center Dr	1,000	1.59%	1,100	1,400	40	60	NCHRP 765
	Buena Vista Suites, south of World Center Dr	1,300	1.59%	1,500	1,900	60	80	NCHRP 765
World Center Dr @ Caribe Royale Orlando	World Center Dr, west of Caribe Royale Orlando	36,000	0.51%	37,000	41,000	1,460	1,620	NCHRP 765
	World Center Dr, east of Caribe Royale Orlando	36,000	0.51%	37,000	41,000	1,460	1,620	NCHRP 765
	Caribe Royale Orlando, North of World Center Dr	1,650	1.59%	1,800	2,400	70	100	NCHRP 765

7.3 Segment DDHVs

DDHV's were calculated using the projected AADTs (shown in **Table 7-1**) and recommended traffic factors (K and D) from **Section 3.0**.

8 Future Peak Hour Volume Development

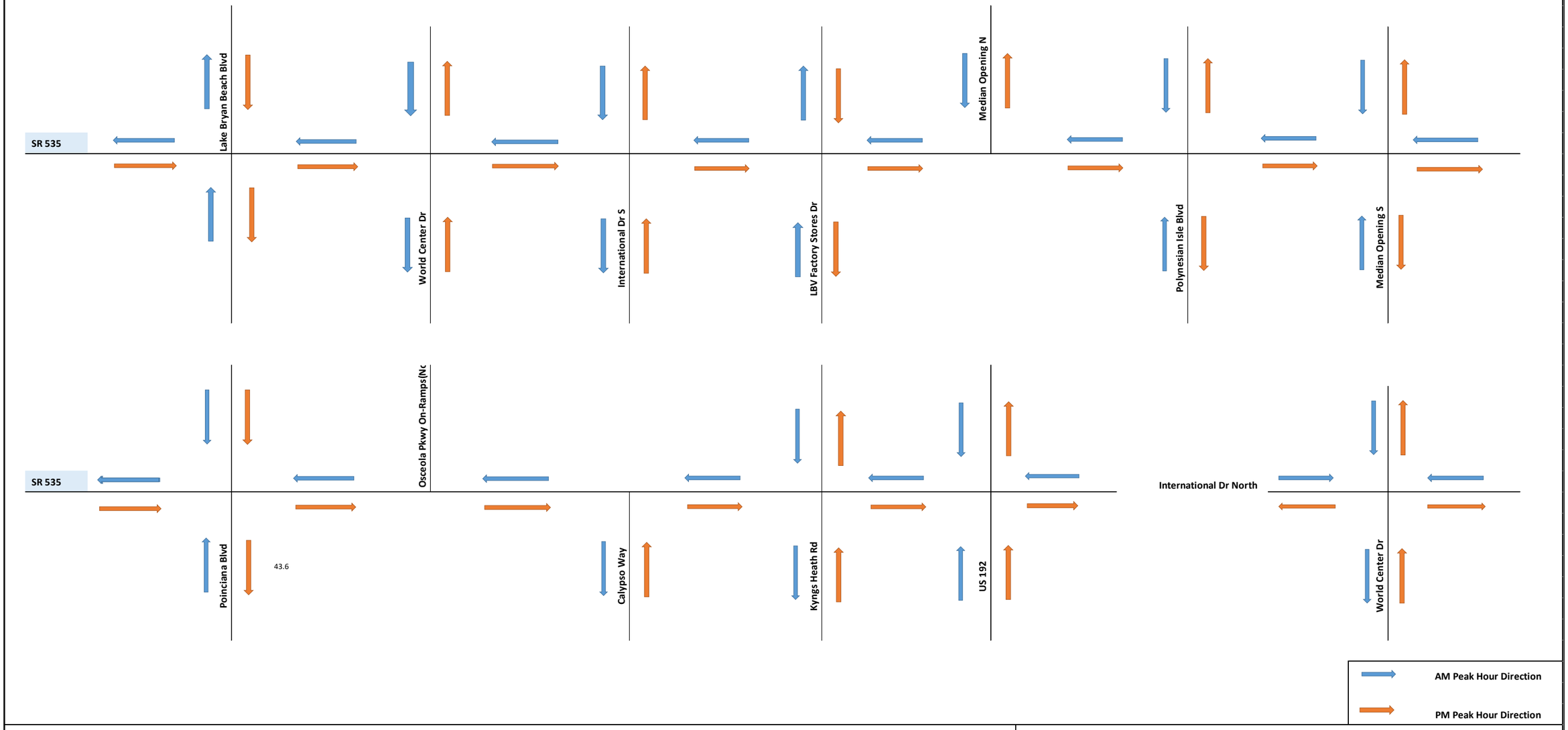
8.1 Peak Direction

The peak direction for segments at AM peak hour and PM peak hour were determined based on the peak hour directional volume development from the collected segment counts. If Eastbound/Northbound has higher count than Westbound/Southbound during the peak hour, Eastbound/Northbound will be determined as the peak direction. If AM and PM peak direction for the same segment are the same, the one with a more significant peak pattern is determined as the peak direction. **Figure 8-1** shows the recommended peak hour direction diagram.

8.2 Turning Movement Volume Development

The future year AM and PM peak hour turning movement volume were estimated using the TMTool program. Input to the TMTool program includes existing year and future year AADT, existing year turning movement counts, peak hour direction, and recommended K and D traffic factors. The developed 2025 and 2045 turning movement were reviewed for reasonableness check and were adjusted as necessary. The adjustments were initially performed using TMTool internal adjust turning volume function. Based on a review of the TMTool projections for the three intersections of International Drive Extension at World Center Drive, SR 535 at SR 536/World Center Drive, and SR 535 at International Drive, it was observed that the turning movement volume distribution did not reasonably consider the expected traffic redistribution associated with the International Drive Extension. Based on this observation, a first set of turning movement volumes for the three subject intersections were developed by applying CFRPM Directional Select Link distribution ratios to forecasted DDHVs. The final set of turning movement volumes were then developed by performing a sensitivity analysis of experienced travel times to identify the potential number of westbound left turn movements would divert from the International Drive Extension at World Center Drive intersection to the SR 535 at SR 536/World Center Drive intersection. This alternative forecasting methodology was coordinated and approved by FDOT District Five.

The TMTool results, SR 535/World Center Drive/International Drive Extension forecasting methodology, and balanced turning movement volumes are provided in **Appendix H. Figure 8-2** through **Figure 8-5** show the developed 2025 and 2045 turning movement counts. It should be noted that intersection volumes for the International Drive Extension and Poinciana Boulevard Extension were not developed since the intersection is not part of the study. However, based on balanced volumes for the International Drive Extension intersections of SR 535 and World Center Drive, it is observed that the Poinciana Boulevard extension intersection will draw traffic from the International Drive Extension.



SR 535 PD&E Study (From US 192 to North of World Center Drive (SR 536)	***Peak Hour Direction***
Orange and Osceola Counties, Florida	

Figure 8-1 Recommended Peak Hour Direction Diagram

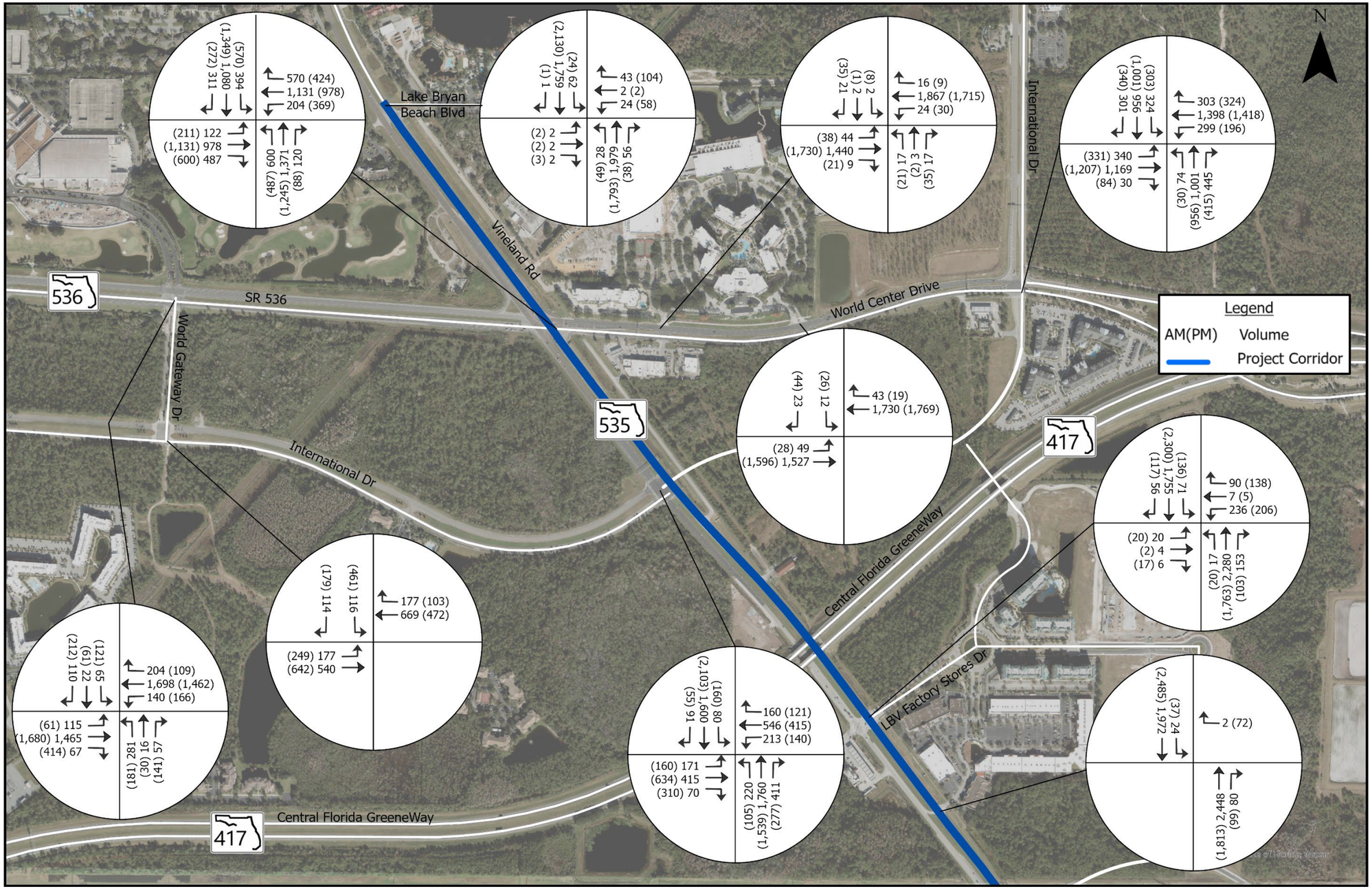


Figure 8-2 2025 Design Year Turning Movement Counts (Orange County)

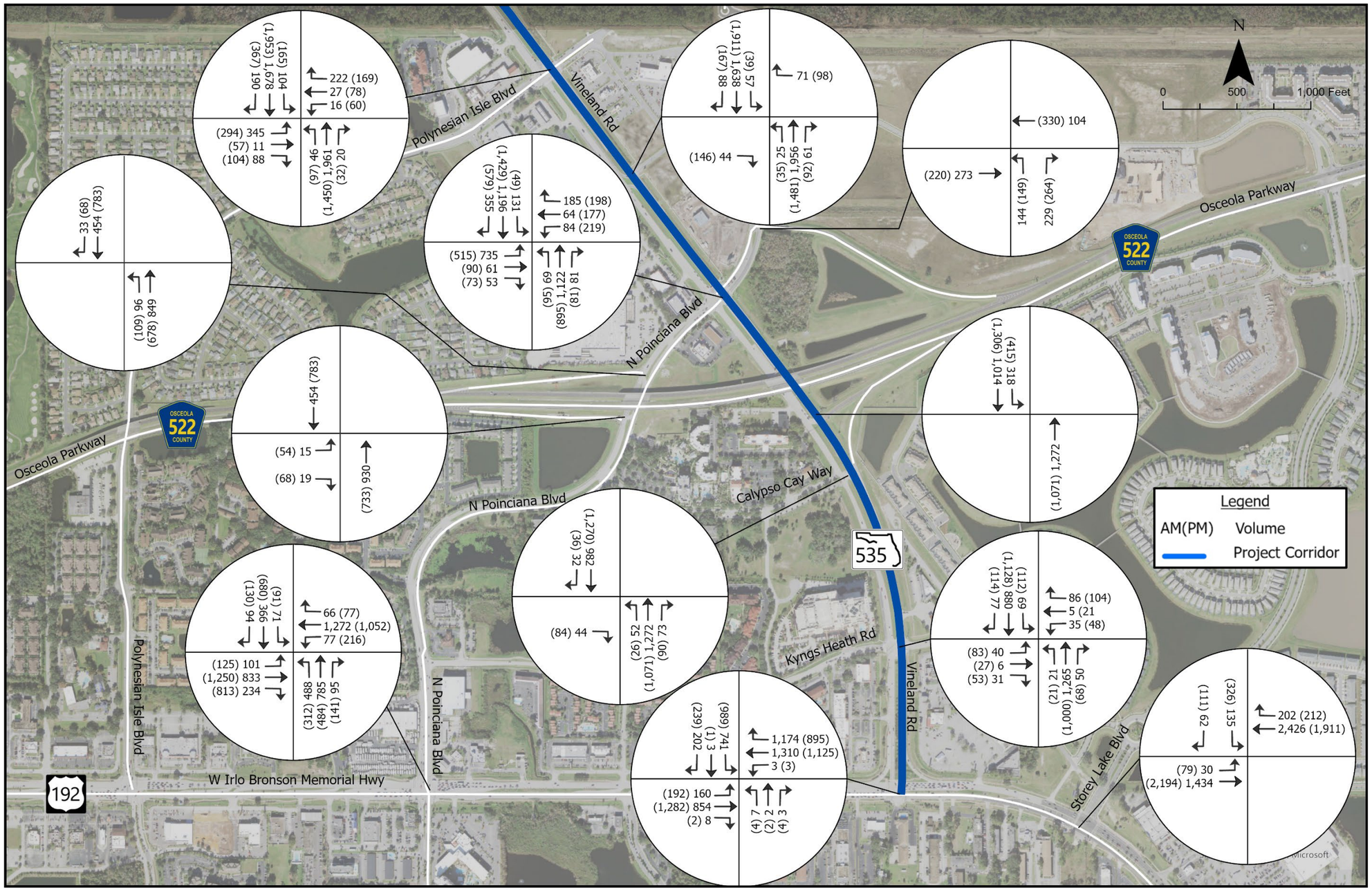


Figure 8-3 2025 Design Year Turning Movement Counts (Osceola County)

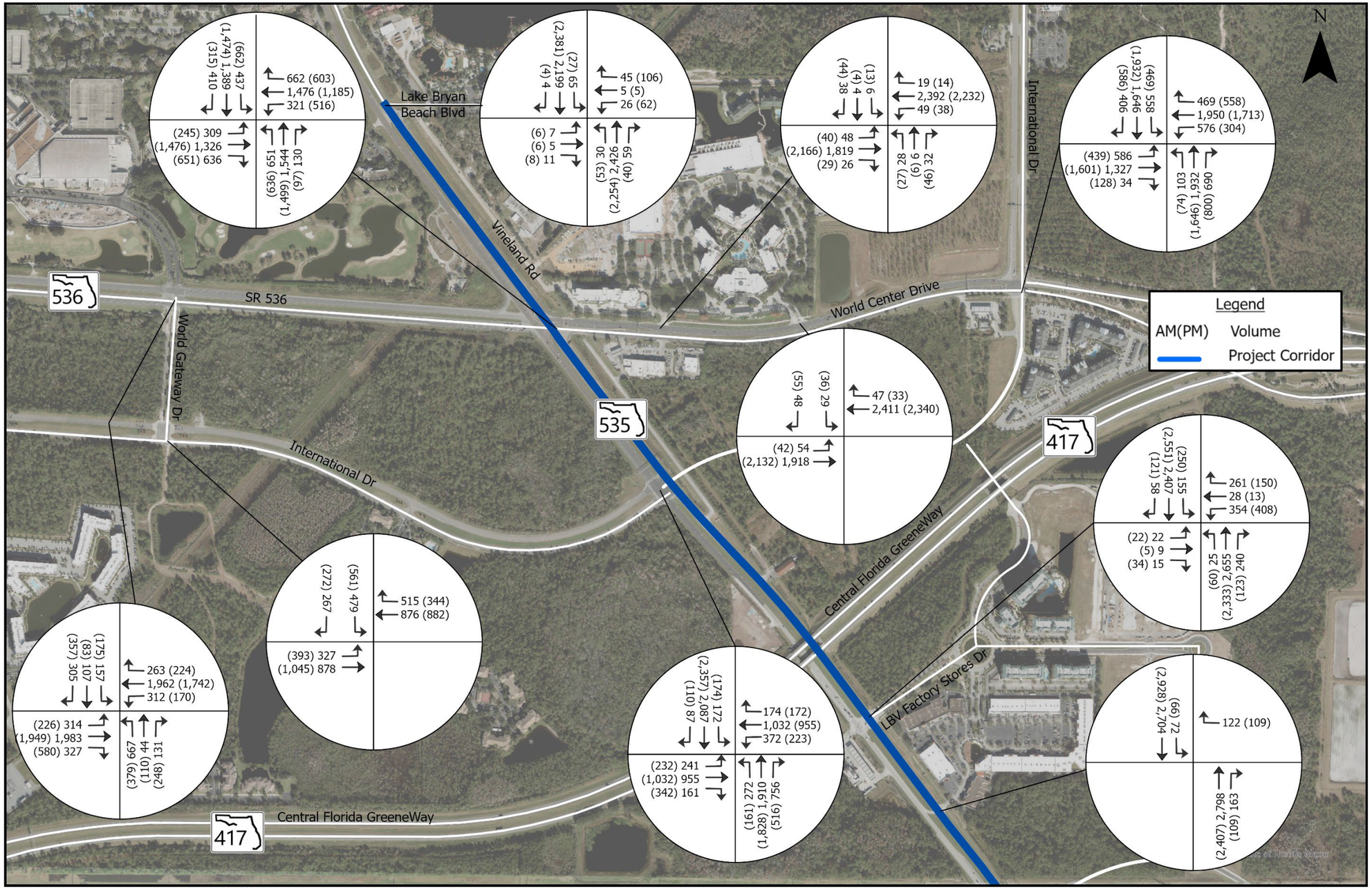


Figure 8-4 2045 Design Year Turning Movement Counts (Orange County)

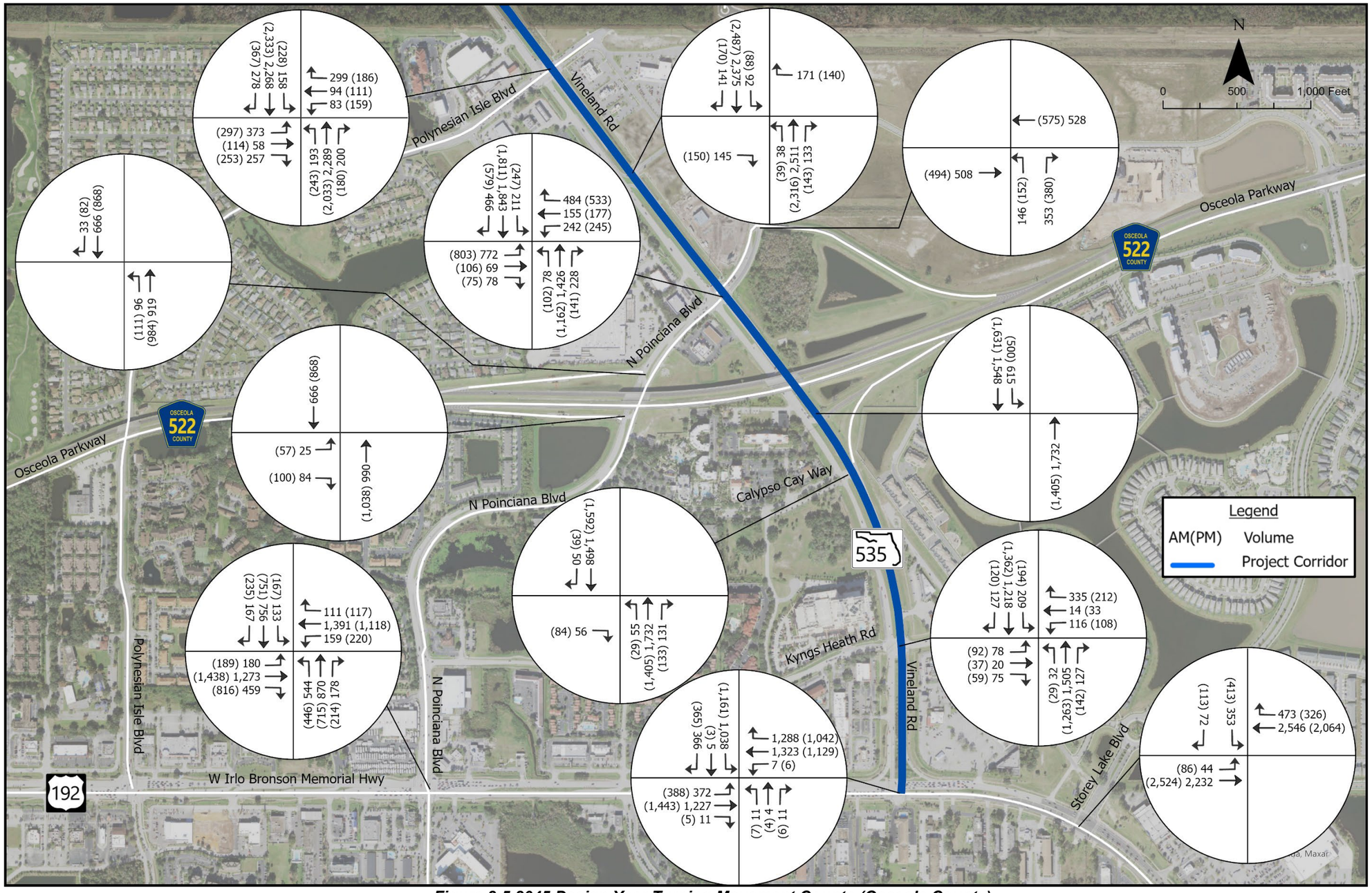


Figure 8-5 2045 Design Year Turning Movement Counts (Osceola County)

9 Project Alternatives

9.1 Alternatives Analysis

The alternatives considered in this study include No Build and Build Alternatives. Descriptions of each of these alternatives are provided below.

9.1.1 No Build Alternatives

The No Build alternatives for Opening Year 2025 and Design Year 2045 were analyzed to identify deficiencies in the signalized and unsignalized intersections with future year traffic related to the purpose and need for the project. *Synchro 11* was used for the LOS analysis where the lane geometry was kept consistent with the existing roadway and intersection configurations. Committed improvements within the area of influence were also kept consistent. However, the intersection at SR 535 and International Drive was evaluated as a four-legged intersection, providing an eastern connection to SR 536/World Center Drive. In addition, a planning study was recently completed for a portion of the SR 535 project limits which evaluated alternative intersection configurations from US 192 to south of International Drive. At the time of this PTAR, recommended improvements from the planning study have not yet been approved for design/construction as part of the upcoming Resurfacing, Restoration, and Rehabilitation (RRR) project (FM# 445299-1). The No Build lane configuration is depicted in **Figure 9-1** and **Figure 9-2**.

9.1.2 Build Alternatives

This PTAR includes vehicular traffic operational improvements for Opening Year 2025 and Design Year 2045 Build Alternatives 1 and 2. Both alternatives included the widening of SR 535 from four to six lanes from US 192 to SR 536/World Center Drive. In addition to the widening, innovative intersection treatments are evaluated under each alternative. It should be noted that only one intersection alternative is evaluated for the SR 535 intersections of US 192, Kyngs Heath Road, Calypso Cay Way, and Osceola Parkway Eastbound On-Ramp. **Figure 9-3** and **Figure 9-4** illustrate the Alternative 1 and 2 lane configurations, respectively. Additional detail related to the development of innovative intersection alternatives follows in the subsequent section.

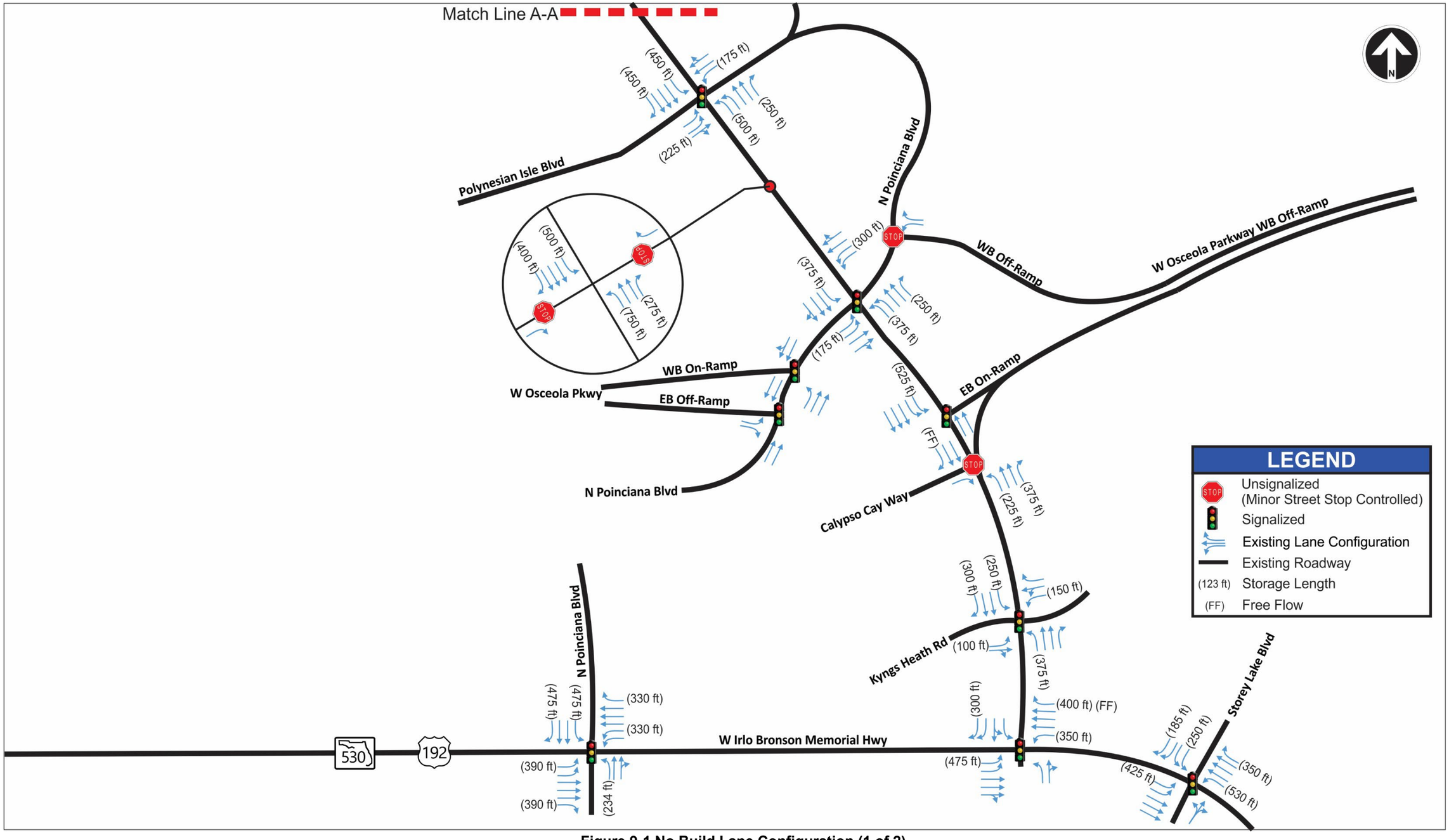


Figure 9-1 No Build Lane Configuration (1 of 2)

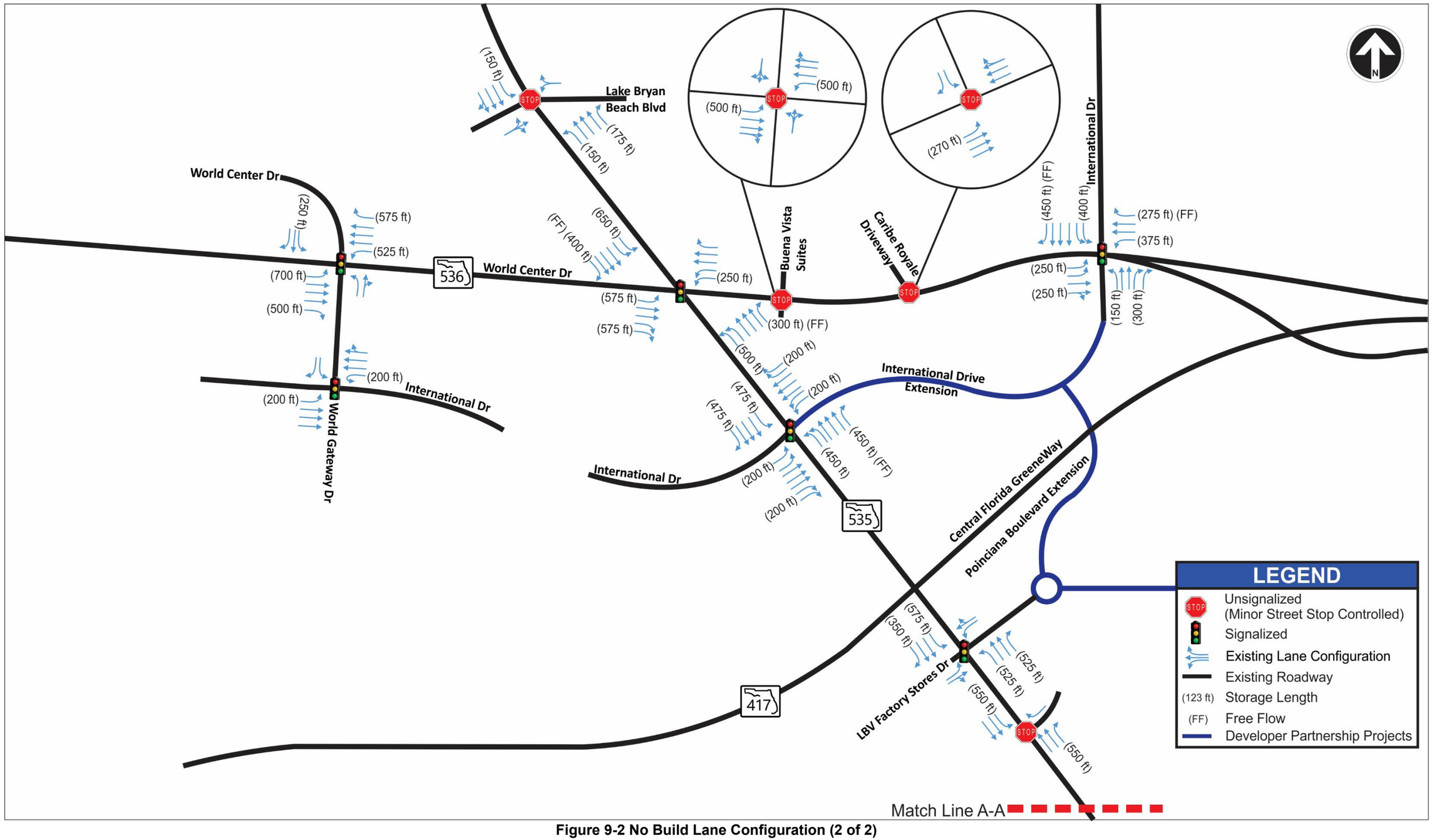


Figure 9-2 No Build Lane Configuration (2 of 2)

