



Prepared for: Florida Department of Transportation – District Four (D4)

I-95 MULTIMODAL MASTER PLAN

Traffic Element Report

Financial Project ID: 436577-1-22-01

Martin, St. Lucie, and Indian River Counties



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1.0 EXECUTIVE SUMMARY

The I-95 corridor from the Palm Beach/Martin County Line to the Indian River/Brevard County Line is the focus of the Multimodal Master Plan. Short-term and long-term capacity and operational improvements necessary to meet Strategic Intermodal System (SIS) targets are identified. The Traffic Element Report describes the existing conditions and existing traffic operations, as well as the forecasted travel demand, future conditions, operational analysis methodology, and future traffic operations for years 2030 and 2045.

The study area includes the I-95 freeway from the Palm Beach/Martin County line to the Indian River/Brevard County line, a distance of approximately 71 miles. I-95 interchanges at 15 arterial cross roads are included within the study area, along with the adjacent intersections within the area of influence.

Annual Average Daily Traffic (AADT) and AM and PM peak hour traffic volumes were estimated for existing (2017) and future (2030 and 2045) years for I-95, 15 arterial cross roads, and 63 study intersections. The 2017 traffic counts collected for the study were used for the analysis of existing conditions and to forecast the future year traffic volumes. Traffic forecasts for 2030 and 2045 daily volumes and peak hour volumes were developed primarily on the travel demand model outputs, while also considering the historic traffic trends, future land uses, and population and employment growth. A modified version of the Treasure Coast Regional Planning Model (TCRPM) version 4.0, which was updated to a 2045 forecast year, was used to estimate daily 2045 volumes for the study area roadways. The model included the new I-95 interchange at Oslo Road, as well as proposed future Turnpike interchanges within the study area, identified through coordination with Turnpike's PD&E project team (FM# 423374-1).

The AM and PM peak hour traffic operations of the I-95 freeway segments (mainline, merge, diverge and weaving segments), study intersections, and study interchanges were analyzed. Traffic analysis

of current operating conditions and estimated future (2030 and 2045) operating conditions without improvements (No Build) and with recommended improvements (Build), was performed.

Analysis of each facility type (freeways and intersections) was completed for the following scenarios:

- Existing (2017) conditions,
- No Build conditions in year 2030,
- No Build conditions in year 2045,
- Build conditions in year 2030, and
- Build conditions in year 2045.

The study roadways were analyzed to identify capacity, operational, and safety needs through year 2045. Improvements are recommended in the Traffic Element Report and are used as the basis for the development of concept plans, cost estimates, and list of proposed projects. The documentation of these items is included in the I-95 Multimodal Master Plan's Facility Enhancement Element Report and the Facility Operations and Preservation Element Report.

1.1 Summary of Existing Year (2017) Conditions

Existing land uses in all three counties along the I-95 study corridor were reviewed and summarized. An analysis of the existing traffic operational performance of the I-95 cross roads and intersections was performed in order to identify any current operational deficiencies. Existing lane geometry, peak hour volumes, speed limits, signal timings, and traffic factors were used to analyze and report the performance of the study roadways. In addition, a crash analysis of the most recent 5 years of data was completed.

Existing Conditions Freeway Analysis Results

During the AM and PM peak hours, all northbound and southbound I-95 freeway segments operate at an acceptable level of service (LOS) throughout the 71-mile study corridor. In addition, all northbound and southbound ramp junction points (merge, diverge and weave areas) operate at LOS D or better. The existing freeway analysis of I-95 operations revealed that no capacity or operational issues are present during either the AM or PM peak hours.

Existing Conditions Intersection Analysis Results

Existing peak hour intersection operational analysis results indicate that almost all study intersections operate at overall LOS D or better. The following five study intersections operate below the target LOS D, which indicate a need for improvement:

1. Bridge Road at I-95 Southbound Ramp Terminal in the AM peak hour,
2. Gatlin Boulevard at Village Parkway Drive in the PM peak hour,
3. St. Lucie West Boulevard at NW Peacock Boulevard in both AM and PM peak hours,
4. Midway Road at I-95 Southbound Ramp Terminal in the PM peak hour, and
5. SR 68/Orange Avenue at Kings Highway in both AM and PM peak hours.

Existing Crash Analysis

The Florida Department of Transportation (FDOT)'s Crash Analysis Reporting System (CARS) was used to gather historical crash records for the study area from January 2011 through December 2015. A review was performed of the recent crash history along the I-95 mainline and the 15 interchange influence areas within the study area. Locations that FDOT has determined to be High Crash Locations (HCL) based on statistical analysis were identified within the study area. Crash history for those HCLs were then reviewed in further detail to provide information regarding the recorded crashes along that segment, such as crash type, surface condition, and lighting condition at the time of the crash.

The crash data revealed that 5 areas of the I-95 mainline are identified as "high crash locations" by FDOT during at least one year between 2011 and 2015. These include:

- I-95 near Bridge Road (62 total crashes and listed on the 2013 HCL),
- I-95 near SR 70/Okeechobee Road (80 total crashes and listed on the 2013 HCL),
- I-95 near SR 614/Indrio Road (41 total crashes and listed on the 2012 and 2014 HCL),
- I-95 near SR 60 (75 total crashes and listed on the 2014 HCL), and
- I-95 near Fellsmere Road (59 total crashes and listed on the 2013, 2014, and 2015 HCL).

The crash data revealed that 4 interchange cross streets are identified as "high crash locations" by FDOT during at least one year between 2011 and 2015. These include:

- SR 76/Kanner Highway (193 total crashes and listed on the 2011, 2012, 2013, 2014, and 2015 HCL),
- SR 70/Okeechobee Road (228 total crashes and listed on the 2013 and 2015 HCL),
- SR 68/Orange Avenue (90 total crashes and listed on the 2011, 2012, and 2015 HCL), and
- SR 60 (82 total crashes and listed on the 2014 HCL).

1.2 Transit Assessment

Currently there are three primary bus transit providers in the study area. Each of the three counties has a fixed route bus service and accompanying demand response service. The providers are Martin County Public Transit (Marty) in Martin County, the Treasure Coast Connector (TCC) in St. Lucie County, and GoLine in Indian River County. The Marty has four fixed routes, the Treasure Coast Connector has seven fixed routes, and GoLine has 15 fixed routes. Within the three-county study area seven existing transit routes intersect with I-95, including just one route that travels on a portion of I-95, the GoLine Route 15.

There are 13 existing park-and-ride lot facilities in the study area with a total of 497 parking spaces available. Five lots are in Martin County (302 spaces), four lots are in St. Lucie County (115 spaces), and four lots are in Indian River County (80 spaces). Only one existing park-and-ride lot (at SR 76), and one planned park-and-ride lot (at Gatlin Boulevard), are located adjacent to I-95. It is important to plan for and continue to provide park-and-ride lot opportunities as a choice for commuters. Increasing car pool and van pool opportunities at strategic locations can be a beneficial strategy to reduce the number of vehicles on I-95 and other roads.

There is a history of express bus service on I-95 in this region. Palm Tran operated an Express Bus Route from Halpatiokee Regional Park (adjacent to SR 76 in Martin County) to Palm Beach County using I-95 in the late 2000s. Peak period service was provided from Martin County to Jupiter, the Palm Beach Gardens Mall and to the TriRail Station in West Palm Beach. The service was funded by a FDOT Transit Development Grant and when the grant expired after three years the local communities did not continue the service. The average daily ridership from October to December 2009 was 52 riders.

Express bus service using the I-95 corridor may be provided again in the future to serve regular long distance commuters between: City of Ft. Pierce and western St. Lucie County areas, City of Stuart area, and City of West Palm Beach area. In addition, express bus can work together with

planned new park-and-ride lots to be located on Gatlin Boulevard near I-95, and at the I-95 and SR 76/Kanner Highway interchange. Express bus service could pick up and drop off riders at the park-and-ride sites along the corridor, and would be able to serve medium and long distance trips. In addition, express bus service is relatively easy to implement and is a lower cost option to consider within the planning horizon of 2045.

To estimate the potential transit demand in the I-95 corridor, transit was generally assumed to be express bus, which would run from a park-and-ride facility near Gatlin Boulevard interchange in St. Lucie County to downtown West Palm Beach, with an intermediate stop at a future I-95 and SR 76 park-and-ride facility. A range of potential demand was determined based on Longitudinal Employer-Household Dynamics (LEHD) commute trip data, system-wide ridership data, and specific route ridership data for similar services in the Treasure Coast region and South Florida. At the low end of the range, the transit demand on the I-95 corridor is approximately 50 riders per average weekday. This is based on the average weekday ridership of the 95 Express route that operated along I-95 between Halpatiokee Park in Martin County to West Palm Beach between 2009 and 2012. Based on the County-to-County Home-to-Work flows from the 2015 LEHD data, the high end of the transit ridership range is approximately 270 average weekday riders.

Assuming the high end of the ridership range, the peak hour volume in 2045 on I-95 could be reduced by up to 54 vehicles in each direction during the peak hour. This level of ridership will not decrease the volume on I-95 significantly enough to eliminate the need for additional lanes in some parts of the corridor. However, express buses can provide an alternate modal option for commuters along I-95, and the I-95 Master Plan improvement concepts should not preclude potential future transit such as express buses. Design concepts should consider the potential implementation of express bus service that may use I-95, as well as park-and-ride lots in the vicinity of I-95 interchanges.

1.3 Summary of Future Year (2030 and 2045) Conditions

Future Land Uses

Most future land uses adjacent to the I-95 corridor in Martin County are expected to remain predominantly Agriculture, particularly west of I-95. In St. Lucie County, the future land use adjacent to the I-95 corridor is characterized by several changes as compared to the existing uses.

The southern portion of St. Lucie County remains a mixture of land uses, but that mix is changed to reflect Residential, Commercial, and Special Districts (which defines the Western Annexation Area west of I-95 between Becker Road and Crosstown Parkway). Some Industrial uses are projected east and west of I-95 near St. Lucie West Boulevard. Further west beyond the I-95 corridor and near the western portion of the County, the future land use is primarily Agriculture. The northern part of St. Lucie County also includes a mixture of Agriculture, Residential, Commercial, and Industrial, although Agriculture is the predominant future land use in the western section of St. Lucie County.

The future land uses in Indian River County adjacent to the I-95 corridor reflect changes where Commercial and Mixed-use Neighborhood uses are the predominant future land use, especially near current and planned interchanges. In the western portion of Indian River County, Agriculture is the predominant future land use. In June 2018, Emerald Lakes, a proposed new land development in the City of Palm Bay, in Brevard County, was approved to establish a Community Development District for a new mixed use development. The development encompasses approximately 1,660 acres which straddles I-95 and is located at the new St. Johns Heritage Parkway interchange just north of the Brevard/Indian River County line, south of Grant Road and north of Micco Road. The St. Johns Heritage Parkway interchange is the first interchange located north of the Master Plan northern study limits and is a new interchange under construction by the FDOT.

DRIs

There are a total of 24 Developments of Regional Impact (DRI) located within the I-95 master study area. These include 2 DRIs in Martin County, 15 DRIs in St. Lucie County, and 7 DRIs in Indian River County.

Initial Roadway Capacity Screening

A preliminary, high level failure analysis was performed for the roadways within the study area, including the I-95 mainline. The intent of the screening analysis was to identify roadway segments that are likely to exceed capacity based on the existing lane geometry and when that failure may occur. The failure analysis was conducted using projected daily volumes.

I-95 Mainline - Based on the preliminary screening analysis, the future year AADTs on I-95 from the Palm Beach/Martin County line to High Meadow Avenue will exceed the existing capacity of a six-lane interstate facility. These level of service deficiencies in Martin County are expected to begin to appear by the year 2036.

In St. Lucie County, I-95 mainline segments are expected to exceed the current capacity prior to the year 2045. These segments are from SR 714/Martin Highway (in Martin County) to SR 70/Okeechobee Road (in St. Lucie County). Specifically, the portions of I-95 between Gatlin Boulevard and St. Lucie West Boulevard are anticipated to exceed the existing capacity prior to the year 2030. The remaining sections in St. Lucie County will begin to experience capacity deficiencies between the year 2037 and 2043, given the current lane geometry and capacity.

In Indian River County I-95 is anticipated to operate at acceptable levels of service (LOS D or better) through the year 2045. No anticipated failures for the I-95 mainline were identified via the screening analysis.

Arterial Cross Streets - This screening analysis did not incorporate future planned roadway capacity improvements. The results did reveal that future daily volumes on several interchange cross streets can be expected to exceed the corresponding daily service volume capacity for an arterial facility. Either existing or future capacity deficiencies were identified on eight of the 15 cross streets:

1. SR 76/Kanner Highway
2. High Meadow Avenue
3. Gatlin Boulevard
4. Crosstown Parkway
5. St. Lucie West Boulevard
6. SR 70/Okeechobee Road
7. Oslo Road
8. Fellsmere Road

Future Year Operations Analysis

Multiple planned background roadway improvement projects relevant to the I-95 Multimodal Master Plan study area were assumed in place for the appropriate analysis year.

2030 No Build Freeway Analysis Results - All southbound I-95 freeway segments and ramp junctions will operate at LOS D or better during the AM peak hour. However, one northbound I-95 freeway segment and one northbound ramp junction near Crosstown Parkway will operate below LOS D during the AM peak hour. Multiple segments of northbound and southbound I-95 mainline and ramps junctions will operate below LOS D during the PM peak hour.

The I-95 segments from south of Bridge Road to SR 76/Kanner Highway, and from Crosstown Parkway to St. Lucie West Boulevard that fail to operate at acceptable levels of service need

capacity and operational improvements by 2030. Such improvements will ensure the I-95 corridor can operate acceptably in the future.

2030 No Build Intersection Analysis Results - Seven (7) intersections will operate below the LOS D target in either the 2030 AM or PM peak hours. They are noted below:

1. Bridge Road at the I-95 southbound ramp terminal intersection
2. Bridge Road at the I-95 northbound ramp terminal intersection
3. SW Becker Road at Village Parkway Drive intersection
4. Gatlin Boulevard at Village Parkway Drive intersection
5. St. Lucie West Boulevard at Peacock Boulevard intersection
6. SR 70/Okeechobee Road at Jenkins Road intersection
7. CR 606/Oslo Road at 82nd Avenue intersection

2045 No Build Freeway Analysis Results - During the AM peak hour, multiple segments of northbound and southbound I-95 and ramp junctions will operate below LOS D. In addition, many northbound and southbound I-95 mainline and ramps junctions will operate below LOS D during the PM peak hour. The 2045 No Build analysis indicates that much of the I-95 mainline and ramps in Martin County and St. Lucie County, from south of Bridge Road to SR 70 will be failing (operating at a LOS E or F) during the 2045 peak hours. The need for added mainline capacity and ramp improvements at interchanges is clearly indicated by 2045.

2045 No Build Intersection Analysis Results - Thirty-four (34) of the 63 study intersections will operate at an overall failing LOS. Therefore, significant intersection capacity and operational improvements are shown to be needed by 2045 to address the deficiencies.

2030 Build Freeway Analysis Results - To address the 2030 No Build freeway analysis deficiencies, necessary improvements were identified. The recommended I-95 freeway and ramp improvements needed by 2030 are listed below.

1. Construct one additional northbound managed lane and one additional southbound managed lane on the I-95 mainline from the Palm Beach/Martin County line to SR 70/Okeechobee Road. Also, extend the existing fourth southbound general use lane that begins south of SR 614/Indrio Road further north to connect to the SR 614/Indrio Road southbound on-ramp. This provides a total of four lanes northbound and four lanes southbound from the county line to SR 614/Indrio Road.
2. Braid the northbound off-ramp to St. Lucie West Boulevard and the Crosstown Parkway northbound on-ramp. Widen the northbound off-ramp to St. Lucie West Boulevard from one to two lanes and the northbound Crosstown Parkway on-ramp to two lanes, and provide a northbound ramp roadway to accommodate local drivers traveling from Crosstown Parkway to St Lucie West Boulevard.
3. Extend the northbound off-ramp deceleration lane at SR 76/Kanner Highway to 950 feet to improve the level of service from LOS E to LOS C during the PM peak hour.

The 2030 AM and PM peak hour Build freeway analysis results show that these improvements will allow all segments of the I-95 mainline and all ramp junction points to operate at an acceptable LOS D or better in 2030.

2030 Build Intersection Analysis Results - The 2030 Build operational analysis was conducted to evaluate and identify proposed roadway and signal timing improvements to address the deficiencies at the seven intersections which will operate below the LOS target D in either the 2030 AM or PM peak hours. Signal improvements, lane reconfigurations, and turn lane improvements were identified at intersections along the following cross streets:

1. Bridge Road
2. SR 714/Martin Highway
3. Becker Road
4. Gatlin Boulevard
5. St. Lucie West Boulevard
6. SR 70/Okeechobee Road
7. SR 68/Orange Avenue
8. Oslo Road

The 2030 Build intersection operational results indicate all study intersections will operate at LOS D or better with the recommended Build improvements in place in year 2030.

2045 Build Freeway Analysis Results - Improvements were recommended to address the deficiencies identified with the 2045 No Build traffic analysis along most of the I-95 mainline and ramps in Martin County and St. Lucie County, from south of Bridge Road to SR 70. The I-95 mainline and ramp improvements recommended for 2030 remain needed in 2045 and are assumed as part of the 2045 Build improvements, including constructing one additional managed lane northbound and southbound on I-95 from the Palm Beach/Martin County line to SR 70/Okeechobee Road, and braiding the I-95 northbound and southbound ramps between Crosstown Parkway and St. Lucie West Boulevard.

The 2030 Build recommended improvements do not address all of the 2045 I-95 freeway deficiencies. Therefore, additional improvements were identified, including additional ramp acceleration and deceleration lane lengthening, ramp widening, and major interchange modifications.

The additional necessary improvements for 2045 were identified. Ramp improvements are needed along the mainline at the following locations:

1. Bridge Road
2. SR 76/Kanner Highway
3. Gatlin Boulevard
4. Midway Road
5. SR 70/Okeechobee Road
6. SR 68/Orange Avenue
7. Indrio Road
8. SR 60
9. Braid the southbound off-ramp to Crosstown Parkway and the southbound St. Lucie West Boulevard on-ramp. Widen the southbound off-ramp to Crosstown Parkway from one to two lanes and the southbound St. Lucie West Boulevard on-ramp to two lanes.

This includes interchange configuration modifications needed by 2045 at three interchanges to accommodate heavy future left turn volumes, as well as heavy east-west through traffic. The following three interchanges are proposed to be reconstructed with a Diverging Diamond Interchange (DDI) configuration:

1. SR 76/Kanner Highway
2. Gatlin Boulevard
3. SR 70/Okeechobee Road

The 2045 Build analysis results for the I-95 freeway and ramps, show that with the recommended Build improvements in place, all I-95 freeway segments and ramps - except for one segment - will operate at an acceptable LOS D or better during both peak hours. The southbound segment of I-95 between Midway Road and St. Lucie West Boulevard is expected to just exceed the LOS D threshold during the 2045 PM peak hour. The LOS marginally exceeds the target LOS in only this

one segment and during only one peak hour. Therefore, additional mainline capacity is not recommended for year 2045, but future operations should be monitored.

2045 Build Intersection Analysis Results - The 2045 No Build intersection analysis indicates that 34 of the 63 study intersections will operate below the LOS D target in either the AM or PM peak hours. Future 2030 recommended interchange and intersection improvements are assumed to be in place with the 2045 Build analysis. However, additional deficiencies have been identified that need to be addressed by 2045. Additional intersection signal improvements, lane reconfigurations, and turn lane improvements were identified to address the remaining deficiencies. Additional improvements at intersections along the following cross streets are recommended for the year 2045:

1. Bridge Road
2. SR 76/Kanner Highway
3. High Meadow Avenue
4. SR 714/Martin Highway
5. Becker Road
6. Gatlin Boulevard
7. Crosstown Parkway
8. St. Lucie West Boulevard
9. Midway Road
10. SR 70/Okeechobee Road
11. SR 68/Orange Avenue
12. SR 60
13. CR 512/Fellsmere Road

The 2045 Build intersection operational results indicate that almost all study intersections will operate at LOS D or better in 2045. The only exceptions are the Gatlin Boulevard at Village Parkway Drive intersection in both AM and PM peak hours, the SR 70/Okeechobee Road at Kings Highway intersection in the AM peak hour, and CR 512/Fellsmere Road at 90th Avenue in the PM peak hour.



2.0 STUDY OVERVIEW

Introduction

Interstate-95/SR 9 is part of Florida’s SIS, serving regional commerce and long-distance trips, and providing connectivity between major cities and towns along the east coast of the state. In May 2017, FDOT initiated a study to prepare a Multimodal Master Plan for the portion of I-95 extending from the Palm Beach/Martin County Line to the Indian River/Brevard County Line, a distance of approximately 71 miles. Preparation of a Multimodal Master Plan is an integral part of the continuing process for the development of the SIS and in reaching overall regional mobility goals. The Master Plan is identifying short-term and long-term capacity and operational improvements necessary to meet SIS targets. This document describes the existing traffic conditions, forecasted future volumes and conditions, operational analysis methodology, and freeway and intersection operations in future years 2030 and 2045.

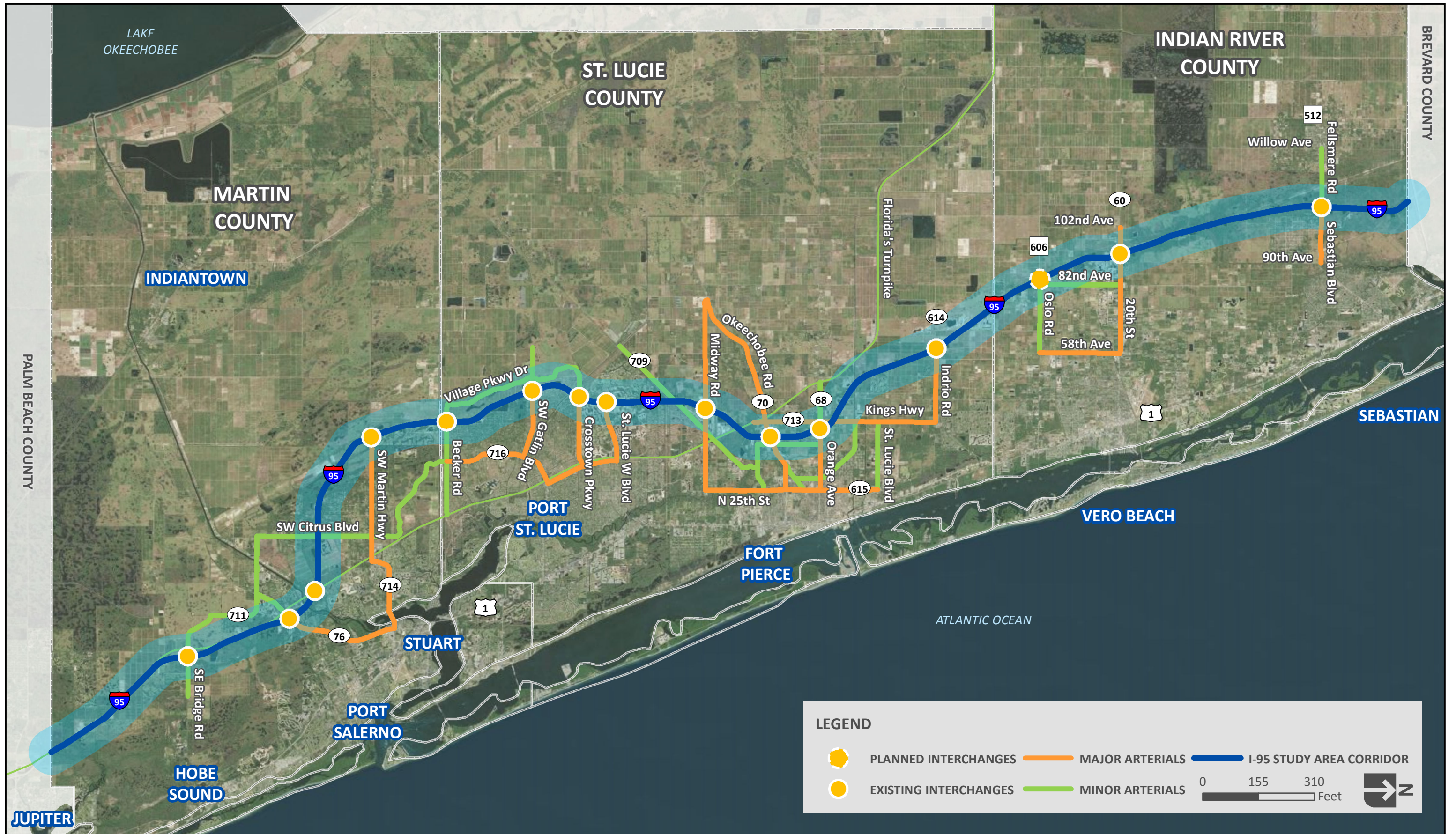
Study Area

The study area is located in southeastern Florida, and includes the portion of I-95 in Martin County, St. Lucie County, and Indian River County, which is known as the Treasure Coast region. The overall study limits for the I-95 Master Plan include this 71-mile portion of I-95 mainline; existing and planned I-95 interchanges at 15 cross roads; and adjacent intersections along each of the 15 cross roads within the area of influence. The study area and study roadways are shown on Figure 2-1.

Purpose and Need

Purpose: The purpose of the Master Plan is to identify short-term and long-term capacity and operational improvements necessary to achieve SIS targets.

Need: There is a need to conduct the Master Plan to identify necessary improvements along the I-95 corridor, and the timeframes for when those improvements should occur. This information will be used by the Department to plan and program necessary improvements for the I-95 corridor through the year 2045 in appropriate Work Program and SIS funding plans. In addition, the Master Plan serves as a reference document to aid the Metropolitan/Transportation Planning Organizations in developing their 2045 Long Range Transportation Plans (LRTPs).



LEGEND

- ◆ PLANNED INTERCHANGES
- EXISTING INTERCHANGES
- MAJOR ARTERIALS
- MINOR ARTERIALS
- I-95 STUDY AREA CORRIDOR

0 155 310
 Feet



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title: **STUDY AREA MAP**

Figure: **2-1**

3.0 METHODOLOGY

The methodology used to conduct the traffic forecasting and operational analysis for the I-95 Master Plan was coordinated with the Department through the I-95 Multimodal Master Plan Traffic Analysis Methodology document, which was approved December 2017. The traffic forecasting methodology was then amended in April 2018 to remove a planned future interchange at Florida's Turnpike and SR 76/Kanner Highway from the travel demand model and study assumptions. A copy of the approved methodology and traffic forecasting methodology amendment is enclosed in Appendix A. A synopsis of the approved methodology to conduct the traffic analysis and travel demand forecasting is provided within Section 3.

3.1 Study Roadways

The location of each of the study roadways is depicted in Figure 2-1. The study roadways consist of the I-95 mainline from the Palm Beach/Martin County Line to the Indian River/Brevard County Line, 15 cross roads that have existing or planned interchanges with I-95, and select adjacent intersections along the cross roads. Below is a list of the study roadways along with the extent of the limits on each road.

1. I-95/SR 9 from the Palm Beach/Martin County Line to the Indian River/Brevard County Line
2. CR 708/SE Bridge Road from the first intersection west of I-95 (at Frontage Road) to the first intersection east of I-95 (at 1760 Bridge Access Road)
3. SR 76/SW Kanner Highway from west of SW Jack James Drive to east of Cove Road
4. High Meadow Avenue from I-95 to north of Swallowtail Lane
5. CR 714/SR 714/SW Martin Highway from west of Green Farms Lane to east of Stuart Boulevard
6. Becker Road from Village Parkway Drive to east of Hallmark Street

7. SW Tradition Parkway/Gatlin Boulevard from west of Village Parkway Drive to east of Fondura Road
8. Crosstown Parkway from west of Visconti Way to east of California Boulevard
9. Reserve Boulevard/St. Lucie West Boulevard from west of Commerce Centre Drive to east of Peacock Boulevard
10. Midway Road from west of the first intersection west of I-95 (at Gordy Exd) to east of Glades Cut-Off Road
11. SR-70/Okeechobee Road/Virginia Avenue from west of Kings Highway to east of Jenkins Road
12. SR-68/Orange Avenue from west of Kings Highway to east of Jenkins Road
13. SR-614/Indrio Road from the first intersection west of I-95 (at AICO Road) to east of Koblegard Road
14. CR 606/Oslo Road from west of 90th Avenue to east of 82nd Avenue
15. SR 60/20th Street from west of 98th Avenue to east of 90th Avenue
16. CR-512/Fellsmere Road from west of Willow Street to east of 90th Avenue

The list of 63 study intersections located along each of the 15 cross roads is provided in Table 3-1.

Table 3-1: Study Intersections

| Cross Road | Intersection With: |
|---|--------------------------------------|
| 1. Bridge Road | Frontage Road west of I-95 |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | 1760 Bridge Access Road east of I-95 |
| 2. SR 76/Kanner Highway | SW Jack James Drive |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | SW Lost River Road |
| | Cove Road |
| 3. SW High Meadow Avenue | I-95 NB and SB Ramp Terminal |
| | Swallowtail Lane |
| 4. SR 714/Martin Highway | SW Green Farms Lane |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | SW Stuart W Boulevard |
| 5. Becker Road | Village Parkway Drive |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | SW Hallmark Street |
| 6. Traditions Parkway/Gatlin Boulevard | Village Parkway Drive |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | SW Brescia Street |
| | SW Savage Boulevard / Fondura Road |
| 7. Crosstown Parkway | SW Visconti Way |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | SW California Boulevard |
| 8. St. Lucie West Boulevard/Reserve Boulevard | Commerce Centre Drive |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | NW Peacock Boulevard |

| Cross Road | Intersection With: |
|-----------------------------------|---|
| 9. Midway Road | Gordy Exd. |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | Glades Cut-Off Road |
| 10. SR 70/Okeechobee Road | Kings Highway |
| | Crossroads Parkway |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | Jenkins Road |
| 11. SR 68/Orange Avenue | Kings Highway |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| 12. SR 614/Indrio Road | Jenkins Road |
| | AICO Road |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| 13. CR 606/Oslo Road | Koblegard Road |
| | 86 th Avenue (existing) / 90 th Avenue (future) |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| 14. SR 60/20 th Street | 82 nd Avenue |
| | 98 th Avenue |
| | 94 th Drive |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| 15. CR 512/Fellsmere Road | 90 th Avenue |
| | Willow Street |
| | I-95 SB Ramp Terminal |
| | I-95 NB Ramp Terminal |
| | 108 th Avenue |

3.2 Analysis Years

Analysis years for the study are:

- Existing Conditions: 2017
- Interim Year: 2030
- Planning Horizon Year: 2045

3.3 Traffic Forecasting and Factors

The methodology used to develop the Average Annual Daily Traffic (AADT) and peak-hour traffic volumes for the study is documented in detail in the *Traffic Forecast Report* for the I-95 Multimodal Master Plan, dated and approved September 2018. This report, included in Appendix B, details the development of peak-hour traffic volumes and AADT volumes for the existing analysis year 2017, 2030 future year, and 2045 future year for the I-95 freeway, interchanges, and intersections.

Traffic volume data for this study was sourced from FDOT Florida Traffic Information (FTI) DVDs, the Florida Traffic Online website, as well as data collected in October 2017 at the study intersections and roadways. In October 2017, 48-hour daily volumes were collected on each of the fifteen arterial crossroads which have existing interchanges, or a funded new interchange with I-95. Turning movement counts were also collected at the study intersections.

For the I-95 mainline segments the 2017 AADTs were estimated using the 2016 AADTs available from the FDOT Florida Traffic Information (FTI) online, and applying an annual growth rate of 1.5% for one year. For the study cross road segments, the 2017 AADTs were calculated by averaging the two-day bi-directional traffic counts on each roadway segment and applying seasonal and axle adjustment factors. The turning movement counts collected and obtained along each corridor were balanced between intersections. The balanced turning movement volumes were used for the analysis of existing conditions and to forecast the future year turning movement volumes.

The standard K factor of 9.0% was used for all I-95 mainline segments between Bridge Road and Fellsmere Road, as well as for the other arterial study roadways located within the urbanized area. A 9.5% standard K factor was used for arterial roadway segments outside of the urbanized area, and K factors calculated from field count data were used for the minor local roadways. The standard K-Factors are published in the FDOT Project Traffic Forecasting Handbook.

The D factors for all roadways are based on the corridor peak hour counts and adjusted whenever the D factors fell outside the acceptable ranges presented in the FDOT Project Traffic Forecasting Handbook. The T factor values were estimated as the average of the T factors obtained from the daily counts and from the FTI DVD. Table 3-2 presents the K, D and T factors for each study roadway segment.

The Treasure Coast Regional Planning Model (TCRPM 4.0) was used for travel demand forecasting. The model has a base year of 2010. In 2016, FDOT District Four developed a project-specific version of TCRPM for the SIS 2045 Unfunded Needs Plan Assessment. This project-specific 2045 TCRPM version was utilized as the primary travel demand model for traffic projections in this study. The 2010 base year model was validated to the year 2010 Annual Average Daily Traffic (AADT). In addition, the 2045 model was reviewed including the socio-economic data, the highway network, base year model estimates, external trips, and projected traffic growth. Refinements were made as necessary.

Table 3-2: Traffic Factors (K, D, T)

| Location | Study Interchange | Location | Count Station ID | 2017 AADT | K-Factor | D-Factor | T-Factor |
|---------------|----------------------------------|---|------------------|-----------|----------|----------|----------|
| | | | | | (A) | (B) | (C) |
| | CR 708/SE Bridge Road | South of Bridge Rd | 932209 | 82,000 | 9.0% | 61.2% | 11.6% |
| I-95 Mainline | 1 CR 708/SE Bridge Road | North of Bridge Rd/South of SR 76 | 892210 | 82,000 | 9.0% | 61.2% | 11.6% |
| | 2 SR 76/SW Kanner Highway | North of SR 76/South of High Meadows Ave | 892212 | 72,000 | 9.0% | 61.2% | 11.6% |
| | 3 SW High Meadows Avenue | North of High Meadows Ave/South of SR 714 | 892214 | 58,000 | 9.0% | 61.2% | 11.6% |
| | 4 SR 714/SW Martin Highway | North of SR 714/South of Becker Rd | 890334 | 64,000 | 9.0% | 61.2% | 11.6% |
| | 5 SW Becker Road | North of Becker Rd/South of Gatlin Blvd | No Station | 67,000 | 9.0% | 55.8% | 10.0% |
| | 6 SW Gatlin Blvd/Tradition Pkwy | North of Gatlin Blvd/South of Crosstown Pkwy | 941901 | 79,000 | 9.0% | 55.8% | 10.0% |
| | 7 Crosstown Pkwy | North of Crosstown Pkwy/South of St. Lucie W Blvd | No Station | 82,000 | 9.0% | 55.8% | 10.0% |
| | 8 St. Lucie W Blvd/Reserve Blvd | North of St. Lucie W Blvd/South of Midway Rd | 941904 | 65,000 | 9.0% | 55.8% | 10.0% |
| | 9 W Midway Road | North of Midway Rd/South of SR 70 | 941902 | 62,000 | 9.0% | 55.8% | 10.0% |
| | 10 SR 70/Okeechobee Road | North of SR 70/South of Orange Ave | 940260 | 59,000 | 9.0% | 55.8% | 13.6% |
| | 11 SR 68/Orange Avenue | North of Orange Ave/South of Indrio Rd | 941905 | 50,000 | 9.0% | 55.8% | 13.6% |
| | 12 SR 614/Indrio Road | North of Indrio Rd/South of Oslo Rd | 882003 | 44,000 | 9.0% | 55.8% | 13.6% |
| | 13 CR 606/Oslo Road | North of Oslo Rd/South of SR 60 | 882003 | 44,000 | 9.0% | 55.8% | 13.6% |
| | 14 SR 60/20 th Street | North of SR 60/South of Fellsmere Rd | 882001 | 45,000 | 9.0% | 55.8% | 13.6% |
| | 15 CR 512/Fellsmere Road | North of Fellsmere Rd | 700134 | 43,000 | 9.0% | 55.8% | 13.6% |

| Location | Study Interchange | Location | Count Station ID | 2017 AADT | K-Factor | D-Factor | T-Factor |
|--------------------|---------------------------------|-----------------------------|------------------|-----------|----------|----------|----------|
| | | | | | (A) | (B) | (C) |
| Cross Roads | 1 CR 708/SE Bridge Road | West of Frontage Rd | 890082 | 4,300 | 9.5% | 60.4% | 10.4% |
| | | West of I-95 | No Station | 4,300 | 9.5% | 60.8% | 9.9% |
| | | East of I-95 | No Station | 9,900 | 9.5% | 55.0% | 13.3% |
| | | East of 1760 Access Rd | 890080 | 9,500 | 9.5% | 55.0% | 11.6% |
| | 2 SR 76/SW Kanner Highway | West of Jack James Dr | 895053 | 22,000 | 9.0% | 56.4% | 9.0% |
| | | East of Jack James Dr | No Station | 22,000 | 9.0% | 51.0% | 12.0% |
| | | West of Lost River Rd | No Station | 48,000 | 9.0% | 51.6% | 10.5% |
| | | East of Lost River Rd | No Station | 48,000 | 9.0% | 51.2% | 6.3% |
| | 3 SW High Meadows Avenue | North of Cove Road | 890106 | 36,000 | 9.0% | 52.3% | 5.6% |
| | | South of SW Swallowtail Way | No Station | 13,000 | 9.0% | 67.1% | 11.5% |
| | | North of SW Swallowtail Way | 890201 | 15,000 | 9.0% | 67.1% | 7.1% |
| | 4 SR 714/SW Martin Highway | West of Green Farms Ln | 890084 | 4,900 | 9.0% | 54.3% | 16.2% |
| | | East of Green Farms Ln | No Station | 5,300 | 9.0% | 54.2% | 16.8% |
| | | West of SW Stuart W Blvd | No Station | 8,800 | 9.0% | 55.9% | 22.3% |
| | | East of SW Stuart W Blvd | No Station | 9,400 | 9.0% | 57.8% | 11.6% |
| | 5 SW Becker Road | West of Village Pkwy Dr | No Station | 20 | 9.0% | 67.1% | 5.9% |
| | | East of Village Pkwy Dr | 948005 | 2,500 | 9.0% | 67.1% | 5.9% |
| | | West of SW Hallmark St | No Station | 17,000 | 9.0% | 67.1% | 5.9% |
| | | East of SW Hallmark St | No Station | 15,000 | 9.0% | 67.1% | 5.9% |
| | 6 SW Gatlin Blvd/Tradition Pkwy | West of Village Pkwy Dr | No Station | 9,500 | 9.0% | 60.8% | 4.6% |
| | | East of Village Pkwy Dr | No Station | 26,000 | 9.0% | 53.2% | 4.6% |
| | | West of SW Brescia St | No Station | 41,000 | 9.0% | 61.9% | 4.6% |
| | | East of SW Brescia St | 945075 | 39,000 | 9.0% | 60.8% | 4.6% |
| | 7 Crosstown Pkwy | East of SW Savage Blvd | No Station | 39,000 | 9.0% | 60.4% | 4.6% |
| | | West of SW Visconti Way | No Station | 14,000 | 9.0% | 60.1% | 5.3% |
| | | East of SW Visconti Way | No Station | 15,000 | 9.0% | 56.0% | 5.3% |
| | | West of SW California Blvd | 947736 | 24,000 | 9.0% | 63.6% | 5.3% |
| | 8 St. Lucie W Blvd/Reserve Blvd | East of SW California Blvd | No Station | 22,000 | 9.0% | 62.2% | 5.3% |
| | | West of Commerce Center Dr | No Station | 6,800 | 9.0% | 51.3% | 3.0% |
| | | East of Commerce Center Dr | 945078 | 12,000 | 9.0% | 51.1% | 3.0% |
| | | West of NW Peacock Blvd | 945077 | 36,000 | 9.0% | 50.9% | 6.2% |
| | 9 W Midway Road | East of NW Peacock Blvd | No Station | 35,000 | 9.0% | 52.0% | 6.2% |
| | | West of Gordy Exd | No Station | 5,300 | 9.5% | 61.9% | 19.0% |
| | | East of Gordy Exd | 940732 | 5,600 | 9.5% | 62.5% | 19.0% |
| | | West of Glades Cut-off Rd | 945140 | 16,000 | 9.0% | 51.9% | 12.1% |
| | 10 SR 70/Okeechobee Road | East of Glades Cut-off Rd | No Station | 15,000 | 9.0% | 59.4% | 12.1% |
| | | West of Kings Hwy | No Station | 11,000 | 9.0% | 52.6% | 19.6% |
| | | East of Kings Hwy | 940748 | 21,000 | 9.0% | 51.9% | 19.6% |
| | | East of Crossroads Pkwy | 940106 | 26,000 | 9.0% | 51.0% | 29.3% |
| | | West of Jenkins Rd | 940029 | 30,000 | 9.0% | 50.1% | 12.3% |
| East of Jenkins Rd | | No Station | 32,000 | 9.0% | 51.3% | 12.3% | |

Table 3-2 (Continued): Traffic Factors (K, D, T)

| Location | Study Interchange | Location | Count Station ID | 2017 AADT | K-Factor | D-Factor | T-Factor | |
|------------------------------|-----------------------|-------------------------------|------------------------------|------------|----------|----------|----------|-------|
| | | | | | (A) | (B) | (C) | |
| Cross Roads | 11 | SR 68/Orange Avenue | West of Kings Hwy | No Station | 8,800 | 9.0% | 54.1% | 25.0% |
| | | | East of Kings Hwy | 940041 | 19,000 | 9.0% | 52.9% | 25.0% |
| | | | West of Jenkins Rd | 940035 | 16,000 | 9.0% | 54.5% | 10.8% |
| | | | East of Jenkins Rd | 940028 | 17,000 | 9.0% | 55.2% | 7.7% |
| | 12 | SR 614/Indrio Road | West of Aico Rd | No Station | 820 | 9.5% | 79.6% | 63.2% |
| | | | East of Aico Rd | 940128 | 980 | 9.5% | 79.6% | 69.1% |
| | | | West of Spanish Lakes Blvd | 940038 | 10,000 | 9.0% | 59.3% | 8.6% |
| | | | East of Spanish Lakes Blvd | No Station | 10,000 | 9.0% | 55.5% | 12.8% |
| | 13 | CR 606/Oslo Road | West of 86 th Ave | No Station | 330 | 9.5% | 79.6% | 26.6% |
| | | | East of 86 th Ave | No Station | 500 | 9.5% | 71.1% | 18.7% |
| | | | West of 82 nd Ave | No Station | 500 | 9.5% | 55.4% | 18.7% |
| | | | East of 82 nd Ave | No Station | 2,900 | 9.5% | 55.1% | 22.4% |
| | 14 | SR 60/20 th Street | West of 98 th Ave | No Station | 6,400 | 9.0% | 67.1% | 40.2% |
| | | | West of 94 th Dr | 880013 | 8,900 | 9.0% | 66.1% | 29.1% |
| | | | East of 94 th Dr | 885195 | 13,000 | 9.0% | 62.6% | 17.7% |
| | | | West of 90 th Ave | 880016 | 22,000 | 9.0% | 51.5% | 21.1% |
| East of 90 th Ave | | | No Station | 22,000 | 9.0% | 53.6% | 33.0% | |
| 15 | CR 512/Fellsmere Road | West of Willow St | No Station | 8,900 | 9.5% | 61.5% | 12.4% | |
| | | East of Willow St | 880018 | 11,000 | 9.5% | 63.1% | 8.2% | |
| | | West of 90 th Ave | 880023 | 18,000 | 9.0% | 50.8% | 8.6% | |
| | | East of 90 th Ave | No Station | 19,000 | 9.0% | 58.6% | 6.7% | |

Traffic forecasts for daily volumes and peak hour volumes were developed, after evaluating and considering the various traffic forecasting methods and results. To develop the 2030 and 2045 AADT forecasts, the 2045 travel demand model results were considered along with 10 years of the most recent historic traffic trends, and population and employment growth.

As documented in the *Traffic Forecasting Report*, the existing morning peak hour for the study area is from 7:15 AM to 8:15 AM, while the afternoon peak hour is from 4:45 PM to 5:45 PM. Intersection turning movement volumes for years 2030 and 2045 were developed using the FDOT TMTTool spreadsheet. The 2017 AM and PM peak hour balanced intersection turning movement volumes were used as a starting point for the future year AM and PM peak hour turning movement forecasts.

3.4 Analysis Methods, Tools, and Factors

The AM and PM peak hour traffic operations of the I-95 freeway segments (mainline, merge, diverge and weaving segments), study intersections, and study interchanges were analyzed. Traffic analyses were completed to report current operating conditions and estimated future (2030 and 2045) operating conditions without improvements (No Build), and with recommended improvements (Build). Analysis of each facility type (freeways and intersections) was completed for the following scenarios:

- Existing (2017) conditions,
- No Build conditions in year 2030,
- No Build conditions in year 2045,
- Build conditions in year 2030, and
- Build conditions in year 2045.

Results of the No Build conditions traffic operations analyses were used to identify where improvements are needed, as well as when and to what extent they will be needed. Results of the Build conditions present the resulting LOS and benefits of implementing the recommended improvements.

Freeway Analysis

To determine the LOS of the freeway segments, the *Highway Capacity Manual (HCM)*, 6th Edition, methodology was used, and calculations were performed using Highway Capacity Software (HCS7). The LOS for each freeway segment was determined based on density, speed and volume-to-capacity ratio. A default freeway Free-Flow Speed (FFS) of 75.4 mi/hr and ramp FFS of 35.0 mi/hr was used for the analyses. For existing conditions, the AM and PM Peak-Hour Factors (PHFs) for each individual I-95 segment and ramp were calculated from the hourly and 15 minute traffic count data from Synopsis Reports available from the 2016 FDOT FTI, to remain consistent with the 2016 data utilized in the *Traffic Forecast Report*.

For future 2030 and 2045 freeway analyses, a PHF of 0.92 was used. The future year PHF of 0.92 was estimated based on the average PHF calculated from the existing AM and PM PHFs for all northbound and southbound I-95 segments and ramps.

Intersection Analysis

The HCM 6th Edition methodology within the Synchro software (version 10) was used to calculate delay, LOS, and 95th percentile queue lengths for signalized and unsignalized intersections. In instances when Synchro 10 could not provide HCM 6th Edition results or HCM 2010 results (such as non-standard NEMA signal phasing), HCM 2000 results are reported. In addition, Highway Capacity Software (HCS7) was used to calculate delay, LOS and queue lengths for roundabout intersections.

The existing (2017) overall intersection PHFs and AM and PM peak hour heavy vehicle percentages for each overall intersection were calculated from the 2017 turning movement counts collected at each of the study intersections. Existing signal timings (e.g. cycle lengths, phasing, and splits) used for the signalized intersection analysis were based on the signal timing plans obtained from the signal maintaining agencies.

For future year intersection analyses, the existing intersection PHFs were averaged by County. Those PHFs used for the future year analyses are shown below:

- Martin County: 0.93
- St. Lucie County: 0.91
- Indian River County: 0.91

For the future year intersection analyses, the existing heavy vehicle percentages calculated from the 2017 turning movement counts collected at each of the study intersections were used. For the future year signalized intersection analyses, the existing cycle lengths, phasing and yellow and all-red clearance times were used, and the splits were optimized.

3.5 Level of Service Targets and Performance Measures

FDOT Policy Topic No. 000-525-006c provides LOS targets for the State Highway System based on the area type. The policy states:

“It is the Department’s intent to plan, design and operate the State Highway System at an acceptable level of service for the traveling public. The automobile mode level of service targets for the State Highway System during peak travel hours are “D” in urbanized areas and “C” outside urbanized areas. The Department shall work with local governments to establish appropriate level of service targets for multimodal mobility and system design. The targets shall be responsive to all users, for context, roadway function, network design, and user safety.”

The I-95 study corridor is part of the National and State Highway System and is located within an area that is considered primarily urbanized. Two segments of I-95 in Martin County (from High Meadow Avenue to SR 714/Martin Highway, and from SR 714/Martin Highway to Becker Road), fall within an existing transitioning area. However, both segments of I-95 have one end that either begins or ends within an urbanized area. In addition, this area is expected to continue becoming more urbanized in the future. Based on future conditions and for planning continuity purposes, LOS target D was used for the entire I-95 mainline from the southern study limit at the Palm Beach/Martin County line to the northern study limit at the Indian River/Brevard County line.

The cross roads and adjacent study roadways within the study area are also mostly within urbanized areas. A few study roadway segments are considered to be within a transitioning area or rural area. The LOS D is the target to attain for the operational analyses of roadways within urbanized areas, and LOS C for roadways outside urbanized areas. For purposes of this study, improvements were recommended whenever a roadway segment or overall intersection was determined to operate below the LOS D target.

To assess the performance of the existing conditions, 2030 and 2045 No Build and Build conditions, the following performance measures are reported and used to compare traffic operations:

Study Intersections

- LOS
- Control delay
- 95th percentile queues

Freeway Segments (Mainline, Merge, Diverge and Weave)

- LOS
- Speed
- Density

4.0 EXISTING YEAR (2017) CONDITIONS

4.1 Data Collection

The analysis of existing conditions relies on existing year (2017) roadway and traffic data. The following types of data were collected for each of the study roadways: roadway geometric characteristics, roadway and intersection traffic controls, roadway and intersection traffic volumes, and vehicle classification. This data and the efforts to collect it are described below.

4.1.1 Existing Roadway Characteristics and Field Reviews

Field reviews were conducted in October 2017 along I-95, each of the fifteen study cross roads, and at each study intersection. Photographs were taken and field conditions were noted on aerials and checklists. Documented field conditions include:

- I-95 mainline and ramp configurations,
- I-95 interchange ramp termini configurations,
- Arterial lane configurations,
- Intersection lane configurations,
- Intersection traffic controls (stop signs, speed limits, turn restrictions),
- Traffic signal locations, and
- Locations of pedestrian and bicycle facilities.

The existing conditions lane geometry is represented on Figure 4-2.

4.1.2 Traffic Counts

Traffic volume data for this study was sourced from FDOT Florida Traffic Information (FTI) DVDs, the Florida Traffic Online website, as well as collected in October 2017 at the study intersections and roadways. AADTs for the I-95 mainline were obtained and calculated from the 2016 FTI DVD at most locations. For a few locations where 2016 data was not available, 2014 or 2015 data was

used. The 2014, 2015 or 2016 data was converted to 2017 data using a 1.5% annual growth rate. For three I-95 segments (north of Becker Road, north of Crosstown Parkway, and north of Midway Road), existing 2017 AADTs were derived from the adjacent mainline count data and ramp volumes.

AM and PM peak hour count data for the I-95 mainline was obtained from the synopsis reports available in the FTI DVDs corresponding to the year for which AADTs were available. The turning movement counts at the ramps (described further in the section below) were obtained from the traffic data collected in 2017 for the Master Plan.

In October 2017, 48-hour daily volumes were collected on each of the fifteen arterial crossroads. Turning movement counts were also collected at each of the 63 study intersections. The daily and turning movement traffic counts were collected on two consecutive typical weekdays (a Tuesday, Wednesday, and/or Thursday). Data collection was performed on October 3rd and 4th in Martin County, on October 11th and 12th in St. Lucie County and on October 24th and 25th in Indian River County. Midway Road east of Glades Cut-off Road, Kings Highway south of SR 70, and Kings Highway south of SR 68 were recounted on November 29th and 30th. Kings Highway north of SR 70 was recounted in 2018 on January 10th and 11th.

The traffic data for each intersection included 48-hour approach/departure machine counts on each of the two consecutive days for all the approaches and one-day full intersection data (3-hour morning peak covering 6:00 AM to 9:00 AM and 3-hour evening peak between 4:00 PM to 7:00 PM turning movement counts). The collected traffic data is included with the *Traffic Forecast Report* in Appendix B. The study intersections at which count data was collected are listed in Table 3-1.

4.1.3 Existing Signal Timings

For existing traffic signals, signal timing plans were requested and obtained from signal maintaining agencies in the Treasure Coast including: Martin County Traffic Engineering, St. Lucie County Traffic Engineering, and Indian River County Traffic Engineering. Where signal timing plans were not available, AM and PM peak hour signal phasing, cycle lengths, and splits were estimated from timings recorded in the field. Copies of the signal timing plans and information are included in Appendix C.

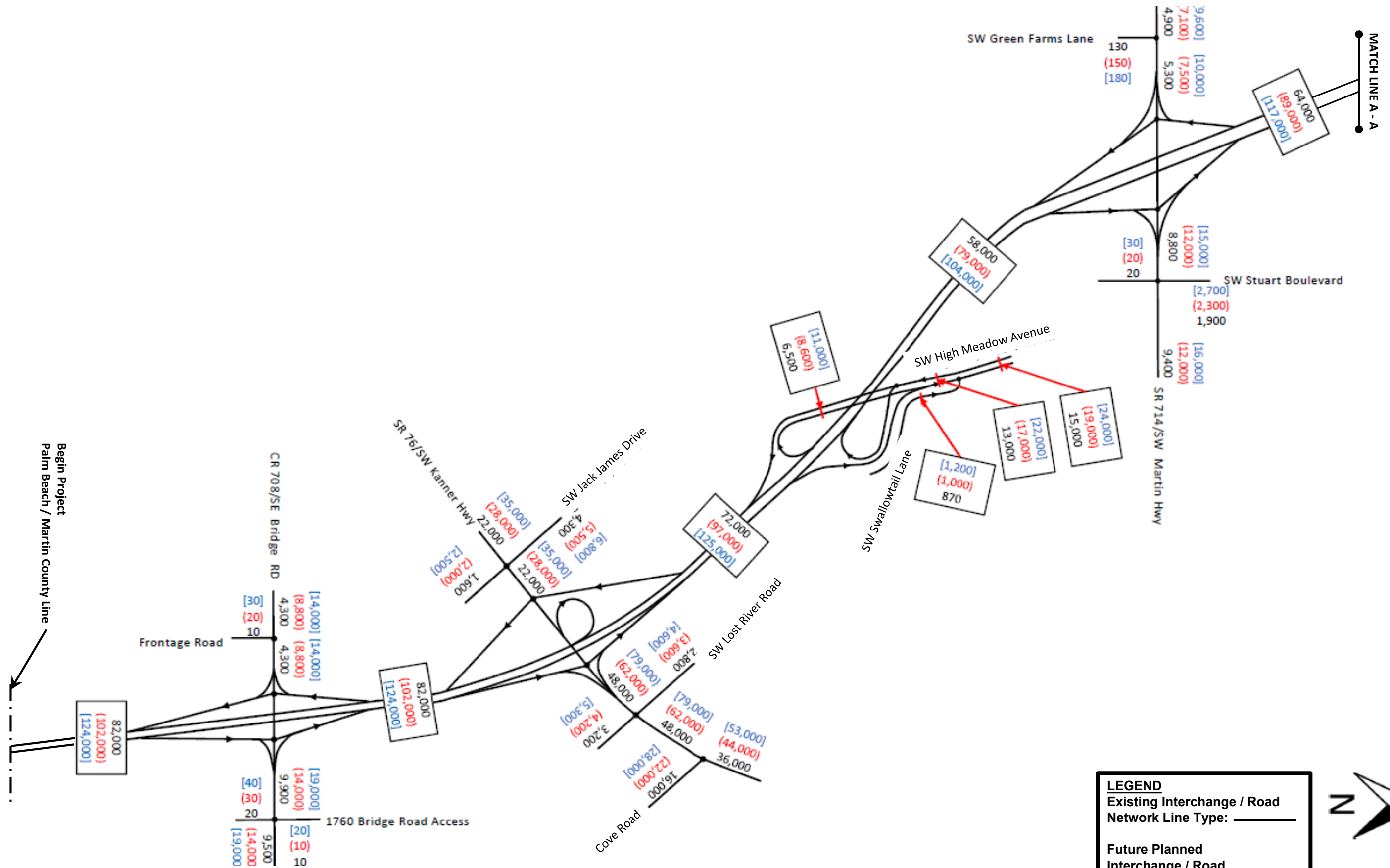
Based on the traffic volumes collected in the study area, 7:15 AM to 8:15 AM and 4:45 PM to 5:45 PM were determined to be the AM and PM peak hours for the study roadways. The peak hour turning movement count raw data is provided in the *Traffic Forecast Report* in Appendix B. The balanced existing (2017) turning movement counts used for existing conditions analyses are depicted on Figure 4-2.

4.2 Existing AADT and AM and PM Peak Hour Traffic

As noted in Section 3.3, for most I-95 mainline segments the 2017 AADTs were calculated using the 2016 AADTs and applying an annual growth rate of 1.5% for one year. For the other study cross road segments, the 2017 AADTs were calculated by first averaging the two-day bi-directional traffic counts on each roadway segment, then multiplying the average by the applicable seasonal and axle adjustment factors that are published in the 2016 FTI DVD.

The standard K factor of 9.0% was used for all I-95 mainline segments between Bridge Road and Fellsmere Road, as well as for the other arterial study roadways located within the urbanized area. A 9.5% standard K factor was used for arterial roadway segments outside of the urbanized area, while peak-to-daily factors calculated from field count data were used for the minor local roadways. The D factors for all roadways are based on the corridor peak hour counts and adjusted whenever the D factors fell outside the acceptable ranges presented in the FDOT Project Traffic Forecasting Handbook. The T factor values were estimated as the average of the T factors obtained from the daily counts and from the FTI DVD.

The existing (2017) AADTs along with the K-Factors, D-Factors, and T-Factors are reported for each segment in Table 3-2 on pages 3-4 and 3-5. The existing (2017) AADTs are shown geographically on Figure 4-1.



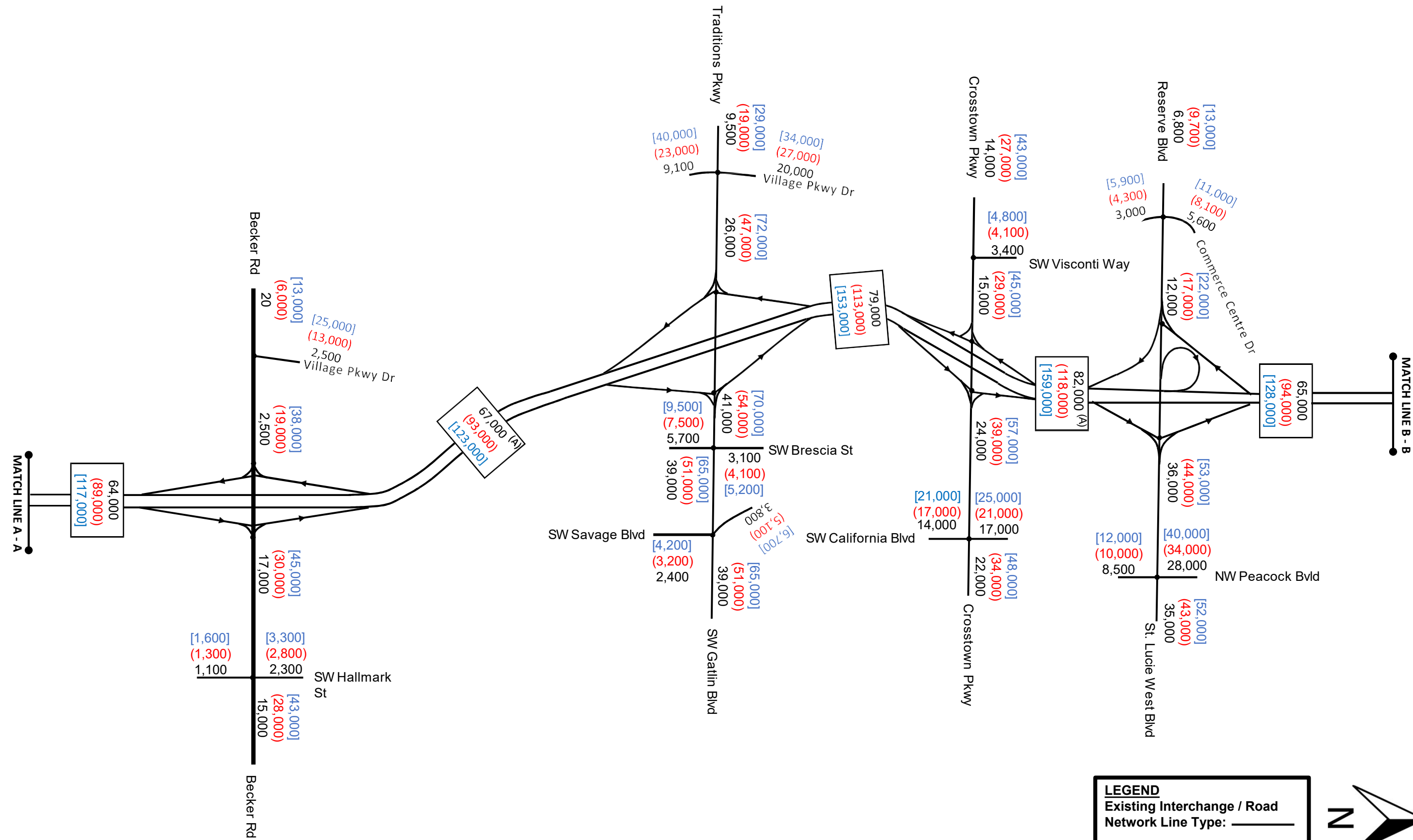
LEGEND
 Existing Interchange / Road
 Network Line Type: ————
 Future Planned
 Interchange / Road
 Network Line Type: - - - - -
 XXXXX 2017 Estimated AADT
 (XXXXX) 2030 Forecasted AADT
 [XXXXX] 2045 Forecasted AADT



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title: **2017, 2030 and 2045
 AADT (Martin County)**

**FIGURE 4-1
 (Page 1 of 4)**



LEGEND
 Existing Interchange / Road
 Network Line Type: ————
 Future Planned
 Interchange / Road
 Network Line Type: - - - - -
 XXXXX 2017 Estimated AADT
 (XXXXX) 2030 Forecasted AADT
 [XXXXX] 2045 Forecasted AADT



FIGURE 4-1
 (Page 2 of 4)

I-95 2017 AADT Notes:
 (A) No count station; 2017 AADT estimated using adjacent mainline segments and ramp AADTs

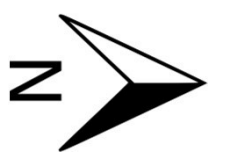
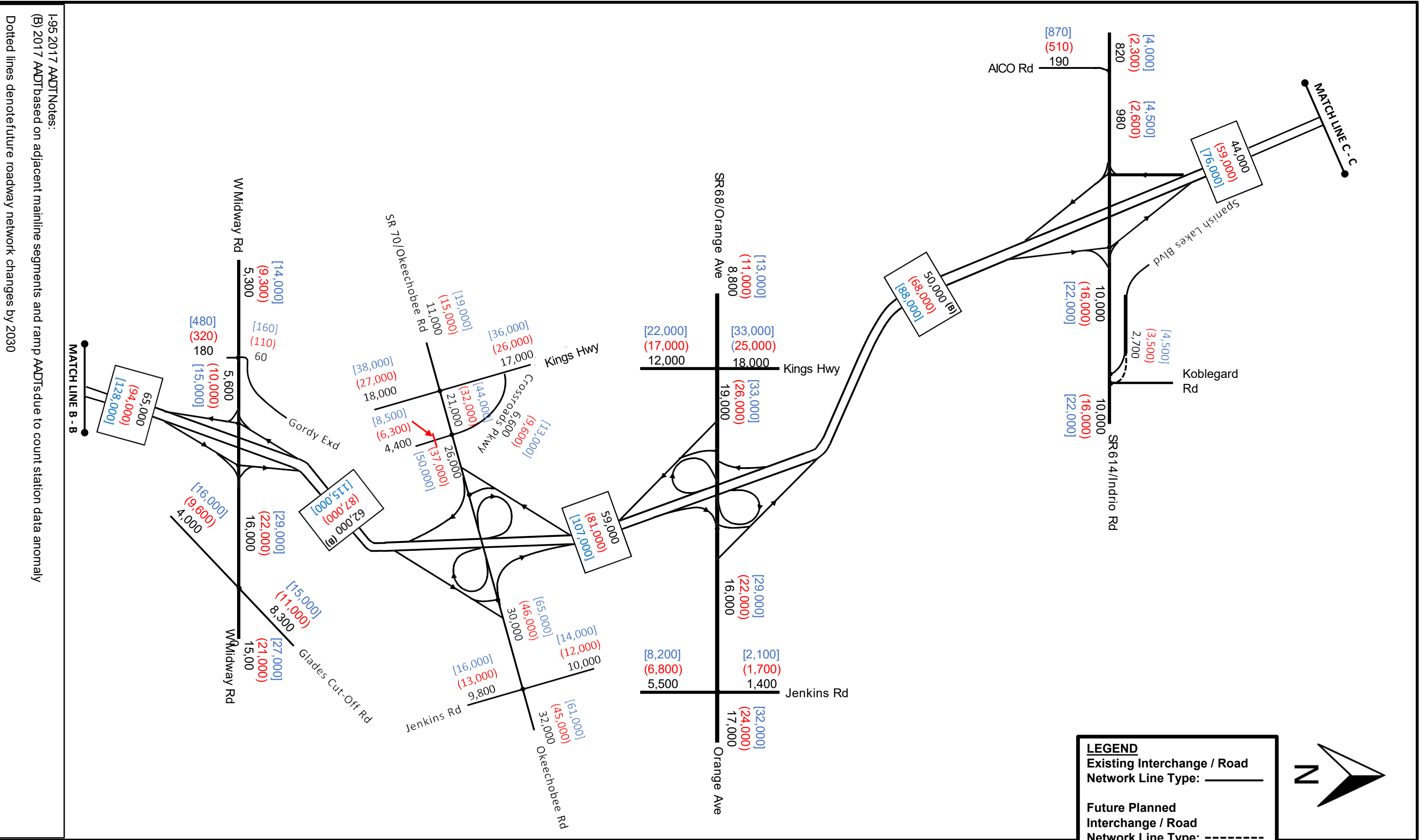


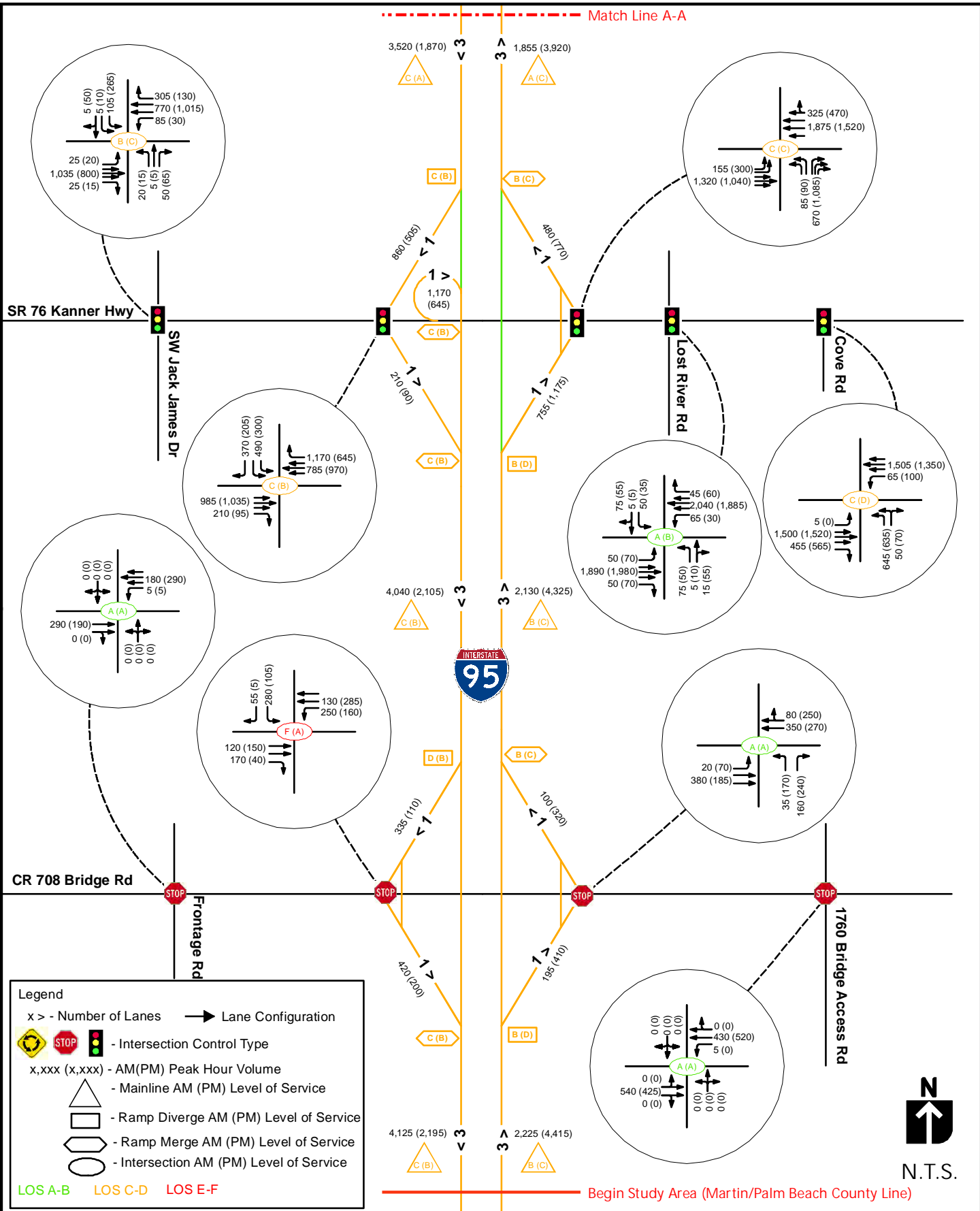
FIGURE 4-1
(Page 3 of 4)

Title: **2017, 2030 and 2045
AADT (St. Lucie County)**

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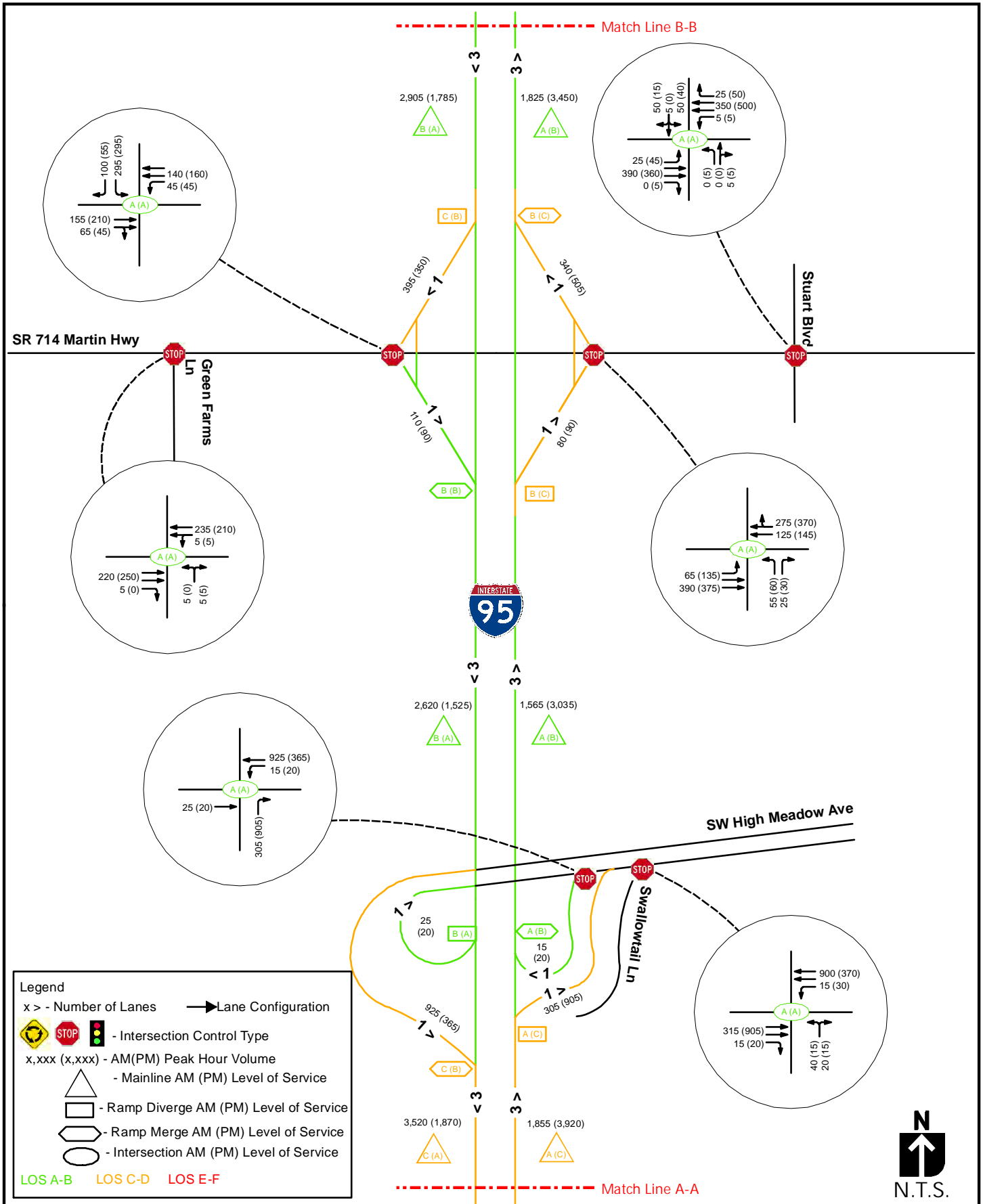
I-95 2017 AADT Notes:
 (B) 2017 AADT based on adjacent mainline segments and ramp AADTs due to count station data anomaly
 Dotted lines denote future roadway network changes by 2030



I-95 Multimodal Master Plan
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 FDOT - District 4

Title:
 Existing Conditions
 Summary

Figure 4-2
 (Page 1 of 8)



