NORTHEAST POLK US 27 Mobility Study

March 2022

Final NE Polk US 27 Mobility Study Alternatives and Strategies Summary Report

Florida Department of Transportation

FDOT

Final Alternatives and Strategies Summary Report

NE Polk US 27 Mobility Study
from SR 60 to the Lake County Line
Polk County, FL
Financial Management Number: 440320-1-22-01

Prepared For:
FDOT District One
801 N. Broadway Ave
Bartow, FL 33830

Prepared by:
RS&H, Inc.
1715 N Westshore Blvd
Suite 600
Tampa, FL 33607

Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1 INTRODUCTION

1.1 STUDY OVERVIEW

The NE Polk US 27 Mobility Study is intended to support the Florida Department of Transportation (FDOT) District One and its transportation partners in defining a multimodal program of improvement projects and strategies. The overall objective of the Study is to improve the mobility, safety, and livability along the US 27 corridor. This multimodal plan will address congestion and mobility issues on US 27 by applying the Context-Sensitive Solutions (CSS) approach, and documenting improvement strategies.

The purpose of the NE Polk US 27 Mobility Study is to engage local and regional project stakeholders to identify mobility needs and establish planning goals and values that lead to implementation of improvement strategies. Through a collaborative regional consensus process, a multimodal program of projects and strategies is being defined that will improve mobility, safety, and livability for all users, including an emphasis on freight. Addressing congestion and mobility issues requires context-sensitive solutions that not only look at improving mobility and safety but also balance those improvements with defined community values. The study outcome will include a set of recommended multimodal strategies and improvements.

The Mobility Study is being conducted in three general phases.

- *Phase One: Define the Problem*. The goal of this effort was to define the problem(s) through initial stakeholder outreach, data collection, and reviews of previous studies. Existing travel demand and operations characteristics were assessed, and land use and community characteristics evaluated. A roadway safety audit was conducted, and existing or short-term issues and opportunities identified. Phase One was completed as a part of the Existing Conditions Report provided in **Appendix A**.

- *Phase Two: Define Guiding Principles*. The focus of this effort was to establish a vision for the corridor. This involved developing guiding principles and forming purpose and need statements. In addition, evaluation criteria and measures of success were defined, and future travel demand and operations characteristics evaluated. The long-range needs were identified in this phase. Phase Two was completed as a part of the Future Conditions Report provided in **Appendix B**.

- In the last phase, *Phase Three: Define and Select Alternatives*, efforts are centered on defining, assessing, evaluating, documenting, and preparing alternatives for implementation. This phase identifies the viable alternatives to be carried forward and determines the appropriate method for programming and implementing projects. This report, along with the Intersection Control Evaluation (ICE) Technical Memorandum (**Appendix C**), document Phase Three.

1.2 GUIDING PRINCIPLES

The guiding principles were determined in order to guide the development of improvement alternatives. The guiding principles are a list of succinct objectives that define the stakeholders' vision for the US 27 corridor. The following references provided context to the issues surrounding this section of US 27 in northeast Polk County, and helped the study team understand regional objectives and guiding principles:

- Previous and ongoing transportation studies in the region such as the FDOT I-4 Beyond the Ultimate project, the Turnpike US 27 Toll Lane Feasibility Study, CFX Poinciana Parkway Extension Project Development and Environment (PD&E) Study, and other studies in the area;
- Transportation funding plans such as the County roadway projects plan, Polk TPO 2040 LRTP, and local comprehensive plans and capital improvement plans;
- Stakeholder interviews with county commissioners, city, county and Transportation Planning Organization (TPO) staff, economic development council staff, and freight operators;
- Project Advisory Group (PAG) member input;
- Public input from the online Metroquest survey "On Time with US 27" conducted from May 2019 to September 2019;
- Existing and future needs along the US 27 corridor; and
- Travel pattern information from traffic counts, truck counts, and origin-destination data.

To write the guiding principles for the US 27 Mobility Study, the principles needed to be consistent with the objectives and inclusive of all critical concerns from stakeholders. Guiding principles describe what experience should be delivered to the stakeholders. The principles do not describe exactly how to do something, but they emphasize what is important to the stakeholders. Taking into account all information gathered for the study, the following are the Guiding Principles.

1. *Partnership with local officials and regional transportation and development agencies is important to the planning process.*
2. *Transportation improvement projects are needed that can contribute to the economic growth and support the changing needs of NE Polk County and the surrounding region.*
3. *All transportation modes must continue to be improved within the area to provide options for all types of transportation users.*
4. *Safe, high quality, and reliable travel options should be provided for all modes.*
5. *Environmental impacts must be considered during the project development process to ensure future success of transportation projects.*
6. *Public involvement in transportation plans should be early, ongoing and meaningful to ensure future success of transportation projects.*
7. *Planning future transportation projects should include an analysis of the optimum sequencing of future transit and transportation projects in order to maximize early benefits.*

1.3 PURPOSE AND NEED

Based on the existing conditions assessment, future conditions assessment, and stakeholder input, a purpose statement and need statement was prepared. These statements describe the primary problems and needs and the purpose of future projects identified for the corridor to address the needs. The purpose and need statements were crafted considering the findings and information resulting from the following analyses and activities:

- Stakeholder expectations and vision for the corridor based on guiding principles
- Existing conditions operational deficiencies
- Existing conditions safety assessment
- Future conditions No Build operational deficiencies

<u>Purpose</u>

The purpose of future transportation projects along the US 27 corridor in the study area is to improve the safety, quality, and reliability of travel in support of the existing and future travel demand of the growing northeast Polk County area, and to address all types of transportation users and modes including passenger vehicles, bicyclists, pedestrians, and freight movements within and through the area.

<u>Need</u>

The need for transportation projects along the US 27 corridor in the study area is shown to be the following:

1) Provide needed roadway capacity along US 27 to support expected growth in population, employment, and freight traffic;
2) Provide an uninterrupted flow facility within the study area to accommodate major travel flows such as to and from the Orlando area located north-east of the study area, and to improve quality and reliability of travel for all modes along US 27.
3) Improve safety along US 27 by:
    a. Providing safer access to and from adjacent developments and communities along US 27; and
    b. Reducing delay and congestion along US 27 to meet the Level of Service target; and
4) Provide options for travel within the study area.

1.4 STUDY AREA

The NE Polk US 27 Mobility Study corridor spans a 32-mile section of US 27 from SR 60 (which is the southern limit of the study area) to US 192 at the Polk County/Lake County line (which is the northern limit of the study area). The broader study area includes the study section of US 27, as well as other key crossroads and parallel roadways that have an impact on US 27 and are impacted by conditions on US 27. The study area is shown in **Figure 1-1.**

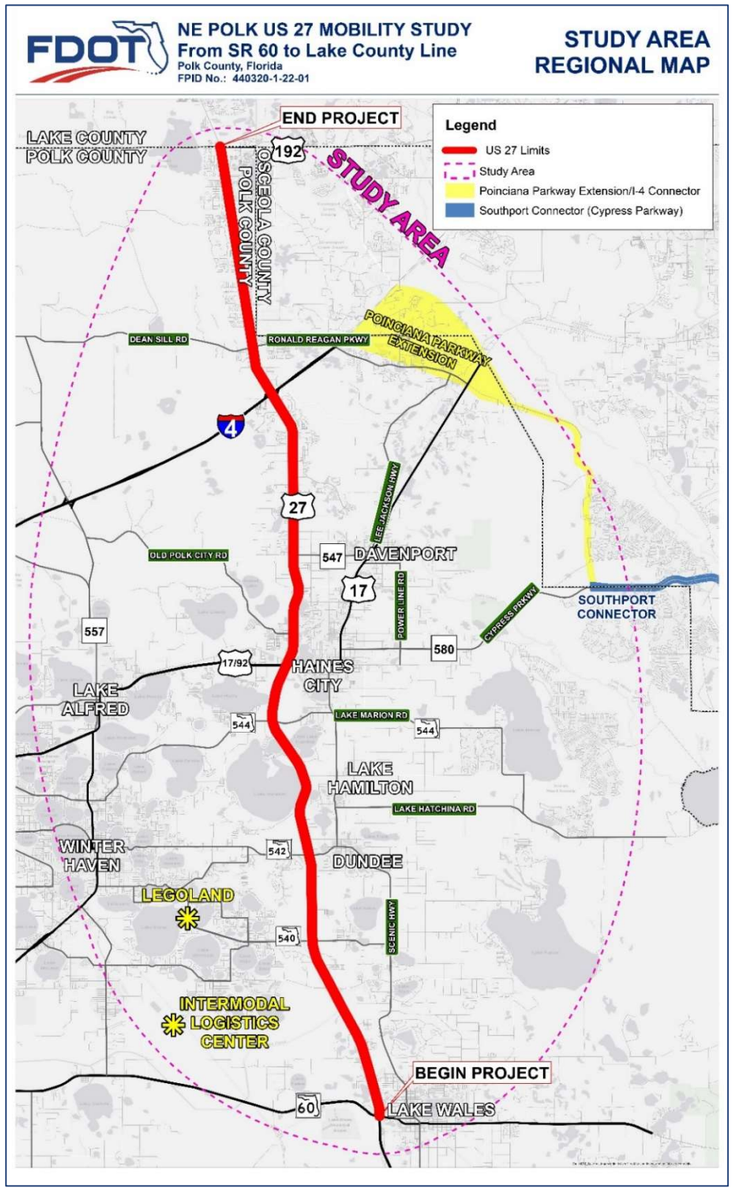


FIGURE 1-1: STUDY AREA REGIONAL MAP

1.5 PURPOSE OF THIS REPORT

The intention of this report is to provide a summary of the following analyses completed that has led to our recommendations. The Existing Conditions Analysis was completed to identify existing operational and safety deficiencies. A Future Conditions Analysis was completed to analyze how future traffic growth impacts the existing intersections and corridor. Intersection Control Evaluations (ICEs) were performed to evaluate multiple new configurations for each intersection that was failing by year 2030. Thirteen alternative roadway corridors were also modeled to evaluate their ability to handle traffic diverted off of US 27 and alleviate congestion. Public meetings have been held to gauge what is really important to the relevant communities and what should be prioritized moving forward.

2 SUMMARY OF EXISTING CONDITIONS

An Existing Conditions Analysis was conducted including a pedestrian/bicycle level of service (LOS) analysis, a roadway segment LOS analysis, intersection LOS analysis, historical crash analysis and Roadway Safety Audit (RSA). Sections 2.1 through 2.6 summarize the analysis and findings of the Existing Conditions Analysis. The complete NE Polk US 27 Mobility Study Existing Conditions Report can be found in **Appendix A.**

2.1 TRANSPORTATION DATA

US 27 is part of the Strategic Intermodal System (SIS) and is a critical north/south route for freight traffic throughout the state. The NE Polk US 27 Mobility Study corridor spans a 32-mile section of US 27 from SR 60 (which is the southern limit of the study area) to US 192 at the Polk County/Lake County line (which is the northern limit of the study area). Depicted in **Figure 1-1**, the broader study area includes the study section of US 27, as well as other key crossroads and parallel roadways that have an impact on US 27 and are impacted by conditions on US 27.

2.1.1 Land Use Data

Polk County and each of the municipalities have developed and amended future land use plans for their communities pursuant to state requirements for local governments. These future land use plans are used to guide allowable land uses and serve as a guide for future development activity for an area.

Generally, the broader study area is surrounded by agricultural and conservation lands. Low and medium density residential development is located along both sides of US 27 between SR 60 and US 192, along with some small areas for institutional, industrial, and commercial uses. Commercial land uses are primarily situated near SR 60, US 17/92, and I-4. There are multiple large water bodies also located within the study area. Additional detail is included in **Appendix A**.

2.1.2 Traffic Count Data

Historic traffic count data available from FDOT, TPO, Polk County, and others was obtained for the project. The major sources of traffic count data from recent projects were mapped to serve as a single source of information. Major recent projects with valuable count data used for this study include:

- All count data from Florida Traffic Online (FTO) sites in the study area
- US 27 Intersection Analysis Study from Washington Avenue to Home Run Boulevard/Posner Boulevard (by FDOT District 1)
- I-4 Selected Interchanges Analysis Report (by FDOT District 1)
- I-4 Beyond the Ultimate Project (Systems Access Modification Report) (by FDOT District 5)
- US 27 PD&E Study from the Highlands County line to SR 60 (by FDOT District 1)

To supplement the historical traffic count data collected, traffic counts were conducted in association with this study, including 24-, 48-, and 72-hour volume/classification counts and intersection turning movement counts. Such turning movement counts were collected during the AM peak period (6:30 a.m. – 10:30 p.m.) and PM peak period (3:00 a.m. – 7:00 p.m.) on a typical weekday in November and December 2018. This data included pedestrian and bicycle counts at each location. A map depicting all the traffic count types and locations is included in **Appendix A**.

2.1.3 Context Classification

The FDOT context classification system describes the land use, development, and transportation network functionality along a travel corridor. This provides the basis for a qualitative analysis of the general character of the area as part of the FDOT planning process. Recording the existing and future anticipated context classification of a corridor supports the appropriateness of future development of transportation to best provide safe and efficient improvements.

In August 2017, FDOT published the Context Classification Guide, which provides the standards for context classification. The characteristics of the community within the US 27 Mobility Study area are generally suburban in nature. There are also rural and urban areas present along the corridor. Only the area between the Lake Wales Ridge Wildlife Environmental Area to East Mountain Lake Cutoff Rd is expected to remain a rural area, which is due to the presence of the sensitive environmental lands.

Within the US 27 Mobility Study area, the following FDOT context classifications are identified:

- C2 – Rural
- C3C – Suburban Commercial
- C3R – Suburban Residential
- C4 – Urban General

The existing context classifications of the corridor are displayed in **Table 2-1**. The existing context classification throughout the study area is depicted and tabulated in additional detail in **Appendix A**. For additional information about US 27 context classification, see the Polk County US 27 Context Classification Analysis produced by FDOT District One in May 2019.

TABLE 2-1: US 27 EXISTING CONTEXT CLASSIFICATION

Limits	Existing Context Classification
SR 60 to Lake Wales Ridge Wildlife and Environmental Area	C3C Suburban Commercial
Lake Wales Ridge Wildlife Environmental Area to E Mountain Lake Cutoff Rd	C2 Rural
E Mountain Lake Cutoff Rd to Lake Wales Boundary	C3C Suburban Commercial
Lake Wales Boundary to Dundee Boundary	C2 Rural
Dundee Boundary to Frederick Ave	C3C Suburban Commercial
Frederick Ave to Haines City Boundary	C2 Rural
Haines City Boundary to Davenport Boundary	C3C Suburban Commercial
Davenport Boundary to Florida Pines Blvd	C2 Rural
Florida Pines Blvd to US 192	C3R Suburban Residential

2.1.4 Physical Characteristics

2.1.4.1 Right-of-Way

Right-of-way information was collected using the results of the *US 27 Multimodal Corridor Existing Conditions Data Study* produced by FDOT and dated February 2019. This data provides information on the available existing right-of-way along the US 27 corridor. Due to the length of the corridor, the project is separated into ten segments, as listed in **Table 2-2**.

TABLE 2-2: EXISTING US 27 RIGHT-OF-WAY WIDTHS

Segment No.	Limits of Segment	Existing ROW Width Range
1	SR 60 to CR 540A	193′ – 236′
2	CR 540A to SR 540	200′ – 213′
3	SR 540 to SR 542	200′
4	SR 542 to SR 544	197′ – 229′
5	SR 544 to US 17/92	200′ – 245′
6	US 17/92 to CR 17 (Old Polk City Road)	199′ – 205′
7	CR 17 (Old Polk City Road) to CR 547	200′ – 250′
8	CR 547 to I-4	200′ – 232′
9	I-4 to CR 54 (Ronald Reagan Pkwy)	215′ – 278′
10	CR 54 (Ronald Reagan Pkwy) to US 192	200′ – 262′

Source: FDOT US 27 Multimodal Corridor Existing Conditions Data Study, 2019

2.1.4.2 Bridge Structures

Existing bridge structures information was also obtained from the *US 27 Multimodal Corridor Existing Conditions Data Study*. This data provides information regarding the existing structures along the US 27 corridor that can be used during development of alternatives to identify potential impacts to the structures. The details of the existing structures along the corridor are summarized in **Appendix A.**

2.1.4.3 Primary Utilities

Utility information for US 27 was also obtained from the *US 27 Multimodal Corridor Existing Conditions Data Study*. This information will be used later during development of alternatives to identify potential conflicts with significant utilities. The details of the primary utilities along the corridor are summarized in **Appendix A.**

2.1.4.4 Drainage Structures

The *US 27 Multimodal Corridor Existing Conditions Data Study* also provided existing drainage structure information. Data for the existing major drainage structures (greater than 60 inches) along the US 27 corridor was provided. Eleven concrete box structures were noted in the report. This information will be used later during development of alternatives to identify potential impacts to drainage structures. Additional information from that report regarding these drainage structures is provided in **Appendix A.**

2.1.4.5 Driveways

Under the Florida Department of Transportation (FDOT) Access Management system, US 27 is currently classified as having either a Class 2 or a Class 3 Access Management Classification along most of the project corridor. The exact segments and their respective classifications are shown below in **Table 2-3**. Many segments have multiple driveways which do not meet the current spacing standards. Safe access to and from US 27 now and in the future is a concern along the corridor.

TABLE 2-3: US 27 FDOT ACCESS MANAGEMENT CLASSIFICATION

US 27 Roadway Segments	FDOT Access Management Classification
US 192 to Poitras Rd 2	Class 2
Poitras Rd 2 to Access Rd	Class 3
Access Rd to south of Home Run Blvd	Class 2
South of Home Run Blvd to Blue Heron Blvd	Class 3
Blue Heron Blvd to W Johnson Ave	Class 5
W Johnson Ave to Frederick Ave	Class 3
Frederick Ave to Lincoln Ave	Class 2
Lincoln Ave to SR 60	Class 3

2.1.4.6 Speed Limits

Posted speed limits within the project limits range between 45 miles per hour (mph) and 60 mph. A map is provided in **Appendix A** which includes begin and end mile points for posted speed limits.

2.1.4.7 Bicycle Facilities

Bicycle facilities are considered present on this corridor if there is a paved shoulder 5-foot wide or wider. These facilities are generally not designated as bicycle lanes with pavement markings and therefore not bicycle-exclusive. There are keyhole lanes near intersections with turn lane configurations throughout approximately half of the study area. However, these keyhole lanes do not match the latest FDOT Design Manual (published January 1, 2018), which includes bicycle pavement markings. The various bicycle facility features present along the study corridor are illustrated in **Appendix A**.

(*Note: Current FDOT design standard for new construction projects is a 7-foot wide buffered bicycle lane with double 6-inch white lines.)*

2.1.4.8 Pedestrian Facilities

The primary pedestrian facilities located in the corridor study area are sidewalks. However, sidewalks are largely absent or sporadically located from SR 60 until approximately Mile Post 23, near Ernie Caldwell Boulevard. Per FDOT standards, sidewalks are to be provided on both high speed curbed and flush shoulder roadways within C2T, C3R, C4, C5 or C6 context classifications and within C1, C2 or C3C where demand is demonstrated. The existing and future context classifications within this corridor are C3R, C4, C2 and C3C, which coincides with the classifications where sidewalks are to be provided.

Sidewalk facilities are present in the following locations:

- Central Avenue to Harding Avenue (both sides)
- South of Lincoln Avenue to Winter Haven/Lake Hamilton boundary (both sides)
- 1,000 feet south of Crump Road to 800 feet north of Crump Road (both sides)
- W Johnson Avenue to Intermart Shopping Center Entrance (both sides)/Blue Heron Boulevard (right side)
- Toyota Entrance (left side)/Bates Road (right side) to Lowes Entrance

In order of decreasing priority, the location of sidewalks is to be as near to the right of way line as possible, outside of the clear zone, five feet beyond the limits of the full width shoulder or at the limits of the full width shoulder.

There are generally sidewalk facilities located on both sides of the corridor from Ernie Caldwell Boulevard to the northern terminus of the study area. Curb cuts are provided where sidewalks meet the roadway. Pedestrian crossings designated by pavement markings are generally located on all legs of signalized intersections. There are a few exceptions listed and described below:

- Eagle Ridge Mall Entrance – No pedestrian markings across the south and west legs of intersection (appropriate since there is no west leg of the intersection)
- Ridgewood Lakes Road – No pedestrian markings
- Cottonwood Road – No pedestrian markings
- Home Run Boulevard/Posner Boulevard– No pedestrian marking across north leg of intersection
- Frontage Road – No pedestrian marking across south and east legs of intersection
- Hampton Inn Entrance – No pedestrian marking across west and north legs of intersection
- Poitras Road 2 – No pedestrian marking across north and south legs of intersection

An illustration of existing pedestrian sidewalk facilities throughout the corridor is included in **Appendix A**.

2.1.5 Existing Traffic Volumes

Existing year Annual Average Daily Traffic (AADT) volumes were developed by adjusting the bi-directional counts by appropriate factors based on the type of count and when it was conducted. All volume and classification counts, conducted as part of this study or otherwise, were seasonally adjusted using a seasonal factor appropriate to the week the count was conducted. Additionally, all volume counts were adjusted using an axle adjustment factor appropriate to the week the count was conducted.

AADT counts collected prior to 2018 were increased by an assumed 2% annual growth rate to simulate 2018 conditions. All counts were rounded in accordance with rounding standards from the 2014 FDOT Project Traffic Forecasting Handbook. Turning movement counts conducted earlier than 2018 were also adjusted using an assumed 2% annual growth rate to simulate 2018 conditions.

Traffic factors that will be carried into future year analysis include K factors, Directional Distribution (D) factors, Truck (T) factors and Peak Hour Factors (PHFs). The K factor is the ratio of traffic volume in the study hour to the Annual Average Daily Traffic (AADT). A 9.0% standard K factor was used for all US 27 segments between SR 60 and US 192, as well as for the other arterial study roadways associated with the project's study intersections. This is consistent with the standard K factors published by FDOT. The K factors for all nonarterial cross streets were calculated by dividing the highest peak hour bi-directional volume, derived from the turning movement counts, by the calculated 2018 AADT. The D factors for US 27 were obtained from FTO count sites within the project study limits, while the D factors for all cross streets were determined from the existing traffic count data collected. Directional distribution factors that fell outside the acceptable ranges presented in the 2014 FDOT Project Traffic Forecasting Handbook were adjusted accordingly.

Similarly, T factors for US 27 were obtained from FTO count sites within the project study limits, and factors utilized for all cross streets were determined from the existing count data collected.

Traffic factors used in volume development can all be found in **Appendix A**.

2.2 BICYCLE AND PEDESTRIAN FACILITY LOS

To evaluate the quality and Level of Service (LOS) of the bicycle facilities along US 27, the FDOT Quality/Level of Service (Q/LOS) analysis methodology was used. The level of service is generally indicated with a letter grade A through F, with "A" being a facility that is perceived by the user to be optimal, while "F" would be perceived to be the poorest conditions. The average annual daily traffic (AADT) relative to the number of roadway lanes present, along with the coverage of bicycle lanes and/or paved shoulders, are the factors used to determine the bicycle mode LOS.

For each roadway segment, the northbound (NB) and southbound (SB) facilities were considered together. A lack of a bicycle facility on one or both sides of a segment was considered to be a wholly deficient segment. As a major arterial roadway, standard facilities should be available for all users.

To determine LOS the AADTs on each segment were compared to the Generalized Service Volume Table (GSVT) two-way maximum service volumes as presented in the FDOT Quality/Level of Service Handbook, based on percent coverage of bicycle facilities. The FDOT two-way maximum service volumes for 0-49% coverage were applied where a designated bicycle lane or paved 5 foot wide (or greater) shoulder does not exist on both sides of the road. If a designated bicycle lane or a paved 5-foot wide (or greater) shoulder exists on both sides of US 27, then coverage was considered to be 100% and the FDOT two-way maximum service volumes for 85-100% coverage were applied.

Table 2-4 summarizes the distance along US 27 that is considered to have Q/LOS of C, D, E or F.

TABLE 2-4: NUMBER OF MILES PER BICYCLE Q/LOS LEVEL

Bicycle Q/LOS	Miles of US 27 Corridor
C	23.71 miles
D	4.64 miles
E	3.0 miles
F	0.69 miles

Approximately 88.5% of the US 27 corridor has an acceptable bicycle Q/LOS of D or better; 11.5% of the corridor, or approximately 3.7 miles of US 27, has an undesirable LOS E or F. As daily vehicular traffic on US 27 increases with area and regional population and employment growth, the Q/LOS of existing facilities is expected to degrade.

The segments listed in **Table 2-5** are considered to have deficient bicycle facilities.

TABLE 2-5: DEFICIENT BICYCLE FACILITIES

From	To	Side of Deficiency[1]
Southern Study Limit	NB US 27 On Ramp	NB Only
NB US 27 On Ramp	Central Ave	SB Only
Eagle Ridge Dr	Waverly Rd	Both
Roberts Rd	South of US-17/92	Both *(except south of B Moore Rd to north of SR 544 on Left)*
Davenport Blvd	Walmart Distribution Center Access Rd NW	Various Sides[2]

Notes: (1) SB = Southbound; NB = Northbound (2) See Figure 6-12 Sheets 7,8, & 9 of Appendix A

To evaluate the quality of the pedestrian facilities along US 27, the FDOT Q/LOS analysis methodology was used. For pedestrian Q/LOS, each roadway segment was evaluated to note whether sidewalk was present. A lack of facilities on one or both sides of a segment was considered to be a wholly deficient segment. As a major arterial roadway, standard facilities should be available for all users.

The FDOT Q/LOS Handbook Table 1 for Urbanized Areas was referenced for Pedestrian Mode to determine the Q/LOS. The FDOT two-way maximum service volumes for 0-49% coverage were applied where a sidewalk does not exist on both sides of the road. Where sidewalk exists on both sides of US 27, then coverage was considered to be 100% and the FDOT two-way maximum service volumes for 85-100% coverage were applied. The AADTs along US 27 were compared to the Generalized Service Volume Table (GSVT) two-way maximum service volume thresholds as presented in the FDOT Quality/Level of Service Handbook.

Table 2-6 summarizes the distance along US 27 that exhibits each Pedestrian facility Q/LOS.

TABLE 2-6: NUMBER OF MILES PER PEDESTRIAN Q/LOS LEVEL

Pedestrian Q/LOS	Miles of US 27 Corridor
C	1.0 miles
D	10.01 miles
E	0.43 miles
F	20.52 miles

Pedestrian facility Q/LOS is considered acceptable at Q/LOS D or better. Approximately 35% of the corridor has an acceptable pedestrian LOS, while the other 65% of the corridor is below standard at LOS E or F. **Table 2-7** lists the sections of the US 27 corridor with deficient pedestrian facilities. As daily vehicular traffic on US 27 increases with area and regional population and employment growth, the Q/LOS of existing facilities is expected to degrade, and additional segments will fall below acceptable Q/LOS standard D.

TABLE 2-7: DEFICIENT PEDESTRIAN FACILITIES

From	To
Southern Study Limit	Central Ave
Harding Ave	South of Lincoln Ave
Kitto Ln	South of Crump Rd
Lake St	Johnson Ave
North of Glen Este Blvd	Bates Rd
North of Bates Rd	I-4
WB I-4 Off-Ramp	Access Rd NW
North of Polo Park Blvd	US-192

2.3 TRANSIT FACILITIES

Lakeland Area Mass Transit District (LAMTD) administers and operates Citrus Connection, which includes all public transportation within Polk County. Citrus Connection provides 24 fixed-route service lines, with a fleet of 41 buses. An additional three routes within the county are paid for by Polk County and operated via a contract with LYNX.

Citrus Connection also operates paratransit service, offering shared rides for those who are unable to use regular fixed-route buses. It is a call ahead, door-to-door service available to senior citizens, disadvantaged citizens, and citizens with disabilities. It uses a specialized fleet of small, wheelchair lift-equipped buses. There are no restrictions on the purpose or number of service trips that may be taken, except that the ride is shared with others traveling at the same time in the same direction. It operates six days a week and reservations are taken from 8:00 am to 5:00 pm weekdays and 8:00 am to 4:00 pm on Saturday. There is no service on Sunday or most major holidays.

There are 12 routes serving the east portion of Polk County (**Figure 2-1**), an area generally corresponding with the NE Polk US 27 project area study limits. Additionally, two new routes were scheduled to begin service on October 1, 2019. A depiction of the transit routes and additional detail regarding terminals, stops, transfer locations, service, headways, and ridership are included in **Appendix A**.

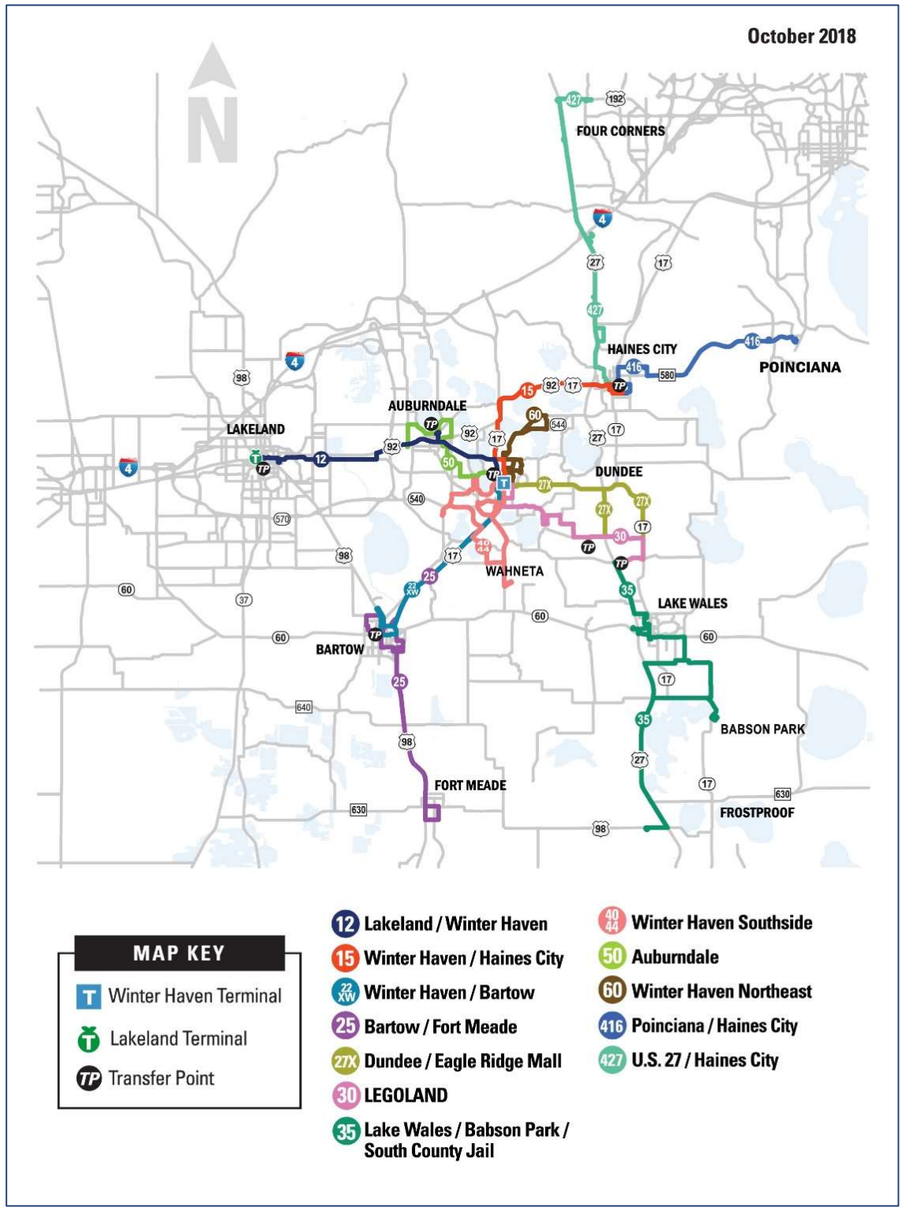


FIGURE 2-1: TRANSIT ROUTES

2.4 EXISTING YEAR (2018) CORRIDOR OPERATIONS

The US 27 roadway segment LOS analysis and study intersection AM and PM peak hour LOS analysis, was conducted using recent available traffic count data from FDOT and supplemented with 2018 traffic counts collected along the US 27 corridor for the study. The results of the US 27 segment LOS analysis and intersection LOS analysis are presented in Sections 2.4.1and 2.4.2., respectively.

2.4.1 Existing Year (2018) Roadway Segment LOS

In order to evaluate roadway segment Levels of Service, US 27 was divided into 13 segments within the study limits. The segmentation was based on a segment-to-segment AADT variance of 10% or more. For each segment, the highest AADT value was used in conjunction with the FDOT Generalized Level of Service tables and roadway characteristics in order to ascertain the segment LOS. **Figure 2-2** depicts the segment Levels of Service as well as AADT values for each segment.

Based on the 2018 AADTs collected for the study corridor and shown in **Figure 2-2**, the segments of US 27 that are shown to be operating below the FDOT LOS target (LOS D for an urbanized area) are as follows:

- US 27 from Ridge Center Drive to Heller Bros Boulevard/Deer Creek Boulevard (LOS F)
- US 27 from Heller Bros Boulevard/Deer Creek Boulevard to I-4 (LOS F)

Legend

Segment LOS — Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D — X,XXX Existing AADT (2018)

LOS F

THE VANGUARD SCHOOL

TOWER POINT APARTMENTS

WEIKERT FORD

TOWER LAKES

TOWERWOOD

FLORIDA'S NATURAL GROWERS

FLORIDA'S NATURAL GROWERS

Washington Ave

W Central Ave

E Mountain Lake Cutoff Rd

BEGIN PROJECT

230
1,300
470
340
33,000
37,000
7,100
2,200
33,000
33,000
4,900
3,400
7,300
22,500
3,700
2,100
5,000
1,400
32,000
5,700
5,700
8,500
3,500
25,500

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

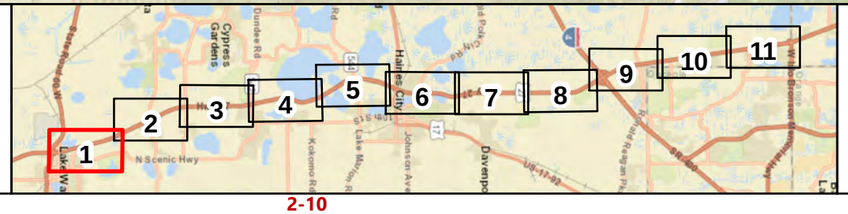


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 1 of 11

Legend

Segment LOS — Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D — X,XXX Existing AADT (2018)

LOS F

Thompson Nursery Rd

Chalet Suzanne Rd

CARLTON ARMS APARTMENTS

SUNSHINE FLEA MARKET

HOME DEPOT

PEDALERS POND

SHOPPES ON THE RIDGE

EAGLE RIDGE MALL

LOWE'S

24,500

34,500

40,000

5,200

2,200

3,100

9,700

38,500

12,000

36,000

36,000

38,500

3,200

9,900

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

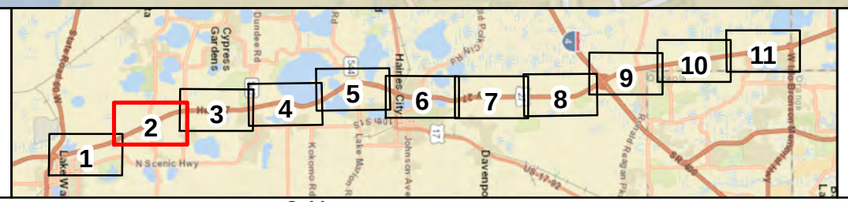


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 2 of 11

Legend

Segment LOS

Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D — X,XXX Existing AADT (2018)

LOS F

20,000

21,000

CYPRESSWOOD GOLF & COUNTRY CLUB

20,000

FROZEN FOOD EXPRESS

33,500

37,500

36,000

24,500

40,000

34,500

5,200

760

GARDEN GATE

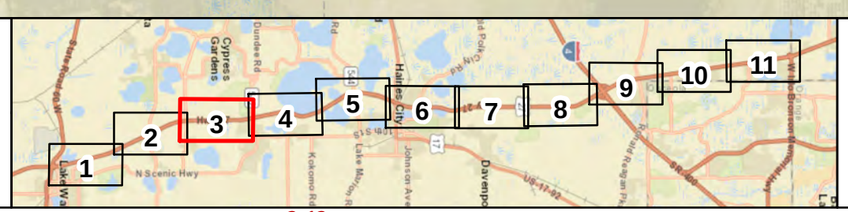
14,000

DUNDEE RIDGE PLAZA

PEACE CREEK RV PARK

Lincoln Ave

0 500 1,000 2,000 Feet



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 3 of 11

Legend

Segment LOS

Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D

LOS F

X,XXX Existing AADT (2018)

20,000

21,000

20,000

33,500

37,500

14,000

80

2,300

2,300

1,600

5,500

5,200

ROYAL OAKS MHP

DUNDEE RIDGE PLAZA

27

542

Crump Rd

Frederick Ave

Main St

Kokomo Rd

Lake Hamilton

Lake Dell

Crystal Lake

Lake Sara

Lake Ida

Lake Lee

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

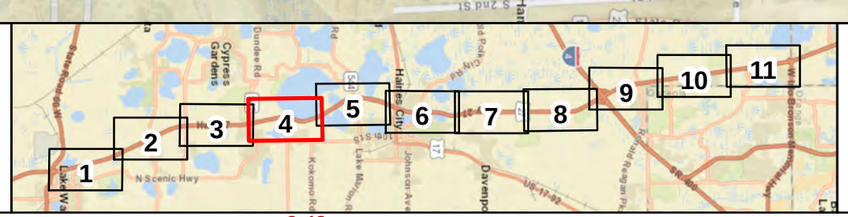


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 4 of 11

Legend

Segment LOS — Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D — X,XXX — Existing AADT (2018)

LOS F

21,000

19,500

40,000

48,000

9,900

48,000

1,300

740

37,500

11,500

HIDDEN COVE

LAKE REGION VILLAGE MHP

PARADISE ISLAND

Sunshine Dr

27

544

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

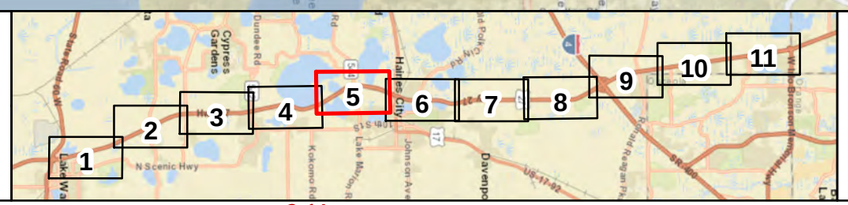


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 5 of 11

Legend

Segment LOS

Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D

LOS F

X,XXX Existing AADT (2018)

26,000
4,200
2,500
2,300
3,200
48,000
2,700
2,100
51,000
4,100
3,600
1,300
3,000
4,500
11,500
5,700
52,500
1,200
55,000
6,700
7,200
710
51,500
56,500
13,000
2,200
12,500

Commerce Ave

Old Polk City Rd

W Main St

Bates Rd

Patterson Rd

LAKE HAMILTON VILLAGE

TOYOTA

HAINES CITY RV PARK

WALMART

WEST VIEW RIDGE

27

17 92

0 500 1,000 2,000 Feet

N

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

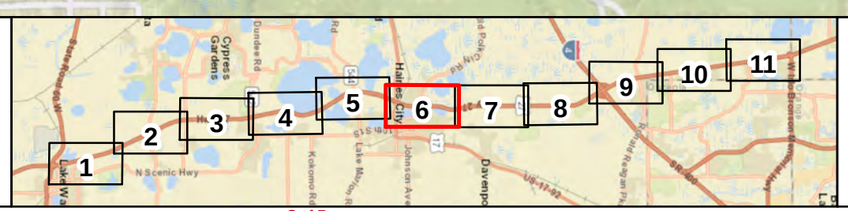


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 6 of 11

Legend

Segment LOS

Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D

LOS F

X,XXX Existing AADT (2018)

RWS Ranch Rd

Sanders Rd

Holly Hill Cutoff Rd

Massee Rd

Holly Hill Tank Rd

Florida Development Rd

Patterson Rd

South Blvd

Davenport Blvd

North Blvd

Holly Hill Rd

OLDCASTLE LAWN & GARDEN

HEATHER HILL

ESTATES OF LAKE ST. CHARLES

VILLAGE OF LA CASA DEL SOL

HEART OF FLORIDA REGIONAL MEDICAL CENTER

HIGHLAND SQUARE

BELLA NOVA

WINFIELD HEIGHTS

27

2,200

900

3,700

2,300

54,500

57,500

10,500

11,000

1,800

1,700

720

3,600

54,500

57,000

6,000

3,000

180

60,000

1,300

0 500 1,000 2,000 Feet

N

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

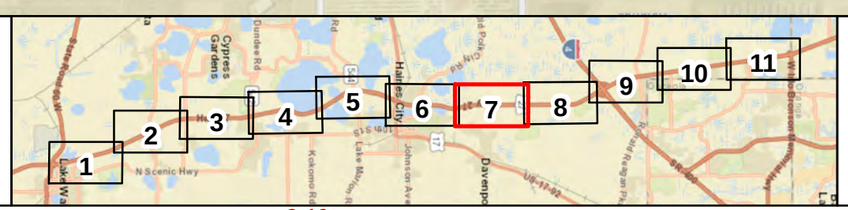


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 7 of 11

Legend

Segment LOS

Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D — X,XXX Existing AADT (2018)

LOS F

Holly Hill Tank Rd

Holly Hill Grove Two Rd

Minute Maid Ramp Rd Two

Heller Bros Blvd

Home Run Blvd

Deer Creek Blvd

Cottonwood Dr

Citrus Ridge Dr

Ridgewood Lakes Blvd

Florida Development Rd

FORT SUMMIT KOA CAMPGROUND

TIVOLI MANOR

WESTBURY

REGENCY PLACE

SILVER PALMS

POSNER PARK

DEER CREEK RV RESORT

ROYAL PALMS

ROYAL RIDGE

180

60,000

1,300

640

2,300

4,600

2,900

61,500

57,000

3,900

1,900

64,500

55,500

3,900

4,800

20,000

3,700

57,500

71,500

12,500

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

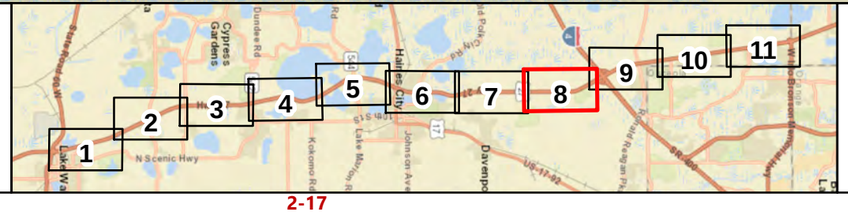
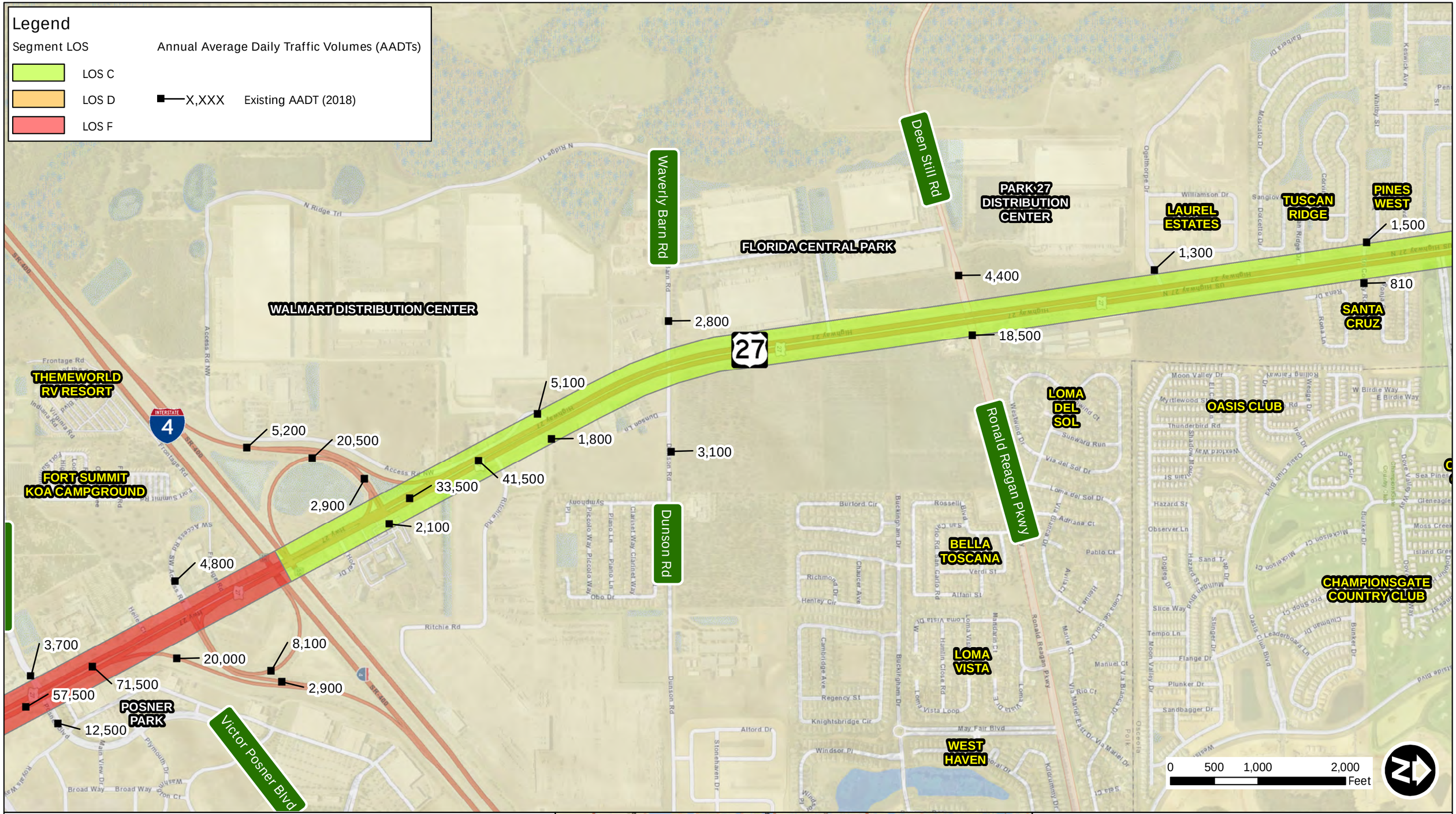


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 8 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

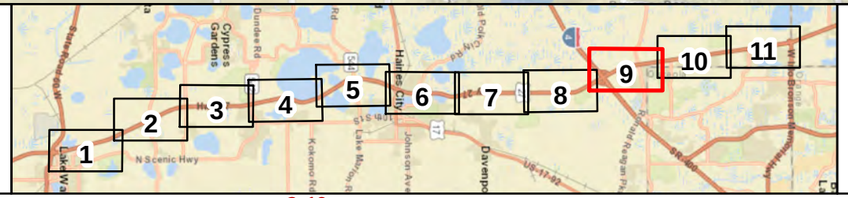


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 9 of 11

Legend

Segment LOS — Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D — X,XXX Existing AADT (2018)

LOS F

Central Grove Rd

California Blvd

Highlands Reserve Blvd

Sand Mine Rd

Bella Citta Blvd

Terra del Sol Blvd

McFee Dr

Student Dr

CALABAY PARC

FLORIDA PINES

FOUR CORNERS

PINES WEST

SANTA CRUZ

TERRA DEL SOL

SOLANA

WESTRIDGE

FLORIDA CAMP INN

HIGHLANDS RESERVE

PALM KEY

HAMILTON LAKES

THE RIDGE

CITRUS RIDGE ACADEMY

CHAMPIONSGATE COUNTRY CLUB

27

11,500

2,200

2,100

3,400

3,300

2,300

2,100

590

3,200

7,800

1,500

810

0 500 1,000 2,000 Feet

N

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

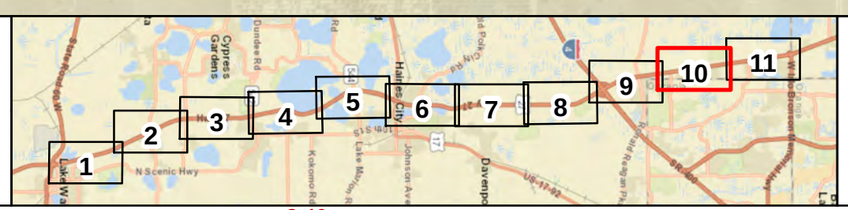


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 10 of 11

Legend

Segment LOS — Annual Average Daily Traffic Volumes (AADTs)

LOS C

LOS D — X,XXX Existing AADT (2018)

LOS F

THE RETREAT
HIGHGATE PARK
THE ESTATES
THE GROVES
THE CENTRE
WINDMILL VILLAGE
POLO PARK
HIGH GROVE
WELLINGTON
THE TOWNS
THE COMMONS
BERRY TOWN CENTER
TUSCAN HILLS
THE PALMS
NORTHEAST REGIONAL PARK
BASS LAKE
DAVENPORT LAKES
LAKE MAGIC RV RESORT
CITRUS RIDGE ACADEMY

Sand Mine Rd
Legacy Park Blvd
Florence Villa Grove Rd
Polo Park Blvd

27
192

16,000
8,600
41,500
2,900
8,700
5,300
7,100
11,500
10,000
3,400
49,000

END PROJECT

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

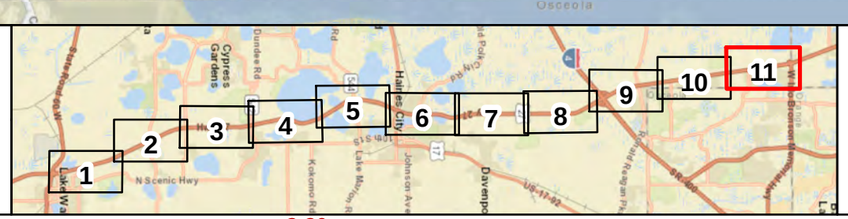


FIGURE 2-2
EXISTING (2018) AADT &
SEGMENT LEVEL OF SERVICE
Sheet 11 of 11

2.4.2 Existing Year (2018) Intersection LOS

Trafficware's Synchro 10 was used to analyze each of the study intersections and HCM 6th Edition Methodology was used to report the performance measures where possible. For signalized intersections, HCM 6th Edition requires strict adherence to standard dual ring NEMA phasing and operating speeds between 25 miles per hour (mph) and 55 mph. Many cross streets along the corridor are low speed facilities serving as access to residential communities. Additionally, many segments along US 27 have speed limits of 60 mph. To produce HCM 6th Edition reports, speed limits outside the HCM 6th Edition speed limit range were adjusted by a maximum of 5 mph so that HCM 6th Edition LOS results could be reported.

HCM 2000 results were reported where Synchro 10 could not provide HCM 6th Edition results. Synchro 10 Queue Reports were used for those signalized intersections where HCM 6th Edition Methodology could not be applied. Intersection performance was reported using HCM 6th Edition methodology for all intersections except the following three signalized intersections where LOS was reported using HCM 2000:

- US 27 at Eastbound I-4 Ramps
- US 27 at Sand Mine Road
- US 27 at SR 60

For unsignalized intersections, HCM 6th Edition reports provided all relevant performance measures. **Table 2-8** presents the intersection LOS results as well as documents which Synchro reports were used to report the performance measurements. **Figure 2-3** depicts the existing intersection LOS as well as existing intersection turning movement volumes.

Currently, 21 of the 47 study intersections are operating at LOS E or F, which is below the FDOT LOS target D, in either the AM or PM peak hours. To reduce delay at the intersections with an overall LOS E or F, minor operational (short-term) improvements have been evaluated and are summarized in Section 2.6.
Synchro reports and signal timing plans can all be found in **Appendix A**.