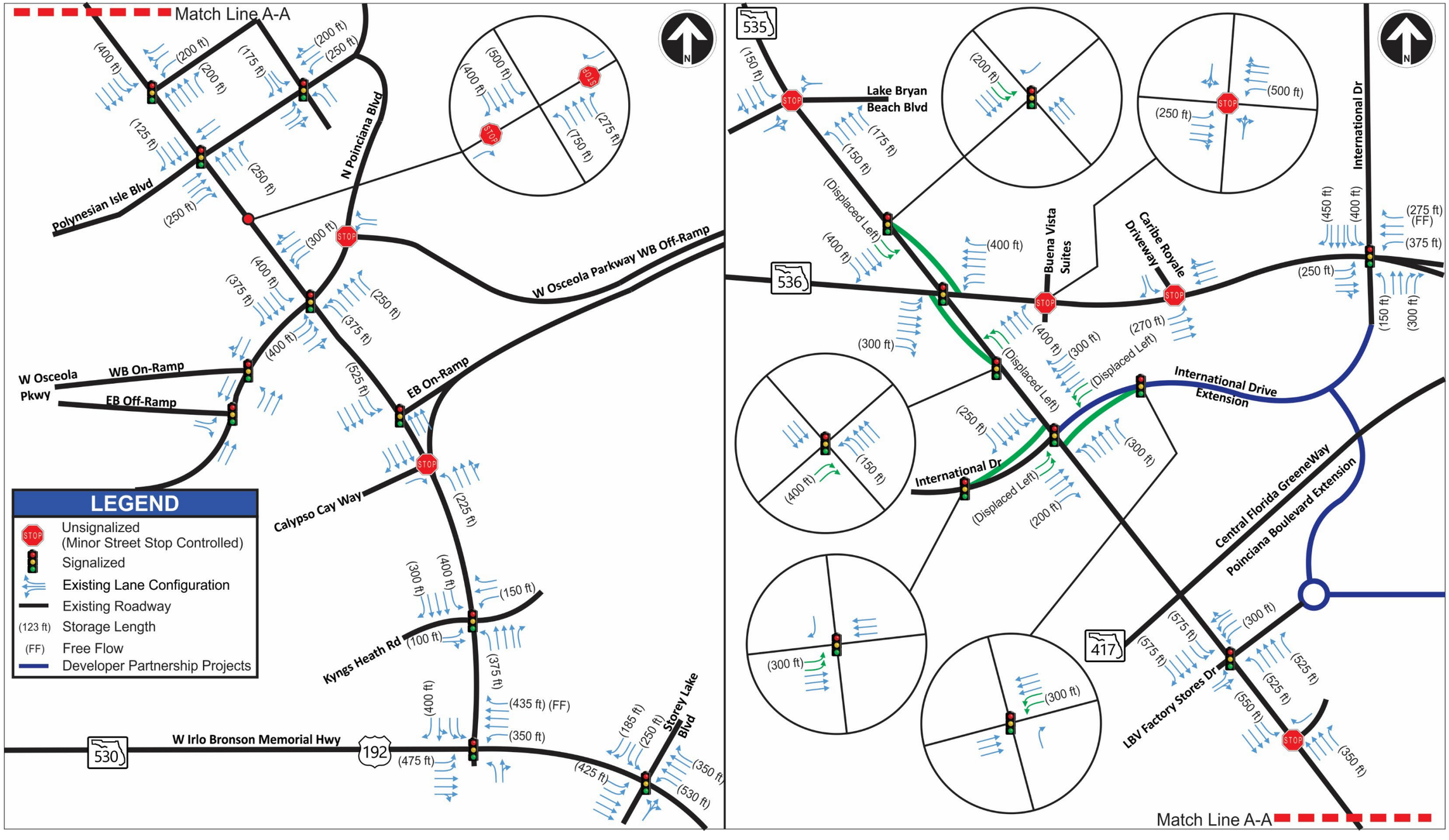


Figure 9-3 Alternative 1 Lane Configuration

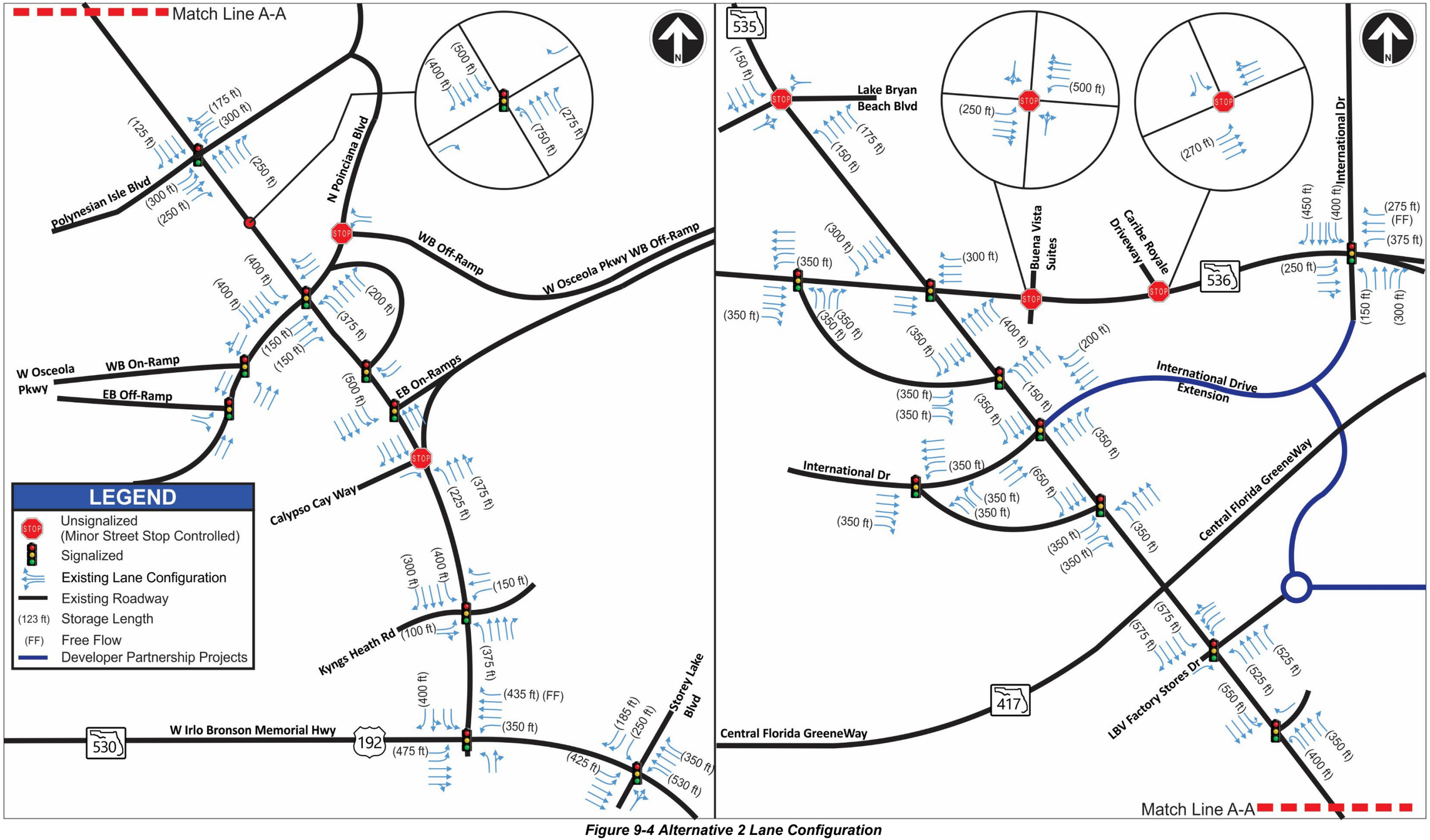


Figure 9-4 Alternative 2 Lane Configuration

9.1.3 Innovative Intersection Treatments

Alternative intersection evaluations are governed by the Intersection Control Evaluation (ICE) Process, consisting of three stages. Stage 1 Screening included the use of the ICE CAP-X tool to identify alternative intersection configurations that meet the applicability requirements as described in the *Manual on Intersection Control Evaluation*.

The CAP-X analysis was conducted solely on Build Alternatives under design year conditions since it exhibits the highest forecasted traffic volumes and therefore represents a more conservative analysis. The study locations included in the CAP-X analysis are SR 535 signalized intersections at Poinciana Boulevard, Polynesian Isle Boulevard, International Drive, and SR 536. Intersection configurations considered include Displaced Left Turn, Partial Displaced Left Turn, Median U-Turn, Roundabout, Restricted Crossing U-Turn, and Quadrant Roadway. The reports and results generated by the ICE CAP-X Analysis worksheets for all intersections and the Stage 1 Screening forms along with the *ICE Control Evaluation (ICE) Stage 1 Technical Memorandum* is provided in **Appendix I**. A summary of the CAP X analysis for the major intersections is provided below.

SR 535 and Poinciana Boulevard

- CAP-X results for the intersection of SR 535 and Poinciana Boulevard reveal that the displaced left turn exhibits the lowest overall v/c ratio and highest v/c ranking during the AM and PM peak hour condition. During the AM peak hour condition, the displaced left turn option is followed in v/c ranking by the quadrant roadway (S-E), partial displaced left turn (N-S), quadrant roadway (S-W), partial median U-Turn (N-S), Median U-Turn (N-S), traffic signal, signalized restricted crossing U-Turn (N-S), and 2 by 2 roundabout options, respectively. During the PM peak hour condition, the results slightly differed with the displaced left turn option being followed by quadrant roadway (S-E), partial displaced left turn (N-S), quadrant roadway (S-W), traffic signal, signalized restricted crossing U-Turn (N-S), Median U-Turn (N-S), partial median U-Turn (N-S), and roundabout (2x2) roadway concepts.

SR 535 and Polynesian Boulevard

- Results for the intersection of SR 535 and Polynesian Boulevard show that the traffic signal exhibits the lowest overall v/c ratio and highest v/c ranking during the AM peak hour condition. The traffic signal option is followed in v/c ranking by quadrant roadway (N-E), partial median U-turn (N-S), median U-turn (N-S), signalized restricted crossing U-turn (N-S), roundabout (2x2), and unsignalized restricted crossing U-turn (N-S), respectively. The PM peak hour condition reveals the partial median U-turn (N-S) being followed by median

U-turn (N-S), quadrant roadway (N-E), signalized restricted crossing U-turn (N-S), traffic signal, roundabout (2x2), and unsignalized restricted crossing U-turn (N-S) roadway concepts.

SR 535 and International Drive

- Results for the intersection of SR 535 and International Drive show that displaced left turn exhibits the lowest overall v/c ratio and highest v/c ranking during the AM peak hour condition. The displaced left turn option is followed in v/c ranking by the quadrant roadway (S-E), partial displaced left turn (E-E), quadrant roadway (N-W), traffic signal, median U-turn (E-E), partial median U-turn (E-W), signalized restricted crossing U-turn (E-W) and roundabout (2x2). Similarly, the PM peak hour condition reveals the displaced left turn as the best option followed by the partial displaced left turn (E-W), quadrant roadway (S-W), median U-turn (E-W), quadrant roadway (N-W), traffic signal, partial median U-turn (E-W), signalized restricted crossing U-turn (E-W), and roundabout (2x2) roadway concepts.

SR 535 and SR 536/World Center Drive

- Results for the intersection of SR 535 and SR 536/World Center Drive show that the displaced left turn exhibits the lowest overall v/c ratio and highest v/c ranking during the AM peak hour condition. The displaced left turn option is followed in v/c ranking by the partial displaced left turn (N-S), the quadrant roadway (S-W), partial median U-turn (N-S), traffic signal, median U-turn (N-S), and roundabout (2x2). The PM peak hour condition reveals the displaced left turn as the best option followed by the quadrant roadway (S-W), partial displaced left turn (N-S), traffic signal, partial median U-turn (N-S), median U-turn (N-S), and roundabout (2x2) roadway concepts.

Based on these results a *Stage 2* evaluation will be completed in coordination with the PD&E project team and FDOT District Five as part of the alternative evaluation process and consistent with the selection of the preferred alternatives. Per the *FDOT ICE Manual*, Stage 2 is intended to help differentiate any remaining control strategies with more detailed vetting using the *FDOT ICE Tool* comparing operations, safety, and impacts. As part of this PTAR, the operational analysis results for the Build Alternatives are discussed in the following sections and in more detail in **Section 10** *Future Traffic Operations Analysis* of this report.

9.1.3.1 SR 535 and Poinciana Boulevard Alternatives

Based on the results from the intersection evaluations, there is a need to consider alternative interchange configurations at the SR 535 and Poinciana Boulevard intersection. The primary movements of the interchange are northbound and southbound, with heavy eastbound and

westbound left turn movements in both the AM and PM peak hour periods. The following alternatives were evaluated in Synchro:

- Traffic Signal – Alternative 1
    - All other configurations result in substantial R/W impacts or impacts to Florida Gas Transmission (FGT).
- Partial Median U-turn N-S + Jug Handle – Alternative 2
    - With some R/W impacts or impacts to FGT, this configuration best treats the heavy eastbound left turn movements.
    - All other configurations result in substantial R/W impacts or impacts to FGT.

The SR 535 and Poinciana Boulevard traffic signal Alternative 1 concept involves the installation of an additional lane along SR 535 for northbound and southbound movements and provision of triple eastbound left turn lanes. The lane configuration is shown in **Figure 9-5**. The jug handle and partial median U-turn Alternative 2 concept involves the removal of the minor street eastbound and westbound direct left turn movements. The eastbound left turn movements are treated with a jug handle loop in the southeast quadrant. Vehicles enter the free-flowing loop ramp just east of Poinciana Boulevard and SR 535 and exit at the proposed traffic signal just south of Poinciana Boulevard, where they are able to make right turns to head north. The westbound left turn movements are treated with a median U-turn just north of the intersection on SR 535. The lane configuration for Alternative 2 is shown in **Figure 9-6.**

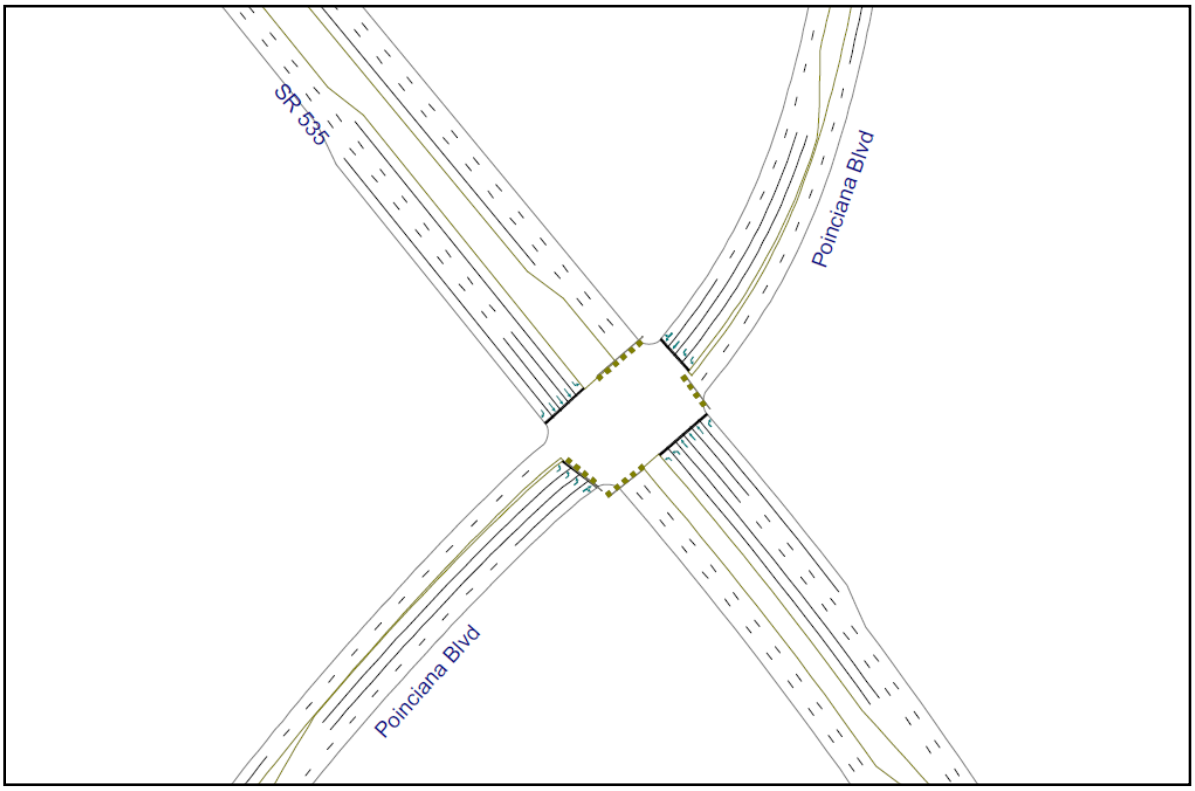


Figure 9-5 SR 535 and Poinciana Boulevard Alternative 1

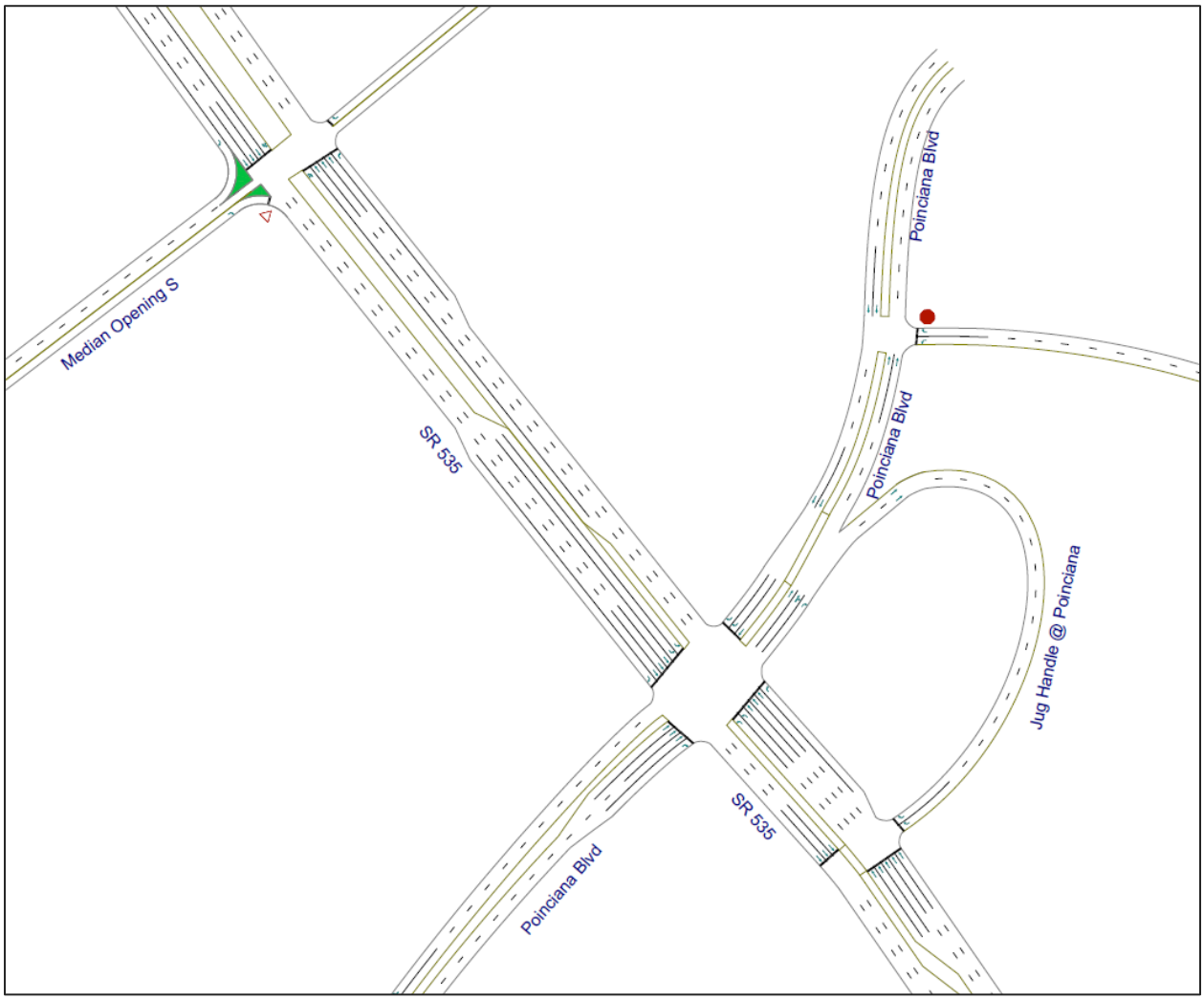


Figure 9-6 SR 535 and Poinciana Boulevard Alternative 2

9.1.3.2 SR 535 and Polynesian Boulevard Alternatives

The primary movements of the interchange are northbound and southbound, with high volumes in both the AM and PM peak hour periods. The following alternatives were evaluated in Synchro:

- Quadrant Roadway N-E – Alternative 1
  - This alternative provides the least potential impacts to existing businesses.
- Partial Median U-turn N-S – Alternative 2
  - U-turn operations may not be as favorable as the movement would likely be combined with a nearby median opening; additionally, the v/c ratio remains low for this alternative.

The SR 535 and Polynesian Isle Boulevard Quadrant Roadway Alternative 1 concept involves the installation of an additional lane along SR 535 for northbound and southbound movements, replacing direct left turns with right turns via a signal-controlled quadrant roadway in the northeast quadrant, and adding a right turn on the east leg of Polynesian Isle Boulevard. The lane

configuration is shown in **Figure 9-7.** The Partial Median U-Turn Alternative 2 concept involves the removal of northbound and southbound direct left turn movements on SR 535 and the addition of U-turn storage bays at the existing median openings located just north and south of the intersection. The lane configuration for Alternative 2 is shown in **Figure 9-8.**

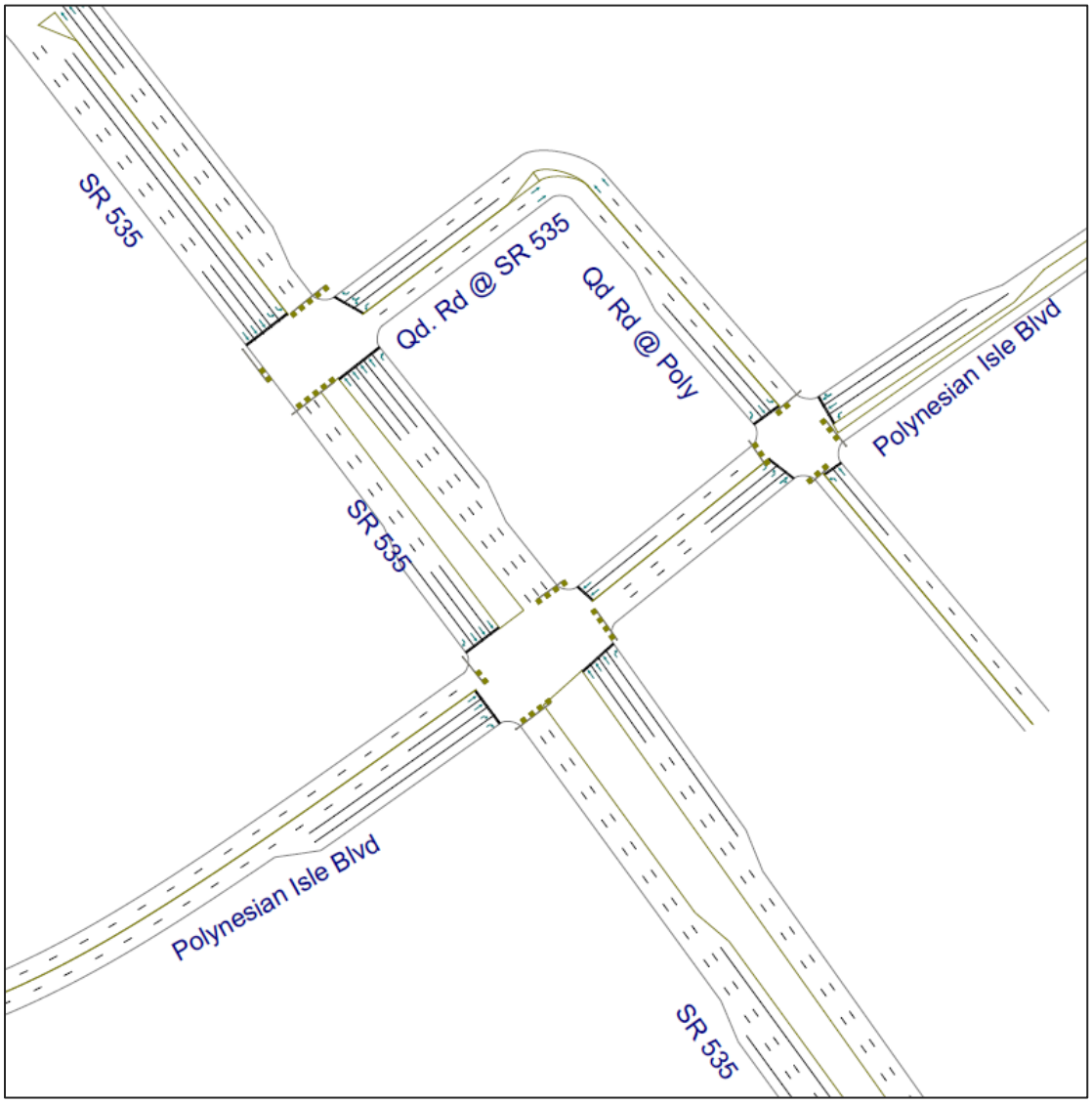


Figure 9-7 SR 535 and Polynesian Isle Boulevard Alternative 1

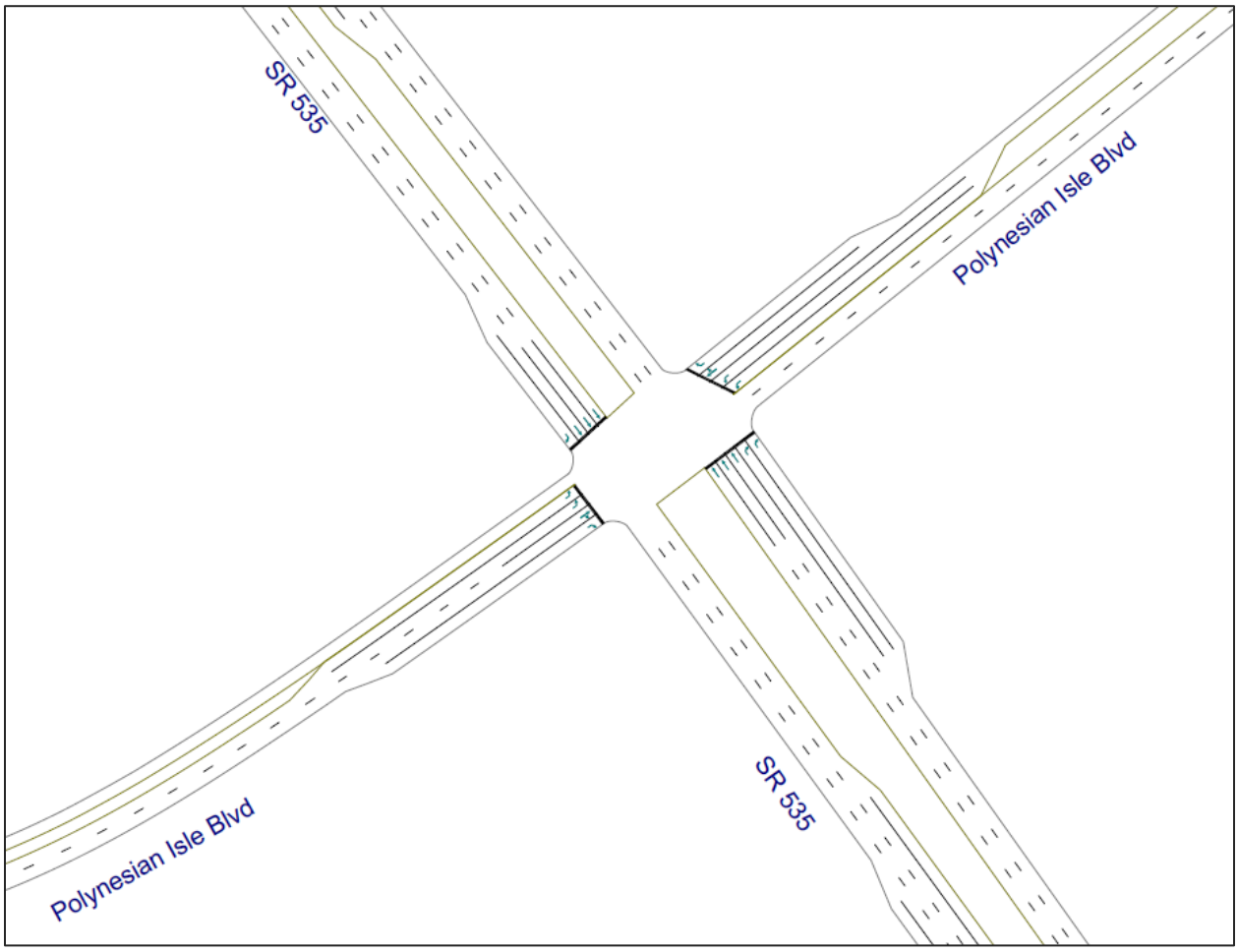


Figure 9-8 SR 535 and Polynesian Isle Boulevard Alternative 2

9.1.3.3 SR 535 and International Drive Alternatives

This existing T-intersection will be reconfigured to a four-legged intersection with an east leg extension connecting SR 535 to World Center Drive. The intersection has high volumes at all approaches with the heaviest volumes on the northbound approach on SR 535, and higher left turns along International Drive. The following alternatives were evaluated in Synchro:

- Partial Displaced Left Turn (PDLT) E-W – Alternative 1
    - This alternative provides separation of E-W left turn movements and avoids impacts to the north leg; the v/c ratio also remains below 1.0.
- Quadrant Roadway S-W – Alternative 2
    - Potential right-of-way and FGT conflicts are minimal when compared to other alternatives.