Legend

x > - Number of Lanes → Lane Configuration

- Intersection Control Type

x,xxx (x,xxx) - AM(PM) Peak Hour Volume

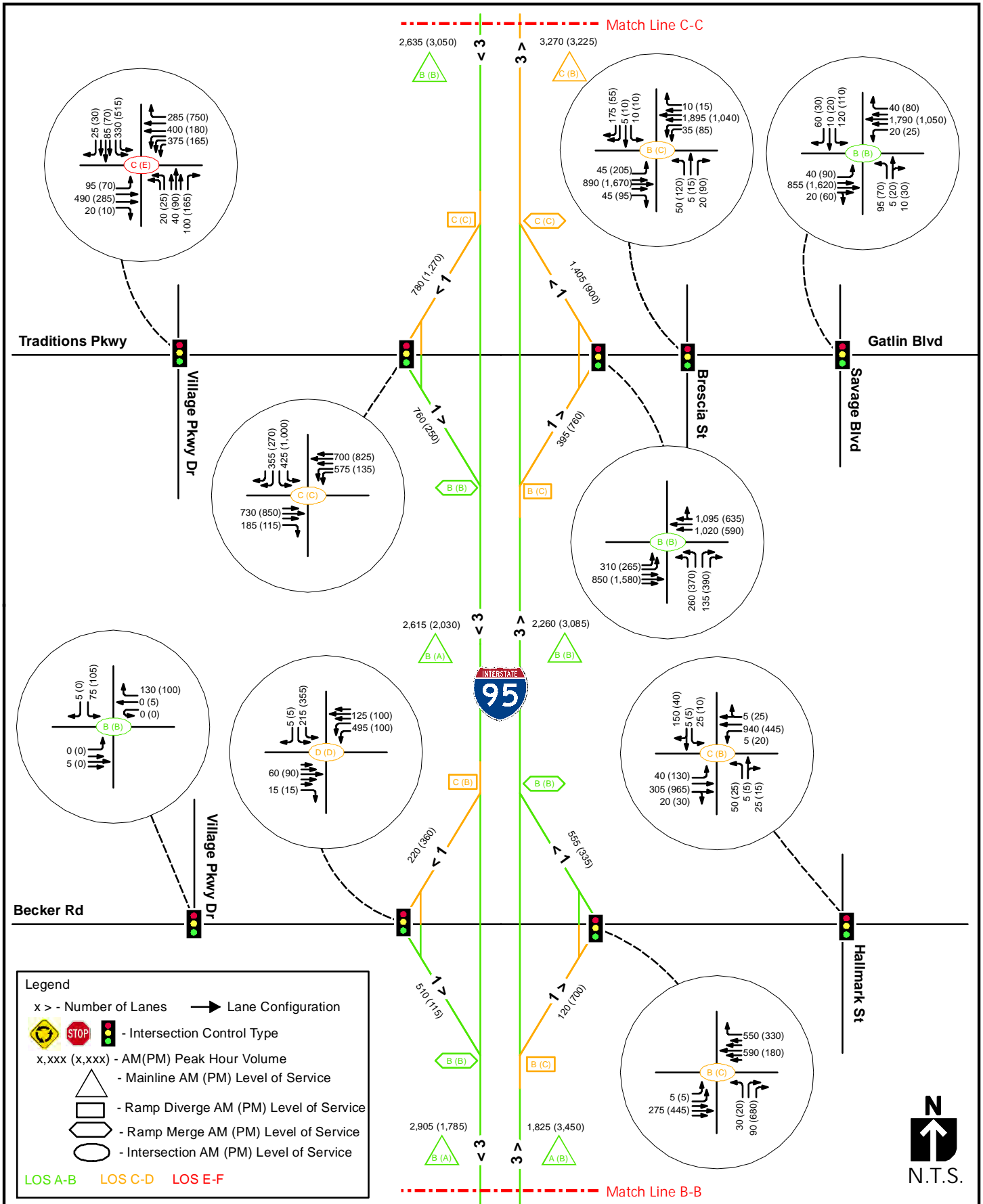
- Mainline AM (PM) Level of Service

- Ramp Diverge AM (PM) Level of Service

- Ramp Merge AM (PM) Level of Service

- Intersection AM (PM) Level of Service

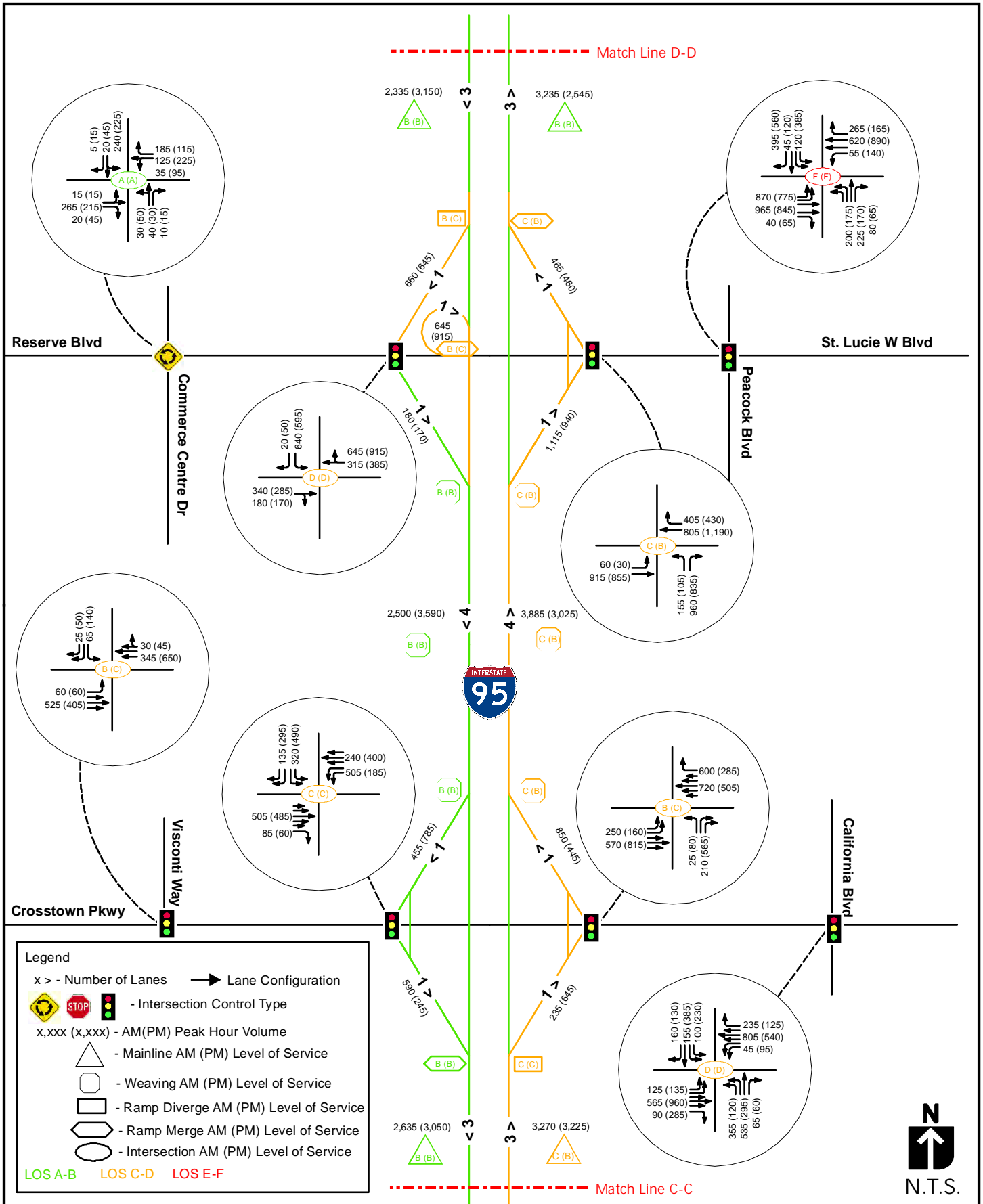
LOS A-B LOS C-D LOS E-F



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 Existing Conditions
 Summary

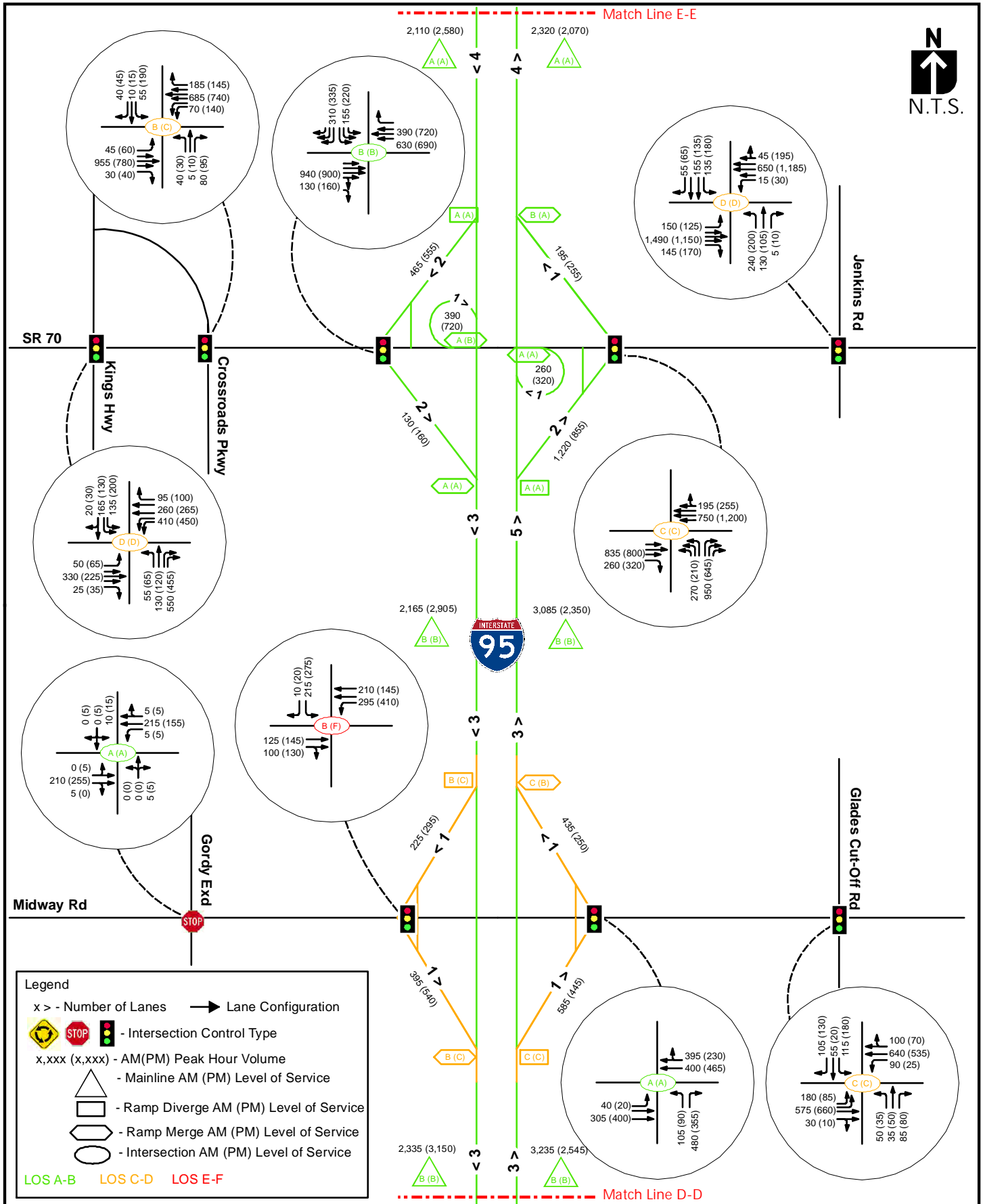
Figure 4-2
 (Page 3 of 8)



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 Existing Conditions
 Summary

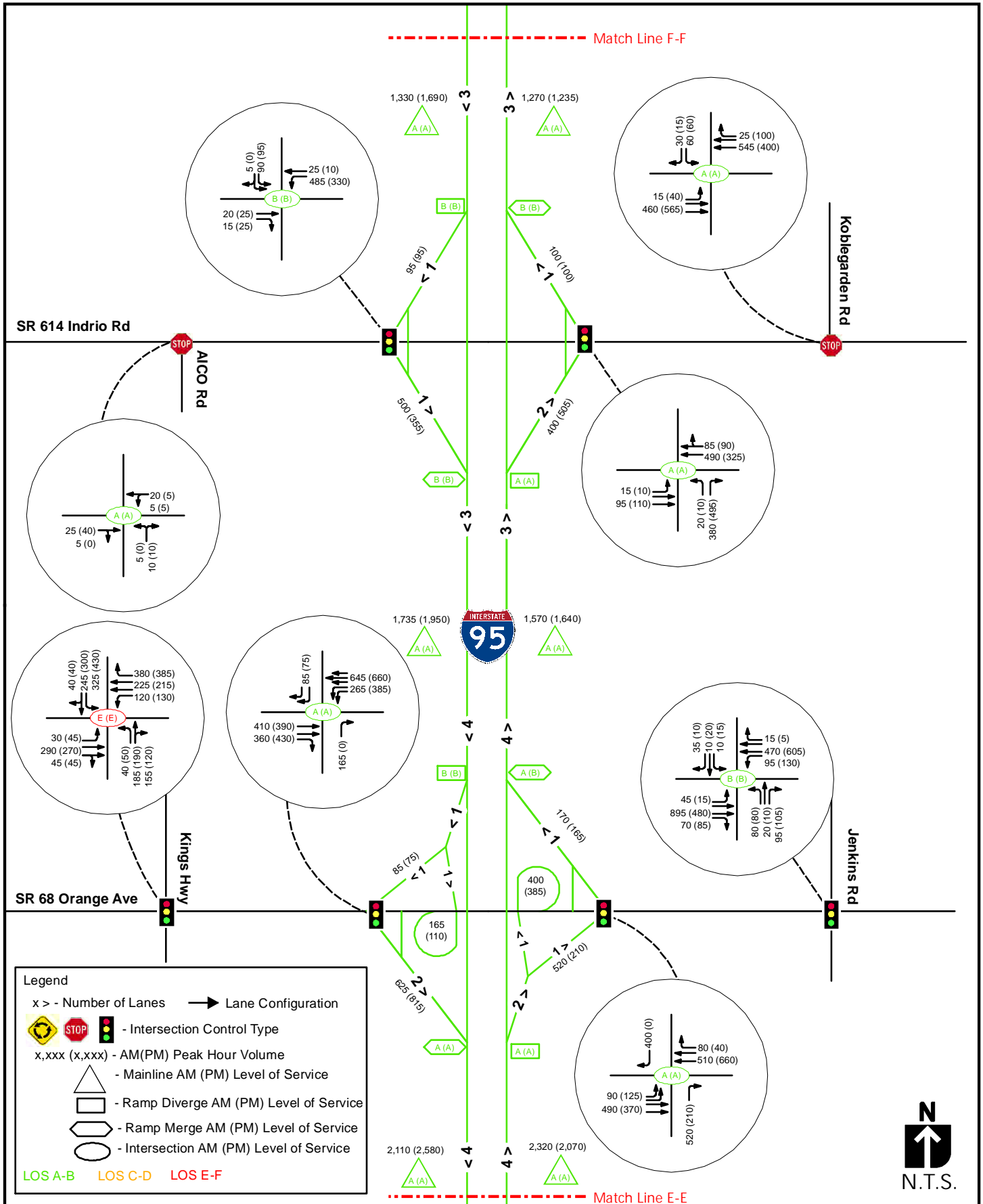
Figure 4-2
 (Page 4 of 8)



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 Existing Conditions
 Summary

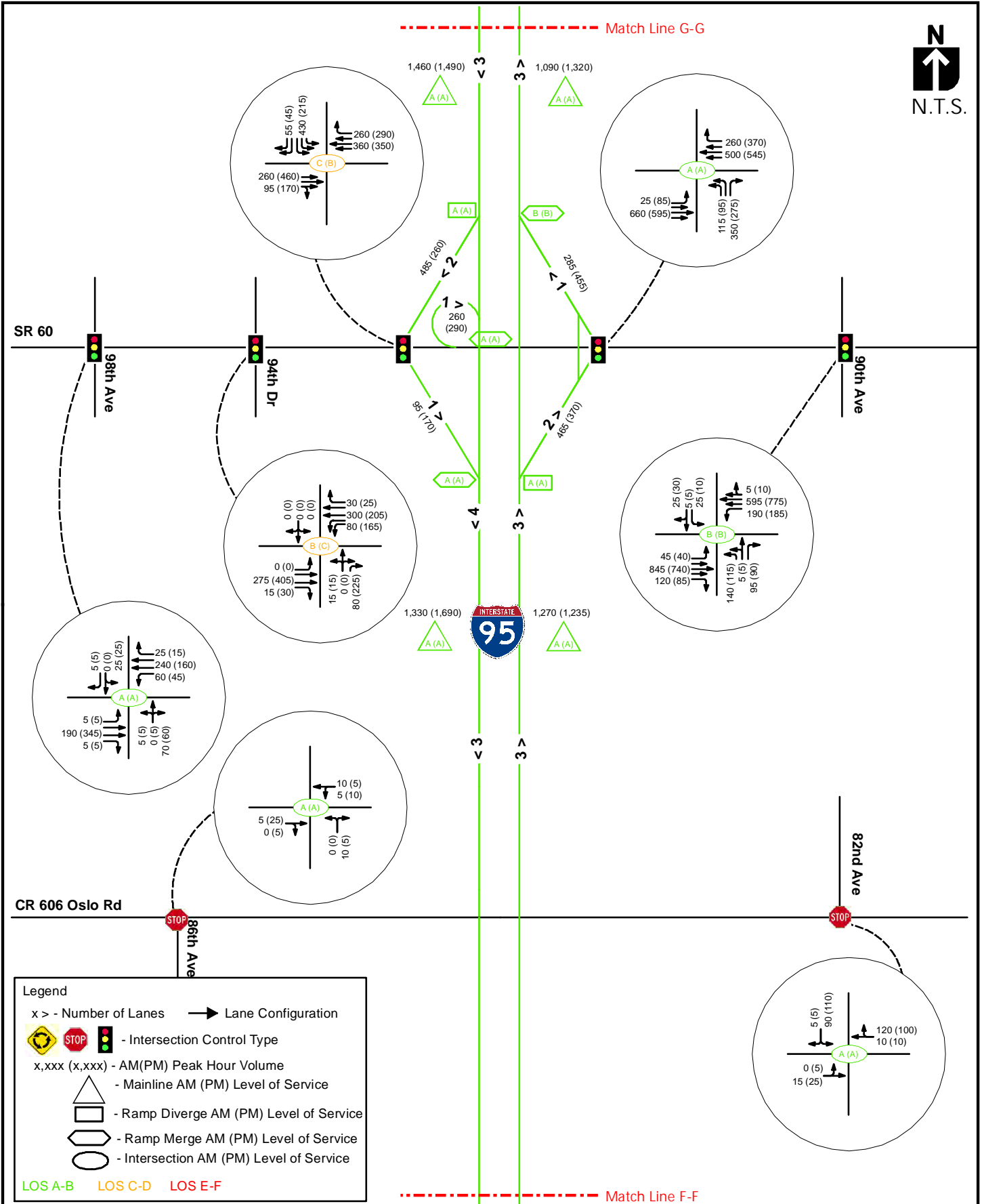
Figure 4-2
 (Page 5 of 8)



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 Existing Conditions
 Summary

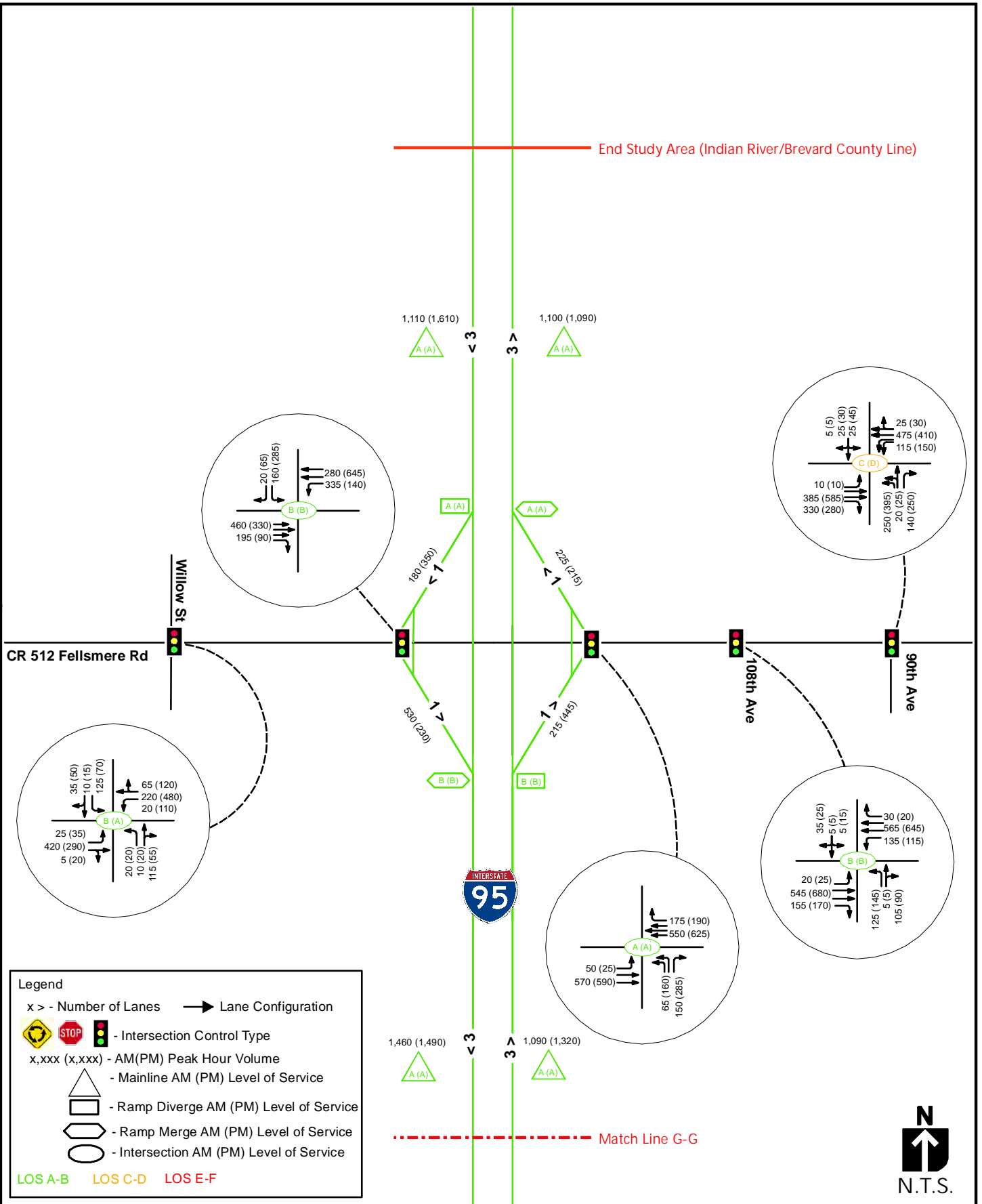
Figure 4-2
 (Page 6 of 8)



Legend

- x > - Number of Lanes → Lane Configuration
- Intersection Control Type
- x,xxx (x,xxx) - AM(PM) Peak Hour Volume
- Mainline AM (PM) Level of Service
- Ramp Diverge AM (PM) Level of Service
- Ramp Merge AM (PM) Level of Service
- Intersection AM (PM) Level of Service

LOS A-B LOS C-D LOS E-F



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 Existing Conditions
 Summary

Figure 4-2
 (Page 8 of 8)



4.3 Existing (2017) Condition Operations Analysis

An analysis of the traffic operational performance of the I-95 cross roads and intersections was performed. Existing conditions were analyzed in order to identify any current operational deficiencies. The conditions recorded in October 2017 represent the existing conditions that were analyzed, including the lane geometry and traffic volumes as shown on Figure 4-2, as well as the existing signal timings and posted speed limits.

4.3.1 I-95 Freeway Operations Analysis

I-95 currently consists of three general use lanes in each direction from south of Bridge Road to north of Fellsmere Road, except for the following short sections where a fourth general use lane exists:

- Northbound auxiliary lane and southbound auxiliary lane between Crosstown Parkway and St. Lucie West Boulevard,
- Northbound between SR 68/Orange Avenue and Indrio Road, and
- Southbound between south of Indrio Road to south of SR 70/Okeechobee Road.

The existing conditions of the I-95 northbound and southbound freeway segments were analyzed using HCS7 software. Peak Hour Factors (PHFs) from the traffic count data were used for existing conditions analysis. The density in passenger cars per mile per lane, speed in miles per hour, and LOS was estimated for each mainline freeway segment as well as merge, diverge, and weaving segments along the I-95 corridor. The HCS7 freeway operational analysis reports are provided in Appendix F.

The existing conditions LOS for northbound I-95 during the AM and PM peak hours is summarized in Table 4-1, while Table 4-2 summarizes the southbound I-95 LOS. The AM and PM peak hour LOS are also reported on Figure 4-2, where I-95 mainline and ramp segments are color coded to depict the existing LOS of the freeway segments.

AM Peak Hour

During the AM peak hour, the southbound traffic volume is higher than the northbound traffic volume from north of Fellsmere Road to SR 68/Orange Avenue, and from Gatlin Boulevard to south of Bridge Road. Northbound volumes are heavier only in the center of the study corridor from Gatlin Boulevard to SR 70/Okeechobee Road. Overall, traffic volumes are highest in the southern sections of the I-95 study corridor.

Currently, southbound I-95 operates at LOS A from north of Fellsmere Road to SR 70/Okeechobee Road, LOS B from SR 70/Okeechobee Road to High Meadows Avenue, and LOS C from High Meadow Avenue to south of Bridge Road. During the AM peak hour, northbound I-95 operates at LOS A or B throughout the study corridor except for between Gatlin Boulevard and St. Lucie West Boulevard where it is LOS C. All northbound and southbound ramp junction points (merge, diverge and weave areas) operate at LOS D or better.

PM Peak Hour

During the PM peak hour, the northbound traffic volume is higher than the southbound traffic volume from south of Bridge Road to Crosstown Parkway. Southbound volumes are heavier from Crosstown Parkway to north of Fellsmere Road. Similar to the AM peak hour, traffic volumes are highest in the southern sections of the I-95 study corridor.

Northbound I-95 operates at LOS C from south of Bridge Road to High Meadows Avenue, LOS B from High Meadows Avenue to SR 70/Okeechobee Road, and LOS A from SR 70/Okeechobee Road to north of Fellsmere Road. During the PM peak hour, southbound I-95 operates at LOS A or B throughout the study corridor. All northbound and southbound ramp junction points (merge, diverge and weave areas) operate at LOS D or better.

The analysis of I-95 freeway segments and ramp junction point operations revealed that no existing capacity or operational issues exist during either the AM or PM peak hours.

Table 4-1: Existing (2017) Conditions I-95 Northbound Freeway LOS

| Northbound I-95 (2017 Existing Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (South of Bridge Rd) | 3 | 2,225 | 11.4 | B | 73.5 | 4,415 | 25.1 | C | 67.4 |
| NB Off at Bridge Rd | 1 | 195 | 17.7 | B | 59 | 410 | 30.4 | D | 58.3 |
| NB On at Bridge Rd | 1 | 100 | 13.9 | B | 64 | 320 | 25.5 | C | 62 |
| I-95 (Bridge Rd to SR 76/Kanner Highway) | 3 | 2,130 | 11.4 | B | 73.5 | 4,325 | 23.7 | C | 68.6 |
| NB Off at SR 76/Kanner Hwy | 1 | 755 | 19.1 | B | 57.2 | 1175 | 31.3 | D | 55.9 |
| NB On at SR 76/Kanner Hwy | 1 | 480 | 12.5 | B | 64.3 | 770 | 23.3 | C | 62.7 |
| I-95 (SR 76/Kanner Highway to High Meadows Avenue) | 3 | 1,855 | 9.4 | A | 73.5 | 3,920 | 19.8 | C | 71.3 |
| NB Off at High Meadows Ave | 1 | 305 | 8.3 | A | 58.7 | 905 | 20.5 | C | 56.9 |
| NB On at High Meadows Ave | 1 | 15 | 6.4 | A | 65.6 | 20 | 14.5 | B | 65 |
| I-95 (High Meadows Avenue to SR 714/Martin Highway) | 3 | 1,565 | 8.0 | A | 73.5 | 3,035 | 15.7 | B | 73.2 |
| NB Off at SR 714/Martin Hwy | 1 | 80 | 13.4 | B | 59.4 | 90 | 22.5 | C | 59.4 |
| NB On at SR 714/Martin Hwy | 1 | 340 | 13 | B | 64.1 | 505 | 21.7 | C | 63 |
| I-95 (SR 714/Martin Highway to Becker Rd) | 3 | 1,825 | 9.6 | A | 73.5 | 3,450 | 17.9 | B | 72.4 |
| NB Off at Becker Rd | 1 | 120 | 12.2 | B | 59.3 | 700 | 22.5 | C | 57.5 |
| NB On at Becker Rd | 1 | 555 | 16.6 | B | 63.6 | 335 | 19.3 | B | 63.3 |
| I-95 (Becker Rd to Gatlin Blvd) | 3 | 2,260 | 12.1 | B | 73.5 | 3,085 | 15.5 | B | 73.2 |
| NB Off at Gatlin Blvd | 1 | 395 | 19.1 | B | 58.3 | 760 | 23.7 | C | 57.3 |
| NB On at Gatlin Blvd | 1 | 1405 | 25.1 | C | 62 | 900 | 21.6 | C | 62.9 |
| I-95 (Gatlin Blvd to Crosstown Parkway) | 3 | 3,270 | 18.2 | C | 72.2 | 3,225 | 16.3 | B | 73.0 |
| NB Off at Crosstown Parkway | 1 | 235 | 25.3 | C | 58.9 | 645 | 24.2 | C | 57.7 |
| NB On at Crosstown Parkway | 1 | 850 | | | | 445 | | | |
| I-95 (Crosstown Parkway to St. Lucie West Blvd) | 4 | 3,885 | 20.8 | C | 55.1 | 3,025 | 14.2 | B | 59.7 |
| NB Off at St. Lucie West Blvd | 1 | 1,115 | | | | 940 | | | |
| NB On at St. Lucie West Blvd | 1 | 465 | 22.3 | C | 62.7 | 460 | 18.2 | B | 63.3 |
| I-95 (St. Lucie West Blvd to Midway Rd) | 3 | 3,235 | 17.8 | B | 72.4 | 2,545 | 13.5 | B | 73.5 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| NB Off at Midway Rd | 1 | 585 | 25.5 | C | 57.7 | 445 | 20.7 | C | 58.2 |
| NB On at Midway Rd | 1 | 435 | 20.1 | C | 63.3 | 250 | 15.2 | B | 63.9 |
| I-95 (Midway Rd to SR 70/Okeechobee Rd) | 3 | 3,085 | 16.4 | B | 73.0 | 2,350 | 12.2 | B | 73.5 |
| NB Off at SR 70 / Okeechobee Rd | 2 | 1220 | 8 | A | 55.6 | 855 | 3 | A | 56.8 |
| NB On (1) at SR 70 / Okeechobee Rd | 1 | 260 | 6.9 | A | 66.1 | 320 | 5.7 | A | 66.2 |
| NB On (2) at SR 70 / Okeechobee Rd | 1 | 195 | 10.1 | B | 64.1 | 255 | 9.7 | A | 64.1 |
| I-95 (SR 70/Okeechobee Rd to SR 68/Orange Avenue) | 4 | 2,320 | 9.2 | A | 73.5 | 2,070 | 8.2 | A | 73.5 |
| NB Off at SR 68/Orange Avenue | 2 | 920 | 3.5 | A | 56.6 | 595 | 0.5 | A | 57.7 |
| NB On at SR 68/Orange Avenue | 1 | 170 | 9.9 | A | 63.8 | 165 | 10.1 | B | 63.8 |
| I-95 (SR 68/Orange Avenue to SR 614/Indrio Rd) | 4 | 1,570 | 6.1 | A | 73.5 | 1,640 | 6.4 | A | 73.5 |
| NB Off at SR 614/Indrio Rd ¹ | 2 | 400 | 6.1 | A | - | 505 | 6.4 | A | - |
| NB On at SR 614/Indrio Rd | 1 | 100 | 11.1 | B | 63.6 | 100 | 10.9 | B | 63.6 |
| I-95 (SR 614/Indrio Rd to SR 60/20th St) | 3 | 1,270 | 6.6 | A | 73.5 | 1,235 | 6.5 | A | 73.5 |
| NB Off at SR 60/20th St | 2 | 465 | 0 | A | 58.1 | 370 | 0 | A | 58.3 |
| NB On at SR 60/20th St | 1 | 285 | 10.7 | B | 63.6 | 455 | 12.8 | B | 63.5 |
| I-95 (SR 60/20th St to CR 512/Fellsmere Rd) | 3 | 1,090 | 5.7 | A | 73.5 | 1,320 | 7.1 | A | 73.5 |
| NB Off at CR 512/Fellsmere Rd | 1 | 215 | 11.1 | B | 59 | 445 | 13.5 | B | 58.2 |
| NB On at CR 512/Fellsmere Rd | 1 | 225 | 7.1 | A | 64.8 | 215 | 7.2 | A | 64.8 |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 1,100 | 5.7 | A | 73.5 | 1,090 | 5.9 | A | 73.5 |

¹ Considered a drop lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge), and green shaded rows are analyzed as a weave segment.

Table 4-2: Existing (2017) Conditions I-95 Southbound Freeway LOS

| Southbound I-95 (2017 Existing Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 1,110 | 5.9 | A | 72.3 | 1,610 | 8.6 | A | 72.3 |
| SB Off at CR 512/Fellsmere Rd | 1 | 180 | 5.8 | A | 59.1 | 350 | 9.6 | A | 58.5 |
| SB On at CR 512/Fellsmere Rd | 1 | 530 | 11.4 | B | 64.2 | 230 | 10.7 | B | 64.2 |
| I-95 (CR 512/Fellsmere Rd to SR 60/20 th St) | 3 | 1,460 | 7.7 | A | 73.5 | 1,490 | 7.9 | A | 73.5 |
| SB Off at SR 60/20 th St | 2 | 485 | 7.1 | A | 58 | 260 | 6.3 | A | 58.8 |
| SB On (1) at SR 60/20 th St ¹ | 1 | 260 | 3.9 | A | - | 290 | 4.9 | A | - |
| SB On (2) at SR 60/20 th St | 1 | 95 | 7.3 | A | 64.4 | 170 | 9 | A | 64.3 |
| I-95 (SR 60/20 th St to SR 614/Indrio Rd) | 3 | 1,330 | 7.0 | A | 73.5 | 1,690 | 8.9 | A | 73.5 |
| SB Off at SR 614/Indrio Rd | 1 | 95 | 12.4 | B | 59.3 | 95 | 14.7 | B | 59.3 |
| SB On at SR 614/Indrio Rd | 1 | 500 | 15.1 | B | 63.7 | 355 | 15.2 | B | 63.7 |
| I-95 (SR 614/Indrio Rd to SR 68/Orange Ave) (South of SR 614/Indrio Rd) ² | 3 | 1,735 | 9.5 | A | 72.3 | 1,950 | 10.4 | A | 72.3 |
| I-95 (SR 614/Indrio Rd to SR 68/Orange Ave) (North of SR 68/Orange Avenue) ² | 4 | 1,735 | 7.1 | A | 72.3 | 1,950 | 7.8 | A | 72.3 |
| SB Off at SR 68/Orange Avenue | 1 | 250 | 11 | B | 58.8 | 185 | 11.4 | B | 59 |
| SB On at SR 68/Orange Avenue | 2 | 625 | 7 | A | 66.1 | 815 | 9.8 | A | 65.8 |
| I-95 (SR 68/Orange Avenue to SR 70 / Okeechobee Rd) | 4 | 2,110 | 8.6 | A | 70.8 | 2,580 | 10.7 | A | 70.8 |
| SB Off at SR 70/Okeechobee Rd | 2 | 465 | 0 | A | 58 | 555 | 2 | A | 57.7 |
| SB On (1) at SR 70/Okeechobee Rd | 1 | 390 | 8.8 | A | 66 | 720 | 13.7 | B | 65.4 |
| SB On (2) at SR 70/Okeechobee Rd | 2 | 130 | 4.4 | A | 66.3 | 160 | 7.6 | A | 66.1 |
| I-95 (SR 70/Okeechobee Rd to Midway Rd) | 3 | 2,165 | 11.4 | B | 70.8 | 2,905 | 16.0 | B | 70.8 |
| SB Off at Midway Rd | 1 | 225 | 17.3 | B | 58.9 | 295 | 22.5 | C | 58.6 |
| SB On at Midway Rd | 1 | 395 | 16.3 | B | 63.6 | 540 | 21.2 | C | 63 |
| I-95 (Midway Rd to St. Lucie West Blvd) | 3 | 2,335 | 12.5 | B | 70.4 | 3,150 | 17.1 | B | 70.3 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| SB Off at St. Lucie West Blvd | 1 | 660 | 19.4 | B | 57.6 | 645 | 24.2 | C | 57.6 |
| SB On (1) at St. Lucie West Blvd | 1 | 645 | 17.5 | B | 63.3 | 915 | 24 | C | 62.3 |
| SB On (2) at St. Lucie West Blvd | 1 | 180 | 10.9 | B | 64.3 | 170 | 16.6 | B | 60.6 |
| I-95 (St. Lucie West Blvd to Crosstown Parkway) | 4 | 2,500 | | | | 3,590 | | | |
| SB Off at Crosstown Parkway | 1 | 455 | | | | 785 | | | |
| SB On at Crosstown Parkway | 1 | 590 | 17 | B | 63.9 | 245 | 18 | B | 63.8 |
| I-95 (Crosstown Parkway to Gatlin Blvd) | 3 | 2,635 | 14.3 | B | 69.9 | 3,050 | 16.4 | B | 69.9 |
| SB Off at Gatlin Blvd | 1 | 780 | 21.5 | C | 57.2 | 1270 | 25 | C | 55.7 |
| SB On at Gatlin Blvd | 1 | 760 | 17.7 | B | 63.7 | 250 | 13 | B | 64.2 |
| I-95 (Gatlin Blvd to Becker Rd) | 3 | 2,615 | 14.0 | B | 71.3 | 2,030 | 10.7 | A | 71.3 |
| SB Off at Becker Rd | 1 | 220 | 20.5 | C | 58.9 | 360 | 17.1 | B | 58.5 |
| SB On at Becker Rd | 1 | 510 | 17.5 | B | 64 | 115 | 10.3 | B | 64.7 |
| I-95 (Becker Rd to SR 714/Martin Highway) | 3 | 2,905 | 15.6 | B | 71.3 | 1,785 | 9.6 | A | 71.3 |
| SB Off at SR 714/Martin Highway | 1 | 395 | 22.7 | C | 58.3 | 350 | 15.7 | B | 58.5 |
| SB On at SR 714/Martin Highway | 1 | 110 | 18.3 | B | 63.2 | 90 | 12.4 | B | 63.6 |
| I-95 (SR 714/Martin Highway to High Meadows Avenue) | 3 | 2,620 | 13.8 | B | 73.5 | 1,525 | 8.0 | A | 73.5 |
| SB Off at High Meadows Avenue | 1 | 25 | 15 | B | 59.6 | 20 | 8 | A | 59.6 |
| SB On at High Meadows Avenue | 1 | 925 | 22 | C | 63 | 365 | 11.6 | B | 64.5 |
| I-95 (High Meadows Avenue to SR 76/Kanner Highway) | 3 | 3,520 | 18.8 | C | 70.1 | 1,870 | 9.9 | A | 70.8 |
| SB Off at SR 76/Kanner Highway | 1 | 860 | 26.6 | C | 56.9 | 505 | 16.3 | B | 58 |
| SB On (1) at SR 76/Kanner Highway | 1 | 1170 | 24.9 | C | 62.1 | 645 | 13.4 | B | 64.4 |
| SB On (2) at SR 76/Kanner Highway | 1 | 210 | 23.4 | C | 62.7 | 90 | 12.5 | B | 64.4 |
| I-95 (SR 76/Kanner Highway to Bridge Rd) | 3 | 4,040 | 22.7 | C | 68.2 | 2,105 | 11.3 | B | 70.8 |
| SB Off at Bridge Rd | 1 | 335 | 28.5 | D | 58.6 | 110 | 16.9 | B | 59.3 |
| SB On at Bridge Rd | 1 | 420 | 25.2 | C | 62.2 | 200 | 13.2 | B | 64.3 |
| I-95 (South of Bridge Rd) | 3 | 4,125 | 23.5 | C | 68.7 | 2,195 | 11.1 | B | 73.5 |

¹ Considered an add lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

² Fourth southbound lane opens up about 550 feet from the end of the SR 614/Indrio Rd SB On Ramp merge lane.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge), and green shaded rows are analyzed as a weave segment.

4.3.2 I-95 Cross Road Intersection Operations Analysis

Synchro 10 software was used to analyze each of the study intersections and study interchanges, and HCM 6th Edition methodology was used to report the performance measures where possible. HCM 6th Edition requires strict adherence to standard dual ring NEMA phasing. Non-compliant phasing sequences cannot be analyzed using HCM 6th Edition methodology. Therefore, HCM 2000 results were reported where Synchro 10 could not provide HCM 6th Edition or HCM 2010 results.

Intersection and interchange existing operational conditions were analyzed based on the existing year AM and PM peak hour traffic volumes and lane geometry shown in Figure 4-2. In addition, existing signal timing information obtained from the local signal maintaining agencies and/or field reviews was utilized. The detailed Synchro operational analysis reports for each study intersection during the AM and PM peak hours are provided in Appendix F.

In addition, fifteen intersection LOS summary tables are included in Appendix F which includes one table for each arterial cross road. The LOS summary tables in Appendix F summarize for each study intersection the AM and PM peak hour performance measures (v/c, LOS, delay, and 95th percentile queue lengths) by movement, approach, and overall intersection.

The overall intersection LOS for each study intersection along each of the fifteen cross road arterials, is summarized in Table 4-3. In the table, intersections operating below the LOS D target (at LOS E or F), are highlighted in red. Existing operational analysis results indicate that almost all study intersections operate at overall LOS D or better.

The following five study intersections operate below the target LOS D:

1. Bridge Road at I-95 Southbound Ramp Terminal in the AM peak hour
2. Gatlin Boulevard at Village Parkway Drive in the PM peak hour
3. St. Lucie West Boulevard at NW Peacock Boulevard in both AM and PM peak hours

4. Midway Road at I-95 Southbound Ramp Terminal in the PM peak hour
5. SR 68/Orange Avenue at Kings Highway in both AM and PM peak hours

The existing conditions peak hour operations at these intersections indicate a need for improvement.

Table 4-3: Existing (2017) Conditions Intersection LOS

| Interchange | Study Intersection | Control Type | 2017 Existing LOS | |
|-----------------------------|--|--------------|-------------------|----------|
| | | | AM | PM |
| 1. Bridge Road | Frontage Rd west of I-95 | Stop Control | A | A |
| | I-95 SB Ramp Terminal | Stop Control | F | A |
| | I-95 NB Ramp Terminal | Stop Control | A | A |
| | 1760 Bridge Access Road | Stop Control | A | A |
| 2. SR 76/Kanner Highway | Jack James Drive (west) | Signal | B | C |
| | I-95 SB Ramp Terminal (Includes W to S Loop) | Signal | C | B |
| | I-95 NB Ramp Terminal | Signal | C | C |
| | SW Lost River Road | Signal | A | A |
| | Cove Road (east) | Signal | C | D |
| 3. High Meadows Avenue | I-95 NB and SB Ramp Terminal (Include N of E ramp) | Stop Control | A | A |
| | Swallowtail Highway | Stop Control | A | A |
| 4. SR 714/Martin Highway | SW Green Farms Lane | Stop Control | A | A |
| | I-95 SB Terminal | Stop Control | A | A |
| | I-95 NB Terminal | Stop Control | A | A |
| | SW Stuart W Boulevard | Stop Control | A | A |
| 5. Becker Road | Village Parkway Drive | Signal | B | B |
| | I-95 SB Terminal | Signal | D | D |
| | I-95 NB Terminal | Signal | B | C |
| | SW Hallmark Street | Signal | C | B |
| 6. Gatlin Boulevard | Village Parkway Drive | Signal | C | E |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | B | B |
| | SW Brescia Street | Signal | B | C |
| | SW Savage Boulevard | Signal | B | B |
| 7. Crosstown Parkway | SW Visconti Way | Signal | B | C |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | B | C |
| | SW California Boulevard | Signal | D | D |
| 8. St. Lucie West Boulevard | Commerce Center Drive | Roundabout | A | A |
| | I-95 SB Terminal | Signal | D | D |
| | I-95 NB Terminal | Signal | C | B |
| | NW Peacock Boulevard | Signal | F | F |

| Interchange | Study Intersection | Control Type | 2017 Existing LOS | |
|-----------------------------------|---|--------------|-------------------|----------|
| | | | AM | PM |
| 9. Midway Road | Gordy Exd | Stop Control | A | A |
| | I-95 SB Terminal | Signal | B | F |
| | I-95 NB Terminal | Signal | A | A |
| | Glades Cut-Off Road | Signal | C | C |
| 10. SR 70/Okeechobee Road | Kings Highway | Signal | D | D |
| | Crossroads Parkway | Signal | B | C |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | C | C |
| 11. SR 68/Orange Avenue | Jenkins Road | Signal | D | D |
| | Kings Highway | Signal | E | E |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | A | A |
| 12. SR 614/Indrio Road | Jenkins Road | Signal | B | B |
| | AICO Road | Stop Control | A | A |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | A | A |
| 13. CR 606/Oslo Road | Spanish Lakes Boulevard / Koblegard Road | Stop Control | A | A |
| | 86 th Avenue / 90 th Avenue | Stop Control | A | A |
| 14. SR 60/20 th Street | 82 nd Avenue | Stop Control | A | A |
| | 98 th Avenue | Signal | A | A |
| | 94 th Drive | Signal | B | C |
| | I-95 SB Terminal | Signal | C | B |
| | I-95 NB Terminal | Signal | A | A |
| 15. CR 512/Fellsmere Road | 90 th Avenue | Signal | B | B |
| | Willow Street | Signal | B | A |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | A | A |
| | 108 th Avenue | Signal | B | B |
| | 90 th Avenue | Signal | C | D |

5.0 CRASH DATA AND SAFETY ANALYSIS

A review was performed of the recent crash history along the I-95 mainline and the 15 interchange influence areas within the study area. This crash history overview also summarized locations that FDOT has determined to be High Crash Locations (HCL) based on statistical analysis. HCLs were then scrutinized further to provide detail regarding the recorded crashes along that segment, such as crash type, surface condition, and lighting condition at the time of the crash.

FDOT's Crash Analysis Reporting System (CARS) was used to gather historical crash records for the study area. CARS is a database maintained annually by FDOT for crashes reported along state highway facilities. The database provides information on various characteristics associated with each crash and was used to prepare the detailed crash review for the HCLs. The CARS database was researched to identify and extract crashes reported within the study area for the most recent period available, which was from January 2011 through December 2015. Findings from the I-95 mainline and interchange cross streets overview crash analysis are summarized in Table 5-1 through Table 5-7, respectively.

5.1 I-95 Mainline Corridor

Crash data was collected along the 71-mile long I-95 mainline corridor north and south of each interchange. This overview assessment was performed as a screening to identify portions of the I-95 mainline that are considered to be High Crash Locations. Summarized in Table 5-1, the crash data reveals that 5 areas of the I-95 mainline are identified as HCLs by FDOT for at least one year between 2011 and 2015. These include:

- I-95 near Bridge Road (62 total crashes and listed on the 2013 HCL),
- I-95 near SR 70/Okeechobee Road (80 total crashes and listed on the 2013 HCL),
- I-95 near SR 614/Indrio Road (41 total crashes and listed on the 2012 and 2014 HCL),
- I-95 near SR 60 (75 total crashes and listed on the 2014 HCL), and
- I-95 near Fellsmere Road (59 total crashes and listed on the 2013, 2014, and 2015 HCL).

The crash data for the five I-95 mainline areas noted on FDOT's High Crash List were reviewed in greater detail. A summary of that review is provided herein.

Table 5-1: Overview of I-95 Mainline Crash History

| Crash Summary Overview 2011-2015 | | | | | | | | | | | | | | | | |
|----------------------------------|---------|------------|--------|--------|-----------------------|------------------|------|------|------|------|---------------|-------|--------|-----|------------|---------|
| Location | Roadway | Roadway ID | MP | | Intersecting Roadway | Crashes per year | | | | | Total Crashes | Fatal | Injury | PDO | Pedestrian | Bicycle |
| | | | From | To | | 2011 | 2012 | 2013 | 2014 | 2015 | | | | | | |
| Martin County | | | | | | | | | | | | | | | | |
| 1 | I-95 | 89095000 | 7.060 | 7.859 | CR 708/SE Bridge Road | 11 | 12 | 17 | 11 | 11 | 62 | 1 | 22 | 39 | 0 | 0 |
| 2 | I-95 | 89095000 | 11.812 | 12.631 | SR 76/SW Kanner Hwy | 5 | 12 | 22 | 23 | 19 | 81 | 0 | 22 | 59 | 0 | 0 |
| 3 | I-95 | 89095000 | 13.488 | 14.098 | SW High Meadow Avenue | 5 | 7 | 12 | 11 | 11 | 46 | 1 | 10 | 35 | 0 | 0 |
| 4 | I-95 | 89095000 | 21.312 | 22.005 | SR 714/SW Martin Hwy | 3 | 5 | 10 | 11 | 11 | 40 | 1 | 13 | 26 | 0 | 0 |
| St. Lucie County | | | | | | | | | | | | | | | | |
| 5 | I-95 | 94001000 | 0.030 | 0.575 | SW Becker Rd | 3 | 1 | 7 | 10 | 11 | 32 | 0 | 12 | 20 | 0 | 0 |
| 6 | I-95 | 94001000 | 3.925 | 4.726 | Gatlin Blvd | 8 | 4 | 10 | 9 | 12 | 43 | 0 | 13 | 30 | 0 | 0 |
| 7 | I-95 | 94001000 | 6.234 | 6.850 | Crosstown Pkwy | 4 | 7 | 11 | 8 | 9 | 39 | 0 | 19 | 20 | 0 | 0 |
| 8 | I-95 | 94001000 | 7.376 | 8.154 | St Lucie W Blvd | 2 | 5 | 11 | 14 | 15 | 47 | 0 | 22 | 25 | 0 | 0 |
| 9 | I-95 | 94001000 | 11.743 | 12.529 | W Midway Road | 9 | 5 | 16 | 9 | 10 | 49 | 0 | 20 | 29 | 0 | 0 |
| 10 | I-95 | 94001000 | 15.019 | 15.840 | SR 70/Okeechobee Road | 8 | 22 | 26 | 13 | 11 | 80 | 0 | 25 | 55 | 0 | 0 |
| 11 | I-95 | 94001000 | 17.286 | 18.080 | SR 68/Orange Avenue | 10 | 9 | 18 | 9 | 13 | 59 | 0 | 13 | 46 | 0 | 0 |
| 12 | I-95 | 94001000 | 23.777 | 24.529 | SR 614/Indrio Road | 8 | 11 | 3 | 9 | 10 | 41 | 0 | 17 | 24 | 0 | 0 |
| Indian River County | | | | | | | | | | | | | | | | |
| 13 | I-95 | 88081000 | 2.310 | 2.410 | CR 606/Oslo Road* | 0 | 1 | 2 | 1 | 0 | 4 | 0 | 3 | 1 | 0 | 0 |
| 14 | I-95 | 88081000 | 5.777 | 6.470 | SR 60/20th St | 13 | 5 | 22 | 26 | 9 | 75 | 2 | 25 | 48 | 0 | 0 |
| 15 | I-95 | 88081000 | 14.975 | 15.473 | CR 512/Fellsmere Road | 12 | 2 | 12 | 12 | 21 | 59 | 1 | 13 | 45 | 0 | 0 |

* The interchange at Oslo Road is under currently design.

Identified on FDOT's High Crash List (HCL)

I-95 Mainline near Bridge Road

Crash data for the I-95 mainline from south of Bridge Road (MP 7.060) to north of Bridge Road (MP 7.859) revealed that a total of 62 reported crashes occurred from January 2011 through December 2015. During the study period, one fatal crash occurred in 2012. A majority of the crashes experienced along the study corridor were fixed object collisions accounting for 19 crashes (30.6%), followed by rear end collisions with 24 crashes (24.2%), and sideswipe with 10 crashes (16.1%). Approximately 60% of the crashes occurred during daylight conditions, and 30% of the crashes occurred during dark conditions. The remaining 10% of the crashes occurred during dusk or dawn. Approximately 63% of the crashes occurred under dry roadway surface conditions, and 37% occurred under wet roadway surface conditions. A summary of the crash data statistics for the I-95 mainline near Bridge Road is included in Table 5-2.

Table 5-2: I-95 Mainline near Bridge Road Crash Summary

| SR 9/I-95 Mainline near Bridge Rd (MP 7.060 to MP 7.859) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|---|--|-------------------|-----------|-----------|-----------|-----------|----------------------------|-----------------------------|--------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 3 | 4 | 6 | 0 | 2 | 15 | 3 | 24.2% |
| | Head On | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Angle | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 3.2% |
| | Left Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Right Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Sideswipe | 0 | 2 | 4 | 1 | 3 | 10 | 2 | 16.1% |
| | Pedestrian | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 3 | 5 | 4 | 4 | 3 | 19 | 4 | 30.6% |
| | Ditch | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.6% |
| | Guardrail Face | 2 | 4 | 2 | 3 | 2 | 13 | 3 | 21.0% |
| | Utility Pole/Light Support | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.6% |
| | Traffic Sign Support | 1 | 0 | 0 | 1 | 1 | 3 | 1 | 4.8% |
| | Fence | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.6% |
| | Other Non Fixed Object Collisions | 2 | 0 | 1 | 1 | 1 | 5 | 1 | 8.1% |
| | Animal | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.6% |
| | Parked Motor Vehicle | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 3.2% |
| | Other Non-Fixed Object | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 3.2% |
| | Non-Collisions | 3 | 0 | 0 | 3 | 1 | 7 | 1 | 11.3% |
| | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 3.2% |
| Other Non-Collision | 3 | 0 | 0 | 2 | 0 | 5 | 1 | 8.1% | |
| Others | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 6.5% | |
| Total Crashes | 11 | 12 | 17 | 11 | 11 | 62 | 12 | 100.0% | |
| SEVERITY | PDO Crashes | 2 | 8 | 10 | 11 | 8 | 39 | 8 | 62.9% |
| | Fatal Crashes | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.6% |
| | Injury Crashes | 9 | 3 | 7 | 0 | 3 | 22 | 4 | 35.5% |
| LIGHTING CONDITIONS | Daylight | 4 | 8 | 10 | 8 | 7 | 37 | 7 | 59.7% |
| | Dusk | 0 | 0 | 1 | 1 | 1 | 3 | 1 | 4.8% |
| | Dawn | 0 | 1 | 2 | 0 | 0 | 3 | 1 | 4.8% |
| | Dark | 7 | 3 | 4 | 2 | 3 | 19 | 4 | 30.6% |
| | Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| SURFACE CONDITIONS | Dry | 9 | 9 | 10 | 5 | 6 | 39 | 8 | 62.9% |
| | Wet | 2 | 3 | 7 | 6 | 5 | 23 | 5 | 37.1% |
| | Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |

I-95 Mainline near SR 70/Okeechobee Road

Crash data for the I-95 mainline from south of SR 70/Okeechobee Road (MP 15.019) to north of SR 70/Okeechobee Road (MP 15.840) revealed that a total of 80 reported crashes occurred from January 2011 through December 2015. During this period, there were no fatal crashes reported. A majority of the crashes experienced along the study segment were fixed object collisions accounting for 29 crashes (36.3%), followed by sideswipe collisions with 11 crashes (13.8%), and rear end with 8 crashes (10.0%). Approximately 65% of the crashes occurred during daylight conditions, and 30% of the crashes occurred during dark conditions. The remaining 5% of the crashes occurred during dusk or dawn. Approximately 57% of the crashes occurred under dry roadway surface conditions, and 43% occurred under wet roadway surface conditions. A summary of the crash data statistics for the I-95 mainline near SR 70/Okeechobee Road is included in Table 5-3.

Table 5-3: I-95 Mainline near SR 70/Okeechobee Road Crash Summary

| SR 9/I-95 Mainline near SR 70/Okeechobee Rd (MP 15.019 to MP 15.840) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|--|--|-------------------|-----------|-----------|-----------|-----------|----------------------------|-----------------------------|--------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 1 | 1 | 2 | 2 | 2 | 8 | 2 | 10.0% |
| | Head On | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Angle | 0 | 4 | 0 | 1 | 1 | 6 | 1 | 7.5% |
| | Left Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Right Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Sideswipe | 2 | 4 | 2 | 2 | 1 | 11 | 2 | 13.8% |
| | Backed Into | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Pedestrian | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 2 | 11 | 13 | 2 | 1 | 29 | 6 | 36.3% |
| | Impact Attenuator/Crash Cushion | 0 | 3 | 2 | 0 | 0 | 5 | 1 | 6.3% |
| | Guardrail Face | 1 | 0 | 1 | 2 | 0 | 4 | 1 | 5.0% |
| | Concrete Traffic Barrier | 0 | 4 | 7 | 0 | 0 | 11 | 2 | 13.8% |
| | Tree (Standing) | 1 | 1 | 1 | 0 | 1 | 4 | 1 | 5.0% |
| | Traffic Sign Support | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.3% |
| | Other Post, Pole Or Support | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 2.5% |
| | Fence | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.3% |
| | Other Fixed Object | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.3% |
| | Other Non Fixed Object Collisions | 0 | 1 | 4 | 2 | 3 | 10 | 2 | 12.5% |
| | Work Zone/Maintenance Equip. | 0 | 0 | 2 | 1 | 0 | 3 | 1 | 3.8% |
| | Other Non-Fixed Object | 0 | 1 | 2 | 1 | 1 | 5 | 1 | 6.3% |
| | Non-Collisions | 2 | 0 | 4 | 2 | 2 | 10 | 2 | 12.5% |
| | Overturn/Rollover | 2 | 0 | 2 | 1 | 1 | 6 | 1 | 7.5% |
| Thrown or Falling Object | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.3% | |
| Other Non-Collision | 0 | 0 | 2 | 1 | 0 | 3 | 1 | 3.8% | |
| Others | 1 | 1 | 1 | 2 | 1 | 6 | 1 | 7.5% | |
| Total Crashes | 8 | 22 | 26 | 13 | 11 | 80 | 16 | 100.0% | |
| SEVERITY | PDO Crashes | 5 | 12 | 19 | 10 | 9 | 55 | 11 | 68.8% |
| | Fatal Crashes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Injury Crashes | 3 | 10 | 7 | 3 | 2 | 25 | 5 | 31.3% |
| LIGHTING CONDITIONS | Daylight | 4 | 16 | 18 | 8 | 6 | 52 | 10 | 65.0% |
| | Dusk | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2.5% |
| | Dawn | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 2.5% |
| | Dark | 3 | 6 | 7 | 4 | 4 | 24 | 5 | 30.0% |
| | Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| SURFACE CONDITIONS | Dry | 5 | 13 | 9 | 8 | 11 | 46 | 9 | 57.5% |
| | Wet | 3 | 9 | 17 | 5 | 0 | 34 | 7 | 42.5% |
| | Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |

I-95 Mainline near SR 614/Indrio Road

Crash data for the I-95 mainline from south of SR 614/Indrio Road (MP 23.777) to north of SR 614/Indrio Road (MP 24.524) revealed that a total of 41 reported crashes occurred from January 2011 through December 2015. During the study period, no fatal crashes were reported. A majority of the crashes experienced along the study corridor were fixed object collisions accounting for 13 crashes (31.7%), followed by sideswipe collisions with 7 crashes (17.1%), and rear end with 6 crashes (14.6%). Approximately 56% of the crashes occurred during daylight conditions, and 32% of the crashes occurred during dark conditions. The remaining 12% of the crashes occurred during dusk or dawn. Approximately 68% of the crashes occurred under dry roadway surface conditions, and 32% occurred under wet roadway surface conditions. A summary of the crash data statistics for the I-95 mainline near SR 614/Indrio Road is included in Table 5-4.

Table 5-4: I-95 Mainline near SR 614/Indrio Road Crash Summary

| SR 9/I-95 Mainline near SR 614/Indrio Rd (MP 23.777 to MP 24.524) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|--|--|-------------------|----------|----------|-----------|-----------|----------------------------|-----------------------------|--------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 1 | 2 | 0 | 2 | 1 | 6 | 1 | 14.6% |
| | Head On | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.4% |
| | Left Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Right Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Sideswipe | 1 | 1 | 2 | 2 | 1 | 7 | 1 | 17.1% |
| | Backed Into | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Pedestrian | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 2 | 5 | 1 | 2 | 3 | 13 | 3 | 31.7% |
| | Impact Attenuator/Crash Cushion | 0 | 3 | 0 | 0 | 0 | 3 | 1 | 7.3% |
| | Guardrail Face | 1 | 0 | 1 | 2 | 2 | 6 | 1 | 14.6% |
| | Concrete Traffic Barrier | 0 | 2 | 0 | 0 | 1 | 3 | 1 | 7.3% |
| | Utility Pole/Light Support | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 2.4% |
| | Other Non Fixed Object Collisions | 1 | 1 | 0 | 1 | 0 | 3 | 1 | 7.3% |
| | Animal | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 2.4% |
| | Parked Motor Vehicle | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2.4% |
| | Other Non-Fixed Object | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2.4% |
| | Non-Collisions | 3 | 2 | 0 | 0 | 3 | 8 | 2 | 19.5% |
| | Overturn/Rollover | 2 | 1 | 0 | 0 | 0 | 3 | 1 | 7.3% |
| Other Non-Collision | 1 | 1 | 0 | 0 | 3 | 5 | 1 | 12.2% | |
| Others | 0 | 0 | 0 | 2 | 1 | 3 | 1 | 7.3% | |
| Total Crashes | 8 | 11 | 3 | 9 | 10 | 41 | 8 | 100.0% | |
| SEVERITY | PDO Crashes | 1 | 7 | 1 | 7 | 8 | 24 | 5 | 58.5% |
| | Fatal Crashes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Injury Crashes | 7 | 4 | 2 | 2 | 2 | 17 | 3 | 41.5% |
| LIGHTING CONDITIONS | Daylight | 5 | 6 | 3 | 3 | 6 | 23 | 5 | 56.1% |
| | Dusk | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2.4% |
| | Dawn | 0 | 2 | 0 | 2 | 0 | 4 | 1 | 9.8% |
| | Dark | 3 | 2 | 0 | 4 | 4 | 13 | 3 | 31.7% |
| | Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| SURFACE CONDITIONS | Dry | 7 | 10 | 2 | 6 | 3 | 28 | 6 | 68.3% |
| | Wet | 1 | 1 | 1 | 3 | 7 | 13 | 3 | 31.7% |
| | Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |

I-95 Mainline near SR 60

Crash data for the I-95 mainline from south of SR 60 (MP 5.777) to north of SR 60 (MP 6.470) revealed that a total of 75 reported crashes occurred from January 2011 through December 2015. During the study period, two fatal crashes occurred in 2011. A majority of the crashes experienced along the study corridor were fixed object collisions accounting for 37 crashes (49.3%), followed by rear end collisions with 14 crashes (18.7%), and sideswipe with 8 crashes (10.7%). Approximately 71% of the crashes occurred during daylight conditions, and 21% of the crashes occurred during dark conditions. The remaining 8% of the crashes occurred during dusk or dawn. Approximately 48% of the crashes occurred under dry roadway surface conditions, and 51% occurred under wet roadway surface conditions. A summary of the crash data statistics for the I-95 mainline near SR 60 is included in Table 5-5.

Table 5-5: I-95 Mainline near SR 60 Crash Summary

| SR 9/I-95 Mainline near SR 60 (MP 5.777 to MP 6.470) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|---|--|-------------------|-----------|-----------|-----------|-----------|----------------------------|-----------------------------|--------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 5 | 2 | 2 | 2 | 3 | 14 | 3 | 18.7% |
| | Head On | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Angle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Left Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Right Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Sideswipe | 2 | 0 | 6 | 0 | 0 | 8 | 2 | 10.7% |
| | Backed Into | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Pedestrian | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 4 | 2 | 10 | 19 | 2 | 37 | 7 | 49.3% |
| | Impact Attenuator/Crash Cushion | 0 | 1 | 1 | 1 | 0 | 3 | 1 | 4.0% |
| | Embankment | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.3% |
| | Guardrail Face | 2 | 0 | 1 | 1 | 0 | 4 | 1 | 5.3% |
| | Guardrail End | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.3% |
| | Concrete Traffic Barrier | 0 | 0 | 6 | 14 | 1 | 21 | 4 | 28.0% |
| | Other Traffic Barrier | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.3% |
| | Tree (Standing) | 1 | 1 | 1 | 0 | 0 | 3 | 1 | 4.0% |
| | Traffic Sign Support | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.3% |
| | Other Fixed Object | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2.7% |
| | Other Non Fixed Object Collisions | 0 | 1 | 1 | 1 | 1 | 4 | 1 | 5.3% |
| | Parked Motor Vehicle | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.3% |
| | Struck by Falling/Shifting Cargo | 0 | 1 | 1 | 1 | 0 | 3 | 1 | 4.0% |
| | Other Non-Fixed Object | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Non-Collisions | 2 | 0 | 3 | 2 | 3 | 10 | 2 | 13.3% |
| | Overturn/Rollover | 2 | 0 | 0 | 0 | 1 | 3 | 1 | 4.0% |
| | Jackknife | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.3% |
| | Cargo/Equipment Loss or Shift | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.3% |
| Other Non-Collision | 0 | 0 | 1 | 2 | 2 | 5 | 1 | 6.7% | |
| Others | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2.7% | |
| Total Crashes | 13 | 5 | 22 | 26 | 9 | 75 | 15 | 100.0% | |
| SEVERITY | PDO Crashes | 7 | 3 | 16 | 17 | 5 | 48 | 10 | 64.0% |
| | Fatal Crashes | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 2.7% |
| | Injury Crashes | 4 | 2 | 6 | 9 | 4 | 25 | 5 | 33.3% |
| LIGHTING CONDITIONS | Daylight | 10 | 5 | 17 | 16 | 5 | 53 | 11 | 70.7% |
| | Dusk | 1 | 0 | 0 | 3 | 0 | 4 | 1 | 5.3% |
| | Dawn | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 2.7% |
| | Dark | 2 | 0 | 5 | 6 | 3 | 16 | 3 | 21.3% |
| | Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| SURFACE CONDITIONS | Dry | 7 | 4 | 13 | 6 | 6 | 36 | 7 | 48.0% |
| | Wet | 6 | 1 | 8 | 20 | 3 | 38 | 8 | 50.7% |
| | Others | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.3% |

I-95 Mainline near Fellsmere Road

Crash data for the I-95 mainline from south of Fellsmere Road (MP 14.975) to north of Fellsmere Road (MP 15.473) revealed that a total of 59 reported crashes occurred from January 2011 through December 2015. During this period, one fatal crash occurred in 2013. A majority of the crashes experienced along the study corridor were fixed object collisions accounting for 19 crashes (32.2%), followed by rear end collisions with 12 crashes (20.3%), and sideswipe with 7 crashes (11.9%). Approximately 64% of the crashes occurred during daylight conditions, and 22% of the crashes occurred during dark conditions. The remaining 14% of the crashes occurred during dusk or dawn. Approximately 59% of the crashes occurred under dry roadway surface conditions, and 41% occurred under wet roadway surface conditions. A summary of the crash data statistics for the I-95 mainline near Fellsmere Road is included in Table 5-6.

Table 5-6: I-95 Mainline near Fellsmere Road Crash Summary

| SR 9/I-95 Mainline near Fellsmere Rd (MP 14.975 to MP 15.473) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|--|--|-------------------|-----------|-----------|-----------|-----------|----------------------------|-----------------------------|--------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 0 | 0 | 5 | 1 | 6 | 12 | 2 | 20.3% |
| | Head On | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Angle | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.7% |
| | Left Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Right Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Sideswipe | 1 | 1 | 2 | 2 | 1 | 7 | 1 | 11.9% |
| | Backed Into | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Pedestrian | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 4 | 0 | 5 | 4 | 6 | 19 | 4 | 32.2% |
| | Impact Attenuator/Crash Cushion | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 3.4% |
| | Bridge Rail | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.7% |
| | Guardrail Face | 2 | 0 | 5 | 1 | 1 | 9 | 2 | 15.3% |
| | Concrete Traffic Barrier | 1 | 0 | 0 | 1 | 3 | 5 | 1 | 8.5% |
| | Tree (Standing) | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.7% |
| | Traffic Sign Support | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.7% |
| | Other Non Fixed Object Collisions | 0 | 0 | 0 | 3 | 2 | 5 | 1 | 8.5% |
| | Parked Motor Vehicle | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 3.4% |
| | Other Non-Fixed Object | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 5.1% |
| | Non-Collisions | 6 | 1 | 0 | 1 | 5 | 13 | 3 | 22.0% |
| Overturn/Rollover | 5 | 1 | 0 | 0 | 3 | 9 | 2 | 15.3% | |
| Jackknife | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.7% | |
| Other Non-Collision | 1 | 0 | 0 | 0 | 2 | 3 | 1 | 5.1% | |
| Others | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 3.4% | |
| Total Crashes | 12 | 2 | 12 | 12 | 21 | 59 | 12 | 100.0% | |
| SEVERITY | PDO Crashes | 11 | 2 | 8 | 9 | 15 | 45 | 9 | 76.3% |
| | Fatal Crashes | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.7% |
| | Injury Crashes | 1 | 0 | 3 | 3 | 6 | 13 | 3 | 22.0% |
| LIGHTING CONDITIONS | Daylight | 7 | 1 | 10 | 7 | 13 | 38 | 8 | 64.4% |
| | Dusk | 2 | 1 | 0 | 3 | 1 | 7 | 1 | 11.9% |
| | Dawn | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.7% |
| | Dark | 3 | 0 | 2 | 2 | 6 | 13 | 3 | 22.0% |
| | Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| SURFACE CONDITIONS | Dry | 4 | 2 | 5 | 9 | 15 | 35 | 7 | 59.3% |
| | Wet | 8 | 0 | 7 | 3 | 6 | 24 | 5 | 40.7% |
| | Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |



5.2 I-95 Interchange Cross Streets

Crash data was collected along each of the 15 cross streets that have interchanges with I-95 within the study area. This overview assessment was performed as a screening to identify portions of the interchange cross streets that are considered to be High Crash Locations. Summarized in Table 5-7, the crash data reveals that 4 interchange cross streets are identified as HCLs by FDOT for at least one year between 2011 and 2015. These include SR 76/Kanner Highway (193 total crashes and listed on the 2011, 2012, 2013, 2014, and 2015 HCL); SR 70/Okeechobee Road (228 total crashes and listed on the 2013 and 2015 HCL); SR 68/Orange Avenue (90 total crashes and listed on the 2011, 2012, and 2015 HCL); and SR 60 (82 total crashes and listed on the 2014 HCL).

The crash data for the four interchange cross streets noted on FDOT’s High Crash List were reviewed in greater detail. A summary of that review is provided herein.

Table 5-7: Overview of I-95 Interchange Cross Streets Crash History

| Crash Summary Overview 2011-2015 | | | | | | | | | | | | | | | | | |
|----------------------------------|-----------------------|------------|-----------|--------|--------------------------------------|--------------------------------------|------------------|------|------|------|------|---------------|-------|--------|-----|------------|---------|
| Location | Roadway | Roadway ID | Milepoint | | Intersecting Roadway | | Crashes per year | | | | | Total Crashes | Fatal | Injury | PDO | Pedestrian | Bicycle |
| | | | From | To | From | To | 2011 | 2012 | 2013 | 2014 | 2015 | | | | | | |
| Martin County | | | | | | | | | | | | | | | | | |
| 1 | CR 708/SE Bridge Road | - | - | - | 1498 Bridge Rd Access (west of I-95) | 1760 Bridge Rd Access (east of I-95) | 2 | 6 | 3 | 4 | 9 | 24 | 1 | 6 | 17 | 0 | 0 |
| 2 | SR 76/SW Kanner Hwy | 89060000 | 25.180 | 26.131 | Jack James Dr | Cove Rd | 23 | 33 | 46 | 44 | 47 | 193 | 0 | 95 | 98 | 0 | 0 |
| 3 | SW High Meadow Avenue | - | - | - | SW Swallowtail Way | Ramp Termini | 1 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 |
| 4 | SR 714/SW Martin Hwy | 89090000 | 5.238 | 6.083 | SW Green Farms Ln | SW Stuart Blvd | 1 | 0 | 2 | 6 | 3 | 12 | 0 | 6 | 6 | 0 | 0 |
| St. Lucie County | | | | | | | | | | | | | | | | | |
| 5 | SW Becker Rd | - | - | - | SW Village Pkwy | SW Hallmark St | 5 | 2 | 4 | 11 | 12 | 34 | 0 | 12 | 22 | 0 | 0 |
| 6 | Gatlin Blvd | - | - | - | SW Village Pkwy | SW Savage Blvd | 14 | 16 | 23 | 45 | 52 | 150 | 1 | 34 | 115 | 0 | 2 |
| 7 | Crosstown Pkwy | - | - | - | SW Visconti Way | SW California Blvd | 6 | 11 | 10 | 26 | 25 | 78 | 1 | 24 | 53 | 1 | 0 |
| 8 | St Lucie West Blvd | - | - | - | Commerce Center Dr | Peacock Blvd | 14 | 27 | 32 | 70 | 109 | 252 | 0 | 53 | 199 | 0 | 2 |
| 9 | W Midway Road | - | - | - | Gordy Exd | Glades Cut-Off Rd | 14 | 27 | 42 | 70 | 99 | 252 | 0 | 58 | 194 | 1 | 2 |
| 10 | SR 70/Okeechobee Road | 94030000 | 20.455 | 21.618 | Kings Hwy | Jenkins Rd | 30 | 26 | 47 | 54 | 71 | 228 | 0 | 76 | 152 | 1 | 0 |
| 11 | SR 68/Orange Avenue | 94070000 | 17.149 | 18.229 | Kings Hwy | Jenkins Rd | 14 | 20 | 18 | 18 | 20 | 90 | 0 | 38 | 52 | 1 | 0 |
| 12 | SR 614/Indrio Road | 94004000 | 23.777 | 24.529 | AICO Rd | Spanish Lakes Blvd | 3 | 2 | 4 | 3 | 3 | 15 | 1 | 6 | 8 | 0 | 0 |
| Indian River County | | | | | | | | | | | | | | | | | |
| 13 | CR 606/Oslo Road | - | - | - | 86th Ave | 82nd Ave | 0 | 3 | 2 | 1 | 0 | 6 | 0 | 2 | 4 | 0 | 0 |
| 14 | SR 60/20 St | 88060000 | 22.062 | 23.210 | 98th Ave | 90th Ave | 12 | 7 | 19 | 23 | 21 | 82 | 0 | 38 | 44 | 0 | 0 |
| 15 | CR 512/Fellsmere Road | - | - | - | Willow St | 90th Ave | 8 | 8 | 26 | 53 | 52 | 147 | 0 | 44 | 41 | 2 | 1 |

Identified on FDOT's High Crash List (HCL)
Data Source: CARS for State Roads, and Signal Four Analytics for off-system roads

SR 76/Kanner Highway from Jack James Drive to Cove Road

Crash data for SR 76/Kanner Highway near its I-95 interchange (MP 25.180 to MP 26.131) revealed that a total of 193 reported crashes occurred from January 2011 through December 2015. During this period, there were no fatal crashes reported. A majority of the crashes experienced along the corridor were rear end collisions accounting for 115 crashes (59.9%), followed by angle collisions with 18 crashes (9.4%), and left turn with 15 crashes (7.8%). Approximately 72% of the crashes occurred during daylight conditions, and 23% of the crashes occurred during dark conditions. The remaining 5% of the crashes occurred during dusk or dawn. Approximately 81% of the crashes occurred under dry roadway surface conditions, and 19% occurred under wet roadway surface conditions. A summary of the crash data statistics for SR 76/Kanner Highway near I-95 is included in Table 5-8.