TABLE 2-8: EXISTING CONDITIONS INTERSECTION ANALYSIS RESULTS

Intersection	Intersection Type	Reports Used	AM						PM					
			Intersection Delay (s)[1]	Intersection LOS[1]	Critical Mvmt	Critical Mvmt Delay (s)	Critical Mvment LOS	Critical Mvmt 95th % Queue Length (ft)[2, 3]	Intersection Delay (s)[1]	Intersection LOS[1]	Critical Mvmt	Critical Mvmt Delay (s)	Critical Mvmt LOS	Critical Mvmt 95th % Queue Length (ft)[2, 3]
SR 60 (SBL US 27 onto SR 60)	Signalized	HCM 2000	9.1	**A**	SBL	19.8	B	161	8.9	**A**	SBL	19.2	B	204
W Central Ave	Signalized	HCM 6th	23.3	**C**	NBL	44.7	D	37.5	26.3	**C**	NBL	51.4	D	37.5
Washington Ave	Signalized	HCM 6th	13.4	**B**	WBR	29.1	C	60	15.0	**B**	EBL	33.5	C	17.5
Mt Lake Cut Off Rd N	Signalized	HCM 2000	23.0	**C**	NBL	63.9	E	22	25.8	**C**	SBL	57.9	E	#435
Tower Point Ent / Vanguard School Ent	Unsignalized	HCM 6th	98.4 (WB)	**F (WB)**	WBL	149.2	F	80	57.4 (WB)	**F (WB)**	WBL	103.6	F	35
Eagle Ridge Mall Ent S	Signalized	HCM 2000	9.5	**A**	SBL	68.0	E	m40	12.8	**B**	NBU	70.4	E	53
Thompson Nursey Rd	Signalized	HCM 2000	31.1	**C**	NBL	60.7	E	#188	37.0	**D**	WBT	77.0	E	242
Market Blvd / Star Lake Dr	Signalized	HCM 2000	13.4	**B**	NBL	68.8	E	m126	15.2	**B**	NBL	92.5	F	m103
SR 540	Signalized	HCM 2000	40.8	**D**	WBL	65.2	E	58	55.1	**E**	EBR	90.6	F	#648
Lincoln Ave	Unsignalized	HCM 6th	32.3 (WB)	**D (WB)**	WBL	32.3	D	22.5	52.0 (WB)	**F (WB)**	WBL	52.0	F	45
SR 542 / Dundee Rd	Signalized	HCM 6th	45.4	**D**	WBL	68.8	E	250	49.5	**D**	WBL	82.9	F	357.5
Frederick Ave	Unsignalized	HCM 6th	87.1 (WB)	**F (WB)**	WBL	87.1	F	170	69.5 (WB)	**F (WB)**	WBL	69.5	F	90
Crump Rd / W Main St	Signalized	HCM 2000	20.3	**C**	NBL	48.7	D	44	21.0	**C**	NBL	55.6	E	38
Kokomo Rd	Unsignalized	HCM 6th	320.8 (WB)	**F (WB)**	WBL	320.8	F	500	617.6 (WB)	**F (WB)**	WBL	617.6	F	400
Paradise Island Pl / Sunshine Dr	Unsignalized	HCM 6th	45.3 (WB)	**E (WB)**	WBL	78.4	F	20	91.3 (EB)	**F (EB)**	EBL	143.9	F	52.5
SR 544	Signalized	HCM 2000	43.3	**D**	NBL	67.4	E	306	37.9	**D**	SBL	60.6	E	192
W Johnson Ave	Unsignalized	HCM 6th	58.6 (WB)	**F (WB)**	WBL	58.6	F	32.5	101.6 (WB)	**F (WB)**	WBL	101.6	F	57.5
Commerce Ave / Pilot Ent	Signalized	HCM 2000	35.5	**D**	WBL	303.3	F	#147	58.0	**E**	WBL	485.6	F	#227
CR 17 / Old Polk City Rd	Signalized	HCM 6th	19.4	**B**	EBR	149.6	F	307.5	32.7	**C**	EBR	170.9	F	460
Glen Este Blvd / Southern Dunes	Signalized	HCM 2000	17.1	**B**	EBL	73.7	E	100	25.4	**C**	EBL	73.2	E	185
Bates Rd	Signalized	HCM 2000	25.3	**C**	NBL	108.8	F	m23	31.9	**C**	NBL	126.2	F	m16
Section 7 Airport Rd / Parson Rd / Patterson Rd	Unsignalized	HCM 6th	534.0 (WB)	**F (WB)**	WBL	534.0	F	367.5	N/A[4]	**N/A[4]**	SBL	256.4	F	222.5
South Blvd	Unsignalized	HCM 6th	612.6 (WB)	**F (WB)**	WBL	612.6	F	290	2276.5 (EB)	**F (EB)**	EBL	2276.5	F	202.5
Sanders Rd / CR 547 / Davenport Blvd	Signalized	HCM 6th	36.4	**D**	EBL	172.7	F	162.5	28.3	**C**	NBL	72.0	E	42.5
Holly Hill Cutoff Rd / North Blvd W	Unsignalized	HCM 6th	1282.4 (WB)	**F (WB)**	WBL	1282.4	F	345	1148.9 (WB)	**F (WB)**	WBL	1148.9	F	345
La Casa Del Sol Blvd	Unsignalized	HCM 6th	28.7 (EB)	**D (EB)**	EBL	41.1	E	5	132.4 (EB)	**F (EB)**	EBL	201.4	F	20

[1] Overall Intersection Delay and LOS for Signalized Intersections, Worst Approach Delay and LOS for Unsignalized Intersections

[2] For intersections where HCM 2000 Reports were used for delay and LOS, Synchro 10 Reports were used for 95th Percentile Queue Lengths

[3] Synchro 10 Reports 95th Percentile Queue Annotations:
m = Volume for 95th percentile queue is metered by upstream signal
# = 95th percentile volume exceeds capacity, queue may be longer

[4] Exceeds capacity, worst approach delay and LOS not reported in HCM 6th Edition TWSC Report

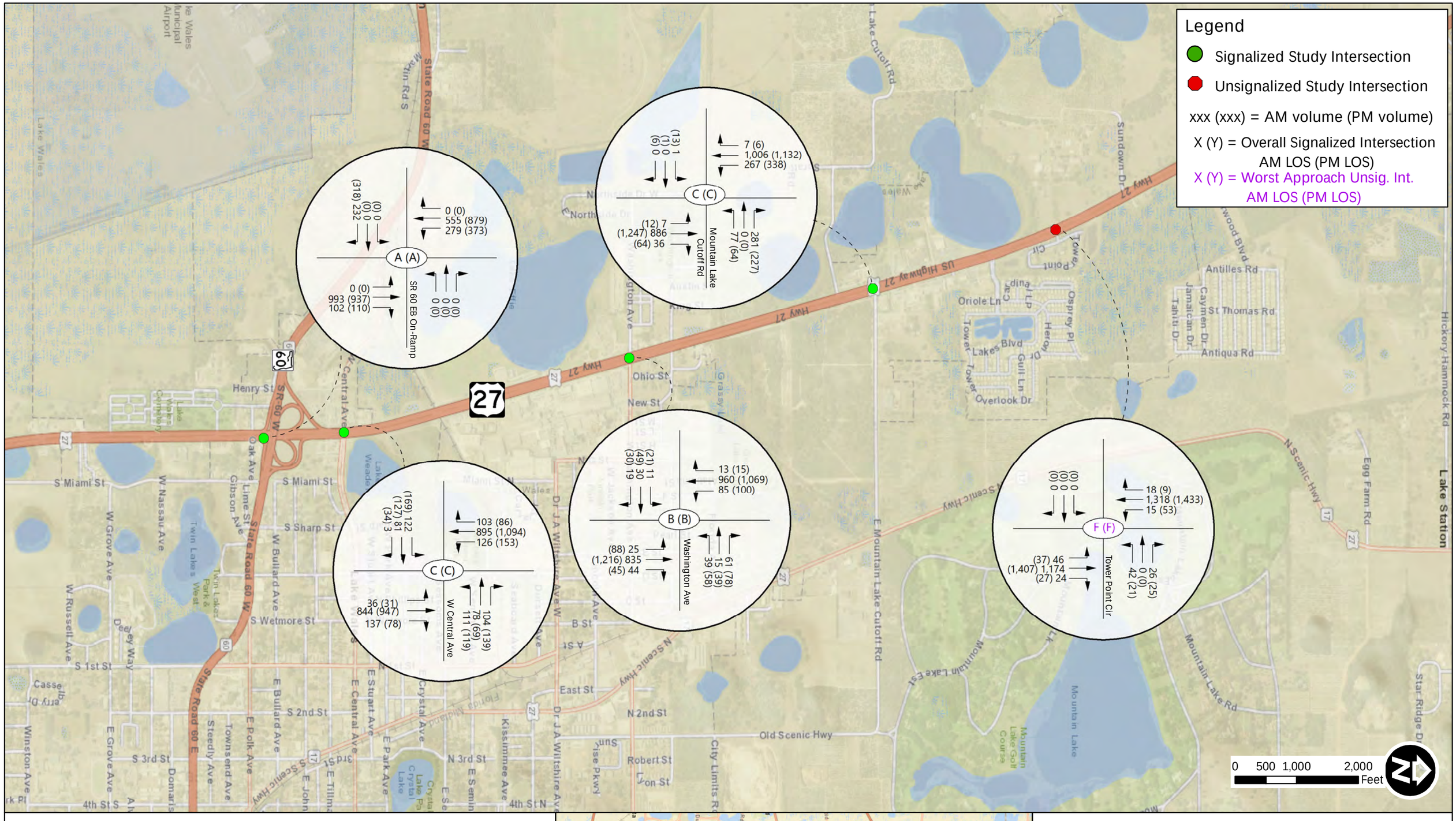
TABLE 2-8: EXISTING CONDITIONS INTERSECTION ANALYSIS RESULTS (CONTINUED)

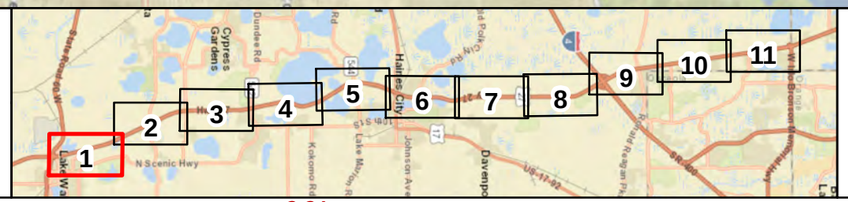
Intersection	Intersection Type	Reports Used	AM						PM					
			Intersection Delay (s)[1]	Intersection LOS[1]	Critical Mvmt	Critical Mvmt Delay (s)	Critical Mvmt LOS	Critical Mvmt 95th % Queue Length (ft)[2, 3]	Intersection Delay (s)[1]	Intersection LOS[1]	Critical Mvmt	Critical Mvmt Delay (s)	Critical Mvmt LOS	Critical Mvmt 95th % Queue Length (ft)[2, 3]
Massee Rd / Holly Hill Rd	Signalized	HCM 2000	17.0	**B**	NBL	60.7	E	65	25.2	**C**	EBL	93.1	F	#123
Holly Hill Tank Rd / Florida Development Rd	Unsignalized	HCM 6th	264.4 (WB)	**F (WB)**	WBL	264.4	F	155	597.9 (WB)	**F (WB)**	WBL	597.9	F	150
Ridgewood Lakes Blvd	Signalized	HCM 2000	13.2	**B**	NBU	50.9	D	14	13.7	**B**	NBU	55.9	E	12
Cottonwood Rd	Unsignalized	HCM 6th	644.4 (WB)	**F (WB)**	WBL	644.4	F	265	1846.6 (WB)	**F (WB)**	WBL	1846.6	F	300
Minute Maid Ramp Rd 2	Signalized	HCM 2000	19.4	**B**	NBL	63.5	E	41	15.1	**B**	EBL	95.5	F	119
Heller Bros. Blvd / Deer Creek Blvd	Signalized	HCM 6th	12.2	**B**	SBL	73.2	E	20	25.5	**C**	WBL	120.7	F	307.5
Home Run Blvd / Victor Posner Blvd	Signalized	HCM 6th	33.9	**D**	EBL	98.6	F	385	35.7	**D**	NBL	113.1	F	105
I-4 EB Ramps (Frontage Rd)	Signalized	HCM 2000	34.2	**C**	WBL	57.1	E	113	47.7	**D**	EBT	104.6	F	#178
I-4 WB Ramps	Signalized	HCM 2000	29.6	**C**	SBL	62.3	E	38	67.3	**E**	SBL	94.9	F	94
Access Rd	Signalized	HCM 6th	12.8	**B**	EBR	43.5	D	57.5	26.3	**C**	EBL	92.0	F	100
Waverly Barn Rd	Signalized	HCM 6th	36.2	**D**	NBL	74.3	E	122.5	28.8	**C**	SBL	62.1	E	72.5
Deen Still Rd	Signalized	HCM 2000	34.5	**C**	NBL	50.0	D	90	37.4	**D**	NBL	57.0	E	102
Ogelthorpe Dr / Laurel Estates Driveway	Unsignalized	HCM 6th	41.2 (EB)	**E (EB)**	EBL	70.7	F	40	60.6 (EB)	**F (EB)**	EBL	114.7	F	42.5
Cardiff Ave / Tri County 1 Rd	Unsignalized	HCM 6th	42.0 (EB)	**E (EB)**	EBL	79.5	F	50	87.2 (EB)	**F (EB)**	EBL	175.4	F	57.5
Four Corners Blvd / Bella Citta Blvd	Signalized	HCM 2000	25.7	**C**	NBL	56.5	E	37	24.4	**C**	NBL	43.2	D	76
Terra del sol / Central Grove Rd	Unsignalized	HCM 6th	194.6 (EB)	**F (EB)**	EBL	194.6	F	200	339.2 (EB)	**F (EB)**	EBL	339.2	F	165
McFee Dr / California Blvd	Signalized	HCM 6th	31.7	**C**	EBL	173.2	F	207.5	27.5	**C**	EBL	107.5	F	122.5
Student Dr / Highland Reserve Blvd	Signalized	HCM 6th	34.6	**C**	WBL	335.9	F	352.5	20.6	**C**	SBL	59.3	E	70
Sand Mine Rd	Signalized	HCM 2000	57.3	**E**	EBL	85.3	F	#295	33.8	**C**	WBT	60.1	E	154
Florence Villa Grove Rd / Legacy Park Blvd	Signalized	HCM 2000	42.8	**D**	SBL	66.7	E	127	59.6	**E**	WBT	124.9	F	138
Polo Park Blvd	Signalized	HCM 6th	21.8	**C**	SBL	49.5	D	32.5	24.1	**C**	NBL	64.0	E	80

[1] Overall Intersection Delay and LOS for Signalized Intersections, Worst Approach Delay and LOS for Unsignalized Intersections

[2] For intersections where HCM 2000 Reports were used for delay and LOS, Synchro 10 Reports were used for 95th Percentile Queue Lengths

[3] Synchro 10 Reports 95th Percentile Queue Annotations:
m = Volume for 95th percentile queue is metered by upstream signal
# = 95th percentile volume exceeds capacity, queue may be longer



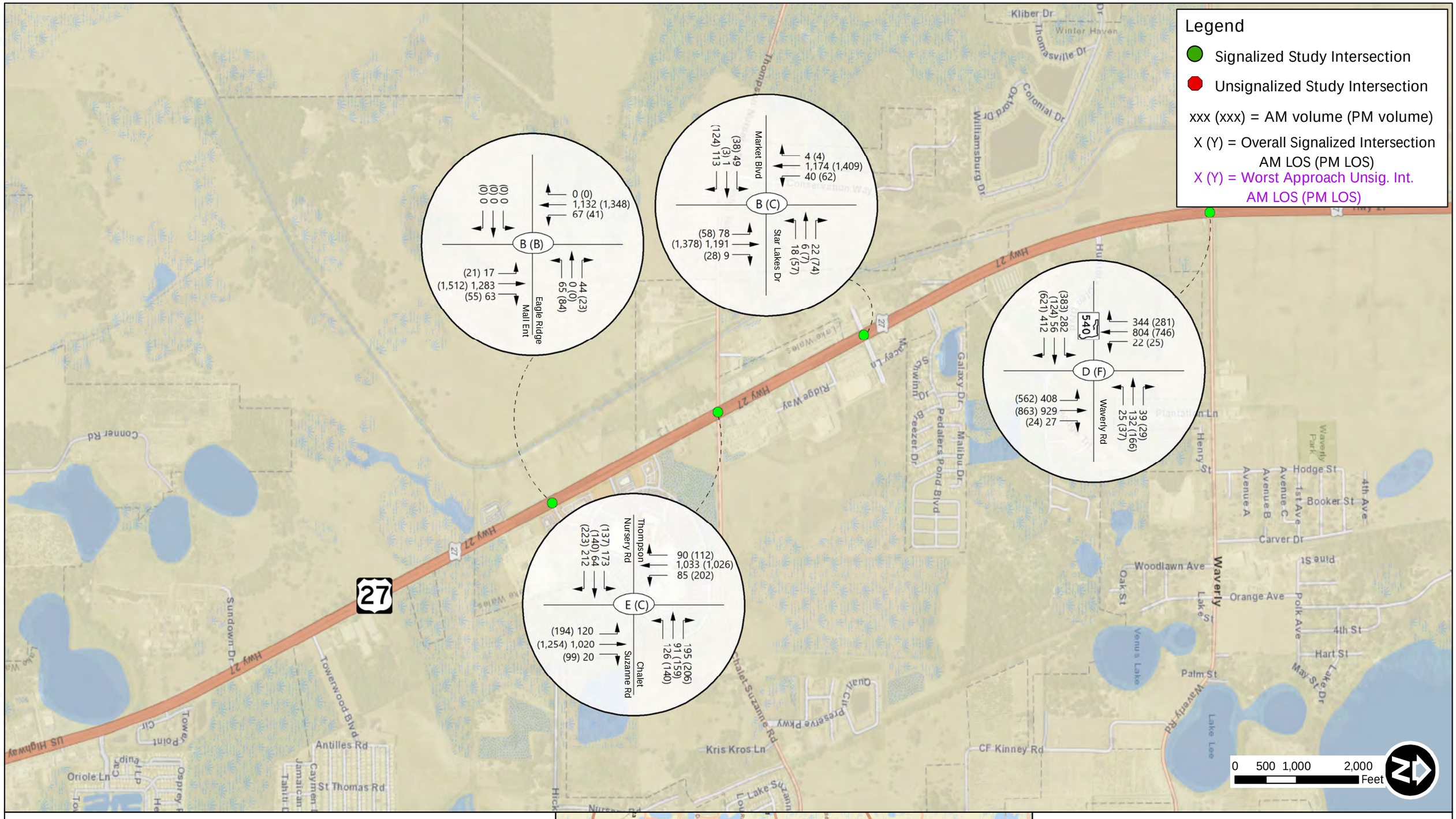


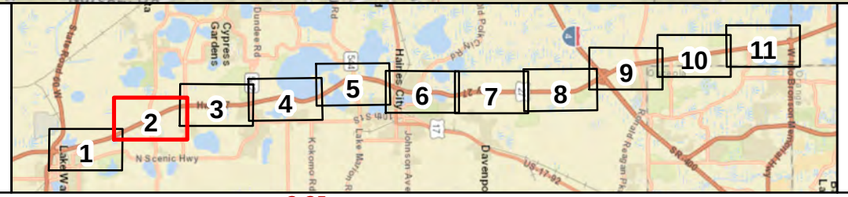
NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 1 of 11



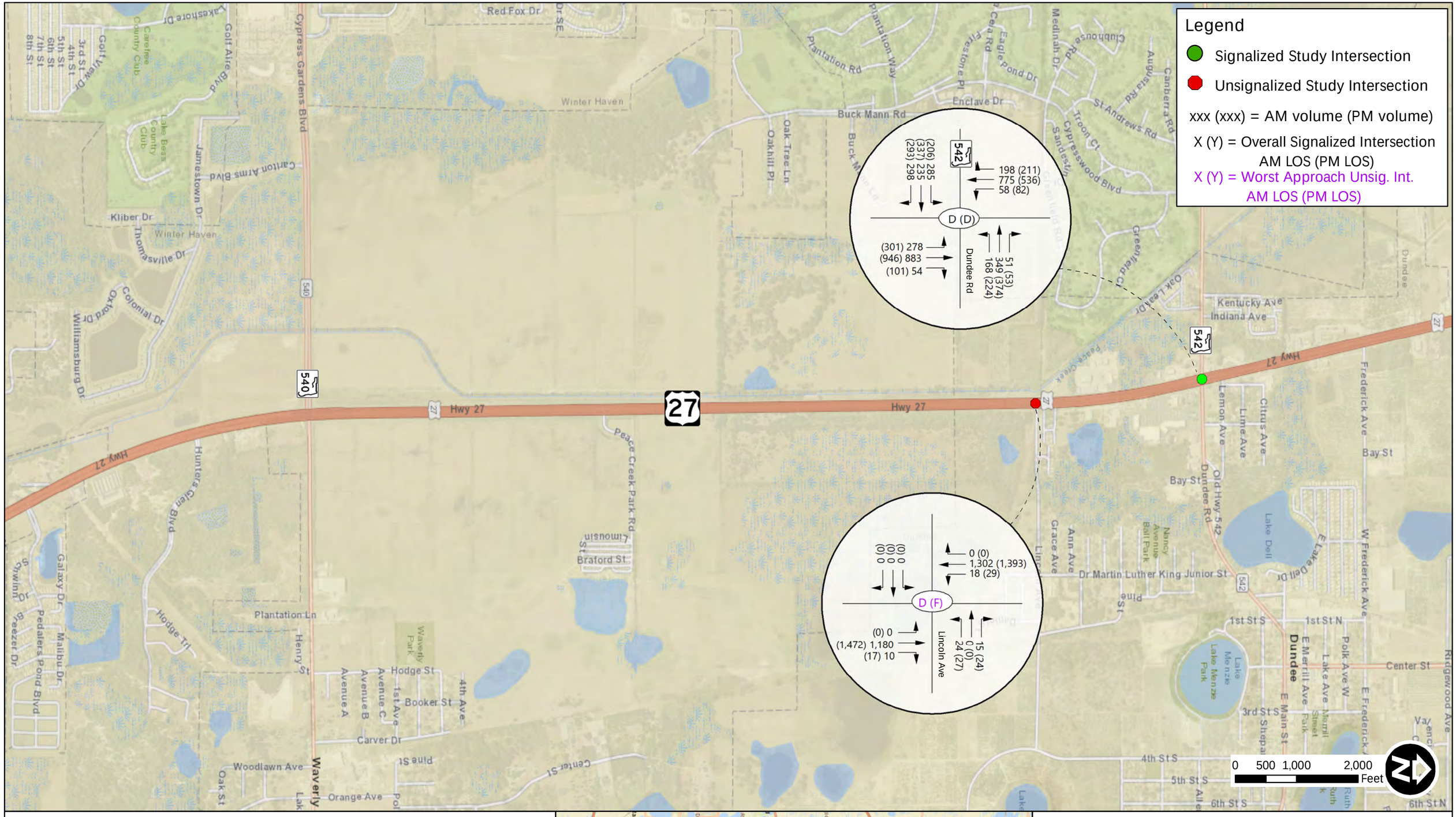


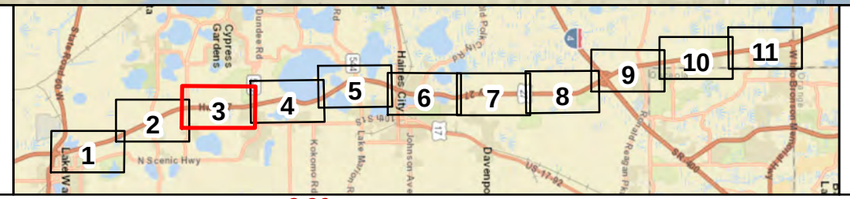
NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 2 of 11



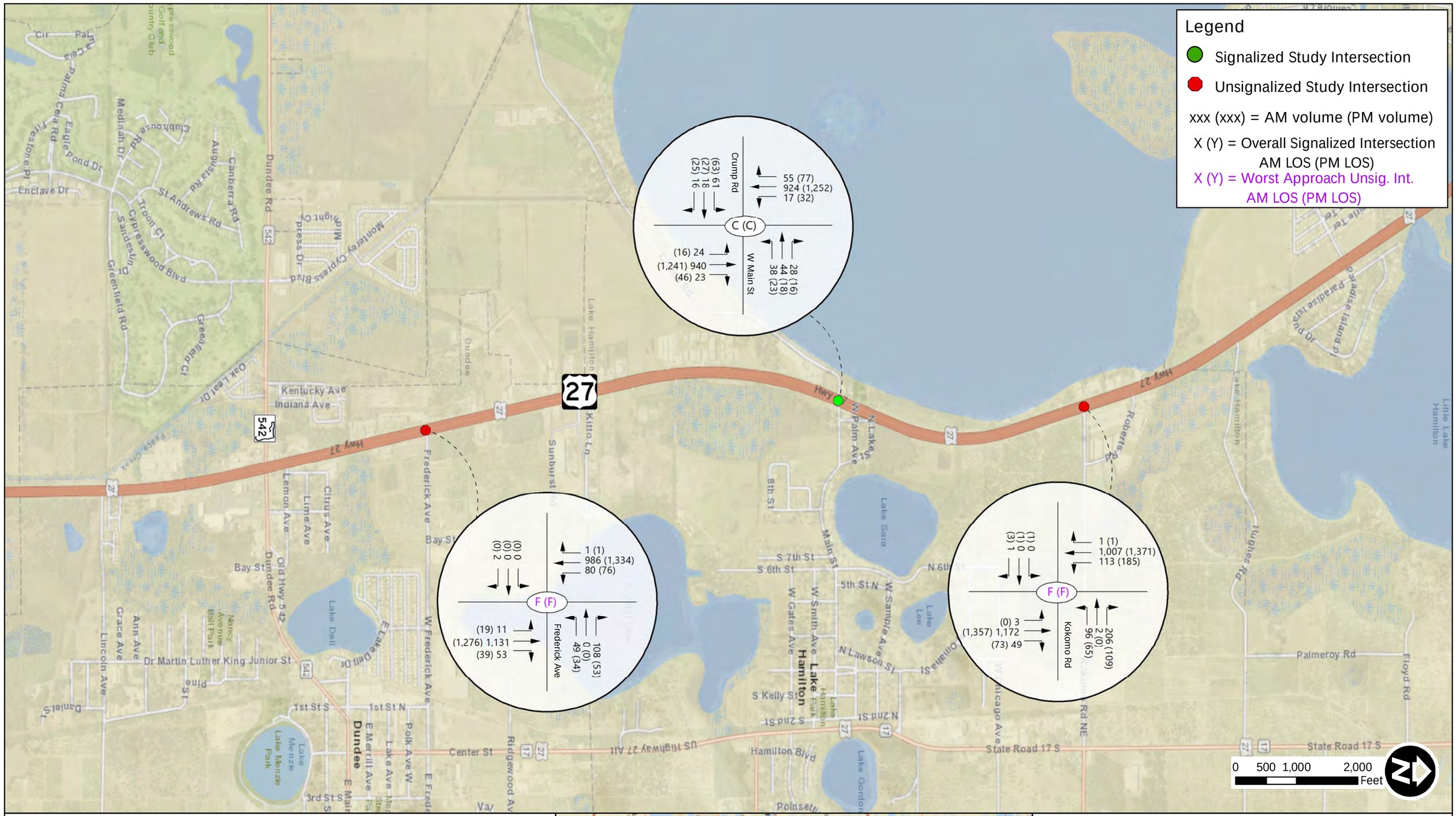


NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 3 of 11

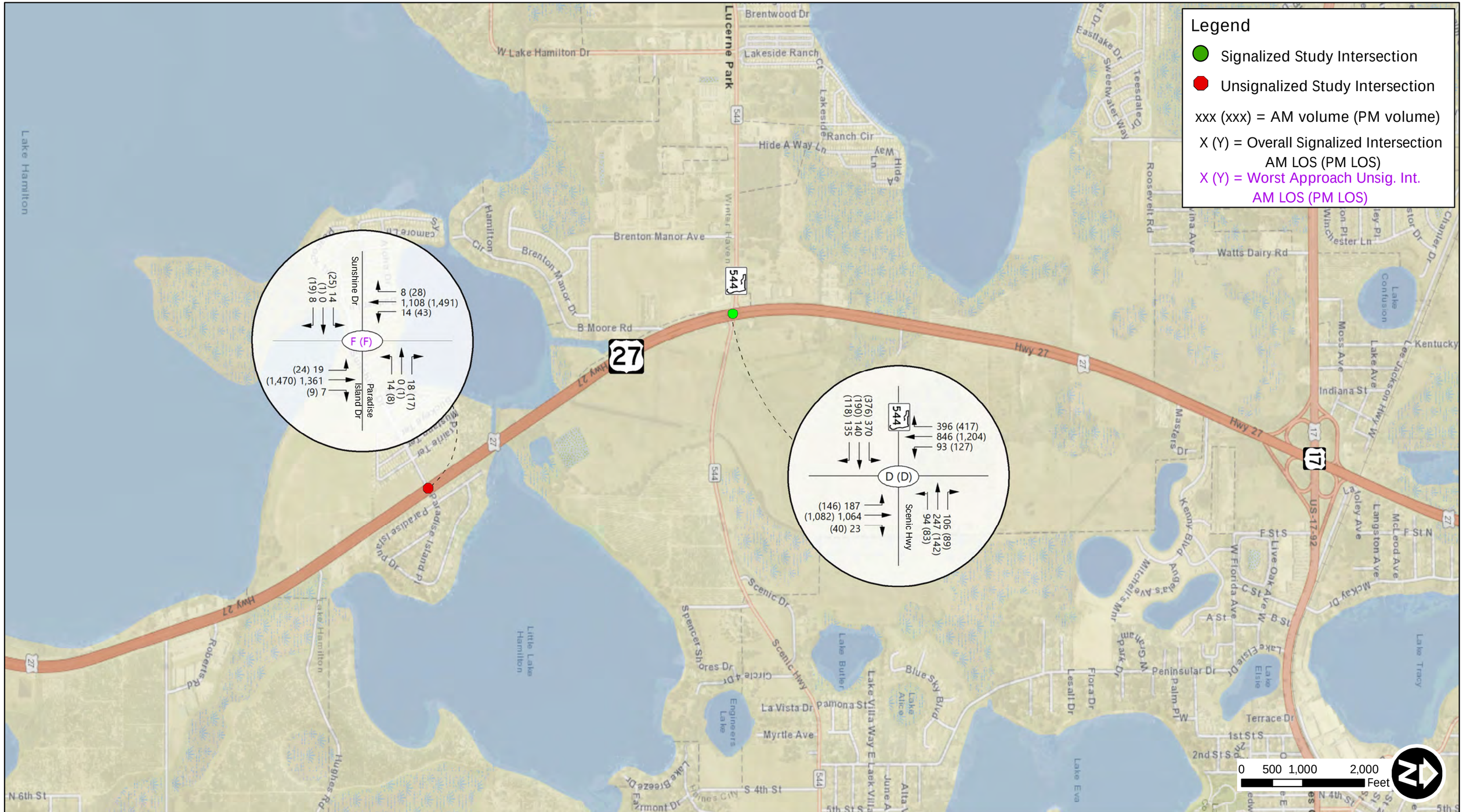


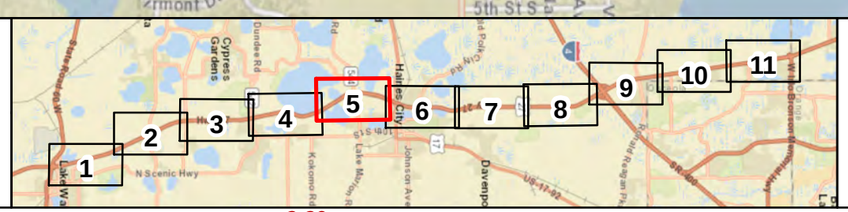
NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 4 of 11



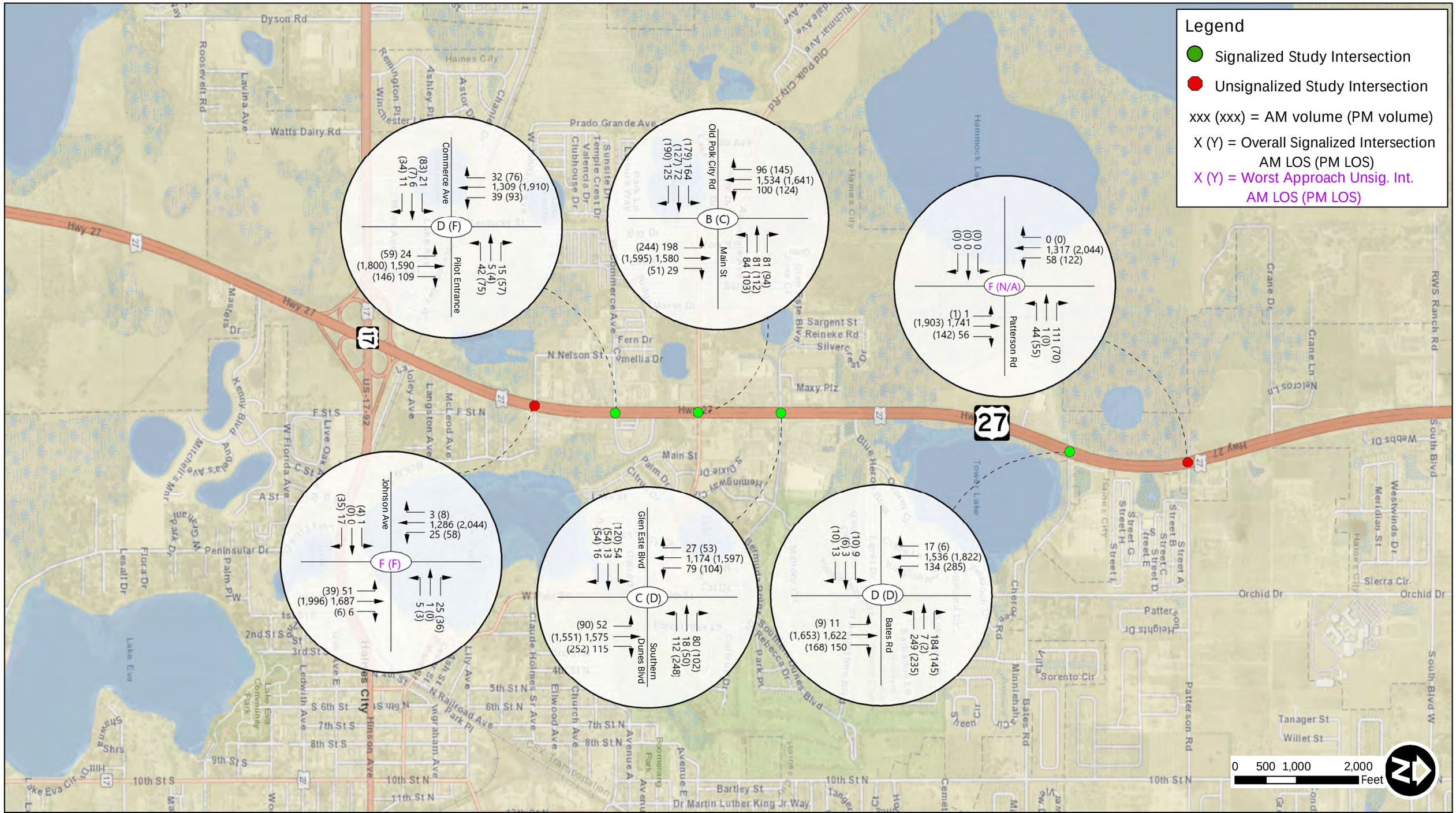


NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 5 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

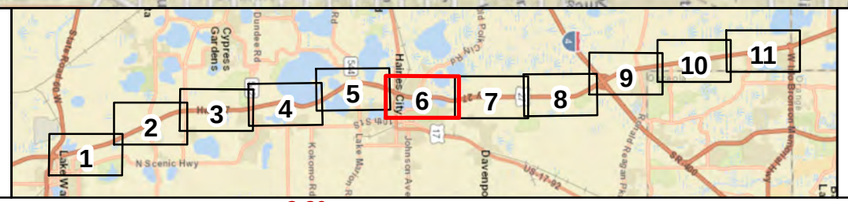
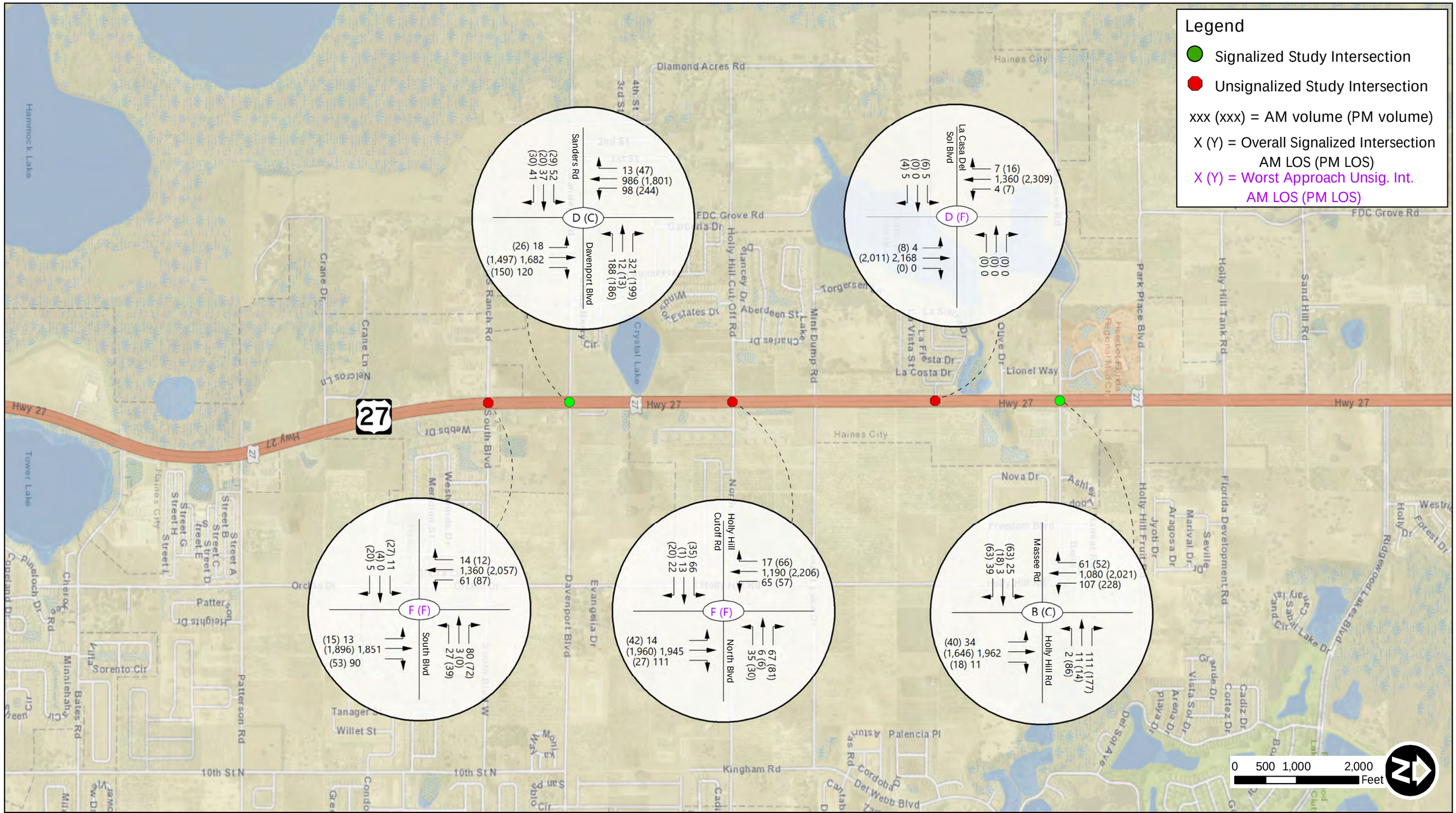
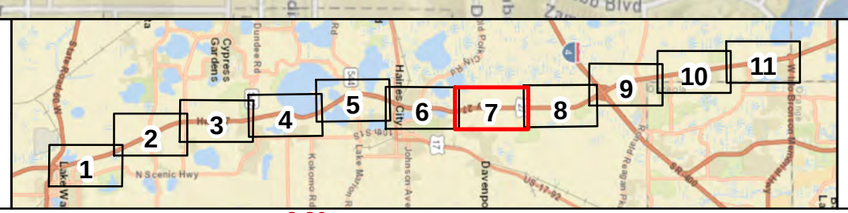


FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 6 of 11



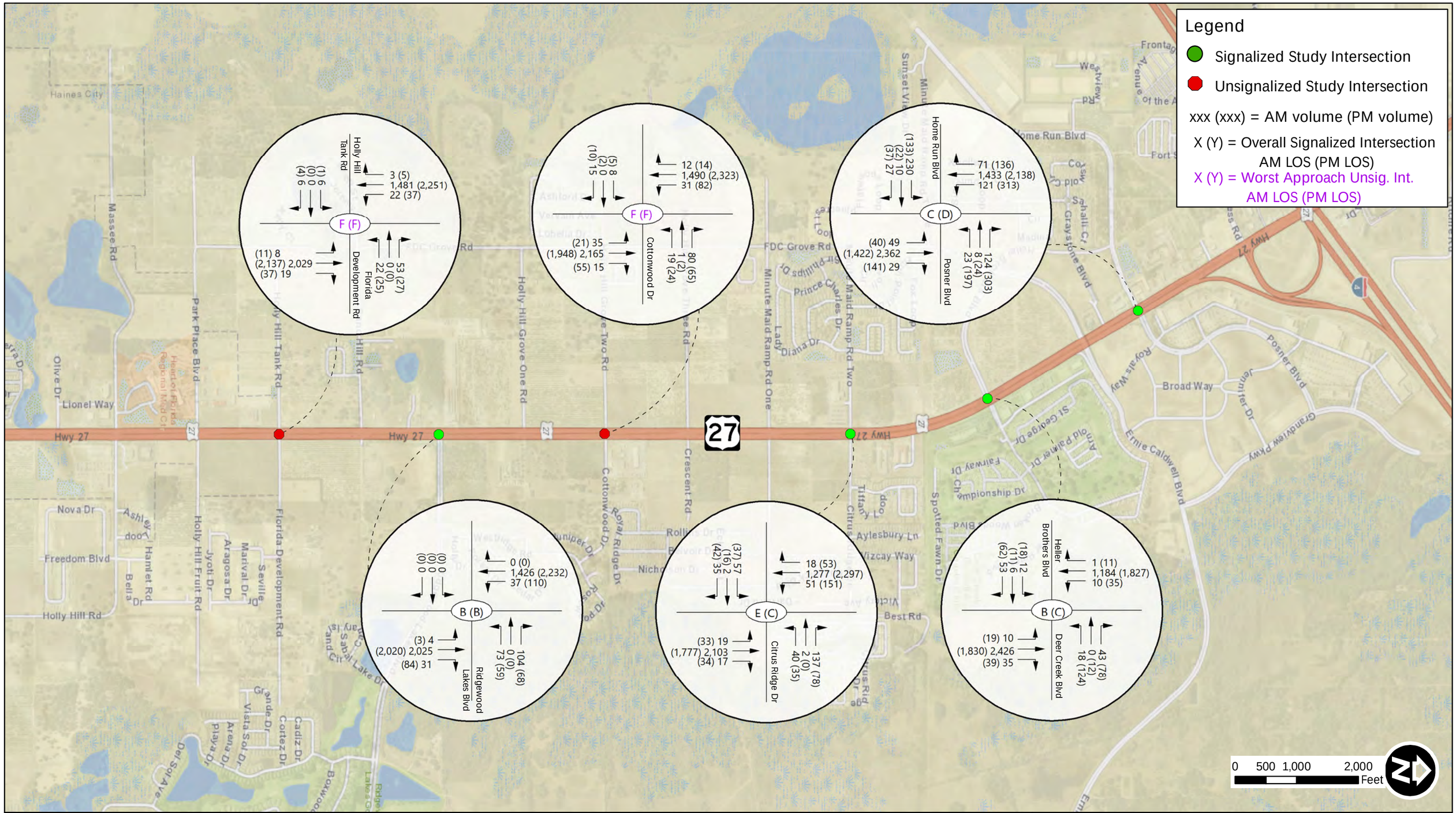


NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 7 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

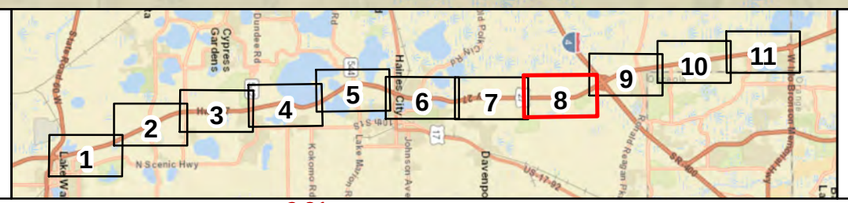
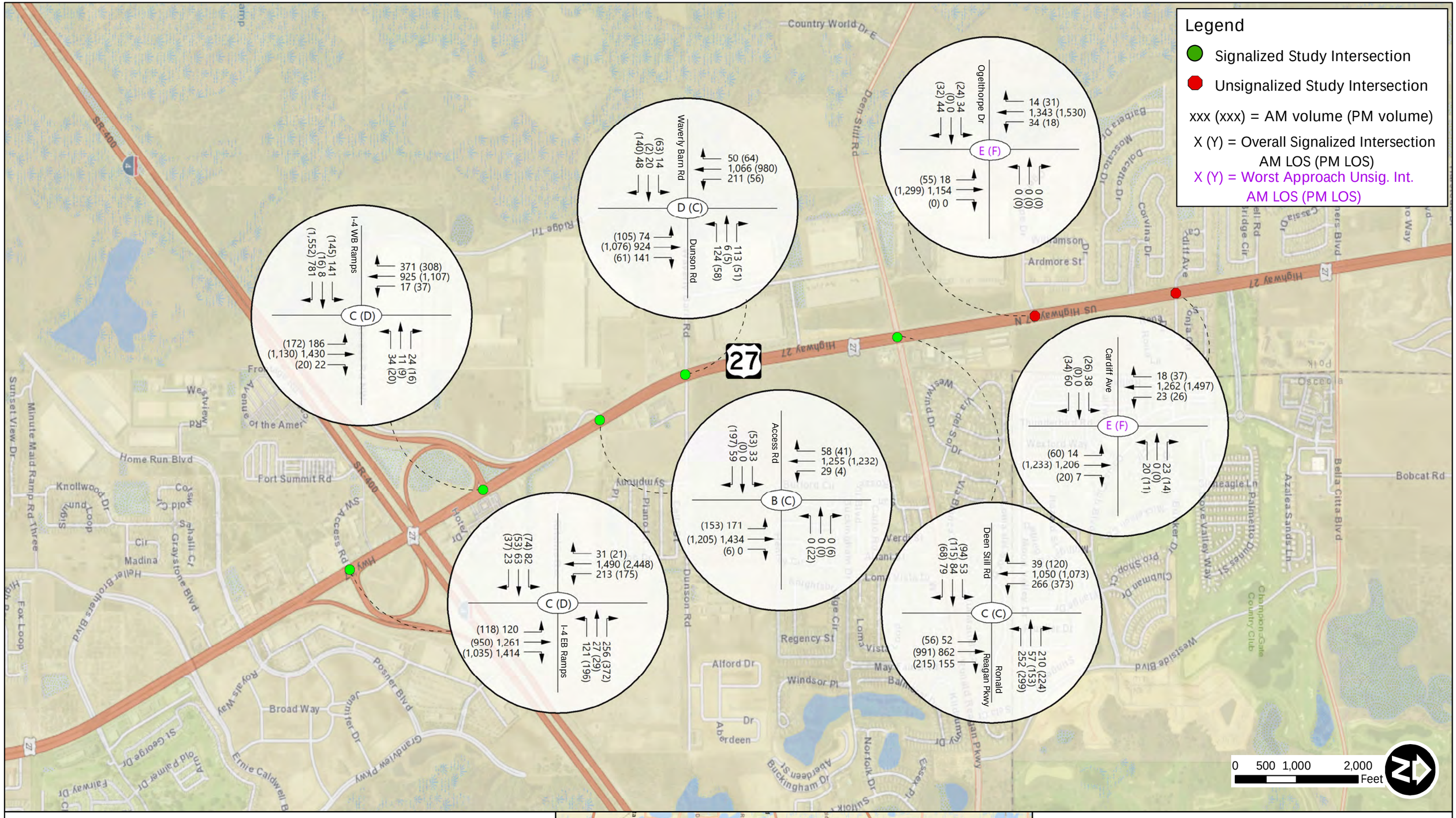


FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 8 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

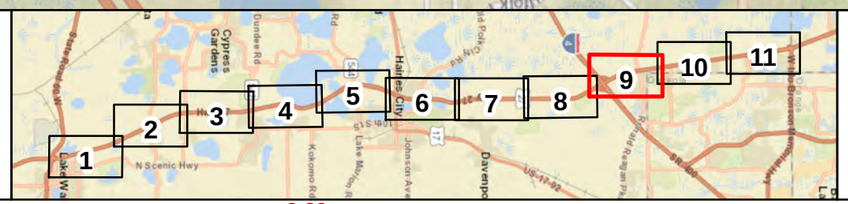
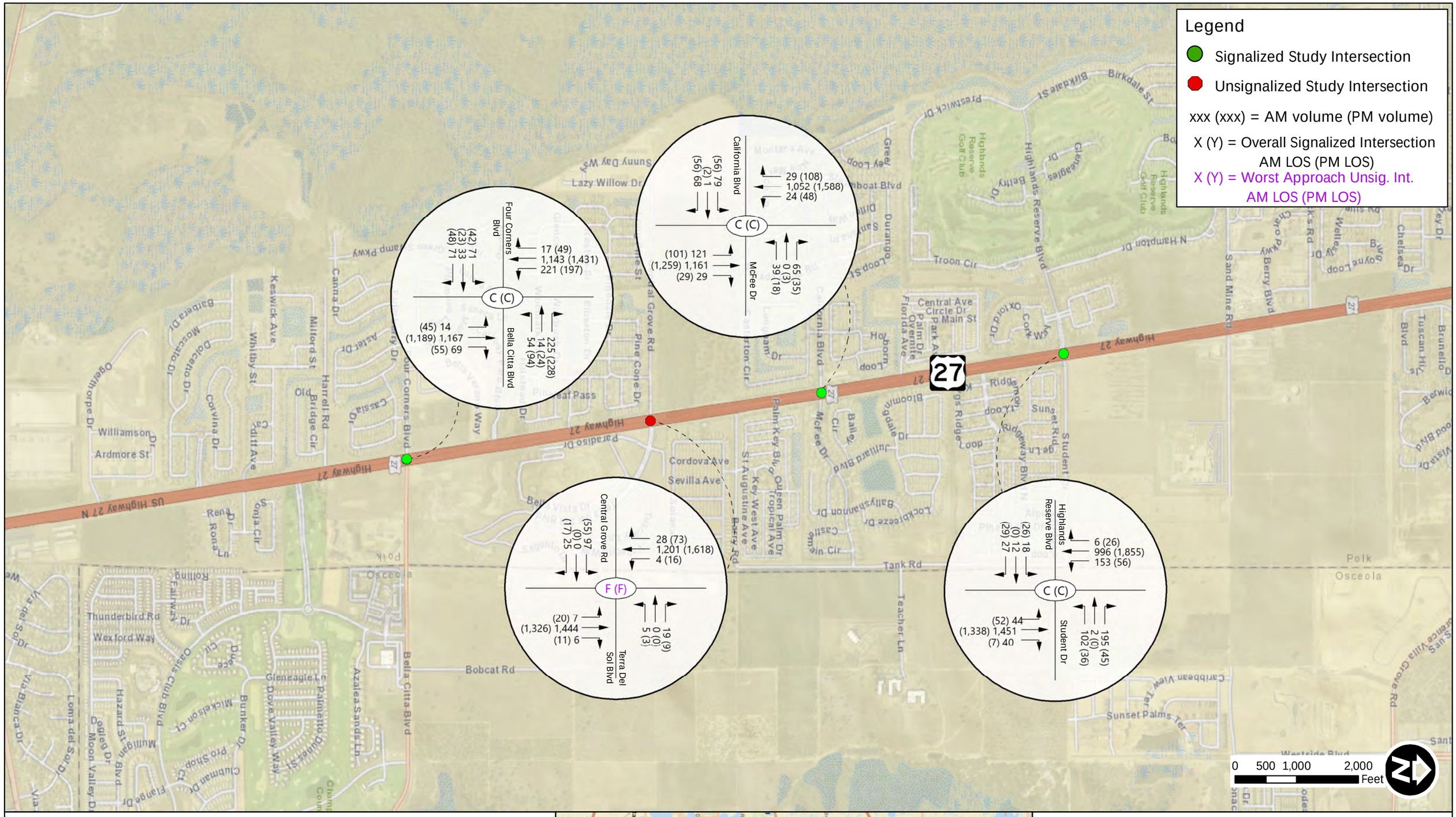
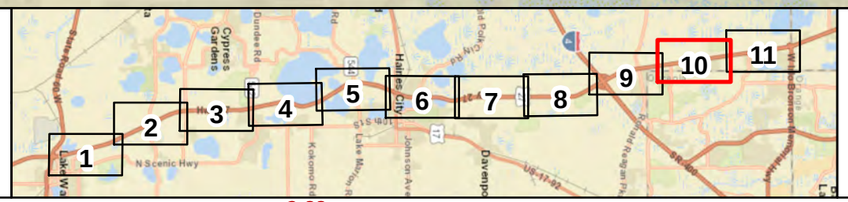


FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 9 of 11



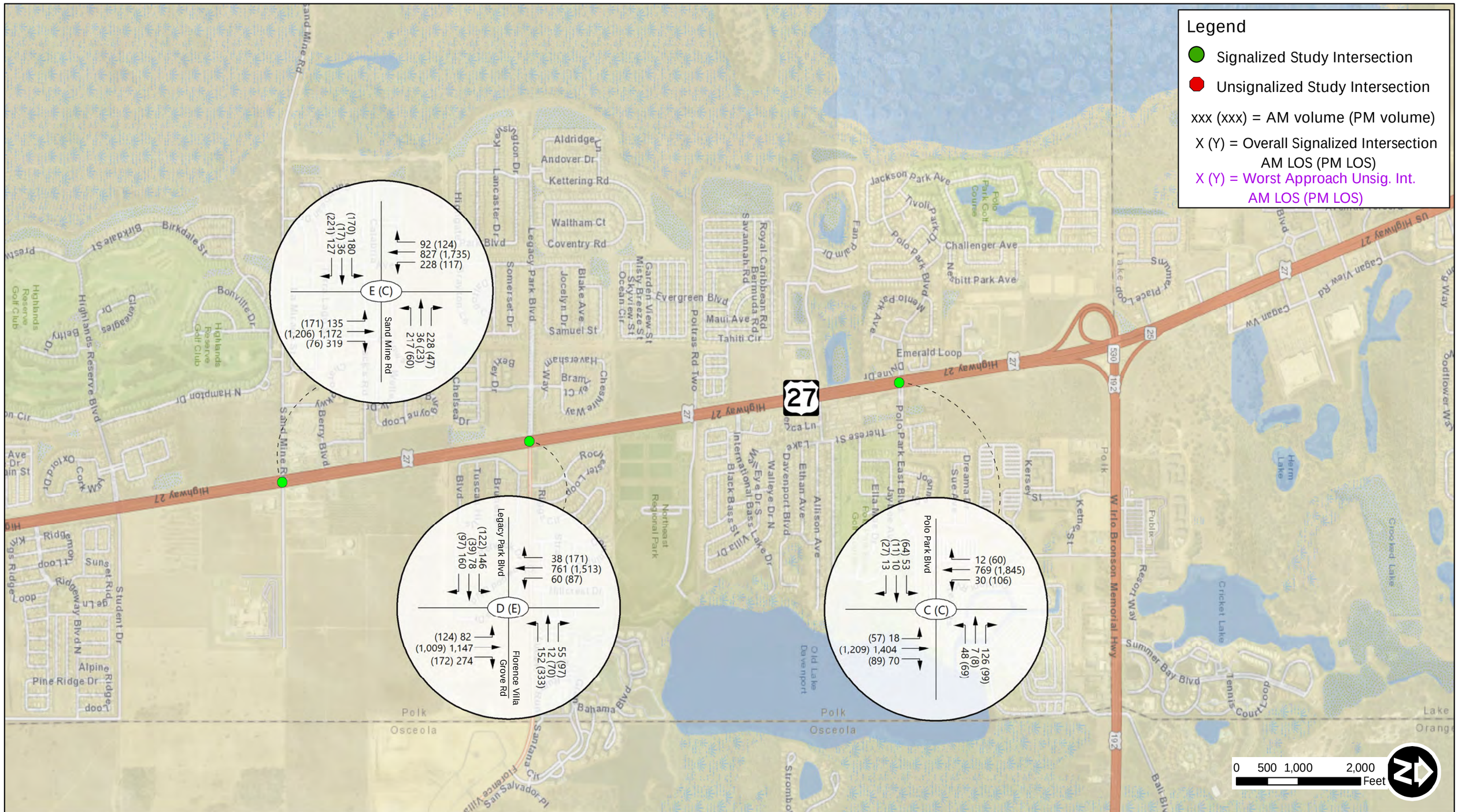


NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 10 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

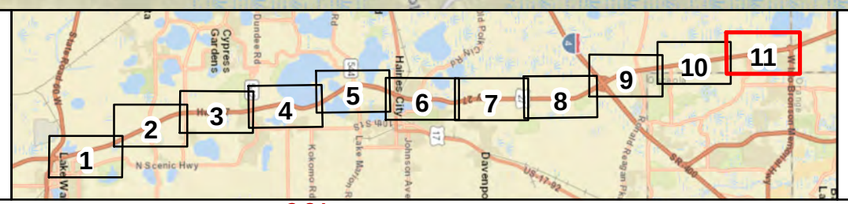


FIGURE 2-3
EXISTING (2018) INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 11 of 11

2.5 EXISTING YEAR (2018) ROAD SAFETY ANALYSIS

As part of the Existing Conditions Analysis, a historical crash data review was conducted on the most recent 5 years of crash data. High crash frequency locations were identified as a result of this historical crash analysis and a Roadway Safety Audit (RSA) was conducted based on these identified locations.

2.5.1 Historical Crash Analysis

Crash data for the study area was obtained from the FDOT State Safety Office Geographic Information System (SSOGis) Crash Query Tool for the years 2013 through 2017 and Signal4 for the year 2017. The Signal4 data was used for more recent data (2017) since CARS data was not available for 2017. The crash data included information including date of crash, location, number of vehicles involved, type of crash, number of injuries and/or fatalities, cause of crash, and estimated economic loss.

Due to the use of the two sources for the year 2017 crash data, the Signal4 crashes were reconciled, and all duplicate records removed compared to the SSOGis 2017 data. The crash data was gathered within a 250-foot buffer around the US 27 corridor between SR 60 and US 192, which included crashes along side streets within the buffer.

The crash analysis results reveal that there was a total of 3,451 crashes within the study area during this five-year period (2013-2017). Of these 3,451 crashes, rear-end collisions were the most common crash type, accounting for 47.4%, followed by heavy vehicle crashes (14.5%) and angle crashes (12.5%). A total of 136 crashes (3.9%) resulted in a fatality or severe incapacitating injury and 25% occurred during dark conditions. **Table 2-9** summarizes the crash data for the entire study area, spanning from SR 60 to US 192 (SR 530). **Table 2-10** summarizes the crashes by severity along US 27 for this 5-year period. **Table 2-11** summarizes the crashes by lighting conditions.

In addition, **Figure 2-4** on the following pages depicts the number of crashes by crash type and severity, per location, for segments and intersections along the entire length of the US 27 study corridor. Crash summary tables and crash data maps are included in **Appendix A**.