The SR 535 and International Drive Partial Displaced Left Turn Alternative 1 concept involves the removal of direct eastbound and westbound left turns on International Drive with the displaced left turns installed on both legs of this minor street. The northbound and southbound left turn

movements for the major street on SR 535 continue to take place at the main intersection. The lane configuration is shown in **Figure 9-9**. The Quadrant Roadway Alternative 2 concept involves the removal of direct left turns with the installation of a quadrant roadway in the southwest quadrant. The lane configuration for Alternative 2 is shown in **Figure 9-10.**

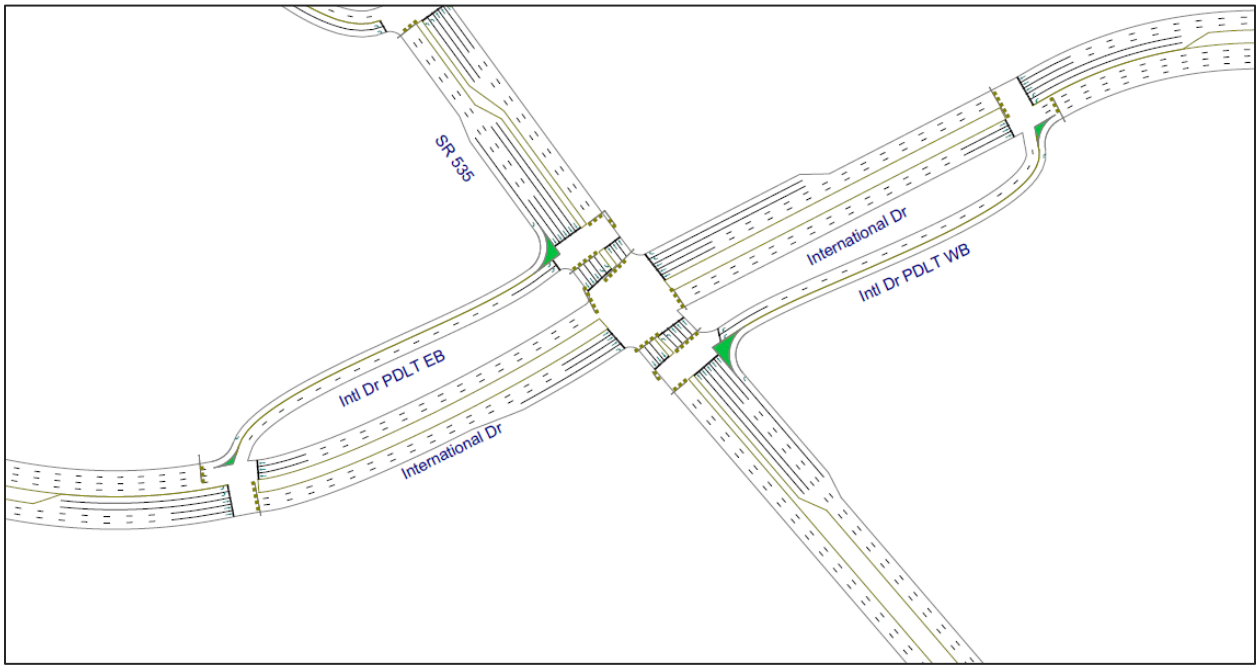


Figure 9-9 SR 535 and International Drive Alternative 1

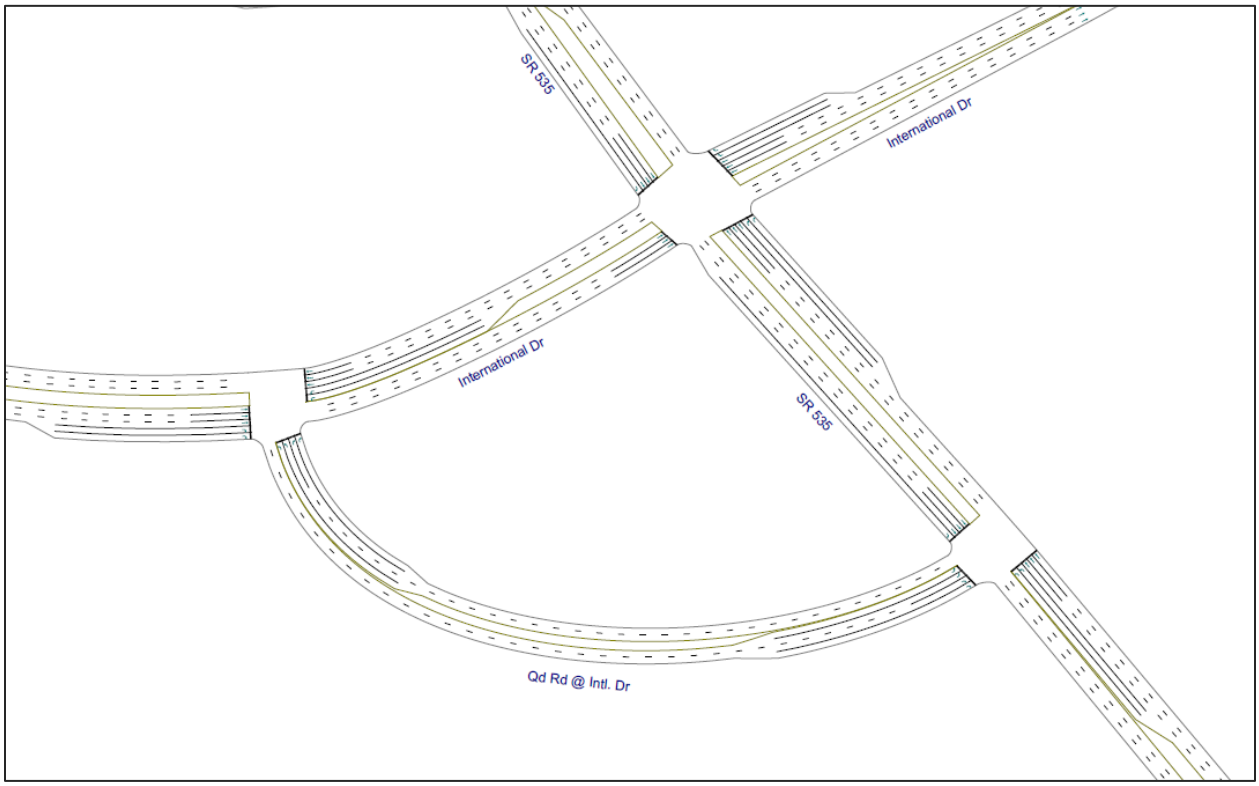


Figure 9-10 SR 535 and International Drive Alternative 2

9.1.3.4 SR 535 and SR 536/World Center Drive

The primary movements of the interchange are northbound and southbound, with high volumes in both the AM and PM peak hour periods. Left turn movements are heaviest on the northbound and southbound left turn lanes. The following alternatives were evaluated in Synchro:

- Partial Displaced Left Turn (PDLT) N-S
    - This intersection experiences a high number of left turns on the major street (SR 535) and moderate to high numbers of left tuns on the minor street (World Center Drive).
- Quadrant Roadway S-W
    - The v/c ratio is below 1.0.

The SR 535 and SR 536/World Center Drive Partial Displaced Left Turn Alternative 1 concept involves the removal and replacement of direct northbound and southbound left turns on SR 535 with the displaced left turns installed on both legs of SR 535 (major street). The eastbound and westbound left turn movements for the minor street on SR 536/World Center Drive continue to take place at the main intersection. The lane configuration is shown in **Figure 9-11**. The Quadrant Roadway Alternative 2 concept involves the removal of direct left turns with the installation of a quadrant roadway in the southwest quadrant. The lane configuration for Alternative 2 is shown in **Figure 9-12.**

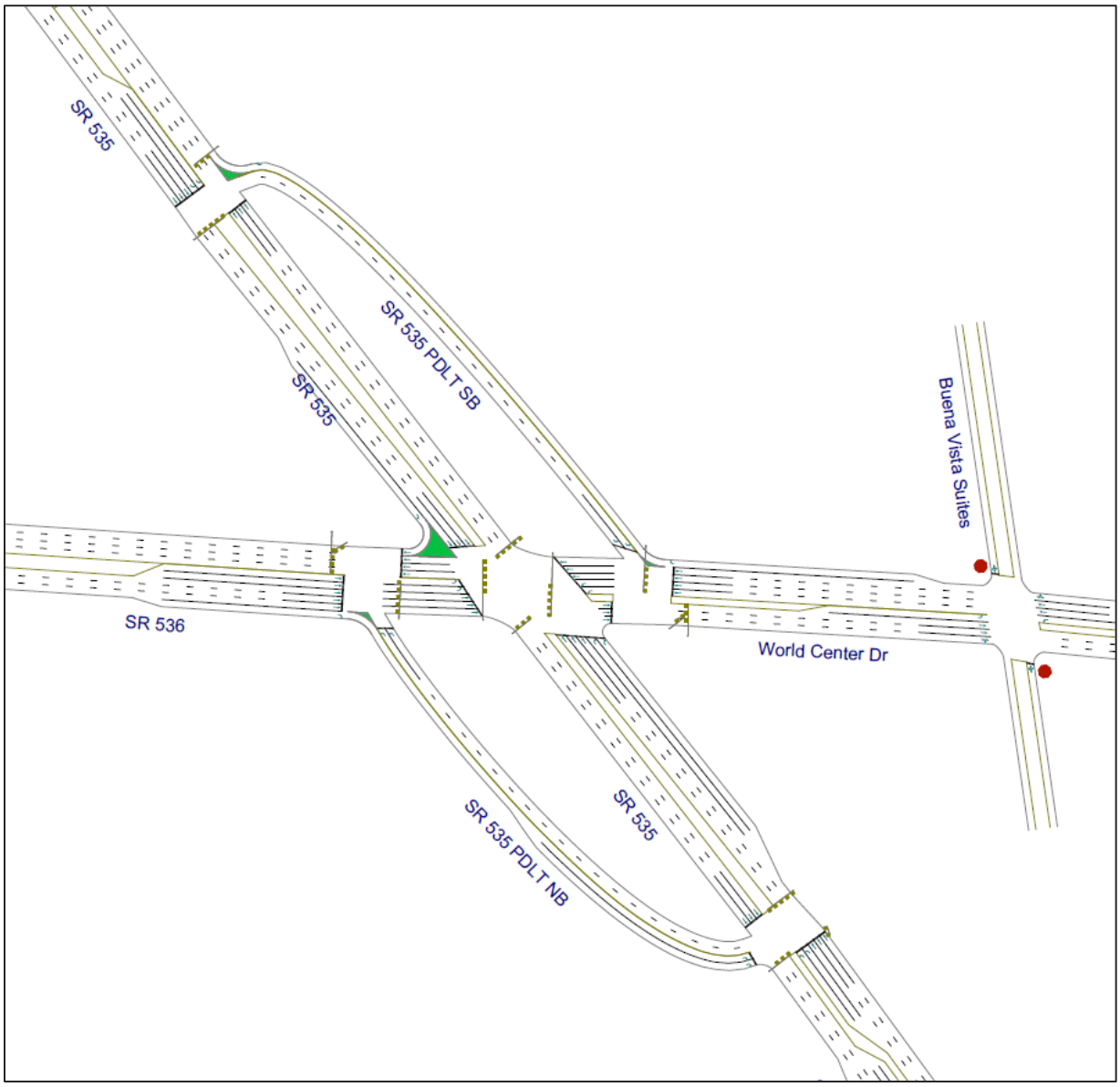


Figure 9-11 SR 535 and SR 536/World Center Drive Alternative 1

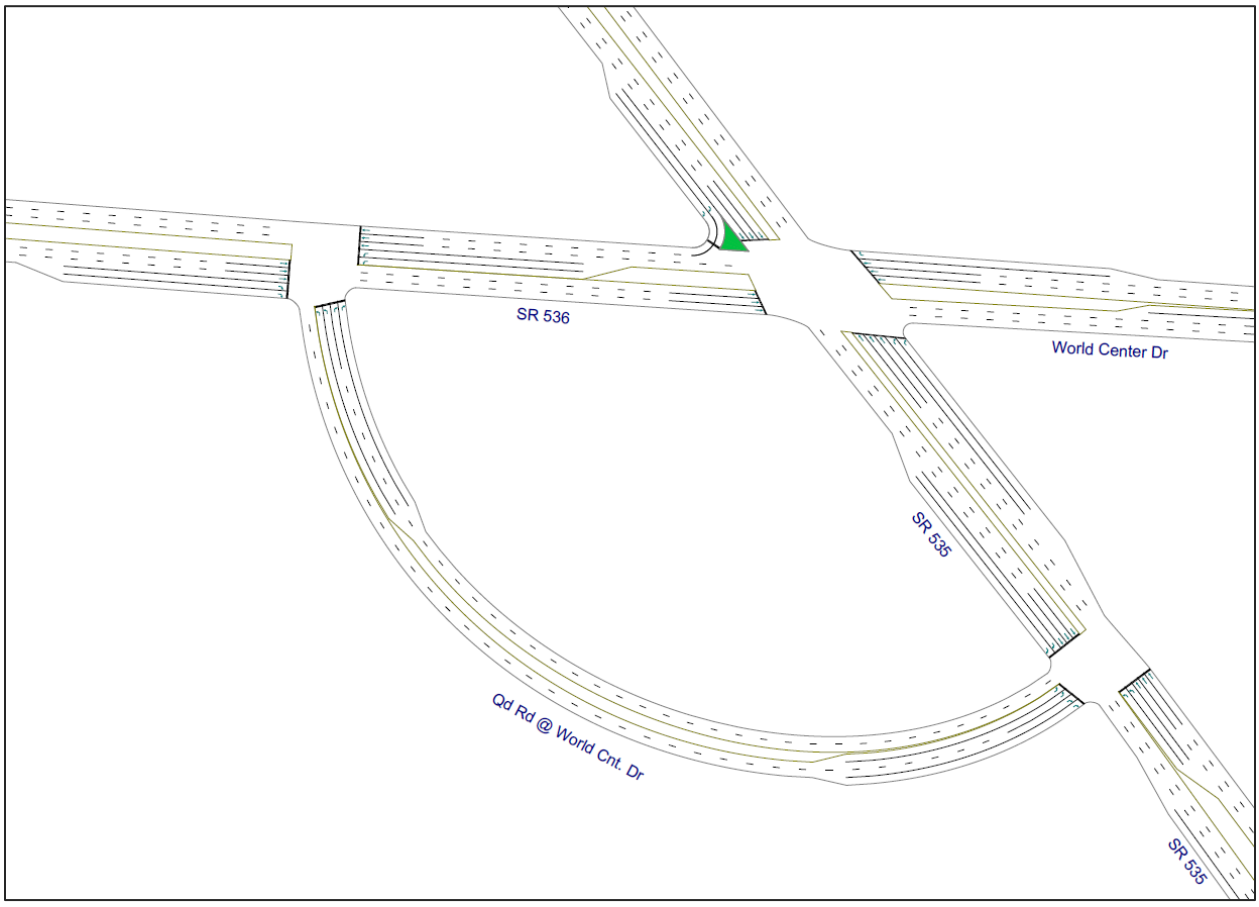


Figure 9-12 SR 535 and SR 536/World Center Drive Alternative 2

9.2 Multimodal Improvements

As part of the corridor improvements, multimodal improvements such as multi-use paths are also being included along the project. Currently, SR 535 lacks sidewalk and bike lanes connectivity. Along with the widening and intersection improvements, multi-use paths will also be included along the entire project.

10 Future Traffic Operational Analysis

This section presents the results of the traffic operational analysis for the No Build and Build alternatives. The Level of Service (LOS) operational analyses for each intersection was based on methodology from the Highway Capacity Manual (HCM) and Synchro Timing Reports with percentile delay methodology. Calculations were performed with Synchro 11 models; results of the analyses include the following performance measures for the study intersections:

- Movement: LOS, delay and 95th percentile queue lengths
- Overall Intersection: LOS and delay
- Arterial Analysis: Speed and LOS (based on Synchro Arterial Reports)

Based on the alternatives developed, no modifications are anticipated for the following intersections outside of the project limits:

- US 192 at Poinciana Boulevard (Signalized)
- US 192 at Storey Lake (Signalized)
- Poinciana Boulevard at Osceola Parkway Westbound On Ramp (Signalized)
- Poinciana Boulevard at Osceola Parkway Eastbound Off Ramp (Signalized)
- Poinciana Boulevard at Osceola Parkway Westbound Off Ramp (Unsignalized)
- International Drive at World Gateway Drive (Unsignalized)
- SR 536 at World Gateway Drive (Signalized)
- World Center Drive at Caribe Royal Orlando (Unsignalized)
- World Center Drive at International Drive (Signalized)

The operational analysis results for the signalized intersections identified above are not summarized in this chapter since no modifications are proposed and they are located outside of the project limits. However, since they are within the study area, No Build and Build alternative results are provided in provided in **Appendix J** for reference**.** Minor variations in operations exist between the different alternatives based on signal timing optimization of the networks. The stop-controlled movements at the above unsignalized intersections typically operate at a deficient LOS. In general, the following signalized intersections do not meet the LOS D Target:

- US 192 at Poinciana Boulevard
- International Drive at World Gateway Drive

- World Center Drive at International Drive

10.1 No Build Intersection Analysis

The No Build alternative assumes no proposed improvements throughout the study area, with the exception of SR 535 and International Drive, where the intersection was analyzed with the addition of the east leg approach connecting SR 535 to World Center Drive in the eastbound and westbound directions. The results of the intersection analysis are summarized in **Table 10-1**, with Synchro output reports and Synchro network roadway configuration provided in **Appendix J**.

Table 10-1 No Build 2025 Signalized Intersection LOS

2025 AM												2025 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & US 192	EBL	475	151	160	0.67	112.4	F	29.0	C	38.6	D	EBL	475	181	192	0.78	74.3	E	40.9	D	37.9	D
	EBT	-	297	854	0.31	13.6	B					EBT	-	648	1282	0.49	35.9	D				
	WBL	350	m5	3	0.06	97.7	F					WBL	350	m7	3	0.07	117.0	F				
	WBT	-	561	1310	0.58	18.1	B	19.3	B			WBT	-	539	1125	0.54	29.5	C	21.5	C		
	WBR	400	1018	1174	0.81	20.4	C					WBR	400	712	895	0.61	11.2	B				
	NBL	-	29	7	0.13	94.9	F	83.6	F			NBL	-	20	4	0.07	92.2	F	76.1	E		
	NBT	-	20	2	0.09	67.8	E					NBT	-	23	2	0.11	65.3	E				
	SBL	-	431	741	0.76	122.2	F					SBL	-	768	989	0.91	71.6	E				
	SBT	-	434	3	0.76	124.1	F	99.3	F			SBT	-	770	1	0.91	71.7	E	61.1	E		
	SBR	300	52	202	0.18	11.2	B					SBR	300	86	239	0.19	17.3	B				
SR 535 & Kyngs Heath Road	EBL	100	98	40	0.48	104.8	F	72.5	E	20.5	C	EBL	100	172	83	0.66	107.7	F	80.9	F	29.0	C
	EBT	-	52	6	0.35	37.8	D					EBT	-	112	27	0.51	53.1	D				
	EBR			31								EBR			53							
	WBL	150	64	35	0.32	100.5	F	37.8	D			WBL	150	92	48	0.46	104.9	F	50.3	D		
	WBT	-	64	5	0.31	100.1	F					WBT	-	95	21	0.45	104.2	F				
	WBR	-	6	86	0.47	9.0	A					WBR	-	34	104	0.53	13.9	B				
	NBL	375	m34	21	0.33	107.4	F	8.3	A			NBL	375	m37	21	0.33	99.7	F	28.6	C		
	NBT	-	408	1265	0.54	6.9	A					NBT	-	604	1000	0.48	28.8	C				
	NBR	-	m0	50	0.05	0.0	A					NBR	-	m18	68	0.07	3.8	A				
	SBL	250	137	69	0.63	75.5	E	30.5	C			SBL	250	217	112	0.73	108.1	F	20.5	C		
	SBT	-	595	880	0.35	28.6	C					SBT	-	481	1128	0.48	13.6	B				
	SBR	300	84	77	0.07	11.2	B					SBR	300	31	114	0.11	2.5	A				
SR 535 & Osceola Pkwy On Ramp	NBT	-	574	1272	0.55	8.5	A	8.5	A	11.0	B	NBT	-	225	1071	0.50	9.2	A	9.2	A	9.5	A
	SBL	525	250	318	0.69	56.0	E	13.4	B			SBL	525	153	415	0.72	39.5	D	9.6	A		
	SBT	-	0	1014	0.22	0.1	A					SBT	-	0	1306	0.28	0.1	A				
SR 535 & Poinciana Blvd	EBL	175	548	735	0.90	83.1	F	75.4	E	46.8	D	EBL	175	397	515	0.85	87.7	F	74.8	E	47.9	D
	EBT	-	56	61	0.13	25.8	C					EBT	-	85	90	0.24	34.0	C				
	EBR			53								EBR			73							
	WBL	300	89	84	0.50	97.2	F	75.1	E			WBL	300	194	219	0.73	96.9	F	82.1	F		
	WBT	-	154	64	0.90dr	67.7	E					WBT	-	237	177	0.85	73.5	E				
	NBL	375	79	69	0.49	104.0	F	46.7	D			NBL	375	99	95	0.56	99.9	F	38.7	D		
	NBT	-	492	1122	0.89	46.4	D					NBT	-	593	895	0.54	35.7	D				
	NBR	250	17	81	0.13	2.1	A					NBR	250	0	81	0.10	0.2	A				
	SBL	375	#358	131	0.62	100.5	F	26.8	C			SBL	375	m103	49	0.57	139.9	F	33.9	C		
	SBT	-	732	1196	0.72	20.5	C					SBT	-	#1126	1429	0.89	31.3	C				
SR 535 & Polynesian Isle Blvd	EBL	-	284	345	0.82	96.0	F	77.9	E	62.3	E	EBL	-	248	294	0.80	97.3	F	90.9	F	33.4	C
	EBT	-	71	11	0.26	15.3	B					EBT	-	247	57	0.72	79.1	E				
	WBL	175	52	16	0.28	100.7	F	72.2	E			WBL	175	134	60	0.61	110.6	F	53.6	D		
	WBT	-	168	27	1.08dr	70.4	E					WBT	-	105	78	0.72	39.7	D				
	NBL	500	m37	46	0.38	85.4	F	91.3	F			NBL	500	m97	97	0.57	86.6	F	37.9	D		
	NBT	-	#1630	1961	1.09	92.4	F					NBT	-	#1129	1450	0.81	35.5	D				
	NBR	250	m0	20	0.02	0.1	A					NBR	250	m0	32	0.04	0.1	A				
	SBL	450	#313	104	0.76	110.5	F	27.6	C			SBL	450	m225	165	0.82	113.2	F	17.6	B		
	SBT	-	604	1678	0.59	25.3	C					SBT	-	m235	1953	0.68	12.7	B				
	SBR	450	41	190	0.20	2.7	A					SBR	450	m14	367	0.36	0.7	A				

Table 10-1 No Build 2025 Signalized Intersection LOS (continued)

2025 AM												2025 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & LBV Factory Stores	EBL	-	40	20	0.08	47.5	D	41.7	D	99.1	F	EBL	-	49	20	0.12	62.4	E	43.1	D	49.9	D
	EBT	-	20	4	0.03	29.5	C					EBT	-	28	2	0.07	22.7	C				
	WBL	-	331	236	0.83	82.2	F	64.2	E			WBL	-	349	206	0.84	100.8	F	74.0	E		
	WBT	-	78	7	0.26	20.4	C					WBT	-	149	5	0.42	35.3	D				
	NBL	525	47	17	0.23	80.0	E	143.8	F			NBL	525	m38	20	0.31	80.8	F	35.1	D		
	NBT	-	#1896	2280	1.26	153.5	F					NBT	-	#1405	1763	0.95	36.4	D				
	NBR	525	62	153	0.18	6.2	A					NBR	525	m22	103	0.12	4.7	A				
	SBL	575	m0	71	0.52	55.7	E	47.9	D			SBL	575	#306	136	0.69	96.1	F	57.5	E		
	SBT	-	#1214	1755	0.85	48.7	D					SBT	-	#2036	2300	1.04	57.9	E				
	SBR	350	m29	56	0.06	10.4	B					SBR	350	55	117	0.11	5.8	A				
SR 535 & International Dr/International Drive	EBL	200	139	171	0.65	82.9	F	70.2	E	32.3	C	EBL	200	131	160	0.65	83.5	F	65.7	E	38.6	D
	EBT	-	205	415	0.75	76.8	E					EBT	-	303	634	0.86	77.8	E				
	EBR	200	0	70	0.17	0.8	A					EBR	200	140	310	0.56	31.9	C				
	WBL	200	164	213	0.69	81.5	F	67.8	E			WBL	200	119	140	0.69	90.8	F	62.7	E		
	WBT	-	260	546	0.79	74.5	E					WBT	-	199	415	0.56	66.0	E				
	WBR	200	78	160	0.23	26.4	C					WBR	200	52	121	0.16	18.6	B				
	NBL	450	m101	220	0.70	99.2	F	13.4	B			NBL	450	#96	105	0.65	92.5	F	30.4	C		
	NBT	-	m41	1760	0.71	5.8	A					NBT	-	518	1539	0.65	31.5	C				
	NBR	450	m0	411	0.28	0.0	A					NBR	450	0	277	0.19	0.3	A				
	SBL	475	m55	80	0.49	79.5	E	25.4	C			SBL	475	m97	160	0.65	78.1	E	25.4	C		
	SBT	-	m235	1600	0.71	24.1	C					SBT	-	m324	2103	0.86	22.1	C				
	SBR	475	m1	91	0.12	0.6	A					SBR	475	m0	55	0.07	0.0	A				
SR 535 & SR 536/World Center Dr	EBL	575	213	122	0.72	85.4	F	70.6	E	94.9	F	EBL	575	#374	211	0.91	86.9	F	82.5	F	114.4	F
	EBT	-	#725	978	0.89	82.5	F					EBT	-	#920	1131	1.14	113.5	F				
	EBR	575	297	487	0.45	42.9	D					EBR	575	307	600	0.59	22.6	C				
	WBL	250	156	204	0.66	79.3	E	67.9	E			WBL	250	#295	369	0.89	91.0	F	72.6	E		
	WBT	-	#908	1131	1.07	99.7	F					WBT	-	#763	978	1.05	96.9	F				
	WBR	-	0	570	0.38	0.7	A					WBR	-	0	424	0.28	0.5	A				
	NBL	500	#551	600	1.27	171.8	F	96.1	F			NBL	500	#506	487	1.48	266.3	F	155.2	F		
	NBT	-	#691	1371	1.05	71.3	E					NBT	-	#698	1245	1.17	122.8	F				
	NBR	300	m0	120	0.08	0.1	A					NBR	300	m0	88	0.06	0.1	A				
	SBL	650	#430	394	1.58	323.6	F	143.9	F			SBL	650	#557	570	1.41	246.2	F	142.4	F		
	SBT	-	#593	1080	1.11	119.6	F					SBT	-	#732	1349	1.14	127.1	F				
	SBR	400	0	311	0.21	0.3	A					SBR	400	0	272	0.19	0.3	A				

Table 10-1 No Build 2045 Signalized Intersection LOS (continued)