Table 5-8: SR 76/Kanner Highway near I-95 Crash Summary

| SR 76/Kanner Highway from Jack James Dr to Cove Rd (MP 25.180 to MP 26.131) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|---|--|-------------------|-----------|-----------|-----------|------------|----------------------------|-----------------------------|-------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 7 | 14 | 26 | 32 | 36 | 115 | 23 | 59.9% |
| | Head On | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0.5% |
| | Angle | 0 | 7 | 5 | 2 | 4 | 18 | 4 | 9.4% |
| | Left Turn | 4 | 3 | 4 | 0 | 4 | 15 | 3 | 7.8% |
| | Right Turn | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0.5% |
| | Sideswipe | 2 | 2 | 3 | 2 | 2 | 11 | 2 | 5.7% |
| | Backed Into | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Pedestrian | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 1.0% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 2 | 2 | 1 | 4 | 1 | 10 | 2 | 5.2% |
| | Curb | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0.5% |
| | Ditch | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0.5% |
| | Tree (Standing) | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1.0% |
| | Utility Pole/Light Support | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0.5% |
| | Traffic Sign Support | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0.5% |
| | Other Post, Pole Or Support | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 1.0% |
| | Mailbox | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0.5% |
| | Other Fixed Object | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0.5% |
| | Other Non Fixed Object Collisions | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1.0% |
| | Animal | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0.5% |
| | Parked Motor Vehicle | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0.5% |
| | Non-Collisions | 1 | 2 | 3 | 1 | 0 | 7 | 1 | 3.6% |
| | Overturn/Rollover | 1 | 1 | 3 | 0 | 0 | 5 | 1 | 2.6% |
| Fell/Jumped from Motor Vehicle | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0.5% | |
| Other Non-Collision | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0.5% | |
| Others | 5 | 1 | 3 | 1 | 0 | 10 | 2 | 5.2% | |
| Total Crashes | 23 | 33 | 45 | 44 | 47 | 192 | 38 | 100.0% | |
| SEVERITY | PDO Crashes | 14 | 16 | 23 | 21 | 24 | 98 | 20 | 51.0% |
| | Fatal Crashes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Injury Crashes | 9 | 17 | 22 | 23 | 23 | 94 | 19 | 49.0% |
| LIGHTING CONDITIONS | Daylight | 14 | 25 | 33 | 30 | 36 | 138 | 28 | 71.9% |
| | Dusk | 1 | 0 | 0 | 3 | 1 | 5 | 1 | 2.6% |
| | Dawn | 0 | 0 | 0 | 1 | 2 | 3 | 1 | 1.6% |
| | Dark | 6 | 8 | 12 | 10 | 8 | 44 | 9 | 22.9% |
| | Unknown | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1.0% |
| SURFACE CONDITIONS | Dry | 18 | 29 | 34 | 39 | 34 | 154 | 31 | 80.2% |
| | Wet | 5 | 4 | 10 | 5 | 13 | 37 | 7 | 19.3% |
| | Others | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0.5% |

SR 70/Okeechobee Road from Kings Highway to Jenkins Road

Crash data for SR 70/Okeechobee Road near its I-95 interchange (MP 20.455 to MP 21.618) revealed that a total of 227 reported crashes occurred from January 2011 through December 2015. During this period, there were no fatal crashes reported. A majority of the crashes experienced along the corridor were rear end collisions accounting for 105 crashes (46.3%), followed by sideswipe collisions with 34 crashes (15.0%), and angle with 24 crashes (10.6%). Approximately 79% of the crashes occurred during daylight conditions, and 19% of the crashes occurred during dark conditions. The remaining 2% of the crashes occurred during dusk or dawn. Approximately 85% of the crashes occurred under dry roadway surface conditions, and 15% occurred under wet roadway surface conditions. A summary of the crash data statistics for SR 70/Okeechobee Road near I-95 is included in Table 5-9.

Table 5-9: SR 70/Okeechobee Road near I-95 Crash Summary

| SR 70/Okeechobee Road from Kings Hwy to Jenkins Rd (MP 20.455 to MP 21.618) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|---|--|-------------------|-----------|-----------|-----------|------------|----------------------------|-----------------------------|-------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 14 | 12 | 18 | 28 | 33 | 105 | 21 | 46.3% |
| | Head On | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0.4% |
| | Angle | 2 | 3 | 6 | 5 | 8 | 24 | 5 | 10.6% |
| | Left Turn | 0 | 1 | 3 | 4 | 5 | 13 | 3 | 5.7% |
| | Right Turn | 0 | 1 | 1 | 1 | 2 | 5 | 1 | 2.2% |
| | Sideswipe | 5 | 5 | 2 | 8 | 14 | 34 | 7 | 15.0% |
| | Backed Into | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0.4% |
| | Pedestrian | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0.4% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 0 | 0 | 4 | 0 | 3 | 7 | 1 | 3.1% |
| | Impact Attenuator/Crash Cushion | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0.4% |
| | Curb | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0.4% |
| | Guardrail Face | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0.4% |
| | Tree (Standing) | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0.4% |
| | Traffic Signal Support | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0.9% |
| | Fence | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0.4% |
| | Other Non Fixed Object Collisions | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0.9% |
| | Animal | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0.4% |
| | Parked Motor Vehicle | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0.4% |
| | Non-Collisions | 3 | 2 | 4 | 3 | 3 | 15 | 3 | 6.6% |
| | Overturn/Rollover | 2 | 2 | 3 | 1 | 2 | 10 | 2 | 4.4% |
| | Jackknife | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0.4% |
| Other Non-Collision | 1 | 0 | 0 | 2 | 1 | 4 | 1 | 1.8% | |
| Others | 4 | 2 | 7 | 4 | 2 | 19 | 4 | 8.4% | |
| Total Crashes | 30 | 26 | 46 | 54 | 71 | 227 | 45 | 100.0% | |
| SEVERITY | PDO Crashes | 13 | 15 | 33 | 42 | 48 | 151 | 30 | 66.5% |
| | Fatal Crashes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Injury Crashes | 17 | 11 | 13 | 12 | 23 | 76 | 15 | 33.5% |
| LIGHTING CONDITIONS | Daylight | 22 | 22 | 33 | 49 | 53 | 179 | 36 | 78.9% |
| | Dusk | 1 | 1 | 1 | 1 | 0 | 4 | 1 | 1.8% |
| | Dawn | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0.4% |
| | Dark | 7 | 3 | 12 | 4 | 17 | 43 | 9 | 18.9% |
| | Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| SURFACE CONDITIONS | Dry | 25 | 25 | 36 | 48 | 60 | 194 | 39 | 85.5% |
| | Wet | 5 | 1 | 10 | 6 | 11 | 33 | 7 | 14.5% |
| | Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |

SR 68/Orange Avenue from Kings Highway to Jenkins Road

Crash data for SR 68/Orange Avenue near its I-95 interchange (MP 17.149 to MP 18.229) revealed that a total of 90 reported crashes occurred from January 2011 through December 2015. During this period, there were no fatal crashes reported. A majority of the crashes experienced along the corridor were rear end collisions accounting for 30 crashes (33.3%), followed by angle collisions with 16 crashes (17.8%), and left turn with 13 crashes (14.4%). Approximately 68% of the crashes occurred during daylight conditions, and 25% of the crashes occurred during dark conditions. The remaining 7% of the crashes occurred during dusk or dawn. Approximately 87% of the crashes occurred under dry roadway surface conditions, and 11% occurred under wet roadway surface conditions. A summary of the crash data statistics for SR 68/Orange Avenue near I-95 is included in Table 5-10.

Table 5-10: SR 68/Orange Avenue near I-95 Crash Summary

| SR 68/Orange Avenue from Kings Hwy to Jenkins Rd (MP 17.149 to MP 18.229) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|---|--|-------------------|-----------|-----------|-----------|-----------|----------------------------|-----------------------------|-------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 2 | 3 | 5 | 9 | 11 | 30 | 6 | 33.3% |
| | Head On | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Angle | 4 | 4 | 4 | 0 | 4 | 16 | 3 | 17.8% |
| | Left Turn | 3 | 5 | 1 | 3 | 1 | 13 | 3 | 14.4% |
| | Right Turn | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.1% |
| | Sideswipe | 1 | 2 | 1 | 2 | 2 | 8 | 2 | 8.9% |
| | Backed Into | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Pedestrian | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.1% |
| | Bicycle | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.1% |
| | Fixed Object | 0 | 1 | 2 | 3 | 0 | 6 | 1 | 6.7% |
| | Curb | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.1% |
| | Tree (Standing) | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.1% |
| | Traffic Sign Support | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2.2% |
| | Other Post, Pole Or Support | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.1% |
| | Other Fixed Object | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.1% |
| | Other Non Fixed Object Collisions | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.1% |
| | Animal | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.1% |
| | Non-Collisions | 2 | 3 | 1 | 0 | 2 | 8 | 2 | 8.9% |
| | Overturn/Rollover | 1 | 2 | 1 | 0 | 0 | 4 | 1 | 4.4% |
| | Cargo/Equipment Loss or Shift | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2.2% |
| Thrown or Falling Object | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.1% | |
| Other Non-Collision | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.1% | |
| Others | 1 | 1 | 3 | 0 | 0 | 5 | 1 | 5.6% | |
| Total Crashes | 14 | 20 | 18 | 18 | 20 | 90 | 18 | 100.0% | |
| SEVERITY | PDO Crashes | 3 | 13 | 11 | 12 | 13 | 52 | 10 | 57.8% |
| | Fatal Crashes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Injury Crashes | 11 | 7 | 7 | 6 | 7 | 38 | 8 | 42.2% |
| LIGHTING CONDITIONS | Daylight | 10 | 11 | 13 | 11 | 16 | 61 | 12 | 67.8% |
| | Dusk | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1.1% |
| | Dawn | 1 | 1 | 0 | 3 | 0 | 5 | 1 | 5.6% |
| | Dark | 3 | 7 | 5 | 4 | 4 | 23 | 5 | 25.6% |
| | Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| SURFACE CONDITIONS | Dry | 11 | 16 | 15 | 18 | 18 | 78 | 16 | 86.7% |
| | Wet | 3 | 3 | 2 | 0 | 2 | 10 | 2 | 11.1% |
| | Others | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 2.2% |

SR 60 from 98th Avenue to 90th Avenue

Crash data for SR 60 near its I-95 interchange (MP 22.062 to MP 23.210) revealed that a total of 82 reported crashes occurred from January 2011 through December 2015. During this period, there were no fatal crashes reported. A majority of the crashes experienced along the corridor were rear end collisions accounting for 30 crashes (36.6%), followed by angle collisions with 21 crashes (25.6%), and left turn with 11 crashes (13.4%). Approximately 68% of the crashes occurred during daylight conditions, and 27% of the crashes occurred during dark conditions. The remaining 5% of the crashes occurred during dawn or unknown conditions. Approximately 81% of the crashes occurred under dry roadway surface conditions, and 17% occurred under wet roadway surface conditions. A summary of the crash data statistics for SR 60 near I-95 is included in Table 5-11.

Table 5-11: SR 60 near I-95 Crash Summary

| SR 60/20 Street from 98th Ave to 90th Ave (MP 22.062 to MP 23.210) | | Number of Crashes | | | | | 5 Year Total Crashes | Mean Crashes Per Year | % |
|---|--|-------------------|-----------|-----------|-----------|-----------|----------------------------|-----------------------------|-------------|
| | | Year | | | | | | | |
| | | 2011 | 2012 | 2013 | 2014 | 2015 | | | |
| CRASH TYPE | Rear End | 5 | 2 | 7 | 9 | 7 | 30 | 6 | 36.6% |
| | Head On | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Angle | 2 | 2 | 6 | 4 | 7 | 21 | 4 | 25.6% |
| | Left Turn | 0 | 2 | 1 | 5 | 3 | 11 | 2 | 13.4% |
| | Right Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Sideswipe | 0 | 0 | 2 | 3 | 1 | 6 | 1 | 7.3% |
| | Backed Into | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Pedestrian | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Fixed Object | 3 | 0 | 3 | 1 | 1 | 8 | 2 | 9.8% |
| | Impact Attenuator/Crash Cushion | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.2% |
| | Curb | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1.2% |
| | Guardrail Face | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.2% |
| | Guardrail End | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1.2% |
| | Other Traffic Barrier | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.2% |
| | Tree (Standing) | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 2.4% |
| | Traffic Sign Support | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.2% |
| | Other Non Fixed Object Collisions | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.2% |
| | Parked Motor Vehicle | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.2% |
| | Non-Collisions | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.2% |
| Other Non-Collision | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1.2% | |
| Others | 0 | 1 | 0 | 1 | 2 | 4 | 1 | 4.9% | |
| Total Crashes | 12 | 7 | 19 | 23 | 21 | 82 | 16 | 100.0% | |
| SEVERITY | PDO Crashes | 7 | 4 | 12 | 9 | 12 | 44 | 9 | 53.7% |
| | Fatal Crashes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Injury Crashes | 5 | 3 | 7 | 14 | 9 | 38 | 8 | 46.3% |
| LIGHTING CONDITIONS | Daylight | 5 | 4 | 16 | 16 | 15 | 56 | 11 | 68.3% |
| | Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| | Dawn | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 2.4% |
| | Dark | 6 | 3 | 2 | 7 | 4 | 22 | 4 | 26.8% |
| | Unknown | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2.4% |
| SURFACE CONDITIONS | Dry | 9 | 6 | 14 | 21 | 16 | 66 | 13 | 80.5% |
| | Wet | 3 | 1 | 5 | 2 | 3 | 14 | 3 | 17.1% |
| | Others | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2.4% |

6.0 LAND USE

Land use data was compiled from Martin County, St. Lucie County, Indian River County, Town of Ocean Breeze (Martin County), Town of Sewall's Point (Martin County), City of Vero Beach (Indian River County), and FDOT District 4 Land Use Mapping System. This data was used to identify land use and zoning data within a 2-mile buffer zone of the I-95 corridor, as well as throughout each of the three counties.

6.1 Existing Land Use

Existing land uses adjacent to the I-95 corridor in Martin County are predominantly Agriculture with some Residential, Public Facilities/Institutional and Commercial areas near the SR 76/Kanner Highway and SR 714/Martin Highway interchanges. The non-Agriculture land uses tend to be located east of I-95 in Martin County, while Agriculture uses are both east and west of the I-95 corridor. Page 1 of Figure 6-1 displays the existing land uses in the project corridor in Martin County.

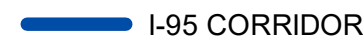








In St. Lucie County, the existing land use adjacent to the I-95 corridor varies. The southern portion of St. Lucie County includes a mixture of Residential, Commercial, Industrial and Agriculture located immediately east and west of I-95. Concentrations of these existing land uses are near the Becker Road, Gatlin Boulevard, Crosstown Parkway, and St. Lucie West Boulevard interchanges. Further west beyond the I-95 corridor, existing land uses are primarily Agriculture.

The northern part of St. Lucie County also includes a mixture of Agriculture, Residential, Commercial, and Industrial, although Agriculture is the predominant existing land use west of I-95. Clusters of Commercial and Industrial land uses are present near the SR 70/Okeechobee Road and Midway Road interchanges. Page 2 of Figure 6-1 displays the existing land uses in the project corridor in St. Lucie County.

The existing land uses in Indian River County adjacent to the I-95 corridor are characterized predominantly as Agriculture. Near the SR 60 and Fellsmere Road interchanges, concentrations of Commercial uses are present along with some Residential uses. Near the future Oslo Road

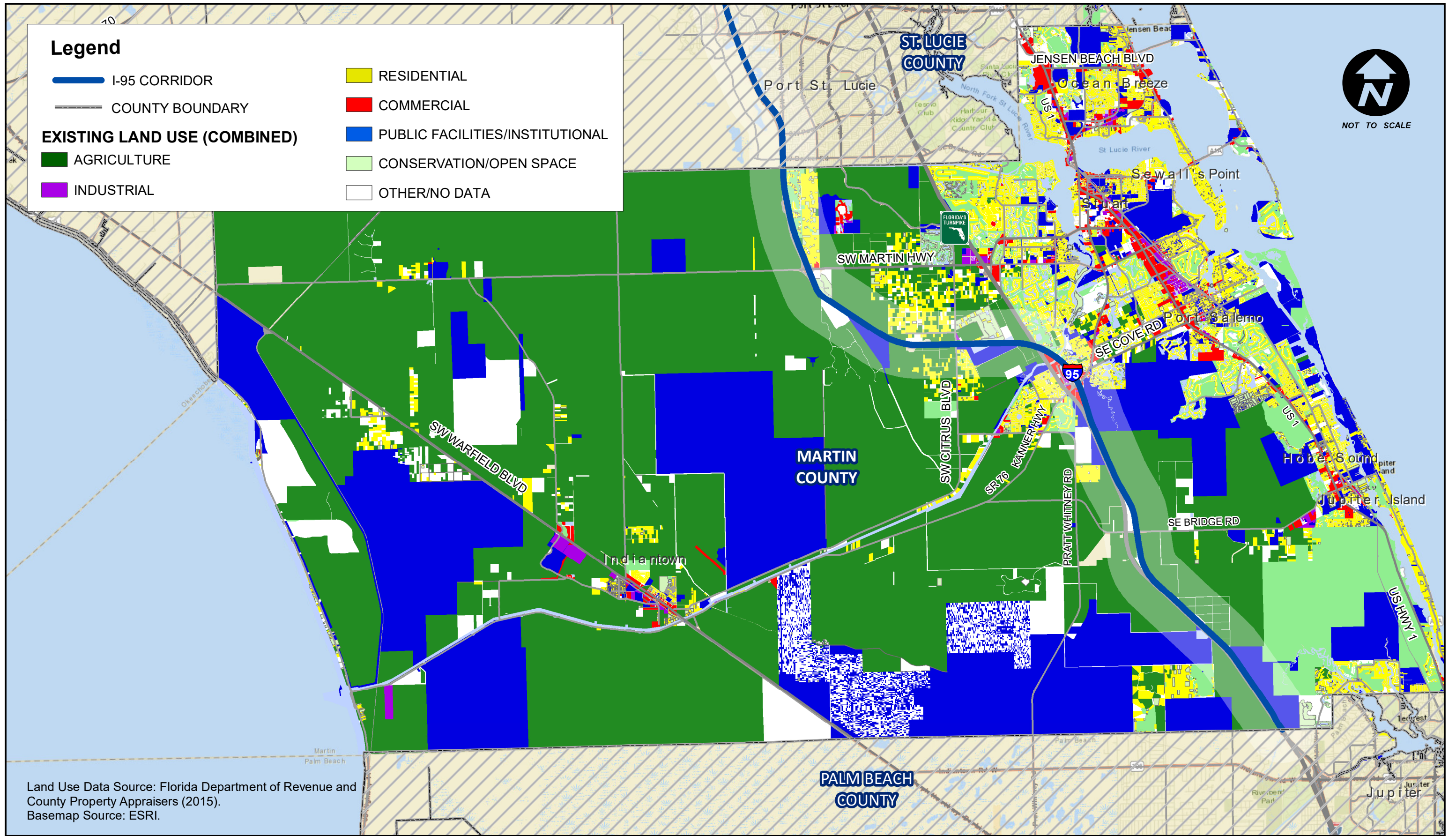
interchange, the existing land use is Agriculture and Industrial. Page 3 of Figure 6-1 displays the existing land uses in the project corridor in Indian River County.

Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
- EXISTING LAND USE (COMBINED)**
-  AGRICULTURE
-  INDUSTRIAL
-  RESIDENTIAL
-  COMMERCIAL
-  PUBLIC FACILITIES/INSTITUTIONAL
-  CONSERVATION/OPEN SPACE
-  OTHER/NO DATA



NOT TO SCALE



Land Use Data Source: Florida Department of Revenue and County Property Appraisers (2015).
 Basemap Source: ESRI.



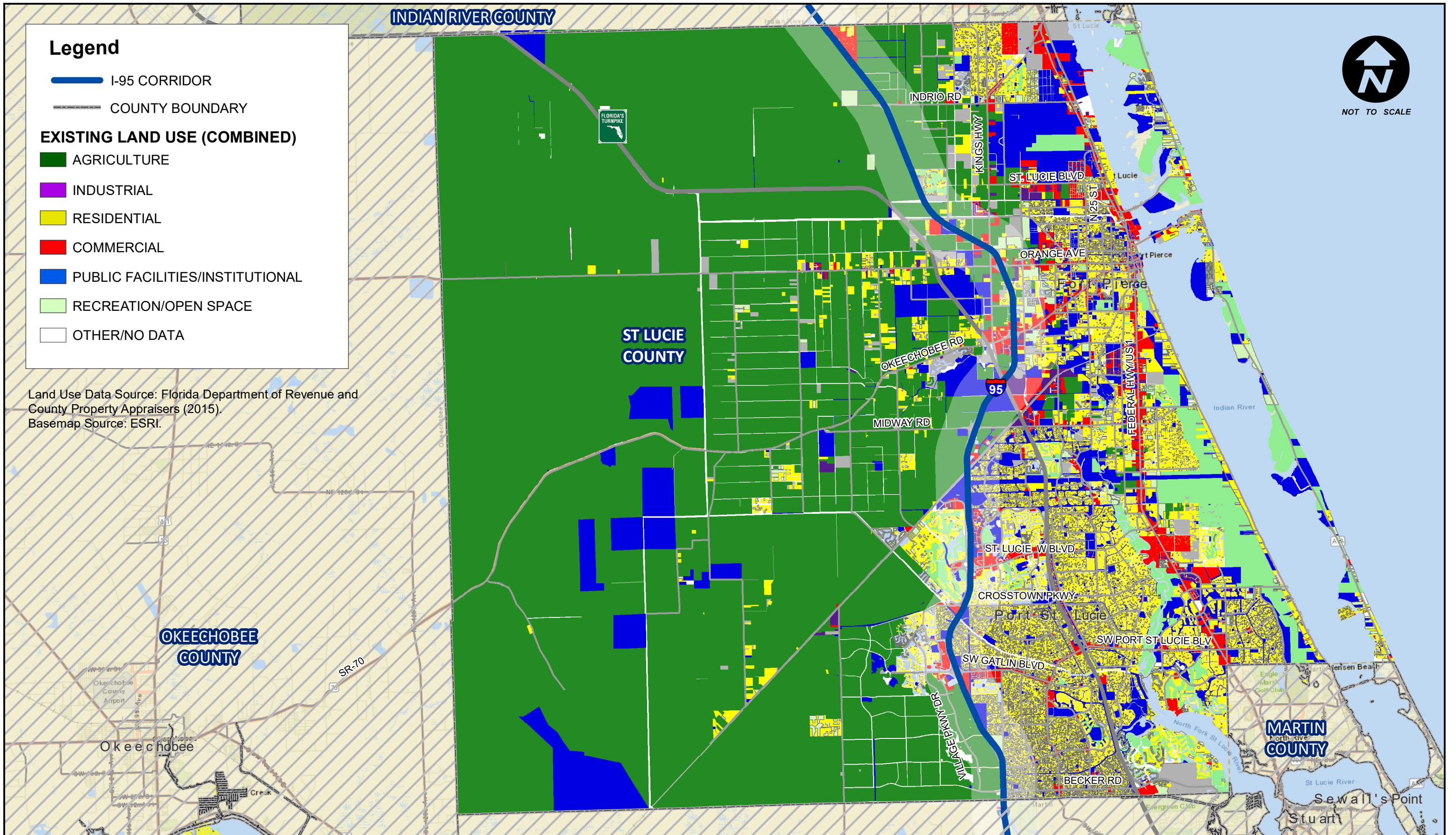
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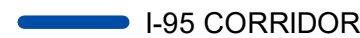








Title:

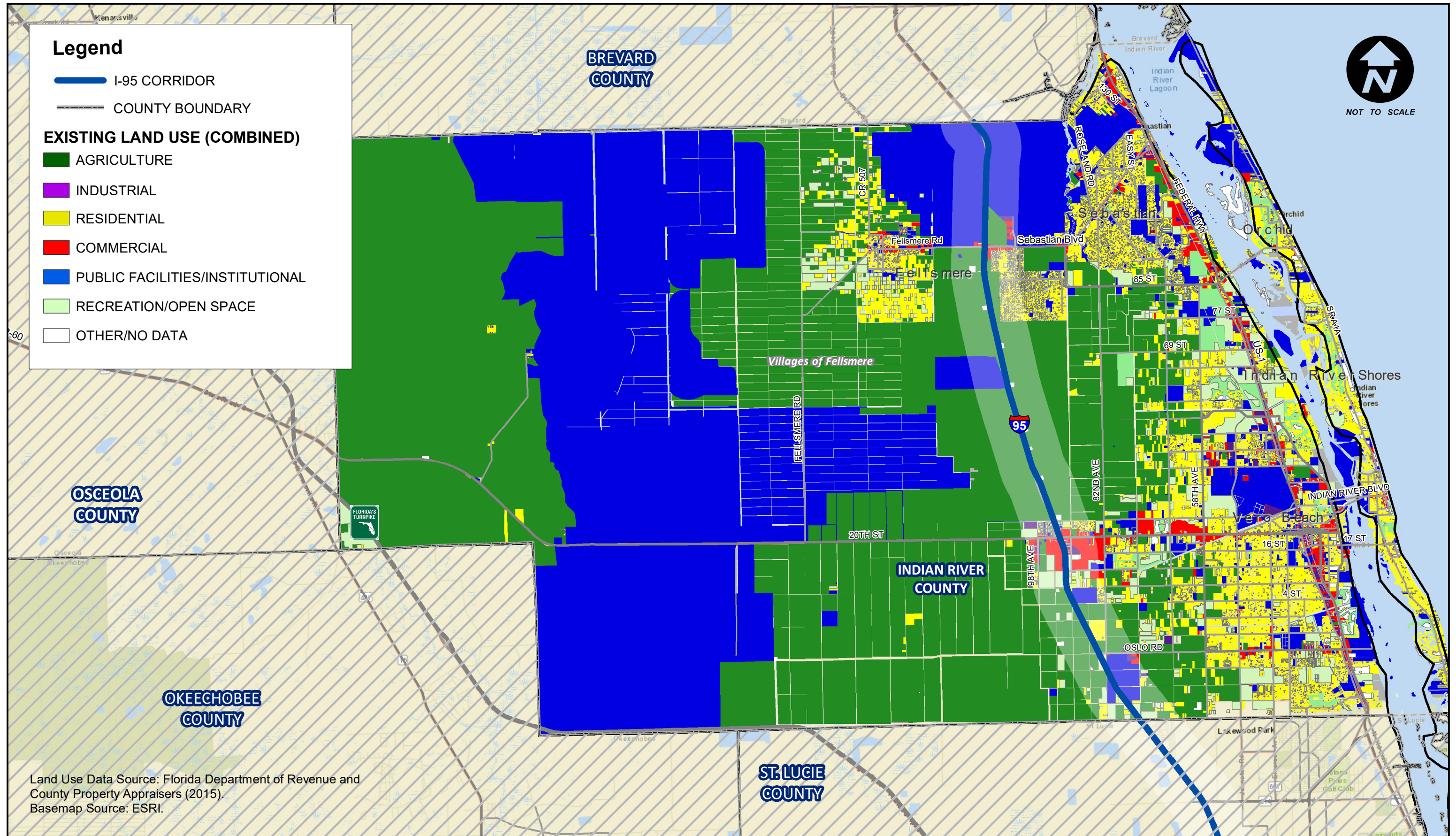
**Existing Land Use
 Martin County**

**Figure 6-1
 Page 1 of 3**



Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
- EXISTING LAND USE (COMBINED)**
-  AGRICULTURE
-  INDUSTRIAL
-  RESIDENTIAL
-  COMMERCIAL
-  PUBLIC FACILITIES/INSTITUTIONAL
-  RECREATION/OPEN SPACE
-  OTHER/NO DATA



Land Use Data Source: Florida Department of Revenue and County Property Appraisers (2015).
 Basemap Source: ESRI.



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Title:

**Existing Land Use
 Indian River County**

**Figure 6-1
 Page 3 of 3**

6.2 Future Land Use

Most future land uses adjacent to the I-95 corridor in Martin County are expected to remain predominantly Agriculture, particularly west of I-95. Near the SR 76/Kanner Highway interchange, a mixture of Commercial, Residential, and Industrial uses have been identified. Near the SR 714/Martin Highway interchange, a mixture of future land uses including Residential, Agriculture, Public Facility/Institutional, and Industrial are planned. Overall, the non-Agriculture land uses continue to be located east of I-95 in Martin County, while Agriculture uses are both east and west of the I-95 corridor. Page 1 of Figure 6-2 displays the adopted future land uses surrounding the project corridor in Martin County.

In addition to the adopted future land uses discussed previously and shown on Figure 6-2, new developments continue to be put forward for approvals during the course of the Master Plan Study. Pineland Prairie is a proposed Martin County future land use plan amendment (FLUPA) within the Treasure Coast study area, which came to the Department's attention in June 2018. At the time it was under review, the proposed buildout was estimated to include 2 million square feet of industrial buildings, 100,000 square feet of general office, 40,000 square feet of medical office, 150,000 square feet of retail/shopping center, 2,856 single-family dwelling units, and 1,344 multi-family dwelling units. The intensity and land uses were higher than the original plan for the area.

The proposed Pineland Prairie development is approximately 3,400 acres situated north of SR 714/Martin Highway, south of Becker Road and the C-23 canal and the St. Lucie/Martin County limits, west of the Florida's Turnpike, and east of I-95. It includes proposed connections to Becker Road to the north and SR 714/Martin Highway to the south. At the time of the land use plan amendment review, the Department recommended that the Pineland Prairie project implement strategies to reduce impacts to the regional roadway network (i.e. Becker Road and I-95). It was too early in the development approval process to make any immediate adjustments to future year traffic volume forecasts developed for the Master Plan study. However, once the FLUPA is adopted, future traffic volume forecasts for Martin County may need to incorporate additional trips generated in the area around the I-95 at SR 714 and I-95 at Becker Road interchanges.

In St. Lucie County, the future land use adjacent to the I-95 corridor is characterized by several changes as compared to the existing uses. The southern portion of St. Lucie County remains a mixture of land uses, but that mix is changed to reflect Residential, Commercial, and Special Districts (which defines the Western Annexation Area west of I-95 between Becker Road and Crosstown Parkway). Some Industrial uses are projected east and west of I-95 near St. Lucie West Boulevard. Further west beyond the I-95 corridor and near the western portion of the County, the future land use is primarily Agriculture.













The northern part of St. Lucie County also includes a mixture of Agriculture, Residential, Commercial, and Industrial, although Agriculture is the predominant future land use in the western section of St. Lucie County. Further clustering of Commercial and Industrial land uses are anticipated near the SR 70/Okeechobee Road and Midway Road interchanges. These future land uses are situated both east and west of the I-95 corridor. Additional Industrial uses are depicted near SR 68/Orange Avenue located east of I-95. Page 2 of Figure 6-2 displays the future land uses surrounding the project corridor in St. Lucie County.

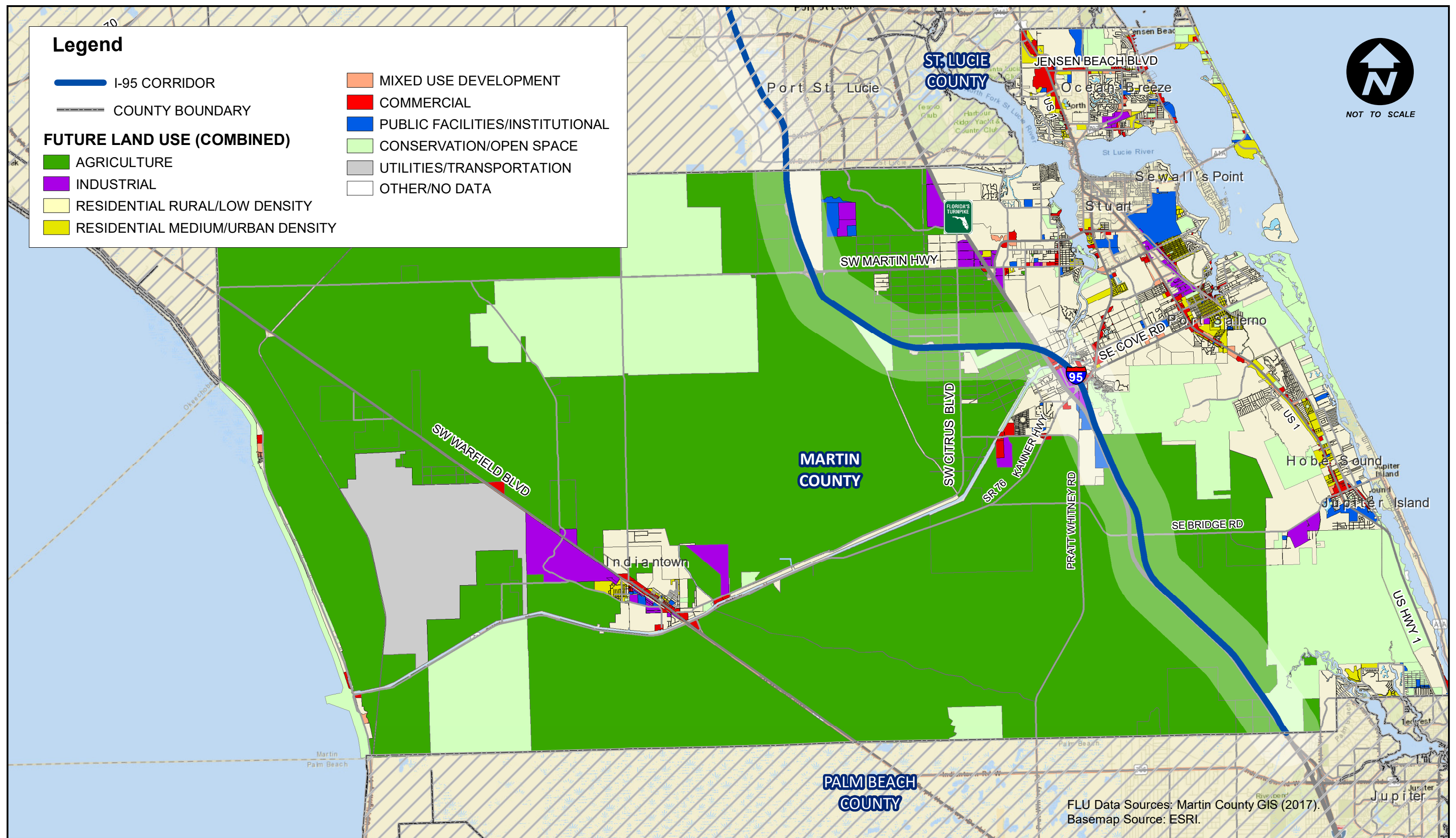
The future land uses in Indian River County adjacent to the I-95 corridor reflect changes where Commercial and Mixed-use Neighborhood uses are the predominant future land use, especially near current and planned interchanges. In the western portion of Indian River County, Agriculture is the predominant future land use. Near the SR 60 and Fellsmere Road interchanges, concentrations of Commercial uses are planned along with medium and low density Residential uses. Near the Oslo Road interchange, the future land use is mostly Agriculture with Mixed-Use and Public Facilities uses. Page 3 of Figure 6-2 displays the future land uses in Indian River County.



In June 2018, Emerald Lakes, a proposed new land development in the City of Palm Bay in Brevard County, was approved to establish a Community Development District for a new mixed use development. The development was proposed to include 3,760 residential units, 2.8 million square feet of commercial and retail space, and 700 hotel rooms. It encompasses approximately 1,660 acres which straddles I-95 and is located at the new St. Johns Heritage Parkway interchange just north of the Brevard/Indian River County line, south of Grant Road and north of Micco Road. The St. Johns Heritage Parkway interchange is the first interchange located north of the Master Plan northern study limits and is a new interchange under construction by the FDOT.

Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
- FUTURE LAND USE (COMBINED)**
-  AGRICULTURE
-  INDUSTRIAL
-  RESIDENTIAL RURAL/LOW DENSITY
-  RESIDENTIAL MEDIUM/URBAN DENSITY
-  MIXED USE DEVELOPMENT
-  COMMERCIAL
-  PUBLIC FACILITIES/INSTITUTIONAL
-  CONSERVATION/OPEN SPACE
-  UTILITIES/TRANSPORTATION
-  OTHER/NO DATA



FLU Data Sources: Martin County GIS (2017).
 Basemap Source: ESRI.



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Title:

**Future Land Use
 Martin County**

Figure 6-2
 Page 1 of 3

INDIAN RIVER COUNTY

Legend

I-95 CORRIDOR

COUNTY BOUNDARY

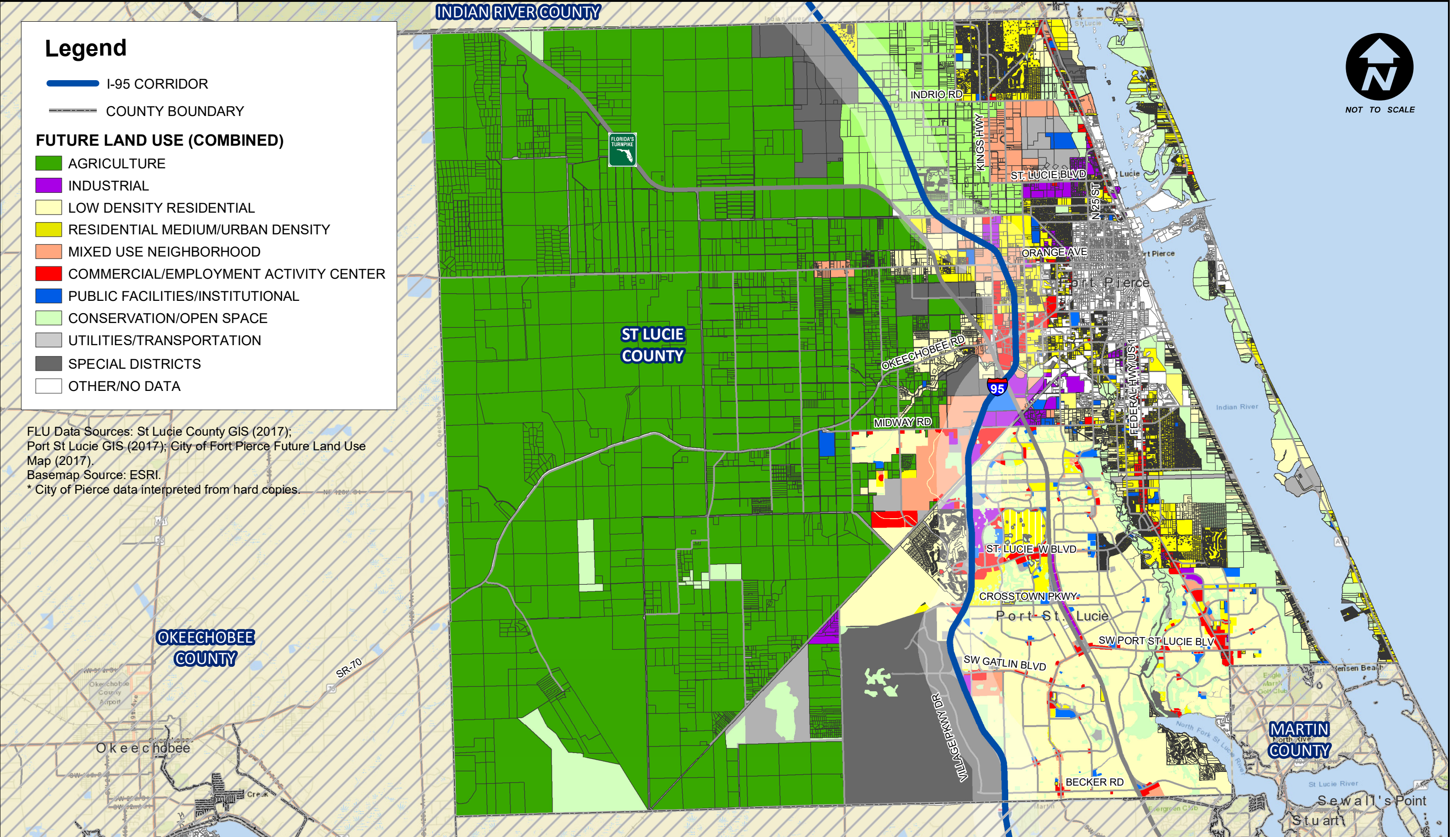
FUTURE LAND USE (COMBINED)

- AGRICULTURE
- INDUSTRIAL
- LOW DENSITY RESIDENTIAL
- RESIDENTIAL MEDIUM/URBAN DENSITY
- MIXED USE NEIGHBORHOOD
- COMMERCIAL/EMPLOYMENT ACTIVITY CENTER
- PUBLIC FACILITIES/INSTITUTIONAL
- CONSERVATION/OPEN SPACE
- UTILITIES/TRANSPORTATION
- SPECIAL DISTRICTS
- OTHER/NO DATA



NOT TO SCALE

FLU Data Sources: St Lucie County GIS (2017);
 Port St Lucie GIS (2017); City of Fort Pierce Future Land Use
 Map (2017).
 Basemap Source: ESRI.
 * City of Pierce data interpreted from hard copies.



OKEECHOBEE COUNTY

ST LUCIE COUNTY

MARTIN COUNTY



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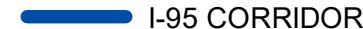












3/28/2018

Title:

**Future Land Use
 St. Lucie County**

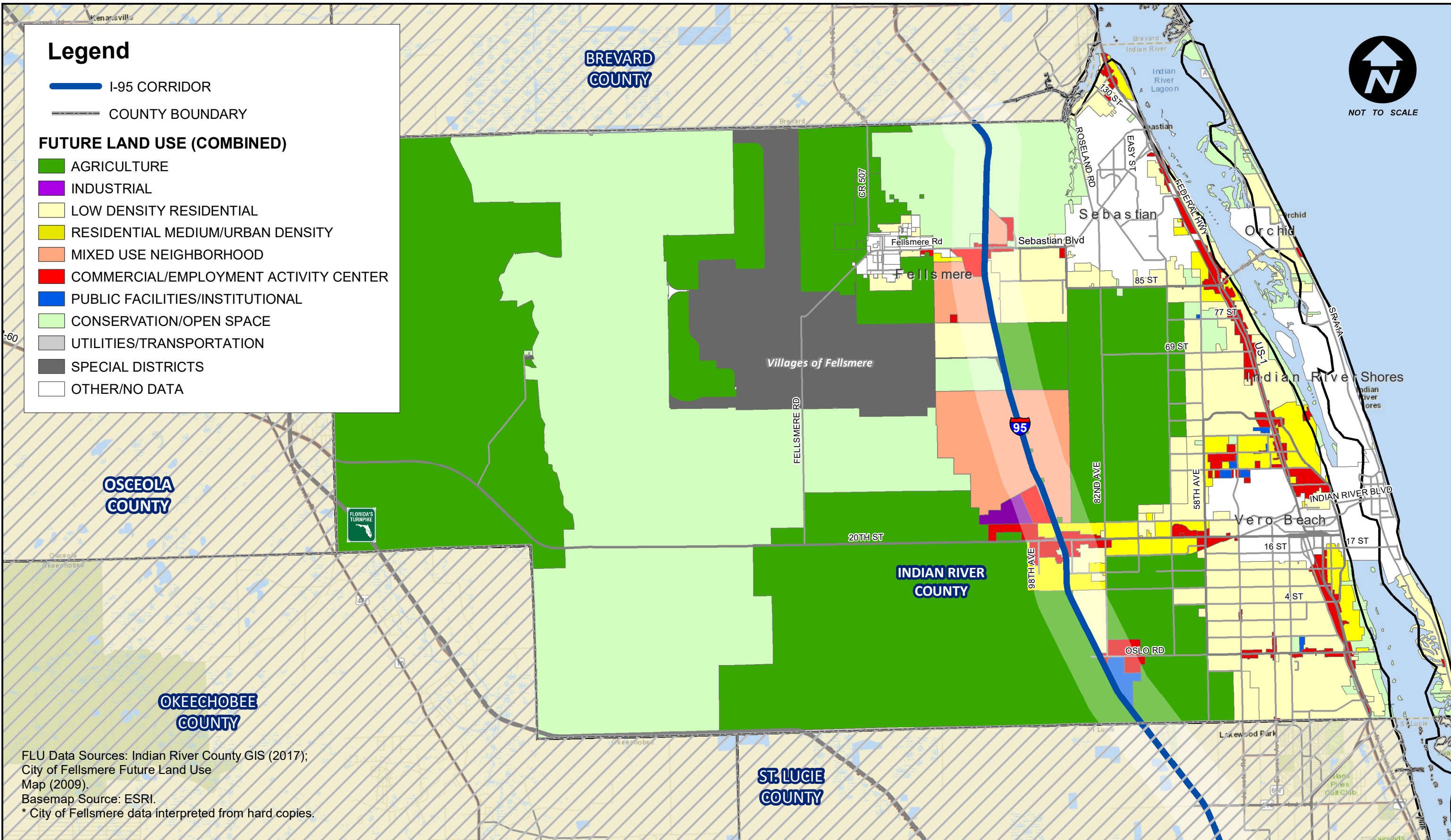
**Figure 6-2
 Page 2 of 3**

Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
- FUTURE LAND USE (COMBINED)**
-  AGRICULTURE
-  INDUSTRIAL
-  LOW DENSITY RESIDENTIAL
-  RESIDENTIAL MEDIUM/URBAN DENSITY
-  MIXED USE NEIGHBORHOOD
-  COMMERCIAL/EMPLOYMENT ACTIVITY CENTER
-  PUBLIC FACILITIES/INSTITUTIONAL
-  CONSERVATION/OPEN SPACE
-  UTILITIES/TRANSPORTATION
-  SPECIAL DISTRICTS
-  OTHER/NO DATA



NOT TO SCALE



FLU Data Sources: Indian River County GIS (2017);
 City of Fellsmere Future Land Use
 Map (2009).
 Basemap Source: ESRI.
 * City of Fellsmere data interpreted from hard copies.



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Title: **Future Land Use
 Indian River County**

Figure 6-2
 Page 3 of 3

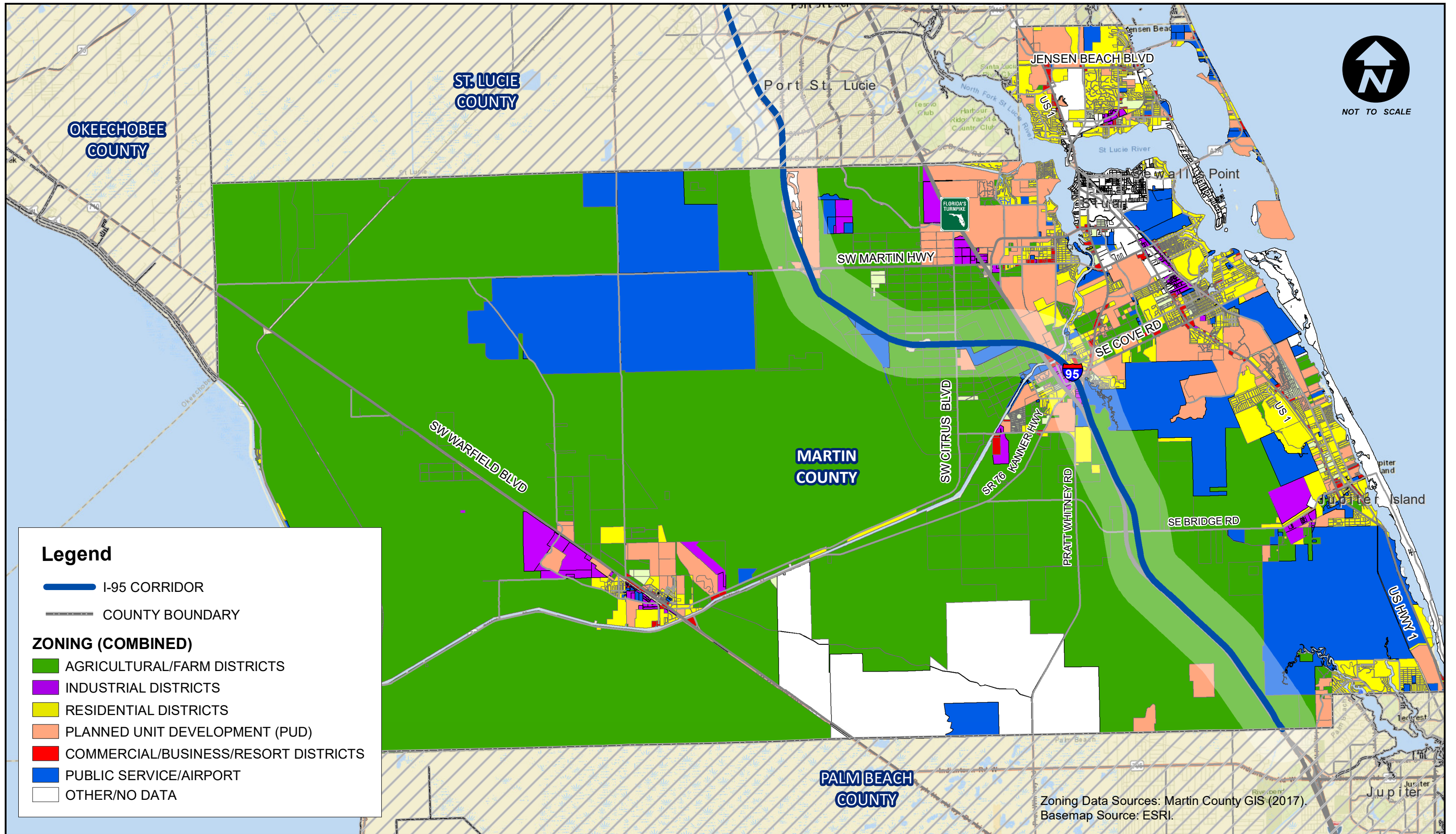
6.3 Zoning

The zoning adjacent to the I-95 corridor in Martin County is predominantly Agriculture/Farm District. However, property near some of the interchanges is zoned differently. Near the SR 76/Kanner Highway interchange, the land is zoned for Residential Districts and Planned Unit Developments, as well as Commercial/Business/Resort Districts. At the SR 714/Martin Highway interchange, the adjacent property is zoned for Planned Unit Development and Agricultural/Farm Districts. Page 1 of Figure 6-3 displays the zoning within the project corridor in Martin County.

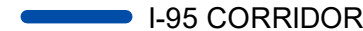





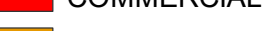




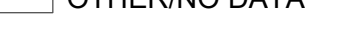

In St. Lucie County, land adjacent to the I-95 corridor is zoned with a wide variety of designations such as Agricultural, Commercial, Planned Developments, and Industrial. The southern portion of St. Lucie County includes the largest zoning mixture. Near Becker Road, the land is zoned for Residential Districts to the east of I-95 and Agriculture to the west. The zoning near the remaining interchanges in southern St. Lucie County include Planned Developments, Residential, Industrial, and Commercial.

The northern part of St. Lucie County also includes a zoning mixture containing Agriculture, Residential, Commercial, and Industrial, although Agriculture is the predominant zoning in western St. Lucie County. Commercial and Industrial zoning east and west of the I-95 corridor is established near the SR 70/Okeechobee Road and Midway Road interchanges. Additional Industrial and Commercial zoning are depicted near SR 68/Orange Avenue located west of I-95. Page 2 of Figure 6-3 displays the zoning adjacent to the project corridor in St. Lucie County.

The zoning in Indian River County adjacent to the I-95 corridor reflects the rural characteristics of the area, as the predominant zoning is Agriculture. In the western portion of Indian River County, land is mostly zoned as Agriculture. However, near the SR 60 and Fellsmere Road interchanges, clusters of property are zoned as Residential and Commercial. Near the Oslo Road interchange, land is mostly zoned Agriculture with some Industrial designations east of I-95. Page 3 of Figure 6-3 displays the zoning in Indian River County.



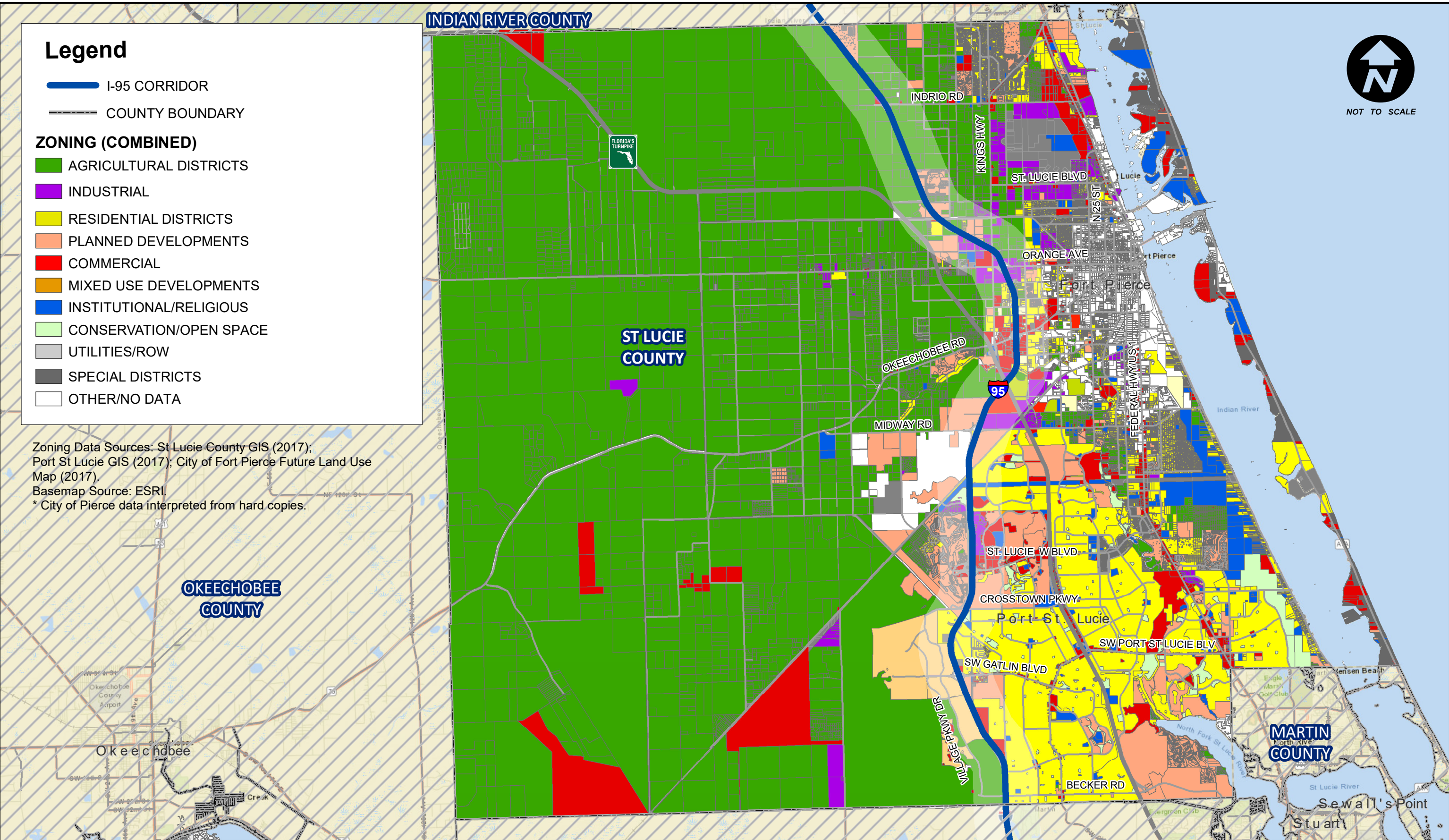
Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
- ZONING (COMBINED)**
-  AGRICULTURAL DISTRICTS
-  INDUSTRIAL
-  RESIDENTIAL DISTRICTS
-  PLANNED DEVELOPMENTS
-  COMMERCIAL
-  MIXED USE DEVELOPMENTS
-  INSTITUTIONAL/RELIGIOUS
-  CONSERVATION/OPEN SPACE
-  UTILITIES/ROW
-  SPECIAL DISTRICTS
-  OTHER/NO DATA

Zoning Data Sources: St Lucie County GIS (2017);
 Port St Lucie GIS (2017); City of Fort Pierce Future Land Use
 Map (2017).
 Basemap Source: ESRI.
 * City of Pierce data interpreted from hard copies.



NOT TO SCALE



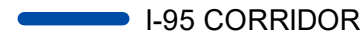











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3/14/2018

Title: **Zoning
 St. Lucie County**

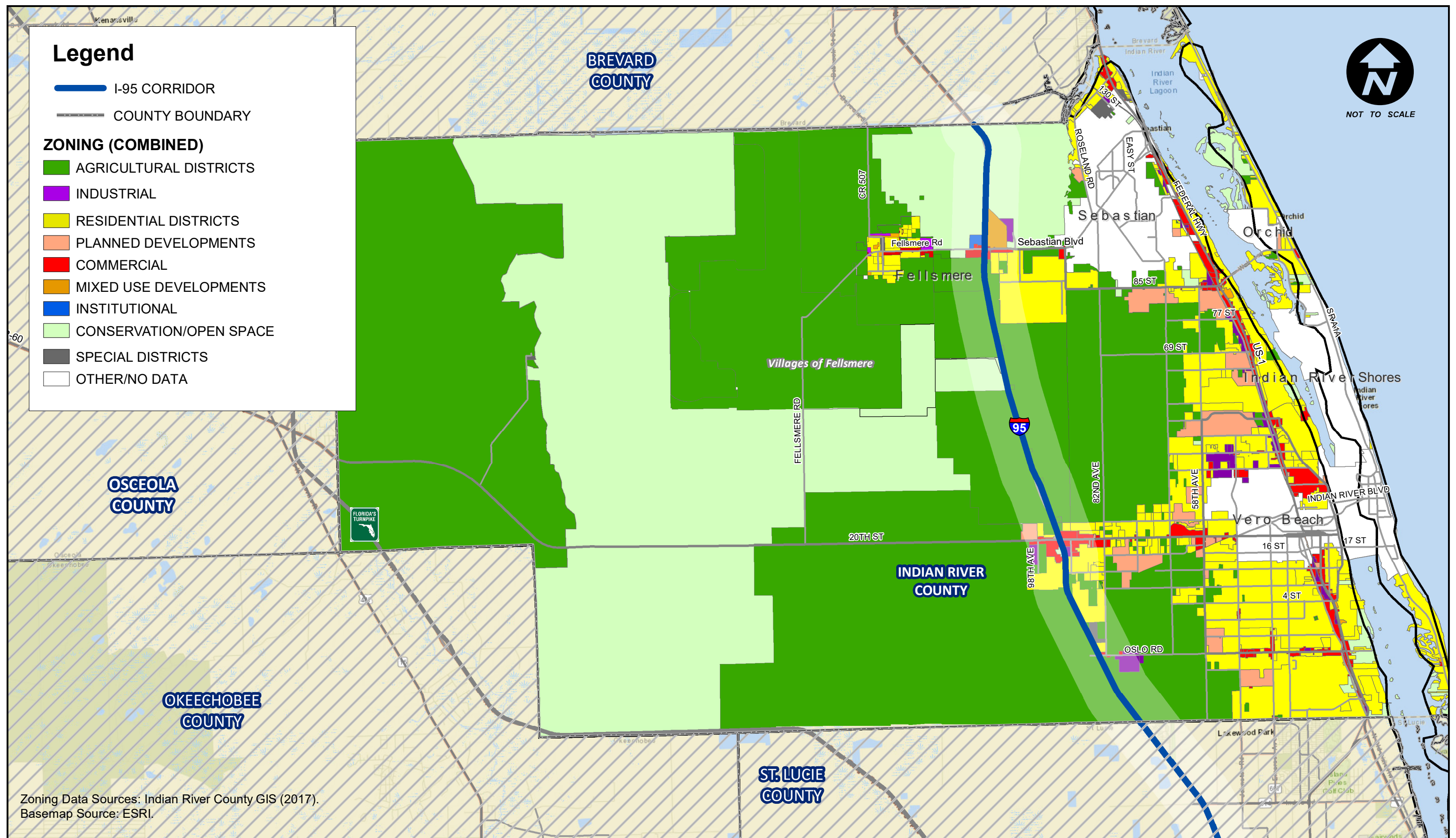
Figure 6-3
 Page 2 of 3

Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
- ZONING (COMBINED)**
-  AGRICULTURAL DISTRICTS
-  INDUSTRIAL
-  RESIDENTIAL DISTRICTS
-  PLANNED DEVELOPMENTS
-  COMMERCIAL
-  MIXED USE DEVELOPMENTS
-  INSTITUTIONAL
-  CONSERVATION/OPEN SPACE
-  SPECIAL DISTRICTS
-  OTHER/NO DATA



NOT TO SCALE



Zoning Data Sources: Indian River County GIS (2017).
 Basemap Source: ESRI.



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Title: **Zoning
 Indian River County**

Figure 6-3
 Page 3 of 3

6.4 Developments of Regional Impact

Within the tri-county Treasure Coast region, there are 47 identified Developments of Regional Impact (DRIs). There are 13 DRIs in Martin County, 27 DRIs in St. Lucie County, and 7 DRIs in Indian River County, as reported in the FDOT District 4's 2017 DRI database. Each DRI boundary is graphically depicted in Figure 6-4.

Within Martin County, there are 2 DRIs that reside within the study area. They are the Hobe Grove DRI and the Harmony DRI, both of which are west of I-95 and straddle Bridge Road. The appropriate amount of current and future land development as outlined by both of these projects has been incorporated into this Master Plan Study. Page 1 of Figure 6-4 displays the boundaries of each DRI in Martin County.

In St. Lucie County, there is considerable DRI activity adjacent to the I-95 corridor. Overall, there are 15 DRIs situated within the Master Plan study area. These include:




- Southern Grove (west of Becker Road interchange)
- Wilson Grove (west of Becker Road interchange)
- Riverland (west of Becker Road interchange)
- Westchester (west of Gatlin Boulevard interchange)
- Western Grove (west of Gatlin Boulevard interchange)
- Verano (west of Crosstown Parkway interchange)
- The Reserve (west of St. Lucie West Boulevard interchange)
- St. Lucie West (east of St. Lucie West interchange)
- LTC Ranch (west of Midway Road interchange)
- Provinces (west of Midway Road interchange)
- Newberry Fields (east of SR 70/Okeechobee Road interchange)
- Visions at Indrio (east of Indrio Road interchange)
- Indrio Groves (east of Indrio Road interchange)

- Spanish Lakes Fairway (east of Indrio Road interchange)
- Capron Lakes (west of Indrio Road interchange)

Each of the DRIs in St. Lucie County and their current and planned development schedule was included in all facets of this Master Plan Study. Page 2 of Figure 6-4 displays the boundaries of each DRI in St. Lucie County.

In Indian River County, 7 DRIs were noted. These include two projects that are situated near the SR 60 interchange, known as Prime Outlets at Vero Beach and Countryside North & South. These DRIs are located on the west and east side of the SR 60 interchange, respectively. The appropriate amount of current and future land development as outlined by both of these projects has been incorporated into this Master Plan Study. Page 3 of Figure 6-4 depicts the boundaries of each DRI identified in Indian River County.

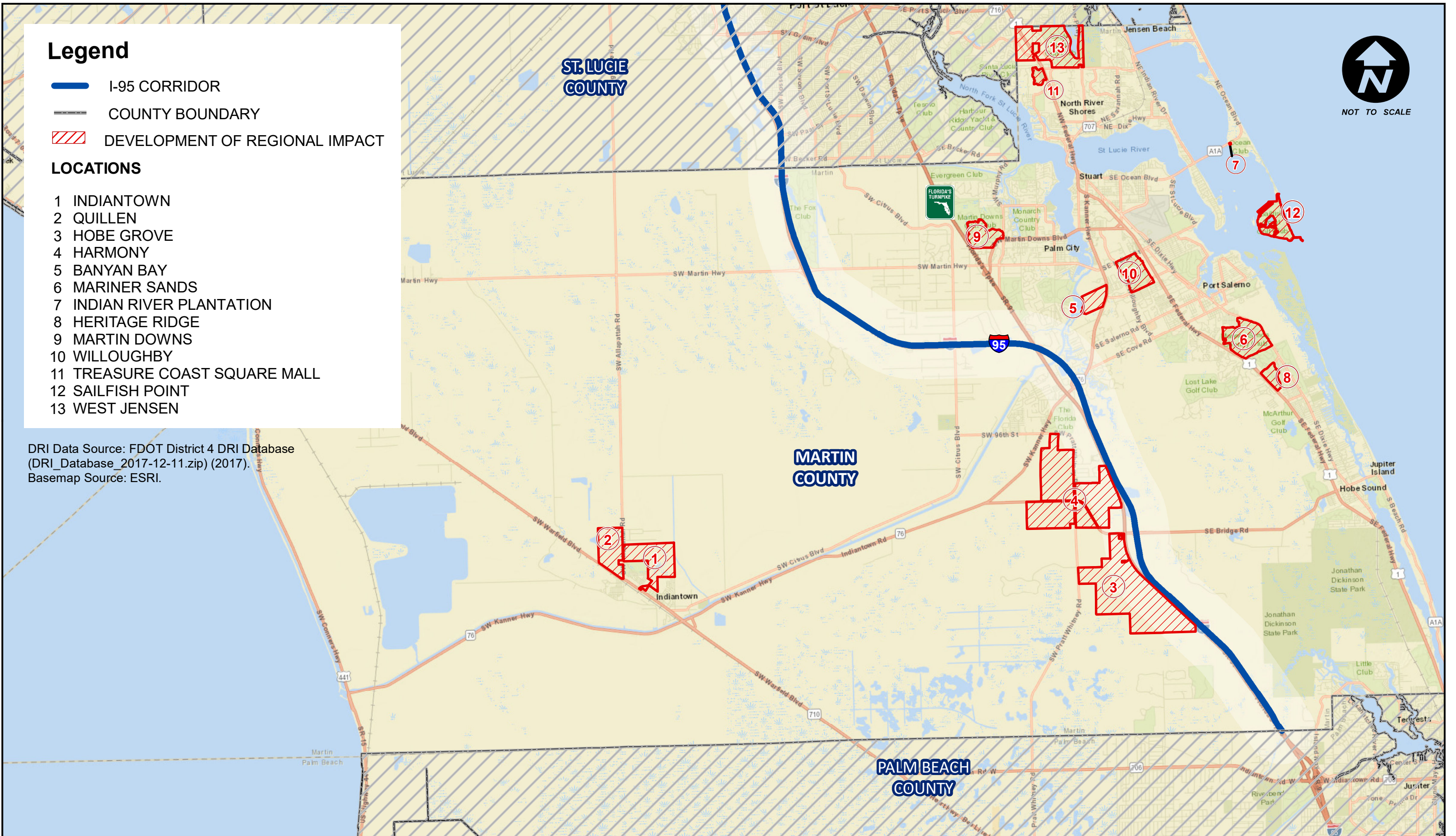
Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
-  DEVELOPMENT OF REGIONAL IMPACT

LOCATIONS

- 1 INDIANTOWN
- 2 QUILLEN
- 3 HOBE GROVE
- 4 HARMONY
- 5 BANYAN BAY
- 6 MARINER SANDS
- 7 INDIAN RIVER PLANTATION
- 8 HERITAGE RIDGE
- 9 MARTIN DOWNS
- 10 WILLOUGHBY
- 11 TREASURE COAST SQUARE MALL
- 12 SAILFISH POINT
- 13 WEST JENSEN

DRI Data Source: FDOT District 4 DRI Database (DRI_Database_2017-12-11.zip) (2017).
 Basemap Source: ESRI.






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Title: **Developments of Regional Impact
 Martin County**

Figure 6-4
 Page 1 of 3

Legend

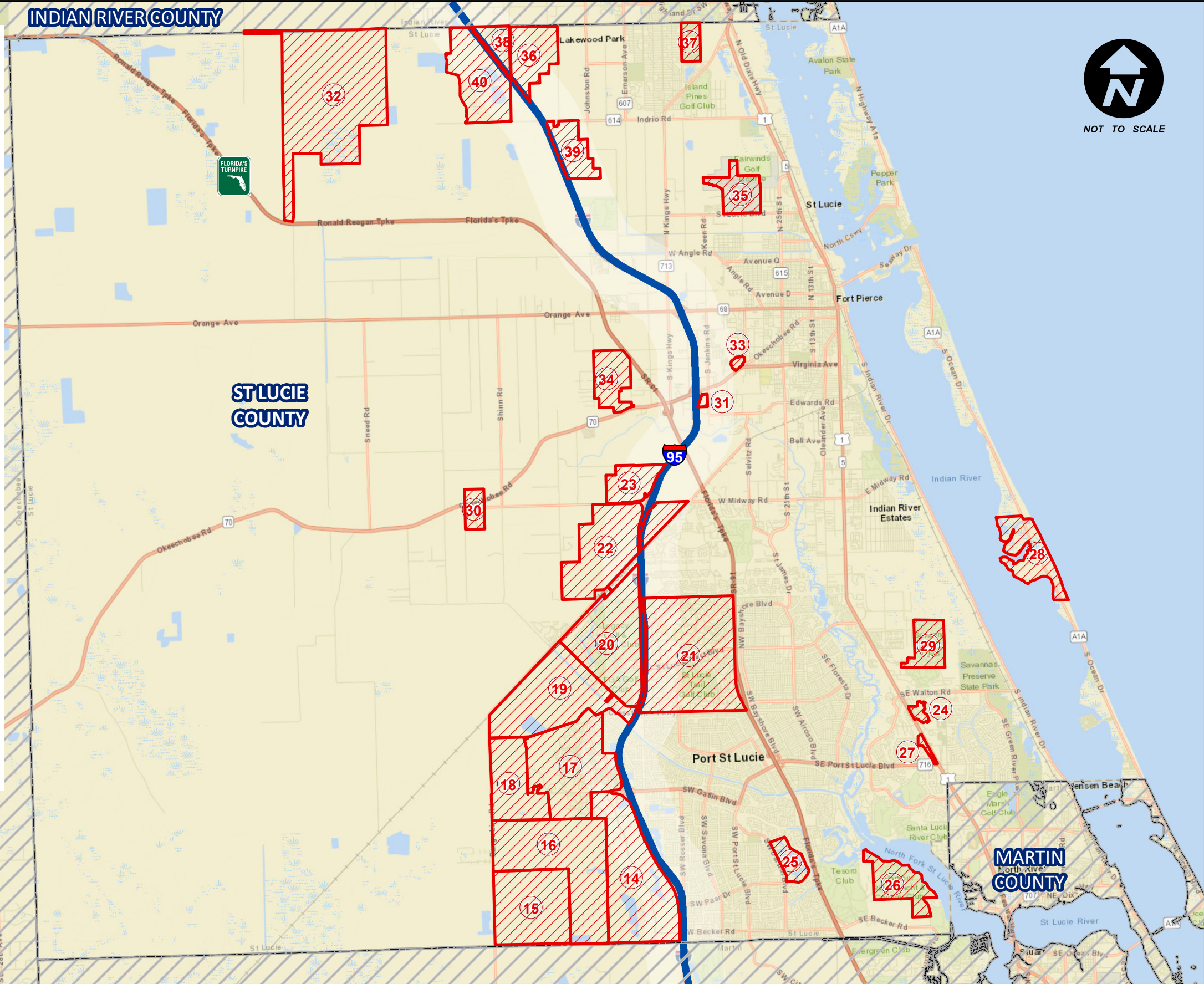
-  I-95 CORRIDOR
-  COUNTY BOUNDARY
-  DEVELOPMENT OF REGIONAL IMPACT

LOCATIONS

- 14 SOUTHERN GROVE
- 15 WILSON GROVE
- 16 RIVERLAND
- 17 WESTCHESTER
- 18 WESTERN GROVE
- 19 VERANO
- 20 THE RESERVE
- 21 ST. LUCIE WEST
- 22 LTC RANCH
- 23 PROVENCES
- 24 MIDPORT ST. LUCIE
- 25 WESTLAKE
- 26 HARBOUR RIDGE
- 27 TOWN CENTRE
- 28 LAKE POINSETT-MARTIN-MIDWAY
- 29 SAVANNAH CLUB
- 30 EVANS PROPERTY
- 31 NEWBERRY FIELDS
- 32 CLOUD GROVE
- 33 ORANGE BLOSSOM MALL
- 34 ORCHARD PARK
- 35 ST. LUCIE COUNTY INTERNATIONAL AIRPORT
- 36 INDRIO GROVES
- 37 SPANISH LAKES COUNTRY CLUB VILLAGE
- 38 SPANISH LAKES FAIRWAY
- 39 VISIONS AT INDRIO
- 40 CAPRON LAKES



NOT TO SCALE



DRI Data Source: FDOT District 4 DRI Database (DRI_Database_2017-12-11.zip) (2017).
 Basemap Source: ESRI.






I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

3/26/2018

Title: **Developments of Regional Impact
 St. Lucie County**

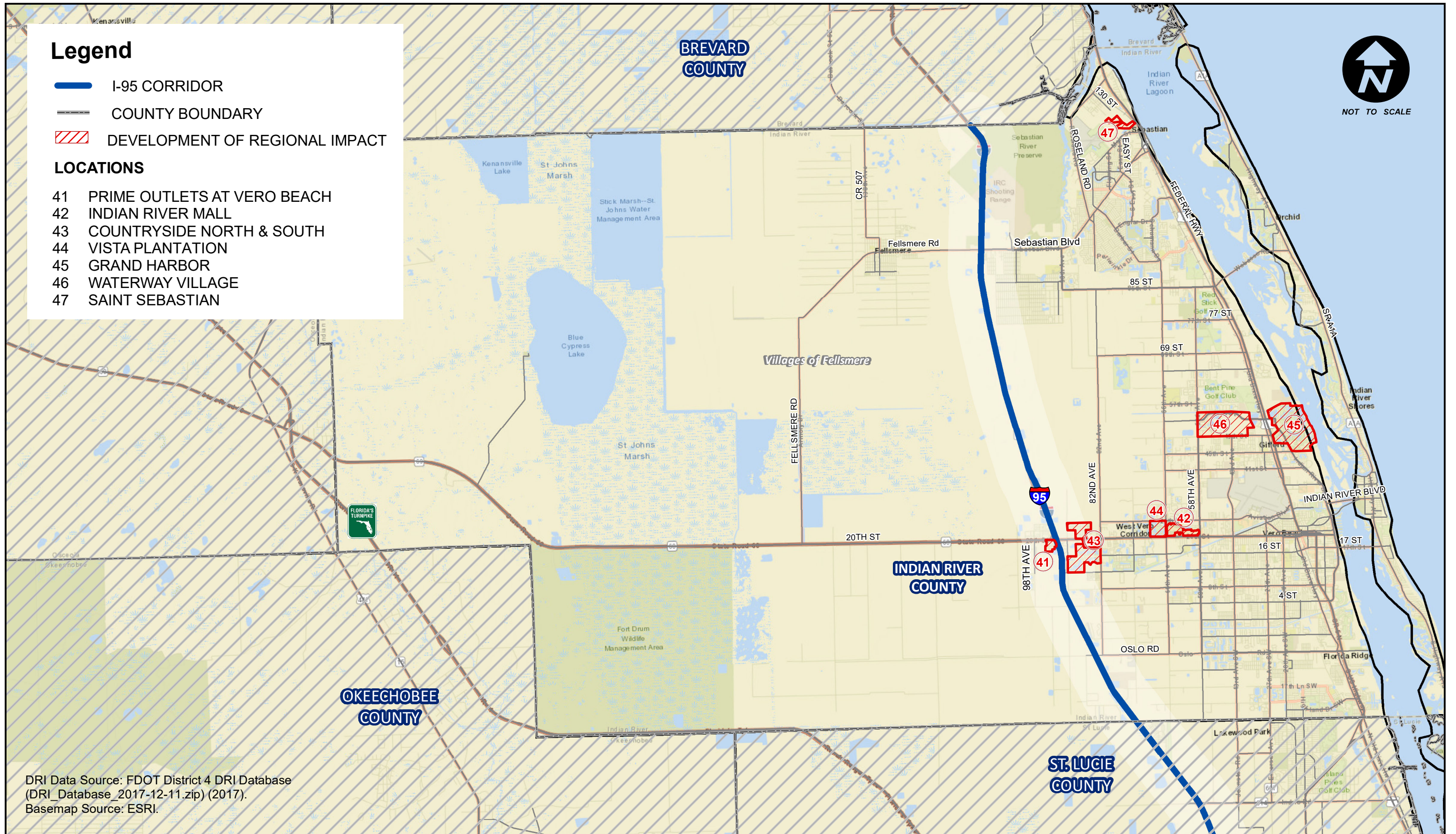
Figure 6-4
 Page 2 of 3

Legend

-  I-95 CORRIDOR
-  COUNTY BOUNDARY
-  DEVELOPMENT OF REGIONAL IMPACT

LOCATIONS

- 41 PRIME OUTLETS AT VERO BEACH
- 42 INDIAN RIVER MALL
- 43 COUNTRYSIDE NORTH & SOUTH
- 44 VISTA PLANTATION
- 45 GRAND HARBOR
- 46 WATERWAY VILLAGE
- 47 SAINT SEBASTIAN



DRI Data Source: FDOT District 4 DRI Database (DRI_Database_2017-12-11.zip) (2017).
 Basemap Source: ESRI.