TABLE 2-9: 5-YEAR CRASH SUMMARY BY CRASH TYPE

Crash Type	2013	2014	2015	2016	2017	Total	%
Rear End	243	296	368	375	354	**1,636**	**47.4%**
Angle	73	96	102	135	25	**431**	**12.5%**
Left Turn	0	0	0	0	33	**33**	**1.0%**
Hit Fixed Object	23	22	28	23	17	**113**	**3.3%**
Sideswipe	36	51	75	61	87	**310**	**9.0%**
Heavy Vehicle	90	114	126	115	55	**500**	**14.5%**
Pedestrian	2	1	4	3	4	**14**	**0.4%**
Head On	2	11	17	10	5	**45**	**1.3%**
Bicycle	2	1	2	3	0	**8**	**0.2%**
Non-Collision	25	23	17	9	5	**79**	**2.3%**
Hit Non-Fixed Object	6	7	9	7	0	**29**	**0.8%**
Right Turn	0	0	0	0	12	**12**	**0.3%**
Single Vehicle	0	0	0	0	34	**34**	**1.0%**
Run off Road	0	0	0	0	0	**0**	**0.0%**
Other	24	28	42	54	41	**189**	**5.5%**
Unknown	1	2	2	2	11	**18**	**0.5%**
Total	**527**	**652**	**792**	**797**	**683**	**3,451**	**100.0%**

TABLE 2-10: 5-YEAR CRASH SUMMARY BY SEVERITY

Crash Severity	2013	2014	2015	2016	2017	Total	%
Fatality	3	6	6	8	8	**31**	**0.9%**
Possible Injury	115	162	201	213	135	**826**	**23.9%**
Non-Incapacitating Injury	92	99	103	98	75	**467**	**13.5%**
Incapacitating Injury	23	24	20	23	15	**105**	**3.0%**
Property Damage Only	294	361	461	454	450	**2,020**	**58.5%**
Not Coded	0	0	1	1	0	**2**	**0.1%**
Total	**527**	**652**	**792**	**797**	**683**	**3,451**	**100.0%**

TABLE 2-11: 5-YEAR CRASH SUMMARY BY LIGHTING CONDITIONS

Lighting Condition	2013	2014	2015	2016	2017	Total	%
Daylight	383	459	529	556	471	**2,398**	**69.5%**
Dark - Lighted	82	102	138	150	107	**579**	**16.8%**
Dusk	10	18	29	26	22	**105**	**3.0%**
Dark - Not Lighted	42	45	66	54	63	**270**	**7.8%**
Dawn	8	23	22	10	13	**76**	**2.2%**
Dark - Unknown Lighting	0	0	8	1	5	**14**	**0.4%**
Other	1	4	0	0	2	**7**	**0.2%**
Unknown	1	1	0	0	0	**2**	**0.1%**
Total	**527**	**652**	**792**	**797**	**683**	**3,451**	**100.0%**

Legend

- Segment Ranking
- RSA
- Crash Location

From N. of SR 60
To Mt. Lake Cutoff Road

Ranked No. 10
Total Crashes 57
- Fatal/Severe 4
- Ped/Bike 1
- Heavy Vehicle 16
- Dark Condition 17

MP 0.0
MP 1.0
MP 2.0
MP 3.0

BEGIN PROJECT

FLORIDA'S NATURAL GROWERS

LAKE WEADER

LAKE EFFIE

PADGETT LAKE

WEIKERT FORD

TOWER POINT APARTMENTS

TOWER LAKES

THE VANGUARD SCHOOL

TOWERWOOD

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

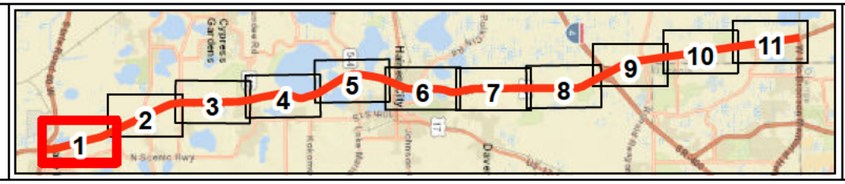


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 1 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From Mt. Lake Cutoff Road
To Thompson Nursery Road/
Chalet Suzanne Road

Ranked No. 14
Total Crashes 52
Fatal/Severe 1
Ped/Bike 0
Heavy Vehicle 3
Dark Condition 13

From Thompson Nursery Road/
Chalet Suzanne Road
To SR 540/Cypress Garden
Boulevard/Waverly Road

Ranked No. 11
Total Crashes 123
Fatal/Severe 7
Ped/Bike 0
Heavy Vehicle 11
Dark Condition 26

MP 3.0
MP 4.0
MP 5.0
MP 6.0

27
540

LOWE'S
EAGLE RIDGE MALL
SHOPPES ON THE RIDGE
HOME DEPOT
SUNSHINE FLEA MARKET
PEDALERS POND
CARLTON ARMS APARTMENTS

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

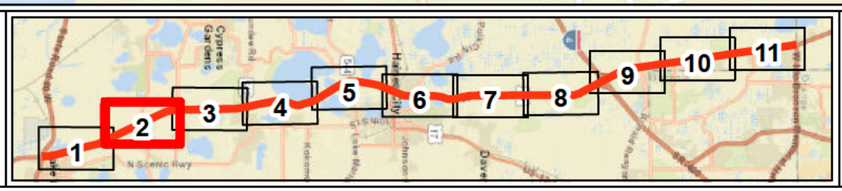


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 2 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From SR 540/Cypress Garden Boulevard/Waverly Road
To SR 542/Dundee Road

Ranked No. 7
Total Crashes 45
Fatal/Severe 3
Ped/Bike 0
Heavy Vehicle 7
Dark Condition 16

MP 6.0
MP 7.0
MP 8.0

CYPRESSWOOD GOLF & COUNTRY CLUB
FROZEN FOOD EXPRESS
DUNDEE RIDGE PLAZA
GARDEN GATE
PEACE CREEK RV PARK

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

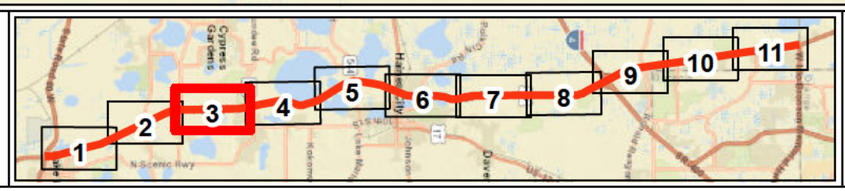


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 3 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From SR 542/Dundee Road
To Crump Road/Main Street

Ranked No. 16
Total Crashes 38
Fatal/Severe 4
Ped/Bike 1
Heavy Vehicle 5
Dark Condition 8

From Crump Road/Main Street
To SR 544/Scenic Highway

Ranked No. 5
Total Crashes 75
Fatal/Severe 2
Ped/Bike 1
Heavy Vehicle 16
Dark Condition 26

MP 9.0
MP 10.0
MP 11.0
542
27
ROYAL OAKS MHP
DUNDEE RIDGE PLAZA
LAKE HAMILTON
Crump Rd
Lake Hamilton
Crystal Lake
Lake Dell
Lake Sara
Lake Ida
Lake Lee
0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

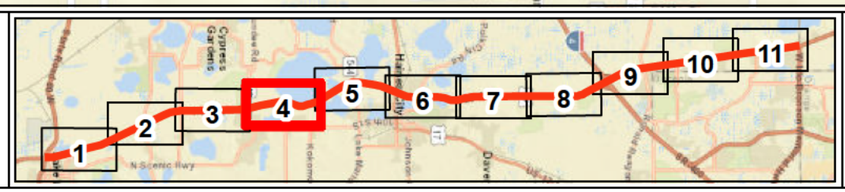


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 4 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From SR 544/Scenic Highway
To US 17 Interchange

Ranked No. 9
Total Crashes 37
Fatal/Severe 4
Ped/Bike 0
Heavy Vehicle 10
Dark Condition 11

From Crump Road/Main Street
To SR 544/Scenic Highway

Ranked No. 5
Total Crashes 75
Fatal/Severe 2
Ped/Bike 1
Heavy Vehicle 16
Dark Condition 26

MP 13.0
MP 14.0
MP 12.0

HIDDEN COVE
LAKE HENRY
MIDDLE LAKE HAMILTON
LAKE REGION VILLAGE MHP
PARADISE ISLAND
LITTLE LAKE HAMILTON

544
27

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

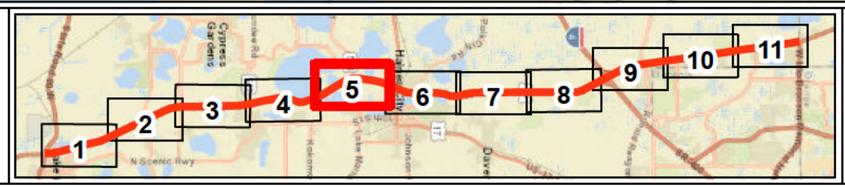


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 5 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From US 17 Interchange
To Old Polk City Road/
Main Street

Ranked No. 15
Total Crashes 50
Fatal/Severe 1
Ped/B ke 0
Heavy Vehicle 8
Dark Condition 6

From Old Polk City Road/
Main Street
To Bates Road

Ranked No. 6
Total Crashes 115
Fatal/Severe 2
Ped/Bike 0
Heavy Vehicle 23
Dark Condition 23

MP 15.0
MP 16.0
MP 17.0

17/92
27

HAMMOCK LAKE
LAKE HAMILTON VILLAGE
TOYOTA
HAINES CITY RV PARK
WALMART
TOWER LAKE
WEST VIEW RIDGE
LAKE TRACY

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

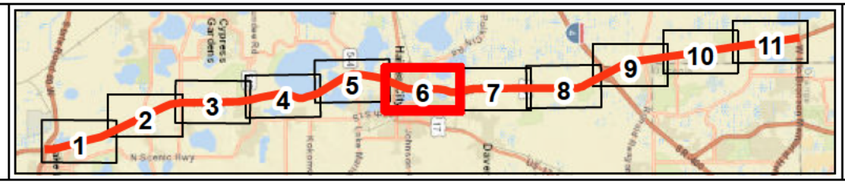


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 6 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From Bates Road
To CR 547/Davenport Boulevard/Sanders Road

Ranked No. 8
Total Crashes 87
Fatal/Severe 6
Ped/Bike 0
Heavy Vehicle 16
Dark Condition 16

From CR 547/Davenport Boulevard/Sanders Road
To Ridgewood Lakes Boulevard

Ranked No. 13
Total Crashes 140
Fatal/Severe 11
Ped/Bike 1
Heavy Vehicle 8
Dark Condition 38

OLDCASTLE LAWN & GARDEN
HEATHER HILL
ESTATES OF LAKE ST. CHARLES
LAKE ST. CHARLES
CRYSTAL LAKE
VILLAGE OF LA CASA DEL SOL
HEART OF FLORIDA REGIONAL MEDICAL CENTER
LAKE HENRY
HIGHLAND SQUARE
BELLA NOVA
WINFIELD HEIGHTS

MP 18.0
MP 19.0
MP 20.0

27

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

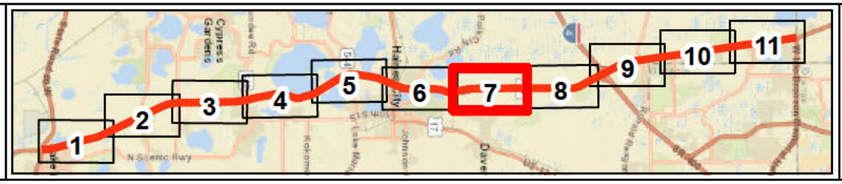
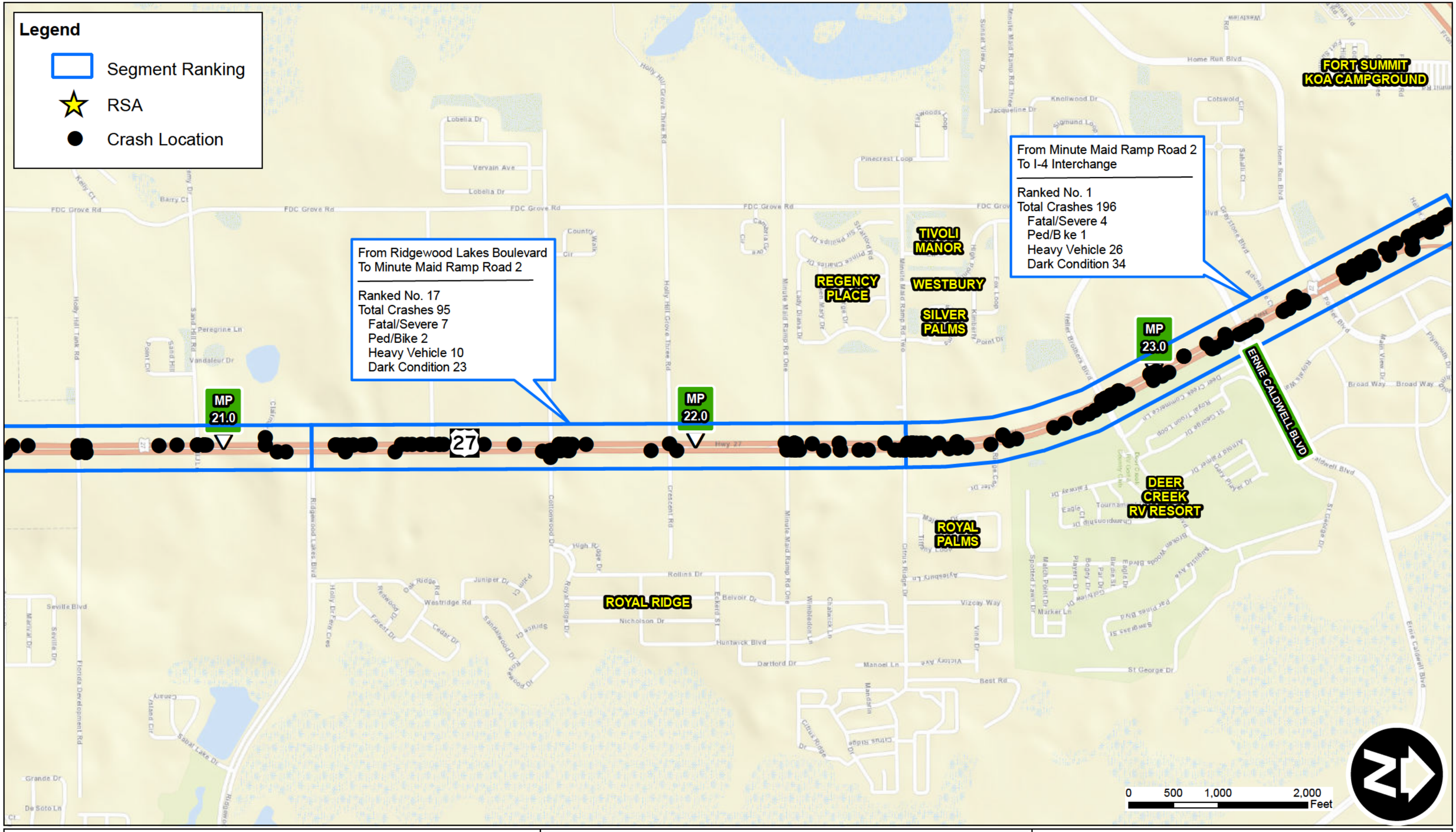


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 7 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

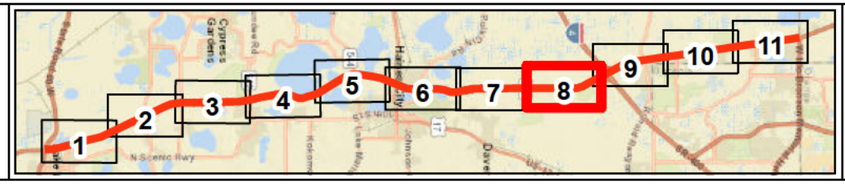


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 8 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From I-4 Interchange
To SR 54/Ronald Reagan Parkway/Deen Still Road

Ranked No. 7
Total Crashes 71
Fatal/Severe 1
Ped/B ke 1
Heavy Vehicle 15
Dark Condition 21

MP 25.0
MP 26.0
MP 24.0

WALMART DISTRIBUTION CENTER
FLORIDA CENTRAL PARK
PARK 27 DISTRIBUTION CENTER
LAUREL ESTATES
TUSCAN RIDGE
PINES WEST
SANTA CRUZ
THEMEWORLD RV RESORT
FORT SUMMIT KOA CAMPGROUND
LOMA DEL SOL
OASIS CLUB
POLK COUNTY
OSCEOLA COUNTY
BELLA TOSCANA
LOMA VISTA
WEST HAVEN
CHAMPIONSGATE COUNTRY CLUB

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

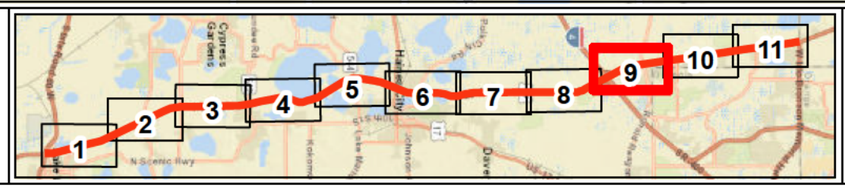


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 9 of 11

Legend

- Segment Ranking
- RSA
- Crash Location

From California Boulevard/
McFee Drive
To Legacy Park Boulevard/
Florence Villa Grove Road

Ranked No. 4
Total Crashes 66
Fatal/Severe 4
Ped/Bike 3
Heavy Vehicle 6
Dark Condition 24

From SR 54/Ronald Reagan
Parkway/Deen Still Road
To California Boulevard/
McFee Drive

Ranked No. 3
Total Crashes 86
Fatal/Severe 4
Ped/Bike 1
Heavy Vehicle 8
Dark Condition 31

HIGHLANDS RESERVE
MP 29.0
FLORIDA CAMP INN
WESTRIDGE
MP 28.0
CALABAY PARC
FLORIDA PINES
FOUR CORNERS
MP 27.0
PINES WEST
SANTA CRUZ
LOMA DEL SOL
TERRA DEL SOL
SOLANA
PALM KEY
HAMILTON LAKES
THE RIDGE
CITRUS RIDGE ACADEMY
CHAMPIONSGATE COUNTRY CLUB
POLK COUNTY
OSCEOLA COUNTY

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

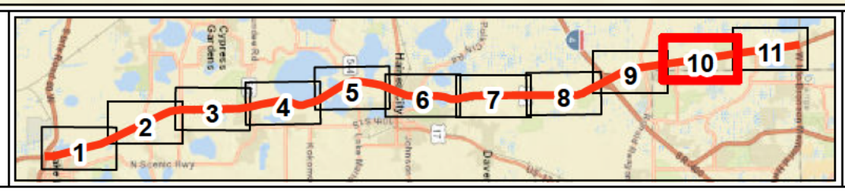
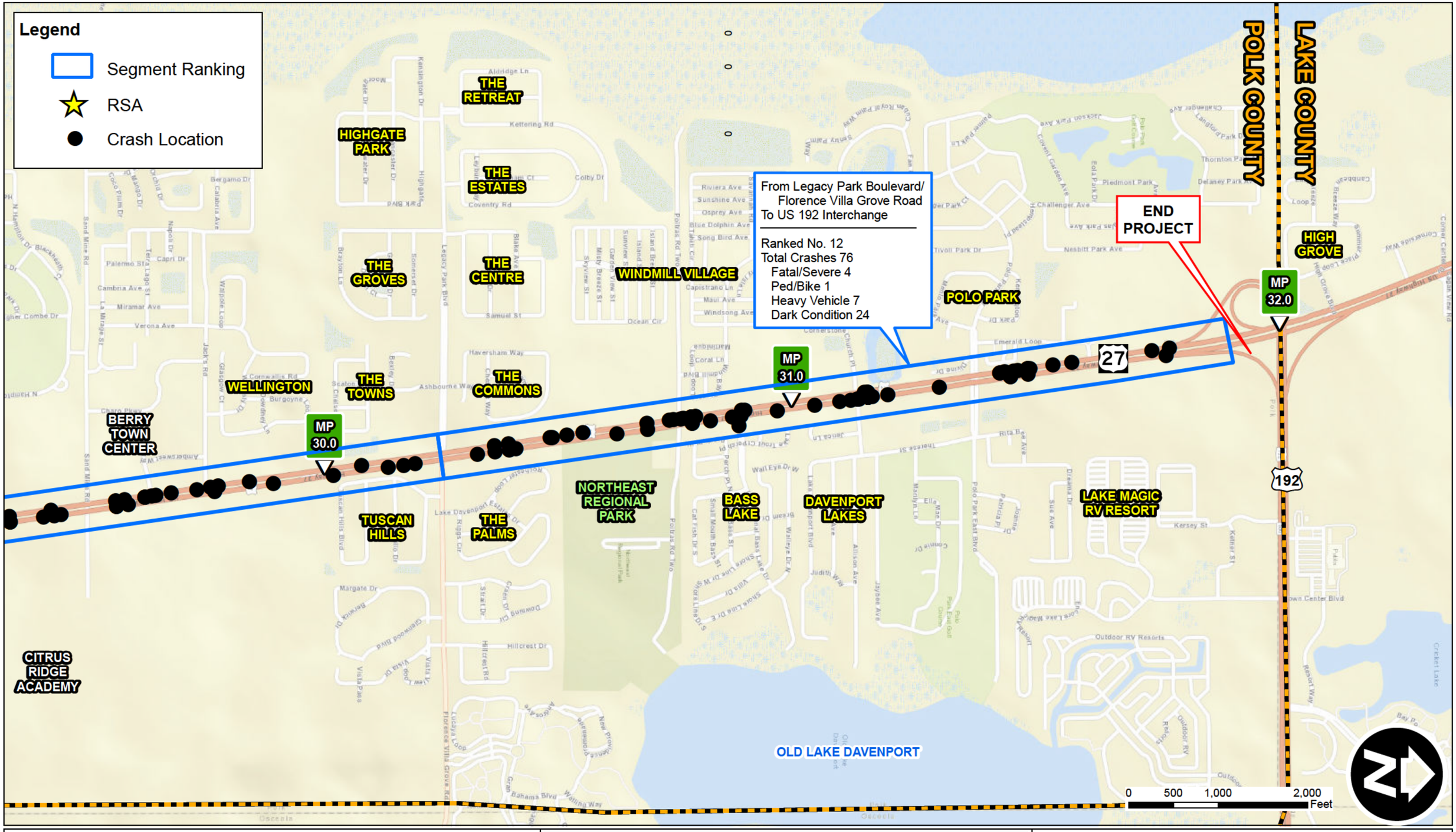


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 10 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

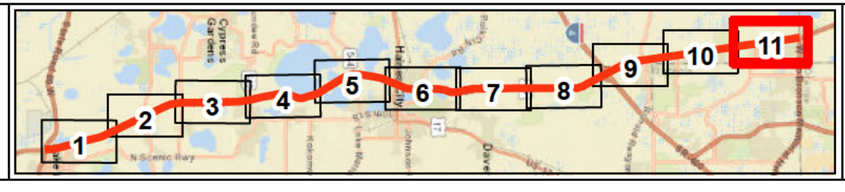


FIGURE 2-4
US 27 SEGMENT CRASHES
(2013 - 2017)
Sheet 11 of 11

2.5.2 High Crash Locations

Corridor wide daytime and nighttime field inventory was conducted in order to identify any potential correlation between high crashes locations where minimal to no infrastructure is available for pedestrians and bicycles along with data collected and described previously in Section 2.1, such as existing geometry and AADTs for intersection approaches and within segments along the corridor. The information was used to evaluate high crash locations based on a weighted ranking methodology as follows:

1. Intersections - Available total entering volumes was used to determine which intersections (signalized or unsignalized) were analyzed and ranked. The number of crashes per Million Entering Vehicles (MEVs) was determined for study intersections within the US 27 study corridor. The area of influence was defined as each leg of the intersection, up to 250 feet from the stop bars.
2. Segments - Roadway segments along US 27 between SR 60 and US 192 were defined based on roadway characteristics and volume. The roadway segments along US 27 were then analyzed and ranked according to multiple criteria, including:
   - Number of crashes
   - Vehicular Crashes per mile (annualized)
   - Bike and Ped Crashes per mile
   - Crashes per 10,000 daily trips
   - Percent of severe crashes (fatal and incapacitating injury crashes)
   - Percent of crashes occurring during dark conditions

A composite ranking factor based on the criteria described previously was developed to identify high crash locations. **Appendix A** provides details of the intersection, segment and a combined composite factor used to rank high crash locations within the study area. Due to ongoing and future studies at the ramp junctions and segment for I-4, the US 27 segment stretching from the westbound I-4 ramp terminal intersection to Home Run Boulevard/Posner Boulevard was omitted in consideration of this analysis. The top 10 ranked intersections and top 2 ranked segments were as follows:

1. Tower Point Circle (unsignalized intersection)
2. Thompson Nursery Road / Chalet Suzanne Road (signalized intersection)
3. SR 540 (Cypress Gardens Boulevard) / Waverly Road (signalized intersection)
4. Sunshine Drive / Paradise Island Place (unsignalized intersection)
5. US 17 Interchange (interchange)
6. Deen Still Road / Ronald Reagan Parkway (signalized intersection)
7. California Boulevard / McFee Drive (signalized intersection)
8. Sand Mine Road (signalized intersection)
9. Legacy Park Boulevard / Florence Villa Grove Road (signalized intersection)
10. Polo Park Boulevard (signalized intersection)
11. From Deen Still Road / Ronald Reagan Parkway to California Road / McFee Road (segment)
12. From California Road / McFee Road to Legacy Park Boulevard / Florence Villa Grove Road (segment)

In addition to identifying high crash locations, all fatal crashes, including the most recent (2018-2021) were summarized in a table provided at the end of **Appendix A**.

2.5.3 Summary of Roadway Safety Audit (RSA)

Using the top ten ranked intersections and two of the top ranked segments, three (3) audit teams were organized to conduct the road safety field reviews. The members of the teams were invited based on their knowledge and experience. As part of the road safety audit, field reviews were conducted during daytime off-peak times, and a nighttime field audit was also conducted. The teams collected data at the intersections and segments to identify deficiencies of the existing conditions including sidewalks, lighting, crosswalks, transit facilities, signage, and midblock median openings. Potential improvements were identified, and photos of the study locations were taken. The details of the road safety audits were published under a separate document as FDOT D1 Road Safety Audit: US 27 from North of SR 60 to US 192, dated June 2019.

The general safety deficiency findings are summarized below:

- Poor street lighting (or lack thereof)
- Poor sidewalk quality (or lack thereof)
- Poor bus stop amenities (or lack thereof)
- Poor pavement quality and/or poor pavement markings
- Missing or damaged street signs
- Missing detectable surfaces at curb ramps or no ADA accessible sidewalk altogether

In response to the summarized deficiencies listed above, the following countermeasures were proposed:

- Install or upgrade street lighting
- Construct new or repair existing sidewalks
- Install or upgrade bus stop amenities
- Resurface pavement or restripe faded pavement markings
- Install missing or repair existing street signs
- Upgrade pedestrian amenities to modern ADA standards

2.6 SHORT-TERM (MINOR) IMPROVEMENT RECOMMENDATIONS

Short term improvements were determined based on analysis of existing (2018) conditions intersection traffic operations and safety related deficiencies. Short term intersection improvements were developed to address 2018 AM and PM peak hour level of service/delay deficiencies identified at study intersections identified through the Synchro analysis and the recommended improvements resulting from the roadway safety audits. The improvements were grouped together based on intersection location and type of improvement. Short-term improvement recommendations are summarized in **Table 2-12** below.

The short-term operational intersection improvements were developed to address specific failures identified at study intersections, focusing on locations where the LOS D target was not met under existing peak hour conditions. For example, the signalized intersections at Sand Mine Road and Cypress Gardens Boulevard are performing at LOS E during one of the study peak hours. Lane repurposing in addition to signal optimization bring performance back to an acceptable LOS D. Most unsignalized intersections are being proposed to be converted into a bi-directional median opening, which would greatly reduce the cross-street approach delays and improve safety. Synchro reports can be found in **Appendix A** showing the AM and PM peak hour intersection operational analysis results, assuming the Short-Term Improvements are in place.

Improvement recommendations require further assessment, including any proposed access management modifications. These require analysis on a corridor-wide basis. To determine the ultimate locations that should be modified and corresponding upstream and downstream modifications needed along the corridor, an Access Management Plan for the entire section of US 27 is recommended. In addition, the future conditions analysis should be completed to determine whether the access management recommendations will complement recommended future improvements for the US 27 corridor. These recommendations are being provided to appropriate FDOT offices for further review and assessment.

TABLE 2-12: SUMMARY OF SHORT-TERM IMPROVEMENTS

No.	Intersection	Intersection Type	Synchro Traffic Operations - Short Term Improvement Recommendations	RSA Safety - Short Term Improvement Recommendations
1	Tower Point Ent/Vanguard School Ent	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	Convert full median opening to bi-directional median opening, maintenance items, improve pavement markings, improve street lighting.
2	Thompson Nursery Rd/Chalet Suzanne Rd	Signalized	N/A	Improve signs and pavement markings; install curbs, signs, and maintenance items; improve street lighting.
3	SR 540/Cypress Gardens Blvd/Waverly Rd[1]	Signalized	Convert eastbound right-turn lane into a channelized, free-flowing right-turn lane. To accommodate the free-flowing traffic, widening southbound US 27 to provide acceleration lane is recommended.	Install signs, maintenance items, install additional street lighting.
4	Lincoln Ave	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
5	Frederick Ave	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
6	Kokomo Rd	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
7	Sunshine Dr/Paradise Island Pl	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	Convert full median opening to bi-directional median opening, additional signage at full median opening, add stop sign at Sunshine Dr, maintenance items, improve street lighting.
8	US 17/ US 92	Interchange	N/A	Maintenance items; install signs, sidewalks, and pedestrian paths; improve lighting.
9	W Johnson Rd	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
10	Section 7 Airport Rd/Parson Rd/Patterson Rd	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
11	South Blvd	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
12	Holly Hill Cutoff Rd/North Blvd W	Unsignalized	FDOT D1 decision to signalize intersection.	N/A
13	La Casa Del Sol Blvd	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
14	Holly Hill Tank Rd/Florida Development Rd	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	N/A
15	Holly Hill Grove Rd 2/Cottonwood Rd	Unsignalized	Signalize intersection. Permitting left-turn phasing for eastbound and westbound approaches, added left-turn lanes for eastbound and westbound approaches.	N/A
16	Ronald Reagan Pkwy/Deen Still Rd	Signalized	N/A	Maintenance items, install signs and pavement markings; install lighting on Deen Still Rd.
17	Laurel Estates Access/Ogelthorpe Dr	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	Add signage and improve pavement marking at full median opening, replace damaged signs, improve lighting as needed.
18	Elgin Blvd/Santa Cruz Lane/Cardiff Ave	Unsignalized	Convert to a directional median opening, allowing only right-turns from side street.	Add signage and improve pavement marking at full median opening, replace damaged signs, improve street lighting as needed.
19	Four Corners Blvd/Bella Citta Blvd	Signalized	Change signal to operate as split phased for eastbound/westbound.	Repair and add corrects signage, consider split phase signal, improve street lighting as needed.
20	Central Grove Rd/Terra Del Sol Blvd	Unsignalized	Signalize intersection, operate as split phased for eastbound/westbound.	Add sign and improve pavement marking at full median opening, replace damaged signs, improve street lighting as needed.
21	California Blvd/McFee Dr	Signalized	N/A	Maintenance items; install sidewalks, signs, and pavement markings; install additional lighting at intersection.
22	Florida Ave	Unsignalized	N/A	Add signage and improve pavement marking at full median opening, replace damaged signs, improve street lighting as needed.

[1] Additional Optional Short-Term Improvement Recommendation: Provide an additional eastbound right-turn lane, change phasing to allow eastbound right-turn overlap

TABLE 2-12: SUMMARY OF SHORT-TERM IMPROVEMENTS (CONTINUED)

No.	Intersection	Intersection Type	Synchro Traffic Operations - Short Term Improvement Recommendations	RSA Safety - Short Term Improvement Recommendations
23	Highlands Reserve Blvd/Student Dr	Signalized	Change signal to operate as split phased for eastbound/westbound.	Install/repair signs and pedestrian assemblies, maintenance items, consider split phase signal, improve street lighting as needed.
24	Sand Mine Rd	Signalized	Dual left-turn lanes on eastbound and westbound approaches, converting right-turn only lanes into shared thru/right-turn lanes, protected left-turns only.	Maintenance items; install signs, curbs, and install lighting on US 27.
25	Legacy Park Blvd/Florence Villa Grove Rd	Signalized	N/A	Maintenance bike lane and realigning crosswalks, install pavement markings, install street lighting on US 27.
26	Polo Park Blvd	Signalized	N/A	Install signs, street lighting on US 27, sidewalk, and pavement markings; maintenance items.

3 SUMMARY OF FUTURE (2030 & 2045) CONDITIONS ANALYSIS

Future No-Build 2030 and 2045 analyses were conducted to predict when certain roadway segments or intersections will be overcapacity. Intersections or segments failing in 2030 were determined to be higher priority for future projects.

3.1 FUTURE CONTEXT CLASSIFICATION

The characteristics of the community within the US 27 Mobility Study area are anticipated to remain generally suburban in nature. There are also areas more rural and more urban present along the corridor. Only the area between the Lake Wales Ridge Wildlife Environmental Area to East Mountain Lake Cutoff Rd is expected to remain a rural area due to the presence of sensitive environmental lands.

Within the US 27 Mobility Study area, the following FDOT context classifications are identified:

- C2 – Rural
- C3C – Suburban Commercial
- C3R – Suburban Residential
- C4 – Urban General

Table 3-1 lists the anticipated future context classification throughout the study area. For additional information about US 27 context classification, see the Polk County US 27 Context Classification Analysis produced by FDOT District One in May 2019. The Polk County US 27 Context Classification Analysis was the basis for this summary.

As the corridor travels through several jurisdictions, planning data from Lake Wales, Winter Haven, Dundee, Lake Hamilton, Haines City, and Polk County were evaluated to maintain consistency with future character and land uses.

TABLE 3-1: US 27 FUTURE CONTEXT CLASSIFICATION

Limits	Future Context Classification
SR 60 to Lake Wales Ridge Wildlife and Environmental Area	C3C Suburban Commercial
Lake Wales Ridge Wildlife Environmental Area to E Mountain Lake Cutoff Rd	C2 Rural
E Mountain Lake Cutoff Rd to Lake Wales Boundary	C3C Suburban Commercial
Lake Wales Boundary to Dundee Boundary	C3C Suburban Commercial
Dundee Boundary to Frederick Ave	C4 Urban General
Frederick Ave to Haines City Boundary	C3C Suburban Commercial
Haines City Boundary to Davenport Boundary	C3C Suburban Commercial
Davenport Boundary to Florida Pines Blvd	C3C Suburban Commercial
Florida Pines Blvd to US 192	C3R Suburban Residential

3.2 FUTURE BICYCLE AND PEDESTRIAN FACILITY LOS

Future bicycle facilities assumptions were made based on the most recent Polk TPO Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP), as certain planned and programmed projects will include elements to improve bicycle facilities. The projects in **Table 3-2** are expected to improve bicycle facilities within their limits:

TABLE 3-2: IDENTIFIED PLANNED AND PROGRAMMED ROADWAY IMPROVEMENTS

Project Location	Project Type	Status	FDOT Financial Project ID (FPID)
US 27 at SR 60	Widening	PD&E Complete (Funded through 2020)	419243-4-52-01
SR 544 (Lucerne Park Rd) from Martin Luther King Blvd to SR 17	Widening	PD&E Ongoing (Funded through 2023)	440273-1-22-01
US 27 from Blue Heron Bay to Holly Hill Cutoff	Resurfacing	Ongoing (Funded in 2022)	441553-1
US 27 at Sandmine Rd	Lighting	Ongoing (Funded in 2021)	442117-1
US 27 at Florence Villa Grove Rd	Lighting	Ongoing (Funded in 2021)	442115-1
US 27 at Polo Park	Lighting	Ongoing (Funded in 2021)	442116-1

Additionally, Momentum 2040, (Polk TPO 2040 LRTP) identified the segment of US 27 from CR 547 to I-4 as a Future Complete Streets Corridor. The implementation of Complete Streets strategies will be assumed for this segment as well.

To evaluate the quality of the future bicycle facilities, a FDOT Quality/Level of Service (Q/LOS) analysis was performed for the No-Build alternative. The primary quantitative variable used to determine the LOS, is the AADT relative to the number of roadway lanes present. The AADT used for this analysis is the 2045 No-Build condition traffic forecast.

The bicycle facilities were considered either present or insufficient. When facilities were present on only one side of US 27, the segment was considered insufficient. This "true/false" indicator was compared with the Generalized Annual Average Daily Volumes for Florida's Urbanized Areas (Table 1) as presented in the FDOT Q/LOS Handbook. The results were determined per traffic count segment and mapped.

Table 3-3 summarizes the distance along US 27 that is considered to have a Q/LOS of C, D, E, or F.

TABLE 3-3: NUMBER OF MILES BICYCLE Q/LOS LEVEL

Bicycle Q/LOS	Miles of US 27 Corridor 2045 No-Build
C	4.23 miles
D	20.60 miles
E	0.00 miles
F	7.22 miles

Based on 2045 traffic projections, along most of the corridor (20.60 miles) the bicycle facilities will operate at LOS D, while approximately 7.22 miles of bicycle facilities will operate at LOS F. As daily vehicular traffic on US 27 increases with population and employment growth, the bicycle level of service of existing facilities will degrade. As part of the NE Polk US 27 Mobility Study Existing Conditions Report, **Table 3-4** was created to identify segments that are considered to be deficient.

TABLE 3-4: BICYCLE DEFICIENCIES

From	To	Side of Deficiency
Southern Study Limit (*MP 0.0*)	NB US 27 On Ramp (*MP 0.103*)	Right Only
NB US-27 On Ramp (*MP 0.103*)	Central Ave (*MP 0.221*)	Left Only
Eagle Ridge Dr (*MP 3.778*)	Waverly Rd (*MP 5.944*)	Both
Roberts Rd (*MP 11.442*)	S of US-17/92 (*MP 14.882*)	Both *(except S of B Moore Rd to N of SR 544 on Left)*
S of Johnson Ave (*MP 15.539*)	Johnson Ave (*MP 15.628*)	Both
S of Ernie Caldwell Blvd (*MP 23.086*)	I-4 EB On Ramp (*MP 23.582*)	Right Only
S of Ernie Caldwell Blvd (*MP 23.086*)	S of Posner Blvd (*MP 23.30*)	Left Only
I-4 EB On Ramp (*MP 23.582*)	I-4 WB Off Ramp (*MP 24.336*)	Both
I-4 WB Off Ramp (*MP 24.336*)	Ritchie Brothers Rd (*MP 24.621*)	Right Only

Future pedestrian facilities assumptions were made based on the most recent Polk TPO LRTP and TIP, as certain planned and programmed projects will include elements to improve pedestrian facilities. The projects identified previously in **Table 3-2** are expected to improve pedestrian facilities within their limits.

Additionally, Momentum 2040, (Polk TPO 2040 LRTP) identified the segment of US 27 from CR 547 to I-4 as a Future Complete Streets Corridor. The implementation of Complete Streets strategies will be assumed for this segment as well.

Like the bicycle facility analysis, to evaluate the quality of the pedestrian facilities, a FDOT Q/LOS analysis was performed.

Pedestrian facilities were considered either present or insufficient. When facilities were present on only one side of US 27, the segment was considered insufficient. This "true/false" indicator was compared with the Generalized Annual Average Daily Volumes for Florida's Urbanized Areas (Table 1) as presented in the FDOT Quality/Level of Service Handbook. The results were determined per traffic count segment and mapped.

Based on 2045 traffic projections, the entire study area corridor has a pedestrian level of service of either E or F in the No-Build Condition. **Table 3-5** summarizes the anticipated total distance of each Q/LOS. The full analysis table can be found in **Appendix A**.

TABLE 3-5: NUMBER OF MILES PER PEDESTRIAN Q/LOS LEVEL FOR 2045 NO-BUILD FUTURE CONDITION

Pedestrian Q/LOS	Miles of US 27 Corridor 2045 No Build
C	0.0 miles
D	0.0 miles
E	12.08 miles
F	19.97 miles

Pedestrian facility level of service along the US 27 corridor is largely considered below standard throughout the study area, as shown in **Table 3-6**. As daily vehicular traffic on US 27 increases with population and employment growth, the pedestrian level of service of existing facilities will degrade.

TABLE 3-6: DEFICIENT PEDESTRIAN FACILITIES

From	To	Side
Southern Study Limit (*MP 0.0*)	Central Ave (*MP 0.221*)	Both Sides
Harding Ave (*MP 1.247*)	S of Lincoln Ave (*MP 8.024*)	Both Sides
Kitto Ln (*MP 9.782*)	S of Crump Rd (*MP 10.343*)	Both Sides
Lake St (*MP 10.608*)	S of SR 544 (*MP 13.144*)	Left Side
Lake St (*MP 10.608*)	Haines City/Winter Haven Boundary (*MP 14.663*)	Right Side
SR 544 (*MP 13.244*)	Johnson Ave (*MP 15.628*)	Left Side
Kenny Blvd (*MP 14.738*)	Johnson Ave (*MP 15.628*)	Right Side
Intermart Shopping Center Entrance (*MP 16.521*)	South of Miracle Toyota (*MP 16.931*)	Left Side
Egret Dr (*MP 16.62*)	Bates Dr (*MP 17.291*)	Right Side
Lowes Entrance (*MP 17.405*)	Davenport Blvd (*MP 18.677*)	Right Side
Lowes Entrance (*MP 17.405*)	Ernie Caldwell Blvd (*MP 23.171*)	Left Side
North of Park Place Blvd (*MP 20.539*)	South of Deer Creek Blvd (*MP 22.739*)	Right Side
Victor Posner Blvd (*MP 23.382*)	EB I-4 Off-Ramp (*MP 23.749*)	Right Side
WB I-4 Off-Ramp (*MP 24.218*)	Access Rd (*MP 24.621*)	Left Side
North of Polo Park Blvd (*MP 31.492*)	US-192 (*MP 31.970*)	Right Side

3.3 FUTURE TRANSIT FACILITIES

SunRail is a Central Florida passenger rail system serving the City of Orlando, and Volusia, Seminole, Orange, and Osceola counties. It opened in 2014 and has expanded to now include 49 miles and 16 stations in four counties, making 40 trips per day. SunRail operates double-decker passenger rail cars on 30-minute headways during morning and afternoon peak periods and on higher headways midday. Trains run Monday through Friday, but not on weekends or designated holidays, although they sometimes run other times in conjunction with special events. There are 16 stations on the line, from DeBary in the north to Poinciana in the south. The system has many on-board amenities, including accommodations for luggage, bicycles, wireless internet and restrooms. Stations are designed to be comfortable and secure, but otherwise modest in construction cost. They include platform canopies to provide shade, ticket vending machines to facilitate fare payment, water fountains, power outlets, free Wi-Fi, emergency phones and closed-circuit cameras.

A technical memorandum, completed in March 2015 for the Polk County TPO, evaluated the possible extension of SunRail passenger rail service into Polk County. The technical memorandum was completed in support of the 2040 Long Range Transportation Plan Update. The memorandum includes the following topics:

- Potential Staging Alternatives
- Conceptual Site Considerations
- Conceptual Feeder Bus Services
- Ridership Propensity Analysis
- Institutional Considerations

Further detail on these topics is provided in **Appendix B**.

3.4 NO-BUILD TRAFFIC FORECAST (2030 & 2045)

3.4.1 Travel Demand Model

The travel demand model being used for this study is based on the current adopted District One Cost Feasible 2040 Regional Planning Model (D1RPM v1.0.3), with refinements made in conjunction with a May 2018 US 17/92 Haines City traffic study. The 2010 base year model validation was refined for the project study area to ensure that the model is replicating base year traffic conditions and counts.

Build alternative forecasts will be conducted using the D1RPM 2040 No-Build Model as a base. The forecast 2040 No-Build model was developed by applying appropriate base year validation refinements to the 2040 LRTP Cost Feasible model network. This included adding the I-4/CR 532 interchange area (Osceola County) network, socioeconomic data and forecast external station volumes. Based on coordination with the Polk County TPO and Haines City, the 2040 model socioeconomic (SE) data was refined to reflect planned development within the study area which was not included in the original 2040 SE data.

The base 2040 No-Build network was revised to include the proposed Southport Connector and the Poinciana Parkway extension to I-4 along the eastern boundary of the model. The 2040 No-Build Model assumes the existing configuration for the US 27 corridor. This 2040 network was also revised to include the proposed Central Polk Parkway (CPP) project, from Polk Parkway to 91 Mine Road, consistent with the associated Florida's Turnpike Enterprise (FTE) project model coding.

3.4.2 Growth Rate Selection

Three sources of growth data were reviewed as part of the future volume development process: the Bureau of Economic and Business Research (BEBR) 2018 medium population projection for Polk County, a historical Annual Average Daily Traffic (AADT) trends analysis for all available count stations within the project area, and a review of the D1RPM Travel Demand Model growth rates. These three data sources were used to develop growth rates for each segment along US 27 in addition to each cross street associated with a study intersection. To simplify the assignment of growth rates to the cross streets, they were categorized as being a part of the broader roadway network, having minimal roadway connectivity or being an isolated access residential/commercial area. These generalized categories helped in selecting growth rates appropriate for land use and network accessibility. The selected growth rates for US 27 range between 2.0% to 4.0%. and the selected growth rates for all the cross streets range between 0.5% to 5.0%. Detailed tables presenting the selected growth rates for all US 27 and cross street segments can be found in **Appendix B (Future No-Build Conditions Report)**.

3.4.3 Future No-Build 2045 Daily Volumes

Estimated Design Year (2045) AADTs were developed by the application of selected linear growth rates to the Existing Year (2018) AADTs. The 2045 AADTs along with roadway segment LOS are presented in **Figure 3-1**.

3.4.4 Future No-Build 2030 Daily Volumes

Estimated Opening Year (2030) AADTs were developed by the application of selected linear growth rates to the Existing Year (2018) AADTs. The 2030 AADTs along with roadway segment LOS are presented in **Figure 3-2**.

3.4.5 No-Build 2045 Design Hour Volumes

Directional Design Hour Volumes (DDHVs) were then developed for 2045 by multiplying the AADT by a standard K-factor of 9% and D-factors calculated from the Existing Year turning movement volumes. These DDHVs were then assigned to the appropriate movements at the intersections based on the Existing Year turning percentages. A default minimum value of 10 vehicles was assigned for each movement at every intersection along the corridor. Once these preliminary turning movement volumes were developed, a more detailed refinement of turning volumes was conducted in order to deal with volume imbalances or future volumes that were lower than Existing Year volumes.

For cross streets where the selected growth rate was 0.5%, US 27 turning volumes onto that cross street were adjusted. Instead of applying the existing turning percentages to the developed DDHVs, the existing US 27 turning volumes were linearly grown using a 0.5% growth rate and the difference between the previously calculated turning volumes and the new turning volumes were reassigned to the through movement. This volume reassignment maintains the values of the previously calculated DDHVs.

Many cross streets had calculated future turning volumes that were lower than Existing Year volumes. Because the Existing Year K-factors were much higher than the standard 9% that was being used for future predictions, the K-factor was adjusted for one or both peak hours to develop reasonable volumes.

In cases where the future directional split on a cross street was much different than existing, a manual downward adjustment of turning volumes onto the cross street was conducted. This adjustment was applied in the AM peak hour at Sand Mine Road east of US 27 and Student Drive east of US 27. At Sand Mine Road, the northbound right-turns and southbound left-turns from US 27 were reduced by 7.5% from their respective DDHVs. At Student Drive, the southbound left-turns from US 27 were reduced by 5%. The percentage of volume reduced from the turning movements was reassigned to the through movements. The 2045 turning movement volumes along with intersection LOS are presented in **Figure 3-3**.

3.4.6 No-Build 2030 Design Hour Volumes

Future Year 2030 DDHVs were developed by linearly interpolating between Existing Year (2018) DDHVs and the Design Year 2045 DDHVs. Turning movement volumes were then developed by applying the existing turning movement percentages to the 2030 DDHVs. Just like the 2045 turning movement volumes, a minimum of 10 vehicles was required for each movement at every intersection along the corridor. The 2030 turning movement volumes along with intersection LOS are presented in **Figure 3-4**.

3.5 FUTURE NO-BUILD (2030 & 2045) CORRIDOR OPERATIONS

No-Build traffic conditions for the study area were assessed based on two types of analysis: a roadway segment LOS analysis and intersection peak hour analysis.

The US 27 roadway segment LOS analysis and study intersection AM and PM peak hour LOS analysis was conducted using the developed AADTs and DDHVs. The results of the US 27 segment LOS analysis and intersection LOS analysis are presented in Sections 3.5.1 to 3.5.4.

3.5.1 Future No-Build 2045 Roadway Segment LOS

In order to evaluate No-Build roadway levels of service, US 27 was divided into 13 segments within the study limits. The segmentation was based on an AADT variance of 10% or more. For each segment, the highest AADT value was used in conjunction with the FDOT Generalized Level of Service tables and roadway characteristics to ascertain the LOS. **Figure 3-1** depicts the 2045 levels of service as well as AADT values for each segment.

Based on the 2045 AADTs developed for the study corridor and shown in **Figure 3-1**, the segments of US 27 that are shown to be operating below the FDOT LOS target (LOS D for an urbanized area) are as follows:

- US 27 from E Mountain Lake Cutoff Road to Cypress Gardens Boulevard (SR 540)
- US 27 from Cypress Gardens Boulevard (SR 540) to Dundee Road (SR 542)
- US 27 from north of Hughes Road to Scenic Highway (SR 544)
- US 27 from Scenic Highway (SR 544) to Bates Road
- US 27 from Bates Road to Davenport Boulevard
- US 27 from Davenport Boulevard to Minute Maid Ramp Road 2/Citrus Ridge Drive
- US 27 from Minute Maid Ramp Road 2/Citrus Ridge Drive to Heller Brothers Boulevard/Deer Creek Boulevard
- US 27 from Heller Brothers Boulevard/Deer Creek Boulevard to Home Run Boulevard/Posner Boulevard
- US 27 from Home Run Boulevard/Posner Boulevard to NB US 27 On-ramp to EB I-4
- US 27 from NB US 27 On-ramp to EB I-4 to California Boulevard/McFee Dr
- US 27 from California Boulevard/McFee Dr to US 192

3.5.2 Future No-Build 2030 Roadway Segment LOS

Figure 3-2 depicts the 2030 levels of service as well as AADT values for each segment.