2045 AM												2045 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & US 192	EBL	475	#421	372	0.92	109.1	F	43.8	D	49.8	D	EBL	475	m#359	388	0.92	66.4	E	36.9	D	44.4	D
	EBT	-	478	1227	0.53	24.2	C					EBT	-	747	1443	0.66	29.0	C				
	WBL	350	m12	7	0.16	135.6	F	27.9	C			WBL	350	m11	6	0.13	136.7	F	27.1	C		
	WBT	-	482	1323	0.82	23.2	C					WBT	-	543	1129	0.79	32.8	C				
	WBR	400	830	1288	0.88	32.1	C					WBR	400	784	1042	0.72	20.3	C				
	NBL	-	42	11	0.22	99.5	F	74.1	E			NBL	-	29	7	0.13	94.9	F	76.7	E		
	NBT	-	37	4	0.26	54.9	D					NBT	-	30	4	0.18	64.0	E				
	SBL	-	#975	1038	0.87	127.4	F	97.0	F			SBL	-	#1073	1161	0.89	98.3	F	77.7	E		
	SBT	-	#994	5	0.87	130.8	F					SBT	-	#1076	3	0.90	98.6	F				
	SBR	300	68	366	0.26	5.5	A					SBR	300	101	365	0.24	11.4	B				
SR 535 & Kyngs Heath Road	EBL	100	#193	78	0.75	123.1	F	77.3	E	41.2	D	EBL	100	188	92	0.69	109.1	F	90.4	F	34.3	C
	EBT	-	101	20	0.58	39.8	D					EBT	-	153	37	0.62	72.5	E				
	EBR			75								EBR			59							
	WBL	150	141	116	0.36	81.9	F	69.0	E			WBL	150	157	108	0.62	107.1	F	55.0	E		
	WBT	-	142	14	0.36	81.9	F					WBT	-	158	33	0.61	106.0	F				
	WBR	-	#352	335	0.94	64.0	E					WBR	-	93	212	0.70	20.6	C				
	NBL	375	m47	32	0.47	93.6	F	45.5	D			NBL	375	m50	29	0.44	89.6	F	28.1	C		
	NBT	-	842	1505	0.85	48.3	D					NBT	-	882	1263	0.68	29.5	C				
	NBR	-	m0	127	0.15	1.0	A					NBR	-	m19	142	0.16	3.1	A				
	SBL	250	#403	209	0.89	131.9	F	24.2	C			SBL	250	340	194	0.84	106.0	F	28.9	C		
	SBT	-	821	1218	0.57	8.2	A					SBT	-	706	1362	0.61	20.1	C				
	SBR	300	22	127	0.13	0.9	A					SBR	300	42	120	0.12	3.8	A				
SR 535 & Osceola Pkwy On-Ramp	NBT	-	588	1732	0.85	18.4	B	18.4	B	16.2	B	NBT	-	355	1405	0.68	12.9	B	12.9	B	10.9	B
	SBL	525	m273	615	0.87	50.9	D	14.5	B			SBL	525	183	500	0.78	40.3	D	9.6	A		
	SBT	-	m0	1548	0.33	0.0	A					SBT	-	0	1631	0.35	0.2	A				
SR 535 & Poinciana Blvd	EBL	175	582	772	0.91	85.6	F	75.6	E	148.3	F	EBL	175	#725	803	1.05	112.4	F	97.5	F	136.7	F
	EBT	-	67	69	0.15	22.9	C					EBT	-	96	106	0.20	31.7	C				
	EBR			78								EBR			75							
	WBL	300	215	242	0.78	101.2	F	168.2	F			WBL	300	213	245	0.75	96.4	F	186.6	F		
	WBT	-	#685	155	1.67dr	193.6	F					WBT	-	#703	177	1.67dr	217.8	F				
	NBL	375	m65	78	0.53	94.1	F	103.4	F			NBL	375	104	102	0.58	100.0	F	63.4	E		
	NBT	-	#1298	1426	1.13	116.8	F					NBT	-	872	1162	0.92	67.2	E				
	NBR	250	m128	228	0.36	23.0	C					NBR	250	53	141	0.22	5.9	A				
	SBL	375	m#551	211	2.36	665.3	F	198.6	F			SBL	375	m#506	247	1.86	442.3	F	172.3	F		
	SBT	-	#1464	1843	1.27	156.0	F					SBT	-	m#1446	1811	1.26	144.4	F				
SR 535 & Polynesian Isle Blvd	EBL	-	304	373	0.84	95.4	F	84.6	F	104.0	F	EBL	-	251	297	0.80	97.1	F	160.4	F	118.6	F
	EBT	-	#470	58	0.85	71.9	E					EBT	-	#871	114	1.31	211.7	F				
	WBL	175	#225	83	0.86	144.0	F	114.5	F			WBL	175	290	159	0.81	109.8	F	61.1	E		
	WBT	-	#418	94	1.28dr	108.3	F					WBT	-	142	111	0.50	35.0	D				
	NBL	500	m#156	193	1.22	170.0	F	148.2	F			NBL	500	m#178	243	1.08	127.4	F	205.8	F		
	NBT	-	m#1710	2289	1.27	158.6	F					NBT	-	m#1748	2033	1.42	232.1	F				
	NBR	250	m38	200	0.23	8.7	A					NBR	250	m61	180	0.25	14.6	B				
	SBL	450	#484	158	1.87	469.7	F	63.3	E			SBL	450	m234	228	0.99	96.3	F	44.9	D		
	SBT	-	996	2268	0.88	42.3	D					SBT	-	m458	2333	0.98	45.4	D				
	SBR	450	63	278	0.31	3.8	A					SBR	475	m37	367	0.42	9.7	A				

Table 10-1 No Build 2045 Signalized Intersection LOS (continued)

	2045 AM											2045 PM									
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & LBV Factory Stores	EBL	-	42	22	0.11	41.5	D	30.6	C	227.7	F	EBL	-	50	22	0.09	54.1	D	30.5	C	187.1	F
	EBT	-	31	9	0.05	20.6	C					EBT	-	40	5	0.09	17.3	B				
	WBL	-	#549	354	0.92	83.3	F	64.5	E			WBL	-	#872	408	1.18	163.6	F	123.4	F		
	WBT	-	309	28	0.59	41.3	D					WBT	-	139	13	0.34	23.3	C				
	NBL	525	#70	25	0.45	99.4	F	310.2	F			NBL	525	m#98	60	1.40	252.5	F	196.7	F		
	NBT	-	#2345	2655	1.68	339.4	F					NBT	-	m#1400	2333	1.41	205.6	F				
	NBR	525	111	240	0.31	9.4	A					NBR	525	m0	123	0.16	0.4	A				
	SBL	575	m#250	155	1.25	163.5	F	179.3	F			SBL	575	#657	250	1.52	311.8	F	194.5	F		
	SBT	-	m#1713	2407	1.31	184.3	F					SBT	-	#2381	2551	1.34	191.9	F				
	SBR	350	m6	58	0.07	10.1	B					SBR	350	58	121	0.14	7.2	A				
SR 535 & International Dr	EBL	200	#226	241	0.93	110.3	F	103.5	F	60.0	E	EBL	200	#226	232	0.96	120.4	F	100.6	F	68.0	E
	EBT	-	#528	955	1.09	116.9	F					EBT	-	#568	1032	1.10	118.8	F				
	EBR	200	51	161	0.27	13.4	B					EBR	200	158	342	0.53	32.1	C				
	WBL	200	#340	372	1.05	126.7	F	83.9	F			WBL	200	#226	223	1.01	133.0	F	86.0	F		
	WBT	-	#508	1032	0.96	78.7	E					WBT	-	#487	955	0.98	86.4	F				
	WBR	200	78	174	0.19	22.5	C					WBR	200	78	172	0.19	23.0	C				
	NBL	450	m108	272	1.03	117.6	F	23.9	C			NBL	450	#174	161	0.98	136.1	F	39.9	D		
	NBT	-	m103	1910	0.92	19.2	B					NBT	-	710	1828	0.85	42.6	D				
	NBR	450	m0	756	0.52	2.3	A					NBR	450	0	516	0.35	0.6	A				
	SBL	475	m96	172	0.90	83.4	F	63.9	E			SBL	475	m81	174	0.78	49.2	D	65.6	E		
	SBT	-	m341	2087	1.07	65.0	E					SBT	-	m716	2357	1.06	69.5	E				
	SBR	475	m0	87	0.13	0.1	A					SBR	475	m26	110	0.14	8.3	A				
SR 535 & SR 536/World Center Dr	EBL	575	m174	309	0.93	58.1	E	73.7	E	197.8	F	EBL	575	m#378	245	1.46	258.5	F	178.5	F	190.5	F
	EBT	-	m662	1326	1.17	106.0	F					EBT	-	m#1227	1476	1.44	234.4	F				
	EBR	575	m222	636	0.57	13.9	B					EBR	575	m311	651	0.65	21.5	C				
	WBL	250	236	321	0.81	84.1	F	229.5	F			WBL	250	#515	516	1.42	252.0	F	119.6	F		
	WBT	-	#1412	1476	1.72	363.7	F					WBT	-	#939	1185	1.14	122.5	F				
	WBR	-	0	662	0.44	0.9	A					WBR	-	0	603	0.40	0.8	A				
	NBL	500	m#618	651	1.79	390.8	F	265.9	F			NBL	500	m#619	636	1.44	257.7	F	245.5	F		
	NBT	-	#931	1544	1.45	235.6	F					NBT	-	m#932	1499	1.45	256.2	F				
	NBR	300	m0	130	0.09	0.1	A					NBR	300	m0	97	0.07	0.1	A				
	SBL	650	#462	437	1.53	300.7	F	218.0	F			SBL	650	#647	662	1.50	278.2	F	218.5	F		
	SBT	-	#860	1389	1.46	256.2	F					SBT	-	#894	1474	1.42	238.3	F				
	SBR	400	0	410	0.28	0.5	A					SBR	400	0	315	0.22	0.3	A				

Opening year 2025 results reveal that AM peak hour conditions show higher levels of degradation and deficiencies compared to the PM peak hour conditions.

Under the AM peak hour conditions, the following intersections do not meet the overall LOS D Target:

- SR 535 at Polynesian Isle Boulevard – LOS E with a delay of 62.3 sec/veh
- SR 535 at LBV Factory Stores – LOS F with a delay of 99.1 sec/veh
- SR 535 at SR 536/World Center Drive – LOS F with a delay of 94.9 sec/veh

Under the PM peak hour conditions, all of the signalized intersections exhibit an overall intersection LOS that meet the LOS D Target with the exception of the following intersection:

- SR 535 at SR 536/World Center Drive – LOS F with a delay of 114.4 sec/veh

Similar to AM peak hour conditions, the PM peak hour conditions show the highest delays at the intersection of SR 535 and SR 536/World Center Drive. This intersection shows the most significant operational impacts when compared to all other signalized intersections with the westbound approach exhibiting a delay of 72.6 sec/veh (LOS E); the eastbound, northbound, and southbound approaches exhibiting deficient LOS F and delays of 82.5 sec/veh, 155.2 sec/veh, and 142.4 sec/veh, respectively.

Overall, the opening year condition reveals extended queue lengths along SR 535 in the northbound and southbound directions during both the AM and PM peak hours for intersections north of Poinciana Boulevard. At SR 535 and SR 536/World Center Drive, during the AM peak hour, heavy queueing occurs at all approaches.

Design year 2045 results reveal that AM and PM peak hour conditions show similarities in their operational results with further levels of degradation and deficiencies. Under the AM peak hour conditions, many intersections operate at a deficient LOS. The following intersections do not meet the overall intersection LOS D Target:

- SR 535 at Poinciana Boulevard – LOS F with a delay of 148.3 sec/veh
- SR 535 and Polynesian Ise Boulevard – LOS F with a delay of 104.0 sec/veh
- SR 535 and LBV Factory Stores – LOS F with a delay of 227.7 sec/veh
- SR 535 and International Drive – LOS E with a delay of 60.0 sec/veh
- SR 535 and SR 536/World Center Drive – LOS F with a delay of 197.8 sec/veh

Overall, most of the intersections have degraded when compared to the existing and opening year scenarios, with SR 535 and LBV Factory Stores showing the highest delays.

Under the PM peak hour conditions, most of the signalized intersections operate at a deficient LOS. The following intersections do not meet the LOS D Target:

- SR 535 at Poinciana Boulevard– LOS F with a delay of 136.7 sec/veh
- SR 535 at Polynesian Isle Boulevard – LOS F with a delay of 118.6 sec/veh
- SR 535 at LBV Factory Stores – LOS F with a delay of 187.1 sec/veh
- SR 535 at International Drive – LOS E with a delay of 68.0 sec/veh
- SR 535 at SR 536/World Center Drive – LOS F with a delay of 190.5 sec/veh

Regarding queue length impacts, the design year condition exhibits similar impacts during both the AM and PM peak hour, with much heavier queuing occurring along SR 535 and the cross streets when compared to the existing and opening year conditions.

10.1.1 No Build Unsignalized Intersections Analysis

Table 10-2 summarizes the unsignalized intersections LOS and queues for stop-controlled movements for the opening and designs years during the AM and PM peak hours. In general, most stop-controlled movements at World Center Drive intersections of Buena Vista Suites and Caribe Royale Orlando during the opening year operate at LOS E or LOS F. During the design year, nearly all stop-controlled movements are projected to operate at LOS E or LOS F with the exception of stop-controlled movements at the intersections of SR 535 and Calypso Cay Way.

Table 10-2 No Build Unsignalized Major Movement LOS

Study Intersection	No Build 2025 AM								No Build 2025 PM								No Build 2045 AM								No Build 2045 PM							
	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS
3: SR 535 & Calypso Cay Way/Osceola Pkwy on-ramp	EBR	---	0.3	7.5	44	0.09	12.8	B	EBR	---	0.8	20.0	84	0.22	16.5	C	EBR	---	0.6	15	56	0.18	18.0	C	EBR	---	1.1	21.1	84	0.28	21.1	C
	NBL	225	0.3	7.5	52	0.08	11.1	B	NBL	225	0.2	5.0	26	0.06	12.7	B	NBL	225	0.5	12.5	55	0.15	15.5	C	NBL	225	0.3	7.5	29	0.08	15.8	C
10: SR 535 & Lake Bryan Beach Blvd	WBL	---			24				WBL	---			58				WBL	---			26				WBL	---			62			
	WBT	---			2				WBT	---			2				WBT	---			5				WBT	---	25.1	627.5	5	60.7	29240.0	F
	WBR	---			43				WBR	---			104				WBR	---			45				WBR	---			106			
	NBL	150	0.7	17.5	28	0.21	36.6	E	NBL	150	2.6	65.0	49	0.57	88.7	F	NBL	150	1.5	37.5	30	0.39	74.1	F	NBL	150	4	100	53	0.86	178.2	F
	SBL	150	3.2	80.0	62	0.64	88.6	F	SBL	150	0.7	17.5	24	0.19	38.9	E	SBL	150	5.8	145	65	1.20	303.4	F	SBL	150	1.5	37.5	27	0.39	82.8	F
14: SR 535 & Median Opening S	EBR	---	0.6	15.0	44	0.18	22.1	C	EBR	---	5.0	125.0	146	0.31	60.9	E	EBR	---	8.3	207.5	145	1.08	162.1	F	EBR	---	9.8	245	150	1.23	221.2	F
	WBR	---	1.3	32.5	71	0.32	27.9	D	WBR	---	1.3	32.5	98	0.31	20.3	C	WBR	---	10.5	262.5	171	1.22	206.7	F	WBR	---	6.1	152.5	140	0.86	89.1	F
	NBL	750	0.5	12.5	25	0.16	30.5	D	NBL	750	1.2	30.0	35	0.31	48.3	F	NBL	750	2.6	65	38	0.61	121.7	F	NBL	750	3.1	77.5	143	0.72	161.5	F
	SBL	500	0.9	22.5	57	0.50	24.6	D	SBL	500	0.4	10.0	167	0.11	15.9	F	SBL	500	4.3	107.5	92	0.74	86.0	F	SBL	500	3.1	77.5	88	0.59	55.8	F
15: SR 535 & Median Opening N	WBR	---	0.0	0.0	2	0.01	28.7	D	WBR	---	1.2	30.0	72	0.30	24.8	C	WBR	---	7.8	195	122	1.12	190.7	F	WBR	---	4.4	110	109	0.72	71.2	F
	SBL	550	0.6	15.0	24	0.17	34.5	D	SBL	550	0.5	12.5	37	0.15	20.8	C	SBL	550	4.3	107.5	72	0.80	122.6	F	SBL	550	2.2	55	66	0.47	49.2	E
18: Poinciana Blvd & Westbound Off Ramp	WBL	---	1.8	45.0	229	0.39	14.5	B	WBL	---	2.7	67.5	264	0.49	17.4	C	WBL	---	16.3	407.5	353	1.20	152.2	F	WBL	---	19.5	487.5	380	1.00	194.0	F
	WBR	---	0.6	15.0	144	0.18	10.0	B	WBR	---	0.6	15.0	149	0.17	9.8	A	WBR	---	0.8	20	146	0.21	11.3	B	WBR	---	0.8	20	152	0.22	11.3	B
20: International Dr & World Gateway Dr	EBL	200	2.1	52.5	177	0.42	18.9	C	EBL	200	2.2	55.0	249	0.43	15.4	C	EBL	200	20.4	510	327	1.48	278.3	F	EBL	200	23.1	577.5	393	1.46	260.1	F
	WBL	200	0.0	0.0	0	0.00	0.0	A	WBL	200	0.0	0.0	0	0.00	0.0	A	WBL	200	0	0	0	0.00	0.0	A	WBL	200	0	0	0	0.00	0.0	A
	SBL	---	7.4	185.0	116	1.08	180.8	F	SBL	---	49.7	1242.5	461	4.15	1491.6	F	SBL	---			479				SBL	---	0	0	561	0.00	0.0	
	SBR	---	1.0	25.0	114	0.25	15.0	C	SBR	---	1.4	35.0	179	0.32	13.9	B	SBR	---	8.5	212.5	267	0.90	66.2	F	SBR	---	6.9	172.5	272	0.80	45.9	E
21: World Center Dr & Buena Vista Suites	EBL	500	1.5	37.5	44	0.37	49.3	E	EBL	500	8.5	212.5	38	4.07	1893.3	F	EBL	500	10.6	265	48	17.37	9126.4	F	EBL	500	12.3	307.5	40	16.63	8456.2	F
	WBL	500	0.4	10.0	24	0.12	24.1	C	WBL	500	0.8	20.0	30	0.21	35.8	E	WBL	500	1.7	42.5	49	0.39	48.8	E	WBL	500	2	50	38	0.47	80.4	F
	NBL	---			17				NBL	---			21				NBL	---			28				NBL	---			27			
	NBT	---	5.8	145.0	3	3.00	1489.3	F	NBT	---			2				NBT	---			6				NBT	---			6			
	NBR	---			17				NBR	---			35				NBR	---			32				NBR	---			46			
	SBL	---			2				SBL	---			8				SBL	---			6				SBL	---			13			
	SBT	---			2				SBT	---			1				SBT	---			4				SBT	---			4			
	SBR	---			21				SBR	---			35				SBR	---			38				SBR	---			44			
22: World Center Dr & Caribe Royale Orlando	EBL	---	1.5	37.5	49	0.36	43.3	E	EBL	---	0.7	17.5	28	0.21	36.9	E	EBL	---	4.4	110	54	0.93	206.7	F	EBL	---	2.8	70	42	0.65	126.5	F
	SBL	---	1.4	35.0	12	0.45	213.4	F	SBL	---	2.8	70.0	26	0.78	255.3	F	SBL	---	5.7	142.5	29	30.53	19922.5	F	SBL	---	6.3	157.5	36	7.58	4360.9	F
	SBR	---	0.3	7.5	23	0.11	22.5	C	SBR	---	0.7	17.5	44	0.20	24.9	C	SBR	---	1.6	40	48	0.38	48.3	E	SBR	---	1.8	45	55	0.41	47.3	E

10.2 No Build Arterial Analysis

The same model developed for the intersection analysis was used to evaluate the performance of the SR 535 roadway segments. The average speed from the Synchro arterial reports was utilized to determine the appropriate LOS for each segment. **Tables 10-3** and **10-4** provide a summary of the No Build arterial analysis results.

In the opening year scenario, the AM peak hour condition results show nine (9) segments operating at a deficient LOS; four (4) of which are noted on the northbound segments and five (5) are noted on the southbound segments. The northbound SR 535 arterial network operates at an overall LOS F while southbound SR 535 operates at an overall LOS E. The PM peak hour condition results show nine (9) segments operating deficiently; five (5) of which are noted on northbound segments while four (4) are noted on southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS E during the PM peak hour.

In the design year scenario, the AM peak hour condition results show 11 segments operating at a deficient LOS; five (5) of which are noted on the northbound segments while six (6) are noted on the southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS F during the AM peak hour. The PM peak hour condition results show 12 segments operating deficiently; six (6) of which are noted on both northbound and southbound segments each. The northbound and southbound SR 535 arterial networks operate at an overall LOS F during the PM peak hour.

Table 10-3 No Build 2025 Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	Arterial Speed %	LOS
AM	**Northbound**								
		US 192	Kyngs Heath Road	1003	45	30.6	22.1	57%	D
		Kyngs Heath Road	Osceola Pkwy on-ramp	1637	50	37.4	29.7	59%	C
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	72.2	10.1	22%	**F**
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	125.5	10.4	21%	**F**
		Polynesian Isle Blvd	LBV Factory Stores	1742	50	183.4	6.5	13%	**F**
		LBV Factory Stores	International Drive	2112	50	39.8	35.8	72%	B
		International Drive	SR 536/World Center Dr	1373	50	97.6	9.7	19%	**F**
			Total	**2.05**	**50**	**586.5**	**12.0**	**26%**	**F**
	Southbound								
		Entry Link	SR 536/World Center Dr	4594	50	182.3	17.2	34%	E
		SR 536/World Center Dr	International Dr	1373	50	50.4	18.8	38%	E
		International Dr	LBV Factory Stores	2112	50	82.7	17.2	34%	E
		LBV Factory Stores	Polynesian Isle Blvd	1742	50	55.2	21.4	43%	D
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	53.6	24.4	49%	D
		Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.3	35.9	72%	B
		Osceola Pkwy on-ramp	Kyngs Heath Road	1637	50	57.9	19.2	38%	E
		Kyngs Heath Road	US 192	1003	45	143.7	4.7	19%	**F**
			Total	**2.92**	**50**	**646.1**	**16.3**	**36%**	**E**
PM	**Northbound**								
		US 192	Kyngs Heath Road	1003	45	44.7	15.1	31%	F
		Kyngs Heath Road	Osceola Pkwy on-ramp	1637	50	38.5	28.8	58%	C
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	55.9	13.0	26%	**F**
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	68.6	19.1	38%	E
		Polynesian Isle Blvd	LBV Factory Stores	1742	50	66.3	17.9	36%	E
		LBV Factory Stores	International Dr	2112	50	65.5	21.7	43%	D
		International Dr	SR 536/World Center Dr	1373	50	149.1	6.4	13%	**F**
			Total	**2.05**	**50**	**339.5**	**14.1**	**30%**	**E**
	Southbound								
		Entry Link	SR 536/World Center Dr	4594	50	189.8	16.5	33%	E
		SR 536/World Center Dr	International Dr	1373	50	48.4	19.6	39%	E
		International Dr	LBV Factory Stores	2112	50	91.9	15.5	31%	E
		LBV Factory Stores	Polynesian Isle Blvd	1742	50	42.6	27.8	56%	C
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	64.4	20.3	41%	D
		Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.3	35.9	72%	B
		Osceola Pkwy on-ramp	Kyngs Heath Road	1637	50	42.9	25.9	52%	D
		Kyngs Heath Road	US 192	1003	45	91.3	7.4	17%	**F**
			Total	**2.92**	**50**	**591.6**	**17.8**	**36%**	**E**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

Table 10-4 No Build 2045 Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	Arterial Speed %	LOS
AM	**Northbound**								
		US 192	Kyngs Heath Road	1003	45	68.2	9.9	22%	**F**
		Kyngs Heath Road	Osceola Pkwy on-ramp	1637	50	47.8	23.2	47%	D
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	137.6	5.3	11%	**F**
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	191.7	6.8	14%	**F**
		Polynesian Isle Blvd	LBV Factory Stores	1742	50	369.3	3.2	6%	**F**
		LBV Factory Stores	International Drive	2112	50	53.2	26.8	54%	C
		International Drive	SR 536/World Center Dr	1373	50	261.9	3.6	7%	**F**
			Total	**2.05**	**50**	**1129.7**	**6.7**	**13%**	**F**
	Southbound								
		Entry Link	SR 536/World Center Dr	4594	50	318.9	9.8	20%	**F**
		SR 536/World Center Dr	International Dr	1373	50	91.3	10.4	21%	**F**
		International Dr	LBV Factory Stores	2112	50	218.3	6.5	13%	**F**
		LBV Factory Stores	Polynesian Isle Blvd	1742	50	72.2	16.4	33%	E
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	189.1	6.9	14%	**F**
		Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.2	36.0	72%	B
		Osceola Pkwy on-ramp	Kyngs Heath Road	1637	50	37.5	29.6	59%	C
		Kyngs Heath Road	US 192	1003	45	150.4	4.5	19%	**F**
			Total	**2.92**	**50**	**1097.9**	**9.6**	**21%**	**F**
PM	**Northbound**								
		US 192	Kyngs Heath Road	1003	45	53.1	12.8	31%	**F**
		Kyngs Heath Road	Osceola Pkwy on-ramp	1637	50	42.2	26.3	53%	D
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	87.4	8.3	17%	**F**
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	265.2	4.9	10%	**F**
		Polynesian Isle Blvd	LBV Factory Stores	1742	50	235.5	5.0	10%	**F**
		LBV Factory Stores	International Dr	2112	50	76.6	18.6	37%	E
		International Dr	SR 536/World Center Dr	1373	50	282.5	3.4	7%	**F**
			Total	**2.05**	**50**	**1042.5**	**7.2**	**14%**	**F**
	Southbound								
		Entry Link	SR 536/World Center Dr	4594	50	238.3	10.4	21%	**F**
		SR 536/World Center Dr	International Dr	1373	50	95.8	9.9	20%	**F**
		International Dr	LBV Factory Stores	2112	50	225.9	6.3	13%	**F**
		LBV Factory Stores	Polynesian Isle Blvd	1742	50	75.3	15.7	31%	F
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	177.5	7.4	15%	**F**
		Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.4	35.7	71%	B
		Osceola Pkwy on-ramp	Kyngs Heath Road	1637	50	49.4	22.5	45%	D
		Kyngs Heath Road	US 192	1003	45	118.2	5.7	18%	**F**
			Total	**2.92**	**50**	**1063.5**	**9.9**	**20%**	**F**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

10.3 Build Intersection Analysis

The following subsections discuss the intersection analysis results of each Build alternative for the opening year and design year scenarios. Intersection analysis results are summarized and presented in the following sections. Detailed Synchro intersection analysis output reports are provided in **Appendix J**.

10.3.1 Build Alternative 1 Signalized Intersection Analysis

For the Build Alternative 1 scenario analysis, lane geometry modifications (including turn bay extension, where feasible) and Synchro signal timing/phasing optimization was performed to improve overall traffic operations. The results of the intersection analysis are summarized in **Table 10-5**, with Synchro output reports and Synchro network roadway configuration provided in **Appendix J**.