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

3/26/2018

Title: **Developments of Regional Impact
 Indian River County**

Figure 6-4
 Page 3 of 3

7.0 TRANSIT FACILITIES, SERVICES AND RIDERSHIP

Available historic and existing transit services, infrastructure, and ridership information was gathered and summarized in this chapter. An assessment of demographics for the study area is also provided. This information is provided to identify potential transit demand in the I-95 corridor, determine the effects of such transit service on I-95 infrastructure needs, identify supporting park-and-ride lot locations within the I-95 corridor, and provide context for transit supportive needs to be incorporated into the I-95 Master Plan.

7.1 Existing Transit Facilities and Services

There are three different primary bus transit providers in the regional study area, which consists of Martin, St. Lucie, and Indian River counties. Each of the three counties has a fixed route bus service and accompanying demand response service. The providers are Martin County Public Transit (Marty) in Martin County, the Treasure Coast Connector (TCC) in St. Lucie County, and GoLine in Indian River County. The Marty has four fixed routes, the Treasure Coast Connector has seven fixed routes, and GoLine has 15 fixed routes. Information regarding the transit facilities and services in the county to the south (Palm Beach), and county to the north (Brevard), are noted as well. These counties are important to consider, because I-95 is an interstate facility and many of the trips in the study area are regional, beginning and ending outside of the study area.

Table 7-1 provides transit information for each of the five agencies. Service Area Population is determined by the reporting agency and most agencies in Florida use county population as their service area. Average trip length is calculated by dividing the annual passenger miles by the annual passenger trips. Resident Access to Transit is the percentage of the population within a half-mile of fixed-route transit. Average Fare is computed by the passenger fare revenues divided by the total number of passenger trips.

Table 7-1: 2016 Regional Transit Information

| 2016 Transit Information | | | | | |
|--------------------------|-------------------------|-----------------------------|--------------------------|----------------------------|--------------|
| | Service Area Population | Average Trip Length (miles) | Annual Trips (boardings) | Resident Access to Transit | Average Fare |
| Palm Beach | 1,268,782 | 6 | 9,707,356 | 63.14% | \$0.99 |
| Martin | 149,806 | 8 | 47,946 | 48.71% | \$0.94 |
| St. Lucie* | 298,563 | 14.5 | 180,149 | 37.16% | \$1.14 |
| Indian River | 143,696 | 5.1 | 1,157,881 | 66.84% | N/A |
| Brevard | 568,701 | 7.9 | 2,377,440 | 51.75% | \$0.47 |

*For 2 years starting Fall 2017 St. Lucie transit will be fare free
Source: FDOT 2017 Florida Transit Information and Performance Handbook (2016 data)

Figures 7-1, 7-2, and 7-3 on the following pages show the existing transit routes.

Within the three-county study area seven existing transit routes intersect with I-95. Including one route that travels on I-95, the GoLine Route 15, which runs from the Indian River County Intergenerational Center to Indian River State College Main Campus in Fort Pierce, entering and exiting I-95 at Okeechobee Road (SR 70) and Indrio Road (SR 614), respectively. A route is considered to “intersect” with I-95 if it is accessing the mainline at an interchange or if it traverses the local cross-street passing through the interchange. Note that the intersecting route may not currently stop at or near the interchange but is noted in Table 7-2 for potential future opportunities.

Table 7-2: Existing Transit Routes Intersecting with I-95

| Route | I-95 intersection |
|-----------------|--|
| Marty Route 2 | SW Kanner Highway (SR 76) |
| TCC Route 5 | Gatlin Boulevard |
| TCC Route 6 | St. Lucie Boulevard West |
| TCC Route 3 | Okeechobee Road (SR 70) |
| GoLine Route 15 | Access at Okeechobee Road (SR 70) and Indrio Road (SR 614) |
| GoLine Route 13 | 20th Street/Osceola Boulevard (SR 60) |
| GoLine Route 10 | 95th Street/Fellsmere Road (CR 512) |

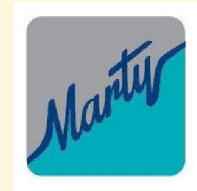
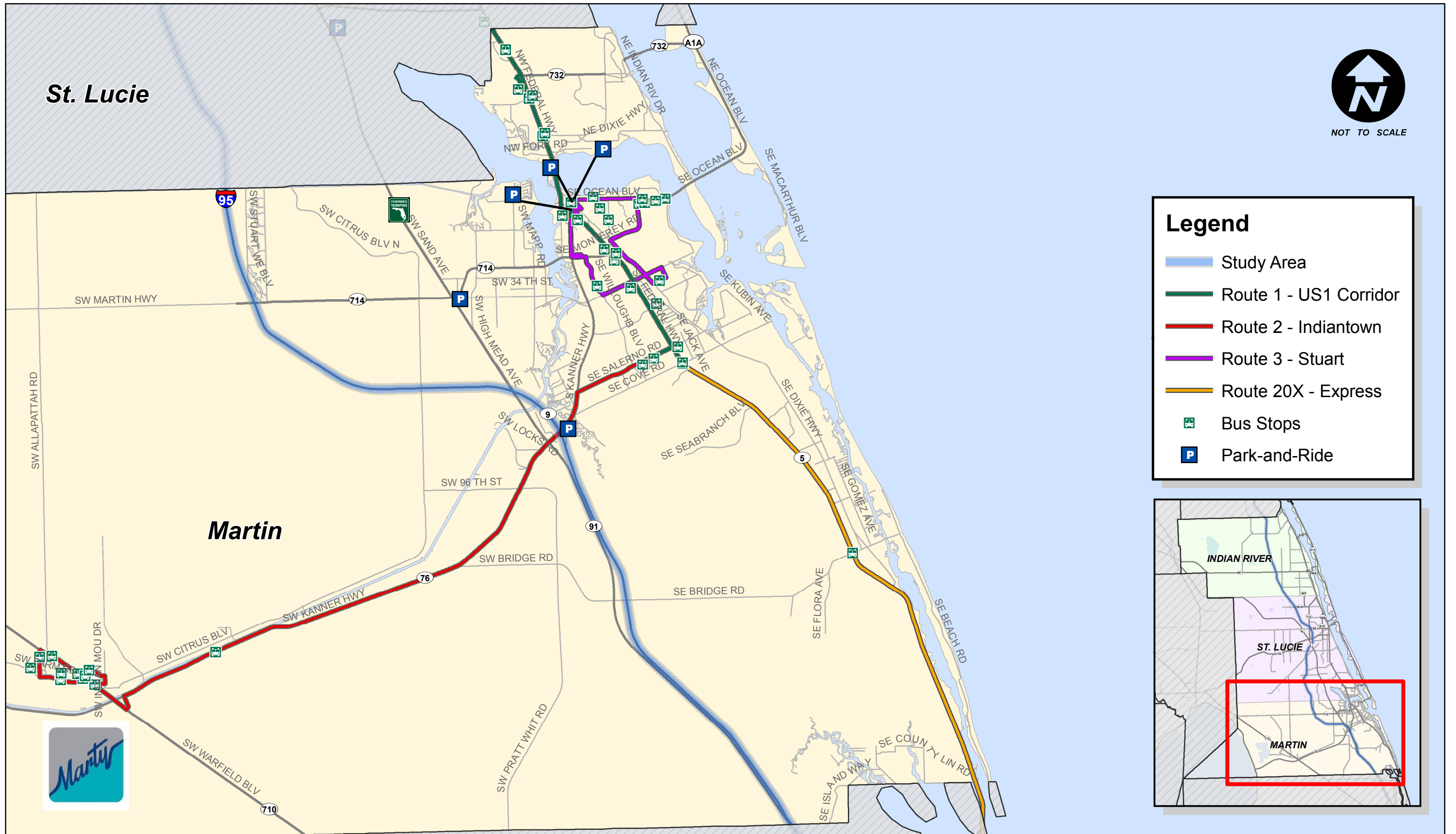
St. Lucie



NOT TO SCALE

Legend

- Study Area
- Route 1 - US1 Corridor
- Route 2 - Indiantown
- Route 3 - Stuart
- Route 20X - Express
- Bus Stops
- Park-and-Ride



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Title:
2018 Transit Routes -Martin County (Marty)











FIGURE 7-1

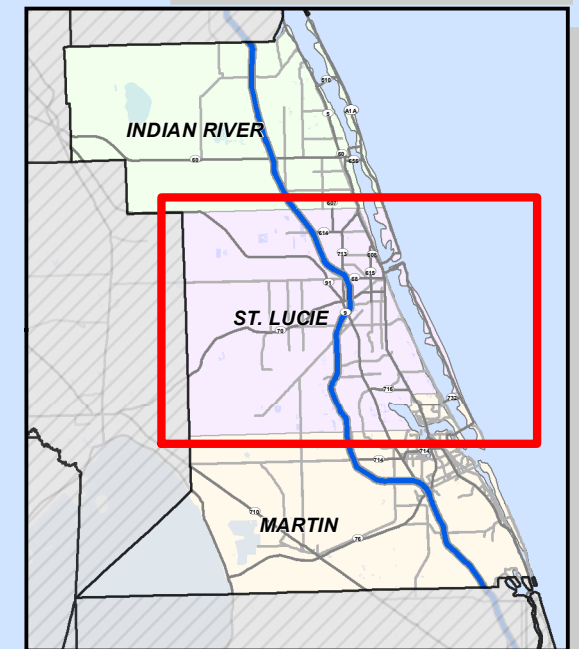
Indian River



NOT TO SCALE

Legend

-  Study Area
-  TCC Route 1
-  TCC Route 2
-  TCC Route 3
-  TCC Route 4
-  TCC Route 5
-  TCC Route 6
-  TCC Route 7
-  Bus Stops
-  Park-and Ride



St. Lucie

Martin



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

















Title:
2018 Transit Routes - St. Lucie County
(TTC) Treasure Coast Connector

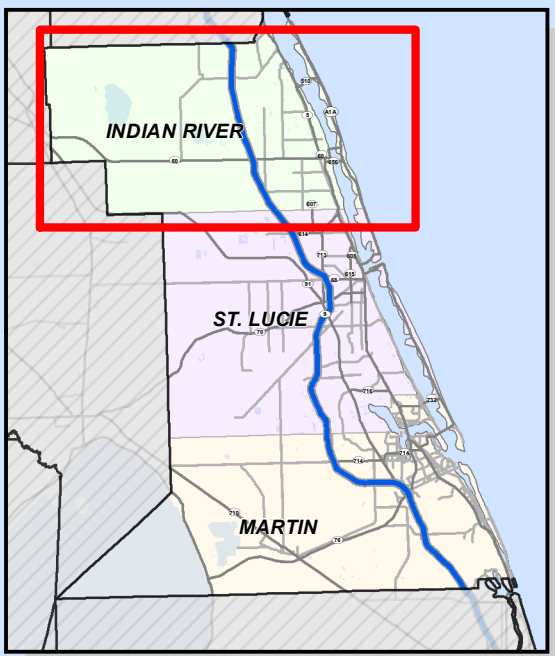
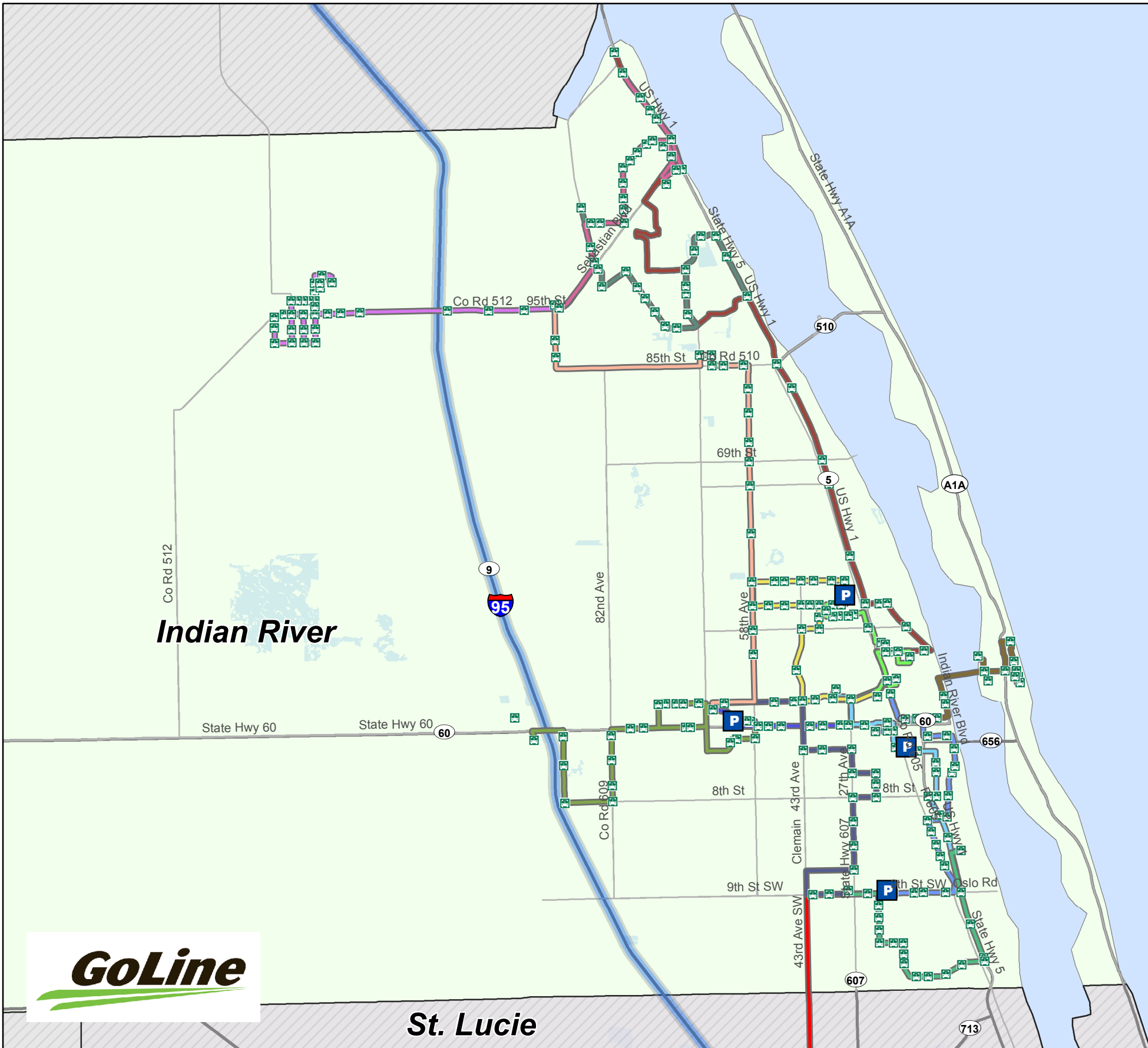
FIGURE 7-2



NOT TO SCALE

Legend

-  Study Area
-  Route 1
-  Route 2
-  Route 3
-  Route 4
-  Route 5
-  Route 6
-  Route 7
-  Route 8
-  Route 9
-  Route 10
-  Route 11
-  Route 12
-  Route 13
-  Route 14
-  Route 15
-  Bus Stops
-  Park-and-Ride



St. Lucie



I-95 Multimodal Master Plan
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 FDOT - District 4

Title:
2018 Transit Routes - Indian River County (GoLine)

FIGURE 7-3



There is a history of express bus service on I-95 in this region. Palm Tran operated an Express Bus Route from Halpatiokee Regional Park (adjacent to SR 76 in Martin County) to Palm Beach County using I-95 in the late 2000s. Peak period service was provided from Martin County to Jupiter, the Palm Beach Gardens Mall and to the Tri-Rail Station in West Palm Beach. The service was funded by a FDOT Transit Development Grant and when the grant expired after 3 years the local communities did not continue the service. A grant from FDOT was also used to construct a 75-space park-and-ride lot at Halpatiokee Park. The lot still operates as a carpool park-and-ride lot and had approximately 20 daily users in fall 2017.

For the purposes of this study, a transit route is considered to be “regional” if it crosses county boundaries or meets up with an adjacent county’s route providing the interconnectivity of the county systems. Under this definition Marty Route 1, Marty Route 20X, TCC Route 1, TCC Route 7 and GoLine Route 15 are considered to be “regional” bus routes. Note that Route 15 is the only route that currently operates on I-95.

Van-Pool/Car-Pool Activities

The FDOT South Florida Commuter Services (SFCS) program promotes and tracks van-pool and car-pool activity in the South Florida region including the I-95 corridor in Martin County, St. Lucie County and Palm Beach County. A total of 24 van-pools are in service, with 12 of the pools servicing employees at the Veterans Administration (VA) hospital in Riviera Beach, Palm Beach County. Each van-pool can hold 5-15 passengers. The average van-pool ridership for South Florida is 6.1 passengers. Van-pool participants contribute toward the costs of a subsidized monthly van rental. SFCS also has 574 car-poolers registered in the South Florida region. The existing car-pool and van-pool origins and destinations and average weekday ridership numbers are depicted in Figures 7-4 and 7-5. Van-pool and car-pool demand and origins and destinations should be considered with respect to future I-95 infrastructure needs. In addition, the number of van-pool and car-pool riders may be a source of potential riders when considering future transit service within the I-95 corridor.

The FDOT District Four conducted a Household Survey in 2017 for the Treasure Coast Region. The survey collected information from residents throughout Martin, St. Lucie, and Indian River Counties. Information available from the survey results was used as a source to report an Average Vehicle Occupancy (AVO) for the study area. The average vehicle occupancy derived from the 2017 Household Survey is shown in Table 7-3.

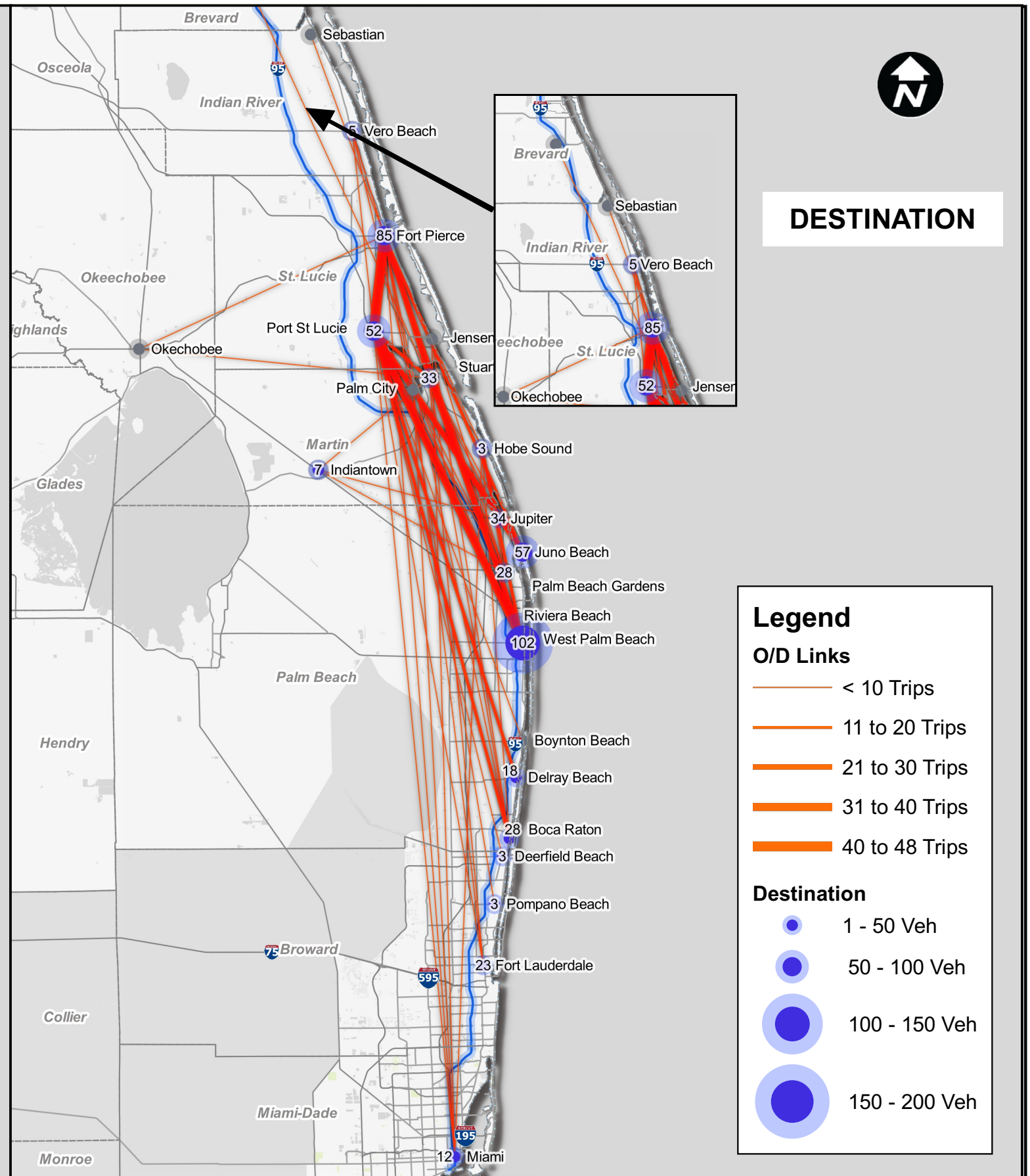
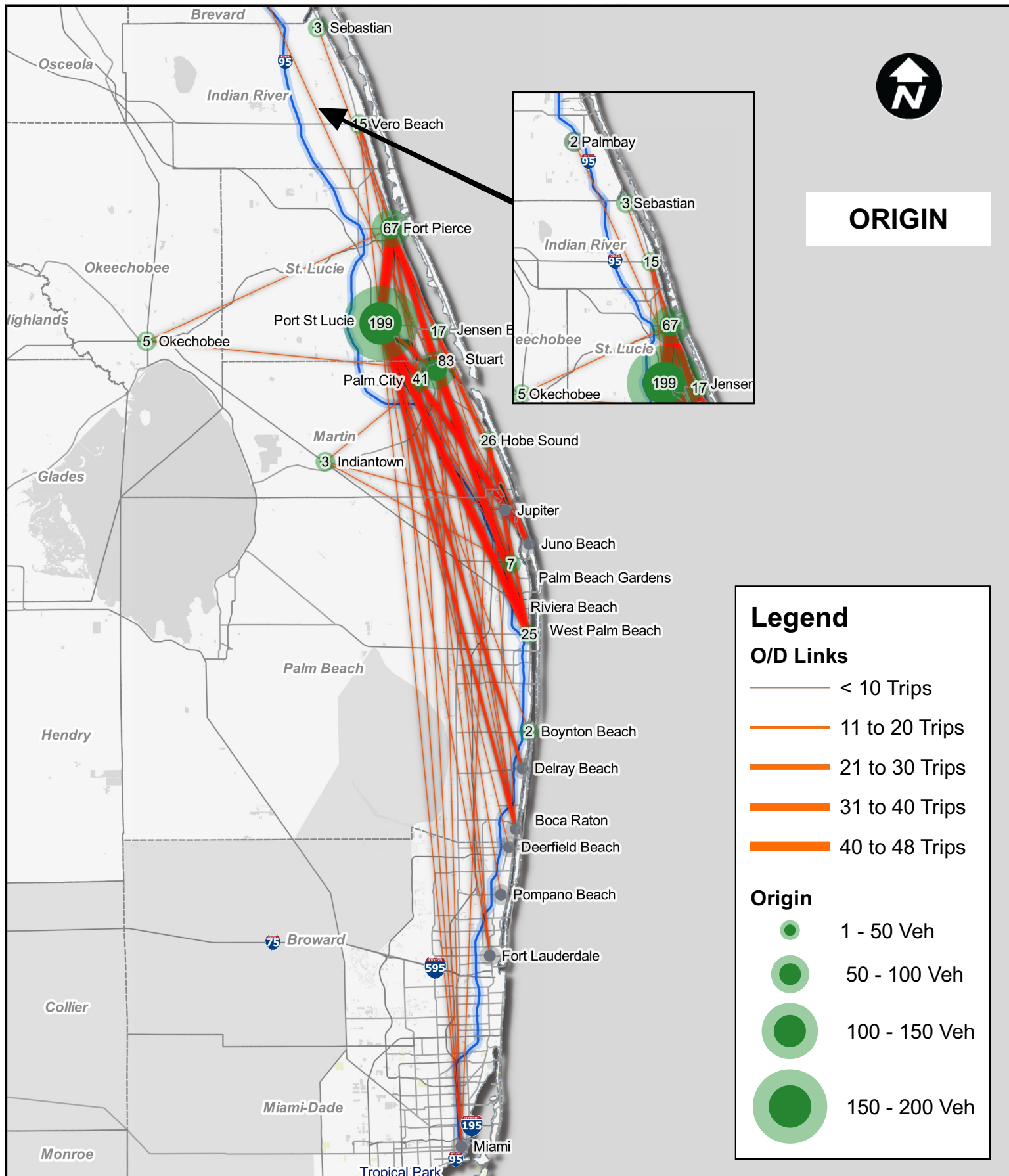
Table 7-3: 2017 Treasure Coast Average Vehicle Occupancy

| Average Vehicle Occupancy (AVO) |
|---------------------------------|
| 1.25 people per vehicle |

Source: 2017 FDOT Treasure Coast Household Survey

Data was also reviewed from the FDOT’s 2014 I-95 High Occupancy Vehicle (HOV)/Managed Lanes Monitoring Report vehicle occupancy surveys, conducted for the existing HOV lanes on I-95 near Northlake Boulevard in Palm Beach County. The data shows that the AVO in the northbound and southbound I-95 HOV lanes during the AM and PM peak hours was between 1.65 and 1.84. The AVO in the general purpose lanes was between 1.05 and 1.23 during the AM and PM peak hours. HOV lanes can encourage higher occupancy in vehicles by providing a less congested lane for car-pools and van-pools and transit users to use during peak periods.

There are no existing HOV lanes on I-95 in Martin, St; Lucie or Indian River Counties. HOV lanes can provide a beneficial strategy to move more people within a corridor without adding more vehicles to the roadway.



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Title:
Treasure Coast- Registered Car-Pool Origins and Destinations

Figure: 7-4

Brightline/Virgin Trains USA and AMTRAK Service

Brightline, now known as Virgin Trains USA, is currently operating passenger train service along the East Coast’s FEC tracks with stations in Miami, Fort Lauderdale and West Palm Beach. Current introductory fares are \$10 one-way. Brightline/Virgin Trains USA is planning to extend their route to the Orlando International Airport, running along the existing FEC corridor through Martin, St. Lucie, and Indian River counties without any intermediate stops in the three-county study area. Construction is expected to take approximately three years. However, an opening date for Orlando is currently not available.

The All Aboard Florida Ridership and Revenue Study Summary Report prepared by the Louis Berger Group, Inc. for Florida East Coast Industries, and dated September 2013 provided a ridership estimate for the passenger train service now known as Brightline/Virgin Trains USA. The service, according to the report, is expected to draw a substantial portion of its ridership from trips that would otherwise be made by auto vehicles. The percentage is expected to range from 65 percent to 93 percent depending on the origin and destination of the trips, distance traveled, and the alternative mode of transportation. The report includes ridership forecasts including both short (Miami to Fort Lauderdale, Miami to West Palm Beach, and Fort Lauderdale to West Palm Beach) and long distance (Southeast Florida to Orlando) of 11,000 riders per day in 2019 with overall growth in the number of riders expected to average 2.7%.

AMTRAK currently does not service the study area. The nearest service runs from the City of West Palm Beach to the City of Okeechobee, Florida. No additional data was available regarding proposed AMTRAK East Coast rail service.

¹ Driving Demand, the 2018 Outlook for Intercity Bus Industry in the United States, January 29, 2018, written by Joseph P. Schwieterman & Brian Antolin

Greyhound and Intercity Bus Service

Long distance Greyhound bus service operates in the region with stops in Vero Beach, Port Saint Lucie, and Fort Pierce. Two additional intercity bus companies operate in the region. The Megabus company operates multiple trips per day traveling between Miami, Fort Lauderdale and Orlando. RedCoach is another company offering regular service between Tallahassee, Fort Pierce, West Palm, Fort Lauderdale and Miami. Intercity bus service is included in this report as information on transit travel within the region. The FDOT *Florida Intercity Bus Service Needs Assessment and Action Plan, Technical Memorandum Number One - Baseline Conditions and Policy Review*, dated October 2009, contains Greyhound bus ridership data which is summarized in Table 7-4.

Table 7-4: Annual Greyhound Bus Boarding and Alightings

| | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009* |
|------------------------|------------|--------|--------|--------|--------|--------|--------|
| West Palm Beach | Boardings | 33,464 | 32,472 | 28,793 | 26,744 | 25,395 | 15,174 |
| | Alightings | 31,325 | 31,823 | 29,970 | 26,826 | 25,100 | 14,644 |
| Stuart | Boardings | 858 | | | | | |
| | Alightings | 1,887 | | | | | |
| Fort Pierce | Boardings | 20,355 | 22,350 | 24,475 | 23,193 | 22,419 | 11,877 |
| | Alightings | 20,059 | 22,463 | 25,124 | 24,699 | 23,343 | 12,108 |
| Vero Beach | Boardings | 739 | 1,012 | 2,794 | 2,622 | 1,481 | 216 |
| | Alightings | 2,855 | 2,859 | 2,597 | 2,509 | 2,246 | 325 |
| Melbourne | Boardings | 9,708 | 10,511 | 9,707 | 9,317 | 8,992 | 5,131 |
| | Alightings | 9,255 | 9,180 | 8,112 | 7,866 | 7,379 | 4,469 |
| * Jan to Sept | | | | | | | |

A recent report on short-term trends for the intercity bus industry¹ indicates that after a period of relatively slow growth, scheduled carriers are again slowly expanding. In addition, technology is pushing scheduled intercity bus travel in new directions. The report also notes that premium services, including business-class offerings, will continue to be rolled out by carriers seeking to capitalize on the airport “hassle factor” and a desire to avoid congestion. The report concludes with finding the intercity bus industry growing and filling gaps in the system, improving connectivity with Amtrak, and strengthening existing routes with new intermediate stops.

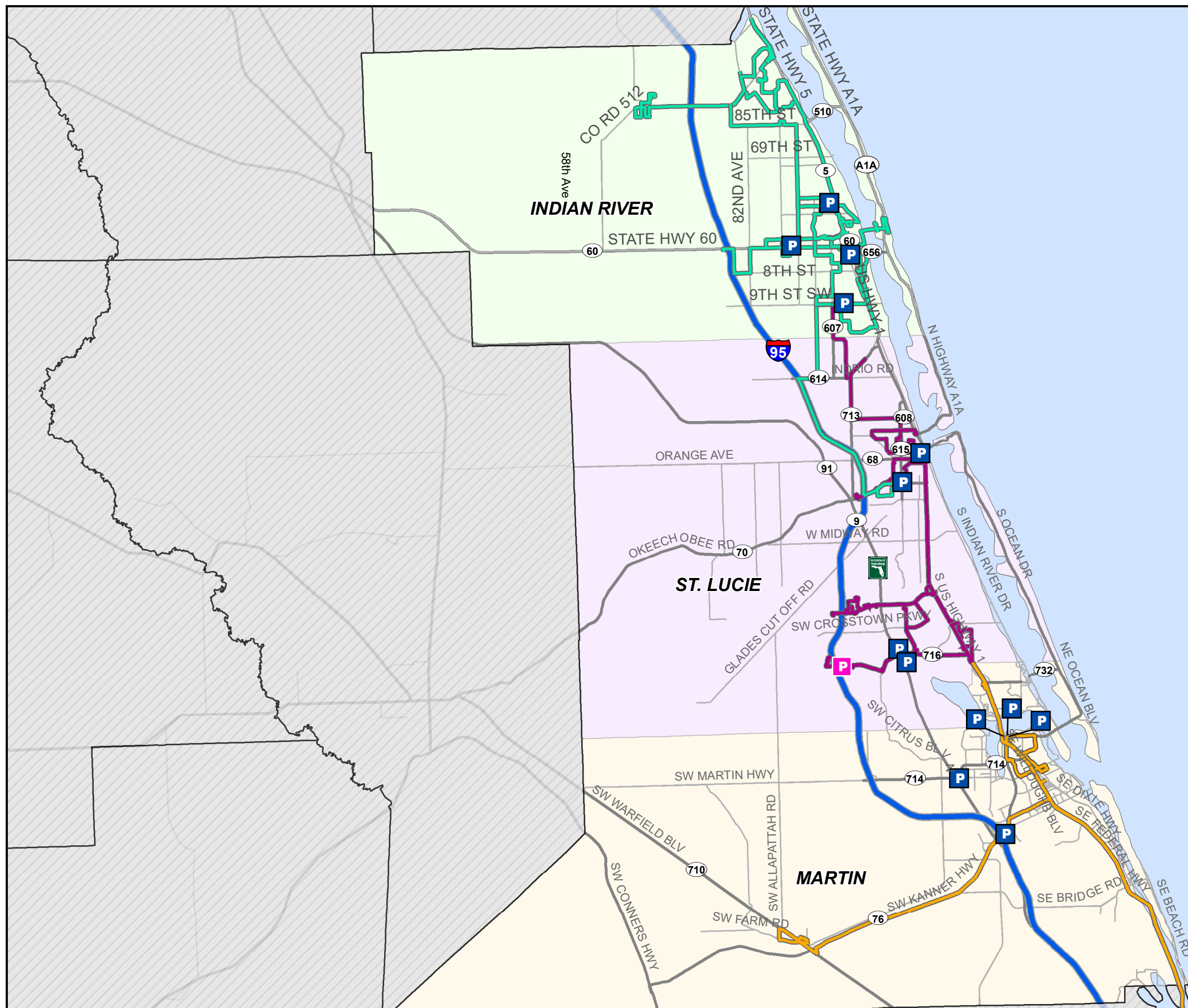
7.2 Existing Park and Ride Facilities

Park-and-ride facilities offer commuters a location to park personal vehicles and meet with other commuters to car-pool, van-pool or use transit services as alternatives to single occupancy vehicle commuting. There are 13 existing park-and-ride lot facilities in the three-county study area with a total of 497 parking spaces available. The ownership and maintenance of these facilities varies, and includes the FDOT, Florida's Turnpike Enterprise, counties, local municipalities, a Community Redevelopment Agency, and private entities. Five of the lots are in Martin County (302 spaces), four of the lots are in St. Lucie County (115 spaces) and four of the lots are in Indian River County (80 spaces).

The existing and programmed park-and-ride facilities in the three counties are shown on Figure 7-6. Interestingly only one existing park-and-ride lot (at SR 76/Kanner Highway), and one planned park-and-ride lot (at Gatlin Boulevard), are located adjacent to I-95. The existing and planned park-and-ride lots adjacent to I-95 must be considered when planning for the I-95 infrastructure needs.



NOT TO SCALE



Legend

- Indian River County Routes (GoLine)
- St. Lucie County Routes (TCC)
- Martin County Routes (Marty)

Park-and-Ride Facilities

- P Existing
- P Programmed



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Title:
2018 Transit Routes and Park-and-Ride Facilities

Figure: 7-6

7.3 Transit Plans and Ridership Data

Available transit plans and ridership data available for the three-county study area was reviewed, and relevant information is summarized in the sections below. The information is intended to inform the Master Plan efforts regarding potential future transit demand within the study area.

Transit Development Plans (TDPs)

The Transit Development Plan (TDP) is an operations and planning document updated by a transit agency every 5 years. These plans serve as both short-term and long-term guiding documents for transit agencies to consult when making service, capital, and organizational decisions. A TDP specifically includes data on needs within the agency’s service area and means of addressing those needs. The TDPs from the five counties from Palm Beach to Brevard County were reviewed for data pertinent to the I-95 Treasure Coast Multimodal Master Plan.

All five TDPs discuss the need for regional bus routes. In addition, four of the TDPs reported growth rates for transit ridership based on historic trends or future models. Annual growth rates were estimated from the growth rates reported. Table 7-5 summarizes annual ridership, average daily weekday ridership, and average annual growth rates by county. The growth rates varied significantly from 1% to 7.2%. Ridership data is from the National Transit Database.

Table 7-5: 2016 Countywide Transit Ridership and Projected County Transit Annual Growth Rates

| 2016 Ridership and Projected County Transit Annual Growth Rates | | | | | |
|---|------------|--------|-----------|--------------|-----------|
| County | Palm Beach | Martin | St. Lucie | Indian River | Brevard |
| Annual Ridership | 10,581,570 | 55,234 | 281,907 | 1,197,383 | 2,748,573 |
| Average Daily Weekday Ridership | 36,024 | 216 | 1,102 | 4,340 | 9,798 |
| Annual Growth Rate | 1.0% | 3.0% | 7.2% | 5.8% | N/A |

The Martin County TDP (2014-2023) Major Update dated June 2014 was reviewed. The plan notes that transit ridership is projected to increase at the rate of approximately 3% per year over the next 10 years. Regional projects and initiatives including the Tri-Rail Coastal Link, All Aboard Florida and Amtrak are discussed in the plan. Stakeholder input included comments to increase or provide regional connectivity to St. Lucie and Palm Beach Counties. The TDP’s objectives include developing and implementing additional regional fixed route bus service, monitoring regional and intergovernmental coordination activities, and supporting policies and agreements that encourage development and expansion of regional transit service. The Martin County TDP system wide capital improvement needs show three proposed park-and-ride facilities including at US-1 at Bridge Road, I-95 at High Meadow Avenue, and SR 710 at CR-609/Citrus Highway. Also included in the plan is the expansion of the existing park-and-ride lot at SR 714/Martin Highway and the Florida’s Turnpike Milepost 133.

An alternative Hub and Spoke system was identified to provide regional connectivity along US-1 for the Treasure Coast Express into Palm Beach County to connect with new routes. The Martin County TDP provided daily ridership projections for the existing Treasure Coast Connector (Route 1) and the Treasure Coast Express (current Route 20X) which both cross county lines.

In November 2015 Martin County Transit (Marty) created Route 20X. Route 20X operates on weekdays on US-1 between Martin County and the Gardens Mall in Palm Beach Gardens, Palm Beach County along US-1. The route operates with 10 morning trips, five originating in Martin County and five originating at the Gardens Mall in Palm Beach County; and 10 afternoon trips, five originating in Martin County and five originating at the Gardens Mall in Palm Beach County. The monthly and average weekday ridership is shown in Table 7-6.

Table 7-6: Monthly and Average Weekday Riders Marty 20X

| FY 16 | Monthly Riders | Avg Weekday Riders | FY 17 | Monthly Riders | Avg Weekday Riders | FY 18 | Monthly Riders | Avg Weekday Riders |
|---------------|----------------|--------------------|---------------|----------------|--------------------|---------------|----------------|--------------------|
| Oct 2015 | 0 | 0 | Oct 2016 | 280 | 13.33 | Oct 2017 | 512 | 23.27 |
| Nov 2015 | 76 | 3.62 | Nov 2016 | 298 | 13.55 | Nov 2017 | 488 | 22.18 |
| Dec 2015 | 101 | 4.39 | Dec 2016 | 345 | 15.68 | Dec 2017 | 512 | 24.38 |
| Jan 2016 | 174 | 8.29 | Jan 2017 | 331 | 15.05 | Jan 2018 | | |
| Feb 2016 | 181 | 8.62 | Feb 2017 | 346 | 17.30 | Feb 2018 | | |
| Mar 2016 | 199 | 8.65 | Mar 2017 | 447 | 19.43 | Mar 2018 | | |
| Apr 2016 | 196 | 9.33 | Apr 2017 | 363 | 18.15 | Apr 2018 | | |
| May 2016 | 248 | 11.27 | May 2017 | 371 | 16.13 | May 2018 | | |
| Jun 2016 | 313 | 14.23 | Jun 2017 | 341 | 15.50 | Jun 2018 | | |
| Jul 2016 | 265 | 12.62 | Jul 2017 | 380 | 18.10 | Jul 2018 | | |
| Aug 2016 | 269 | 11.70 | Aug 2017 | 564 | 24.52 | Aug 2018 | | |
| Sep 2016 | 319 | 14.50 | Sep 2017 | 340 | 16.19 | Sep 2018 | | |
| Annual riders | 2341 | | Annual riders | 4406 | | Annual riders | 1512 | |
| Monthly avg* | 195.1 | | Monthly avg | 367.2 | | Monthly avg | 504 | |

*Since inception (11 months)

Route 20X has had an average 10% monthly growth rate since inception in November 2015. Average daily ridership has increased from approximately four riders in November 2015 to approximately 24 riders in December 2017. This US-1 route operating along the eastern corridor has continued to increase ridership while the former 95 Express Bus (Halpatiokee to West Palm Beach) that operated in 2009 along the western corridor mentioned in the previous section was not able to build ridership.

The St. Lucie County TDP (2015-2024) Major Update dated August 2014 was reviewed. The ten-year priorities include connectivity to surrounding counties, specifically, connections to West Palm Beach, Indian River County, Martin County, and a Tri-Rail Coastal Link extension to Jupiter were identified as needs, as well as regional branding, regional coordination and regional fare technology.

Ridership growth rates between 2012 and 2024 are projected to increase by 85.9% over 12 years (7.2% annually).

New regional route alternatives proposed include:

- 1) I-95 Express from Gatlin Boulevard to Palm Beach County,
- 2) Florida Turnpike Palm Beach Express from the Turnpike at Port St. Lucie Boulevard to Palm Beach County, and
- 3) TriRail Express Connection into Palm Beach County from Fort Pierce along US-1 and the Lakewood Park Go-Line Connection.

The Indian River County TDP 2014 Annual Update, dated September 2014, was reviewed. Route 13 currently provides regional service to the Indian River State College Main Campus in Fort Pierce via SR 60 and I-95. The annual ridership growth rate reported for fiscal years 2011-2016 showed a total increase of 29.1% over five years (5.8% annually). Funding ended in 2012 for a regional route (Route 11) from Vero Beach to the Barefoot Bay community in Brevard County and was discontinued because it did not comply with the 0.25 passenger trips per revenue mile.

The Brevard County TDP (2013-2022) Final Report was also reviewed. Their survey results indicated that 78% of respondents thought more regional transit service was needed, including to Indian River County. The Report states coordination is critical with Indian River County and other regional partners as part of the implementation of transit services that provide connections throughout the region. However, no regional routes were proposed.

Finally, the Palm Beach County TDP (2017-2026) Executive Summary, approved on November 22, 2016, was reviewed. The document indicates that regional transit market and connectivity to adjacent counties was considered in the Plan's weighting for Alternative Evaluation Measures developed to evaluate and prioritize the transit alternatives. However no regional routes into Martin County were identified. The expected ridership growth for PalmTran from fiscal year 2017 to fiscal year 2026 is 8.6%, or 1% annually.

2040 Long Range Transportation Plans (LRTPs)

The Long Range Transportation Plan (LRTP) is a long range (25-year horizon) planning document required by the Federal Highway Administration (FHWA) to be prepared by a Metropolitan Planning Organization (MPO) for an urban area. It is the result of a collaborative process used to define the urban area's transportation system needs and funding, and serves as a vision for the area's transportation systems and services. The intent and purpose of the LRTP is to encourage and promote the safe and efficient management, operation, and development of a cost-feasible intermodal transportation system. The plan guides the funding for transportation improvements that are planned over the next 20 years.

The most recent adopted 2040 LRTPs from the Brevard MPO, the Indian River MPO, the St. Lucie Transportation Planning Organization (TPO), the Martin MPO, and the Palm Beach Transportation Planning Agency (TPA) were reviewed, as well as the 2040 Treasure Coast Regional Transportation Plan. The 2040 LRTPs identified future transit needs and "cost feasible" projects. The relevant transit projects are noted below.

Two regional transit services were included in the Martin County 2040 LRTP Moving Martin Forward plan in the Transit Needs Plan section. One new service is located on SR 710 from Indiantown to Mangonia Park Tri-Rail station. The Martin 2040 LRTP also includes the Treasure Coast Connector with increased frequency (30 min headway).

Relevant projects from the St. Lucie County Go2040 LRTP were identified in the Unfunded Transit Needs portion of the LRTP. Passenger train service along the FEC is included on the transit needs map. The St. Lucie 2040 LRTP also includes three new express bus services:

- 1) I-95 Palm Beach Express bus from Gatlin Boulevard to Palm Beach County,
- 2) Turnpike Palm Beach Express from the Turnpike at Port St. Lucie Boulevard to Palm Beach County, and
- 3) TriRail Express Connection from Fort Pierce south into Palm Beach County along US-1.

The Indian River County LRTP 2040 Update Summary Report includes two aspirational transit projects. One uses a portion of I-95, while the other does not. These routes do not cross county boundaries, and are:

- 1) Transit service from Fellsmere to Downtown Vero Beach using CR 512, I-95 and SR 60, and
- 2) Transit service along US-1 from Sebastian to Vero Beach.

The Brevard 2040 LRTP Plan includes a robust Vision Plan with strategic corridors identified throughout the county for commuter rail and BRT. The strategic corridors include US-1, SR 528, Ellis/NASA, SR 520, Fiske/Stadium, Wickham/Minton, Babcock, and SR A1A. No transit service is planned on I-95, and no regional bus service is planned into the Treasure Coast study area to the south.

One new regional bus service is proposed in the Palm Beach County LRTP Directions 2040 plan. A new I-95 Express bus service from Indiantown Road to the West Palm Beach Intermodal Center is included in the Cost Feasible Plan in fiscal years 2026-2030 with a capital cost of \$4.6 million.

The 2040 Treasure Coast Regional Long Range Transportation Plan

The 2040 Treasure Coast Regional Long Range Transportation Plan (LRTP) for Martin, St. Lucie and Indian River Counties prioritized five (5) regional transit needs. A proposed new I-95 Express Bus Route, consisting of a commuter bus route operating along the I-95 corridor from Palm Beach County to Gatlin Boulevard, ranked 28th out of 179 projects on the Regional Project Prioritization list. Four other transit needs are included on the Regional Project Prioritization List. The list includes a proposed new Turnpike Express Bus Route, consisting of a commuter bus route operating along Florida's Turnpike from Palm Beach County to SW Port St. Lucie Boulevard (Rank 35). It also includes a proposed new US 1 Bus Rapid Transit (BRT) route, consisting of a rapid transit bus

system along the US-1 corridor from Hobe Sound to Sebastian (Rank 4). A Tri-Rail extension is included on the Regional Project Prioritization list, consisting of an extension to the Tri-Rail commuter rail system which is currently serving Miami-Dade, Broward and Palm Beach counties from Palm Beach County to Fort Pierce (Rank 36). Finally, a SR 710/CSX Indiantown Multimodal Connector, consisting of a commuter bus from Palm Beach County to SW Allapattah Road (Rank 89) is included.

The 2040 Treasure Coast Regional L RTP considered three Bus Rapid Transit (BRT) transit scenarios along the US-1 corridor in Indian River County, St. Lucie County and Martin County: express BRT, limited stop BRT, and a hybrid service. The preliminary ridership estimates for the three different types of BRT service on US-1 are summarized in Table 7-7. This information provides a frame of reference for how many transit riders might utilize a long-distance, north-south BRT route in the Treasure Coast along the populated east coast US-1 corridor by 2040.

Table 7-7: Regional-Level US-1 2040 Transit Scenario Ridership

| Evaluation Variables | No-Build | Express Route | BRT Route | BRT+Express Routes |
|------------------------------|----------|---------------|-----------|--------------------|
| Total System-wide Ridership | 10,636 | 11,359 | 13,596 | 13,862 |
| New Routes Along US-1 | | 635 | 2,429 | 2,568 |
| Other Routes Along US-1 | 1,297 | 1,359 | 1,160 | 1,139 |
| Potential Transit Along US-1 | 1,297 | 1,994 | 3,589 | 3,707 |

Source: 2040 Treasure Coast Regional Long Range Transportation Plan – ridership assumed as daily

Former 95 Express Bus (Halpatiokee to West Palm Beach) Ridership

Beginning August 24, 2009, Palm Tran introduced the Commuter Express Service which connected Palm Beach and Martin counties. This park-and-ride based service began at Halpatiokee Regional Park in the City of Stuart and traveled south via I-95, making stops at the West Jupiter Recreation Center, the Palm Beach Gardens Mall and ending at Palm Tran’s Intermodal Transit Center, next to the West Palm Beach Tri-Rail Station. This express service operated two southbound AM peak trips at 5:10 AM and 6:10 AM and two northbound PM peak trips at 5:20 PM and 6:20 PM. Trips

took approximately 1 hour and 10 minutes between Martin County Halpatiokee Regional Park and the West Palm Beach Tri-Rail Station.

The service was funded by a FDOT Transit Development Grant and when the grant expired after three years the local communities did not continue the service. The average daily ridership from October 2009 to December 2009 was 52 riders.

Strategic Intermodal System 2045 Multi-Modal Unfunded Needs Plan

The FDOT’s 2045 Strategic Intermodal System (SIS) Multi-Modal Unfunded Needs Plan includes short term, mid term and long term transit and rail improvements in the region. The transit and rail improvements included in the SIS Unfunded Needs Plan in the Treasure Coast region are listed in Table 7-8. All of the transit improvements listed are considered “potential SIS” projects.

Table 7-8: 2045 SIS Multi-Modal Unfunded Needs Plan-Transit and Rail Improvements

| | Facility Locations/Limits | Improvement Type |
|---|--|-----------------------|
| Year 2035 Mid Term Transit Improvements | SR 710 Exclusive Guideway Transit Hub at Indiantown | Passenger Terminal |
| | US 1 Exclusive Guideway Transit Hub at Ft. Pierce | Passenger Terminal |
| | SR 710 Exclusive Guideway from Indiantown to Mangonia Park Tri-Rail Station | New Passenger Service |
| | US 1 Exclusive Guideway from West Palm Beach Transit Hub to Ft. Pierce | New Passenger Service |
| Year 2045 Long Term Transit Improvements | Port St. Lucie - Interregional Passenger Terminal at (Gatlin Blvd/I-95 vicinity) | Passenger Terminal |
| Year 2025 Short Term Rail Improvements | FEC Double Track A-Line for freight from Gifford to Indrio Rd | Double Track |
| | FEC from Ft. Pierce to Branch Line Upgrade for freight | Track Upgrade |
| Year 2035 Mid Term Rail Improvements | Florida East Coast Railway at Monterey Rd. / SR 714 | Grade Separation |

Source: Florida's 2045 Strategic Intermodal System Multi-Modal Unfunded Needs Plan Update

Express Bus Ridership in Other Areas of South Florida

Express bus service is a type of fixed route that typically picks up passengers from park-and-ride lots in suburban areas and takes them to a central urban location. This type of transit service usually operates for longer distance trips on a typical weekday, peak commuter time schedule. These commuter routes have limited stops, typically travel non-stop on highways (utilizing any available HOV lanes), and terminate at the central business district in the city. Fares for the service may be comparable to park-and-ride fares, and slightly higher than typical local fixed route service. Commuters from suburban areas, including state employees, students, and employees working in the central city, are viable users of this service. Typically, commuters who would otherwise utilize freeways to travel to and from work during the week serve as potential users because this service can use HOV lanes and create a less-stressful commute.

FDOT developed an express bus network in South Florida beginning in 2010 with the 95 Express Bus service between Miami-Dade County and Broward County. Original funding was provided by the Miami Urban Partnership Agreement with \$19.5M allocated to enhance transit service on I-95. Due to the initial success, service was expanded to I-595 in 2012. Currently there are 10 routes originating in Broward County. Peak-hour service is provided Monday thru Friday to Downtown Miami and the Miami Health District operated by both Broward County Transit (6 routes) and the Miami-Dade County Department of Transportation and Public Works (4 routes). New Express Bus service is expected to begin on 75 Express and Palmetto Express in the next several years that will provide destinations to the Miami International Airport with connectivity to Metrorail.

The Express Bus provides riders with an alternative to driving. While ridership on many of the fixed routes in South Florida is declining, Express Bus ridership continues to maintain or grow with more than 5,000 average daily riders. Almost 70% of surveyed riders previously commuted by driving with one-half stating that the Express Lanes influenced their decision to use transit.

Table 7-9 provides the average weekday ridership for the express routes provided by Broward County Transit (BCT) and Miami Dade Transit (MDT) for the time period July 2013 to December 2016:

Table 7-9: Annual Average Weekday Express Bus Ridership

| Operated By | Route # | Route Description | Corridor | 2013 | 2014 | 2015 | 2016 | Route Average |
|--------------------|---------|---|----------|--------------|--------------|--------------|--------------|---------------|
| BCT | 106 | Miramar - Civic Center | I-95 | | 463 | 492 | 462 | 472 |
| BCT | 107 | Hollywood - Civic Center - Downtown Miami | I-95 | 198 | 206 | 229 | 187 | 205 |
| BCT | 108 | Miramar - Civic Center | I-95 | 761 | 435 | 366 | 385 | 487 |
| BCT | 109 | Pembroke Pines - Miramar - Downtown Miami | I-95 | 589 | 603 | 584 | 566 | 586 |
| BCT | 110 | BB&T Center - Downtown Miami - Brickell | I-595 | 246 | 284 | 344 | 386 | 315 |
| BCT | 112 | BB&T Center - Downtown Ft. Lauderdale | I-595 | 84 | 75 | 42 | | 67 |
| BCT | 114 | BB&T Center - Civic Center | I-595 | | 287 | 368 | 388 | 348 |
| BCT | 114 | Weston - Civic Center | I-595 | 242 | 301 | | | 271 |
| MDT | 95 | Golden Glades | I-95 | 2,318 | 2,311 | 2,136 | 2,071 | 2,209 |
| MDT | 195 | Broward Blvd. | I-95 | 660 | 668 | 647 | | 658 |
| MDT | 195 | Broward Blvd. - Downtown Miami | I-95 | | | 568 | 548 | 558 |
| MDT | 195 | Sheridan St. | I-95 | 540 | 546 | 529 | | 538 |
| MDT | 196 | Sheridan Street - Downtown Miami | I-95 | | | 481 | 439 | 460 |
| MDT | 295 | Broward Blvd. - Civic Center | I-95 | | | 66 | 159 | 112 |
| MDT | 296 | Sheridan Street - Civic Center | I-95 | | | 61 | 138 | 99 |
| Grand Total | | | | 5,638 | 6,179 | 6,912 | 5,727 | |

St. Lucie TPO Premium Transit/Rail Corridor Study

In June 2010, the St. Lucie TPO produced a Premium Transit/Rail Corridor Study that assessed the feasibility of rail and other premium transit services on US-1, I-95, and the Florida East Coast Railway (FEC). The study presents an action plan over 20 years. It reviewed transit data from the St. Lucie County 2010-2019 TDP, future land use, major trip generators and attractors, DRIs, future population density, future employment density, future roadway conditions, future bicycle and pedestrian facilities, proposed rail, and future travel patterns for projected 2030 conditions from the Greater Treasure Coast Regional Planning Model (GTCRPM).

As part of the study, a compressed district-to-district matrix of trips between the St. Lucie County districts and the Martin County districts was extracted from the Greater Treasure Coast Regional Planning Model (GTCRPM). The information shows the desired travel corridors in 2030, with a marked shift of travel patterns to the west of I-95. This reflects the increased rate of growth and development forecasted in this portion of the county. The most desired travel corridor is west of I-95, with a maximum daily trips of 46,500. This desired travel line starts west of I-95 in northwest St. Lucie County and travels south through St. Lucie County, traveling southeast through Port St. Lucie into Jensen/East Stuart/Port Salerno. Based on this information of 46,500 maximum daily trips, and assuming 2% of the total for transit trips, a potential demand for 930 transit trips was estimated to travel this western corridor in 2030.

The alternative feasibility assessment in the Study looked at ridership potential, transit-supportive land use, economic development potential and funding potential within a one-half and one mile of the corridor to screen service alternatives and determine recommended service alternatives. The feasible premium transit alternative recommended for consideration and potential application in St. Lucie County is Enhanced Express Bus along the I-95 Corridor over the 20-year horizon.

Enhanced Express Bus is described in the study's Technical Memorandum #2 as a type of fixed-route motorbus transit service that is provided along designated routes according to a set schedule. Express services are typically used for longer distance commute trips during peak hours of demand. Express buses may provide some local circulator service near the end points of the route, but the intervening distance is often covered with few or no passenger stops. Because of the nature of these routes, local passengers often forego riding the local portions of express services in core areas of the city where other local services are available. The "enhanced" express bus is defined as an express bus service, but with buses that are equipped with enhanced technologies to provide an upgraded quality of service for patrons. No transit station locations were evaluated or discussed in this study.

The St. Lucie Study also estimated premium transit ridership for workers in St. Lucie County using 2008 American Community Survey data. The data found more than 86% drive alone, 12% carpool, and 0.3% use public transit. With new commuter service, the study predicts that an increase in transit usage could be expected, at perhaps 2%, based on transit mode splits in Florida ranging from 1% to 2% to a high of 5% in Miami. The study also estimated 640 work trips from St. Lucie County to Martin County/Palm Beach County, and 340 work trips from Martin County to Palm Beach County for a total of 980 work trips on a typical weekday may use transit.

In addition, the St. Lucie Study reported that Tri-Rail carried 3,000 passenger trips each weekday in its first year in 1989 with an increase to 12,000 daily trips in 2009. The Report cites the 1990 Census with Broward having a population density of 4.78 persons per acre and Palm Beach County having 2.59 persons per acre, with substantially greater densities in the proximity of the stations. Population density is an important factor to consider when evaluating transit service feasibility and ridership.

2015 Longitudinal Employer-Household Dynamics (LEHD) Data

Using a similar approach as the St. Lucie Study as a framework, 2015 Longitudinal Employer-Household Dynamics (LEHD) data was summarized to show regional out-of-county daily residence to work trips between Palm Beach, Martin, St. Lucie, Indian River, and Brevard Counties. Table 7-10 displays the 2015 LEHD data for regional out of county work trips on all roads throughout each county. For instance there are 2,334 residence to work trips from residents in Palm Beach County to places of work in Brevard County on a daily basis. Those 2,334 trips travel through the entire region and would most likely use US-1, I-95 or the Turnpike to make these types of long distance work trips.

Table 7-10: 2015 LEHD Data – Regional Out of County Daily Work Trips

| COUNTY | Palm Beach County (Work) | Martin County (Work) | St. Lucie County (Work) | Indian River County (Work) | Brevard County (Work) |
|---------------------------------|--------------------------|----------------------|-------------------------|----------------------------|-----------------------|
| Palm Beach County (Residence) | | 7,027 | 3,614 | 1,292 | 2,334 |
| Martin County (Residence) | 13,838 | | 5,287 | 521 | 657 |
| St. Lucie County (Residence) | 13,354 | 18,402 | | 5,745 | 1,908 |
| Indian River County (Residence) | 3,178 | 1,408 | 4,556 | | 3,155 |
| Brevard County (Residence) | 3,813 | 862 | 1,454 | 3,650 | |

Park-and-Ride Lot Utilization and Plans

Data available from FDOT District Four Park and Ride Lot Utilization surveys was gathered for all park-and-ride lots in the study area for the years 2013 through 2017. The number of occupied spaces varied each year at each location, but the total overall increased between 2013 and 2015, and then decreased between 2015 and 2017. The data is presented in Table 7-11 and shows that the utilization of the existing park-and-ride lots has not continued to trend upwards.

The space needed for car-pool and van-pool only type park-and-ride lots may not be expected to increase without connection to transit service. However, it is important to plan for and continue to provide park-and-ride lot opportunities as a choice for commuters. Increasing car-pool and van-pool opportunities at strategic locations can be a beneficial strategy to reduce the number of vehicles on I-95 and other roads. Based on the annual average number of daily vehicles parked in the Martin

and St. Lucie County Park-and-Ride lots (approximately 150 vehicles per day), this has reduced vehicles on the roadway network by the same number of vehicles per day.

Table 7-11: Park-and-Ride Lot Utilization

| | Park and Ride Lot | Fall 2013 Spaces Occupied | Fall 2014 Spaces Occupied | Fall 2015 Spaces Occupied | Fall 2016 Spaces Occupied | Fall 2017 Spaces Occupied |
|-------------------------|--|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Martin County | Halpatiokee Regional Park | 17 | 20 | 17 | 14 | 20 |
| | Martin Highway and Turnpike Milepost 133 | 30 | 25 | 24 | 31 | 16 |
| | Kiwanis Park | 6 | 5 | 21 | 22 | 4 |
| | City of Stuart Sailfish Circle | 23 | 40 | 54 | 45 | 31 |
| | Osceola | 10 | 14 | 15 | 12 | 14 |
| St. Lucie County | Council on Aging | no data | 1 | 10 | 0 | 3 |
| | Port St. Lucie Bayshore Boulevard | 53 | 50 | 36 | 40 | 20 |
| | St. Lucie County Administration Complex | 0 | 0 | 0 | 1 | 0 |
| | Fort Pierce Intermodal Facility | 3 | 2 | 4 | 2 | 2 |
| | Total occupied spaces | 142 | 157 | 181 | 167 | 110 |

The FDOT Work Program shows one planned park-and-ride lot within the I-95 Multimodal Master Plan study area. The Gatlin Boulevard park-and-ride lot is located between Brescia Street and Edgarce Street in St. Lucie County and is funded for construction in FY 19/20. In addition, consistent with the District Four Draft Park-and-Ride lot Master Plan, dated July 2018, one new park-and-ride lot site is being considered in the study area. It is located at the I-95 and SR 76/Kanner Highway interchange.

7.4 Transit Mode

The type of transit mode envisioned for the I-95 corridor in the Treasure Coast should be based on the needs and characteristics of the community. Transit mode is dependent on many factors including surrounding land uses, commute patterns, transit service plan (service area, stops, headways), operating environment, costs, and available resources. Factors that influence transit travel include the quality of service a passenger receives, the cost they must pay for the service, and the time it takes to reach their destination. Quality, costs and time must be carefully balanced when determining appropriate transit service and technology. Various types of transit modes or technologies can provide different levels of service and capacities, and come with different capital costs and operating costs.

Various types of local and express buses are operating in the Treasure Coast study area, with some crossing the I-95 corridor. The existing buses operate on fixed-route service or regular schedules. There is also demand-response bus and intercity bus service operating in the region. The two types of transit modes that can serve medium and long distance passenger trips, express bus service and Light Rail Transit (LRT), are discussed below.

Express bus service is provided in other parts of South Florida on limited access highways such as I-95 during weekday morning and afternoon peak travel hours. Portions of express bus routes travel off the interstate to pick up or drop off passengers, and buses run primarily in the express lanes when they are on limited access facilities such as I-95 and I-595. Express buses on the interstate make stops at dedicated areas such as park-and-ride facilities (which can provide free parking), regional transit centers, and major transit rail and bus stations. They are faster and often non-stop or limited stop service, and the types of buses provide a higher level of comfort than other buses, as they serve medium and long distance trips. Express bus service is similar to Bus Rapid Transit in that it can provide for medium to long distance trips, has similar operating speeds (10 to 65 mph), can seat the same number of passengers per bus (45 to 65), typically provides a higher quality of service, and has its own branding. The express buses do not run in a fully dedicated right-of-way and may not have dedicated bus stop facilities. They run during

rush-hour only. Integrating the bus service with existing and planned roadway infrastructure keeps capital costs low. However, costs of purchasing the buses and annual operating costs must be considered as well. The level of ridership on express buses that run on I-95 and I-595 in Miami-Dade and Broward Counties ranges from 67 average weekday riders for the BB&T Center to downtown Ft. Lauderdale route in Broward County, to a maximum of 2,209 average weekday riders for the Golden Glades route in Miami-Dade County.

LRT in Florida is considered public transport that uses steel-tracked fixed guideways and electric-powered trains. It is often a high-capacity mode of transit, and operates primarily in exclusive right-of-way with vehicles capable of operating as a single train or multiple units coupled together. The service area of this mode is often urban. Speeds over grade-separated rights of way range from 30 to 65 mph. Normal station spacing is approximately 1 mile. Like BRT, LRT service typically runs frequently, from five to 10 minutes during peak travel periods and from 10 to 20 minutes during other times of the day. According to the FDOT “A Primer for Implementing Transit Fixed Guideway Projects” pamphlet, the average capital cost per mile (not including right-of-way costs) is between \$14 million and \$41 million per mile, and the average operating cost per trip (not the passenger fare) is \$3.20. Optimal passenger capacity per hour, assuming a train arrives at a station every 10 minutes, is between 2,000 and 2,300 passengers per hour.

The I-95 corridor through Martin and St. Lucie Counties is located primarily west of two other highly traveled north-south corridors (US-1 and Florida’s Turnpike), and west of where the population density is concentrated along the east coast. However, the population is expected to grow significantly in the western portion of St. Lucie County, increasing the potential for new transit riders. I-95 provides a continuous, relatively uninterrupted north-south corridor in the Treasure Coast region that connects the three counties to each other as well as to West Palm Beach and Palm Beach County where a significant number of people make daily trips to commute to work.



The existing and future volumes on I-95 through the Treasure Coast (with an approximate 160,000 vehicles per day (vpd) by 2045) are not expected to reach levels observed on I-95 in Miami-Dade or Broward Counties (close to 300,000 vpd in 2017) where express bus service is currently provided. The congestion on I-95 in Miami-Dade and Broward Counties is a motivator for people to use transit/express bus. Since future traffic volumes and level of congestion in the Treasure Coast are not anticipated to reach the same level as it is in South Florida, travel time savings and/or cost savings due to high parking costs in Miami-Dade and Broward counties are not anticipated to be large motivators for transit use in the I-95 corridor in the Treasure Coast.

In addition, the potential transit market located near the I-95 corridor is not yet large, but is expected to grow somewhat over time with planned population growth in the study area, specifically in western St. Lucie County. Express bus service using the I-95 corridor was previously provided between 2009 and 2012, and may be provided again in the future to serve regular long distance commuters between: City of Ft. Pierce and western St. Lucie County areas, City of Stuart area, and City of West Palm Beach area. Express bus can work together with planned new park-and-ride lots to be located on Gatlin Boulevard near I-95, and at the I-95 and SR 76/Kanner Highway interchange. Such a bus service would pick up and drop off riders at the park-and-ride sites along the corridor, and serve medium and long distance trips. Express bus service is relatively easy to implement and is a lower cost option to consider within the planning horizon of 2045.

7.5 Transit Ridership Projections (2045)

In order to develop forecasts of transit usage in the region, several documents developed by FDOT and local agencies were reviewed. The documents that were reviewed included the 2040 Long Range Transportation Plan documents developed by the Martin, St. Lucie, and Indian River M/TPOs, and a regional 2040 Long Range Transportation Plan developed for the Treasure Coast Transportation Council made up of the three M/TPOs. In addition, the Transit Development Plans for the three fixed-route bus service providers, and FDOT District Four’s draft Park-and-Ride Master Plan documents were reviewed. Key information derived from the various sources of transit information related to transit ridership is summarized below.

The three fixed-route bus service providers in the region are Martin County Public Transit (Marty) in Martin County, the Treasure Coast Connector (TCC) in St. Lucie County, and GoLine in Indian River County. The Marty operates four fixed routes, the Treasure Coast Connector operates seven fixed routes, and GoLine operates 15 fixed routes. The 2016 average weekday ridership on these systems from National Transit Database are shown in Table 7-12 below.

Table 7-12: 2016 Average Weekday Systemwide Transit Ridership

| System | 2016 Weekday Ridership |
|--------------------------|------------------------|
| Marty | 216 |
| Treasure Coast Connector | 1,102 |
| GoLine | 4,340 |
| Total | 5,658 |

Within the I-95 study area, seven existing transit routes intersect with I-95. Only one route, GoLine Route 15, travels on I-95 from the Indian River County Intergenerational Center to Indian River State College Main Campus in Fort Pierce, entering and exiting I-95 at Okeechobee Road (SR 70) and Indrio Road (SR 614).

There are thirteen existing park-and-ride lot facilities in the Treasure Coast counties with approximately 500 total parking spaces available. These lots are currently used mainly by carpoolers and to a limited extent by transit users.

Commute Market

Understanding commute travel patterns provides a good measure of potential transit demand on future premium transit services. Table 7-13 provides a summary of the county-to-county work travel flows in Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward and Miami-Dade counties using Census Bureau’s 2015 Longitudinal Employer-Household Dynamics (LEHD) data.

Table 7-13: County-to-County Home-to-Work Flows (2015 LEHD)

| | Workplace | | | | | | |
|--|-----------|--------------|-----------|--------|------------|---------|------------|
| | Brevard | Indian River | St. Lucie | Martin | Palm Beach | Broward | Miami Dade |
| Residence | | | | | | | |
| Brevard | 145,107 | 3,650 | 1,454 | 862 | 3,813 | 3,397 | 3,158 |
| Indian River | 3,155 | 27,826 | 4,556 | 1,408 | 3,178 | 2,445 | 1,715 |
| St. Lucie | 1,908 | 5,745 | 42,824 | 18,402 | 13,354 | 5,034 | 3,489 |
| Martin | 657 | 521 | 5,287 | 24,080 | 13,838 | 2,592 | 1,735 |
| Palm Beach | 2,334 | 1,292 | 3,614 | 7,027 | 380,661 | 75,771 | 31,271 |
| Broward | 1,931 | 902 | 1,850 | 1,914 | 77,750 | 514,865 | 159,850 |
| Miami Dade | 1,572 | 653 | 1,591 | 1,596 | 30,784 | 128,305 | 829,757 |
| Work trips within three (3) Treasure Coast Counties | | | | | 130,649 | | |
| Work trips from Treasure Coast Counties to/from Palm Beach | | | | | 42,303 | | |

Using similar commute travel data, St. Lucie TPO’s 2010 Premium Transit/Rail Corridor Study recommended that the feasible premium transit alternative for consideration and potential application in the County is Enhanced Express Bus along the I-95 corridor. The M/TPO 2040 Long Range Transportation Plans and transit agency Transit Development Plans include bus system improvements, but do not include a future rail project within the I-95 study area. St. Lucie TPO’s 2040 LRTP includes an Express bus service along I-95 from Gatlin Boulevard to Palm Beach County as an unfunded needs project.

The FDOT District Four draft Park-and-Ride Master Plan report analyzed the commute market in detail using the 2014 LEHD data by identifying specific origin and destination “activity centers” in Martin, St. Lucie, Indian River, and northern Palm Beach Counties that could potentially be served by Express bus service. These activity centers represent high employment density areas that may attract regional transit riders from various origin areas.

Table 7-14: FDOT Park-and-Ride Master Plan - Estimated Weekday Commute Trips Between Origin Areas and Activity Centers

| County | Activity Center | Origin Areas | | | | | |
|-----------------|-----------------|--------------------------|-----------------|---------------------------------------|--|----------------------------------|--------|
| | | I-95/ Fellsmere Rd | I/95 & SR 60 | Vero Beach Municipal Airport | Midway Rd/ Between Turnpike and US 1 | Gatlin Blvd /Port St Lucie | Stuart |
| Indian River | Sebastian | | 35 | 150 | | 35 | |
| | Vero Beach | 100 | | | 35 | 55 | 10 |
| St. Lucie | Ft. Pierce | 32 | | 125 | | 250 | 50 |
| | St Lucie West | | | 75 | | | 25 |
| Martin | Stuart | | | 150 | 25 | 275 | |
| Palm Beach | Palm Beach | | | | | 30 | 50 |
| | West Palm Beach | | | | | 125 | 25 |
| | Delray Beach | | | | | | |
| | Boca Raton | | | | | | |

Source: Table 3-3 from Draft 2018 FDOT District Four Park-and-Ride Master Plan (2014 LEHD Data)

As shown in Table 7-14, the number of trips from the Gatlin Boulevard/Port St. Lucie and Stuart origin areas to the St. Lucie West, Stuart, Palm Beach, and West Palm Beach activity centers is 530 commute trips. Based on the locations of these origins and activity centers, a portion of these commuters are expected to use the I-95 corridor. In addition, a portion of these commute trips may choose to use transit if the option were provided.

The FDOT District Four currently has two planned park-and-ride lots near I-95 within the three counties: 1) at Gatlin Boulevard, and 2) at SR 76/Kanner Highway. The planned location of the Gatlin Boulevard park-and-ride lot is between Brescia Street and Edgarcce Street in St. Lucie County, and it is funded for construction in Fiscal Year 2019/2020. The I-95 and SR 76/Kanner Highway park-and-ride lot was recently proposed for funding by FDOT based on the District Four Park-and-Ride Lot Master Plan.

Year 2045 Transit Ridership Demand

Average weekday 2045 ridership was estimated for planned local bus services within the three county region. In addition, a range of potential 2045 transit demand for the I-95 corridor was estimated. The Treasure Coast Regional Planning Model (TCRPM) version 4.0, as well as other data sources, were used to develop the 2045 transit ridership demand described herein.

Systemwide Ridership Estimates from TCRPM (Local and Limited Stop bus services)

The average weekday 2045 ridership for planned local and limited stop bus services within the three county region was obtained from the Treasure Coast Regional Planning Model (TCRPM) version 4.0. TCRPM has a built-in transit modeling and forecasting component. The TCRPM version used for the I-95 Master Plan study has a base year of 2010 and a horizon year of 2045. The transit networks in the 2010 model represent the service that operated in 2010 and the 2045 transit networks represent the transit service identified as part of the M/TPOs 2040 LRTP process.

In terms of service, the 2045 network assumes a 57% increase in service route miles over 2010 in the Treasure Coast region. Table 7-15 provides vehicle route miles and vehicle route hours (transit supply) by County along with estimated daily ridership (transit demand). The ridership by 2045 in the region is projected to be more than double that of 2010 levels. Based on the model estimate, both Indian River and St. Lucie Counties are expected to see approximately 3,000 additional transit riders in each of their systems.