Based on the 2030 AADTs developed for the study corridor and shown in **Figure 3-2**, the segments of US 27 that are shown to be operating below the FDOT LOS target (LOS D for an urbanized area) are as follows:

- US 27 from Scenic Highway (SR 544) to Bates Road
- US 27 from Bates Road to Davenport Boulevard
- US 27 from Davenport Boulevard to Minute Maid Ramp Road 2/Citrus Ridge Drive
- US 27 from Minute Maid Ramp Road 2/Citrus Ridge Drive to Heller Brothers Boulevard/Deer Creek Boulevard
- US 27 from Heller Brothers Boulevard/Deer Creek Boulevard to Home Run Boulevard/Posner Boulevard
- US 27 from Home Run Boulevard/Posner Boulevard to NB US 27 On-ramp to EB I-4
- US 27 from NB US 27 On-ramp to EB I-4 to California Boulevard/McFee Dr

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

THE VANGUARD SCHOOL

260

1,500

TOWER POINT APARTMENTS

530

390

64,500

57,500

WEIKERT FORD

13,000

TOWER LAKES

TOWERWOOD

FLORIDA'S NATURAL GROWERS

2,800

57,500

57,500

FLORIDA'S NATURAL GROWERS

6,200

4,300

44,000

4,100

7,200

9,100

2,700

11,000

56,000

11,000

6,800

15,500

49,500

13,000

BEGIN PROJECT

Washington Ave

W Central Ave

E Mountain Lake Cutoff Rd

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

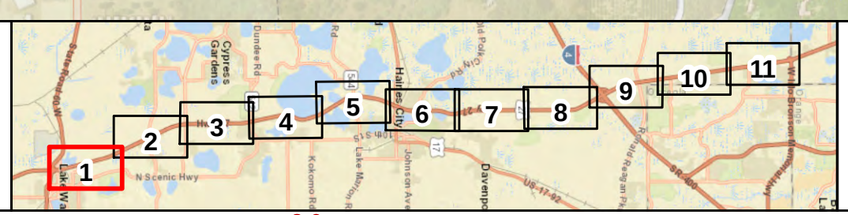


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 1 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

Thompson Nursery Rd

Chalet Suzanne Rd

CARLTON ARMS APARTMENTS

SUNSHINE FLEA MARKET

HOME DEPOT

PEDALERS POND

SHOPPES ON THE RIDGE

EAGLE RIDGE MALL

LOWE'S

42,500

60,000

69,500

6,600

2,500

3,500

20,000

67,000

62,500

25,000

62,500

67,000

3,600

20,500

27

540

0 500 1,000 2,000 Feet

N

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

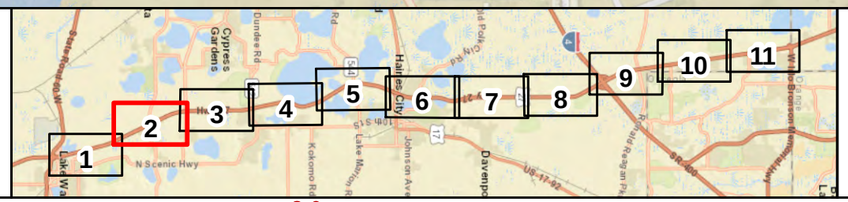


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 2 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

36,000

38,000

CYPRESSWOOD GOLF & COUNTRY CLUB

36,000

58,500

65,500

FROZEN FOOD EXPRESS

62,500

42,500

69,500

60,000

6,600

1,200

GARDEN GATE

25,500

DUNDEE RIDGE PLAZA

Lincoln Ave

PEACE CREEK RV PARK

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

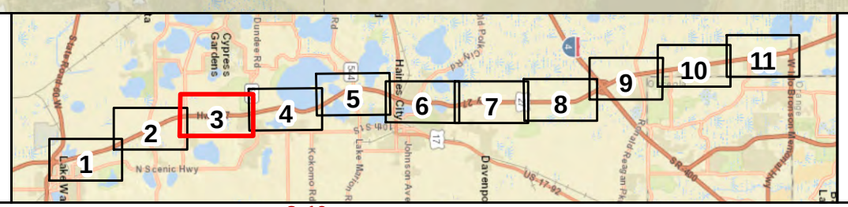


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 3 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

36,000
38,000
36,000
58,500
65,500
25,500
90
2,900
2,900
2,000
11,500
11,000
ROYAL OAKS MHP
DUNDEE RIDGE PLAZA
Crump Rd
Frederick Ave
Main St
Kokomo Rd
27
542
Lake Hamilton
Lake Dell
Crystal Lake
Lake Ida
Lake Lee
Lake Sara
0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

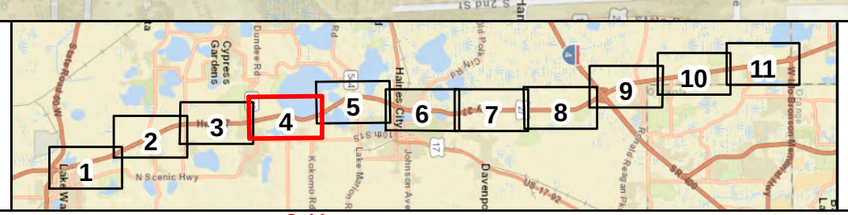


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 4 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

43,500
40,500
69,500
83,500
20,500
1,500
840
65,500
24,000
83,500

HIDDEN COVE
LAKE REGION VILLAGE MHP
PARADISE ISLAND
Sunshine Dr
27
544

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

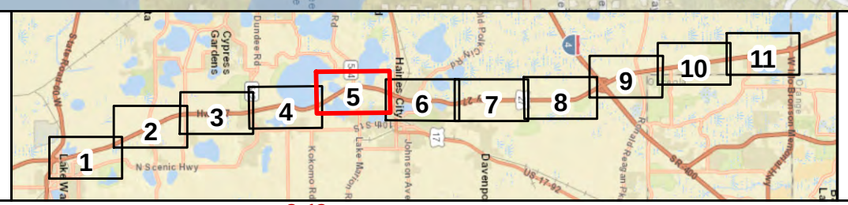


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 5 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

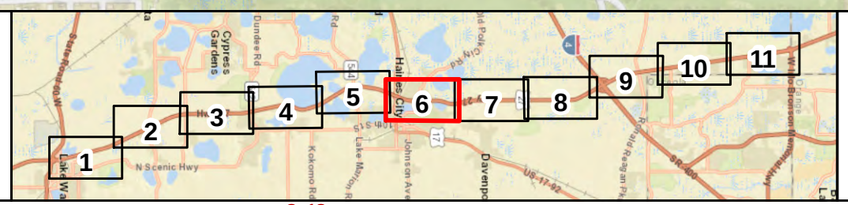
Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

50,500
4,500
8,200
4,900
83,500
6,200
5,300
8,000
89,000
4,100
7,000
1,700
1,500
3,400
5,100
17,500
6,500
91,500
96,000
7,600
8,200
1,300
79,500
98,500
20,000
4,000
19,500

Commerce Ave
Old Polk City Rd
LAKE HAMILTON VILLAGE
HAINES CITY RV PARK
W Main St
WALMART
TOYOTA
WEST VIEW RIDGE
Bates Rd
Patterson Rd
US 27
US 17 92

0 500 1,000 2,000 Feet



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 6 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

RWS Ranch Rd
Sanders Rd
Holly Hill Cutoff Rd
Massee Rd
Holly Hill Tank Rd
Patterson Rd
South Blvd
Davenport Blvd
North Blvd
Holly Hill Rd
Florida Development Rd

OLDCASTLE LAWN & GARDEN
HEATHER HILL
ESTATES OF LAKE ST. CHARLES
VILLAGE OF LA CASA DEL SOL
HEART OF FLORIDA REGIONAL MEDICAL CENTER
HIGHLAND SQUARE
BELLA NOVA
WINFIELD HEIGHTS

1,000
84,000
2,600
2,300
820
84,000
6,500
330
92,500
88,500
88,000
19,000
3,100
11,000
1,700
6,700
4,000
20,000
5,400

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

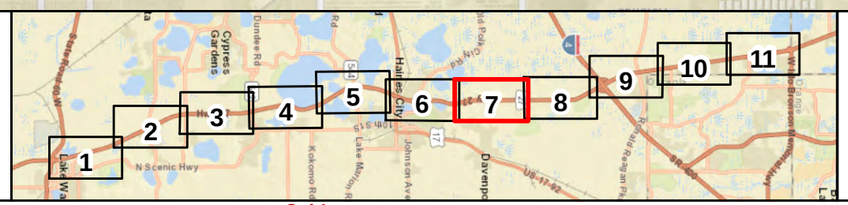


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 7 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

Holly Hill Tank Rd
Holly Hill Grove Two Rd
Minute Maid Ramp Rd Two
Heller Bros Blvd
Home Run Blvd
Florida Development Rd
Ridgewood Lakes Blvd
Cottonwood Dr
Citrus Ridge Dr
Deer Creek Blvd

FORT SUMMIT KOA CAMPGROUND
TIVOLI MANOR
WESTBURY
REGENCY PLACE
SILVER PALMS
POSNER PARK
ROYAL PALMS
ROYAL RIDGE
DEER CREEK RV RESORT

330
92,500
1,700
1,200
2,600
8,300
5,200
88,000
94,500
7,100
3,400
85,500
99,500
4,400
82,500
8,700
4,700
88,500
36,000
110,000
26,000

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

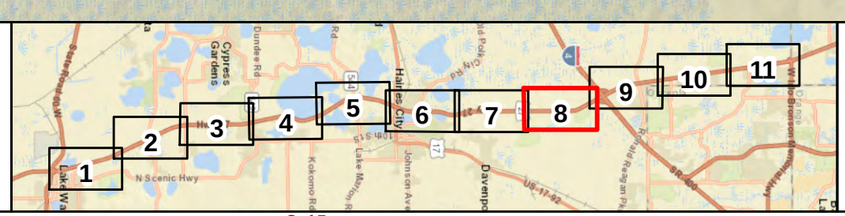
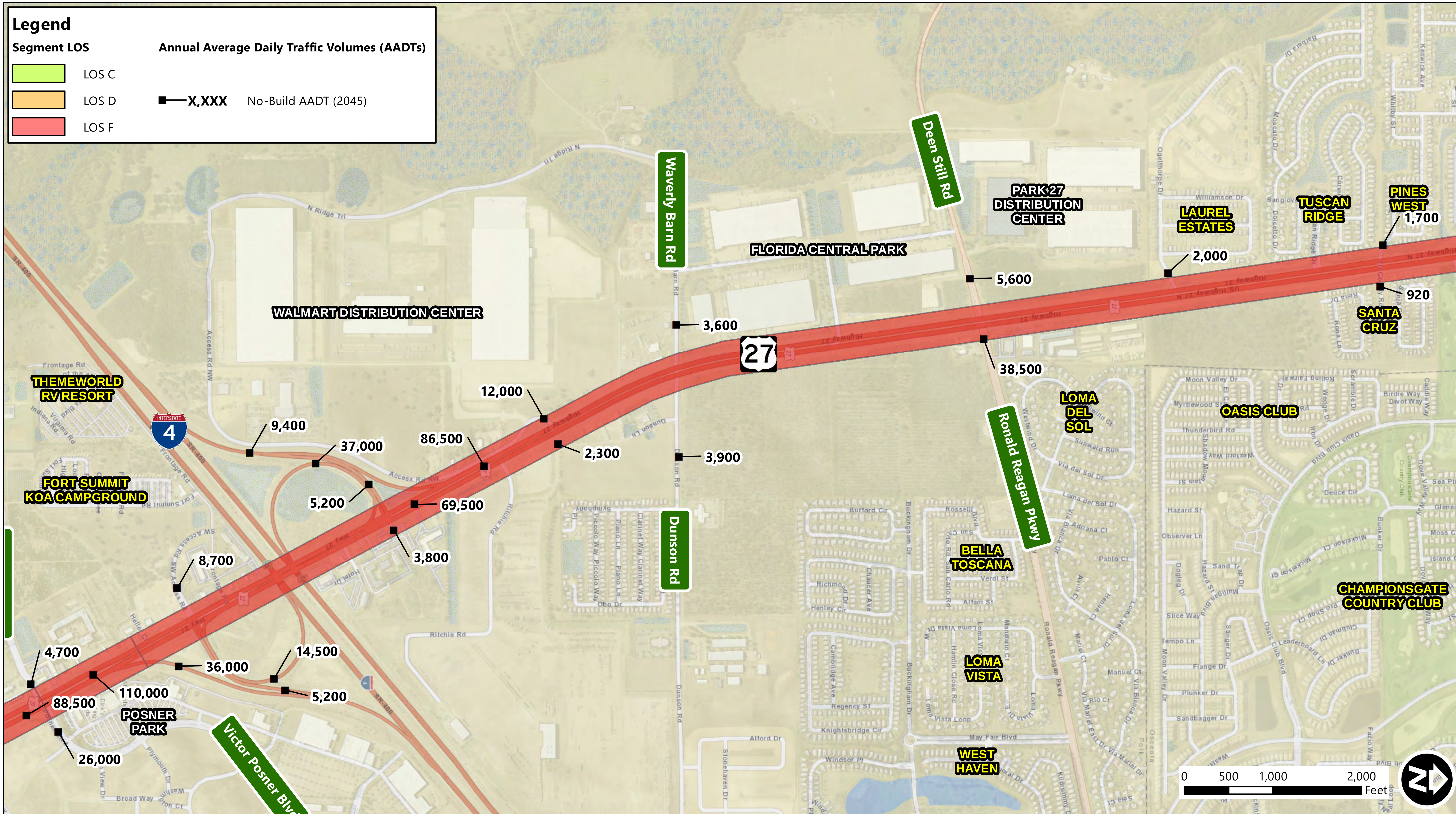
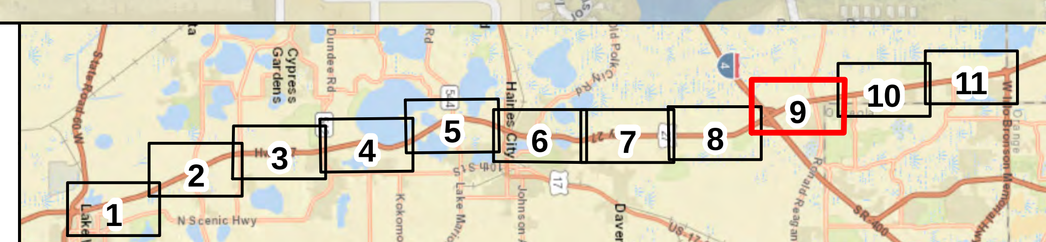


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 8 of 11





NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-1
2045 NO-BUILD AADT & SEGMENT LEVEL OF SERVICE
Sheet 9 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

Central Grove Rd
California Blvd
Highlands Reserve Blvd
Sand Mine Rd
Terra del Sol Blvd
Bella Citta Blvd
Student Dr
McFee Dr

CALABAY PARC
FLORIDA PINES
WESTRIDGE
FLORIDA CAMP INN
HIGHLANDS RESERVE
FOUR CORNERS
PINES WEST
SANTA CRUZ
TERRA DEL SOL
SOLANA
PALM KEY
HAMILTON LAKES
THE RIDGE
CITRUS RIDGE ACADEMY
CHAMPIONSGATE COUNTRY CLUB

3,200
3,700
2,600
14,500
2,500
3,800
6,200
4,100
1,400
1,700
920
18,500

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

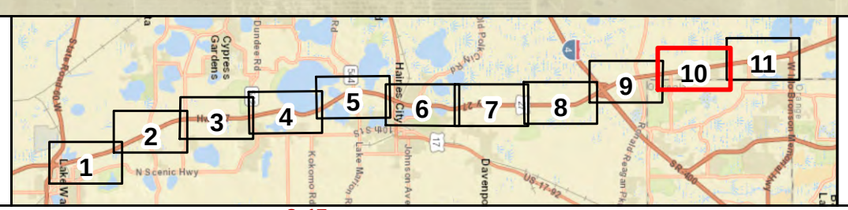


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 10 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2045)

Sand Mine Rd

Legacy Park Blvd

Florence Villa Grove Rd

Polo Park Blvd

THE RETREAT

HIGHGATE PARK

THE ESTATES

THE GROVES

THE CENTRE

WINDMILL VILLAGE

POLO PARK

HIGH GROVE

WELLINGTON

THE TOWNS

THE COMMONS

BERRY TOWN CENTER

NORTHEAST REGIONAL PARK

BASS LAKE

DAVENPORT LAKES

LAKE MAGIC RV RESORT

TUSCAN HILLS

THE PALMS

CITRUS RIDGE ACADEMY

27

192

14,500

6,200

8,100

18,000

3,300

6,000

72,500

33,500

18,000

END PROJECT

102,000

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

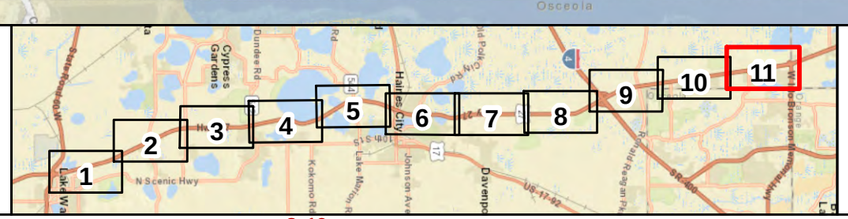


FIGURE 3-1
2045 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 11 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2030)

THE VANGUARD SCHOOL
240
1,400
TOWER POINT APARTMENTS
500
360
44,000
49,000
WEIKERT FORD
9,700
TOWER LAKES
TOWERWOOD
FLORIDA'S NATURAL GROWERS
2,500
44,000
44,000
5,500
3,800
FLORIDA'S NATURAL GROWERS
9,900
32,000
5,300
3,000
6,800
42,500
2,000
8,100
11,500
8,100
5,000
BEGIN PROJECT
36,000
Washington Ave
W Central Ave
E Mountain Lake Cutoff Rd
60
27
17
0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

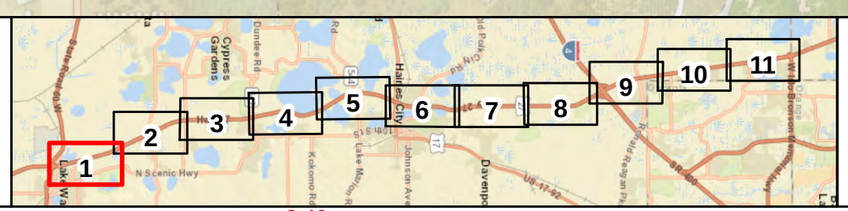


FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 1 of 11

Legend

Segment LOS — **Annual Average Daily Traffic Volumes (AADTs)**

- LOS C
- LOS D — X,XXX — No-Build AADT (2030)
- LOS F

Thompson Nursery Rd

Chalet Suzanne Rd

CARLTON ARMS APARTMENTS

SUNSHINE FLEA MARKET

HOME DEPOT

PEDALERS POND

SHOPPES ON THE RIDGE

EAGLE RIDGE MALL

LOWE'S

32,500

46,000

53,000

5,800

2,300

3,300

14,500

51,000

48,000

18,000

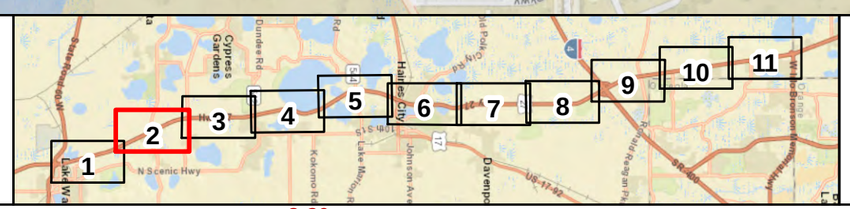
48,000

51,000

3,400

14,500

0 500 1,000 2,000 Feet



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 2 of 11

Legend

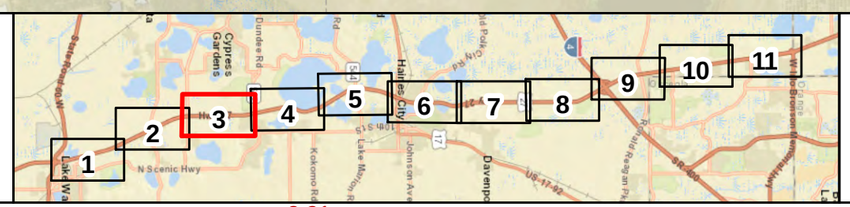
Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2030)

27,000
28,500
CYPRESSWOOD GOLF & COUNTRY CLUB
27,000
44,500
50,000
FROZEN FOOD EXPRESS
48,000
940
GARDEN GATE
19,000
DUNDEE RIDGE PLAZA
32,500
53,000
46,000
5,800
PEACE CREEK RV PARK
Lincoln Ave
0 500 1,000 2,000 Feet



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 3 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2030)

27,000
28,500
27,000
44,500
50,000
19,000
80
2,600
2,600
1,800
8,100
7,700

ROYAL OAKS MHP
DUNDEE RIDGE PLAZA
Crump Rd
Frederick Ave
Main St
Kokomo Rd
US 27
SR 542
Lake Hamilton
Crystal Lake
Lake Dell
Lake Ida
Lake Lee
Lake Sara

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

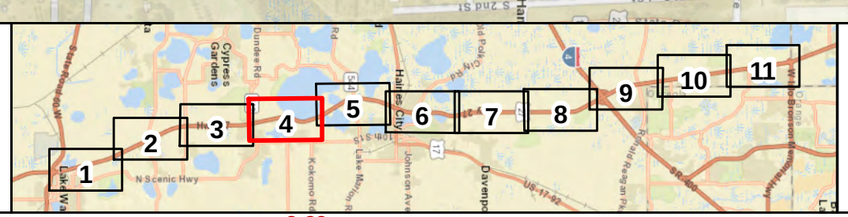


FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 4 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2030)

31,000

HIDDEN COVE

29,000

53,000

64,000

14,500

27

544

Sunshine Dr

LAKE REGION VILLAGE MHP

1,400

780

PARADISE ISLAND

50,000

64,000

17,000

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

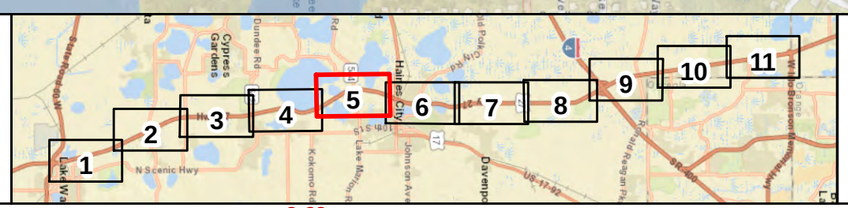


FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 5 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2030)

37,000
3,300
6,000
3,600
64,000
4,500
3,800
5,800
68,000
3,000
5,100
1,500
1,300
3,200
4,800
14,500
6,000
70,000
73,000
7,100
7,600
970
64,000
75,000
16,000
3,000
15,500

Commerce Ave
Old Polk City Rd
W Main St
Bates Rd
Patterson Rd

LAKE HAMILTON VILLAGE
HAINES CITY RV PARK
WALMART
TOYOTA
WEST VIEW RIDGE

27
17 92

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

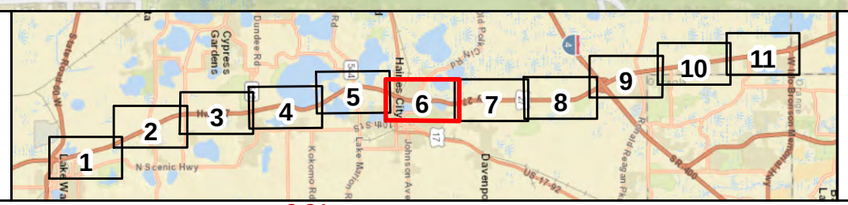


FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 6 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2030)

RWS Ranch Rd
Sanders Rd
Holly Hill Cutoff Rd
Massee Rd
Holly Hill Tank Rd
Florida Development Rd
Patterson Rd
South Blvd
Davenport Blvd
North Blvd
Holly Hill Rd

HEATHER HILL
ESTATES OF LAKE ST. CHARLES
OLDCASTLE LAWN & GARDEN
VILLAGE OF LA CASA DEL SOL
HEART OF FLORIDA REGIONAL MEDICAL CENTER
HIGHLAND SQUARE
BELLA NOVA
WINFIELD HEIGHTS

950
2,400
67,500
2,000
760
67,500
4,900
74,500
240
70,500
71,500
14,500
2,300
5,000
8,200
1,500
3,000
15,000
4,100

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

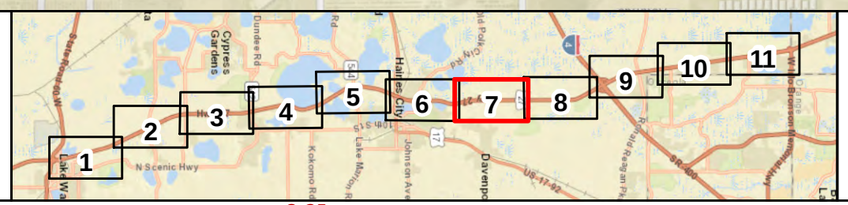


FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 7 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

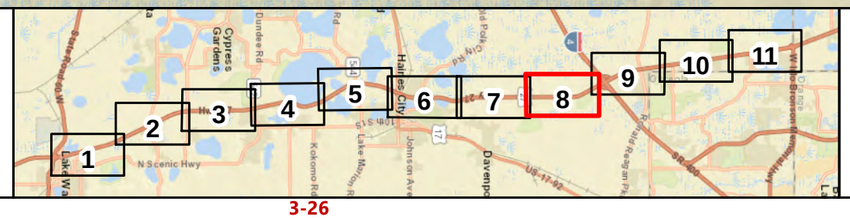
- X,XXX — No-Build AADT (2030)

Holly Hill Tank Rd
Holly Hill Grove Two Rd
Minute Maid Ramp Rd Two
Heller Bros Blvd
Home Run Blvd
Florida Development Rd
Ridgewood Lakes Blvd
Cottonwood Dr
Citrus Ridge Dr
Deer Creek Blvd

FORT SUMMIT KOA CAMPGROUND
TIVOLI MANOR
WESTBURY
REGENCY PLACE
SILVER PALMS
POSNER PARK
DEER CREEK RV RESORT
ROYAL PALMS
ROYAL RIDGE

74,500
240
1,500
870
6,300
2,400
3,900
70,500
76,500
5,300
2,600
69,000
80,000
4,100
6,500
27,000
4,100
71,500
88,500
18,500
66,500

0 500 1,000 2,000 Feet



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 8 of 11

Legend

Segment LOS

- LOS C
- LOS D
- LOS F

Annual Average Daily Traffic Volumes (AADTs)

- X,XXX — No-Build AADT (2030)

Waverly Barn Rd

Deen Still Rd

Dunson Rd

Ronald Reagan Pkwy

Victor Posner Blvd

FLORIDA CENTRAL PARK

PARK 27 DISTRIBUTION CENTER

WALMART DISTRIBUTION CENTER

LAUREL ESTATES

TUSCAN RIDGE

PINES WEST

SANTA CRUZ

THEMEWORLD RV RESORT

FORT SUMMIT KOA CAMPGROUND

POSNER PARK

LOMA DEL SOL

OASIS CLUB

BELLA TOSCANA

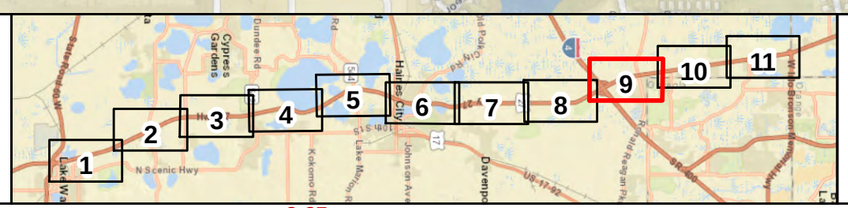
LOMA VISTA

WEST HAVEN

CHAMPIONSGATE COUNTRY CLUB

1,600
1,600
860
4,900
3,100
27,500
8,200
7,100
61,500
28,000
2,000
3,500
3,900
49,500
2,900
6,500
4,100
27,000
11,000
88,500
3,900
71,500
18,500

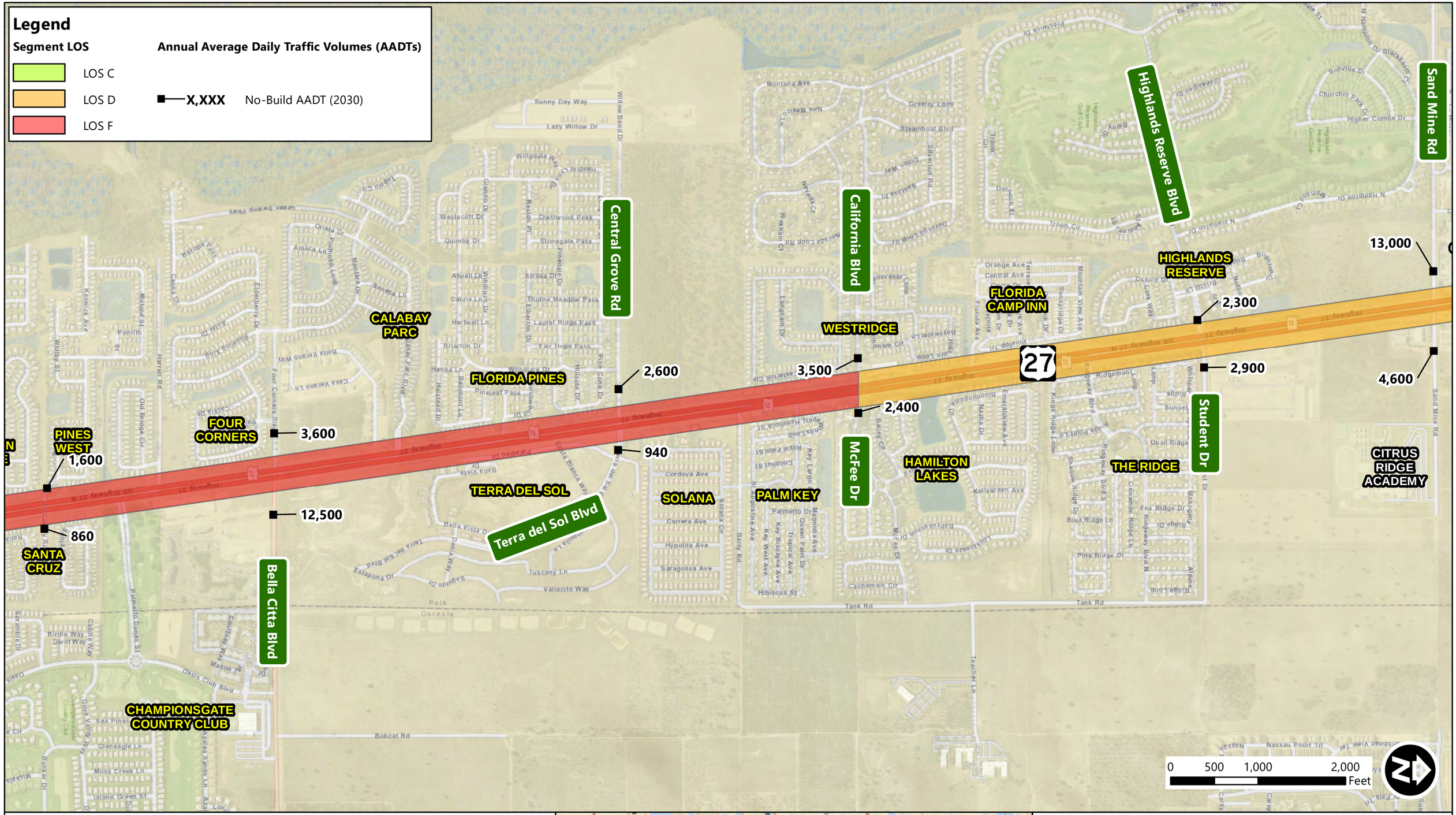
0 500 1,000 2,000 Feet



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 9 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

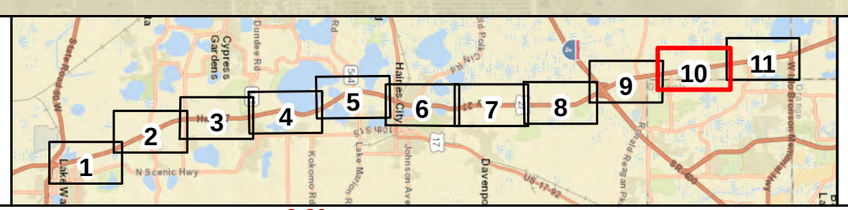


FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 10 of 11

Legend

Segment LOS — **Annual Average Daily Traffic Volumes (AADTs)**

- LOS C
- LOS D — X,XXX — No-Build AADT (2030)
- LOS F

THE RETREAT
HIGHGATE PARK
THE ESTATES
THE GROVES
Legacy Park Blvd
THE CENTRE
WINDMILL VILLAGE
POLO PARK
HIGH GROVE
Sand Mine Rd
WELLINGTON
THE TOWNS
THE COMMONS
BERRY TOWN CENTER
TUSCAN HILLS
THE PALMS
NORTHEAST REGIONAL PARK
BASS LAKE
DAVENPORT LAKES
Polo Park Blvd
LAKE MAGIC RV RESORT
Florence Villa Grove Rd
CITRUS RIDGE ACADEMY
END PROJECT

27
192

23,500
12,500
55,000
13,000
3,100
5,600
7,500
13,000
13,500
4,600
72,500

0 500 1,000 2,000 Feet

NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

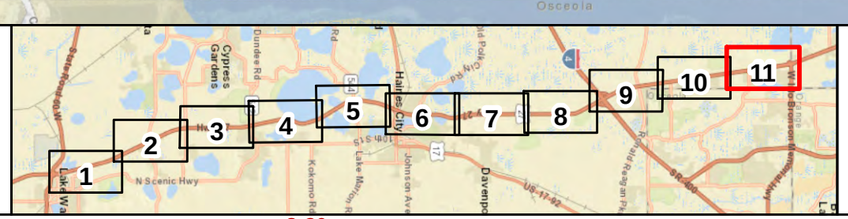


FIGURE 3-2
2030 NO-BUILD AADT &
SEGMENT LEVEL OF SERVICE
Sheet 11 of 11

3.5.3 Future No-Build 2045 Intersection LOS

Trafficware's *Synchro 10* was used to analyze each of the study intersections and HCM 6th Edition Methodology was used to report the performance measures.

For all study intersections, HCM 6th Edition reports provided relevant measures of effectiveness (MOEs). Two intersections that were analyzed as unsignalized in the Existing Year were updated to be analyzed as signalized in the future No-Build scenarios based on an FDOT decision to signalize the two intersections in the near future. These intersections are US 27 at Holly Hill Cutoff Road/North Boulevard and US 27 at Kokomo Road. Four intersections have been identified as having ongoing or planned improvements and therefore were disregarded in the intersection analysis.

- The US 27 and SR 60 interchange will be reconstructed into a Single Point Urban Interchange (SPUI) as part of the FDOT D1 Five-Year Work Program.
- The Ultimate I-4/US 27 interchange improvements originally proposed as part of the I-4 Beyond the Ultimate (BtU) Segment 5 include the reconstruction of the following three intersections:
  - US 27 and Home Run Boulevard/Posner Boulevard
  - US 27 and Eastbound I-4 Ramps
  - US 27 and Westbound I-4 Ramps

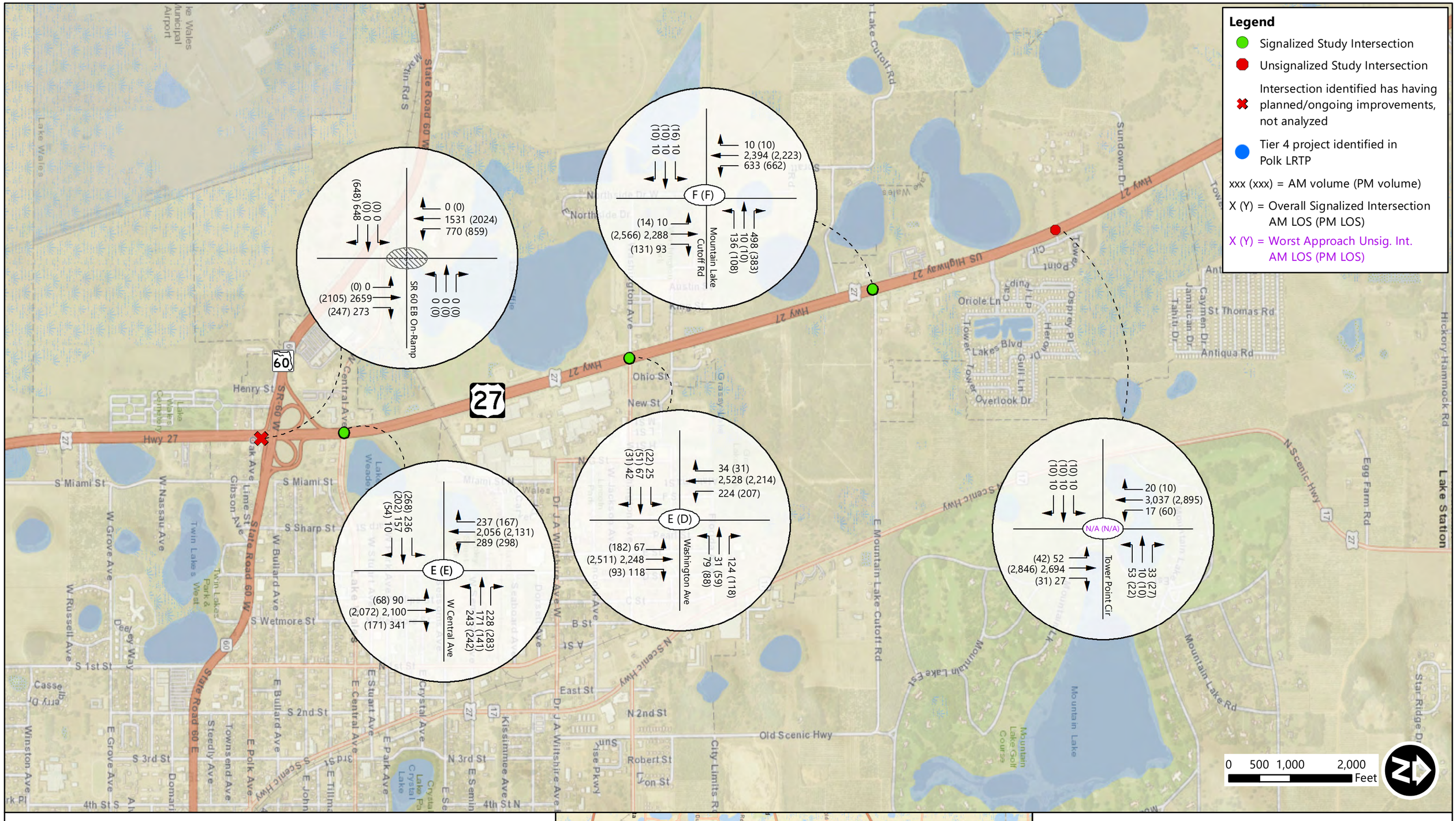
Figure 3-3 depicts the 2045 No-Build intersection LOS as well as intersection turning movement volumes.

In 2045, 30 of the 47 study intersection operate at LOS E or F, which is below the FDOT LOS D target, in the AM and/or PM peak hours. Many unsignalized intersections are well over capacity, and HCM 6th edition methodology is unable to calculate results for them.

3.5.4 Future No-Build 2030 Intersection LOS

Figure 3-4 depicts the 2030 No-Build intersection LOS as well as intersection turning movement volumes.

In 2030, 27 of the 47 study intersection operate at LOS E or F, which is below the FDOT LOS target D, in the AM and/or PM peak hours. Many unsignalized intersections exceed their respective capacities, under which condition HCM 6th edition methodology is unable to calculate results.



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

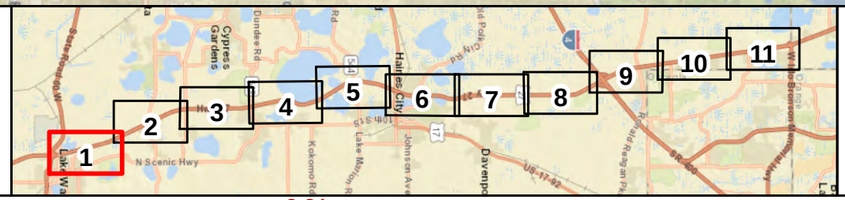
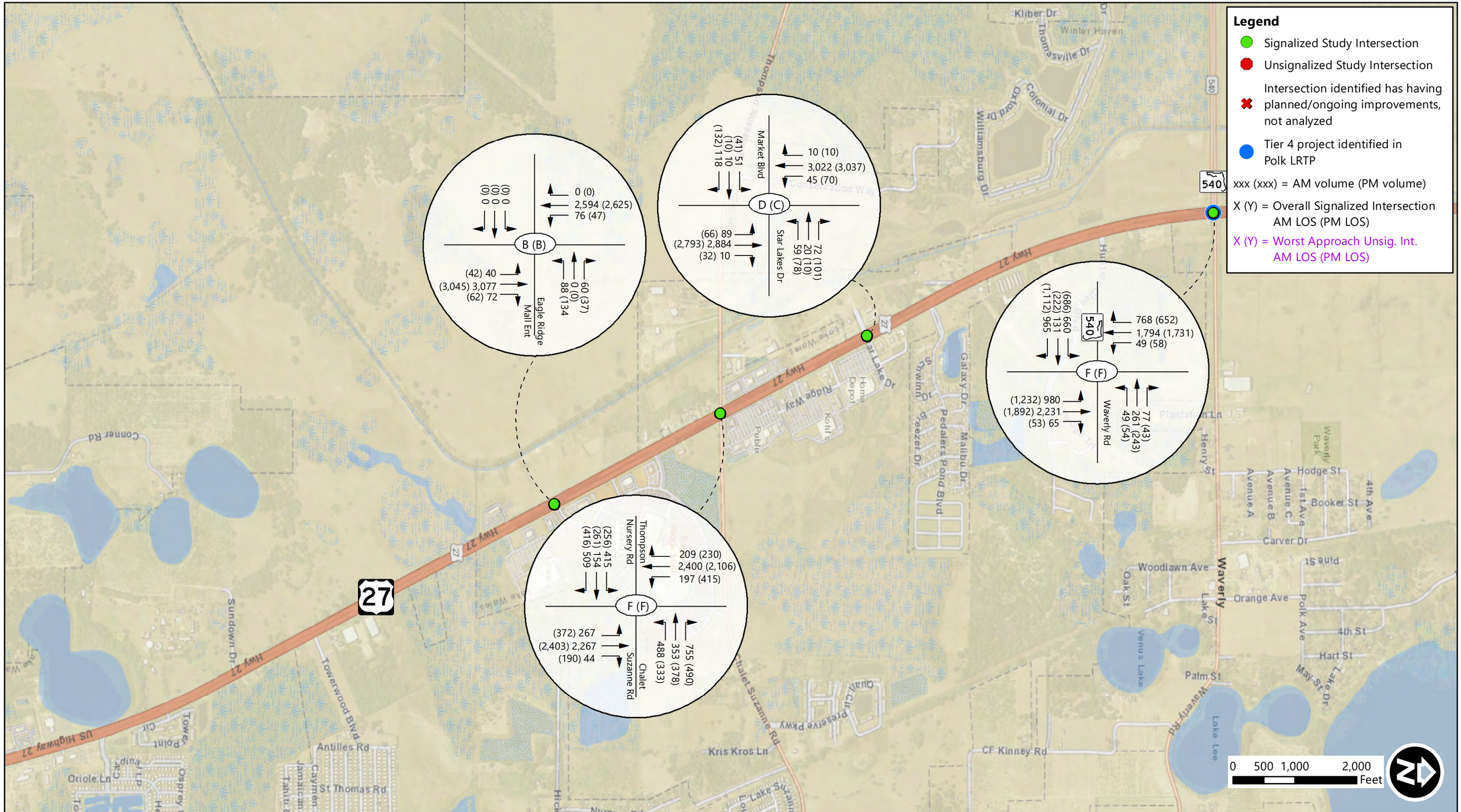
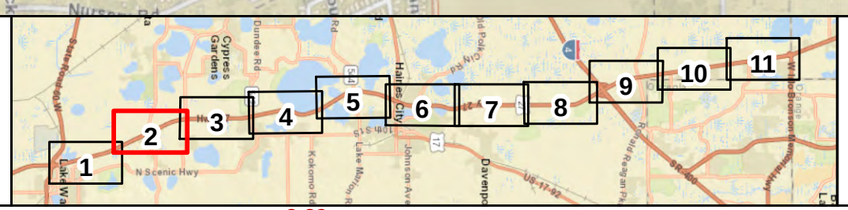


FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 1 of 11

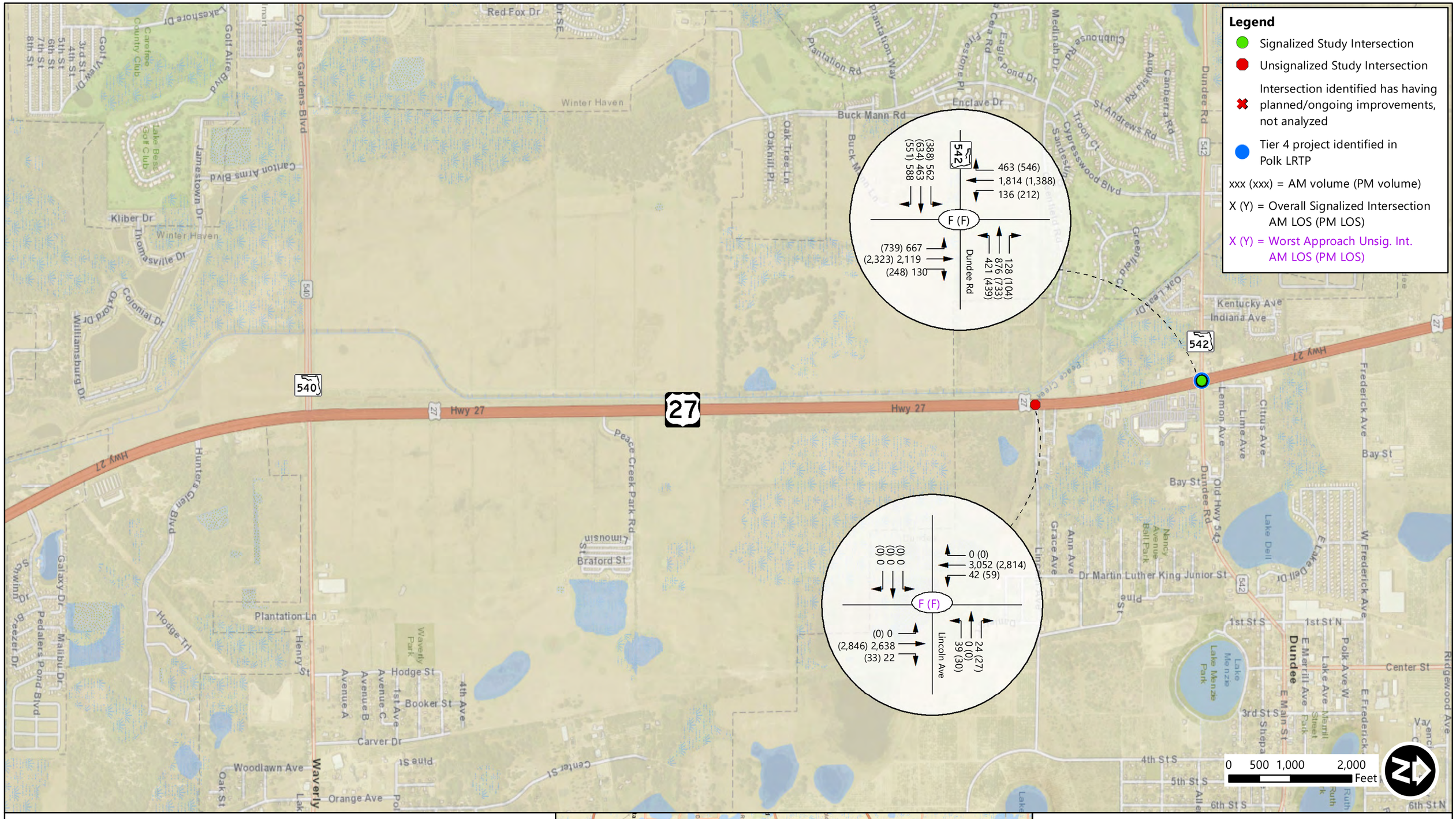


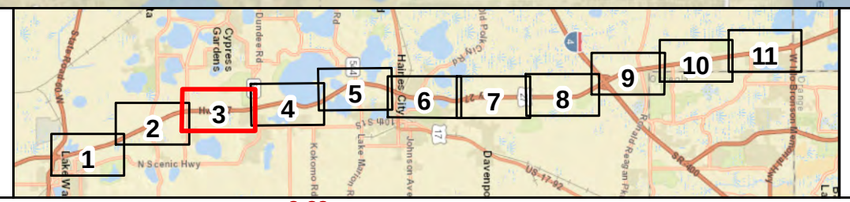


NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 2 of 11

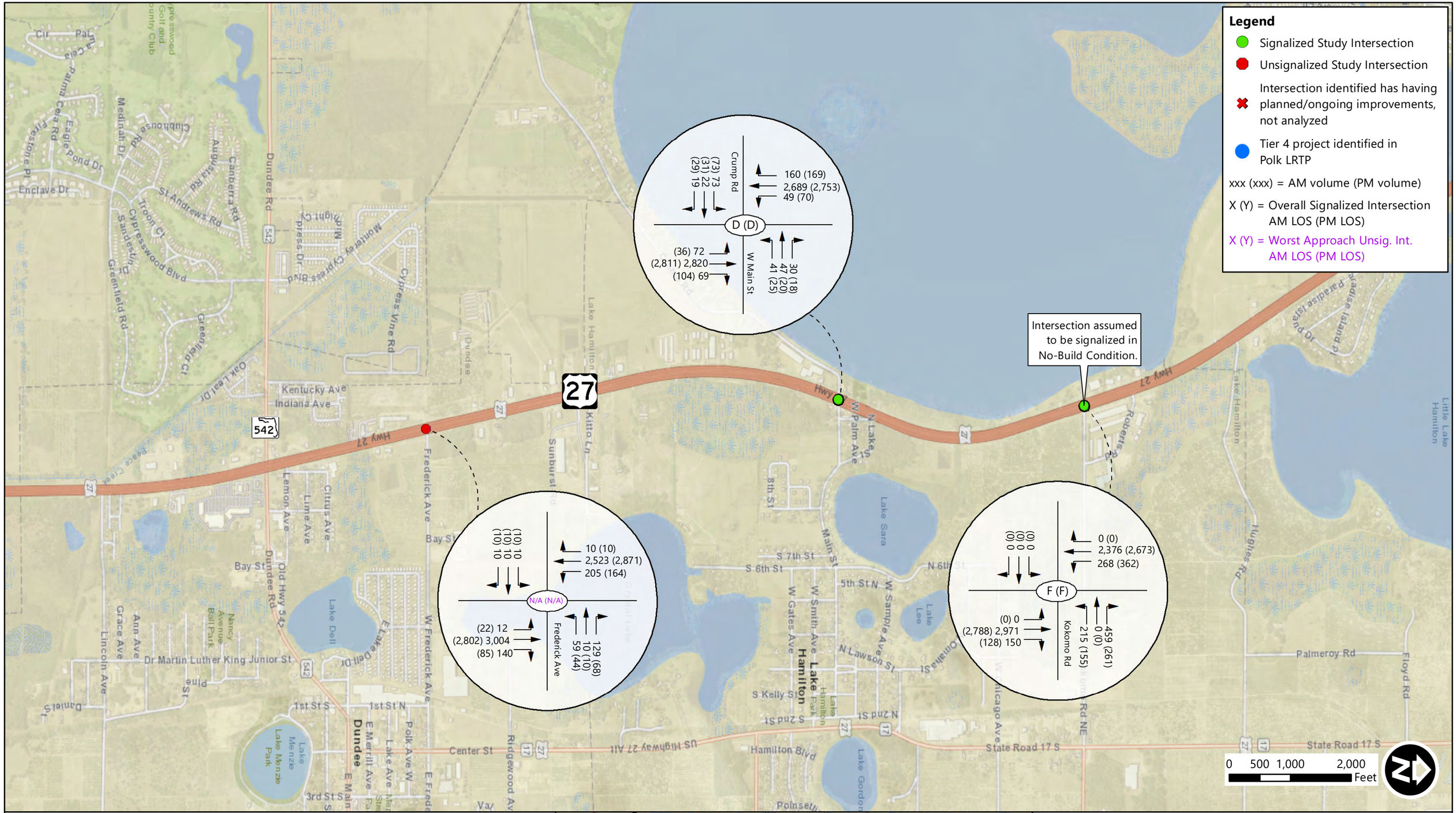




NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 3 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

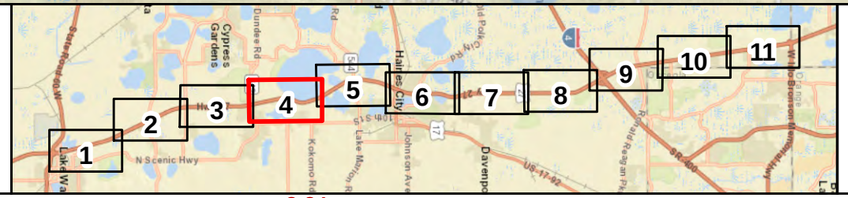
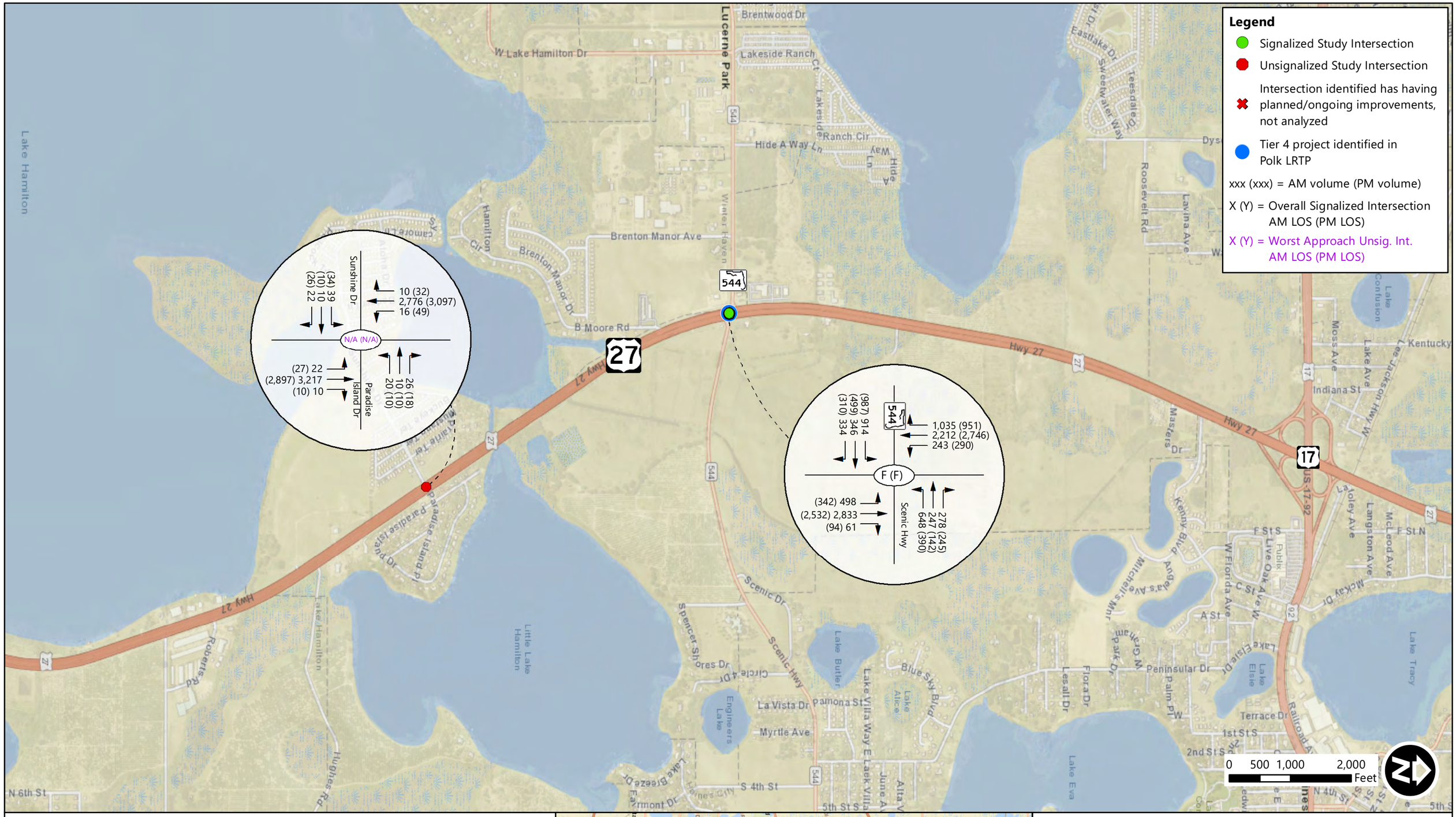
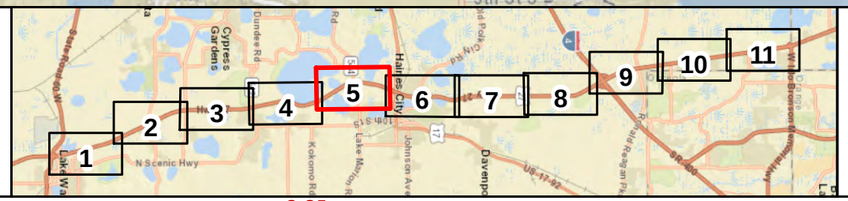


FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 4 of 11

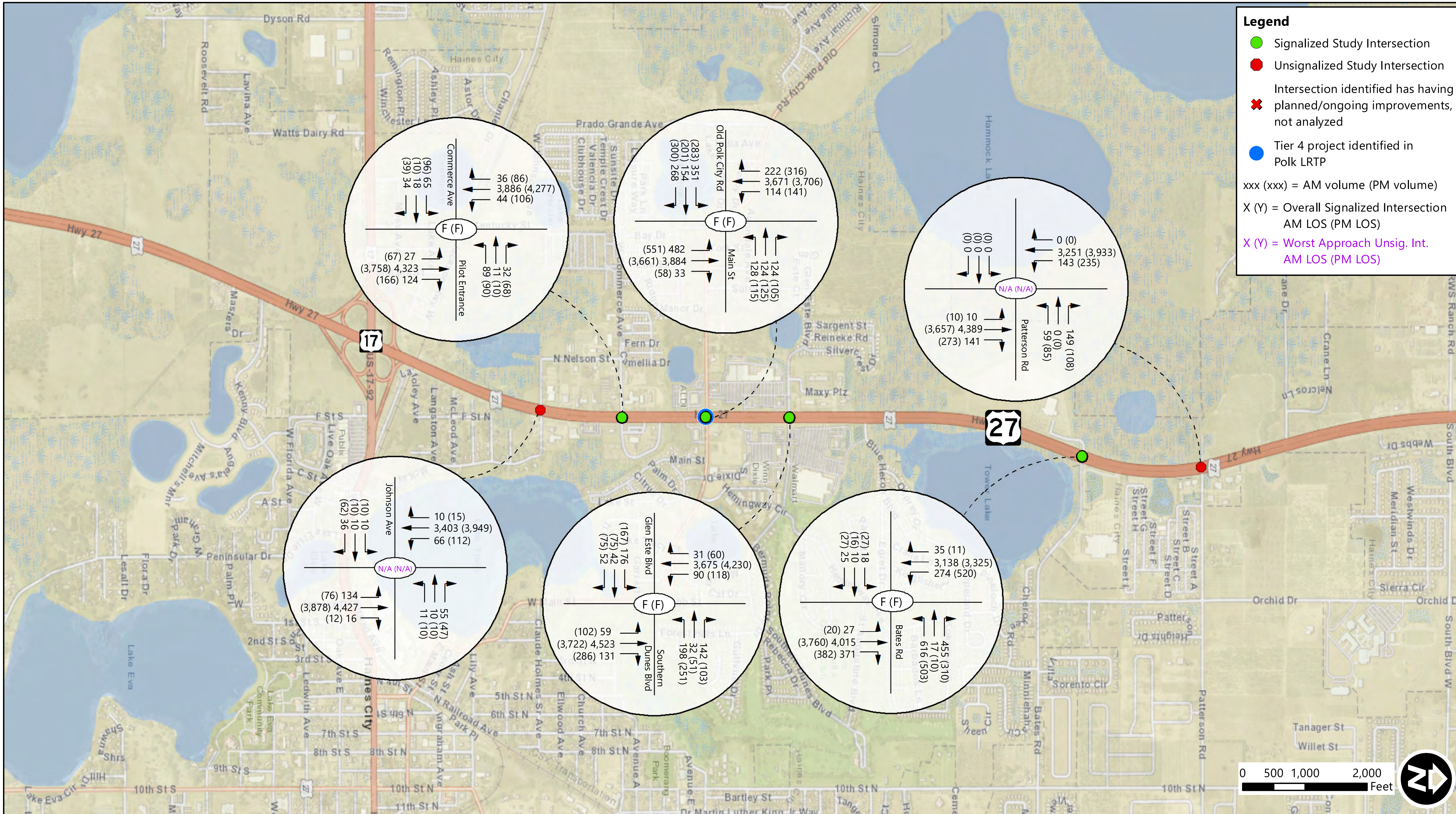




NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 5 of 11



Legend
Signalized Study Intersection
Unsignalized Study Intersection
Intersection identified has having planned/ongoing improvements, not analyzed
Tier 4 project identified in Polk LRTP
xxx (xxx) = AM volume (PM volume)
X (Y) = Overall Signalized Intersection AM LOS (PM LOS)
X (Y) = Worst Approach Unsig. Int. AM LOS (PM LOS)
Commerce Ave
Pilot Entrance
36 (86)
3,886 (4,277)
44 (106)
(96) 65
(10) 18
(39) 34
F (F)
(67) 27
(3,758) 4,323
(166) 124
89 (90)
11 (10)
32 (68)
Old Polk City Rd
Main St
222 (316)
3,671 (3,706)
114 (141)
(283) 351
(201) 154
(300) 268
F (F)
(551) 482
(3,661) 3,884
(58) 33
128 (115)
124 (125)
124 (105)
Patterson Rd
0 (0)
3,251 (3,933)
143 (235)
(0) 0
(0) 0
(0) 0
N/A (N/A)
(10) 10
(3,657) 4,389
(273) 141
59 (85)
0 (0)
149 (108)
Johnson Ave
10 (15)
3,403 (3,949)
66 (112)
(10) 10
(10) 10
(62) 36
N/A (N/A)
(76) 134
(3,878) 4,427
(12) 16
11 (10)
10 (10)
55 (47)
Glen Este Blvd
Southern Dunes Blvd
31 (60)
3,675 (4,230)
90 (118)
(167) 176
(75) 42
(75) 52
F (F)
(102) 59
(3,722) 4,523
(286) 131
198 (251)
32 (51)
142 (103)
Bates Rd
35 (11)
3,138 (3,325)
274 (520)
(27) 18
(16) 10
(27) 25
F (F)
(20) 27
(3,760) 4,015
(382) 371
616 (503)
17 (10)
455 (310)
27
17
0 500 1,000 2,000
Feet

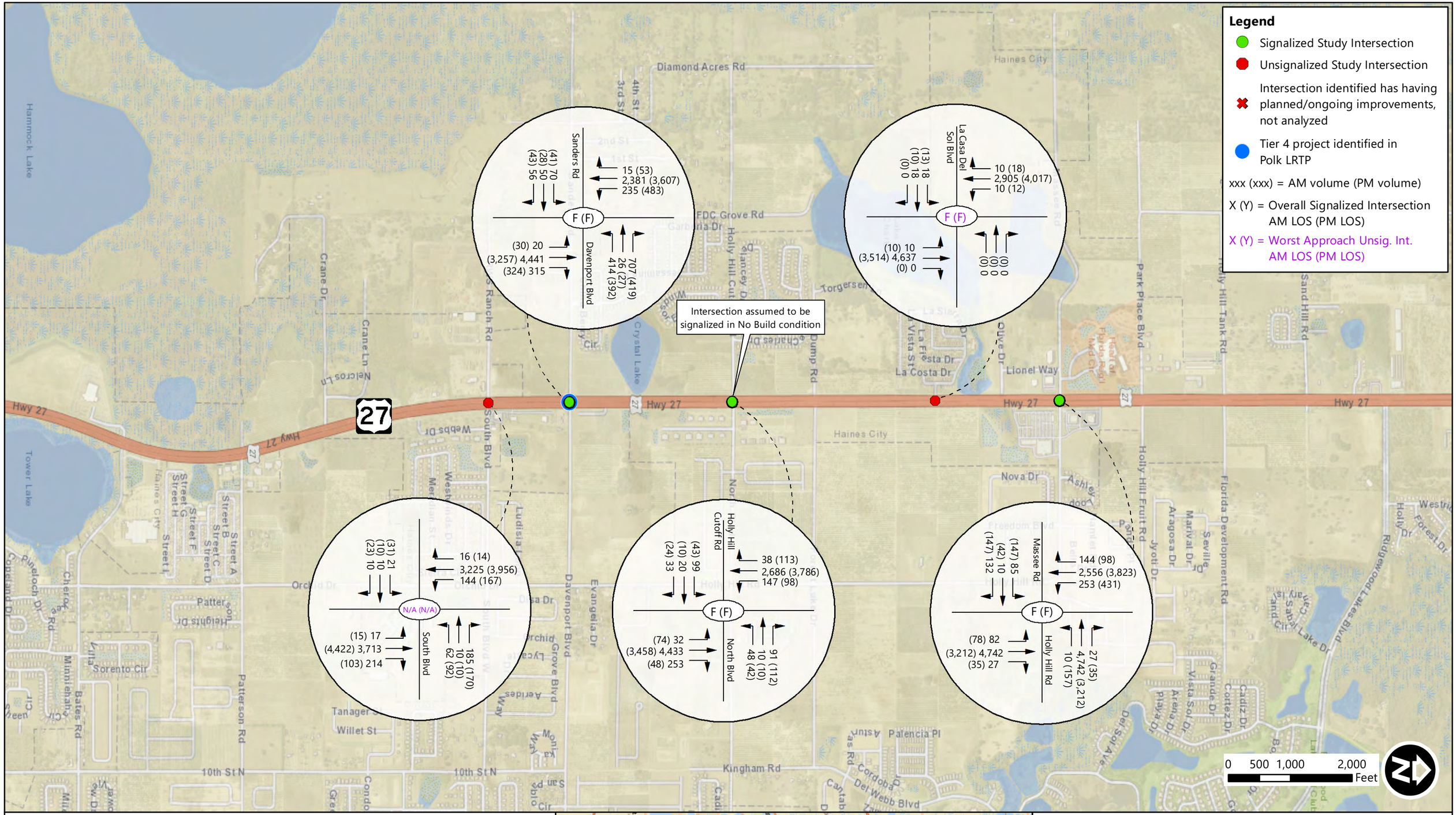
NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