Table 10-5 Build Alternative 1 2025 Signalized Intersection LOS

2025 AM												2025 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & US 192	EBL	475	100	160	0.60	62.1	E	21.4	C	23.3	C	EBL	475	115	192	0.65	62.2	E	25.3	C	26.8	C
	EBT	-	226	854	0.29	13.9	B					EBT	-	396	1282	0.48	19.8	B				
	WBL	350	13	3	0.04	56.3	E	15.4	B			WBL	350	13	3	0.04	56.7	E	17.5	B		
	WBT	-	419	1310	0.56	25.0	C					WBT	-	#383	1125	0.56	29.9	C				
	WBR	435	0	1174	0.81	4.6	A					WBR	435	0	895	0.61	1.9	A				
	NBL	-	21	7	0.08	56.6	E	50.8	D			NBL	-	15	4	0.05	55.5	E	46.6	D		
	NBT	-	15	2	0.06	42.6	D					NBT	-	16	2	0.07	40.7	D				
	SBL	-	254	741	0.79	53.7	D	45.8	D			SBL	-	325	989	0.83	50.2	D	43.7	D		
	SBT	-	292	3	0.79	61.1	E					SBT	-	369	1	0.82	56.9	E				
	SBR	400	65	202	0.38	7.8	A					SBR	400	62	239	0.39	7.8	A				
SR 535 & Kyngs Heath Rd	EBL	100	51	40	0.33	41.7	D	30.1	C	10.7	B	EBL	100	84	83	0.52	45.1	D	31.8	C	13.1	B
	EBT	-	30	6	0.22	17.5	B					EBT	-	51	27	0.34	18.0	B				
	EBR			31								EBR			53							
	WBL	150	47	35	0.31	41.9	D	14.2	B			WBL	150	56	48	0.34	39.0	D	16.0	B		
	WBT	-	12	5	0.03	33.8	C					WBT	-	30	21	0.10	32.3	C				
	WBR	-	0	86	0.26	1.8	A					WBR	-	0	104	0.29	1.9	A				
	NBL	375	34	21	0.17	39.2	D	11.0	B			NBL	375	34	21	0.17	39.2	D	12.8	B		
	NBT	-	211	1265	0.42	10.9	B					NBT	-	188	1000	0.36	13.1	B				
	NBR	-	0	50	0.05	0.1	A					NBR	-	2	68	0.07	0.3	A				
	SBL	400	75	69	0.42	42.2	D	8.4	A			SBL	400	106	112	0.55	43.3	D	10.6	B		
	SBT	-	121	880	0.26	6.4	A					SBT	-	182	1128	0.34	8.3	A				
	SBR	300	5	77	0.07	0.5	A					SBR	300	20	114	0.11	1.8	A				
SR 535 & Osceola Pkwy On-ramp	NBT	-	150	1272	0.39	6.5	A	6.5	A	10.3	B	NBT	-	137	1071	0.34	7.4	A	7.4	A	10.3	B
	SBL	525	237	318	0.68	57.9	E	13.9	B			SBL	525	282	415	0.73	49.6	D	12.0	B		
	SBT	-	0	1014	0.22	0.1	A					SBT	-	0	1306	0.28	0.1	A				
SR 535 & Poinciana Blvd	EBL	400	371	735	0.84	82.1	F	79.2	E	41.2	D	EBL	400	277	515	0.80	87.3	F	85.2	F	42.3	D
	EBT	-	186	61	0.37	60.7	E					EBT	-	279	90	0.62	78.4	E				
	EBR			53								EBR			73							
	WBL	300	89	84	0.50	97.2	F	54.4	D			WBL	300	194	219	0.73	97.0	F	82.1	F		
	WBT	-	95	64	0.78	40.1	D					WBT	-	239	177	0.84	73.4	E				
	NBL	375	77	69	0.49	92.6	F	30.3	C			NBL	375	99	95	0.57	93.1	F	26.2	C		
	NBT	-	482	1122	0.47	28.5	C					NBT	-	252	895	0.34	21.2	C				
	NBR	250	18	81	0.10	2.7	A					NBR	250	21	81	0.09	3.3	A				
	SBL	400	247	131	0.78	109.6	F	27.6	C			SBL	400	117	49	0.57	110.0	F	25.0	C		
	SBT	-	438	1196	0.45	25.9	C					SBT	-	571	1429	0.56	30.6	C				
	SBR	375	59	355	0.36	3.1	A					SBR	375	89	579	0.55	4.2	A				
SR 535 & Polynesian Isle Blvd	EBT	-	254	356	0.79	79.5	E	69.4	E	14.8	B	EBT	-	251	351	0.79	79.8	E	71.8	E	15.2	B
	EBR	250	50	88	0.22	28.5	C					EBR	250	73	104	0.28	44.6	D				
	WBT	-	58	73	0.17	68.7	E	68.7	E			WBT	-	131	175	0.41	65.8	E	65.8	E		
	NBT	-	371	2007	0.56	8.4	A	8.3	A			NBT	-	246	1547	0.43	6.8	A	6.7	A		
	NBR	250	5	20	0.02	0.8	A					NBR	250	9	32	0.03	1.6	A				
	SBT	-	268	1694	0.47	7.1	A	6.8	A			SBT	-	148	2013	0.56	6.9	A	6.4	A		
	SBR	125	79	190	0.17	3.9	A					SBR	125	61	367	0.32	3.6	A				

Table 10-5 Build Alternative 1 2025 Signalized Intersection LOS (continued)

	2025 AM											2025 PM									
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & Qd. Rd. to Polynesian Isle Blvd	WBL	200	22	16	0.49	10.2	B	20.1	C	3.7	B	WBL	200	64	60	0.51	18.0	B	21.1	C	15.4	B
	WBR	-	90	567	0.81	30.7	C					WBR	-	118	462	0.72	25.1	C				
	NBT	-	469	1961	0.60	17.6	B	17.2	B			NBT	-	172	1450	0.48	13.5	B	12.9	B		
	NBR	200	m12	46	0.04	1.0	A					NBR	200	12	97	0.09	2.9	A				
	SBL	400	m61	104	0.40	41.7	D	8.2	A			SBL	400	#103	165	0.50	42.4	D	15.8	B		
	SBT	-	186	1868	0.59	6.4	A					SBT	-	552	2320	0.71	13.9	B				
Polynesian Isle Blvd & Qd. Rd. to SR 535	EBL	175	256	345	0.63	44.4	D	41.9	D	28.7	C	EBL	175	116	294	0.60	38.8	D	31.5	C	25.6	C
	EBT	-	49	11	0.03	14.5	B					EBT	-	42	57	0.09	7.3	A				
	WBT	-	26	14	0.11	7.1	A	7.1	A			WBT	-	34	39	0.12	8.5	A	8.5	A		
	SBT	-	13	52	0.15	8.1	A	7.5	A			SBT	-	80	83	0.28	32.5	C	20.5	C		
	SBR	175	1	46	0.11	6.1	A					SBR	175	34	97	0.31	7.8	A				
SR 535 & LBV Factory Stores	EBL	-	53	20	0.32	84.8	F	73.3	E	17.8	B	EBL	-	53	20	0.33	85.7	F	60.2	E	21.1	C
	EBT	-	26	4	0.11	49.0	D					EBT	-	32	2	0.20	33.4	C				
	WBL	300	#154	236	0.94	115.0	F	88.1	F			WBL	300	112	206	0.68	84.4	F	62.8	E		
	WBT	-	80	7	0.39	22.6	C					WBT	-	133	5	0.48	31.6	C				
	NBL	525	m28	17	0.23	80.5	F	10.5	B			NBL	525	m42	20	0.26	80.0	E	13.8	B		
	NBT	-	495	2280	0.70	10.5	B					NBT	-	455	1763	0.59	13.7	B				
	NBR	525	55	153	0.14	1.8	A					NBR	525	43	103	0.10	2.6	A				
	SBL	575	68	71	0.40	78.8	E	14.0	B			SBL	575	112	136	0.55	79.0	E	20.2	C		
	SBT	-	436	1755	0.51	11.8	B					SBT	-	726	2300	0.70	17.6	B				
	SBR	575	0	56	0.05	0.1	A					SBR	575	25	117	0.11	1.9	A				
SR 535 & International Dr[1]	EBL	-	65	171	0.26	33.2	C	40.7	D	32.5	C	EBL	-	114	160	0.23	39.7	D	41.7	D	29.7	C
	EBT	-	151	415	0.43	49.6	D					EBT	-	243	634	0.63	56.0	E				
	EBR	200	28	70	0.18	5.9	A					EBR	200	117	310	0.64	13.6	B				
	WBL	-	150	213	0.33	41.3	D	41.9	D			WBL	-	115	140	0.20	46.7	D	43.1	D		
	WBT	-	198	546	0.57	52.1	D					WBT	-	159	415	0.41	51.5	D				
	WBR	300	36	160	0.25	8.1	A					WBR	300	35	121	0.22	10.3	B				
	NBL	-	95	220	0.34	53.9	D	26.0	C			NBL	-	67	105	0.22	60.9	E	21.0	C		
	NBT	-	635	1760	0.84	28.5	C					NBT	-	507	1539	0.70	22.0	C				
	NBR	300	0	411	0.28	0.5	A					NBR	300	0	277	0.19	0.3	A				
	SBL	-	42	91	0.15	37.8	D	33.4	C			SBL	-	100	160	0.30	58.0	E	27.3	C		
	SBT	-	505	1600	0.77	34.8	C					SBT	-	621	2103	0.90	25.7	C				
	SBR	250	0	80	0.05	0.1	A					SBR	250	m0	55	0.04	0.0	A				
International Dr & WBL Crossover (PDLT)	EBT	-	36	506	0.15	2.0	A	2.0	A	4.1	A	EBT	-	74	794	0.23	2.3	A	2.3	A	3.7	A
	WBL	300	72	213	0.44	29.5	C	6.9	A			WBL	300	57	140	0.38	33.0	C	6.9	A		
	WBT	-	0	706	0.15	0.1	A					WBT	-	0	536	0.11	0.0	A				
	NBR	-	0	411	0.28	0.4	A	0.4	A			NBR	-	0	277	0.19	0.3	A	0.3	A		
International Dr & EBL Crossover (PDLT)	EBL	300	50	171	0.17	17.9	B	4.7	A	8.3	A	EBL	300	50	160	0.15	18.7	B	2.8	C	3.3	A
	EBT	-	0	485	0.1	0.0	A					EBT	-	0	944	0.20	0.1	A				
	WBT	-	216	766	0.31	12.2	B	12.2	B			WBT	-	54	520	0.21	4.8	A	4.8	A		
	SBR	-	0	80	0.05	0.1	A	0.0	A			SBR	-	0	55	0.04	0.0	A	0.0	A		

Table 10-5 Build Alternative 1 2025 Signalized Intersection LOS (continued)

	2025 AM											2025 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & SR 536/World Center Dr[1]	EBL	-	0	122	0.31	83.1	F	13.3	B	22.5	C	EBL	-	54	211	0.39	31.7	C	25.2	C	32.5	C
	EBT	-	51	978	0.61	10.7	B					EBT	-	502	1131	0.76	36.5	D				
	EBR	300	25	487	0.33	1.1	A					EBR	300	15	600	0.40	1.5	A				
	WBL	-	94	204	0.51	54.8	D	20.4	C			WBL	-	104	369	0.62	37.2	D	29.1	C		
	WBT	-	398	1131	0.70	21.8	C					WBT	-	427	978	0.63	30.0	C				
	WBR	400	83	570	0.62	5.3	A					WBR	400	m156	424	0.53	20.0	C				
	NBL	-	154	600	0.50	13.7	B	26.0	C			NBL	-	331	487	0.43	61.5	E	32.9	C		
	NBT	-	542	1371	0.77	30.8	C					NBT	-	240	1245	0.74	22.8	C				
	NBR	400	66	120	0.29	32.9	C					NBR	400	51	88	0.16	18.5	B				
	SBL	-	131	394	0.33	24.0	C	28.6	C			SBL	-	375	570	0.50	43.9	D	41.5	D		
	SBT	-	353	1080	0.61	36.7	D					SBT	-	521	1349	0.81	47.8	D				
	SBR	-	88	311	0.43	6.5	A					SBR	-	63	272	0.39	5.0	A				
SR 535 & SBL Crossover (PDLT)	WBR	-	0	570	0.38	0.5	A	0.5	A	8.8	A	WBR	-	0	424	0.28	0.4	A	0.4	A	6.9	A
	NBT	-	560	1493	0.54	14.4	B	14.4	B			NBT	-	190	1456	0.57	7.3	A	7.3	A		
	SBL	200	121	394	0.64	30.4	C	6.8	A			SBL	200	164	570	0.71	29.8	C	7.9	A		
	SBT	-	0	1391	0.30	0.2	A					SBT	-	0	1621	0.35	0.2	A				
SR 535 & NBL Crossover (PDLT)	EBR	400	282	487	0.66	36.3	D	36.3	D	18.3	B	EBR	400	227	600	0.82	40.6	D	40.6	D	13.4	B
	NBL	150	304	600	0.70	42.8	D	12.4	B			NBL	150	229	487	0.56	30.6	C	8.3	A		
	NBT	-	0	1491	0.32	0.2	A					NBT	-	0	1333	0.28	0.1	A				
	SBT	-	447	1284	0.53	21.1	C	21.1	C			SBT	-	308	1718	0.70	9.3	A	9.3	A		

[1]*Intersection delay is based on the three Synchro nodes that represent the DLT intersection.*
Approach and Overall delays are manually calculated using delay-volume weighted formula by movement.

Table 10-6 Build Alternative 1 2045 Signalized Intersection LOS

2045 AM												2045 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & US 192	EBL	475	#264	372	1.01	100.6	F	40.0	D	33.2	C	EBL	475	#258	388	0.86	68.9	E	32.7	C	31.2	C
	EBT	-	378	1227	0.49	21.7	C					EBT	-	465	1443	0.57	23.1	C				
	EBR	-	-	11	-	-	-					EBR	-	-	5	-	-	-				
	WBL	350	22	7	0.10	58.1	E	23.4	C			WBL	350	19	6	0.08	57.8	E	21.0	C		
	WBT	-	#512	1323	0.74	37.6	D					WBT	-	#412	1129	0.68	37.6	D				
	WBR	435	0	1288	0.88	8.5	A					WBR	435	0	1042	0.72	2.9	A				
	NBL	-	30	11	0.14	58.5	E	45.2	D			NBL	-	21	7	0.08	56.6	E	47.2	D		
	NBT	-	27	4	0.18	35.3	D					NBT	-	21	4	0.11	40.6	D				
	SBL	-	345	1038	0.85	50.4	D	43.5	D			SBL	-	396	1161	0.88	51.1	D	43.7	D		
	SBT	-	395	5	0.84	58.2	E					SBT	-	#458	3	0.87	58.8	E				
	SBR	400	183	366	0.56	16.3	B					SBR	400	135	365	0.51	12.0	B				
SR 535 & Kyngs Heath Rd	EBL	100	78	78	0.42	37.6	D	30.0	C	23.7	C	EBL	100	90	92	0.44	38.3	D	33.8	C	21.8	C
	EBT	-	59	20	0.52	23.8	C					EBT	-	71	37	0.54	29.5	C				
	EBR			75								EBR			59							
	WBL	150	108	116	0.58	42.9	D	23.5	C			WBL	150	103	108	0.54	41.4	D	22.2	C		
	WBT	-	27	14	0.09	39.4	D					WBT	-	49	33	0.22	42.9	D				
	WBR	-	84	335	0.76	16.1	B					WBR	-	39	212	0.59	9.1	A				
	NBL	375	51	32	0.30	48.9	D	24.4	C			NBL	375	47	29	0.28	48.6	D	22.3	C		
	NBT	-	383	1505	0.73	25.8	C					NBT	-	308	1263	0.62	24.0	C				
	NBR	-	13	127	0.17	1.4	A					NBR	-	21	142	0.19	2.0	A				
	SBL	400	#253	209	0.82	65.8	E	22.4	C			SBL	400	210	194	0.74	52.8	D	19.9	B		
	SBT	-	394	1218	0.45	16.8	B					SBT	-	410	1362	0.50	16.7	B				
	SBR	300	60	127	0.14	4.4	A					SBR	300	42	120	0.13	3.6	A				
SR 535 & Osceola Pkwy On-Ramp	NBT	-	72	1732	0.61	3.0	A	3.0	A	11.6	B	NBT	-	29	1405	0.46	2.0	A	2.0	A	9.6	A
	SBL	525	413	615	0.81	64.5	E	15.4	B			SBL	525	338	500	0.77	61.6	E	14.5	B		
	SBT	-	0	1548	0.33	0.1	A					SBT	-	0	1631	0.35	0.1	A				
SR 535 & Poinciana Blvd	EBL	400	407	772	0.89	86.8	F	82.4	F	55.0	D	EBL	400	423	803	0.89	86.4	F	83.3	F	61.5	E
	EBT	-	242	69	0.39	58.9	E					EBT	-	319	106	0.48	69.4	E				
	EBR			78								EBR			75							
	WBL	300	210	242	0.75	96.6	F	83.7	F			WBL	300	213	245	0.75	96.5	F	117.0	F		
	WBT	-	#468	155	1.12dr	78.8	E					WBT	-	#583	177	1.27dr	124.1	F				
	NBL	375	79	78	0.53	78.6	E	39.7	D			NBL	375	98	102	0.64	85.5	F	40.0	D		
	NBT	-	541	1426	0.83	41.4	D					NBT	-	385	1162	0.71	39.8	D				
	NBR	250	153	228	0.36	15.4	B					NBR	250	75	141	0.23	8.9	A				
	SBL	400	364	211	0.85	106.0	F	45.4	D			SBL	400	428	247	0.89	108.0	F	44.7	D		
	SBT	-	828	1843	0.84	47.9	D					SBT	-	805	1811	0.82	47.5	D				
	SBR	375	174	466	0.53	8.4	A					SBR	375	213	579	0.62	9.0	A				
SR 535 & Polynesian Isle Blvd	EBT	-	294	431	0.80	75.7	E	69.5	E	21.2	C	EBT	-	284	411	0.80	76.6	E	70.3	E	19.4	B
	EBR	250	179	257	0.58	59.1	E					EBR	250	178	253	0.59	60.2	E				
	WBT	-	175	287	0.55	53.1	D	53.1	D			WBT	-	256	354	0.71	63.5	E	63.5	E		
	NBT	-	638	2482	0.71	13.1	B	12.5	B			NBT	-	514	2276	0.65	11.1	B	10.6	B		
	NBR	250	74	200	0.18	4.6	A					NBR	250	56	180	0.16	3.7	A				
	SBT	-	728	2351	0.67	14.9	B	14.0	B			SBT	-	723	2492	0.71	10.6	B	9.7	A		
	SBR	125	m81	278	0.25	6.3	A					SBR	125	m66	367	0.33	4.1	A				

Table 10-6 Build Alternative 1 2045 Signalized Intersection LOS (continued)

2045 AM												2045 PM									
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & Qd. Rd. to Polynesian Isle Blvd	WBL	200	105	83	0.59	13.5	B	22.0	C	8.0	B	WBL	200	46	159	0.62	15.2	B	16.7	B	15.1	B
	WBR	-	#179	672	0.87	32.6	C					WBR	-	35	483	0.70	19.2	B				
	NBT	-	413	2289	0.79	18.5	B	17.3	B			NBT	-	382	2033	0.75	14.9	B	13.6	B		
	NBR	200	22	193	0.17	2.5	A					NBR	200	33	243	0.23	3.1	A				
	SBL	400	m82	158	0.60	51.9	D	17.5	B			SBL	400	m#117	228	0.55	43.8	D	16.0	B		
	SBT	-	m679	2546	0.84	15.3	B					SBT	-	m574	2700	0.86	13.6	B				
Polynesian Isle Blvd & Qd. Rd. to SR 535	EBL	175	77	373	0.64	31.8	C	21.0	C	18.8	B	EBL	175	196	297	0.59	49.9	D	31.5	C	23.1	C
	EBT	-	54	184	0.28	5.3	A					EBT	-	146	114	0.33	12.8	B				
	WBT	-	46	47	0.27	7.8	A	7.8	A			WBT	-	47	56	0.25	8.3	A	8.3	A		
	SBT	-	83	83	0.25	19.7	B	14.9	B			SBT	-	69	114	0.33	24.8	C	16.5	B		
	SBR	175	81	193	0.45	12.7	B					SBR	175	94	243	0.56	10.9	B				
SR 535 & LBV Factory Stores	EBL	-	51	22	0.27	72.6	E	52.9	D	38.9	D	EBL	-	56	22	0.35	86.7	F	51.4	D	43.1	D
	EBT	-	39	9	0.16	34.7	C					EBT	-	47	5	0.34	31.6	C				
	WBL	300	#260	354	1.15	158.0	F	116.8	F			WBL	300	#284	409	1.32	217.0	F	165.7	F		
	WBT	-	326	28	0.84	66.2	E					WBT	-	162	13	0.54	37.3	D				
	NBL	525	m33	25	0.31	70.2	E	33.3	C			NBL	525	m82	60	0.40	76.2	E	28.2	C		
	NBT	-	#1312	2655	0.98	35.5	D					NBT	-	660	2333	0.89	28.2	C				
	NBR	525	m85	240	0.24	5.0	A					NBR	525	m44	123	0.13	3.7	A				
	SBL	575	125	155	0.45	71.8	E	25.7	C			SBL	575	185	250	0.51	66.9	E	31.8	C		
	SBT	-	963	2407	0.77	23.4	C					SBT	-	993	2551	0.87	29.8	C				
	SBR	575	0	58	0.06	0.1	A					SBR	575	30	121	0.13	2.5	A				
SR 535 & International Dr[1]	EBL	-	87	241	0.22	27.1	C	37.9	D	39.0	D	EBL	-	160	232	0.25	40.5	D	60.9	E	42.2	D
	EBT	-	325	955	0.59	40.5	D					EBT	-	414	1032	0.76	53.3	D				
	EBR	200	#150	161	0.71	39.0	D					EBR	200	#400	342	1.08	97.5	F				
	WBL	-	125	372	0.34	32.4	C	36.6	D			WBL	-	86	223	0.24	39.8	D	44.7	D		
	WBT	-	356	1032	0.64	41.6	D					WBT	-	378	955	0.70	51.4	D				
	WBR	300	50	174	0.48	15.7	B					WBR	300	47	172	0.43	13.7	B				
	NBL	-	#238	272	1.03	161.4	F	32.6	C			NBL	-	105	161	0.58	155.9	F	24.1	C		
	NBT	-	#765	1910	0.96	26.7	C					NBT	-	654	1828	0.83	19.1	B				
	NBR	300	0	756	0.52	1.2	A					NBR	300	0	516	0.35	0.6	A				
	SBL	-	#115	172	0.66	159.4	F	49.2	D			SBL	-	116	174	0.57	154.8	F	46.7	D		
	SBT	-	#860	2087	1.03	42.2	D					SBT	-	#1016	2357	1.03	40.9	D				
	SBR	250	m0	87	0.06	0.0	A					SBR	250	m0	110	0.08	0.1	A				
International Dr & WBL Crossover (PDLT)	EBT	-	367	1127	0.38	6.4	A	6.4	A	5.1	A	EBT	-	76	1206	0.36	2.4	A	2.4	A	3.3	A
	WBL	300	103	372	0.52	25.8	C	6.2	A			WBL	300	79	223	0.46	31.4	C	5.3	A		
	WBT	-	0	1206	0.25	0.1	A					WBT	-	0	1127	0.23	0.1	A				
	NBR	-	0	756	0.51	1.0	A	1.0	A			NBR	-	0	516	0.35	0.6	A	0.6	A		
International Dr & EBL Crossover (PDLT)	EBL	300	67	241	0.24	18.5	B	3.4	A	9.4	A	EBL	300	69	232	0.22	19.4	B	2.9	A	3.4	A
	EBT	-	0	1116	0.23	0.1	A					EBT	-	0	1374	0.28	0.1	A				
	WBT	-	m387	1304	0.53	16.4	B	16.4	B			WBT	-	81	1116	0.44	4.5	A	4.5	A		
	SBR	-	0	87	0.06	0.1	A	0.1	A			SBR	-	0	110	0.07	0.1	A	0.1	A		

Table 10-6 Build Alternative 1 2045 Signalized Intersection LOS (continued)

	2045 AM											2045 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & SR 536/World Center Dr[1]	EBL	-	#174	309	0.79	79.9	E	25.2	C	28.3	C	EBL	-	87	245	0.45	47.1	D	38.1	D	40.7	D
	EBT	-	522	1326	0.83	23.4	C					EBT	-	#690	1476	1.0	53.1	D				
	EBR	300	m0	636	0.43	2.5	A					EBR	300	m0	651	0.44	0.7	A				
	WBL	-	#195	321	0.8	88.3	F	29.0	C			WBL	-	#343	516	0.87	92.8	F	41.5	D		
	WBT	-	562	1476	0.91	28.7	C					WBT	-	511	1185	0.77	31.0	C				
	WBR	400	0	662	0.44	0.9	A					WBR	400	m162	603	0.66	18.1	B				
	NBL	-	181	651	0.54	12.4	B	26.3	C			NBL	-	423	636	0.56	58.6	E	39.6	D		
	NBT	-	600	1544	0.87	31.6	C					NBT	-	483	1499	0.9	33.1	C				
	NBR	400	72	130	0.31	33.2	C					NBR	400	51	97	0.18	16.2	B				
	SBL	-	144	437	0.36	21.2	C	32.5	C			SBL	-	437	662	0.59	42.8	D	43.4	D		
	SBT	-	488	1389	0.78	41.7	D					SBT	-	587	1474	0.88	51.9	D				
	SBR	400	204	410	0.57	13.5	B					SBR	400	67	315	0.44	5.0	A				
SR 535 & SBL Crossover (PDLT)	WBR	-	0	662	0.44	0.8	A	0.8	A	12.2	B	WBR	-	0	603	0.40	0.6	A	0.6	A	9.1	A
	NBT	-	700	1853	0.68	23.5	C	23.5	C			NBT	-	333	1744	0.72	13.7	B	13.7	B		
	SBL	200	135	437	0.68	30.8	C	6.2	A			SBL	200	185	662	0.73	28.8	C	7.9	A		
	SBT	-	0	1799	0.38	0.2	A					SBT	-	0	1789	0.38	0.2	A				
SR 535 & NBL Crossover (PDLT)	EBR	400	244	636	0.82	31.1	C	31.1	C	22.4	C	EBR	400	225	651	0.85	33.3	C	33.3	C	14.1	B
	NBL	150	325	651	0.7	37.9	D	10.8	B			NBL	150	316	636	0.69	34.2	C	9.9	A		
	NBT	-	0	1674	0.36	0.2	A					NBT	-	0	1596	0.34	0.2	A				
	SBT	-	678	1710	0.74	35.1	D	35.1	D			SBT	-	409	1990	0.83	12.6	B	12.6	B		

[1]*Intersection delay is based on the three Synchro nodes that represent the DLT intersection.*
Approach and Overall delays are manually calculated using delay-volume weighted formula by movement.

Under the AM peak hour conditions in the opening year, all signalized intersections meet or exceed the LOS D Target, showing that the Build Alternative 1 network operations improve along SR 535 when compared to the No Build scenario for the opening year, where No Build has three (3) intersections operating deficiently.

Similarly, under the PM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that the Build Alternative 1 network operations improve along SR 535 when compared to the No Build scenario, where No Build has one (1) intersection operating deficiently.

Regarding queue length impacts, the opening year results show that most turning movement queues are not anticipated to extend beyond the turn bay lengths during the AM and PM Peak hours. A few movements such as the northbound right turn from SR 535 to the Polynesian Isle Boulevard quadrant road are anticipated to be metered by the upstream traffic signal. The northbound left-turn at the Northbound SR 535 and SR 536/World Center Drive Partially Displaced Left-Turn crossover intersection is projected to extend beyond the available turn bay storage.

Design year (2045) results reveal that the AM and PM peak hour conditions perform worse than opening year conditions with a slight degradation in LOS.

Under the AM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that the Build Alternative 1 network operations significantly improve along SR 535 when compared to the No Build scenario for the design year (2045), where No Build has five (5) intersections operating deficiently.

Under the PM peak hour conditions, one signalized intersection operates deficiently, showing improvement over the No Build scenario where five (5) intersections operate deficiently. The following intersections do not meet the LOS D Target:

- SR 535 at Poinciana Boulevard – LOS E with a delay of 61.5 sec/veh

Regarding extended queue length impacts, the design year condition exhibits heavier impacts compared to the opening year. During the AM peak hour, movements where queue lengths extend beyond the turn bay length include: the eastbound left-turn at SR 535 and Poinciana Boulevard and the northbound left-turn at the Northbound SR 535 and SR 536/World Center Drive Partially Displaced Left-Turn crossover intersection. Some turn bays north of Polynesian Isle Boulevard are expected to be metered from through queue blockage along SR 535. During the PM peak hour, similar queuing impacts are anticipated with the addition of the eastbound right turn movement at the intersection of SR 535 and International Drive.

Overall, for Build Alternative 1, the design year condition shows slight deficiencies when compared to the opening year scenario, but both scenarios show significant improvement from the No Build alternative.

10.3.2 Build Alternative 1 Unsignalized Intersections Analysis

Table 10-7 summarizes the unsignalized intersections LOS and queues for stop-controlled movements for the opening and designs years during the AM and PM peak hours. Similar to No Build, most stop-controlled movements at World Center Drive intersections of Buena Vista Suites and Caribe Royale Orlando during the opening year operate at LOS E or LOS F. During the design year, nearly all stop-controlled movements are projected to operate at LOS E or LOS F with the exception of stop-controlled movements at the intersections of SR 535 and Calypso Cay Way.