Table 7-15: Vehicle Route Miles and Vehicle Route Hours by County

| County | Year 2010 TCRPM | | |
|---------------|----------------------------|-----------------|---------------------|
| | Veh Route Miles | Veh Route Hours | Estimated Ridership |
| Indian River | 3,887 | 141 | 3,588 |
| St. Lucie | 3,620 | 140 | 755 |
| Martin County | 1,225 | 37 | 204 |
| Regionwide | 8,732 | 317 | 4,547 |
| County | Year 2045 TCRPM | | |
| | Veh Route Miles | Veh Route Hours | Estimated Ridership |
| Indian River | 3,852 | 150 | 6,484 |
| St. Lucie | 8,311 | 301 | 3,322 |
| Martin County | 1,555 | 45 | 679 |
| Regionwide | 13,717 | 497 | 10,485 |
| County | Percent Change (2045-2010) | | |
| | Veh Route Miles | Veh Route Hours | Estimated Ridership |
| Indian River | -1% | 7% | 81% |
| St. Lucie | 130% | 115% | 340% |
| Martin County | 27% | 24% | 233% |
| Regionwide | 57% | 57% | 131% |

Notes: Veh Route Miles and Veh Route Hours calculation assume 6 hour peak service and 10 hour off-peak service.

Route Level Ridership from TCRPM (Local and Limited Stop bus services)

Table 7-16 provides the list of local and limited stop transit routes that operated in 2010 as well as the routes that are included in the 2045 networks. Routes that operate in the vicinity of I-95 are highlighted in the table. The data shows substantial percent increase in the ridership; however, the magnitude of total transit ridership in the region and in the I-95 study area is expected to be a small portion of overall travel.

Table 7-16: Route-Level Average Weekday Ridership Projections from TCRPM

| County | Route | Route Name | Service Type | 2010 Ridership | 2045 Ridership | Change | % Change |
|-------------------------------|-----------|--|--------------|----------------|----------------|--------------|-------------|
| Indian River County | 1 | Beachside | Local | 130 | 266 | 136 | 105% |
| | 2 | IR Mall/Hub | Local | 480 | 732 | 252 | 53% |
| | 3 | Gifford Health Center/Hub | Local | 184 | 344 | 160 | 87% |
| | 4 | South Vero Beach | Local | 490 | 294 | (196) | -40% |
| | 5 | Sebastian (North Area) | Local | 332 | 488 | 156 | 47% |
| | 6 | South Vero Sq | Local | 136 | 496 | 360 | 265% |
| | 7 | Oslo Plaza / IR Mall | Local | 400 | 352 | (48) | -12% |
| | 8 | Gifford Health Center/Hub | Local | 172 | 366 | 194 | 113% |
| | 9 | Sebastian / Wabasso / IR Mall | Local | 228 | 766 | 538 | 236% |
| | 10 | Fellsmere | Local | 20 | 204 | 184 | 920% |
| | 11 | Barefoot Bay / Main Transit Hub | Local | 132 | 380 | 248 | 188% |
| | 12 | Sebastian (South Area) | Local | 280 | 288 | 8 | 3% |
| | 13 | Indian River Mall/Indian River State College | Local | 236 | 544 | 308 | 131% |
| | 14 | Main Transit Hib / Oslo Plaza | Local | 368 | 964 | 596 | 162% |
| St. Lucie County | 1 | Fort Pierce Intermodal | Local | 185 | 654 | 469 | 254% |
| | 2 | North Fort Pierce Residential | Local | 169 | 356 | 187 | 111% |
| | 3 | Fort Pierce Business | Local | 137 | 332 | 195 | 142% |
| | 4 | City of Port St. Lucie Trolley | Local | 48 | 163 | 115 | 240% |
| | 5 | Gatlin/SW Port St. Lucie Blvd | Local | 12 | 122 | 110 | 917% |
| | 6 | Prima Vista | Local | 204 | 232 | 28 | 14% |
| | 10 | Midway Rd | Local | No Service | 73 | 73 | |
| | Hutchison | Hutchison Island | Local | No Service | - | - | |
| | South | South County Flex | Local/Flex | No Service | 20 | 20 | |
| | Sunrise | Sunrise Blvd | Local/Flex | No Service | 118 | 118 | |
| | Torino | Torino Flex | Local/Flex | No Service | 28 | 28 | |
| | Tradition | Tradition Flex | Local/Flex | No Service | 24 | 24 | |
| | 7 | Lakewood Park | Limited Stop | No Service | 104 | 104 | |
| | 15 | Oslo Rd to Ft. Pierce | Limited Stop | No Service | 736 | 736 | |
| | 16 | FP/PSL Express along 25th St | Limited Stop | No Service | 244 | 244 | |
| | US1X | US 1 Express Fort Pierce Intermodal Express | Limited Stop | No Service | 116 | 116 | |
| Martin County | 1 | TCC-US1 Corridor | Local | 92 | 287 | 195 | 212% |
| | 2 | Indiantown | Local | 40 | 36 | (4) | -10% |
| | 3 | Stuart | Local | 72 | 180 | 108 | 150% |
| | TCX | Treasure Coast Express | Express | No Service | 176 | 176 | |
| Regionwide | | | | 4,547 | 10,485 | 5,938 | 131% |
| I-95 Study Area Routes | | | | 697 | 2,393 | 1,696 | 243% |

7.6 Potential Transit Demand in I-95 Corridor

To estimate the potential transit demand in the I-95 corridor, the existing and future ridership projections of other existing and planned transit routes were reviewed, along with commute trip data. For estimating purposes, transit was generally assumed to be express bus, which would run from a park-and-ride facility near Gatlin Boulevard interchange in St. Lucie County to downtown West Palm Beach, with an intermediate stop at a future I-95 and SR 76 park-and-ride facility. Ridership heavily depends on proximity to the population being served, the density of the population, connections to employment or activity centers, stop locations, service hours, and service frequencies. In the absence of definitive information for these variables, a rough range of potential demand is presented here based on the LEHD commute trip data, system-wide ridership data, and specific route ridership data for similar services in Treasure Coast and South Florida.

After reviewing the commute market magnitudes presented in an earlier section and ridership data, the transit demand in the I-95 corridor could begin on the low end at approximately 50 riders per average weekday. This is based on the average weekday ridership of the 95 Express route that operated along I-95 between Halpatiokee Park in Martin County to West Palm Beach between 2009 and 2012.

The County-to-County Home-to-Work flows from the 2015 LEHD data were used to estimate the high end of the ridership range for transit within the I-95 corridor. The 2015 LEHD data shows that 27,192 commute trips are made from St. Lucie and Martin Counties to Palm Beach County. Assuming that 1/4 of these trips may use the I-95 corridor versus the Turnpike, US-1, or other north-south corridor, this equates to approximately 6,800 average daily commute trips in one direction on I-95. Multiplying this by two, to include the reverse trips, results in 13,600 daily commute trips. This equates to approximately 30% of the total I-95 daily traffic volume in Martin County in year 2017. Multiplying the total estimated daily commute trips on I-95 by a 2% assumed transit mode split, the high end of the transit ridership range is approximately 270 average

weekday riders. The estimated I-95 Corridor Transit Demand Ridership Range is summarized in Table 7-17.

Table 7-17: I-95 Corridor Estimated Average Weekday Ridership Range

| Low End Estimate (Average Riders per Weekday) | High End Estimate (Average Riders per Weekday) |
|---|--|
| 50 | 270 |

The US-1 corridor is a similar highly traveled north-south corridor which provides a connection to all three counties in the study area, as well as to Palm Beach County and beyond. There is a higher concentration of people living near and along the US-1 corridor than along the I-95 corridor, so express bus service on the US-1 corridor is expected to show higher or similar potential transit ridership as the I-95 corridor if all other factors were held constant. For comparison, the 2045 estimated ridership forecast from TCRPM for the proposed future new express bus service along US-1 in Martin County, is projected to have 176 average weekday riders. The I-95 high end ridership estimate is slightly greater than the US-1 express bus ridership. With additional factors taken into consideration, as was the case for the US-1 express bus service including a service plan, hours of operation, and stop locations, the ridership estimate for I-95 may come closer to the US-1 corridor estimate.

For additional perspective, the Miami-Dade Transit I-95 express bus service operating between Fort Lauderdale and downtown Miami has an average weekday ridership of 558 riders. It is important to note that the Fort Lauderdale to Miami express bus service operates in a corridor that experiences significant auto congestion; a level that will not occur in the Treasure Coast region even in 2045. Therefore, additional motivating factors would need to be implemented to attract such high ridership in the Treasure Coast. These may include an aggressive service plan or cost savings realized from avoiding parking costs at destinations. However, transit ridership in the Treasure Coast is not anticipated to approach the ridership reported for the Broward and Miami-Dade County express bus service by 2045.

Based on the high end of the demand presented in Table 7-17, transit riders on I-95 can potentially be accommodated by less than 5 bus trips during the morning peak period and the same number of reverse commute trips in the evening peak period. Assuming an average auto occupancy of 1.25 (based on 2017 Treasure Coast Household Travel Survey), the demand could potentially remove up to 216 single occupancy vehicle trips in a day, or 54 vehicles during the AM peak hour and 54 vehicles in the PM peak hour (assuming a 2-hour morning peak period bus service and 2-hour evening peak period service).

Summary of Transit Demand Findings

The 2016 system-wide transit ridership in the Treasure Coast region on an average weekday is 5,658 riders. It is estimated to increase to approximately 10,485 by 2045. Much of the transit ridership occurs on existing and planned local bus routes, many of which are located outside the I-95 study area and will not directly impact vehicular demand on I-95.

Assuming a new transit service is provided along the I-95 corridor, such as an express bus service, a low and high end transit ridership range was estimated based on commute market magnitudes and ridership data. Between 50 and 270 average riders per weekday are estimated to use transit along the I-95 corridor in the Treasure Coast. Assuming the high end of the ridership range, the peak hour volume in 2045 on I-95 could be reduced by up to 54 vehicles in each direction during

the peak hour. This level of ridership will not decrease the volume on I-95 significantly enough to eliminate the need for additional lanes in some parts of the corridor.

However, express buses can provide an alternate modal option for commuters along I-95, and the I-95 Master Plan improvement concepts should not preclude potential future transit such as express buses. Design concepts should consider the potential implementation of express bus service that may use I-95, as well as park-and-ride lots in the vicinity of I-95 interchanges.

8.0 TRAFFIC FORECAST

Average Annual Daily Traffic (AADT) and peak-hour traffic volumes for the study roadways were developed and are documented in detail in the *Traffic Forecast Report* for the I-95 Multimodal Master Plan, dated and approved September 2018. This report, included in Appendix B, details the development of traffic volumes for the existing year (2017), future year 2030, and future year 2045 for the I-95 freeway, interchanges, and intersections. Key information from the *Traffic Forecast Report* is summarized in the sections below.

8.1 Travel Demand Model

The Treasure Coast Regional Planning Model (TCRPM 4.0) was used for travel demand forecasting. The model has a base year of 2010 and a horizon year of 2040. In 2016, FDOT District Four developed a project-specific version of TCRPM for the SIS 2045 Unfunded Needs Plan Assessment. This project-specific 2045 TCRPM version was utilized as the primary travel demand model for traffic projections in this study. The 2010 base year model was validated to the year 2010 AADT. In addition, the 2045 model was reviewed including the socio-economic data, the highway network, base year model estimates, external trips, and projected traffic growth. Refinements were made as necessary.

The 2045 travel demand model highway network was updated based on coordination with FDOT District Four and Florida's Turnpike staff. The St. Lucie County "Northern Connector" new proposed future roadway connection between the Turnpike and I-95 was removed. The Turnpike mainline was coded as six lanes.

In addition, new interchange access connections (under consideration as part of other ongoing studies) were coded along the Turnpike at the following locations:

- Midway Road (full interchange),
- St. Lucie West Boulevard (partial interchange with connections to and from the north),
- Crosstown Parkway (partial interchange with connections to and from the south), and
- I-95 – Turnpike direct connections between Indiantown Road and Bridge Road interchanges.

The final model run included these network modifications. The model run was conducted with trip tables not locked for 2045 highway network volume assignment.

During the initial phases of this master plan study three model test runs with different assumptions for the number of lanes on I-95 were made. Model run tests were made assuming six, eight or ten-lanes on the I-95 mainline through the study area. Comparing the six-lane and eight-lane model run results, the model suggested significant competition for trips between I-95 and Turnpike, given the proximity of the two facilities in Martin and St. Lucie Counties. When increasing the capacity on I-95 in the model, there was a corresponding drop in volume on the Turnpike. There was a noticeable traffic volume increase in the I-95 2045 daily volumes from the six-lane model run to the eight-lane model run between SR 70/Okeechobee Road and SR 76/Kanner Highway. The ten-lane model run did not show significant change in I-95 model volumes compared to the eight-lane model results. The eight-lane model run scenario was the most comparable to the Turnpike's model run for the ongoing Turnpike PD&E study from Indiantown Road to Okeechobee Road. The eight-lane model run was selected as the best representation of unconstrained demand on I-95, and resulted in the most reasonable balance of traffic using Turnpike and I-95. For the purpose of developing growth projections for this study area, I-95 was coded with eight lanes for the entire length of the study area. The lanes were coded as general-purpose lanes only and not express lanes.

8.2 Forecasted 2030 and 2045 AADTs

Traffic forecasts for 2030 and 2045 daily volumes and peak hour volumes were developed, after evaluating and considering the various traffic forecasting methods and results. The most reasonable forecasting method and growth rates for the study segments were selected to develop consistent traffic projections. The following forecasting methods were considered:

- Socioeconomic growth between the base year 2010 and future year 2045,
- Regression analysis of 10 years of historical AADTs,
- Regression analysis of 10 years of historical AADTs including the 2045 adjusted model volumes,
- Growth rates from TCRPM 2010 and 2045 model run daily volume outputs, and
- Adjusted 2045 model volumes.

To develop the 2030 and 2045 AADT forecasts the 2045 travel demand model results were considered along with 10 years of the most recent historic traffic trends, and population and employment growth. Based on the considerable population and employment growth that is expected in the region and the many expected changes to the future roadway network, the forecasted volumes on most I-95 segments, ramps and crossroad segments were based on adjusted 2045 model volume outputs. For minor roadways not included in the TCRPM 4.0 network, growth rates from other approaches at the same intersection were considered. A minimum annual growth rate of 1.5% was determined based on expected growth of the region, and used for forecasting volumes for roadways where no other information was available.

The resulting 2030 and 2045 forecasted AADTs are shown along with the 2017 existing AADTs on Figure 4-1 on pages 4-3 through 4-6.

8.3 Forecasted 2030 and 2045 Daily Truck Volumes

The heavy vehicle percentage, or T-factors, were used to forecast truck volumes for 2030 and 2045, by applying the existing T-factors to the forecasted 2030 and 2045 AADTs. The forecasted truck volumes are shown in Table 8-1 for the I-95 mainline segments, and in Table 8-2 for the arterial crossroad segments. (Please note that study locations in each county are grouped together by different colored rows in Tables 8-1 and 8-2.)

Table 8-1: Daily Truck Volumes on I-95 Mainline

| Location | Study Interchange | Location | Estimated Daily Truck Volume | | | |
|---------------|-----------------------|-------------------------------|---|-------|--------|--------|
| | | | 2017 | 2030 | 2045 | |
| I-95 Mainline | | CR 708/SE Bridge Road | South of Bridge Rd | 9,517 | 11,838 | 14,392 |
| | 1 | CR 708/SE Bridge Road | North of Bridge Rd/South of SR 76 | 9,517 | 11,838 | 14,392 |
| | 2 | SR 76/SW Kanner Highway | North of SR 76/South of High Meadows Ave | 8,357 | 11,258 | 14,508 |
| | 3 | SW High Meadows Avenue | North of High Meadows Ave/South of SR 714 | 6,732 | 9,169 | 12,071 |
| | 4 | SR 714/SW Martin Highway | North of SR 714/South of Becker Rd | 7,428 | 10,330 | 13,579 |
| | 5 | SW Becker Road | North of Becker Rd/South of Gatlin Blvd | 6,700 | 9,300 | 12,300 |
| | 6 | SW Gatlin Blvd/Tradition Pkwy | North of Gatlin Blvd/South of Crosstown Pkwy | 7,900 | 11,300 | 15,300 |
| | 7 | Crosstown Pkwy | North of Crosstown Pkwy/South of St. Lucie W Blvd | 8,200 | 11,800 | 15,900 |
| | 8 | St. Lucie W Blvd/Reserve Blvd | North of St. Lucie W Blvd/South of Midway Rd | 6,500 | 9,400 | 12,800 |
| | 9 | W Midway Road | North of Midway Rd/South of SR 70 | 6,200 | 8,700 | 11,500 |
| | 10 | SR 70/Okeechobee Road | North of SR 70/South of Orange Ave | 8,024 | 11,016 | 14,552 |
| | 11 | SR 68/Orange Avenue | North of Orange Ave/South of Indrio Rd | 6,800 | 9,248 | 11,968 |
| | 12 | SR 614/Indrio Road | North of Indrio Rd/South of Oslo Rd | 5,984 | 8,024 | 10,336 |
| | 13 | CR 606/Oslo Road | North of Oslo Rd/South of SR 60 | 5,984 | 7,208 | 8,704 |
| | 14 | SR 60/20th Street | North of SR 60/South of Fellsmere Rd | 6,120 | 7,344 | 8,704 |
| 15 | CR 512/Fellsmere Road | North of Fellsmere Rd | 5,848 | 6,936 | 8,296 | |

Table 8-2: Daily Truck Volumes on Arterial Cross Roads

| Location | Study Interchange | Location | Estimated Daily Truck Volume | | |
|-------------------------|---------------------------------|-----------------------------|------------------------------|-------|-------|
| | | | 2017 | 2030 | 2045 |
| Cross Roads | 1 CR 708/SE Bridge Road | West of Frontage Rd | 445 | 911 | 1,450 |
| | | West of I-95 | 426 | 872 | 1,387 |
| | | East of I-95 | 1,315 | 1,860 | 2,524 |
| | | East of 1760 Access Rd | 1,102 | 1,624 | 2,204 |
| | 2 SR 76/SW Kanner Highway | West of Jack James Dr | 1,983 | 2,524 | 3,155 |
| | | East of Jack James Dr | 2,647 | 3,368 | 4,211 |
| | | West of Lost River Rd | 5,035 | 6,504 | 8,287 |
| | | East of Lost River Rd | 3,005 | 3,881 | 4,945 |
| | 3 SW High Meadows Avenue | South of SW Swallowtail Way | 1,497 | 1,958 | 2,533 |
| | | North of SW Swallowtail Way | 1,061 | 1,343 | 1,697 |
| | 4 SR 714/SW Martin Highway | West of Green Farms Ln | 795 | 1,152 | 1,557 |
| | | East of Green Farms Ln | 890 | 1,259 | 1,679 |
| | | West of SW Stuart W Blvd | 1,963 | 2,677 | 3,347 |
| | | East of SW Stuart W Blvd | 1,089 | 1,390 | 1,853 |
| | 5 SW Becker Road | West of Village Pkwy Dr | 1 | 354 | 767 |
| | | East of Village Pkwy Dr | 148 | 1,121 | 2,242 |
| | | West of SW Hallmark St | 1,003 | 1,770 | 2,655 |
| | | East of SW Hallmark St | 885 | 1,652 | 2,537 |
| | 6 SW Gatlin Blvd/Tradition Pkwy | West of Village Pkwy Dr | 437 | 874 | 1,334 |
| | | East of Village Pkwy Dr | 1,196 | 2,162 | 3,312 |
| | | West of SW Brescia St | 1,886 | 2,484 | 3,220 |
| | | East of SW Brescia St | 1,794 | 2,346 | 2,990 |
| | 7 Crosstown Pkwy | West of SW Visconti Way | 742 | 1,431 | 2,279 |
| | | East of SW Visconti Way | 795 | 1,537 | 2,385 |
| | | West of SW California Blvd | 1,272 | 2,067 | 3,021 |
| | | East of SW California Blvd | 1,166 | 1,802 | 2,544 |
| | 8 St. Lucie W Blvd/Reserve Blvd | West of Commerce Center Dr | 204 | 291 | 390 |
| | | East of Commerce Center Dr | 360 | 510 | 660 |
| West of NW Peacock Blvd | | 2,232 | 2,728 | 3,286 | |
| East of NW Peacock Blvd | | 2,170 | 2,666 | 3,224 | |

| Location | Study Interchange | Location | Estimated Daily Truck Volume | | |
|-------------|--------------------------|----------------------------|------------------------------|--------|--------|
| | | | 2017 | 2030 | 2045 |
| Cross Roads | 9 W Midway Road | West of Gordy Exd | 1,007 | 1,767 | 2,660 |
| | | East of Gordy Exd | 1,064 | 1,900 | 2,850 |
| | | West of Glades Cut-off Rd | 1,936 | 2,662 | 3,509 |
| | | East of Glades Cut-off Rd | 1,815 | 2,541 | 3,267 |
| | 10 SR 70/Okeechobee Road | West of Kings Hwy | 2,156 | 2,940 | 3,724 |
| | | East of Kings Hwy | 4,116 | 6,272 | 8,624 |
| | | East of Crossroads Pkwy | 7,618 | 10,841 | 14,650 |
| | | West of Jenkins Rd | 3,690 | 5,658 | 7,995 |
| | 11 SR 68/Orange Avenue | East of Jenkins Rd | 3,936 | 5,535 | 7,503 |
| | | West of Kings Hwy | 2,200 | 2,750 | 3,250 |
| | | East of Kings Hwy | 4,750 | 6,500 | 8,250 |
| | | West of Jenkins Rd | 1,728 | 2,376 | 3,132 |
| | 12 SR 614/Indrio Road | East of Jenkins Rd | 1,309 | 1,848 | 2,464 |
| | | West of Aico Rd | 518 | 1,453 | 2,527 |
| | | East of Aico Rd | 678 | 1,798 | 3,112 |
| | | West of Spanish Lakes Blvd | 863 | 1,380 | 1,898 |
| | 13 CR 606/Oslo Road* | East of Spanish Lakes Blvd | 1,278 | 2,044 | 2,811 |
| | | West of 86th Ave | 88 | 266 | 478 |
| | | East of 86th Ave | 93 | 280 | 504 |
| | | West of 82nd Ave | 93 | 2,239 | 4,852 |
| | 14 SR 60/20th Street | East of 82nd Ave | 650 | 2,915 | 5,382 |
| | | West of 98th Ave | 2,572 | 4,823 | 7,235 |
| | | West of 94th Dr | 2,587 | 4,069 | 5,814 |
| | | East of 94th Dr | 2,299 | 3,361 | 4,422 |
| | 15 CR 512/Fellsmere Road | West of 90th Ave | 4,635 | 5,478 | 6,531 |
| | | East of 90th Ave | 7,252 | 8,571 | 10,219 |
| | | West of Willow St | 1,101 | 1,484 | 1,856 |
| | | East of Willow St | 898 | 1,224 | 1,550 |
| | | West of 90th Ave | 1,549 | 2,238 | 3,013 |
| | | East of 90th Ave | 1,269 | 1,603 | 2,004 |

8.4 Forecasted 2030 and 2045 Peak Hour Turning Movement Volumes

The 2017 AADTs and 2017 balanced turning movement volumes were used to forecast the future year (2030 and 2045) turning movement volumes. Intersection peak hour turning movement volumes were developed using the FDOT TMTTool spreadsheet. The 2017 AADTs and 2045 AADTs and recommended linear growth rates were input into TMTTool for each approach at each intersection. The 2030 and 2045 AM and PM peak hour turning movement forecasts from TMTTool for each study intersection were then balanced to arrive at the final peak hour volumes.

The forecasted 2030 and 2045 travel demand is the same for No Build and Build conditions. Where interchange modifications are proposed in the Build conditions, volumes were manually reassigned to the corresponding movements throughout the interchanges.

The 2030 AM and PM peak hour volumes are shown for each study intersection and each I-95 segment in Figure 10-1 (2030 No Build Summary) and Figure 10-3 (2030 Build Summary). Figure 10-2 (2045 No Build Summary) and Figure 10-4 (2045 Build Summary) show the 2045 forecasted AM and PM peak hour volumes for each study intersection and each I-95 segment.

9.0 INITIAL SCREENING OF STUDY ROADWAYS AND FAILURE YEAR ANALYSES

A preliminary, high level failure analysis was performed for the roadways within the study area, including the I-95 mainline within each county. The intent of this screening analysis was to identify roadway segments that are likely to exceed capacity based on the existing lane geometry and when that failure may occur. The failure analysis was conducted using projected daily volumes. The results of the failure analysis are summarized in Tables 9-1 and 9-2.

9.1 I-95 Mainline

The preliminary, high level screening analysis revealed that several segments of I-95 in Martin County and St. Lucie County are anticipated to exceed the existing capacity prior to 2045. The target level of service for I-95 is LOS D, and the corresponding daily service volume capacity for an uninterrupted flow facility is based on FDOT's Quality/Level of Service Handbook's Generalized Service Volume tables.

The findings revealed that the future year AADTs on I-95 from the Palm Beach/Martin County line to High Meadow Avenue will exceed the existing capacity of a six-lane interstate facility. These level of service deficiencies in Martin County are expected to begin to appear by 2036.

In St. Lucie County, I-95 mainline segments are also expected to exceed the current capacity prior to 2045. These segments are from SR 714/Martin Highway (in Martin County) to SR 70/Okeechobee Road (in St. Lucie County). Specifically, the portions of I-95 between Gatlin Boulevard and St. Lucie West Boulevard are anticipated to exceed the existing capacity prior to 2030. The remaining sections in St. Lucie County will begin to experience capacity deficiencies between 2037 and 2043, given the current lane geometry and capacity.

Finally, an assessment of the current I-95 lane geometry, AADTs, and capacity in Indian River County revealed that the six-lane facility is anticipated to operate at acceptable levels of service (LOS D or better) through 2045. No anticipated failures for the I-95 mainline were identified via the screening analysis. A summary of the I-95 mainline failure analysis is provided in Table 9-1.

Table 9-1: I-95 Mainline Failure Year Analysis

| Local Road Name | From | To | Thru Lanes | LOS D Capacity | 2017 AADT | 2017 LOS | 2045 AADT | 2045 LOS | Estimated Year of Failure |
|-------------------------------------|--------------------------|-------------------------|------------|----------------|-----------|----------|-----------|----------|---------------------------|
| I-95 Mainline (Indian River County) | Brevard/Indian River C/L | CR 512/Fellsmere Road | 6 | 111,800 | 43,000 | B | 61,000 | B | |
| | CR 512/Fellsmere Road | SR 60/20th St | 6 | 111,800 | 45,000 | B | 64,000 | B | |
| | SR 60/20th St | CR 606/Oslo Road | 6 | 111,800 | 44,000 | B | 64,000 | B | |
| I-95 Mainline (St. Lucie County) | CR 606/Oslo Road | SR 614/Indrio Road | 6 | 111,800 | 44,000 | B | 76,000 | C | |
| | SR 614/Indrio Road | SR 68/Orange Avenue | 8 | 148,700 | 50,000 | B | 88,000 | B | |
| | SR 68/Orange Avenue | SR 70/Okeechobee Road | 8 | 148,700 | 59,000 | B | 107,000 | C | |
| | SR 70/Okeechobee Road | Midway Road | 6 | 111,800 | 62,000 | B | 115,000 | E | 2043 |
| | Midway Road | St Lucie West Boulevard | 6 | 111,800 | 65,000 | B | 128,000 | F | 2037 |
| | St Lucie West Boulevard | Crosstown Parkway | 6 | 111,800 | 82,000 | C | 159,000 | F | 2027 |
| | Crosstown Parkway | SW Gatlin Boulevard | 6 | 111,800 | 79,000 | C | 153,000 | F | 2029 |
| | SW Gatlin Boulevard | Becker Road | 6 | 111,800 | 67,000 | B | 123,000 | E | 2039 |
| I-95 Mainline (Martin County) | Becker Road | SR 714/Martin Highway | 6 | 111,800 | 64,000 | B | 117,000 | E | 2042 |
| | SR 714/Martin Highway | SW High Meadow Avenue | 6 | 111,800 | 58,000 | B | 104,000 | D | |
| | SW High Meadow Avenue | Kanner Highway | 6 | 111,800 | 72,000 | C | 125,000 | F | 2038 |
| | Kanner Highway | Bridge Road | 6 | 111,800 | 82,000 | C | 124,000 | F | 2036 |
| | Bridge Road | Martin/Palm Beach C/L | 6 | 111,800 | 82,000 | C | 124,000 | F | 2036 |

9.2 Interchange Cross Streets

A preliminary, high level screening analysis of the 15 interchange cross streets was performed to identify roadway segments that may have future capacity deficiencies and when those deficiencies may be realized. This screening analysis did not incorporate future planned roadway capacity improvements. The results did reveal that future daily volumes on several interchange cross streets can be expected to exceed the corresponding daily service volume capacity for an arterial facility. Such service volume capacities are based on FDOT's Quality/Level of Service Handbook's Generalized Service Volume tables. Table 9-2 presents the results of the cross street screening analysis.

Bridge Road - The screening analysis revealed that Bridge Road with its current lane geometry within the interchange influence area will not exceed the existing capacity of a four-lane facility. No level of service deficiencies are expected on this portion of Bridge Road through 2045.

SR 76/Kanner Highway - The screening analysis confirmed that the section of SR 76/Kanner Highway east of SW Lost River Road currently fails as a four-lane facility, given existing volumes. The analysis also indicates that the segment between I-95 and SW Lost River Road is expected to experience capacity deficiencies as a six-lane roadway by 2028. SR 76/Kanner Highway west of I-95 is not anticipated to experience any level of service capacity deficiencies through 2045 based on its present lane geometry.

High Meadow Avenue - Based on the projected daily volumes, the existing two-lane portion of High Meadow Avenue north of Swallowtail Lane will exceed its capacity by 2020. No other capacity deficiencies are anticipated within the interchange influence area.

SR 714/Martin Highway - The findings revealed that the projected daily volumes on SR 714/Martin Highway within the interchange influence area are expected to be less than the service volume capacity given the current lane geometry. No capacity deficiencies are anticipated within the interchange influence area through 2045.

Table 9-2: Interchange Cross Street Failure Year Analysis

| Local Road Name | From | To | Existing Thru Lanes | LOS D Capacity | 2017 AADT | 2017 LOS | 2045 AADT | 2045 LOS | Estimated Year of Failure |
|-----------------------------|-----------------------|----------------------------|---------------------|----------------|-----------|----------|-----------|----------|---------------------------|
| CR 512/Fellsmere Rd | Willow Street | I-95 | 2 | 15,930 | 11,000 | C | 19,000 | F | 2035 |
| | I-95 | 90th Avenue | 4 | 35,820 | 18,000 | B | 35,000 | D | |
| | 90th Avenue | east of 90th Ave | 4 | 35,820 | 19,000 | B | 30,000 | C | |
| SR 60 | west of 98th Ave | 98th Ave | 4 | 39,800 | 6,400 | B | 18,000 | B | 2035 |
| | 98th Ave | 94th Drive | 4 | 39,800 | 8,900 | B | 20,000 | B | |
| | 94th Drive | I-95 | 6 | 59,900 | 13,000 | B | 25,000 | B | |
| | I-95 | 90th Ave | 6 | 59,900 | 22,000 | B | 31,000 | B | |
| | 90th Ave | east of 90th Ave | 6 | 59,900 | 22,000 | B | 31,000 | B | |
| CR 606/Oslo Road | 86th Ave | I-95 | 2 | 15,930 | 500 | B | 2,700 | B | 2035 |
| | I-95 | 82nd Ave | 2 | 15,930 | 500 | B | 26,000 | F | |
| SR 614/Indrio Road | AICO Rd | I-95 | 2 | 17,700 | 980 | B | 4,500 | B | 2035 |
| | I-95 | Spanish Lakes Blvd | 4 | 39,800 | 10,000 | B | 22,000 | B | |
| SR 68/Orange Ave | west of Kings Hwy | Kings Hwy | 2 | 17,700 | 8,800 | B | 13,000 | C | 2035 |
| | Kings Hwy | I-95 | 4 | 39,800 | 19,000 | B | 33,000 | C | |
| | I-95 | Jenkins Rd | 4 | 39,800 | 16,000 | B | 29,000 | C | |
| | Jenkins Rd | east of Jenkins Rd | 4 | 39,800 | 17,000 | B | 32,000 | C | |
| SR 70/Okeechobee Rd | west of Kings Hwy | Kings Hwy | 6 | 59,900 | 11,000 | B | 19,000 | B | 2041 2045 |
| | Kings Hwy | I-95 | 6 | 59,900 | 26,000 | B | 50,000 | C | |
| | I-95 | Jenkins Rd | 6 | 59,900 | 30,000 | B | 65,000 | F | |
| | Jenkins Rd | east of Jenkins Rd | 6 | 59,900 | 32,000 | B | 61,000 | F | |
| Midway Road | Gordy Exd | I-95 | 4 | 35,820 | 5,600 | B | 15,000 | B | 2043 |
| | I-95 | Glades Cut-Off Rd | 4 | 35,820 | 16,000 | B | 29,000 | C | |
| St Lucie West Blvd | Commerce Centre Dr | I-95 | 2 | 15,930 | 12,000 | C | 22,000 | F | 2029 2017 |
| | I-95 | NW Peacock Blvd | 4 | 35,820 | 36,000 | F | 53,000 | F | |
| Crosstown Pkwy | SW Visconti Way | I-95 | 6 | 53,910 | 15,000 | B | 45,000 | C | 2043 |
| | I-95 | California Blvd | 6 | 53,910 | 24,000 | B | 57,000 | F | |
| Gatlin Blvd/Traditions Pkwy | west of Village Pkwy | Village Pkwy | 4 | 35,820 | 9,500 | B | 29,000 | C | 2034 2030 2034 |
| | Village Pkwy | I-95 | 6 | 53,910 | 26,000 | B | 72,000 | F | |
| | I-95 | SW Brescia St | 6 | 53,910 | 41,000 | C | 70,000 | F | |
| | SW Brescia St | SW Savage Blvd | 6 | 53,910 | 39,000 | C | 65,000 | F | |
| Becker Rd | Village Pkwy | I-95 | 6 | 53,910 | 2,500 | B | 38,000 | C | 2043 |
| | I-95 | SW Hallmark St | 6 | 53,910 | 17,000 | B | 45,000 | C | |
| SR 714/Martin Hwy | SW Green Farms Ln | I-95 | 4 | 39,800 | 5,300 | B | 10,000 | B | 2020 |
| | I-95 | SW Stuart Blvd | 4 | 39,800 | 8,800 | B | 15,000 | B | |
| High Meadows Ave | I-95 | SW Swallowtail Ln | 4 | 35,820 | 13,000 | B | 22,000 | B | 2020 |
| | SW Swallowtail Ln | north of SW Swallowtail Ln | 2 | 15,930 | 15,000 | D | 24,000 | F | |
| SR 76/Kanner hwy | west of Jack James Dr | Jack James Dr | 4 | 39,800 | 22,000 | B | 35,000 | C | 2028 2017 2024 |
| | Jack James Dr | I-95 | 6 | 59,900 | 22,000 | B | 35,000 | C | |
| | I-95 | SW Lost River Rd | 6 | 59,900 | 48,000 | C | 79,000 | F | |
| | SW Lost River Rd | Cove Rd | 4 | 39,800 | 48,000 | F | 79,000 | F | |
| | Cove Rd | east of Cove Rd | 4 | 39,800 | 36,000 | D | 53,000 | F | |
| Bridge Rd | Frontage Rd | I-95 | 4 | 35,820 | 4,300 | B | 14,000 | B | 2024 |
| | I-95 | 1760 Bridge Rd Access | 4 | 35,820 | 9,900 | B | 19,000 | B | |

Becker Road - The findings revealed that the projected daily volumes on Becker Road within the interchange influence area are expected to be below the service volume capacity given the current six-lane geometry. No capacity deficiencies are anticipated within the interchange influence area through 2045.

Gatlin Boulevard - The screening analysis revealed that the projected daily volumes on Gatlin Boulevard from Village Parkway to Brescia Street (which includes I-95) will exceed the existing capacity of a six-lane facility. These level of service deficiencies are expected to begin to appear between 2030 and 2034.

Crosstown Parkway – Analysis indicated that the projected daily volumes on Crosstown Parkway east of I-95 to California Boulevard will exceed the existing capacity of a six-lane arterial facility. The level of service deficiency is expected to begin to appear by 2043.

St. Lucie West Boulevard - The existing daily volumes on St. Lucie West Boulevard from I-95 to Peacock Boulevard currently exceed the existing capacity of a four-lane facility. Further, the western portion of the corridor from Commerce Centre Drive to I-95 will exceed service volume capacity for a two-lane roadway by 2029.

Midway Road - The screening analysis revealed that the projected daily volumes on Midway Road immediately east and west of I-95 will not exceed the existing capacity of a four-lane arterial. This section of the corridor is expected to function acceptably through 2045.

SR 70/Okeechobee Road – Given the existing lane geometry, the screening analysis indicated that SR 70/Okeechobee Road from I-95 to east of Jenkins Road will exceed the existing capacity of a six-lane arterial. These level of service deficiencies on SR 70/Okeechobee Road are expected to be realized between 2041 and 2045.

SR 68/Orange Avenue - The screening analysis revealed that the projected daily volumes on SR 68/Orange Avenue east and west of I-95 will not exceed the existing capacity of a four-lane roadway. This section of SR 68/Orange Avenue is expected to function acceptably through 2045.

SR 614/Indrio Road - The screening analysis revealed that the projected daily volumes on SR 614/Indrio Road east and west of I-95 will not exceed the existing capacity of a two-lane and four-lane roadway. This portion of SR 614/Indrio Road is expected to function acceptably through 2045.

Oslo Road - Analysis indicated that the projected daily volumes on Oslo Road between I-95 and 82nd Avenue will exceed the existing capacity of a two-lane facility. The level of service deficiency is expected to begin to appear by 2035.

SR 60 - The projected daily volumes along SR 60 from west of 98th Avenue to east of 90th Avenue revealed that the roadway segments will not exceed the existing capacity of a four-lane and six-lane roadway. This portion of SR 60 is expected to function acceptably through 2045.

Fellsmere Road - The findings revealed that the projected daily volumes on the eastern portion of Fellsmere Road from Willow Street to I-95 will exceed the existing capacity of a two-lane facility. This level of service deficiency on Fellsmere Road is expected to begin to appear by 2035. The remaining sections of Fellsmere Road will function acceptably through 2045.

10.0 FUTURE YEAR ANALYSIS

Future year 2030 and 2045 No Build conditions assume that all planned, programmed and under construction projects in the area are completed according to their planned timeframes, but no other improvements are assumed for I-95 or the cross roads. The No Build conditions were analyzed in order to determine expected deficiencies in 2030 and 2045. The Build conditions were analyzed to report the operational benefits with recommended improvements in place. The operational analysis findings are summarized below.

10.1 Planned Background Projects

Planned and adopted background roadway improvement projects were researched. These background projects were identified from one of the following sources:

- FDOT 5-year Work Program (FY 2017/2018 – FY 2021/2022),
- FDOT SIS 2nd Five-Year Plan and SIS 2040 Cost Feasible Plan, or
- Martin MPO's, St. Lucie TPO's, or Indian River MPO's 2040 Long Range Transportation Plan.

Only projects that were contained in one of these adopted funding plans and that would have an impact on the future year operating conditions of either the I-95 corridor or one of the arterial cross streets or study intersections were identified. Projects that were under construction or were planned to be under construction within the study timeframe (through year 2045) were noted. Relevant PD&E studies, interchange documents, and/or design plans were researched to identify the future year lane geometry to incorporate as background improvements assumed to be in place for either year 2030 and/or 2045 analyses.

The planned background roadway improvement projects relevant to the I-95 Multimodal Master Plan study area are listed herein.

Recently Completed Construction Projects - Included with Existing Conditions

1. I-95 widening from four lanes to six lanes from SR-60 to Indian River/Brevard County line (FM # 413049)
2. SR 614/Indrio Road widening from two lanes to four lanes from west of I-95 to Emerson Avenue (FM # 230338)
3. I-95 at SR-76/Kanner Highway interchange modification (FM #429786)

Projects Expected to be Constructed by 2030

1. SR 614 (Indrio Road) from west of SR 9/I-95 to east of SR 670/Emerson Avenue (FM # 230338-4-52-01) – widening from two-lanes to four-lane divided highway with a raised median; constructing a 6-foot sidewalk along the south side and a 12-foot-wide multi-purpose trail along the north side of Indrio Road; realigning Spanish Lakes Boulevard to connect with Koblegard Road; reconstructing Koblegard Road from Indrio Road north approximately 0.5 mile; and installing new highway lighting, signage and signalization.
 - Construction to be completed by spring 2019
2. SR 76/Kanner Highway widening from Lost River Road to south of Monterey Road (FM # 422641-3-52-01) - widening from a four-lane divided highway to a six-lane divided highway; widening the bridge over the South Fork St. Lucie River; signalization upgrades; turn lane and bicycle lane improvements.
 - Construction to be completed by spring 2019
3. SR 9/I-95 at Oslo Road new interchange (FM # 413048-2) – PD&E complete, currently in design, ROW and construction is funded
 - Construction estimated to be completed by 2028
4. SR 713/Kings Highway from 800 feet south of SR 70/Okeechobee Road to north of I-95 overpass (FM # 230256) – Add lanes and reconstruct
 - Construction estimated to be completed by 2027
5. CR 713/High Meadow Avenue widening from I-95 to CR 714.Martin Highway (FM # 441699)

- Construction estimated to be completed by 2030
- 6. Midway Road add two lanes from Glades Cut-off Road to Selvitz Road
 - Construction estimated to be completed by 2030
- 7. I-95 at St. Lucie West Boulevard interchange improvements (FM # 435337)
 - Construction estimated to be completed by 2030
- 8. I-95 at Midway Road interchange improvements (FM # 439754)
 - Construction estimated to be completed by 2030
- 9. I-95 at Gatlin Boulevard interchange improvements (FM # 439761)
 - Construction estimated to be completed by 2030
- 10. I-95 at Midway Road interchange improvements (FM # 439754)
 - Construction estimated to be completed by 2030

Projects Expected to be Constructed by 2045

1. Oslo Road from I-95 to 58th Avenue – widen from two lanes to four lanes
2. Fellsmere Road from Willow Street to I-95 – widen from two lanes to four lanes
3. Fellsmere Road from I-95 to CR 510 – widen from four lanes to six lanes
4. Cove Road from SR 76/Kanner Highway to US-1 – widen from two lanes to four lanes

10.2 2030 No Build Conditions

An analysis was completed of the future year 2030 traffic operational performance for the I-95 mainline, interchanges, and arterial cross road study intersections. No Build conditions were analyzed to identify operational deficiencies anticipated to occur by 2030. The 2030 No Build lane geometry and traffic volumes are shown on Figure 10-1. Existing signal timings and posted speed limits were assumed for the analyses.

10.2.1 2030 No Build I-95 Freeway Operations Analysis

The 2030 No Build condition assumes that the existing lane geometry of I-95 is consistent with current conditions, primarily with three general use lanes in each direction throughout the study limits. Northbound and southbound traffic will increase from 2017 to 2030. HCS7 software was used to analyze the 2030 No Build operations of each I-95 northbound and southbound freeway segment and the overall facility. The density and LOS was estimated for each mainline freeway segment and merge, diverge, and weaving segment along the I-95 corridor. The HCS7 freeway operational analysis reports are provided in Appendix G.

Table 10-1 presents the 2030 No Build LOS for each northbound I-95 segment during the AM and PM peak hours. Table 10-2 presents the southbound I-95 LOS during the AM and PM peak hours. The AM and PM peak hour LOS results are also represented on Figure 10-1, with I-95 mainline and ramp segments color coded according to the LOS.

AM Peak Hour

Similar to existing conditions, during the AM peak hour, the southbound traffic volume is expected to remain higher than the northbound traffic volume from north of Fellsmere Road to SR 68/Orange Avenue, and from Gatlin Boulevard to south of Bridge Road. Northbound volumes are heavier only in the center of the study corridor from Gatlin Boulevard to SR 70/Okeechobee Road. In addition, 2030 traffic volumes remain highest in the southern sections of the I-95 study corridor.

Southbound I-95 operates at LOS C or better from north of Fellsmere Road to High Meadow Avenue, and LOS D from High Meadows Avenue to south of Bridge Road during the AM peak hour. All southbound ramp junction points (merge, diverge and weave areas) operate at LOS D or better.

During the 2030 AM peak hour, one northbound I-95 freeway segment and one northbound ramp junction point will operate below LOS D; they are:

- Northbound I-95 from Crosstown Parkway to St. Lucie West Boulevard – LOS F
- Northbound off-ramp to Crosstown Parkway - LOS F

PM Peak Hour

During the PM peak hour, the northbound 2030 traffic volume is higher than the southbound traffic volume from south of Bridge Road to Gatlin Boulevard. Southbound volumes are greater from Gatlin Boulevard to north of Fellsmere Road. Traffic volumes remain highest in the southern sections of the I-95 study corridor.

Multiple segments of northbound and southbound I-95 mainline and ramps junctions will operate below LOS D during the 2030 PM peak hour; they are:

- Northbound I-95 from south of Bridge Road to SR 76/Kanner Highway – LOS E
- Northbound I-95 from Crosstown Parkway to St. Lucie West Boulevard – LOS F
- Northbound off-ramp to Bridge Road – LOS E
- Northbound off-ramp to SR 76/Kanner Highway – LOS E
- Southbound I-95 first on-ramp from St. Lucie West Boulevard – LOS E

The failing 2030 peak hour LOS of the I-95 segments from south of Bridge Road to SR 76/Kanner Highway, and from Crosstown Parkway to St. Lucie West Boulevard, (along with ramps) indicates capacity and operational improvements will be needed by 2030. These improvements are needed to ensure the I-95 corridor can operate acceptably for the traveling public.

Table 10-1: I-95 Northbound 2030 No Build Freeway Analysis

| Northbound I-95 (2030 No Build Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (South of Bridge Rd) | 3 | 3,155 | 16.6 | B | 72.9 | 5,835 | 41.1 | E | 54.4 |
| NB Off at Bridge Rd | 1 | 295 | 23.8 | C | 58.7 | 620 | 37.3 | E | 57.6 |
| NB On at Bridge Rd | 1 | 210 | 19 | B | 63.5 | 495 | 33.9 | D | 57 |
| I-95 (Bridge Rd to SR 76/Kanner Highway) | 3 | 3,070 | 15.7 | B | 73.5 | 5,710 | 36.8 | E | 59.4 |
| NB Off at SR 76/Kanner Highway | 1 | 1015 | 24.9 | C | 56.4 | 1555 | 38.8 | E | 54.6 |
| NB On at SR 76/Kanner Highway | 1 | 880 | 19.9 | B | 63.4 | 1260 | 34.3 | D | 55.8 |
| I-95 (SR 76/Kanner Highway to High Meadows Avenue) | 3 | 2,935 | 15.0 | B | 73.0 | 5,415 | 33.4 | D | 62.3 |
| NB Off at High Meadows Avenue | 1 | 395 | 15.5 | B | 58.4 | 1105 | 29.3 | D | 56.1 |
| NB On at High Meadows Avenue | 1 | 65 | 12.5 | B | 65.2 | 45 | 22.1 | C | 63.3 |
| I-95 (High Meadows Avenue to SR 714/Martin Highway) | 3 | 2,605 | 13.3 | B | 73.5 | 4,355 | 24.0 | C | 70.1 |
| NB Off at SR 714/Martin Highway | 1 | 135 | 20.3 | C | 59.2 | 165 | 30.1 | D | 59.1 |
| NB On at SR 714/Martin Highway | 1 | 480 | 19.4 | B | 63.4 | 680 | 30.4 | D | 59.7 |
| I-95 (SR 714/Martin Highway to Becker Rd) | 3 | 2,950 | 15.2 | B | 73.5 | 4,870 | 28.4 | D | 66.4 |
| NB Off at Becker Rd | 1 | 425 | 19.7 | B | 58.3 | 1110 | 31.1 | D | 56.1 |
| NB On at Becker Rd | 1 | 875 | 23.4 | C | 62.5 | 585 | 27.8 | C | 61.2 |
| I-95 (Becker Rd to Gatlin Blvd) | 3 | 3,400 | 17.6 | B | 73.5 | 4,345 | 24.2 | C | 69.9 |
| NB Off at Gatlin Blvd | 1 | 715 | 26.1 | C | 57.4 | 1200 | 32.3 | D | 55.9 |
| NB On at Gatlin Blvd | 1 | 2125 | 34.4 | D | 56.1 | 1640 | 33.2 | D | 57.5 |
| I-95 (Gatlin Blvd to Crosstown Parkway) | 3 | 4,810 | 24.2 | C | 69.9 | 4,785 | 27.6 | D | 67.1 |
| NB Off at Crosstown Parkway | 1 | 525 | 32.6 | F | 58 | 1100 | 34.1 | D | 56.2 |
| NB On at Crosstown Parkway | 1 | 1,440 | | | | 805 | | | |
| I-95 (Crosstown Parkway to St. Lucie West Blvd) | 4 | 5,725 | 18.0 | F | 57.4 | 4,490 | 20.6 | F | 56.1 |
| NB Off at St. Lucie West Blvd | 1 | 1,580 | | | | 1,320 | | | |
| NB On at St. Lucie West Blvd | 1 | 570 | 18.6 | B | 63.3 | 555 | 22 | C | 62.8 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (St. Lucie West Blvd to Midway Rd) | 3 | 4,715 | 13.2 | B | 73.5 | 3,725 | 16.7 | B | 73.5 |
| NB Off at Midway Rd | 1 | 865 | 21.8 | C | 56.8 | 665 | 25 | C | 57.5 |
| NB On at Midway Rd | 1 | 555 | 15.9 | B | 63.8 | 360 | 18.8 | B | 63.5 |
| I-95 (Midway Rd to SR 70/Okeechobee Rd) | 3 | 4,405 | 11.6 | B | 73.5 | 3,420 | 15.0 | B | 73.5 |
| NB Off at SR 70/Okeechobee Rd | 2 | 1810 | 9.9 | A | 53.7 | 1255 | 7.5 | A | 55.5 |
| NB On (1) at SR 70/Okeechobee Rd | 1 | 465 | 2.1 | A | 66.3 | 475 | 7.6 | A | 66.1 |
| NB On (2) at SR 70/Okeechobee Rd | 1 | 385 | 8.3 | A | 64.2 | 465 | 12.4 | B | 64 |
| I-95 (SR 70/Okeechobee Rd to SR 68/Orange Avenue) | 4 | 3,445 | 5.0 | A | 73.5 | 3,105 | 10.0 | A | 73.5 |
| NB Off at SR 68/Orange Avenue | 2 | 1330 | 3.9 | A | 55.3 | 865 | 3.8 | A | 56.8 |
| NB On at SR 68/Orange Avenue | 1 | 320 | 6.2 | A | 63.9 | 305 | 12.4 | B | 63.7 |
| I-95 (SR 68/Orange Avenue to SR 614/Indrio Rd) | 4 | 2,435 | 1.2 | A | 73.5 | 2,545 | 7.9 | A | 73.5 |
| NB Off at SR 614/Indrio Rd ¹ | 2 | 610 | 3 | A | - | 690 | 8.9 | A | - |
| NB On at SR 614/Indrio Rd | 1 | 200 | 5.8 | A | 63.7 | 195 | 13 | B | 63.5 |
| I-95 (SR 614/Indrio Rd to CR 606/Oslo Rd) | 3 | 2,025 | 1.0 | A | 73.5 | 2,050 | 8.0 | A | 73.5 |
| NB Off at CR 606/Oslo Rd | 1 | 735 | 4.8 | A | 57.1 | 585 | 9.7 | A | 57.6 |
| NB On (1) at CR 606/Oslo Rd | 1 | 10 | 0.6 | A | 65 | 5 | 5.7 | A | 64.9 |
| NB On (2) at CR 606/Oslo Rd | 1 | 190 | 2.4 | A | 65 | 200 | 7.6 | A | 64.8 |
| I-95 (CR 606/Oslo Rd to SR 60/20 th St) | 3 | 1,490 | 1.2 | A | 70.8 | 1,670 | 6.0 | A | 70.8 |
| NB Off at SR 60/20 th St | 2 | 675 | 0 | A | 57.3 | 500 | 0 | A | 57.9 |
| NB On at SR 60/20 th St | 1 | 460 | 8 | A | 63.7 | 630 | 13 | B | 63.5 |
| I-95 (SR 60/20 th St to CR 512/Fellsmere Rd) | 3 | 1,275 | 2.4 | A | 73.5 | 1,800 | 6.7 | A | 73.5 |
| NB Off at CR 512/Fellsmere Rd | 1 | 405 | 7.3 | A | 58.3 | 670 | 13.8 | B | 57.5 |
| NB On at CR 512/Fellsmere Rd | 1 | 450 | 4.7 | A | 64.9 | 400 | 7.4 | A | 64.8 |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 1,320 | 2.7 | A | 73.5 | 1,530 | 5.4 | A | 73.5 |

¹ Considered a drop lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge), and green shaded rows are analyzed as a weave segment.

Table 10-2: I-95 Southbound 2030 No Build Freeway Analysis

| Southbound I-95 (2030 No Build Conditions) | | | | | | | | | |
|--|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 1,805 | 9.7 | A | 72.3 | 2,855 | 15.3 | B | 72.2 |
| SB Off at CR 512/Fellsmere Rd | 1 | 365 | 10.9 | B | 58.5 | 560 | 17.7 | B | 57.8 |
| SB On at CR 512/Fellsmere Rd | 1 | 740 | 15.9 | B | 63.8 | 430 | 17.9 | B | 63.6 |
| I-95 (CR 512/Fellsmere Rd to SR 60/20 th St) | 3 | 2,180 | 11.5 | B | 73.5 | 2,725 | 14.4 | B | 73.5 |
| SB Off at SR 60/20 th St | 2 | 660 | 11.3 | B | 57.4 | 415 | 13.4 | B | 58.3 |
| SB On (1) at SR 60/20 th St ¹ | 1 | 300 | 6 | A | - | 350 | 9.1 | A | - |
| SB On (2) at SR 60/20 th St | 1 | 200 | 10.3 | B | 64.2 | 290 | 14.2 | B | 64 |
| I-95 (SR 60/20 th St to CR 606/Oslo Rd) | 3 | 2,020 | 11.1 | B | 70.4 | 2,950 | 16.2 | B | 70.4 |
| SB Off at CR 606/Oslo Rd | 1 | 310 | 11.9 | B | 58.6 | 365 | 17.6 | B | 58.4 |
| SB On (1) at CR 606/Oslo Rd | 1 | 305 | 12.5 | B | 64.5 | 410 | 18.2 | B | 63.9 |
| SB On (2) at CR 606/Oslo Rd | 1 | 45 | 11.9 | B | 64.6 | 15 | 16.9 | B | 64.1 |
| I-95 (CR 606/Oslo Rd to SR 614/Indrio Rd) | 3 | 2,060 | 11.2 | B | 71.3 | 3,010 | 16.4 | B | 71.2 |
| SB Off at SR 614/Indrio Rd | 1 | 180 | 17.3 | B | 58.9 | 185 | 23.1 | C | 58.9 |
| SB On at SR 614/Indrio Rd | 1 | 675 | 20.1 | C | 63.1 | 550 | 23.8 | C | 62.4 |
| I-95 (SR 614/Indrio Rd to SR 68 / Orange Ave (South of SR 614/Indrio Rd) ² | 3 | 2,555 | 13.7 | B | 72.3 | 3,375 | 18.3 | C | 71.4 |
| I-95 (SR 614/Indrio Rd to SR 68 / Orange Ave (North of SR 68/Orange Avenue) ² | 4 | 2,555 | 10.3 | A | 72.3 | 3,375 | 13.6 | B | 72.3 |
| SB Off at SR 68/Orange Avenue | 1 | 410 | 15.3 | B | 58.3 | 350 | 18.5 | B | 58.5 |
| SB On at SR 68/Orange Avenue | 2 | 890 | 11.7 | B | 65.7 | 1180 | 17.4 | B | 64.6 |
| I-95 (SR 68/Orange Avenue to SR 70 / Okeechobee Rd) | 4 | 3,035 | 12.4 | B | 70.8 | 4,205 | 17.3 | B | 70.6 |
| SB Off at SR 70/Okeechobee Rd | 2 | 840 | 5.3 | A | 56.7 | 950 | 9.2 | A | 56.3 |
| SB On (1) at SR 70/Okeechobee Rd | 1 | 610 | 9.6 | A | 65.9 | 1090 | 17.8 | B | 64.5 |
| SB On (2) at SR 70/Okeechobee Rd | 2 | 245 | 8.4 | A | 66 | 270 | 14.1 | B | 65.4 |
| I-95 (SR 70/Okeechobee Rd to Midway Rd) | 3 | 3,050 | 16.4 | B | 70.7 | 4,615 | 26.9 | D | 65.2 |
| SB Off at Midway Rd | 1 | 320 | 23 | C | 58.6 | 425 | 31.4 | D | 58.2 |
| SB On at Midway Rd | 1 | 650 | 22.8 | C | 62.7 | 860 | 32.3 | D | 58.6 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|--|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (Midway Rd to St. Lucie West Blvd) | 3 | 3,380 | 18.4 | C | 70.0 | 5,050 | 31.0 | D | 62.0 |
| SB Off at St. Lucie West Blvd | 1 | 785 | 25.8 | C | 57.2 | 770 | 34 | D | 57.2 |
| SB On (1) at St. Lucie West Blvd | 1 | 900 | 24.5 | C | 62.1 | 1230 | 36 | E | 55.6 |
| SB On (2) at St. Lucie West Blvd | 1 | 365 | 18.6 | B | 58.8 | 305 | 31.3 | D | 52.7 |
| I-95 (St. Lucie West Blvd to Crosstown Parkway) | 4 | 3,860 | | | | 5,815 | | | |
| SB Off at Crosstown Parkway | 1 | 775 | | | | 1,385 | | | |
| SB On at Crosstown Parkway | 1 | 1040 | 26.2 | C | 61.7 | 535 | 29.2 | D | 60.3 |
| I-95 (Crosstown Parkway to Gatlin Blvd) | 3 | 4,125 | 23.3 | C | 67.4 | 4,965 | 30.2 | D | 62.5 |
| SB Off at Gatlin Blvd | 2 | 1455 | 18.8 | B | 55.1 | 1910 | 24.9 | C | 53.6 |
| SB On at Gatlin Blvd | 1 | 1165 | 25.3 | C | 62 | 545 | 22.3 | C | 62.9 |
| I-95 (Gatlin Blvd to Becker Rd) | 3 | 3,835 | 21.0 | C | 69.4 | 3,600 | 19.5 | C | 70.2 |
| SB Off at Becker Rd | 1 | 560 | 28 | C | 57.9 | 715 | 27 | C | 57.4 |
| SB On at Becker Rd | 1 | 800 | 24.6 | C | 62.3 | 300 | 18.4 | B | 63.9 |
| I-95 (Becker Rd to SR 714/Martin Highway) | 3 | 4,075 | 22.9 | C | 68.3 | 3,185 | 17.2 | B | 71.0 |
| SB Off at SR 714/Martin Highway | 1 | 560 | 29.4 | D | 57.8 | 460 | 24.4 | C | 58.1 |
| SB On at SR 714/Martin Highway | 1 | 175 | 23.9 | C | 62.3 | 155 | 19.6 | B | 63 |
| I-95 (SR 714/Martin Highway to High Meadows Ave) | 3 | 3,690 | 19.8 | C | 71.3 | 2,880 | 15.1 | B | 73.3 |
| SB Off at High Meadows Avenue | 1 | 75 | 21 | C | 59.4 | 60 | 16.4 | B | 59.5 |
| SB On at High Meadows Avenue | 1 | 1090 | 29.3 | D | 59.9 | 460 | 19.8 | B | 63.6 |
| I-95 (High Meadows Avenue to SR 76/Kanner Hwy) | 3 | 4,705 | 28.0 | D | 64.4 | 3,280 | 17.8 | B | 70.5 |
| SB Off at SR 76/Kanner Highway | 1 | 1355 | 34.1 | D | 55.2 | 905 | 25.9 | C | 56.7 |
| SB On (1) at SR 76/Kanner Highway | 1 | 1465 | 31.1 | D | 58.3 | 875 | 20.9 | C | 63.3 |
| SB On (2) at SR 76/Kanner Highway | 1 | 255 | 29.1 | D | 60.4 | 140 | 19.7 | B | 63.5 |
| I-95 (SR 76/Kanner Highway to Bridge Rd) | 3 | 5,070 | 31.6 | D | 61.6 | 3,390 | 18.5 | C | 70.3 |
| SB Off at Bridge Rd | 1 | 515 | 33.8 | D | 58 | 220 | 24.8 | C | 58.9 |
| SB On at Bridge Rd | 1 | 630 | 30.9 | D | 59.1 | 300 | 20.8 | C | 63.3 |
| I-95 (South of Bridge Rd) | 3 | 5,185 | 32.4 | D | 61.3 | 3,470 | 18.4 | C | 72.1 |

¹ Considered an add lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

² Fourth southbound lane opens up about 550 feet from the end of the SR 614/Indrio Rd SB On Ramp merge lane.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge), and green shaded rows are analyzed as a weave segment.

10.2.2 2030 No Build Cross Road Intersection Operations Analysis

Operational analyses of each study interchange and intersection was conducted for 2030 No Build conditions. The following planned and programmed background improvements were incorporated into the analyses as part of the 2030 No Build lane geometry.

- SR 76/Kanner Highway Interchange
 - SW Lost River Road and Cove Road: As part of the SR 76/Kanner Highway project (FM#422641-3-52-01), SR 76/Kanner Highway is planned to be widened from a four-lane divided to a six-lane divided highway from SW Lost River Road to south of Monterey Road.
- Becker Road at Village Parkway Drive
 - The south and west approaches at the intersection are assumed to be fully functional and utilized by traffic from the planned future development traveling through the intersection by 2030.
- Gatlin Boulevard Interchange
 - I-95 Southbound Ramp Terminal: Addition of a third southbound left-turn lane and third southbound right-turn lane based on the I-95 at Gatlin Boulevard interchange project (FM #439761-1).
 - I-95 Northbound Ramp Terminal: Addition of a third northbound left-turn lane based on the I-95 at Gatlin Boulevard interchange project (FM #439761-1).
- St. Lucie West Boulevard Interchange: Based on the IOAR (FM #435337-1/ 422681-2), the following improvements are under design:
 - I-95 Southbound Ramp Terminal:
 - Eastbound: Addition of a second through lane and second right-turn lane
 - Westbound: Addition of second through lane
 - I-95 Northbound Ramp Terminal:
 - Southbound: Addition of second left-turn lane
 - Midway Road Interchange at I-95 Northbound Ramp Terminal: Addition of second northbound left lane based on the Midway Road PD&E Study (FM #439754-1).
- SR 70/Okeechobee Road Interchange
 - Kings Highway intersection: Based on the SR 713/Kings Highway PD&E Study (FM# 230256-5-22-01), the following improvements are included:
 - Southbound: Addition of right-turn lane
 - Northbound: Addition of second through lane
 - Jenkins Road Intersection:
 - Eastbound: Addition of second left-turn lane and fourth through lane
 - Westbound: Addition of a right-turn lane
 - Northbound: Addition of a second left-turn lane and second through lane (shared through/right-turn lane)
 - Southbound: Addition of a second left-turn lane
- SR 68/Orange Avenue Interchange
 - Kings Highway Intersection: Based on the SR 713/Kings Highway PD&E Study (FM# 230256-5-22-01), the following improvements are included:
 - Eastbound: Addition of right-turn lane
 - Southbound: Addition of right-turn lane, second through lane and second left-turn lane
 - Northbound: Addition of right-turn lane and second through lane

- SR 614/Indrio Road Interchange (currently under construction)
 - I-95 Southbound Ramp Terminal:
 - Addition of a second westbound left-turn lane
 - Spanish Lakes Boulevard/Koblegard Road Intersection: Spanish Lakes Boulevard Intersection was recently relocated to Koblegard Road with the following intersection lane geometry:
 - Eastbound: Two left-turn lanes and two through lanes
 - Westbound: U-turn lane, two through lanes, and a right-turn lane
 - Southbound: Two left-turn lanes and two right-turn lanes
- CR 606/Oslo Road New Interchange
 - New I-95 southbound and northbound ramp terminal intersections added: Based on the I-95 at Oslo Road interchange draft design plans (FM #413048-2), a new Partial Cloverleaf interchange with loops in the northwest and southeast quadrants is being constructed by 2030.
 - Intersection of Oslo Road and 86th Avenue rerouted to 90th Avenue
 - 82nd Avenue
 - Addition of eastbound left-turn lane
 - Addition of southbound left-turn lane
- CR 512/Fellsmere Road Interchange: Based on ongoing construction along CR 512/Fellsmere Road from the I-95 west ramp terminal intersection to 108th Avenue, the followings improvements are included :
 - I-95 Southbound Ramp Terminal:
 - Southbound: Addition of second left-turn lane
 - Westbound: Addition of second westbound left-turn lane
 - 108th Avenue: Eastbound addition of third through lane
 - I-95 Northbound ramp terminal intersection: Fourth westbound through lane extended

The overall intersection LOS for the 2030 No Build conditions is reported for each intersection in Table 10-3 and is also shown on Figure 10-1. Intersections operating at LOS E or F are highlighted in red. The detailed Synchro operational analysis reports including delay, LOS, volume-to-capacity ratio, and 95th percentile queue length by movement are provided in Appendix H.

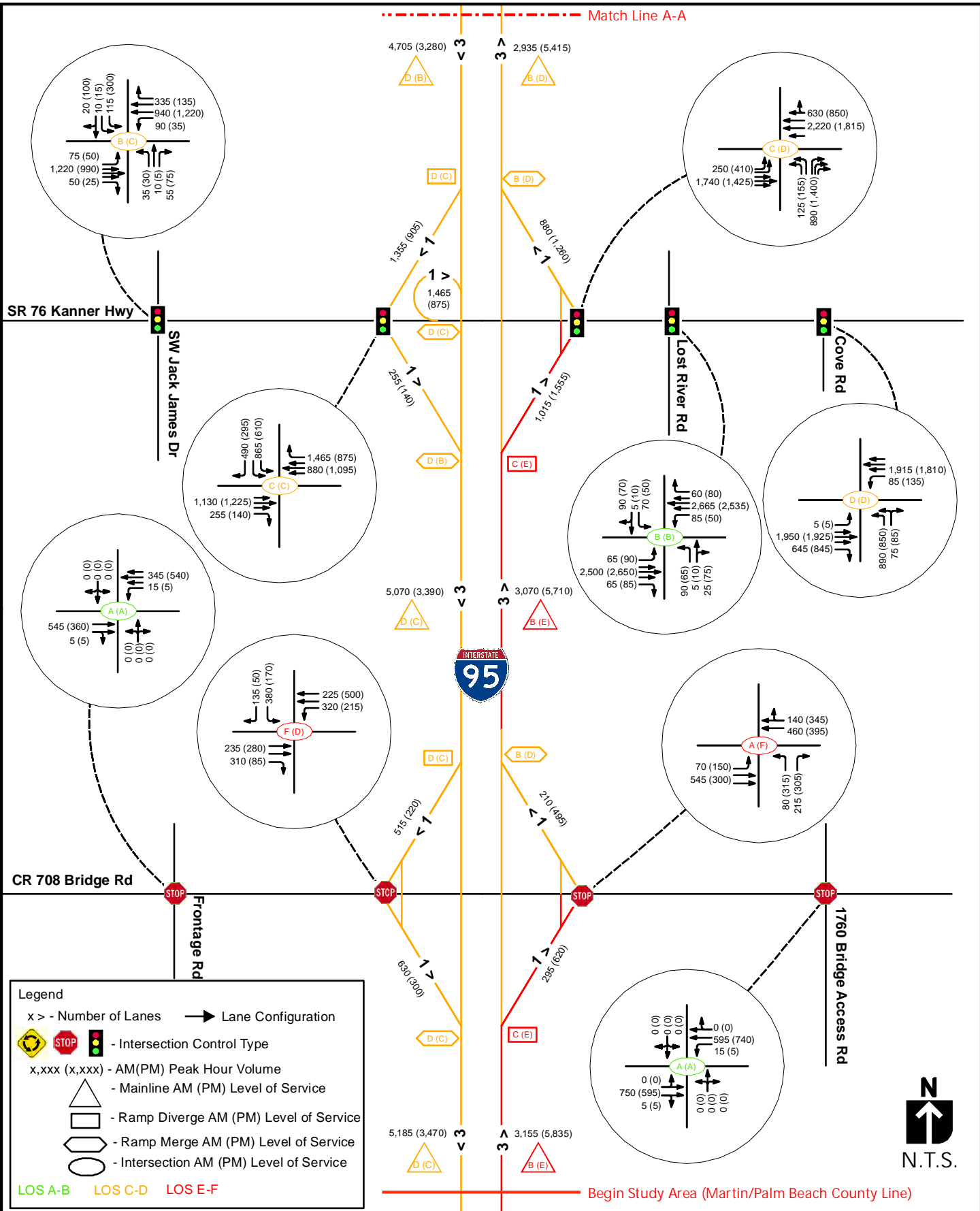
Seven intersections will operate below the LOS D target during either the 2030 AM or PM peak hours. They are noted below:

1. Bridge Road at the I-95 southbound ramp terminal: Heavy southbound left-turn traffic causes significantly higher delay in the AM peak hour for the stop-controlled side street movements.
2. Bridge Road at the I-95 northbound ramp terminal: Heavy northbound left-turn causes significantly higher delay in the PM peak hour for the stop-controlled side street movements.
3. Becker Road at Village Parkway Drive Intersection: Heavy southbound left-turn traffic and westbound right-turn traffic in the AM and PM peak hours causes capacity deficiencies.
4. Gatlin Boulevard at Village Parkway Drive Intersection: Heavy westbound left-turn traffic, northbound right-turn traffic, and southbound left-turn traffic in the AM and PM peak hours causes the intersection to operate below LOS D.
5. St. Lucie West Boulevard at Peacock Boulevard Intersection: Heavy eastbound and westbound traffic, along with heavy southbound left-turn traffic, in the PM peak hour causes high delay.
6. SR 70/Okeechobee Road at Jenkins Road intersection: Heavy westbound traffic during the afternoon traveling through the Jenkins Road intersection is destined to the I-95 northbound and southbound on-ramps. The majority of westbound traffic is forced to use only one outside westbound through lane that leads to both I-95 on ramps. The remaining three westbound through lanes have little traffic using them. This lane utilization imbalance causes a long westbound queue to form in the outside through lane. The westbound approach will operate at LOS F, and the overall intersection will operate at LOS E during the PM peak hour.
7. CR 606/Oslo Road at 82nd Avenue: Heavy eastbound and westbound traffic in the AM and PM peak hours causes high delay for the side street movements.