1 2 3 4 5 6 7 8 9 10 11

FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 6 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

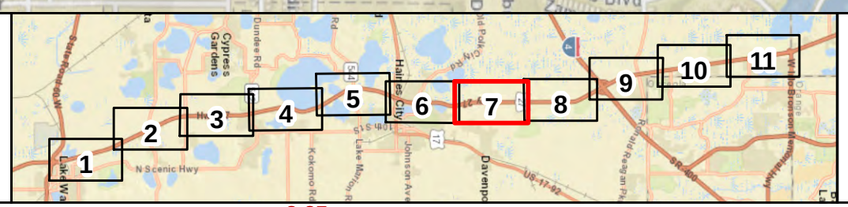
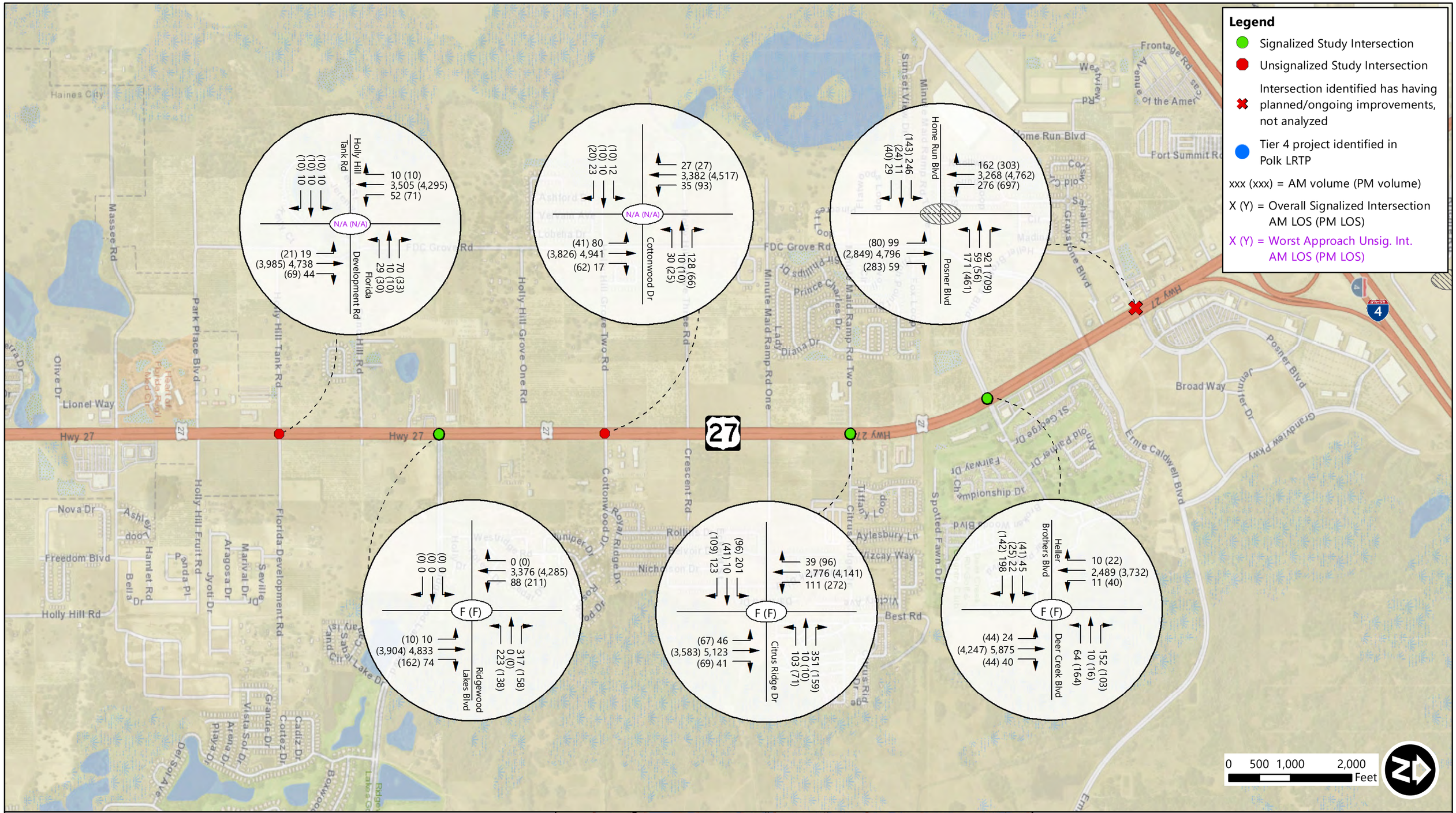


FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 7 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

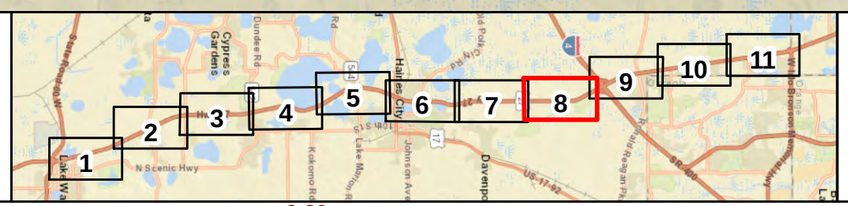
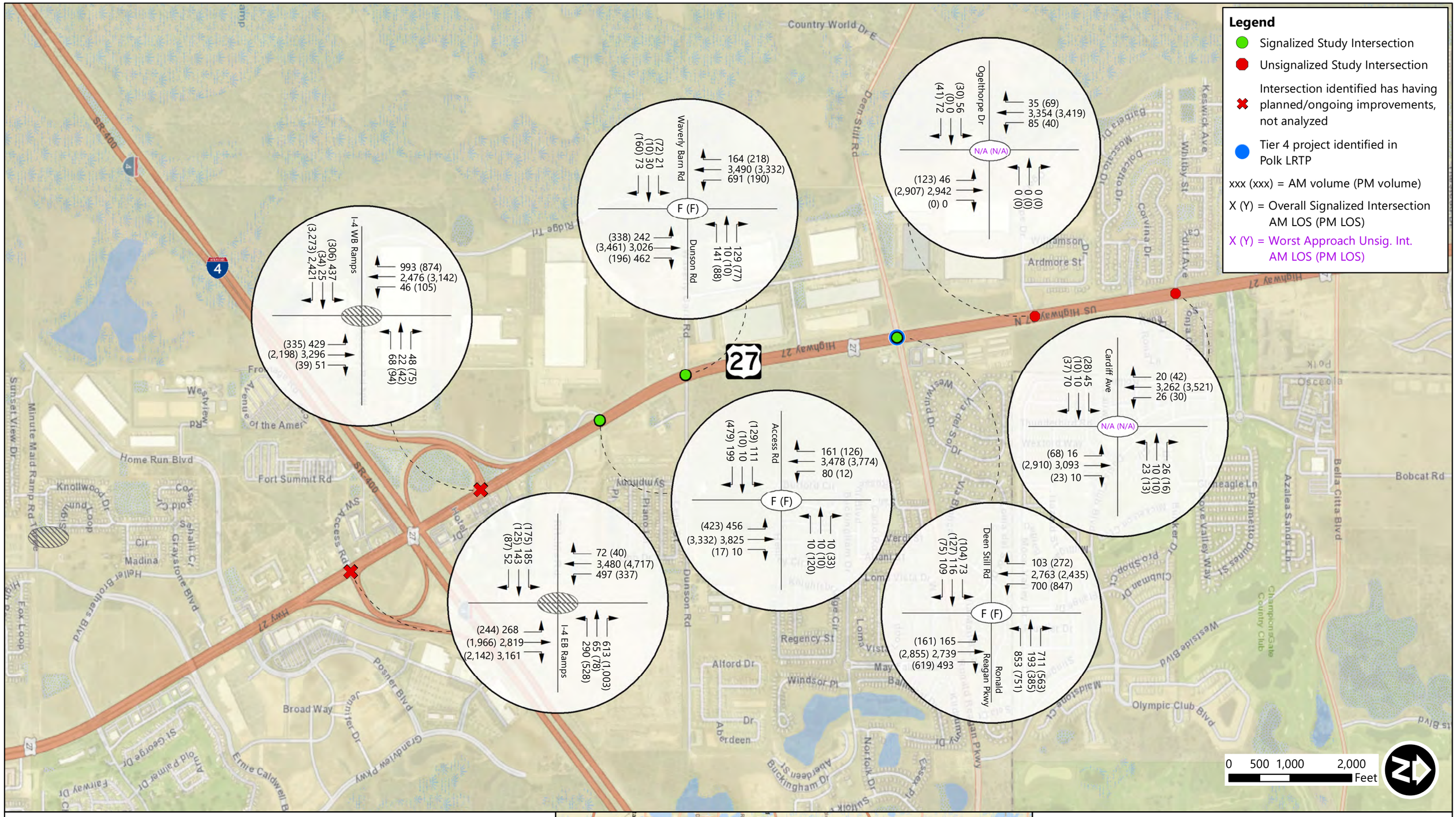
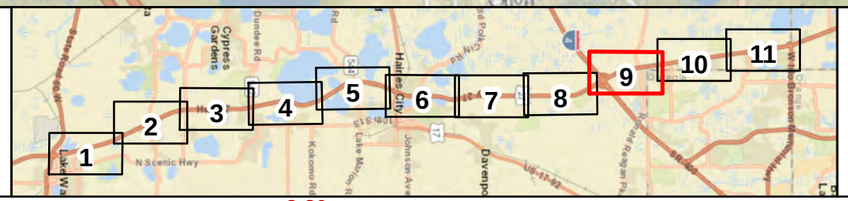


FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 8 of 11



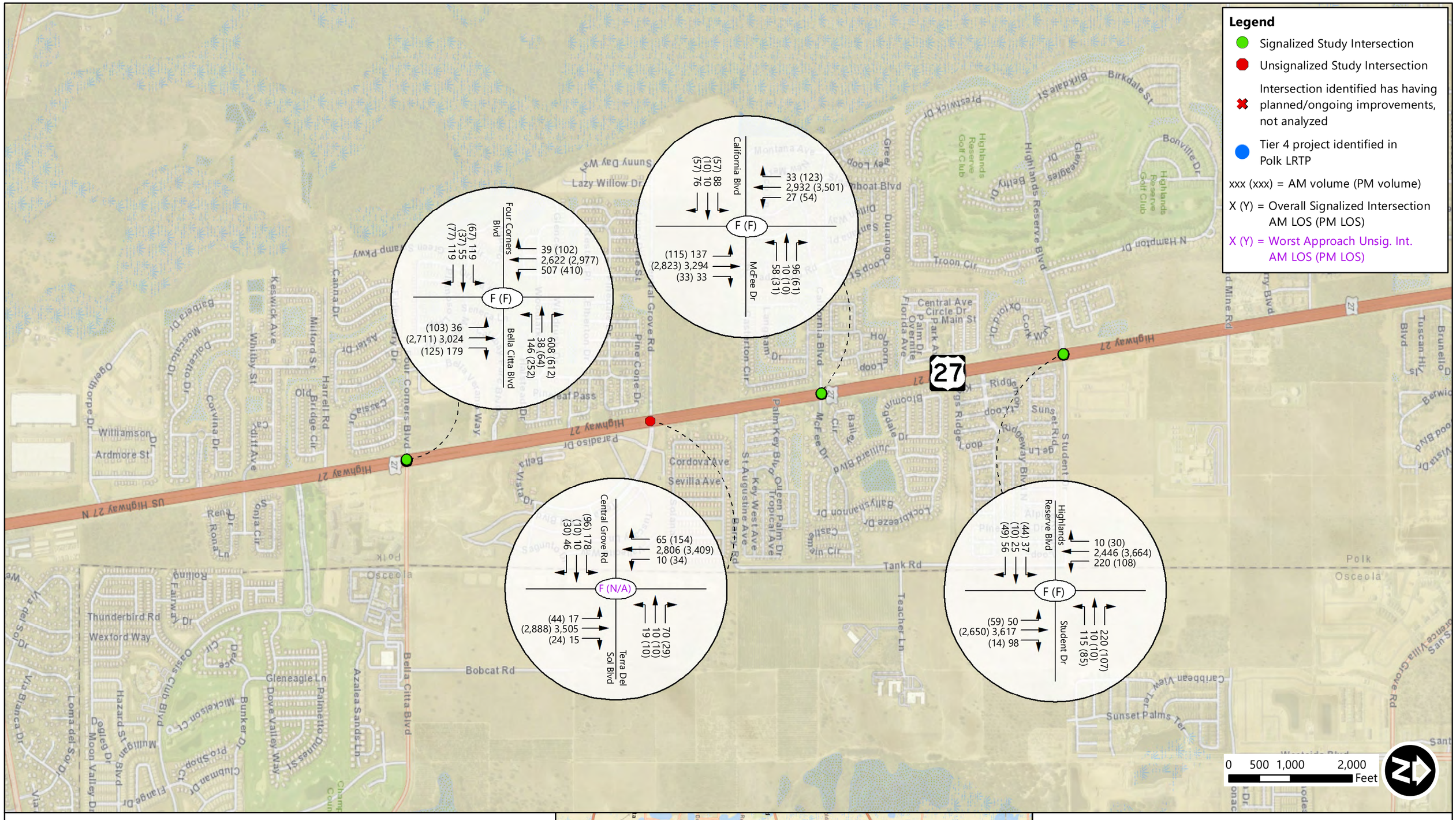


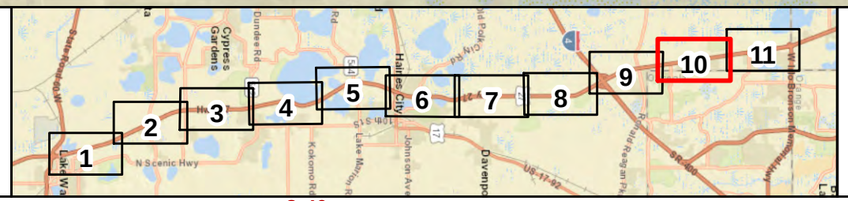
NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 9 of 11

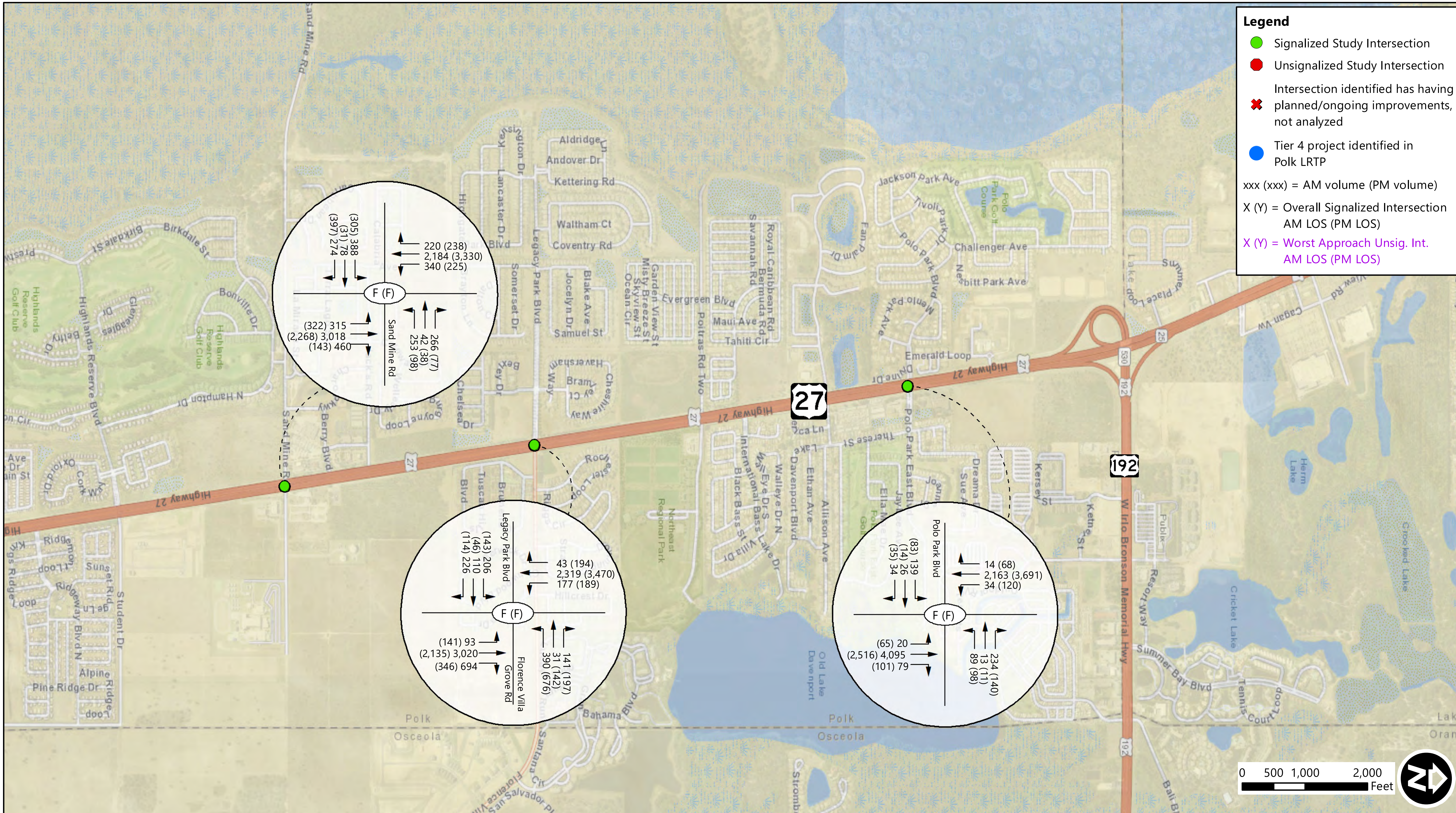




NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 10 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

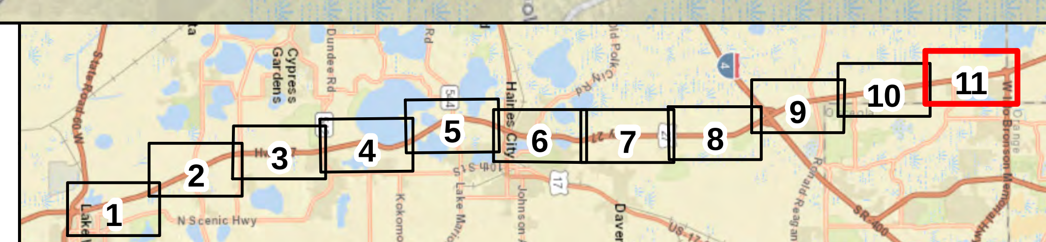
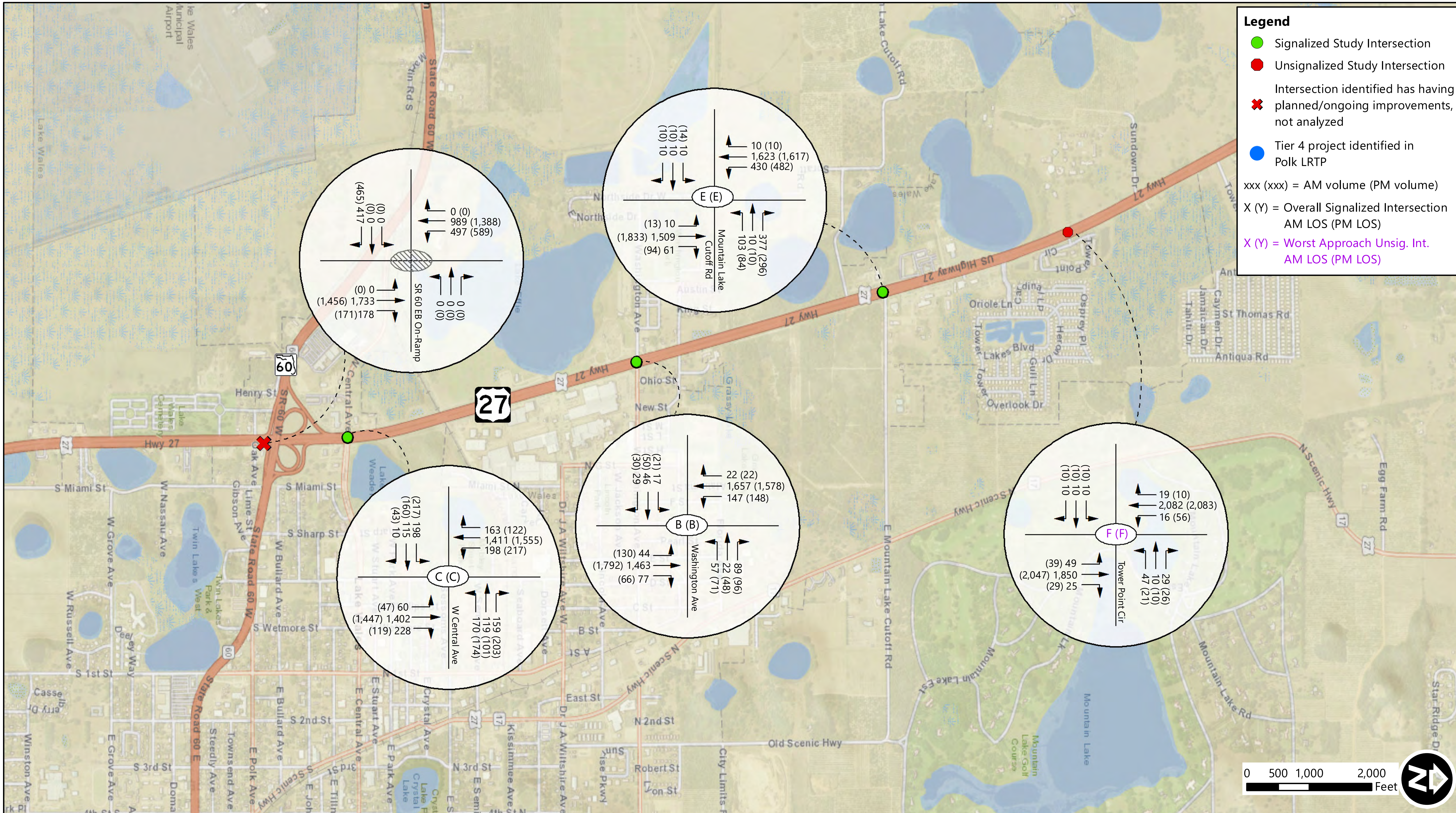
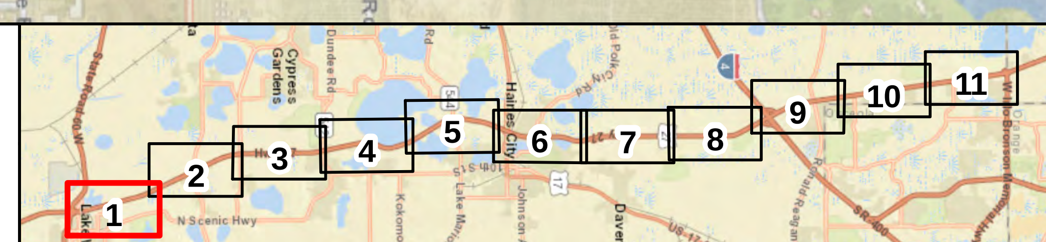


FIGURE 3-3
2045 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 11 of 11



Legend
Signalized Study Intersection
Unsignalized Study Intersection
Intersection identified has having planned/ongoing improvements, not analyzed
Tier 4 project identified in Polk LRTP
xxx (xxx) = AM volume (PM volume)
X (Y) = Overall Signalized Intersection AM LOS (PM LOS)
X (Y) = Worst Approach Unsig. Int. AM LOS (PM LOS)
0 500 1,000 2,000 Feet
(465) 417
(0) 0
(0) 0
0 (0)
989 (1,388)
497 (589)
(0) 0
(1,456) 1,733
(171)178
0 (0)
0 (0)
0 (0)
SR 60 EB On-Ramp
(14) 10
(10) 10
(10) 10
10 (10)
1,623 (1,617)
430 (482)
E (E)
(13) 10
(1,833) 1,509
(94) 61
Mountain Lake Cutoff Rd
377 (296)
10 (10)
103 (84)
(217) 198
(160) 115
(43) 10
163 (122)
1,411 (1,555)
198 (217)
C (C)
(47) 60
(1,447) 1,402
(119) 228
W Central Ave
159 (203)
119 (101)
170 (174)
(21) 17
(50) 46
(30) 29
22 (22)
1,657 (1,578)
147 (148)
B (B)
(130) 44
(1,792) 1,463
(66) 77
Washington Ave
89 (96)
22 (48)
57 (71)
(10) 10
(10) 10
(10) 10
19 (10)
2,082 (2,083)
16 (56)
F (F)
(39) 49
(2,047) 1,850
(29) 25
Tower Point Cir
29 (26)
10 (10)
47 (21)
Hwy 27
US Highway 27
State Road 60 W
SR 60 W
Mountain Lake Cutoff Rd
Mountain Lake
Lake Station

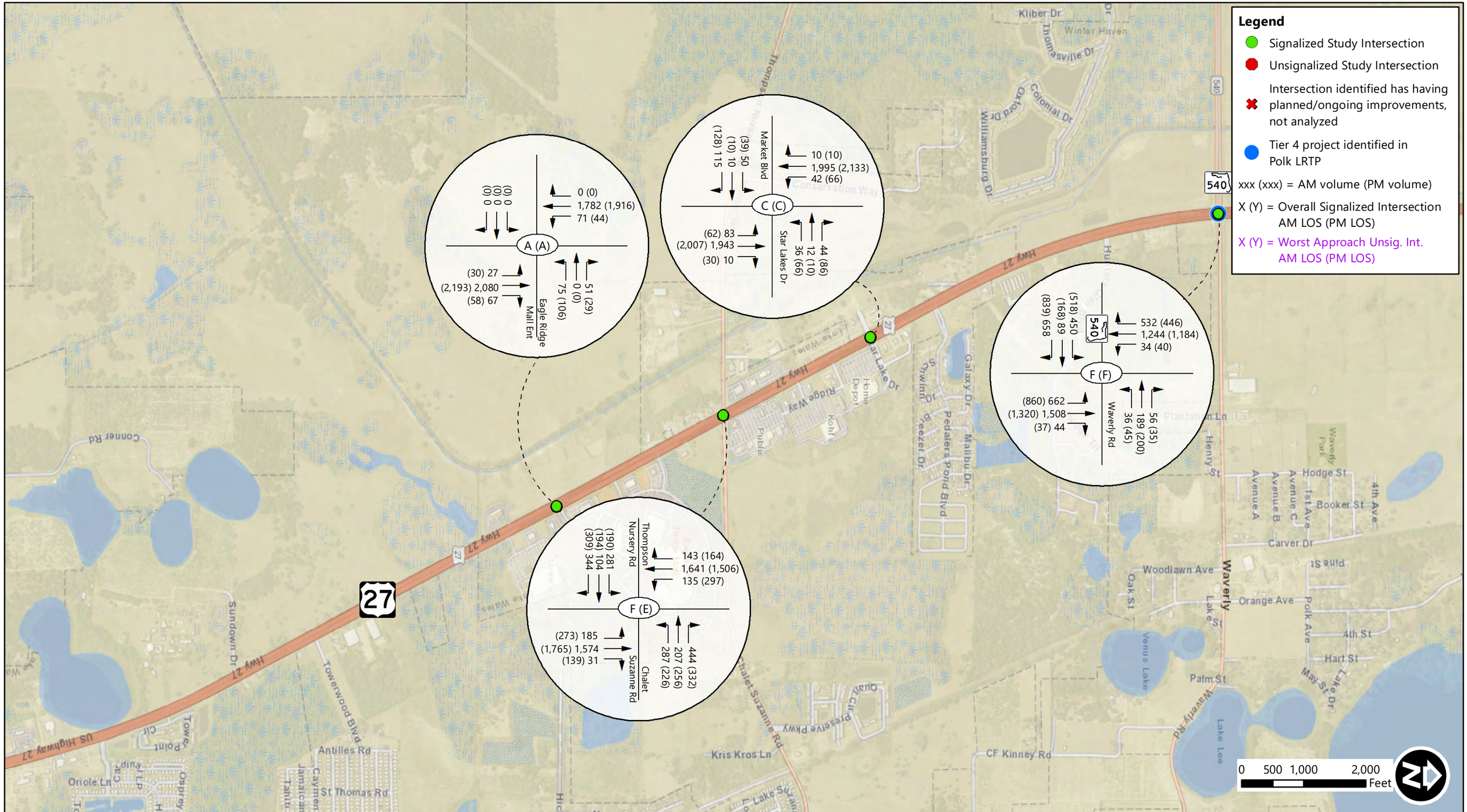


NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192

Polk County, Florida
FPID No.: 440320-1

FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 1 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

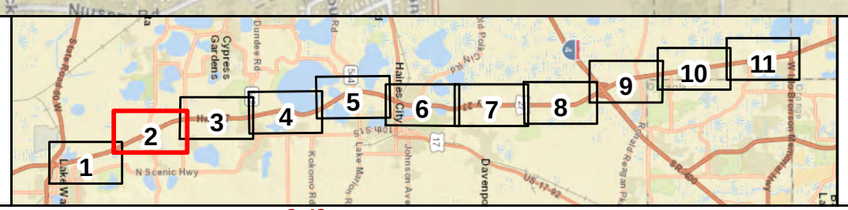
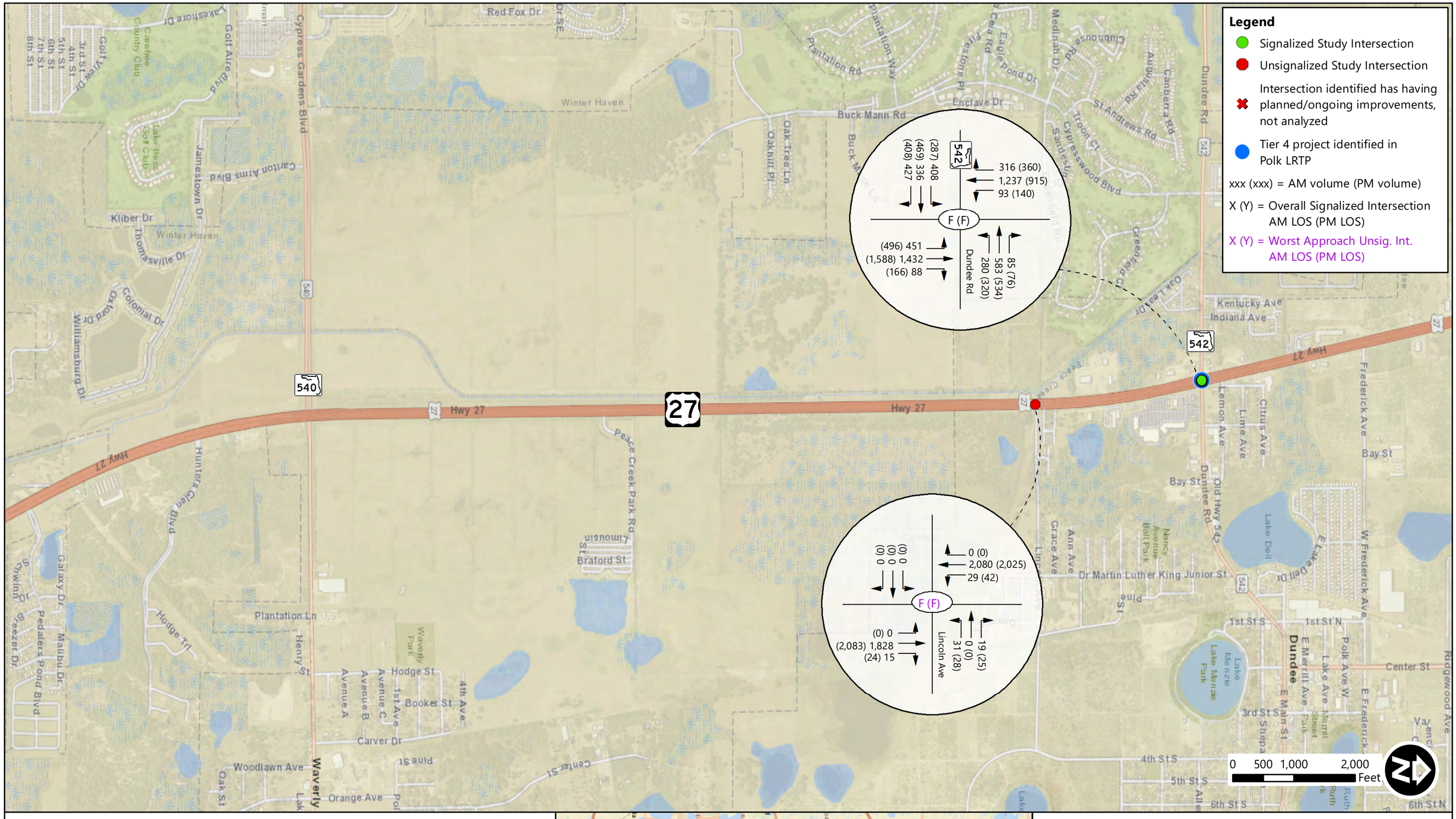


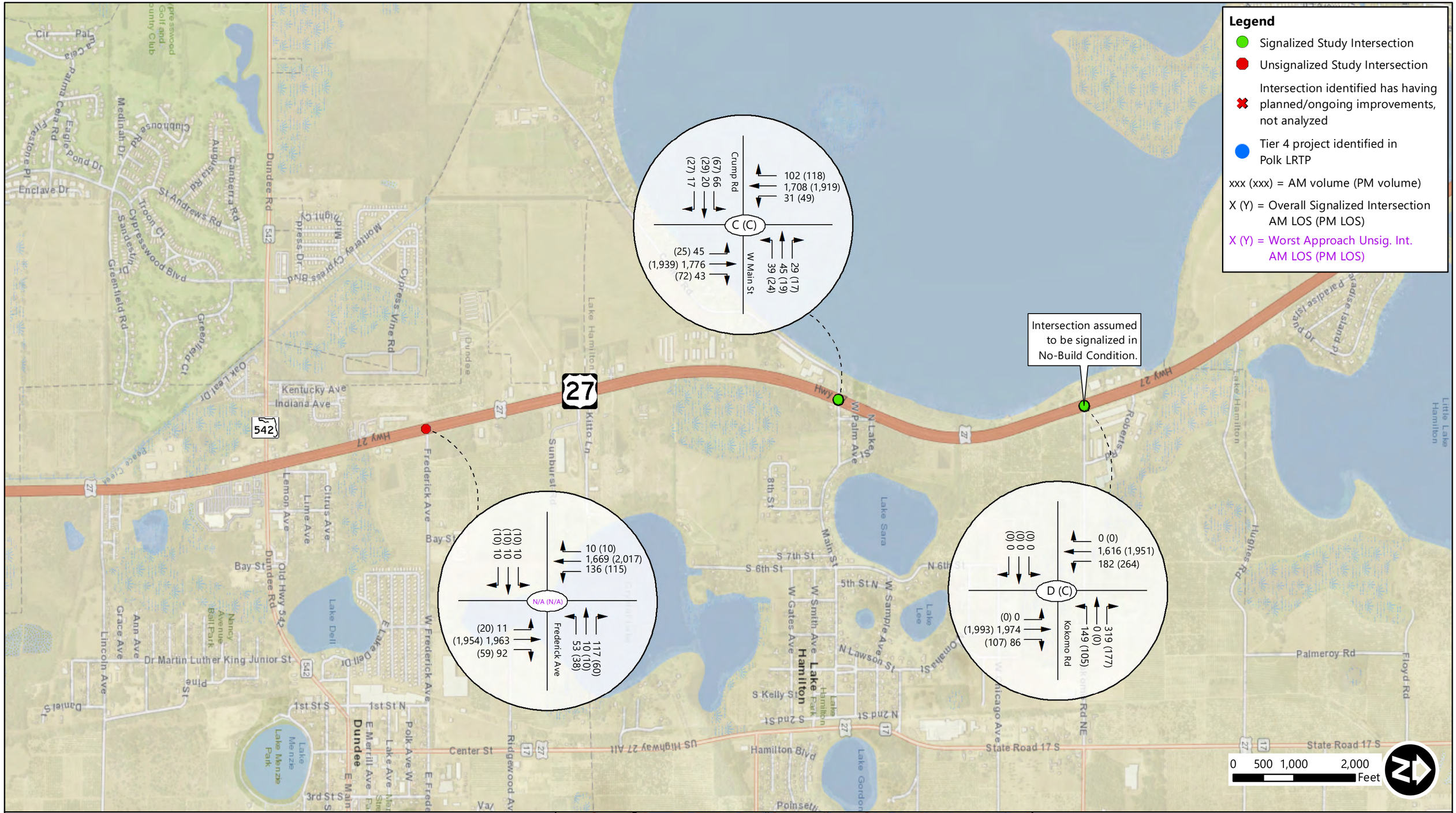
FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 2 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 3 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

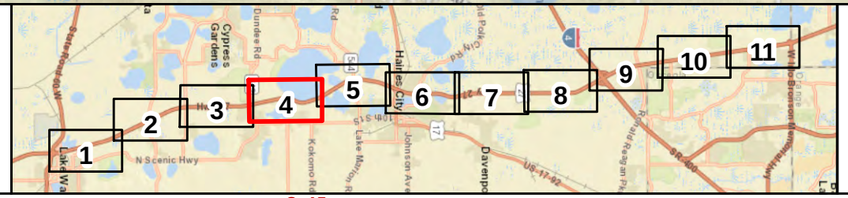
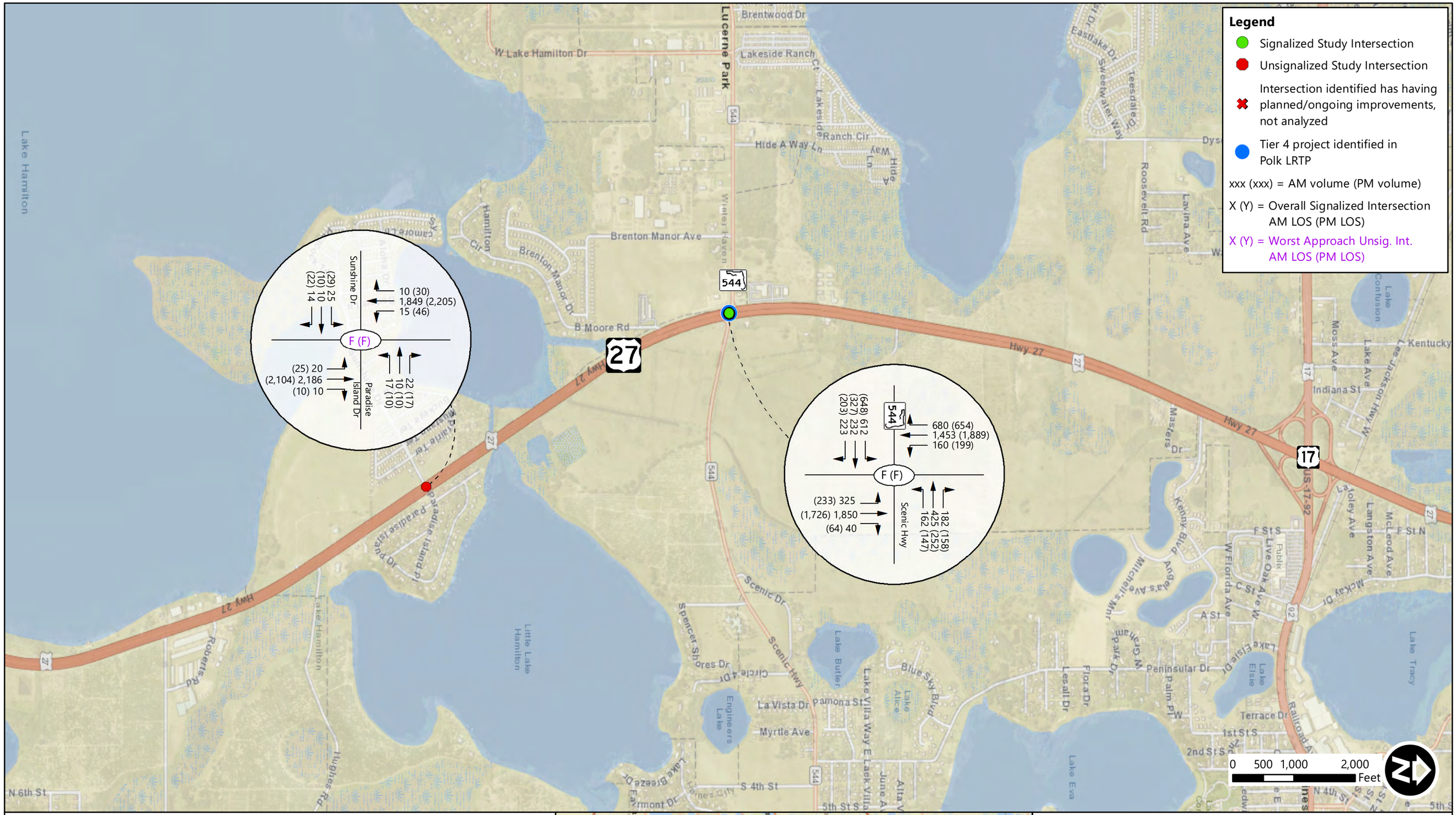
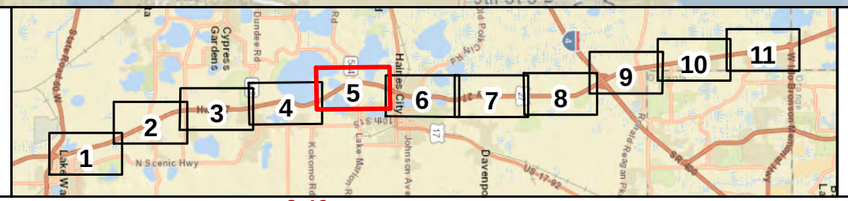


FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 4 of 11

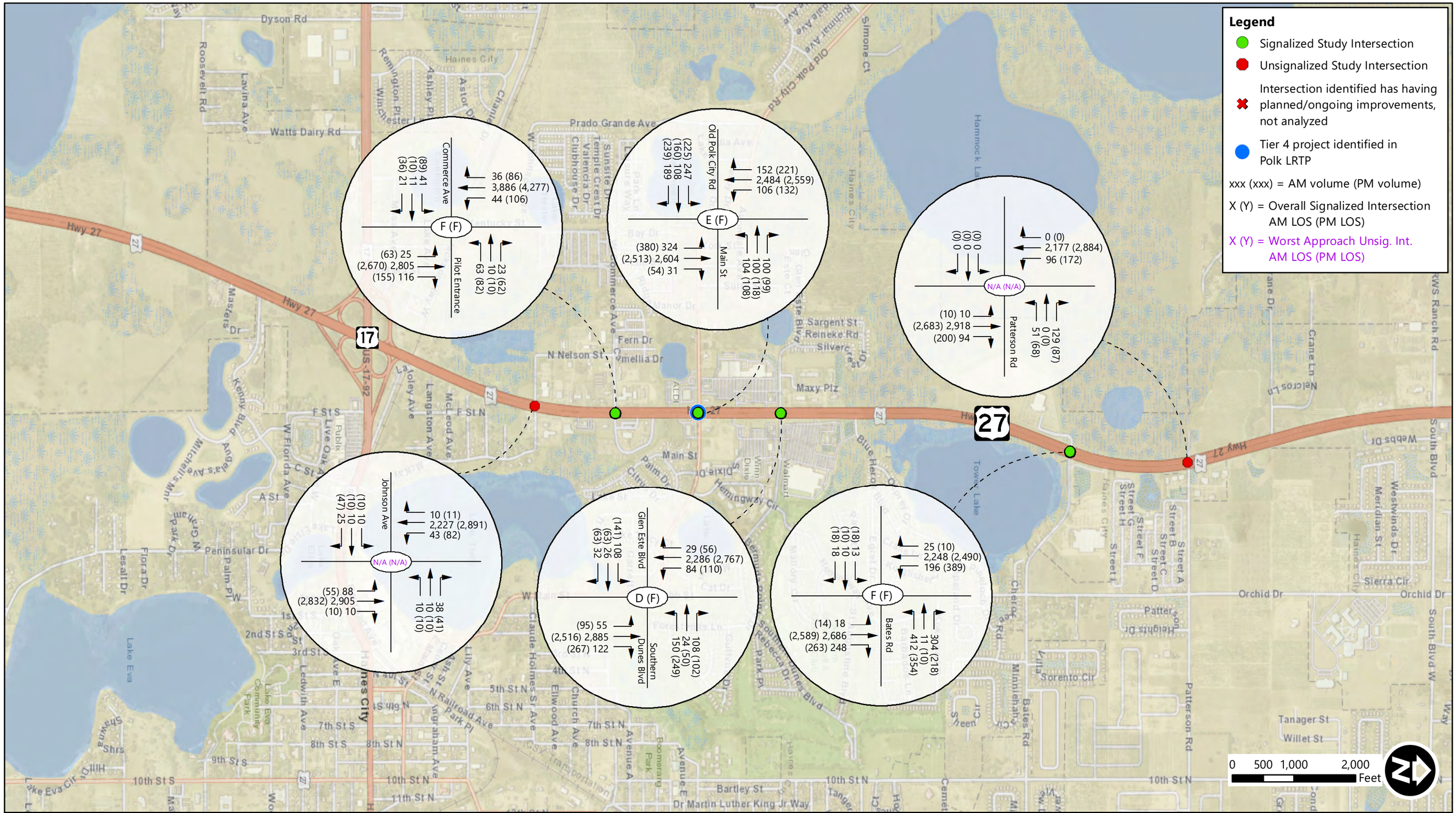




NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 5 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

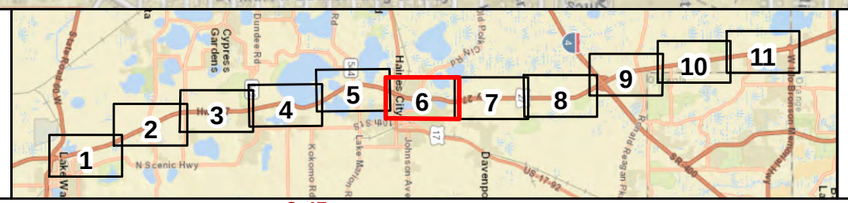
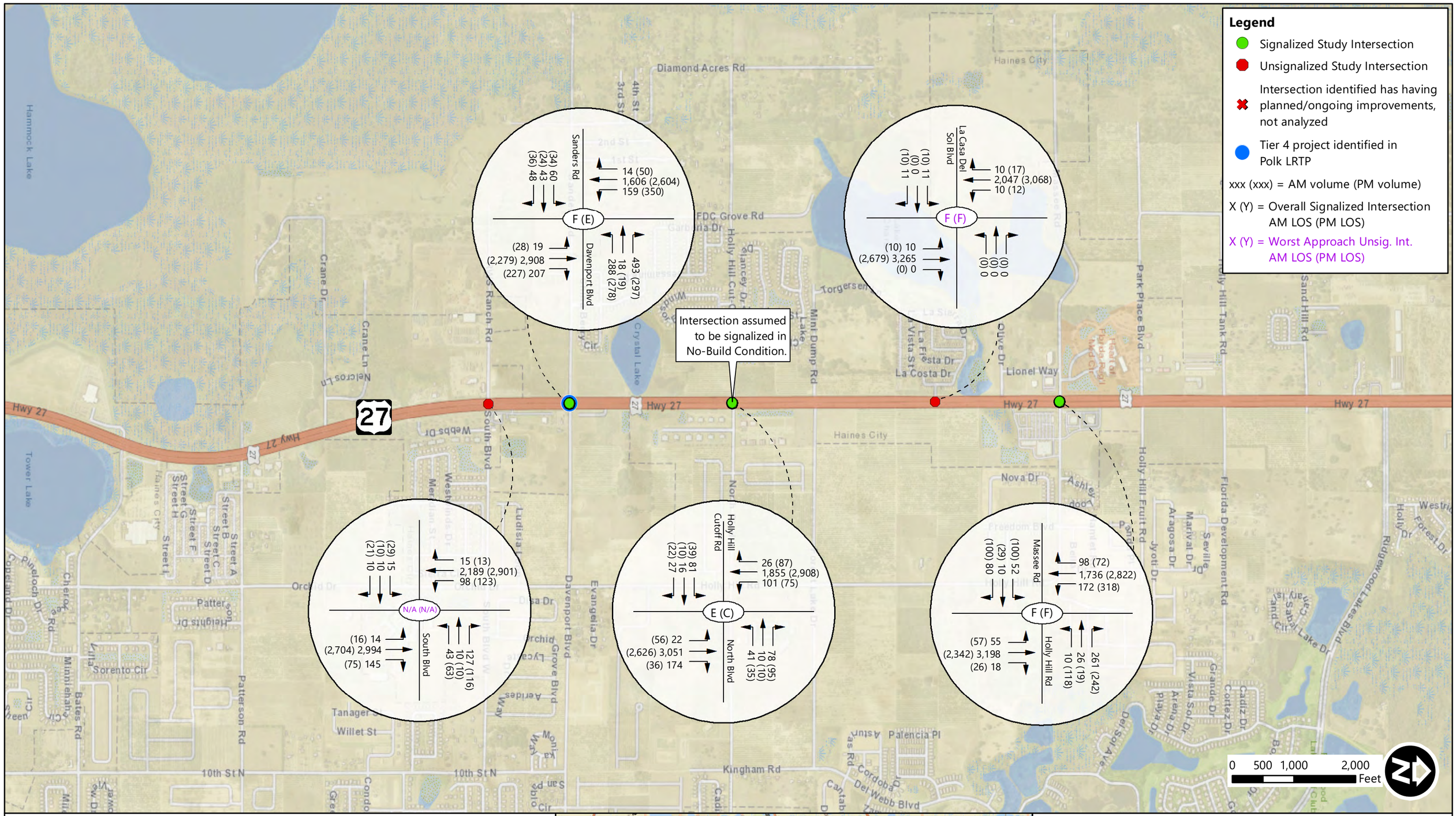


FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 6 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

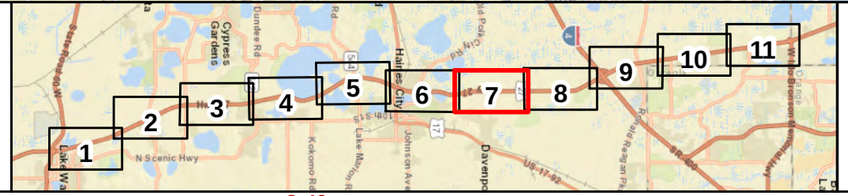
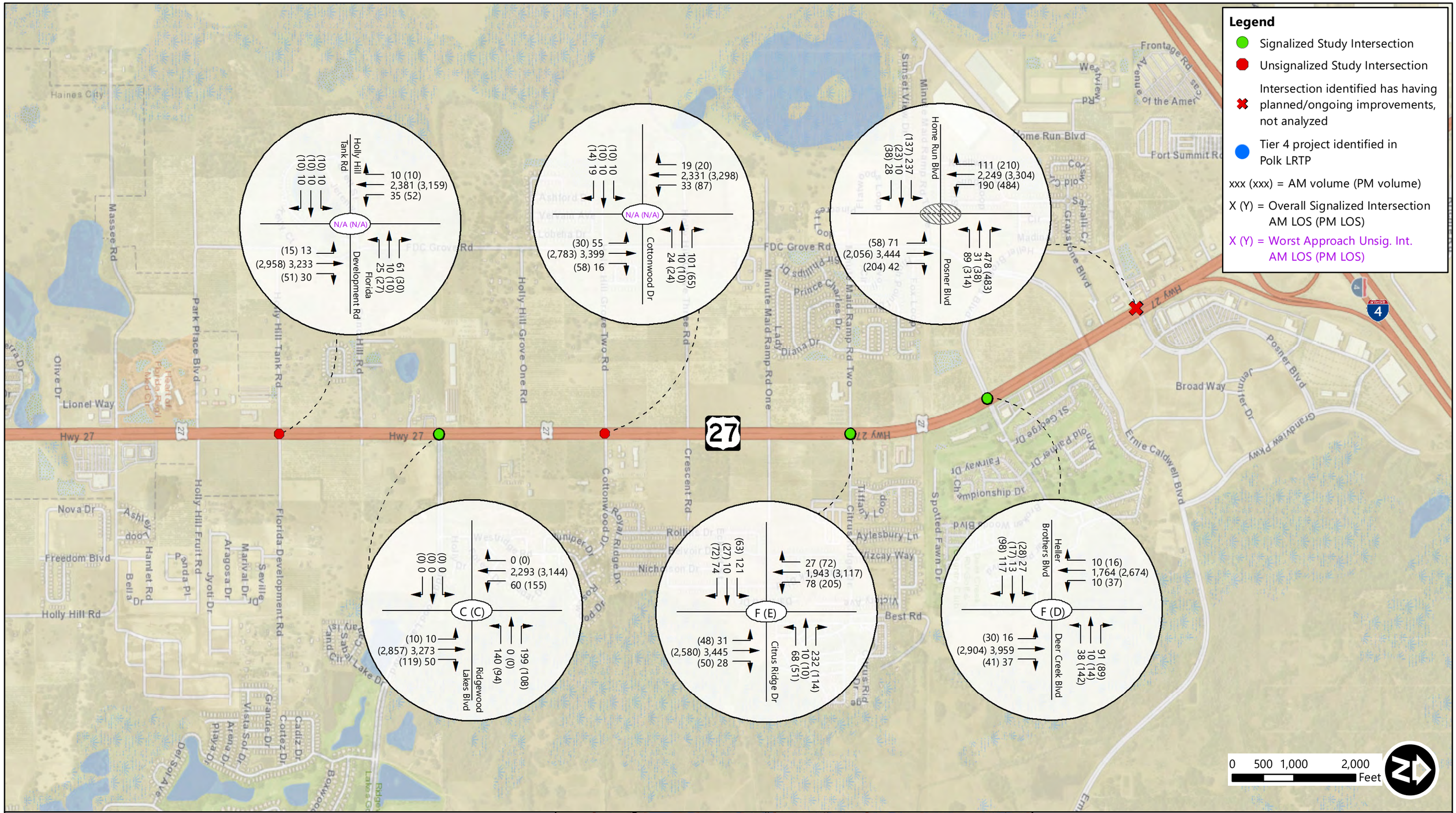


FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 7 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