Table 10-7 Build Alternative 1 Unsignalized Major Movement LOS

Study Intersection	Build Alternative 1 2025 AM								Build Alternative 1 2025 PM								Build Alternative 1 2045 AM								Build Alternative 1 2045 PM							
	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS
3: SR 535 & Calypso Cay Way/Osceola Pkwy on-ramp	EBR	---	0.4	10.0	44	0.11	14.3	B	EBR	---	1.0	25.0	84	0.26	19.0	C	EBR	---	0.8	20.0	56	0.21	20.7	C	EBR	---	1.4	35	84	0.33	25.0	D
	NBL	225	0.5	12.5	52	0.15	16.5	c	NBL	225	0.3	7.5	26	0.11	20.4	C	NBL	225	1.2	30.0	55	0.29	30.5	D	NBL	225	0.6	15	29	0.17	29.7	D
10: SR 535 & Lake Bryan Beach Blvd	WBL	---							WBL	---							WBL	---			26				WBL	---			62			
	WBT	---		0.0					WBT	---		0.0					WBT	---		0.0	5				WBT	---	25.1	627.5	5	60.7	29240.0	F
	WBR	---							WBR	---							WBR	---			45				WBR	---			106			
	NBL	150	0.7	17.5	28	0.21	36.6	E	NBL	150	2.6	65.0	49	0.57	88.7	F	NBL	150	1.5	37.5	30	0.39	74.1	F	NBL	150	4	100	53	0.86	178.2	F
	SBL	150	3.2	80.0	62	0.64	88.6	F	SBL	150	0.7	17.5	24	0.19	38.9	E	SBL	150	5.8	145.0	65	1.20	303.4	F	SBL	150	1.5	37.5	40	0.39	82.8	F
	EBR	---	0.6	15.0	44	0.18	22.1	C	EBR	---	0.7	18.7	146	0.75	60.9	F	EBR	---	8.3	207.5	145	1.08	162.1	F	EBR	---	9.8	245	150	1.23	221.2	F
14: SR 535 & Median Opening S	WBR	---	1.6	40.0	71	0.38	33.8	D	WBR	---	1.6	40.0	98	0.36	24.1	C	WBR	---	12.3	307.5	171	1.43	296.3	F	WBR	---	7.4	185	140	1.00	132.8	F
	NBL	750	0.5	12.5	25	0.16	30.5	D	NBL	750	1.2	30.0	35	0.31	48.3	E	NBL	750	2.5	62.5	38	0.61	121.7	F	NBL	750	3.1	77.5	39	0.72	161.5	F
	SBL	500	2.7	67.5	57	0.58	78.8	F	SBL	500	0.8	20.0	39	0.23	30.6	D	SBL	500	9.9	247.5	92	2.06	677.9	F	SBL	500	8.4	210	88	1.57	438.3	F
15: SR 535 & Median Opening N	WBR	---	0.0	0.0	1	0.02	32.7	D	WBR	---	1.4	35.0	72	0.34	29.6	D	WBR	---	9.0	225.0	122	1.30	268.5	F	WBR	---	5.3	132.5	109	0.84	100.7	F
	SBL	550	1.8	45.0	24	0.47	120.4	F	SBL	550	1.3	32.5	37	0.33	49.9	E	SBL	550	8.8	220.0	72	2.45	929.4	F	SBL	550	6.1	152.5	66	1.26	331.4	F
18: Poinciana Blvd & Westbound Off Ramp	WBL	---	1.8	45.0	229	0.39	14.5	B	WBL	---	2.7	67.5	264	0.49	17.4	C	WBL	---	16.3	407.5	353	1.20	152.2	F	WBL	---	19.5	487.5	380	1.31	194.0	F
	WBR	---	0.6	15.0	144	0.18	10.0	B	WBR	---	0.6	15.0	149	0.17	9.8	A	WBR	---	0.8	20.0	146	0.21	11.3	B	WBR	---	0.8	20	152	0.22	11.3	B
20: International Dr & World Gateway Dr	EBL	200	2.1	52.5	177	0.42	18.9	C	EBL	200	2.2	55.0	249	0.43	15.4	C	EBL	200	20.4	510.0	327	1.48	278.3	F	EBL	200	23.1	577.5	393	1.46	260.1	F
	SBL	---	7.4	185.0	116	1.08	180.8	F	SBL	---	49.7	1242.5	461	4.15	$1491.6	F	SBL								SBL	---						
	SBR	---	1.0	25.0	114	0.25	15.0	C	SBR	---	1.4	35.0	179	0.32	13.9	B	SBR	---	8.5	212.5	267	0.90	66.2	F	SBR	---	6.9	172.5	272	0.80	45.9	E
21: World Center Dr & Buena Vista Suites	EBL	250	1.5	37.5	44	0.37	49.3	F	EBL	250	1.0	25.0	38	0.26	36.4	E	EBL	250	3.5	87.5	48	17.36	52.7	F	EBL	250	2.3	57.5	40	0.53	91.8	F
	WBL	500	0.4	10.0	24	0.19	24.1	C	WBL	500	0.8	20.0	30	0.21	35.8	E	WBL	500	0.9	22.5	49	0.39	48.8	E	WBL	500	2	50	38	0.47	80.4	F
	NBL	---	5.8	145.0	17	3.00	1489.3	F	NBL	---	8.5	212.5	21	4.07	$1893.3	F	NBL	---			28				NBL	---			27			
	NBT	---			3				NBT	---			2				NBT	---	10.6	265.0	6	17.37	9126.4	F	NBT	---	12.3	307.5	6	16.63	8456.2	F
	NBR	---			17				NBR	---			35				NBR	---			32				NBR	---			46			
	SBL	---			2				SBL	---			8				SBL	---			6				SBL	---			13			
	SBT	---			2				SBT	---			1				SBT	---	7.3	182.5	4	3.89	1883.4	F	SBT	---	9.5	237.5	4	8.03	4066.8	F
	SBR	---			21				SBR	---			35				SBR	---			38				SBR	---			44			
22: World Center Dr & Caribe Royale Orlando	EBL	270	1.5	37.5	49	0.36	43.3	E	EBL	270	0.7	17.5	28	0.20	36.9	E	EBL	270	4.4	110.0	54	0.93	206.7	F	EBL	270	2.8	70	42	0.65	126.5	E
	SBL	---	1.4	35.0	12	0.45	213.4	F	SBL	---	2.8	70.0	26	0.78	255.3	F	SBL	---	5.7	142.5	29	30.53	19922.5	F	SBL	---	6.3	157.5	36	7.58	4360.9	F
	SBR	---	0.3	7.5	23	0.11	22.5	C	SBR	---	0.7	17.5	44	2.04	24.9	C	SBR	---	1.6	40.0	48	0.38	48.3	E	SBR	---	1.8	45	55	0.41	47.3	E

10.3.3 Build Alternative 1 Arterial Analysis

The same model developed for the intersection analysis was used to evaluate the performance of the SR 535 roadway segments. The average speed from the Synchro arterial reports was utilized to determine the appropriate LOS for each segment. **Table 10-8** through **Table 10-11** provide a summary of the Build Alternative 1 arterial analysis results.

For the 2025 Build Alternative 1 scenario, the AM peak conditions show deficient operations on three (3) northbound segments and on four (4) southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS D. The PM peak conditions show deficient operations on three (3) northbound segments and on four (4) southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS D. This shows similar deficiencies when compared to the opening year scenario for the No Build alternative.

In the 2045 Build Alternative 1 scenario, the AM peak conditions show deficient operations on seven (7) northbound segments and on six (6) southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS E. The PM peak conditions show deficient operations on five (5) northbound segments and on five (5) southbound segments. The northbound SR 535 arterial network operates at an overall LOS D and southbound SR 535 operates at an overall LOS E. This shows improvement when compared to the design year scenario for the No Build alternative, where most segments were operating deficiently.

Table 10-8 Build Alternative 1 2025 AM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	%	LOS
AM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	30.7	21.3	47%	D
		Kyngs Heath Rd	Osceola Pkwy On Ramp	1637	45	37.0	30.0	67%	B
		Osceola Pkwy On Ramp	Poinciana Blvd	1109	45	51.1	14.6	32%	E
		Poinciana Blvd	Polynesian Isle Blvd	1954	45	43.4	30.4	68%	B
		Polynesian Isle Blvd	Qd. Rd. Polynesian Isle Blvd	422	45	26.6	11.3	25%	F
		Qd. Rd. Polynesian Isle Blvd	LBV Factory Stores	1267	45	35.8	24.5	54%	C
		LBV Factory Stores	International Dr	2059	45	77.4	18.6	41%	D
		International Dr	SR 535 PDLT NB	686	45	15.2	30.8	68%	B
		SR 535 PDLT NB	SR 536/World Center Dr	739	45	46.0	10.9	24%	F
		SR 536/World Center Dr	SR 535 PDLT SB	845	45	31.8	18.0	40%	D
		Total		**2.22**	**45**	**395.0**	**20.2**	**45%**	**D**
	Southbound								
		Entry Link	SR 535 PDLT SB	3696	45	60.0	42.1	94%	A
		SR 535 PDLT SB	SR 536/World Center Dr	845	45	54.1	10.6	24%	F
		SR 536/World Center Dr	SR 535 PDLT NB	1267	45	58.6	14.7	33%	E
		SR 535 PDLT NB	International Dr	316	45	41.1	5.2	12%	F
		International Dr	LBV Factory Stores	1901	45	47.1	28.1	62%	C
		LBV Factory Stores	Qd. Rd. Polynesian Isle Blvd	1267	45	31.7	27.6	61%	C
		Qd. Rd. Polynesian Isle Blvd	Polynesian Isle Blvd	422	45	15.9	18.9	42%	D
		Polynesian Isle Blvd	Poinciana Blvd	1954	45	61.0	21.6	48%	D
		Poinciana Blvd	Osceola Pkwy On Ramp	1109	45	22.7	32.9	73%	B
		Osceola Pkwy On Ramp	Kyngs Heath Rd	1637	45	36.9	30.1	67%	B
		Kyngs Heath Rd	US 192	950	45	80.9	8.1	18%	F
		Total		**2.92**	**45**	**510.0**	**20.6**	**46%**	**D**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

Table 10-9 Build Alternative 1 2025 PM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	%	LOS
PM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	32.9	19.9	44%	D
		Kyngs Heath Rd	Osceola Pkwy On Ramp	1637	45	37.9	29.3	65%	C
		Osceola Pkwy On Ramp	Poinciana Blvd	1109	45	43.8	17.1	38%	E
		Poinciana Blvd	Polynesian Isle Blvd	1954	45	41.9	31.5	70%	B
		Polynesian Isle Blvd	Qd. Rd. Polynesian Isle Blvd	422	45	22.6	13.3	30%	**F**
		Qd. Rd. Polynesian Isle Blvd	LBV Factory Stores	1267	45	39.0	22.4	50%	D
		LBV Factory Stores	International Dr	2059	45	71.6	20.1	45%	D
		International Dr	SR 535 PDLT NB	686	45	14.7	31.8	71%	B
		SR 535 PDLT NB	SR 536/World Center Dr	739	45	38.0	13.2	29%	**F**
		SR 536/World Center Dr	SR 535 PDLT SB	845	45	24.7	23.2	52%	C
			Total	**2.22**	**45**	**367.1**	**21.8**	**48%**	**D**
	Southbound								
		Entry Link	SR 535 PDLT SB	3696	45	60.0	42.1	94%	A
		SR 535 PDLT SB	SR 536/World Center Dr	845	45	65.2	8.8	20%	**F**
		SR 536/World Center Dr	SR 535 PDLT NB	1267	45	48.9	17.7	39%	E
		SR 535 PDLT NB	International Dr	316	45	33.1	6.5	14%	**F**
		International Dr	LBV Factory Stores	1901	45	52.9	25.1	56%	C
		LBV Factory Stores	Qd. Rd. Polynesian Isle Blvd	1267	45	39.2	22.3	50%	D
		Qd. Rd. Polynesian Isle Blvd	Polynesian Isle Blvd	422	45	15.5	19.4	43%	D
		Polynesian Isle Blvd	Poinciana Blvd	1954	45	65.7	20.1	45%	D
		Poinciana Blvd	Osceola Pkwy On Ramp	1109	45	22.7	32.9	73%	B
		Osceola Pkwy On Ramp	Kyngs Heath Rd	1637	45	38.8	28.6	64%	C
		Kyngs Heath Rd	US 192	950	45	76.7	8.5	19%	**F**
			Total	**2.92**	**45**	**518.7**	**20.3**	**45%**	**D**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

Table 10-10 Build Alternative 1 2045 AM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	%	LOS
AM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	45.6	14.3	32%	E
		Kyngs Heath Rd	Osceola Pkwy On Ramp	1637	45	33.5	33.1	74%	B
		Osceola Pkwy On Ramp	Poinciana Blvd	1109	45	64.0	11.7	26%	F
		Poinciana Blvd	Polynesian Isle Blvd	1954	45	48.1	27.4	61%	C
		Polynesian Isle Blvd	Qd. Rd. Polynesian Isle Blvd	422	45	27.2	11.0	24%	F
		Qd. Rd. Polynesian Isle Blvd	LBV Factory Stores	1267	45	60.8	14.4	32%	E
		LBV Factory Stores	International Dr	2059	45	89.9	16.0	36%	E
		International Dr	SR 535 PDLT NB	686	45	16.0	29.2	65%	C
		SR 535 PDLT NB	SR 536/World Center Dr	739	45	46.8	10.8	24%	F
		SR 536/World Center Dr	SR 535 PDLT SB	845	45	40.9	14.0	31%	E
		Total		**2.22**	**45**	**472.8**	**16.9**	**38%**	**E**
	Southbound								
		Entry Link	SR 535 PDLT SB	3696	45	56.3	44.9	100%	A
		SR 535 PDLT SB	SR 536/World Center Dr	845	45	59.1	9.7	22%	F
		SR 536/World Center Dr	SR 535 PDLT NB	1267	45	81.4	10.6	24%	F
		SR 535 PDLT NB	International Dr	316	45	50.5	4.3	9%	F
		International Dr	LBV Factory Stores	1901	45	58.7	22.6	50%	D
		LBV Factory Stores	Qd. Rd. Polynesian Isle Blvd	1267	45	40.2	21.8	48%	D
		Qd. Rd. Polynesian Isle Blvd	Polynesian Isle Blvd	422	45	21.0	14.3	32%	E
		Polynesian Isle Blvd	Poinciana Blvd	1954	45	83.0	15.9	35%	E
		Poinciana Blvd	Osceola Pkwy On Ramp	1109	45	22.7	32.9	73%	B
		Osceola Pkwy On Ramp	Kyngs Heath Rd	1637	40	47.3	23.5	52%	C
		Kyngs Heath Rd	US 192	950	45	78.0	8.4	19%	F
		Total		**2.92**	**45**	**598.2**	**17.6**	**39%**	**E**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

Table 10-11 Build Alternative 1 2045 PM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	%	LOS
PM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	43.8	14.9	33%	E
		Kyngs Heath Rd	Osceola Pkwy On Ramp	1637	45	32.5	34.2	76%	B
		Osceola Pkwy On Ramp	Poinciana Blvd	1109	45	62.4	12.0	27%	F
		Poinciana Blvd	Polynesian Isle Blvd	1954	45	46.2	28.5	63%	C
		Polynesian Isle Blvd	Qd. Rd. Polynesian Isle Blvd	422	45	23.8	12.6	28%	F
		Qd. Rd. Polynesian Isle Blvd	LBV Factory Stores	1267	45	53.5	16.4	36%	E
		LBV Factory Stores	International Dr	2059	45	76.6	18.8	42%	D
		International Dr	SR 535 PDLT NB	686	45	15.1	31.0	69%	B
		SR 535 PDLT NB	SR 536/World Center Dr	739	45	48.3	10.4	23%	F
		SR 536/World Center Dr	SR 535 PDLT SB	845	45	31.1	18.4	41%	D
			Total	**2.22**	**45**	**433.3**	**18.4**	**41%**	**D**
	Southbound								
		Entry Link	SR 535 PDLT SB	3696	45	60.0	42.1	94%	A
		SR 535 PDLT SB	SR 536/World Center Dr	845	45	69.3	8.3	18%	F
		SR 536/World Center Dr	SR 535 PDLT NB	1267	45	57.9	14.9	33%	E
		SR 535 PDLT NB	International Dr	316	45	50.0	4.3	10%	F
		International Dr	LBV Factory Stores	1901	45	65.1	20.4	45%	D
		LBV Factory Stores	Qd. Rd. Polynesian Isle Blvd	1267	45	38.4	22.8	51%	D
		Qd. Rd. Polynesian Isle Blvd	Polynesian Isle Blvd	422	45	15.8	19.0	42%	D
		Polynesian Isle Blvd	Poinciana Blvd	1954	45	82.6	16.0	36%	E
		Poinciana Blvd	Osceola Pkwy On Ramp	1109	45	22.7	32.9	73%	B
		Osceola Pkwy On Ramp	Kyngs Heath Rd	1637	45	47.2	23.5	52%	C
		Kyngs Heath Rd	US 192	950	45	78.6	8.3	18%	F
			Total	**2.92**	**45**	**587.6**	**17.9**	**40%**	**E**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

10.3.4 Build Alternative 2 Intersection Analysis

For the Build Alternative 2 scenario analysis, lane geometry modifications (including turn bay extension, where feasible) and Synchro optimization was performed on existing signal timing and phasing to improve overall traffic operations. The results of the intersection analysis are summarized in **Table 10-12** and **Table 10-13**, with Synchro output reports and Synchro network roadway configuration provided in **Appendix J**.

Table 10-12 Build Alternative 2 2025 Signalized Intersection LOS

2025 AM												2025 PM											
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & US 192	EBL	475	129	160	0.66	84.6	F	24.2	C	27.0	C	EBL	475	150	192	0.71	85.0	F	28.4	C	29.8	C
	EBT	-	239	854	0.27	13.0	B					EBT	-	449	1282	0.44	20.0	B				
	WBL	350	16	3	0.05	77.0	E	14.7	B			WBL	350	16	3	0.05	77.0	E	17.6	B		
	WBT	-	452	1310	0.49	23.6	C					WBT	-	434	1125	0.48	29.9	C				
	WBR	435	0	1174	0.81	4.6	A					WBR	435	0	895	0.61	1.9	A				
	NBL	-	26	7	0.11	78.1	E	69.7	E			NBL	-	19	4	0.06	76.5	E	63.4	E		
	NBT	-	18	2	0.08	57.8	E					NBT	-	20	2	0.09	54.7	D				
	SBL	-	378	741	0.84	71.1	E	61.9	E			SBL	-	270	989	0.86	56.6	E	51.4	D		
	SBT	-	416	3	0.83	80.3	F					SBT	-	418	1	0.85	63.4	E				
	SBR	400	148	202	0.37	16.9	B					SBR	400	149	239	0.43	20.8	C				
SR 535 & Kyngs Heath Road	EBL	100	42	40	0.20	27.9	C	24.3	C	12.5	B	EBL	100	72	83	0.34	28.2	C	24.1	C	15.1	B
	EBT	-	32	6	0.27	20.4	C					EBT	-	55	27	0.34	19.9	B				
	EBR			31								EBR			53							
	WBL	150	39	35	0.18	27.9	C	9.9	A			WBL	150	48	48	0.23	26.1	C	12.8	B		
	WBT	-	13	5	0.04	34.6	C					WBT	-	33	21	0.17	37.7	D				
	WBR	-	0	86	0.22	1.3	A					WBR	-	0	104	0.27	1.6	A				
	NBL	375	m16	21	0.19	39.6	D	13.1	B			NBL	375	m22	21	0.20	40.5	D	16.2	B		
	NBT	-	184	1265	0.48	13.2	B					NBT	-	139	1000	0.43	16.8	B				
	NBR	-	m0	50	0.05	0.1	A					NBR	-	m0	68	0.08	0.2	A				
	SBL	400	74	69	0.44	42.1	D	11.0	B			SBL	400	105	112	0.56	42.7	D	13.5	B		
	SBT	-	140	880	0.29	9.5	A					SBT	-	189	1128	0.39	11.9	B				
	SBR	300	0	77	0.07	0.1	A					SBR	300	0	114	0.12	0.2	A				
SR 535 & Osceola Pkwy On Ramp	NBT	-	13	1272	0.41	1.5	A	1.5	A	5.3	A	NBT	-	22	1071	0.36	2.2	A	2.2	A	6.4	A
	SBL	500	117	318	0.65	37.5	D	9.0	A			SBL	500	143	415	0.70	36.6	D	8.9	A		
	SBT	-	0	1014	0.22	0.1	A					SBT	-	0	1306	0.28	0.1	A				
SR 535 & Poinciana Blvd	EBT	-	332	796	0.82	70.0	E	66.0	E	27.7	C	EBT	-	295	605	0.80	74.1	E	67.5	E	24.4	C
	EBR	150	21	53	0.15	6.2	A					EBR	150	40	73	0.25	13.0	B				
	WBT	-	106	64	0.18	55.5	E	43.0	D			WBT	-	276	177	0.63	76.0	E	66.2	E		
	WBR	200	154	269	0.37	40.0	D					WBR	200	284	417	0.76	62.0	E				
	NBL	-	m68	69	0.46	98.6	F	20.1	C			NBL	-	92	95	0.54	99.7	F	15.4	B		
	NBT	-	452	1857	0.66	18.0	B					NBT	-	269	1410	0.45	10.6	B				
	NBR	200	m13	81	0.09	1.2	A					NBR	200	7	81	0.08	0.7	A				
	SBL	400	122	131	0.62	96.9	F	15.0	B			SBL	400	m47	49	0.37	99.0	F	7.0	A		
	SBT	-	166	1280	0.44	10.5	B					SBT	-	116	1648	0.54	6.1	A				
	SBR	400	16	355	0.34	1.1	A					SBR	400	0	579	0.52	1.5	A				
SR 535 & Poinciana Blvd E-N Loop	WBR	75	496	735	0.88	29.2	C	29.2	C	13.2	B	WBR	75	388	515	0.86	40.0	D	40.0	D	9.3	A
	NBT	-	225	1272	0.31	17.6	B	17.6	B			NBT	-	137	1071	0.22	9.2	A	9.2	A		
	SBT	-	0	1333	0.28	0.1	A	0.1	A			SBT	-	0	1721	0.37	0.2	A	0.2	A		
SR 535 & Median Opening S	EBR	-	0	44	0.27	3.7	A	3.7	A	9.0	A	EBR	-	150	146	0.76	54.6	D	54.6	D	21.1	C
	WBR	-	2	71	0.43	7.9	A	7.9	A			WBR	-	49	98	0.46	14.9	B	14.9	B		
	NBL	650	m200	25	0.45	74.0	E	7.9	A			NBL	650	398	35	0.84	92.2	F	26.1	C		
	NBT	-	74	1956	0.59	4.5	A					NBT	-	253	1481	0.57	16.3	B				
	NBR	275	m0	61	0.06	0.1	A					NBR	275	m13	92	0.11	1.6	A				
	SBT	-	25	1638	0.51	2.1	A	10.4	B			SBT	-	510	1911	0.67	12.6	B	15.3	B		
	SBR	400	1	88	0.09	0.1	A					SBR	400	19	167	0.18	0.8	A				

Table 10-12 Build Alternative 2 2025 Signalized Intersection LOS (continued)

2025 AM												2025 PM											
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & Polynesian Isle Blvd	EBL	300	265	345	0.82	87.1	F	70.6	E	17.3	B	EBL	300	227	294	0.77	85.6	F	67.9	E	16.2	B
	EBT	-	55	11	0.15	20.6	C					EBT	0	131	57	0.30	52.6	D				
	EBR	250	24	88	0.13	5.7	A					EBR	250	62	104	0.26	16.7	B				
	WBL	300	24	16	0.14	82.6	F	66.6	E			WBL	300	64	60	0.45	90.2	F	66.8	E		
	WBT	-	#242	27	0.83	104.0	F					WBT	0	218	78	0.78	95.1	F				
	WBR	175	101	222	0.54	25.9	C					WBR	175	92	169	0.52	24.3	C				
	NBT	-	156	2007	0.66	6.9	A	6.5	A			NBT	0	97	1547	0.50	5.3	A	4.8	A		
	NBR	250	0	124	0.07	0.1	A					NBR	250	0	197	0.11	0.1	A				
	SBT	-	108	1782	0.59	11.5	B	10.6	B			SBT	0	255	2118	0.68	10.0	A	8.8	A		
	SBR	125	18	236	0.24	3.8	A					SBR	125	47	464	0.46	3.4	A				
SR 535 & Median Opening N	-	-	-	-	-	-	-	0.5	A	5.7	A	-	-	-	-	-	-		16.0	B	11.7	B
	WBR	-	0	2	0.02	0.5	A					WBR	0	29	72	0.49	16.0	B				
	NBU	400	m76	46	0.35	65.6	E	5.2	A			NBU	400	m173	97	0.69	91.4	F	15.0	B		
	NBT	-	231	2448	0.60	4.2	A					NBT	0	328	1813	0.54	11.6	B				
	NBR	350	m6	80	0.06	0.8	A					NBR	350	m21	99	0.09	2.7	A				
	SBL	550	106	24	0.50	91.9	F	6.4	A			SBL	550	m97	37	0.27	60.2	E	9.0	A		
	SBT	-	258	1972	0.50	4.3	A					SBT	0	261	2485	0.70	7.8	A				
SR 535 & LBV Factory Stores	EBR	-	0	30	0.15	1.5	A	1.5	A	13.9	B	EBR	0	0	39	0.20	2.1	A	2.1	A	16.7	B
	WBL	300	124	236	0.47	74.0	E	57.6	E			WBL	300	110	206	0.40	72.0	E	49.2	D		
	WBT	-	68	7	0.40	18.4	B					WBT	0	78	5	0.49	16.2	B				
	NBL	525	m34	17	0.26	98.3	F	9.4	A			NBL	525	m47	20	0.28	114.8	F	12.6	B		
	NBT	-	191	2300	0.70	9.3	A					NBT	0	437	1783	0.61	12.0	B				
	NBR	525	15	157	0.14	1.1	A					NBR	525	21	105	0.11	2.2	A				
	SBL	575	141	71	0.60	95.4	F	12.4	B			SBL	575	220	136	0.58	75.4	E	15.5	B		
	SBT	-	358	1755	0.49	9.4	A					SBT	0	605	2300	0.65	12.7	B				
	SBR	575	0	56	0.05	0.1	A					SBR	575	21	117	0.10	1.4	A				
SR 535 & International Dr	EBT	-	80	506	0.47	34.5	C	34.5	C	16.9	B	EBT	0	141	794	0.73	35.0	D	35.0	D	17.1	B
	WBT	-	239	759	0.70	45.8	D	42.8	D			WBT	0	173	555	0.51	41.7	D	38.7	D		
	WBR	200	75	160	0.25	28.5	C					WBR	200	56	121	0.19	24.8	C				
	NBT	-	384	1931	0.64	11.2	B	9.5	A			NBT	0	343	1699	0.56	10.6	B	9.7	A		
	NBR	350	15	411	0.23	1.4	A					NBR	350	32	277	0.16	4.1	A				
	SBT	-	186	1691	0.56	8.5	A	8.2	A			SBT	0	341	2263	0.75	11.4	B	11.1	B		
	SBR	350	m16	80	0.08	2.3	A					SBR	350	m4	55	0.06	1.5	A				
SR 535 & Qd. Rd International Dr	EBL	350	59	171	0.54	36.6	D	23.7	C	8.5	A	EBL	350	77	160	0.53	47.6	D	36.5	D	7.9	A
	EBR	350	50	283	0.40	15.8	B					EBR	350	219	450	0.64	32.6	C				
	NBL	350	126	220	0.61	57.0	E	10.0	A			NBL	350	68	105	0.28	49.3	D	6.7	A		
	NBT	-	256	2171	0.58	5.2	A					NBT	0	184	1816	0.48	4.3	A				
	SBT	-	0	1600	0.53	2.6	A	2.4	A			SBT	0	0	2103	0.70	1.2	A	1.1	A		
	SBR	650	0	91	0.09	0.2	A					SBR	650	m0	160	0.16	0.2	A				
International Dr & Qd. Rd to SR 535	EBT	-	101	415	0.19	20.0	C	13.7	B	17.1	B	EBT	0	126	634	0.24	14.8	B	9.2	A	13.6	B
	EBR	350	26	241	0.18	2.8	A					EBR	350	27	470	0.28	1.7	A				
	WBL	350	136	213	0.60	86.5	F	22.6	C			WBL	350	97	140	0.49	86.4	F	20.3	C		
	WBT	-	6	626	0.21	0.9	A					WBT	0	4	470	0.14	0.6	A				
	NBL	350	32	220	0.25	12.7	B	9.1	A			NBL	350	68	105	0.15	33.6	C	16.6	B		
	NBR	350	1	91	0.08	0.4	A					NBR	350	12	160	0.16	5.3	A				

Table 10-12 Build Alternative 2 2025 Signalized Intersection LOS (continued)

	2025 AM											2025 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & SR 536/World Center Dr	EBT	-	154	1372	0.63	16.4	B	16.4	B	25.5	C	EBT	-	379	1701	0.89	30.5	C	30.5	C	28.2	C
	WBT	-	321	1334	0.61	25.7	C	28.8	C			WBT	-	384	1347	0.71	32.4	C	32.6	C		
	WBR	300	506	570	0.82	36.0	D					WBR	300	378	424	0.69	33.2	C				
	NBT	-	287	1493	0.73	23.8	C	23.0	C			NBT	-	227	1456	0.64	17.7	B	17.1	B		
	NBR	400	27	120	0.11	13.0	B					NBR	400	9	88	0.07	7.0	A				
	SBT	-	451	1474	0.75	33.0	C	31.0	C			SBT	-	572	1919	0.86	32.8	C	30.7	C		
	SBR	300	126	311	0.28	21.6	C					SBR	300	92	272	0.22	16.3	B				
SR 535 & Qd. Rd to SR 536	EBL	350	77	122	0.45	65.7	E	31.3	C	16.2	B	EBL	350	128	211	0.57	67.3	E	30.9	C	15.7	B
	EBR	350	192	691	0.68	25.2	C					EBR	350	346	969	0.78	22.9	C				
	NBL	150	279	600	0.76	65.7	E	20.3	C			NBL	150	253	487	0.50	55.6	E	17.0	B		
	NBT	-	50	1491	0.39	2.0	A					NBT	-	68	1333	0.36	2.9	A				
	SBT	-	189	1080	0.47	2.6	A	2.2	A			SBT	-	173	1349	0.71	6.3	A	5.0	A		
	SBR	350	64	394	0.23	1.1	A					SBR	350	m61	570	0.36	2.0	A				
SR 536 & Qd. Rd to SR 535	EBT	-	272	978	0.50	28.0	C	18.2	B	18.8	B	EBT	-	319	1131	0.56	28.3	C	18.9	B	22.4	C
	EBR	350	58	609	0.29	2.4	A					EBR	350	155	811	0.41	5.8	A				
	WBL	350	124	204	0.58	82.7	F	16.4	B			WBL	350	195	369	0.70	81.1	F	21.7	C		
	WBT	-	104	1442	0.53	7.0	A					WBT	-	59	1250	0.41	4.2	A				
	NBL	350	147	600	0.57	32.5	C	23.9	C			NBL	350	246	487	0.58	45.5	D	30.1	C		
	NBR	350	50	394	0.31	10.9	B					NBR	350	141	570	0.46	16.9	B				