Table 10-3: 2030 No Build Intersection LOS

| Interchange | Study Intersection | Control Type | 2030 No Build LOS | |
|-----------------------------|--|--------------|-------------------|----|
| | | | AM | PM |
| 1. Bridge Road | Frontage Rd west of I-95 | Stop Control | A | A |
| | I-95 SB Ramp Terminal | Stop Control | F | D |
| | I-95 NB Ramp Terminal | Stop Control | A | F |
| | 1760 Bridge Access Road | Stop Control | A | A |
| 2. SR 76/Kanner Highway | Jack James Drive (west) | Signal | B | C |
| | I-95 SB Ramp Terminal (Includes W to S Loop) | Signal | C | C |
| | I-95 NB Ramp Terminal | Signal | C | D |
| | SW Lost River Road | Signal | B | B |
| | Cove Road (east) | Signal | D | D |
| 3. High Meadows Avenue | I-95 NB and SB Ramp Terminal (Include N of E ramp) | Stop Control | A | A |
| | Swallowtail Highway | Stop Control | A | A |
| 4. SR 714/Martin Highway | SW Green Farms Lane | Stop Control | A | A |
| | I-95 SB Terminal | Stop Control | C | C |
| | I-95 NB Terminal | Stop Control | A | A |
| | SW Stuart W Boulevard | Stop Control | A | A |
| 5. Becker Road | Village Parkway Drive | Signal | E | F |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | C | C |
| | SW Hallmark Street | Signal | D | C |
| 6. Gatlin Boulevard | Village Parkway Drive | Signal | F | F |
| | I-95 SB Terminal | Signal | D | C |
| | I-95 NB Terminal | Signal | C | C |
| | SW Brescia Street | Signal | C | C |
| | SW Savage Boulevard | Signal | C | B |
| 7. Crosstown Parkway | SW Visconti Way | Signal | B | B |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | D | D |
| | SW California Boulevard | Signal | D | D |
| 8. St. Lucie West Boulevard | Commerce Center Drive | Roundabout | A | A |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | D | C |
| | NW Peacock Boulevard | Signal | F | F |

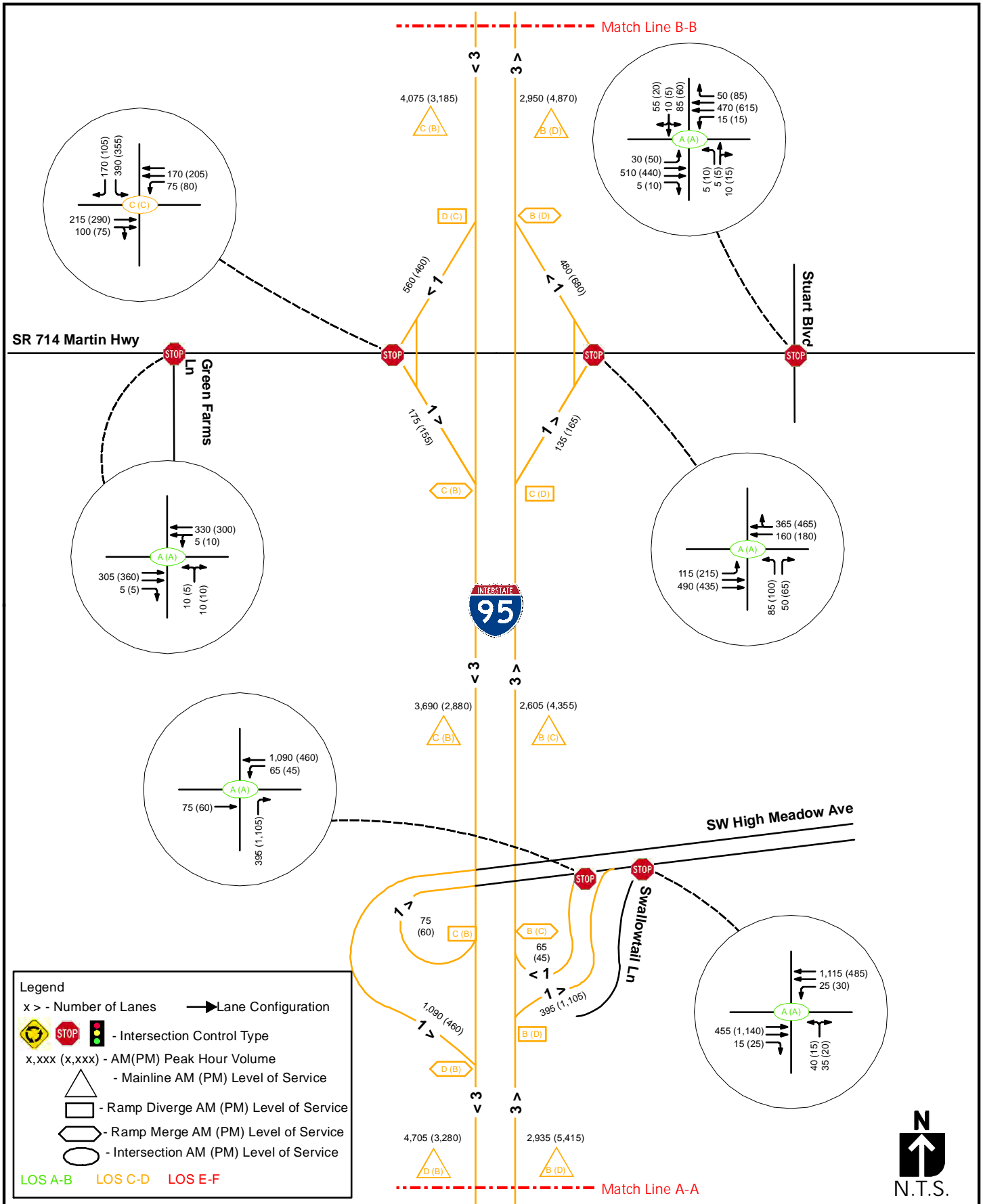
| Interchange | Study Intersection | Control Type | 2030 No Build LOS | |
|---------------------------|---|--------------|-------------------|----|
| | | | AM | PM |
| 9. Midway Road | Gordy Exd | Stop Control | A | A |
| | I-95 SB Terminal | Signal | C | D |
| | I-95 NB Terminal | Signal | B | A |
| | Glades Cut-Off Road | Signal | C | C |
| 10. SR 70/Okeechobee Road | Kings Highway | Signal | D | C |
| | Crossroads Parkway | Signal | B | C |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | C | C |
| 11. SR 68/Orange Avenue | Jenkins Road | Signal | D | E |
| | Kings Highway | Signal | D | D |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | A | A |
| 12. SR 614/Indrio Road | Jenkins Road | Signal | C | B |
| | AICO Rod | Stop Control | A | A |
| | I-95 SB Terminal | Signal | B | C |
| | I-95 NB Terminal | Signal | A | A |
| 13. CR 606/Oslo Road | Spanish Lakes Boulevard / Koblegard Road | Signal | A | A |
| | 86 th Avenue / 90 th Avenue | Stop Control | A | A |
| | I-95 SB Terminal | Stop Control | A | A |
| | I-95 NB Terminal | Stop Control | A | A |
| 14. SR 60/20th Street | 82 nd Avenue | Stop Control | A | E |
| | 98 th Avenue | Signal | A | A |
| | 94 th Drive | Signal | B | B |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | B | B |
| 15. CR 512/Fellsmere Road | 90 th Avenue | Signal | C | C |
| | Willow Street | Signal | C | B |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | A | B |
| | 108 th Avenue | Signal | C | C |
| | 90 th Avenue | Signal | C | D |

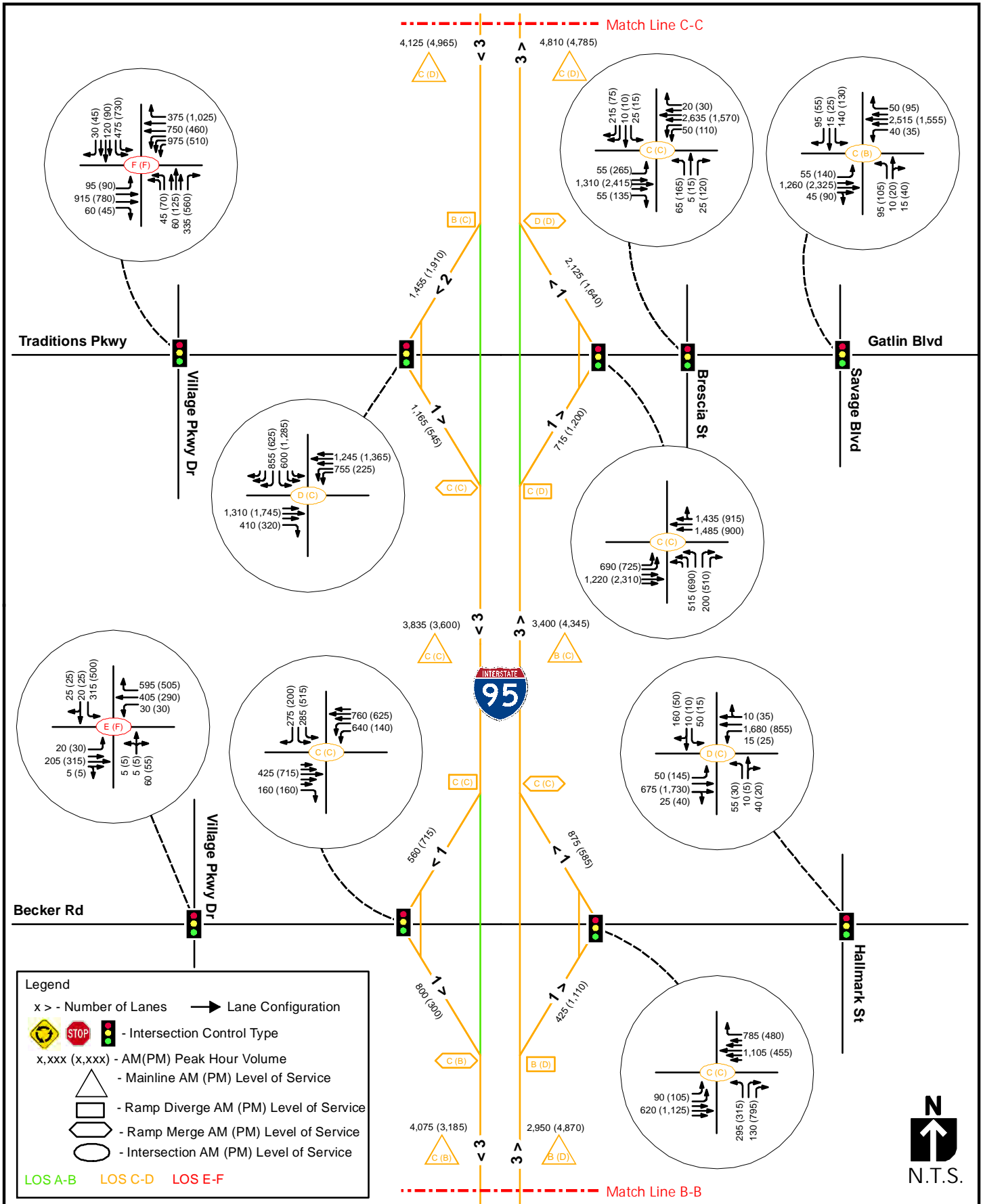


I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2030 No Build
 Summary

Figure 10-1
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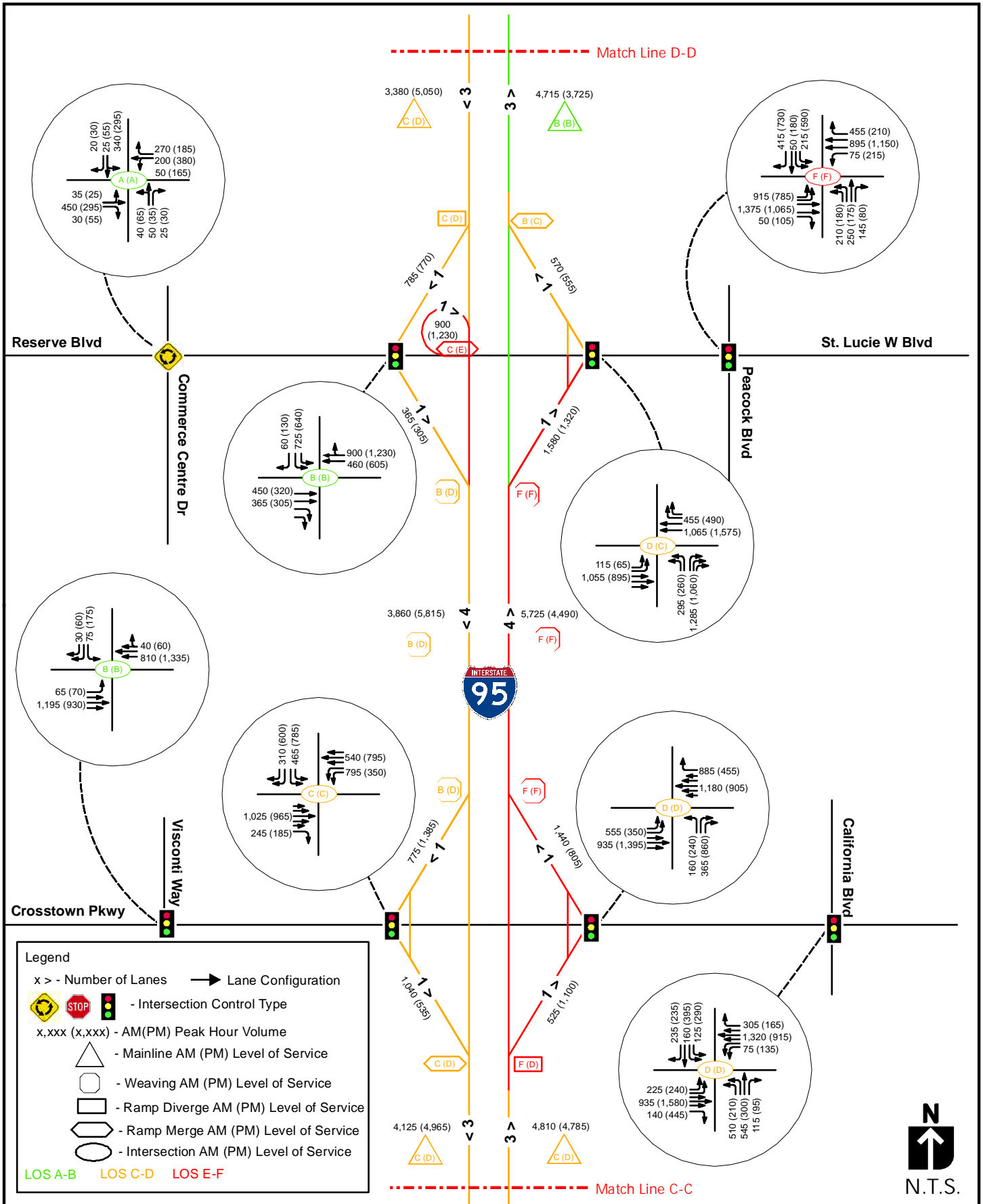


I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2030 No Build
 Summary

Figure 10-1
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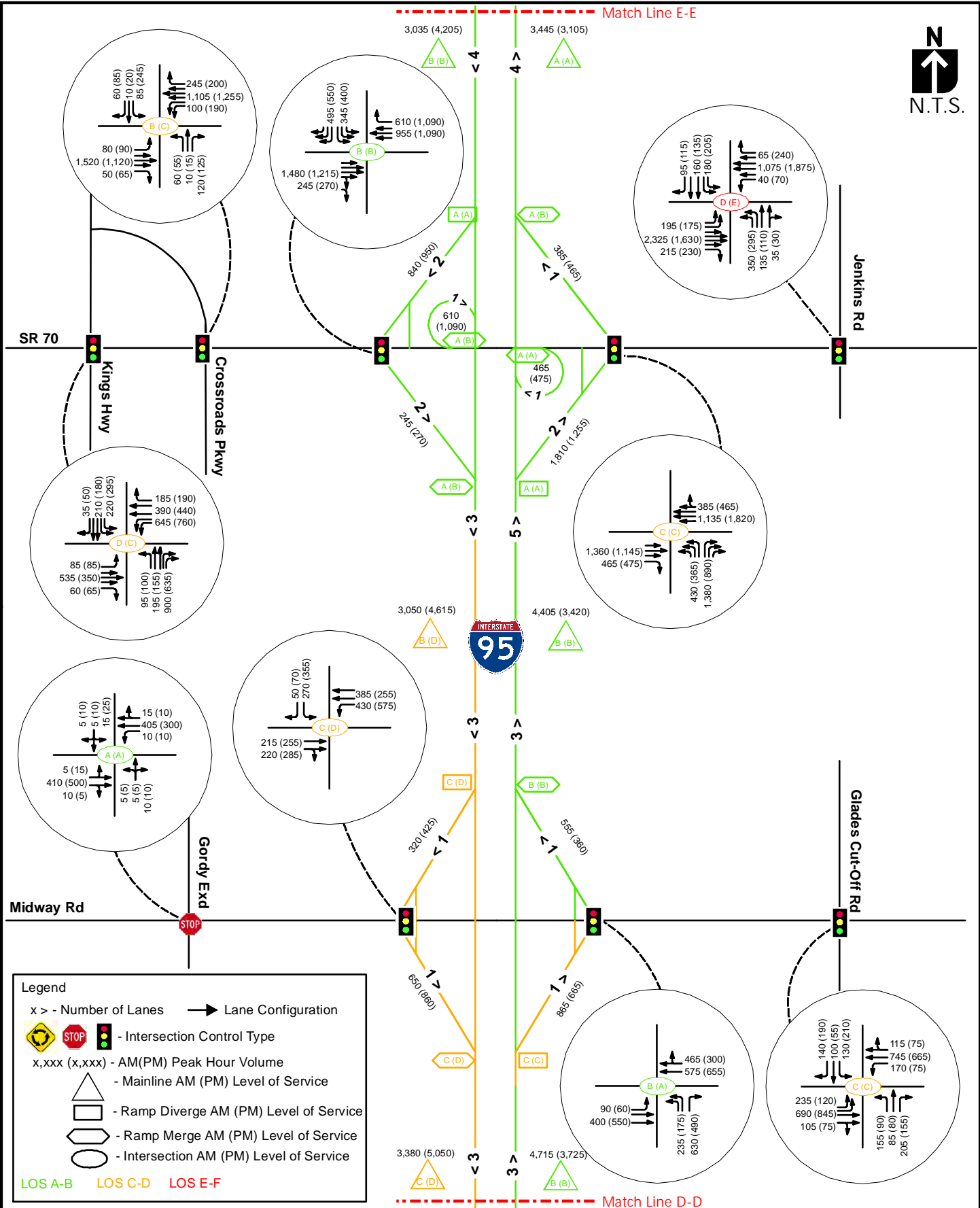




I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2030 No Build
 Summary

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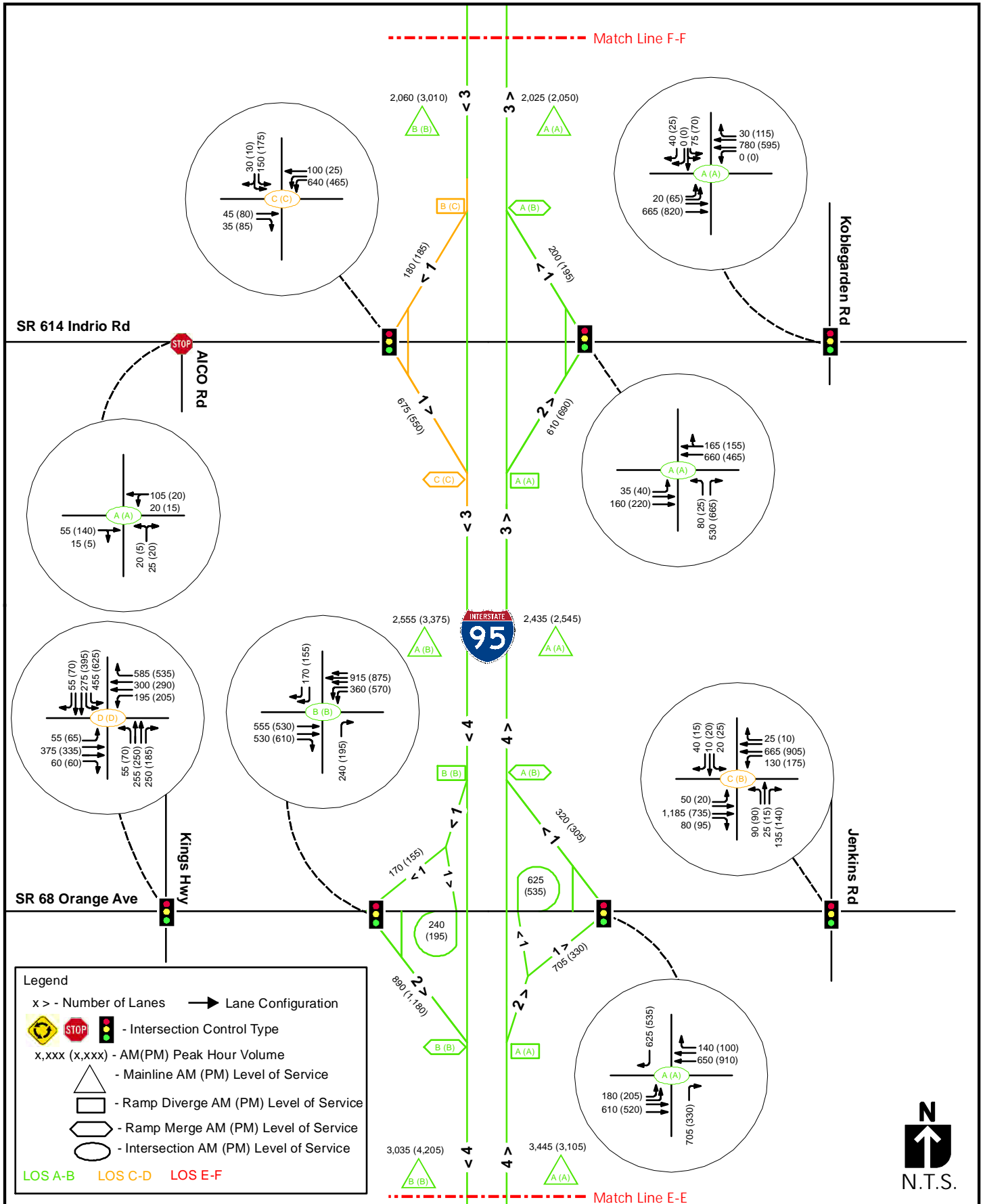


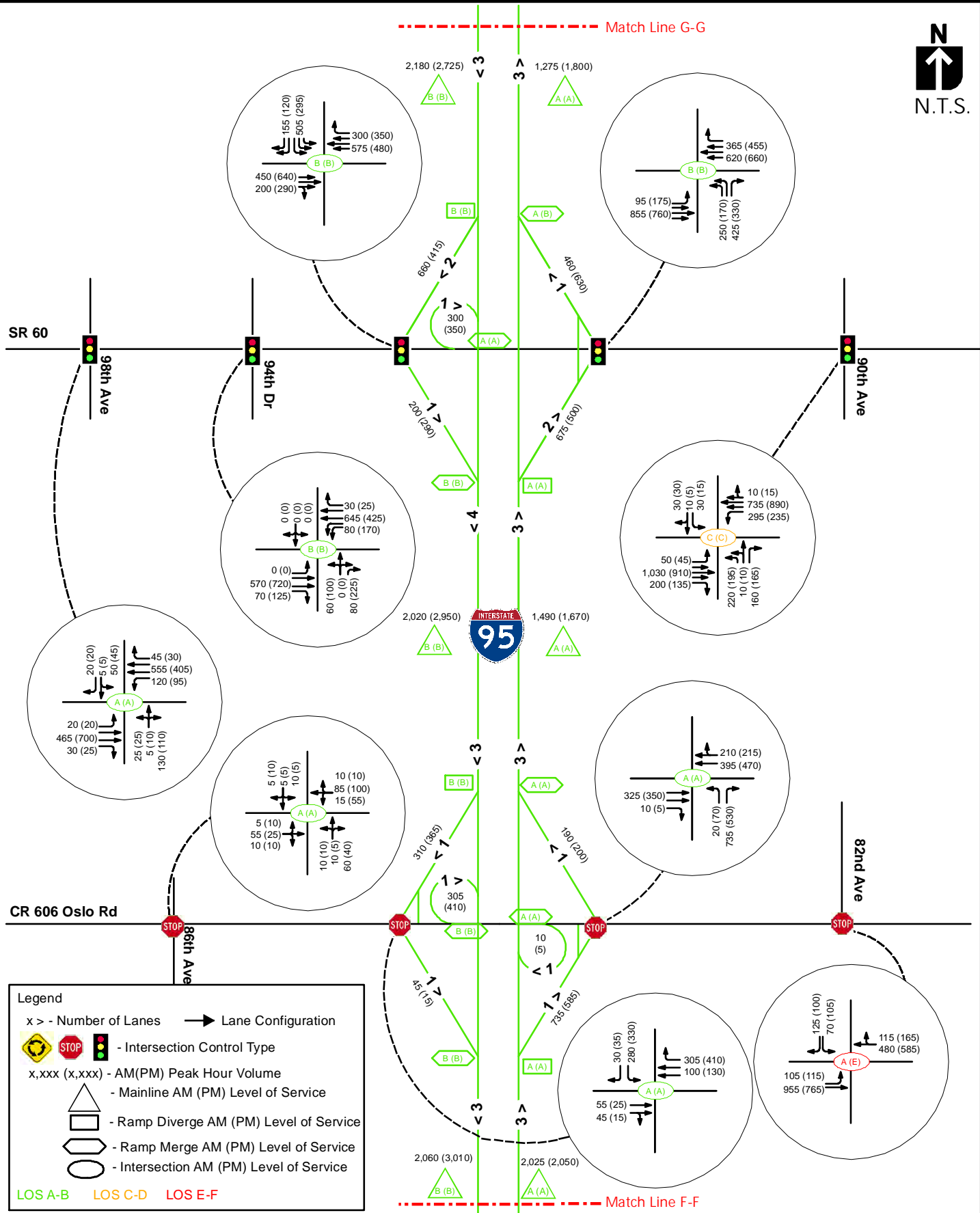
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FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2030 No Build
 Summary

Figure 10-1
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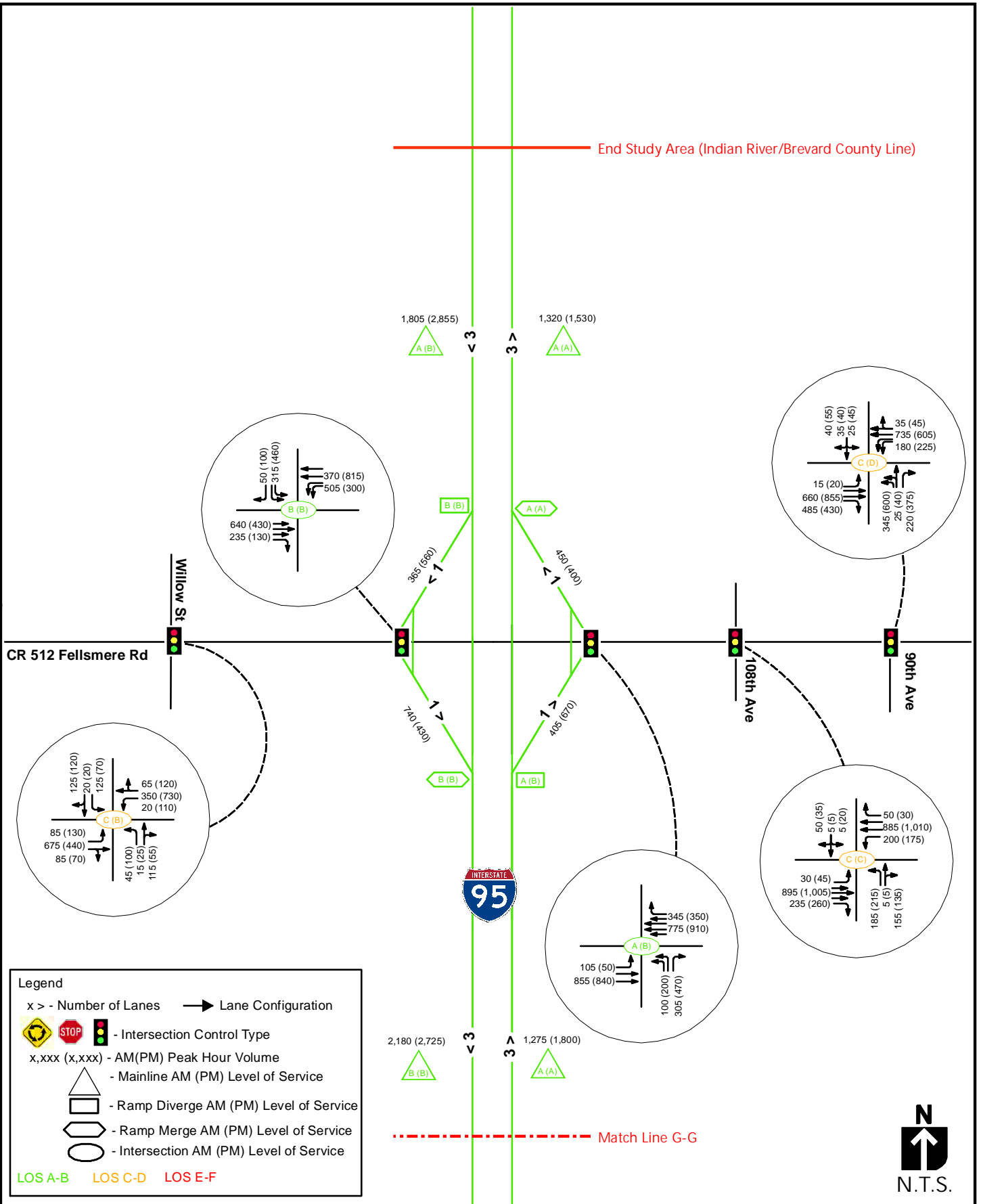




I-95 Multimodal Master Plan
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Figure 10-1
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10.3 2045 No Build Conditions

The future year 2045 traffic operations of the I-95 mainline, arterial cross roads and study intersections were analyzed. No Build conditions were analyzed in order to identify anticipated operational deficiencies to occur by the year 2045. The 2045 No Build lane geometry and traffic volumes are shown on Figure 10-2. Existing signal timings and posted speed limits were used in the analysis.

10.3.1 2045 No Build I-95 Freeway Operations Analysis

For the 2045 No Build analysis, the I-95 lane geometry will remain consistent with current conditions, with primarily three general use lanes in each direction throughout the study limits. The 2045 traffic volumes are forecast to increase significantly from 2017. The estimated 2045 No Build operations of the I-95 northbound and southbound freeway segments were analyzed using HCS7 software. The density and LOS was estimated for each mainline freeway segment and merge, diverge, and weaving segment along the I-95 corridor. The HCS7 freeway operational analysis reports are provided in Appendix I.

The 2045 No Build LOS for northbound I-95 during the AM and PM peak hours is summarized in Table 10-4. Table 10-5 summarizes the southbound I-95 LOS during the AM and PM peak hours. The northbound and southbound LOS is also shown on Figure 10-2, with the LOS of the freeway segments color coded.

AM Peak Hour

Similar to previous analysis years, the southbound traffic volume is higher than the northbound traffic volume during the AM peak hour, from north of Fellsmere Road to SR 68/Orange Avenue, and from Gatlin Boulevard to south of Bridge Road. Northbound volumes are heavier only in the center of the study corridor from Gatlin Boulevard to SR 68/Orange Avenue. In addition, 2045 traffic volumes remain highest in the southern sections of the I-95 study corridor.

During the AM peak hour, multiple segments of northbound and southbound I-95 and ramp junctions will operate below LOS D; they are:

- Northbound I-95 from Gatlin Boulevard to Midway Road – LOS F
- Southbound I-95 from Crosstown Parkway to Gatlin Boulevard – LOS E
- Southbound I-95 from SR 76/Kanner Highway to south of Bridge Road
- Northbound off-ramp to Gatlin Boulevard - LOS E
- Northbound on-ramp from Gatlin Boulevard – LOS F
- Northbound off-ramp to Crosstown Parkway - LOS F
- Northbound on-ramp from St. Lucie West Boulevard – LOS F
- Northbound off-ramp to Midway Road – LOS F
- Southbound off-ramp to SR 76/Kanner Highway – LOS E
- Both southbound on-ramps from SR 76/Kanner Highway – LOS E and F
- Southbound off-ramp to Bridge Road – LOS F
- Southbound on-ramp from Bridge Road – LOS F

PM Peak Hour

Traffic patterns remain similar to previous years. During the PM peak hour, the northbound 2045 traffic volume is higher than the southbound traffic volume from south of Bridge Road to Becker Road. Southbound volumes are greater from Gatlin Boulevard to north of Fellsmere Road.

Many northbound and southbound I-95 mainline and ramps junctions will operate below LOS D during the 2045 PM peak hour under No Build conditions; they are listed below:

- Northbound I-95 from south of Bridge Road to High Meadow Avenue – LOS F
- Northbound I-95 from SR 714/Martin Highway to Becker Road – LOS F
- Northbound I-95 from Gatlin Boulevard to St. Lucie West Boulevard – LOS F
- Southbound I-95 from Indrio Road to SR 68/Orange Avenue – LOS E
- Southbound I-95 from SR 70/Okeechobee Road to Gatlin Boulevard – LOS F

- Northbound on and off-ramps to/from Bridge Road – LOS F
- Northbound on and off-ramps to/from SR 76/Kanner Highway – LOS F
- Northbound off-ramp to High Meadow Avenue – LOS F
- Northbound on-ramp from SR 714/Martin Highway – LOS F
- Northbound off-ramp to Becker Road – LOS F
- Northbound on-ramp from Gatlin Boulevard – LOS F
- Northbound off-ramp to Crosstown Parkway – LOS F
- Southbound on-ramp from SR 614/Indrio Road – LOS E
- Both southbound on-ramps from SR 70/Okeechobee Road – LOS F
- Southbound on and off-ramp to/from Midway Road – LOS F
- Southbound on and off-ramp to/from St. Lucie West Boulevard – LOS F
- Southbound on-ramp from Crosstown Parkway – LOS F
- Southbound off-ramp to Gatlin Boulevard – LOS F

The 2045 No Build analysis indicates that much of the I-95 mainline and ramps in Martin County and St. Lucie County, from south of Bridge Road to SR 70 will be failing (operating at a LOS E or F) during the peak hours. The need for added mainline capacity and ramp improvements at interchanges is clearly indicated by 2045.

Table 10-4: I-95 Northbound 2045 No Build Freeway Analysis

| Northbound I-95 (2045 No Build Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (South of Bridge Rd) | 3 | 4,665 | 27.2 | D | 65.7 | 7,035 | 45.0 | F | 51.6 |
| NB Off at Bridge Rd | 1 | 405 | 31.8 | D | 58.3 | 820 | 36.9 | F | 57 |
| NB On at Bridge Rd | 1 | 340 | 27.5 | C | 61.3 | 695 | 33.5 | F | 57.2 |
| I-95 (Bridge Rd to SR 76/Kanner Highway) | 3 | 4,600 | 25.7 | C | 68.7 | 6,910 | 34.5 | F | 61.3 |
| NB Off at SR 76/Kanner Highway | 1 | 1290 | 33.4 | D | 55.5 | 1920 | 39.1 | F | 53.4 |
| NB On at SR 76/Kanner Highway | 1 | 1375 | 30.7 | D | 59 | 1780 | 35.7 | F | 53.6 |
| I-95 (SR 76/Kanner Highway to High Meadows Avenue) | 3 | 4,685 | 26.3 | D | 68.1 | 6,770 | 32.9 | F | 62.6 |
| NB Off at High Meadows Avenue | 1 | 535 | 24.9 | C | 57.9 | 1300 | 29.6 | F | 55.5 |
| NB On at High Meadows Avenue | 1 | 90 | 21.5 | C | 63.5 | 60 | 21 | C | 63.6 |
| I-95 (High Meadows Avenue to SR 714/Martin Highway) | 3 | 4,240 | 23.0 | C | 70.8 | 5,530 | 22.4 | C | 71.3 |
| NB Off at SR 714/Martin Highway | 1 | 190 | 29.4 | D | 59 | 225 | 29.1 | D | 58.9 |
| NB On at SR 714/Martin Highway | 1 | 635 | 29.2 | D | 60.4 | 850 | 30.4 | F | 59.6 |
| I-95 (SR 714/Martin Highway to Becker Rd) | 3 | 4,685 | 26.6 | D | 67.9 | 6,155 | 27.5 | F | 67.2 |
| NB Off at Becker Rd | 1 | 890 | 29.7 | D | 56.8 | 1595 | 31.9 | F | 54.6 |
| NB On at Becker Rd | 1 | 1250 | 33.3 | D | 57.6 | 1055 | 28.6 | D | 60.7 |
| I-95 (Becker Rd to Gatlin Blvd) | 3 | 5,045 | 29.7 | D | 65.3 | 5,615 | 23.3 | C | 70.6 |
| NB Off at Gatlin Blvd | 1 | 1115 | 35.1 | E | 56.1 | 1700 | 33.1 | D | 54.3 |
| NB On at Gatlin Blvd | 1 | 2835 | 46.4 | F | 23.9 | 2725 | 38.9 | F | 49 |
| I-95 (Gatlin Blvd to Crosstown Parkway) | 3 | 6,765 | 75.9 | F | 23.0 | 6,640 | 32.0 | F | 63.4 |
| NB Off at Crosstown Parkway | 1 | 905 | 45.7 | F | 56.8 | 1600 | 37.2 | F | 54.6 |
| NB On at Crosstown Parkway | 1 | 2,085 | 17.7 | F | 57.6 | 1,270 | 19.7 | F | 56.5 |
| I-95 (Crosstown Parkway to St. Lucie West Blvd) | 4 | 7,945 | | | | 6,310 | | | |
| NB Off at St. Lucie West Blvd | 1 | 2,165 | | | | 1,830 | | | |
| NB On at St. Lucie West Blvd | 1 | 655 | 16 | F | 63.5 | 610 | 19 | B | 63.2 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (St. Lucie West Blvd to Midway Rd) | 3 | 6,435 | 10.4 | F | 73.5 | 5,090 | 13.5 | B | 73.5 |
| NB Off at Midway Rd | 1 | 1190 | 19.4 | F | 55.8 | 915 | 22.2 | C | 56.6 |
| NB On at Midway Rd | 1 | 695 | 12.4 | B | 64.1 | 500 | 15.5 | B | 63.9 |
| I-95 (Midway Rd to SR 70/Okeechobee Rd) | 3 | 5,940 | 7.8 | A | 73.5 | 4,675 | 11.3 | B | 73.5 |
| NB Off at SR 70/Okeechobee Rd | 2 | 2415 | 14.7 | B | 51.7 | 1665 | 8.7 | A | 54.2 |
| NB On (1) at SR 70/Okeechobee Rd | 1 | 785 | 2.8 | A | 66.3 | 675 | 4.2 | A | 66.3 |
| NB On (2) at SR 70/Okeechobee Rd | 1 | 625 | 9.9 | A | 64.1 | 700 | 11.8 | B | 64 |
| I-95 (SR 70/Okeechobee Rd to SR 68/Orange Avenue) | 4 | 4,935 | 5.4 | A | 73.5 | 4,385 | 7.4 | A | 73.5 |
| NB Off at SR 68/Orange Avenue | 2 | 1825 | 8.7 | A | 53.7 | 1165 | 4.2 | A | 55.9 |
| NB On at SR 68/Orange Avenue | 1 | 525 | 7.9 | A | 63.9 | 480 | 10.3 | B | 63.8 |
| I-95 (SR 68/Orange Avenue to SR 614/Indrio Rd) | 4 | 3,635 | 2.0 | A | 73.5 | 3,700 | 4.8 | A | 73.5 |
| NB Off at SR 614/Indrio Rd ¹ | 2 | 900 | 4.5 | A | - | 885 | 5.9 | A | - |
| NB On at SR 614/Indrio Rd | 1 | 285 | 6.5 | A | 63.7 | 310 | 8.7 | A | 63.6 |
| I-95 (SR 614/Indrio Rd to CR 606/Oslo Rd) | 3 | 3,020 | 1.4 | A | 73.5 | 3,125 | 3.5 | A | 73.5 |
| NB Off at CR 606/Oslo Rd | 1 | 965 | 6.9 | A | 56.4 | 755 | 4.8 | A | 57.1 |
| NB On (1) at CR 606/Oslo Rd | 1 | 20 | 0.7 | A | 65 | 10 | 0.6 | A | 65 |
| NB On (2) at CR 606/Oslo Rd | 1 | 425 | 4.3 | A | 64.9 | 435 | 4.4 | A | 64.9 |
| I-95 (CR 606/Oslo Rd to SR 60/20 th St) | 3 | 2,500 | 2.3 | A | 70.8 | 2,815 | 2.4 | A | 70.8 |
| NB Off at SR 60/20 th St | 2 | 1000 | 1.1 | A | 56.2 | 675 | 0 | A | 57.3 |
| NB On at SR 60/20 th St | 1 | 730 | 10.4 | B | 63.6 | 835 | 11.3 | B | 63.6 |
| I-95 (SR 60/20 th St to CR 512/Fellsmere Rd) | 3 | 2,230 | 3.9 | A | 73.5 | 2,975 | 4.4 | A | 73.5 |
| NB Off at CR 512/Fellsmere Rd | 1 | 655 | 10 | A | 57.6 | 925 | 11.8 | B | 56.7 |
| NB On at CR 512/Fellsmere Rd | 1 | 740 | 7.3 | A | 64.8 | 630 | 5.8 | A | 64.9 |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 2,315 | 4.3 | A | 73.5 | 2,680 | 3.2 | A | 73.5 |

¹ Considered a drop lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge), and green shaded rows are analyzed as a weave segment.

Table 10-5: I-95 Southbound 2045 No Build Freeway Analysis

| Southbound I-95 (2045 No Build Conditions) | | | | | | | | | |
|--|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 2,545 | 13.6 | B | 72.3 | 4,470 | 26.1 | D | 66.3 |
| SB Off at CR 512/Fellsmere Rd | 1 | 590 | 16 | B | 57.8 | 790 | 26.8 | C | 57.1 |
| SB On at CR 512/Fellsmere Rd | 1 | 930 | 20.3 | C | 63.2 | 670 | 27.5 | C | 61.2 |
| I-95 (CR 512/Fellsmere Rd to SR 60/20 th St) | 3 | 2,885 | 14.8 | B | 73.5 | 4,350 | 24.1 | C | 70.0 |
| SB Off at SR 60/20 th St | 2 | 855 | 15.5 | B | 56.8 | 600 | 22.7 | C | 57.6 |
| SB On (1) at SR 60/20 th St ¹ | 1 | 350 | 10 | A | - | 415 | 17.9 | B | - |
| SB On (2) at SR 60/20 th St | 1 | 370 | 13.8 | B | 64 | 420 | 20.7 | C | 63.2 |
| I-95 (SR 60/20 th St to CR 606/Oslo Rd) | 3 | 2,750 | 14.1 | B | 70.4 | 4,585 | 26.0 | C | 68.5 |
| SB Off at CR 606/Oslo Rd | 1 | 395 | 16.5 | B | 58.3 | 440 | 26.5 | C | 58.2 |
| SB On (1) at CR 606/Oslo Rd | 1 | 680 | 19.2 | B | 63.7 | 885 | 30.8 | D | 58.8 |
| SB On (2) at CR 606/Oslo Rd | 1 | 90 | 17.8 | B | 64 | 30 | 28.2 | D | 60.8 |
| I-95 (CR 606/Oslo Rd to SR 614/Indrio Rd) | 3 | 3,125 | 16.1 | B | 71.3 | 5,060 | 30.3 | D | 64.8 |
| SB Off at SR 614/Indrio Rd | 1 | 285 | 24 | C | 58.5 | 280 | 34 | D | 58.5 |
| SB On at SR 614/Indrio Rd | 1 | 815 | 26.3 | C | 61.6 | 780 | 36.5 | E | 54.5 |
| I-95 (SR 614/Indrio Rd to SR 68/Orange Avenue) (South of SR 614/Indrio Rd) ² | 3 | 3,655 | 20.1 | C | 69.3 | 5,560 | 37.5 | E | 58.9 |
| I-95 (SR 614/Indrio Rd to SR 68/Orange Avenue) (North of SR 68/Orange Avenue) ² | 4 | 3,655 | 14.6 | B | 72.3 | 5,560 | 23.5 | C | 70.4 |
| SB Off at SR 68/Orange Avenue | 1 | 590 | 21.7 | C | 57.7 | 560 | 29.9 | D | 57.8 |
| SB On at SR 68/Orange Avenue | 2 | 1,170 | 17.9 | B | 64.4 | 1,585 | 28.6 | D | 57.8 |
| I-95 (SR 68/Orange Avenue to SR 70/Okeechobee Rd) | 4 | 4,235 | 17.1 | B | 70.8 | 6,585 | 30.3 | D | 64.9 |
| SB Off at SR 70/Okeechobee Rd | 2 | 1,300 | 12.4 | B | 55.1 | 1,445 | 19.5 | B | 54.5 |
| SB On (1) at SR 70/Okeechobee Rd | 1 | 850 | 14.8 | B | 65.2 | 1,490 | 28.2 | F | 58.2 |
| SB On (2) at SR 70/Okeechobee Rd | 2 | 390 | 13.9 | B | 65.4 | 385 | 23.3 | F | 62.5 |
| I-95 (SR 70/Okeechobee Rd to Midway Rd) | 3 | 4,175 | 23.8 | C | 70.2 | 7,015 | 35.3 | F | 60.7 |
| SB Off at Midway Rd | 1 | 440 | 30.3 | D | 58.2 | 585 | 47.9 | F | 57.7 |
| SB On at Midway Rd | 1 | 935 | 31.6 | D | 59 | 1,230 | 36.7 | F | 54 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (Midway Rd to St. Lucie West Blvd) | 3 | 4,670 | 28.0 | D | 66.8 | 7,660 | 36.0 | F | 60.1 |
| SB Off at St. Lucie West Blvd | 1 | 895 | 33.6 | D | 56.8 | 885 | 36.9 | F | 56.9 |
| SB On (1) at St. Lucie West Blvd | 1 | 1,245 | 34.9 | D | 56.7 | 1,640 | 38.4 | F | 52.4 |
| SB On (2) at St. Lucie West Blvd | 1 | 660 | | | | 460 | | | |
| I-95 (St. Lucie West Blvd to Crosstown Parkway) | 4 | 5,680 | 33.1 | D | 51.0 | 8,875 | 34.5 | F | 50.9 |
| SB Off at Crosstown Parkway | 1 | 1,210 | | | | 2,115 | | | |
| SB On at Crosstown Parkway | 1 | 1,615 | 38.3 | F | 49.2 | 920 | 30.2 | F | 59.5 |
| I-95 (Crosstown Parkway to Gatlin Blvd) | 3 | 6,085 | 36.0 | E | 60.1 | 7,680 | 28.1 | F | 66.6 |
| SB Off at Gatlin Blvd | 2 | 2,385 | 30.6 | D | 52.1 | 2,600 | 28.4 | F | 51.4 |
| SB On at Gatlin Blvd | 1 | 1,705 | 33.4 | D | 56.7 | 1,005 | 22.6 | C | 62.8 |
| I-95 (Gatlin Blvd to Becker Rd) | 3 | 5,405 | 29.0 | D | 66.0 | 6,085 | 17.3 | B | 71.3 |
| SB Off at Becker Rd | 1 | 1,200 | 35 | D | 55.8 | 1,220 | 27.1 | C | 55.8 |
| SB On at Becker Rd | 1 | 1,165 | 30.5 | D | 58.8 | 590 | 16.9 | B | 64.1 |
| I-95 (Becker Rd to SR 714/Martin Hwy) | 3 | 5,370 | 28.7 | D | 66.2 | 5,455 | 13.9 | B | 71.3 |
| SB Off at SR 714/Martin Highway | 1 | 745 | 33.9 | D | 57.2 | 585 | 22.1 | C | 57.7 |
| SB On at SR 714/Martin Highway | 1 | 240 | 28 | C | 61.2 | 215 | 17 | B | 63.3 |
| I-95 (SR 714/Martin Highway to High Meadows Avenue) | 3 | 4,865 | 24.4 | C | 69.8 | 5,085 | 12.0 | B | 73.5 |
| SB Off at High Meadows Avenue | 1 | 110 | 25 | C | 59.3 | 90 | 13.4 | B | 59.4 |
| SB On at High Meadows Avenue | 1 | 1,235 | 34.4 | D | 55 | 560 | 17.6 | B | 63.9 |
| I-95 (High Meadows Avenue to SR 76/Kanner Highway) | 3 | 5,990 | 35.0 | D | 60.9 | 5,555 | 14.4 | B | 70.3 |
| SB Off at SR 76/Kanner Highway | 1 | 1,890 | 39.2 | E | 53.5 | 1,400 | 24.8 | C | 55.1 |
| SB On (1) at SR 76/Kanner Highway | 1 | 1,800 | 35.6 | E | 52.8 | 1,175 | 18.3 | B | 63.8 |
| SB On (2) at SR 76/Kanner Highway | 1 | 275 | 32.8 | F | 57.7 | 165 | 16.5 | B | 64 |
| I-95 (SR 76/Kanner Hwy to Bridge Rd) | 3 | 6,175 | 37.3 | F | 59.1 | 5,495 | 14.1 | B | 70.8 |
| SB Off at Bridge Rd | 1 | 725 | 37.1 | F | 57.3 | 370 | 21.6 | C | 58.4 |
| SB On at Bridge Rd | 1 | 845 | 34.1 | F | 56.1 | 415 | 17.6 | B | 63.8 |
| I-95 (South of Bridge Rd) | 3 | 6,295 | 36.0 | F | 60.1 | 5,540 | 14.3 | B | 73.5 |

¹ Considered an add lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

² Fourth southbound lane opens up about 550 feet from the end of the SR 614/Indrio Rd SB On Ramp merge lane.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge), and green shaded rows are analyzed as a weave segment.

10.3.2 2045 No Build Cross Road Intersection Operations Analysis

The 2045 No Build operational analyses was conducted for each interchange and study intersection. The analyses incorporated all background improvements discussed in the 2030 No Build section, as well as the following planned and programmed background improvements expected to be completed after 2030 but before 2045:

- SR 70/Okeechobee Road Interchange
 - Kings Highway intersection: Based on the SR 713/Kings Highway PD&E Study (FM# 230256-5-22-01), the following planned improvements are included:
 - Eastbound: Addition of second left-turn lane
 - Westbound: Addition of third left-turn lane
- SR 68/Orange Avenue Interchange
 - Kings Highway intersection: Based on the SR 713/Kings Highway (SR 713) PD&E Study (FM# 230256-5-22-01), the following additional improvements are included:
 - Eastbound: Addition of second left-turn lane
 - Westbound: Addition of second left-turn lane
 - Northbound: Addition of second left-turn lane
- CR 606/Oslo Road Interchange
 - 82nd Avenue: Oslo Road is planned to be widened from a two-lane to a four-lane roadway from east of I-95 to Willow Street based on the 2040 Indian River MPO LRTP.
- CR 512/Fellsmere Road Interchange
 - Willow Street: Fellsmere Road is planned to be widened based on the 2040 Indian River MPO LRTP from a two-lane to a four-lane roadway through the intersection of CR 512/Fellsmere Road.
 - 108th Avenue: Fellsmere Road is planned to be widened from a four-lane to a six-lane roadway through the intersection of CR 512/Fellsmere Road and 108th Avenue.

The overall AM and PM peak hour intersection LOS for the 2045 No Build condition is summarized for each intersection in Table 10-6 and depicted in Figure 10-2. Intersections operating below LOS D are highlighted in red. The detailed Synchro operational analysis reports including delay, LOS, volume-to-capacity ratio, and 95th percentile queue length by movement are provided in Appendix J.

The 2045 No Build operational analysis results, for intersections operating at LOS E or F, are noted below:

Bridge Road

1. I-95 Southbound Ramp Terminal: Heavy southbound left-turn traffic is causing significantly higher delay in the AM and PM peak hours for the stop-controlled side street movements.
2. I-95 Northbound Ramp Terminal: Heavy northbound left-turn traffic, along with heavy eastbound through traffic, is causing significantly higher delays in the PM peak hour for the stop-controlled side street movements.

SR 76/Kanner Highway

3. I-95 Southbound Ramp Terminal: Currently, the ramp terminal is operating at LOS C in both the AM and PM peak hours. However, the single-lane loop ramp at the northeast quadrant of the interchange is failing because of heavy southbound on-ramp traffic.
4. I-95 Northbound Ramp Terminal: Heavy off-ramp traffic, along with heavy mainline traffic in the AM and PM peak hours, is causing capacity deficiencies.
5. Cove Road Intersection: Heavy eastbound and westbound traffic, along with heavy northbound left-turn traffic in the AM and PM peak hours, is causing capacity deficiencies.

Table 10-6: 2045 No Build Intersection LOS

| Interchange | Study Intersection | Control Type | 2045 No Build LOS | |
|-----------------------------|--|--------------|-------------------|----|
| | | | AM | PM |
| 1. Bridge Road | Frontage Rd west of I-95 | Stop Control | A | A |
| | I-95 SB Ramp Terminal | Stop Control | F | F |
| | I-95 NB Ramp Terminal | Stop Control | C | F |
| | 1760 Bridge Access Rd | Stop Control | A | A |
| 2. SR 76/Kanner Highway | Jack James Drive (west) | Signal | B | D |
| | I-95 SB Ramp Terminal (Includes W to S Loop) | Signal | D | C |
| | I-95 NB Ramp Terminal | Signal | D | F |
| | SW Lost River Road | Signal | C | B |
| | Cove Road (east) | Signal | E | E |
| 3. High Meadows Avenue | I-95 NB and SB Ramp Terminal (Include N of E ramp) | Stop Control | A | A |
| | Swallowtail Highway | Stop Control | A | A |
| 4. SR 714/Martin Highway | SW Green Farms Lane | Stop Control | A | A |
| | I-95 SB Terminal | Stop Control | F | F |
| | I-95 NB Terminal | Stop Control | B | E |
| | SW Stuart W Boulevard | Stop Control | B | A |
| 5. Becker Road | Village Parkway Drive | Signal | F | F |
| | I-95 SB Terminal | Signal | E | D |
| | I-95 NB Terminal | Signal | E | E |
| | SW Hallmark Street | Signal | F | F |
| 6. Gatlin Boulevard | Village Parkway Drive | Signal | F | F |
| | I-95 SB Terminal | Signal | F | F |
| | I-95 NB Terminal | Signal | F | F |
| | SW Brescia Street | Signal | F | F |
| | SW Savage Boulevard | Signal | F | E |
| 7. Crosstown Parkway | SW Visconti Way | Signal | B | C |
| | I-95 SB Terminal | Signal | E | D |
| | I-95 NB Terminal | Signal | F | F |
| | SW California Boulevard | Signal | F | F |
| 8. St. Lucie West Boulevard | Commerce Center Drive | Roundabout | B | C |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | F | F |
| | NW Peacock Boulevard | Signal | F | F |

| Interchange | Study Intersection | Control Type | 2045 No Build LOS | |
|---------------------------|---|--------------|-------------------|----|
| | | | AM | PM |
| 9. Midway Road | Gordy Exd | Stop Control | A | A |
| | I-95 SB Terminal | Signal | D | E |
| | I-95 NB Terminal | Signal | B | B |
| | Glades Cut-Off Road | Signal | E | D |
| 10. SR 70/Okeechobee Road | Kings Highway | Signal | F | D |
| | Crossroads Parkway | Signal | E | E |
| | I-95 SB Terminal | Signal | C | B |
| | I-95 NB Terminal | Signal | F | C |
| 11. SR 68/Orange Avenue | Jenkins Road | Signal | F | F |
| | Kings Highway | Signal | F | F |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | A | B |
| 12. SR 614/Indrio Road | Jenkins Road | Signal | C | C |
| | AICO Road | Stop Control | A | A |
| | I-95 SB Terminal | Signal | B | C |
| | I-95 NB Terminal | Signal | C | B |
| 13. CR 606/Oslo Road | Spanish Lakes Boulevard / Koblegard Road | Signal | A | A |
| | 86 th Avenue / 90 th Avenue | Stop Control | A | A |
| | I-95 SB Terminal | Stop Control | A | B |
| | I-95 NB Terminal | Stop Control | A | A |
| 14. SR 60/20th Street | 82 nd Avenue | Stop Control | E | F |
| | 98 th Avenue | Signal | E | D |
| | 94 th Drive | Signal | B | C |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | C | B |
| 15. CR 512/Fellsmere Road | 90 th Avenue | Signal | D | C |
| | Willow Street | Signal | B | D |
| | I-95 SB Terminal | Signal | C | B |
| | I-95 NB Terminal | Signal | B | B |
| | 108 th Avenue | Signal | E | E |
| | 90 th Avenue | Signal | D | E |

High Meadow Avenue

6. Swallowtail Lane Intersection: This intersection is operating at LOS A, although heavy mainline traffic in the PM peak hour causes high delays for the stop-controlled side street movements.

SR 714/Martin Highway

7. I-95 Southbound Ramp Terminal: Heavy traffic in the southbound direction causes high delays in both AM and PM peak hours.
8. I-95 Northbound Ramp Terminal: Heavy mainline traffic in the PM peak hour will cause high delays for the stop-controlled side street movements.
9. SW Stuart W. Boulevard Intersection: This intersection will operate at LOS B and LOS A in AM and PM peak hours, respectively. However, heavy through traffic in the AM and PM peak hour causes high delays for the stop-controlled side street movements.

Becker Road

10. Village Parkway Drive intersection: Heavy southbound left-turn traffic and westbound right-turn traffic in the AM and PM peak hours will cause capacity deficiencies.
11. I-95 Southbound Ramp Terminal: Heavy eastbound and westbound traffic, along with heavy left-turn southbound traffic in the AM peak hour, causes capacity deficiencies.
12. I-95 Northbound Ramp Terminal: Heavy eastbound and westbound traffic movement, along with heavy left-turn northbound traffic in the AM and PM peak hour, causes capacity deficiencies.
13. SW Hallmark Street: Heavy traffic in the eastbound and westbound direction results in less green time for the southbound and northbound traffic, consequently capacity deficiencies in the AM and PM peak hours are present.

Gatlin Boulevard

14. Village Parkway Drive Intersection: Heavy traffic in the westbound left-turn lane, northbound right-turn lane, and southbound left-turn lane in the AM and PM peak hours causes capacity deficiencies. This results in a long queue for the westbound right-turn lane and the northbound right-turn lane in the PM peak hour.
15. I-95 Southbound Ramp terminal: Heavy eastbound and westbound traffic, along with heavy southbound left-turn traffic, will cause capacity deficiencies in both peak hours.
16. I-95 Northbound Ramp terminal: Heavy traffic in the eastbound and westbound direction, and heavy northbound left-turn traffic, causes capacity deficiencies in both peak hours.
17. SW Brescia Street: Heavy traffic in the eastbound and westbound direction results in less green time for the southbound and northbound traffic, this results in capacity deficiencies in the AM and PM peak hours.
18. SW Savage Boulevard: Heavy traffic in the eastbound and westbound direction results in less green time for the southbound and northbound traffic results in capacity deficiencies in both peak hours.

Crosstown Parkway

19. I-95 Southbound Ramp terminal: Heavy westbound left-turn traffic, and heavy off-ramp traffic causes capacity deficiencies in the AM peak hour.
20. I-95 Northbound Ramp terminal: Heavy westbound left-turn and right-turn traffic causes capacity deficiencies in the AM and PM peak hour.
21. SW California Boulevard: Heavy traffic in the eastbound and westbound direction, and northbound and southbound left-turn traffic, causes capacity deficiencies in both peak hours.

St. Lucie West Boulevard

22. I-95 Northbound Ramp terminal: Heavy traffic in the eastbound and westbound direction, and northbound off-ramp traffic, will cause capacity deficiencies in the AM and PM peak hours.

23. Peacock Boulevard Intersection: Heavy traffic in the eastbound and westbound direction, along with high southbound left-turn traffic in the AM and PM peak hours causes capacity deficiencies. Long queues are expected in the southbound left-turn and right-turn lanes and westbound right-turn lane in the PM peak hour.

Midway Road

24. Gordy Exd. Intersection: Heavy through traffic in the AM and PM peak hours causes high delays for the side street traffic movements.
25. I-95 Southbound Ramp terminal: Heavy traffic in the southbound left-turn lane and westbound left-turn lane will cause capacity deficiencies in the PM peak hour.
26. Glades Cut-Off Road Intersection: Heavy northbound left-turn and right-turn traffic in the AM peak hour causes capacity deficiencies.

SR 70/Okeechobee Road

27. Kings Highway Intersection: Heavy northbound right-turn traffic and westbound left-traffic in the AM peak hour causes capacity deficiencies. A long queue length is expected in the northbound right-turn lane in the AM peak hour.
28. SR 70/Okeechobee Road at Crosstown Parkway: Heavy traffic in the eastbound and westbound directions results in less green time for southbound and northbound traffic, this results in capacity deficiencies in the AM and PM peak hours.
29. I-95 Southbound Ramp terminal: The intersection operates at LOS C and LOS B in AM and PM peak hours, respectively. However, the single-lane loop ramp in the north-east quadrant of the interchange is failing because of heavy southbound on-ramp traffic.
30. Jenkins Road intersection: Heavy eastbound and westbound traffic, along with heavy northbound left-turn traffic in the AM and PM peak hours causes capacity deficiencies.

SR 68/Orange Avenue

31. Kings Highway Intersection: Heavy traffic in the southbound left-turn, northbound right-turn, and westbound right-turn lane in the AM and PM peak hours causes capacity deficiencies. A long queue length is expected in the westbound right-turn lane in the AM peak hour.

Oslo Road/CR 606

32. 82nd Avenue Intersection: Heavy through traffic in the AM and PM peak hours causes high delays for the stop-controlled side street movements.

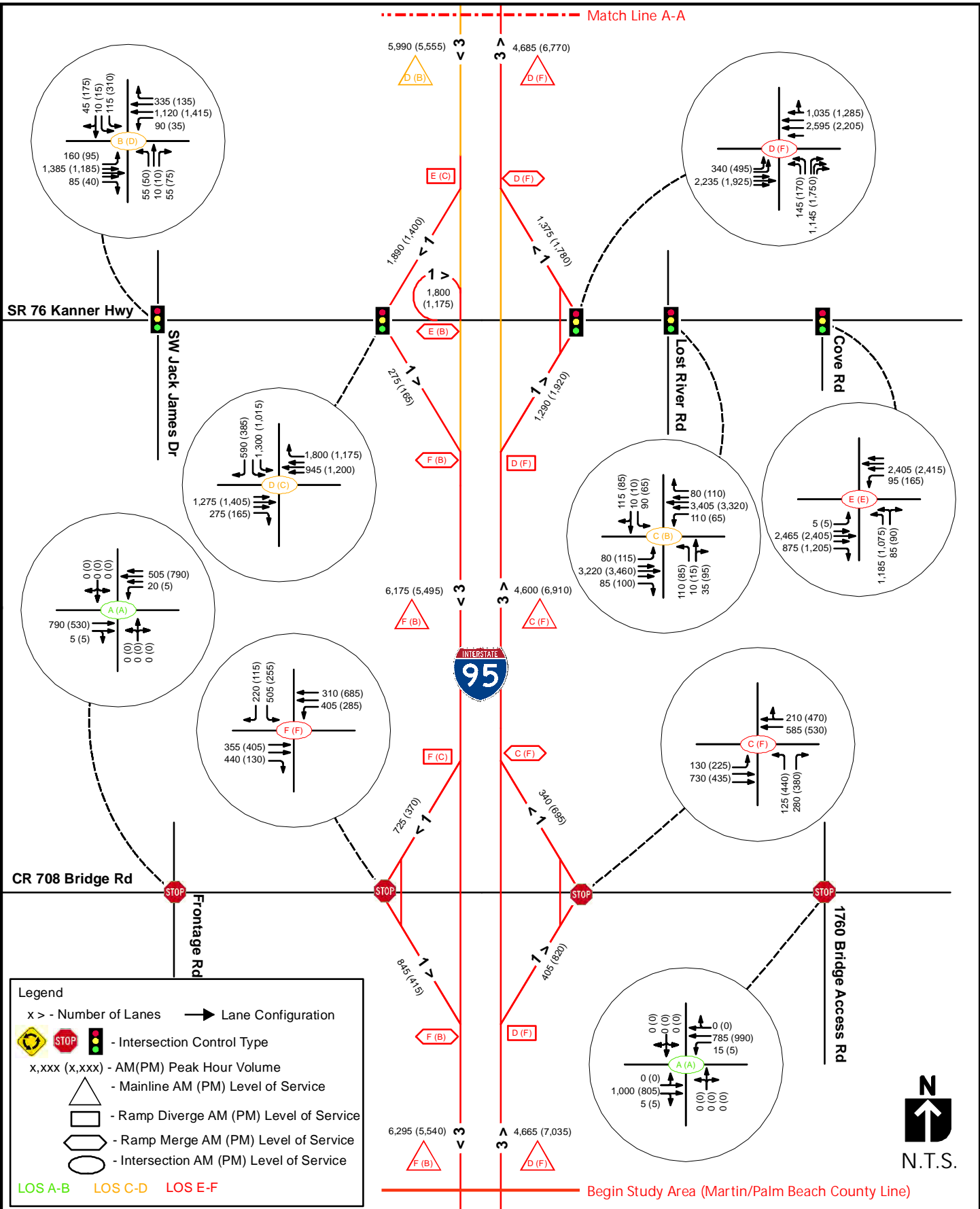
SR 60

33. 98th Avenue Intersection: Heavy traffic in the eastbound and westbound directions results in less green time for the southbound and northbound traffic. This results in capacity deficiencies in the AM and PM peak hours.

Fellsmere Road

34. 108th Avenue Intersection: Heavy traffic in the eastbound and westbound directions, and heavy northbound left-turn traffic in the AM and PM peak hours, will cause capacity deficiencies.

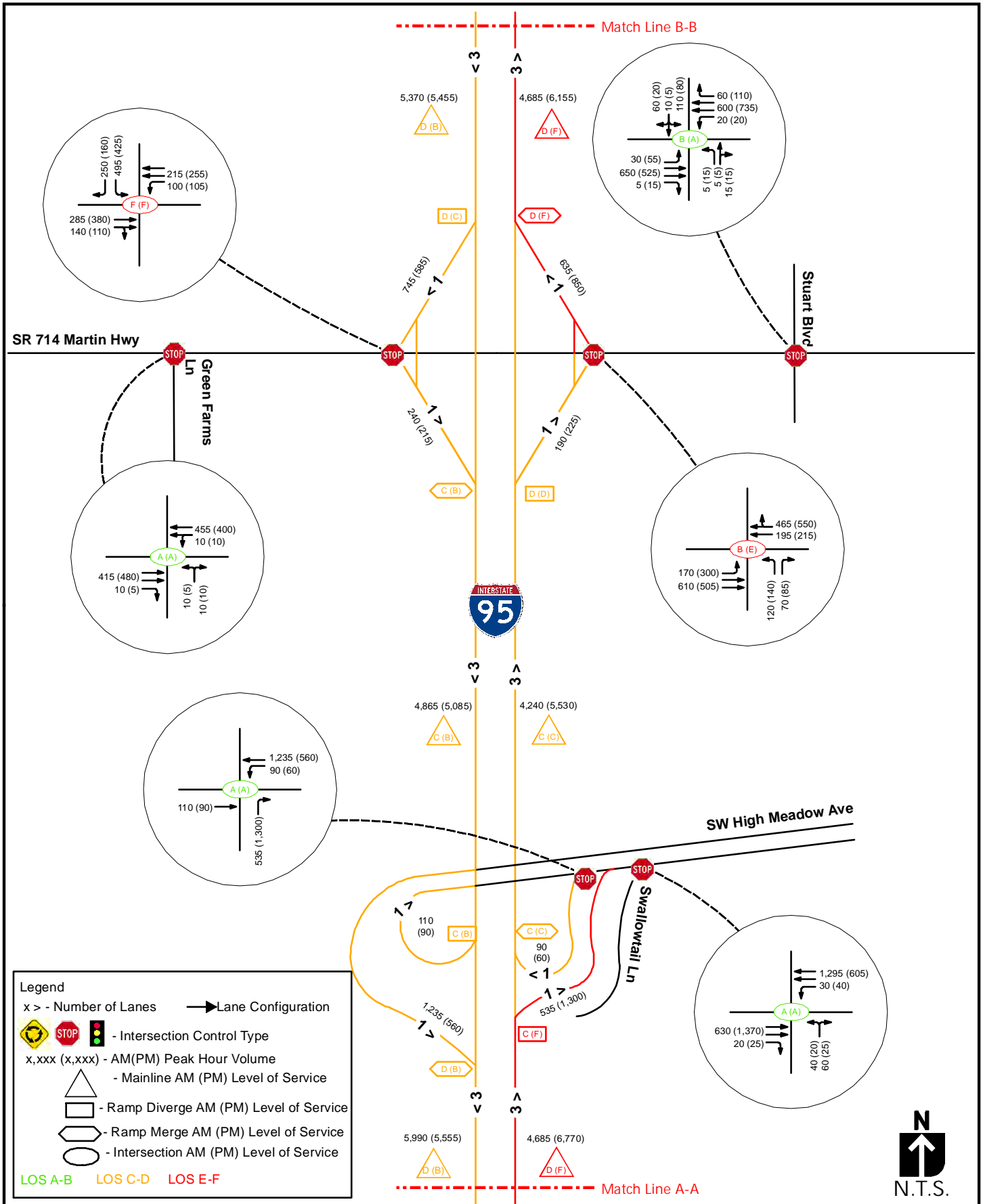
With 34 of the 63 study intersections operating at an overall failing LOS, a need for multiple capacity and operational improvements are shown to be needed by 2045 to address the deficiencies.