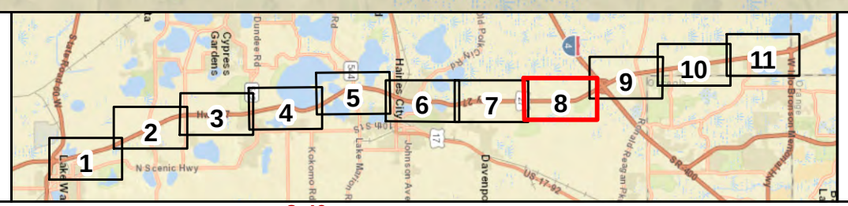
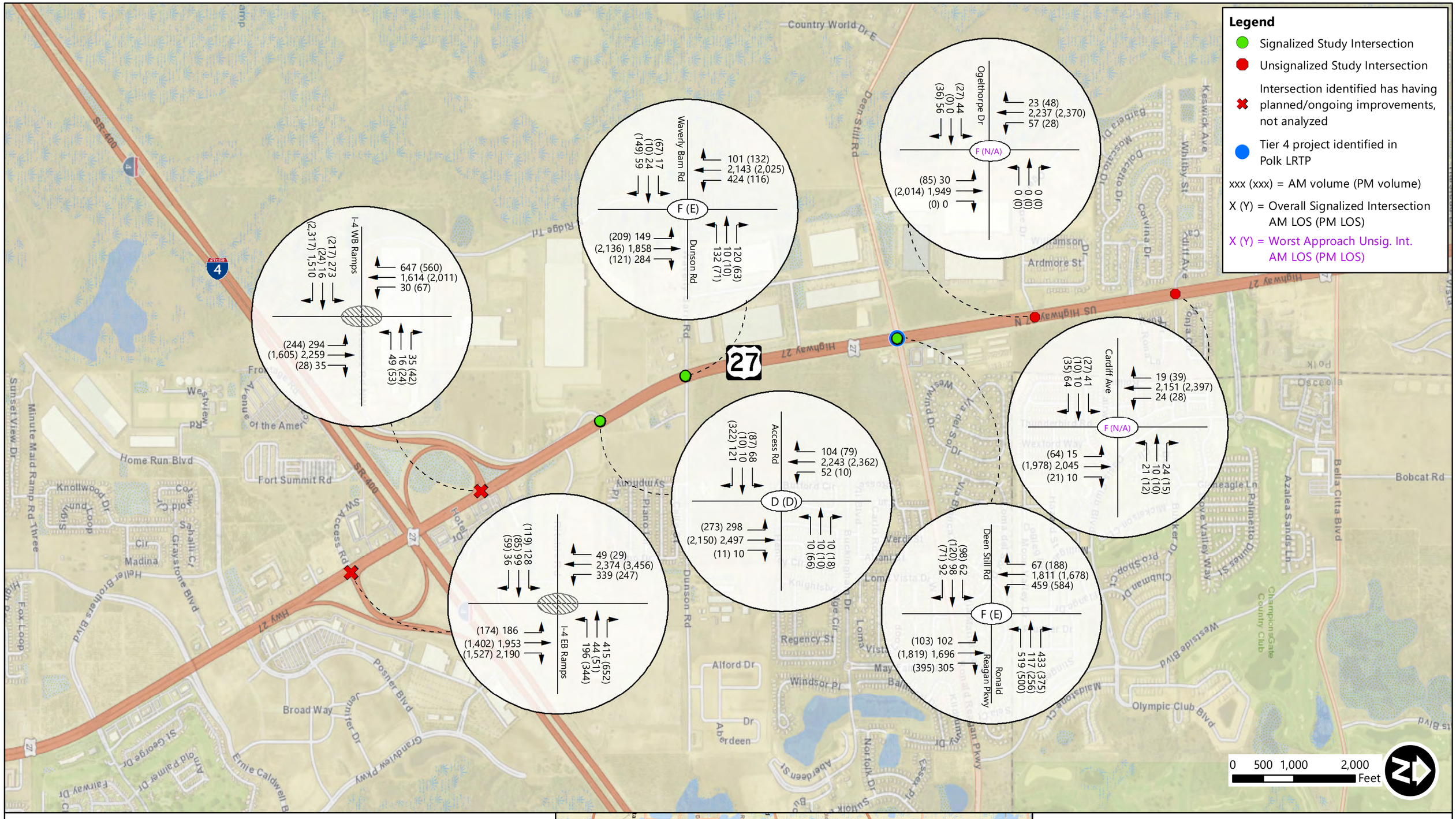


FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 8 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

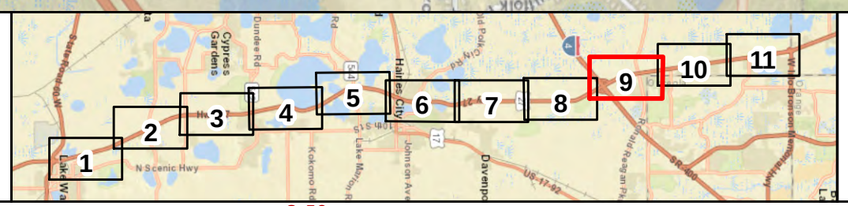


FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 9 of 11

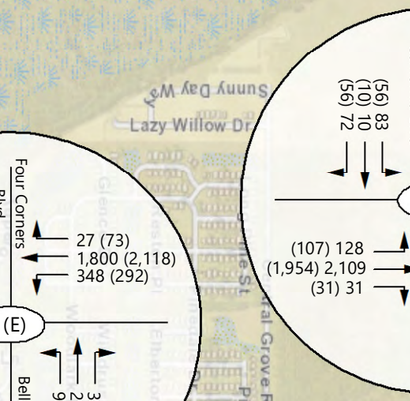
Legend

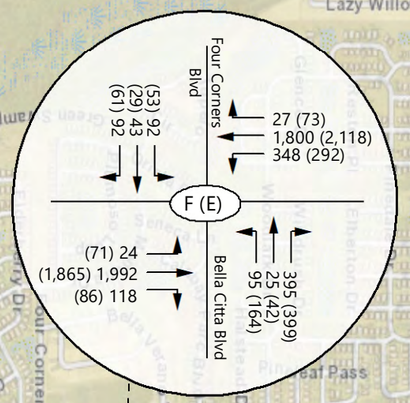
- Signalized Study Intersection
- Unsignalized Study Intersection
- Intersection identified has having planned/ongoing improvements, not analyzed
- Tier 4 project identified in Polk LRTP

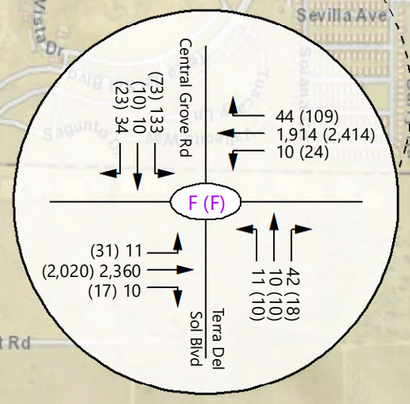
xxx (xxx) = AM volume (PM volume)

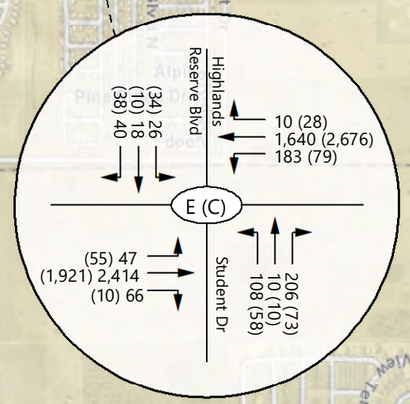
X (Y) = Overall Signalized Intersection AM LOS (PM LOS)

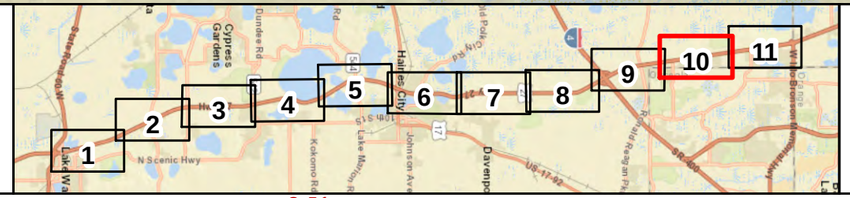
X (Y) = Worst Approach Unsig. Int. AM LOS (PM LOS)







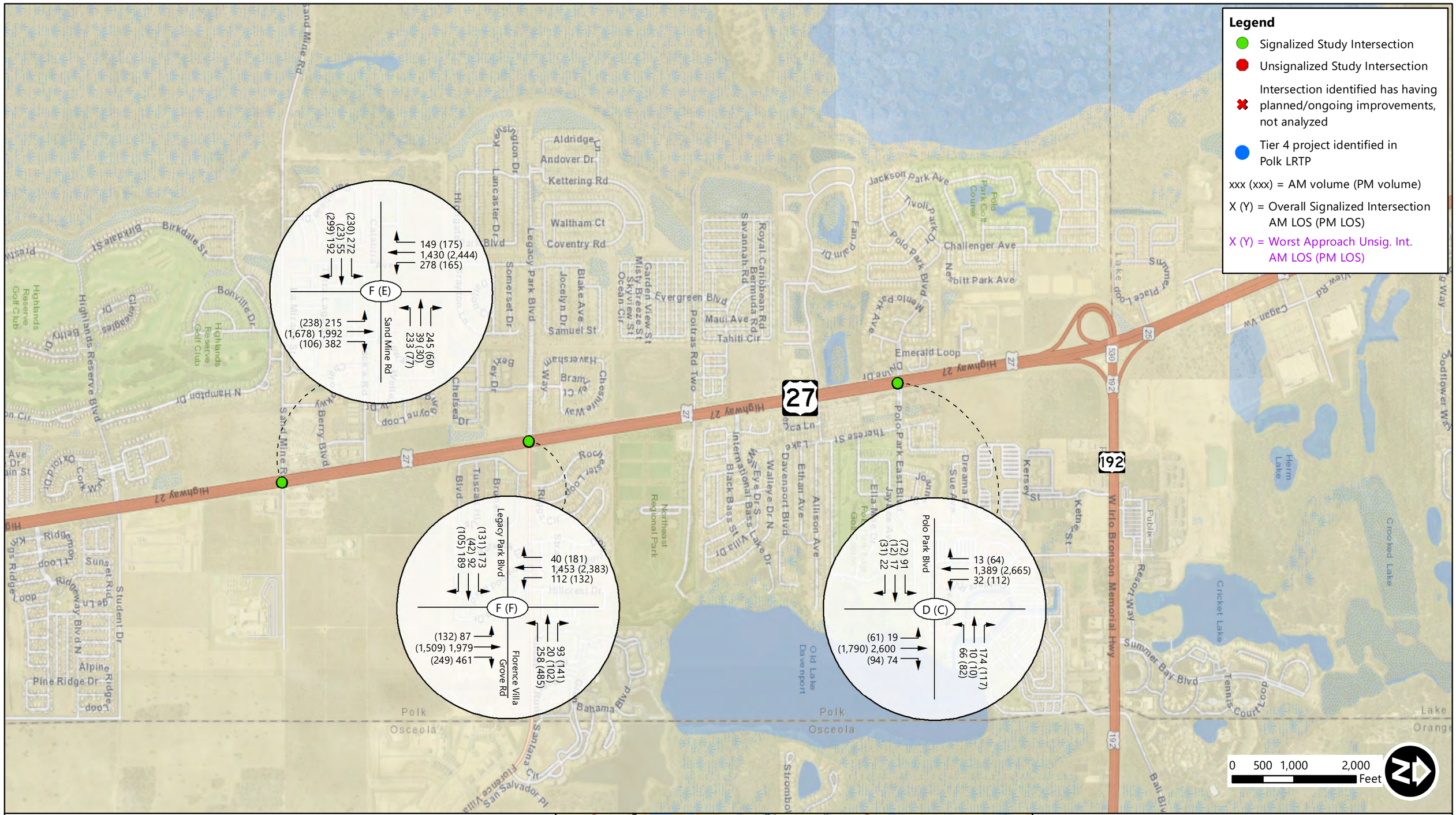




NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 10 of 11



NORTHEAST POLK US 27 Mobility Study

Northeast Polk US 27 Mobility Study
From SR 60 to US 192
Polk County, Florida
FPID No.: 440320-1

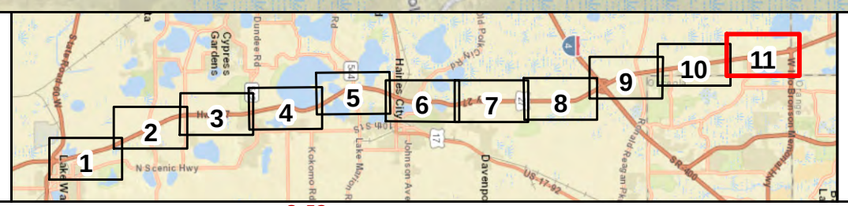


FIGURE 3-4
2030 NO-BUILD INTERSECTION TURNING MOVEMENT VOLUMES & LEVEL OF SERVICE
Sheet 11 of 11

4 INTERSECTION IMPROVEMENTS EVALUATED

4.1 INTERSECTION CONTROL EVALUATION (ICE) ANALYSIS SUMMARY

Intersections that were considered failing (below the threshold LOS of "D") in 2030 and/or 2045 were evaluating using the Intersection Control Evaluation (ICE) process. The ICE process is used to evaluate and compare alternative intersection configurations such as roundabouts, displaced left-turn (DLTs) and restricted crossing U-turn (RCUT) intersections. An ICE analysis is typically divided into three stages of increasing detailed analysis. A Stage 1 ICE analysis consists of a Capacity Analysis for Planning on Junctions (CAP-X) and preliminary Safety Performance of Intersection Control Evaluations (SPICE) analysis. These tools are used to broadly evaluate which alternative configurations may be best suited for the intersection. A Stage 2 ICE analysis consists of more details SPICE analysis, Synchro/Simtraffic analysis and a benefit/cost comparison using the ICE tool. Typically, a preferred alternative recommendation can be reached after Stage 2 ICE analysis, but if not, a Stage 3 ICE analysis may be conducted. Stage 3 ICE analysis does not have clear guidelines but promotes a more qualitative assessment of the configurations left after Stage 2.

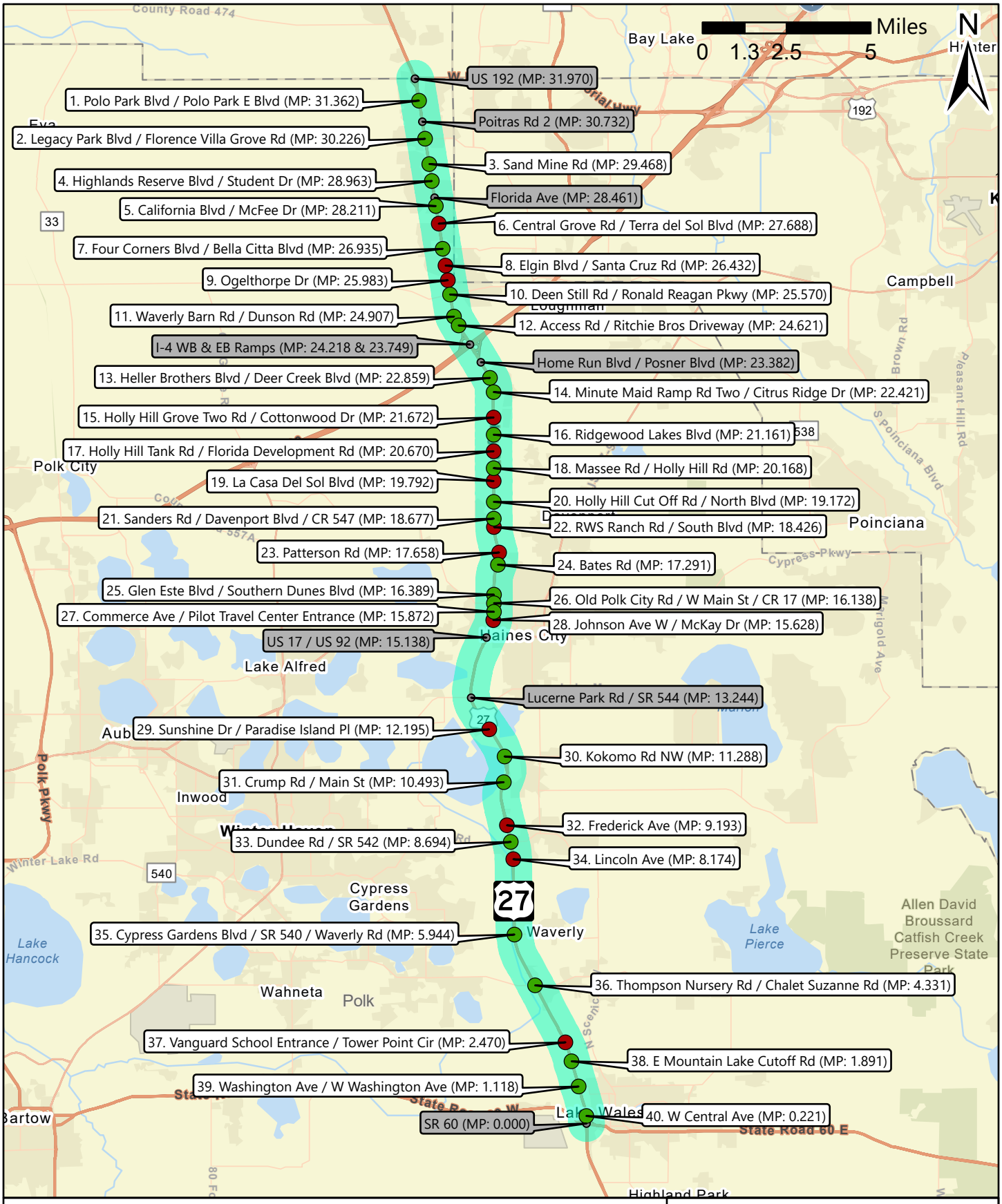
For this study, only a Stage 1 ICE analysis was conducted. This Stage 1 ICE analysis identifies alternatives that are potential solutions to expected future traffic demands at each intersection based on their specific characteristics. The intent of the Stage 1 ICE conducted in this study is not to make final determinations or recommendations for individual intersection improvement projects. Rather, it is to screen a wide range of improvement strategies to narrow down the range of solutions moving forward. This effort provides a head start on future projects along the US 27 corridor that may include intersection improvements.

Figure 4-1 identifies all the intersections included in the Stage 1 ICE analysis. The following interchanges and intersections along the study corridor were not included in the ICE analysis because they will be analyzed in other studies and/or projects:

- US 27/I-4 interchange: FPID 201210-3 (Segment 5 of I-4 Beyond the Ultimate), new FPID for new ultimate interchange not available yet
- US 27 at Home Run Boulevard/Posner Boulevard intersection (part of US 27/I-4 interchange project above)
- US 27/SR 60 interchange: FPID 419243-4 (reconstruct interchange to SPUI)
- US 27 at SR 544: FPID 440273-1 (PD&E Study for SR 544 from MLK Blvd to SR 17)

The following intersections along the study corridor were not included in the ICE analysis because they were either grade-separated interchanges or bi-directional median openings. Both types of intersections were removed from possible analysis early in the study to limit the amount of study intersections.

- US 27/US 192 interchange
- US 27 at Poitras Road 2
- US 27 at Florida Avenue
- US 27/US 17/US 92 interchange



Legend

- Signalized ICE Intersection (27)
- Unsignalized ICE Intersection (13)
- Non-ICE Intersection* (8)
- NE Polk US 27 Mobility Study Limits

*Non-ICE intersections were not studied as part of this project and consist of interchanges, full median openings (with some network connectivity), or signalized intersections being analyzed as part of other studies.

Figure 4-1
ICE Intersection Locations

4.2 INTERIM YEAR (2030) ICE ANALYSIS AND ALTERNATIVES EVALUATION PROCESS

The 2030 No-Build Synchro analysis results were reviewed to identify intersections along the study corridor that will need improvements by year 2030. Signalized study intersections that are expected to operate at an overall intersection level of service (LOS) worse than "D" were selected to be evaluated using FDOT's CAP-X tool. A variety of traditional and reduced conflict intersection (RCI) alternatives were evaluated. The following at-grade alternative improvement configurations were considered for each study intersection:

1. No-Build (do nothing)
2. Traffic Signal (additional lanes, if applicable)
3. Partial Displaced Left-Turn (PDLT)
4. Displaced Left-Turn (DLT)
5. Signalized Restricted Crossing U-turn (RCUT)
6. Median U-turn (MUT)
7. Partial Median U-turn (PMUT)

Unsignalized (full median opening) study intersections that were predicted to have a minor street approach LOS worse than "D" in the 2030 No-Build scenario were also evaluated using CAP-X. The following improvement configurations were considered for each unsignalized study intersection:

1. No-Build (Do Nothing)
2. Two-Way Stop-Controlled (Directional Median Opening)
3. Two-Way Stop-Controlled (Closed Median/Right-In Right-Out Only)
4. Unsignalized Restricted Crossing U-turn (RCUT)
5. Traffic Signal

There were three currently unsignalized intersections which were evaluated as having a Traffic Signal as their Base condition. This was per direction of FDOT and was a result of previously conducted signal warrant analyses. The following intersections are currently unsignalized but were evaluated as signalized:

1. Terra del Sol/Boulevard/Central Grove Road
2. Holly Hill Cutoff Road
3. Kokomo Road

For each intersection alternative evaluated in CAP-X, the AM and PM volume-to-capacity (v/c) ratio results were added together to represent a combined v/c ratio (representing the overall performance) which was then compared and ranked against the other alternatives' combined v/c ratios. The Build Alternative v/c ratios give a general and relative indication how well each alternative would operate if that configuration were constructed, based on the future year peak hour volumes. Based on the v/c ratios, each alternative was given a ranking.

Next, study intersections were grouped based on their proximity to adjacent study intersections. The purpose of doing this was to aid in selecting the most appropriate alternative that would work as part of a network of similar intersections (e.g., RCUT/Superstreet). If a study intersection had no adjacent intersections within approximately one mile, it was considered an isolated intersection and was evaluated as such, with no consideration given to functioning as a network of similar intersections. Using the groupings and the alternative intersection rankings, alternatives recommended for further consideration were then selected for each study intersection. Factors such as land use, anticipated right-of-way impacts/costs, estimated construction costs, and access management were also considered in determining the viability of alternatives. Overall, 32 of the 47 study intersections were studied with improvements recommended by 2030.

4.3 DESIGN YEAR (2045) ICE ANALYSIS AND ALTERNATIVES EVALUATION PROCESS

The 2045 alternatives analysis process was essentially the same process used in the 2030 alternatives analysis process, but additional intersections were analyzed in CAP-X (intersections that did not need improvements in 2030 but are predicted to need improvements by 2045). Unlike the 2030 analysis, some intersections in 2045 are predicted to operate with v/c ratios greater than 1.0 even after the construction of potential at-grade solutions. For those intersections, the following grade-separated alternatives were analyzed:

1. Traditional Diamond Interchange
2. Partial Cloverleaf (two different configurations)
3. Diverging Diamond Interchange (DDI)
4. Displaced Left-Turn Interchange (DLTI)
5. Single Point Urban Interchange (SPUI)

Again, a number of alternatives were identified for further consideration. Factors such as land use, anticipated right-of-way impacts/costs, estimated construction costs, and access management were also considered in making the recommendation. Overall, 40 of the 47 study intersections were studied with improvements recommended by 2045.

4.4 ICE ANALYSIS RESULTS

The Stage 1 ICE results are summarized in **Table 4-1**. Many of these recommended improvements are expected to require some right-of-way, and impacts would need to be evaluated further. Therefore, additional engineering and environmental analyses (e.g., PD&E Studies) will be necessary prior to the implementation of major intersection improvements.

TABLE 4-1: ALTERNATIVES RECOMMENDED FOR FURTHER CONSIDERATION

US 27 Intersection	Signalized Alternatives									Unsignalized Alternatives			Grade Separated Alternatives		
	Traffic Signal (No-Build)	Full DLT	PDLT	Full MUT	PMUT	Quadrant Roadway*	Modified Traffic Signal (Signalize for currently Unsignalized Ints.)	Continuous Green Tee	PDLT/PMUT Hybrid	TWSC Full Median Opening (No-Build)	TWSC Closed Median	Unsignalized RCUT	Traditional Diamond	DDI	SPUI
Polo Park Boulevard	X		X	X											
Florence Villa Grove Road	X		X		X		X								
Sand Mine Road	X	X	X			SW									
Student Drive/Highland Reserve Boulevard	X		X	X	X										
McFee Drive/California Boulevard	X		X	X	X										
Terra del Sol Boulevard/Central Grove Road	X		X		X										
Four Corners Boulevard/Bella Citta Boulevard	X		X			NE			X						
Elgin Boulevard/Santa Cruz Road							X			X	X	X			
Ogelthorpe Drive							X			X	X	X			
Deen Still Road/Ronald Reagan Parkway	X		X		X				X						
Waverly Barn Road	X		X			NE									
Access Road	X		X												
Heller Brothers Boulevard/Deer Creek Boulevard	X		X	X									X		X
Minute Maid Ramp Road 2	X		X	X		NE									
Cottonwood Road					X		X			X					
Ridgewood Lakes Boulevard	X		X		X			X							
Holly Hill Tank Road							X			X	X	X			
Massee Road/Holly Hill Road	X		X	X			X		X						
La Casa Del Sol Boulevard							X	X		X	X	X			
Holly Hill Cutoff Road	X		X		X										
Sanders Road/Davenport Boulevard	X	X							X				X		X
South Boulevard				X			X			X	X	X			
Section 7 Airport Road/Parson Road/Patterson Road							X			X	X	X			

*The Quadrant for a "Quadrant Roadway" Intersection is indicated instead of simply marking "X".

TABLE 4-1: ALTERNATIVES RECOMMENDED FOR FURTHER CONSIDERATION (CONTINUED)

US 27 Intersection	Signalized Alternatives									Unsignalized Alternatives			Grade Separated Alternatives		
	Traffic Signal (No-Build)	Full DLT	PDLT	Full MUT	PMUT	Quadrant Roadway*	Modified Traffic Signal (Signalize for currently Unsignalized Ints.)	Continuous Green Tee	PDLT/PMUT Hybrid	TWSC Full Median Opening (No-Build)	TWSC Closed Median	Unsignalized RCUT	Traditional Diamond	DDI	SPUI
Bates Road	X		X		X				X				X		
Glen Este Boulevard/Southern Dunes	X	X	X												
CR 17/Old Polk City Road	X	X							X					X	X
Commerce Avenue/Pilot Entrance	X		X	X	X										
W Johnson Avenue				X			X			X	X	X			
Paradise Island Place/Sunshine Drive							X			X	X	X			
Kokomo Road	X					NE		X							
Crump Road/W Main Street	X			X	X										
Frederick Avenue				X			X			X	X	X			
SR 542/Dundee Road	X	X					X								
Lincoln Avenue							X			X	X	X			
SR 540/Waverly Road/Cypress Gardens Boulevard	X		X		X				X						
Thompson Nursery Road	X	X		X			X								
Tower Point Entrance/Vanguard School Entrance							X			X	X	X			
Mountain Lake Cut Off Road N	X		X	X	X				X						
Washington Avenue	X		X		X				X						
W Central Avenue	X		X		X		X		X						

*The Quadrant for a "Quadrant Roadway" Intersection is indicated instead of simply marking "X".

Based on the results of the Stage 1 ICE analysis the intersections we will prioritized based on a variety of factors and some intersection improvement projects will be carried forward into Stage 2 ICE Analysis and a PD&E Study.

5 ALTERNATIVE ROADWAY IMPROVEMENTS EVALUATED

To accommodate future (2045) travel demand along US 27, alternative roadway improvements such as new roadways (tolled and non-tolled) and new roadway connections were evaluated within the influence area of the US 27 study corridor. Utilizing criteria and input received during workshops and coordination with stakeholders, an evaluation was completed of various roadway network capacity and connectivity improvement strategies. This involved evaluation of future travel demand and travel patterns within and surrounding the US 27 corridor and testing alternative roadway improvements to find optimal capacity expansions. The methodology that was followed, and a summary of findings, is described in this section.

5.1 METHODOLOGY

Long term roadway improvement strategies to relieve traffic on US 27 were identified based on available data and input obtained from stakeholders, including Polk County and Polk TPO staff. Multiple alternatives that may provide relief to heavy north-south traffic on US 27 were identified. These were modeled and evaluated to determine their impacts to traffic on US 27 and within the study area. Alternatives include widening of US 27, multiple variations of a potential new north-south parallel reliever facility to the east of US 27, and widening and connecting various sections of adjacent and parallel local roads. The 13 alternatives are described in **Table 5-1** and the location of each alternative is graphically shown on **Figure 5-1** through **Figure 5-13**.

The analysis included an evaluation of all long-term roadway improvement alternatives in Table 5-1, as well as the No Build alternative. The Florida Standard Urban Transportation Model Structure (FSUTMS) FDOT District One Regional Planning Model (D1RPM) was the tool used to test each alternative. For each alternative the roadway improvements were coded into the D1RPM, and the model was run to obtain the outputs. Key outputs obtained from the 2040 future year D1RPM included the following:

- Daily model volumes for US 27 and surrounding study roadways,
- Vehicle-Hours-Traveled (VHT) on the model roadway network, and
- Vehicle-Miles-Traveled (VMT) on the model roadway network.

The future year 2040 outputs from the D1RPM were used to evaluate the traffic benefits of each alternative. Five criteria were selected to compare the performance of each of the alternatives. The five evaluation criteria include measures related to travel on US 27, travel on the regional roadway network, and travel on freight routes. A list of the five criteria follows.

US 27 Criteria

- Criteria 1 – Percentage of US 27 miles with volume-to-capacity ratio greater than 1.0

Regional Roadway Network Criteria

- Criteria 2 – Number of study road miles with volume-to-capacity ratio greater than 1.0
- Criteria 3 – Vehicle-Hours-Traveled (VHT)
- Criteria 4 – Vehicle-Miles-Traveled (VMT)

Freight Route Criteria

- Criteria 5 – Percentage of total freight route miles with volume-to-capacity ratio greater than 1.0

Travel Demand Modeling Methodology

Prior to utilizing the travel demand model to test and compare the alternatives, a sub-area base year (2010) validation refinement for the study area was completed, as well as development of a refined forecast (2040) Cost Feasible No-Build model. The traffic model applied for this study was based on the current adopted District 1 Cost Feasible 2040 Regional Planning Model (D1RPM v1.0.3), with refinements made in conjunction with a May 2018 US 17/92 Haines City traffic study. The D1RPM is a travel demand forecasting tool developed by FDOT District 1, in conjunction with the six District MPO/TPOs in support of their current 2040 Long Range Transportation Plans (LRTP). This model was adopted by the Polk County MPO for use in developing traffic forecasts within the County.

The 2010 base year model validation was refined for the project study area to ensure that the base year model is replicating base year traffic conditions and counts. The model refinement was performed by using the guidelines identified in the "2014 FDOT Project Traffic Forecasting Handbook". Validation criteria were used to assess the accuracy of the base year model. Revisions were incorporated into the 2010 Base Year model. These revisions are documented in the *Traffic Forecast Modeling Technical Memorandum for US 27 from SR 60 to Lake County*, dated January 2020 included in **Appendix B (Future No-Build Conditions Report)**.

A forecast 2040 No-build model network was developed by applying appropriate base year validation refinements to the 2040 LRTP Cost Feasible model network. This included adding the I-4/CR 532 interchange area (Osceola County) network and socioeconomic data and forecast external station volumes. This data was developed in coordination with FDOT District 5, to achieve consistency with the District 5 model CFRPM) and Osceola County external station forecasts. This 2040 network was also revised to include the proposed Central Polk Parkway (CPP) project, from Polk Parkway to 91 Mine Road, consistent with the associated Florida Turnpike (FTE) project model coding. The 2040 No-Build model network includes the addition of the Poinciana Parkway Extension and Southport Connector, from I-4 to Country Club Road as a limited access facility, consistent with the planned design from the Central Florida Expressway Authority.

TABLE 5-1: LONG TERM ROADWAY IMPROVEMENT ALTERNATIVES

Alternative	Description
A1. Modified Central Polk Parkway (CPP) - New N/S Limited Access Roadway	New **4-lane** N/S limited access road along old CPP alignment east of US 27 from a new intersection/interchange at US 27 south of SR 540, to US 17/92 and then along US 17/92 alignment to Poinciana Pkwy
	Widen US 17/92 to a 4-lane frontage road (2 lanes each direction) from Modified CPP to Poinciana Parkway
	Improve and widen SR 544 to 4-lanes between US 27 and Modified CPP US 27 to SR 17 (4-lane) SR 17 to Modified CPP (4-lane)
	Widen SR 542 to a 4-lane road between US 27 and Modified CPP US 27 to SR 17 (4-lane) SR 17 to Modified CPP (4-lane)
	Widen SR 540 to a 4-lane road between US 27 and Modified CPP
	Widen to 4-lanes and Realign CR 547 to shift south to avoid downtown Davenport and connect to Modified CPP
A2. Modified CPP - New N/S Limited Access Roadway	New **6-lane** N/S limited access road along old CPP alignment east of US 27 from a new intersection/interchange at US 27 south of SR 540, to US 17/92 and then along US 17/92 alignment to Poinciana Pkwy
	Widen US 17/92 to a 4-lane frontage road (2 lanes each direction) from Modified CPP to Poinciana Parkway
	Improve and widen SR 544 to 4-lanes between US 27 and Modified CPP US 27 to SR 17 (4-lane) SR 17 to Modified CPP (4-lane)
	Widen SR 542 to a 4-lane road between US 27 and Modified CPP US 27 to SR 17 (4-lane) SR 17 to Modified CPP (4-lane)
	Widen SR 540 to a 4-lane road between US 27 and Modified CPP
	Widen to 4-lanes and Realign CR 547 to shift south to avoid downtown Davenport and connect to Modified CPP
B. Powerline Rd Extension	Powerline Road widening to 4-lanes from South Blvd to CR 580
	Extend Powerline Road (4-lanes) from South Blvd north to US 17/92
	Extend Powerline Road (4-lanes) south from CR 580 to SR 540
	Widen US 17/92 to 4-lanes from Powerline Rd to Poinciana Parkway
	Widen SR 540/Waverly Road to 4-lanes from US 27 to Powerline Rd extension
C. N/S Davenport Connector	New 4-lane N-S roadway from US 17/92 to CR 580

TABLE 5-1: LONG TERM ROADWAY IMPROVEMENT ALTERNATIVES (CONTINUED)

Alternative	Description
D1. CR 580/Southport Connector Extension 1	Widen CR 580 to a 4-lane major arterial from Southport Connector where it ends at Poinciana Parkway west to connect to US-17/92 at 17th Street, along Hinson Avenue alignment
	Widen Hinson Ave/new CR 580 alignment to 4-lanes between Powerline Rd and 17th St
	US-17/92 / CR 580 / Hinson Ave as a 4-lane arterial between 10th Street and 17th Street
D2. CR 580/Southport Connector Extension 2	Improve CR 580 to a 4-lane freeway from Southport Connector where it ends at Poinciana Parkway west to improved/extended Powerline Rd
	Powerline Road widening to 4-lanes from South Blvd to CR 580
	Extend Powerline Road (4-lanes) from South Blvd north to US 17/92
	Extend Powerline Road (4-lanes) south from CR 580 to SR 540
	Widen US 17/92 to 4-lanes from Powerline Rd to Poinciana Parkway
	Widen SR 540/Waverly Road to 4-lanes from US 27 to Powerline Road extension
	Improve and widen SR 544 between US 27 and Powerline Road US 27 to SR 17 (4-lanes) SR 17 to Powerline Road (widen to 4-lanes)
	Widen SR 542 to 4-lanes between US 27 and Powerline Road US 27 to SR 17 (widen to 4-lanes) SR 17 to Powerline Road (widen to 4-lanes)
	Widen SR 540 to 4-lanes between US 27 and Powerline Road
	Widen to 4-lanes and Realign CR 547 to shift south to avoid downtown Davenport and connect to Powerline Road
E. US 27 Reliever and CR 580/Southport Connector Extension	Similar to Alternative D1, widen CR 580 to a 4-lane major arterial from Southport Connector where it ends at Poinciana Parkway west to "US 27 reliever". Includes all "US 27 reliever" improvements noted in Alternative A2.
F. US 27 Parallel Roads	New proposed 4-lane Holy Hill Rd and Grand View Parkway alignment from CR 547 to north of I-4, with an overpass over I-4
	New proposed 4-lane North Ridge Trail and FDC Grove Rd alignment from CR 547 to north of I-4, with an overpass over I-4
G. North Ridge Trail	North Ridge Trail new 4-lane road west side of US 27 north of Dean Still Road to Sand Mine Rd
H. Dean Still Road/Old Grade Road	Dean Still Road & Old Grade Road improved to 4-lanes in northwest corner of US 27 & I-4

TABLE 5-1: LONG TERM ROADWAY IMPROVEMENT ALTERNATIVES (CONTINUED)

Alternative	Description
I. CR 547 Extension	CR 547 extend and widen to 4-lanes
	Realign and widen CR 547 to 4-lanes to shift south to avoid downtown Davenport and connect to Powerline Road extension
	Extend CR 547 as a 4-lane road from US 27 west to Old Polk City Road
	Improve Old Polk City Road as a 4-lane roadway between connection with CR 547 extension and CR 557
J. US 17/92 Widening	Widen US 17/92 to 4-lanes from US 27 to Osceola County line Hinson Rd to Baker Ave (widen to 4-lanes) Baker Ave to Osceola County line (widen to 4-lanes)
K. US 27 Widening	Widen US 27 from 6-lanes to 8-lanes from SR 60 to US 192