Table 10-13 Build Alternative 2 2045 Signalized Intersection LOS

2045 AM												2045 PM										
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & US 192	EBL	475	256	372	0.70	70.2	E	35.8	D	35.2	D	EBL	475	265	388	0.71	70.3	E	38.1	D	35.5	D
	EBT	-	426	1227	0.48	25.5	C					EBT	-	543	1443	0.58	29.5	C				
	WBL	350	26	7	0.12	79.0	E	31.2	C			WBL	350	24	6	0.10	78.3	E	28.9	C		
	WBT	-	#620	1323	0.82	53.4	D					WBT	-	503	1129	0.74	52.7	D				
	WBR	435	0	1288	0.88	8.2	A					WBR	435	0	1042	0.72	2.9	A				
	NBL	-	36	11	0.18	80.6	F	60.7	E			NBL	-	26	7	0.11	78.1	E	63.9	E		
	NBT	-	31	4	0.22	45.7	D					NBT	-	27	4	0.15	54.0	D				
	SBL	-	498	1038	0.74	50.5	D	41.4	D			SBL	-	549	1161	0.78	49.9	D	41.4	D		
	SBT	-	558	5	0.73	54.9	D					SBT	-	615	3	0.77	54.2	D				
	SBR	400	118	366	0.41	11.2	B					SBR	400	140	365	0.40	9.6	A				
SR 535 & Kyngs Heath Road	EBL	100	71	78	0.39	32.5	C	27.3	C	19.9	B	EBL	100	80	92	0.45	33.5	C	30.8	C	17.3	B
	EBT	-	56	20	0.52	22.9	C					EBT	-	66	37	0.54	28.1	C				
	EBR			75								EBR			59							
	WBL	150	#99	116	0.59	40.6	D	26.0	C			WBL	150	92	108	0.53	36.9	D	18.7	B		
	WBT	-	26	14	0.12	37.4	D					WBT	-	45	33	0.26	40.1	D				
	WBR	-	#121	335	0.81	20.5	C					WBR	-	14	212	0.54	6.1	A				
	NBL	375	m26	32	0.28	43.3	D	18.2	B			NBL	375	m28	29	0.26	45.3	D	16.3	B		
	NBT	-	274	1505	0.77	19.1	B					NBT	-	218	1263	0.66	17.4	B				
	NBR	-	m2	127	0.17	0.6	A					NBR	-	m2	142	0.20	0.9	A				
	SBL	400	#227	209	0.86	64.6	E	19.0	B			SBL	400	#195	194	0.78	53.1	D	16.3	B		
	SBT	-	203	1218	0.47	13.1	B					SBT	-	239	1362	0.50	12.5	B				
	SBR	300	2	127	0.14	0.4	A					SBR	300	0	120	0.13	0.3	A				
SR 535 & Osceola Pkwy On Ramp	NBT	-	44	1732	0.64	3.5	A	3.5	A	7.2	A	NBT	-	39	1405	0.49	2.0	A	2.0	A	6.0	A
	SBL	500	197	615	0.79	35.2	D	10.1	B			SBL	500	166	500	0.74	35.8	D	8.6	A		
	SBT	-	0	1548	0.33	0.2	A					SBT	-	0	1631	0.35	0.2	A				
SR 535 & Poinciana Blvd	EBT	-	384	841	0.82	68.4	E	63.8	E	33.8	C	EBT	-	412	909	0.83	67.0	E	62.8	E	35.0	C
	EBR	150	43	78	0.21	13.7	B					EBR	150	38	75	0.19	12.4	B				
	WBT	-	224	155	0.41	59.6	E	55.6	E			WBT	-	247	177	0.43	58.3	E	54.3	D		
	WBR	200	447	726	0.84	54.8	D					WBR	200	465	778	0.85	53.3	D				
	NBL	-	m74	78	0.49	98.4	F	35.4	D			NBL	-	m92	102	0.55	97.2	F	36.0	D		
	NBT	-	1004	2198	0.86	35.7	D					NBT	-	891	1965	0.79	34.9	C				
	NBR	200	98	228	0.28	10.5	B					NBR	200	m59	141	0.18	7.8	A				
	SBL	400	m156	211	0.63	96.4	F	15.6	B			SBL	400	m176	247	0.71	100.9	F	18.2	B		
	SBT	-	343	2085	0.74	10.7	B					SBT	-	477	2056	0.76	13.0	B				
	SBR	400	m4	466	0.45	0.8	A					SBR	400	m20	579	0.56	1.6	A				
SR 535 & Poinciana Blvd E-N Loop	WBR	75	572	772	0.88	59.6	E	59.6	E	17.9	B	WBR	75	147	803	0.88	47.3	D	47.3	D	15.7	B
	NBT	-	340	1732	0.43	21.4	C	21.4	C			NBT	-	273	1405	0.36	21.0	C	21.0	C		
	SBT	-	0	2163	0.46	0.3	A	0.3	A			SBT	-	0	2131	0.45	0.3	A	0.3	A		
SR 535 & Median Opening S	EBR	-	167	145	0.74	58.2	E	58.2	E	27.5	C	EBR	-	175	150	0.80	66.5	E	66.5	E	30.2	C
	WBR	-	#208	171	0.84	68.8	E	68.8	E			WBR	-	158	140	0.75	58.0	E	58.0	E		
	NBL	650	m395	38	0.88	76.3	E	23.2	C			NBL	650	m#463	39	0.93	88.0	F	28.0	C		
	NBT	-	498	2511	0.87	18.3	B					NBT	-	556	2316	0.87	22.0	C				
	NBR	275	m26	133	0.14	4.7	A					NBR	275	m45	143	0.16	6.1	A				
	SBT	-	680	2375	0.86	24.2	C	27.9	C			SBT	-	m754	2487	0.88	25.7	C	29.1	C		
	SBR	400	m25	141	0.15	4.2	A					SBR	400	m31	170	0.18	4.3	A				

Table 10-13 Build Alternative 2 2045 Signalized Intersection LOS (continued)

2045 AM												2045 PM											
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & Polynesian Isle Blvd	EBL	300	#343	373	0.98	114.0	F	84.6	F	23.1	C	EBL	300	#252	297	0.85	95.0	F	76.3	E	21.2	C
	EBT	-	256	58	0.50	62.3	E					EBT	-	310	114	0.68	75.4	E				
	EBR	250	180	257	0.44	37.0	D					EBR	250	210	253	0.57	45.6	D				
	WBL	300	#97	83	0.72	111.8	F	95.8	F			WBL	300	#189	159	1.04	157.4	F	98.2	F		
	WBT	-	#453	94	1.02	135.5	F					WBT	-	272	111	0.82	99.8	F				
	WBR	175	208	299	0.69	45.5	D					WBR	175	123	186	0.55	29.0	C				
	NBT	-	120	2482	0.84	9.8	A	8.6	A			NBT	-	188	2276	0.75	7.4	A	6.3	A		
	NBR	250	m0	358	0.21	0.5	A					NBR	250	m0	408	0.23	0.2	A				
	SBT	-	150	2426	0.83	12.1	B	10.6	B			SBT	-	m478	2561	0.84	12.6	B	11.3	B		
	SBR	125	m35	471	0.49	2.8	A					SBR	125	m118	610	0.61	6.0	A				
SR 535 & Median Opening N	-	-	-	-	-	-	-	48.7	D	16.6	B	-	-	-	-	-	-	-	27.3	C	18.2	B
	WBR	-	118	122	0.72	48.7	D					WBR	-	65	109	0.64	27.3	C				
	NBU	400	m272	193	0.84	82.0	F	12.7	B			NBU	400	m#475	243	0.98	106.9	F	16.5	B		
	NBT	-	m336	2798	0.83	8.7	A					NBT	-	183	2407	0.76	8.0	A				
	NBR	350	m5	163	0.15	0.6	A					NBR	350	m3	109	0.11	0.5	A				
	SBL	550	m#186	72	0.75	92.7	F	19.6	B			SBL	550	m142	66	0.38	63.9	E	19.4	B		
	SBT	-	437	2704	0.85	16.8	B					SBT	-	437	2928	0.92	18.0	B				
SR 535 & LBV Factory Stores	EBR	-	0	46	0.23	2.5	A	2.5	A	21.7	C	EBR	-	0	61	0.31	3.8	A	3.8	A	26.3	C
	WBL	300	173	354	0.58	72.7	E	66.4	E			WBL	300	206	408	0.73	79.9	E	62.1	E		
	WBT	-	283	28	0.88	58.7	E					WBT	-	92	13	0.52	17.7	B				
	NBL	525	m37	25	0.40	114.2	F	13.0	B			NBL	525	m0	60	0.57	118.3	F	18.9	B		
	NBT	-	614	2677	0.89	13.3	B					NBT	-	566	2355	0.86	17.3	B				
	NBR	525	m9	249	0.23	0.5	A					NBR	525	m18	128	0.14	1.7	A				
	SBL	575	#330	155	0.91	121.4	F	20.9	C			SBL	575	#427	250	0.89	97.9	F	26.2	C		
	SBT	-	691	2407	0.70	14.9	B					SBT	-	797	2551	0.78	20.3	C				
	SBR	575	0	58	0.05	0.1	A					SBR	575	23	121	0.11	1.6	A				
SR 535 & International Dr	EBT	-	135	1127	0.63	19.9	B	19.9	B	27.1	C	EBT	-	137	1206	0.75	24.9	C	24.9	C	27.3	C
	WBT	-	412	1404	0.78	36.7	D	34.8	C			WBT	-	328	1178	0.73	37.9	D	35.8	D		
	WBR	200	67	174	0.17	19.3	B					WBR	200	66	172	0.19	21.3	C				
	NBT	-	#724	2151	0.91	28.0	C	25.0	C			NBT	-	646	2060	0.81	21.9	C	20.0	B		
	NBR	350	150	756	0.58	16.5	B					NBR	350	102	516	0.37	12.3	B				
	SBT	-	#782	2259	0.96	29.0	C	28.2	C			SBT	-	#954	2531	1.00	32.4	C	31.3	C		
	SBR	350	m19	87	0.12	6.5	A					SBR	350	m28	110	0.14	6.5	A				
SR 535 & Qd. Rd International Dr	EBL	350	107	241	0.63	36.8	D	30.1	C	10.6	B	EBL	350	131	232	0.62	45.7	D	39.2	D	11.0	B
	EBR	350	274	533	0.68	27.1	C					EBR	350	315	565	0.73	36.6	D				
	NBL	350	156	272	0.67	58.0	E	12.9	B			NBL	350	100	161	0.40	51.3	D	9.6	A		
	NBT	-	448	2666	0.73	8.3	A					NBT	-	335	2344	0.64	6.7	A				
	SBT	-	m0	2087	0.74	1.0	A	0.9	A			SBT	-	m34	2357	0.83	3.9	A	3.6	A		
	SBR	650	m0	172	0.18	0.1	A					SBR	650	m0	174	0.18	0.1	A				
International Dr & Qd. Rd to SR 535	EBT	-	239	955	0.42	21.9	C	16.1	B	18.4	B	EBT	-	223	1032	0.40	17.2	B	11.7	B	13.6	B
	EBR	350	31	402	0.27	2.4	A					EBR	350	30	574	0.34	1.8	A				
	WBL	350	218	372	0.72	79.6	E	20.5	C			WBL	350	142	223	0.61	75.6	E	13.9	B		
	WBT	-	10	1119	0.34	0.8	A					WBT	-	15	1065	0.31	0.9	A				
	NBL	350	65	272	0.40	26.8	C	18.6	B			NBL	350	57	161	0.25	34.1	C	21.5	C		
	NBR	350	16	172	0.15	5.8	A					NBR	350	33	174	0.18	9.9	A				

Table 10-13 Build Alternative 2 2045 Signalized Intersection LOS (continued)

2045 AM												2045 PM											
Study Intersection	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS	Mvmt	Storage	Queue	Volume	v/c	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 & SR 536/World Center Dr	EBT	-	240	1763	0.81	18.5	B	18.5	B	34.5	C	EBT	-	#779	2138	1.06	59.6	E	59.6	E	45.5	D
	WBT	-	526	1797	0.83	32.6	C	38.2	D			WBT	-	516	1701	0.85	35.9	D	40.3	D		
	WBR	300	#750	662	0.95	53.4	D					WBR	300	#683	603	0.93	52.7	D				
	NBT	-	450	1853	0.91	41.2	D	39.9	D			NBT	-	468	1744	0.80	33.2	C	32.3	C		
	NBR	400	m53	130	0.11	20.2	C					NBR	400	35	97	0.08	16.7	B				
	SBT	-	#586	1826	0.92	41.8	D	38.3	D			SBT	-	#759	2136	1.00	52.5	D	48.1	D		
	SBR	300	161	410	0.37	22.5	C					SBR	300	112	315	0.27	18.3	B				
SR 535 & Qd. Rd to SR 536	EBL	350	170	309	0.71	65.4	E	33.3	C	17.6	B	EBL	350	m119	245	0.61	50.9	D	31.0	C	20.0	B
	EBR	350	354	957	0.77	22.9	C					EBR	350	576	1167	0.89	26.9	C				
	NBL	150	m321	651	0.72	59.0	E	19.9	B			NBL	150	345	636	0.62	59.9	E	19.8	B		
	NBT	-	122	1674	0.47	4.7	A					NBT	-	144	1596	0.44	3.9	A				
	SBT	-	m73	1389	0.73	4.6	A	3.7	A			SBT	-	m282	1474	0.84	16.2	B	12.8	B		
	SBR	350	m13	437	0.28	0.8	A					SBR	350	m124	662	0.44	5.2	A				
SR 536 & Qd. Rd to SR 535	EBT	-	384	1326	0.68	31.3	C	20.6	C	20.0	C	EBT	-	451	1476	0.78	35.5	D	25.3	C	26.6	C
	EBR	350	172	945	0.47	5.7	A					EBR	350	209	896	0.48	8.6	A				
	WBL	350	m177	321	0.71	78.1	E	17.2	B			WBL	350	m275	516	0.81	74.3	E	23.3	C		
	WBT	-	123	1886	0.66	6.8	A					WBT	-	116	1500	0.49	5.7	A				
	NBL	350	176	651	0.69	32.3	C	24.6	C			NBL	350	267	636	0.78	45.2	D	34.0	C		
	NBR	350	61	437	0.35	13.2	B					NBR	350	179	662	0.51	23.3	C				

Under the opening year AM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that the Build Alternative 2 network operations improve along SR 535 when compared to the No Build scenario for the opening year 2025, where No Build has three (3) intersection operating deficiently.

Similarly, under the opening year PM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that the Build Alternative 2 network operations improve along SR 535 when compared to the No Build scenario, where No Build has one (1) intersection operating deficiently.

Regarding extended queue length impacts, the opening year condition show similar impacts during the AM peak hour when compared to the PM peak hour. During the AM peak hour, movements where queue lengths extend beyond the turn bay length include the westbound right-turn at SR 535 and the E-N Loop at Poinciana Boulevard, the westbound right-turn at SR 535 and International Drive, the westbound right-turn at SR 535 and SR 536/World Center Drive, and the northbound left-turn at SR 535 and the Quadrant Road at World Center Drive. During the PM peak hour, movements where queue lengths extend beyond the turn bay lengths include the westbound right-turn at SR 535 and Poinciana Boulevard, the westbound right-turn at SR 535 and the E-N Loop at Poinciana Boulevard, the westbound right-turn at SR 535 and SR 536/World Center Drive, and the eastbound right-turn and northbound left-turn at SR 535 and the Quadrant Road at World Center Drive.

Design year (2045) results reveal that the AM and PM peak hour conditions perform similarly to opening year conditions, with slight degradation in operations. Overall, both the AM and PM peak hour conditions perform similarly.

Under the AM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that the Build Alternative 2 network operations significantly improve along SR 535 when compared to the No Build scenario for the design year (2045), where No Build has five (5) intersections operating deficiently.

Similar to the AM peak hour conditions, all signalized intersections meet or exceed the LOS D Target under PM peak hour conditions, showing improvement over the No Build scenario where five (5) intersections operate deficiently.

Regarding extended queue length impacts, the design year condition shows similar impacts during the AM peak hour when compared to the PM peak hour. During the AM peak hour, movements where queue lengths extend beyond the turn bay length include the westbound right-turn at SR 535 and Poinciana Boulevard, the westbound right-turn at SR 535 and the E-N Loop

at Poinciana Boulevard; the eastbound left-turn and westbound right-turn at SR 535 and Polynesian Isle Boulevard, the westbound right-turn at SR 535 and SR 536/World Center Drive, and the eastbound right-turn and northbound left-turn at SR 535 and the Quadrant Road at World Center Drive. During the PM peak hour, movements where queue lengths extend beyond the turn bay lengths include the westbound right-turn at SR 535 and Poinciana Boulevard, the westbound right-turn at SR 535 and the E-N Loop at Poinciana Boulevard, the northbound U-turn at SR 535 and Median Opening North, the westbound right-turn at SR 535 and SR 536/World Center Drive, and the eastbound right-turn and northbound left-turn at SR 535 and the Quadrant Road at World Center Drive.

Overall, for the opening year and design year results under the Build Alternative 2 scenario, similar deficiencies are noted on turning movements at all major intersection approaches when compared to the No Build and Build Alternative 1 scenarios. However, Build Alternative 2 shows slight improvements in many areas when compared to the other alternatives during the opening year. During the design year, Build Alternative 2 shows evident improvement when compared to No Build and Build Alternative 1, during both the AM and PM peak hour conditions, most likely due to better delay and capacity management. Queue length impacts noted on No Build and Build Alternative 1 are also significantly reduced under this alternative.

10.3.5 Build Alternative 2 Unsignalized Intersections Analysis

Table 10-14 summarizes the unsignalized intersections LOS and queues for stop-controlled movements for the opening and designs years during the AM and PM peak hours. Stop-controlled approach operations remain similar to the No Build and Alternative 1 conditions with the exception of several median openings on SR 535 being signalized under Alternative 2.

Table 10-14 Build Alternative 2 Unsignalized Major Movement LOS

Study Intersection	Build Alternative 2 2025 AM								Build Alternative 2 2025 PM								Build Alternative 2 2045 AM								Build Alternative 2 2045 PM							
	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS	Mvmt	Storage	Veh	Queue	Volume	v/c	Delay	LOS
3: SR 535 & Calypso Cay Way/Osceola Pkwy on-ramp	EBR	---	0.4	10.0	44	0.11	14.3	B	EBR	---	1.0	25.0	84	0.26	19.0	C	EBR	---	0.8	20.0	56	0.21	20.7	C	EBR	---	1.4	35.0	84	0.33	25.0	D
	NBL	225	0.5	12.5	52	0.15	16.5	C	NBL	225	0.3	7.5	26	0.11	20.4	C	NBL	225	1.2	30.0	55	0.29	30.5	D	NBL	225	0.6	15.0	29	0.17	29.7	D
12: SR 535 & Lake Bryan Beach Blvd	WBL	---			24				WBL	---							WBL	---			26				WBL	---			62			
	WBT	---		0.0	2				WBT	---		0.0					WBT	---		0.0	5				WBT	---	25.1	627.5	5	60.70	29240.0	F
	WBR	---			43				WBR	---							WBR	---			45				WBR	---			106			
	NBL	150	0.7	17.5	29	0.21	36.6	E	NBL	150	2.6	65.0	49	0.57	88.7	F	NBL	150	1.5	37.5	30	0.39	74.1	F	NBL	150	4.0	100.0	53	0.86	178.2	F
	SBL	150	3.2	80.0	56	0.64	88.6	F	SBL	150	0.7	17.5	24	0.19	38.9	E	SBL	150	5.8	145.0	65	1.20	303.4	F	SBL	150	1.5	37.5	27	0.39	82.8	F
16: World Center Dr & Buena Vista Suites	EBL	250	1.5	37.5	44	0.37	49.3	E	EBL	250	1.0	25.0	38	0.26	36.4	E	EBL	250	3.5	87.5	48	0.78	158.2	F	EBL	250	2.3	57.5	40	0.53	91.8	E
	WBL	500	0.4	10.0	24	0.12	24.1	C	WBL	500	0.8	20.0	30	0.21	35.8	E	WBL	500	1.7	42.5	49	0.39	48.8	E	WBL	500	2.0	50.0	38	0.47	80.4	F
	NBL	---			17				NBL	---			21				NBL	---			28				NBL	---			27			
	NBT	---	5.8	145.0	3	3.00	1489.3	F	NBT	---	8.5	212.5	2	4.07	1893.3	F	NBT	---	10.6	265.0	6	17.37	9126.4	F	NBT	---	12.3	307.5	6	16.63	8456.2	F
	NBR	---			17				NBR	---			35				NBR	---			32				NBR	---			46			
	SBL	---			2				SBL	---			8				SBL	---			6				SBL	---			13			
	SBT	---			2				SBT	---		0.0	1				SBT	---	7.3	182.5	4	3.89	1883.4	F	SBT	---	9.5	237.5	4	8.03	4066.8	F
	SBR	---			21				SBR	---			35				SBR	---			38				SBR	---			44			
17: World Center Dr & Caribe Royale Orlando	EBL	270	1.5	37.5	49	0.36	43.3	E	EBL	270	0.7	17.5	28	0.21	36.9	E	EBL	270	4.4	110.0	54	0.93	206.7	F	EBL	270	2.8	70.0	42	0.65	126.5	E
	SBL	---	1.4	35.0	12	0.45	213.4	F	SBL	---	2.9	72.5	27	0.81	264.0	F	SBL	---	5.7	142.5	29	30.53	19922.5	F	SBL	---	6.3	157.5	36	7.58	4360.9	F
	SBR	---	0.3	7.5	23	0.11	22.5	C	SBR	---	0.7	17.5	44	0.20	24.9	C	SBR	---	1.6	40.0	48	0.38	48.3	E	SBR	---	1.8	45.0	55	0.41	47.3	D
19: International Dr & World Gateway Dr	EBL	200	2.1	52.5	177	0.42	18.9	C	EBL	200	2.2	55.0	249	0.43	15.4	C	EBL	200	20.4	510.0	327	1.48	278.3	F	EBL	200	23.1	577.5	393	1.46	260.1	F
	SBL	---	7.4	185.0	116	1.08	180.8	F	SBL	---	49.7	1242.5	461	4.15	$1491.6	F	SBL	---	8.5	212.5	267	0.90	66.2	F	SBL	---	6.9	172.5	561	0.80	45.9	E
	SBR	---	1.0	25.0	114	0.25	15.0	C	SBR	---	1.4	35.0	179	0.32	13.9	B	SBR	---							SBR	---						
22: Poinciana Blvd & Westbound Off Ramp	WBL	---	1.8	45.0	229	0.39	14.5	B	WBL	---	2.7	67.5	264	0.49	17.4	C	WBL	---	16.3	407.5	353	1.20	152.2	F	WBL	---	19.5	487.5	380	1.31	194.0	F
	WBR	---	0.6	15.0	144	0.18	10.0	B	WBR	---	0.6	15.0	149	0.17	9.8	A	WBR	---	0.8	20.0	146	0.21	11.3	B	WBR	---	0.8	20.0	152	0.22	11.3	B

10.3.6 Build Alternative 2 Arterial Analysis

The same model developed for the intersection analysis was used to evaluate the performance of the SR 535 roadway segments. The average speed from the Synchro arterial reports was utilized to determine the appropriate LOS for each segment. **Table 10-15** through **Table** 10-18 provide a brief summary of the Build Alternative 2 arterial analysis results.

For the 2025 Build Alternative 2 scenario, the AM peak conditions show deficient operations on three (3) northbound segments and on one (1) southbound segment. The northbound and southbound SR 535 arterial networks operate at an overall LOS D. The PM peak conditions show deficient operations on three (3) northbound segments and on one (1) southbound segment. The northbound and southbound SR 535 arterial networks operate at an overall LOS D. This shows improvement when compared to the opening year scenario for the No Build and Build Alternative 1 scenarios.

In the 2045 Build Alternative 2 scenario, the AM peak conditions show deficient operations on six (6) northbound segments and on four (4) southbound segments. The northbound SR 535 arterial network operates at an overall LOS E and the southbound operates at an overall LOS D. The PM peak conditions show deficient operations on seven (7) northbound segments and on four (4) southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS D. This shows improvement when compared to the opening year scenario for the No Build and Build Alternative 1 scenarios.

Table 10-15 Build Alternative 2 2025 AM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	Arterial Speed %	LOS
AM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	33.0	19.8	44%	D
		Kyngs Heath Rd	Osceola Pkwy On-Ramp	1637	45	32.0	34.7	77%	B
		Osceola Pkwy On-Ramp	Poinciana Blvd E-N Loop	792	45	33.5	15.7	35%	E
		Poinciana Blvd E-N Loop	Poinciana Blvd	317	45	24.1	9.5	21%	F
		Poinciana Blvd	Median Opening South	1003	45	24.6	27.1	60%	C
		Median Opening South	Polynesian Isle Blvd	950	45	26.3	24.4	54%	C
		Polynesian Isle Blvd	Median Opening North	950	45	23.8	27.2	60%	C
		Median Opening North	LBV Factory Stores	792	45	25.2	20.9	46%	D
		LBV Factory Stores	Qd. Rd. International Dr	1267	45	29.7	28.6	64%	C
		Qd. Rd. International Dr	International Drive	845	45	28.4	20.0	44%	D
		International Drive	Qd. Rd. SR 536	686	45	16.0	29.0	64%	C
		Qd. Rd. SR 536	SR 536/World Center Dr	739	45	39.0	12.9	29%	F
			Total	**2.07**	**45**	**335.6**	**22.2**	**49%**	**D**
	Southbound								
		Entry Link	SR 536/World Center Dr	4541	45	101.9	30.4	68%	B
		SR 536/World Center Dr	Qd. Rd. SR 536	739	45	17.8	28.3	63%	C
		Qd. Rd. SR 536	International Drive	686	45	22.4	20.7	46%	D
		International Drive	Qd. Rd. International Dr	845	45	19.8	28.8	64%	C
		Qd. Rd. International Dr	LBV Factory Stores	1267	45	33.9	25.0	56%	C
		LBV Factory Stores	Median Opening North	792	45	20.3	26.0	58%	C
		Median Opening North	Polynesian Isle Blvd	950	45	31.1	20.8	46%	D
		Polynesian Isle Blvd	Median Opening South	950	45	21.5	29.8	66%	C
		Median Opening South	Poinciana Blvd	1003	45	30.7	21.7	48%	D
		Poinciana Blvd	Poinciana Blvd E-N Loop	317	45	7.0	32.7	73%	B
		Poinciana Blvd E-N Loop	Osceola Pkwy On-Ramp	792	45	16.0	32.8	73%	B
		Osceola Pkwy On-Ramp	Kyngs Heath Rd	1637	45	40.0	27.8	62%	C
		Kyngs Heath Rd	US 192	950	45	100.1	6.5	14%	F
			Total	**2.93**	**45**	**462.5**	**22.8**	**51%**	**D**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

Table 10-16 Build Alternative 2 2025 PM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	Arterial Speed %	LOS
PM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	36.6	17.8	40%	E
		Kyngs Heath Rd	Osceola Pkwy On-Ramp	1637	45	32.7	33.9	75%	B
		Osceola Pkwy On-Ramp	Poinciana Blvd E-N Loop	792	45	25.1	20.9	46%	D
		Poinciana Blvd E-N Loop	Poinciana Blvd	317	45	16.9	13.6	30%	F
		Poinciana Blvd	Median Opening South	1003	45	36.5	18.3	41%	D
		Median Opening South	Polynesian Isle Blvd	950	45	24.7	26.0	58%	C
		Polynesian Isle Blvd	Median Opening North	950	45	31.2	20.8	46%	D
		Median Opening North	LBV Factory Stores	792	45	28.0	18.8	42%	D
		LBV Factory Stores	Qd. Rd. International Dr	1267	45	28.8	29.5	66%	C
		Qd. Rd. International Dr	International Drive	845	45	27.8	20.5	46%	D
		International Drive	Qd. Rd. SR 536	686	45	16.9	27.4	61%	C
		Qd. Rd. SR 536	SR 536/World Center Dr	739	45	32.9	15.3	34%	E
			Total	**2.07**	**45**	**338.1**	**22.0**	**49%**	**D**
	Southbound								
		Entry Link	SR 536/World Center Dr	4541	45	101.7	30.5	68%	B
		SR 536/World Center Dr	Qd. Rd. SR 536	739	45	21.5	23.4	52%	C
		Qd. Rd. SR 536	International Drive	686	45	25.3	18.3	41%	D
		International Drive	Qd. Rd. International Dr	845	45	18.4	30.9	69%	B
		Qd. Rd. International Dr	LBV Factory Stores	1267	45	37.2	22.8	51%	D
		LBV Factory Stores	Median Opening North	792	45	23.8	22.2	49%	D
		Median Opening North	Polynesian Isle Blvd	950	45	29.5	22.0	49%	D
		Polynesian Isle Blvd	Median Opening South	950	45	32.0	20.0	44%	D
		Median Opening South	Poinciana Blvd	1003	45	26.3	25.4	56%	C
		Poinciana Blvd	Poinciana Blvd E-N Loop	317	45	7.1	32.3	72%	B
		Poinciana Blvd E-N Loop	Osceola Pkwy On-Ramp	792	45	16.0	32.8	73%	B
		Osceola Pkwy On-Ramp	Kyngs Heath Rd	1637	45	42.4	26.2	58%	C
		Kyngs Heath Rd	US 192	950	45	83.2	7.9	18%	F
			Total	**2.93**	**45**	**464.4**	**22.7**	**50%**	**D**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

Table 10-17 Build Alternative 2 2045 AM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	Arterial Speed %	LOS
AM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	38.9	16.8	37%	E
		Kyngs Heath Rd	Osceola Pkwy On-Ramp	1637	45	34.0	32.6	72%	B
		Osceola Pkwy On-Ramp	Poinciana Blvd E-N Loop	792	45	37.2	14.1	31%	E
		Poinciana Blvd E-N Loop	Poinciana Blvd	317	45	42.4	5.4	12%	F
		Poinciana Blvd	Median Opening South	1003	45	38.1	17.5	39%	E
		Median Opening South	Polynesian Isle Blvd	950	45	28.4	22.6	50%	D
		Polynesian Isle Blvd	Median Opening North	950	45	28.0	23.1	51%	C
		Median Opening North	LBV Factory Stores	792	45	28.7	18.4	41%	D
		LBV Factory Stores	Qd. Rd. International Dr	1267	45	32.8	25.9	58%	C
		Qd. Rd. International Dr	International Drive	845	45	45.2	12.6	28%	F
		International Drive	Qd. Rd. SR 536	686	45	18.7	24.8	55%	C
		Qd. Rd. SR 536	SR 536/World Center Dr	739	45	56.4	8.9	20%	F
			Total	**2.07**	**45**	**428.8**	**17.4**	**39%**	**E**
	Southbound								
		Entry Link	SR 536/World Center Dr	4541	45	110.7	28.0	62%	C
		SR 536/World Center Dr	Qd. Rd. SR 536	739	45	19.3	26.1	58%	C
		Qd. Rd. SR 536	International Drive	686	45	42.7	10.9	24%	F
		International Drive	Qd. Rd. International Dr	845	45	18.2	31.3	70%	B
		Qd. Rd. International Dr	LBV Factory Stores	1267	45	39.4	21.5	48%	D
		LBV Factory Stores	Median Opening North	792	45	32.7	16.1	36%	E
		Median Opening North	Polynesian Isle Blvd	950	45	31.4	20.6	46%	D
		Polynesian Isle Blvd	Median Opening South	950	45	43.3	14.8	33%	E
		Median Opening South	Poinciana Blvd	1003	45	30.7	21.7	48%	D
		Poinciana Blvd	Poinciana Blvd E-N Loop	317	45	7.2	31.8	71%	B
		Poinciana Blvd E-N Loop	Osceola Pkwy On-Ramp	792	45	16.1	32.6	72%	B
		Osceola Pkwy On-Ramp	Kyngs Heath Rd	1637	45	43.6	25.5	57%	C
		Kyngs Heath Rd	US 192	950	45	74.7	8.7	19%	F
			Total	**2.07**	**45**	**510.0**	**20.7**	**46%**	**D**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

Table 10-18 Build Alternative 2 2045 PM Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length[1] (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed (mph)	Arterial Speed %	LOS
PM	**Northbound**								
		US 192	Kyngs Heath Rd	950	45	37.2	17.6	39%	E
		Kyngs Heath Rd	Osceola Pkwy On-Ramp	1637	45	32.5	34.2	76%	B
		Osceola Pkwy On-Ramp	Poinciana Blvd E-N Loop	792	45	36.9	14.2	32%	E
		Poinciana Blvd E-N Loop	Poinciana Blvd	317	45	41.7	5.5	12%	F
		Poinciana Blvd	Median Opening South	1003	45	41.9	15.9	35%	E
		Median Opening South	Polynesian Isle Blvd	950	45	26.3	24.4	54%	C
		Polynesian Isle Blvd	Median Opening North	950	45	27.5	23.6	52%	C
		Median Opening North	LBV Factory Stores	792	45	33.1	15.9	35%	E
		LBV Factory Stores	Qd. Rd. International Dr	1267	45	31.2	27.2	60%	C
		Qd. Rd. International Dr	International Drive	845	45	39.1	14.6	32%	E
		International Drive	Qd. Rd. SR 536	686	45	17.9	25.9	58%	C
		Qd. Rd. SR 536	SR 536/World Center Dr	739	45	48.4	10.4	23%	F
			Total	**2.07**	**45**	**413.7**	**18.0**	**40%**	**D**
	Southbound								
		Entry Link	SR 536/World Center Dr	4541	45	121.4	25.5	57%	C
		SR 536/World Center Dr	Qd. Rd. SR 536	739	45	23.5	21.4	48%	D
		Qd. Rd. SR 536	International Drive	686	45	44.7	10.4	23%	F
		International Drive	Qd. Rd. International Dr	845	45	20.4	27.9	62%	C
		Qd. Rd. International Dr	LBV Factory Stores	1267	45	44.6	19.0	42%	D
		LBV Factory Stores	Median Opening North	792	45	33.8	15.6	35%	E
		Median Opening North	Polynesian Isle Blvd	950	45	31.6	20.5	46%	D
		Polynesian Isle Blvd	Median Opening South	950	45	44.5	14.4	32%	E
		Median Opening South	Poinciana Blvd	1003	45	33.0	20.2	45%	D
		Poinciana Blvd	Poinciana Blvd E-N Loop	317	45	7.2	31.8	71%	B
		Poinciana Blvd E-N Loop	Osceola Pkwy On-Ramp	792	45	16.1	32.6	72%	B
		Osceola Pkwy On-Ramp	Kyngs Heath Rd	1637	45	43.0	25.8	57%	C
		Kyngs Heath Rd	US 192	950	45	74.0	8.8	20%	F
			Total	**2.07**	**45**	**537.8**	**19.5**	**43%**	**D**

[1] Length based on Arterial LOS Synchro Report length converted from miles to feet

[2] LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

10.4 Experienced Travel Time

Alternatives 1 and 2 include several innovative intersection types that displace/re-route certain intersection movements to increase overall intersection efficiency through the reduction of signal phases. Experienced Travel Time (ETT) was calculated for each displaced movement consistent with the *2021 Traffic Analysis Handbook* in order to accurately compare the displaced/re-routed movements to the No Build conventional intersection movements. ETT is the combination of control delay at intersections and Extra Distance Travel Time (EDTT) for origin-destination paths of the displaced.