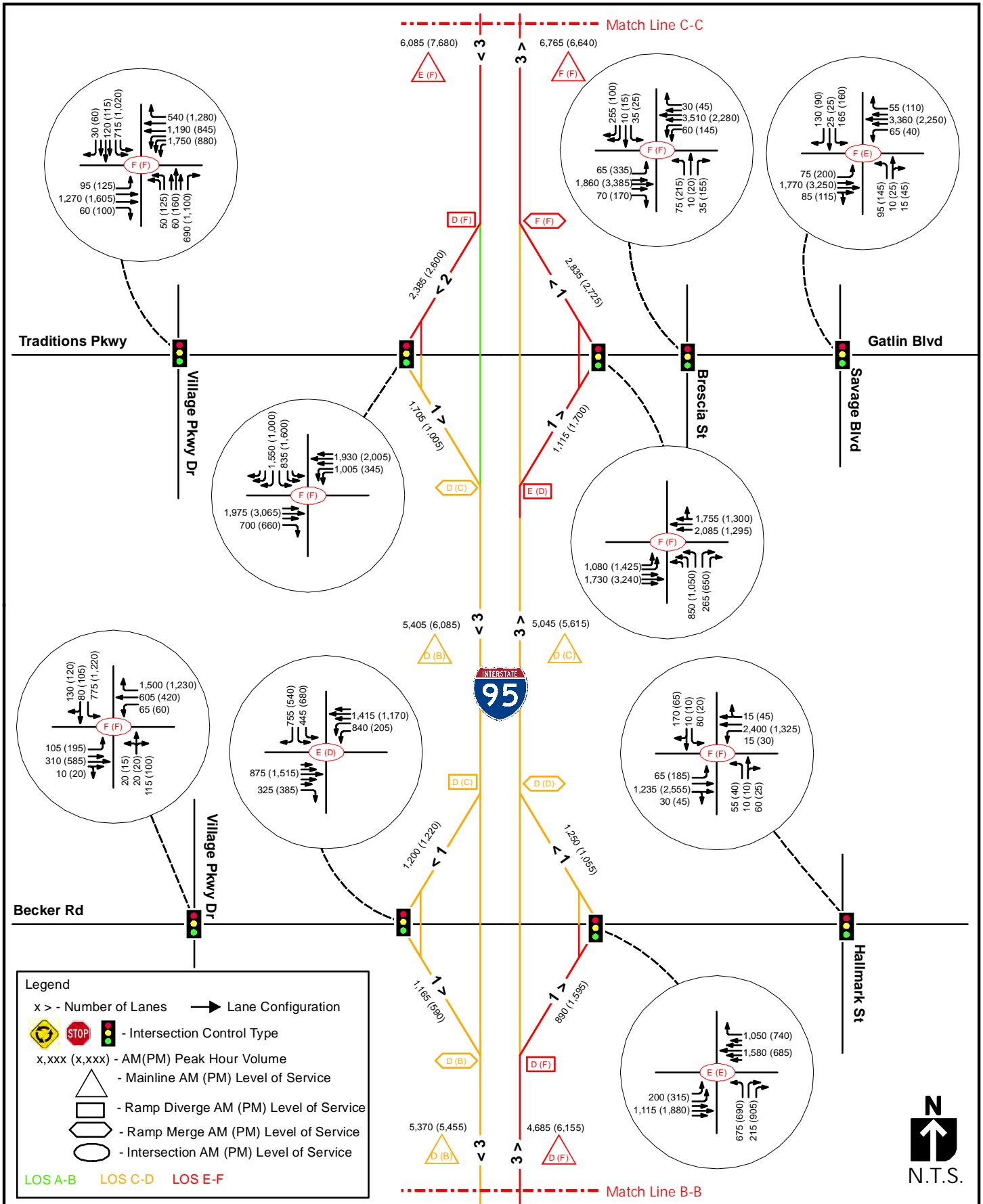


I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 No Build
 Summary

Figure 10-2
 (Page 1 of 8)

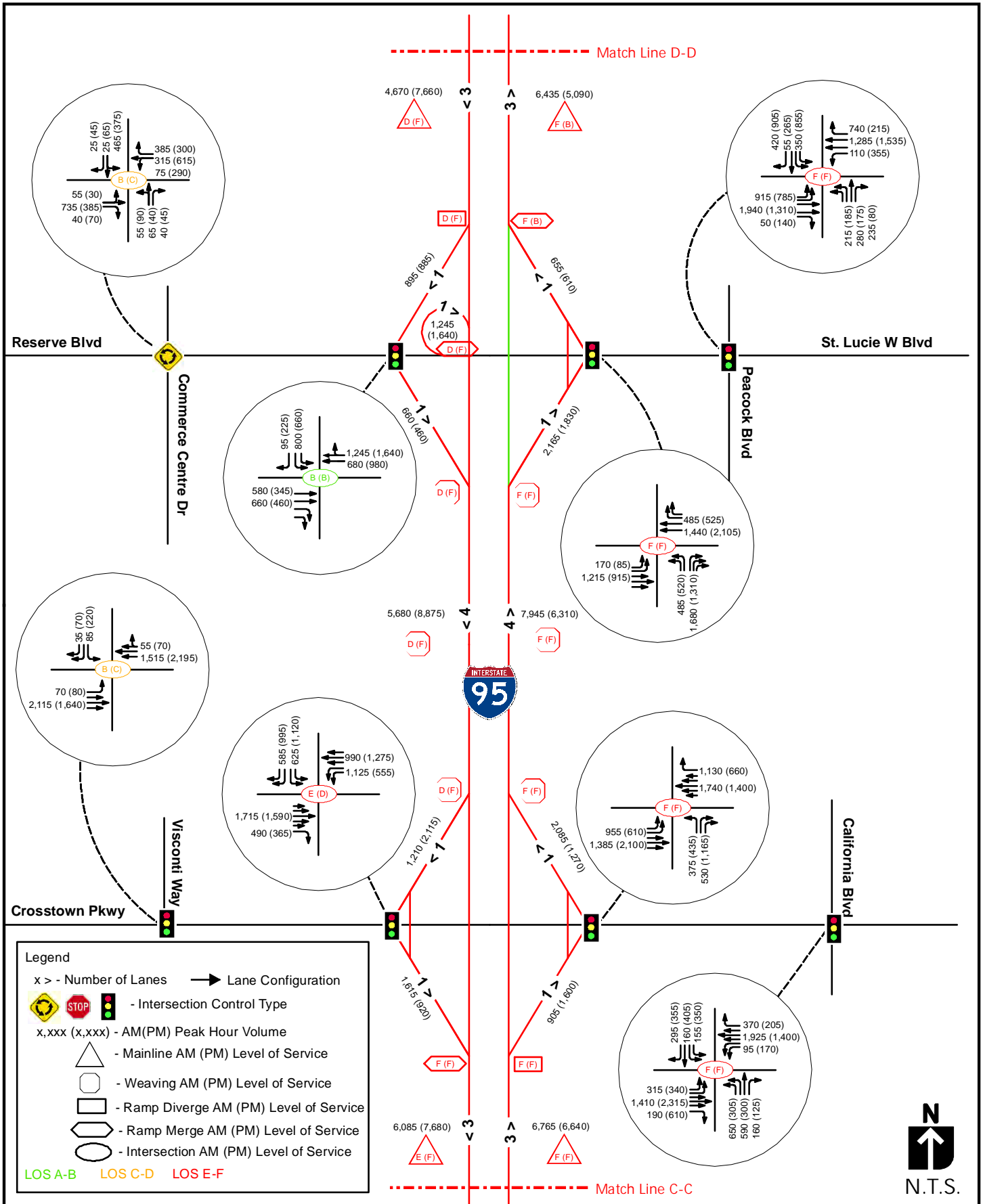




Legend

- x > - Number of Lanes → Lane Configuration
- Intersection Control Type
- x,xxx (x,xxx) - AM(PM) Peak Hour Volume
- Mainline AM (PM) Level of Service
- Ramp Diverge AM (PM) Level of Service
- Ramp Merge AM (PM) Level of Service
- Intersection AM (PM) Level of Service

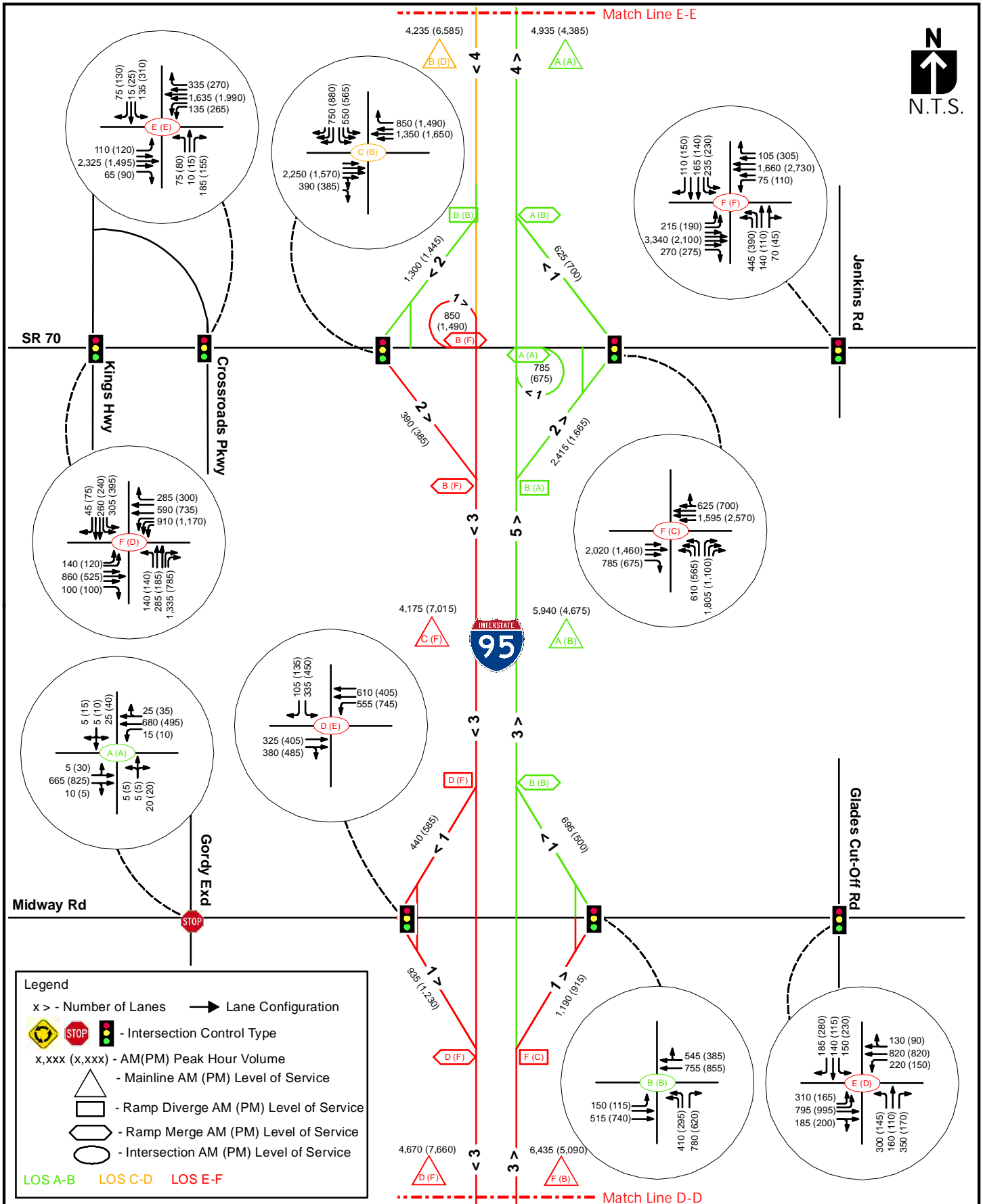
LOS A-B LOS C-D LOS E-F



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 No Build
 Summary

Figure 10-2
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Legend

- x > - Number of Lanes → Lane Configuration
- Intersection Control Type
- x,xxx (x,xxx) - AM(PM) Peak Hour Volume
- Mainline AM (PM) Level of Service
- Ramp Diverge AM (PM) Level of Service
- Ramp Merge AM (PM) Level of Service
- Intersection AM (PM) Level of Service

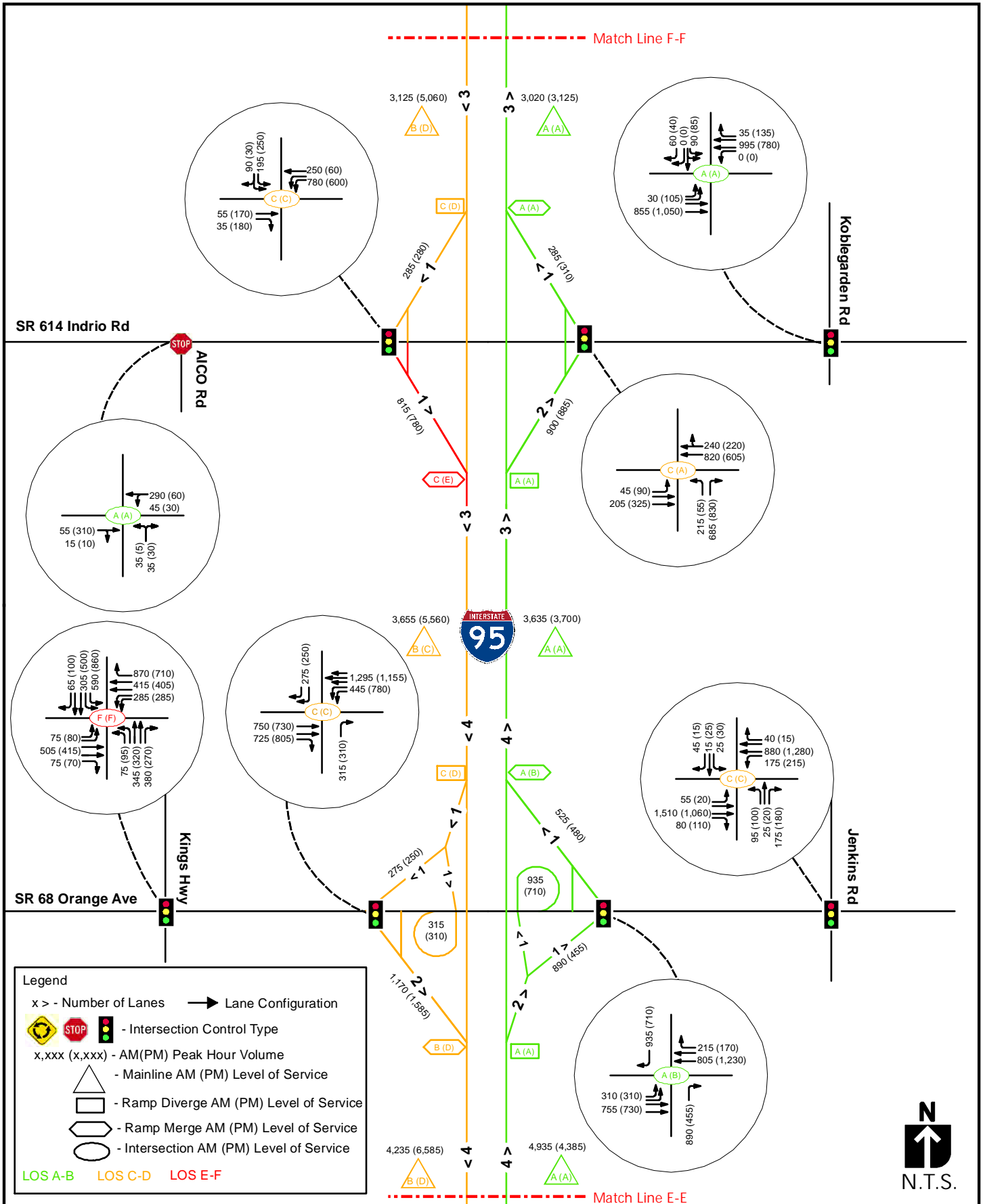
LOS A-B LOS C-D LOS E-F

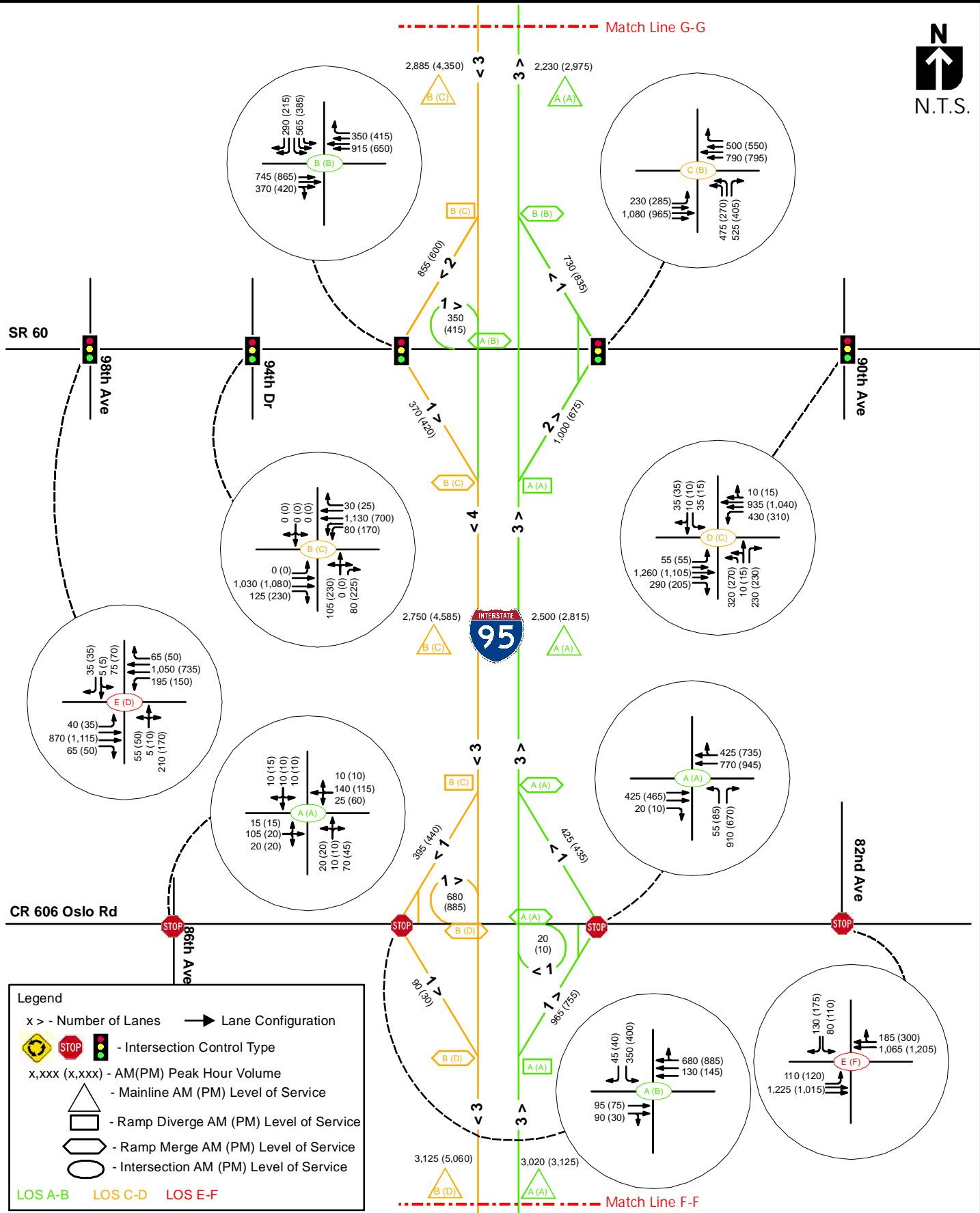


I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 No Build
 Summary

Figure 10-2
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Legend

- x > - Number of Lanes → Lane Configuration
- Intersection Control Type
- x,xxx (x,xxx) - AM(PM) Peak Hour Volume
- Mainline AM (PM) Level of Service
- Ramp Diverge AM (PM) Level of Service
- Ramp Merge AM (PM) Level of Service
- Intersection AM (PM) Level of Service

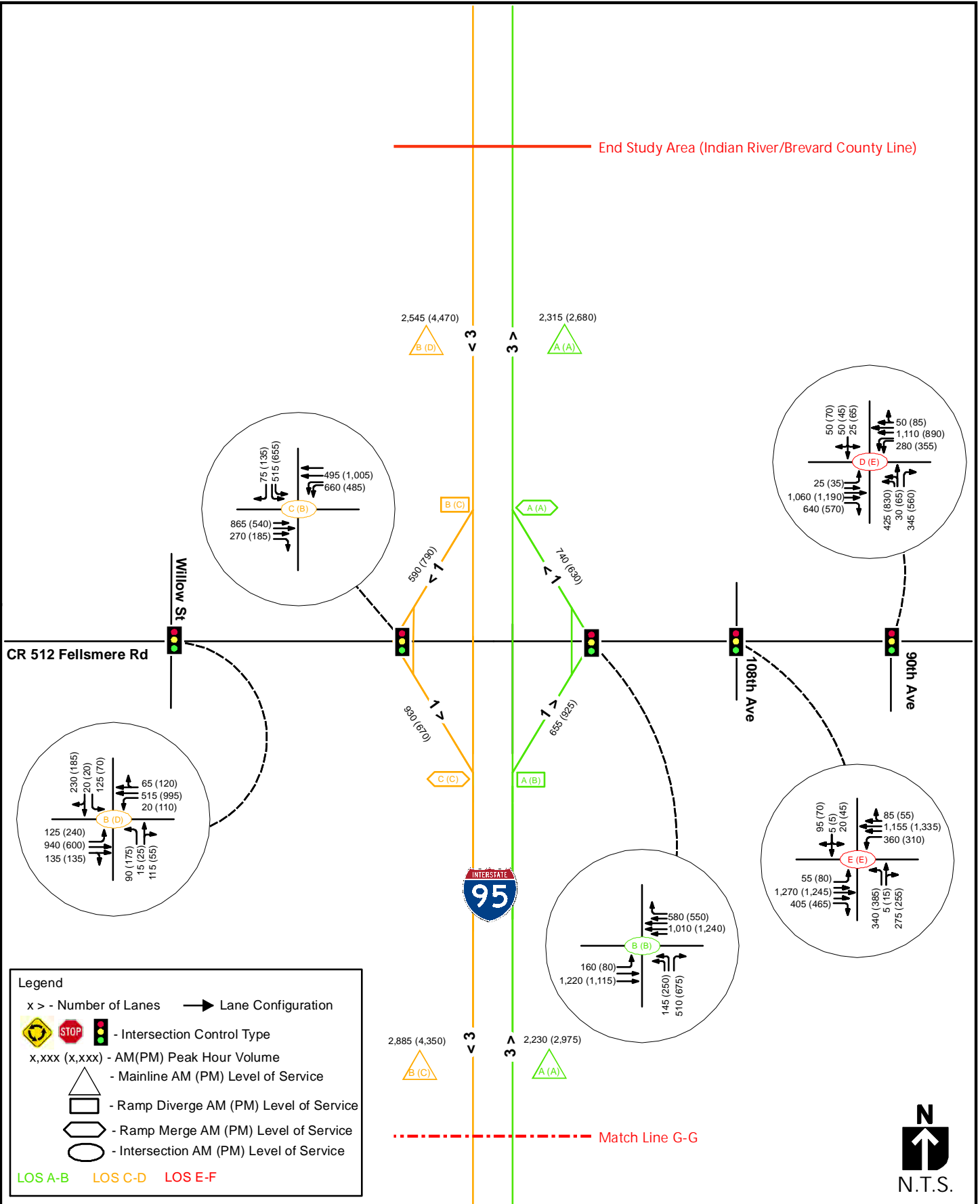
LOS A-B LOS C-D LOS E-F



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 No Build
 Summary

Figure 10-2
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I-95 Multimodal Master Plan
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Title:
 2045 No Build
 Summary

Figure 10-2
 (Page 8 of 8)

10.4 2030 Build Conditions

Based on the deficiencies identified with the 2030 No Build traffic analysis, improvements were recommended to remedy all deficiencies. The initial recommended improvements were drawn on conceptual design plans, and the improvements were reviewed by the Department through a workshop and interchange review committee meeting. The recommended improvements were also reviewed by the Technical Review Committee (TRC) made up of representatives from each of the three Treasure Coast counties. The recommended 2030 improvements were refined based on input from the Department and the TRC.

Operational analysis was completed for 2030 Build conditions to report the performance of the I-95 mainline, interchanges, and arterial cross road study intersections with the recommended improvements in place. The 2030 Build lane geometry and traffic volumes are shown on Figure 10-3. Optimized signal timings were assumed for the analyses. The operational analysis results are documented herein.

10.4.1 2030 Build I-95 Freeway Operations Analysis

The 2030 No Build freeway analysis indicates that I-95 from south of Bridge Road to SR 76/Kanner Highway, and I-95 from Crosstown Parkway to St. Lucie West Boulevard, along with multiple ramps, will operate at a failing LOS (below LOS D). To address the deficiencies, multiple improvements were tested, beginning with minor improvements such as extending the ramp acceleration and deceleration lengths or widening ramps and gradually increasing the number and complexity of the improvements as needed, such as adding a lane of capacity and/or braiding or combining ramps. After testing multiple options, the necessary improvements were identified.

HCS7 software was used to analyze the 2030 Build operations of each I-95 northbound and southbound freeway segment and the overall facility. The density and LOS was estimated for each mainline freeway segment and merge, diverge, and weaving segment along the I-95 corridor. The HCS7 freeway operational analysis reports are provided in Appendix K.

Table 10-7 presents the 2030 Build LOS for each northbound I-95 segment during the AM and PM peak hours. Table 10-8 presents the southbound I-95 LOS during the AM and PM peak hours. The AM and PM peak hour LOS results are also represented on Figure 10-3, with I-95 mainline and ramp segments color coded according to the LOS.

The recommended I-95 freeway and ramp improvements needed by 2030 are listed below.

1. Construct one additional northbound managed lane and one additional southbound managed lane on the I-95 mainline from the Palm Beach/Martin County line to SR 70/Okeechobee Road. Also, extend the existing fourth southbound general use lane that begins south of SR 614/Indrio Road further north to connect to the SR 614/Indrio Road southbound on-ramp. This provides a total of four lanes northbound and four lanes southbound from the county line to SR 614/Indrio Road.
2. Braid the northbound off-ramp to St. Lucie West Boulevard and the Crosstown Parkway northbound on-ramp. Widen the northbound off-ramp to St. Lucie West Boulevard from one to two lanes and the northbound Crosstown Parkway on-ramp to two lanes, and provide a northbound ramp roadway to accommodate local drivers traveling from Crosstown Parkway to St Lucie West Boulevard.
3. Extend the northbound off-ramp deceleration lane at SR 76/Kanner Highway to 950 feet to improve the LOS from E to LOS C in the PM peak hour.

Table 10-7: 2030 Build Freeway Analysis I-95 Northbound

| Northbound I-95 (2030 Build Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (South of Bridge Rd) | 4 | 3,155 | 12.3 | B | 73.5 | 5,835 | 24.8 | C | 67.7 |
| NB Off at Bridge Rd | 1 | 295 | 17.6 | B | 68.2 | 620 | 31 | D | 66.3 |
| NB On at Bridge Rd | 1 | 210 | 14 | B | 68.1 | 495 | 24.9 | C | 65.6 |
| I-95 (Bridge Rd to SR 76/Kanner Highway) | 4 | 3,070 | 12.0 | B | 73.5 | 5,710 | 24.0 | C | 68.3 |
| NB Off at SR 76/Kanner Highway | 1 | 1015 | 14.6 | B | 63.6 | 1555 | 29 | D | 62.6 |
| NB On at SR 76/Kanner Highway | 1 | 880 | 16.2 | B | 67.3 | 1260 | 26.9 | C | 65.1 |
| I-95 (SR 76/Kanner Highway to High Meadows Avenue) | 4 | 2,935 | 11.5 | B | 73.5 | 5,415 | 22.4 | C | 69.9 |
| NB Off at High Meadows Avenue | 1 | 395 | 10 | A | 67.5 | 1105 | 24.5 | C | 64.5 |
| NB On at High Meadows Avenue | 1 | 65 | 7.6 | A | 69.3 | 45 | 13.8 | B | 67.9 |
| I-95 (High Meadows Avenue to SR 714/Martin Highway) | 4 | 2,605 | 10.2 | A | 73.5 | 4,355 | 17.2 | B | 72.7 |
| NB Off at SR 714/Martin Highway | 1 | 135 | 14.4 | B | 69 | 165 | 22.1 | C | 68.5 |
| NB On at SR 714/Martin Highway | 1 | 480 | 15.1 | B | 67.8 | 680 | 23.1 | C | 66.3 |
| I-95 (SR 714/Martin Highway to Becker Rd) | 4 | 2,950 | 11.5 | B | 73.5 | 4,870 | 19.6 | C | 71.5 |
| NB Off at Becker Rd | 1 | 425 | 14.1 | B | 67.3 | 1110 | 26.1 | C | 64.5 |
| NB On at Becker Rd | 1 | 875 | 18.8 | B | 67.1 | 585 | 20.8 | C | 66.8 |
| I-95 (Becker Rd to Gatlin Blvd) | 4 | 3,400 | 13.2 | B | 73.5 | 4,345 | 17.1 | B | 72.7 |
| NB Off at Gatlin Blvd | 1 | 715 | 20 | C | 65.9 | 1200 | 27.5 | C | 64 |
| NB On at Gatlin Blvd | 1 | 2125 | 29.6 | D | 63.5 | 1640 | 27.2 | C | 64.9 |
| I-95 (Gatlin Blvd to Crosstown Parkway) | 4 | 4,810 | 19.1 | C | 71.7 | 4,785 | 19.0 | C | 71.8 |
| NB Off at Crosstown Parkway | 1 | 525 | 20.5 | C | 67 | 1100 | 23.5 | C | 64.6 |
| NB Off at St. Lucie West Blvd | 2 | 1580 | 19.3 | B | 64.2 | 1320 | 15.9 | B | 65.3 |
| NB On at Crosstown Parkway | 2 | 1440 | 22 | C | 66.3 | 805 | 15.5 | B | 67.6 |
| NB On at St. Lucie West Blvd | 1 | 570 | 22.6 | C | 66.5 | 555 | 19 | B | 67.1 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (St. Lucie West Blvd to Midway Rd) | 4 | 4,715 | 18.7 | C | 72.0 | 3,725 | 14.5 | B | 73.4 |
| NB Off at Midway Rd | 1 | 865 | 27.3 | C | 65.4 | 665 | 21.9 | C | 66.3 |
| NB On at Midway Rd | 1 | 555 | 20.4 | C | 66.9 | 360 | 16 | B | 67.7 |
| I-95 (Midway Rd to SR 70/Okeechobee Rd) | 4 | 4,405 | 17.3 | B | 72.6 | 3,420 | 13.3 | B | 73.5 |
| NB Off at SR 70/Okeechobee Rd | 2 | 1810 | 14.2 | B | 61.9 | 1255 | 8.7 | A | 64.9 |
| NB On (1) at SR 70/Okeechobee Rd | 1 | 465 | 11.5 | B | 67.9 | 475 | 9.7 | A | 67.9 |
| NB On (2) at SR 70/Okeechobee Rd | 1 | 385 | 14.3 | B | 68 | 465 | 13.8 | B | 67.9 |
| I-95 (SR 70/Okeechobee Rd to SR 68/Orange Avenue) | 4 | 3,445 | 13.6 | B | 73.5 | 3,105 | 12.3 | B | 73.5 |
| NB Off at SR 68/Orange Avenue | 2 | 1330 | 9.4 | A | 64.6 | 865 | 5.1 | A | 67.5 |
| NB On at SR 68/Orange Avenue | 1 | 320 | 13.8 | B | 68 | 305 | 14.2 | B | 68 |
| I-95 (SR 68/Orange Avenue to SR 614/Indrio Rd) | 4 | 2,435 | 9.6 | A | 73.5 | 2,545 | 10.1 | A | 73.5 |
| NB Off at SR 614/Indrio Rd ¹ | 2 | 610 | 1.5 | A | 68.6 | 690 | 2.3 | A | 68.1 |
| NB On at SR 614/Indrio Rd | 1 | 200 | 15.4 | B | 66.4 | 195 | 15.5 | B | 66.4 |
| I-95 (SR 614/Indrio Rd to CR 606/Oslo Rd) | 3 | 2,025 | 10.7 | A | 73.5 | 2,050 | 10.8 | A | 73.5 |
| NB Off at CR 606/Oslo Rd | 1 | 735 | 13 | B | 60.8 | 585 | 12.8 | B | 61.7 |
| NB On (1) at CR 606/Oslo Rd | 1 | 10 | 7.5 | A | 67.9 | 5 | 8.5 | A | 67.8 |
| NB On (2) at CR 606/Oslo Rd | 1 | 190 | 9.3 | A | 67.4 | 200 | 10.3 | B | 67.3 |
| I-95 (CR 606/Oslo Rd to SR 60/20 th St) | 3 | 1,490 | 8.1 | A | 70.8 | 1,670 | 9.1 | A | 70.8 |
| NB Off at SR 60/20 th St | 2 | 675 | 1.3 | A | 62.6 | 500 | 1.1 | A | 64.8 |
| NB On at SR 60/20 th St | 1 | 460 | 12.3 | B | 65.8 | 630 | 15.7 | B | 65.8 |
| I-95 (SR 60/20 th St to CR 512/Fellsmere Rd) | 3 | 1,275 | 6.7 | A | 73.5 | 1,800 | 9.5 | A | 73.5 |
| NB Off at CR 512/Fellsmere Rd | 1 | 405 | 12.9 | B | 61.8 | 670 | 17 | B | 61.1 |
| NB On at CR 512/Fellsmere Rd | 1 | 450 | 9 | A | 66.8 | 400 | 10 | A | 67.1 |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 1,320 | 7.0 | A | 73.5 | 1,530 | 8.1 | A | 73.5 |

¹ Considered a drop lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge).

Table 10-8: 2030 Build Freeway Analysis I-95 Southbound

| Southbound I-95 (2030 Build Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 1,805 | 9.7 | A | 72.3 | 2,855 | 15.3 | B | 72.2 |
| SB Off at CR 512/Fellsmere Rd | 1 | 365 | 10.9 | B | 62.8 | 560 | 17.6 | B | 62.9 |
| SB On at CR 512/Fellsmere Rd | 1 | 740 | 15.9 | B | 66 | 430 | 17.9 | B | 66.1 |
| I-95 (CR 512/Fellsmere Rd to SR 60/20 th St) | 3 | 2,180 | 11.5 | B | 73.5 | 2,725 | 14.4 | B | 73.5 |
| SB Off at SR 60/20 th St | 2 | 660 | 11.3 | B | 64.5 | 415 | 13.4 | B | 65.7 |
| SB On (1) at SR 60/20 th St ¹ | 1 | 300 | - | A | 73.3 | 350 | - | A | 73.3 |
| SB On (2) at SR 60/20 th St | 1 | 200 | 10.3 | B | 68.7 | 290 | 14.2 | B | 68.1 |
| I-95 (SR 60/20 th St to CR 606/Oslo Rd) | 3 | 2,020 | 11.1 | B | 70.4 | 2,950 | 16.2 | B | 70.4 |
| SB Off at CR 606/Oslo Rd | 1 | 310 | 11.9 | B | 63.2 | 365 | 17.6 | B | 63.7 |
| SB On (1) at CR 606/Oslo Rd | 1 | 305 | 12.5 | B | 67 | 410 | 18.2 | B | 66.2 |
| SB On (2) at CR 606/Oslo Rd | 1 | 45 | 11.9 | B | 67.3 | 15 | 16.9 | B | 66.4 |
| I-95 (CR 606/Oslo Rd to SR 614/Indrio Rd) | 3 | 2,060 | 11.2 | B | 71.3 | 3,010 | 16.4 | B | 71.2 |
| SB Off at SR 614/Indrio Rd | 1 | 180 | 17.3 | B | 63.7 | 185 | 23.1 | C | 64.3 |
| SB On at SR 614/Indrio Rd ¹ | 1 | 675 | - | A | 73.5 | 550 | - | B | 73.5 |
| I-95 (SR 614/Indrio Rd to SR 68/Orange Avenue) | 4 | 2,555 | 10.3 | A | 72.3 | 3,375 | 13.6 | B | 72.3 |
| SB Off at SR 68/Orange Avenue | 1 | 410 | 15.3 | B | 67 | 350 | 18.5 | B | 67.9 |
| SB On at SR 68/Orange Avenue | 2 | 890 | 11.7 | B | 68.4 | 1180 | 17.4 | B | 67.4 |
| I-95 (SR 68/Orange Avenue to SR 70/Okeechobee Rd) | 4 | 3,035 | 12.4 | B | 70.8 | 4,205 | 17.3 | B | 70.6 |
| SB Off at SR 70/Okeechobee Rd | 2 | 840 | 5.3 | A | 67 | 950 | 9.2 | A | 67.2 |
| SB On (1) at SR 70/Okeechobee Rd | 1 | 610 | 9.6 | A | 68.8 | 1090 | 17.8 | B | 67.3 |
| SB On (2) at SR 70/Okeechobee Rd | 2 | 245 | 8.4 | A | 69.1 | 270 | 14.1 | B | 67.9 |
| I-95 (SR 70/Okeechobee Rd to Midway Rd) | 4 | 3,050 | 12.3 | B | 70.8 | 4,615 | 18.8 | C | 70.2 |
| SB Off at Midway Rd | 1 | 320 | 17.2 | B | 67.9 | 425 | 24.5 | C | 67.3 |
| SB On at Midway Rd | 1 | 650 | 18.2 | B | 67.2 | 860 | 25.2 | C | 65.8 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (Midway Rd to St. Lucie West Blvd) | 4 | 3,380 | 13.5 | B | 71.3 | 5,050 | 20.7 | C | 69.6 |
| SB Off at St. Lucie West Blvd | 1 | 785 | 15.7 | B | 65.5 | 770 | 22.8 | C | 66 |
| SB Off at Crosstown Parkway | 2 | 775 | 9.1 | A | 67.5 | 1385 | 17.7 | B | 65.5 |
| SB On at St. Lucie West Blvd | 2 | 1265 | 17.3 | B | 67 | 1535 | 23.3 | C | 65.9 |
| SB On at Crosstown Parkway | 1 | 1040 | 20.8 | C | 66.8 | 535 | 21.4 | C | 66.6 |
| I-95 (Crosstown Parkway to Gatlin Blvd) | 4 | 4,125 | 16.8 | B | 70.3 | 4,965 | 20.5 | C | 69.2 |
| SB Off at Gatlin Blvd | 2 | 1455 | 13.8 | B | 65 | 1910 | 19.1 | B | 63.1 |
| SB On at Gatlin Blvd | 1 | 1165 | 20.7 | C | 66.6 | 545 | 17 | B | 67.5 |
| I-95 (Gatlin Blvd to Becker Rd) | 4 | 3,835 | 15.4 | B | 71.3 | 3,600 | 14.4 | B | 71.3 |
| SB Off at Becker Rd | 1 | 560 | 22 | C | 67 | 715 | 21.8 | C | 66 |
| SB On at Becker Rd | 1 | 800 | 18.7 | B | 67.2 | 300 | 13.2 | B | 68.2 |
| I-95 (Becker Rd to SR 714/Martin Highway) | 4 | 4,075 | 16.5 | B | 71.2 | 3,185 | 12.8 | B | 71.3 |
| SB Off at SR 714/Martin Highway | 1 | 560 | 23.2 | C | 66.8 | 460 | 18.8 | B | 67.1 |
| SB On at SR 714/Martin Highway | 1 | 175 | 18.1 | B | 67.4 | 155 | 15.1 | B | 68 |
| I-95 (SR 714/Martin Highway to High Meadows Avenue) | 4 | 3,690 | 14.5 | B | 73.4 | 2,880 | 11.3 | B | 73.5 |
| SB Off at High Meadows Avenue | 1 | 75 | 13.4 | B | 69.3 | 60 | 9.8 | A | 69.6 |
| SB On at High Meadows Avenue | 1 | 1090 | 22.9 | C | 66.3 | 460 | 14.7 | B | 68 |
| I-95 (High Meadows Avenue to SR 76/Kanner Highway) | 4 | 4,705 | 19.4 | C | 69.9 | 3,280 | 13.3 | B | 70.5 |
| SB Off at SR 76/Kanner Highway | 1 | 1355 | 30.3 | D | 63.1 | 905 | 21.6 | C | 64.5 |
| SB On (1) at SR 76/Kanner Hwy | 1 | 1465 | 25.1 | C | 65.4 | 875 | 16.6 | B | 67.4 |
| SB On (2) at SR 76/Kanner Hwy | 1 | 255 | 20.6 | C | 66.6 | 140 | 14 | B | 68.1 |
| I-95 (SR 76/Kanner Highway to Bridge Rd) | 4 | 5,070 | 21.1 | C | 69.1 | 3,390 | 13.8 | B | 70.8 |
| SB Off at Bridge Rd | 1 | 515 | 27 | C | 67 | 220 | 18.1 | B | 68.6 |
| SB On at Bridge Rd | 1 | 630 | 22.9 | C | 66.2 | 300 | 15.2 | B | 67.9 |
| I-95 (South of Bridge Rd) | 4 | 5,185 | 21.2 | C | 70.4 | 3,470 | 13.6 | B | 73.5 |

¹ Considered an add lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge).

Braiding the ramps between the two closely spaced interchanges of Crosstown Parkway and St. Lucie West Boulevard allows the off-ramp traffic to exit the mainline before the on-ramp traffic enters. This eliminates the weaving maneuver, reduces the total volume and density on the mainline, and addresses the failing LOS (F) in the northbound direction in both 2030 AM and PM peak hours.

The recommended freeway improvements were incorporated into the 2030 AM and PM peak hour Build freeway analysis. Braided ramps in both the northbound and southbound direction between St. Lucie West Boulevard and Crosstown Parkway were included in the 2030 Build analysis. The analysis results show that these improvements will allow all segments of the I-95 mainline and all ramp junction points to operate at an acceptable LOS D or better in 2030.

10.4.2 2030 Build Cross Road Intersection Operations Analysis

The 2030 Build operational analysis was conducted to evaluate and identify proposed roadway and signal timing improvements. The 2030 No Build intersection analysis indicates that seven intersections will operate below the LOS D target in either the 2030 AM or PM peak hours. They are:

1. Bridge Road at the I-95 southbound ramp terminal intersection,
2. Bridge Road at the I-95 northbound ramp terminal intersection,
3. SW Becker Road at Village Parkway Drive intersection,
4. Gatlin Boulevard at Village Parkway Drive intersection,
5. St. Lucie West Boulevard at Peacock Boulevard intersection,
6. SR 70/Okeechobee Road at Jenkins Road intersection, and
7. CR 606/Oslo Road at 82nd Avenue intersection.

Appropriate signal and operational improvements were tested to address identified deficiencies such as: failing overall intersection LOS, failing LOS for critical movements, long queues which may impact adjacent intersection operations, and lane utilization issues. Signal improvements, lane

reconfigurations, and turn lane improvements were identified. Below is the list of recommended interchange and intersection improvements for the year 2030:

Bridge Road Interchange

1. I-95 Ramp Terminals: Signalize the I-95 northbound ramp terminal intersection and southbound ramp terminal intersection to address high delays in the AM and PM peak hours.
2. Implement actuated-coordinated signals at new signalized I-95 ramp terminal intersections.

SR 714/Martin Highway Interchange

1. I-95 Ramp Terminals: Signalize the I-95 northbound ramp terminal intersection and southbound ramp terminal intersection to address high delays in the AM and PM peak hours.
2. Implement actuated-coordinated signals at new signalized I-95 ramp terminal intersections.
3. SW Stuart W Boulevard: Signalize the intersection to address high delays in the AM and PM peak hours.

Becker Road at Village Parkway Drive

1. Add a second southbound left-turn lane

Gatlin Boulevard at Village Parkway Drive

1. Northbound: Channelize the right-turn lane and add a receiving lane
2. Westbound: Channelize the right-turn lane

St. Lucie West Boulevard at Peacock Boulevard

1. Eastbound : Add a third left-turn lane and third through lane
2. Westbound: Add a second left-turn lane, third through lane, and second right-turn lane; and provide a protected right-turn overlap phase.
3. Northbound: Add a second through lane, and provide a protected right-turn overlap phase.
4. Southbound: Add a second through lane and second right turn lane; and provide a protected right-turn overlap phase.

SR 70/Okeechobee Rd Interchange

1. I-95 Northbound Ramp Terminal intersection: On the westbound lanes between the northbound ramp terminal intersection and Jenkins Road, reconstruct and restripe the outer two lanes that provide access to the I-95 northbound and southbound on-ramps, just past the Jenkins Road intersection, to allow one dedicated on-ramp lane next to one choice through/right-turn lane for westbound or southbound on-ramp traffic, and a dedicated through lane for northbound on-ramp traffic only.
2. Jenkins Road: Provide a signal retiming improvement, including a protected right-turn overlap phase for the southbound right-turn movement.

SR 68/Orange Avenue Interchange

1. Implement actuated-coordinated signals at the signalized I-95 ramp terminal intersections.
2. Relocate the eastbound to southbound on-ramp right-turn lane along SR 68/Orange Avenue further east to provide more distance between the SR 68/Orange Avenue intersection with Kings Highway and the on-ramp, allowing for heavy southbound Kings Highway traffic to turn onto SR 68/Orange Avenue and maneuver into the outside right turn lane leading to the southbound I-95 on-ramp.

SR 606/Oslo Road at 82nd Avenue

1. Signalize the intersection.

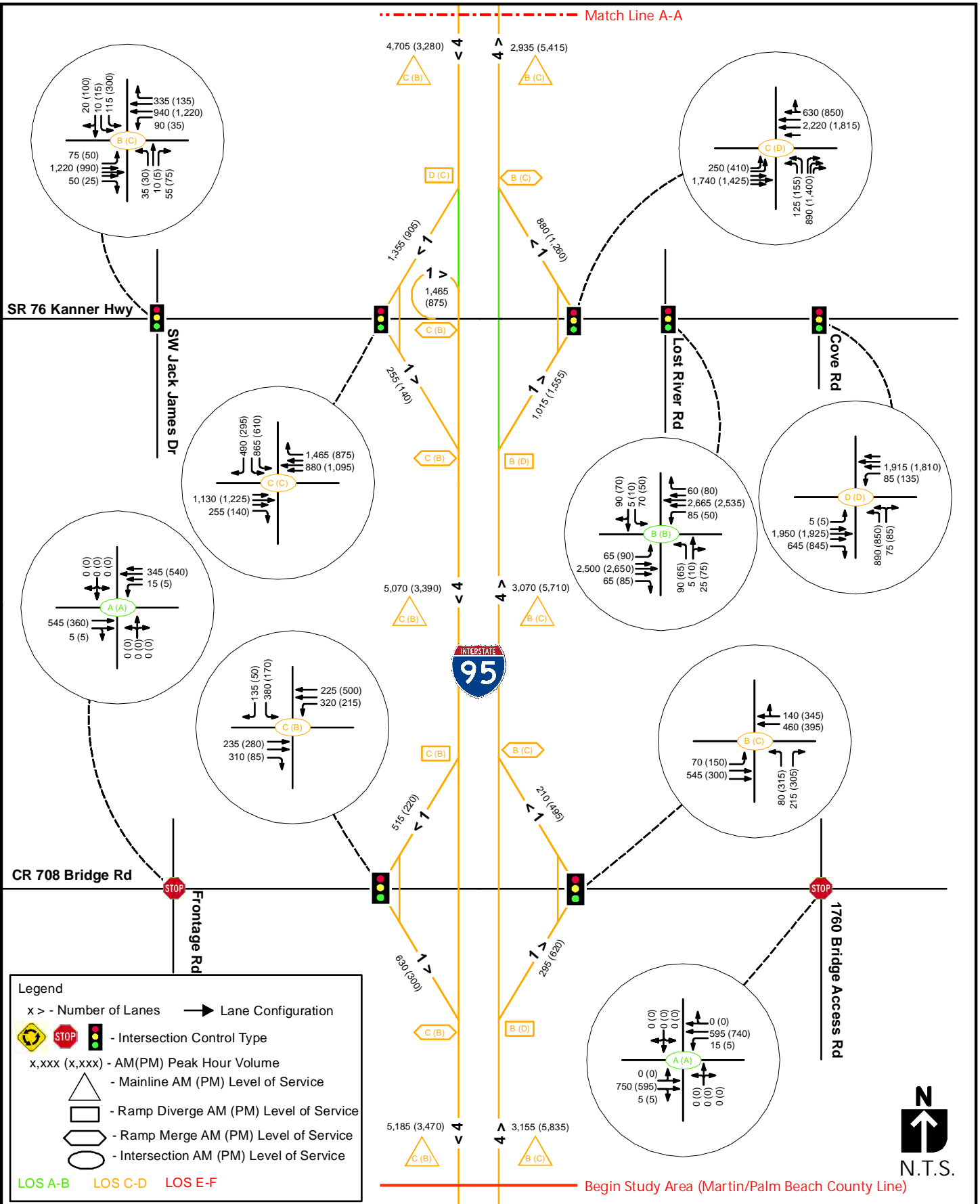
Synchro software for signalized intersections and HCS7 software for roundabouts was used to analyze the 2030 Build operations of each study intersection, assuming the recommended improvements are in place. Table 10-9 presents the 2030 Build LOS for each study intersection during the AM and PM peak hours. The AM and PM peak hour LOS results are also represented on Figure 10-3, with the intersection LOS color coded. The detailed Synchro operational analysis reports including delay, LOS, volume-to-capacity ratio, and 95th percentile queue length by movement are provided in Appendix L.

The 2030 Build intersection operational results indicate all study intersections will operate at LOS D or better with the recommended build improvements in place by 2030.

Table 10-9: 2030 Build Intersection LOS

| Interchange | Study Intersection | Signal Control | 2030 Build LOS | |
|-----------------------------|--|----------------|----------------|----|
| | | | AM | PM |
| 1. Bridge Road | Frontage Rd west of I-95 | Stop Control | A | A |
| | I-95 SB Ramp Terminal | Signal | C | B |
| | I-95 NB Ramp Terminal | Signal | B | C |
| | 1760 Bridge Access Road | Stop Control | A | A |
| 2. SR 76/Kanner Highway | Jack James Drive (west) | Signal | B | C |
| | I-95 SB Ramp Terminal (Includes W to S Loop) | Signal | C | C |
| | I-95 NB Ramp Terminal | Signal | C | D |
| | SW Lost River Road | Signal | B | B |
| | Cove Road (east) | Signal | D | D |
| 3. High Meadows Avenue | I-95 NB and SB Ramp Terminal (Include N of E ramp) | Stop Control | A | A |
| | Swallowtail Highway | Stop Control | A | A |
| 4. SR 714/Martin Highway | SW Green Farms Lane | Stop Control | A | A |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | A | C |
| | SW Stuart W Boulevard | Signal | B | B |
| 5. Becker Road | Village Parkway Drive | Signal | D | D |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | C | C |
| | SW Hallmark Street | Signal | D | C |
| 6. Gatlin Boulevard | Village Parkway Drive | Signal | D | D |
| | I-95 SB Terminal | Signal | D | C |
| | I-95 NB Terminal | Signal | C | C |
| | SW Brescia Street | Signal | C | C |
| | SW Savage Boulevard | Signal | C | B |
| 7. Crosstown Parkway | SW Visconti Way | Signal | B | B |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | D | D |
| | SW California Boulevard | Signal | D | D |
| 8. St. Lucie West Boulevard | Commerce Center Drive | Roundabout | A | A |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | D | D |
| | NW Peacock Boulevard | Signal | D | D |

| Interchange | Study Intersection | Signal Control | 2030 Build LOS | |
|---------------------------|---|----------------|----------------|----|
| | | | AM | PM |
| 9. Midway Road | Gordy Exd | Stop Control | A | A |
| | I-95 SB Terminal | Signal | C | D |
| | I-95 NB Terminal | Signal | B | A |
| | Glades Cut-Off Road | Signal | C | C |
| 10. SR 70/Okeechobee Road | Kings Highway | Signal | D | C |
| | Crossroads Parkway | Signal | B | C |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | C | C |
| | Jenkins Road | Signal | D | D |
| 11. SR 68/Orange Avenue | Kings Highway | Signal | D | D |
| | I-95 SB Terminal | Signal | B | C |
| | I-95 NB Terminal | Signal | A | A |
| | Jenkins Road | Signal | C | B |
| 12. SR 614/Indrio Road | AICO Rod | Stop Control | A | A |
| | I-95 SB Terminal | Signal | B | C |
| | I-95 NB Terminal | Signal | A | A |
| | Spanish Lakes Boulevard / Koblegard Road | Signal | A | A |
| 13. CR 606/Oslo Road | 86 th Avenue / 90 th Avenue | Stop Control | A | A |
| | I-95 SB Terminal | Stop Control | A | A |
| | I-95 NB Terminal | Stop Control | A | A |
| | 82 nd Avenue | Signal | B | B |
| 14. SR 60/20th Street | 98 th Avenue | Signal | A | A |
| | 94 th Drive | Signal | B | B |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | B | B |
| | 90 th Avenue | Signal | C | C |
| | Willow Street | Signal | C | B |
| 15. CR 512/Fellsmere Road | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | A | B |
| | 108 th Avenue | Signal | C | C |
| | 90 th Avenue | Signal | C | D |

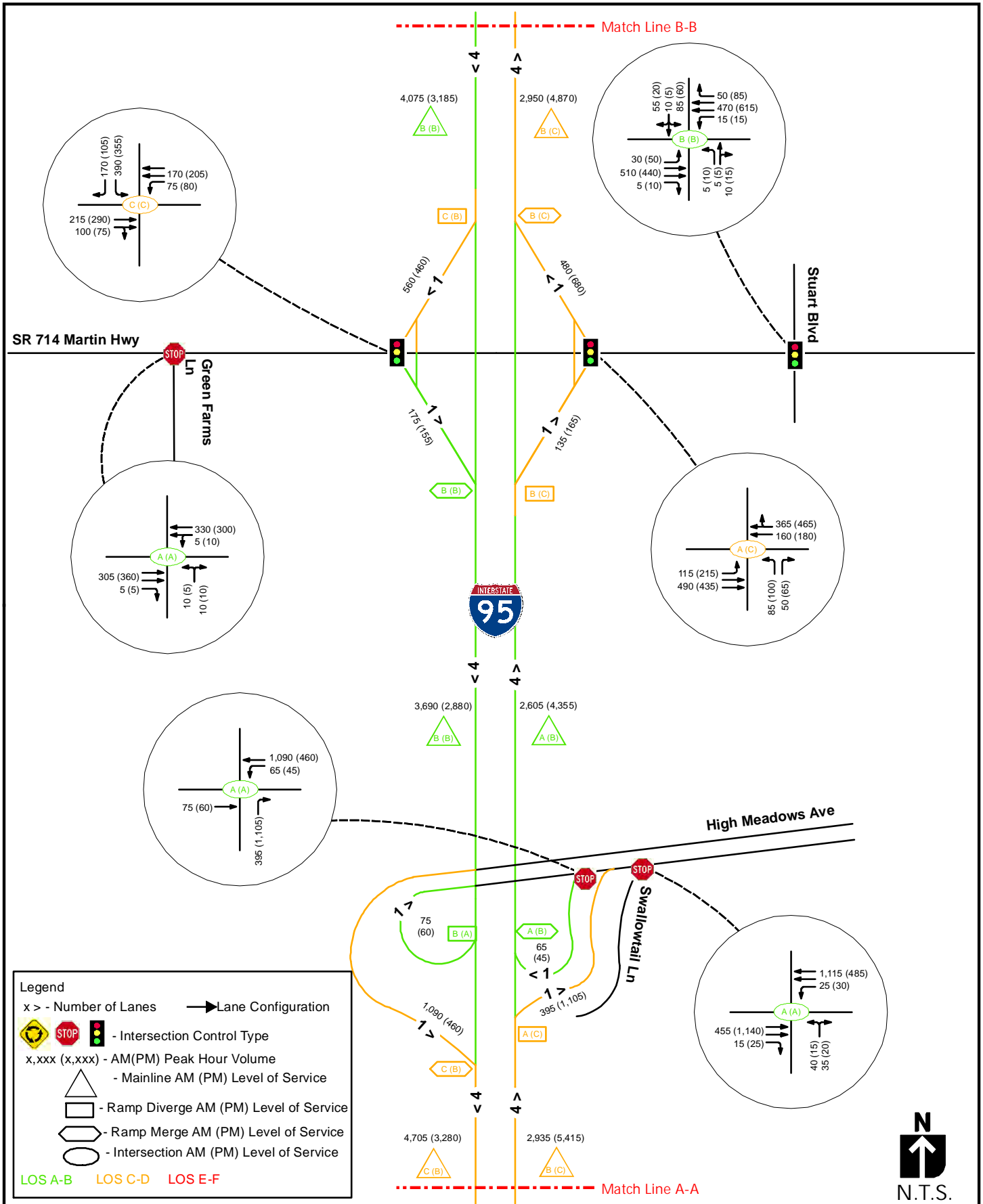


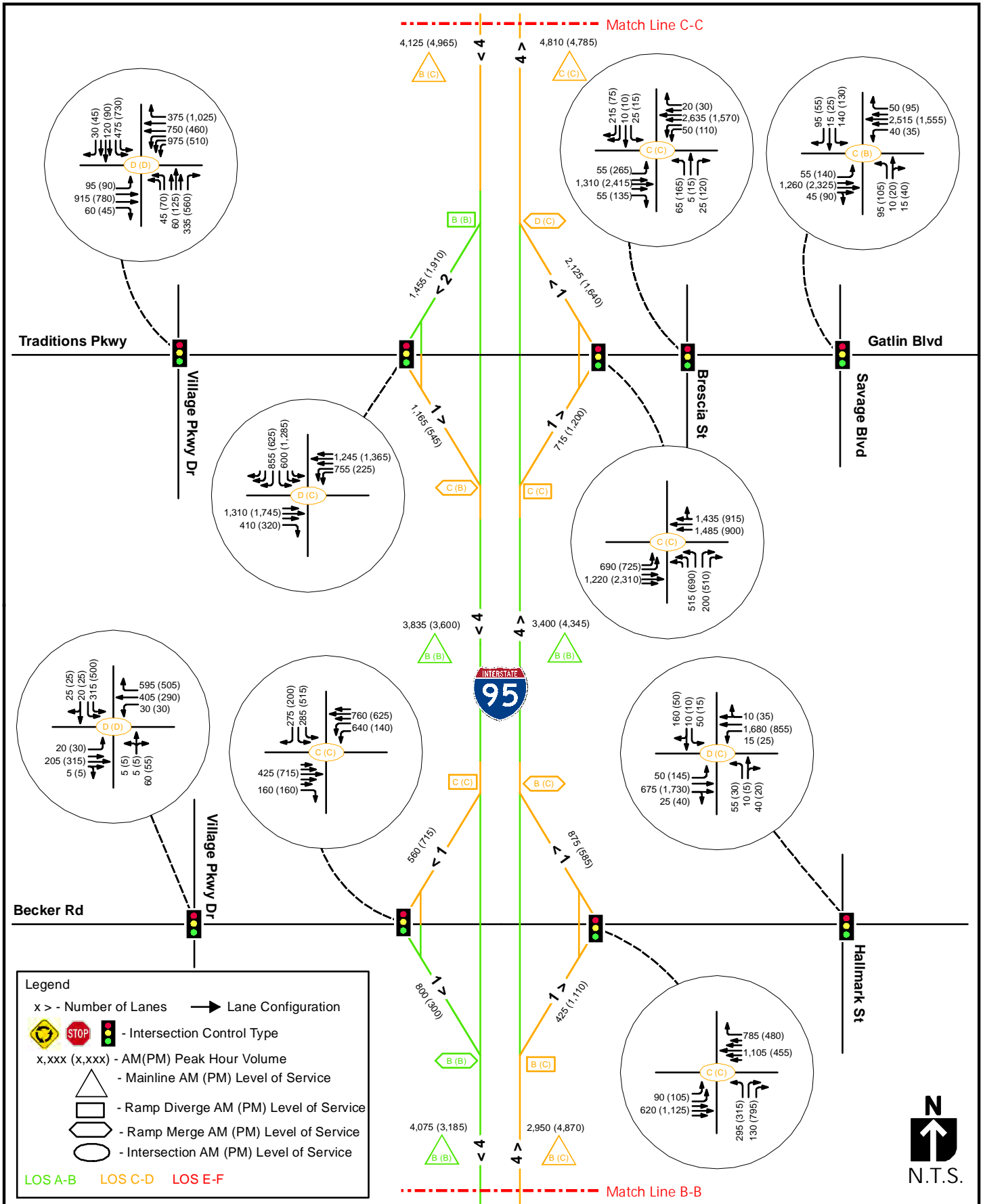
I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2030 Build Summary

Figure 10-3
 (Page 1 of 8)



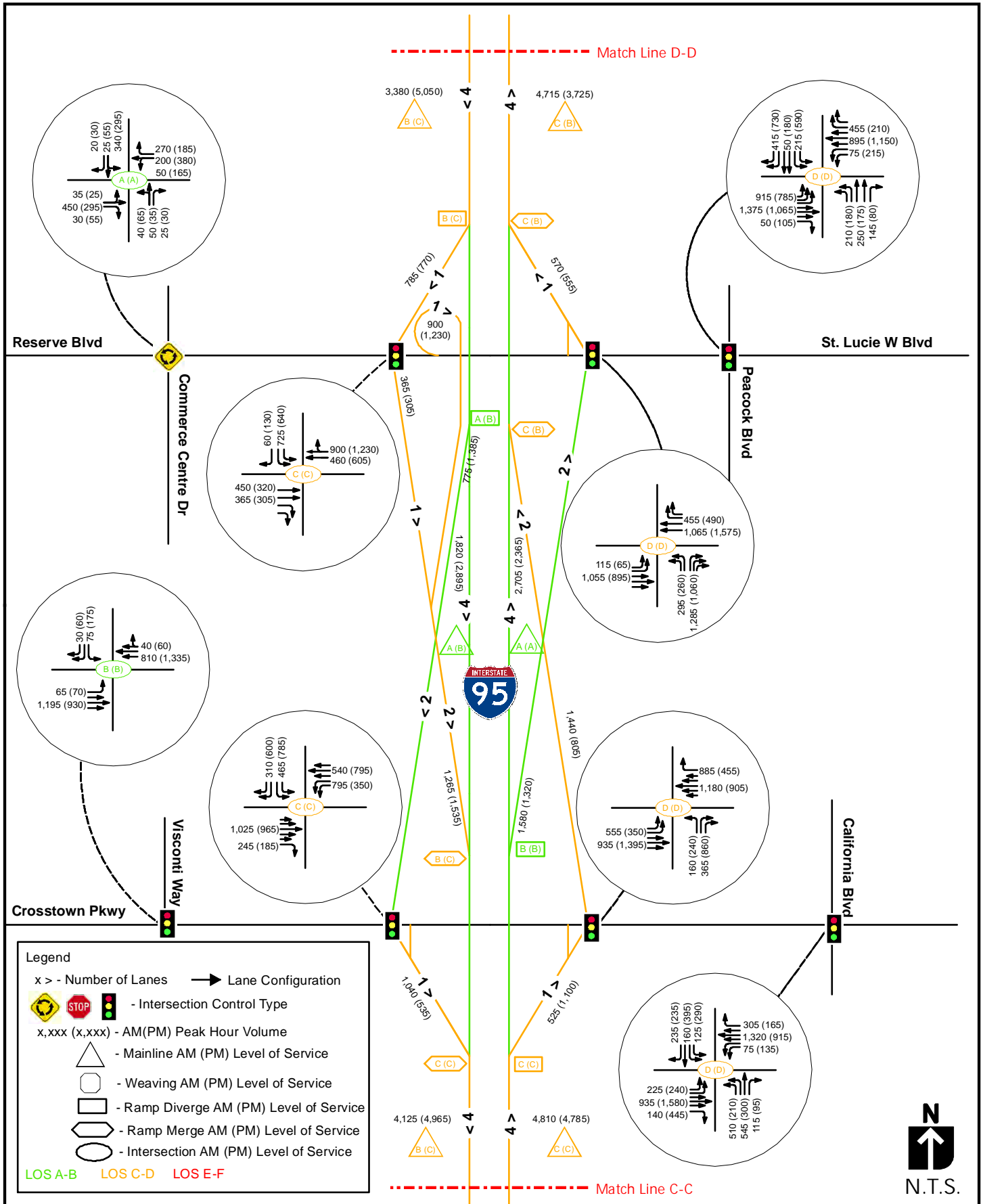




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 FDOT - District 4

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 2030 Build
 Summary

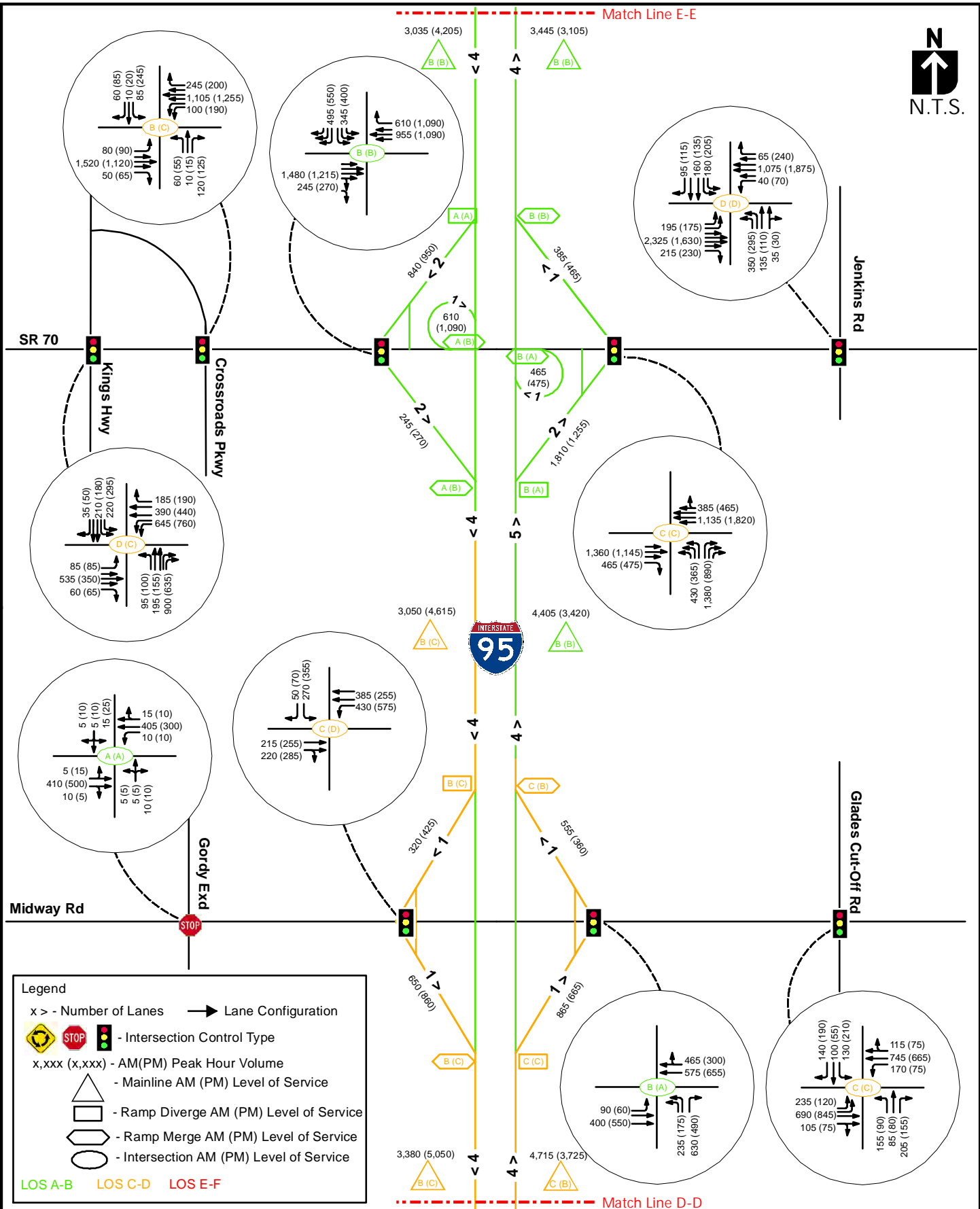
Figure 10-3
 (Page 3 of 8)



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
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Title:
 2030 Build Summary

Figure 10-3
 (Page 4 of 8)



Legend

- x > - Number of Lanes → Lane Configuration
- 🚦 - Intersection Control Type
- 🛑 - STOP
- x,xxx (x,xxx) - AM(PM) Peak Hour Volume
- △ - Mainline AM (PM) Level of Service
- ◻ - Ramp Diverge AM (PM) Level of Service
- ◻ - Ramp Merge AM (PM) Level of Service
- - Intersection AM (PM) Level of Service

LOS A-B LOS C-D LOS E-F

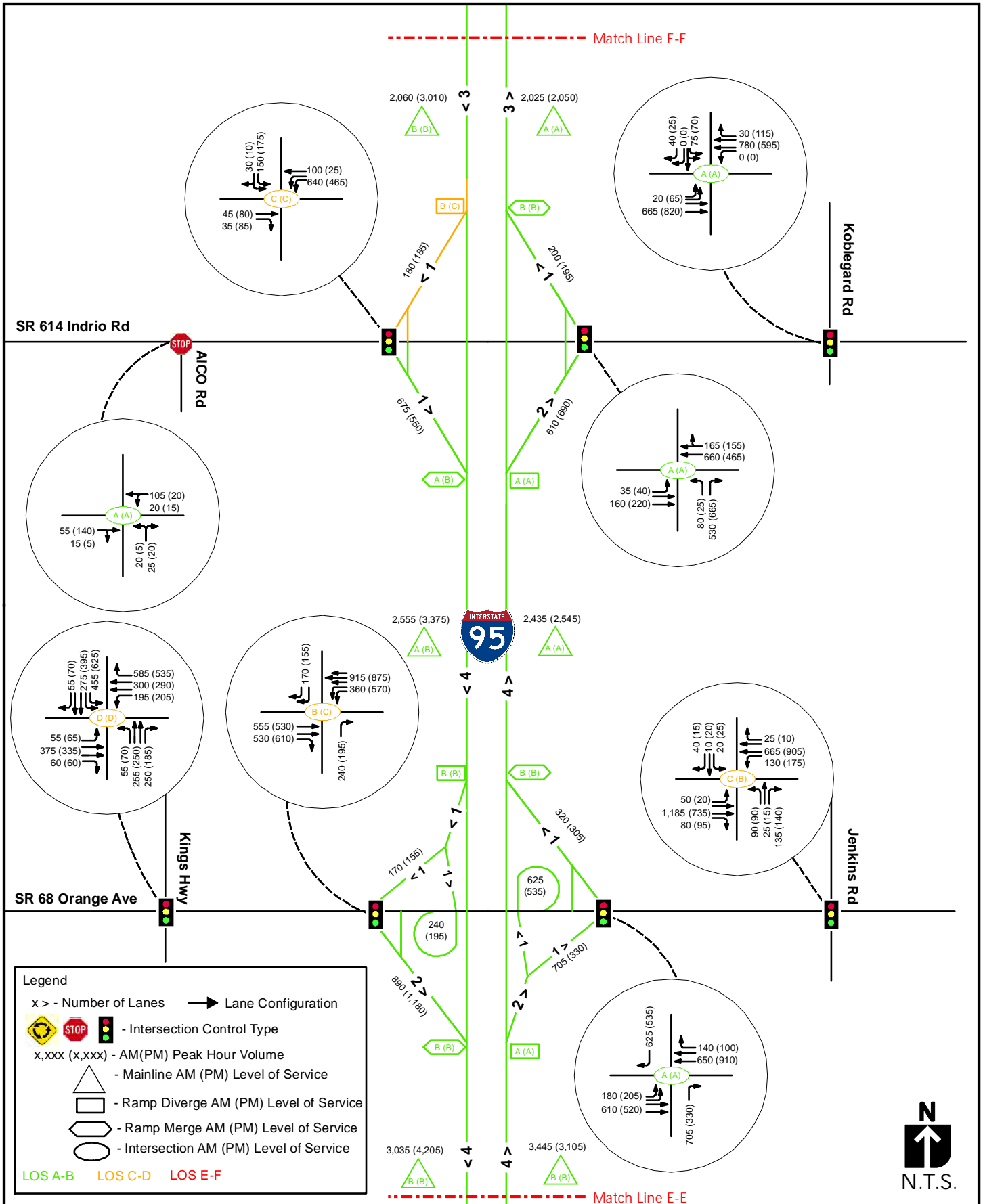


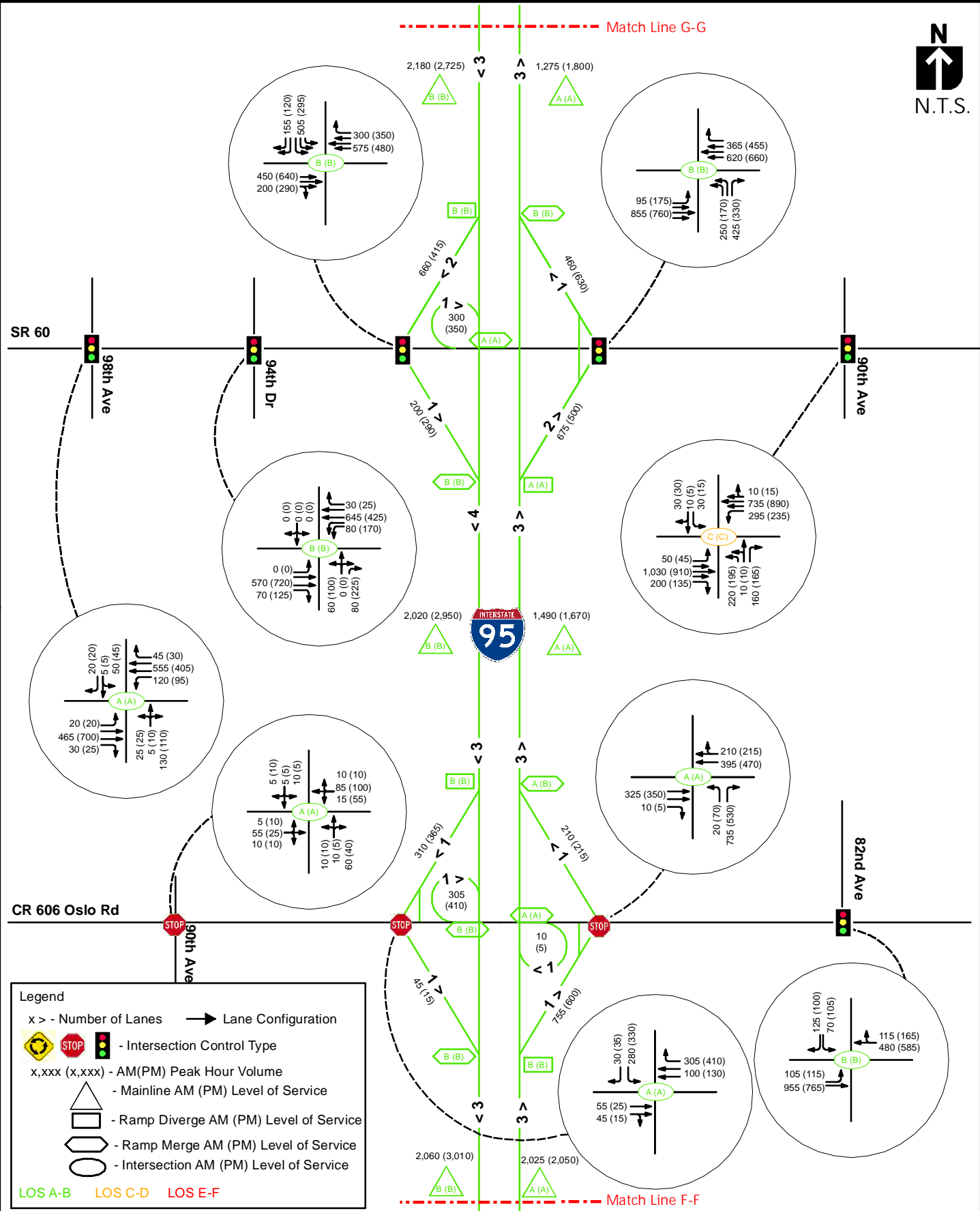
I-95 Multimodal Master Plan

FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2030 Build
 Summary

Figure 10-3
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Legend

- x > - Number of Lanes → Lane Configuration
- Intersection Control Type
- x,xxx (x,xxx) - AM(PM) Peak Hour Volume
- Mainline AM (PM) Level of Service
- Ramp Diverge AM (PM) Level of Service
- Ramp Merge AM (PM) Level of Service
- Intersection AM (PM) Level of Service

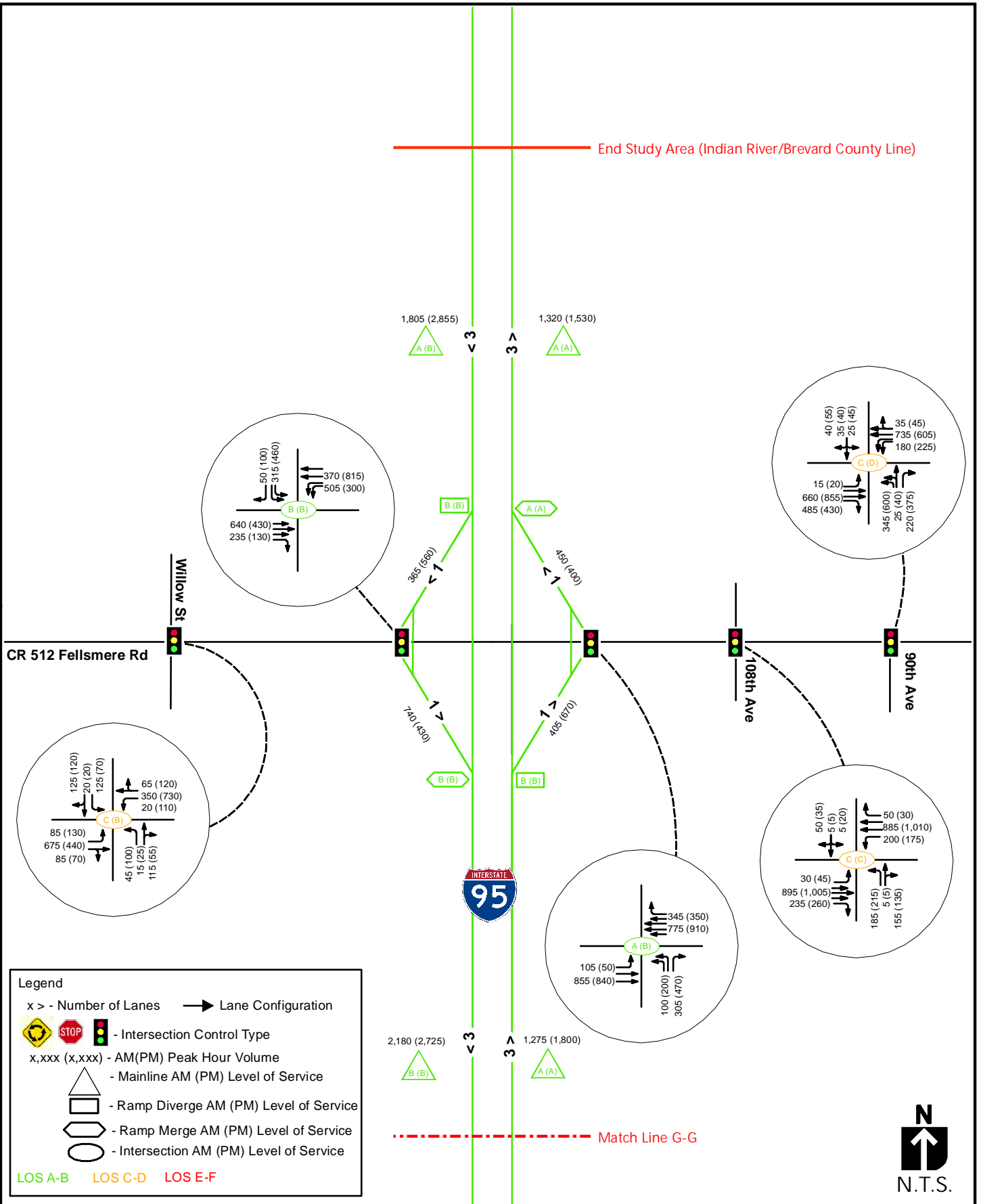
LOS A-B LOS C-D LOS E-F



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
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Title:
 2030 Build Summary

Figure 10-3
 (Page 7 of 8)



10.5 2045 Build Conditions

Improvements were recommended based on the deficiencies identified with the 2045 No Build traffic analysis. As with the 2030 improvements, once they were identified, the preliminary recommendations were drawn on conceptual design plans, then reviewed by the Department and the TRC. The recommended 2045 improvements were refined based on input from the Department and the TRC, and operational analysis and conceptual plans were completed for the final recommended 2045 Build improvements. The operational analysis results are documented herein.

Operational analysis was completed for 2045 Build conditions to report the performance of the I-95 mainline, interchanges, and arterial cross road study intersections with the recommended improvements in place. The 2045 Build lane geometry and traffic volumes are summarized on Figure 10-4. Optimized signal timings were assumed for the analyses.

10.5.1 2045 Build I-95 Freeway Operations Analysis

The 2045 No Build analysis indicates that much of the I-95 mainline and ramps in Martin County and St. Lucie County, from south of Bridge Road to SR 70 will be failing (operating at a LOS E or F) during the peak hours. The need for added mainline capacity and ramp improvements at interchanges is clearly indicated by 2045.

The I-95 mainline and ramp improvements recommended in Section 10.4.1 for the 2030 Build condition are assumed to be in place by 2045. However, those recommended improvements alone do not address all of the 2045 I-95 freeway deficiencies. To address the remaining deficiencies, additional improvements were tested, including additional ramp acceleration and deceleration lane lengthening, ramp widening, and major interchange modifications to combine ramps and reduce friction on the mainline. After testing options, the additional necessary improvements for 2045 were identified.

The 2045 Build freeway analyses were conducted after incorporating the following additional recommended improvements:

Bridge Road Interchange

1. Extend the northbound off-ramp deceleration lane length from 214 feet to 475 feet

SR 76/Kanner Highway Interchange

2. Modify ramps into diverging diamond interchange configuration; eliminating the southbound loop on-ramp and combining it with the southbound slip on-ramp.
3. Widen the southbound on-ramp from one lane to two lanes at I-95 and extend the acceleration lane length to 1500 feet (to the same mainline merge point of existing southbound slip on-ramp at I-95)
4. Widen the northbound off-ramp from one lane to two lanes and extend the deceleration lane length to 950 feet
5. Widen the southbound off-ramp from one lane to two lanes at I-95

Gatlin Blvd Interchange

6. Modify ramps into diverging diamond interchange configuration
7. Extend the northbound off-ramp deceleration lane length from 203 feet to 325 feet
8. Widen the northbound on-ramp from one lane to two lanes at I-95 and extend the acceleration lane length to total of 1,500 feet
9. Widen the southbound off-ramp from one lane to two lanes at I-95

St. Lucie West Boulevard and Crosstown Parkway Interchanges

10. Braid the southbound on-ramp from St. Lucie West Boulevard and the Crosstown Parkway southbound off-ramp. The southbound on-ramp from St. Lucie West Boulevard will be widened to two lanes and the southbound Crosstown Parkway off-ramp will be widened to two lanes.

Midway Road Interchange

11. Extend the southbound off-ramp deceleration lane length from 222 feet to 450 feet
12. Extend the southbound on-ramp acceleration lane length from 440 feet to 850 feet
13. Extend the northbound off-ramp deceleration lane length to 400 feet

SR 70 Interchange

14. Modify ramps into diverging diamond interchange configuration; eliminating the southbound loop on-ramp and combining it with the southbound slip on-ramp, and eliminating the northbound loop on-ramp and combining it with the northbound slip on-ramp
15. Extend the southbound off-ramp deceleration lane length to 1,500 feet
16. Extend the 2 lane southbound on-ramp acceleration lane length to a total of 1,500 feet

SR 68 / Orange Ave Interchange

17. Extend the northbound off-ramp (2 lane ramp) total deceleration lane length to 1,500 feet

Indrio Road Interchange

18. Extend the northbound off-ramp deceleration lane length to 1,500 feet

SR 60 Interchange

19. Extend the northbound off-ramp deceleration lane length to 1,500 feet

HCS7 software was used to analyze the 2045 Build operations of each I-95 northbound and southbound freeway segment and the overall facility. The density and LOS was estimated for each mainline freeway segment and merge, diverge, and weaving segment along the I-95 corridor. The HCS7 freeway operational analysis reports are provided in Appendix M.