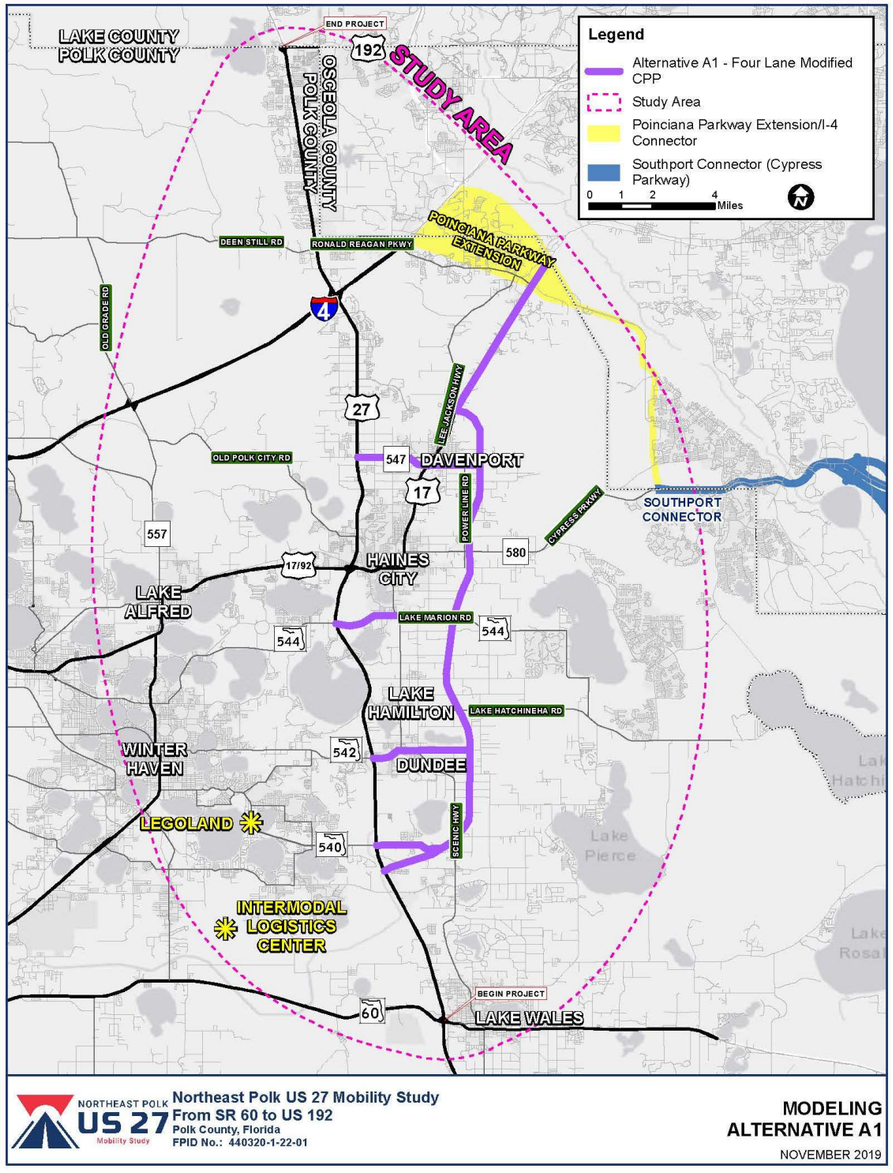


FIGURE 5-1: MAP OF ALTERNATIVE A1

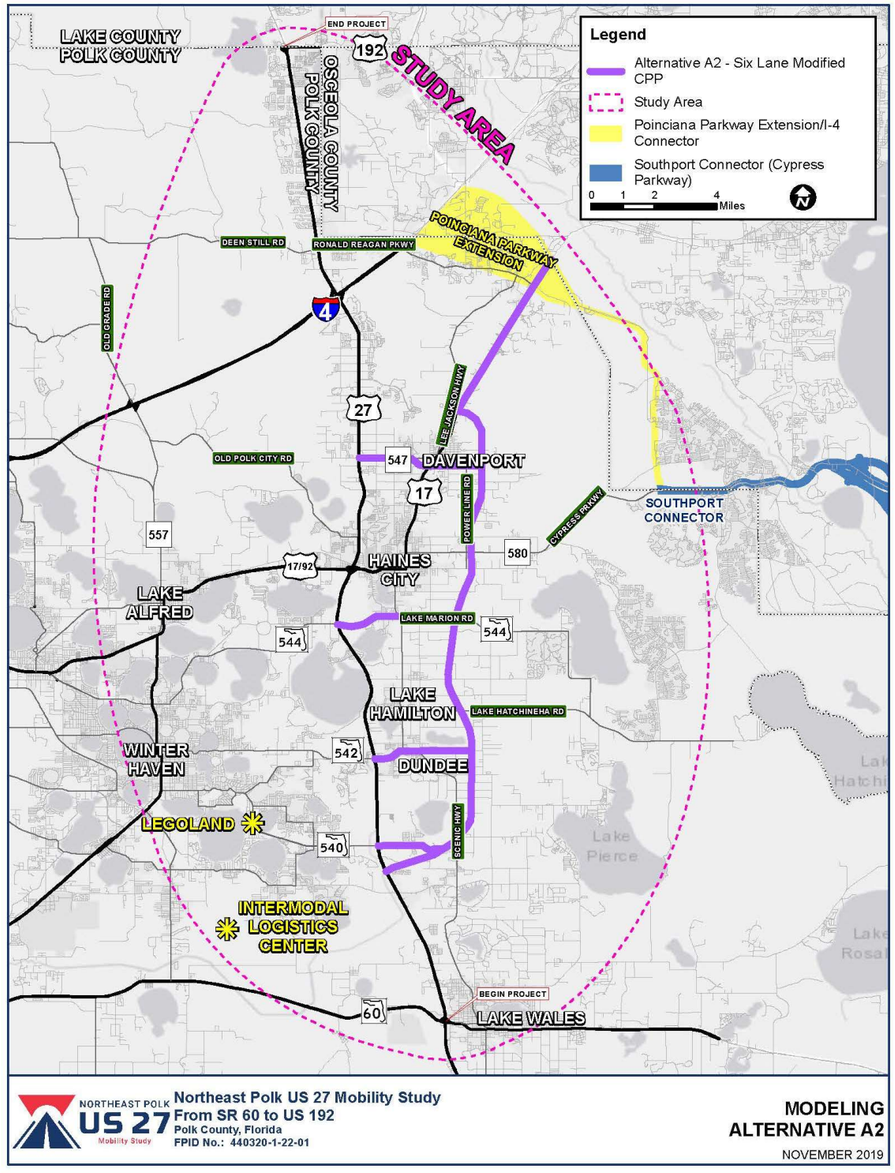


FIGURE 5-2: MAP OF ALTERNATIVE A2

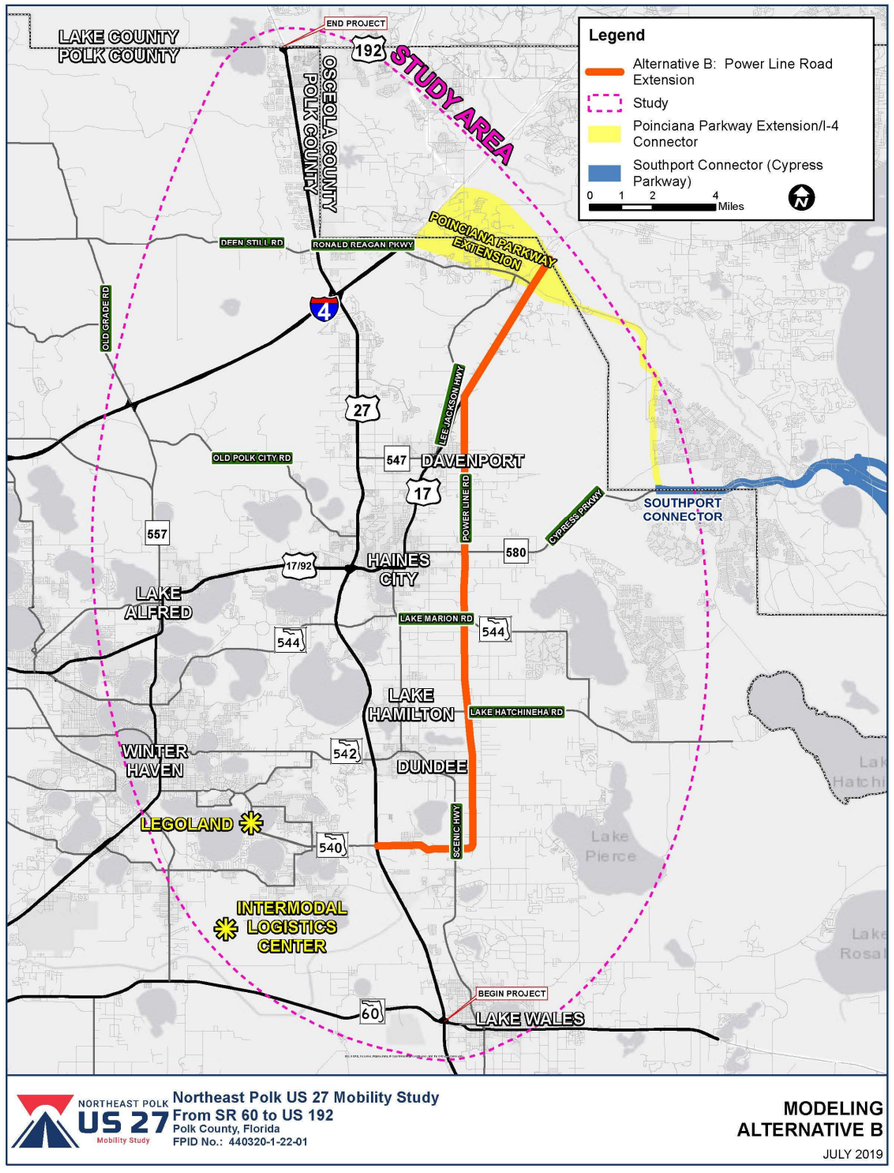


FIGURE 5-3: MAP OF ALTERNATIVE B

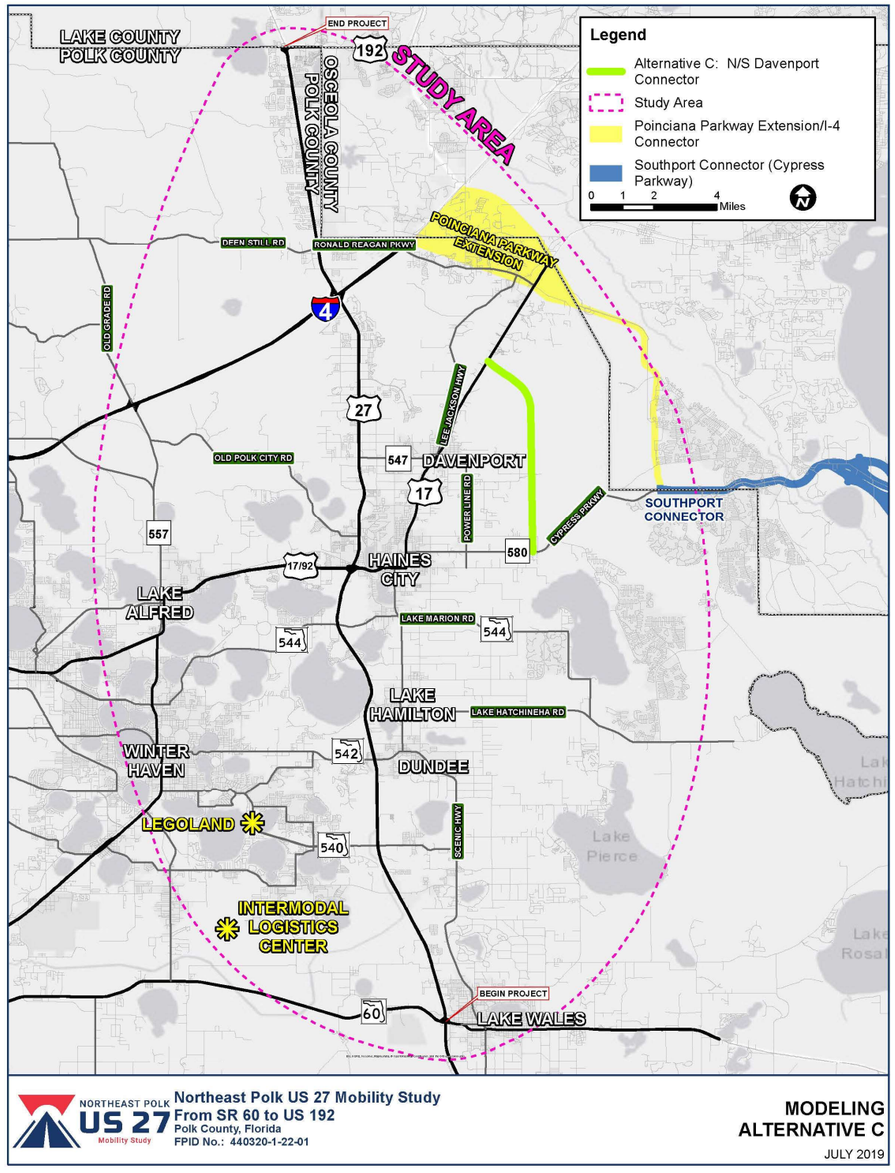


FIGURE 5-4: MAP OF ALTERNATIVE C

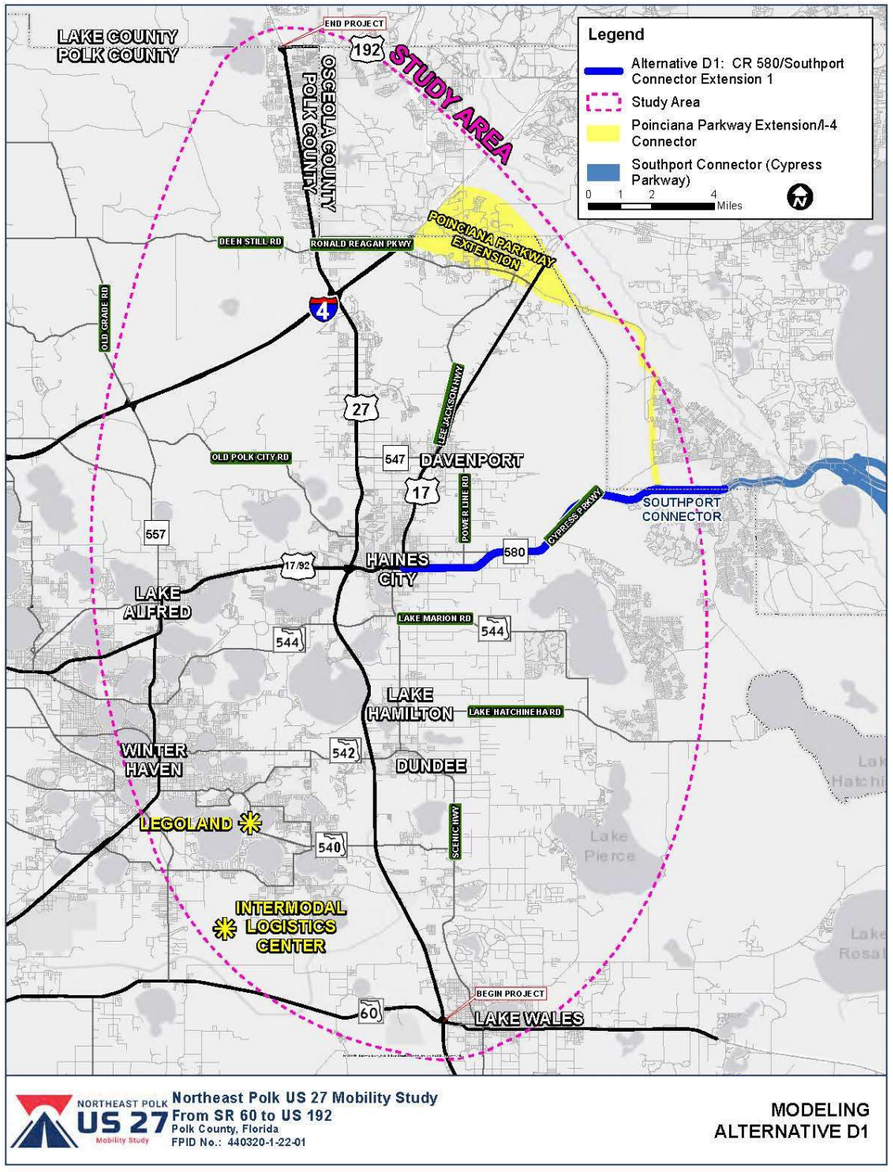


FIGURE 5-5: MAP OF ALTERNATIVE D1

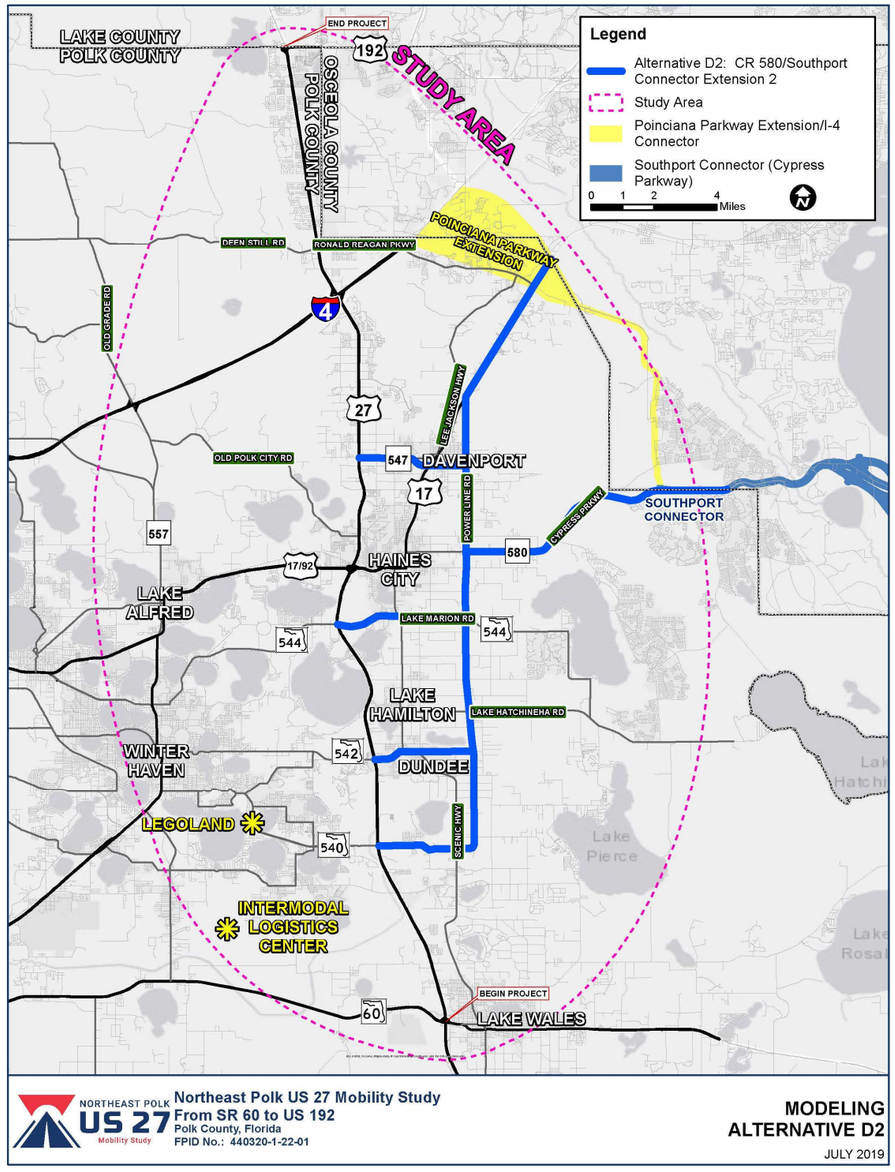


FIGURE 5-6: MAP OF ALTERNATIVE D2

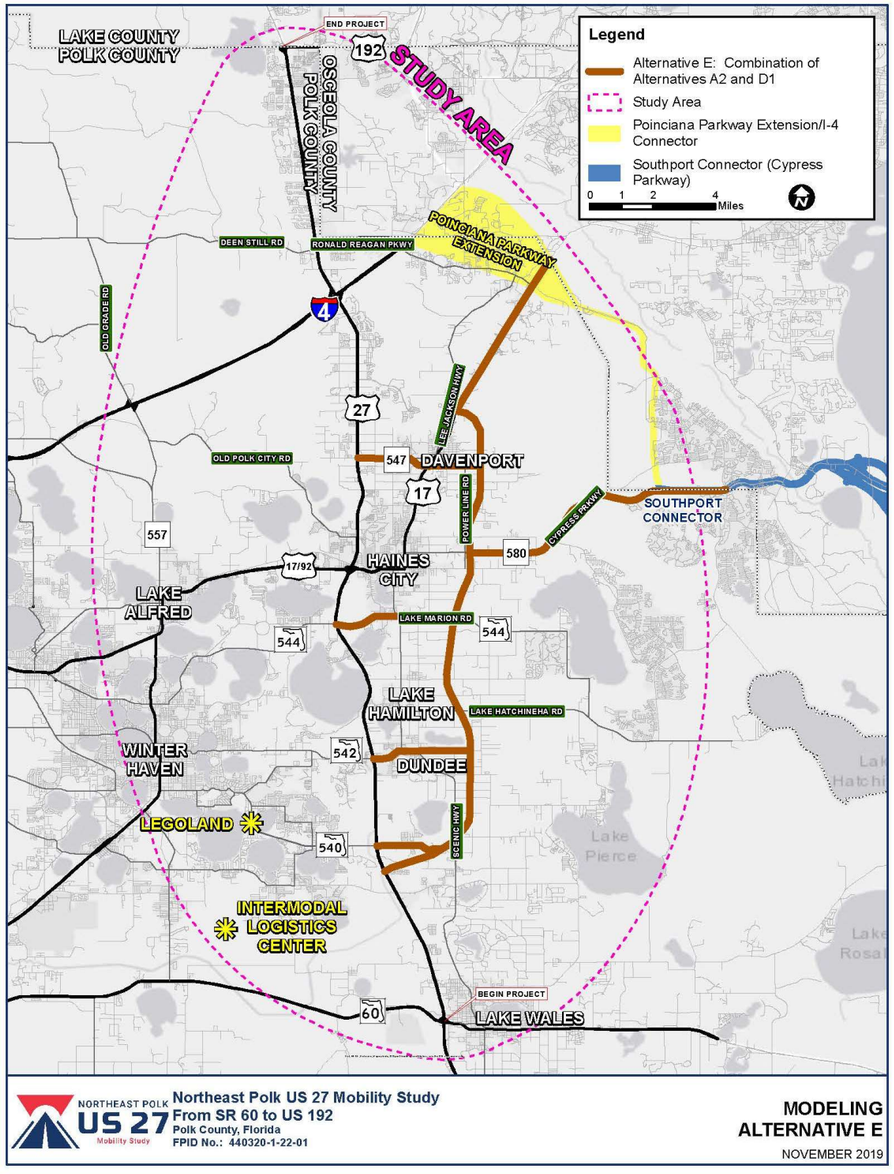


FIGURE 5-7: MAP OF ALTERNATIVE E

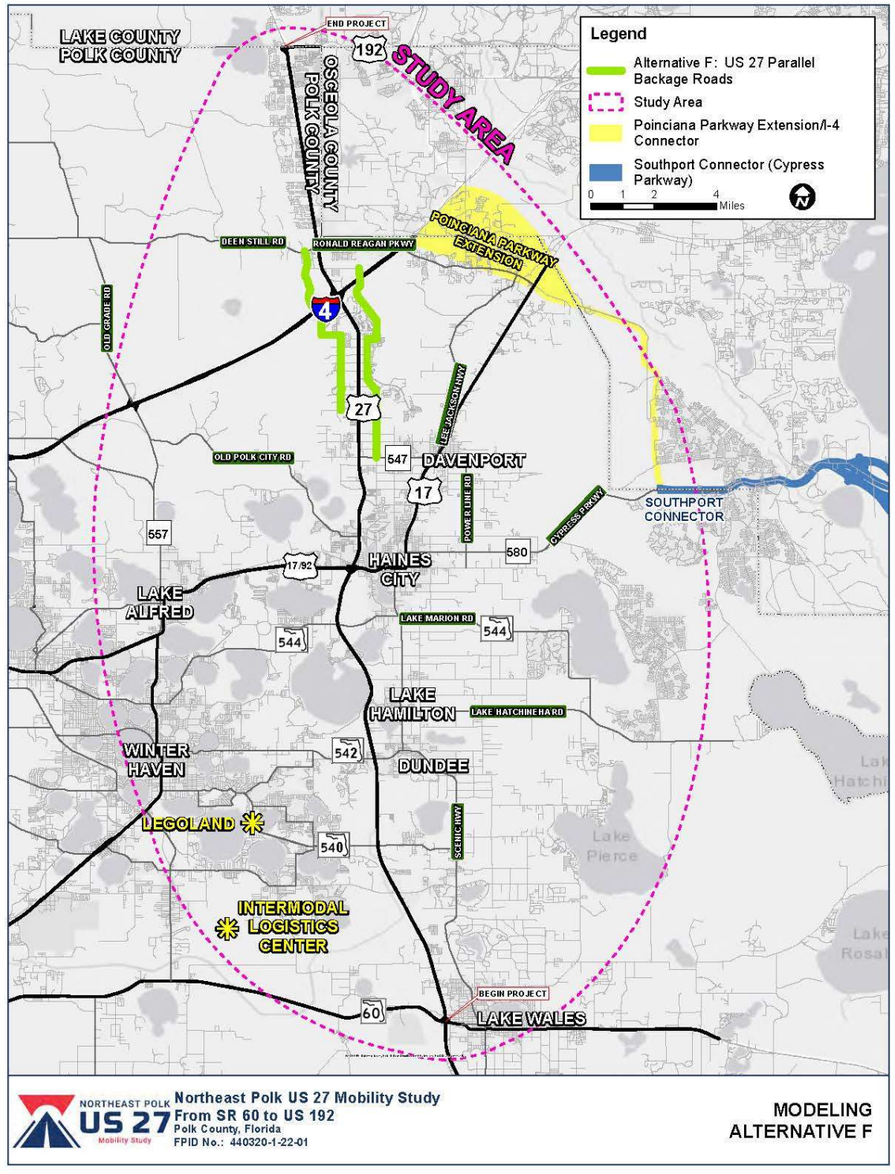


FIGURE 5-8: MAP OF ALTERNATIVE F

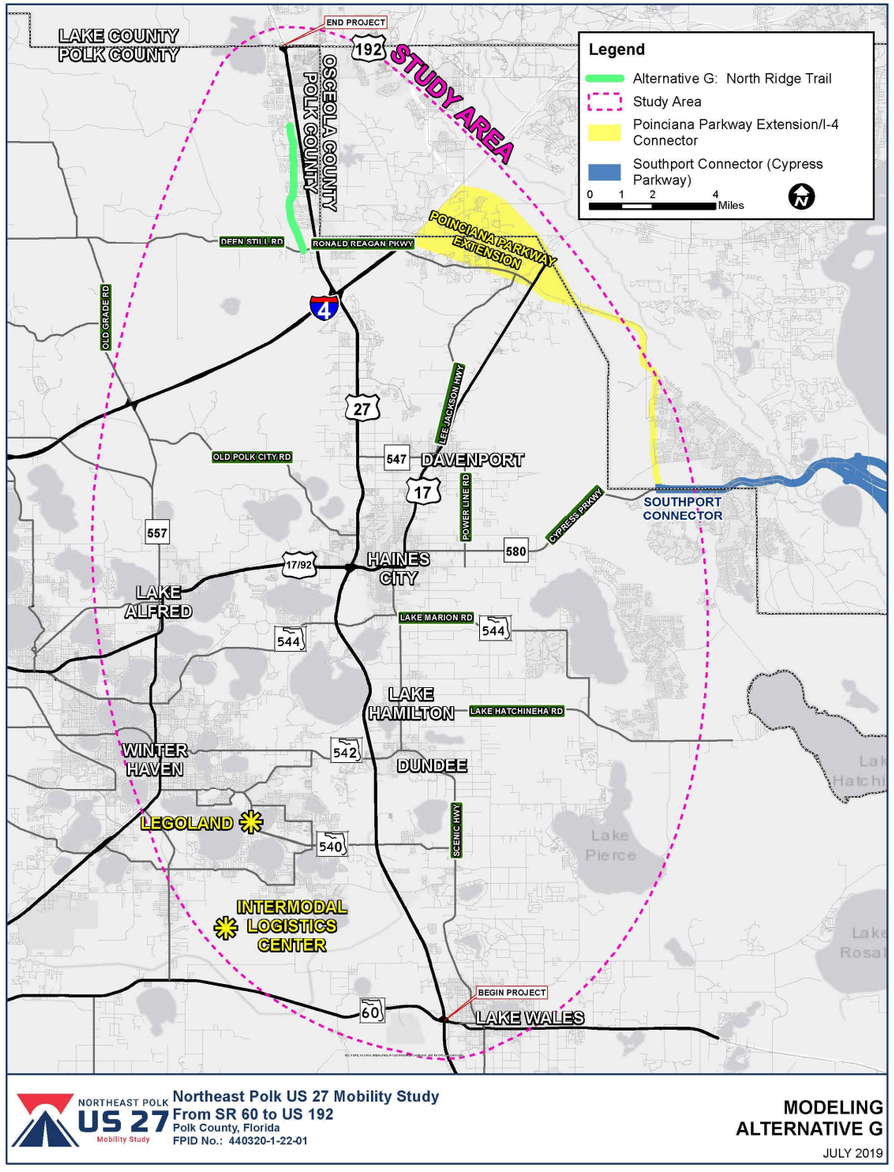


FIGURE 5-9: MAP OF ALTERNATIVE G

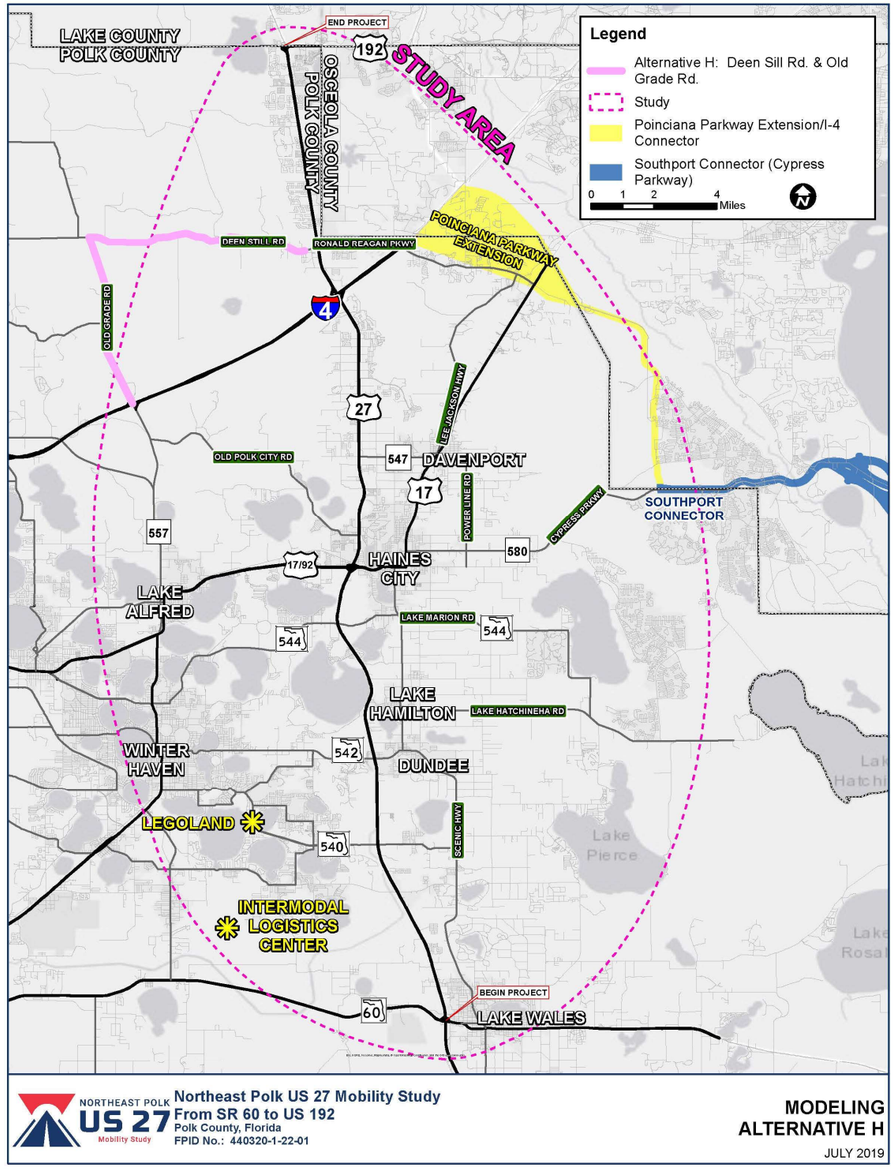


FIGURE 5-10: MAP OF ALTERNATIVE H

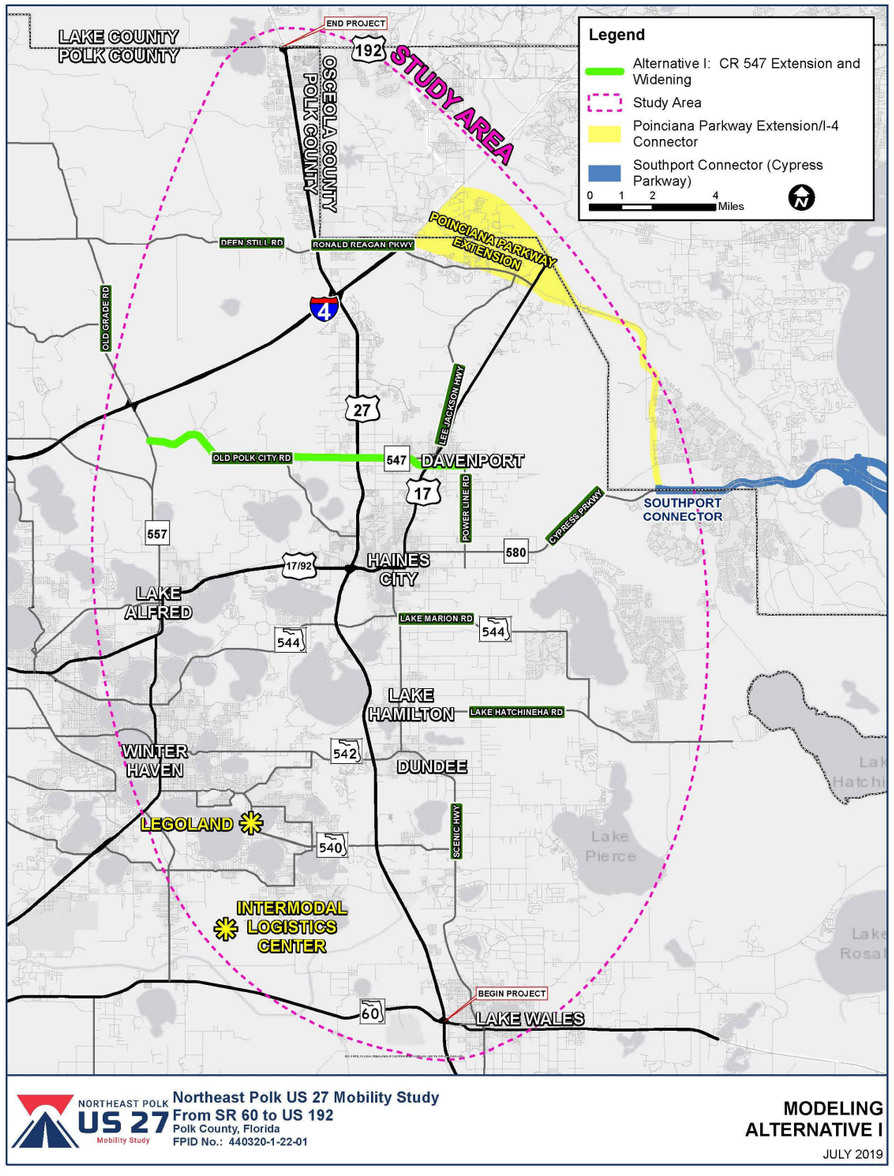


FIGURE 5-11: MAP OF ALTERNATIVE I

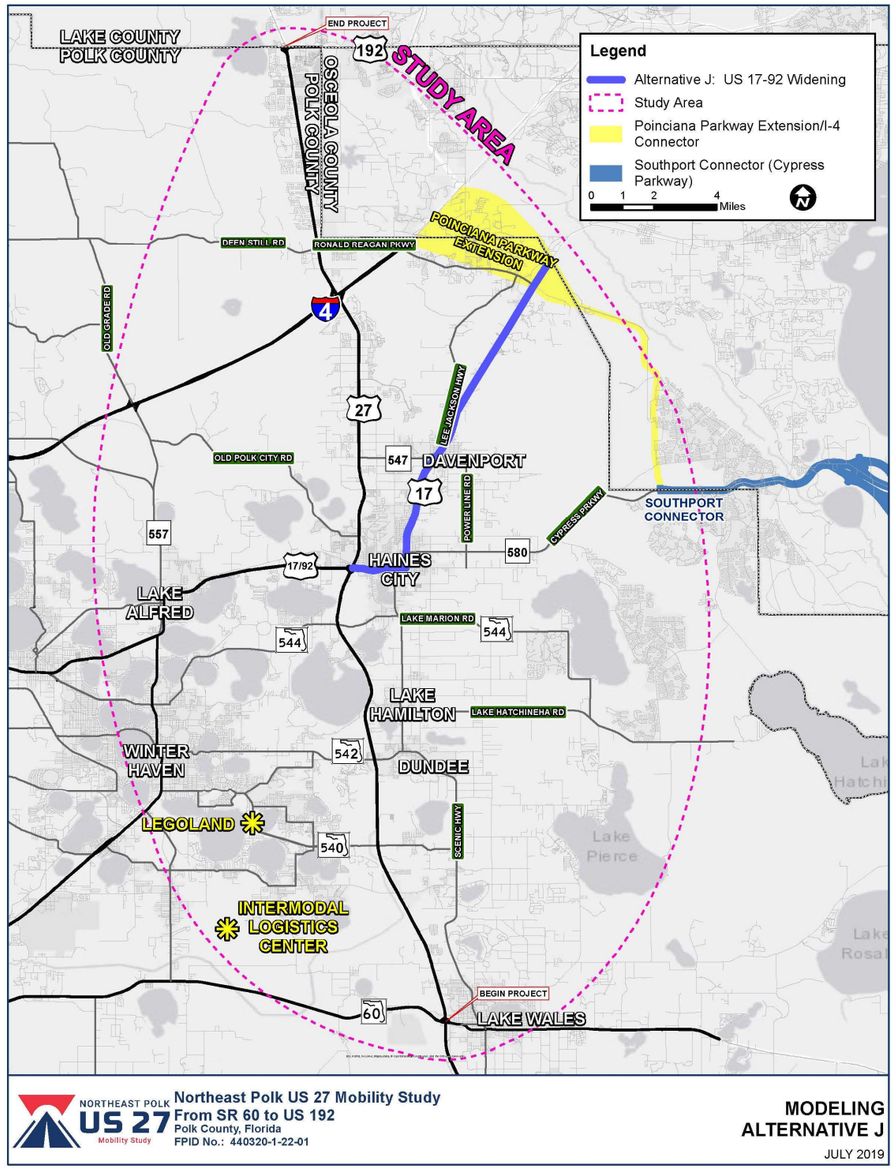


FIGURE 5-12: MAP OF ALTERNATIVE J

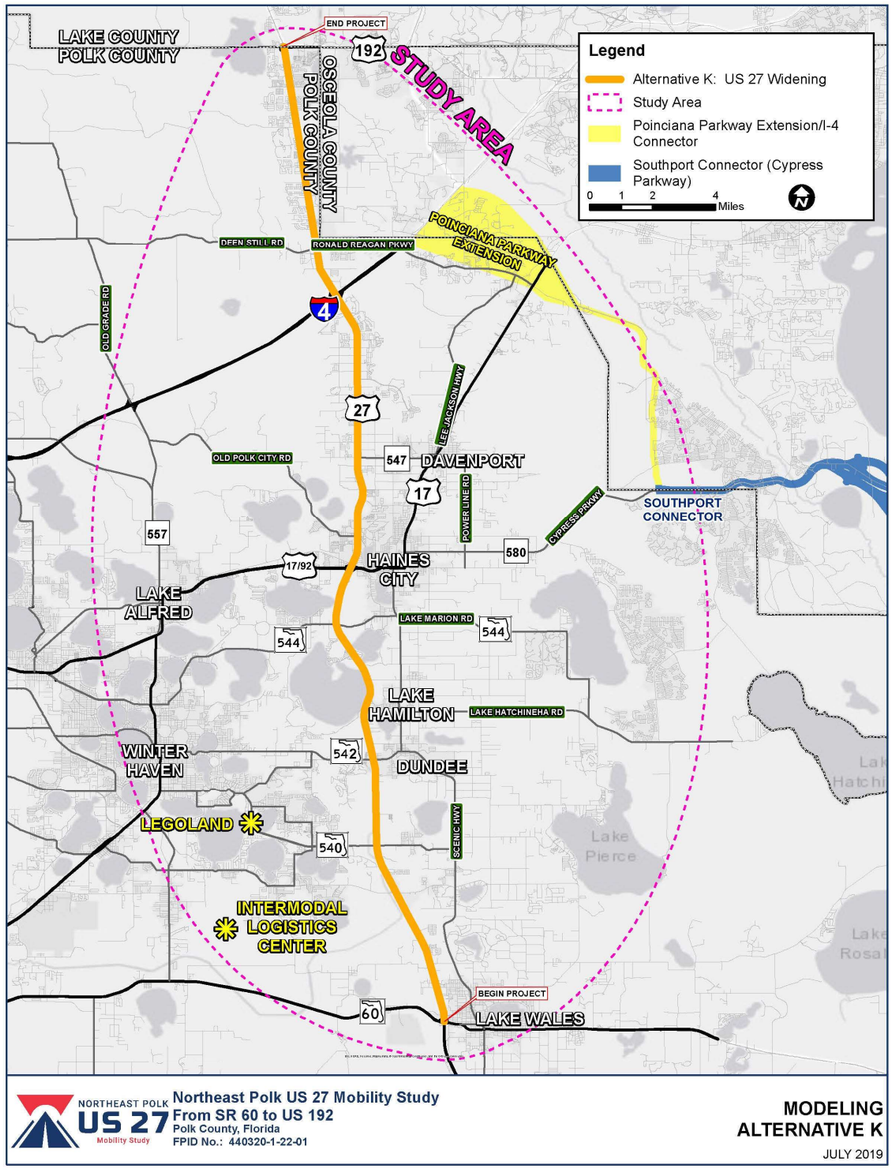


FIGURE 5-13: MAP OF ALTERNATIVE K

The regional model that was used to test and evaluate the 13 build alternatives included the following year 2040 background roadway improvements:

- Select Polk TPO 2040 Cost Feasible Plan Projects
- I-4 Managed Lanes (from Hillsborough County to Osceola County)
- Poinciana Parkway Extension (with partial interchange at CR 532)
- Southport Connector
- Central Polk Parkway (CPP) from Polk Parkway to 91 Mine Road

The Central Florida Expressway Authority (CFX) model was run with and without the Poinciana Parkway Extension and Southport Connector projects coded. The differences in Peak Season Weekday Traffic (PSWT) volumes at external stations between the two CFX runs were used to adjust target volumes for the D1RPM model. In addition, based on coordination with the Polk County TPO and Haines City, the 2040 model socioeconomic (SE) data was refined to reflect planned development within the study area which was not included in the original 2040 Socioeconomic (SE) data. Information provided by the Polk TPO was used to adjust industrial employment for TAZs (457, 674 and 650) near the interchange of I-4/US 27. The 2040 SE data also reflects development information received from Haines City.

Many of the Build alternatives are located at or near the Polk-Osceola County line and subsequently on the edge of the D1RPM boundary. Therefore, the CFX 2040 Poinciana Parkway Project Build model was also run to estimate the distribution of forecasted traffic at the model external stations. Nine of the 13 future build alternatives involved the additional step of running the CFX 2040 Poinciana Parkway Project Build model to obtain external station estimates.

In addition, no roads were assumed to be tolled in the D1RPM.

5.2 SUMMARY OF ANALYSIS FINDINGS

A project workshop was held on May 1, 2019, to identify long term roadway mobility strategies for the NE Polk county study area. Thirteen potential alternatives were identified. Each of the alternatives were then tested using the 2040 FDOT District One Regional Planning Model (D1RPM) No Build model as a base. Table 5-1 lists the 13 alternatives that were tested.

The results of the No Build and Build alternative model runs were summarized in a series of maps and tables. Model plots were produced for each alternative to document the resulting 2040 AADT and number of lanes coded for each alternative. The model plots are provided in **Appendix D**. The 2040 AADTs on the study segments of US 27 and US 17 for each alternative were also summarized in tables. The 2040 AADT summary tables for each of the 13 build alternatives and for the No Build alternative, are provided in **Appendix E.**

The 2040 AADTs for each alternative were reviewed to determine the impact that each alternative would have on traffic volumes along US 27 and the surrounding study area roadway network. **Table 5-2** summarizes the year 2040 daily model volumes for US 27 and US 17/92 for all tested alternatives. **Table 5-3** shows the differential between the 2040 daily model volumes for each alternative compared to the No Build 2040 daily model volumes. Cells in **Table 5-3** are color coded to highlight increases and decreases in traffic volume compared to No Build. Increases are shown with orange shading, and decreases are shown with green shading.

TABLE 5-2: ALTERNATIVES 2040 DAILY MODEL VOLUME SUMMARY TABLE

US 27															
From	**To**	**No Build**	**Alt A1**	**Alt A2**	**Alt B**	**Alt C**	**Alt D1**	**Alt D2**	**Alt E**	**Alt F**	**Alt G**	**Alt H**	**Alt I**	**Alt J**	**Alt K**
SR 60	SR 540	58,500	64,500	64,500	56,000	58,500	59,000	56,500	65,000	59,000	58,500	58,500	59,000	59,500	61,000
SR 540	SR 542	54,500	36,000	32,500	48,000	54,000	55,000	52,000	33,000	54,500	54,500	54,500	54,500	55,500	57,000
SR 542	SR 544	57,500	35,500	31,500	50,500	57,500	58,500	49,000	31,500	58,000	57,500	57,500	58,000	59,000	61,500
SR 544	US 17/92	77,500	51,000	46,500	67,500	77,000	80,500	65,500	46,500	78,000	77,500	77,000	77,500	78,500	84,500
US 17/92	CR 547	84,000	67,500	64,500	75,500	82,000	82,000	77,500	64,000	87,000	84,000	83,000	86,000	78,000	94,500
CR 547	I-4	90,000	76,000	75,000	84,000	89,500	89,500	84,500	74,500	85,500	90,000	89,500	88,000	86,000	103,500
I-4	Deen Still Rd	79,000	73,500	72,500	77,500	78,500	78,500	77,000	72,500	75,500	79,000	78,000	79,000	77,500	89,000
Deen Still Rd	Lake Co	74,500	70,500	70,500	74,500	75,000	74,500	74,500	70,500	74,500	69,500	74,500	74,500	74,500	80,000
US 17 / 92															
From	**To**	**No Build**	**Alt A1**	**Alt A2**	**Alt B**	**Alt C**	**Alt D1**	**Alt D2**	**Alt E**	**Alt F**	**Alt G**	**Alt H**	**Alt I**	**Alt J**	**Alt K**
Old Dixie Hwy	US 27	37,500	35,500	35,500	27,000	37,000	39,500	38,000	35,500	37,000	34,500	37,000	36,500	37,500	37,000
US 27	SR 17	40,000	29,500	28,500	37,000	40,500	50,000	33,000	28,500	40,000	40,500	40,500	36,500	44,500	39,500
SR 17	Crestview Ct	26,000	17,000	16,500	22,500	25,500	26,000	20,500	16,000	26,000	26,000	26,000	24,500	41,000	25,500
Crestview Ct	CR 547	31,500	19,000	18,000	25,500	28,500	30,500	20,500	17,500	31,500	31,000	31,000	27,500	56,000	30,500
CR 547	Poincianna Pkwy	26,000	32,500	35,500	44,000	27,000	25,000	43,500	35,500	24,500	26,000	26,000	26,000	57,000	25,500

NOTES:

*D1RPM volumes presented in PSWADT. Segment volumes equal the average of link volumes within each segment.

** 6-lane LOS D capacity threshold of US 27 is approximately 59,900. 8-lane LOS D capacity threshold of US 27 is approximately 80,100.

*** Over Capacity segments along US 27 are highlighted in red while Below Capacity segments are highlighted in green.

TABLE 5-3: ALTERNATIVES 2040 DAILY MODEL VOLUME DIFFERENTIAL

US 27														
From	**To**	**No Build**	**Alt A1**	**Alt A2**	**Alt B**	**Alt C**	**Alt D1**	**Alt D2**	**Alt E**	**Alt F**	**Alt G**	**Alt H**	**Alt I**	**Alt J**	**Alt K**
SR 60	SR 540		6,000	6,000	-2,500	0	500	-2,000	6,500	500	0	0	500	1,000	2,500
SR 540	SR 542		-18,500	-22,000	-6,500	-500	500	-2,500	-21,500	0	0	0	0	1,000	2,500
SR 542	SR 544		-22,000	-26,000	-7,000	0	1,000	-8,500	-26,000	500	0	0	500	1,500	4,000
SR 544	US 17/92		-26,500	-31,000	-10,000	-500	3,000	-12,000	-31,000	500	0	-500	0	1,000	7,000
US 17/92	CR 547		-16,500	-19,500	-8,500	-2,000	-2,000	-6,500	-20,000	3,000	0	-1,000	2,000	-6,000	10,500
CR 547	I-4		-14,000	-15,000	-6,000	-500	-500	-5,500	-15,500	-4,500	0	-500	-2,000	-4,000	13,500
I-4	Deen Still Rd		-5,500	-6,500	-1,500	-500	-500	-2,000	-6,500	-3,500	0	-1,000	0	-1,500	10,000
Deen Still Rd	Lake County		-4,000	-4,000	0	500	0	0	-4,000	0	-5,000	0	0	0	5,500
US 17 / 92															
From	**To**	**No Build**	**Alt A1**	**Alt A2**	**Alt B**	**Alt C**	**Alt D1**	**Alt D2**	**Alt E**	**Alt F**	**Alt G**	**Alt H**	**Alt I**	**Alt J**	**Alt K**
CR 547	Poinciana Pkwy		6,500	9,500	18,000	1,000	-1,000	17,500	9,500	-1,500	0	0	0	31,000	-500

NOTE: Cells are color coded to highlight increases and decreases in traffic volume compared to No Build. Increases are shown with orange shading, Decreases are shown with green shading.

The findings from an assessment of the 2040 daily model volumes are summarized below for each alternative.

US 27 2040 No Build Alternative

The 2040 daily volumes along US 27 are shown in **Figure 5-14**. The 2040 daily volume will exceed the capacity of the existing roadway for a majority of study corridor. A red line indicates the segments of US 27 where the 2040 volume is expected to exceed the roadway capacity. Near I-4 the 2040 daily volume of 90,000 will exceed the capacity of the six-lane roadway by 150%. There is a significant need for improvement to alleviate congestion along US 27north of SR 544 by year 2040.

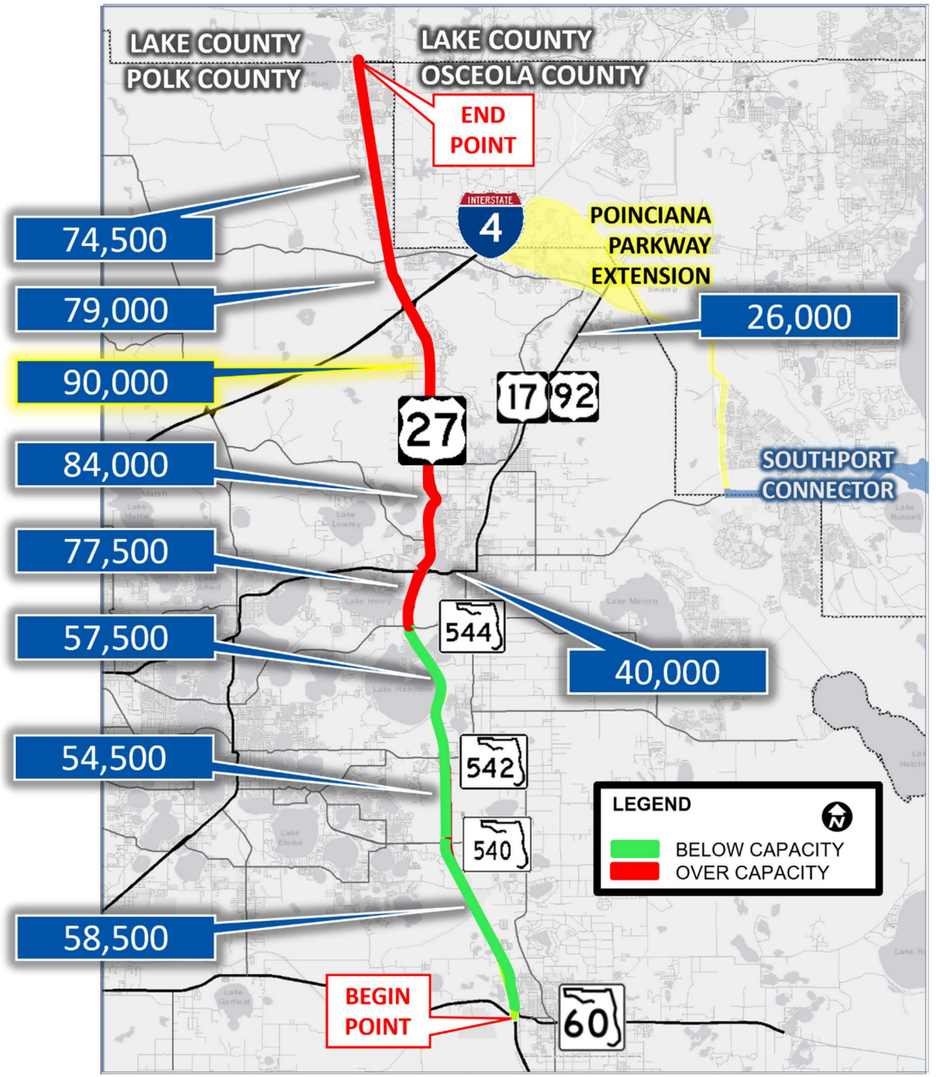


FIGURE 5-14: NO-BUILD ALTERNATIVE 2040 DAILY VOLUME ON US 27

Alternative A1 – Modified CPP (4-lanes)

Alternative A1 - Modified CPP (4-lanes) assumes a new four lane divided north-south limited access roadway running parallel to US 27, is constructed east of US 27. The new north-south roadway joins together with US 17/92 on the northern end and terminates at US 27 just south of SR 540. Alternative A1 also includes widening/improving four east-west roadways (SR 540, SR 542, SR 544, and Davenport Boulevard) to connect between US 27 and Modified CPP.

The 2040 daily volumes along US 27 for Alternative A1 were compared to the No Build 2040 daily volumes on US 27. Based on the model run for Alternative A1, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-15**. Approximately 90,500 vehicles are expected to use the new north-south limited access roadway near US 17/92. This alternative provides significant benefits. The new parallel roadway would decrease 2040 daily traffic on US 27 by up to 26,500 vehicles south of US 17/92. In addition, the alternative was shown to decrease the number of study road miles with volumes that exceed the roadway capacity and decrease the percentage of freight route miles with volumes that exceed the roadway capacity.

While the alternative reduces traffic on many segments of US 27, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from US 17/92 to the Polk/Lake County line, and from south of SR 540 to SR 60. The red lines on **Figure 5-15** indicate the segments of US 27 where the 2040 volume is expected to exceed the roadway capacity.

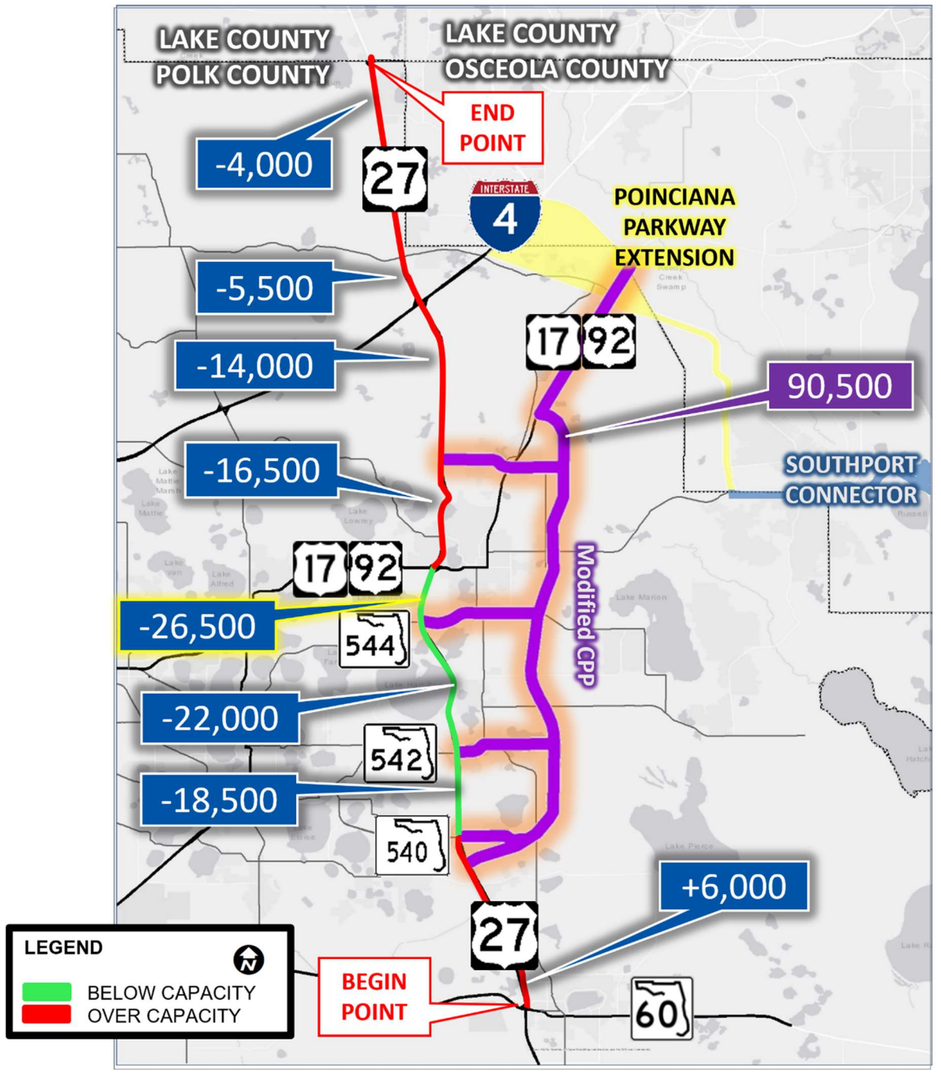


FIGURE 5-15: ALTERNATIVE A1 VS. NO-BUILD 2040 DAILY VOLUME

Alternative A2 – Modified CPP (6-lanes)

Similar to Alternative A1, Alternative A2 - Modified CPP (6-lanes) includes a new north-south limited access roadway east of US 27 which runs parallel to US 27. The new north-south limited access roadway joins together with US 17/92 on the northern end and terminates at US 27 just south of SR 540. Alternative A2 also includes widening/improving four east-west roadways (SR 540, SR 542, SR 544, and Davenport Boulevard) to connect between US 27 and Modified CPP. The only difference between Alternative A1 and Alternative A2, is that Alternative A2 includes six lanes instead of four lanes along the new Modified CPP roadway.

The 2040 daily volumes along US 27 for Alternative A2 were compared to the No Build 2040 daily volumes on US 27. Based on the model run for Alternative A2, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-16**. This alternative provides significant benefits like Alternative A1 and can reduce slightly more traffic on US 27 than Alternative A1. Approximately 104,500 vehicles are expected to use the new north-south limited access roadway near US 17/92. The new parallel roadway would decrease 2040 daily traffic on US 27 by up to 31,000 vehicles south of US 17/92. In addition, the alternative was shown to decrease the number of study road miles with volumes that exceed the roadway capacity and decrease the percentage of freight route miles with volumes that exceed the roadway capacity.

While the alternative reduces traffic on many segments of US 27, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from US 17/92 to the Polk/Lake County line, and from south of SR 540 to SR 60. The red lines on **Figure 5-16** indicate the segments of US 27 where the 2040 volume is expected to exceed the roadway capacity.

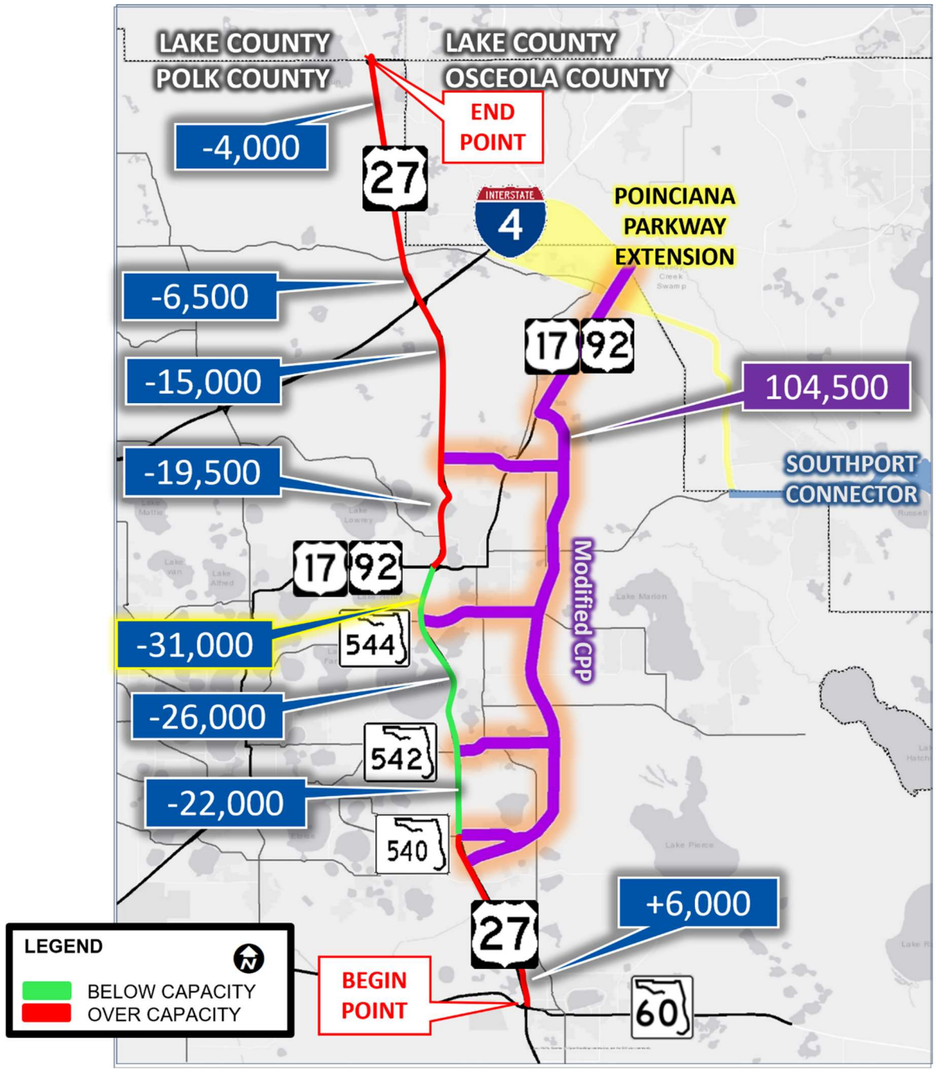


FIGURE 5-16: ALTERNATIVE A2 VS. NO-BUILD 2040 DAILY VOLUME

Alternative B – Powerline Road Extension and Widening

Alternative B includes extending Powerline Road and widening the roadway to four lanes from US 17/92 to US 27 near SR 540. This improved north-south arterial roadway is located east of US 27 and would run parallel to US 27. This alternative, like Alternatives A1 and Alternative A2, provides additional north-south capacity and connectivity. The difference is that access (driveways and new street connections) would not be limited along Powerline Road. Powerline Road would have intersection delays and overall lower speeds than a limited access roadway such as the Modified CPP alternatives.

The 2040 daily volumes along US 27 for Alternative B were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative B, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-17**. Approximately 51,000 vehicles are expected to use the new north-south arterial roadway near US 17/92. Alternative B would reduce traffic on US 27, but not to the extent that Alternatives A1 and A2 would. The new parallel roadway would decrease 2040 daily traffic on US 27 by up to 10,00 vehicles south of US 17/92. In addition, the alternative was shown to reduce total travel time network wide.

The alternative reduces traffic on many segments of US 27. However, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-17** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

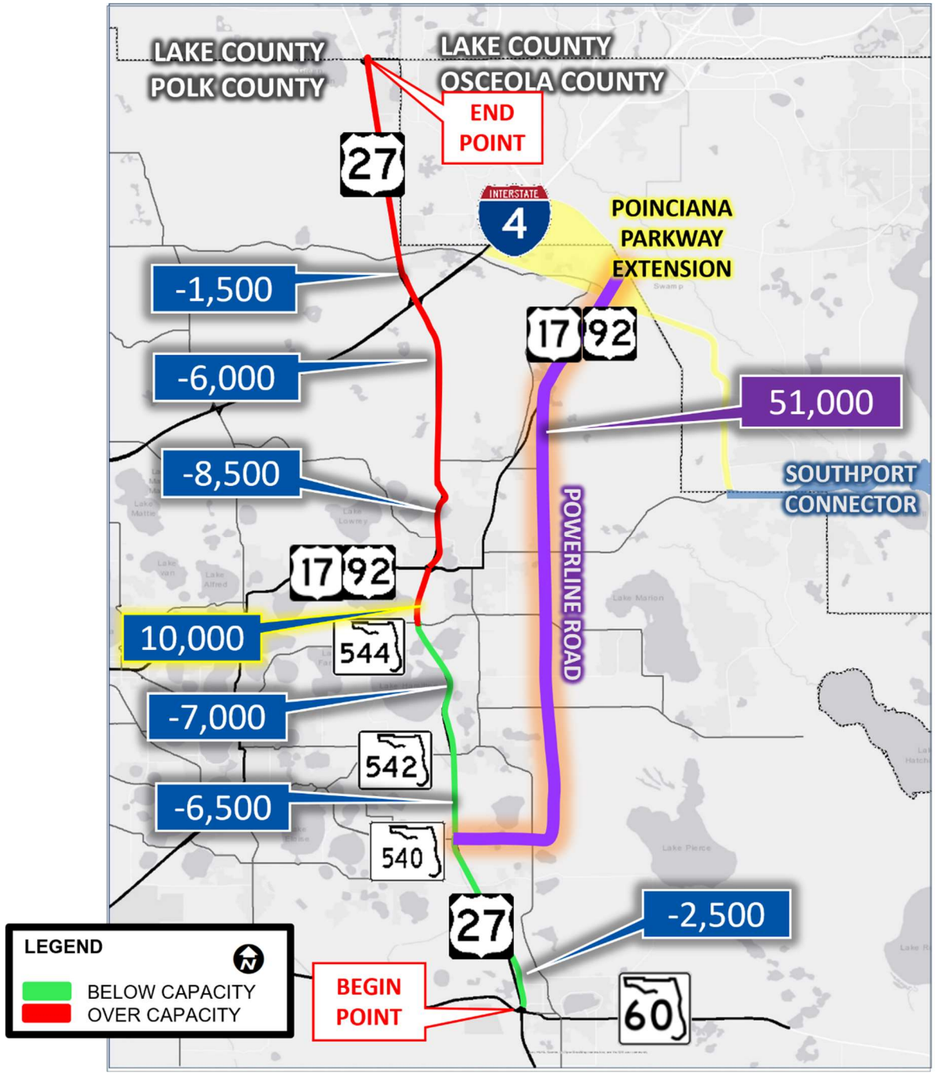


FIGURE 5-17: ALTERNATIVE B VS. NO-BUILD 2040 DAILY VOLUME

Alternative C – Davenport North/South Connector

Alternative C consists of adding a new north-south four lane major arterial roadway between US 17/92 and CR 580 / Cypress Parkway. This new arterial roadway is located east of US 27 and would run north-south parallel to US 27 for approximately 6.5 miles. This alternative provides additional north-south capacity and connectivity.

The 2040 daily volume along US 27 for Alternative C was compared to the 2040 No Build 2040 daily volume on US 27. Based on the model run for Alternative C, the change in the 2040 daily volume along US 27 is shown on **Figure 5-18**. Approximately 25,500 vehicles are expected to use the new north-south arterial roadway near SR 580 / Cypress Parkway. However, Alternative C does not noticeably impact US 27. It would reduce 2040 traffic on US 27 by approximately 2,000 daily vehicles between Davenport Boulevard and Old Polk City Road.

The 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-18** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

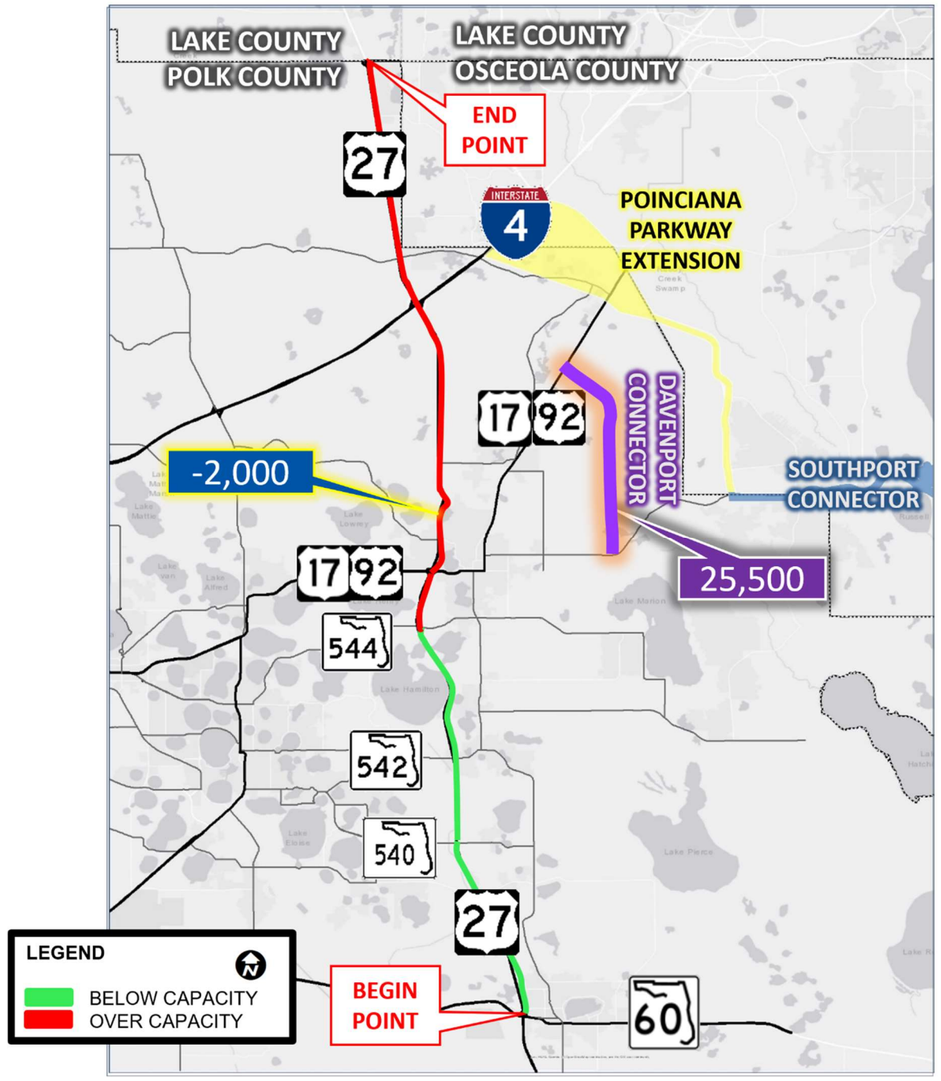


FIGURE 5-18: ALTERNATIVE C VS. NO-BUILD 2040 DAILY VOLUME

Alternative D1 – CR 580/Southport Connector Extension

Alternative D1 consists of adding a new east-west four lane major arterial roadway running generally along the Cypress Parkway alignment, from US 17/92 to the Community of Poinciana located east of Haines City. This new arterial roadway is located east of US 27 and would run east-west for approximately 8.5 miles. This alternative provides additional east-west capacity and connectivity.

The 2040 daily volume along US 27 for Alternative D1 was compared to the 2040 No Build 2040 daily volume on US 27. Based on the model run for Alternative D1, the change in the 2040 daily volume along US 27 is shown on **Figure 5-19**. Approximately 45,000 vehicles are expected to use the new east-west arterial roadway. Alternative D1 would reduce 2040 traffic on US 27 by approximately 2,000 daily vehicles between Davenport Boulevard and Old Polk City Road. However, Alternative D1 would increase 2040 traffic on US 27 by approximately 3,000 daily vehicles between US 17/92 and SR 544. This alternative does not significantly impact US 27.

The 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-19** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

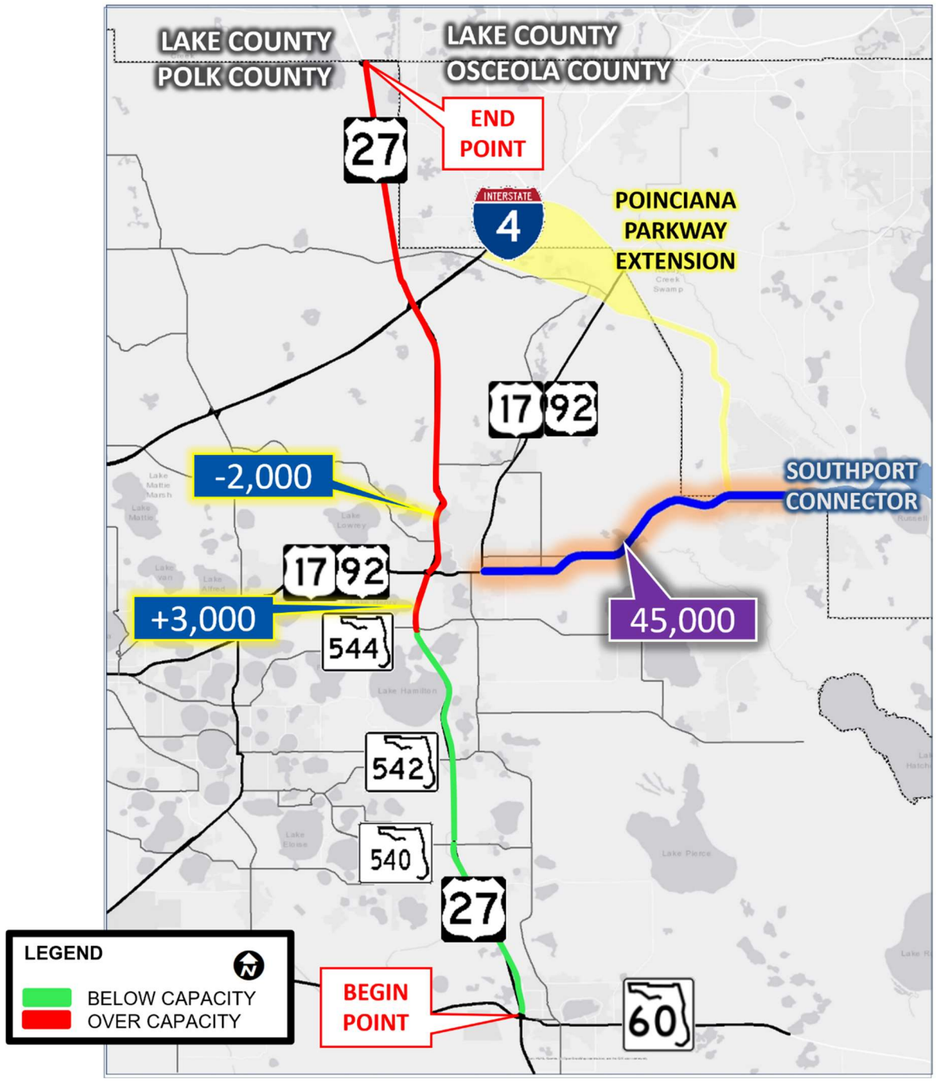


FIGURE 5-19: ALTERNATIVE D1 VS. NO-BUILD 2040 DAILY VOLUME

Alternative D2 – Powerline Road Extension with CR 580/Southport Connector Extension

Alternative D2 includes extending Powerline Road and widening the roadway to four lanes from US 17/92 to US 27 at SR 540. It also includes constructing the Southport Connector as a four lane east-west freeway facility running generally along the Cypress Parkway alignment, from US 17/92 to the Community of Poinciana located east of Haines City. Alternative D2 also includes widening/improving four east-west roadways (SR 540, SR 542, SR 544, and Davenport Boulevard) to connect between US 27 and Powerline Road. This alternative provides additional north-south and east-west capacity and connectivity. This alternative is similar to Alternatives A1 and Alternative A2; the difference is that access (driveways and new street connections) would not be limited along Powerline Road. Powerline Road would have intersection delays and overall lower speeds than a limited access roadway such as the Modified CPP alternatives.