Tables 10-19 and **10-20** summarize the ETT for displaced movements under each alternative for comparison. Detailed calculations of ETT are provided in **Appendix J**.

Table 10-19 Opening Year (2025) ETT Summary

Intersection	Mvmt	2025 AM Peak						2025 PM Peak					
		No Build		Alternative 1		Alternative 2		No Build		Alternative 1		Alternative 2	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 at Poinciana Boulevard	EBL	83.1	F	82.1	F	141.3	F	87.7	F	87.3	F	148.8	F
	WBL	97.2	F	97.2	F	164.1	F	96.9	F	97.0	F	199.9	F
SR 535 at Polynesian Isle Boulevard	EBL	96.0	F	186.6	F	87.1	F	97.3	F	175.7	F	85.6	F
	WBL	100.7	F	54.0	D	82.6	F	110.6	F	62.5	E	90.2	F
	NBL	85.4	F	130.7	F	115.5	F	86.6	F	129.8	F	139.3	F
	SBL	110.5	F	70.3	E	151.7	F	113.2	F	95.4	F	100.6	F
SR 535 at LBV Factory Stores	EBL	47.5	D	84.8	F	134.7	F	62.4	E	85.7	F	106.3	F
	EBT	29.5	C	49.0	D	126.5	F	22.7	C	33.4	D	96.5	F
SR 535 at International Drive	EBL	82.9	F	51.1	D	104.8	F	83.5	F	58.4	E	114.1	F
	WBL	81.5	F	70.8	E	202.4	F	90.8	F	79.7	E	215.0	F
	NBL	99.2	F	53.9	D	104.7	F	92.5	F	60.9	E	117.9	F
	SBL	79.5	E	37.8	D	113.1	F	78.1	E	58.0	E	121.4	F
SR 535 at SR 536	EBL	85.4	F	83.1	F	147.2	F	86.9	F	31.7	C	146.1	F
	WBL	79.3	E	63.1	E	187.8	F	91.0	F	44.2	D	190.6	F
	NBL	171.8	F	56.5	E	136.1	F	266.3	F	92.1	F	139.0	F
	SBL	323.6	F	54.4	D	128.6	F	246.2	F	73.7	E	149.4	F

Total ETT for displaced movement; No Build ETT is the intersection delay movement

Table 10-20 Design Year (2045) ETT Summary

Intersection	Mvmt	2045 AM Peak						2045 PM Peak					
		No Build		Alternative 1		Alternative 2		No Build		Alternative 1		Alternative 2	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 535 at Poinciana Boulevard Alt 2 - Jughandle	EBL	85.6	F	86.8	F	187.8	F	112.4	F	86.4	F	173.3	F
	WBL	101.2	F	96.6	F	181.4	F	96.4	F	96.5	F	193.9	F
SR 535 at Polynesian Isle Boulevard Alt 1 – NE Quad Rd Alt 2 – N/S PMUT	EBL	95.4	F	172.1	F	114.0	F	97.1	F	177.7	F	95.0	F
	WBL	144.0	F	65.8	E	111.8	F	109.8	F	63.7	E	157.4	F
	NBL	170.0	F	127.9	F	133.8	F	127.4	F	135.1	F	159.5	F
	SBL	469.7	F	92.1	F	127.6	F	96.3	F	89.1	F	120.9	F
SR 535 at LBV Factory Stores Alt 2 - PMUT	EBL	41.5	D	72.6	E	140.5	F	54.1	D	86.7	F	117.0	F
	EBT	20.6	C	34.7	C	127.7	F	17.3	B	31.6	C	101.4	F
SR 535 at International Drive Alt 1 – E/W PDLT Alt 2 – SW Quad Rd	EBL	110.3	F	45.6	D	121.4	F	120.4	F	59.9	E	123.6	F
	WBL	126.7	F	58.2	E	197.7	F	133.0	F	71.2	E	204.4	F
	NBL	117.6	F	161.4	F	119.8	F	136.1	F	155.9	F	120.4	F
	SBL	83.4	F	159.4	F	124.3	F	49.2	D	154.8	F	136.8	F
SR 535 at SR 536 Alt 1 – N/S PDLT Alt 2 – SW Quad Rd	EBL	58.1	E	79.9	E	167.6	F	258.5	F	47.1	D	148.0	F
	WBL	84.1	F	96.0	F	187.8	F	252.0	F	113.9	F	191.3	F
	NBL	390.8	F	50.3	D	129.2	F	257.7	F	92.8	F	143.0	F
	SBL	300.7	F	52.0	D	141.5	F	278.2	F	71.6	E	207.8	F

Total ETT for displaced movement; No Build ETT is the intersection delay movement

In general, it is observed that while the quadrant road configurations generate low overall intersection delays as presented in the previous sections, displaced movements ETT are highest compared to other alternatives. This is observed at the intersection of SR 535 and Polynesian Isle Boulevard under Alternative 1 and at the intersections of SR 535 at International Drive and SR 536 under Alternative 2. The Alternative 1 PDLT movements at the International Drive and SR 536 intersections show a significant reduction in delay for displaced movements when compared to No Build conditions.

11 Future Safety Analysis

A Crash Modification Factors (CMFs) analysis was performed for the build alternatives. This analysis method measures the effectiveness of a safety treatment by quantifying the change in average crash frequency as a result of a proposed design alternative.

Crash Modification Factors (CMFs) are applied to the historical number of crashes for an area to determine what the expected number of crashes will be after an engineering countermeasure is applied. Conversely, the crash reduction factor (CRF) is the percentage of historical crashes that would be expected to be corrected, or reduced, if an engineering countermeasure were applied to a location. CMFs and CRFs are derived from before and after studies associated with the respective roadway countermeasures.

The anticipated crash reduction from implementation of the proposed improvements is based on published CRFs from the *Federal Highway Administration's (FHWA) Crash Modification Factor (CMF) Clearinghouse* and from *FDOT's State Safety Office Crash Reduction Factors* and from *Table C-1 Alternative Intersection Crash Modification Factors* from the *FDOT Manual on Intersection Control Evaluation (ICE Manual)*. The evaluation of potential overall crash reduction for the proposed recommendations at the study intersections and segments is summarized in the following sections.

11.1 Crash Modification Factor Analysis - Build Alternatives

The evaluation of potential overall crash reductions for each Build Alternative are summarized in the following tables, detail sheets of applied CMFs are provided in **Appendix K**.

Results from the crash reduction analysis for Alternative 1 will improve safety and reduce the total number of crashes by approximately 247 crashes, or by an average 49 crashes per year. Total intersection related crashes will be reduced by approximately 106 crashes (an average of 21 per year) and total segment related crashes will be reduced by approximately 141 crashes per year (an average of 28 per year); see **Table 11-1** and **Table 11-2.**

Results from the crash reduction analysis for Alternative 2 will improve safety and reduce the total number of crashes by approximately 379 crashes, or by an average 76 crashes per year. Total intersection related crashes will be reduced by approximately 146 crashes (an average of 29 per year) and total segment related crashes will be reduced by approximately 233 crashes per year (an average of 47 per year); see **Table 11-3** and **Table 11-4**.

Table 11-1 Intersection Crash Reduction Build Alternative 1

Intersection	Proposed Improvement	Crash Type	CMF	CRF (%)	Net Targeted Crashes	Crashes Reduced
SR 535 and U.S 192	Install Left Turn Lane	All	0.80	20%	72	14.4
SR 535 and Kyngs Heath Road	Split Phase to Concurrent	-	N/A	-	-	-
SR 535 and Poinciana Boulevard	Install Left Turn Lane	All	0.80	20%	101	20.2
SR 535 and Polynesian Boulevard	Replace Direct Left-Turn with Right-Turn/U-Turn Provide a right-turn lane on one major-road approach Install Traffic Signal	All All Rear End	0.80 0.86 1.38	20% 14% -38%	95 34	29.6 -12.9
SR 535 and LBV Factory Stores Drive	Install Left Turn Lane	All	0.80	20%	57	11.4
SR 535 and International Drive	Partial Displaced Left Turn (PDLT) (E-W)	All	0.88	12%	102	12.2
SR 535 and World Center Drive	Partial Displaced Left Turn (PDLT) (N-S)	All	0.88	12%	260	31.2
					Total **Per Year (5/Total)**	**106.1** **21.2**

Table 11-2 Segment Crash Reduction Build Alternative 1

Segment	Proposed Improvement	Crash Type	CMF	CRF (%)	Net Targeted Crashes	Crashes Reduced
SR 535 From Kings Heath Rd to US 192	Install Additional Lane	All	0.76	24%	2	0.5
SR535 From Calypso Cay Way to Kings Heath Rd	Increase from 4 lanes to 6 lanes	All	0.85	15%	6	0.9
SR 535 From Poinciana Boulevard to W Osceola On-Ramps	Add Continuous Auxiliary Lane for Weaving Between Entrance Ramp and Exit Ramp	All	0.79	21%	15	3.2
SR 535 From Polynesian Boulevard to Poinciana Boulevard	Install Additional Lane	All	0.76	24%	51	12.2
SR 535 From LBV Factory Stores Drive to Polynesian Boulevard	Increase from 4 lanes to 6 lanes Install Traffic Signal	All All	0.85 0.77	15% 23%	44	15.2
SR 535 From International Drive to LBV Factory Stores Drive	Increase from 4 lanes to 6 lanes	All	0.85	15%	41	6.2
SR 536 From World Center Drive to International Drive	Install Additional Lane	All	0.76	24%	429	103.0
					Total **Per Year (Total/5)**	**141.2** **28.2**

Table 11-3 Intersection Crash Reduction Build Alternative 2

Intersection	Proposed Improvement	Crash Type	CMF	CRF (%)	Net Targeted Crashes	Crashes Reduced
SR 535 and U.S 192	Install left turn Lane	All	0.80	20%	72	14.4
SR 535 and Kyngs Heath Road	Split Phase to Concurrent	-	N/A	-	-	-
SR 535 and Poinciana Boulevard	Median U-turn Jug Handle	All Fatal/Injury	0.85 0.74	15% 26%	58 43	8.7 16.0
SR 535 and Polynesian Boulevard	Install left turn lane Provide a right-turn lane on one major-road approach Median U-turn	All	0.79 0.86 0.85	21% 14% 15%	95	40.1
SR 535 and LBV Factory Stores Drive	Install left turn lane Replace Direct Left-Turn with Right-Turn/U-Turn	All	0.80 0.80	20% 20%	57	20.5
SR 535 and International Drive	Replace Direct Left-Turn with Right-Turn/U-Turn (Quadrant Road) Install Traffic Signal	All Rear End	0.80 1.38	20% -38%	102 38	20.4 -14.4
SR 535 and World Center Drive	Replace Direct Left-Turn with Right-Turn/U-Turn (Quadrant Road) Install Traffic Signal	All Rear End	0.80 1.38	20% -38%	260 30	52.0 -11.4
					Total **Per Year (5/Total)**	**146.3** **29.3**

Table 11-4 Segment Crash Reduction Build Alternative 2

Segment	Proposed Improvement	Crash Type	CMF	CRF (%)	Net Targeted Crashes	Crashes Reduced
SR 535 From Kings Heath Rd to US 192	Install Additional Lane	All	0.76	24%	2	0.5
SR535 From Calypso Cay Way to Kings Heath Rd	Increase from 4 lanes to 6 lanes	All	0.85	15%	6	0.9
SR 535 From Poinciana Boulevard to W Osceola On-Ramps	Add Continuous Auxiliary Lane for Weaving Between Entrance Ramp and Exit Ramp	All	0.79	21%	15	3.2
SR 535 From Polynesian Boulevard to Poinciana Boulevard	Install Additional Lane Install Traffic Signal	All	0.76 0.77	24% 23%	51	21.2
SR 535 From LBV Factory Stores Drive to Polynesian Boulevard	Increase from 4 lanes to 6 lanes Install Traffic Signal	All All	0.85 0.77	15% 23%	44	15.2
SR 535 From International Drive to LBV Factory Stores Drive	Increase from 4 lanes to 6 lanes Install Traffic Signal	All All	0.85 0.77	15% 23%	41	14.2
SR 536 From World Center Drive to International Drive	Install Additional Lane Install Traffic Signal	All All	0.76 0.77	24% 23%	429	177.9
					Total **Per Year (Total/5)**	**233.1** **46.6**

Based on the crash evaluation, Build Alternative 2 improvements provide the highest potential reduced crashes with a reduction of 379 crashes or 76 crashes per year compared to Build Alternative 1 (247 total crashes; 49 crashes/year). Significant differences in crash reduction comes from the differing segments between Alternatives 1 and 2 with the provision of signalized intersections at currently unsignalized median openings and new intersections for the quadrant road concepts. Overall, the additional signalized intersections are anticipated to mitigate more crashes than contributions to rear end crash types.

12 Conclusions and Recommendations

This PTAR analyzed the existing and future conditions and assessed the need for future capacity improvements along the SR 535 study corridor. The operational analyses were conducted for the Existing, No Build, and Build alternative scenarios in order to determine the most beneficial alternative that will accommodate the purpose and need of the project. The No Build alternative, which reflects the existing roadway network serves as the baseline for comparison against the Build alternatives. The No Build Alternative assumes no proposed improvements, with the exception of SR 535 at International Drive, where the intersection was analyzed with the addition of the east leg approach connecting SR 535 to World Center Drive in the eastbound and westbound directions. In addition to widening SR 535 to a six-lane facility, **Table 12-1** summarizes the intersection improvements that are included as part of Alternatives 1 and 2.

Table 12-1 Summary of Alternatives

SR 535 Intersection	Alternative 1	Alternative 2
US 192	Convert southbound approach to one (1) exclusive right turn lane, one (1) shared through-left turn lane, and (2) exclusive left-turn lanes.	
Kyngs Heath Road	Convert east-west signal phasing from split phasing to concurrent phasing with protected/permissive left turn operations. Convert shared westbound left/through lane to exclusive westbound through	
Osceola Parkway On-Ramp	-	
Poinciana Boulevard	Convert eastbound approach to three (3) exclusive left turn lanes and one (1) shared through-right turn lane.	Convert intersection to provide eastbound left-turn movement via an east-to-north loop and provide the westbound left-turn movement via median U-turn at the existing median opening north of the intersection. Provide one (1) additional southbound left turn lane.
Polynesian Boulevard	Convert intersection to a northeast quadrant road configuration.	Convert intersection to a partial north-south median U-turn intersection. Provide an exclusive eastbound right-turn lane. Convert westbound approach to one (1) exclusive right-turn lane, one (1) shared through-right turn lane, and two (2) exclusive left-turn lanes.
LBV Factory Stores	Convert westbound approach to three (3) exclusive left-turn lanes and one (1) shared through-right turn lane. Provide one (1) additional southbound left-turn lane.	Alternative 1 westbound approach improvements and the provision of the eastbound left turn movement via southbound U-turn movement at the same signalized median opening for the Polynesian Boulevard northbound U-turn movement.
International Drive	Convert intersection to an east-west partial displaced left turn intersection configuration.	Convert intersection to a southwest quadrant road configuration.
SR 536/World Center Drive	Convert intersection to a north-south partial displaced left turn intersection configuration.	Convert intersection to a southwest quadrant road configuration.

12.1 Intersection Analysis

This section provides a brief comparison between the 2020 Existing, 2025 and 2045 No Build and Build alternatives based on the results generated from the Synchro 11 intersection analysis for the AM and PM peak hours. **Table 12-2** summarizes the overall intersection delay and LOS for all alternatives.

Table 12-2 Intersection Analysis Summary

Intersection	2020		2025						2045					
	Existing		No Build		Alternative 1		Alternative 2		No Build		Alternative 1		Alternative 2	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SR 535 & US 192	C	D	D	C	C	C	C	C	D	D	C	C	D	D
SR 535 & Kyngs Heath Rd	B	C	C	C	B	B	B	B	D	C	C	C	B	B
SR 535 & Osceola Pkwy On-Ramp	A	A	B	A	B	B	A	A	B	B	B	A	A	A
SR 535 & Poinciana Blvd	D	D	D	D	D	D	C	C	F	F	D	E	C	C
SR 535 & Poinciana Blvd E-N Loop							B	A					B	B
SR 535 & Median Opening S							A	C					C	C
SR 535 & Polynesian Isle Blvd	D	D	E	C	B	B	C	B	F	F	C	B	C	C
SR 535 & Qd. Rd. to Polynesian Isle Blvd					C	B					B	B		
SR 535 & Median Opening N							A	B					B	B
SR 535 & LBV Factory Stores	C	D	F	D	B	C	B	B	F	F	D	D	C	C
SR 535 & Qd. Rd. International Dr							A	A					B	B
International Dr & Qd. Rd. to SR 535							B	B					B	B
SR 535 & International Dr	B	D	C	D	C	C	B	B	E	E	D	D	C	C
International Dr & EBL Crossover (PDLT)					A	A					A	A		
International Dr & WBL Crossover (PDLT)					A	A					A	A		
SR 535 & SR 536/World Center Dr	D	F	F	F	C	C	C	C	F	F	C	D	C	D
SR 535 & NBL Crossover (PDLT)					A	A					B	A		
SR 535 & SBL Crossover (PDLT)					B	B					C	B		
SR 535 & Qd. Rd. to SR 536							B	B					B	B
SR 536 & Qd. Rd. to SR 535							B	C					C	C

Results from the intersection analysis clearly indicate the projected degradation of intersection operations from the 2020 Existing through 2025 and 2045 No Build conditions. The number of intersections that do not meet the LOS D Target increases from one (1) intersection under existing conditions to five (5) intersections under 2045 No Build conditions. In addition, numerous failing intersection movements are also anticipated as previously presented in **Section 10**.

As shown in **Table 12-2**, additional signalized intersections are proposed on SR 535 as part of Alternatives 1 and 2 through the inclusion of quadrant roadway and partially displaced left turn concepts. Although there is an increase in number of intersections, the number of signal phases are reduced through the relocation of movements thus providing for more efficient traffic

operations. All intersections under Alternatives 1 and 2 meet the LOS D Target except for the intersection of SR 535 at Poinciana Boulevard under Alternative 1 during the 2045 PM peak hour. Under 2045 conditions, Alternative 2 provides enhanced operations compared to Alternative 1 at the SR 535 intersections of Poinciana Boulevard and SR 536/World Center Drive improving both intersections to LOS C.

12.2 Segment Analysis

This section provides a brief comparison between the 2020 Existing, 2025 and 2045 No Build and Build alternatives based on the results generated from the Synchro 11 arterial LOS reports for the AM and PM peak hours. **Table 12-3** summarizes the arterial LOS for all alternatives.

As shown in **Table 12-3**, arterial operations are projected to degrade with the overall corridor operating at LOS F during the 2045 No Build AM and PM peak hours. The presences of additional signalized intersections along SR 535 as part of Alternatives 1 and 2 generates shorter segments with lower average speeds thus resulting in segments not meeting the LOS D Target. However, overall operations are significantly improved under Alternatives 1 and 2 in terms of reducing overall travel time along the corridor and improving average speeds.

Under Alternative 1, the overall northbound arterial operations improve to LOS D in 2025 and the 2045 northbound PM peak. The remaining 2045 arterial operations are LOS E. Although, a majority of 2045 arterials operations are LOS E, overall travel time along SR 535 is reduced by approximately 10 minutes in the northbound direction and seven (7) minutes in the southbound direction.

Under Alternative 2, northbound and southbound arterial operations, operate at LOS D with the exception of northbound during the 2045 AM peak hour which operates at LOS E. Alternative 2 provides the greatest reduction in travel time when compared to No Build with reduction of 700 seconds (over 11 minutes) in the northbound direction during the 2045 AM peak hour.

Table 12-3 Arterial Analysis Summary

From	To	2020 Existing AM	2020 Existing PM	2025 No Build AM	2025 No Build PM	2025 Alternative 1 AM	2025 Alternative 1 PM	2025 Alternative 2 AM	2025 Alternative 2 PM	2045 No Build AM	2045 No Build PM	2045 Alternative 1 AM	2045 Alternative 1 PM	2045 Alternative 2 AM	2045 Alternative 2 PM
Northbound SR 535															
US 192	Kyngs Heath Rd	D	D	C	E	D	D	D	E	F	F	E	E	E	E
Kyngs Heath Rd	Osceola Pkwy On-Ramp	B	C	C	C	B	C	B	B	D	C	B	B	B	B
Osceola Pkwy On-Ramp	Poinciana Blvd E-N Loop	E	E	F	F	E	E	E	D	F	F	F	F	E	E
Poinciana Blvd E-N Loop	Poinciana Blvd							F	F					F	F
Poinciana Blvd	Median Opening S	E	E	F	E	B	B	C	D	F	F	C	C	E	E
Median Opening S	Polynesian Isle Blvd							C	C					D	C
Polynesian Isle Blvd	Qd. Rd. to Polynesian Isle Blvd	D	D	F	E	F	F	C	D	F	F	F	F	C	C
Qd. Rd. to Polynesian Isle Blvd	Median Opening N					C	D					E	E		
Median Opening N	LBV Factory Stores							D	D					D	E
LBV Factory Stores	Qd. Rd. International Dr	C	C	B	D	D	D	C	C	C	E	E	D	C	C
Qd. Rd. International Dr	International Dr							D	D					F	E
International Dr	SR 535 NBL Crossover (PDLT) (Alt 1) Qd. Rd. to SR 535 (Alt 2)	F	F	F	F	B	B	C	C	F	F	C	B	C	C
SR 535 NBL Crossover (PDLT) (Alt 1) Qd. Rd. to SR 535 (Alt 2)	SR 536/World Center Dr					F	F	F	E			F	F	F	F
SR 536/World Center Dr	SR 535 SBL Crossover (PDLT) (Alt 1)					D	C					E	D		
Total Travel Time (sec)		374.5	366.8	576.9	492.3	395.0	367.1	335.6	338.1	1,128.5	1,038.3	472.8	433.3	428.8	413.7
Corridor Average Speed (mph)		19.7	20.1	12.8	15.0	20.2	21.8	22.2	22.0	6.5	7.1	16.9	18.4	17.4	18.0
Overall LOS		**D**	**D**	**F**	**E**	**D**	**D**	**D**	**D**	**F**	**F**	**E**	**D**	**E**	**D**
Southbound SR 535															
Entry Link	SR 535 SBL Crossover (PDLT) (Alt 1)	D	D	E	E	A	A	B	B	F	F	A	A	C	C
SR 535 SBL Crossover (PDLT) (Alt 1)	SR 536/World Center Dr					F	F					F	F		
SR 536/World Center Dr	SR 535 NBL Crossover (PDLT) (Alt 1) Qd. Rd. to SR 535 (Alt 2)	E	F	E	E	E	E	C	C	F	F	F	E	C	D
SR 535 NBL Crossover (PDLT) (Alt 1) Qd. Rd. to SR 535 (Alt 2)	International Dr					F	F	D	D			F	F	F	F
International Dr	Qd. Rd. International Dr	C	E	E	E	C	C	C	B	F	F	D	D	B	C
Qd. Rd. International Dr	LBV Factory Stores							C	D					D	D
LBV Factory Stores	Median Opening N	C	D	D	C	C	D	C	D	E	E	D	D	E	E
Median Opening N	Qd. Rd. to Polynesian Isle Blvd							D	D					D	D
Qd. Rd. to Polynesian Isle Blvd	Polynesian Isle Blvd					D	D					E	D		
Polynesian Isle Blvd	Median Opening S	D	D	D	D	D	D	C	D	F	F	E	E	E	E
Median Opening S	Poinciana Blvd							D	C					D	D
Poinciana Blvd	Poinciana Blvd E-N Loop	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Poinciana Blvd E-N Loop	Osceola Pkwy On-Ramp							B	B					B	B
Osceola Pkwy On-Ramp	Kyngs Heath Rd	C	C	E	C	B	C	C	C	C	D	C	C	C	C
Kyngs Heath Rd	US 192	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Total Travel Time (sec)		504.9	568.5	581.2	588.9	510.0	518.7	462.5	464.4	1,025.0	1,030.7	598.2	587.6	510.0	537.8
Corridor Average Speed (mph)		20.8	18.5	18.1	17.9	20.6	20.3	22.8	22.7	10.3	10.2	17.6	17.9	20.7	19.5
Overall LOS		**D**	**E**	**E**	**E**	**D**	**D**	**D**	**D**	**F**	**F**	**E**	**E**	**D**	**D**

12.3 Safety Analysis

A CMFs analysis was performed for the Build alternatives. This analysis method measures the effectiveness of a safety treatment by quantifying the change in average crash frequency as a result of a proposed design alternative. The anticipated crash reduction from implementation of the proposed improvements is based on published CRFs from the FHWA CMF Clearinghouse. Results from the crash reduction analysis are as follow:

- Alternative 1 will improve safety and reduce the total number of crashes by approximately 247 crashes, or by an average 49 crashes per year. Total intersection related crashes will be reduced by approximately 106 crashes (an average of 21 per year) and total segment related crashes will be reduced by approximately 141 crashes per year (an average of 28 per year).
- Alternative 2 will improve safety and reduce the total number of crashes by approximately 379 crashes, or by an average 76 crashes per year. Total intersection related crashes will be reduced by approximately 146 crashes (an average of 29 per year) and total segment related crashes will be reduced by approximately 233 crashes per year (an average of 47 per year)

Based on the crash evaluation, Build Alternative 2 improvements provide the highest potential reduced crashes with a reduction of 379 crashes or 76 crashes per year compared to Build Alternative 1 (247 total crashes; 49 crashes/year). Significant differences in crash reduction comes from the differing segments between Alternatives 1 and 2 with the provision of signalized intersections at currently unsignalized median openings and new intersections for the quadrant road concepts. Overall, the additional signalized intersections are anticipated to mitigate more crashes than contributions to rear end crash types.

12.4 Conclusions

Based on the results from the operational and safety analyses, Alternatives 1 and 2 are projected to improve intersection and arterial traffic operations along the SR 535 study corridor, and although Alternative 2 provides slightly enhanced operations and safety, ETT for displaced movements is higher than Alternative 1 displaced movements. The results from the PTAR are to be used as part of the PD&E Study alternatives analysis which incorporates environmental, engineering, socio-economic, and cost considerations into the selection of the recommended alternative.