Table 10-10 presents the 2045 Build LOS for each northbound I-95 segment during the AM and PM peak hours, while Table 10-11 summarizes the southbound I-95 LOS during the AM and PM peak

hours. The AM and PM peak hour LOS results are also depicted on Figure 10-4, with I-95 mainline and ramp segments color coded according to the LOS.

The 2045 Build analysis results for the I-95 freeway and ramps shows that with the recommended Build improvements in place, all I-95 freeway segments and ramps - except for one segment - will operate at an acceptable LOS D or better during both peak hours. The southbound segment of I-95 between Midway Road and St. Lucie West Boulevard is expected to just exceed the LOS D threshold during the 2045 PM peak hour. Since the LOS marginally exceeds the target LOS in only one segment and only during one peak hour, additional mainline capacity is not recommended for year 2045. However, the I-95 mainline operations should be monitored in the future to determine if the I-95 mainline will exceed LOS D in other locations or time periods. At the time when additional I-95 segments also begin to experience capacity problems, other mainline improvements may be needed.

Table 10-10: 2045 Build Freeway Analysis I-95 Northbound

| Northbound I-95 (2045 Build Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (South of Bridge Rd) | 4 | 4,665 | 18.6 | C | 72.0 | 7,035 | 33.5 | D | 60.4 |
| NB Off at Bridge Rd | 1 | 405 | 22.4 | C | 67.4 | 820 | 34.9 | D | 65.4 |
| NB On at Bridge Rd | 1 | 340 | 20.1 | C | 66.9 | 695 | 30.2 | D | 63.8 |
| I-95 (Bridge Rd to SR 76/Kanner Highway) | 4 | 4,600 | 18.3 | C | 72.2 | 6,910 | 32.4 | D | 61.3 |
| NB Off at SR 76/Kanner Highway | 2 | 1290 | 16.9 | B | 66 | 1920 | 27.5 | C | 63.6 |
| NB On at SR 76/Kanner Highway | 1 | 1375 | 24.9 | C | 65.7 | 1780 | 34.3 | D | 60.8 |
| I-95 (SR 76/Kanner Highway to High Meadows Avenue) | 4 | 4,685 | 18.7 | C | 72.0 | 6,770 | 31.3 | D | 62.2 |
| NB Off at High Meadows Avenue | 1 | 535 | 18.3 | B | 66.9 | 1300 | 31.4 | D | 63.8 |
| NB On at High Meadows Avenue | 1 | 90 | 13.6 | B | 67.9 | 60 | 18.1 | B | 66.8 |
| I-95 (High Meadows Avenue to SR 714/Martin Highway) | 4 | 4,240 | 16.7 | B | 72.9 | 5,530 | 23.0 | C | 69.1 |
| NB Off at SR 714/Martin Highway | 1 | 190 | 21.8 | C | 68.5 | 225 | 27.5 | C | 67.8 |
| NB On at SR 714/Martin Highway | 1 | 635 | 22.2 | C | 66.5 | 850 | 28.6 | D | 64.6 |
| I-95 (SR 714/Martin Highway to Becker Rd) | 4 | 4,685 | 18.7 | C | 72.0 | 6,155 | 26.8 | D | 66.0 |
| NB Off at Becker Rd | 1 | 890 | 24.1 | C | 65.4 | 1595 | 34.3 | D | 62.7 |
| NB On at Becker Rd | 1 | 1250 | 26.4 | C | 65.4 | 1055 | 27.5 | C | 65.1 |
| I-95 (Becker Rd to Gatlin Blvd) | 4 | 5,045 | 20.3 | C | 71.0 | 5,615 | 23.3 | C | 68.9 |
| NB Off at Gatlin Blvd | 1 | 1115 | 28.9 | D | 64.5 | 1700 | 34.5 | D | 62.2 |
| NB On at Gatlin Blvd | 2 | 2835 | 33.3 | D | 55.1 | 2725 | 32.3 | D | 56.9 |
| I-95 (Gatlin Blvd to Crosstown Parkway) | 4 | 6,765 | 30.8 | D | 62.6 | 6,640 | 29.9 | D | 63.4 |
| NB Off at Crosstown Parkway | 1 | 905 | 30.9 | D | 65.2 | 1600 | 34.1 | D | 62.8 |
| NB Off at St. Lucie West Blvd | 2 | 2165 | 27.5 | C | 62.4 | 1830 | 23 | C | 63.5 |
| NB On at Crosstown Parkway | 2 | 2085 | 30.8 | D | 62.5 | 1270 | 22.4 | C | 66.3 |
| NB On at St. Lucie West Blvd | 1 | 655 | 29.2 | D | 64.5 | 610 | 24.2 | C | 66.1 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (St. Lucie West Blvd to Midway Rd) | 4 | 6,435 | 28.7 | D | 64.0 | 5,090 | 20.9 | C | 69.5 |
| NB Off at Midway Rd | 1 | 1190 | 34.9 | D | 64.2 | 915 | 27.6 | C | 65.2 |
| NB On at Midway Rd | 1 | 695 | 26.6 | C | 65.2 | 500 | 21.1 | C | 66.7 |
| I-95 (Midway Rd to SR 70/Okeechobee Rd) | 4 | 5,940 | 25.2 | C | 67.4 | 4,675 | 18.5 | C | 72.1 |
| NB Off at SR 70/Okeechobee Rd | 2 | 2415 | 21.4 | C | 59.8 | 1665 | 13.7 | B | 63.4 |
| NB On at SR 70/Okeechobee Rd | 1 | 1410 | 24.3 | C | 65.7 | 1375 | 22.6 | C | 66.1 |
| I-95 (SR 70/Okeechobee Rd to SR 68/Orange Avenue) | 4 | 4,935 | 20.2 | C | 71.1 | 4,385 | 17.6 | B | 72.5 |
| NB Off at SR 68/Orange Avenue | 2 | 1825 | 16.9 | B | 63.3 | 1165 | 10.6 | B | 66.6 |
| NB On at SR 68/Orange Avenue | 1 | 525 | 19.2 | B | 67.1 | 480 | 19.2 | B | 67.1 |
| I-95 (SR 68/Orange Avenue to SR 614/Indrio Rd) | 4 | 3,635 | 14.4 | B | 73.5 | 3,700 | 14.6 | B | 73.4 |
| NB Off at SR 614/Indrio Rd ¹ | 2 | 900 | 6.7 | A | 67.7 | 885 | 6.7 | A | 67.9 |
| NB On at SR 614/Indrio Rd | 1 | 285 | 21 | C | 65.5 | 310 | 21.6 | C | 65.4 |
| I-95 (SR 614/Indrio Rd to CR 606/Oslo Rd) | 3 | 3,020 | 16.0 | B | 73.1 | 3,125 | 16.6 | B | 72.9 |
| NB Off at CR 606/Oslo Rd | 1 | 965 | 19.5 | B | 61.1 | 755 | 19.5 | B | 62.2 |
| NB On (1) at CR 606/Oslo Rd | 1 | 20 | 11.9 | B | 67.3 | 10 | 13.5 | B | 67 |
| NB On (2) at CR 606/Oslo Rd | 1 | 425 | 15.5 | B | 66.5 | 435 | 17.3 | B | 66.3 |
| I-95 (CR 606/Oslo Rd to SR 60/20 th St) | 3 | 2,500 | 13.7 | B | 70.8 | 2,815 | 15.4 | B | 70.8 |
| NB Off at SR 60/20 th St | 2 | 1000 | 7.7 | A | 62.3 | 675 | 7.2 | A | 64.7 |
| NB On at SR 60/20 th St | 1 | 730 | 18.4 | B | 65.5 | 835 | 22.7 | C | 64.9 |
| I-95 (SR 60/20 th St to CR 512/Fellsmere Rd) | 3 | 2,230 | 11.7 | B | 73.5 | 2,975 | 15.7 | B | 73.2 |
| NB Off at CR 512/Fellsmere Rd | 1 | 655 | 19.6 | B | 61.9 | 925 | 24.7 | C | 61.5 |
| NB On at CR 512/Fellsmere Rd | 1 | 740 | 15.2 | B | 66.4 | 630 | 16.9 | B | 66.2 |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 2,315 | 12.2 | B | 73.5 | 2,680 | 14.1 | B | 73.5 |

¹ Considered a drop lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge).

Table 10-11: 2045 Build Freeway Analysis I-95 Southbound

| Southbound I-95 (2045 Build Conditions) | | | | | | | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|-----|-------------|
| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (North of CR 512/Fellsmere Rd) | 3 | 2,545 | 13.6 | B | 72.3 | 4,470 | 26.1 | D | 66.3 |
| SB Off at CR 512/Fellsmere Rd | 1 | 590 | 16 | B | 62.5 | 790 | 26.8 | C | 62.7 |
| SB On at CR 512/Fellsmere Rd | 1 | 930 | 20.2 | C | 65.4 | 670 | 27.4 | C | 63.8 |
| I-95 (CR 512/Fellsmere Rd to SR 60/20 th St) | 3 | 2,885 | 15.2 | B | 73.3 | 4,350 | 24.9 | C | 67.6 |
| SB Off at SR 60/20 th St | 2 | 855 | 15.6 | B | 63.8 | 600 | 22.7 | C | 64.3 |
| SB On (1) at SR 60/20 th St ¹ | 1 | 350 | 9.4 | A | 73.3 | 415 | 16.6 | B | 72.9 |
| SB On (2) at SR 60/20 th St | 1 | 370 | 13.8 | B | 68 | 420 | 20.7 | C | 66.8 |
| I-95 (SR 60/20 th St to CR 606/Oslo Rd) | 3 | 2,750 | 15.1 | B | 70.4 | 4,585 | 27.4 | D | 64.8 |
| SB Off at CR 606/Oslo Rd | 1 | 395 | 16.5 | B | 63.4 | 440 | 26.4 | C | 63.8 |
| SB On (1) at CR 606/Oslo Rd | 1 | 680 | 19.3 | B | 65.9 | 885 | 30.8 | D | 61.6 |
| SB On (2) at CR 606/Oslo Rd | 1 | 90 | 17.8 | B | 66.3 | 30 | 28.1 | D | 63.1 |
| I-95 (CR 606/Oslo Rd to SR 614/Indrio Rd) | 3 | 3,125 | 17.0 | B | 71.1 | 5,060 | 31.9 | D | 61.4 |
| SB Off at SR 614/Indrio Rd | 1 | 285 | 24 | C | 63.8 | 280 | 33.9 | D | 64 |
| SB On at SR 614/Indrio Rd ¹ | 1 | 815 | 15.2 | B | 73.3 | 780 | 24.6 | C | 67.9 |
| I-95 (SR 614/Indrio Rd to SR 68/Orange Avenue) | 4 | 3,655 | 14.7 | B | 72.3 | 5,560 | 23.7 | C | 68.1 |
| SB Off at SR 68/Orange Avenue | 1 | 590 | 21.2 | C | 66.6 | 560 | 29.3 | D | 66.6 |
| SB On at SR 68/Orange Avenue | 2 | 1170 | 17.5 | B | 67.4 | 1585 | 28.1 | D | 62.7 |
| I-95 (SR 68/Orange Avenue to SR 70/Okeechobee Rd) | 4 | 4,235 | 17.3 | B | 71.0 | 6,585 | 30.6 | D | 62.5 |
| SB Off at SR 70/Okeechobee Rd | 2 | 1300 | 12.1 | B | 65.1 | 1445 | 19.3 | B | 64.9 |
| SB On at SR 70/Okeechobee Rd | 2 | 1240 | 17.9 | B | 67.2 | 1875 | 31.6 | D | 59.1 |
| I-95 (SR 70/Okeechobee Rd to Midway Rd) | 4 | 4,175 | 16.8 | B | 71.1 | 7,015 | 33.1 | D | 60.5 |
| SB Off at Midway Rd | 1 | 440 | 20.6 | C | 67.4 | 585 | 33.6 | D | 66.1 |
| SB On at Midway Rd | 1 | 935 | 21.7 | C | 66.6 | 1230 | 33.9 | D | 60.7 |

| Roadway Segment | # of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|------------|---------------|------------------|-----|-------------|---------------|------------------|----------|-------------|
| | | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr | Volume veh/hr | Density pc/mi/ln | LOS | Speed mi/hr |
| I-95 (Midway Rd to St. Lucie West Blvd) | 4 | 4,670 | 18.9 | C | 70.5 | 7,660 | 39.2 | E | 55.7 |
| SB Off at St. Lucie West Blvd | 1 | 895 | 21.8 | C | 65.5 | 885 | 34.6 | D | 65.1 |
| SB Off at Crosstown Parkway | 2 | 1245 | 15.1 | B | 66.4 | 1640 | 29.1 | D | 63.4 |
| SB On at St. Lucie West Blvd | 2 | 1905 | 25.1 | C | 65.1 | 2100 | 34.1 | D | 60 |
| SB On at Crosstown Parkway | 1 | 1615 | 19.3 | C | 71.6 | 920 | 26.3 | D | 66.4 |
| I-95 (Crosstown Parkway to Gatlin Blvd) | 5 | 6,085 | 20.0 | C | 69.4 | 7,680 | 26.9 | D | 65.1 |
| SB Off at Gatlin Blvd | 2 | 2385 | 25.3 | C | 60.7 | 2600 | 29.3 | D | 60.5 |
| SB On at Gatlin Blvd | 1 | 1705 | 28.8 | D | 64.2 | 1005 | 28 | C | 64.7 |
| I-95 (Gatlin Blvd to Becker Rd) | 4 | 5,405 | 22.5 | C | 68.5 | 6,085 | 26.4 | D | 65.8 |
| SB Off at Becker Rd | 1 | 1200 | 29.4 | D | 64.2 | 1220 | 32.4 | D | 64.2 |
| SB On at Becker Rd | 1 | 1165 | 25.1 | C | 65.6 | 590 | 22.7 | C | 66.2 |
| I-95 (Becker Rd to SR 714/Martin Highway) | 4 | 5,370 | 22.5 | C | 68.5 | 5,455 | 23.0 | C | 68.2 |
| SB Off at SR 714/Martin Highway | 1 | 745 | 29.9 | D | 65.9 | 585 | 29.3 | D | 66.5 |
| SB On at SR 714/Martin Highway | 1 | 240 | 22.6 | C | 66.4 | 215 | 23.3 | C | 66.2 |
| I-95 (SR 714/Martin Highway to High Meadows Avenue) | 4 | 4,865 | 19.6 | C | 71.5 | 5,085 | 20.6 | C | 70.8 |
| SB Off at High Meadows Avenue | 1 | 110 | 18.6 | B | 68.5 | 90 | 19.5 | B | 68.5 |
| SB On at High Meadows Avenue | 1 | 1235 | 28.2 | D | 64.4 | 560 | 23.4 | C | 66 |
| I-95 (High Meadows Avenue to SR 76/Kanner Highway) | 4 | 5,990 | 26.1 | D | 66.0 | 5,555 | 23.5 | C | 67.9 |
| SB Off at SR 76/Kanner Highway | 2 | 1890 | 27.2 | C | 63.5 | 1400 | 22.5 | C | 65.6 |
| SB On at SR 76/Kanner Highway | 2 | 2075 | 28.4 | D | 62.2 | 1340 | 22.4 | C | 65.9 |
| I-95 (SR 76/Kanner Highway to Bridge Rd) | 4 | 6,175 | 27.3 | D | 65.1 | 5,495 | 23.2 | C | 68.1 |
| SB Off at Bridge Rd | 1 | 725 | 32.9 | D | 65.9 | 370 | 28 | C | 67.3 |
| SB On at Bridge Rd | 1 | 845 | 27.9 | C | 64.6 | 415 | 23.1 | C | 66 |
| I-95 (South of Bridge Rd) | 4 | 6,295 | 27.8 | D | 65.2 | 5,540 | 23.1 | C | 69 |

¹ Considered an add lane in HCS7 and is therefore analyzed as a basic freeway segment. Speed is equal to freeway speed at ramp. Density shown is freeway density at ramp.

* Grey shaded rows are analyzed as basic freeway segments, non-shaded rows are analyzed as ramp junction points (merge, diverge).

10.5.2 2045 Build Cross Road Intersection Operations Analysis

The 2045 Build operational analysis was conducted to evaluate and identify proposed roadway and signal timing improvements. The 2045 No Build intersection analysis indicates that 34 of the 62 study intersections will operate below the LOS target D in either the AM or PM peak hours. The intersections found to have operational deficiencies in year 2045 are listed in Section 10.3.2.

Improvements were identified to address 2030 intersection deficiencies, and they are listed in Section 10.4.2. Those improvements are included in the 2045 Build analysis.

In 2045, there are additional deficiencies beyond those addressed by the 2030 recommended improvements. Consequently, additional intersection signal improvements, lane reconfigurations, and turn lane improvements were identified to address the remaining long term deficiencies. The following additional improvements are recommended for the year 2045 to reach intersection LOS D or better.

Bridge Road Interchange

1. I-95 Southbound Ramp Terminal:
 - Westbound : Add a second left-turn lane.
 - Eastbound: Add a third and fourth through lane.
2. I-95 Northbound Ramp Terminal:
 - Eastbound : Add a second left-turn lane.
 - Westbound: Add a third through lane.

SR 76/Kanner Highway Interchange

3. I-95 Northbound and Southbound Ramp Terminals: Modify to a Diverging Diamond Interchange (DDI) configuration, to accommodate heavy westbound left-turn (southbound on-ramp) traffic within existing footprint and provide better operation for heavy eastbound and westbound through traffic.

4. Cove Road: Add a second and third northbound left-turn lane, and restripe the shared left and right-turn lane to an exclusive right-turn lane to accommodate heavy northbound right-turn traffic.

High Meadow Avenue Interchange

5. Swallowtail Highway: Signalize the intersection to address high delay in both peak hours.

SR 714/Martin Highway Interchange

6. I-95 Southbound Ramp Terminal:
 - Westbound : Add a second left-turn lane.
 - Eastbound: Add a right-turn lane.
7. I-95 Northbound Ramp Terminal:
 - Eastbound : Add a second left-turn lane.
 - Westbound: Add a right-turn lane.

Becker Road Interchange

8. Village Parkway Drive:
 - Southbound: Add a third left-turn lane, and a right-turn lane.
 - Westbound: Channelize right-turn lane, and add a second through lane.
 - Northbound: Add an exclusive right-turn lane and restripe shared lane to shared left/through lane.
9. I-95 Southbound Ramp Terminal: Add a second southbound right-turn lane.
10. I-95 Northbound Ramp Terminal: Add a second northbound left-turn lane.
11. Implement actuated-coordinated signals at the I-95 ramp terminal intersections.
12. SW Hallmark Street: Add a third eastbound and westbound through lane.

Gatlin Boulevard Interchange

13. Village Parkway Drive:
 - Southbound: Add a third left-turn lane.
 - Eastbound: Add a third through lane.

14. I-95 Northbound and Southbound Ramp Terminals: Modify to a Diverging Diamond Interchange (DDI) configuration to accommodate heavy westbound left (southbound on-ramp) and eastbound left (northbound on-ramp) traffic without needing more lanes and provide better operation for heavy eastbound and westbound through traffic,
15. Brescia Street: Add a fourth through lane in both eastbound and westbound direction,
16. Savage Blvd: Add a fourth through lane in both eastbound and westbound direction to accommodate the heavy eastbound and westbound traffic in both AM and PM peak hours.

Crosstown Parkway Interchange

17. I-95 Southbound Ramp terminal:
- Westbound : Add a third left-turn lane.
 - Eastbound : Add a sixth through lane.
18. I-95 Northbound Ramp terminal:
- Eastbound: Add a third left-turn lane.
 - Northbound: Add a second left-turn lane.
 - Westbound: Add a second right-turn lane, and add a sixth through lane.
19. Implement actuated-coordinated signals at I-95 ramp terminal intersections.
20. SW California Blvd:
- Eastbound: Provide a protected right-turn overlap phase.
 - Northbound: Add a second through lane.
 - Southbound: Add a second through lane and second right-turn lane, and provide a protected right-turn overlap phase.

St. Lucie West Boulevard Interchange

21. I-95 Northbound Ramp terminal: Add a third westbound through lane.
22. Peacock Blvd: Southbound: Add a third left-turn lane.

Midway Road Interchange

23. I-95 Southbound Ramp terminal: Add a second southbound left-turn lane.

24. Glades Cut Off Road:

- Eastbound: Add an exclusive right-turn lane and channelize the right-turn lane.
- Westbound: Add a second westbound left-turn lane, add an exclusive right-turn lane and channelize the right-turn lane.

SR 70/Okeechobee Rd Interchange

25. Kings Highway:

- Northbound: Add a third right-turn lane, and provide a protected right-turn overlap phase.

26. Crossroads Parkway: Provide signal retiming improvements, including protected right-turn overlap phase for northbound right-turn, southbound right-turn, and westbound right-turn lane.

27. I-95 Northbound and Southbound Ramp Terminals: Modify to a Diverging Diamond Interchange (DDI) configuration to accommodate heavy westbound left (southbound on-ramp) and eastbound left (northbound on-ramp) traffic without more lanes and provide better operation for the heavy eastbound and westbound traffic.

28. Jenkins Road: Add third northbound left turn lane, and provide a protected right-turn overlap phase.

SR 68/Orange Avenue Interchange

29. Kings Highway:

- Westbound: Add a second right-turn lane, and provide a protected right-turn overlap phase.
- Northbound: Provide a protected right-turn overlap phase.

SR 60 Interchange

30. 98th Avenue: Signal retiming, including modifying signal phasing.



CR 512/Fellsmere Road Interchange

31. 108th Avenue: Add a southbound exclusive right-turn lane and restripe southbound shared lane to shared left/through lane, and provide a protected eastbound right-turn overlap phase.

Synchro software for signalized intersections and HCS7 software for roundabouts was used to analyze the 2045 Build operations of each study intersection, assuming all of the recommended improvements are in place. Table 10-12 presents the 2045 Build LOS for each study intersection during the AM and PM peak hours. The detailed Synchro operational analysis reports including delay, LOS, volume-to-capacity ratio, and 95th percentile queue length by movement are provided in Appendix N.

Table 10-12: 2045 Build Intersection LOS

| Interchange | Study Intersection | Control Type | 2045 Build LOS | |
|-----------------------------|--|--------------|----------------|----------|
| | | | AM | PM |
| 1. Bridge Road | Frontage Rd west of I-95 | Stop Control | A | A |
| | I-95 SB Ramp Terminal | Signal | D | B |
| | I-95 NB Ramp Terminal | Signal | B | C |
| | 1760 Bridge Access Rd | Stop Control | A | A |
| 2. SR 76/Kanner Highway | Jack James Drive (west) | Signal | C | D |
| | I-95 SB Ramp Terminal (West DDI Crossover) | Signal | C | C |
| | I-95 NB Ramp Terminal (East DDI Crossover) | Signal | D | D |
| | SW Lost River Road | Signal | D | D |
| | Cove Road (east) | Signal | D | D |
| 3. High Meadows Avenue | I-95 NB and SB Ramp Terminal (Include N of E ramp) | Stop Control | A | A |
| | Swallowtail Highway | Signal | A | A |
| 4. SR 714/Martin Highway | SW Green Farms Lane | Stop Control | A | A |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | B | B |
| | SW Stuart W Boulevard | Signal | D | B |
| 5. Becker Road | Village Parkway Drive | Signal | D | D |
| | I-95 SB Terminal | Signal | D | C |
| | I-95 NB Terminal | Signal | C | C |
| | SW Hallmark Street | Signal | D | C |
| 6. Gatlin Boulevard | Village Parkway Drive | Signal | E | E |
| | I-95 SB Ramp Terminal (West DDI Crossover) | Signal | D | C |
| | I-95 NB Ramp Terminal (East DDI Crossover) | Signal | D | D |
| | SW Brescia Street | Signal | D | D |
| | SW Savage Boulevard | Signal | D | C |
| 7. Crosstown Parkway | SW Visconti Way | Signal | B | B |
| | I-95 SB Terminal | Signal | D | C |
| | I-95 NB Terminal | Signal | D | D |
| | SW California Boulevard | Signal | D | D |
| 8. St. Lucie West Boulevard | Commerce Center Drive | Roundabout | B | C |
| | I-95 SB Terminal | Signal | C | C |
| | I-95 NB Terminal | Signal | D | D |
| | NW Peacock Boulevard | Signal | D | D |

| Interchange | Study Intersection | Control Type | 2045 Build LOS | |
|-----------------------------------|---|--------------|----------------|----------|
| | | | AM | PM |
| 9. Midway Road | Gordy Exd | Stop Control | A | A |
| | I-95 SB Terminal | Signal | C | D |
| | I-95 NB Terminal | Signal | C | B |
| | Glades Cut-Off Road | Signal | D | D |
| 10. SR 70/Okeechobee Road | Kings Highway | Signal | E | D |
| | Crossroads Parkway | Signal | D | D |
| | I-95 SB Ramp Terminal (West DDI Crossover) | Signal | C | C |
| | I-95 NB Ramp Terminal (East DDI Crossover) | Signal | D | C |
| | Jenkins Road | Signal | D | D |
| 11. SR 68/Orange Avenue | Kings Highway | Signal | D | D |
| | I-95 SB Terminal | Signal | C | D |
| | I-95 NB Terminal | Signal | A | B |
| | Jenkins Road | Signal | D | C |
| 12. SR 614/Indrio Road | AICO Road | Stop Control | A | A |
| | I-95 SB Terminal | Signal | B | C |
| | I-95 NB Terminal | Signal | C | B |
| | Spanish Lakes Boulevard / Koblegard Road | Signal | A | A |
| 13. CR 606/Oslo Road | 86 th Avenue / 90 th Avenue | Stop Control | A | A |
| | I-95 SB Terminal | Signal | A | B |
| | I-95 NB Terminal | Signal | A | A |
| | 82 nd Avenue | Signal | A | B |
| 14. SR 60/20 th Street | 98 th Avenue | Signal | D | D |
| | 94 th Drive | Signal | B | C |
| | I-95 SB Terminal | Signal | B | B |
| | I-95 NB Terminal | Signal | C | B |
| | 90 th Avenue | Signal | D | C |
| 15. CR 512/Fellsmere Road | Willow Street | Signal | B | D |
| | I-95 SB Terminal | Signal | C | B |
| | I-95 NB Terminal | Signal | B | B |
| | 108 th Avenue | Signal | D | D |
| | 90 th Avenue | Signal | D | E |

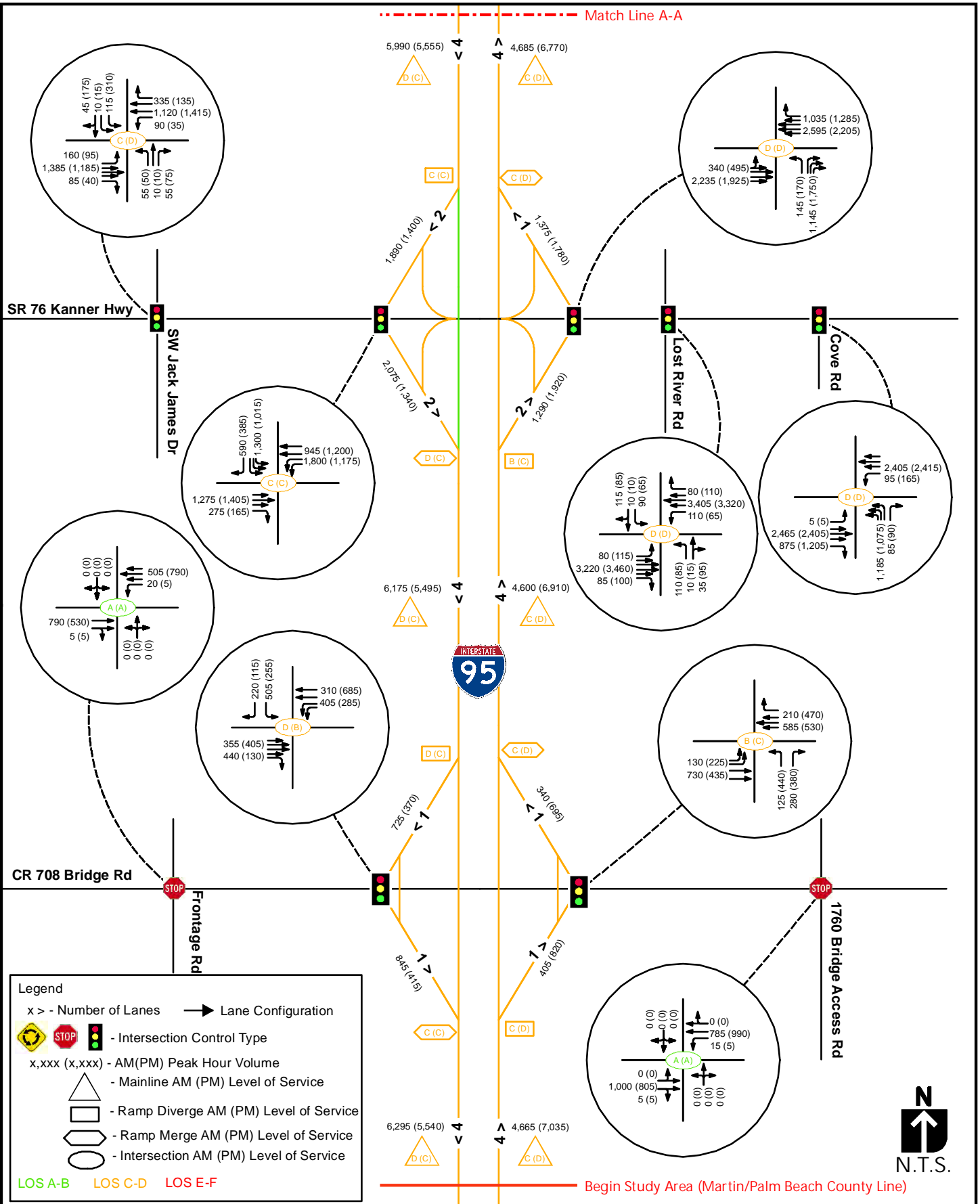
The 2045 Build intersection operational results indicate that almost all study intersections are expected to operate at LOS D or better in 2045. The only exceptions are the Gatlin Boulevard at Village Parkway Drive intersection during both AM and PM peak hours, the SR 70/Okeechobee Road at Kings Highway intersection during the AM peak hour, and the CR 512/Fellsmere Road at 90th Avenue intersection during the PM peak hour.

The Gatlin Boulevard at Village Parkway Drive intersection will operate at LOS E in both peak hours, and cannot be improved further with additional lanes. This indicates that significant modifications on one of the two crossing arterials will need to be considered in the future if the estimated 2045 volumes are realized.

The SR 70/Okeechobee Road at Kings Highway intersection exceeds LOS D in the 2045 AM peak hour, and simple turn lane additions cannot improve the LOS further. Since the south approach of this intersection serves as the entrance to Florida's Turnpike, it is recommended to be evaluated as part of a Turnpike overall interchange improvement project to provide a future acceptable level of service.

By 2045 the CR 512/Fellsmere Road at 90th Avenue intersection is estimated to operate at LOS E in the PM peak hour. The existing traffic signal operates with split phasing for the north and south approaches. The only way to improve the LOS in the 2045 PM peak hour is to eliminate the split phasing. Due to the volumes and geometry of the intersection, the split phasing cannot be eliminated. The intersection is located 2.5 miles east of the I-95 interchange so queueing at this location does not impact I-95 interchange operations.

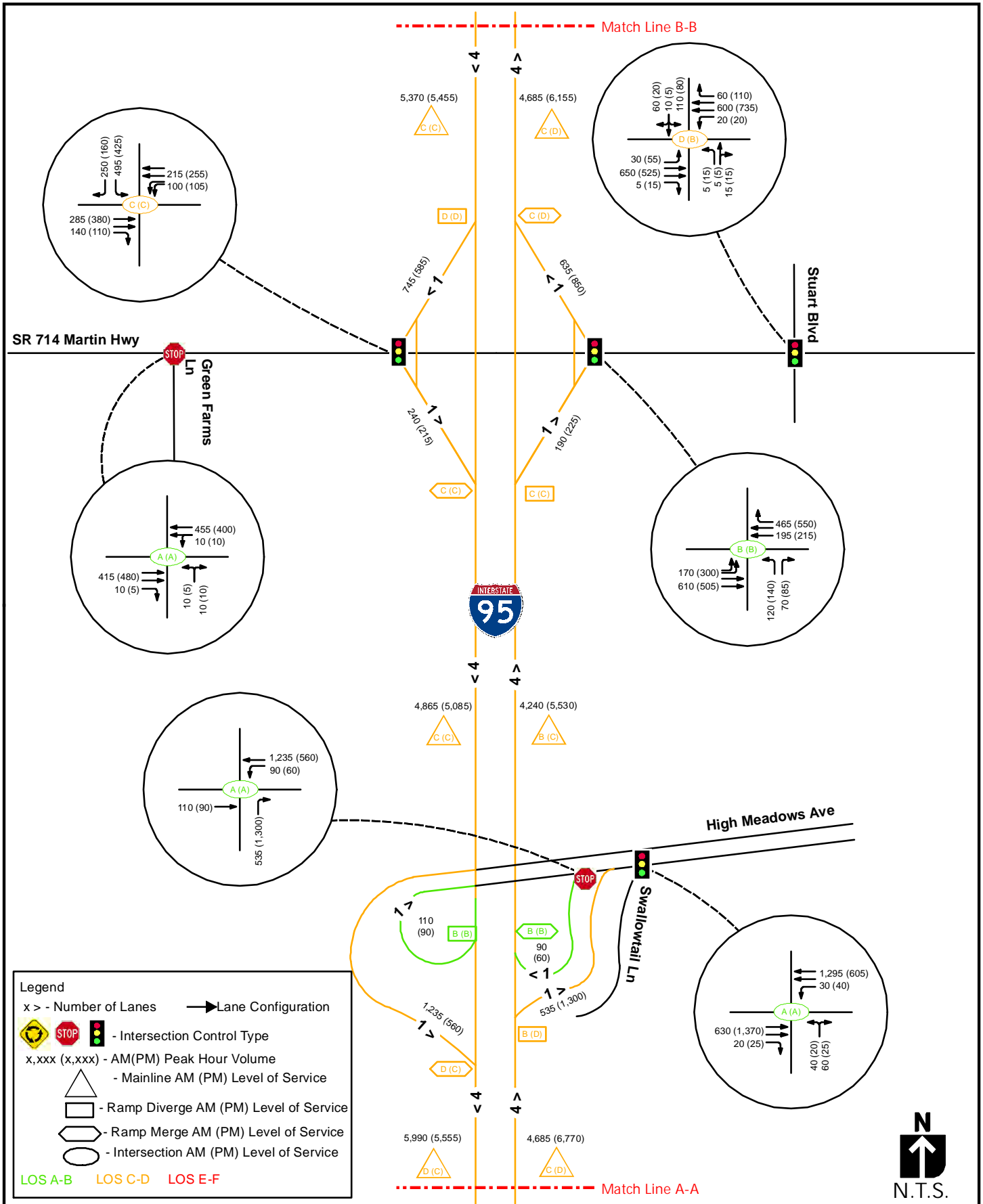
The AM and PM peak hour intersection LOS results are represented on Figure 10-4 along with the 2045 Build lanes, volumes, and freeway LOS.

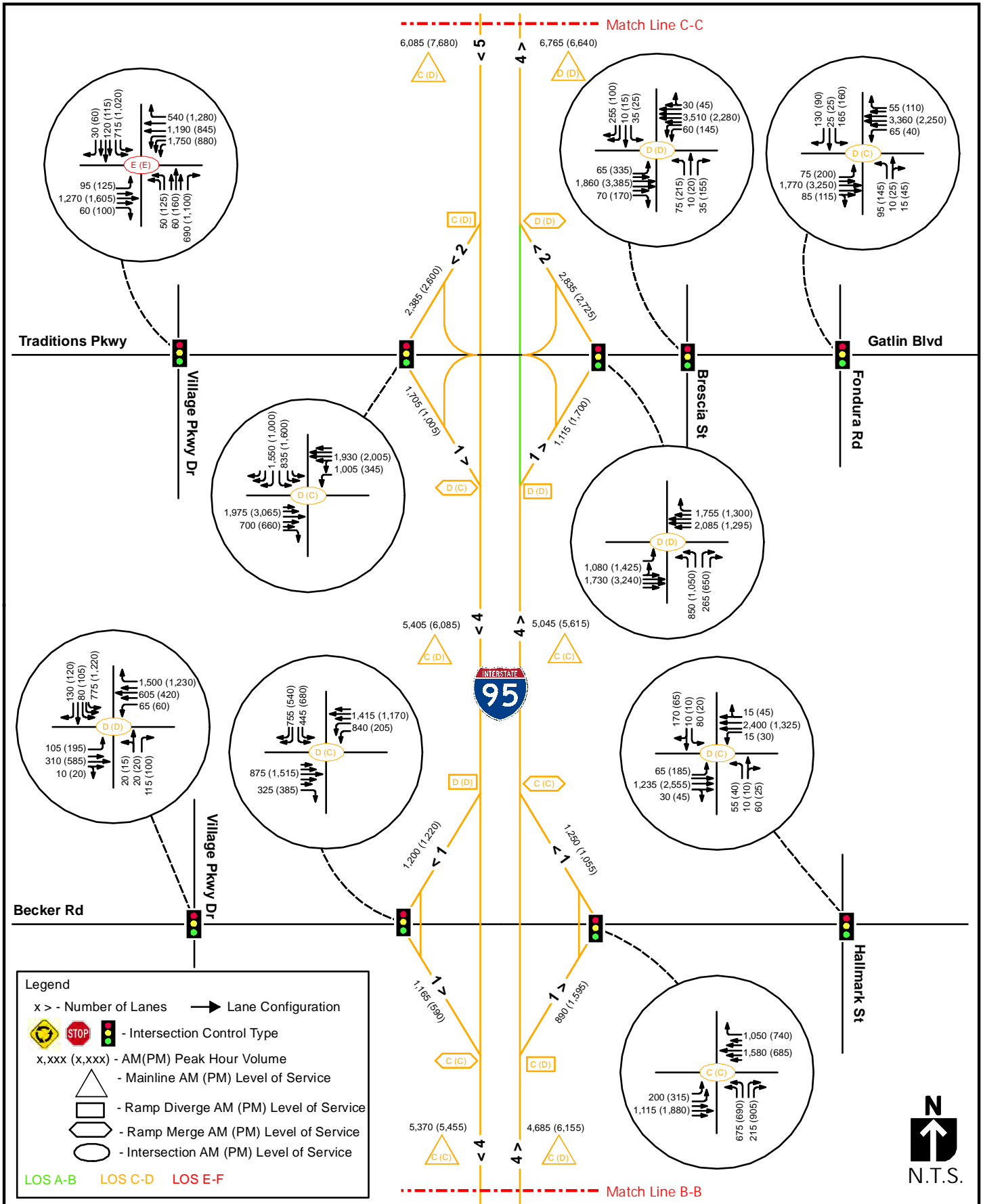


I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 Build
 Summary

Figure 10-4
 (Page 1 of 8)

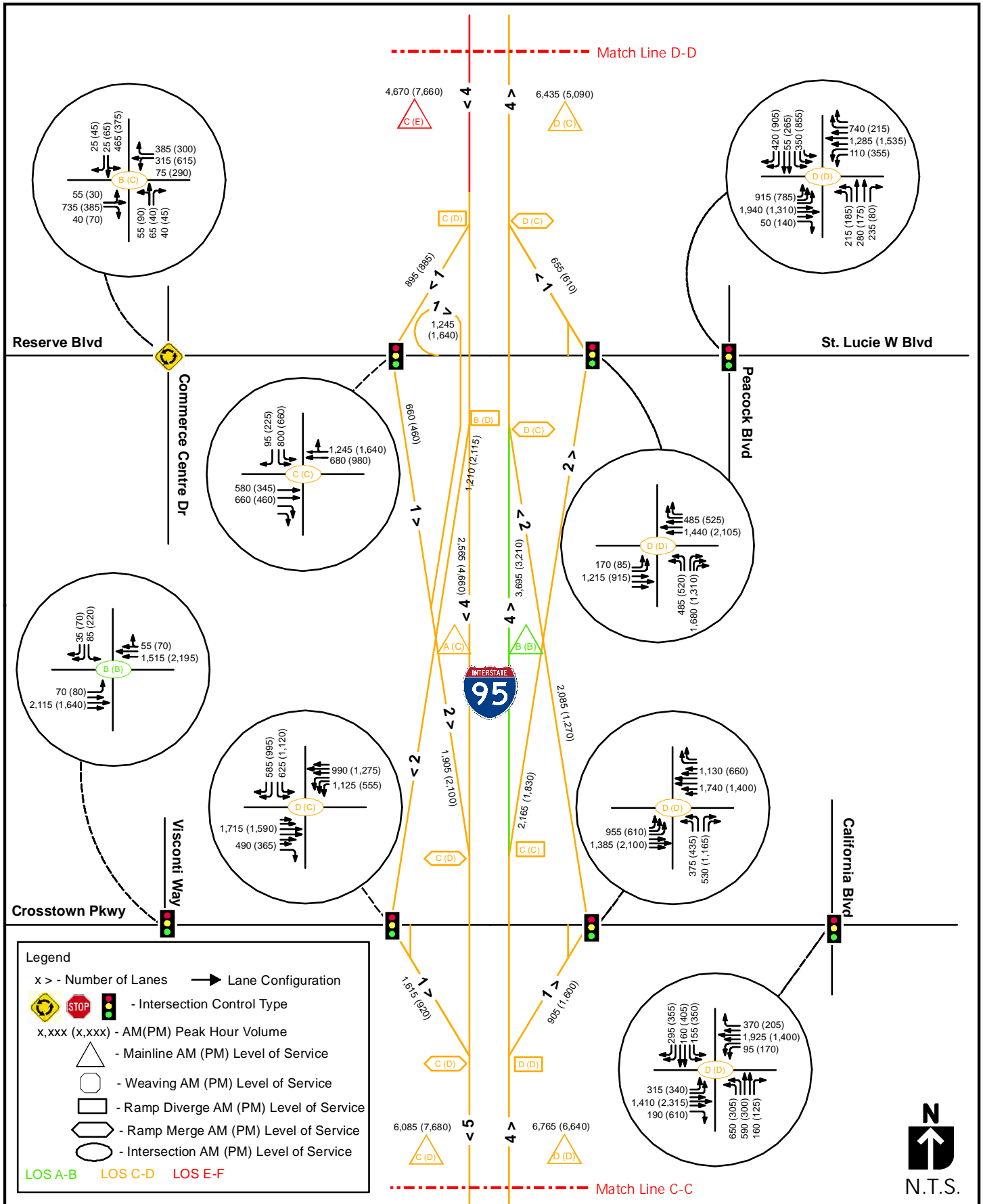




I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 Build
 Summary

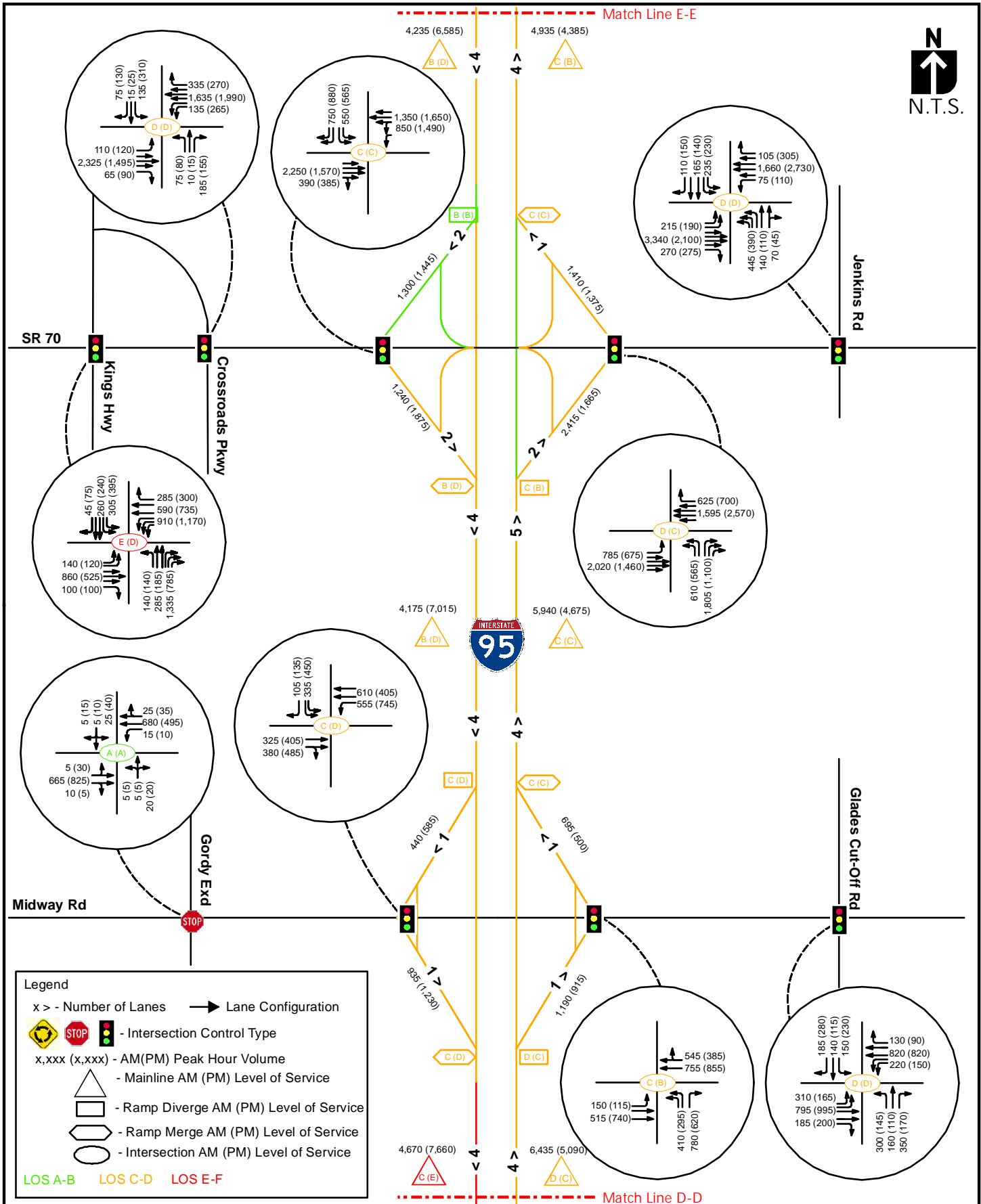
Figure 10-4
 (Page 3 of 8)



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 Build
 Summary

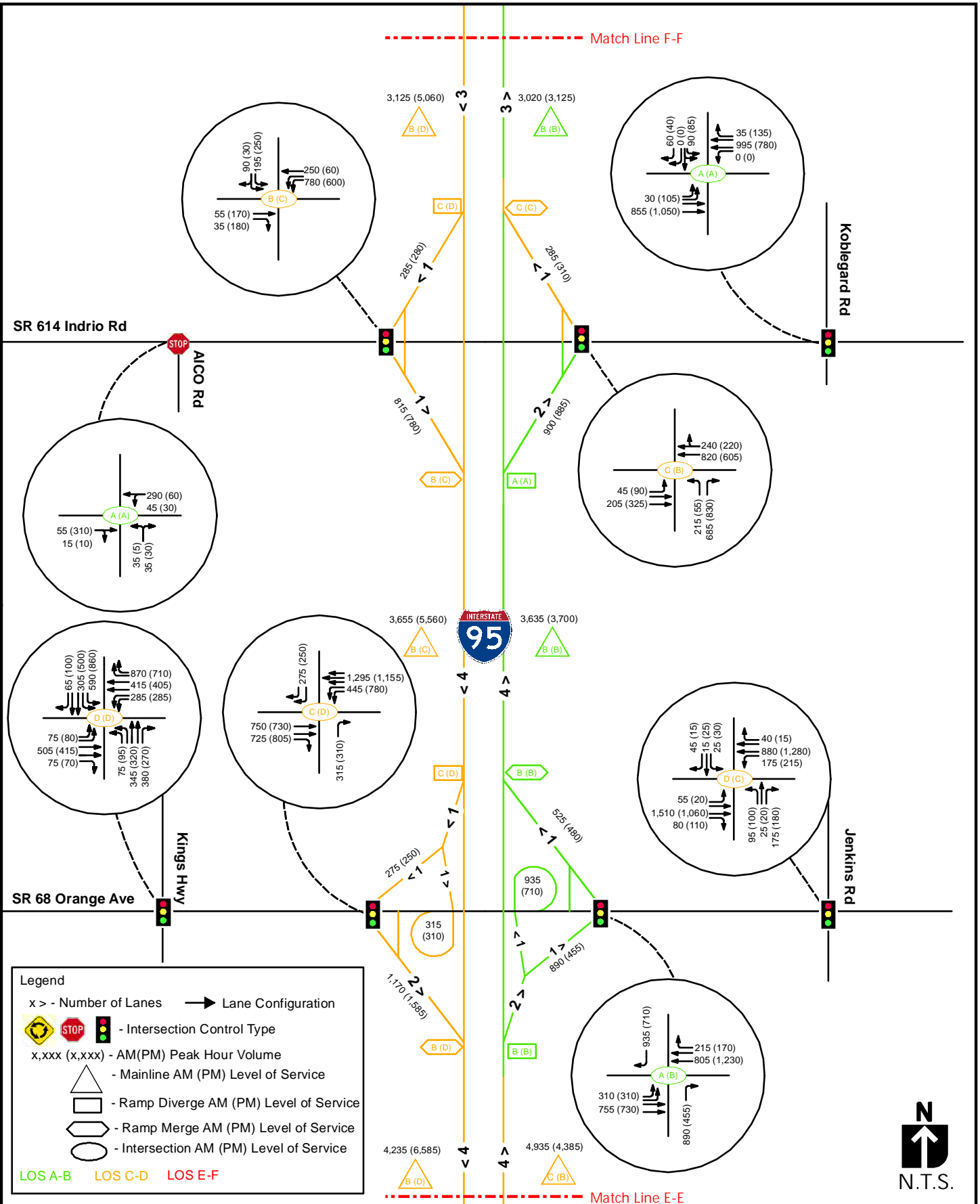
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 (Page 4 of 8)



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 Build
 Summary

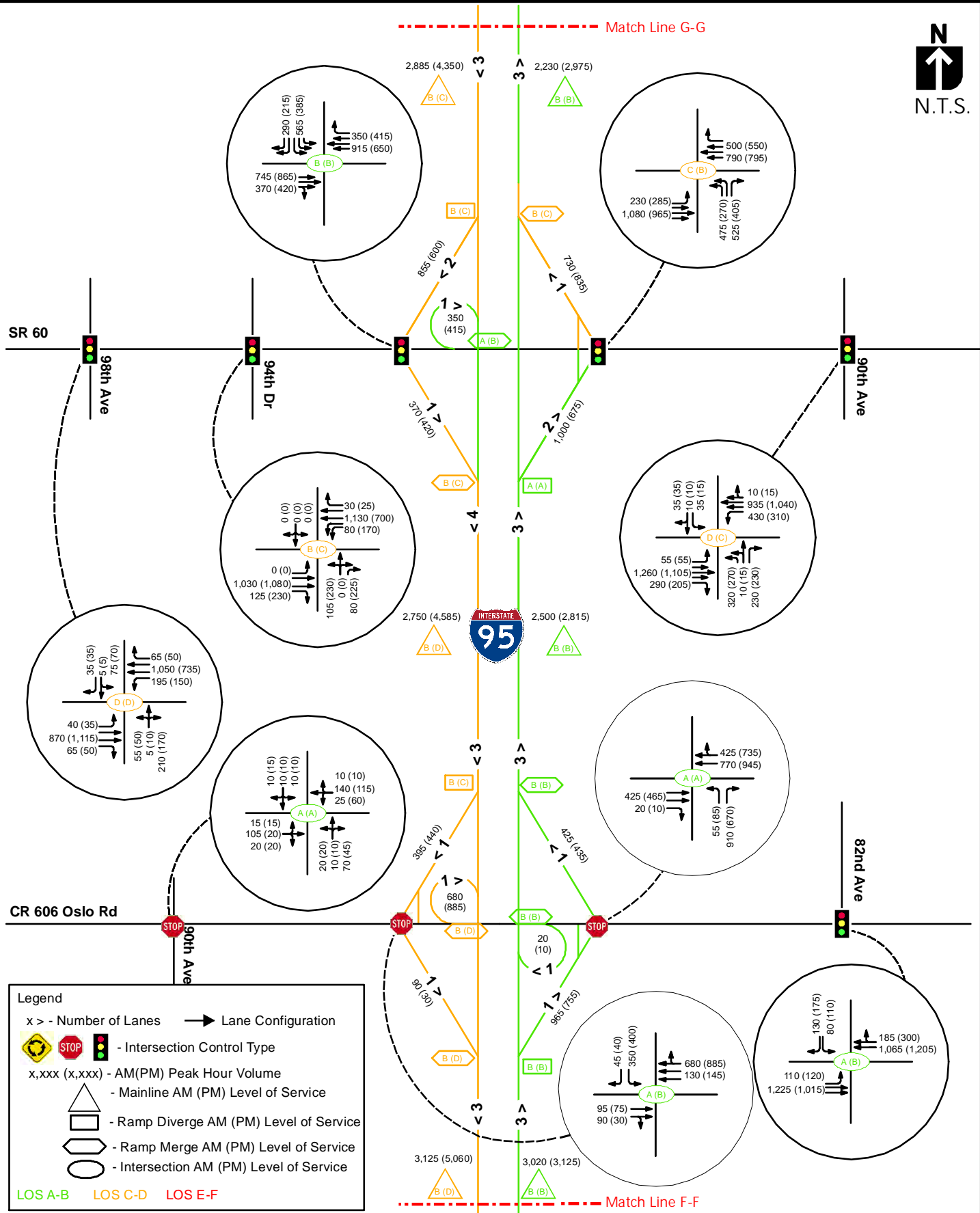
Figure 10-4
 (Page 5 of 8)



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Title:
 2045 Build
 Summary

Figure 10-4
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Legend

- x > - Number of Lanes → Lane Configuration
- Intersection Control Type
- x,xxx (x,xxx) - AM(PM) Peak Hour Volume
- Mainline AM (PM) Level of Service
- Ramp Diverge AM (PM) Level of Service
- Ramp Merge AM (PM) Level of Service
- Intersection AM (PM) Level of Service

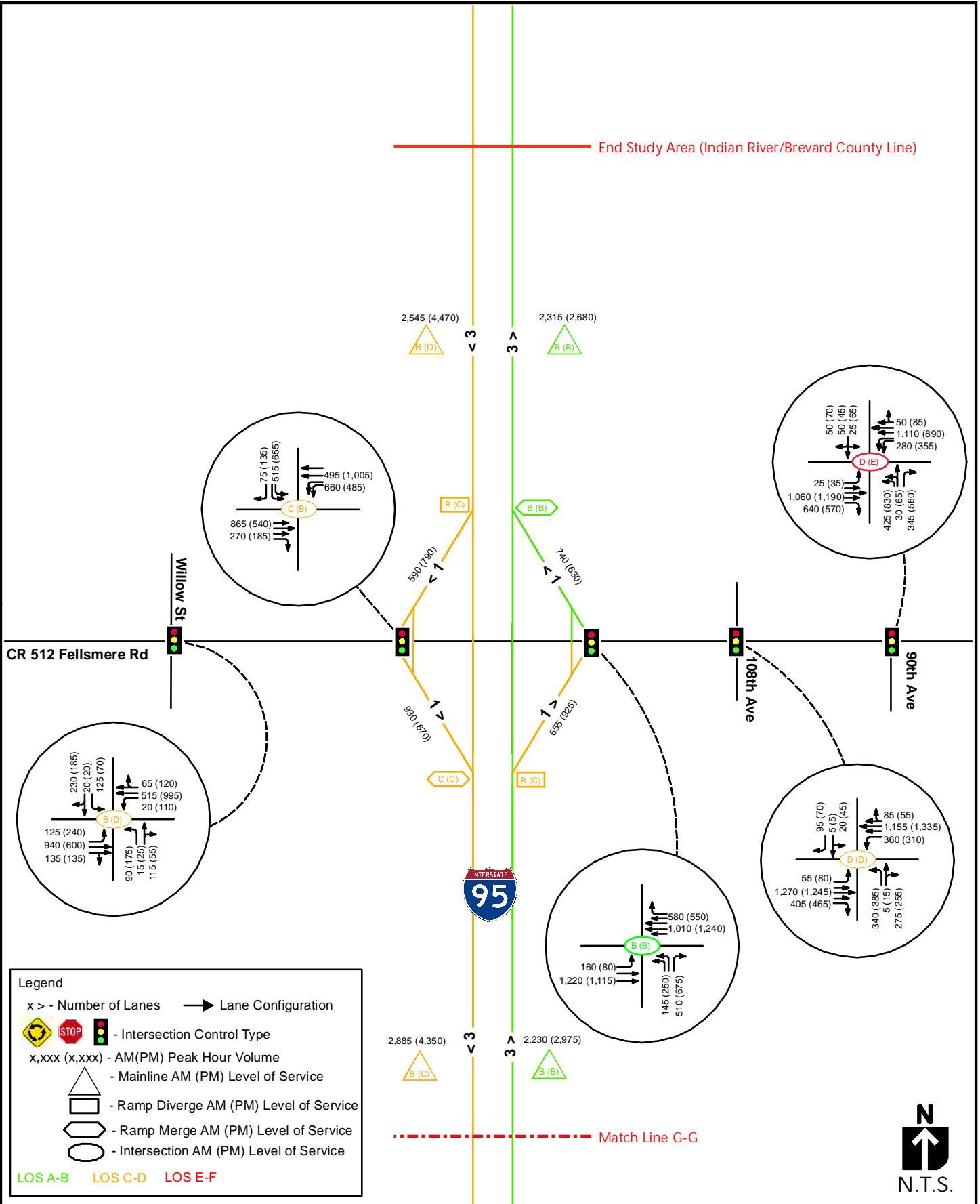
LOS A-B LOS C-D LOS E-F



I-95 Multimodal Master Plan
 FPID No.: 436577-1-22-01
 FDOT - District 4

Title:
 2045 Build
 Summary

Figure 10-4
 (Page 7 of 8)



11.0 FINDINGS AND RECOMMENDATIONS

Existing Conditions

An analysis of the traffic operational performance of the I-95 cross roads and intersections was performed in order to identify any current operational deficiencies.

Existing Conditions Freeway Analysis Results

During the AM and PM peak hours, all northbound and southbound I-95 freeway segments operate at an acceptable LOS throughout the 71-mile long study corridor limits. In addition, all northbound and southbound ramp junction points (merge, diverge and weave areas) operate at LOS D or better. The existing freeway analysis of I-95 operations revealed that no existing capacity or operational issues exist during either the AM or PM peak hours.

Existing Conditions Intersection Analysis Results

Existing peak hour intersection operational analysis results indicate that almost all study intersections operate at overall LOS D or better. The following five study intersections operate below the LOS D target:

1. Bridge Road at I-95 Southbound Ramp Terminal in the AM peak hour
2. Gatlin Boulevard at Village Parkway Drive in the PM peak hour
3. St. Lucie West Boulevard at NW Peacock Boulevard in both AM and PM peak hours
4. Midway Road at I-95 Southbound Ramp Terminal in the PM peak hour
5. SR 68/Orange Avenue at Kings Highway in both AM and PM peak hours

The existing conditions peak hour operations at these intersections indicate a need for improvement.

Existing Crash Analysis Findings

FDOT's Crash Analysis Reporting System (CARS) was used to gather historical crash records for the study area from January 2011 through December 2015. A review was performed of the recent crash history along the I-95 mainline and the 15 interchange influence areas within the study area. Locations that FDOT has determined to be High Crash Locations (HCL) based on statistical analysis were identified. Crash history for those HCLs were then reviewed in further detail to provide information regarding the recorded crashes along that segment, such as crash type, surface condition, and lighting condition at the time of the crash.

The crash data revealed that 5 areas of the I-95 mainline are identified as HCLs by FDOT for at least one year between 2011 and 2015. These include:

- I-95 near Bridge Road (62 total crashes and listed on the 2013 HCL),
- I-95 near SR 70/Okeechobee Road (80 total crashes and listed on the 2013 HCL),
- I-95 near SR 614/Indrio Road (41 total crashes and listed on the 2012 and 2014 HCL),
- I-95 near SR 60 (75 total crashes and listed on the 2014 HCL), and
- I-95 near Fellsmere Road (59 total crashes and listed on the 2013, 2014, and 2015 HCL).

The crash data revealed that 4 interchange cross streets are identified as HCLs by FDOT for at least one year between 2011 and 2015. These include:

- SR 76/Kanner Highway (193 total crashes and listed on the 2011, 2012, 2013, 2014, and 2015 HCL),
- SR 70/Okeechobee Road (228 total crashes and listed on the 2013 and 2015 HCL),
- SR 68/Orange Avenue (90 total crashes and listed on the 2011, 2012, and 2015 HCL), and
- SR 60 (82 total crashes and listed on the 2014 HCL).

Transit

There are three different primary bus transit providers in the regional study area, which consists of Martin, St. Lucie, and Indian River counties. Each of the three counties has a fixed route bus service and accompanying demand response service. The providers are Martin County Public Transit (Marty) in Martin County, the Treasure Coast Connector (TCC) in St. Lucie County, and GoLine in Indian River County. The Marty has four fixed routes, the Treasure Coast Connector has seven fixed routes, and GoLine has 15 fixed routes. Within the three-county study area, seven existing transit routes intersect with I-95, including just one route (GoLine Route 15) that travels on a portion of I-95.

There are 13 existing park-and-ride lot facilities in the three-county study area with a total of 497 parking spaces available. Five of the lots are in Martin County (302 spaces), four of the lots are in St. Lucie County (115 spaces) and four of the lots are in Indian River County (80 spaces). Only one existing park-and-ride lot (at SR 76), and one planned park-and-ride lot (at Gatlin Boulevard), are located adjacent to I-95. It is important to plan for and continue to provide park-and-ride lot opportunities as a choice for commuters. Increasing car-pool and van-pool opportunities at strategic locations can be a beneficial strategy to reduce the number of vehicles on I-95 and other roads.

There is a history of express bus service on I-95 in this region. Palm Tran operated an Express Bus Route from Halpatiokee Regional Park (adjacent to SR 76/Kanner Highway in Martin County) to Palm Beach County using I-95 in the late 2000s. Peak period service was provided from Martin County to Jupiter, the Palm Beach Gardens Mall and to the TriRail Station in West Palm Beach. The service was funded by a FDOT Transit Development Grant and when the grant expired after 3 years the local communities did not continue the service. The average daily ridership from October 2009 to December 2009 was 52 riders.

Express bus service using the I-95 corridor may be provided again in the future to serve regular long distance commuters between: City of Ft. Pierce and western St. Lucie County areas, City of

Stuart area, and City of West Palm Beach area. In addition, express bus can work together with planned new park-and-ride lots to be located on Gatlin Boulevard near I-95, and at the I-95 and SR 76/Kanner Highway interchange. Express bus service could pick up and drop off riders at the park-and-ride sites along the corridor, and would be able to serve medium and long distance trips. In addition, express bus service is relatively easy to implement and is a lower cost option to consider within the planning horizon of 2045.

To estimate the potential transit demand in the I-95 corridor, transit was generally assumed to be express bus, which would run from a park-and-ride facility near Gatlin Boulevard interchange in St. Lucie County to downtown West Palm Beach, with an intermediate stop at a future I-95 and SR 76 park-and-ride facility. An approximate range of potential demand was determined based on the LEHD commute trip data, system-wide ridership data, and specific route ridership data for similar services in the Treasure Coast and South Florida. The low end of transit demand along the I-95 corridor is approximately 50 riders per average weekday. This is based on the average weekday ridership of the 95 Express route that operated along I-95 between Halpatiokee Park in Martin County to West Palm Beach between 2009 and 2012. Based on the County-to-County Home-to-Work flows from the 2015 LEHD data, the high end of the transit ridership range is approximately 270 average weekday riders.

Assuming the high end of the ridership range, the peak hour volume in 2045 on I-95 could be reduced by up to 54 vehicles in each direction during the peak hour. This level of ridership will not decrease the volume on I-95 significantly enough to eliminate the need for additional lanes in some parts of the corridor. However, express buses can provide an alternate modal option for commuters along I-95, and the I-95 Master Plan improvement concepts should not preclude potential future transit such as express buses. Design concepts should consider the potential implementation of express bus service that may use I-95, as well as park-and-ride lots in the vicinity of I-95 interchanges.

Initial Roadway Capacity Screening

A preliminary, high level failure analysis was performed for the roadways within the study area, including the I-95 mainline within each county. The intent of the screening analysis was to identify roadway segments that are likely to exceed capacity based on the existing lane geometry and when that failure may occur. The failure analysis was conducted using projected daily volumes.

I-95

The future year AADTs on I-95 from the Palm Beach/Martin County line to High Meadow Avenue will exceed the existing capacity of a six-lane interstate facility. These level of service deficiencies in Martin County are expected to appear by 2036.

In St. Lucie County, I-95 mainline segments are expected to exceed the current capacity prior to 2045. These segments are from SR 714/Martin Highway (in Martin County) to SR 70/Okeechobee Road (in St. Lucie County). Specifically, the portions of I-95 between Gatlin Boulevard and St. Lucie West Boulevard are anticipated to exceed the existing capacity prior to 2030. The remaining sections in St. Lucie County will begin to experience capacity deficiencies between 2037 and 2043, given the current lane geometry and capacity.

In Indian River County, I-95 is anticipated to operate at acceptable levels of service (LOS D or better) through 2045. No anticipated failures for the I-95 mainline were identified via the screening analysis.

Cross Streets

This sketch planning level screening analysis did not incorporate future planned roadway capacity improvements. The results did reveal that future daily volumes on several interchange cross streets can be expected to exceed the corresponding daily service volume capacity for an arterial facility.

Either existing or future capacity deficiencies were identified on 8 of the 15 cross streets:

1. SR 76/Kanner Highway
2. High Meadow Avenue
3. Gatlin Boulevard
4. Crosstown Parkway
5. St. Lucie West Boulevard
6. SR 70/Okeechobee Road
7. Oslo Road
8. Fellsmere Road

Future Year Operations Analysis

Multiple planned background roadway improvement projects relevant to the I-95 Multimodal Master Plan study area were assumed in place for the appropriate analysis year.

2030 No Build Freeway Analysis Results

All southbound I-95 freeway segments and ramp junctions will operate at LOS D or better during the AM peak hour. However, during the AM peak hour, one northbound I-95 freeway segment and one northbound ramp junction near Crosstown Parkway will operate below LOS D. Multiple segments of northbound and southbound I-95 mainline and ramps junctions will operate below LOS D during the PM peak hour.

The failing 2030 peak hour LOS of the I-95 segments from south of Bridge Road to SR 76/Kanner Highway, and from Crosstown Parkway to St. Lucie West Boulevard, (along with ramps) indicates capacity and operational improvements will be needed by 2030. These improvements are needed to ensure the I-95 corridor can operate acceptably for the traveling public.

2030 No Build Intersection Analysis Results

Seven intersections will operate below the LOS D target in either the 2030 AM or PM peak hours.

They are noted below:

1. Bridge Road at the I-95 southbound ramp terminal intersection
2. Bridge Road at the I-95 northbound ramp terminal intersection
3. Becker Road at Village Parkway Drive intersection
4. Gatlin Boulevard at Village Parkway Drive intersection
5. St. Lucie West Boulevard at Peacock Boulevard intersection
6. SR 70/Okeechobee Road at Jenkins Road intersection
7. CR 606/Oslo Road at 82nd Avenue intersection

2045 No Build Freeway Analysis Results

During the AM peak hour, multiple segments of northbound and southbound I-95 and ramp junctions will operate below LOS D. In addition, many northbound and southbound I-95 mainline and ramps junctions will operate below LOS D during the PM peak hour. The 2045 No Build analysis indicates that much of the I-95 mainline and ramps in Martin County and St. Lucie County, from south of Bridge Road to SR 70 will be failing (operating at a LOS E or F) during the 2045 peak hours. The need for added mainline capacity and ramp improvements at interchanges is clearly indicated by 2045.

2045 No Build Intersection Analysis Results

Thirty-four (34) of the 63 study intersections will operate at an overall failing LOS. Therefore, significant intersection capacity and operational improvements are needed by 2045 to address the deficiencies.

2030 Build Freeway Analysis Results

To address the 2030 No Build freeway analysis deficiencies, necessary improvements were identified. The recommended I-95 freeway and ramp improvements needed by 2030 are listed below.

1. Construct one additional northbound managed lane and one additional southbound managed lane on the I-95 mainline from the Palm Beach/Martin County line to SR 70/Okeechobee Road. Also, extend the existing fourth southbound general use lane that begins south of SR 614/Indrio Road further north to connect to the SR 614/Indrio Road southbound on-ramp. This provides a total of four lanes northbound and four lanes southbound from the county line to SR 614/Indrio Road.
2. Braid the northbound off-ramp to St. Lucie West Boulevard and the Crosstown Parkway northbound on-ramp. Widen the northbound off-ramp to St. Lucie West Boulevard from one to two lanes and the northbound Crosstown Parkway on-ramp to two lanes, and provide a northbound ramp roadway to accommodate local drivers traveling from Crosstown Parkway to St Lucie West Boulevard.
3. Extend the northbound off-ramp deceleration lane at SR 76/Kanner Highway to 950 feet to improve the LOS from E to LOS C in the PM peak hour.

The recommended freeway improvements were incorporated into the 2030 AM and PM peak hour Build freeway analysis. The analysis results show that these improvements will allow all segments of the I-95 mainline and all ramp junction points to operate at an acceptable LOS D or better in 2030.

2030 Build Intersection Analysis Results

The 2030 Build operational analysis was conducted to evaluate and identify proposed roadway and signal timing improvements. The intent of the improvements is to address the deficiencies at the seven intersections that will operate below the LOS D target in either the 2030 AM or PM peak hours. Signal improvements, lane reconfigurations, and turn lane improvements were identified at intersections along the following cross streets:

1. Bridge Road
2. SR 714/Martin Highway
3. Becker Road
4. Gatlin Boulevard
5. St. Lucie West Boulevard
6. SR 70/Okeechobee Road
7. SR 68/Orange Avenue
8. Oslo Road

The 2030 Build intersection operational results indicate all study intersections will operate at LOS D or better with the recommended build improvements.

2045 Build Freeway Analysis Results

Improvements were recommended to address the deficiencies identified with the 2045 No Build traffic analysis along most of the I-95 mainline and ramps from south of Bridge Road to SR 70. The I-95 mainline and ramp improvements recommended for 2030 are assumed as part of the 2045 Build improvements, including constructing one additional managed lane northbound and southbound on I-95 from the Palm Beach/Martin County line to SR 70/Okeechobee Road, and braiding the I-95 northbound ramps between Crosstown Parkway and St. Lucie West Boulevard.

The 2030 Build recommended improvements do not address all of the 2045 I-95 freeway deficiencies; therefore, additional improvements were identified, including additional ramp acceleration and deceleration lane lengthening, ramp widening, and major interchange modifications. The additional necessary improvements for 2045 were identified. Ramp improvements are needed along the mainline at:

1. Bridge Road
2. SR 76/Kanner Highway
3. Gatlin Boulevard
4. Braid the southbound on-ramp from St. Lucie West Boulevard and the Crosstown Parkway southbound off-ramp. The southbound on-ramp from St. Lucie West Boulevard will be widened to two lanes and the southbound Crosstown Parkway off-ramp will be widened to two lanes.
5. Midway Road
6. SR 70/Okeechobee Road
7. SR 68/Orange Avenue
8. SR 614/Indrio Road
9. SR 60

The 2045 Build analysis results for the I-95 freeway and ramps show that with the recommended Build improvements in place, all I-95 freeway segments and ramps - except for one segment - will operate at an acceptable LOS D or better during both peak hours. The southbound segment of I-95 between Midway Road and St. Lucie West Boulevard is expected to just exceed the LOS D threshold during the 2045 PM peak hour. Since the LOS marginally exceeds the target LOS in only one segment and only during one peak hour, additional mainline capacity is not recommended for year 2045, but operations should be monitored.

Major interchange modifications are needed by 2045 at three interchanges to accommodate heavy future left turn volumes as well as heavy east-west through traffic. The following three interchanges are proposed to be reconstructed with a Diverging Diamond Interchange (DDI) configuration:

1. SR 76/Kanner Highway
2. Gatlin Boulevard
3. SR 70/Okeechobee Road

2045 Build Intersection Analysis Results

The 2045 No Build intersection analysis indicates that 34 of the 63 study intersections will operate below the LOS D target during either the AM or PM peak hours. Although recommended interchange and intersection improvements in 2030 are assumed with the 2045 Build analysis, there are capacity deficiencies that still need to be addressed by 2045. Additional intersection signal improvements, lane reconfigurations, and turn lanes were identified to address the remaining deficiencies. Improvements at intersections along the following cross streets are recommended to improve the operations by 2045:

1. Bridge Road
2. SR 76/Kanner Highway
3. High Meadow Avenue
4. SR 714/Martin Highway
5. Becker Road
6. Gatlin Boulevard
7. Crosstown Parkway
8. St. Lucie West Boulevard
9. Midway Road
10. SR 70/Okeechobee Road
11. SR 68/Orange Avenue

12. SR 60

13. CR 512/Fellsmere Road

The 2045 Build intersection operational results indicate that almost all study intersections will operate at LOS D or better in 2045. The only exceptions are the Gatlin Boulevard at Village Parkway Drive intersection in both AM and PM peak hours, the SR 70/Okeechobee Road at Kings Highway intersection in the AM peak hour, and CR 512/Fellsmere Road at 90th Avenue in the PM peak hour.

APPENDICES

- Appendix A I-95 Multimodal Master Plan Traffic Analysis Methodology, and Traffic Forecasting Methodology Amendment
- Appendix B Traffic Forecast Report
- Appendix C Signal Timing Plans
- Appendix D Crash Data
- Appendix E Existing Conditions HCS Freeway Analysis
- Appendix F Existing Conditions Intersection Analysis
- Appendix G Future 2030 No Build HCS Freeway Analysis
- Appendix H Future 2030 No Build Intersection Analysis
- Appendix I Future 2045 No Build HCS Freeway Analysis
- Appendix J Future 2045 No Build Intersection Analysis
- Appendix K Future 2030 Build HCS Freeway Analysis
- Appendix L Future 2030 Build Intersection Analysis
- Appendix M Future 2045 Build HCS Freeway Analysis
- Appendix N Future 2045 Build Intersection Analysis



Appendix A

I-95 Multimodal Master Plan Traffic Analysis Methodology, and Traffic Forecasting Methodology Amendment



Appendix B

Traffic Forecast Report



Appendix C

Signal Timing Plans



Appendix D

Crash Data



Appendix E

Existing Conditions HCS Freeway Analysis



Appendix F

Existing Conditions Intersection Analysis



Appendix G

Future 2030 No Build HCS Freeway Analysis



Appendix H

Future 2030 No Build Intersection Analysis



Appendix I

Future 2045 No Build HCS Freeway Analysis



Appendix J

Future 2045 No Build Intersection Analysis



Appendix K

Future 2030 Build HCS Freeway Analysis



Appendix L

Future 2030 Build Intersection Analysis



Appendix M

Future 2045 Build HCS Freeway Analysis



Appendix N

Future 2045 Build Intersection Analysis