The 2040 daily volumes along US 27 for Alternative D2 were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative D2, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-20**. Approximately 55,500 vehicles are expected to use the new north-south arterial roadway north of the proposed Southport Connector. On the proposed Southport Connector, approximately 61,500 vehicles are expected to use the new east-west freeway. Alternative D2 would decrease 2040 daily traffic on US 27 by up to 12,000 vehicles south of US 17/92. In addition, the alternative was found to reduce total travel time network wide and increase vehicle-miles-traveled network wide.

The alternative reduces traffic on many segments of US 27. However, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-20** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

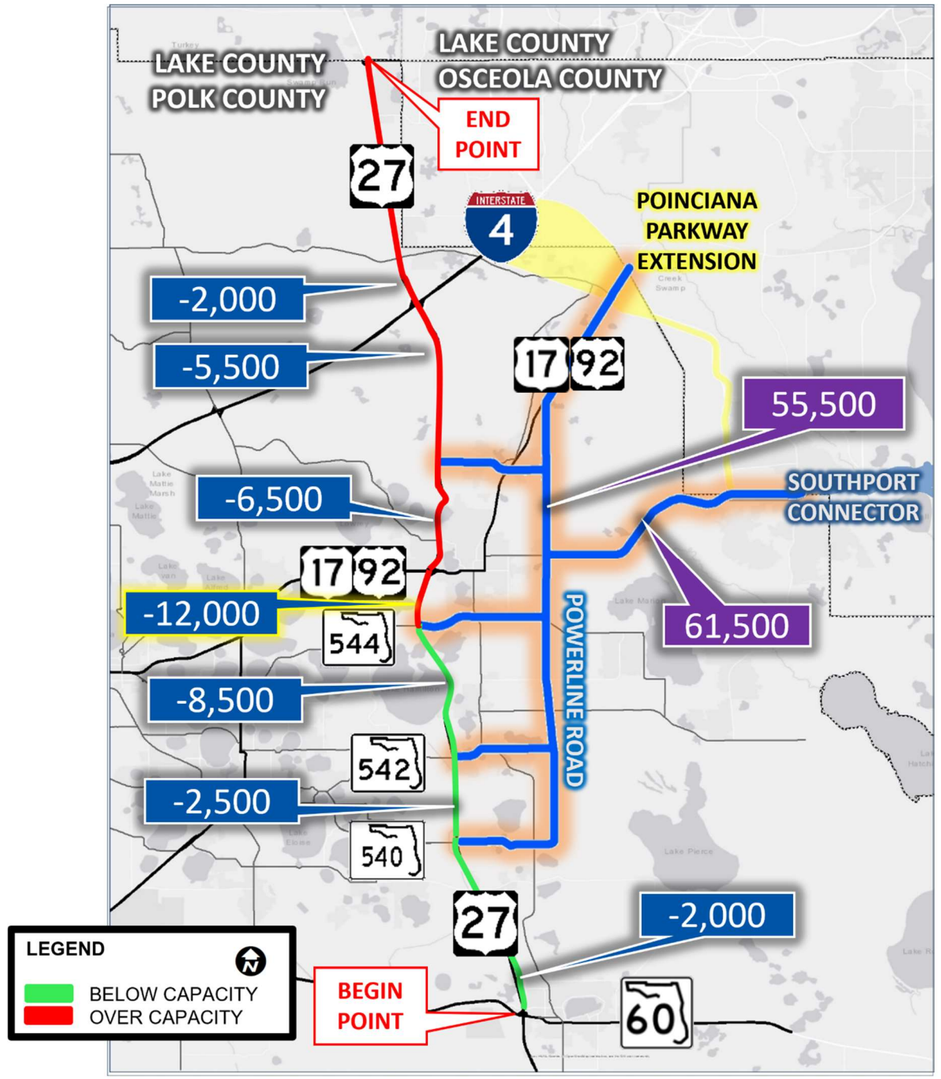


FIGURE 5-20: ALTERNATIVE D2 VS. NO-BUILD 2040 DAILY VOLUME

Alternative E – Modified CPP with CR 580/Southport Connector Extension

Alternative E assumes a new six lane divided north-south limited access roadway running parallel to US 27, is constructed east of US 27. The new north-south roadway joins together with US 17/92 on the northern end and terminates at US 27 just south of SR 540. Alternative E also includes widening/improving four east-west roadways (SR 540, SR 542, SR 544, and Davenport Boulevard) to connect between US 27 and Modified CPP. It also includes constructing the Southport Connector as a four lane east-west freeway facility running generally along the Cypress Parkway alignment, from US 17/92 to the Community of Poinciana located east of Haines City. This alternative provides additional north-south and east-west capacity and connectivity. This alternative is similar to Alternative D2; the difference is that access (driveways and new street connections) would be limited along the Modified CPP roadway, allowing for free-flow conditions.

The 2040 daily volumes along US 27 for Alternative E were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative E, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-21**. Approximately 106,500 vehicles are expected to use the new north-south limited access roadway north of the proposed Southport Connector. On the proposed Southport Connector, approximately 46,500 vehicles are expected to use the new east-west freeway. Alternative E would decrease 2040 daily traffic on US 27 by up to 31,000 vehicles south of US 17/92. In addition, the alternative was found to reduce the total number of study roadways with volumes that exceed capacity and decrease the percentage of freight route miles with volumes that exceed capacity.

The alternative significantly reduces traffic on many segments of US 27. However, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from US 17/92 to the Polk/Lake County line. The red line on **Figure 5-21** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

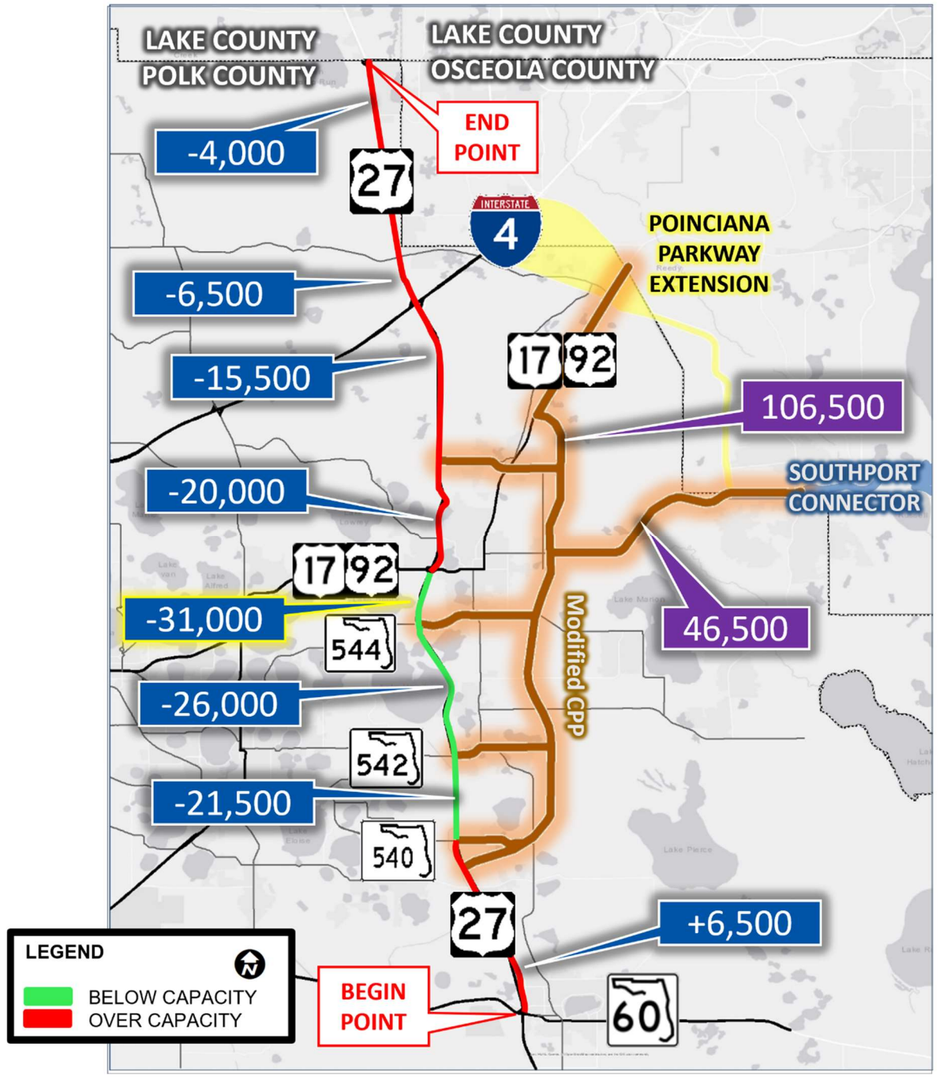


FIGURE 5-21: ALTERNATIVE E VS. NO-BUILD 2040 DAILY VOLUME

Alternative F – US 27 Parallel Backage Roads

Alternative F assumes four north-south arterials would be widened to four lanes and connected across I-4 by two new overpasses, one on each side of US 27. The arterials of FDC Grove Road and North Ridge Trail would be connected across I-4 on the west side of US 27, and the arterials of Holly Hill Road and Grand View Parkway would be connected across I-4 on the east side of US 27. These new connected north-south arterials (termed "backage roads") were evaluated to determine whether they could alleviate traffic on US 27 traveling through the congested US 27 and I-4 interchange. This alternative provides additional north-south capacity and connectivity.

The 2040 daily volumes along US 27 for Alternative F were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative F, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-22**. Approximately 10,500 vehicles are expected to use the new FDC Grove Road and North Ridge Trail north-south backage road. On the new Holly Hill Road and Grand View Parkway north-south backage road east of US 27, approximately 16,000 vehicles are expected to use the new north-south connection. Alternative F would decrease 2040 daily traffic on US 27 by up to 4,500 vehicles at the I-4 interchange. However, the alternative was found to increase the 2040 daily traffic volume by 3,000 vehicles between US 17/92 and Davenport Boulevard.

The alternative reduces traffic near the US 27 and I-4 interchange, and slightly increases traffic on US 27 south of where the backage roads terminate. The 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-22** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

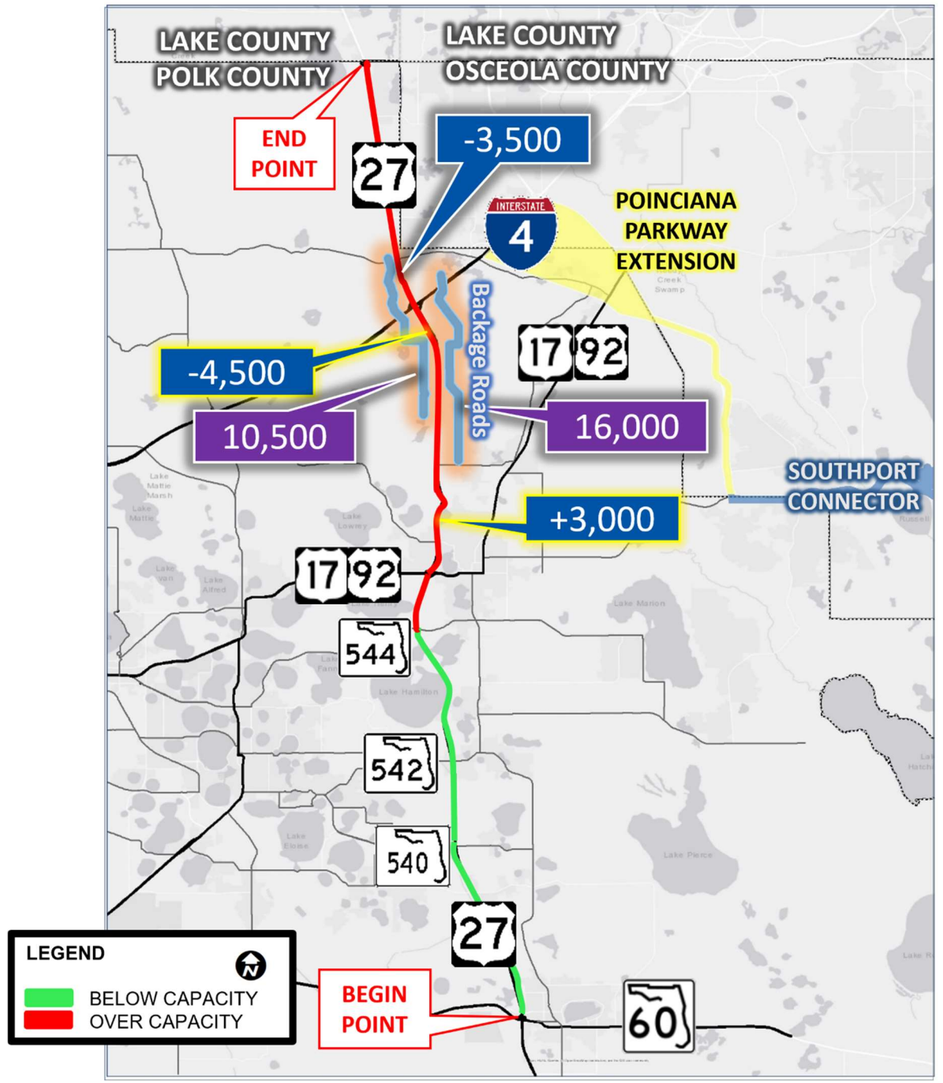


FIGURE 5-22: ALTERNATIVE F VS. NO-BUILD 2040 DAILY VOLUME

Alternative G – North Ridge Trail

Alternative G assumes a new four lane north-south arterial is constructed along the west side of US 27 between Deen Still Road and Sand Mine Road. This new connected north-south arterial (termed "North Ridge Trail") was evaluated to determine whether it could alleviate traffic on US 27 north of I-4. This alternative provides additional north-south capacity and connectivity.

The 2040 daily volumes along US 27 for Alternative G were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative G, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-23**. Approximately 6,500 vehicles are expected to use the new North Ridge Trail. Alternative G would decrease 2040 daily traffic on US 27 between Deen Still Road and the Polk/Lake County line by up to 5,000 vehicles.

The alternative can reduce traffic on US 27 near the Polk/Lake County line. However, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-23** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

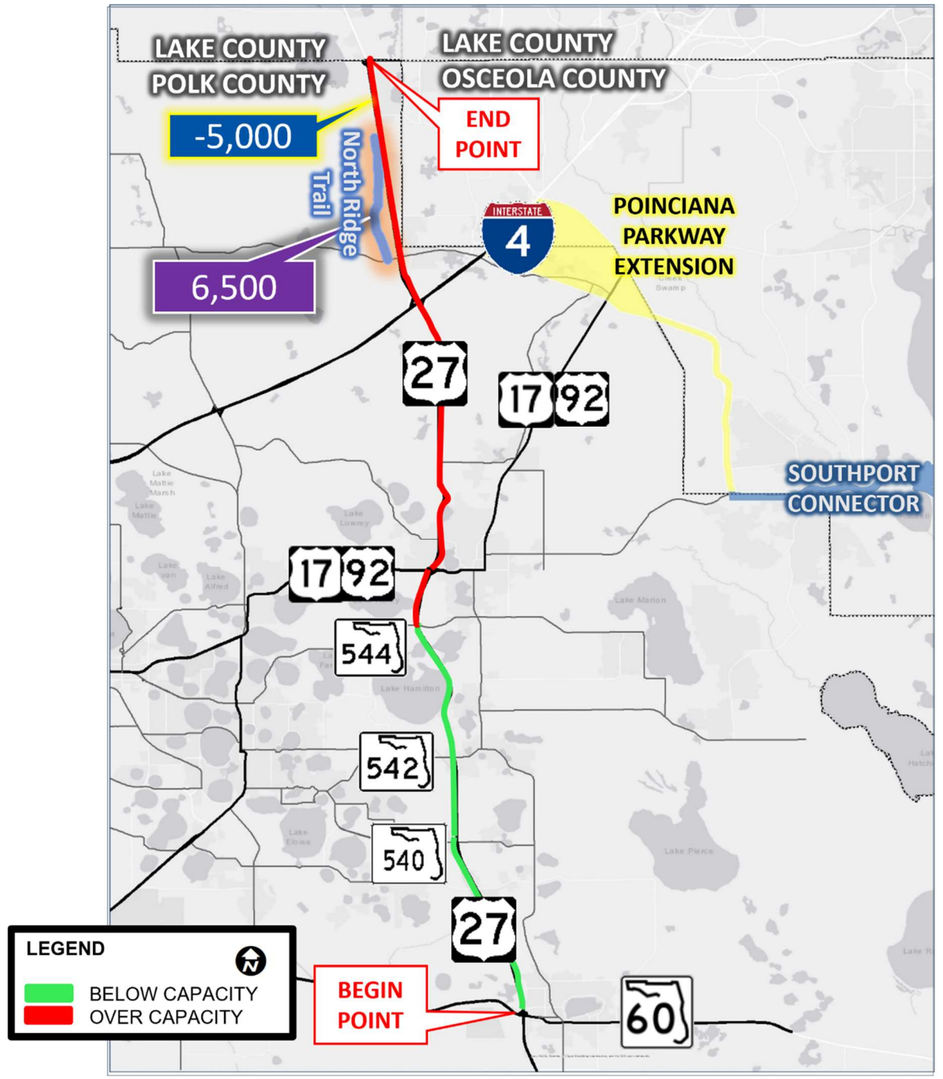


FIGURE 5-23: ALTERNATIVE G VS. NO-BUILD 2040 DAILY VOLUME

Alternative H – Deen Still Road / Old Grade Road Improvements

Alternative H assumes Deen Still Road between US 27 and Old Grade Road, and Old Grade Road between I-4 and Deen Still Road, are both widened to four lane arterials. These road improvements were evaluated to determine if they could alleviate traffic on US 27 near I-4.

The 2040 daily volumes along US 27 for Alternative H were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative H, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-24**. Approximately 9,000 vehicles would travel the widened Deen Still Road, and approximately 6,500 vehicles would travel the widened Old Grade Road. Alternative H would decrease 2040 daily traffic on US 27 at the I-4 interchange by approximately 1,000 vehicles.

The alternative can slightly reduce traffic on US 27 near I-4. However, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. There are concerns with environmental sensitivity for this alternative due to the fact that it is located within the Green Swamp Area of Critical State Concern. The red line on **Figure 5-24** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

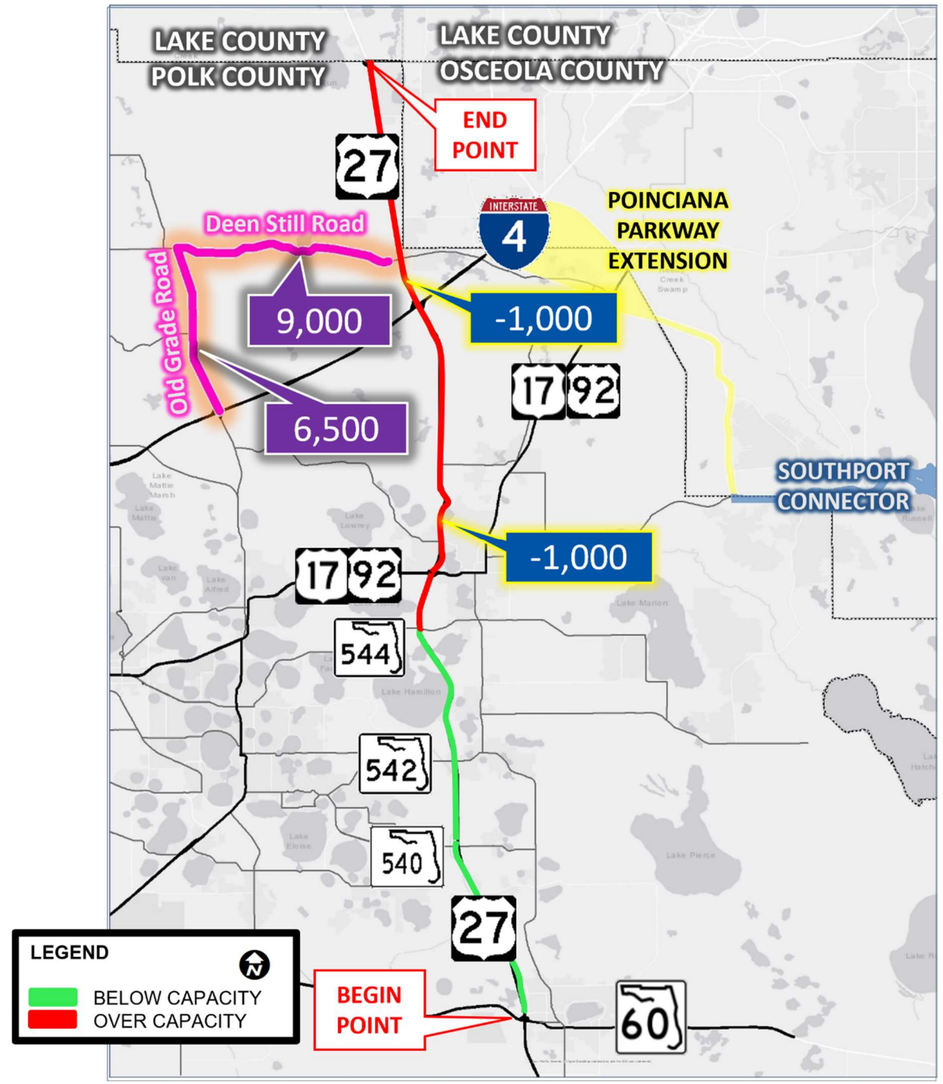


FIGURE 5-24: ALTERNATIVE H VS. NO-BUILD 2040 DAILY VOLUME

Alternative I – CR 547 Extension

Alternative I involves extending CR 547/Davenport Boulevard across US 27 and widening it to a four lane major east-west arterial from Powerline Road in the City of Davenport, to CR 557 near the City of Lake Alfred. This road improvement (termed "CR 547 Extension") was evaluated to determine if it could alleviate traffic on US 27 between I-4 and US 17/92.

The 2040 daily volumes along US 27 for Alternative I were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative I, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-25**. Approximately 14,500 vehicles would travel the new CR 547 Extension west of US 27, and approximately 33,000 vehicles would travel the new CR 547 Extension east of US 27. Alternative I would decrease 2040 daily traffic on US 27 between I-4 and CR 547 Extension by approximately 2,000 vehicles. However, the 2040 daily traffic on US 27 between CR 547 Extension and US 17/92 would increase by approximately 2,000 vehicles.

The alternative does not have a significant impact on US 27. The 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-25** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

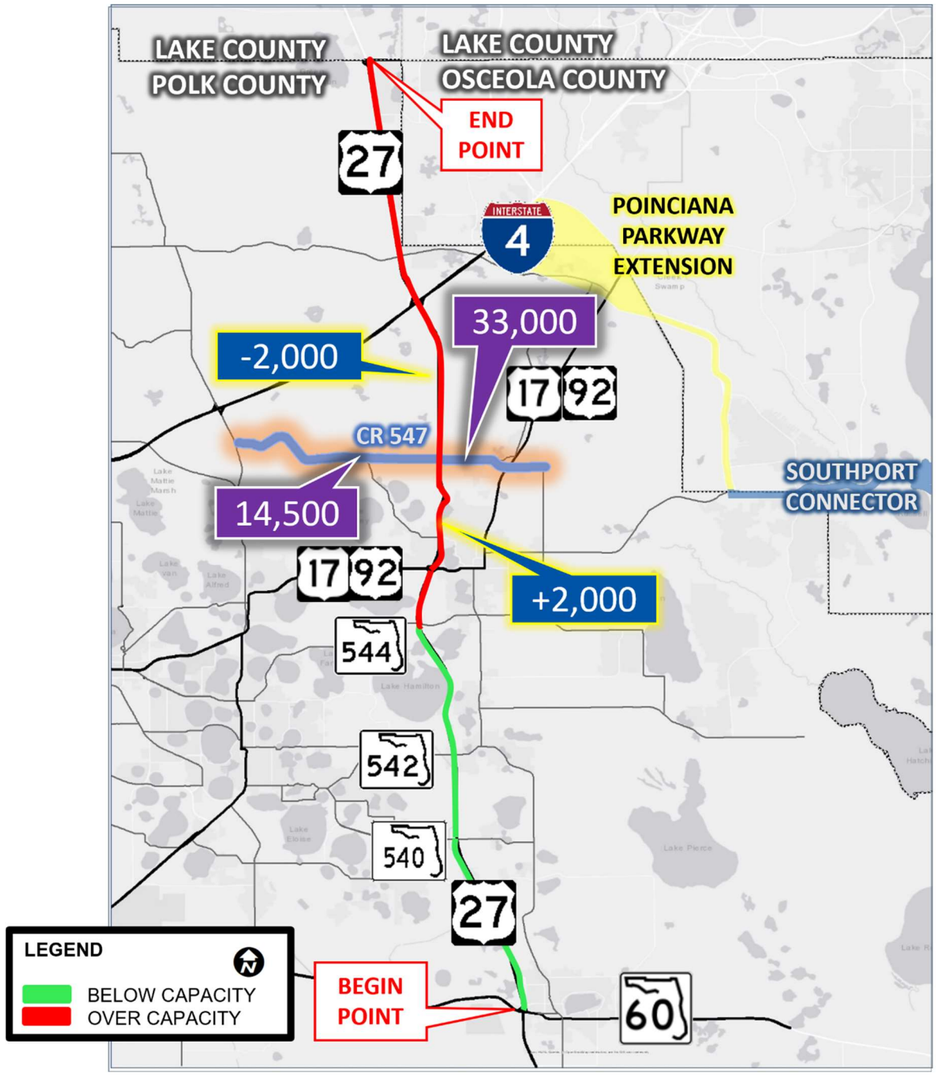


FIGURE 5-25: ALTERNATIVE I VS. NO-BUILD 2040 DAILY VOLUME

Alternative J – US 17/92 Widening

Alternative J involves widening US 17/92 to a four-lane major arterial from US 27 to the planned Poinciana Parkway Extension. This road improvement was evaluated to determine if it could alleviate traffic on US 27 between US 17/92 and I-4.

The 2040 daily volumes along US 27 for Alternative J were compared to the 2040 No Build 2040 daily volumes on US 27. Based on the model run for Alternative J, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-26**. Approximately 57,000 vehicles would travel the widened US 17/92 east of US 27. Alternative J would decrease 2040 daily traffic on US 27 by up to 6,000 north of US 17/92. However, this alternative would slightly increase 2040 daily traffic by approximately 1,500 vehicles on US 27 from US 17/92 to SR 540.

The alternative helps to reduce traffic on US 27 in a section of the corridor that has some of the highest traffic volumes. However, the 2040 daily volume will still exceed the capacity of the existing US 27 roadway from SR 544 to the Polk/Lake County line. The red line on **Figure 5-26** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

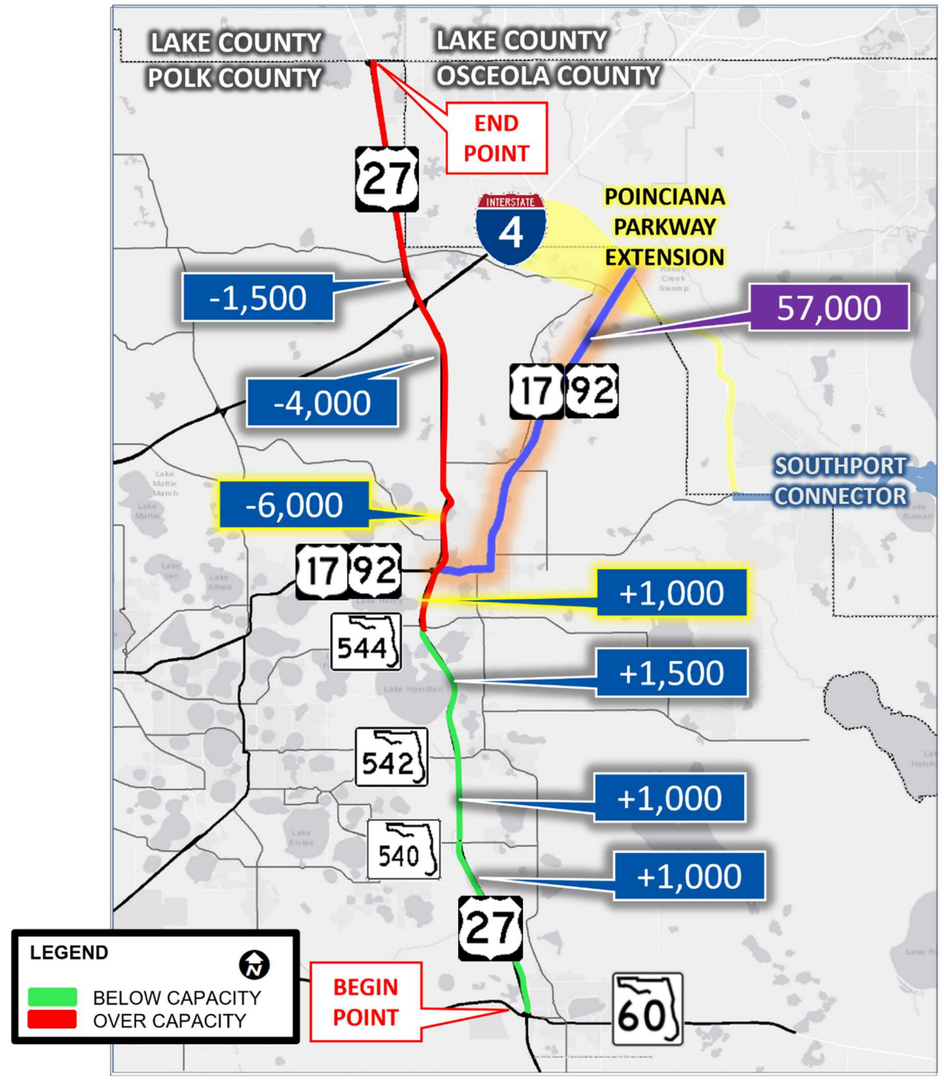


FIGURE 5-26: ALTERNATIVE J VS. NO-BUILD 2040 DAILY VOLUME

Alternative K – US 27 Widening

Alternative K assumes that US 27 is widened to an eight-lane principal arterial throughout the study area from SR 60 to the Polk/Lake County line. This road improvement was evaluated to determine if the additional lane of roadway capacity could accommodate the 2040 travel demand on US 27.

The 2040 daily volumes along US 27 for Alternative K were compared to the No Build 2040 daily volumes on US 27. Based on the model run for Alternative K, the change in the 2040 daily volumes along US 27 is shown on **Figure 5-27**. Alternative K would increase 2040 daily traffic on US 27 from SR 60 to the Polk/Lake County line. The 2040 daily volume would increase by at least 2,500 vehicles, up to a maximum increase of approximately 13,500 additional vehicles south of I-4.

While this alternative adds north-south capacity to the US 27 corridor, it does not add enough capacity to accommodate the total projected 2040 daily travel demand on US 27. Adding another lane to US 27 also encourages traffic to continue using US 27 instead of spreading out and using alternative routes. This means that the 2040 daily volume will exceed even the eight-lane capacity on US 27 from SR 544 to the Polk/Lake County line. The red line on **Figure 5-27** indicates the segment of US 27 where the 2040 volume is expected to exceed the roadway capacity.

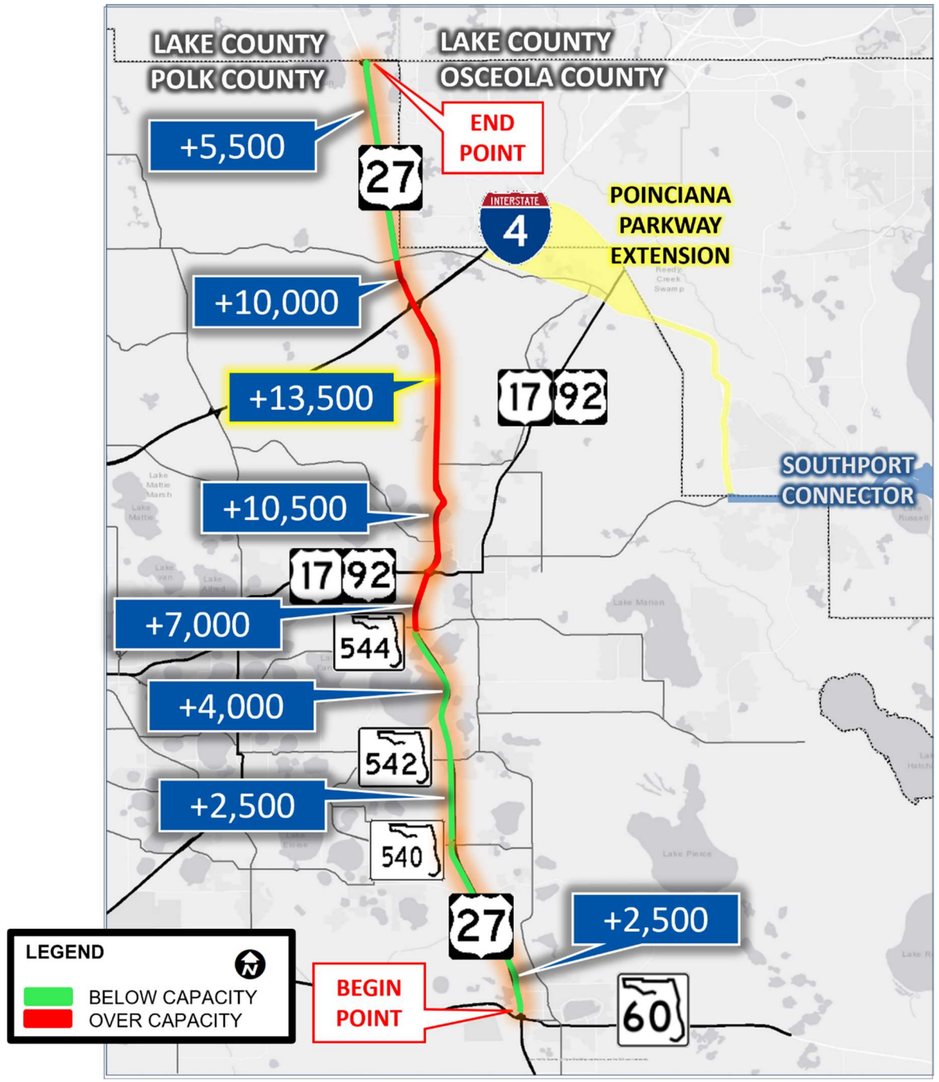


FIGURE 5-27: ALTERNATIVE K VS. NO-BUILD 2040 DAILY VOLUME

Alternatives Comparison

Network-wide performance measures from each of the 13 Build Alternative model runs were extracted and summarized in a comparison matrix. Performance measure values for each alternative are reported for each of the five evaluation criteria. The performance measure values were taken directly from the year 2040 D1 Regional Planning Model run for each alternative. The performance of each alternative was compared to the 2040 No Build alternative performance. The results were scored for each of the five criteria. The scores in the matrix are color coded using a green dot to indicate the highest scores, a yellow dot to indicate medium scores, and a red dot to indicate the lowest scores. The scoring range for each of five criteria was between +10 points to -10 points. The highest score of +10 was given for the most desirable results, and the lowest score of -10 was given for the least desirable results. The highest total score that could be achieved is +50 points, and the lowest total score that could be achieved is -50 points.

The scoring considerations for each of the five criteria and are described below.

- Criteria 1 – Miles of US 27 were measured where the 2040 daily model traffic volume exceeds the roadway capacity. The highest score was given to alternatives with the largest decrease in percentage of US 27 miles that exceed capacity compared with the No Build Alternative.
- Criteria 2 – The number of study area roadway miles with volume over capacity were measured. The highest score was given to alternatives with the largest decrease in number of miles that exceed capacity.
- Criteria 3 – Vehicle-Hours-Traveled (VHT) – The total VHT was obtained from the D1RPM for a 24-hour period, for all vehicles within the model on the roadway network. The highest score was given to concepts with the largest decrease in total VHT.
- Criteria 4 – Vehicle-Miles-Traveled (VMT) – The total VMT was obtained from the D1RPM for a 24-hour period, for all vehicles within the model on the roadway network. The highest score was given to concepts with the largest increase in total VMT.
- Criteria 5 – Miles of the FDOT D1 designated freight routes within the D1RPM (SR 60, US 27, I-4, and others) were measured where the 2040 daily model traffic volume exceeds the roadway capacity. The highest score was given to alternatives with the lowest percentage of freight route miles that exceed capacity compared with the No Build Alternative.

Table 5-4 presents the comparison matrix with the Alternatives listed in order of highest to lowest score. The top five highest scored alternatives provide the most benefit to the regional roadway network and are shown shaded in a blue color. The next six alternatives listed in the table primarily provide benefits to the local roadway network and are shown shaded in a green color. The last two alternatives on the matrix (D1. Southport Connector Extension, and K. US 27 widening) would negatively impact US 27 and freight routes in the study area; therefore, they are the lowest ranked alternatives.

TABLE 5-4: BUILD ALTERNATIVE COMPARISON MATRIX

Alt.	Description	Travel on US 27		Travel on Regional Roadways						Freight Traffic		Overall Score
		Criteria 1		Criteria 2		Criteria 3		Criteria 4		Criteria 5		
		% of US-27 miles with V/C[(1)] > 1.0	Score	# of Study Road miles with V/C[(1)] > 1.0	Score	Vehicle-Hours-Traveled (VHT) Network-wide *	Score	Vehicle-Miles-Traveled (VMT) Network-wide **	Score	% of Total Freight Route miles with V/C[(1)] > 1.0	Score	
No Build		63	-	282	-	342,250	-	20,982,495	-	48	-	-
D2	Powerline Road Extension with CR 580 / Southport Connector Ext	58	5	262	4	323,512	10	21,893,376	10	41	4	**33**
E	Modified CPP (New 6-lane) with CR 580 / Southport Connector Ext	58	5	230	10	328,913	7	21,249,946	3	35	7	**32**
A2	Modified CPP (New 6-lane)	58	5	236	9	329,309	7	21,087,739	2	35	7	**30**
A1	Modified CPP (New 4-lane)	58	5	234	10	333,229	5	21,033,336	1	36	7	**28**
B	Powerline Road Extension and Widening	58	5	268	3	327,662	8	21,285,928	4	43	3	**23**
C	Davenport North-South Connector	63	0	284	0	338,921	2	21,130,510	2	42	4	**8**
J	US 17/92 Widening	65	-2	267	3	330,793	6	21,076,658	1	48	0	**8**
G	North Ridge Trail	59	3	280	0	341,898	1	20,998,936	1	47	1	**6**
F	US 27 Parallel Backage Roads	59	3	282	0	336,316	3	21,094,267	2	51	-2	**6**
H	Deen Still Rd / Old Grade Rd	62	0	278	1	339,613	2	21,046,131	1	47	1	**5**
I	CR 547 Extension	62	0	289	-1	340,070	2	21,106,978	2	50	-1	**2**
D1	CR 580 / Southport Connector Extension	63	-1	298	-4	340,275	1	21,261,224	3	56	-4	**-5**
K	US 27 Widening	78	-10	283	0	339,397	2	21,258,841	3	50	-1	**-6**

Notes:
(1) V/C is defined as model volume (V) on roadway, divided by model roadway capacity (C).
* Measured and scored based on how much the resulting value is lower or higher than No Build conditions. Desired results are to be lower than No Build.
** Measured and scored based on how much the resulting value is lower or higher than No Build conditions. Desired results are to be higher than No Build.

Source: Statistics contained in the table are developed and calculated from outputs produced from the D1RPM Build Scenario model runs.

The results of the alternatives evaluation and comparison were presented to the Project Advisory Group (PAG) December 3, 2019. The PAG provided input and feedback regarding the alternatives analysis. The group discussed whether to eliminate, combine, or recommend alternatives for further analysis and development. Members of the PAG generally agreed with the assessment and scoring of the alternatives. The group discussed and compared the two highest and lowest ranked concepts. Based on the analysis and considering PAG feedback, the following are key findings and recommendations regarding the long-term roadway improvement strategies to relieve traffic on US 27.

Long-Term Roadway Improvement Strategies Key Findings and Recommendations

- All alternatives show some portion of US 27 will remain over capacity even with the roadway widened throughout to a 6-lane divided roadway.
- Alternative K (widening US 27 to eight lanes) does little to address congestion long-term on US 27. It performs worse than the No Build and is the lowest scored alternative. Before widening US 27, other options are recommended to be considered first.
- Alternatives C, J, G, F, H, and I each provide unique localized benefits. These can each provide incremental benefits to US 27 and can complement a regional alternative such as D2 or E.
- Alternative C (new north-south Davenport Connector) is the highest scored out of the "local" roadway improvements on the list. However, it is redundant with Poinciana Parkway and expected to be underutilized. This concept is not recommended for further evaluation.
- The top five highest scored Alternatives (D2, E, A2, A1, and B) are all variations of a similar concept that can provide regional benefits. The concept involves constructing a new north-south roadway parallel to US 27 and east of US 27 to alleviate future traffic capacity deficiencies on US 27 and the surrounding roadway network. The main differences between the alternatives are the number of lanes, type of access classification, and capacity of each.
- The top two highest scored alternatives (D2 and E) provide the most benefit to US 27 and are recommended for further evaluation.
- For Alternative E, consider extending the modified CPP concept down to SR 60 to further alleviate the demand on US 27 in the overcapacity section, generally between SR 540 and SR 60.
- For Alternative D1 (CR 580 / Southport Connector) the improvement does not provide noticeable benefit to US 27 on its own, as indicated by travel demand modeling. However, it shows benefit when combined with Powerline Road or Modified CPP improvements. Therefore, it should be considered as part of a package of long-term regional improvements but may not be needed until after other regional roadway improvements are implemented.
- In summary, two groups of improvements are recommended to move forward for further evaluation:
    - Alternative D2 – Including Alternatives F, G, H, I, and J.
    - Alternative E – Including Alternatives F, G, H, I, and J.
- Alternatives J, G, F, H, and I can be advanced for further evaluation and development by the appropriate municipalities in the near term.
- A feasibility study, Alternative Corridor Evaluation (ACE) Study, or Project Development and Environment (PD&E) study is recommended to further evaluate a new north-south parallel roadway east of US 27, such as Alternatives D2 or E. Other factors such as design requirements and constraints, environmental impacts, costs, etc. must be considered to determine if any of the top five highest scored alternatives is feasible.

6 SUMMARY OF STAKEHOLDER AND PUBLIC INVOLVEMENT

6.1 PROJECT CONTACTS/LIST OF STAKEHOLDERS

At the start of the project, a comprehensive list of stakeholders and contact list was developed. A detailed list of project contacts is provided in **Appendix F**. The list of stakeholders was developed by identifying agencies that own and maintain portions of the roadway network, local governments with jurisdiction with the study area, major businesses and transportation providers affected by the transportation network, and other groups with interest in environmental impacts to the study area. Due to the size and scope of the project, it was important to gather as much input from various stakeholders as possible. The stakeholders are grouped into these categories:

- Elected officials
    - State House representatives
    - Polk County commissioners
    - City of Davenport
    - Haines City
    - City of Lake Alfred
    - City of Lake Wales
    - City of Winter Haven
    - City of Dundee
    - City of Lake Hamilton
- Appointed officials and staff
    - Polk County
    - Osceola County
    - Orange County
    - Lake County
    - City of Davenport
    - Haines City
    - City of Lake Alfred
    - City of Lake Wales
    - City of Winter Haven
    - City of Dundee
    - City of Lake Hamilton
- Agency Representatives
    - Polk TPO
    - Metro Plan Orlando
    - Central Florida Regional Planning Council
- FDOT Staff
    - District 1
    - District 5
    - Florida' Turnpike Enterprise
- Business Community
    - Chambers of Commerce
    - Economic Development Councils
    - Produce companies
    - Grocery firms
    - Tourist Attractions
    - Regional Medical Centers
- Transportation Providers
    - Freight transportation firms
    - Citrus Connection
    - SunRail
    - CSX
- Others
- US Fish and Wildlife Service
- Lake Wales Ridge Ecosystem Working Group

The stakeholder coordination started with targeted stakeholder interviews to gather input on the project area transportation deficiencies and needs as well as ideas for potential solutions. The interviews included county and city staff as well as several freight transportation firms.

A Project Advisory Group (PAG) was established early in the project. The PAG met several times during the project. The PAG was comprised of members with specific knowledge of the US 27 corridor and/or the surrounding study area. The purpose of the PAG was to facilitate collaboration between stakeholders to ensure that the study outcomes consider input from all perspectives. The members of the PAG were asked to:

- provide expertise, information, and input into the study
- represent the interests of their larger agency, community, business, etc., and act as a link between such and the project team to share information
- provide input into measurable objectives, evaluation criteria, and potential alternatives

There were also coordination meetings with other agencies conducting projects within or adjacent to the project study area. The other agencies included Polk County, Central Florida Expressway Authority (CFX), FDOT D5, and Florida's Turnpike Enterprise (FTE). These meetings discussed how the other projects might affect or interact with this Mobility Study and provide status updates of the projects.

A table listing the stakeholder meetings, attendees, and the purpose of the meeting is provided in **Appendix F**.

6.2 METROQUEST ONLINE PUBLIC SURVEY

Metroquest is a website providing engaging online surveys that both educate and collect informed input from the public. It allows the survey to be taken from any internet connected device, including smartphones.

6.2.1 Results from Online Survey

For approximately three months, the general public within the study area was asked to take an online survey to identify mobility issues along US 27 and in the area. Three thousand three hundred twenty-two people participated in the survey, and provided approximately 96,000 data points and 6,000 comments. In one section of the survey, participants were asked to identify which key transportation elements they believe were important to improving mobility in NE Polk County. They were asked to rank eight different priorities. The results showed the following ranking of those eight priorities:

1) Provide alternative routes,
2) Make improvements to US 27,
3) Improve local access,
4) Make safety improvements,
5) Make regional connections,
6) Provide improved transit,
7) Make technological improvements,
8) Improve mobility for bicyclists and pedestrians.

"Provide alternative routes" was ranked in the top 5 most often, and when ranked, received the highest average score. "Make improvements to US 27" was a close second in both frequency and intensity of responses. While "Improve local access" was ranked more often than "Make safety improvements", it's average score was slightly lower. There's a clear distinction in the frequency of responses between the top 4 categories and the bottom four categories. The gap between frequency and intensity for "Improve mobility for bicyclists and pedestrians" suggests that while not everyone thought it was important, those that did thought it was very important.

The public survey showed that the public is in favor of exploring alternative routes to relieve congestion and improve mobility. In addition, they believe there is a need to improve US 27 itself. All possible options are desirable, just some more than others. The survey information helped provide input into drafting the objectives, otherwise known as the Guiding Principles.

A summary of the MetroQuest Online Survey is provided in **Appendix F**.

6.2.2 Objectives Derived from Online Survey

Given the input from the online public survey, the study team drafted a succinct list of potential objectives for review and ranking by the Project Advisory Group at their June 2019 meeting. Each of the PAG members at the meeting were asked to rank the proposed objectives using red, yellow, and green dots. A red dot indicated a #1 ranking (3 points), a yellow dot indicated a #2 ranking (2 points), and a green dot indicated a #3 ranking (1 point). A picture of the results from the dot exercise is shown in **Figure 6-1.**

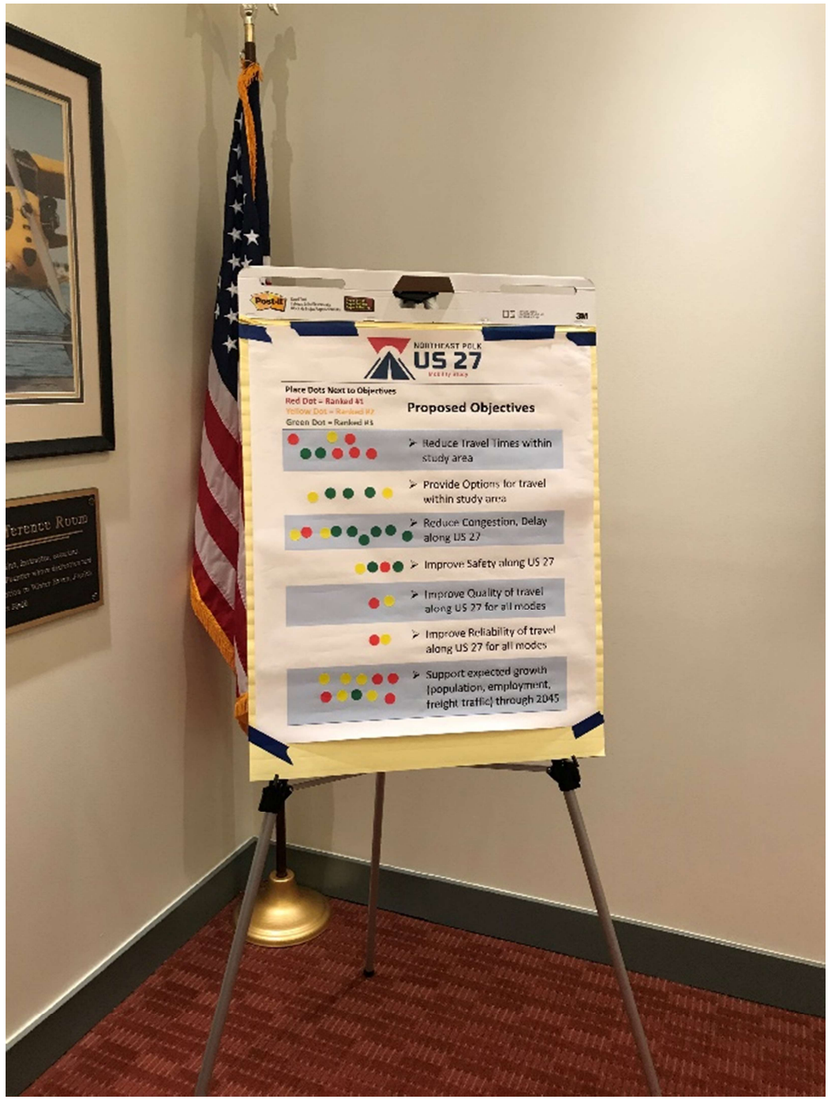


FIGURE 6-1: PROPOSED OBJECTIVES WITH PAG MEMBER DOTS

The proposed objectives were then ranked from most total points to least total points. The resulting ranking is shown below in **Table 6-1**.

TABLE 6-1: PAG RANKING OF OBJECTIVES

Total Points	PAG Ranking	Proposed Objectives
23	**#1**	➢ Support expected growth (population, employment, freight traffic) through 2045
19	**#2**	➢ Reduce Travel Times within study area
13	**#3**	➢ Reduce Congestion, Delay along US 27
7	**#4**	➢ Provide Options for travel within study area
7	**#4**	➢ Improve Safety along US 27
5	**#6**	➢ Improve Quality of travel along US 27 for all modes
5	**#6**	➢ Improve Reliability of travel along US 27 for all modes

6.3 COMMENTS AND COORDINATION SUMMARY

Based on the initial stakeholder outreach meetings with stakeholders and Polk TPO we identified several common themes of guiding principles that informed development of the vision and corridor concepts. The themes are:

- **Balance the needs of multiple transportation users:** US 27 is a regional roadway with many different users – visitors, freight carriers, commuters, and local traffic. It is a collector from all the adjacent rural areas.
- **Develop alternative routes:** New roadways, both north/south and east/west, are needed to take traffic pressure off US 27 and I-4 and provide alternative routes and time-effective options for different users – connections to SR 417, Osceola Parkway or Poinciana Parkway were specifically mentioned as an east/west relievers. Additionally, existing roadways such as US 17/92, SR 60, CR 547, CR 557 and Powerline Road need to be improved to provide greater capacity and accessibility. These strategies may work to get freight traffic off US 27 and separate it as much as possible from local traffic.
- **Provide connectivity:** Provide a connected system of secondary roadways between destinations for local traffic and multimodal users. As more development occurs along US 27, a grid network system of parallel roadways behind this development is needed.
- **Accommodate growth:** As growth in the Orlando metro area pushes southwest, more people will be moving to eastern Polk County for affordable housing, which increases both residential and associated business traffic. New distribution and warehouse facilities are moving to the area, also adding new traffic to US 27. We need to get ahead of this growth now with a clear plan.
- **Support economic activities:** Warehousing and distribution uses are prime economic drivers and more will come to this area due to proximity of major roadways and ports. We need to accommodate their activities – if congestion costs them time and money, they may decide to move to other locations.

- **Enhance transit network/expand multi-modal options:** There is limited transit service along US 27 and many commuters are left without connections to major employment nodes. Developments with higher densities along the corridor could lead to increased use of public transportation including rail transit (SunRail).
- **Enhance safety:** Crashes are common at most major intersections along US 27, resulting from several different contributing factors including high traffic volumes, speeding and weaving, stop-and-start movements from traffic signals, freight traffic, seasonal residents/visitors, businesses and a large contingent of elderly drivers.

Stakeholder interview meeting summaries are provided in **Appendix F**.

7 FINDINGS AND RECOMMENDATIONS

7.1 PURPOSE OF THIS STUDY/REPORT

This report is intended to provide a summary of the analysis completed that has led to our recommendations. The Existing Conditions Analysis was completed to identify existing operational and safety deficiencies. A Future Conditions Analysis was completed to analyze how future traffic growth impacts the existing intersections and corridor. Intersection Control Evaluations (ICEs) were performed to evaluate multiple new configurations for each intersection that was failing by year 2030. Alternative roadway corridors were also modeled to evaluate their ability to handle traffic diverted off of US 27 and alleviate congestion.

7.2 EXISTING CONDITIONS DEFICIENCIES AND RECOMMENDED SHORT-TERM IMPROVEMENTS

Based on the 2018 AADTs collected for the study corridor, one stretch (equating to two study segments) of US 27 are operating below the FDOT LOS target (LOS D for an urbanized area). US 27 from Ridge Center Drive to Heller Bros Boulevard/Deer Creek Boulevard are operating at LOS F. These two segments span the area immediately north and immediately south of the I-4 interchange. Currently, 21 of the 47 study intersections are operating at LOS E or F, which is below the FDOT LOS target D, in either the AM or PM peak hours.

10 intersections and 2 roadway segments were identified as high crash locations based on historical crash data. For intersections, the top crash locations were identified using several factors such as total entering volume and total number of crashes. For roadway segments, the top crash locations were identified using factors such as vehicular crashes per mile and percent severe crashes. These intersections and segments served to provide a level of prioritization to future intersection/roadway improvement projects. While long term improvements are likely necessary, short-term improvements targeting safety and operations were recommended as a part of this project.

Recommendations included, but were not limited to, converting full median openings into bi-directional median openings, installing, or upgrading street lighting, and upgrading pedestrian amenities to modern ADA standards.

7.3 FUTURE CONDITIONS DEFICIENCIES

In the No-Build condition, by the interim year 2030, 7 of the 13 study roadway segments will be operating below LOS D and by the design year 2045, 11 of the 13 study roadway segments will be operating below LOS D. By 2030, 27 of the 47 study intersections will operate at LOS E or F with no improvements. In 2045, it increases to 30 of the 47 study intersections operating at LOS E or F.

In the Existing Condition, 88.5% of the study corridor has a bicycle LOS of D or better. By 2045, it is anticipated that this will drop to 77.4% of the study corridor. Only 35% of the study corridor has a pedestrian LOS of D or better in the Existing Conditions and drops to 0% of the study corridor by 2045.

7.4 INTERSECTION IMPROVEMENTS RECOMMENDED FOR PD&E

The Stage 1 ICE analysis performed provides alternative intersection configurations for all intersections that are forecasted to be failing by the interim year 2030. It is recommended that PD&E Studies are conducted for each of these intersections using the ICE intersection configurations as a good starting point for future recommendations. **Table 4-1** in Section 4.4 provides a table summarizing all the recommended configurations to evaluate further for each study intersection.

7.5 ALTERNATIVE ROADWAY IMPROVEMENTS RECOMMENDED FOR PD&E

Alternatives D2 and E provide the most benefit to US 27 and are recommended to be evaluated further in another study such as a feasibility study, Alternative Corridor Evaluation (ACE) Study, or PD&E study. Other factors such as design requirements and constraints, environmental impacts, costs, etc. must be considered to determine if any of the top five highest scored new alignment alternatives are feasible.

7.6 FINAL RECOMMENDATION

The final recommendation for this corridor is to implement the short-term improvements where feasible while performing the necessary studies to make long term improvements to both safety and operations for all road users. An intersection project prioritization matrix will be developed separately to document which locations along the corridor are in more immediate need of improvements.

The following are measures of success which aim to address the objectives and purpose and need for the US 27 corridor improvements.

1) Meet roadway LOS D through 2045 at all major intersections and along the US 27 corridor during all time periods, especially during peak hours for commuters and freight traffic.
2) Travel times do not increase for trips through the study area; this is expected to include providing alternative corridors for longer distance trips and alternative corridors whenever possible for local trips.
3) The average number of annual crashes along the US 27 corridor shall decrease to eliminate high crash locations.
4) Facilities or services serving bicyclists, pedestrians, and/or transit riders along the corridor are improved.